Great Salt Lake Lithium Project Operations Application

Prepared for:

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Acronyms and Abbreviations

#	number
°C	degrees Celsius
°F	degrees Fahrenheit
%	percent
σ	standard deviation (statistical term)
AC	alternating current
AF	acre-foot
AST	above-ground storage tank
BG	battery-grade
BOD	biochemical oxygen demand
cfs	cubic feet per second
CHK	check
CIP	clean-in-place
COA	certificate of analysis
COD	chemical oxygen demand
CSTR	continuous stirred tank reactor
DAQ	Department of Air Quality
d	day
DB	depleted brine
dBA	decibels A-weighted
DC	direct current
DE	diatomaceous earth (Filter aid)
DI	de-ionized
DLE	direct lithium extraction
DOGM	State of Utah, Department of Natural Resources, Division of Oil, Gas and Mining
DTB	draft tube baffle
DWQ	State of Utah, Department of Environmental Quality, Division of Water Quality
DWRi	Utah Division of Water Rights
EPA	Environmental Protection Agency
FEL	front-end loading
FFE	falling film evaporator
FFSL	State of Utah, Department of Natural Resources, Division of Forestry, Fire and State Lands
FLP	filter press

FOAK	first-of-a-kind
FRP	fibre-reinforced polymer
ft	feet
ft^3	cubic feet
g	gram
gal	gallon
Gen	generation
gph	gallons per hour
gpm	gallons per minute
GIS	Geographic Information System
GSL	Great Salt Lake
HDPE	high density polyethylene
hr	hour
HVAC	heating, ventilation, and air conditioning
IBC	intermediate bulk container
ICP	inductively coupled plasma
Intake / Influent	Brine inlet to the facility from Great Salt Lake (terms used interchangeably throughout this document)
IX	ion exchange
IXM	ion exchange media
k	thousand
kg	kilogram
kV	kilovolt
kW	kilowatt
L	liter
lb	pound
LCE	lithium carbonate equivalent
LC	lithium carbonate
Lilac	Lilac Solutions, Incorporated
LMH	liter per square meter per hour
LMO	large mining operation
LPG	liquified propane gas
m	meter
m^2	square meter
mg	milligrams

min	minute
µm	micron (1X10^{-6} of a meter)
mm	millimeters
mt	metric tonne
Mt	million tonnes
mTPA	metric tonne per annum
mon	month
M&A	Montgomery & Associates
MCC	motor control center
ML	mother liquor
MMF	multimedia filtration
MVR	mechanical vapor recompression
MW	megawatt
N/A	not applicable
NFPA	National Fire Protection Association
NOI	notice of intent
OES	optical emission spectroscopy
opex	operating expenditure
ORP	oxidation reduction potential
OSHA	Occupation Safety and Health Administration
Outfall / Discharge	Treated water or brine returned to Great Salt Lake (terms used interchangeably throughout this document)
QA	quality assurance
QC	quality control
QP	qualified person
PLC	programmable logic controller
psi	pounds per square inch
RO	reverse osmosis
SPC	statistical process control
SPCC	spill prevention, control, and countermeasure
st	short ton
sTPA	short ton per annum
SU	standard units (pH)
T&IG	technical and industrial grade
TCLP	toxicity characterization leaching procedure

TDS	total dissolved solids
TSDF	treatment, storage, and disposal facility
TSS	total suspended solids
TSP	total suspended particulate
UAC	Utah Administrative Code
UDEQ	Utah Department of Environmental Quality
UF	ultrafiltration
UPDES	Utah Pollutant Discharge Elimination System
UPS	uninterruptable power supply
US	United States
USACE	US Army Corps of Engineers
USD	United States Dollar
w	weight
Waterleaf	Waterleaf Phase 1 LLC, a Delaware Limited Liability Company
wppm	weight parts per million
yr	year
ZLD	zero liquid discharge

Executive Summary

Project Overview

Waterleaf Phase 1 LLC (together with its affiliates Waterleaf P1 HoldCo, LLC and Waterleaf Resources, LLC, "Waterleaf"), the local Utah subsidiary of Lilac Solutions, Inc. ("Lilac") respectfully submits this Operations Application to the Utah Division of Forestry, Fire and State Lands ("FFSL") for a commercial-scale direct lithium extraction ("DLE") facility on the eastern shore of the North Arm of the Great Salt Lake. The Phase 1 Project (the "Project") targets annual production of 5,000 metric tonnes of battery-grade lithium carbonate (Li_2CO_3). All future phases will require separate permitting.

The Project builds on Waterleaf's Feasibility Assessment, authorized by FFSL in December 2024 and completed in August 2025. This assessment included seven months of continuous Pilot operations processing North Arm brine at the Project site. During the operating period, monitoring results confirmed that Lilac's DLE technology is non-consumptive, with no net loss of water detected. The pilot operations (the "Pilot") achieved 87% DLE recovery, >99.5% lithium purity in final product, and maintained all discharge parameters within DWQ permit thresholds throughout the operating period. These results directly informed the commercial facility design basis and operational parameters presented throughout this application.

Economic & Community Benefits

The Project represents the first commercial lithium production facility in Utah, contributing to domestic critical mineral supply and generating direct economic benefit to Box Elder County and the State. Key project parameters are summarized below.

Table 1: Key Project metrics

Description	Estimate
Cost to Build	~$265 million USD
Annual Operating Cost	~$7,518 per metric tonne Li_2CO_3
Annual Production Capacity	5,000 metric tonnes battery-grade Li_2CO_3
Project Life	20+ years operation + 2 years construction
Construction Employment	~150 peak
Permanent Operations Employment	65 direct
Annual Royalty Revenue to Utah [1]	$1–5 million USD

[1] Based on current FFSL royalty rate schedule and assumed lithium carbonate market price range of $8,000–$20,000/tonne.

Technology

The Project uses Lilac's proprietary non-evaporative ion exchange DLE technology, which selectively extracts lithium from Great Salt Lake brine and returns depleted brine to the lake, operating as a non-consumptive mineral extraction process. The closed-loop system eliminates the need for evaporation ponds, minimizes land disturbance to less than 30 acres, and enables mineral resource development without net water loss – supporting both responsible resource management and lake conservation objectives.

The lithium-rich eluate produced by the DLE process is further purified and converted into battery-grade lithium carbonate through evaporation, crystallization, and refining systems supplied by [redacted] a tier-1 lithium processing technology company with more than 50 years' experience in battery minerals production.

Commercial Viability

The Project satisfies all seven commercial viability criteria defined under Rule R652-21-200(8). Key demonstrations include:

- **Technical Feasibility:** Seven months of pilot operations and feasibility-level engineering confirm the efficacy of Lilac's DLE process for GSL brine, with commercial design incorporating conservative scale-up margins.
- **Resource Adequacy:** The 1.42 million tonnes LCE Measured resource is 14 times larger than the Project's 20-year production requirement. Hydrodynamic modeling demonstrates total lithium inventory increases over the Project life, confirming dynamic replenishment rather than resource depletion.
- **Economic Viability:** Capital and operating costs supported by feasibility assessment, firm equipment quotations, and commercial partnership with performance guarantees. Waterleaf has executed a binding 10-year offtake agreement with Traxys North America that secures 100% of Phase 1 production, providing revenue certainty.
- **Market Readiness:** Battery-grade lithium carbonate has been produced from GSL brine with independent verification of product specifications meeting industry standards.
- **Water Rights, Permits, and Approvals:** Water rights application pending State Engineer approval; approval contingent on filing executed Operations Royalty Agreement; required federal, state, and local permits identified with pathways secured; FFSL reclamation plan approved.
- **Financial Security:** Bonding requirements for FFSL and DOGM have been evaluated; proof of sufficient bonding will be provided prior to Royalty Agreement execution.

Detailed demonstration is provided in Section 8.2.

Environmental & Regulatory Compliance

The Project has been designed around the principle of non-consumptive, environmentally sustainable mineral extraction. Comprehensive environmental assessment – including 10-year mass balance modeling, hydrodynamic dispersion analysis, biological field surveys, and waste stream characterization – confirms no negative impact to the chemistry or biota of Great Salt Lake.

Table 2: Summary of key environmental findings

Requirement	Project Response	Reference
No Negative Impact – Chemistry	<±1.3% change attributable to the Project in North Arm concentrations for non-target constituents across all scenarios over 10-years	Section 5.2; Appendix E.4
No Negative Impact – Biota & Habitat	Professional surveys confirm no disruption; mitigation measures incorporated	Section 5.2.7; Appendix F.1-F.2; Appendix F.4-F.6
Non-Consumptive Operation	No net loss of lake water during pilot operations; commercial water balance confirms non-consumptive operation at scale	Sections 3.7; Section 4.1.5; Appendix B.1
Resource Sustainability	14:1 resource-to-production ratio over Life of Mine; lithium inventory increases despite extraction	Section 5.1; Appendix E.1; Appendix E.3
Waste Management	All waste streams characterized with compliant disposal plans	Section 5.3; Appendix D.9
Discharge Compliance	UPDES permit application submitted; commercial discharge quality meets compliance data	Sections 3.7; Section 0; Section 12;

Additional environmental safeguards include closed containment systems, double-lined ponds with leak detection, secondary spill basins, and automated pH, flow, and water quality monitoring. A comprehensive Reclamation Plan (Section 10) provides for post-closure restoration of all disturbed areas.

Commitment

Waterleaf reaffirms its commitment to developing Utah's first environmentally sustainable lithium project, establishing the Great Salt Lake as a model for responsible, non-consumptive mineral resource development. Waterleaf looks forward to continued collaboration with FFSL and all reviewing agencies throughout the permitting process.

1 Introduction

1.1 Applicant Information

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1.2 Purpose and Need

This document constitutes the application of Waterleaf Phase 1 LLC ("Waterleaf") for an Operations Royalty Agreement[2] for a proposed commercial lithium extraction facility (the "Project"), located in Box Elder County, Utah, on the eastern shore of the North Arm of the Great Salt Lake ("GSL"). Waterleaf proposes to enter into an Operations Royalty Agreement with the State of Utah's Department of Natural Resources, Division of Forestry, Fire and State Lands ("FFSL" or the "Division"), in order to operate a commercial production facility that utilizes a proprietary non-evaporative ion exchange ("IX") direct lithium extraction ("DLE") process developed by Waterleaf's parent company Lilac Solutions, Inc. ("Lilac") to extract lithium from North Arm brine. The Project will meet all regulatory standards and will apply state-of-the-art technologies for non-evaporative production of lithium from the Great Salt Lake.

1.3 Required Showings

Pursuant to Utah Administrative Code R652-21-700 and R652-21-704, **Table 3** is provided as a navigational aid to help reviewers locate key information within this application. It summarizes the required showings for an Operations Royalty Agreement alongside their corresponding application locations. The completed Operations Application Form, submitted concurrently with this application, constitutes the primary source of record for required showings and should be referenced accordingly where any differences in structure or language exist between the Form and **Table 3**.

[2] As used in Utah Administrative Code R652-21, including Sections 200 and 700.

Table 3: Required showings for operations royalty agreement

Required Showing	Regulatory Citation	Application Location
Applicant Information		
Operator's experience and knowledge	R652-21-704(1)	Section 1.4
Existing contractual disputes or noncompliance	R652-21-704(1)	Section 1.5
Proof of Sampling Royalty Agreement		
Reconciliation of Feasibility Assessment payments	R652-21-704(2)	Section 1.6; Appendix A.9
Operator Certification of No Negative Impacts		
Self-certification (no negative impact to Biota or Chemistry)	R652-21-705(1)	Section 2; Appendix A.6
Commercial-scale operations design	R652-21-705(2)	Section 3; Section 4; Section 5; Appendix D.2; Appendix D.4; Appendix D.6
Data and analysis - Biota	R652-21-705(3)	Section 5.2.7; Appendix F.1; Appendix F.2; Appendix F.4; Appendix F.5; Appendix F.6; Appendix F.7 (habitat)
Data and analysis - Chemistry	R652-21-705(3)	Section4.1; Section 5.2; Appendix E.1; Appendix E.3; Appendix E.4; Appendix F.6
Returned Water and Mitigation Water volumes	R652-21-705(4)	Section 3.7; Section 4.1.4; Section 4.1.5; Section 0; Appendix D.4
Discharge/delivery location coordinates (lat/long)	R652-21-705(4)(a)	Section 3.3.1; Section 3.7.2; Section 6
Sources, volumes, and timing of discharges	R652-21-705(4)(b)	Section 3.3.1; Section 3.8.1; Section 4.1.5; Section 11
Memorandum jointly approved by FFSL and the Utah DEQ	R652-21-708	Data and analysis provided in Sections noted above and supporting appendices for FFSL/DEQ review and determination per R652-21-708(3)
Project Information		
Type of GSL Element/Mineral and first marketable product	R652-21-704(4)(a)	Section 3.1; Section 8.2.7
Type of operations and technology description	R652-21-704(4)(b)	Section 3.2-3.8

Required Showing	Regulatory Citation	Application Location
Detailed operations plan (dates, withdrawals, discharges)	R652-21-704(4)(c)	Section 11; Section 3.7.3
Comprehensive chemical inventory	R652-21-704(4)	Section 3.8.2; Appendix D.5
Plan for compliance with Utah Code § 73-33-203	§ 73-33-203	Section 3.7.3
Royalty Rate Deduction request	R652-21-704(4)(d)	Section 8.1
Surface Use and Occupancy		
Commercial Plant coordinates (lat/long)	R652-21-704(4)(e)	Section 3.1; Section 6; Appendix B.4
Commercial Plant areal extent (figure and GIS)	R652-21-704(4)(e)	Section 3.1 (Figure 1); Appendix B.4; Appendix B.5
Intake/outfall coordinates (lat/long)	R652-21-704(4)(e)	Section 3.3.1; Section 3.7.2; Section 6
Intake/outfall design and operation	R652-21-704(4)(e)	Section 3.3.1; Section 3.7.2
Land ownership documentation	R652-21-704(4)(e)	Section 6; Appendix A.3
Reclamation and Bonding		
Proof that Bonding is in place	R652-21-704(4)(f)	Section 8.2.6; Section 12.3
Reclamation plan (negotiated with FFSL)	R652-21-704(4)(g)	Section 10
Facility Descriptions		
Element/Mineral deposit location	R652-21-704(4)(h)	Section 5.1; Appendix E.1
Processing and storage facility locations	R652-21-704(4)(h)	Section 3.1 (Figure 1); Section 6; Appendix B.4
Production Estimates		
Estimated production amounts (GSL Element/Mineral)	R652-21-704(4)(i)	Section 3.1; Section 4.1.4; Section 8.2.3
Recovery rate	R652-21-704(4)(j)	Section 4.1.3; Section 4.1.4 (Figure 22)
Estimated waste amounts	R652-21-704(4)(k)	Section 5.3.2 (Tables 21–22); Section 5.3.3
Permits and Agreements		
Copies of easements, permits, approvals, agreements	R652-21-704(4)(l)	Section 12 (Table 41); Appendix A
Water Rights		
Proof of pending water rights or acquisition plan	R652-21-704(4)(m)	Section 7; Appendix A.4
Financial Arrangements		
Agreements, contracts, options, financial arrangements	R652-21-704(4)(n)	Section 8.2.4; Appendix C.2; Appendix C.9; Appendix C.10

Required Showing	Regulatory Citation	Application Location
Commercial Viability		
Evidence establishing commercial viability	R652-21-704(4)(o)	Section 8.2 (subsections 8.2.1–8.2.7) Appendix C.1; Appendix C.8;
Other Agreements and Certifications		
Executed Cooperative Agreement(s)	R652-21-704(5)	Section 9; Appendix A.5
Self-Certification (operations comply with § 65A-6-1(3))	R652-21-704(6)	Section 2; Appendix A.6

1.4 Operator's Experience and Knowledge

Utah Code § 73-33-203 requires demonstration of the *"Operator's experience and knowledge predicating the Operator's ability to commercially produce elements or minerals from the brines of Great Salt Lake."* Waterleaf possesses the requisite experience and knowledge to achieve commercial-scale lithium carbonate production through an integrated two-stage process:

- **Stage 1: Direct Lithium Extraction** – Waterleaf, as a wholly owned subsidiary of Lilac Solutions, Inc., has extensive experience with, and knowledge of, Lilac's proprietary ion exchange technology to extract and concentrate lithium from Great Salt Lake brine, producing a purified lithium-rich eluate. This expertise has been validated through Waterleaf's successful operation of a full-scale pilot facility on the GSL from January 2025 through August 2025, demonstrating stable performance, 86% lithium recovery during a 21-day performance run (May 20 - June 10, 2025), and non-consumptive operations (brine) over 1,000 cumulative hours.
- **Stage 2: Lithium Carbonate Conversion** – The lithium-rich eluate produced using Lilac's technology is then processed through commercial-scale evaporation, crystallization, and refining systems to produce battery-grade lithium carbonate meeting offtake specifications. This downstream processing capability will be provided by an experienced technology partner with over 50 years' experience in battery minerals production and associated equipment performance guarantees.

Waterleaf's experience and knowledge to execute this integrated production pathway is underpinned by five core competencies:

1. **Proven Extraction Technology** – Access to Lilac Solutions' ion exchange DLE technology, developed over nearly a decade across eight pilot projects on four continents, culminating in Waterleaf's successful GSL Pilot field operations (**Section 1.4.1)**
2. **Commercial Processing Partnership** – Partnership with a specialist technology supplier with demonstrated commercial-scale battery minerals production experience and process performance guarantees (**Section 1.4.2**)
3. **Product Quality Assurance** – Validated achievement of battery-grade lithium carbonate specifications through Pilot operations, with comprehensive QA/QC protocols for commercial operations (**Section 1.4.3**)

4. **Commercial Offtake Security** – Binding 10-year take-or-pay offtake agreement with Traxys North America, one of the world's largest lithium traders, securing 100% of Phase 1 production volume and providing revenue certainty across both battery-grade and technical-grade product specifications (**Section 8.2.7** and **Appendix C.2** Lilac-Traxys Announcement – Offtake Agreement)

Below, we provide detailed information regarding Waterleaf's technical expertise, commercial partnerships, and operational experience, demonstrating capability to commercially produce lithium carbonate from Great Salt Lake brine in compliance with all FFSL requirements.

1.4.1 Lilac Solutions Corporate Experience

Waterleaf is a wholly-owned subsidiary of Lilac Solutions, Inc., a company that has been advancing its proprietary non-evaporative IX DLE technology for nearly a decade. Lilac's mission is to transform the lithium supply chain by deploying more efficient and environmentally responsible extraction solutions.

Lilac has successfully completed eight medium to large-scale pilot projects, conducted at different brine source locations across four continents to validate the commercial viability of its IX-DLE process. **Table 4** summarizes these projects, demonstrating progression from initial bench-scale validation to commercial-scale readiness. The GSL pilot project, executed by Lilac's local subsidiary Waterleaf, represents the culmination of this technology development pathway and provides direct operational experience managing GSL-specific brine chemistry, seasonal variability, and regulatory requirements.

Table 4: Lilac IX Pilot Project Experience[3]

Location	Operator	Brine Type	Year
Utah, USA	Lilac Solutions	Aquifer brine (~120 mg/L Li)	2019
Utah, USA	Lilac Solutions	Pre-concentrated surface lake brine (~200-800 mg/L Li)	2021
Catamarca, Argentina	Lilac Solutions	Salar brine (~250 mg/L Li)	2023
Atacama, Chile	Lilac Solutions	High-grade salar (>2,000 mg/L Li)	2024
Jujuy, Argentina	Lilac Solutions	Salar brine (~300 mg/L Li)	2025
GSL, Utah, USA	Waterleaf	Ultra-low grade surface lake (~70 mg/L Li); Gen 5	2025
Germany	Lilac Solutions	Aquifer brine (~400 mg/L Li)	2025
Hungary	Lilac Solutions	Aquifer brine (~100 mg/L Li)	2025

Additional technical details regarding Lilac's Gen 5 IX technology, including performance validation, cost competitiveness, and environmental benefits, are provided in the white paper 'High-

[3] Lilac directly operated all pilot projects except GSL. The GSL pilot was operated by Lilac's local subsidiary Waterleaf, using Lilac's Gen 5 IX technology.

Performance, Low-Cost Lithium Extraction with Gen 5 Lilac IX' (Lilac Solutions, Inc., October 2025), included as **Appendix D.7** Gen 5 Lilac IX – Technical White Paper.

This white paper demonstrates that Lilac's Gen 5 ion exchange technology is capable of delivering economically sustainable lithium recovery from low-concentration brines, such as the Great Salt Lake, at a competitive capital and operating cost relative to alternative extraction methods. Importantly, this technology also offers favorable environmental performance, supporting sustainable resource development while minimizing ecological impact.

Waterleaf successfully completed a full-scale Feasibility Pilot Project (the "Pilot Plant") on the North Arm of the Great Salt Lake (GSL) in 2025 under an FFSL-issued Feasibility Authorization issued in 2024 (see **Appendix A.1** Feasibility Application Approval). The Pilot Plant operated for over 1,000 cumulative hours and completed a 21 day performance operational run using Great Salt Lake brine as feedstock, validating the performance of Lilac Solutions' Ion Exchange (IX) Direct Lithium Extraction (DLE) technology under true field conditions.

The program demonstrated stable operation over an seven-month operations period, achieving >80% lithium recovery, consistent bead cycling performance (>15,000 IX load–elution cycles, and non-consumptive water balance with verified flowmeter calibration showing more water returned to the lake than extracted.

Brine handling, prefiltration, and IX vessel operation were conducted using field-scale infrastructure, including multimedia filtration, IX vessels, and eluate neutralization units. Process monitoring verified that operations caused no measurable impact to the biota or chemistry of the GSL. Weekly compliance sampling confirmed all discharge parameters remained within UPDES permit thresholds throughout the Pilot operations, with no exceedances recorded across any monitored constituent (**Appendix B.1** Final Monitoring Report, Section 6.1). These results were independently verified through third-party laboratory analysis by Chemtech Ford.

The Pilot Plant's successful completion established Waterleaf's operator-specific experience in managing GSL brine variability, scaling control, media maintenance, and non-consumptive return flows – key competencies directly applicable to the proposed commercial project. This experience, combined with Lilac's broader portfolio of pilot projects across diverse brine chemistries, provides empirical evidence that Waterleaf has both the technical expertise and operational discipline to manage large-scale brine extraction in compliance with FFSL and DWQ requirements.

The subsequent subsections describe Waterleaf's commercial processing partnership for downstream lithium carbonate production (**Section 1.4.2**) and product quality assurance protocols (**Section 1.4.3**), further demonstrating the operator's comprehensive capability to produce battery-grade lithium carbonate from Great Salt Lake brine.

1.4.2 Commercial Processing Partnership

Waterleaf has engaged leading technology suppliers with extensive experience in the design, supply, commissioning, and optimization of evaporation, crystallization, and refinery systems for battery minerals and other high-purity chemical products. During the testing and engineering phases of this project, two potential suppliers were evaluated through parallel technical workstreams involving bench-scale process simulation, conceptual design development, and commercial terms negotiation. Based on technical performance, operability assessments, and commercial

considerations, one supplier has been identified as the preferred provider for the downstream lithium carbonate conversion facilities.

The preferred technology supplier has provided preliminary engineering support, process testwork, and flowsheet development for conversion of lithium-bearing eluate derived from GSL brine into battery-grade lithium carbonate meeting industry specifications. This collaboration informed the proposed process configuration for the Project and helped to refine capital cost, operating cost, and environmental performance assumptions used in the Project economics. Design confirmation letter, testwork results, and commercial reference materials developed during this phase are provided in **Appendix C.4** [redacted], **C.6** [redacted], **and C.7** [redacted].

1.4.2.1 Downstream Processing Technology Scope

The technology supplier's scope encompasses the complete downstream processing train required to convert dilute lithium sulfate eluate (produced by Lilac's IX system) into battery-grade lithium carbonate product. Key process steps include:

- **Eluate concentration** via Mechanical Vapor Recompression ("MVR") evaporation to increase lithium concentration and reduce subsequent processing volumes
- **Impurity removal** through selective precipitation and filtration to meet stringent battery-grade specifications
- **Lithium carbonate precipitation** using sodium carbonate reagent in controlled reaction vessels to convert dissolved lithium into solid carbonate product
- **Product crystallization, dewatering, and drying** to achieve target particle size distribution and moisture content specifications
- **Quality control sampling and testing** to verify conformance with battery-grade specifications prior to product packaging and shipment

The proposed technology is based on commercially proven evaporation and crystallization systems that have been successfully deployed at commercial scale in lithium carbonate and lithium hydroxide production facilities worldwide. The technology supplier's experience base includes delivery of similar systems for both brine-based and hard rock-derived lithium projects, providing confidence in the technical maturity and reliability of the proposed approach.

1.4.2.2 Technology Supplier Knowledge & Experience

The preferred technology supplier [redacted] is a specialist engineering and technology supply company with over 50 years of experience designing, manufacturing, commissioning, and supporting evaporation and crystallization systems for mining and minerals processing applications. The supplier has delivered numerous turnkey process plants globally, with particular expertise in high-purity chemical production, effluent treatment, and salt recovery operations.

Table 5 presents representative reference projects demonstrating the supplier's commercial-scale experience with battery minerals, high-purity crystallization, and evaporation systems.

Table 5: Preferred technology supplier reference projects [4]



1.4.2.3 Process Performance Guarantees

The technology supplier will provide industry-standard process performance guarantees covering key process parameters critical to project economics and regulatory compliance, including:

- Evaporator throughput rates (m^3/h of eluate feed) and evaporation rate
- Production capacity (kg/h of lithium carbonate product)
- Lithium carbonate purity specifications, and moisture
- Absorbed power
- Steam consumption

These performance guarantees will be contractually binding and will include defined acceptance testing protocols, performance remedies, and liquidated damages provisions for failure to meet guaranteed parameters. The guarantees will be conditioned on Waterleaf providing eluate feedstock meeting agreed compositional specifications, as validated through the GSL Pilot program (see **Appendix C.5** Lilac Product Test Report).

The technology supplier has provided formal written confirmation (January 16, 2026, included as **Appendix C.7**) of their technical capability to meet battery-grade lithium carbonate specifications using eluate feedstock from the GSL Pilot program. This confirmation establishes the technical foundation for the binding performance guarantees that will be incorporated into final commercial

[4] Projects selected demonstrate supplier experience with: (1) battery-relevant materials (nickel sulfate, ammonium sulfate); (2) high-purity crystallization; (3) MVR evaporation at commercial scale; (4) Zero Liquid Discharge ("ZLD") systems; and (5) long-term operational reliability (20+ years operating history). Complete reference project portfolio provided in Appendix C.6.

agreements, providing Waterleaf and regulatory agencies with assurance that the proposed commercial facilities are technically capable of producing battery-grade lithium carbonate from GSL brine.

1.4.3 Product Quality Assurance

The proposed commercial facility is designed to produce battery-grade lithium carbonate conforming to industry quality standards. Product quality assurance is achieved through a combination of process control strategies, analytical testing protocols, and supplier-guaranteed equipment performance.

1.4.3.1 Battery-Grade Lithium Carbonate Specifications

Battery-grade lithium carbonate must meet stringent purity and physical property requirements, as stipulated by the Project offtake agreement with Traxys (discussed in more detail in **Section 8.2.7** and **Appendix C.2**).

Table 6 presents battery-grade product specifications and pilot-scale test results demonstrating that lithium carbonate derived from GSL eluate meets or exceeds industry standards.

Table 6: Battery-grade typical product specifications and pilot test results

Parameter	Unit	Specification	Pilot Results	Test Date
Li_2CO_3 Purity	%	≥99.5	99.65 [5]	N/A
Sodium (Na)	wppm	≤300	20	Aug 2025
Potassium (K)	wppm	≤10	9	Aug 2025
Magnesium (Mg)	wppm	≤50	5.19	Aug 2025
Calcium (Ca)	wppm	≤100	60	Aug 2025
Aluminum (Al)	wppm	≤5	<0.7	Aug 2025
Nickel (Ni)	wppm	≤500	0.31	Aug 2025
Zinc (Zn)	wppm	≤5	1.19	Aug 2025
Copper (Cu)	wppm	≤5	0.22	Aug 2025
Iron (Fe)	wppm	≤5	0.78	Aug 2025
Chlorine (Cl)	wppm	≤100	1.9	Aug 2025
Sulfate (SO_4)	wppm	≤500	428	Aug 2025
Boron (B)	wppm	≤10	<0.7	Aug 2025

[5] Product purity was calculated by subtracting impurities on a total basis, where there is a moisture content of 0.25% as per the specification. Complete analytical test reports are provided in Appendix C.4, Table 8), with test results for battery-grade lithium carbonate produced in parallel by Lilac provided in Appendix C.5.

1.4.3.2 Quality Control and Assurance Protocols

The commercial facility will implement comprehensive Quality Control ("QC") and Quality Assurance ("QA") protocols to ensure consistent product quality and regulatory compliance throughout operations. These protocols include:

Eluate Quality Monitoring

- Monitoring of eluate composition using instrumentation and periodic sampling and laboratory verification
- Statistical Process Control ("SPC") charts to detect composition trends and trigger corrective actions

In-Process Quality Control

- Regular sampling and testing of intermediate process streams
- Process parameter monitoring with automated control systems and real-time adjustments

Final Product Testing and Certification

- Comprehensive analytical testing of every production lot for all specification parameters
- Third-party laboratory verification of QC test results on scheduled frequency
- Certificate of Analysis ("CoA") issued for each product lot prior to shipment

The technology supplier has confirmed their capability to support QC/QA program development based on extensive experience with similar battery minerals facilities.

Technical documentation supporting product quality assurance is provided in the following appendices:

- **Appendix C.3:** Product Specifications
- **Appendix C.4:** [redacted]
- **Appendix C.5:** Lilac Product Test Report
- **Appendix C.6:** [redacted]
- **Appendix C.7:** [redacted]

1.4.3.3 Direct Operator Experience in Lithium Carbonate Production

Beyond the commercial processing partnership described in **Section 1.4.2**, Waterleaf has developed direct operational experience in battery-grade lithium carbonate production through pilot-scale downstream processing conducted at Lilac Solutions' Oakland, California facility. This hands-on experience demonstrates the operator's technical capability to manage the complete lithium extraction and conversion pathway from GSL brine to final battery-grade product.

Pilot-Scale Lithium Carbonate Production from GSL Eluate

Between August 2025 and January 2026, Lilac's process engineering team converted approximately 2,700 liters of lithium-rich eluate (produced from the GSL Pilot operations described in **Section 1.4.1**) into battery-grade lithium carbonate through a multi-stage pilot-scale processing campaign. This work, documented in the report Battery Grade Lithium Carbonate Crystallization from GSL Pilot, included in **Appendix C.5,** validated the complete downstream processing pathway using actual GSL feedstock.

This lithium carbonate pilot campaign encompassed all major unit operations required for commercial-scale production:

- **Divalent Ion Exchange Polishing** – Removal of residual calcium, magnesium, and strontium impurities from RO-concentrated eluate to <1 mg/L levels using Lewatit MonoPlus TP 208 resin
- **Evaporative Concentration** – Concentration of lithium content from ~10 g/L to 28-32 g/L using glass kettle evaporators to reduce downstream processing volumes
- **Crude Lithium Carbonate Crystallization** – Precipitation and crystallization using both continuous stirred tank reactor (CSTR) and draft tube baffle (DTB) crystallizer configurations with sodium carbonate reagent
- **Bicarbonation and Recrystallization** – Purification through CO_2 sparging to dissolve crude carbonate, followed by thermal recrystallization to reject aqueous impurities and achieve battery-grade specifications

The pilot campaign produced 30 kg of purified lithium carbonate meeting full battery-grade specifications for all tested parameters. The average impurity profile across all batches met or exceeded industry standards (GB/T 11075), with median values demonstrating consistent product quality:

- Sodium: <34 mg/kg (specification: ≤300 mg/kg)
- Magnesium: <1 mg/kg (specification: ≤50 mg/kg)
- Calcium: <3.4 mg/kg (specification: ≤100 mg/kg)
- Potassium: <0.8 mg/kg (specification: ≤10 mg/kg)
- Sulfate: 273 mg/kg median (specification: ≤500 mg/kg)

This pilot-scale work provided Waterleaf with direct operational knowledge of:

1. Process control parameters for each unit operation using GSL-derived feedstock
2. Impurity behavior and rejection mechanisms specific to GSL brine chemistry
3. Equipment performance characteristics and operational constraints
4. Quality control sampling protocols and analytical verification procedures

Knowledge Transfer and Commercial Readiness

The transition from pilot-scale to commercial-scale operations will be supported by formal knowledge transfer protocols between Waterleaf and [redacted] during facility commissioning. These protocols will ensure that operational insights gained from Lilac's Oakland pilot work – including process control strategies, troubleshooting procedures, and quality assurance protocols – are systematically integrated into commercial operating procedures.

JordProxa's commissioning team will work directly with Waterleaf operators to:

- Transfer equipment operating procedures and process control parameters
- Establish quality control sampling frequencies and test methods
- Implement Statistical Process Control (SPC) systems for real-time process monitoring
- Train operational staff on equipment operation, maintenance, and troubleshooting
- Validate process performance during commissioning and ramp-up phases

This combination of Waterleaf's direct pilot-scale production experience and JordProxa's commercial-scale commissioning support ensures the operator possesses both the foundational technical knowledge and the practical operational experience required for successful commercial-scale battery-grade lithium carbonate production from Great Salt Lake brine.

1.5 Existing Contractual and Regulatory Disputes

Waterleaf hereby affirms that, as of the date of this application:

- **No contractual disputes** exist with any public agency, private landholder, contractor, or supplier related to Waterleaf's GSL activities.
- **No enforcement actions, notices of violation, consent decrees, or unresolved compliance orders** have been issued by the Utah Division of FFSL, DWQ, Division of Oil, Gas and Mining ("DOGM"), Division of Air Quality ("DAQ"), U.S. Army Corps of Engineers, or Box Elder County. DWQ issued a warning letter (DWQ-2025-010001, dated December 24, 2025) regarding effluent limit exceedances during feasibility pilot operations (February–August 2025). These exceedances were promptly addressed and resolved with DWQ, with no formal enforcement action taken.
- **No litigation, arbitration, or formal administrative proceedings** are pending or threatened against Waterleaf or Lilac arising from activities on the GSL or other Utah mineral extraction projects.
- Waterleaf remains in **good standing with all permitting agencies** and has no outstanding fees, penalties, or permit non-compliance matters.

Accordingly, there are **no existing contractual or regulatory disputes** pertinent to this permit application.

1.6 Proof of a Sampling Royalty Agreement

Waterleaf has paid to FFSL the required Royalty payments listed in **Table 7** in accordance with the Sampling Royalty Agreement (see **Appendix A.9** Sampling Royalty Agreement).

Waterleaf paid the required reimbursement fee associated with the Pilot report reviews and the commercial applications.

Waterleaf paid the Permit Application review fee deposit to DWQ for review of the Operator's Certification Application.

Table 7: Summary of payments made by Waterleaf to the state in relation to the GSL Project

Date Paid	Payment Reference	Amount Paid	Description	Agency	Variance	Notes
04/01/2025	CHK# 0040	$12,500	Q1 2025 Sampling	FFSL	$0.00	Matches
07/17/2025	CHK# 0041	$15,000	Q2 2025 Sampling	FFSL	$0.00	Matches
10/09/2025	CHK# 0044	$7,500	Q3 2025 Sampling	FFSL	$0.00	Matches
11/05/2025	CHK# 0048	$31,000	Permit Application review	FFSL	$0.00	Matches
11/05/2025	CHK# 0047	$32,296.65	Permit Application review	FFSL	$0.00	Matches
10/27/2025	CC payment	$1,250	Permit Application review	DWQ	$0.00	Matches

2 Self-Certification

Pursuant to UAC R652-21-200 (42) and in compliance with the Unsworn Declaration Act (Section 78B-18a-101), Waterleaf hereby affirms that the information contained within this Operations Application is true, complete, and accurate to the best of its knowledge and belief.

Waterleaf previously self-certified that its Feasibility Assessment Pilot Project would not result in a Negative Impact, as that term is defined in UAC R652-21-200(30), on the biota or chemistry of the GSL. That Pilot Plant project was conducted under a limited-term feasibility permit issued by FFSL to demonstrate the performance of Waterleaf's non-evaporative, closed-loop DLE process. See **Appendix A.1**.

Comprehensive monitoring during and after the Feasibility Assessment demonstrated that:

- No adverse changes were detected in surface or subsurface water chemistry parameters, including salinity, pH, trace metals, or major ion concentrations.
- No measurable disruption occurred to microbial, invertebrate, or avian populations within or adjacent to the Project area.
- All process waters were fully returned to the lake following treatment, maintaining mass balance and preventing consumptive use.
- The Project was conducted with no release of process chemicals or contaminants into the surrounding environment.

These results are fully documented in the Feasibility Assessment Final Monitoring Report, which concludes that the Pilot activities were non-consumptive and environmentally neutral relative to GSL's natural system functions. See **Appendix B.1**, including Table 4 and Table 13; see also **Appendix B.2**, which shows log-based constituent graphs.

Consistent with UAC R652-21-705(1) and based on data obtained from the Pilot project and subsequent engineering analyses, Waterleaf hereby self-certifies that the proposed commercial-scale Project will not negatively impact the biota or chemistry of the GSL. The commercial design incorporates enhanced containment systems, redundant monitoring points, and automated process controls to ensure operational integrity and immediate response to any deviation from expected environmental parameters.

Furthermore, Waterleaf self-certifies that the proposed facility will utilize a non-evaporative IX lithium extraction technology, as described in detail in **Section 3.4**. This process ensures that:

- All raw brine entering the facility is treated and returned to the lake in compliance with FFSL's non-consumptive use requirements
- No evaporation ponds; no net water removal occurs
- Returned brine chemistry is maintained within acceptable thresholds consistent with baseline conditions and the limits established in applicable regulatory standards provided and administered by a discharge permit from the Division of Water Quality.

Through this certification, Waterleaf reaffirms its commitment to (1) the protection of the GSL ecosystem, (2) compliance with all applicable state regulations, and (3) the implementation of best available technology to ensure environmentally responsible lithium production in Utah. Pursuant to UAC R652-21-200(42), "Self-Certification" is defined as "a representation by an Operator

affirmatively stating the contents provided are correct, in compliance with the Unsworn Declaration Act, Section 78B-18a-101."

"I, Nicholas Goldberg, authorized representative of Waterleaf Phase 1 LLC, under penalty of perjury, declare that this certification is true and correct under Utah Code §78B-18a-101."

"Waterleaf acknowledges that all discharge quality limits will be governed by a UPDES Permit issued by DWQ in coordination with FFSL under UAC R317-8."

Signed on 20th day of February, 2026, at Oakland, California.



Nicholas Goldberg

Authorized Person

Waterleaf Phase 1, LLC

3 Project Scope

3.1 Project Overview

The Waterleaf Great Salt Lake Lithium Project ("the Project") is a commercial-scale lithium extraction and processing facility designed for the North Arm of the Great Salt Lake. The Project will process approximately 11,300 gallons per minute (20.2 million cubic meters per year) of raw brine from the North Arm (also referred to as Gunnison Bay) and produce 5,000 metric tonnes per year ("mt/yr") lithium carbonate equivalent ("LCE"). The facility employs Lilac Solutions' proprietary non-evaporative IX DLE process, which selectively extracts lithium ions from raw brine while returning all other components back to the lake in near-identical concentrations.

Extracted Element and First Marketable Product. The Project extracts lithium from GSL brine and converts it to lithium carbonate (Li_2CO_3) as the first marketable product. This lithium carbonate is designed to meet battery-grade specifications (>99.5% purity) suitable for cathode material and battery manufacturing applications, and consistent with those specifications set forth in Waterleaf's binding offtake agreement with Traxys North America. Detailed product quality specifications and verification testing results from Waterleaf's preferred commercial processing partner are provided in **Section 1.4.2** and **Appendix C.3**, **C.4**, and **C.5**.

Technology Description. The Project utilizes non-evaporative DLE technology, which eliminates consumptive water use and does not require evaporation ponds. All raw brine extracted from the lake is processed through the facility and returned to the North Arm following treatment. The returned brine meets water quality requirements established by DWQ and will be discharged in accordance with a permit to be issued by the DWQ under the discharge framework developed pursuant to Utah House Bill 513. The process design recycles and reuses process water, minimizing groundwater consumption and eliminating net water loss from the GSL system.

Site Location and Footprint. The Project occupies approximately 20 acres of private land in Box Elder County, Utah, located approximately 50 miles west of Brigham City. The facility is situated in Section 31, Township 9 North, Range 7 West, Salt Lake Meridian, on the northeastern shore of the GSL in a largely rural and undeveloped area within the Rozel Hills. The facility center point is located at approximately 41°27'42"N latitude, 112°41'35"W longitude. Site access is provided via a 2.5-mile private access road connecting to North Rozel Flats Road. The facility is fully fenced to prevent unauthorized access and includes on-site power generation. A detailed site layout showing the facility's areal extent is provided in **Figure 1**, with corresponding GIS data included in **Appendix B.4** (Commercial Plant Area) and **Appendix B.5** (GIS Files – Roads and Other Improvements). Additional site characterization and environmental setting information is provided in **Appendix F.3** (Environmental Site Assessment).

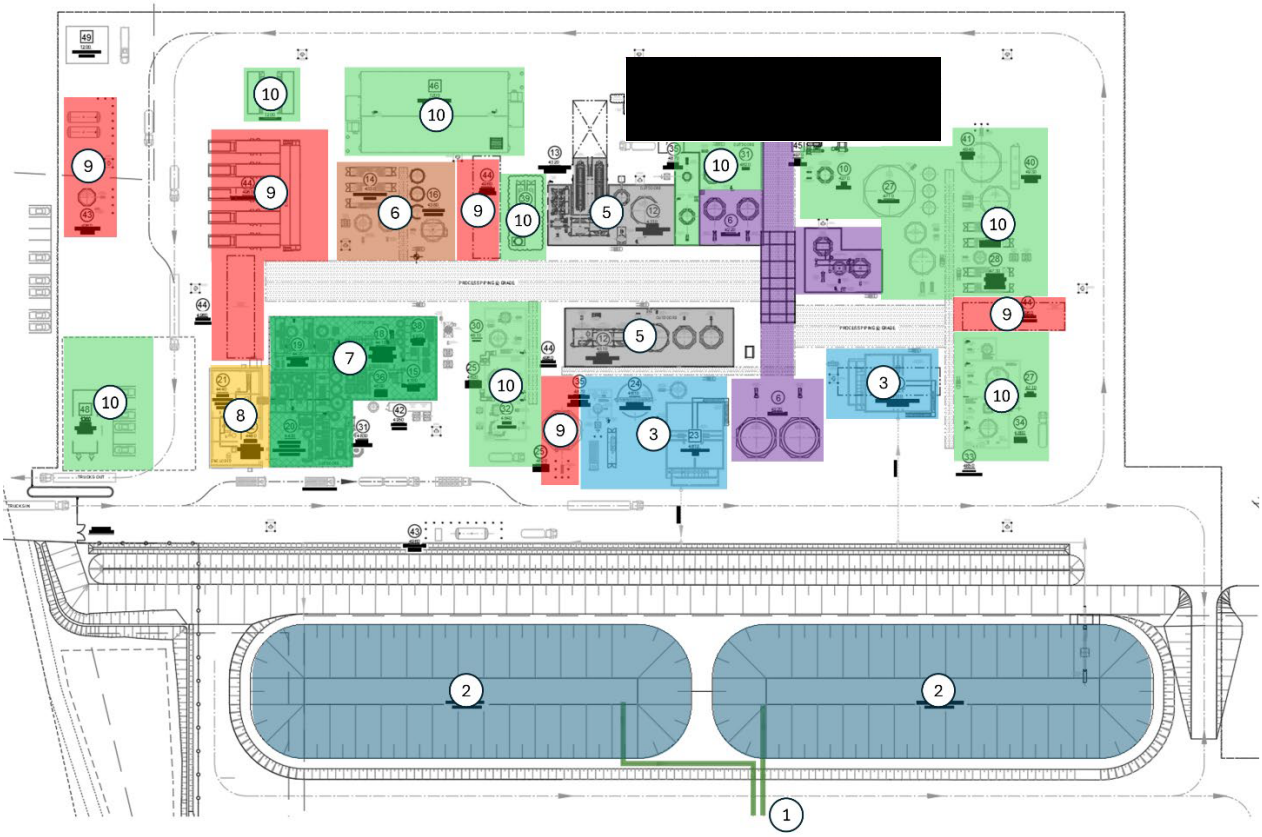


Figure 1: Commercial Project site layout (currently ~20 acres)

Major Infrastructure Components. The facility comprises several functional areas distributed across the 20-acre site:

- **Intake and Outfall System [1]:** Offshore intake and outfall system in the North Arm, with intake and discharge points separated to promote mixing and dispersion.
- **Raw and Depleted Brine Surge [2]:** Two lined surge ponds providing buffer capacity for raw brine from the intake system and depleted brine prior to discharge, allowing operational flexibility and continuous process operation.
- **Brine and Depleted Brine Area [3]:** A raw brine multimedia filtration ("MMF") system ("Raw Brine MMF") for removal of suspended solids from raw brine before entering the DLE circuit. A similar MMF system coupled with a clarifier and filter press ("Depleted Brine MMF") for the removal of any impurities introduced before discharging lithium-depleted brine back to the lake.
- **DLE Area [4]:** Ion-exchange vessels containing lithium-selective media, along with associated pumping, instrumentation, and control systems for the cyclic DLE process.
- **Eluate Neutralization and Filtration Area [5]:** Contains neutralization tanks, filter presses for solid-liquid separation, and chemical storage for limestone and hydrated lime reagents.
- **Eluate Purification [6]:** Divalent ion-exchange systems, reverse osmosis units, and associated chemical dosing systems for calcium and magnesium removal.

- **Lithium Carbonation Complex [7]:** Includes thermal evaporation equipment (falling film evaporators with mechanical vapor recompression), crystallization vessels for crude and refined lithium carbonate production and centrifuges.
- **Product Packaging and Loadout [8]:** Facilities for drying, micronizing, packaging, and secure storage of finished lithium carbonate product in 500-kg bulk bags prior to shipment.
- **Power Generation and Fuel Storage [9]:** An on-site diesel generator system providing primary electrical power, with associated switchgear, electrical distribution equipment, double-walled fuel storage tanks, and provisions for future grid connection
- **Support Facilities [10]:** Ancillary facilities consisting of a control room, laboratory, warehouse and maintenance shop, chemical storage with secondary containment, water treatment systems, and employee facilities.

All chemicals utilized or stored on-site are managed in accordance with applicable EPA, Utah Department of Environmental Quality ("UDEQ"), and OSHA regulations. A summary of the Project's reagents is provided in **Section 3.8.2**.

Project Timeline and Operational Phases. Pilot operations were completed on August 15, 2025, successfully demonstrating the DLE technology at pilot-scale and generating validation data for commercial design. The Final Investment Decision is anticipated in Q2 2026, contingent upon receipt of the FFSL Royalty Agreement and DWQ Discharge Permit. Construction is planned to begin in Q2 2026, with brine extraction anticipated to commence in Q4 2027. An overview of project commissioning and start-up approach, and key schedule milestones relating to brine extraction and return are provided in **Section 11**.

Regulatory Compliance and Resource Availability. The Project has been designed to comply with all applicable federal, state, and local regulations. Waterleaf has conducted comprehensive lithium resource assessments in the North Arm to verify sufficient mineral resources exist to support the Project's planned operational life. The U.S. Geological Survey has estimated the entire GSL contains approximately 2.32 million mt LCE. In a more focused assessment specific to the Project's operating area in the North Arm, Waterleaf, in collaboration with Montgomery and Associates, has calculated a measured resource of up to 1.4 million mt LCE based on multi-season sampling campaigns conducted in 2024 and 2025. At the planned production rate of 5,000 mt/yr LCE, this measured resource is more than sufficient to support a life of mine of at least 20 years. The resource assessment methodology, sampling protocols, and detailed resource estimation are documented in **Appendix E.1** (Resource Report – Montgomery & Associates, May 2025). Analysis of commercial viability, including resource adequacy, production economics, and market considerations, is addressed in **Section 8**.

Water rights applications for the Project's commercial-scale brine extraction and process water needs are pending with the Utah Division of Water Rights, as detailed in **Section 7** and **Appendix A.4** (Water Rights). Waterleaf previously obtained a Temporary Use Permit from the Division of Water Rights for Pilot Plant operations.

Site approval for the commercial facility has been requested from the Box Elder County Planning Commission and is currently under review. All necessary surface rights agreements with the private landowner (Mango-Spiral Jetty, LLC) have been executed and are documented in **Appendix A.3** (Surface Use Permit Applications).

The following sections provide detailed descriptions of the process stages, equipment specifications, and operational parameters for the commercial-scale facility.

3.2 Process Overview

The commercial facility design is based on extensive testing and incorporates Lilac Solutions' proprietary IX DLE technology within a conventional lithium carbonate conversion flowsheet. The DLE technology's performance at the Project site has been validated through Pilot operations processing GSL brine, with comprehensive chemistry data documented in the Pilot Plant Final Monitoring Report (**Appendix B.1)**. The conversion of lithium sulfate to battery-grade lithium carbonate utilizes well-established chemical processing methods, ensuring a reliable and low-risk processing solution. The flowsheet incorporates appropriate design margins and industry-standard equipment specifications to minimize operational risk and support stable commercial production.

Process Architecture. The process consists of four major operational stages that sequentially extract, purify, and convert lithium into marketable product:

Stage 1: Brine Collection and Pre-Treatment. Raw brine is extracted from the North Arm using four centrifugal pumps positioned near the shoreline. The intake system is designed with dual suction screens and debris guards to minimize sediment disturbance and protect downstream equipment from particulate fouling. Extracted brine passes through Raw Brine MMF to remove suspended solids before entering the DLE circuit. The MMF units are periodically backwashed using filtered brine, and the backwash stream is combined with depleted brine for return to the lake, ensuring no solid waste generation from the filtration process. Detailed descriptions of the intake/outfall system design and filtration equipment are provided in **Sections 3.3.1** and **3.3.3**.

Stage 2: Direct Lithium Extraction. Filtered brine is processed through Lilac's proprietary ion-exchange system, which employs specialized ion exchange media to capture lithium ions from the brine matrix. The IX process operates on a cyclic basis, alternating between media lithium uptake (lithium absorption from brine), rinsing, elution (lithium desorption with dilute sulfuric acid), and final rinsing phases. During the lithium uptake phase, lithium ions are exchanged for hydrogen ions in the IX media, producing a lithium-depleted brine that retains all other major brine constituents (sodium, potassium, magnesium, calcium, chloride, sulfate) in near-identical concentrations to the raw lake brine. The lithium-depleted brine is pH-adjusted as necessary using sodium hydroxide to be substantially similar with the ambient lake pH conditions, then routed to the depleted brine treatment and discharge system (described in **Section 3.7**). The elution phase produces a concentrated lithium sulfate eluate that is transferred to the purification circuit. A technical overview of the IX process is provided in **Section 3.4**, with additional discussion on the commercial facility basis and performance characteristics covered in **Section 4**. A white paper providing an overview and general performance characteristics for Lilac's current generation (Gen 5) of proprietary IX technology is also provided in **Appendix D.7**.

Stage 3: Eluate Purification and Concentration. The acidic lithium sulfate eluate from the DLE circuit contains residual impurities from the brine, primarily magnesium and calcium, which must be removed to enable high-purity lithium carbonate crystallization. The purification train employs a multi-stage approach to achieve greater than 99% removal of divalent cations. First, the eluate is neutralized using limestone (calcium carbonate) and hydrated lime in a two-stage precipitation process, converting dissolved magnesium and calcium into insoluble gypsum and hydroxide solids.

These solids are separated using filter presses and transported off-site to an approved landfill. The neutralized eluate then undergoes softening with carbon dioxide, further reducing calcium levels through precipitation of calcium carbonate. The calcium carbonate solids are separated using candle filters and recycled to the neutralization stage, where they function as supplemental neutralizing agents, improving overall reagent efficiency. Following softening, the eluate is polished through a divalent ion-exchange stage to remove any residual calcium and magnesium. Finally, the purified eluate is concentrated using reverse osmosis, recovering process water for recycle within the circuit. The RO concentrate – now a high-purity, concentrated lithium sulfate solution – is ready for carbonation. The RO membranes are maintained through periodic clean-in-place ("CIP") procedures using sequential acid and alkaline washes to prevent fouling and maintain flux performance. Detailed process descriptions and equipment specifications for the purification train are provided in **Section 3.5**.

Stage 4: Lithium Carbonation and Product Finishing. The purified and concentrated lithium sulfate solution is further concentrated through thermal evaporation using falling film evaporators equipped with mechanical vapor recompression ("MVR") to maximize energy efficiency. The evaporated solution is then reacted with sodium carbonate reagent in stirred crystallizers, precipitating crude lithium carbonate. The crude lithium carbonate slurry is separated via centrifugation, washed, and then redissolved through bicarbonation by sparging with carbon dioxide gas. The bicarbonate solution is filtered to remove residual insoluble impurities and then heated in decarbonation vessels to drive off CO_2 and reprecipitate high-purity lithium carbonate crystals. These refined crystals are again separated by centrifugation, washed, dried, and micronized to achieve the desired particle size distribution. The final product, meeting battery-grade specifications (>99.5% Li_2CO_3), is packaged in sealed 500 kg bulk bags for shipment to cathode material and battery manufacturers. The carbonation circuit design has been validated through comprehensive test work conducted by commercial processing partners using representative lithium sulfate feed solutions derived from GSL brine. Waterleaf's preferred partner's test results, are summarized in **Section 1.4.2** and **1.4.3** with the technology provider's test report provided in **Appendix C.4**. Detailed descriptions of the carbonation circuit equipment and process parameters are provided in **Section 3.6**.

Stage 5: Depleted Brine Management. Lithium-depleted brine from the DLE circuit is the primary discharge stream from the facility. Waterleaf conditions this stream as required to ensure it meets the composition specifications established by DWQ for discharge to the lake. Conditioning may include pH adjustment using sodium hydroxide and blending with process water streams to achieve target temperature and composition. The facility continuously monitors conditioned brine for flow rate, temperature, pH, and key chemical parameters before discharge through the outfall pipeline located approximately 1,500 feet from the intake. The outfall is positioned to promote adequate mixing with ambient lake water and minimize localized concentration effects. Dispersion modeling conducted by HR Wallingford (**Appendix E.3** HR Wallingford Hydrodynamic / Dispersion Model) demonstrates that the discharge plume rapidly disperses and dilutes within the North Arm, with no negative impacts to lake chemistry anticipated. Detailed descriptions of depleted brine filtration, conditioning, monitoring, and discharge operations are provided in **Section 3.7**.

Process Flow Schematics. Figure 2 presents a simplified process flow diagram illustrating the major unit operations, key process streams, and material flows. More detailed process flow schematics for the Commercial Plant, with stream numbers linked to the mass balance (as discussed in more detail in **Section 4.1**) for the facility are provided in **Appendix D.2** (Process Schematic - Commercial Plant).

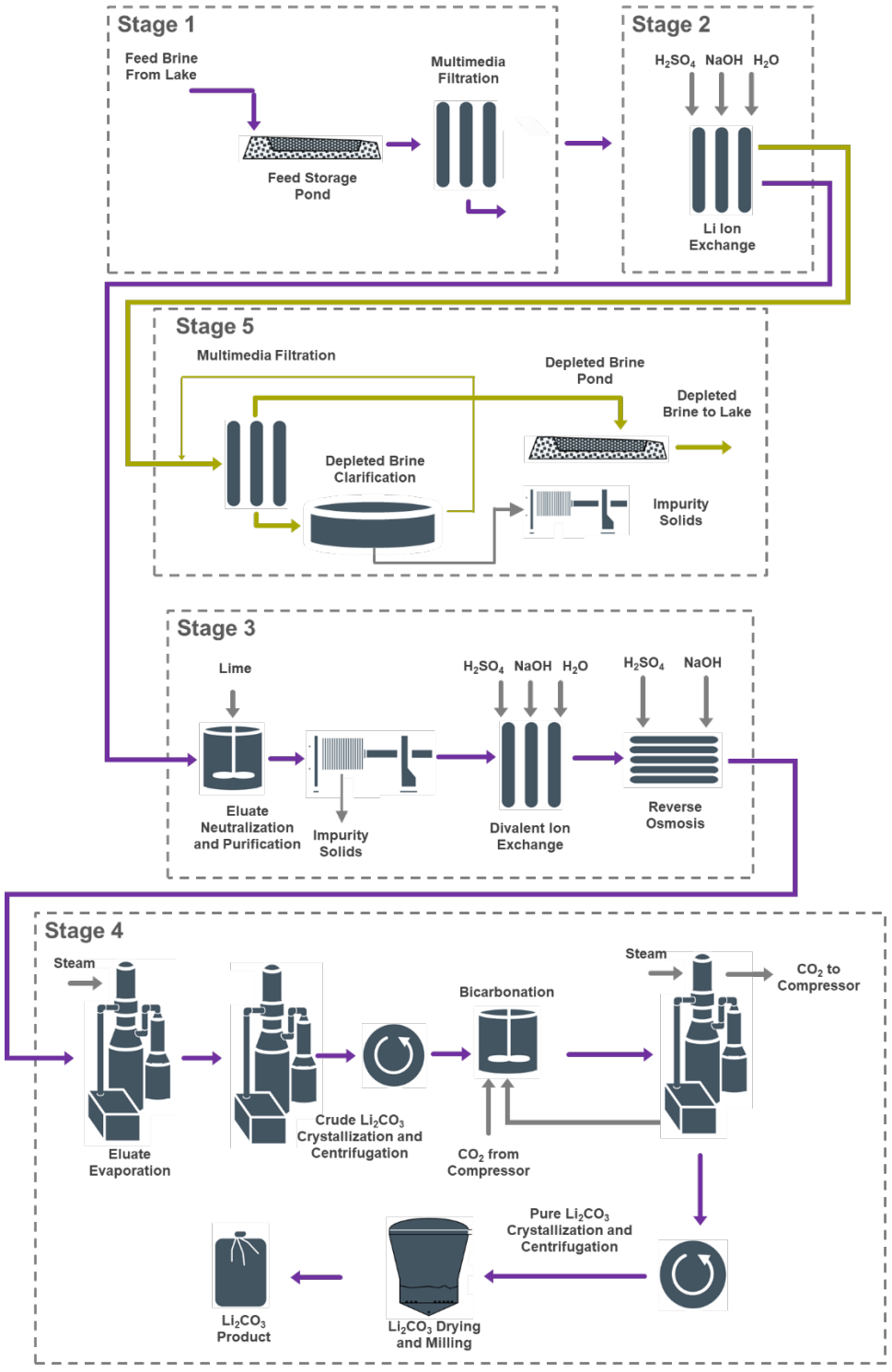


Figure 2: Simplified process flow diagram

Water Balance and Reagent Consumption. The process has been designed to minimize water consumption and maximize water recovery. Recovered water from the reverse osmosis concentration step and condensate from thermal evaporation are recycled within the process circuit for use in media rinsing, reagent preparation, and other process applications.

Primary reagent consumption includes dilute sulfuric acid for IX elution, limestone and hydrated lime for neutralization, sodium carbonate for softening and carbonation, sodium hydroxide for pH adjustment, and carbon dioxide for bicarbonation. Comprehensive reagent quantities, storage volumes, and chemical management procedures are detailed in **Section 3.8** and **Appendix D.5**.

Waste Streams and Management. The primary solid waste stream consists of gypsum and hydroxide solids from eluate neutralization. These solids are expected to be non-hazardous based on Pilot characterization data and will be transported to an approved off-site landfill. Waste classification will be confirmed through testing prior to initial disposal.

Other waste streams include spent filter media from backwashing operations (sent off-site), spent divalent IX solutions (sent off-site), and routine facility wastes (sent off-site). All waste management practices comply with applicable EPA and UDEQ regulations. Waste characterization, estimated volumes, and disposal methods are detailed in **Section 5.3**.

3.3 Brine Collection and Filtration

3.3.1 Raw Brine Intake System

Raw feed brine from Gunnison Bay in the North Arm of the GSL will be extracted using four centrifugal pumps configured in a manifolded arrangement. The pumps are positioned to accommodate lake level fluctuations, designed for operation at the reference elevation of 4,192.5 feet above mean sea level. At this lake elevation, the pump station is located approximately 750 feet from the shoreline and 3,500 feet from the facility site, positioned part way along the intake pipeline within the 55-foot pipeline easement boundary.

Pump Station Configuration: The four centrifugal pumps are manifolded to a common discharge header configured in a duty arrangement that provides operational redundancy and allows for maintenance of individual units without interrupting brine extraction. The pumps deliver brine at a design flow rate of approximately 11,300 gallons per minute (“gpm”) with maximum capacity of 12,500 gpm. The pumps are installed in-line along the intake pipeline, drawing suction from the offshore intake point and discharging to continue flow to the onshore raw brine surge pond located above the high-water mark at an elevation of 4,205 feet above sea level.

Intake Protection: To protect the pumping system from debris and suspended particles, the intake pipeline is fitted with suction screens at the offshore intake point designed to prevent ingress of large particles while avoiding entrainment of lakebed sediment. The screens are elevated above the lakebed surface and engineered to maintain adequate submergence across anticipated lake level variations, a learning from Pilot Plant operations.

Pipeline Design and Installation: The intake system employs a high-density polyethylene (HDPE) pipeline selected for its proven resistance to highly saline brine environments and expected service life exceeding 50 years under similar operating conditions. The intake pipeline is a single 36-inch diameter line extending approximately 8,500 feet along the pipeline easement from the facility site

to the offshore intake point in the North Arm. The pump station is located partway along this pipeline, approximately 3,500 feet from the facility.

The pipeline includes snaking configuration to accommodate thermal expansion and contraction across the full range of ambient temperature conditions. The offshore pipeline sections are anchored to the lakebed using concrete weights positioned at regular intervals. These anchors suspend the pipeline both below the water surface and above the lakebed, allowing the system to accommodate changing water levels while securing the pipeline against wave and wind action which was observed during Pilot Plant operations. The onshore pipeline section is laid across the surface within the 55-foot pipeline easement.

Common Header and Bypass Capability: A common header connects the intake and outfall pipeline systems (**Section 3.7**), providing operational flexibility to circulate brine during process plant upsets or maintenance events. This bypass capability is particularly important during winter months when stagnant brine in the pipelines could lead to crystal formation (such as mirabilite or Glauber salt) which was observed during start-up of Pilot Plant operations.

Power and Control Systems: The pump station is powered and controlled by the facility's main electrical and control systems with real-time monitoring from the central operations room. Local control panels installed at the pump station allow manual operation, maintenance lockout, and troubleshooting. Power and control signals are transmitted via insulated electrical cabling buried for safety and security, with periodic junction boxes positioned above the ordinary high-water mark.

Intake System Coordinates: The intake system coordinates are provided in decimal degrees (latitude/longitude to fifth decimal place), with Universal Transverse Mercator (UTM) Zone 12 North projection included as supplemental reference:

- Facility Location: 41.46110° N, 112.69336° W
  N=15063408.491', E=1176440.965
- Pump Station Location: 41.45297° N, 112.70017° W
  N=15060489.85', E=1174512.85'
- Pipeline Intake Point: 41.44137° N, 112.70988° W
  N=15056321.84', E=1171759.275' (8,500 ft from facility)

A schematic layout of the intake system is provided in **Figure 3**, and representative pump station illustrations are shown in **Figure 4**.

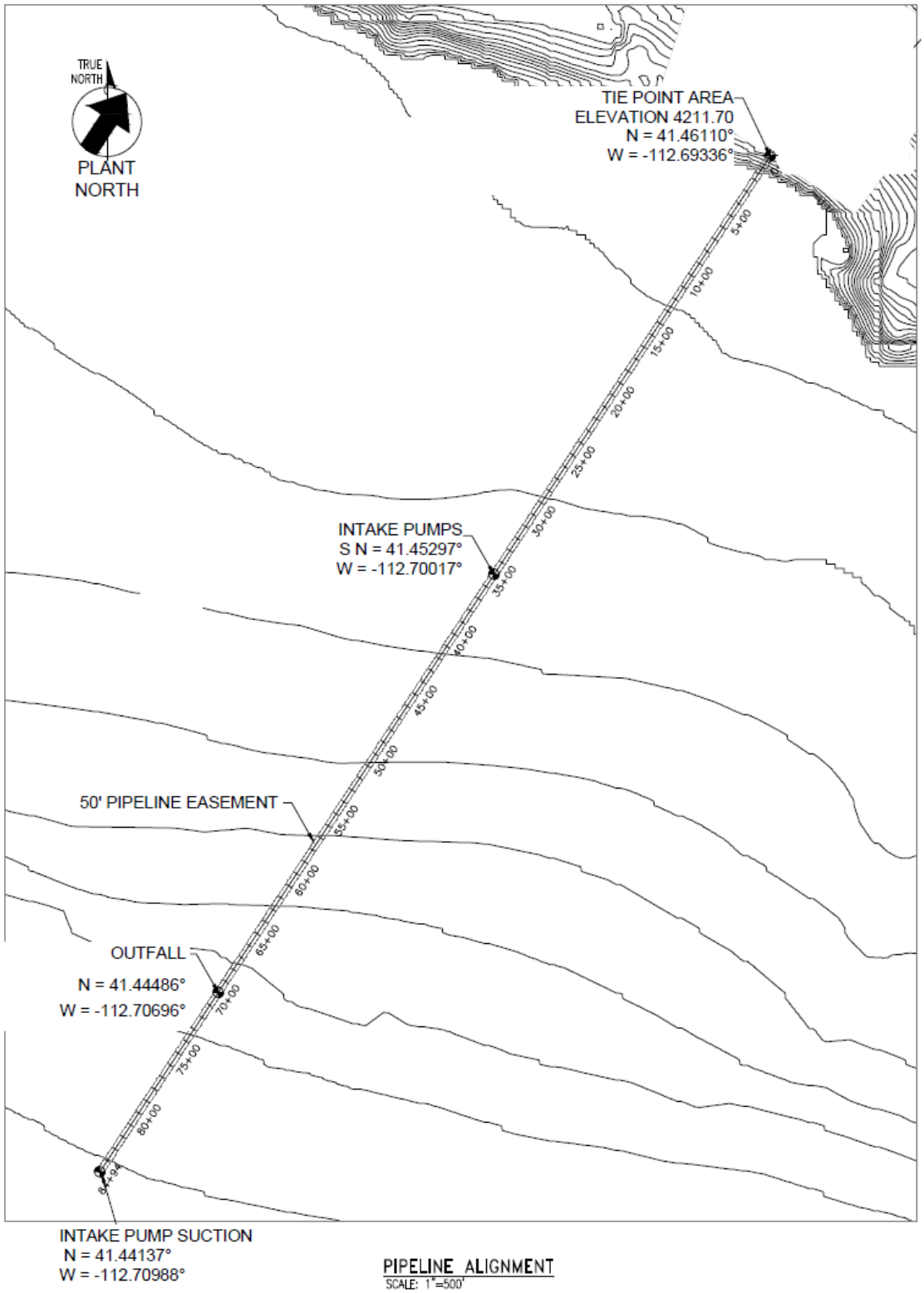


Figure 3: Intake and outfall system arrangement (latest easement width is 55ft)



Figure 4: Intake pumps Illustration (example)

3.3.2 Raw Brine Storage and Surge Management

Purpose and Function: The raw brine surge pond provides operational flexibility and continuity for the processing facility by decoupling the intake pumping system from downstream process operations. The pond provides approximately five hours of surge capacity, allowing the facility to accommodate variations in intake flow rates, conduct routine pump maintenance, and respond to transient operating conditions without disrupting lithium extraction operations.

Design and Construction: The raw brine surge pond is located on the southern side of the facility site, positioned above the high-water mark adjacent to the processing plant. The pond is constructed with high-density polyethylene ("HDPE") geomembrane liner, selected for its excellent resistance to ultraviolet radiation, chemical exposure, and mechanical stress in the harsh GSL brine environment. HDPE liner systems provide effective seepage prevention, resulting in negligible seepage losses under normal operating conditions.

Liner Integrity and Monitoring: To verify ongoing environmental protection and liner performance, multiple monitoring systems are employed:

- **Visual Inspections:** Regular visual inspections are conducted to identify signs of liner damage, punctures, or material deterioration
- **Level Monitoring:** Pond water levels are continuously monitored to detect any unexplained losses that cannot be attributed to evaporation, precipitation, or normal operational fluctuations

Together, these monitoring measures provide early detection of potential liner integrity issues and ensure that corrective actions can be implemented promptly to prevent impacts to soil, groundwater, or surrounding environmental resources.

Operational Integration: Raw brine from the surge pond is pumped to the multimedia filtration system **Section 3.3.3** (Brine Pre-Filtration) for removal of suspended solids before entering the DLE circuit. Pond level control systems automatically modulate intake pump operations to maintain target pond levels, ensuring continuous feed availability to downstream operations.

Related Information: Quantitative assessment of pond evaporation losses, including seasonal variations and water balance accounting, is provided in **Section 4.3**. Seasonal operational considerations for pond management, including solids accumulation, are addressed in **Section 4.3.4**. Discharge monitoring protocols, including sampling of depleted brine from the parallel depleted brine surge pond, are described in **Section 3.7**.

3.3.3 Brine Pre-Filtration

Raw brine from the feed brine pond will be pumped to the Raw Brine MMF as illustrated in **Figure 5** via feed pump. This filtration step will remove any suspended solids, ensuring a high-quality brine stream. The filtered brine will be discharged into a filtered brine tank before entering the DLE circuit.

Periodically, at scheduled intervals or as the filter pressure differential increases due to solids accumulation, the Raw Brine MMF will undergo backwashing. The backwash stream will be collected in a dedicated backwash tank.

Solids Return to Lake: The solids removed during pre-filtration and backwashing originate entirely from the Great Salt Lake brine itself – primarily suspended sediments, precipitated salts, and naturally-occurring particulates entrained during intake. These materials are not altered or contaminated by the filtration process. By returning backwash solids to the lake via the depleted brine discharge system, the facility maintains a non-consumptive operating philosophy with respect to native lake materials. The backwash stream will be monitored and measured consistent with the rest of the outfall discharge to meet permit requirements, ensuring comprehensive accountability for minimizing impact on the lake's chemistry and sediment budget. Backwash volumes are provided in **Section 4.1.5** and solids loading are quantified in **Section 5.3.2**.

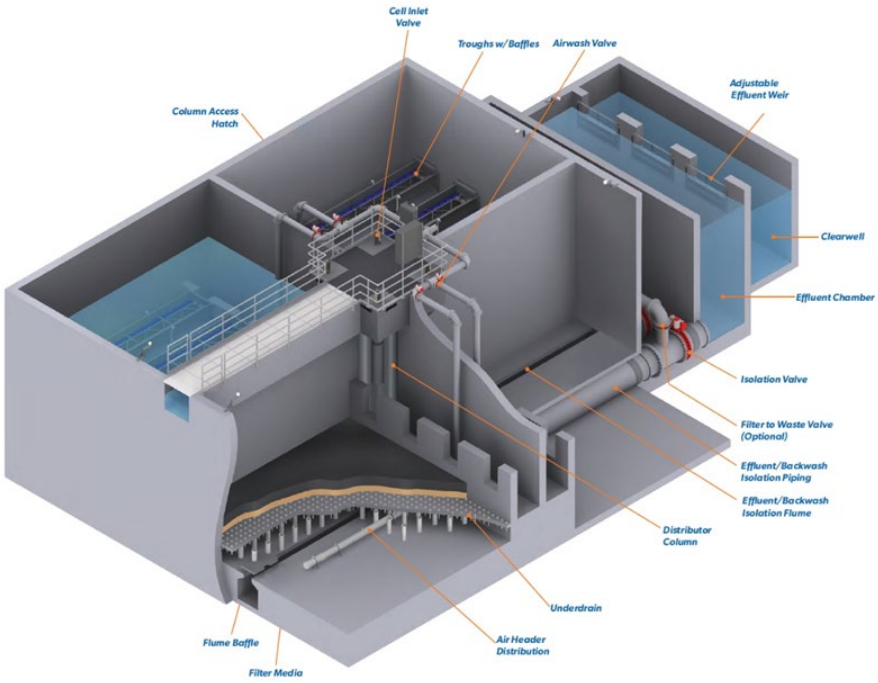


Figure 5: Typical gravity multimedia filter

3.3.4 Solids Management Considerations

Temperature-Dependent Precipitation: GSL brine contains high concentrations of sodium and sulfate ions that can precipitate as mirabilite ($Na_2SO_4 \cdot 10H_2O$) when brine temperatures fall below approximately 5-10°C. This natural phenomenon occurs seasonally during winter months and represents an operational consideration for both pipeline and pond systems throughout the brine collection and discharge infrastructure.

Pipeline Solids Monitoring and Management: The intake and outfall pipeline systems are subject to potential halite (during summer months) and mirabilite (during winter months) deposition. To manage this operational consideration, the facility employs continuous monitoring of pipeline pressure differentials that can indicate solids accumulation. When monitoring indicates potential deposition, pipelines are cleaned through high-velocity flushing protocols using brine flow to remove loosely adhered crystals and maintain pipeline capacity.

The common header connecting intake and outfall systems as described in **Section 3.3.1** provides additional operational flexibility by allowing brine circulation during periods when process operations are temporarily suspended, preventing extended stagnant conditions that could promote solids accumulation.

Pond Solids Considerations: Both the raw brine surge pond and depleted brine surge pond (**Section 3.7**) are subject to accumulation of precipitated salts, particularly during winter operating periods. These solids primarily consist of mirabilite and other naturally occurring lake salts that precipitate from saturated brine under varying temperature conditions.

The facility monitors pond conditions through periodic visual inspections and depth surveys to track any accumulation patterns. Pond design includes adequate capacity to accommodate expected solids accumulation rates while maintaining required surge volume for operations.

Seasonal Analysis: To address seasonal sodium sulfate precipitation at commercial scale, the design incorporates a dilution control system for the intake pond. A slipstream of permeate from the treated water RO system will be diverted to the intake brine, maintaining sulfate concentrations just below saturation limits. This dilution approach prevents sodium sulfate crystallization in the intake system by keeping the brine undersaturated regardless of ambient temperature fluctuations. Slipstream flow rate will be modulated based on real-time temperature and sulfate concentration monitoring, enabling operators to optimize treated water allocation while maintaining reliable year-round operations without precipitation-related fouling or blockages.

Detailed assessment of seasonal operational considerations, including salt accumulation, is provided in **Section 4.3**. This section presents the technical basis and operational protocols that enable the facility to maintain reliable performance across the full range of seasonal conditions experienced at GSL.

3.4 Direct Lithium Extraction Circuit

3.4.1 Lilac Ion Exchange

Filtered brine from the brine filtration area is transferred to the DLE vessel feed tanks, providing surge capacity to the semi-batch process cycle. The DLE circuit employs Lilac Solutions' proprietary IX technology to selectively extract lithium from the brine while returning all other brine constituents to the lake. **Figure 6** illustrates the four basic IX process flow steps that comprise each extraction cycle.

Ion Exchange Process Cycle: During the lithium uptake step, filtered brine is pumped through the IX media where lithium ions are selectively absorbed by the ceramic IX media. After lithium uptake step, the lithium-loaded IX media is washed with recycled process water to remove interstitial brine, and the resulting wash water is directed to a water recovery circuit. The lithium-depleted brine reports to the depleted brine conditioning and filtration (**Section 3.7.1**) before being transferred to the depleted brine storage pond and subsequently returned to the lake.

The lithium-loaded IX media is then eluted with dilute sulfuric acid to produce a lithium-rich sulfate eluate. The lithium eluate stream is routed to the eluate neutralization and filtration circuit (**Section 3.5** Eluate Purification and Concentration). After elution, a final wash step is performed with recycled process water to remove interstitial eluate [redacted]. Following the final water rinse, the IX media is ready for the next cycle. This loading-washing-elution-washing cycle is repeated thousands of times before the IX media needs to be replaced.

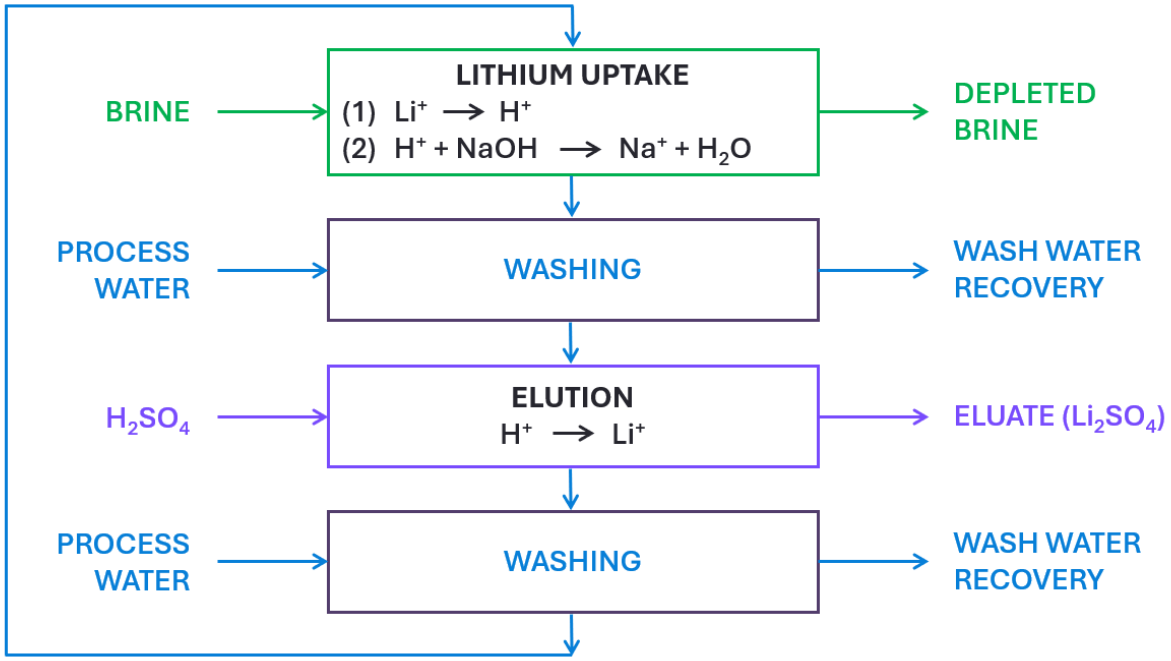


Figure 6 Lilax IX process flow for a complete cycle

The neutralization of protons ('H+') released during the IX loading step with sodium hydroxide results in a net neutralization of the acid and base used in the IX process, exiting as additional water and sodium ions in the lithium-depleted brine. Sodium ions correspond to the most abundant ion already present in the brine; therefore, the depleted brine leaving the IX process is nearly identical in composition to the inlet brine. The IX media captures greater than 80% of the lithium from the brine, with any remaining lithium exiting with the depleted brine and returning to the Great Salt Lake.

IX Media Renewal and Recovery: The IX system operates as a semi-batch process where the ion exchange media continuously cycles through lithium uptake, washing, elution and washing phases to selectively capture lithium ions from the GSL brine (see **Figure 6**). Over thousands of cycles, the IX media will see a slight uptake of impurities, mostly magnesium, during each cycle and this has been factored into the mass balance. To ensure consistent performance and maintain product purity, Waterleaf employs a structured maintenance and recovery program for IX media.

[redacted]

The IX media management program ensures that all process materials are fully recycled and accounted for within the system. [redacted]

Waterleaf maintains a non-consumptive process in full alignment with FFSL's permitting framework and the GSL Preservation Act. Process stream flows, water balance, and IX performance data are detailed in **Section 4.1**. General information on Lilac's ion exchange technology is provided in **Appendix D.7** (Gen 5 Lilac IX – Technical White Paper).



Figure 7: The DLE building, eluate neutralization and filtration area

DLE Building Configuration: The IX vessel and supporting equipment are contained in an industrial service building with all necessary equipment for lithium extraction, including IX media storage and ancillary systems. The building features a reinforced concrete base, steel frame construction, and prefabricated steel-faced composite panel cladding and roofing. The layout, as illustrated in **Figure 7**, is designed for efficient transportation of raw materials and products, reducing land use, and ensuring convenient operation and maintenance. The building features an overhead crane for maintenance needs, pedestrian access doors, and where required, environmentally controlled rooms. The building layout includes sufficient lifting wells, laydown areas, and access for construction and equipment maintenance.

Secondary Containment and Spill Management: Piping in areas containing hazardous streams is designed without flange connections, valves, or instrumentation located above accessible or occupied areas to eliminate potential drip hazards. All equipment, including connections, valves, instruments, tanks, and pumps, is installed within a secondary containment area sized to accommodate at least 110% of the volume of the largest tank within that containment. The area is

equipped with a sump system designed to capture and manage any leaks or spills. Collected liquids are neutralized within the containment zone and then transferred to the effluent treatment system for further processing and safe disposal.

3.5 Eluate Purification and Concentration

3.5.1 Eluate Neutralization and Filtration

Eluate from the DLE process is transferred to a sampling tank located in the Eluate Neutralization and Filtration area via a pipeline routed along the pipe corridor connecting the DLE Building to the neutralization facility.

Eluate Neutralization Process: From the sampling tank, the eluate is transferred to an eluate holding tank, which provides surge capacity for the neutralization and filtration process. The eluate contains impurities such as magnesium and calcium that must be removed prior to lithium carbonate crystallization. These impurities are removed through a precipitation process implemented via a two-stage neutralization approach.

The first stage involves the use of limestone, which offers an economic advantage by reducing hydrated lime consumption and generating carbon dioxide gas. This CO_2 is recompressed and reused in the lithium carbonate purification process. In the second stage, hydrated lime is added to increase the pH and precipitate magnesium and gypsum, thereby significantly reducing soluble calcium and magnesium concentrations. Recycled carbonates from the eluate softening and filtration circuit are also dissolved in the first neutralization tank to aid in impurity removal.

Solids Filtration and Disposal: The resulting precipitates are separated from the process stream using a filter press, which is installed under a steel roof structure designed for industrial solid-liquid separation, as shown in **Figure 8**. The filter press is mounted on an elevated steel platform supported by structural beams and columns, featuring safety railings and access stairways for operational safety and maintenance access. The system enables gravity discharge of the filter cake directly into a roll-off bin positioned beneath the press. Designed for durability, ease of operation, and safe use in rugged industrial environments, the installation ensures efficient handling of solids. The roll-off bin is removed by a licensed third-party contractor for permanent disposal at a designated landfill.

The resulting filter cake represents the consolidated solids separated from the eluate neutralization process. These solids are expected to be non-hazardous and classifiable under Utah Administrative Code R315-301 as general industrial waste. Waste characterization and disposal protocols are provided in **Section 5.3**.

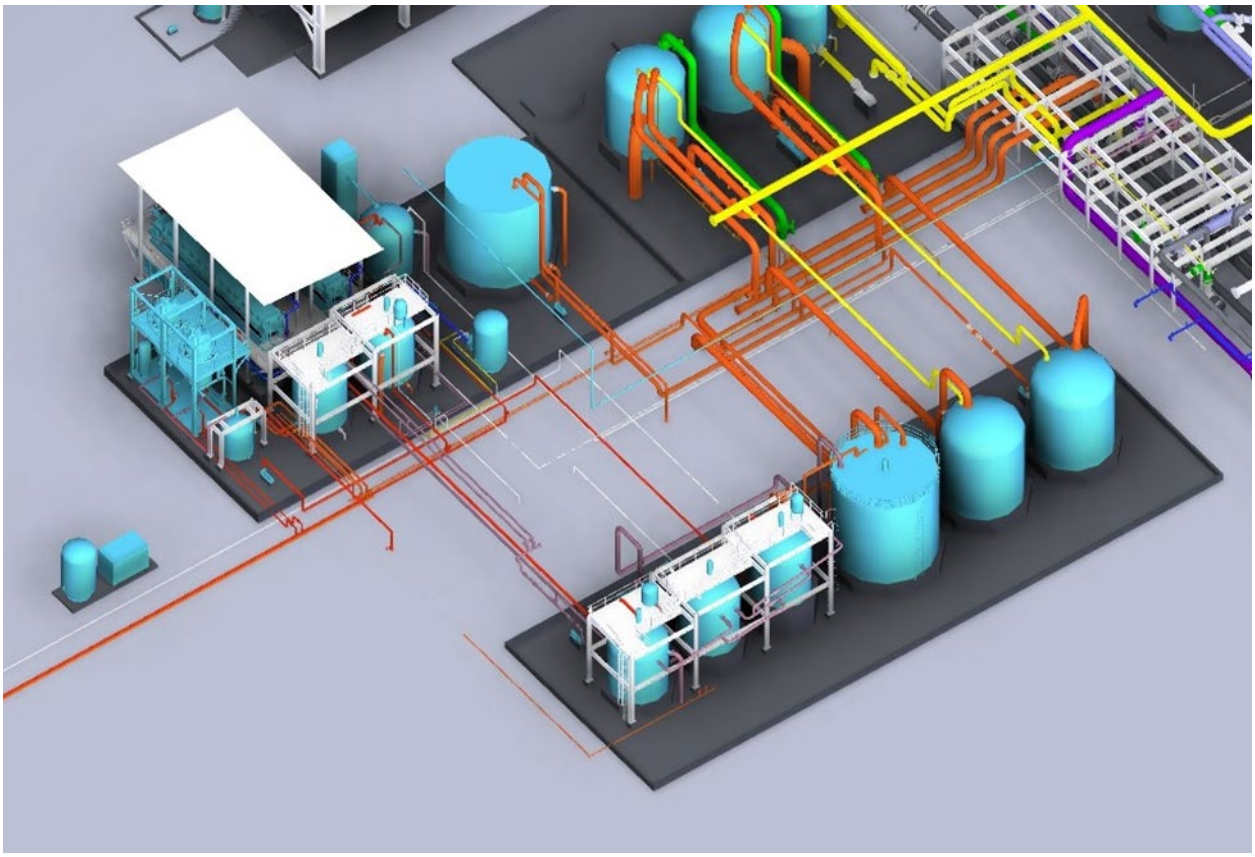


Figure 8: Eluate neutralization and filtration area.

Eluate Softening & Filtration Process: The neutralized eluate will still contain some calcium which will be removed by softening and filtration. Eluate softening will be performed by dosing carbon dioxide in the eluate and precipitating a substantial portion of the remaining calcium in carbonate form.

The precipitates are removed from solution by a candle filter in a similar facility as illustrated in **Figure 9**, and the solids are pumped into the limestone make-up tank as a carbonate reagent thereby closing the loop and recycling calcium carbonate back to the neutralization circuit. Filtrate will be used to repulp the limestone make-up.

This recycling of calcium carbonate solids minimizes reagent consumption and reduces waste generation, supporting the project's resource efficiency objectives.

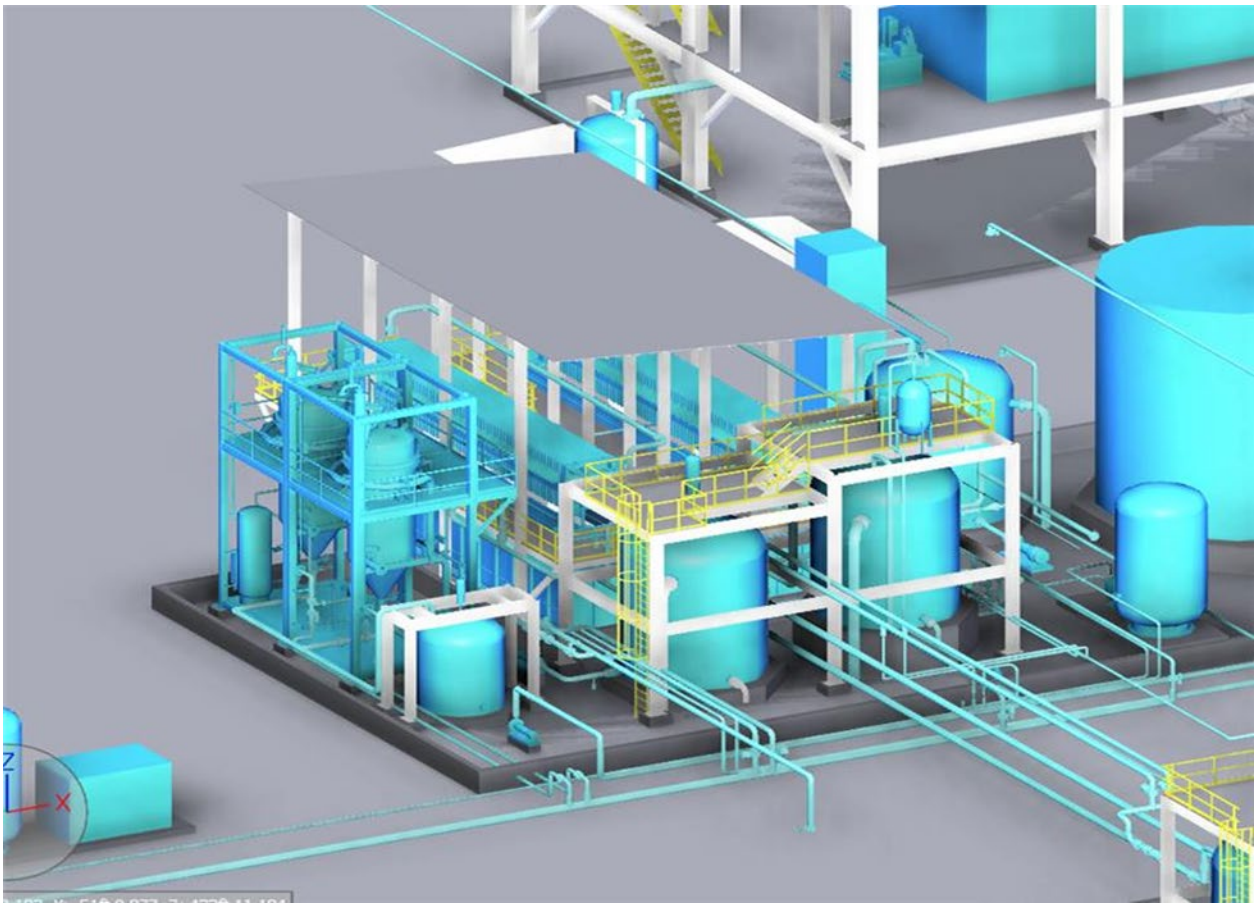


Figure 9: Eluate softening and filtration area

3.5.2 Eluate Impurity IX and Reverse Osmosis

The neutralized and softened eluate is transferred to a feed tank located in the Impurity IX area via a pipeline routed along the main pipe corridor.

Impurity Ion Exchange Process: The neutralized and softened eluate is directed to an impurity removal IX system, designed to eliminate residual divalent ions and meet the feed quality specifications for the evaporator and lithium carbonate circuit. Prior to entering the IX polishing system, the eluate pH is adjusted to below 10 using sulfuric acid in the impurity IX eluate dilution tank. This step ensures optimal media performance and minimizes fouling potential in downstream equipment. The IX system follows a conventional three-column lead-lag-regeneration configuration, utilizing sulfuric acid and sodium hydroxide for media regeneration and conditioning, respectively. The weak acidic regeneration stream is reused in the eluate neutralization step to recover lithium, while the weak basic conditioning solution is primarily sent to the effluent storage area, with a minor bleed stream recycled to the impurity IX sodium hydroxide dilution tank. A representative layout of the IX columns expected for the Project is shown in **Figure 10**. When the IX media cleaning efficacy drops below an acceptable threshold, the media undergoes regeneration with an acid solution to strip accumulated impurities, followed by neutralization with a base and thorough rinsing with clean RO water. Over time, degraded IX media is removed from the system, placed into bulk bags, and collected by a licensed third-party contractor for appropriate off-site treatment by the supplier.



Figure 10: Typical ion-exchange columns

Reverse Osmosis Circuit Process: The polished eluate from the impurity IX system is sent to a reverse osmosis ("RO") system for concentration. To mitigate fouling risks and remove residual carbonates, the eluate is further acidified with sulfuric acid prior to RO treatment. The high-pressure RO system concentrates the eluate by approximately five-fold, producing a high-concentration retentate that is directed to the brine evaporator feed tank. Any off-spec eluate is recycled to the RO feed tank for reprocessing. The RO permeate, a low total dissolved solids ("TDS") stream primarily containing lithium and sodium sulfate, is recycled to maximize lithium recovery.

A typical RO skid configuration like what will be used in the Project is illustrated in **Figure 11**. The unit consists of multiple horizontal pressure vessels housing spiral-wound membranes, supported by a steel frame. Integrated process piping, automated valves, flow meters, and pressure gauges facilitate operation and monitoring. The system also includes a centralized control panel for operational oversight and a pre-filtration unit to protect the membranes. This compact, modular design supports efficient installation, operation, and maintenance in industrial environments.

Clean-in-Place System: A dedicated clean-in-place ("CIP") circuit provides automated, closed-loop cleaning of the RO and IX membranes to maintain operational performance. The system employs separate acid and base solutions circulated through the membranes on a scheduled basis, followed by permeate rinsing and neutralization. The CIP system is housed in a dedicated skid equipped with independent acid and base cleaning loops, storage tanks, circulation pumps, and heat exchangers for temperature control. A typical full CIP cycle lasts 2–4 hours and is performed on a weekly or condition-based schedule depending on differential-pressure readings and membrane performance trends. All CIP wastes are neutralized and routed to the depleted brine circuit for

treatment prior to controlled discharge, ensuring full compliance with FFSL and DWQ requirements and maintaining the project's non-consumptive operational standard.



Figure 11: Typical reverse osmosis skid

3.6 Lithium Carbonation Circuit

The lithium carbonation circuit consists of evaporation, crude lithium carbonate precipitation and separation, bicarbonation, and pure lithium carbonate precipitation and separation steps. The equipment is of modular construction for ease of transport, streamlined installation, and future scalability. This approach also facilitates parallel fabrication and testing, reducing overall project timelines and allowing for flexible integration with upstream and downstream processes.

The polished and concentrated eluate is transferred to the evaporator feed tank via a pipeline routed along the main pipe corridor.

3.6.1 Evaporation Circuit Process

The RO retentate stream is further concentrated through a thermal evaporation system designed to efficiently increase lithium concentration while minimizing chemical fouling risk. Before entering the evaporator, the eluate is pre-heated using a series of heat exchangers that recover thermal energy from both hot process condensate and the concentrated product stream. This preheating step maximizes energy efficiency and reduces steam consumption. The Falling Film Evaporator (“FFE”), selected for its superior heat transfer performance and high wetting rates, operates under

atmospheric pressure and is equipped with a recirculation system to ensure stable and uniform liquid distribution across all heat transfer surfaces.

As the pre-heated feed enters the evaporator, it mixes with recirculating liquor and is spread across the inner walls of vertical tubes to form a thin film, allowing for efficient heat exchange. Boiling occurs within the FFE, and the resulting vapors are separated from the liquid phase in a dedicated vapor separator. This separator employs cyclonic action and demisting technology to recover entrained droplets, ensuring clean vapor production. The vapors are then compressed by a mechanical vapor recompression ("MVR") fan, which raises their temperature and enables their reuse as a heating medium in the evaporator, significantly reducing external steam requirements.

The MVR system includes de-superheating and online washing features to maintain fan performance, prevent solids buildup, and manage vibration. The heated vapor condenses in the evaporator's shell side, transferring energy to the recirculating liquor in the tube side. The final concentrated lithium sulfate solution exits the evaporator and is directed to the crystallization circuit, while the recovered condensate is reused within the system for preheating and fed to the RO water tank. The overall system is designed for high efficiency, reliability, and consistent operation under varying feeding conditions.

3.6.2 Crude Lithium Carbonate Precipitation and Separation

Crude Lithium Carbonate Precipitation: Crude lithium carbonate is produced via reactive crystallization, where concentrated lithium sulfate from the upstream evaporation circuit reacts with a sodium carbonate solution. This forms a slurry of lithium carbonate crystals in aqueous sodium sulfate. To optimize water use, the sodium carbonate solution is prepared using recycled process liquors, including centrate from crude lithium carbonate centrifugation.

Before the reaction, the lithium sulfate feed is stored in a buffer tank and preheated with steam. The sodium carbonate solution is also preheated and fed under controlled flow to maintain slight reagent excess, ensuring full conversion. Magnetic filters on both feeds remove metallic impurities.

The reaction occurs in a Draft Tube Baffle ("DTB") crystallizer, chosen for its ability to grow large, easily separable crystals. Operating at atmospheric pressure and elevated temperatures, the DTB minimizes lithium losses through controlled temperature management. Preheated reactants mix rapidly in the draft tube, ensuring uniform dispersion and reducing localized supersaturation. Internal circulation maintains slurry homogeneity and directs crystal growth.

Clear liquor overflows through a baffled section, is filtered for lithium carbonate fines, and recycled to the raw brine to return through the DLE circuit. The resulting crystal slurry is transferred to a centrifuge feed tank for solid-liquid separation using a batch peeler centrifuge. This system handles feeding, dewatering, cake washing, and discharge. Hot process liquor recycled from pure lithium carbonate washing is used for washing to minimize product loss. Separated mother liquor (strong centrate) and wash liquor (weak centrate) are stored in dedicated tanks for reuse; strong centrate is recycled to the raw brine and weak centrate is recycled for sodium carbonate preparation. The washed lithium carbonate cake is re-pulped with cold recycled strong centrate from the pure lithium carbonate centrifugation step and is sent to the bicarbonation circuit for further purification. For reliability, the crystallizer system includes a complete dump-and-refill setup, enabling maintenance while minimally without halting production.

Bicarbonation: After the crude lithium carbonate is crystallized, the solids are repulped using chilled, recycled strong centrate from pure lithium carbonate centrifugation to form a slurry suitable for bicarbonation. This slurry is transferred to a series of vessels where relatively insoluble lithium carbonate is converted into a more soluble bicarbonate form using carbon dioxide gas under cool temperatures and slight pressure to maximize solubility. Multiple vessels are arranged in sequence to ensure complete dissolution of the solids. Each vessel is fitted with high-efficiency mixing and gas dispersion systems to ensure effective contact between the slurry and the carbon dioxide. Compressed and cooled carbon dioxide is introduced into each vessel, with excess gas directed counter-currently to upstream stages for improved efficiency.

The resulting bicarbonate solution flows from the final vessel into a holding vessel. From there, it is pumped through fine filters to remove any remaining undissolved solids. To prevent the solution from breaking down before the next stage, it remains pressurized during its transfer to the final crystallization step. Before crystallization, the solution is gently heated using recycled heat from the process to improve energy efficiency. Any solids left after the conversion process are repulped using concentrated liquid from an earlier stage and returned to the start of the process for recycling.

Pure Lithium Carbonate Precipitation and Separation: The purified bicarbonate solution is partially heated and directed to a crystallization unit, where heat is applied indirectly to release carbon dioxide causing the lithium bicarbonate to recrystallize as lithium carbonate. These crystals are then separated from the liquid using a centrifuge, which also washes the solid product with hot water to remove any remaining impurities. The liquid from this process, along with the wash water, is collected and recycled to repulp the crude lithium carbonate earlier in the process. A small portion of this combined centrate is recycled as wash water for the crude lithium carbonate centrifugation step.

The crystallization stage is designed to produce high-purity, battery-grade product by operating under elevated temperatures, which encourage the formation of solid crystals due to reduced lithium carbonate solubility at higher temperatures. During this transformation, carbon dioxide is released and recovered for reuse. A controlled environment is maintained in the crystallizer to reduce energy consumption and ensure stable operation.

These crystallizers use a forced circulation design to promote the formation of large, uniform crystals, making them easier to separate and wash. A typical modular crystallization unit configuration is illustrated in **Figure 12**. The system includes circulation pumps, mixing zones, and external heaters. High flow rates and controlled heating help manage the buildup of dissolved material, prevent unwanted fouling on internal surfaces, and extend operating times between cleanings. Special features are included to separate liquid from the solids during the process and maintain an optimal concentration of suspended material for efficient crystal growth.

Liquid separated from the crystallizers is collected in a holding tank and filtered to remove fine crystals. Solids recovered from this step are re-slurried and recycled to an earlier stage of the process. The crystallizers are designed for continuous operation, with multiple units installed to allow cleaning and maintenance without stopping production. A backup system manages the material during such downtime.

Some of the filtered liquid is cooled through a heat exchange process, which also helps preheat incoming solutions elsewhere in the plant. The hot water generated through this process serves other functions, such as washing solids and supporting evaporation stages. To control the buildup of

dissolved impurities, a portion of the liquid is regularly removed and returned to earlier stages of the process for reuse, including for washing and as a source of makeup liquid.

The purified lithium carbonate solids are dewatered in a batch-type peeler centrifuge. Slurry is pumped into a holding tank and then fed in measured amounts into the centrifuge, which runs through automated cycles of filling, washing, spinning, and discharging. Hot water is used during the washing phase, and a separate stream of liquid flushes the system after each batch. Liquids collected from these operations are combined and returned to the process for reuse. The washed solids are discharged from the centrifuge and transferred to the next stage of processing..



Figure 12: Typical evaporation and crystallization modular units

3.6.3 Lithium Carbonate Product Drying, Micronization and Product Packaging

The purified lithium carbonate will be fed from the peeler centrifuge to the lithium carbonate dryer, as illustrated in **Figure 13**. This will remove the residual moisture left on the solids. Vapor and dust from the dryer will be discharged to a baghouse system to recover lithium carbonate product.

The resulting dry crystals are micronized using a classifier mill to produce a fine product as per customer specification. Micronized solids are stored in an intermediate hopper before feeding into a magnetic separator and bagging system. The magnetic separator removes metallic impurities introduced from solids handling, removing impurities just above the packaging system. Lithium carbonate is packaged into bulk bags as the final product. The mill vent is connected to a dust extraction system to scrub the vent air and recover the product.

This facility is designed to produce 5,000 mt/yr LCE, as battery-grade lithium carbonate. Over the 20-year life-of-mine, a total of 100,000 mt of LCE product will be produced. Product purity specifications are documented in **Appendix C.3.**

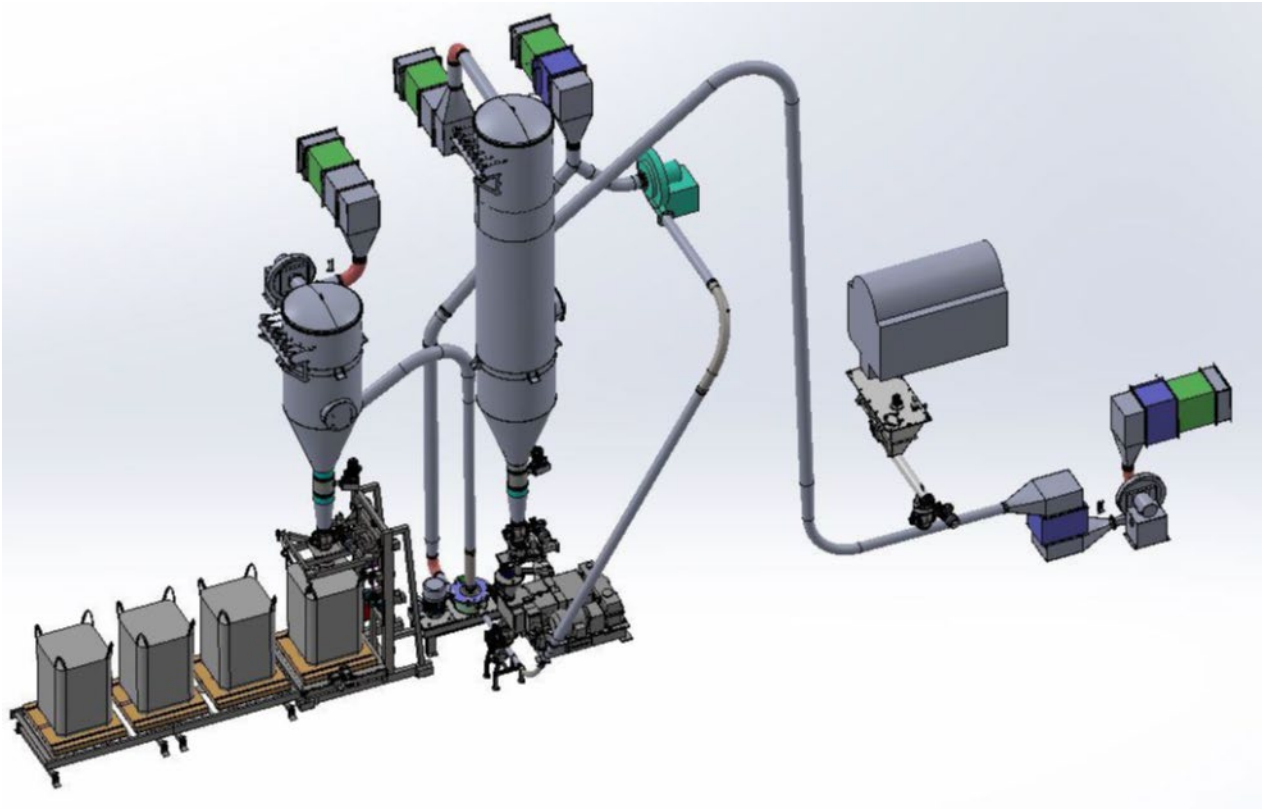


Figure 13: Typical drying, micronization and packaging assembly

3.7 Discharge and Monitoring

3.7.1 Depleted Brine Conditioning and Filtration

Lithium-depleted brine exiting the Direct Lithium Extraction circuit undergoes treatment and filtration to remove suspended solids and verify discharge quality before release to GSL.

pH Adjustment: Lithium-depleted brine exiting the Direct Lithium Extraction circuit undergoes pH verification and adjustment to ensure discharge compliance with applicable permit conditions. Sodium hydroxide (NaOH) solution is added as needed to maintain pH within the target range for discharge to GSL. The pH adjustment system is equipped with continuous pH monitoring and automated chemical dosing to maintain precise control.

Manganese Precipitation: There is a slight increase in manganese in the depleted brine exiting the DLE system. To return the depleted brine manganese concentration to the intake concentration, excess sodium hypochlorite is used to precipitate soluble manganese. The solids are captured in the depleted brine waste solids stream and are taken offsite for disposal. Residual sodium hypochlorite is neutralized with sodium sulfite prior to sending depleted brine to the depleted brine pond. The composition of the brine in the depleted brine pond will be monitored to verify compliance with applicable discharge criteria prior to release.

Depleted Brine Filtration: Following pH adjustment, depleted brine is pumped to the Depleted Brine MMF feed tank, which provides surge capacity to the filtration system. The Depleted Brine MMF removes any remaining suspended solids, ensuring high-quality discharge. Filtrate from the MMF gravity flows to the depleted brine surge pond (**Section 3.7.2**).

The Depleted Brine MMF undergoes periodic backwashing to restore filtration efficiency. Backwash streams are discharged to a backwash holding tank, from where backwash slurry is pumped to a clarifier. Flocculant may be dosed to the clarifier to promote solids settling if required. Clarifier underflow slurry is pumped through a pre-coat filter press. Filter cake is discharged into roll-off bins for disposal at permitted landfill facilities. Filtrate from the filter press is recycled back to the clarifier feed, and clarifier overflow returns to the depleted brine MMF feed tank, maintaining a closed-loop solids management system.

Composition Verification: Prior to discharge, depleted brine composition is verified through the facility's sampling and monitoring program described in **Section 3.7.3** . This verification includes analysis of major ions, trace elements, and water quality parameters to confirm that the depleted brine meets discharge specifications and permit requirements. Brine temperature is monitored to verify that discharge temperature is consistent with ambient GSL conditions. The process design provides several hours of residence time in surge ponds, allowing brine temperature to equilibrate passively with ambient conditions without active heating or cooling.

Hold Time for Verification: The filtered depleted brine flows to the depleted brine surge pond (**Section 3.7.2**) where it is held prior to discharge. This hold time serves multiple functions:

- Provides surge capacity to accommodate variations in process flow rates
- Allows time for sampling and analytical verification before discharge
- Ensures operational flexibility to respond to upset conditions or analytical excursions
- Enables isolation and reprocessing of non-compliant streams if necessary

The surge pond hold time, combined with continuous monitoring and periodic sampling, provides multiple layers of verification that depleted brine quality meets all discharge requirements before release to GSL.

3.7.2 Discharge System

Depleted Brine Surge Pond: The depleted brine surge pond serves as the final verification point before discharge to GSL and is a critical component of the facility's environmental compliance framework. Located on the southern side of the facility site adjacent to the processing plant, the pond provides approximately five hours of surge capacity for depleted brine management.

Purpose and Regulatory Function: The surge pond serves multiple essential functions:

- **Sampling Point:** Provides the designated sampling location for all discharge compliance monitoring, allowing representative grab samples to be collected under controlled conditions
- **Hold Time for Verification:** Enables analytical results to be obtained and reviewed before discharge, providing time to implement corrective actions if non-compliant conditions are detected
- **Operational Buffer:** Decouples discharge operations from process operations, allowing independent control of discharge timing and flow rates

- **Emergency Containment:** Provides capacity to isolate and contain depleted brine in the event of process upset or non-compliant analytical results

Design and Construction: Like the raw brine surge pond, the depleted brine surge pond is constructed with high-density polyethylene ("HDPE") geomembrane liner selected for long-term chemical resistance and environmental protection. The liner system incorporates leak detection sumps, with routine inspections and monitoring protocols to verify ongoing liner integrity.

Level Monitoring and Control: Pond water level is continuously monitored using automated level instrumentation. Level control systems regulate discharge flow rate to maintain target operating range, prevent overfilling, and ensure adequate hold time for sampling verification. High-level alarms provide notification of abnormal conditions requiring operator intervention.

Outfall Pipeline System: Depleted brine flows by gravity from the depleted brine surge pond through the outfall pipeline system to the discharge point in the North Arm. The gravity-fed design eliminates the need for discharge pumps, simplifying operations and reducing the potential for mechanical failures that could interrupt discharge operations.

Outfall Pipeline Design: The outfall system employs a 28-inch diameter high-density polyethylene (HDPE) pipeline selected for the same performance characteristics as the intake system, proven resistance to highly saline brine and expected service life exceeding 50 years. The outfall pipeline extends approximately 7,000 feet from the facility site to the discharge point in the North Arm, following the same pipeline easement as the intake system for most of its length to minimize environmental disturbance.

The outfall discharge point is positioned approximately 1,500 feet from the intake suction head (which is 8,500 feet from the facility). This separation distance, validated through comprehensive hydrodynamic and dispersion modeling conducted by HR Wallingford (**Appendix E.3**), promotes mixing and dispersion of depleted brine to prevent recirculation of discharged brine back into the intake system.

The offshore pipeline sections are anchored to the lakebed using concrete weights positioned at regular intervals, using the same design approach as the intake system (**Section 3.3.1**). These anchors suspend the pipeline both below the water surface and above the lakebed, accommodating changing water levels while securing the pipeline against wave and wind action. The pipeline includes snaking configuration to accommodate thermal expansion and contraction across the full range of ambient temperature conditions.

Common Header and Circulation Capability: A common header connects the intake system (**Section 3.3.1**) and the outfall system, providing operational flexibility to circulate brine during process plant upsets or maintenance events. This bypass capability is particularly important during winter months when stagnant brine in the pipelines could lead to crystal formation (such as mirabilite or Glauber salt), and allows the facility to maintain pipeline integrity without discharging to the lake during extended maintenance periods. This was a field modification made at the Pilot Plant that provided critical operational flexibility.

Flow Rate Control: Discharge flow rate is controlled using flow control valves and continuous flow monitoring. The flow measurement system provides real-time data to the facility's process control system and generates permanent records for regulatory reporting. Flow totalization provides daily and cumulative discharge volumes for water balance verification and compliance reporting.

Outfall System Coordinates: The outfall system coordinates are provided in decimal degrees (latitude/longitude to fifth decimal place), with Universal Transverse Mercator (UTM) Zone 12 North projection included as supplemental reference:

- Facility Location: 41.46110° N, 112.69336° W
  N=15063408.491', E=1176440.965
- Outfall Discharge Point: 41.44486° N, 112.70696° W
  N=15057573.103', E=1172586.525' (7,000 ft from facility,1,500 ft from intake)

3.7.3 Monitoring and Reporting

The facility implements comprehensive monitoring and reporting programs to verify discharge compliance with permit requirements, demonstrate protection of GSL water quality, and fulfill statutory obligations for measurement and reporting of brine extraction and return.

3.7.3.1 Brine Quality Monitoring

Sampling Program: Routine sampling will be conducted at key points in the process, including influent brine entering the facility and depleted brine exiting the plant, as well as at selected internal process locations as needed to support operational control and optimization of lithium recovery.

Incoming brine will be sampled at frequencies and locations consistent with UPDES permit requirements. These samples will be analyzed for total suspended solids (TSS), pH, oxidation-reduction potential (ORP), turbidity, metals (ICP), biochemical oxygen demand (BOD), and chemical oxygen demand (COD) to characterize feed conditions, assess variability, and support operational adjustments.

Depleted brine will be sampled at frequencies and locations consistent with UPDES permit requirements. These samples will be analyzed for pH, metals (ICP), BOD, and COD to verify treatment effectiveness and demonstrate compliance with discharge requirements prior to release to the lake. Sampling and process monitoring upstream of the depleted brine will also be used to indicate process upsets that could lead to non-compliant depleted brine and help to remediate any issues before the depleted brine makes it to the pond.

Sampling frequencies, locations, and analytical parameters may be adjusted as necessary based on operating experience, permit conditions, or regulatory approval, while maintaining compliance with applicable requirements.

Sampling Methods and Standards: Samples will be collected using standardized sampling procedures designed to produce representative samples of the respective streams. Sample collection, preservation, handling, and holding times will be consistent with applicable industry standards, including EPA-approved methods (e.g., 40 CFR Part 136) and relevant guidance from Standard Methods for the Examination of Water and Wastewater, as appropriate for saline matrices.

Sampling points will be designed to allow safe and representative sample collection. Samples will be collected into appropriate containers, preserved as required for the target analytes, and transported under controlled conditions to the onsite or offsite laboratory for analysis.

Quality Assurance and Quality Control: QA and QC procedures will be applied to all sampling and analytical activities. QA/QC measures will include routine calibration and verification of field

instrumentation, use of appropriate blanks and duplicates, chain-of-custody documentation, and data review prior to use in compliance determinations or operational decision-making.

Analytical results will be reviewed against baseline conditions, historical trends, and applicable discharge limits to identify anomalies, trends, or potential non-compliance. Data will be evaluated using both instantaneous measurements, which support real-time process control, and time-averaged results, which are used to demonstrate compliance and assess overall treatment performance.

Data Management and Use: Sampling results, continuous monitoring data, flow measurements, calibration records, and QA/QC documentation will be retained as part of facility operating records. Data will be archived to ensure traceability, including clear documentation of sampling locations, collection times, analytical methods, and associated flow conditions. Records will be made available for regulatory review in accordance with permit requirements.

3.7.3.2 Flow Metering and Water Balance Verification (Utah Code § 73-33-203)

To comply with Utah Code § 73-33-203, effective May 1, 2024, Waterleaf will install, operate, and maintain a comprehensive metering and monitoring system to physically measure both the volume and quality (salinity) of all GSL brine extracted and returned. The system is designed to provide transparent, verifiable data to the Utah Division of Water Rights ("DWRi"), FFSL, and DWQ.

Volumetric Measurement:

- **Extraction Meters:** Each brine intake line will be equipped with a magnetic flowmeter providing direct volumetric measurement (no estimation or calculation permitted).
    - Accuracy: ±0.5% of reading, factory-certified
    - Configuration: Redundant dual-sensor arrangement for verification
    - Calibration: Annually by a Utah-licensed technician; certificates retained on site
- **Return-Flow Meters:** Equivalent magnetic flowmeters will be installed on each discharge line conveying depleted brine back to the lake. Data will be logged in parallel to confirm non-consumptive operation and compliance with FFSL's "no-net-loss" condition.
- **Data Logging and Retention:** Flow data will be recorded continuously through the plant's Programmable Logic Controller (PLC) system at one-minute intervals, archived to a secure server, and backed up daily. Records will be kept for not less than five years from the date of measurement, as required by § 73-33-203(4).

Salinity and Water-Quality Measurement:

- **Inline Sensors:** Continuous conductivity and temperature probes located at both intake and discharge points automatically calculate total dissolved solids (TDS g/L) and specific salinity. Routine cross-checks will be performed against laboratory ICP and gravimetric analyses to maintain calibration accuracy.
- **Reporting Limits and DWQ Coordination:** When DWQ promulgates salinity-limit rules per § 73-33-203(3), Waterleaf will update its monitoring protocol accordingly. Until then, daily average and maximum salinity data will be submitted under the project's UPDES monitoring plan.

Recordkeeping and Reporting:

- **Monthly Reporting:** Summaries of extraction/return volumes and salinity readings will be transmitted electronically to the Division of Water Rights and FFSL in accordance with agency data-submission standards.
    - Each report will include: meter IDs, calibration dates, total extracted volume, total returned volume, average salinity of return brine, and calculated water balance
- **Annual Verification:** A third-party engineering firm will perform annual audit and validation of all measurement devices and data-handling procedures. Audit reports will be appended to the project's annual compliance submission to FFSL.

System Redundancy and Data Integrity:

To ensure reliability under variable lake conditions:

- Each metering location will include a manual isolation bypass for maintenance without data interruption
- The PLC will flag out-of-range readings or instrument drift for immediate operator review
- Backup power (UPS) guarantees continuous data capture during outages

Compliance Summary: Waterleaf's metering and monitoring framework fulfills the statutory requirements of Utah Code § 73-33-203 by providing direct physical measurement of all diverted and discharged brine, continuous salinity monitoring, secure recordkeeping for a minimum of five years, and formal data submission to DWRi and FFSL. This program ensures transparent verification of the project's non-consumptive water use and supports adaptive management of GSL resources under forthcoming DWQ salinity-limit rules.

3.7.3.3 Discharge Operations

Sources of Discharge: Discharge streams returned to Great Salt Lake include lithium-depleted brine from the Direct Lithium Extraction circuit, periodic backwash streams from multimedia filters containing naturally occurring suspended solids from raw brine, and intermittent streams from reverse osmosis cleaning-in-place (CIP) circuits and other process blowdown operations.

Detailed quantification of discharge volumes, including breakdown by source stream, daily and annual totals, and water balance reconciliation demonstrating non-consumptive operation, is provided in **Section 4.1.5**.

Discharge Timing: During normal operations, discharge to Great Salt Lake occurs continuously. The continuous discharge mode maintains stable operating conditions, prevents accumulation of process streams, and is consistent with the facility's non-consumptive operating design. Planned maintenance windows may result in temporary interruption of discharge while maintenance activities are conducted and systems are returned to service.

Discharge operations accommodate seasonal variations in ambient conditions, including changes in lake temperature, salinity, and water level. Operational protocols ensure that discharge continues to meet permit requirements across the full range of seasonal conditions. Specific considerations for winter operations, cold weather performance, and management of temperature-dependent phenomena such as mirabilite precipitation are detailed in **Section 4.3.**

Permit Compliance: All discharge operations are conducted in accordance with Utah Pollutant Discharge Elimination System (UPDES) Permit requirements and the discharge framework established by the Utah Division of Water Quality pursuant to Utah House Bill 513 (2024). Flow, temperature, and pH are continuously monitored to verify compliance with UPDES permit parameters.

3.7.3.4 Startup, Ramp-Up, and Upset Conditions

Start-up and ramp-up: During startup and ramp-up, additional monitoring will be conducted to manage transient conditions associated with commissioning of new equipment. Trace metals introduced from new piping, pumps, tanks, or ancillary equipment will be managed through the depleted brine monitoring and treatment and effluent adjustment systems prior to discharge. Water used for hydrotesting and commissioning will be collected, evaluated, and managed through the same treatment systems used for depleted brine.

Upset conditions: In the event of an upset condition or non-compliant analytical result, immediate corrective actions will be implemented to prevent or minimize discharge impacts. Corrective actions may include adjustment of process controls, diversion of affected streams to treatment or storage systems, implementation of additional treatment steps, or suspension of discharge until compliance is restored. If compliance cannot be achieved through onsite measures, affected solutions will be isolated and removed from the site by licensed waste management contractors for offsite treatment and disposal. All upset conditions and corrective actions will be documented in accordance with permit requirements.

3.8 Water, Reagents and Utilities

3.8.1 Water Services

Water usage across the facility is designed to minimize water consumption through extensive recycling and recovery systems. Overall site water balance, including all sources, uses, and recycling streams, is detailed in **Section 4.1.5.**

3.8.1.1 Raw Water (Groundwater)

The raw water supply to the lithium process plant will be extracted from on-site groundwater wells located within the facility property boundary. The groundwater source has been evaluated using Mango Spiral Jetty LLC well 13-4110 (41.52334° N, 112.65036° W), as identified by the Utah Division of Water Rights. The wells access an unconfined unconsolidated gravel aquifer consisting primarily of coarse sand and gravel deposits. The aquifer is encountered at depths beginning at approximately 75 feet below ground surface, with total well depths on the order of 190–200 feet below ground surface.

Estimated nominal raw water demand is approximately 210,000 gallons per day (240 acre-feet per year) to support process operations, potable water supply, and fire protection systems. Water rights for process facility operations are discussed in **Section 7**. Detailed hydrogeologic characterization, well construction details, and water chemistry analysis are provided in **Appendix E.2** (SLR Groundwater Analysis).

The raw water will be stored in a raw water storage tank and from there pumped through a multimedia filtration system to remove suspended solids. The filtered water will be discharged into the treated water distribution tank and will be transferred to the raw water reverse osmosis system. Treated water from the distribution tank will also be directed to the potable water system, fire water services, and acid scrubber recirculating tank.

3.8.1.2 Process/Wash Water Recovery

The process water tank receives permeate from the eluate RO, and excess permeate from the water recovery RO. RO water will be pumped to the process water tanks during startup or upset conditions. The process water will be used throughout the plant, including the DLE wash, brine pre-conditioning filtration, eluate neutralization filtration, and flocculant make-up.

Wash water from the DLE, impurity IX, and raw water RO retentate advances to the water recovery RO system, which comprises of three skids mounted with cartridge filters, booster pumps, and reverse osmosis system. The water recovery RO permeate flows to the process water tank.

3.8.2 Reagents

The reagents unloading facilities will be housed within purpose-built structures incorporating all necessary equipment and ancillary systems for the safe storage, handling, and distribution of reagents across the plant.

A comprehensive list of all reagents, including chemical specifications, is provided in **Appendix D.5**. Reagent consumption rates, typical reagent impurities and the Project mass balance are detailed in **Section 4.1.8**.

The layout of the reagent area and associated equipment will be optimized for efficient internal logistics, minimizing land footprint while enabling streamlined transportation, operation, and maintenance. Access will be provided via pedestrian entry points to accommodate forklifts, delivery trucks, and maintenance equipment.

3.8.2.1 Base

The sodium hydroxide solution will be delivered at a high concentration by road tanker to the process plant and stored in the sodium hydroxide storage tank. An electric resistance heater will be used to raise the temperature of the storage tank during the winter months to maintain the viscosity of the reagent and avoid crystallization.

The sodium hydroxide solution will be pumped from the storage tank to the sodium hydroxide dosing tank where the solution will be diluted with RO water before being distributed throughout the plant via a ring main. The ring main then discharges the solution back into the dosing tank.

3.8.2.2 Acid

Concentrated sulfuric acid will be delivered to site in a road tanker and will be transferred to the sulfuric acid storage tank. A dosing pump will dose the concentrated sulfuric acid to the eluate RO, impurity IX, raw water RO CIP, DLE, bicarbonation IX, water recovery RO, and effluent storage.

3.8.2.3 Sodium Carbonate

Anhydrous sodium carbonate will be used in the crude lithium precipitation circuit to convert lithium sulfate to lithium carbonate. The sodium carbonate will be delivered by bulk trucks and offloaded with the delivery truck's pneumatic offload equipment to the sodium carbonate tank. The sodium carbonate will feed into the make-up and storage system from where it will be dosed to the crude lithium carbonate crystallization circuit.

3.8.2.4 Lime/Limestone

Hydrated lime (calcium hydroxide) will be delivered by bulk trucks and offloaded with the delivery truck's pneumatic offload equipment to the hydrated lime storage silo.

Hydrated lime will be fed by a screw feeder to the hydrated lime make-up tank where it will be slurried with RO water. The hydrated lime slurry distribution pump will pump the lime slurry through a ring main. The lime will be used as a pH modifier in the eluate neutralization and filtration.

Limestone (calcium carbonate) will be delivered to by bulk trucks and offloaded with the delivery truck's pneumatic offload equipment to the limestone storage silo.

Limestone will be fed by a screw feeder to the limestone make-up tank where it will be slurried with RO water and combined with softened eluate cake to create a slurry. The limestone slurry distribution pump will pump the limestone through a ring main. The limestone will be used as a pH modifier in the eluate neutralization and filtration.

3.8.2.5 Oxidant

Sodium hypochlorite will be delivered to the site as a concentrated aqueous solution with a road tanker and pumped with the sodium hypochlorite offloading pump into the sodium hypochlorite storage tank. The sodium hypochlorite solution will be pumped by the distribution pump to the process plant to control biological growth and chemistry in the process plant. A raw water dosing pump and potable water dosing pump will dose sodium hypochlorite into the raw water and fire water tanks respectively.

3.8.2.6 Antioxidant

Sodium sulfite will be delivered to site in bulk bags and transferred with a hoist to the sodium sulfite storage silo. A screw feeder feeds sodium sulfite to the sodium sulfite make-up tank where it will be diluted with RO water. The solution will be pumped with the sodium sulfite dosing pump to the process plant, where it will be used to neutralize any excess sodium hypochlorite.

3.8.2.7 Water Treatment and Brine Pre-treatment Chemicals

Antiscalant, used in the water treatment systems, will be delivered by truck as a concentrated aqueous solution in an IBC container. It will be dosed directly from the IBC into the boiler feed tank, raw water RO system, and water recovery RO system using dedicated antiscalant dosing pumps.

Citric acid will be delivered in bulk bags and transferred using a hoist to the citric acid storage silo. From the storage silo, it will be discharged through a screw feeder into the citric acid make-up tank where it will be mixed with RO water. The citric acid will be then pumped using the citric acid dosing pump to both the IX DLE and the eluate RO CIP tank.

Corrosion inhibitor will be delivered to site as a concentrated aqueous solution in an IBC container and will be pumped directly from the IBC container to the boiler feed tank.

Flocculant will be delivered to site in bulk bags and transferred with a hoist to the flocculant storage bin. Flocculant powder will be transferred with a rotary valve to a screw conveyor and into the agitated flocculant make-up tank where it will be diluted with process water. From the make-up tank the solution will be transferred with the flocculant dosing tank feed pump to the flocculant dosing tank. The flocculant solution will be stored in the flocculant dosing tank, where it will be pumped with the flocculant dosing pumps to the depleted brine clarifier.

The water treatment chemicals sump pump will collect spillage in the area and dispose of the chemicals in the effluent tank, for further treatment.

3.8.2.8 Filter Aid

Filter aid (diatomaceous earth) will be delivered in bulk bags and transferred with a hoist to the filter aid storage bin. Filter aid will be fed by a screw conveyor to the agitated brine preparation precoat tank where it will be slurried with RO water. The filter aid will be pumped to the backwash filter press and eluate neutralization filter press, when required.

3.8.2.9 Carbon Dioxide

Carbon dioxide will be delivered to the plant in pressurized storage tanks and captured from the lithium process plant for reutilization. Carbon dioxide from the eluate neutralization, bicarbonation tank, and pure lithium carbonate crystallizer are recovered and re-compressed. The carbon dioxide will be transferred to the eluate softening and bicarbonation tank in a pressurized pipeline. The carbon dioxide will be injected into the tanks through a diffuser.

3.8.2.10 Quality Assurance

A reagent quality assurance program will be implemented to ensure that all reagents used onsite meet approved specifications and do not adversely affect process performance, effluent quality, or lithium product quality. The program includes supplier qualifications, reagent approval, receipt verification, analytical testing, documentation, and corrective action procedures.

All reagents will be sourced from qualified and reputable suppliers. Prior to approval for use, each reagent will be supported by supplier technical data sheets and Certificates of Analysis (COAs) defining chemical composition and impurity profiles. These documents will be reviewed and approved to verify that reagent impurities will not result in exceedances of permitted effluent limits, impair treatment system performance, or negatively impact product quality. Approved impurity limits will be updated into process mass balances and treatment system evaluations. The reagents that will be used during commercial operations are listed in **Appendix D.5** together with an example COA for each, as received from potential suppliers. Typical impurities for major reagents have been considered in the commercial mass balance, this is discussed in more detail in **Section 4.1.8**.

Reagent procurement contracts will require conformance with approved specifications, and suppliers will be commercially accountable for meeting stated impurity limits. COAs will be reviewed for each reagent delivery, and verification testing, including titration and metals analysis where appropriate, will be conducted in accordance with facility QA/QC procedures.

Reagents that do not conform to approved specifications will be rejected, returned to the supplier, or segregated and managed separately to prevent introduction into the process. Non-conforming reagents will not be used unless compliance with approved specifications is verified.

Records of supplier documentation, COAs, analytical results, and reagent acceptance or rejection will be maintained as part of facility quality records.

3.8.3 Utilities

3.8.3.1 Power Generation

The power generation facility will be designed to supply reliable electrical energy to the plant using diesel-fueled generator sets. Diesel will be delivered to the site via road tanker trucks and stored in above-ground, code-compliant storage tanks equipped with all necessary safety, pressure relief, and control systems.

The facility will include multiple high-efficiency generator units powered by internal combustion engines specifically configured for Diesel fuel. These generators will be housed in an enclosed structure or weatherproof acoustic enclosures to reduce noise emissions and ensure protection against environmental conditions. The generator units will be configured with controls for automated load sharing to meet variable load demands and provide redundancy for critical operations.

Fuel storage and handling systems will be designed in compliance with all relevant codes and standards, including NFPA 58 and local regulations. The diesel storage tank will be located in a dedicated, ventilated containment area, with safety features such as remote emergency shutoff valves, leak detection systems, and fire suppression systems. Diesel will be transferred from the storage tanks to the generators through a distribution system with appropriate filtration, and safety interlocks.

The facility will include all necessary electrical infrastructure, such as switchgear, transformers, and protection relays, for safe and efficient power distribution throughout the site. Integration with the plant's electrical system will allow for load balancing, remote monitoring, and automated control.

Environmental considerations will include spill containment for fuel storage, noise attenuation measures, and exhaust treatment systems to meet applicable air quality standards. Routine maintenance access and safety zones will be incorporated into the layout to ensure operational reliability and regulatory compliance.

Power Consumption

Table 8 shows the anticipated electrical load for the facility.

Table 8: Estimated power consumption

AREA	CONNECTED LOAD (kW)	AVERAGE LOAD (kW)
Process Loads	8,346	3,982
Ancillary- Non-Process Loads	1,275	886
Subtotal	9,621	4,868
3% Power System Losses	289	146
Total	9,910	5,014

Power Plant

Power for the site will be provided by an onsite power plant. The power plant will consist of five (5), 2.6 MW gensets configured for N+1 operating mode and with an output voltage of 13.8 kV. The power plant will include a 13.8 kV switchgear line up. This switch gear line will have breakers for the connection to the generators and breakers for field power distribution.

The generators will be installed in walk-in enclosures, alternating current (AC) and direct current (DC) auxiliary services, automatic fire detection and suppression system (FM 200). The 13.8 kV switchgear and ancillary services will be installed in a modular electrical house complete with building services including lighting, heating and ventilation, DC batteries, automatic fire detection and suppression system (FM 200), and load sharing control. Each module will be internally pre-wired, with only external connections requiring field installation.

13.8 kV Power Distribution

From the power plant 's 13.8kV primary power switchgear line up, power will be distributed by cable tray system installed in the main utility rack.

The following facilities will be supplied with 13.8 kV power utilizing the cable tray system installed in the main utility rack:

- Electrical House #1/2
- Electrical House #3/4
- Electrical House #5/6
- Electrical House #7/8

All process electrical houses (E-Houses) will be modular units fabricated off site and will be self-supporting, designed and packaged for road shipment to site. All electrical, controls and instrumentation equipment will be installed, wired, and completely tested before shipment.

These E-houses will be installed on a foundation and the cables will enter the E-houses to the electrical panels, MCCs and cabinets. The E-houses will be installed with HVAC units and suitably sealed to prevent ingress of dust and will be built to meet a two-hour fire rating. The E-houses will be installed close to the main load points to reduce cabling installation costs.

3.8.3.2 Cooling Water

Cooling water will be produced using a forced ventilation, direct air contact cooling tower. The cooling tower blowdown will be sent to the effluent storage tank for treatment and eventual discharge via depleted brine (see **Section 3.7**). Cooling water will be used in the crude lithium carbonate crystallization, and product dryer cooling screw.

3.8.3.3 Compressed Air

Two air compressors are used to supply air to the compressed air receivers. Instrument air will be filtered and dried before the instrument air receivers from where it will be supplied to the plant. Plant air will be un-dried air from the compressed air receivers and will be distributed from the plant air receiver.

3.8.3.4 Fire Water System

A fire and potable water storage tank will be used to supply the fire water and potable water systems. The tank receives RO water which will be conditioned for use in the tank. A fire water pump package consists of an electrical pump, diesel pump, potable water pump and an electrically powered jockey pump.

The fire water system pressure will be maintained using the jockey pump, thereby preventing the premature starting of the main fire water pump. The potable water will be distributed with the potable water pump to provide potable water to the personnel on the plant and safety showers.

3.8.3.5 Steam System (Boiler)

A propane fired boiler will provide process steam for the crude and pure lithium carbonate crystallization, evaporator, pure lithium crystallizer demister, and hot water RO tank. Condensate from the process circuit will be returned to the boiler feed tank. RO water and chemical reagents are added to the boiler feed tank to maintain the water level and water quality. Boiler emissions are managed in accordance with applicable air quality standards.

3.8.3.6 Fuel Storage

A propane storage system will be used to transfer propane to the boiler. Propane storage and handling complies with NFPA 58 (Liquefied Petroleum Gas Code) and includes appropriate secondary containment and leak detection systems.

Diesel will be delivered by a road tanker to site and transferred to the diesel storage tank. Diesel will be transferred with the diesel transfer pump and used for plant power generation and mobile equipment. Diesel storage tank includes spill containment per 40 CFR 112 (Spill Prevention, Control, and Countermeasure) requirements.

3.8.3.7 Acid Scrubber

Process operations and concentrated acid storage present the potential for acid gas formation under upset conditions. As an environmental safeguard, an acid gas scrubber is included in the commercial facility design.

In the event of upset conditions that could generate acid gases, the scrubber system will extract vapors using a dedicated fan and neutralize them with a circulating dilute sodium hydroxide solution.

Sodium hydroxide will be diluted with water in the agitated acid scrubber recirculating tank and circulated through the scrubber. Periodically, a scrubbed liquor bleed stream will be pumped to the effluent tank for pH neutralization and eventual discharge per **Section 3.7**.

The acid scrubber system provides standby emission control capability for acidic vapors, maintaining workplace air quality and preventing atmospheric release under abnormal operating conditions. Scrubber functionality is verified through periodic pH measurement of the recirculating solution and visual inspection of the system.

4 Commercial Facility Basis

This section presents the quantitative basis for the commercial facility design, demonstrating how pilot-scale performance data have been translated into commercial design parameters with appropriate engineering margins. The analysis is organized into three areas: mass and water balance development (**Section 4.1**), scalability assessment across all major process areas (**Section 4.2**), and seasonal operations evaluation with associated mitigation strategies (**Section 4.3**).

The commercial design parameters presented in this section build upon the process descriptions in **Section 3** and the Pilot feasibility data documented in **Appendix B.1**. Where values presented in the body text are rounded for clarity, the corresponding commercial facility mass balance (**Appendix D.4** Commercial Plant Mass Balance) contains the precise values used in facility design. Together, these analyses address the evidence requirements for commercial viability under R652-21-704 and the operational design revisions required under R652-21-705(2).

4.1 Pilot Operations and Commercial Design Basis

4.1.1 Pilot Operations Summary

From January to August 2025, Waterleaf operated a Pilot Plant on the North Arm of the Great Salt Lake to validate the performance of Lilac Solutions' Gen 5 ion exchange technology under field conditions. The Pilot Plant successfully met all key performance indicators during a 21-day performance run (May 20 – June 10, 2025), as documented in the Final Monitoring Report (**Appendix B.1**).

During the entire operating period, no net loss of water was measured, confirming Waterleaf's Pilot Plant, leveraging Lilac DLE, is a non-consumptive mineral extraction technology. From January to August 2025, 3.35 af of brine was extracted from the lake and 3.47 af of depleted brine and process water was returned to the lake, as documented in the Final Monitoring Report (**Appendix B.1**, Table 13).

Internal stream tables for the 21-day FFSL performance period from May to June 2025, including average flow rates and chemical compositions for all process streams, are provided in **Appendix D.3** (Pilot Plant Mass Balances), with stream identifiers corresponding to the Pilot Plant process schematic in **Appendix D.1** (Process Schematic - Pilot Plant). The discharged outfall brine is the only process stream that impacts lake chemistry. All other streams either remain within the closed-loop process system or are managed off-site. Freshwater consumed in the process (sourced from groundwater) is accounted for separately in the commercial water balance (**Section 4.1.5**).

Over the eight-month operating period, the Pilot program progressed through four distinct phases: commissioning (January–February), ramp-up (March), equipment optimization (March–May), and steady-state operation (May–August). During commissioning and ramp-up, equipment configurations were evaluated and progressively upgraded to optimize lithium recovery and overall technology performance. These phases are consistent with standard practice for industrial pilot plants and are documented in the Final Monitoring Report (**Appendix B.1**).

Table 9 summarizes the Pilot program timeline, including key equipment changes and their observed effects on plant performance. Based on this progression, Weeks 16–28 (May–August 2025) were identified as the 'optimal operating period' (also the "optimal period") – the interval during which the plant achieved stable, commercially representative performance following completion of all major equipment upgrades. The Pilot data from this optimal period form the primary basis for the commercial facility design parameters presented in this section. **Section 4.1.2** presents a detailed analysis of the Pilot sampling data, including external compliance monitoring and internal process datasets, and describes how these data were evaluated and applied in developing the commercial facility design basis.

Table 9: GSL Pilot program timeline and key equipment changes

Date	Phase	Change	Impact
1/11	**Commissioning**	Commissioning begins	
2/2		Upgrade brine filtration from polymeric UF to ceramic UF	Increased uptime with increased lithium loss to depleted brine
2/6		First UPDES compliance monitoring	
3/15	**Ramp-up**	Upgrade IX Media to Generation 4 Ramp-up period begins	Improved DLE performance
3/28	**Optimization**	Optimization period begins	
4/5		Upgrade IX Vessel	Improved DLE performance
4/11		Upgrade IX Media to Generation 5	Improved DLE performance
5/10		Upgrade raw brine filtration from ceramic UF to MMF Upgrade depleted brine filtration from polymeric UF to filter press	Improved plant lithium recovery
5/20	**Steady-State Operation**	21-day performance run begins	
6/10		21-day performance run ends	
6/15		Upgrade depleted brine filtration from filter press to MMF	
8/15		End of Operations	

4.1.2 Pilot Data Analysis

This section presents the analytical datasets collected during Pilot operations, the chemical and operational results derived from those datasets, and the observed performance trends that inform commercial design parameters.

Internal process streams are documented in **Appendix D.3** (Pilot Plant Mass Balances) and **Appendix D.1** (Process Schematic - Pilot Plant) to provide complete process transparency. Instantaneous sample and flow rate data requested by FFSL are provided in Appendix G.2 (GSL Pilot - Instantaneous Samples Analysis) and **Appendix G.1** (GSL Pilot - Flow Meter Analysis).

Evaluating impacts to lake chemistry and biota focuses on comparing intake and outfall brine chemistry, as the depleted brine discharge to the North Arm is the only process stream that impacts the Great Salt Lake. Analysis of Pilot intake versus outfall chemistry demonstrates the selectivity of the DLE process and provides the empirical basis for commercial-scale mass balance presented in **Section 4.1.3** and **4.1.4**. Solid and liquid wastes generated by the process are managed off-site as described in **Section 5.3**.

4.1.2.1 Analytical Datasets and Methods

Two complementary datasets were collected during Pilot operations to characterize the chemical behavior of the DLE process and provide the analytical foundation for commercial facility design:

External Compliance Monitoring Dataset (Chemtech Ford Dataset): HDR collected weekly intake and outfall brine samples throughout the operating period, with analysis performed by the third-party laboratory Chemtech Ford, as required under UPDES permitting. Each weekly sampling event consisted of grab samples collected at two-hour intervals over a six-hour period, which were composited into a single representative sample for analysis. This composite sampling protocol was designed to capture intraday variability while providing a representative time-weighted average for each monitoring period. The Chemtech Ford dataset provided regulatory-grade analytical quality under controlled quality assurance protocols (**Appendix B.1**, Section 2).

Internal Process Monitoring Dataset (Waterleaf Dataset): Waterleaf conducted internal process sampling at higher frequency – either every three hours or daily, depending on the parameter – across all major process streams. These samples were individual grab samples analyzed by Waterleaf's on-site laboratory. The Waterleaf dataset provided greater temporal resolution for tracking process dynamics and equipment performance.

In addition to these two chemical sampling datasets, flow rate monitoring was performed by Waterleaf:

Flow Rate Monitoring: Intake and outfall flow rates were logged at 2-second intervals throughout the full Pilot operating period. The complete instantaneous flow rate dataset is provided in tabulated digital format in **Appendix G.1** (GSL Pilot - Flow Meter Analysis), as requested by FFSL. Weekly flow totals were reported to FFSL throughout the Pilot program and are compiled in **Appendix G.4** (GSL Pilot – Weekly Flow Totals).

Together, these datasets support multiple analytical objectives: the Chemtech Ford dataset provides independent verification of discharge quality for regulatory compliance; the Waterleaf dataset enables detailed process optimization and troubleshooting; and the high-resolution flow data

enables correlation of chemistry with operational conditions. The following subsections present the results derived from these datasets.

4.1.2.2 Chemical Sampling Dataset Comparison and Validation

Comparison of the Waterleaf Dataset and Chemtech Ford Dataset validates both sampling and analytical methods for measuring major constituents in the brine.

As a result, despite differences in sampling frequency and protocols, the same conclusions can be drawn from both datasets regarding the DLE process chemistry. Note that while the Waterleaf Dataset exhibits more variability per sample than the Chemtech Ford Dataset due to differences in sampling frequency, the weekly average of the Waterleaf data exhibits the same trend and week-to-week change in concentration as the HDR samples.

The analytes measured by both Waterleaf and Chemtech Ford during the Pilot program included lithium, sodium, magnesium, calcium, potassium, boron, and sulfate. Chemtech Ford also measured trace metals including iron, manganese, and strontium by using ICP-MS, which provides lower detection limits than Waterleaf 's ICP-OES method. Waterleaf's internal results for these analytes using ICP-OES were below the method detection limit for the majority of the dataset and are therefore not directly comparable to the Chemtech Ford analyses.

For each analyte, the comparison between the Waterleaf weekly average and the HDR samples showed either agreement, or systematic bias between laboratories. Results for lithium, magnesium, calcium, potassium, boron, and sulfate showed no significant difference between laboratories. Sodium measurements showed systematic bias, with Waterleaf's ICP-OES method underestimating sodium concentrations relative to Chemtech-Ford's results – a discrepancy attributed to matrix interference effects in the high-salinity brine samples.

Figure 14 through **Figure 16**, below, provide dataset comparison and analysis for lithium, calcium, and sodium, respectively. Comparison for the full set of analytes is provided in **Appendix G.2** (GSL Pilot - Instantaneous Samples Analysis).

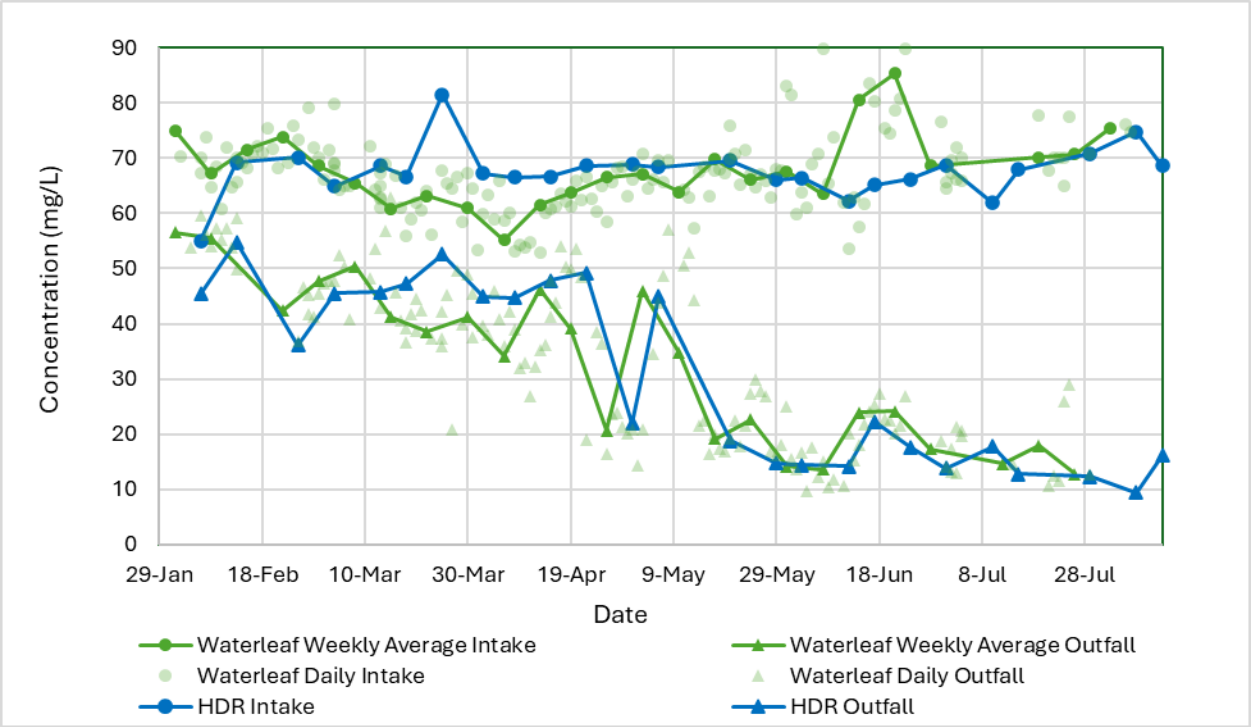


Figure 14: Pilot Plant intake and outfall lithium concentration in brine analyzed by Chemtech Ford (HDR) and Waterleaf.

Figure 14 compares the Chemtech Ford and Waterleaf lithium concentration measurements at the intake and outfall over the Pilot operating period, demonstrating consistency between the two independent measurement programs. The consistently low lithium concentration in the outfall samples from May 20th through the end of operations reflects the stable performance achieved during the optimal period.

The Waterleaf daily samples exhibit greater variability than the Chemtech Ford weekly composites, reflecting differences in sampling protocol and analytical method rather than true process variation. When averaged on a weekly basis, the Waterleaf dataset tracks the Chemtech Ford results closely, confirming consistency between the two independent measurement programs. Both datasets capture the progressive decrease in outfall lithium concentration as equipment upgrades improved overall plant lithium recovery during the commissioning, ramp-up and optimization phases.

Outfall lithium concentrations were notably variable during weeks 0–16 (January – May 19, 2025), a period in which plant operations were conducted concurrently with equipment commissioning, flowsheet configuration changes, and IX operating parameter optimization, as detailed in **Table 9**. This variability is characteristic of pilot-scale commissioning, during which process configurations are deliberately evaluated and refined. As equipment upgrades were completed — culminating in the installation of multimedia filtration and Gen 5 IX media — lithium recovery improved and outfall concentrations stabilized.

This early-phase variability is not representative of anticipated commercial operations, in which all process equipment, operating parameters, and flowsheet configurations are fixed at the outset based on the Pilot learnings described in **Section 4.1.3**. Accordingly, the weekly Chemtech Ford

sampling data from the optimal operating period (Weeks 16–28) are used as the primary basis for commercial discharge loading estimates. Data from the earlier commissioning and optimization phases are retained in the complete Pilot dataset (**Appendix D.3,** Pilot Plant Mass Balances) and are available for review, but are not used in the commercial design basis calculations.

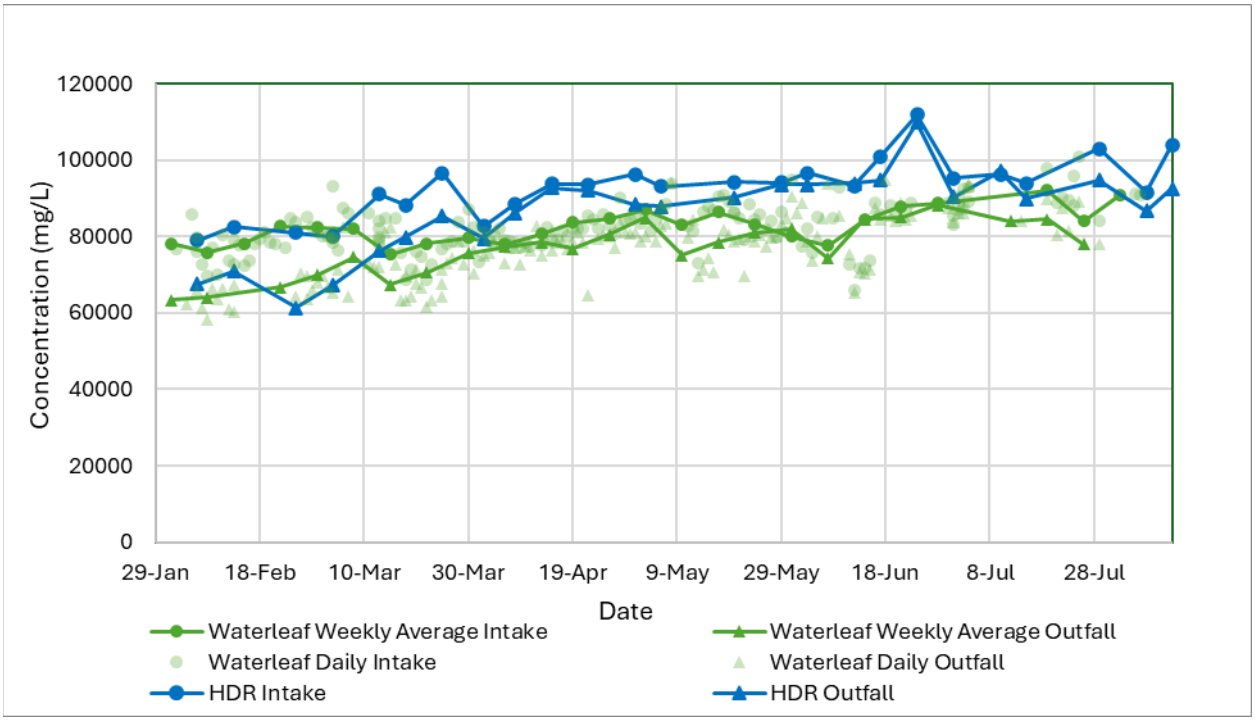


Figure 15: Pilot Plant intake and outfall sodium concentration in brine analyzed by Chemtech Ford and Waterleaf. Bias between laboratories is exhibited as different sample dilutions were used for analysis leading to Waterleaf underreporting sodium concentration.

For sodium (**Figure 15**), a systematic offset is observed between the two datasets: Waterleaf's internal results report lower sodium concentrations than Chemtech Ford. This offset reflects a difference in analytical method – Waterleaf's ICP analysis applies a single dilution factor across all ions, whereas Chemtech Ford optimizes the dilution for each analyte individually using ICP-OES, yielding higher precision at high concentrations. This type of method-dependent bias is well-understood in analytical chemistry and does not affect the validity of either dataset for its intended use. The relevant observation is that both datasets show consistent trends: intake and outfall sodium concentrations are closely matched, confirming that the DLE process does not materially alter the sodium balance of the brine.

Both datasets also recorded a seasonal decrease in intake sodium concentrations during winter months, attributed to precipitation of sodium sulfate decahydrate (mirabilite) within the above-ground Pilot equipment as brine temperatures decreased. This seasonal behavior informed the commercial facility's mirabilite management strategy, discussed in **Section 4.3**.

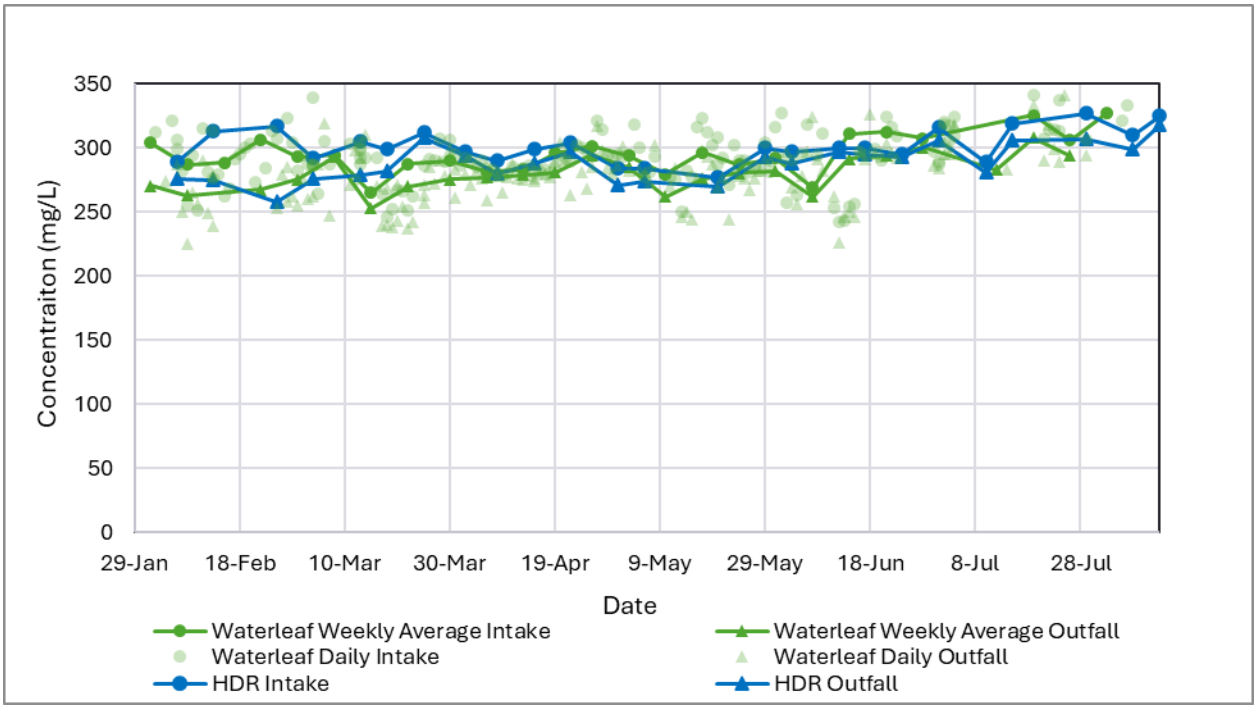


Figure 16: Pilot Plant intake and outfall calcium concentration in brine analyzed by Chemtech Ford and Waterleaf. No bias between laboratories is exhibited.

For calcium (**Figure 16**), the two datasets show close agreement with no systematic offset, further confirming the reliability of both measurement programs. Comparable graphs for other analytes, including magnesium, potassium, boron, and sulfate are provided in **Appendix G.2** (GSL Pilot - Instantaneous Samples Analysis). Similar to calcium, comparison of the two datasets for each of these analytes show close agreement with no systematic offset.

4.1.2.3 Chemical Analysis Results

To analyze significant magnitude changes in chemical concentration across the DLE plant, logarithmic scale concentration graphs were analyzed. Analysis of log-scale constituent concentrations using the Chemtech Ford dataset during the optimal operating period (Weeks 16–28) identified five analytes with significant (>50%) changes between intake and outfall: lithium, manganese, alkalinity, bicarbonate, and biochemical oxygen demand. The complete dataset is provided in **Appendix B.2** (Log-Based Constituent Graphs). All other monitored analytes, including arsenic, exhibited no significant change in magnitude across the DLE Pilot Plant during this period.

Lithium, the target extraction element, decreased by approximately one order of magnitude from 68 mg/L in the intake brine to 14 mg/L in the outfall, consistent with the design recovery rate.

Manganese, a trace constituent present in the intake brine at concentrations on the order of tens of parts per billion, increased in the outfall [redacted]. The commercial facility design addresses this effect through a dedicated manganese treatment step in the depleted brine circuit, in which sodium hypochlorite addition and filtration reduces manganese concentrations to levels comparable to intake brine prior to discharge (**Section 3.7.1**).

Alkalinity and bicarbonate decreased across the plant as a result of the lithium-proton exchange during the lithium extraction step, during which bicarbonate species are consumed. Depleted brine pH is subsequently adjusted to within the permitted discharge range prior to outfall (**Section 3.7.2**).

Biochemical Oxygen Demand ("BOD") increased from intake to outfall samples during the summer operating period. This is attributed to biological matter growth in the delivered water storage tank as water temperatures increased. The commercial facility design addresses this through sodium hypochlorite treatment of process water to prevent biological growth.

4.1.2.4 Flow and Operational Performance

Figure 17 and **Figure 18** present average daily brine intake (on "influent") and outfall (or "discharge") flow rates, respectively, with variability bands derived from the high-resolution flow data. Daily flow rates varied in response to planned pump cycling used to maintain brine levels within the operating range of the surge tanks. During the 21-day performance run (May 20 – June 10, 2025), flow stability improved, demonstrating the steady-state conditions representative of commercial operation. The commercial facility will employ continuously rated, appropriately sized pumps with automated flow control to maintain stable intake and outfall rates, reducing the flow variability observed during Pilot operations.

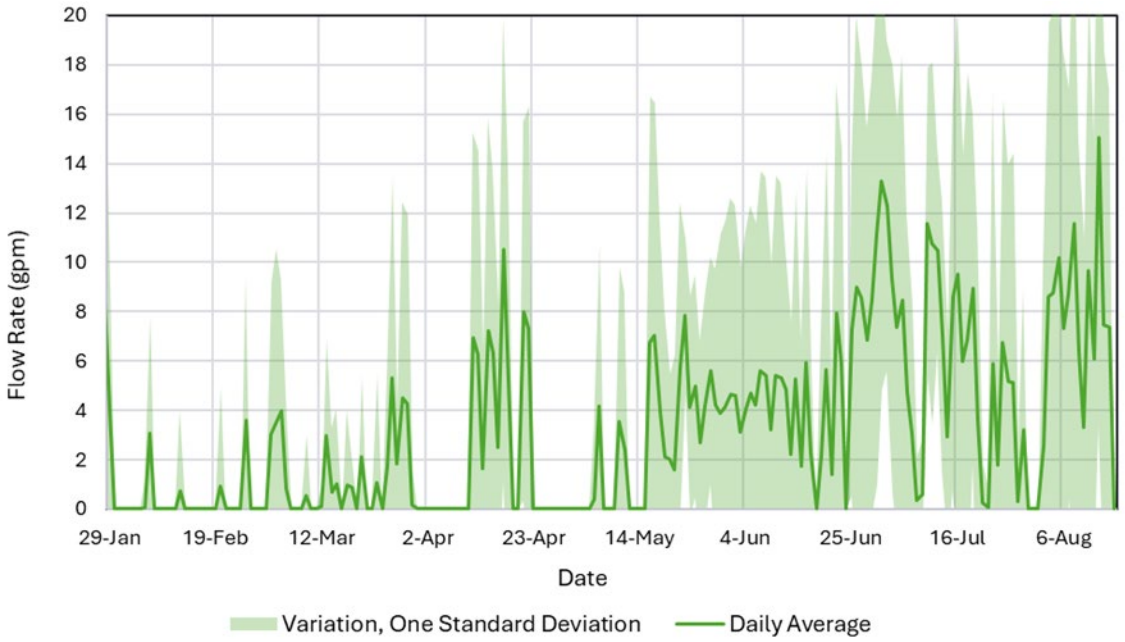


Figure 17: Pilot Plant daily brine intake flow rate with variability. Mean is the average value in the daily flow rate data set and standard deviation is the average spread of values from the mean.

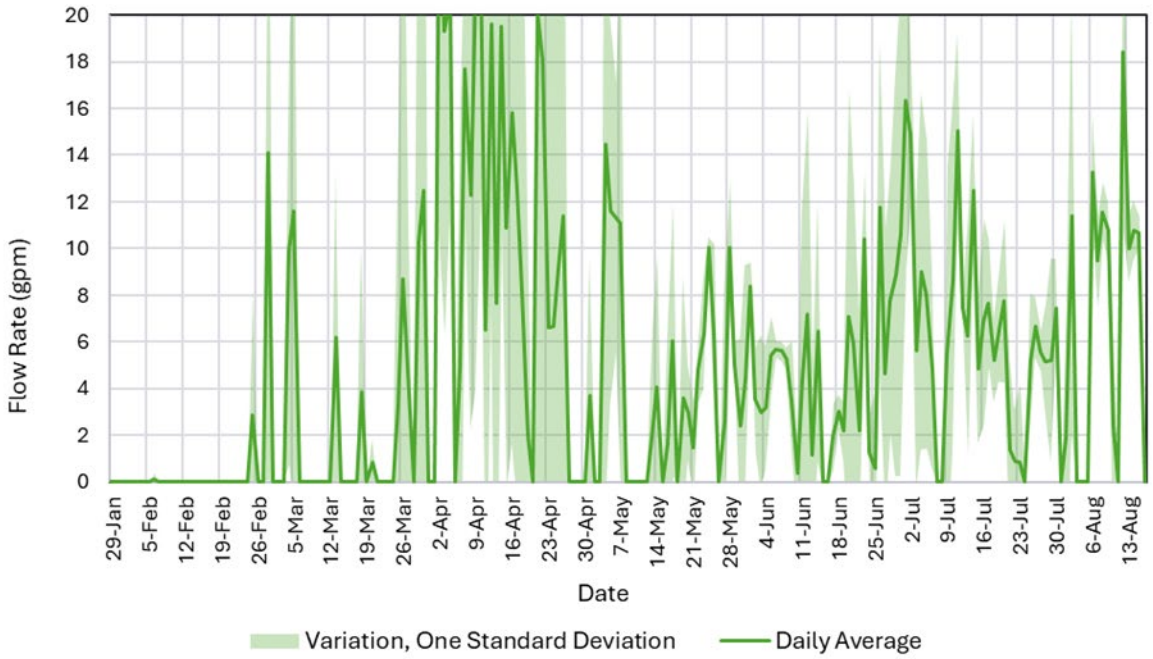


Figure 18: Pilot Plant daily brine outfall flow rate with variability. Mean is the average value in the daily flow rate data set and standard deviation is the average spread of values from the mean.

Figure 19 overlays outfall lithium concentration data with the Pilot operating phases identified in **Table 9**, illustrating how progressive equipment improvements are reflected in the process chemistry data (**Appendix B.3**, Feasibility Optimal Period Graphs).

Prior to May 2025, outfall lithium concentrations were variable because the plant operated with polymeric and ceramic ultrafiltration units that rejected a large fraction of brine flow, limiting overall plant lithium recovery to approximately 40% despite IX recovery rates reaching 80%. Installation of multimedia filtration (MMF) for both raw brine and depleted brine treatment in May 2025 resolved this bottleneck, increasing brine filtration recovery to approximately 93% during the 21-day performance run and bringing overall plant lithium recovery in line with the design basis. The brine filtration recovery rate demonstrated during the performance period was adopted directly as the commercial design parameter.

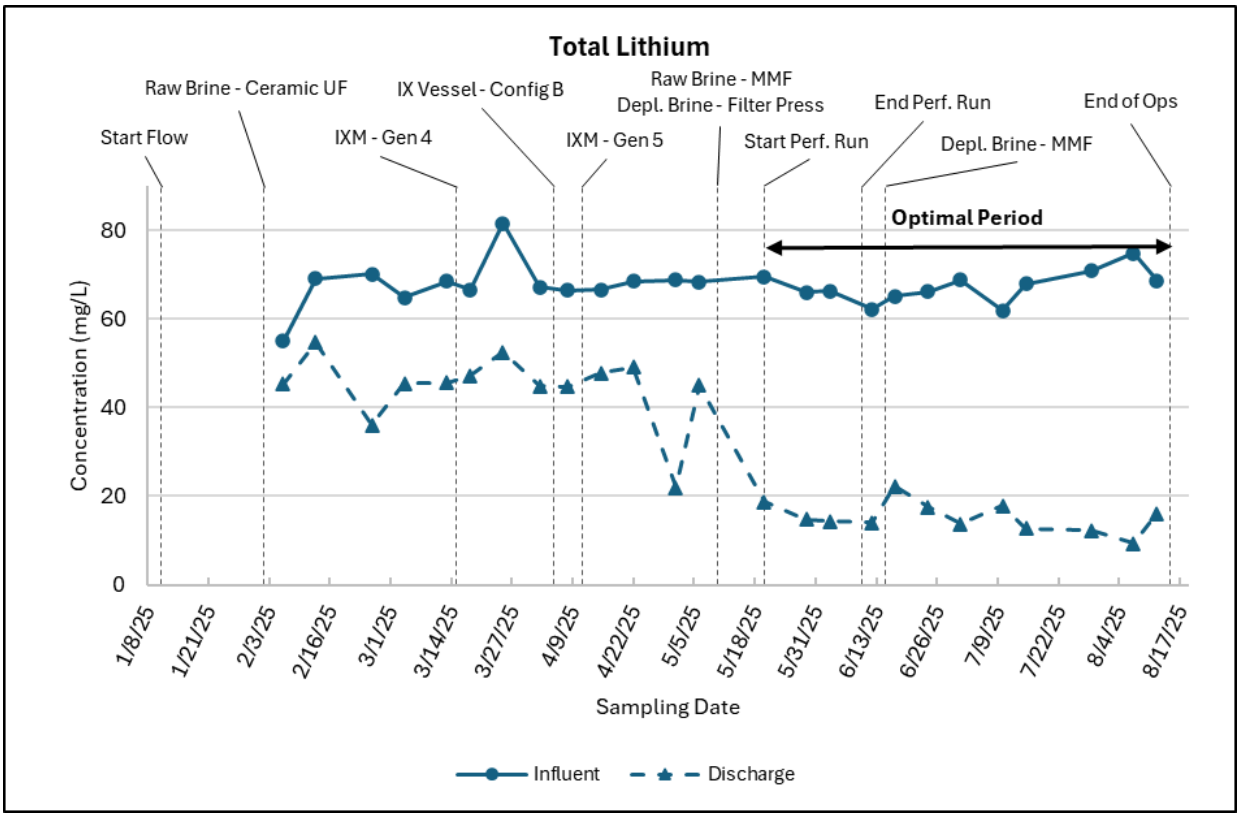


Figure 19: Lithium concentration in brine overlayed with Pilot Plant operation periods

Transient Pilot-Specific Effects

Figure 20 shows silica concentrations at the intake and outfall over the Pilot operating period. Following installation of the brine and depleted brine multimedia filters, effluent silica concentrations increased relative to intake concentrations. This increase is attributed to dissolution of silica from the sand filter media, a well-documented phenomenon during initial commissioning of multimedia filtration systems. Silica release from new filter media is a transient effect that diminishes as the media surface stabilizes; accordingly, this effect is not expected to persist during commercial facility operations. The mass balance analysis in **Section 5.2** confirms that the silica loading from Waterleaf operations has negligible impact on North Arm silica concentrations (<1% change over 10 years across all scenarios evaluated).

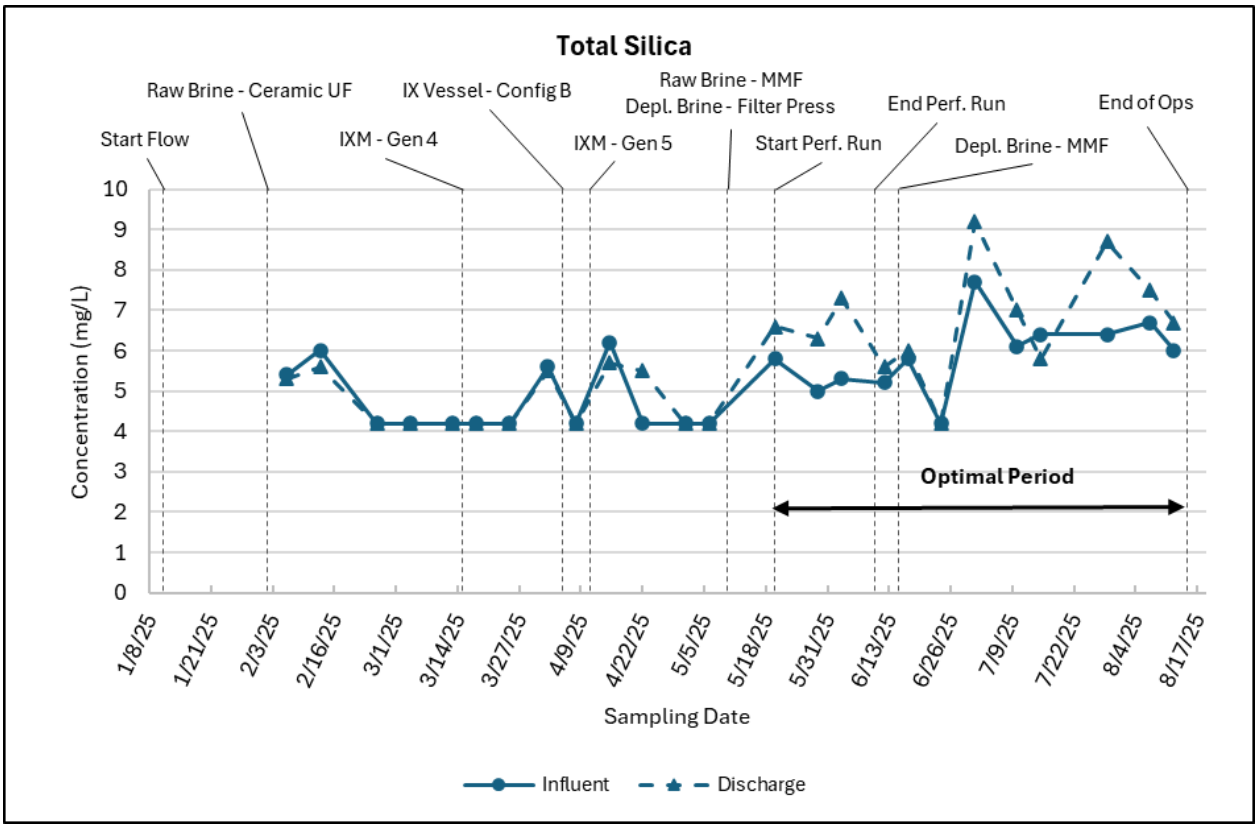


Figure 20: Silica concentrations in brine overlayed with Pilot Plant operation periods

Pilot Plant operations identified transient increases in copper and iron concentrations associated with contact between brine and unlined carbon steel tanks and piping used during pilot-scale testing. These occurrences are attributed to temporary Pilot equipment configurations and are documented in the Pilot Plant Final Monitoring Report (**Appendix B.1**). The commercial facility design eliminates these contamination pathways entirely: all brine-contact surfaces, including tanks, piping, and process vessels, are constructed of HDPE-lined, FRP, or concrete materials that prevent metal dissolution. As a result, the copper and iron releases observed during Pilot operations are not anticipated at the commercial facility.

Summary and Translation to Commercial Design

In summary, the Pilot data analysis demonstrates that the DLE process selectively extracts lithium from Great Salt Lake brine with minimal alteration of non-target constituent concentrations. The external Chemtech Ford dataset and Waterleaf 's internal process data are consistent and mutually corroborating, providing a robust analytical foundation for commercial design. The five analytes with significant changes in concentration – lithium (target extraction), manganese (managed through sodium hypochlorite treatment and filtration), alkalinity/bicarbonate (managed through pH adjustment), and BOD (managed through sodium hypochlorite treatment to prevent biological growth) – are fully accounted for in the commercial mass balance (**Section 4.1.4**) and non-target mineral assessment (**Section 5.2**). Transient Pilot-specific effects, including elevated copper and iron from carbon steel equipment and silica release from new MMF media, are eliminated or

mitigated in the commercial facility design. The following subsection (**Section 4.1.3**) describes how these Pilot-validated parameters have been translated into commercial design specifications.

4.1.3 Translation to Commercial Design Parameters

The Pilot operating campaign generated the quantitative data required to translate pilot-scale performance into a validated commercial facility design. Continuous data logs, process stream chemistry, and equipment performance records collected over seven months of operation were used to verify the commercial flowsheet, inform equipment selection and sizing, and establish the operating parameters for each major process area. The Pilot's duration across winter through summer conditions provided direct observation of seasonal variability in brine properties and its effect on process performance, enabling the commercial design to incorporate appropriate margins and mitigation measures.

The following subsections describe aspects of the commercial facility that either differ from Pilot Plant performance or extend beyond the Pilot scope.

4.1.3.1 Stream Chemistry and Mass Loading

Chemical analysis of raw brine and depleted brine over the 28-week Pilot campaign provided two categories of design input for the commercial facility: seasonal trend data that informed process design and mitigation strategies, and mass loading data that established the basis for the mineral balance presented in **Section 5.2**.

During winter months, sodium and sulfate concentrations in the outfall were observed to decrease relative to the intake, attributed to precipitation of sodium sulfate (mirabilite) within the above-ground Pilot tanks as brine temperatures declined. This observation directly informed modifications to the commercial facility design, including the brine feed pond and pipeline design described in **Section 4.3**.

The Pilot DLE eluate impurity profile was used to establish a conservative design basis for the commercial eluate treatment system. Specifically, the commercial mass balance assumes higher concentrations of magnesium, calcium, and strontium in the DLE eluate than were observed during the optimal Pilot period, providing additional margin in the design of the eluate neutralization and softening systems.

Waste solids compositions for both the eluate neutralization and depleted brine circuits are based on solid samples collected and analyzed during Pilot operations (**Appendix D.9** Solids Waste Characterization). The translation of Pilot solids data to commercial predictions is discussed in **Section 4.1.6**.

4.1.3.2 DLE IX Technology

The GSL Pilot Plant deployed Lilac's Gen 5 ion exchange technology and was operated using the same IX vessel design and brine filtration system configuration specified for the commercial facility. This continuity between Pilot and commercial equipment reduces scale-up uncertainty by validating the actual equipment platform, rather than relying solely on laboratory extrapolation. **Table 10** summarizes the key DLE performance metrics achieved during the optimal operating period against the Front-End Loading Stage 3 (“FEL-3”) commercial design targets.

During the optimal operating period, the Pilot Plant consistently met or exceeded the FEL-3 commercial design targets across all key metrics, including DLE lithium recovery, overall impurity rejection rate, eluate molar purity, and media productivity. DLE lithium recovery averaged 87%, exceeding the FEL-3 design target of 84% by three percentage points. These results were achieved under stable, commercially relevant operating conditions representative of anticipated commercial performance, validating the FEL-3 design basis for the commercial facility.

Table 10: Pilot Plant DLE performance vs. FEL-3 commercial design targets

Key Performance Metric	Average – GSL Pilot [6]	FEL-3 Design Target	Performance vs Target
DLE lithium Recovery	87%	84%	+3% achieved, compared to FEL-3 design basis
Overall Impurity Rejection Rate	99.97%	99.97%	Meets Target
Eluate Molar Purity	87%	87%	Meets Target

The commercial IX system has been sized based on media productivity measured at the Pilot Plant, defined as the rate of lithium extraction per unit volume of IX media. Two commercial-scale IX modules are required to achieve the target production rate of 5,000 mt/yr LCE under the baseline operating conditions demonstrated during the Pilot. To account for the uncertainties inherent in first-of-a-kind (FOAK) commercial deployment, the IX system incorporates two independent design contingencies: a 15% scale-up factor applied to the media productivity basis, and an additional 15% plant design margin, resulting in approximately 30% total excess IX capacity relative to the nominal production requirement.

Table 11 presents the average raw brine and DLE eluate compositions measured during the optimal operating period (Weeks 16–28). The data demonstrate effective impurity rejection across all major constituents, with rejection rates exceeding 99% for sodium, magnesium, potassium, and boron. The 99.95% boron rejection rate is particularly significant, as it confirms that battery-grade lithium carbonate specifications can be achieved without a dedicated boron polishing step – simplifying the commercial flowsheet and reducing operational complexity. Lithium concentrations exceeding 2,000 mg/L were achieved in the eluate, representing an approximate 30-fold concentration increase from the raw brine feed. This concentration factor directly supports the sizing basis for the downstream eluate processing, reverse osmosis, and evaporation systems.

[6] Average values are based on stable, steady-state operating periods within the optimal operating period identified for brine discharge profile evaluation (Weeks 16–28) that are representative of anticipated commercial operating conditions. Transitional and ramp-up periods were excluded.

Table 11: Average raw brine and DLE eluate compositions during optimal operating period

	Li	Na	Mg	Ca	K	B
Raw Brine (mg/L)	69	85,774	13,290	300	8,362	50
DLE Eluate (mg/L)	2,044	603	293	97	203	0.9
DLE Recovery	87%	-	-	-	-	-
Rejection	-	99.98%	99.94%	99.05%	99.93%	99.95%

Wash water is used to wash brine off the IXM after flowing brine through the IXM and before elution. Wash water is an important factor in the overall process water balance, and so washing was optimized during Pilot operations to minimize groundwater consumption while maintaining adequate washing of brine from the IXM. The ratio of wash water volume to reactor vessel volume is a fundamental metric, and this ratio was adopted directly from the Pilot data to the commercial facility design and is reflected in the water balance presented in **Section 4.1.5**.

4.1.3.3 Freshwater Differences

Waterleaf sourced potable water from Geneva Rock for the entire seven-month Pilot operations. Water was treated and filtered off-site prior to weekly delivery and stored on-site in a lined mini-frac tank. The commercial facility will source water from the nearby on-site well as specified further in **Section 4.1.7**. The commercial facility mass balance includes the groundwater chemical profile, while the Pilot mass balance includes the chemical profile of the delivered water, accounting for differences in baseline water chemistry between the two sources.

4.1.3.4 Crystallization Piloting

Due to the limitations of pilot crystallization equipment, steady-stated crystallization was not conducted onsite at the Pilot. Instead, lithium-rich DLE eluate was shipped from the GSL Pilot to Lilac's Oakland laboratory where it was refined and crystallized in batches. Crystallization piloting and scalability is discussed in **Section 1.4.3.3** and **Section 4.2.6** respectively.

Water was not recovered from the eluate concentrate at the Pilot, resulting in unrecovered water not being returned to the depleted brine as it will be at the commercial facility. Commercially, lithium carbonate crystallization will occur onsite, therefore increasing water recovery, lithium recovery, and altering the depleted brine profile compared to the Pilot. Therefore, the commercial depleted brine concentrations of lithium, sodium, potassium, calcium, magnesium, and sulfate were used for mass loading estimates in **Section 5.2.3** as opposed to Pilot data, providing a more accurate representation of commercial operations.

4.1.3.5 Manganese Treatment in Depleted Brine

The Pilot observed higher-than-expected depleted brine concentrations of dissolved manganese [redacted]. Bench-scale testing has subsequently demonstrated depleted brine manganese concentrations below 0.05 ppm (mg/L), confirming that process refinements address the Pilot observations.

At the Pilot Plant, Lilac tested adding sodium hypochlorite for removal of dissolved manganese in the depleted brine, demonstrating that this treatment reduces manganese to levels comparable to

intake brine. While this was not a part of routine Pilot operations, it is included in the commercial facility design. In the commercial effluent treatment system, sodium hypochlorite will be added to oxidize and precipitate manganese, which is then removed via filtration in the Depleted Brine MMF. Residual sodium hypochlorite will be reduced and removed with sodium sulfite addition following filtration.

Manganese treatment used at the commercial facility is described in **Section 3.7.1**.

4.1.4 Commercial Mass Balance

The commercial facility mass balance provides a comprehensive, stream-by-stream accounting of all material flows through the facility, from raw brine intake through to lithium carbonate product, depleted brine discharge, and waste streams. The complete mass balance stream tables are provided in **Appendix D.4**, with stream numbers and descriptions corresponding to the commercial facility process schematic in **Appendix D.2**.

The facility is designed to produce 5,000 mt/yr of battery-grade lithium carbonate at a nominal plant availability of 90%. To ensure this production capacity can be met even in the case of unforeseen shortfalls in equipment throughput, a minimum 15% design margin is applied to all major process equipment, providing capacity above the nominal production requirement. At the nominal operating rate, the overall facility lithium recovery is 78.8%, comprising a DLE IX unit recovery of 84.5% from the feed brine and a balance-of-plant recovery of 93.3% through the downstream processing stages. The recovery calculation is presented graphically in **Figure 22**.

Figure 21 presents a simplified block flow diagram showing the flow of lithium carbonate equivalent through the facility's primary process areas, from raw brine intake at approximately 11,300 gallons per minute to the production of 5,000 mt/yr of battery-grade lithium carbonate. **Figure 22** provides the corresponding recovery calculation, detailing the conversion from incoming brine flow rate to product output, including all applicable design margins, conversion factors, and system recoveries. Flow rates presented in this section and in the block flow diagram are rounded for clarity; the precise values used in facility design are documented in **Appendix D.4**.

The mass balance stream tables in **Appendix D.4** present results under two operating cases. The "Design" case represents equipment capacity at 100% annual uptime with the 15% design margin applied, and is used for equipment sizing purposes. The "Nominal" case represents expected operating conditions at 90% annual uptime without the design margin applied, and reflects the anticipated average steady-state production rate. All mass loading values used in mineral mass balance (**Section 5.2**) are based on the nominal operating case unless otherwise stated.

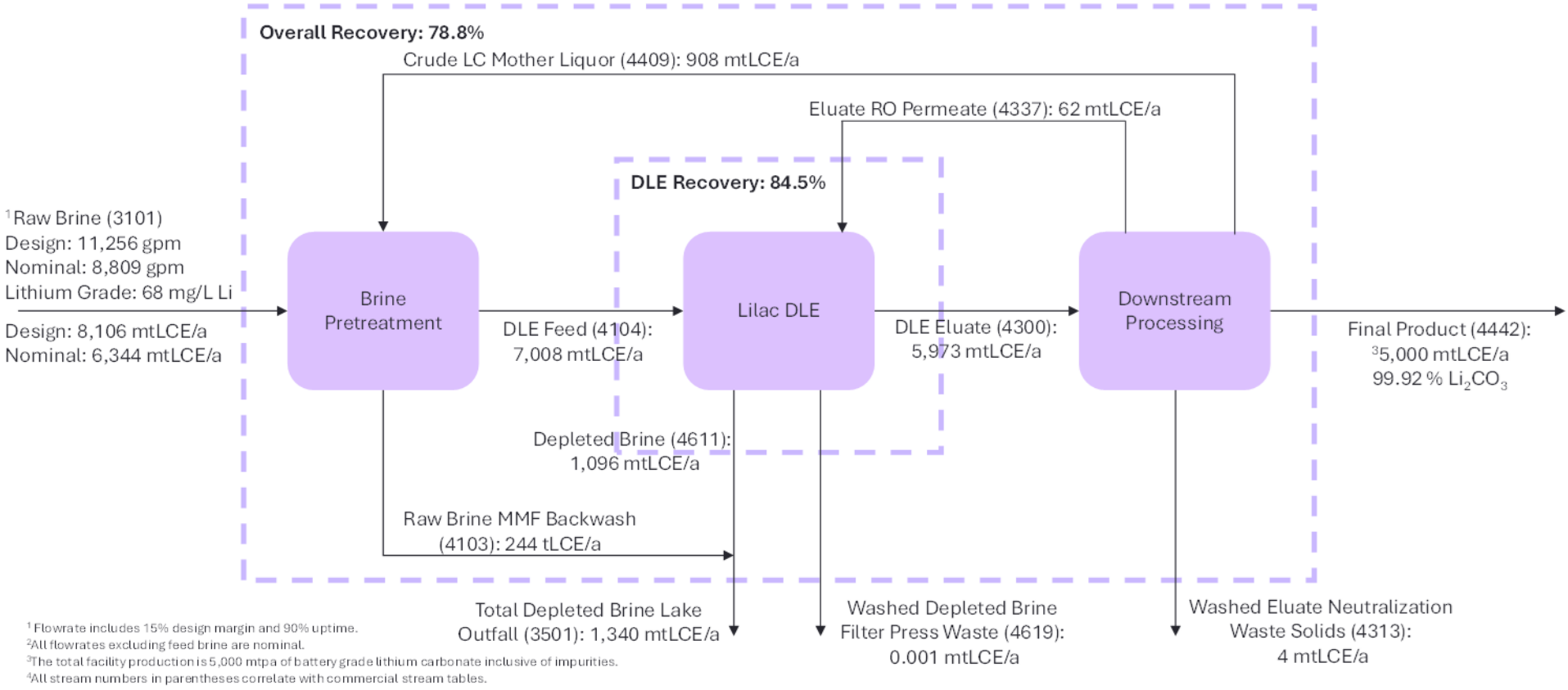
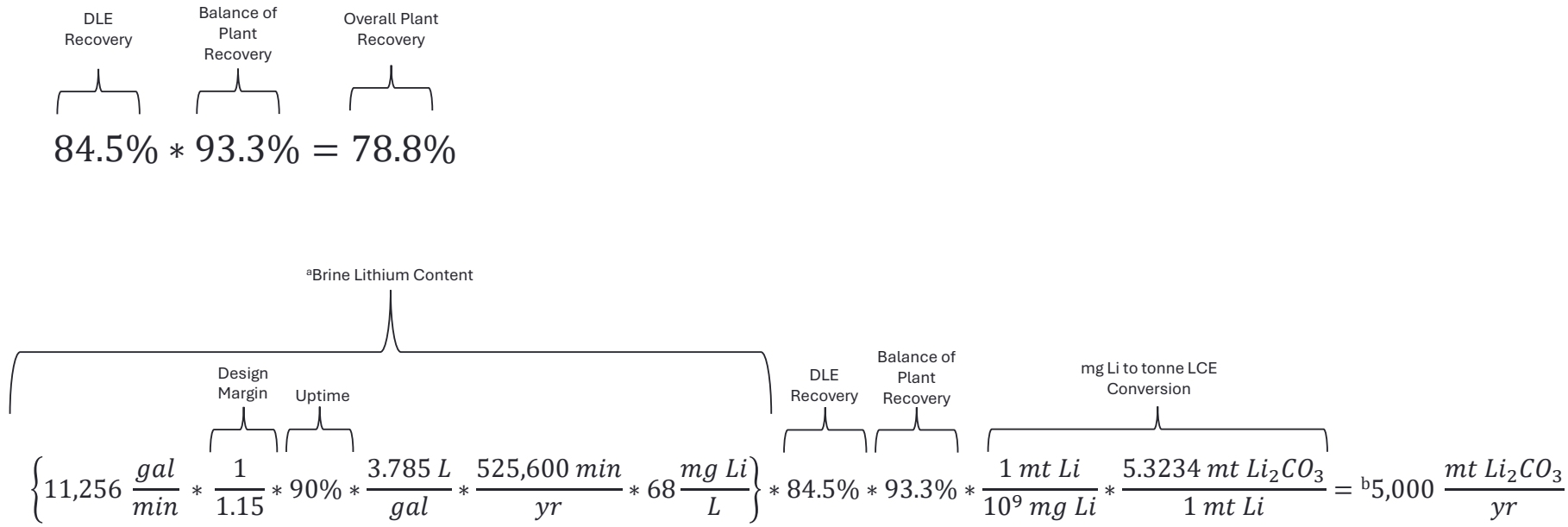


Figure 21: Simplified commercial facility block flow diagram



[a]Translates design flowrate, 100% uptime to nominal flowrate, 90% uptime.
[b]The total facility production is 5,000 tpa of battery grade lithium carbonate inclusive of impurities.
[c]Gal/min = gpm

Figure 22: Overall commercial facility lithium recovery calculation (brine intake to product)

4.1.5 Commercial Water Balance

The facility water balance is summarized in **Table 12** and provides a complete accounting of all water inputs, outputs, and internal generation and consumption within the commercial facility. The underlying data are drawn from the commercial facility mass balance (**Appendix D.4**); ancillary demands not represented in individual stream tables (potable water, laboratory water, fire water) are included as separate line items to ensure completeness. Make-up water is provided by an on-site well via direct pipeline to facility water storage tanks.

Non-Consumptive Brine Extraction. The water balance confirms that the DLE process is non-consumptive with respect to Great Salt Lake brine. The depleted brine returned to the lake carries a design flowrate of 2,293.9 mt/hr of water, which exceeds the 2,261.4 mt/hr of water entering with the raw brine intake, a net positive return of 32.5 mt/hr. This net gain reflects the addition of process water (primarily from IX wash cycles and RO concentrate recombination) to the depleted brine prior to discharge. The non-consumptive classification is consistent with the brine water rights application filed with the Division of Water Rights (Application No. F83873, Water Right No. 13-4097), as described in **Section 7**.

Process Water Recycling. Water recovery and reuse is accomplished through three process streams: the water recovery RO permeate (stream 4705), the eluate RO permeate (stream 4337), and the evaporator condensate (stream 4343). Stream numbers correlate with those in the commercial mass balance.

The DLE washing system uses 37.4 m^3/hr of process water, with 24.1 m^3/hr recovered through the water recovery RO system, achieving 64.4% water recycle. The eluate system uses 72.8 m^3/hr of process water for acid and lime dilution, with 66.7 m^3/hr recovered via the eluate RO and evaporation systems, achieving 91.7% water recovery. Overall, the commercial facility uses 132.7 m^3/hr of process water with a combined recovery of 100.3 m^3/hr, resulting in a facility-wide recycle rate of 75.6%.

Make-Up Water Demand. The total groundwater make-up requirement is 33.89 mt/hr (stream 4737), corresponding to approximately 300,000 m^3/year (approximately 240 acre-feet per year) at the nominal 90% plant availability. This value represents the total mass flow including dissolved solids; the pure water component is 33.79 mt/hr as shown in the water balance below. This demand is met by the on-site groundwater well, the water rights for which are being secured through a commercial lease arrangement with the landowner as described in **Section 7** (Water Right No. 13-4109). The make-up water demand represents less than 2% of the total raw brine intake.

Evaporative Losses. Minor water loss from evaporation is included in the water balance and estimated at 0.968 mt/hr (nominal), representing less than 3% of the make-up water demand. Methodology and assumptions for this estimate are provided in **Appendix D.10**.

Table 12: Commercial facility water balance

Overall Water Balance				
Category	**Description**	**Nominal**	**Design**	**Units**
In	Brine Water Content	1,769.8	2,261.4	mt/hr
	Groundwater (Make-up Water)	33.79	43.18	mt/hr
	Water in Reagents	1.10	1.41	mt/hr
	Generation [7]: Depleted Brine Water Addition	0.456	0.583	mt/hr
	Generation[7]: Eluate System Water Addition	0.060	0.076	mt/hr
	Total	**1,805.2**	**2,306.6**	**mt/hr**
Out	Brine Solids Water Loss (Free Moisture)	-0.037	-0.047	mt/hr
	Eluate Solids Water Loss (Free Moisture)	-0.697	-0.890	mt/hr
	Depleted Brine Water Content	-1,795.2	-2,293.9	mt/hr
	Evaporation Water Loss	-0.968	-1.24	mt/hr
	Potable/Fire Water Consumption	-0.270	-0.345	mt/hr
	Lab Operations Water Consumption	-0.038	-0.048	mt/hr
	Seal Water Consumption	-6.48	-8.29	mt/hr
	Cooling Tower Blowdown & Make-up	-0.198	-0.253	mt/hr
	Boiler Blowdown and Make-up	-0.725	-0.927	mt/hr
	Liquid process waste	-0.304	-0.389	mt/hr
	Consumption [8]: Gypsum Water Loss	-0.134	-0.171	mt/hr
	Consumption[8]: Depleted Brine Carbonate Water Loss	-0.087	-0.111	mt/hr
	Total	**-1,805.0**	**-2,306.3**	**mt/hr**
Net		**0.000**	**0.000**	**mt/hr**

Table 13 presents the net operational recovery of key elements as a ratio per acre-foot of brine water and per acre-foot of total water (brine water plus make-up water). Negative values indicate net extraction; positive values indicate net addition.

[7] Water is generated in various points throughout the plant due to acid and base neutralization ($H^+ + OH^- \rightarrow H_2O$)

[8] Water is consumed as a reactant in the formation of Gypsum ($CaSO_4 \bullet 2H_2O$) and carbonate ions ($H_2O + CO_2 \rightarrow H_2CO_3$)

Table 13: Operational recovery of key elements presented as a ratio per brine and total water (design)

Element	Brine water	Total water
	Recovery (lbs/AF)	Recovery (lbs/AF)
Ca^{2+}	-15.46	-15.31
Cl^{-}	144.69	143.32
Mg^{2+}	-35.60	-35.26
K^{+}	1.24	1.22
Na^{+}	936.38	927.49
SO_4^{2-}	1,426.43	1,412.90
Li^{+}	-145.66	-144.28

4.1.6 Pilot-to-Commercial Waste Solids Translation

The commercial facility generates solid waste at two process areas: the eluate neutralization filter press, which produces Eluate Neutralization Waste Solids (stream 4313), and the depleted brine filter press, which produces Depleted Brine Waste Solids (stream 4619). The compositions of Pilot-analyzed solids and predicted commercial solids for both streams are tabulated in **Appendix D.9**, together with the expected commercial mass flow rates. The subsections below discuss the principal differences between Pilot analyses and commercial predictions for each waste stream and the reasons for those differences.

The predicted composition of the eluate-neutralization solids for the commercial facility differs from the Pilot samples for most constituents, as expected given the differences in sample preparation methods between the two programs. The primary cause of this discrepancy is that the commercial mass balance explicitly accounts for cake washing the solids in the filter press to remove residual eluate liquor, whereas the Pilot solids were analyzed without a filter press cake washing step and therefore contained dissolved species entrained in the filter cake liquor phase.

Despite these methodological differences, both datasets identify calcium, magnesium, and sulfate as the dominant components in the solids. The commercial mass balance predicts a higher magnesium concentration, reflecting a more conservative eluate-impurity profile. Specifically, the commercial model assumes magnesium impurities in the DLE eluate will exceed those observed during Pilot operations. Due to the higher predicted magnesium concentration in the commercial eluate assay, the predicted commercial solids show a higher magnesium content.

Sulfate concentrations measured by Chemtech Ford in the Pilot solids were lower than the commercial mass balance predictions. The discrepancy is attributed to analytical limitations in the original Chemtech Ford analysis of the solid phase. Waterleaf subsequently performed an independent internal analysis of the Pilot solids, the results of which are included in the same table (**Appendix D.9**) and are consistent with the commercial predictions.



[redacted]

The commercial facility incorporates filter press cake washing to reduce metal concentrations in depleted brine solids – a process refinement not implemented during Pilot operations.

Solid Composition: The Pilot and commercial depleted brine filter press solids are primarily composed of diatomaceous earth (DE) filtration aid, which enhances filtration performance and filtrate quality. The Pilot and commercial profiles differ as the commercial facility design includes use of flocculant in the depleted brine circuit to aid in settling and dewatering – a process refinement tested but not routinely implemented during Pilot operations.

Manganese Content: The predicted depleted brine solids for the commercial facility also contain higher manganese concentrations than the Pilot samples, reflecting the inclusion of the manganese precipitation step in the commercial process (**Section 3.7.1**). In this process sodium hypochlorite treatment precipitates manganese, which is then removed in the depleted brine filtration system prior to discharge.

4.1.7 Groundwater Composition

SLR International Consulting was engaged to perform well production testing and groundwater quality analysis. The analytical results are provided in **Appendix E.2**. The data confirms that the source groundwater includes sodium, chlorides, calcium, magnesium, and potassium as the dominant constituents. All other metallic species, including trace metals of environmental interest, are present at concentrations below 0.5 mg/L. Well production testing confirmed sufficient yield to supply the facility's groundwater make-up requirement; water rights for this supply are discussed in **Section 7**.

The groundwater analysis supplied by SLR was incorporated directly into the commercial-scale mass balance to define the groundwater addition stream. Prior to use, the groundwater is conditioned and then purified via a dedicated brackish-water reverse osmosis (RO) system. The resulting RO concentrate, enriched in dissolved ionic species, is routed through a secondary seawater RO system along with module wash effluent and other internal water-recovery streams before being blended into the depleted brine stream prior to discharge.

As detailed in **Appendix D.4**, the Water Recovery RO concentrate (stream 4704) constitutes less than 0.5% of the total outfall volume (stream 3501), resulting in negligible impact on outfall composition. **Table 14** illustrates this relationship using calcium as a representative constituent. While the RO concentrate exhibits a higher calcium concentration (374 mg/L) than the raw brine (309 mg/L), the mass contribution is negligible relative to the brine stream — the RO concentrate flow rate represents less than 0.5% of the total outfall volume. As a result, the combined outfall calcium concentration (300 mg/L) is effectively indistinguishable from what it would be with depleted brine alone, confirming that groundwater-derived additions do not materially alter the outfall discharge composition.

Table 14: Impact of groundwater on outfall concentration

Stream Number		3101	3501	4704	4735
Stream Description		Raw Brine	Total Depleted Brine Lake Outfall	Water Recovery RO Retentate	Raw Water RO Feed
Parameter	Units				
Nominal					
Overall Stream					
Flow Rate	L/min	33,347	33,666	139	565
	m^3/hr	2,001	2,020	8.3	34
	mt/hr	2,438	2,464	8.8	34
Mass Flow, Nominal					
Aqueous					
Ca2+	g/hr	617,514	606,128	3,120	2,809
Aqueous Ion Composition					
Ca2+	mg/L	309	300	374	83

4.1.8 Reagent Contamination Analysis

Reagent impurities, as identified and quantified through the manufacturer's Certificate of Analysis (COA) and product specification sheets, see **Appendix D.5**, enter the process along with the intended reagent during the corresponding unit operation in which that reagent is dosed. Product specification sheets provide critical information on the identity and maximum allowable levels of these impurities (a “worst-case” scenario), while COAs document actual impurity levels in specific reagent batches. These impurity levels are incorporated into the commercial facility mass balance to ensure accurate tracking of all species throughout the process. Reagent quality assurance procedures to verify conformance with approved specifications are described in **Section 3.8.2.10**.

In constructing the mass balance, the total mass of each reagent charge is apportioned between the active component and its known impurities based on the COA reported assay and impurity profile. These impurities are then tracked through subsequent unit operations to determine whether they are consumed in side reactions, carried through as spectators, purged during solids filtration and dewatering, captured as impurities during crystallization, or persist into downstream stages. By systematically accounting for reagent impurities from the point of introduction through to the final lithium carbonate product and depleted brine back to the lake, the mass balance provides a comprehensive and traceable picture of material flow. **Table 15** highlights metal impurities introduced with reagents and details their contribution to the total component flow in the brine outfall back to the lake. Copper is included in the table for reference, but no copper is introduced to the plant as a reagent impurity.

As shown in **Table 15**, reagent-sourced impurities contribute a small fraction of the total outfall mass for iron, lead, arsenic, and copper, with the intake brine itself accounting for the dominant share of each constituent. In the case of lead (Pb), although there is a small contribution from the sodium sulfite reagent, changes to lead concentration in the lake over 10-years as a result of Waterleaf operations is de minimis, see **Section 5.2.5** and **Table 20**. This change is below analytical detection

limits and does not create any negative impact on the lake. Overall, reagent additions maintain the depleted brine within the natural compositional range of Great Salt Lake brine (**Section 5.2**).

Table 15: Reagent impurity contributions to outfall brine by constituent (design flows)

Impurity	Source	Reagent Impurity Concentration (mg/kg)	Total Reagent Impurity Mass (g/h)	Primary Reporting Location	Outfall Mass Contribution (g/h)	Portion of Total Outfall Component (%)
Iron (Fe)	Intake Brine	N/A	N/A	Brine	463.6	99.7%
	Caustic (NaOH)	5.0	2.3	Brine	2.3	0.2%
	Sodium Sulfite (Na_2SO_3)	10.0	5	Brine	5	0.1%
	Sulfuric Acid (H_2SO_4)	3.7	7.0	Eluate Waste Solids	-	-
	Limestone ($CaCO_3$)	699.4	40.4	Eluate Waste Solids	-	-
	Filter Aid (DE)	10,491.5	86.5	Brine Waste Solids	-	-
	Citric Acid ($C_6H_8O_7$)	0.1	0.0	CIP Waste	-	-
Lead (Pb)	Intake Brine	N/A	N/A	Brine	22.2	97.7%
	Sodium Sulfite (Na_2SO_3)	3.3	0.5	Brine	0.5	2.3%
	Hydrated Lime ($Ca(OH)_2$)	2.0	0.3	Eluate Waste Solids	-	-
	Citric Acid ($C_6H_8O_7$)	5.0	0.0	CIP Waste	-	-
Arsenic (As)	Intake Brine	N/A	N/A	Brine	722.5	100.0%
	Sodium Sulfite (Na_2SO_3)	1.2	0.2	Brine	0.2	0.0%
	Hydrated Lime ($Ca(OH)_2$)	3.0	5	Eluate Waste Solids	-	-

Impurity	Source	Reagent Impurity Concentration (mg/kg)	Total Reagent Impurity Mass (g/h)	Primary Reporting Location	Outfall Mass Contribution (g/h)	Portion of Total Outfall Component (%)
	Citric Acid ($C_6H_8O_7$)	0.01	0.0	CIP Waste	-	-
Copper (Cu)	Intake Brine	N/A	N/A	Brine	70.4	100.0%
Silicon (Si)	Intake Brine	N/A	N/A	Brine	15,495.4	98.7%
	Soda Ash (Na_2CO_3)	140.3	197.5	Brine	197.5	1.3%
	Filter Aid (DE)	416,085.8	15,328.8	Brine Waste Solids	-	-

4.1.9 Non-Target Mineral Balance

Component mass balances and block flow diagrams for all non-target constituents tracked through the commercial facility are provided in **Appendix D.6** (Non-Target Mineral Balances). These include the major salts – sodium, magnesium, calcium, and potassium – as well as constituents for which the commercial process introduces measurable changes relative to the intake brine: silica, arsenic, sulfate, and chloride.

The comprehensive short-term and long-term mass loading analysis for each of these constituents is presented in **Section 5.2**. As demonstrated in that analysis, the cumulative mass loading changes attributable to Waterleaf operations are de minimis relative to the existing North Arm inventory for all evaluated constituents, supporting the conclusion of no negative impact on Great Salt Lake chemistry.

4.2 Scalability

4.2.1 Introduction

The proposed commercial facility has been designed using a conservative, low-risk engineering approach that emphasizes commercially proven technologies, standard equipment configurations, and operating parameters that are well within established industrial practice. The scalability of each major system has been evaluated based on demonstrated performance at the Pilot Plant. The plant is designed with a minimum 15% design margin, to accommodate operational variability, feed composition changes, and seasonal conditions. A 90% uptime (or plant availability) factor has also been included in the design of the commercial facility.

Across all process areas, the facility relies on industry-standard, off-the-shelf equipment supplied by multiple established suppliers. All the equipment is selected and applied in accordance with recognized engineering practices and has extensive operating histories in similar applications.

Failure modes, maintenance requirements, and operating characteristics of this equipment are well understood, reducing both technical and operational risk.

The use of standardized equipment ensures the availability of trained operators, established maintenance procedures, and a robust supply chain for replacement parts and consumables. Equipment selection avoids reliance on proprietary or experimental technologies and is supported by recognized industry codes and standards. From a regulatory perspective, the reliance on recognized and generally accepted engineering practices provides confidence that the facility will perform as designed and can be evaluated against comparable installations.

Design margins, equipment selection, and operating envelopes were established with consideration of seasonal variability observed during the Pilot operations, including temperature-dependent changes in brine properties and solids behavior, as discussed further in **Section 4.3**. The following subsections describe the scale-up approach for each major process area, including how Pilot performance data and operating experience informed commercial equipment sizing and selection.

4.2.2 Intake/Outfall

The commercial-scale brine intake and outfall system is designed to accommodate a continuous flow of approximately 11,300 gallons per minute, including a 15% design margin to ensure operational reliability. System sizing and hydraulic performance were developed using standard engineering methods and commercially proven ranges for large-scale lake and industrial water handling systems. This was done in conjunction with a specialist engineering company that has expertise in commercial-scale pumping and pipeline system design.

The Pilot Plant experienced fluctuations in intake and outfall flow rates as a result of intermittent uptime and oversized pump configurations typical of pilot-scale installations. The commercial facility is designed to maintain stable daily flow rates through continuous operation with appropriately sized pumps, dedicated surge capacity, and automated flow control systems. Continuous operation also reduces brine residence time in the surge pond, limiting temperature-related variability in brine properties, a factor relevant to the seasonal operations assessment in **Section 4.3**.

Seasonal salt precipitation risks, including halite formation during summer months and mirabilite precipitation during winter months, were explicitly evaluated during design. Operational and mechanical mitigation measures are incorporated and discussed further in **Section 4.3**. These considerations do not introduce scale-up uncertainty, as similar challenges are routinely managed in large-scale saline water handling systems worldwide.

4.2.3 Brine Treatment

MMF was selected as the primary solids-removal technology for both raw brine and depleted brine treatment. This technology is commercially established across municipal water treatment, industrial pretreatment, and chemical processing facilities, and is capable of reliably managing high-volume flowrates with variable solids loading.

Pilot Plant operating data from the brine and depleted brine MMF units provided the primary inputs for commercial equipment sizing. Bench- and pilot-scale data were directly used in selecting and sizing the MMF equipment, in conjunction with the equipment suppliers. The specified commercial

filtration flux supports the commercial facility design to account for hydraulic variability, solids fluctuations, and long-term media fouling. Equipment configuration follows an "N+1" redundancy criterion, ensuring that design flux limits are not exceeded when a single filtration unit is taken offline for maintenance, backwash, or inspection. This configuration enhances operational resilience and supports continuous plant availability.

Pilot-scale data from the brine and depleted brine MMF units were shared with multiple equipment suppliers and commercial sizing parameters were calculated by the suppliers. Key design inputs included media type and stratification, media bed depth, filtration flux, backwash flux, and allowable differential pressure. The Pilot operating parameters and information were translated by the suppliers using their experience-based scale-up extrapolation (where required) to commercial equipment dimensions. For example, the demonstrated Pilot filtration flux of 12,000 L/m^2/hr was used as the primary basis for calculating the required filtration surface area and number of filter cells in the full-scale system.

Seasonal variations in brine chemistry and solids composition were explicitly considered in the design basis. These filtration performance risks, including temperature-driven changes in fluid properties, are addressed in detail in **Section 4.3**, along with mitigation strategies incorporated into the filtration system design.

4.2.4 DLE IX

The GSL commercial lithium extraction facility will utilize Lilac Generation 5 IX technology, the same core technology successfully tested and validated at the Pilot Plant. The proposed commercial facility therefore represents a scale up of demonstrated technology rather than the introduction of a novel or unproven system.

In addition to the successful implementation of the Lilac IX technology at the GSL Pilot Plant with Waterleaf, Lilac has designed, constructed, and operated seven additional pilot facilities across three continents. Collectively, these facilities have processed approximately 12 million liters of brine and accumulated more than 14,000 operational hours under field conditions. An example of scale progression is Lilac's pilot plant in Argentina, which operated IX vessels of [redacted], approximately one-third the diameter of those proposed for the GSL commercial facility. These vessels are larger than those used at the GSL Pilot Plant and provide an intermediate scale-up step between pilot and full commercial deployment. Performance data from multiple facilities, including the GSL Pilot and selected pilot sites, have been verified through third-party analytical testing and independent engineering review. These evaluations confirmed strong lithium recovery, selectivity, and system operability under field conditions.

The IX system is modular in design, utilizing standard off-the-shelf components that are available from multiple suppliers worldwide. Each module consists of multiple packed-bed IX vessels, and multiple modules are combined to form a commercial-scale plant. For the GSL commercial facility, Waterleaf plans to deploy two IX modules. [redacted]

[redacted]

The strong performance demonstrated during GSL field piloting validated the FEL-3 design assumptions, with detailed DLE performance metrics – including lithium recovery, impurity rejection rates, and media productivity – presented in **Section 4.1.3.2**, and used as the basis for commercial equipment sizing. The commercial design further incorporates conservative engineering margins, with the standard 15% plant design margin plus an additional 15% DLE-specific scale-up margin applied to the media productivity basis, resulting in approximately 30% total excess IX vessel capacity and a corresponding 30% total design margin relative to the nominal production requirement.

These design margins, combined with validated Pilot data and a modular scale-up approach consistent with established packed-bed engineering practice, provide substantial contingency to accommodate potential variability in brine composition, seasonal effects, and performance variations associated with scale-up. Accordingly, the commercial GSL plant incorporates both demonstrated field performance and conservative engineering design principles to ensure robust, reliable, and commercially viable operation.

4.2.5 Eluate Treatment System

Neutralization and Softening Vessels

Eluate neutralization and softening reaction parameters, including vessel geometry, residence time, and reaction kinetics, were characterized during Pilot operations and used to size the commercial equipment. To evaluate robustness across a range of operating scenarios, additional modeling was performed using OLI Studio water chemistry simulation software, in which eluate impurity profiles were varied around the Pilot-measured baseline. The commercial design accommodates the full range of conditions evaluated in these analyses.

Filtration Equipment

Pilot Plant performance data and eluate neutralization solids characterization established filtration cycle times, cake thickness and physical properties, moisture content, and particle size distribution. This informed filter media selection, total chamber capacity and filtration area for the eluate neutralization filter press.

Similar analysis was completed on the eluate softening filtration equipment. The Pilot installed equipment, a filter press, was tested along with a laboratory candle filter test unit. These third-party testing campaigns were completed with supplier support and confirmed the selection and sizing of a candle filter for the commercial facility eluate softening application.

Mass balance calculations derived from Pilot solids production rates and projected commercial throughput verified waste generation and ensured accurate sizing of filter equipment, slurry tanks, and other ancillary solids handling equipment for the commercial facility.

4.2.6 Evaporation and Crystallization

During Pilot operations, concentrated eluate was processed off-site to battery-grade lithium carbonate, validating the process chemistry and providing the basis for commercial facility design. The commercial facility incorporates complete on-site evaporation and crystallization systems sized from Pilot eluate testing and established industrial technologies.

The evaporation process utilizes a Falling Film Evaporator ("FFE"), in combination with a mechanical vapor recompression ("MVR") fan, a mature and commercially deployed technology with more than six decades of industrial use across chemical processing sectors, including lithium sulfate and lithium chloride concentration. FFE technology is widely recognized for its high energy efficiency, stable operating envelopes, and well-defined scale-up rules, all of which reduce technical risk in commercial application.

For crystallization, the commercial facility specification includes Draft Tube Baffle ("DTB") crystallizers for converting lithium sulfate into lithium carbonate. DTB crystallizers are commercially proven for producing large, uniform crystals with narrow particle-size distribution, an outcome critical for downstream solid–liquid separation, drying efficiency, and achieving battery-grade purity. This technology is routinely deployed in lithium carbonate production globally, providing multiple commercial reference points and supplier options.

Commercial equipment sizing and configuration were directly informed by evaporation and crystallization test work conducted at Lilac's Oakland facility (see the test report in **Appendix C.5**) and at two technology company laboratories (see an example of one of these test reports in **Appendix C.4**) using lithium-rich eluate sourced from the Pilot Plant. Concentrated lithium sulfate eluate was transported from the GSL Pilot for this testing. These test campaigns provided quantitative data for determining evaporator boiling point rise, lithium solubility, crystal growth kinetics, crystal particle size distribution, crystal impurity partitioning, and centrifuge performance characteristics, all key parameters for scale-up to commercial facility design. Waterleaf's preferred processing partner, [redacted] has described their commercial design and scale-up approach in **Appendix C.7**.

All laboratory programs successfully produced battery-grade lithium carbonate, confirming the technical feasibility of the selected process, validating commercial equipment assumptions, and reducing risk associated with scale-up from Pilot to commercial scale operation.

Reverse Osmosis Systems

During Pilot operations, eluate and wash water reverse osmosis systems achieved a recovery rate of approximately 80%. This recovery rate, together with feed assays and impurity rejection data from Pilot operations, established the key design inputs for commercial RO system sizing.

Pilot-derived feed assays were provided to multiple commercial RO suppliers, who independently modeled system performance using proprietary reverse osmosis simulation software. The resulting commercial designs incorporate conservative margins for variation in feed characteristics, including dissolved solids concentration and temperature, and are consistent across suppliers.

4.2.7 Drying, Micronizing, and Bagging

The commercial facility will utilize systems for drying, micronizing, and packaging of lithium carbonate rely on commercially proven, off-the-shelf technologies that are routinely deployed at equal or significantly larger throughputs in lithium and specialty chemical production facilities worldwide. As a result, these downstream operations represent a low scale-up risk.

Solids handling and packaging systems employs standard enclosed configurations with baghouse separation that are routinely used in commercial lithium carbonate plants. These systems scale linearly with throughput, with well-established sizing parameters used by the suppliers, and do not introduce novel operating risks. Normal turndown and throughput variability associated with upstream operations are accommodated through equipment sizing and modular configuration.

Overall, drying, micronizing, and packaging designs are based entirely on established industrial technologies with extensive commercial reference points. Scale-up from Pilot activities does not require extrapolation beyond proven operating envelopes, and no material technical challenges to commercial operation are anticipated.

4.2.8 Utilities and Infrastructure

Utility systems supporting the commercial facility – including power generation, compressed air, cooling water, and potable water supply – are described in **Section 3.8**. All utility systems employ industry-standard, commercially proven equipment configured for the facility's operating requirements. None of the utility systems require technology scale-up beyond established industrial practice, and all are available from multiple equipment suppliers with demonstrated performance in comparable installations.

Utility infrastructure is designed with appropriate redundancy and winterization measures to support continuous, year-round operation.

4.3 Seasonal Operations and Mitigation

Demonstrating reliable year-round operability is a key requirement for commercial viability under R652-21-200/704. The following section presents the engineering basis for continuous operation across all anticipated seasonal conditions, drawing on Pilot operating data from winter through summer, targeted cold-weather testing of critical equipment, geochemical modeling, and the design provisions incorporated to ensure operational continuity and environmental compliance throughout the year.

Seasonal variability in temperature, brine properties, and environmental conditions at the North Arm of the Great Salt Lake has been evaluated through pilot-scale operations, seasonal sampling campaigns, geochemical modeling, and conservative engineering design. The facility has been designed to operate reliably across anticipated seasonal conditions while maintaining environmental protection, operational continuity, and compliance with applicable permit requirements.

4.3.1 Temperature Effects on Brine and Process Streams

Ambient air temperature in the Project area varies seasonally from extreme winter cold to elevated summer heat. The commercial facility design basis assumes a conservative ambient temperature range of approximately –20 °C to 40 °C for equipment winterization, reagent storage systems, and above-ground infrastructure.

Brine temperature varies seasonally in response to ambient conditions and lake thermal dynamics. During Pilot operations, brine temperatures ranged from approximately –2 °C to 30 °C, with corresponding densities ranging from approximately 1.22 to 1.17. These conditions are representative of those expected during commercial operations and form the basis for process equipment design.

Air Temperature Effects of Reagents Systems

Ambient air temperature primarily affects above-ground storage and handling systems for process reagents. Within the ambient temperature range, the effects of air temperature on reagent stability have been evaluated. Cold ambient temperatures can cause reagent crystallization, viscosity increases, or freezing in storage tanks and transfer lines. High ambient temperatures can accelerate chemical decomposition or increase corrosion rates for certain reagents. These effects are managed through insulation, heat tracing, and temperature-controlled storage as detailed in **Table 15**.

Brine Temperature Effects on Process Performance

Brine temperature directly affects process chemistry and hydraulic performance throughout the facility. Lower brine temperatures increase brine viscosity and affect hydraulic performance, while higher brine temperatures can accelerate reaction rates. Brine temperature also influences salt solubility and precipitation behavior, which may affect solids loading, filtration performance, and fouling potential if not properly managed.

The most significant brine temperature effect is mirabilite (sodium sulfate decahydrate) precipitation at cold temperatures and halite (sodium chloride) precipitation at warm temperatures. These precipitation behaviors were observed during Pilot operations and informed the commercial facility's salt management strategy, including intake screening protocols, brine pond water addition systems, and flow monitoring.

Commercial Design

These air and brine temperature effects are addressed through conservative equipment sizing, material selection, winterization measures, and operating controls incorporated into the facility design. **Table 15** summarizes key temperature sensitivities of brine and the main process reagents and the corresponding design and operational controls implemented to support reliable year-round operation.

Table 16: Summary of temperature sensitivities and controls for key process chemicals

Chemical	Freezing Point	Key Temperature Concerns	Design and Operational Controls
Brine	-21°C	Mirabilite precipitation, Lake Stratification	Intake screening, pond water addition, flow monitoring
20% NaOH	-15 to -18°C	Low viscosity, good cold tolerance	Selected for cold-weather service, insulated piping, and where required, heat tracing,
50% NaOH	12–14°C	Crystallization, viscosity increase at low temps	Insulated and heat-traced storage and piping systems
12% NaOCl	-10 to -15°C	Higher decomposition above 30°C	Insulated storage for warmer temperatures. Temperature limits for both hot and cold.
93% H_2SO_4	-32°C	Corrosion increases above 40°C	Compatible materials, insulation where required for cold temperatures.
15% Na_2SO_3	-8 to -10°C	No additional concerns	Insulated storage, minimized residence time, using as anhydrous with lower residence time
5% Citric Acid	-1 to -2°C	Minimal concerns, freeze protection only	Insulation or heat tracing where exposed
Limestone slurry	~0°C	Settling, lower viscosity at low temps	Agitation, recirculation, insulation, heat tracing
Hydrated lime slurry	~0°C	Settling, carbonation, lower viscosity at low temps	Agitation, temperature control, insulation, heat tracing

Weekly sampling of raw brine revealed seasonal variations in analyte concentrations from winter/spring (February-May) to summer periods (May-August). Sodium, sulfate, silica, COD, and TSS were observed to have significant changes (>15%) over the Pilot duration. Sodium sulfate solubility increases with temperature so as the temperature increased the concentration of sodium and sulfate increased in the raw brine. Silica in the raw brine also increased during the summer period again due to increased solubility with temperature. Silica has no measurable impact on DLE performance.

Chemical oxygen demand and total suspended solids were measured at lower concentrations during the summer period. The COD has no impact on DLE performance but the decreased TSS in the summer will improve brine filtration operations as solids loading is decreased.

4.3.2 Pilot Operations and Seasonal Sampling

The Pilot operated from January through August 2025, encompassing winter to summer operating conditions, as documented in the Feasibility Report (**Appendix B.1**). Seasonal impacts were measured for key operating variables including brine temperature, density, and salt precipitation

behavior. Conditions observed during Pilot operations are representative of those anticipated during commercial operations and discussed in the sections that follow.

In addition, Waterleaf completed a Technical Resources Assessment of the Great Salt Lake in collaboration with Montgomery & Associates, consisting of winter and summer sampling campaigns conducted across multiple locations in the North Arm (**Appendix E.1**, Figure 2). These data demonstrate that lithium concentrations remain consistent between seasons, confirming that seasonal conditions do not measurably affect lithium grade.

Because the North Arm has no tributary inflows, seasonal freshwater dilution is limited to direct precipitation. Sampling results show no evidence of spring runoff impacts on lithium concentration or overall brine chemistry. These evaluations demonstrate that seasonal operations do not result in a net change to Great Salt Lake brine chemistry, lithium mass balance, or salt composition in the North Arm relative to baseline conditions.

4.3.2.1 Wind and Storm Events

During Pilot operations, high-wind storm events caused damage and downtime to the intake and outfall systems. These events informed commercial facility design considerations for exposed lake-facing infrastructure.

The commercial facility incorporates enhanced anchoring systems, reinforced pipeline supports, and protective measures designed to withstand severe weather conditions anticipated at the site. These facilities are described in **Section 3.3.1** (Raw Brine Intake System) and **Section 3.7.2** (Discharge System). These design enhancements address the operational vulnerabilities identified during Pilot operations and provide increased resilience for year-round commercial operation.

4.3.2.2 Salt Precipitation and Winter Operations

Observed Precipitation Behavior

Pilot operations demonstrated that sodium sulfate (mirabilite) precipitates in brine as temperatures decrease during winter months, and sodium chloride (halite) precipitates as temperatures increase during summer months. Mirabilite accumulation was observed in HDPE intake and outfall piping during winter operations. These precipitation behaviors are consistent with thermodynamic expectations for saturated brine systems and are anticipated during commercial operations.

Other operators on the Great Salt Lake similarly report periodic salt accumulation in brine handling systems, confirming that precipitation management is a standard operational consideration for facilities processing hypersaline brine year-round.

Commercial Facility Design Response

The commercial facility design incorporates multiple measures to manage seasonal salt precipitation:

- Intake System Protections
    - Intake screening to prevent large precipitate masses from entering the system
    - Flow monitoring to detect restrictions or fouling
    - Operational flexibility to adjust flow rates in response to temperature-driven precipitation events

- Pipeline Design Features
    - HDPE material selection, which exhibits lower scaling tendency than metallic alternatives
    - Flanged connections at strategic locations to allow future installation of temporary pigging equipment if needed
    - Oversized pipe diameter (36-inch) to accommodate reduced effective diameter during periods of scale accumulation
- Operational Controls
    - Brine pond water addition systems to manage temperature and precipitation dynamics
    - Maintenance procedures for inspection and cleaning as required

Pigging Capability: While a permanent pigging system is not included in the initial commercial facility design, the HDPE brine pipelines incorporate flanged connections at appropriate locations that would allow temporary installation of pigging equipment should operational monitoring indicate the need for internal cleaning. Pigging is a standard pipeline maintenance technique in which a device (called a "pig") is sent through the pipeline to remove accumulated deposits, clear restrictions, or inspect internal conditions. If implemented, pigging would be conducted as a scheduled maintenance activity under controlled conditions and in accordance with applicable operating procedures and permit requirements.

The combination of material selection, operational monitoring, and maintenance flexibility provides multiple lines of defense against precipitation-related impacts on system reliability.

4.3.3 Lake Level Variability

Waterleaf commissioned HR Wallingford to evaluate Great Salt Lake water level variability over a 20-year operating period beginning in 2027 (**Appendix E.3**). Modeling considered regional hydrology, extraction by other operators, and hydrologic interaction between the North and South Arms through the causeway breach. Three lake level scenarios were evaluated: (1a) a historical trend scenario assuming gradual decline to approximately 4,185 ft; (1b) a baseline scenario assuming stabilization near 4,191 ft; and (1c) a conservation scenario assuming modest increase to approximately 4,194 ft.

Across all scenarios, modeled lithium concentrations in the North Arm remain within commercially viable ranges. Facility equipment sizing and design margins accommodate all modeled scenarios. Variations in lithium concentration would be managed through operational adjustments rather than physical infrastructure changes.

4.3.4 Seasonal Impact on Equipment and Facilities

Seasonal impacts and mitigation measures for the primary front-end process equipment are described below, along with general mitigation measures applicable across the facility.

For outdoor installations where process equipment is exposed to ambient conditions, seasonal variations can significantly affect sensitive components and process operations. Summer conditions – including temperature extremes, humidity fluctuations, and solar heat gain – can degrade instrumentation, electronics, and precision mechanical systems. Winter conditions introduce risks including condensation, thermal shock, freezing of process lines, ice accumulation

on critical components, and potential damage to fluid-containing systems due to freeze-thaw expansion.

Where process fluids are temperature-sensitive—such as fluids prone to viscosity changes, crystallization, phase separation, or solidification—equipment, piping, and associated instrumentation are protected through thermal insulation and, where required, electric heat tracing systems. These measures maintain fluid temperatures within acceptable operating ranges, preventing blockages, flow disruptions, and degradation of product quality. Electric heat tracing provides controlled and reliable heat input to vulnerable piping, instrumentation, and process lines, maintaining temperatures above critical thresholds during prolonged cold weather events. Combined with properly specified insulation, these systems minimize heat loss while reducing thermal cycling stress, preventing freeze-related failures, extending component life, and preserving measurement accuracy and overall system reliability year-round.

4.3.4.1 Brine Feed and Depleted Brine Ponds

The brine feed pond and depleted brine pond are the primary on-site brine storage facilities that were not utilized during Pilot operations. Because these ponds represent new elements in the commercial design, their potential effects on the facility water budget and salt budget have been independently evaluated. The analysis below addresses thermal behavior, salt precipitation potential, and sediment accumulation rates in the feed brine pond.

It is anticipated that the majority of mirabilite precipitation, if any, will occur in the brine feed pond, where temperature fluctuations are greatest. Precipitation at this location reduces salt concentration throughout the downstream process, thereby mitigating precipitation risk elsewhere in the facility.

The feed brine pond will have three different flows entering it, brine from the lake, liquor recycle from crystallization, and RO water from the treated water RO system. These three streams along with seasonal temperatures, solar heating, and surface heat loss due to evaporation were modeled to calculate the average monthly pond temperature (**Figure 23**) and the effects on salt precipitation along with the dilution of the pond with the addition of RO water.

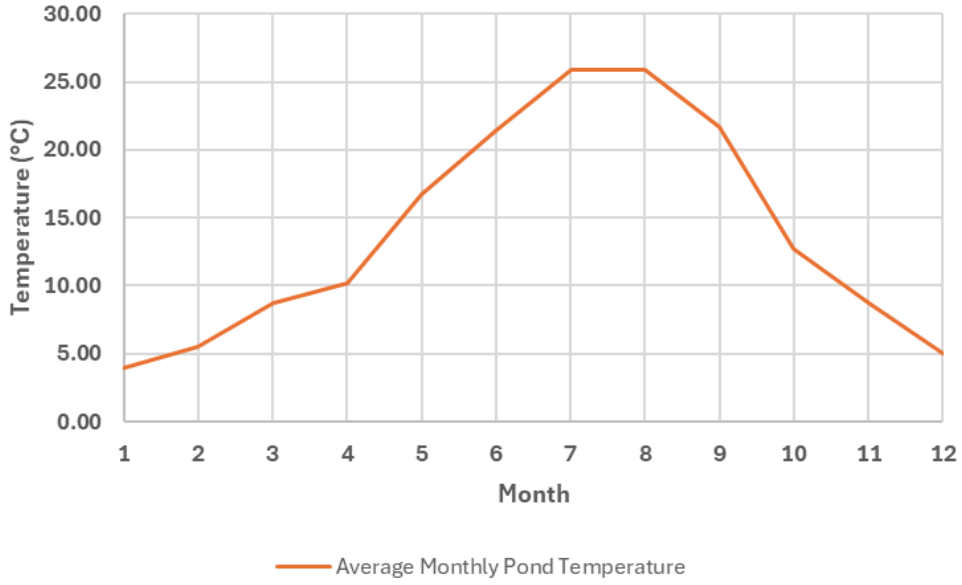


Figure 23: Average feed brine pond temperature

Based on OLI software[9], used for calculating precipitation rates for mirabilite vs temperature and brine concentration, there is no expected mirabilite precipitation in the feed brine pond. Adding the hot (85°C) crystallization liquor recycle stream to the intake brine pond causes a slight temperature rise, raising the solubility of mirabilite. The competing temperature effect from surface heat loss is less significant than the temperature rise from adding the hot mother liquor stream, preventing precipitation even at night. The main sediments that will be collected in the pond will be from mirabilite/halite pipe scaling and dust blown in from the environment.

Solids removal will be performed when accumulated solids reach approximately 20 percent of the effective pond volume. Solids would consist of predominately dust/pollutants from the air. Based on data from "Contributions of Great Salt Lake Playa- and Industrially Sourced Priority Pollutant Metals in Dust Contribute to Possible Health Hazards in the Communities of Northern Utah" the highest total suspended particulate (TSP) flux is 1,000 $mg.m^{-2}$ day^{-1}. Using this flux, bulk density of suspended particles (500 kg/m^3) and pond average area (from top to bottom 2,231.8 m^2), the solids build up to reach maintenance level requirements is negligible (0.001m/yr).

$$Bulk\ Density = 500 \frac{kg}{m^3}$$

$$Pond\ Trapping\ Efficiency = 0.80$$

[9] OLI Systems (www.olisystems.com) provides industry-standard water chemistry simulation software used by chemical processors, mining operations, and engineering firms worldwide. The software predicts solid precipitation, chemical speciation, and phase behavior in complex brines based on validated thermodynamic models.

$$TSP\ (Total\ Suspended\ Particulate) = 1{,}000\ \frac{mg}{m^2 day}$$

$$Average\ Pond\ Area = 2{,}231.8\ m^2$$

$$Annual\ Sediment = \frac{365 * TSP * Average\ Pond\ Area * Pond\ Trapping\ Efficiency}{Bulk\ Density * 10^6} = 1.30\frac{m^3}{y}$$

$$Annual\ Depth\ Accumulation = \frac{Annual\ Sediment}{Average\ Area} = \frac{1.3\frac{m^3}{y}}{2{,}231.8\ m^2} = 0.001\frac{m}{y}$$

The resulting solids loading of dust shows the ponds will not reach 20 percent solids within the life of the plant.

Sediment removal activities, if needed, will be conducted using routine pond maintenance methods that will be performed in a manner that protects liner integrity and prevents puncture, abrasion, or mechanical damage. Removed material will be dewatered using a filter press. Dewatered solids will be collected, sampled, and analyzed prior to disposition. Otherwise, solids will be managed as a waste stream and disposed of at an offsite landfill as discussed in Section 5. Handling, sampling, and disposition of precipitated salts will be conducted in accordance with applicable FFSL permit conditions and approved operating procedures.

4.3.4.2 Brine Pretreatment

Throughout Pilot operations, multiple pretreatment technologies were evaluated to identify an optimal configuration balancing filtration performance, filtrate quality, and capital expenditure. Technologies assessed included precoat filtration, polymeric Ultra-Filtration ("UF"), ceramic UF, and multimedia filtration, among others.

Seasonal testing conducted during winter operating conditions demonstrated that membrane-based filtration systems, particularly UF, exhibited performance degradation due to high brine viscosity. Viscous brine flows more slowly and resists movement through the membranes, increasing the pressure needed to maintain a given flow rate. Reductions in filtration flux were observed, which, in turn, necessitated an increase in required membrane surface area to maintain the target brine throughput. This led to an increase in capital and operating cost, leading to an impact on commercial viability of this technology.

Conversely, multimedia filtration demonstrated stable performance across seasonal operation with a lower operating pressure than membrane options. Test results indicated minimal impacts on hydraulics or solids-removal efficiency with changes in brine temperature. With adjustments to the downstream DLE process, the filtrate quality produced by media filtration met the required specifications for lithium extraction, supporting its selection as the preferred pretreatment solution.

While media filtration was used in the Pilot performance period, this period excluded the coldest months of the year. To illustrate the robustness and consistency of the multimedia filtration technology performance and quality in cold weather conditions, a pilot-scale multimedia filtration column was constructed at Lilac's Oakland facility, and brine filtration tests were completed. Both ambient temperature and cold temperature brine streams were filtered using the Pilot column at a filtration flux of 12,000 L/m^2/h ("LMH"), which is consistent with the commercial facility design basis.

The pressure was recording over a 12-hour test period to identify if the cold temperature feed would result in excessive pressurization. **Figure 24** shows the minimal changes to filter differential pressure for feed streams of 13°C and 1.5°C. Noticeably, the cold temperature test period had a higher starting pressure, but remained below the required maximum operating differential pressure of 5 psi.

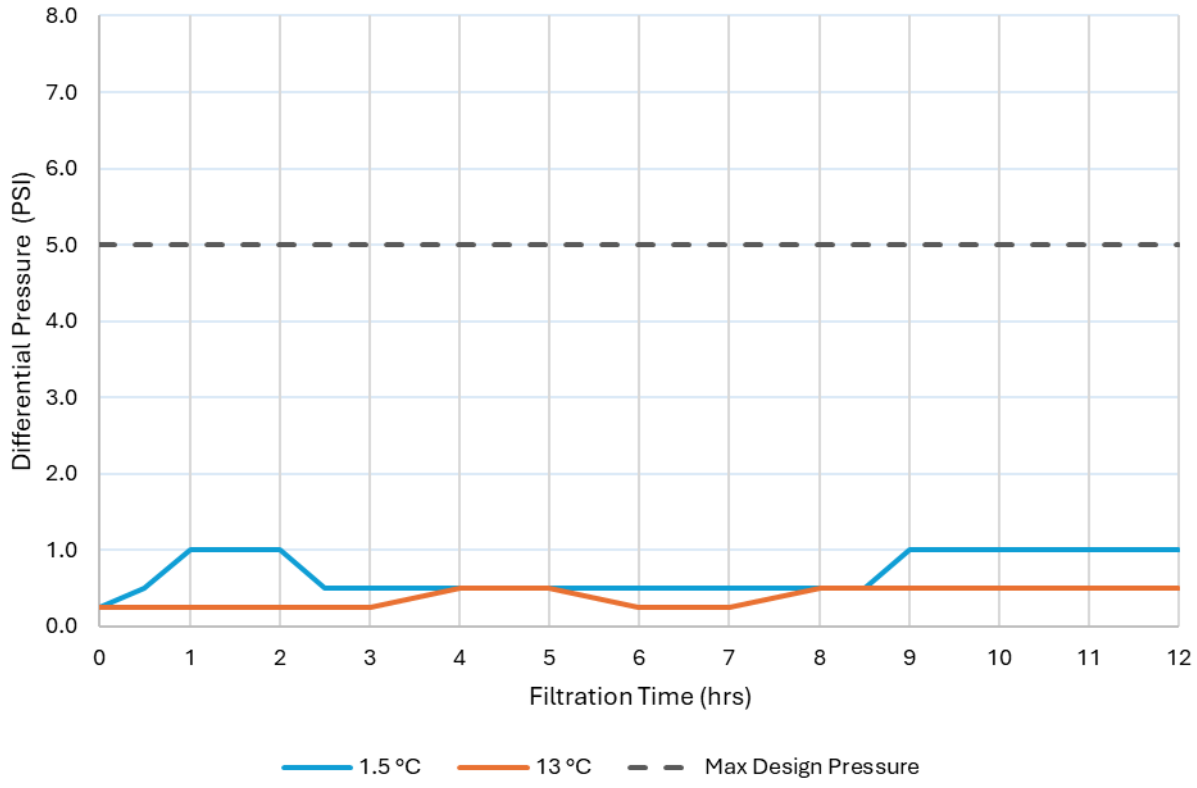


Figure 24: Brine MMF pressure with varied temperatures at 12,000 LMH

Figure 25 shows the particle size distribution of the raw brine stream and the resulting filtrate at ambient and cold temperatures. The raw brine exhibits increased presence of particles between 0.1 – 13 µm. Both the cold temperature and ambient filtrate samples show no presence of particles greater than 4 µm, a conservative particle size cutoff for the IX system design, which includes 50% design margin to handle fluctuations in particle size distribution. This gives confidence to the efficacy of the media filtration equipment in cold temperatures.

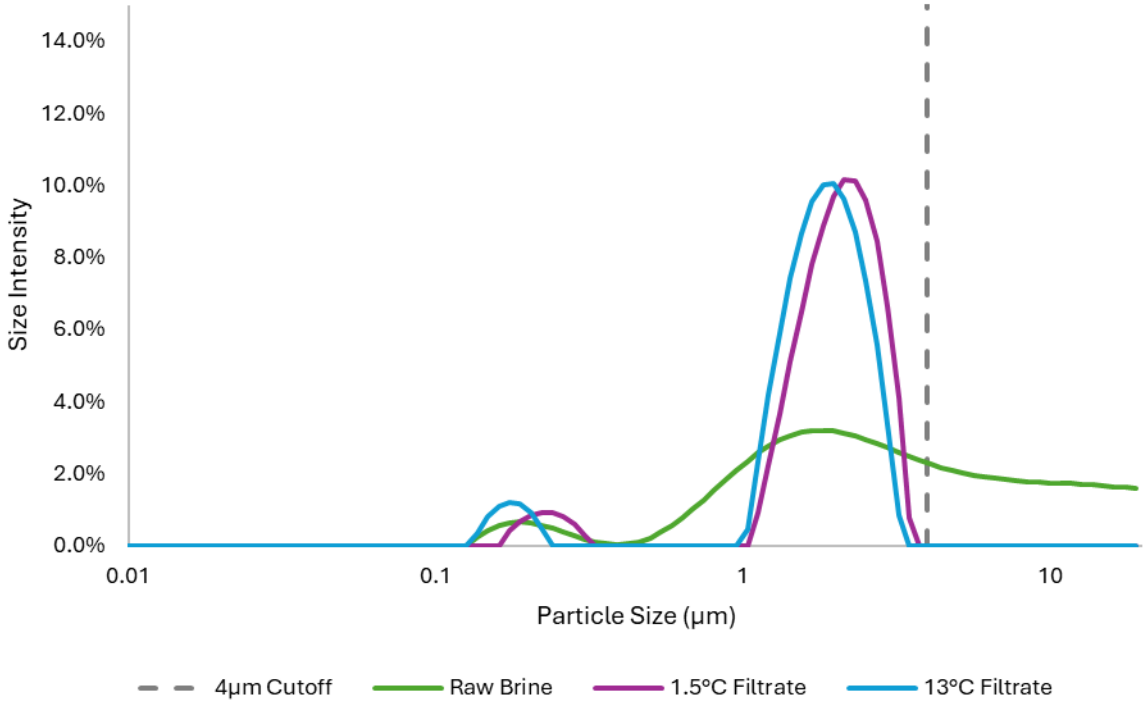


Figure 25: Brine particle size distribution before and after MMF

4.3.4.3 Depleted Brine Treatment

Seasonal effects on filtration performance were also studied for the depleted brine filtration application. To model cold temperature conditions, samples of the depleted brine were gathered from the Pilot and tested on a pilot-scale media filtration column at 1.5°C and ambient temperatures. The pressurization of the media column for cold and ambient temperatures can be found on **Figure 26**. Results showed similar pressurization between the cold temperature and ambient temperature test. Both trials have pressure variability over the cycle, but do not exceed the maximum allowable working pressure of 5 psi.

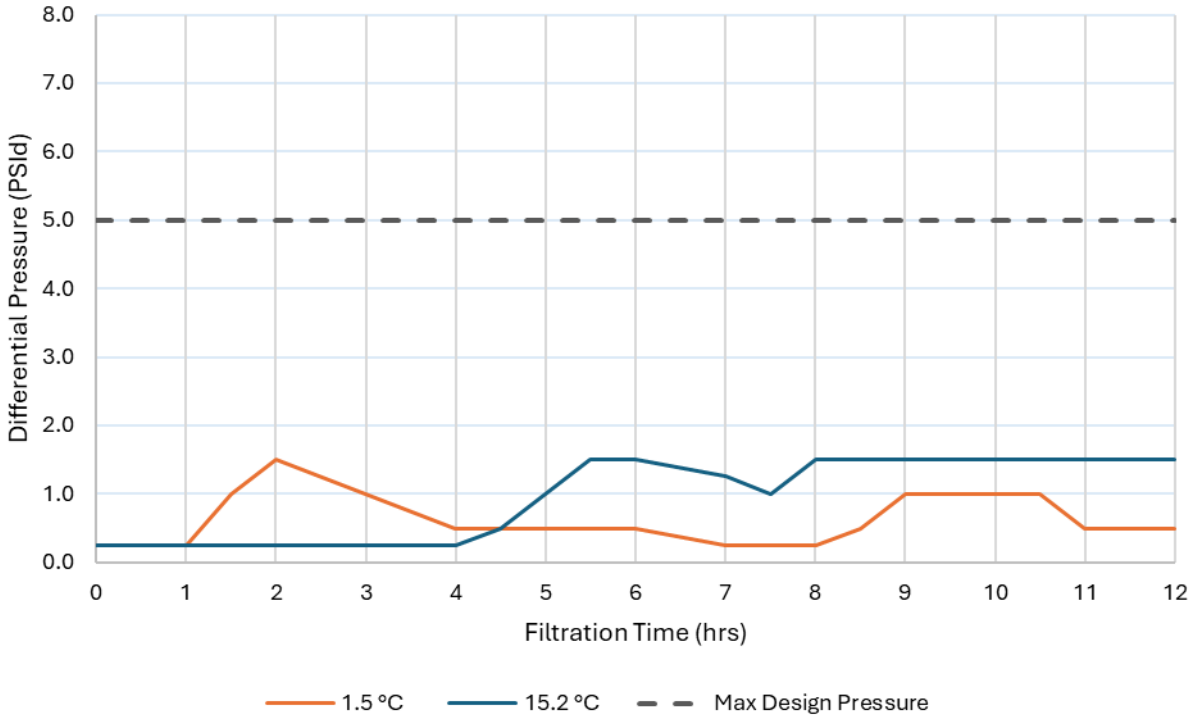


Figure 26: Depleted Brine MMF pressure with varied temperatures at 12,000 LMH

4.3.4.4 Ion Exchange Performance Under Seasonal Temperature Conditions

[redacted]



4.3.5 Year-Round Operations Strategy

The facility is designed for continuous, year-round operation with a target up-time of 90 percent, consistent with commercial processing facilities of similar scale. Planned downtime will be managed through regular, short-duration maintenance outages, including a planned one-shift shutdown approximately every two weeks to perform Clean-In-Place ("CIP") activities on evaporation and crystallization equipment. These planned outages provide scheduled opportunities to conduct equipment inspections, perform routine maintenance, and address minor repairs in a controlled manner without materially impacting overall production availability.

Maintenance activities will be implemented under an adaptive maintenance strategy that emphasizes preventive maintenance while allowing flexibility to take advantage of unplanned downtime. When unscheduled outages occur, maintenance scope will be adjusted to perform

[10] Pilot Plant data demonstrated for optimal periods during Week 16-28 of operations. Pilot temperature data was binned into 1°C intervals; each data point represents the mean lithium recovery within a bin, with error bars indicating variability across measurements in that bin.

additional inspections or corrective actions where practical, thereby reducing the likelihood of future disruptions and optimizing long-term equipment reliability.

The plant layout has been designed to support safe and efficient maintenance access throughout the year. Adequate space and clearance are provided around major equipment to allow the use of forklifts for smaller pumps and components, as well as mobile cranes or truck-mounted lifting equipment for larger items. Access routes are configured to accommodate maintenance vehicles without interfering with adjacent operations, supporting both routine and corrective maintenance activities.

An on-site maintenance and warehouse facility, equipped with HVAC, will support operations during winter conditions by providing a controlled environment for equipment servicing, piping repairs, and electrical and mechanical work. The warehouse will stock critical spare parts, including long-lead-time items, to reduce downtime and reliance on offsite procurement. During startup and ramp-up, these facilities will support rapid troubleshooting, equipment adjustments, and staged maintenance activities to efficiently achieve nameplate production capacity.

Routine inspections, planned maintenance activities, and safe equipment access are integral to the facility's operational and safety programs. Maintenance and operations personnel will conduct regular inspections and follow established procedures to identify potential hazards, address equipment condition issues, and maintain safe working conditions. These measures, together with winterization features and cold-weather operating practices described earlier in this application, support reliable, safe, and resilient year-round operations under seasonal conditions typical of the GSL region.

4.3.5.1 Operational Monitoring and Threshold Conditions

Key operating parameters will be continuously or routinely monitored to detect conditions that could indicate salt precipitation, solids accumulation, or fouling within process equipment. Monitoring parameters include brine temperature, instantaneous or continuously measured flow rates, and differential pressure across selected piping, filtration systems, and process equipment. Baseline operating ranges will be established during normal operations.

Deviations from established temperature limits, minimum flow velocities, or baseline differential pressure ranges will prompt operational review and initiate corrective actions prior to the occurrence of adverse operational or environmental impacts or exceedance of permit conditions. Corrective actions may include adjustment of flow rates, temperature control measures, flushing or cleaning of affected systems, diversion of impacted streams, or temporary isolation of equipment, as appropriate. These measures ensure that seasonal precipitation risks are identified early and managed proactively.

4.3.5.2 Monitoring, Recordkeeping, and Inspection

Seasonal operating conditions and associated mitigation measures will be documented through routine monitoring and recordkeeping practices. Key parameters, including brine temperature, flow rates, differential pressure across selected equipment, and observations of solids accumulation, will be recorded in accordance with facility operating procedures.

Operational records related to seasonal performance, mitigation actions, and maintenance activities will be recorded and retained. These practices support verification of compliance, early identification of seasonal impacts, and continuous improvement of operational controls.

4.3.5.3 Response to Extreme Weather Conditions

The commercial facility is designed to operate within a conservative ambient temperature range of approximately –20 °C to 40 °C. In the event that ambient or brine temperatures fall outside the design operating envelope for extended periods, operational controls will be implemented to protect equipment, containment systems, and the environment.

Such controls may include reduced throughput, temporary suspension of specific unit operations, or controlled shutdown of affected systems until conditions return to within the design basis. Winterization measures, including insulation, heat tracing, and pond management practices, are designed to maintain containment integrity and prevent uncontrolled releases during extreme cold events. These procedures ensure that atypical seasonal conditions can be safely managed without adverse environmental impact or uncontrolled discharge to the environment.

5 Resource Sustainability and Environmental Compliance

5.1 Resource Sustainability

5.1.1 Lithium Resource Assessment

The lithium resource in Great Salt Lake's North Arm (also referred to as Gunnison Bay) has been comprehensively characterized by Montgomery & Associates ("M&A"), independent Qualified Persons ("QPs") under internationally recognized mineral resource reporting standards.

The assessment integrates two systematic brine sampling campaigns conducted in July 2024 and March 2025 at 15 spatially distributed locations across the North Arm. While each campaign represents a temporal snapshot of lake chemistry, the combined data set confirms spatially and vertically consistent lithium concentrations with only minor variability, based on near-surface samples at all locations and depth-discrete sampling at selected sites.

M&A established the lithium resource estimate summarized in **Table 17**.

Table 17: North Arm lithium resource estimate for the GSL Project (March 2025 sampling campaign) [11]

Resource Category	Brine Volume (m^3)	Average Lithium Concentration (mg/L)	Lithium Mass (Mt)	LCE Mass (Mt)
Measured	3.97×10^9	67	0.27	1.42

Notes:

1. Mt = million tonnes; LCE = lithium carbonate equivalent
2. Conversion factor: Li × 5.323 = LCE based on molar weights
3. Lithium cut-off grade of 20 mg/L (no blocks excluded at this threshold)
4. Values rounded; comparison may not be exact due to rounding

All resources are classified as Measured, the highest confidence category, based on: (1) uniform lithium grades in both horizontal and vertical planes, (2) the appropriateness of volume-concentration methods for well-mixed brine system, and (3) established industry precedent for classifying lake-based brine resources at high confidence when supported by dense sampling and robust QA/QC.

5.1.2 Resource Adequacy and Depletion Context

The declared 1.42 Mt LCE Measured Resource provides a substantial margin relative to the proposed operating scale. At a nominal production rate of 5,000 mt/yr LCE, cumulative extraction over a 20-year mine life totals approximately 100,000 mt LCE, represents only ~7% of the Measured Resource.

[11] Source: Montgomery & Associates Technical Resource Assessment, May 16, 2025 (Appendix F.1)

This corresponds to a resource-to-production ratio exceeding 14:1 over the 20-year Life of Mine, even before consideration of ongoing natural replenishment processes in the lake system. Annual depletion rates are therefore very low relative to the total resource base, providing resilience to operational variability and long-term hydrologic uncertainty well beyond the initial mine plan.

Importantly, this static comparison is conservative. As discussed in subsequent sections, the North Arm lithium resource is not a closed or exhaustible inventory but part of an actively exchanging system, where natural lithium influx from the South Arm exceeds Project extraction rates.

5.1.3 Resource Variability and Lake System Dynamics

The lithium resource in the North Arm of the Great Salt Lake occurs within a dynamic lake-based system rather than a static or closed reservoir. Although the North and South Arms are partially separated by the Union Pacific Railroad causeway, they remain hydraulically connected through the managed causeway breach, which represents the dominant pathway for water and solute exchange between the two basins.

Lithium concentrations and total lithium mass in the North Arm vary over time in response to changes in lake level, third-party extraction, and hydrodynamic exchange with the South Arm, operating over seasonal to multi-year timescales. Exchange across the breach is governed by the combined effects of relative lake surface elevations, salinity-driven density contrasts, and causeway berm elevation.

Depending on these conditions, exchange may be bi-directional, with lower-density South Arm water entering the North Arm as a shallow surface layer and denser North Arm brine returning southward at depth, or predominantly unidirectional, dominated by south-to-north transport when deep return flow is hydraulically constrained by the berm.

Analysis of the United States Geological Survey ("USGS") breach flow monitoring data and flow inversion depth indicates that two distinct hydrodynamic regimes have operated since breach opening in 2016. Prior to causeway berm modifications, exchange was commonly bi-directional, with lower-density South Arm water flowing northward as a surface layer and denser North Arm brine returning southward along the bottom. Following successive berm raises implemented after 2022, deep north-to-south exchange has been substantially suppressed due to the elevated berm constraining the deeper, denser brine flow, resulting in a predominantly south-to-north net exchange regime under current conditions.

Historical reconstruction shows that, even under earlier bi-directional exchange conditions, net lithium inflow to the North Arm averaged approximately 30,000 mt LCE (5,772 mt Li) per year during the 2017–2021 period. Since the increase in berm elevation in 2022, net lithium inflow has averaged approximately 77,600 mt LCE (14,600 mt Li) per year, substantially exceeding the Project's planned extraction rate of 5,000 mt/yr LCE (see **Appendix F.1, Table 1**). This natural exchange therefore represents a continuous replenishment mechanism that operates independently of Project activities.

5.1.4 Hydrodynamic Dispersion Modeling – Methodology and Scenarios

To quantitatively assess long-term resource sustainability and potential impacts of extraction operations, Waterleaf commissioned HR Wallingford, an internationally recognized hydraulic research institution, to develop a three-dimensional hydrodynamic and dispersion model of Great

Salt Lake's North Arm. The model simulates the key physical and operational processes governing lithium behavior in the lake, including:

- Wind-driven circulation patterns
- Density-driven flows
- Lithium transport and dispersion
- Depleted brine plume behavior following discharge
- Temporal variation in lithium concentration at the intake

The modeling framework is consistent with the hydrodynamic exchange regimes and lithium mass-balance behavior documented in the February 2026 memorandum (See **Appendix E.3**) and provides a time-dependent assessment under a range of plausible future lake conditions.

Both short-term (1-year) and long-term (20-year) simulations were evaluated. Long-term simulations cover the period 2027–2047. Three primary scenarios were modeled at the proposed 5,000 mt/yr LCE production rate:

- **Scenario 1a – Historical Trend:** Continued lake-level decline at approximately 0.35 ft/year, consistent with the long-term historical trend; lithium influx of 4,000 mt/yr Li (21,000 mt/yr LCE) at an average concentration of 25 mg/L.
- **Scenario 1b – Strike Team Baseline:** Mean Strike Team[12] projection with relatively stable lake levels (approximately 4,190–4,192 ft); lithium influx of 10,000 mt/yr Li (53,000 mt/yr LCE) at 25 mg/L.
- **Scenario 1c – Strike Team Conservation:** Enhanced inflow conditions consistent with conservation measures (+250,000 acre-feet per year); lithium influx of 10,000 mt/yr Li (53,000 mt/yr LCE) at a reduced concentration of 18 mg/L, reflecting dilution under higher inflow conditions.

All scenarios incorporate Compass Minerals' ongoing potash extraction operations (53,000-112,000 acre-feet per year depending on lake level) to represent cumulative industrial activity in the North Arm. The model adjusts intake flowrate every 12 hours based on predicted lithium concentration at the intake to maintain target production mass rates, reflecting realistic operational control.

5.1.5 Dispersion Modeling Results – Inlet Concentration Dynamics

Modeling results demonstrate that lithium concentrations at the project intake vary over time in response to lake-level evolution, inflow conditions and natural mixing process, but remain sufficient to support operations under all scenarios evaluated.

Inlet Lithium Concentration Ranges (20-year simulations):

- **Scenario 1a (declining lake levels):** 67-146 mg/L, increasing as lake volume decreases
- **Scenario 1b (stable baseline):** 67-120 mg/L, with moderate long-term increase

[12] The Great Salt Lake Strike Team was established by the Utah Legislature in 2023 to develop science-based recommendations for lake management and water policy. The Strike Team's hydrologic modeling projections incorporate current water conservation measures, infrastructure projects, and policy initiatives aimed at stabilizing lake levels.

- **Scenario 1c (rising lake levels/conservation):** 55-85 mg/L, reflecting higher lake level with conservation inflows

Even under the most conservative conditions (Scenario 1c, with conservation inflows), predicted intake lithium concentrations remain above 55 mg/L, well in excess of the 20 mg/L minimum processable cut-off grade established for the Lilac DLE process.

Figure 28 illustrates the simulated lithium concentration in the raw brine at the intake over the full 20-year operating period for all three scenarios.

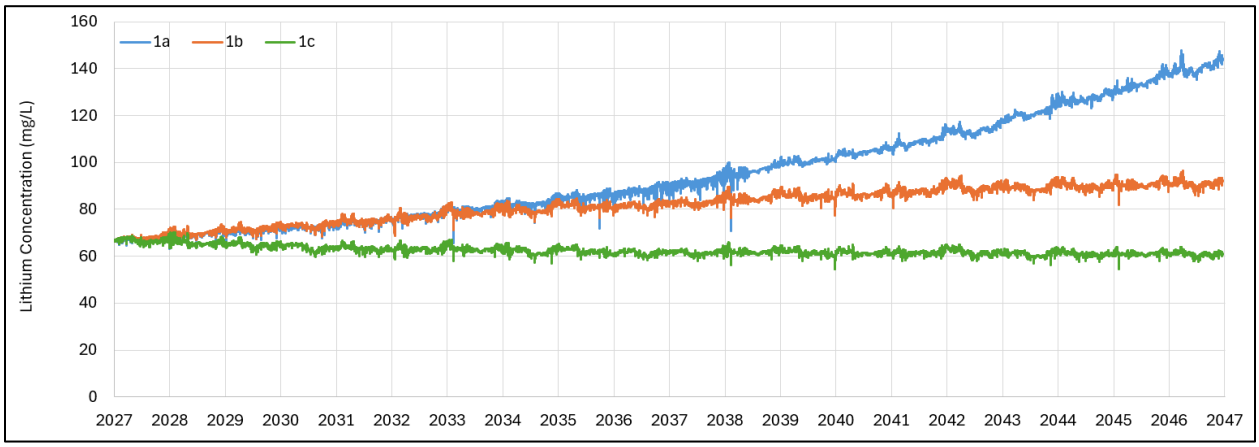


Figure 28: Predicted lithium concentrations at brine intake over 20-year operating period [13]

Discharge Mixing: The model further demonstrates that depleted brine discharged through the outfall rapidly disperses by wind-driven circulation and natural lake-scale mixing. Short-term (1-year) simulations showed inlet concentrations averaged 92-99% of background concentrations, with minimum concentration values remaining above 93% of background even under conservative operating conditions.

These results confirm effective mixing of the discharge, such that any influence at the intake is small in magnitude and short-lived. Intake lithium concentrations are therefore controlled by background lake conditions and large-scale hydrodynamic processes, rather than by persistent plume accumulation or recirculation near the intake.

5.1.6 Lithium Mass Balance – Long-Term Sustainability Confirmation

The long-term modeling results show that the total lithium mass in the North Arm of the Great Salt Lake increases over the Project life under all evaluated scenarios, despite continuous lithium extraction.

In addition to the primary scenarios as defined by HR Wallingford, the modeling framework evaluates conditions under which bidirectional hydrodynamic exchange between the North and South Arms is fully reinstated, for example if the effective causeway berm elevation is reduced.

[13] Source: HR Wallingford Dispersion Modeling Report (Appendix F.3)

- **Scenario 1d:** Bidirectional Exchange (Reduced Net Inflow) with breach flow rates as recorded in 2022
- **Scenario 1e:** Bidirectional Exchange (Further Reduced Net Inflow) with breach flow rates as recorded in 2021

Even under these more conservative exchange conditions, results indicate that the overall lithium mass balance in the North Arm remains stable to positive over the Project life. Lithium extraction continues to represent a small fraction of lake-scale lithium fluxes, and no sustained depletion of the North Arm lithium inventory is predicted.

Drivers of long-term lithium mass behavior: The predicted long-term behavior of lithium mass in the North Arm reflects the combined influence of hydrodynamic exchange and lake-wide mass balance processes:

1. Natural lithium flux into the North Arm exceeds projected extraction rates across all evaluated exchange regimes, including conservative bidirectional-flow sensitivity scenarios.
2. South Arm brine entering the North Arm, although lower in lithium concentration (approximately 18–25 mg/L), contributes net lithium mass because of the large volumetric exchange rates across the causeway breach.
3. The North Arm therefore functions as a dynamically replenished lithium system, rather than a closed reservoir subject to progressive depletion.
4. As a bounding case, even under a hypothetical no-exchange condition, cumulative extraction over the Project life would represent approximately 7% of the lithium currently in place, indicating that resource adequacy is not dependent on continued inter-arm exchange.

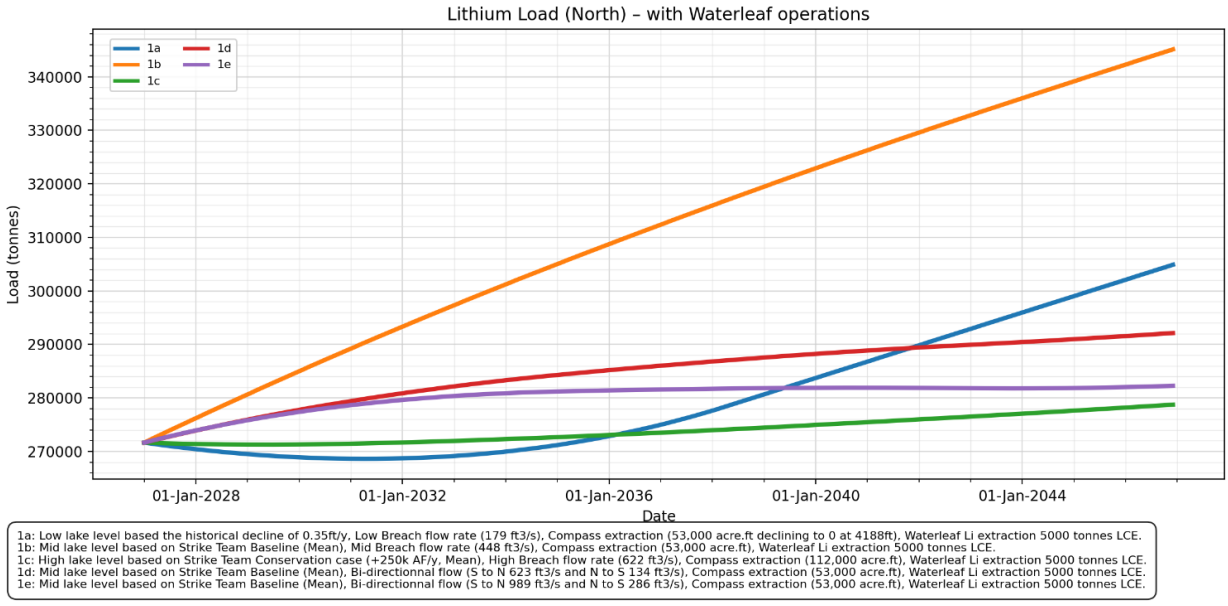


Figure 29: Lithium mass inventory in North Arm over 20-year operating period [14]

[14] Source: HR Wallingford Dispersion Modeling Report (Appendix F.3)

Figure 29 shows the simulated lithium mass inventory in the North Arm under all evaluated scenarios, including unidirectional exchange cases (Scenarios 1a–1c) and bidirectional-exchange sensitivity cases (Scenarios 1d and 1e). Across all scenarios, total lithium mass remains stable or increases over time despite continuous extraction at 5,000 mt/yr LCE, with simulated changes ranging from approximately +3% to +28% over the 20-year period.

These results provide quantitative confirmation that lithium extraction at the proposed scale operates well within the natural variability and replenishment capacity of the Great Salt Lake system, with no indication of long-term depletion of the North Arm lithium resource.

5.1.7 Implications for Commercial Operations

The combined resource assessment, hydrodynamic exchange analysis, and long-term modeling results establish a robust foundation for sustained commercial operations:

- **Resource adequacy:** The Measured lithium resource in Gunnison Bay exceeds 20-year production requirements by a factor of 14, with conservative classification and no reliance on Inferred or Indicated categories.
- **Dynamic sustainability:** The Project's lithium extraction represents a small fraction of the naturally circulating lithium mass within the North Arm system and is supported by ongoing hydrodynamic exchange rather than depletion of a finite or isolated inventory.
- **Operational flexibility:** Process design and operating strategies are capable of accommodating inlet lithium concentrations of approximately 55–146 mg/L across evaluated scenarios, enabling stable production under varying lake conditions.
- **Scenario resilience:** These conclusions remain valid across declining lake levels, stable baseline conditions, conservation-driven inflows, and bidirectional-exchange sensitivity scenarios, demonstrating resilience to uncertainty in future lake conditions and causeway management.

The technical analyses presented in this section support the conclusion that lithium extraction at the proposed scale is sustainable within the natural resource base and hydrodynamic character of Great Salt Lake's North Arm, with no risk of long-term resource depletion or alteration of the lake's lithium resource.

5.2 Mineral Mass Balance and Lake Chemistry

5.2.1 Long-Term Chemistry Assessment Framework

Section 5.1 established the sustainability of lithium extraction through resource assessment and hydrodynamic dispersion modeling. This section extends that analysis to evaluate the long-term effects of Waterleaf operations on all Great Salt Lake constituents affected by the extraction and discharge process.

Waterleaf developed a comprehensive 10-year mass balance model that quantifies concentration changes for major ions, trace metals, and non-conservative elements under multiple lake-level and breach-exchange scenarios. The detailed methodology, complete input assumptions, and full

results are provided in **Appendix E.4** (Great Salt Lake Mass Balance - Impact of Waterleaf Operations**)**. This section summarizes the approach, presents key results demonstrating no negative impact, and establishes implications for commercial viability.

5.2.2 Methodology Overview

The mass balance model applies a monthly, mass-conserving balance to simulate concentration changes in the Great Salt Lake North and South Arms. The model represents the key physical and operational processes governing chemical behavior in the lake system:

Model Structure and Components:

- Monthly time steps over a 10-year simulation period (2027-2037)
- Mass balance calculations for North Arm
- Explicit representation of bidirectional breach exchange (South-to-North and North-to-South flows)
- Lake level projections converted to arm volumes using project bathymetry relationships
- When applicable, concentration-dependent mass transfer terms calculated using previous month's concentrations to maintain numerical stability

Mass Loading Included:

- **Waterleaf commercial operations:** Component-specific mass additions (positive loading) and extractions (negative loading) based on influent-effluent differences
- **Compass Minerals extraction:** Volume-based withdrawal converted to mass removal using North Arm concentrations
- **Breach exchange:** Bidirectional mass transfer calculated from scenario-specific flow rates and source arm concentrations
- **Lake level change:** Volume effects on concentrations through dilution or concentration

Model outputs are generated for both "with Waterleaf operations" and "without Waterleaf operations" cases to isolate the incremental effect of Project activities. Five scenarios (1a-1e) span declining lake levels, stable baseline conditions, conservation inflows, and bidirectional breach configurations. Complete methodology is documented in **Appendix E.4**.

5.2.3 Plant Mass Loading

Table 18 summarizes annual mass loads for major constituents at the nominal 5,000 mt/yr LCE production rate (90% plant availability). Negative values indicate net removal of mass from the lake (extraction), while positive values indicate net addition to the lake.

Table 18: Commercial facility mass loading to North Arm (nominal operation) [15]

Constituent	Influent (mg/L)	Effluent (mg/L)	Mass Loading (mt/yr)	Mass Loading (st/yr)
Lithium	68.0	14.2	-939	-1,035
Magnesium	14,634	14,482	-226	-249
Bromine	177.9	176.2	-173	-190
Boron	62.0	61.4	-32	-35
Manganese [16]	0.04	0.04	0	0
Chloride	183,942	182,250	+1,100	+1,212
Sodium	98,464	97,871	+6,134	+6,762
Sulfate	26,976	27,240	+9,198	+10,139

5.2.4 Scenario Framework

The mass balance analysis employs the same five scenarios (1a-1e) developed for the lithium resource sustainability assessment presented in **Section 5.1**, ensuring consistency across the integrated hydrodynamic and chemical modeling framework. As described in **Section 5.1.6**, Scenarios 1a-1c evaluate lithium mass balance under current predominantly unidirectional breach conditions across a range of lake-level trajectories, while Scenarios 1d-1e test sensitivity to potential reduction in the breach elevation (leading to bidirectional flow).

This section extends that scenario framework to evaluate effects on all Great Salt Lake constituents affected by Waterleaf operations, with particular focus on how bidirectional breach configurations would allow North Arm chemistry changes to propagate into the South Arm. Detailed scenario development and supporting data are provided in **Appendix E.4.**

Lake Level Scenarios:

Three lake level scenarios span the range of plausible future conditions based on observed historical behavior and Utah Great Salt Lake Strike Team projections (Figure 1, **Appendix E.4**):

- **Scenario 1a (Low Lake Level):** Continued decline at 0.35 ft/year based on historical average 2000-2025, representing persistently negative water balance conditions
- **Scenario 1b (Mid Lake Level):** Strike Team base case mean projection with relatively stable conditions
- **Scenario 1c (High Lake Level):** Strike Team conservation scenario with enhanced inflows (+250,000 acre-feet per year incremental inflow)

[15] Complete loading table including all trace constituents provided in Appendix E.4, Table 1. Maximum loading sensitivity case (115% throughput, no downtime) provided in Appendix E.4, Table 2.

[16] Commercial design incorporates depleted brine manganese treatment after IX and prior to filtration (Section 3.7), reducing discharge manganese concentrations to levels comparable to intake.

Breach Flow Configurations:

Breach flow configuration determines whether Waterleaf operations influence only the North Arm or potentially propagate to the South Arm. Two breach flow configurations are evaluated across the lake level scenarios:

Current Conditions (Scenarios 1a-1c): Following causeway berm modifications implemented in 2022, flow exchange between the South and North Arms is predominantly unidirectional from South to North. Analysis of USGS breach flow monitoring data (Figure 2 and Table 4, **Appendix E.4**) shows that North-to-South return flows have been substantially suppressed, declining from 10-31% of total exchange by volume during 2017-2021 to only 0-4% during 2023-2025. Under these unidirectional conditions:

- Waterleaf operations influence North Arm concentrations only
- South Arm remains effectively unchanged by Project activity – water flows from South to North through the breach but does not return, preventing North Arm chemistry changes from propagating back
- South Arm chemistry provides the baseline composition for water entering the North Arm

Bidirectional Contingency Configurations (Scenarios 1d-1e):

As introduced in **Section 5.1.6**, the modeling framework also evaluates conditions under which bidirectional exchange would be restored – for example, if the berm crest is lowered or further eroded. Two contingency scenarios use breach flow rates derived from USGS monitoring records during bidirectional periods:

- **Scenario 1d (Mid Lake Level, 2022 Breach Flows):** Represents return to bidirectional exchange observed in 2022, with moderate North-to-South return flow
- **Scenario 1e (Mid Lake Level, 2021 Breach Flows):** Represents return to bidirectional exchange observed in 2021, with higher North-to-South return flow

These sensitivity scenarios are critical for the non-target mineral assessment because a resumed North-to-South transfer pathway would allow Waterleaf-related chemistry changes in the North Arm to propagate into the South Arm under certain lake-level conditions.

Table 19: Mineral mass balance and lake chemistry modeling – scenario summary [17]

Scenario	Lake Level	Breach Configuration	S-to-N Flow (cfs)	N-to-S Flow (cfs)
1a	Historical decline (0.35 ft/yr)	Unidirectional	750	0
1b	Strike Team baseline (stable)	Unidirectional	750	0
1c	Conservation (+250k AF/yr)	Unidirectional	1,000	0
1d	Strike Team baseline (stable)	Bidirectional (2022)	623	-134
1e	Strike Team baseline (stable)	Bidirectional (2021)	989	-286

[17] Complete breach flow assumptions and rationale provided in Appendix E.4, Table 5

Third-Party Operations:

All scenarios incorporate Compass Minerals' ongoing potash extraction operations in the North Arm, with annual withdrawal volumes ranging from 53,000 to 112,000 acre-feet per year depending on lake level (**Appendix E.4**, Tables 6-7), representing cumulative industrial activity effects.

5.2.5 Results – North Arm Chemistry

The impact of Waterleaf operations on North Arm mass loads was assessed by calculating time series under both "with operations" and "without operations" cases for each modeled constituent. The incremental effect of Waterleaf was quantified as the percentage difference between the two cases, isolating the operational signal from background drivers such as lake level variation and breach inflow.

Across all modeled components, the impact of Waterleaf operations on North Arm mass load remains de minimis, with relative changes of less than 3.2% over 10 years for the nominal case (**Figure 30** and **Table 20**) and less than 4.0% for the maximum design loading case (**Table 21**). For major dissolved constituents, the modeled concentration changes are proportional to mass load changes.

The magnitude and direction of impacts are consistent across all scenarios evaluated. While absolute values vary with lake level, breach flow configuration, and Compass extraction assumptions, the overall Waterleaf response remains similar across scenarios, indicating that results are not highly sensitive to individual scenario assumptions and are representative of expected conditions across plausible future lake-level and operational outcomes.

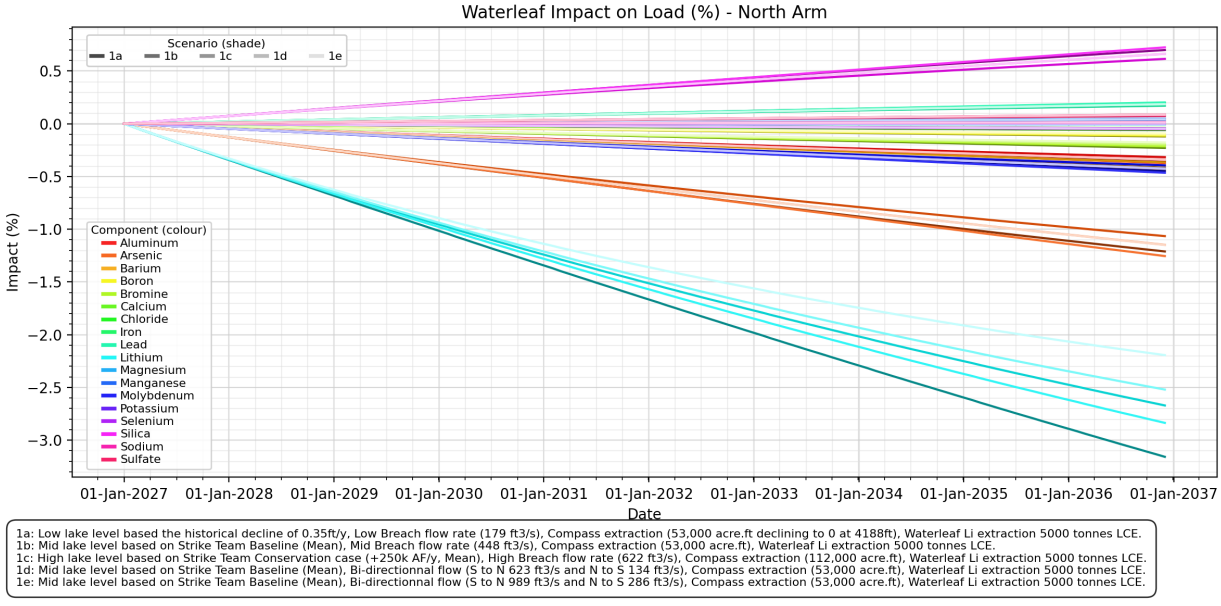


Figure 30: Waterleaf impact on load (%), nominal case - North Arm

Table 20: Impact [18] of Waterleaf operations on North Arm mass load after 10 years (nominal case)

Constituent	1a (Low lake level)	1b (Mid Lake level)	1c (High Lake Level)	1d (Mid lake level, lowered berm)	1e (Mid lake level, lowered berm)
Aluminum	-1.21%	-0.32%	-0.37%	-0.32%	-1.21%
Arsenic	-1.15%	-1.21%	-1.07%	-1.21%	-1.15%
Barium	-0.40%	-0.42%	-0.37%	-0.42%	-0.40%
Boron	-0.09%	-0.12%	-0.10%	-0.12%	-0.09%
Bromine	-0.18%	-0.23%	-0.20%	-0.23%	-0.18%
Calcium	-0.03%	-0.06%	-0.05%	-0.06%	-0.03%
Chloride	0.00%	0.00%	0.00%	0.00%	0.00%
Iron	0.00%	0.00%	0.00%	0.00%	0.00%
Lead	+0.19%	+0.20%	+0.17%	+0.20%	+0.19%
Lithium	-2.19%	-3.16%	-2.67%	-3.16%	-2.19%
Magnesium	0.00%	0.00%	0.00%	0.00%	0.00%
Manganese	+0.04%	+0.05%	+0.04%	+0.05%	+0.04%
Molybdenum	-0.43%	-0.45%	-0.39%	-0.45%	-0.43%
Potassium	0.00%	0.00%	0.00%	0.00%	0.00%
Selenium	-0.05%	-0.05%	-0.04%	-0.05%	-0.05%
Silica	+0.66%	+0.70%	+0.61%	+0.70%	+0.66%
Sodium	+0.01%	+0.01%	+0.01%	+0.01%	+0.01%
Sulfate	+0.09%	+0.08%	+0.07%	+0.08%	+0.09%

Table 21: Impact[18] of Waterleaf operations on North Arm mass load after 10 years (maximum design case)

Constituent	1a (Low lake level)	1b (Mid Lake level)	1c (High Lake Level)	1d (Mid lake level, lowered berm)	1e (Mid lake level, lowered berm)
Aluminum	-1.55%	-0.40%	-0.48%	-0.40%	-1.55%
Arsenic	-1.47%	-1.55%	-1.36%	-1.55%	-1.47%
Barium	-0.50%	-0.53%	-0.47%	-0.53%	-0.50%
Boron	-0.12%	-0.15%	-0.13%	-0.15%	-0.12%
Bromine	-0.23%	-0.29%	-0.26%	-0.29%	-0.23%
Calcium	-0.04%	-0.08%	-0.06%	-0.08%	-0.04%
Chloride	0.00%	0.00%	0.00%	0.00%	0.00%
Iron	+0.01%	+0.01%	0.00%	+0.01%	+0.01%

[18] Impact (%) is calculated as the difference between the component mass load at Year 10 with Waterleaf operations and the corresponding mass load without Waterleaf operations, expressed as a percentage of the mass load without Waterleaf operations. Source: Appendix E.4, Table 11-12.

Constituent	1a (Low lake level)	1b (Mid Lake level)	1c (High Lake Level)	1d (Mid lake level, lowered berm)	1e (Mid lake level, lowered berm)
Lead	+0.24%	+0.25%	+0.22%	+0.25%	+0.24%
Lithium	-2.80%	-4.03%	-3.41%	-4.03%	-2.80%
Magnesium	0.00%	0.00%	0.00%	0.00%	0.00%
Manganese	+0.06%	+0.06%	+0.05%	+0.06%	+0.06%
Molybdenum	-0.54%	-0.57%	-0.50%	-0.57%	-0.54%
Potassium	0.00%	0.00%	0.00%	0.00%	0.00%
Selenium	-0.06%	-0.06%	-0.06%	-0.06%	-0.06%
Silica	+0.85%	+0.89%	+0.79%	+0.89%	+0.85%
Sodium	+0.02%	+0.02%	+0.02%	+0.02%	+0.02%
Sulfate	+0.11%	+0.10%	+0.09%	+0.10%	+0.11%

Figure 31 and **Figure 32** present graphical summaries of predicted concentration changes. **Figure 31** illustrates constituents expected to behave conservatively, and **Figure 32** excludes lithium to more clearly demonstrate the relative magnitude of non-target mineral effects. The results confirm that Project-related changes are minor in comparison to baseline conditions.

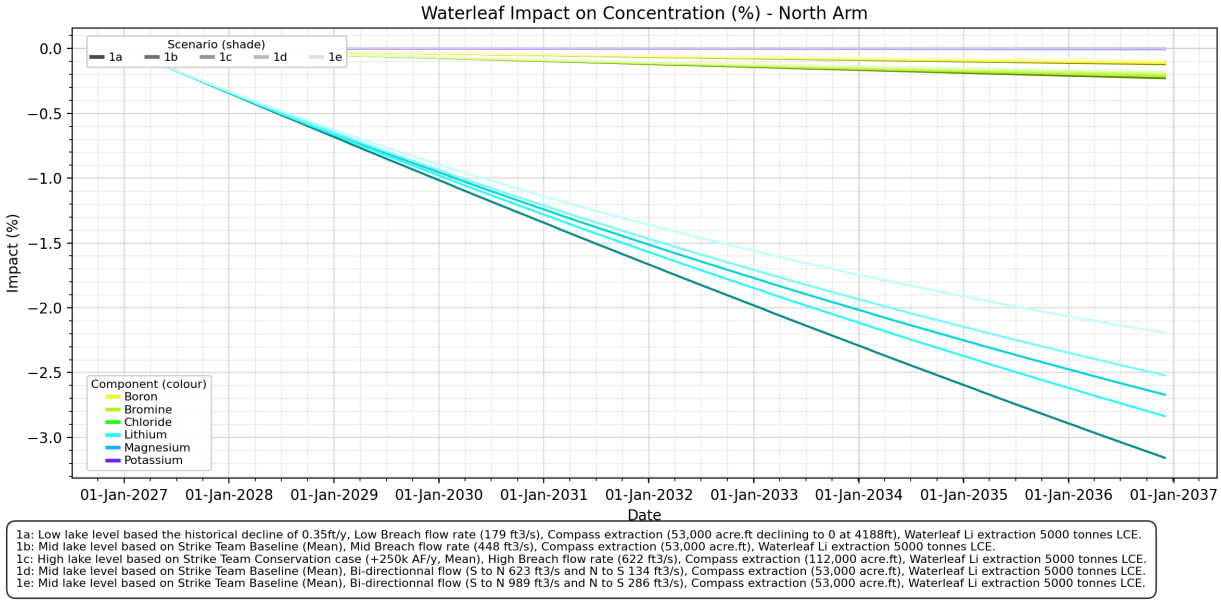


Figure 31: Waterleaf impact on concentrations (%), nominal case – North Arm

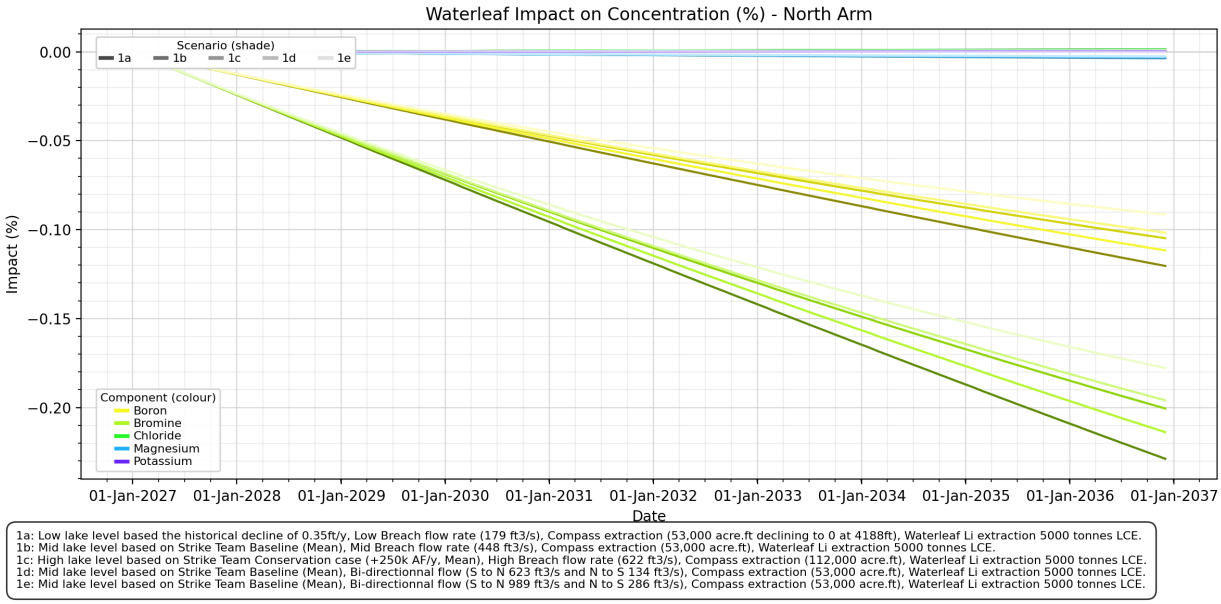


Figure 32: Waterleaf impact on concentrations excluding lithium (%), nominal case – North Arm

5.2.6 Results – South Arm Chemistry

The South Arm is only affected by Waterleaf operations under bidirectional breach flow conditions (Scenarios 1d and 1e), which would occur if the causeway berm were lowered or further eroded. Under current, predominantly unidirectional flow conditions (Scenarios 1a-1c), Waterleaf operations produce zero impact on South Arm chemistry because North Arm discharge does not transfer southward.

For bidirectional scenarios, North-to-South mass transfer was calculated at each time step using North Arm concentration time series evaluated separately for "with operations" and "without operations" cases. The cumulative mass difference was expressed as an equivalent concentration change by dividing by the South Arm lake volume.

Table 22 presents the incremental impact on South Arm concentrations after 10 years for both nominal and maximum design loading cases. All concentration changes are less than 1.7% of baseline, with most constituents showing changes less than 0.2%.

Table 22: Impact of Waterleaf operations on South Arm concentrations after 10 years (scenarios 1d-1e only)[19]

Constituent	Baseline (mg/L)	Scenario 1d Nominal	Scenario 1d Maximum	Scenario 1e Nominal	Scenario 1e Maximum
Boron	21	-0.03%	-0.04%	-0.06%	-0.07%
Bromine	58	-0.06%	-0.08%	-0.11%	-0.15%
Chloride	81,547	0.00%	0.00%	0.00%	0.00%
Lithium	29	-0.65%	-0.84%	-1.26%	-1.61%
Magnesium	5,679	0.00%	0.00%	0.00%	0.00%
Potassium	3,390	0.00%	0.00%	0.00%	0.00%

The South Arm's larger volume (approximately 3-4× the North Arm volume) and limited North-to-South exchange rates result in highly attenuated effects even under bidirectional conditions. These concentration changes are negligible relative to natural variability (15-25% typical) and are undetectable in practical monitoring programs.

5.2.7 Context and No Negative Impact Demonstration

Natural System Context:

The mass balance modeling demonstrates that Waterleaf's incremental effects operate at scales far below natural lake system dynamics. Project-induced changes are substantially smaller than three key natural processes:

- **Natural Concentration Variability:** Historical USGS and Utah Geological Survey data show North Arm concentrations of lithium and other salts varying by 20-40% seasonally and interannually due to lake level changes, evaporation-dilution cycles, and breach exchange dynamics. Project-related changes after 10 years of operation are substantially smaller than the variability introduced by these natural mechanisms: lithium mass load decreases by <3.2%[20] in the North Arm, with all other constituents changing by <±1.3%[20].
- **Existing Industrial Operations:** Compass Minerals withdraws 53,000-112,000 acre-feet per year for potash production (**Appendix E.4**, Tables 6-7), removing substantial quantities of potassium, sodium, chloride, and sulfate from the North Arm through brine extraction and evaporative concentration. Waterleaf's lithium extraction operates at a fundamentally different scale: lithium mass load decreases by <3.2%[20] over 10 years, while co-extracted constituents (e.g. magnesium, bromine, boron) are affected by <±1.3%[20] – orders of magnitude smaller than Compass removal rates for these same shared constituents.
- **Causeway Breach Exchange:** Annual mass transfer across the breach (15-40 billion gallons per year) is many orders of magnitude higher than Project loading. For example, Waterleaf's

[19] Negative values indicate decreases; positive values indicate increases. Scenarios 1a-1c (unidirectional breach) result in zero South Arm impact. Source: Appendix E.4, Tables 13-14.

[20] Based on nominal discharge flowrates, refer to Table 19

sodium addition (6,134 mt/yr) represents <0.3% of natural South-to-North sodium flux (6-15 million mt/yr).

No Negative Impact Certification:

The comprehensive mass balance analysis supports certification of no negative impact to Great Salt Lake chemistry and biota based on the following findings:

- **Negligible Magnitude:** All North Arm mass load changes <3.2%[21] of lithium after 10 years; all South Arm concentration changes <1.3%[21] under bidirectional scenarios and zero under current unidirectional conditions. No constituent approaches water quality criteria or biota tolerance thresholds.
- **Natural Variability Envelope:** Project effects fall well within documented seasonal and interannual variability, operating at scales 10× smaller than natural fluctuations that brine shrimp (*Artemia franciscana*) and brine fly (*Ephydra* spp.) populations routinely tolerate.
- **No Progressive Trends:** Monthly tracking over 10 years shows stable conditions with no indication of progressive accumulation or depletion (**Appendix E.4**, Figures 6-119).
- **Limited Spatial Extent:** Under current conditions, effects confined to North Arm. Even under bidirectional scenarios, South Arm impacts highly attenuated by volume dilution and limited exchange.
- **Biota Protection:** Concentration changes are far below biological effect thresholds. Manganese is treated in commercial design to maintain discharge concentrations comparable to influent.
- **Cumulative Industrial Effects:** When combined with Compass Minerals operations, total industrial loading remains small relative to natural breach-driven fluxes. The North Arm's 2-3 billion cubic meter volume and rapid mixing provide substantial assimilative capacity.

5.3 Waste Management

5.3.1 Waste Management Program Overview

The Project will implement a comprehensive waste management program to ensure that all wastes generated during construction, operation, and closure are managed in a manner that protects human health and the environment and complies with applicable federal, state, and local regulatory requirements. Waste management practices are designed to minimize waste generation, promote segregation of waste streams, and ensure proper storage, handling, transport, treatment, and disposal.

Waste streams generated by the Project are generally categorized as process and non-process waste. Process wastes include non-hazardous liquid wastes, process wastewater and depleted brine, and process-related solid and semi-solid wastes. Non-process waste includes laboratory effluents, hazardous liquid wastes, domestic waste, general industrial waste, and sewage and

[21] Based on nominal discharge flowrates, refer to Table 19

cleaning liquids. Each waste stream will be managed according to its physical and chemical characteristics and in accordance with applicable permitting, handling, and disposal requirements.

The waste management measures described in the sections below address routine operations as well as non-routine conditions, such as maintenance activities, seasonal operations, and upset events. Where offsite transport, treatment, or disposal is required, these activities will be conducted by appropriately licensed and permitted third-party service providers. No wastes will be disposed of onsite; all wastes will be managed through offsite treatment, recycling, or disposal at appropriately permitted facilities. Waste shipments will be documented through manifests or equivalent tracking records, as required by applicable regulations.

Waste management practices described herein apply during construction, operations, and closure, with waste volumes during closure expected to be limited to demolition debris and residual non-process materials.

5.3.2 Process Waste

Figure 33 identifies the major streams leaving in the outfall and as solid waste. The characteristics, flow rates, and composition of each flow are detailed in **Appendix D.4**, the commercial mass balance. Stream numbers on the graphic correspond with streams numbers in the commercial mass balance stream tables.

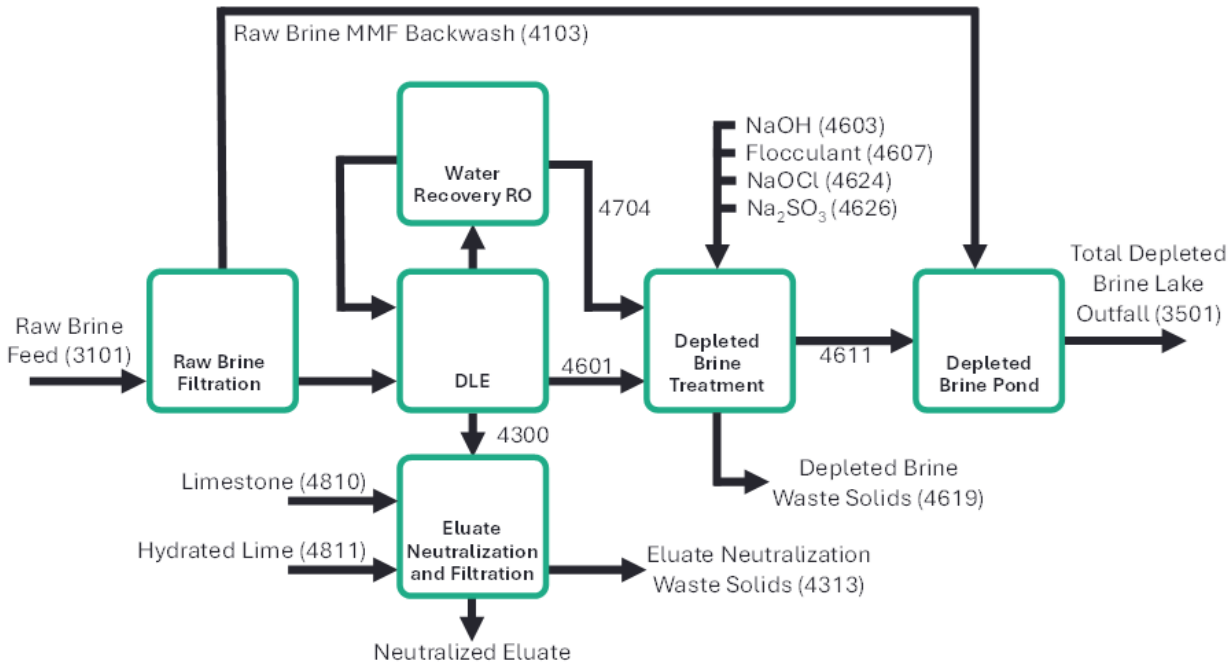


Figure 33: Simplified block flow diagram of major flows contributing to outfall and solid waste

5.3.2.1 Depleted Brine Outfall

The primary liquid waste stream from the facility is depleted brine, which is returned to Great Salt Lake through a single permitted outfall. Depleted brine consists of raw intake brine from which lithium has been selectively extracted via the ion-exchange process, combined with minor contributions from media filtration backwash, brine neutralization, and water recovery reject streams. The chemical composition of the depleted brine closely mirrors that of the raw intake brine, with lithium as the only constituent materially reduced in concentration – from approximately 68 mg/L in the raw brine to approximately 14 mg/L in the combined outfall stream at nominal flow rates.

Table 23 presents the composition and flow rates of the major streams contributing to the combined outfall discharge under both design and nominal operating conditions. Stream numbers correspond to those identified in the commercial mass balance (**Appendix D.4**) and **Figure 33** above.

Table 23: Outfall composition with major contributing streams [22]

Stream Number		3101	3501	4103	4601	4603	4607	4609	4611	4624	4625	4626	4704
Stream Description		Raw Brine	Total Depl. Brine Outfall	Raw Brine MMF Backwash	Depl. Brine	Fresh NaOH for Brine Neut.	Dilute Flocc.	Depl. Brine MMF Feed	Depl. Brine	12% NaClO	Depl. Brine MMF Filtrate	15% Na_2SO_3 Depl. Brine MMF Filtrate	Water Recovery RO Retentate
Parameter	Units												
Design													
Overall Stream													
Flow Rate	L/min	42,610	43,017	1,443	41,361	10.5	27.7	42,349	41,643	7.5	41,575	9.9	178
	m^3/hr	2,557	2,581	87	2,483	0.6	1.7	2,541	2,499	0.4	2,494	0.6	10.7
	mt/hr	3,115	3,149	105	3,029	0.8	1.7	3,100	3,044	0.5	3,043	0.7	11.2
Nominal													
Overall Stream													
Flow Rate	L/min	33,347	33,666	1,129	32,370	8.2	21.7	33,143	32,590	5.8	32,537	7.8	139
	m^3/hr	2,001	2,020	67.8	1,943	0.5	1.3	1,989	1,955	0.4	1,952	0.5	8.3
	mt/hr	2,438	2,464	82.6	2,370	0.6	1.3	2,426	2,382	0.4	2,381	0.5	8.8
Density	kg/L	1.2	1.2	1.2	1.2	1.2	1.0	1.2	1.2	1.2	1.2	1.2	1.1
Solid													
Solids Content	w%	0.007%	0.006%	0.2%	0%	0%	0.3%	0.002%	0.001%	0%	0.001%	0%	0%
Mass Flow, Nominal													
Aqueous Ion Composition													
Li+	mg/L	68.0	14.2	77.4	12.1	0.0	0.0	12.0	12.0	-	12.0	0.0	11.0
Na+	mg/L	98,464	97,872	98,327	98,190	140,135	34.5	97,842	97,700	42,805	97,844	64,299	17,548
Mg2+	mg/L	14,633	14,482	14,576	14,539	3.8	3.9	14,479	14,455	-	14,479	3.8	2,219
Ca2+	mg/L	309	300	307	300	1.1	1.2	300	300	-	300	1.1	374

[22] Figures are rounded for readability, refer to commercial mass balance (Appendix D.4) for source data.

Stream Number		3101	3501	4103	4601	4603	4607	4609	4611	4624	4625	4626	4704
Stream Description		Raw Brine	Total Depl. Brine Outfall	Raw Brine MMF Backwash	Depl. Brine	Fresh NaOH for Brine Neut.	Dilute Flocc.	Depl. Brine MMF Feed	Depl. Brine	12% NaClO	Depl. Brine MMF Filtrate	15% Na_2SO_3 Depl. Brine MMF Filtrate	Water Recovery RO Retentate
Parameter	Units												
K+	mg/L	8,721	8,638	8,691	8,672	2.3	2.4	8,637	8,623	-	8,637	2.4	1,350
B3+	mg/L	62.0	61.4	61.8	61.6	0.0	0.0	61.4	61.3	-	61.4	0.0	8.8
Sr2+	mg/L	4.0	3.4	4.0	3.4	0.0	0.0	3.4	3.4	-	3.4	0.0	0.6
Fe2+	mg/L	0.6	0.6	0.6	0.6	0.0	0.0	0.6	0.6	-	0.6	1.8	0.1
Mn2+/Mn4+	mg/L	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	-	0.0	0.0	0.3
Cl^-	mg/L	183,942	182,249	183,226	182,943	92.8	62.0	182,207	181,926	4,280.1	182,210	96.6	32,024
$SO4^{2-}$	mg/L	26,976	27,240	27,331	27,317	82.8	7.5	27,205	27,193	-	27,206	1,039	4,234

5.3.2.2 Process Solid and Semi-Solid Waste

The process will generate solid waste during the following stages:

- **Eluate neutralization (stream 4313):** Solid waste is generated by precipitation of dissolved impurities – primarily magnesium hydroxide, calcium compounds, and trace metals – during eluate neutralization. These solids are dewatered using filter presses and discharged to roll-off bins for collection by a licensed third-party contractor for permanent offsite disposal. The composition of these solids, including magnesium content, is characterized in **Appendix D.8** (Waterleaf Magnesium Technical Presentation) and **Appendix D.9**. Sampling and analysis will be conducted prior to each disposal event to confirm appropriate waste classification.
- **Depleted brine filtration (stream 4619):** Solid waste from the depleted brine filter press will be collected, analyzed, and removed by a licensed third-party contractor for permanent offsite disposal. These solids consist primarily of filtration aid and suspended materials removed from the depleted brine following lithium extraction, including manganese precipitates from the depleted brine conditioning circuit (**Section 3.7.1**).
- **DLE IX Process:** The spent DLE IX beads will be stored and transported to Lilac Solutions' bead facility in Fernley, Nevada, for their recycling and reuse. This will also include any fragments from the ion exchange beds that have been removed by filtration. Spent media will be managed separately from other solid waste streams.
- **Impurity IX Process:** The spent Impurity IX resin will be analyzed, sorted, and collected by a third party for permanent off-site disposal. Disposal classification will be confirmed prior to off-site transport.

The process will nominally (90% uptime) extract 33.8 mt/d from the eluate neutralization circuit and is designed to extract up to 43.2 mt/d. These solids will be removed using filter presses that discharge into roll-off bins. A third party will collect the bins for permanent off-site disposal. Solid waste in roll-off bins will be temporarily stored in a designated buffer area located west of the DLE Building until collection. Storage durations will be minimized to prevent long-term accumulation onsite.

The composition of the solid flows is detailed in **Appendix D.9**. The generation rates of the solid waste streams can be found in **Table 24** with the estimated transportation requirements provided in **Table 25**.

Table 24: Estimated solid waste generation rates (design basis [23])

Solids (Mass)	mt/d	mt/mon	mt/y
Eluate Neutralized	43.2	1,315	15,774
Depleted Brine	2.2	67.0	804
Solids (Volume)	**m^3/d**	**m^3/mon**	**m^3/y**
Eluate Neutralized	37.6	1,143	13,716
Depleted Brine	2.2	66	789

[23] Table based on design flow with 100% uptime

Table 25: Estimated process solid waste transportation requirements (design basis [24])

# of Trucks for Waste Removal	Loads/d [25]	Loads/mon	Loads/y
Eluate Neutralized	~3	72	853
Depleted Brine	<1	4	44
Total	**4**	**76**	**897**

Spent filters, filter cartridges, strainer elements, and similar filter media generated during operations will be drained as necessary, containerized, and managed based on their physical and chemical characteristics, with off-site transport conducted by licensed contractors to appropriately permitted facilities.

5.3.3 Non-Process Waste

Non-process waste includes all waste streams generated by facility operations that do not originate from the primary brine processing circuit. These waste streams include:

- **General industrial and domestic waste** – office waste, packaging materials, food waste, and inert industrial materials from facility support areas
- **Laboratory effluents** – dilute aqueous waste from analytical testing, sample preparation, and equipment cleaning
- **Hazardous liquid waste** – used oils, lubricants, hydraulic fluids, and chemical residues from equipment maintenance
- **Sewage and cleaning liquids** – domestic wastewater from staff facilities
- **Emergency response wastes** – firewater and spill cleanup materials (as needed)

All non-process wastes are managed separately from process waste streams and do not discharge to Great Salt Lake. Each waste category is segregated at the point of generation, stored in appropriate containers, and transported offsite for disposal, treatment, or recycling at permitted facilities.

5.3.3.1 General Industrial and Domestic Waste

General industrial and domestic waste includes office waste, packaging materials, food waste from facility break areas, and inert industrial waste such as rubble, scrap metal, and insulation remnants generated during maintenance activities. This waste does not contain process chemicals or reagents and is managed separately from process waste streams.

General waste will be segregated at the point of generation using designated, labeled containers. All general waste will be transported offsite for disposal or recycling at appropriately permitted facilities. Municipal solid waste will be disposed at the Little Mountain Landfill (Box Elder County); recyclable materials will be directed to regional recycling facilities. Inert industrial waste will be stored in a designated yard area and removed by licensed contractors based on accumulated volume.

[24] Table based on design flow with 100% uptime

[25] Loads per day and month are rounded up to illustrate maximum transportation requirements

Based on anticipated staffing levels during operations (approximately 38 personnel across day and night shifts), total non-process waste generation is estimated at approximately 68 kg/day (25,000 kg/year). Estimated volumes by waste category are provided in **Table 26**. Disposal and recycling destinations are summarized in **Table 27**.

If general waste is identified as contaminated with process chemicals, it will be reclassified and managed in accordance with applicable hazardous or controlled waste requirements.

Table 26: Estimated general industrial waste generation by category and staffing level

Waste Category	Generation Rate	Day Shift (25)	Night Shift (13)	Daily Total	Annual Estimate
Paper/Cardboard	0.5 kg/person/day	12.5 kg	6.5 kg	19 kg	6,900 kg
Food Waste	0.4 kg/person/day	10 kg	5.2 kg	15.2 kg	5,500 kg
Plastic Containers	0.2 kg/person/day	5 kg	2.6 kg	7.6 kg	2,800 kg
Glass	0.05 kg/person/day	1.25 kg	0.65 kg	1.9 kg	700 kg
Packaging Materials	0.3 kg/person/day	7.5 kg	3.9 kg	11.4 kg	4,200 kg
General Mixed Waste	0.35 kg/person/day	8.75 kg	4.55 kg	13.3 kg	4,900 kg
TOTAL	**1.8 kg/person/day**	**45 kg**	**23.4 kg**	**68 kg**	**25,000 kg**

Table 27: General industrial waste disposal and recycling destinations

Waste Stream	Disposal Method	Facility / Destination	Distance from Corinne
General Municipal Solid Waste	Landfill	Little Mountain Landfill (Box Elder County) – 9595 W 6800 N, Brigham City, UT	25 miles
Recyclable Paper/Cardboard	Recycling	Box Elder County Recycling Center, Tremonton, UT	20 miles
Mixed Recyclables	Material Recovery Facility	Davis MRF (Wasatch Integrated), Layton, UT	55 miles
Plastics (#1-#7)	Recycling	Waste Management MRF, West Jordan, UT	90 miles
Metals/Scrap	Recycling	Ogden Recycling & Steel, Ogden, UT	45 miles
Glass	Recycling	Momentum Recycling (via transfer)	85 miles
Food Waste/Organics	Composting	Regional composting facilities	Variable
E-Waste	Specialized Recycling	Various certified e-waste recyclers	Salt Lake area

5.3.3.2 Laboratory Effluents

The project will construct a laboratory with equipment for preparing standard and titration solutions, as well as for analyzing relevant cations and anions. The laboratory will be equipped with the necessary tools for routine brine and processing water analysis. Laboratory activities generate dilute aqueous effluents from analytical testing, sample preparation, and equipment cleaning.

Laboratory liquid waste is expected to be consistent with grey water and may be treated and reused for non-potable purposes where appropriate. Laboratory effluents will be segregated from process wastewater and managed as controlled laboratory wastewater streams, with hazardous waste determinations conducted in accordance with applicable regulatory requirements.

Laboratory waste will be collected in 20-liter HDPE containers at the point of generation and consolidated into 200-liter drums for temporary storage. Hazardous laboratory effluents will be neutralized where feasible and containerized in designated hazardous waste containers pending offsite disposal. Hazardous laboratory waste will be containerized and transported offsite by licensed contractors to permitted treatment or disposal facilities, while non-hazardous laboratory waste may be neutralized and managed through an approved wastewater pathway, subject to permit conditions.

The laboratory is expected to produce a daily maximum of 0.2 m^3 of waste and solutions. Estimated laboratory effluent volumes are summarized in **Table 28** and the classification in **Table 29**.

Table 28: Estimated laboratory effluent volumes

Category	Daily Volume (L)	Monthly Volume (m^3)	Annual Volume (m^3)	Annual Volume (gal)
ICP-related waste	13–28	0.39–0.84	4.7–10.1	1,240-2,670
Particle size waste	5–15	0.15–0.45	1.8–5.4	480-1,430
pH/ORP/Conductivity waste	3–8	0.09–0.24	1.1–2.9	290-770
Turbidity waste	1–2	0.03-0.06	0.36–0.72	95-190
Glassware/general wash	10–20	0.3–0.6	3.6–7.2	950-1,900
DI water reject	20–50	0.600–1.5	7.2–18	1,900-4,750
TOTAL	**52–123**	**1.56–3.69**	**18.76–44.32**	**4,955-11,710**

Table 29: Laboratory waste stream classification and management pathways

Waste Stream	Hazard Classification	Segregation Required	Management Pathway
ICP Acid Waste (high metals)	Potentially hazardous (D-codes for metals: D004-D011)	Yes – separate container	Hazardous waste determination → Licensed TSDF
ICP Acid Waste (low metals)	Non-hazardous (if below TCLP limits)	Yes – separate container	Neutralization → permitted discharge or industrial wastewater treatment
Acid Digestion Residues	Likely hazardous (corrosive, metals)	Yes – separate container	Hazardous waste disposal via licensed transporter
Buffer Solutions (pH)	Non-hazardous	May combine with general lab waste	Neutralization → sanitary sewer (with approval)
KCl Standards	Non-hazardous	No	Sanitary sewer (with approval)
Formazin (turbidity)	Non-hazardous (low concentrations)	No	General lab wastewater
Particle Size Rinse	Non-hazardous	No	General lab wastewater or process water system
Glassware Wash Water	Variable – depends on residues	Segregate if contaminated	Characterization required; route accordingly
DI Reject Water	Non-hazardous	No	Process reuse, cooling water, or permitted discharge

5.3.3.3 Hazardous Liquid Waste

Hazardous liquid wastes generated during operations include used oils and lubricants, hydraulic fluids, and chemical residues from equipment maintenance. These wastes will be collected at points of generation, stored in compatible, clearly labeled containers within a dedicated containment area in the facility waste yard, and removed routinely by licensed hazardous waste contractors for offsite treatment or disposal. The waste yard storage area is designed with impervious surfacing, secondary containment, and appropriate signage in accordance with applicable hazardous waste storage requirements. Estimated hazardous liquid waste quantities are summarized in **Table 30** and **Table 31**. A licensed hazardous waste transporter will be engaged prior to operations; contractor selection is underway.

Table 30: Estimated hazardous liquid waste generation

Waste Type	Estimated Quantity	Storage Method	Disposal Pathway
Used oils and lubricants	< 3,000 kg/month (combined total for all hazardous liquid wastes during normal operations)	Collected at point of generation; stored in compatible, clearly labeled 150-liter drums; transferred when full to dedicated hazardous waste storage area within waste yard	Removed by licensed and permitted waste management contractors for offsite treatment and/or disposal in accordance with applicable regulations

Table 31: Estimated oil and lubricant waste by equipment category

Waste Source	Est. Qty (kg/mo)	% of Total	Typical Equipment	Change Frequency
Rotating Equipment (pumps, compressors, blowers)	1,200–1,500	40–50%	100-200 units; centrifugal pumps, positive displacement compressors, blowers	Every 3–6 months + top-ups
Gearboxes & Reducers	400–600	13–20%	10–22 gear drives on mixers, conveyors, agitators	Every 6–12 months
Hydraulic Systems	500–800	17–27%	Control valves, actuators, presses, lifts	Continuous top-up; full change annually
Turbines / Large Drivers	300–500	10–17%	Steam or gas turbines (if applicable)	Annual or condition-based
Transformers (oil-filled)	100–200	3–7%	Power transformers	5–10 year replacement cycle
Miscellaneous (chains, small motors, greases)	200–400	7–13%	Chain drives, small motors, bearings, general lubrication	Ongoing

5.3.3.4 Sewage and Cleaning Liquids

Sewage effluents originating from staff domestic activities (toilets, kitchens, and laundry rooms) will be collected and treated centrally. Chemical toilets will be used during construction and operations, with effluents collected and treated offsite by licensed sanitary waste service providers. Domestic sewage and facility cleaning liquids will be managed separately from process wastewater and will not be discharged onsite or to the Great Salt Lake. Sanitary wastewater will be collected using self-

contained systems and serviced by appropriately licensed providers for offsite treatment and disposal.

The estimated sewage volumes for each stage are detailed in **Table 32** Wastewater volumes scale with staffing levels and include domestic sewage and facility cleaning liquids, which consist primarily of water with minor detergent residues and do not contain process chemicals.

Table 32: Estimated sewage and sanitary wastewater volumes by project phase

Phase	Personnel	Daily (L)	Monthly (m^3)	Annual (m^3)	Annual (gallons)
Construction	130	26,000	791	9,490	2,506,993
Operations (Day Shift)	33	8,000	243	2,920	771,382
Operations (Night Shift)	12	4,105	125	1,498	395,816
Operations (Total)	**45**	**12,105**	**368**	**4,418**	**1,167,198**
Closure	20	4,000	122	1,460	385,691

Note: The base calculation includes a consumption of 200 liters/day/person for the construction, operation, and closure stages staff estimates of 130 and 20 individuals. Sanitary and cleaning wastewater management practices will be reviewed periodically to ensure adequate servicing frequency, sufficient capacity, and continued compliance with applicable requirements.

5.3.3.5 Emergency Response Wastes (Firewater and Spill Cleanup)

Emergency response wastes, including firewater and spill cleanup materials, are not expected during normal operations. Any such wastes generated during emergency response activities will be contained and prevented from uncontrolled discharge.

Liquids will be evaluated and managed as process wastewater or hazardous waste, as appropriate. Solid cleanup materials will be collected, classified, and disposed of by licensed contractors in accordance with applicable requirements.

5.4 Heat Emissions

Diesel generated electricity is the main energy requirement of the Project. Heat is mainly generated from the following sources during the operational phase:

- Electric power generation system.
- Electric heaters in different parts of the process.

Thermal emissions associated with Project operations occur primarily from power generation equipment and process heating systems. The Project does not include any thermal discharge to surface water or to the Great Salt Lake.

Considering energy integration, gas emissions into the atmosphere will be minimized, with expected exhaust gas temperatures below 110 °C (typically ranging between 100–120 °C). Heat generated by facility operations will be dissipated to the atmosphere through exhaust systems or retained within

insulated equipment and piping and is not expected to result in measurable impacts beyond the facility boundary.

The primary source of thermal radiation within the facility will be steam piping and heated process equipment. These components are thermally insulated to reduce heat loss, minimize localized thermal exposure for operators, and support energy efficiency. Thermal insulation also supports energy efficiency and the management of thermal emissions during operations.

5.5 Noise and Vibrations

During the construction stage, noise and vibration emissions will result from the operation of construction machinery and equipment, such as excavators, material transport trucks, compactors, and cranes. These activities are temporary in nature and limited to the construction period. These activities are subject to noise limits set by the Utah regulatory authority. Given the remote location of the Project and the absence of nearby noise-sensitive receptors, construction-related noise and vibration are not expected to result in adverse offsite impacts.

During the operation stage, the main sources of noise and vibration emission will be related to the brine extraction and processing. This encompasses the operation of transport pumps, vehicles for maintenance, centrifuges, brine conduction equipment, electric generators, rectifiers, and transformers. Operational noise and vibration emissions will be managed to comply with applicable regulatory requirements and to minimize impacts beyond the facility boundary.

During operations, noise control measures will confine noise emissions to the worksite. Noise from fixed installations (plant and service units) will not exceed 75 dBA outside these areas. Traffic noise from light vehicles is estimated to be less than 60 dBA, with a maximum speed of 5–10 mph. The project will prioritize low-noise equipment selection and employ measures like damping, silencers, and acoustic insulation for noisy equipment, aligning with sector-specific noise requirements. Equipment layout and enclosure will also be used, where appropriate, to manage noise emissions.

Vibrations from process equipment are negligible. Vibration generated during operations is expected to be minimal and localized within the facility and is not anticipated to propagate beyond the facility boundary or affect surrounding infrastructure.

5.6 Gas and Particulate Matter Emissions

This section outlines emissions produced at various project stages and the associated control measures. The emissions discussed include gaseous and particulate matter generated during construction, operation, and closure. The primary emissions and their sources are discussed in the sections that follow. Air emissions will be managed in accordance with applicable regulations administered by the Utah Division of Air Quality (DAQ), and this discussion supports the environmental assessment and does not replace applicable air permitting requirements.

5.6.1 Combustion of gases from equipment and vehicles

The road machines and vehicles used by the Project will release gaseous emissions into the atmosphere due to the internal combustion of the engines. Combustion emissions may include

nitrogen oxides (NO_x), sulfur dioxide (SO_2), carbon monoxide (CO), and particulate matter. The fleet of vehicles for the operation stage is listed in **Table 33** and **Table 34**.

Table 33: Estimated annual personal vehicles to site

Personal Vehicles to Site	# of Trips/d	# of Trips/mon	# of Trips/y
Day Shift Ride Share	2	63	753
Day Shift Personal Vehicle	8	251	3012
Night Shift Ride Share	1	23	274
Night Shift Personal Vehicle	3	91	1095
Total	**14**	**428**	**5,134**

Table 34: Estimated annual trucks traffic to site

Trucks To Site	Trucks/d	Trucks/mon	Trucks/y
Miscellaneous Deliveries	0.1	4	48
Office/janitorial supplies	0.3	8	96
Maintenance parts/equipment	0.1	4	48
Safety/PPE supplies	0.3	8	96
Food/vending service	0.1	4	48
Courier/small parcels	0.4	12	144
Reagent Delivery	3.8	117	1,404
Fuels Delivery (Diesel, LPG)	0.9	27	320
Wastes (CIP, IXM, General, and Lab)	1	15	180
Waste Solids Process Eluate	2.6	78	937
Waste Solids Process Depleted Brine	0.1	3.2	38
Battery Grade Lithium Carbonate	0.7	21	253
Total	**10**	**301**	**3,612**

Additional combustion emissions will occur during construction from the operation of construction equipment and vehicles. Emissions from mobile equipment and vehicles will be minimized through routine equipment maintenance, use of modern equipment where practicable, implementation of vehicle speed limits, and efficient routing within the facility.

5.6.2 Emissions associated with power generation

Diesel generators will generate the energy required for the process. Diesel-fired generators will supply electrical power for process and auxiliary systems. Five (5) 2,600 kW electric power generators will satisfy the demand of the different processing areas, auxiliary services, and the campsite. The equipment will include built-in particle filters and oxidation catalysts to reduce

emissions. Generators will be operated in compliance with applicable Utah Division of Air Quality (DAQ) permitting requirements, and exhaust systems will be designed to promote dispersion and minimize localized impacts. Pollutants such as NO_x, SO_2, CO, and particulate matter will be monitored and controlled to ensure compliance with the authorized limits.

5.6.3 Gaseous Emissions from the Process

Process-related exhaust streams consist primarily of water vapor generated during evaporation, crystallization, and drying operations. Gases from these processes pass through dust collectors and bag filters to capture suspended particulates prior to atmospheric release. Recovered particulate material is recycled into the process where feasible or collected for offsite disposal. Residual gases and particulate matter will be managed through enclosure systems and dust collection or filtration equipment, as appropriate, to minimize emissions.

The exhaust gases or acid and chlorine vapors leftover from the NaOH washing tower will be less than 10 mg/Nm^3 released into the environment through chimneys. Acid gases and chlorine vapors generated during process operations will be controlled using a sodium hydroxide (NaOH) scrubbing system prior to atmospheric release. The scrubbing system utilizes an alkaline solution to neutralize acid vapors through chemical absorption and is designed to provide effective control of acid gases and chlorine. Emissions are expected to remain low and within applicable regulatory thresholds through the implementation of these control technologies.

5.6.4 Particulate matter

A substantial particulate matter emissions will occur during construction due to earth movement and foundation construction. Additional sources include material handling and vehicle traffic on unpaved surfaces. Roads and construction areas will be regularly watered during this stage. Standard dust suppression and housekeeping measures will be implemented to minimize particulate matter emissions during construction.

During operations, production areas will employ controls to minimize particulate matter emissions. Equipment with potential emissions will be equipped with dust collection systems. Operational dust controls form part of the Project's environmental management measures to minimize particulate matter emissions from routine activities.

Emissions during the closure and abandonment stage of the Project will primarily result from wind erosion during dismantling activities, with lower overall emissions. Dust suppression and housekeeping measures similar to those used during construction will be applied during closure, as appropriate.

6 Ownership, Surface Use and Occupancy

Waterleaf holds a valid existing land lease with property owner Mango-Spiral Jetty LLC for Box Elder County parcel number 03-008-0049. The lease agreement is dated March 16, 2023, with an associated Memorandum of Lease and Easements recorded March 5, 2024 (Entry No. 472343, Book 1577, Page 1813). An ALTA/NSPS Land Title Survey dated March 14, 2025, documenting the boundaries of the 50-acre leased parcel and lease recording information is included in **Appendix B.4**. **Figure 34** provides a general location of the Project facility, including the ingress/egress route from the Box Elder County-maintained Rozel Flats Road (a County Class B Road). The facility will be located on approximately 20 acres. The approximate center point of the commercial facility site is located at 41.49167°N, 112.56389°W (decimal degrees, WGS84 datum). Additional facility infrastructure coordinates, including intake and outfall locations, are provided in **Section 3.3.1** and **Section 3.7.2** respectively. Access to the facility from Rozel Flats Road will be provided via an existing private access road. This existing road will be upgraded by Waterleaf to accommodate commercial vehicle traffic, including widening, grading, and structural enhancements as necessary to ensure safe and reliable access. A fence and access gate will be installed at the junction with Rozel Flats Road, accompanied by appropriate signage to restrict unauthorized public entry to the site.

Waterleaf is coordinating with FFSL and other agencies to finalize surface use authorizations for sovereign lands infrastructure (intake/outfall pipelines, access routes) and upland facility permits. A comprehensive summary of all project permits, authorizations, and their current status is provided in **Section 12**. All required permits and easements will be finalized prior to execution of the Operations Royalty Agreement and commencement of construction, in accordance with Utah Administrative Code R652-21-704(3).

Figure 1 provides a general arrangement of the 20+-acre facility. Power will be supplied via on-site generators, and the facility will be fully fenced to prevent unauthorized access. The type of chemicals stored or utilized on site as part of the Commercial Project are provided in **Appendix D.5** List of Chemicals & Supplier Specifications. All chemicals will be stored in secondary containment on-site and will be managed in accordance with applicable EPA, UDEQ, and OSHA regulations for chemical management.

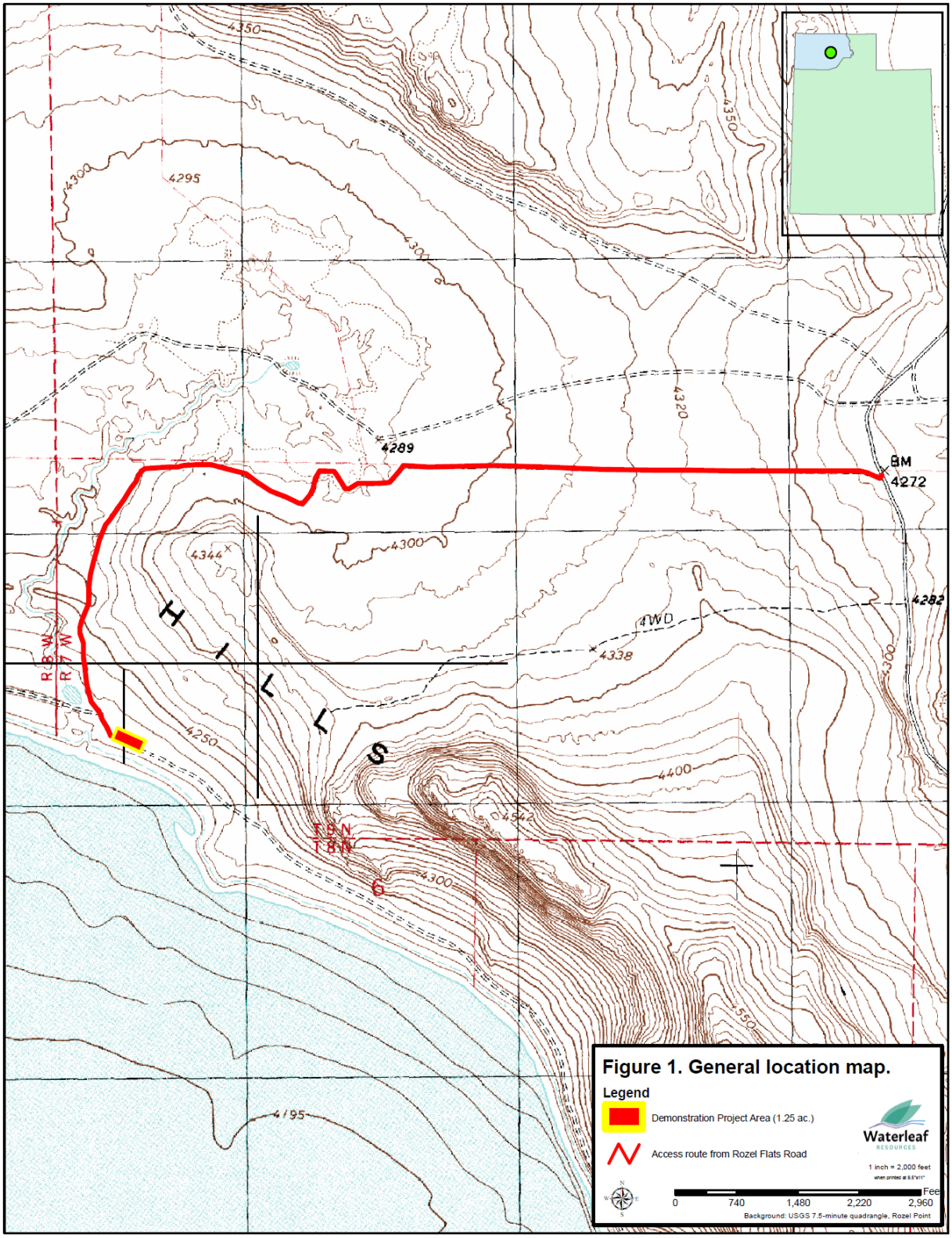


Figure 34: General location of the Project

7 Water Rights

The Project requires two separate categories of water rights for operations: (1) Great Salt Lake brine water rights for mineral extraction; and (2) groundwater rights for use as process water in the lithium extraction facility.

Great Salt Lake Brine Water Rights for Mineral Extraction

On July 27, 2023, Waterleaf applied to the Utah Division of Water Rights ("DWRi") for 225,000 acre-feet per year of fixed-time, non-consumptive water rights from the North Arm of the Great Salt Lake for the purposes of mineral extraction under Application No. F83873 (Water Right No. 13-4097). A copy of this application can be found on the DWRi website: Fixed-Time Application to Appropriate Water F83873 (13-4097).

As part of this application process, a public hearing was held on December 14, 2023. Waterleaf has responded to all comments and protests raised during the public hearing. No further issues or requests for additional information have been identified by DWRi.

Based on the results of the Feasibility Assessment, Waterleaf concluded that it could reduce the maximum proposed annual diversion of Great Salt Lake water for the Project. As such, on September 19, 2025, Waterleaf submitted a letter to DWRi reducing the amount of water rights requested under Application No. F83873 (Water Right No. 13-4097) from 225,000 acre-feet per year to 160,000 acre-feet per year. The letter further stated that the Project would only divert approximately 40,000 acre-feet of Great Salt Lake water annually during Phase 1 operations. This Phase 1 allocation is sufficient to support the 5,000-tonne lithium carbonate facility and allow for fluctuations in lithium grade due to seasonality, accounts for contingency around design margins and provides operational flexibility during facility start-up and optimization in the first year of operations. The letter also reduced the originally requested three points of diversion to one and confirmed the proposed outfall location for return of water to the lake. A copy of this letter can be found on the DWRi website: Correspondence: Utah Water Rights F83873 (13-4097).

The Project's non-consumptive classification ensures compliance with UAC R652-21-700. Brine extraction and return volumes will be continuously metered using magnetic flowmeters with ±0.5% accuracy. Flow data will be recorded continuously and archived with records retained for not less than five years per Utah Code § 73-33-203(4). Summaries of extraction and return volumes will be transmitted monthly to the Division of Water Rights and FFSL, with quarterly compliance reports submitted to FFSL within 30 days of each fiscal quarter per UAC R652-21-805.

Utah Code Section 73-3-8(3) requires that prior to approval of Application No. F83873 (Water Right No. 13-4097), the Applicant must first file a copy of the executed Operations Royalty Agreement with FFSL. The State Engineer has expressly requested that Waterleaf submit the change application (reduction on volume requested) together with the Operators Royalty Agreement, rather than in advance of concluding the Operations Royalty Agreement. As such, approval of Application No. F83873 (Water Right No. 13-4097) is currently pending. Waterleaf anticipates that once an Operations Royalty Agreement is executed with FFSL and filed with DWRi, the division will be able to make an approval decision on the water rights application referenced above.

Groundwater Rights for Process Facility Operations

The Project requires access to a small volume of groundwater for use as process water in the commercial facility. While there are multiple potential sources of this groundwater, Waterleaf's plan is to enter into an agreement with the landowner of the Project facility parcel to make use of its valid existing water rights (Water Right No. 13-4109).

Specifically, Waterleaf's plan for securing these water rights includes two main steps:

1. Lease certain existing, approved water rights (Water Right No. 13-4109) from Mango Spiral Jetty, LLC by entering into a commercial water-use agreement; and
2. Mango Spiral Jetty to submit an Application for Temporary Change of Water for Water Right No. 13-4109 to change the purpose of use from Irrigation to Mining.

Waterleaf and Mango Spiral Jetty LLC are currently finalizing the terms of the commercial water-use agreement for Water Right No. 13-4109 referenced in #1 above. Once this agreement is finalized, Mango Spiral Jetty will proceed to submit the Application for Temporary Change of Water to DWRi.

In the event Waterleaf and Mango Spiral Jetty LLC are ultimately unable to enter into a commercial water-use agreement, Waterleaf will procure necessary groundwater from an alternative third-party.

8 Royalty Arrangements and Commercial Viability

This section addresses the royalty arrangements required under R652-21-704(4)(d) and establishes the Project's commercial viability in accordance with Utah Administrative Code R652-21-704(4)(o). Waterleaf first describes the royalty framework under which the Project will operate (**Section 8.1**), followed by a comprehensive demonstration of commercial viability across the seven criteria defined in Rule R652-21-200(8) **(Section 8.2**).

8.1 State Royalties

Waterleaf understands that, per Utah Code § 65A-6-1(3), salts and other minerals in the waters of navigable lakes and streams are reserved to the state, and that those salts and minerals may only be sold by the Division on a royalty basis. Waterleaf will not produce salts or minerals from GSL brine from the Commercial Plant. As part of the Commercial Plant production process, an estimated 249 st (226 mt) magnesium will be extracted from the lake each year, as detailed in **Section 5.2.3**. Waterleaf understands this may trigger a royalty requirement for the lost magnesium and will coordinate with FFSL to determine the appropriate royalty arrangement, if any, for magnesium removal as part of the Operations Royalty Agreement negotiations.

Waterleaf will enter into a commercial lithium royalty agreement with the Division, utilizing the Non-Evaporative Rate under R652-21-1006, which provides a 2.5 percentage point reduction to incentivize non-evaporative technologies.

The Lithium Royalty Rate schedule is listed in **Table 35.**

Table 35: Lithium royalty rate schedule

Average Sale Price	Base Rate	Non-Evaporative Rate
< $ 20,000	5.0 %	2.5 %
$ 20,000 – $ 35,000	7.5 %	5.0 %
$ 35,001 – $ 45,000	12.5 %	10.0 %
$ 45,001 – $ 55,000	17.5 %	15.0 %
$ 55,001 – $ 65,000	22.5 %	20.0 %
> $ 65,000	27.5 %	25.0 %

8.2 Commercial Viability

Rule R652-21-200 (8) (a)-(g) defines Commercial Viability as seven distinct requirements which must be satisfied by the Applicant. Each such criterion is addressed in the following subsections:

8.2.1 Water Rights (R652-21-200(8)(a))

The Project requires two categories of water rights: (1) Great Salt Lake brine water rights for mineral extraction (Water Right No. 13-4097); and (2) groundwater rights for process facility operations (Water Right No. 13-4109).

Waterleaf has filed Application No. F83873 with the Utah Division of Water Rights for 160,000 acre-feet per year of fixed-time, non-consumptive brine water rights, with Phase 1 operations requiring approximately 40,000 acre-feet per year. This application has completed the public hearing process and is pending final approval, which is contingent upon filing the executed Operations Royalty Agreement per Utah Code Section 73-3-8(3).

For groundwater, Waterleaf is finalizing an agreement with Mango Spiral Jetty, LLC to lease existing Water Right No. 13-4109 under a commercial water-use agreement. Upon execution of this agreement, Mango Spiral Jetty will submit an Application for Temporary Change of Water to DWRi to change the purpose of use from Irrigation to Mining.

Full details regarding water rights, including application history, public hearing outcomes, metering and monitoring requirements, and acquisition timelines are provided in **Section 7**.

8.2.2 Technology Efficacy and Longevity (R652-21-200(8)(b))

The technology flowsheet selected for operations is summarized in **Section 3** and includes five main stages including: Brine Collection and Pre-Treatment, Direct Lithium Extraction Circuit, Eluate Purification and Concentration, Lithium Carbonation Circuit, and Discharge and Monitoring.

Efficacy

The efficacy of the Project's technology is demonstrated through three key considerations: scalability, seasonality, and resource variability, as described below.

Section 4 outlines the commercial design parameters for the flowsheet. To ensure efficacy, these parameters were informed by Pilot data obtained during the Feasibility Assessment and include design margins and mitigation strategies to account for potential performance variability related to three factors: scalability, seasonality, and resource variability.

Scalability is discussed in **Section 4.2** and considers how technology performance will translate from the Pilot Plant to commercial-scale operations. This includes the use of appropriate design margins as well as design changes based on observations made during the Feasibility Assessment.

Seasonality is discussed in **Section 4.3** and considers how weather events could affect technology efficacy, particularly processing and intake/outfall systems. Where required, mitigation strategies are adopted in the commercial design to ensure efficacy is achieved across the expected range of operating conditions. For example, Pilot operations identified mirabilite precipitation in pipelines during winter months below approximately 7°C. The commercial design incorporates a common header between intake and outfall systems to circulate brine and prevent crystal formation during stagnant conditions (**Section 3.3.1**), and the raw brine surge pond provides approximately five hours of buffer capacity to manage flow interruptions (**Section 3.3.2**). Cold-weather testing of the multimedia filtration system confirmed stable performance at 1.5°C, with differential pressure remaining below the 5 psi working limit over a full cycle (**Section 4.3.4**). IX vessels are sized with

excess capacity so that annualized production of 5,000 mt/yr LCE remains achievable even under cold-temperature conditions, with the ~0.3% recovery loss per °C factored into production planning (**Section 4.3.4**).

Resource variability is discussed in **Section 5.1** and considers how brine feedstock quality could fluctuate over the proposed Life of Mine, potentially changing the concentration of lithium and other impurities that need to be processed by the Project. This fluctuation could occur due to bi-directional flows through causeway breach, changes in lake levels, extraction by other operators and water conservation efforts. To account for this, the commercial design parameters include sufficient design margins to ensure efficacy is achieved across the expected brine feedstock quality range. For example, the HR Wallingford hydrodynamic dispersion model (**Section 5.1**) predicts intake lithium concentrations of 55–146 mg/L across three lake-level scenarios over a 20-year period. Even in the most conservative case (Scenario 1c, conservation inflows), concentrations remain above 55 mg/L – well in excess of the 20 mg/L minimum processable threshold for the Lilac IX process. Separately, the intake system is designed for 12,500 gpm against a nominal operating rate of 11,300 gpm, providing hydraulic headroom to increase throughput if needed to maintain target production at lower concentrations.

Longevity

The Project's technology, flowsheet, and maintenance plan have been optimized for long-term operations based on data generated during Pilot Plant operations. Costs to maintain performance in line with commercial design parameters are incorporated in the Project operating expenditures (opex), ensuring an accurate assessment of project economics that support long-term commercial viability. Three areas where longevity considerations are particularly important include reagents, consumables, and maintenance.

The Project uses a variety of reagents throughout the flowsheet (see **Section 3.8.2** for more information). Reagent consumption rates are calculated based on average performance over time, not initial peak performance conditions. Furthermore, the consumption rates include additional design margins. These consumption rates are used together with supplier pricing to establish accurate opex estimates for reagent consumption, as outlined in **Appendix C.1 (**Project Operating Cost Estimate**)**.

The Project uses a variety of consumables, including multimedia filtration sand, filter press cloth, candle filter, and IX media/resin (in both the DLE and divalent IX systems). The replacement frequency of these consumables are based on a combination of testwork and supplier recommendations. These consumption rates are used together with supplier pricing to establish accurate opex estimates for consumables, as outlined in **Appendix C.1**.

Various equipment in the Project, including pumps, tanks, and pipes require regular maintenance to ensure performance is maintained. The cost of maintenance is captured in the Project opex, as outlined in **Appendix C.1**.

8.2.3 Life of Mine (R652-21-200(8)(c))

The Measured lithium resource in the North Arm of the Great Salt Lake, as assessed by Montgomery & Associates under internationally recognized mineral resource reporting standards, totals 1.42 million tonnes LCE (**Section 5.1**). At the Project's nameplate production rate of 5,000 mt/yr LCE,

cumulative extraction over a 20-year mine life totals approximately 100,000 mt LCE – representing approximately 7% of the Measured Resource and a resource-to-production ratio exceeding 14:1.

This static resource comparison is further supported by dynamic sustainability analysis demonstrating that the North Arm operates as an actively replenished system rather than a closed reservoir. **Section 5.1** presents the HR Wallingford hydrodynamic dispersion model and associated lithium mass balance analysis, which evaluates resource sustainability under five scenarios spanning a range of plausible future conditions:

- **Connectivity to the South Arm (Gilbert Bay):** Net lithium inflow to the North Arm through the causeway breach has historically averaged approximately 77,600 mt/yr LCE under current unidirectional exchange conditions (i.e. since the causeway berm was raised in 2022), substantially exceeding the Project's planned extraction rate. Even under conservative bidirectional exchange scenarios (Scenarios 1d-1e), net lithium replenishment exceeds extraction.
- **Resource variability with lake level:** Under declining lake levels (Scenario 1a), lithium concentrations at the intake increase from 67 to 146 mg/L. Under rising lake levels with conservation inflows (Scenario 1c), concentrations decline but remain above 55 mg/L — well in excess of the 20 mg/L minimum processable threshold.
- **Third-party extraction from the North Arm:** All modeled scenarios incorporate Compass Minerals' ongoing potash operations (53,000-112,000 acre-feet per year), representing cumulative industrial activity effects on the North Arm resource.
- **Long-term water conservation scenarios:** Scenarios informed by Utah Great Salt Lake Strike Team projections (June 2025) demonstrate that even enhanced inflow conditions resulting from conservation measures do not impair the lithium resource base for the Project.

Under all evaluated scenarios, the total lithium mass in the North Arm remains stable or increases over the 20-year Project life despite continuous extraction, with modeled changes ranging from approximately +3% to +28% (**Section 5.1**,

Figure 29). These results confirm that the Project's Life of Mine of at least 20 years is robustly supported by the existing resource base and ongoing natural replenishment.

8.2.4 Financial Capability and Royalty Obligations (R652-21-200(8)(d))

The Project demonstrates the financial capability to satisfy royalty obligations for the Life of Mine through prices supported by market fundamentals, contracted revenues for 100% of production, competitive operating costs (“opex”), and financial analysis demonstrating positive cashflow under conservative price scenarios. Collectively, this satisfies the requirements of R652-21-200(8)(d).

8.2.4.1 Lithium Prices Supported by Market Fundamentals

Lithium is a critical mineral essential to modern battery technology, underpinning energy security, national defense, and industrial competitiveness. Lithium-ion batteries power electric vehicles, enable defense technologies, and stabilize the electric grid as AI compute grows exponentially. As a result of these applications, lithium demand is growing rapidly. While demand growth for most

metals typically matches GDP growth of ~1-3% per annum, lithium has experienced a >20% compounded annual growth rate since 2015 [26].

Lithium is a commodity and pricing is cyclical, ultimately driven by supply and demand market fundamentals. This cyclicality is observed across historical lithium prices, as shown in **Figure 35**, below. Over the past decade, lithium prices have averaged $22,500/mt LCE. During the past year, at the bottom of the most recent lithium price cycle, prices averaged $10,100/mt LCE.

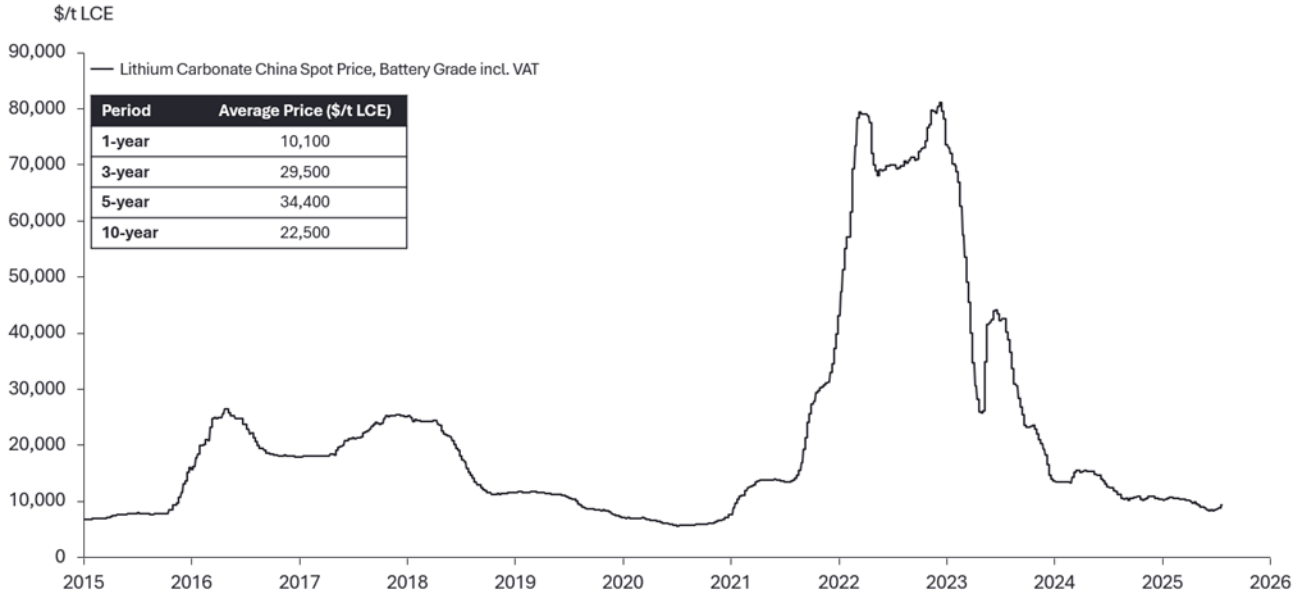
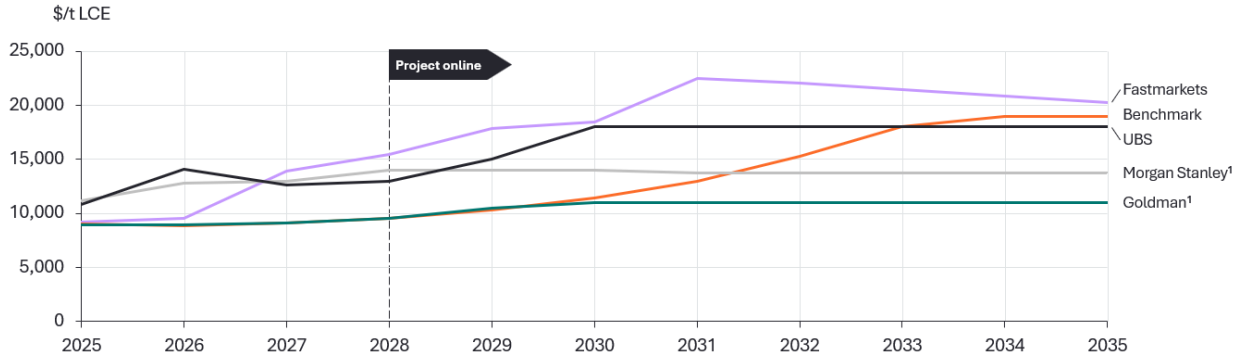


Figure 35: Battery-grade lithium carbonate price history ($/mt LCE) [27]

Figure 36 summarizes lithium price forecasts by a range of third-party market analysts and price reporting agencies. There is a consistent view that lithium prices are forecast to rise to ~$11,000-20,000/mt LCE over the next decade, which is the price range that the market believes is required to incentivize sufficient new supply to meet growing demand, based on market fundamentals. When the Project comes online in 2028, prices are forecast to range from ~$9,500-$15,500/mt LCE.

[26] Benchmark Minerals Intelligence, Q3 2025 Forecast, Oct 2025

[27] Price data from Shanghai Metals Market



Price Forecast ($/t LCE)	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Fastmarkets, Sept 2025, CIF China, Japan, Korea (Real)	9,202	9,511	13,943	15,471	17,850	18,463	22,456	22,012	21,490	20,860	20,292
Benchmark, Oct 2025, CIF Asia (Real)	9,027	8,875	9,100	9,550	10,325	11,450	12,975	15,275	18,025	19,000	19,000
Morgan Stanley, Dec 2024, China Spot ex-VAT	11,125	12,750	13,000	14,000	14,000	14,000	13,700	13,700	13,700	13,700	13,700
Goldman Sachs, Sept 2025, Spot Price ex-VAT	8,890	8,900	9,100	9,500	10,500	11,000	11,000	11,000	11,000	11,000	11,000
UBS, Aug 2025, CIF China	10,820	14,060	12,650	13,000	15,000	18,000	18,000	18,000	18,000	18,000	18,000

Figure 36: Battery-grade lithium carbonate price forecasts ($/mt LCE)

8.2.4.2 Contracted Revenues

Project revenues are supported by the binding, 10-year take-or-pay offtake agreement that Waterleaf has executed with Traxys North America (refer to press release in **Appendix C.2**). This take-or-pay agreement covers 100% of lithium carbonate production, which gives the Project volume certainty.

[redacted]

This contracted sales framework materially supports Project revenues by providing volume certainty, reducing exposure to product-grade variability, and supporting cash flow generation from the very start of operations.

8.2.4.3 Competitive Project Opex

At the Project's stabilized full production rate of 5,000 mt/yr LCE, the annual per-unit opex is $7,518/mt LCE, as shown in **Table 36**.

Table 36: Project opex at 5,000 mt/yr LCE stabilized production rate

Cost Centre	Annual Cost ($/yr)	Production Basis ($/mt LCE)	Distribution (%)
Fixed Costs			
Labor	5,147,726	1,030	13.7
Miscellaneous	3,034,927	607	8.1
G&A	654,820	131	1.7
Sub-Total	**8,837,473**	**1,768**	**23.5**
Variable Costs			
Reagents	14,314,806	2,863	38.1
Maintenance	2,225,804	445	5.9
Power	7,110,132	1,422	18.9
Consumables	5,104,277	1,021	13.6
Sub-Total	**28,755,019**	**5,751**	**76.5**
Total	**37,592,492**	**7,518**	**100.0**

This opex represents the stabilized per-unit cost achieved at full production (5,000 mt/yr LCE). During the initial 12-month ramp-up period, per-unit costs are higher due to fixed cost allocation across lower production volumes, as shown in **Table 37**.

Summary information on each cost center is provided below. A detailed breakdown of the opex, including key input assumptions, is provided in **Appendix C.1.**

Labor

Labor costs account for approximately 13.7% of total opex and include plant operations, maintenance personnel, supervision, and laboratory services required to manage brine quality and product specifications. Staffing levels are influenced by the degree of automation, plant layout, and operating philosophy and are relatively stable across operating conditions.

Miscellaneous

Miscellaneous operating costs account for approximately 8.1% of total opex and include analytical laboratory activities supporting product certification and quality control. This category also covers vehicles and mobile equipment costs, HSSE supplies and training, contracted services, building and equipment lease costs, and residue and effluent disposal. While individually small, these costs are necessary to support safe, compliant, and continuous operation of the DLE facility.

G&A

General and administrative costs account for approximately 1.7% of total opex and include site management, administrative staff, accounting, IT support, insurance, and regulatory compliance. These costs are largely fixed and support overall site governance and business operations.

Reagents

Reagents represent the largest component of operating expenditure, accounting for approximately 38.1% of total opex. Reagent consumption is governed by feed brine chemistry, impurity loading, lithium concentration, and IX media performance and scales directly with brine throughput and operating cycle frequency.

Maintenance

Maintenance costs represent approximately 5.9% of total opex and include routine and corrective maintenance across mechanical, electrical, and instrumentation systems. These costs are driven by operating hours, duty cycles, and the corrosive nature of the brine and process reagents and are critical to maintaining plant availability and IX system performance.

Power

Power consumption accounts for approximately 18.9% of total opex and is the second-largest operating cost component. Power is primarily associated with brine pumping, circulation through the IX columns, regeneration and elution systems, and auxiliary plant services. Power demand is governed by hydraulic requirements, pressure losses across the IX system, and overall plant operating efficiency.

Consumables

Consumables account for approximately 13.6% of total opex and include filter media, cartridges, laboratory supplies, and other short-life items required for routine plant operation. These costs are influenced by operating hours, maintenance frequency, and brine quality and represent a relatively minor but necessary component of total operating expenditure.

At an opex of $7,518/mt LCE, the Project will sit in the middle of the global lithium cost curve, as shown in

Figure 37. This highlights how Lilac's non-evaporative IX technology unlocks competitive, low-cost lithium supply, even for low-grade lithium resources at GSL.

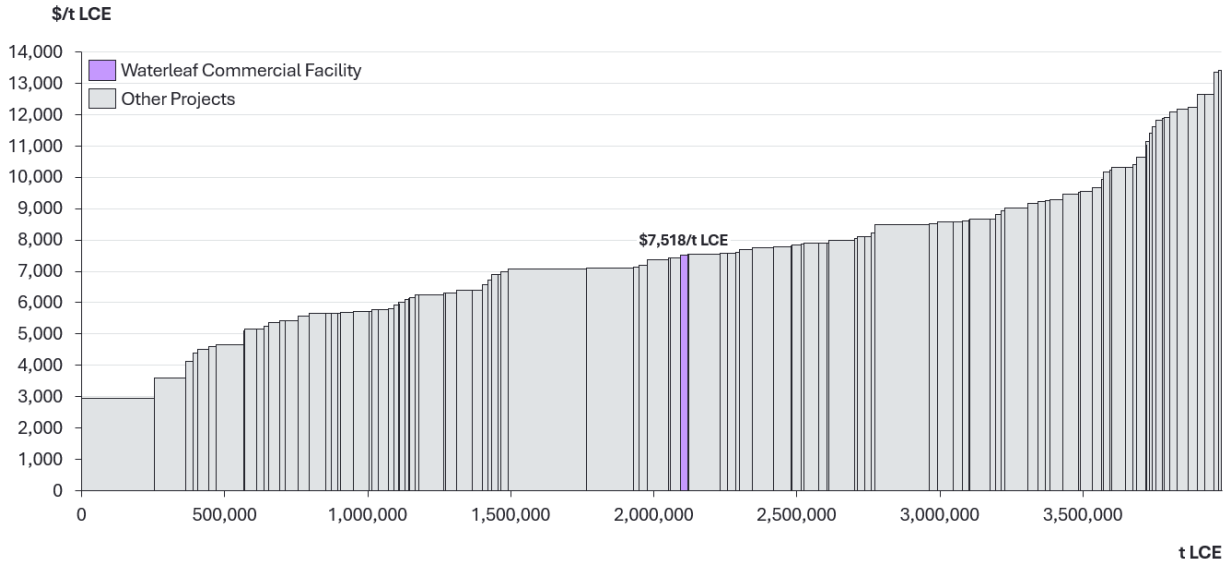


Figure 37: Benchmark Minerals Intelligence - global lithium C1 cost curve, 2035 ($/mt LCE) [28]

The stated opex of $7,518/mt LCE represents the stabilized per-unit cost achieved at full production (5,000 mt/yr LCE). During the initial 12-month ramp-up period, per-unit costs will be higher due to fixed cost allocation across lower production volumes, as shown in **Table 37**. Opex starts at $12,810/mt LCE in Q1 of operations, when the Project is operating at 25% of nameplate. It gradually declines to $7,518/mt LCE in Q4, as the Project ramps up to 100% nameplate capacity and stabilizes at a 5,000 mt/yr LCE annualized run-rate. Opex then remains constant at $7,518/mt LCE for the remaining Life of Mine.

Table 37: Quarterly opex during first year of operations during Project ramp-up (USD)

Operations Quarter	1	2	3	4
Production Ramp	25%	50%	75%	100%
Production (mt LCE)	313	625	938	1,250
Fixed Cost ($)	2,209,368	2,209,368	2,209,368	2,209,368
Variable Cost ($)	1,800,063	3,594,375	5,394,438	7,188,750
Total Opex ($)	4,009,431	5,803,743	7,603,806	9,398,118
Total Opex ($/mt LCE)	**12,810**	**9,286**	**8,106**	**7,518**

[28] Benchmark Minerals Intelligence, Q3 2025 Forecast, Oct 2025

8.2.4.4 *Project Financial Analysis*

For the purposes of financial evaluation, Waterleaf used the third-party lithium price forecasts presented in **Figure 36** and modeled multiple scenarios, including conservative pricing downside cases, to evaluate Project resilience and ability to fulfil royalty obligations.

For the conservative downside case, the Goldman Sachs price forecast was used, as this represented the lowest of all market forecasts. **Figure 38** summarizes the results of this analysis, which assumed the non-consumptive royalty rates shown on **Table 35**. In each year of the proposed Life of Mine, the Project fulfills its royalty obligations whilst maintaining positive cashflow, inclusive of all costs. This includes the first year of operations, when per-unit opex is higher because production is less than 5,000 mt/yr LCE as the Project ramps-up to stabilized production.



As contingency, the Project has budgeted for an approximate $11 million cash reserve during commissioning and ramp-up, which is not shown in **Figure 38**. This cash reserve can be used as a cushion to ensure royalty obligations are still fulfilled during the first year of operations in the event of lower lithium prices than the downside case, or a slower pace of production ramp-up is realized.

		Total	2028	2029	2030	2031	2032	2033	2034	....	2045	2046	2047
Operations													
Production	tonnes LCE	**98,195**	3,140	5,000	5,000	5,000	5,014	5,000	5,000	...	5,000	5,000	5,000
Lithium Price (Average)	USD / t_LCE	**10,900**	9,500	10,500	11,000	11,000	11,000	11,000	11,000	...	11,000	11,000	11,000
Revenue	USD '000	**1,072,937**	29,834	52,500	55,000	55,000	55,151	55,000	55,000	...	55,000	55,000	55,000
(-) Fixed Opex	**USD '000**	**(176,871)**	(8,862)	(8,837)	(8,837)	(8,837)	(8,862)	(8,837)	(8,837)	...	(8,837)	(8,837)	(8,837)
(-) Labor	USD '000	(103,025)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	...	(5,148)	(5,148)	(5,148)
(-) Miscellaneous	USD '000	(13,105)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	...	(655)	(655)	(655)
(-) G&A	USD '000	(60,740)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	...	(3,035)	(3,035)	(3,035)
(-) Variable Opex	**USD '000**	**(564,721)**	(18,061)	(28,755)	(28,755)	(28,755)	(28,834)	(28,755)	(28,755)	...	(28,755)	(28,755)	(28,755)
(-) Utilities	USD '000	(139,634)	(4,466)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	...	(7,110)	(7,110)	(7,110)
(-) Reagents	USD '000	(281,133)	(8,991)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	...	(14,315)	(14,315)	(14,315)
(-) Consumables	USD '000	(100,257)	(3,206)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	...	(5,105)	(5,105)	(5,105)
(-) Miscellaneous	USD '000	(43,697)	(1,397)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	...	(2,225)	(2,225)	(2,225)
(-)FFSL Royalty	**USD '000**	**(26,823)**	(746)	(1,313)	(1,375)	(1,375)	(1,379)	(1,375)	(1,375)	...	(1,375)	(1,375)	(1,375)
Effective FFSL Royalty	%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	...	2.5%	2.5%	2.5%
(-) Other Costs	**USD '000**	**(33,310)**	(2,651)	(2,704)	(2,600)	(2,477)	(2,355)	(2,231)	(2,108)	...	(752)	(629)	(498)
(+/-) Net W/C Adjustments	**USD '000**	**(1,282)**	(493)	(408)	(209)	(10)	(10)	(10)	(10)	...	(10)	(10)	(13)
Operating Cashflow	**USD '000**	**269,930**	(978)	10,483	13,223	13,545	13,711	13,792	13,915	...	15,270	15,393	15,522
Operating Margin	%	-	(3.3%)	20.0%	24.0%	24.6%	24.9%	25.1%	25.3%	...	27.8%	28.0%	28.2%

Figure 38: Operating cashflow analysis (downside case – Goldman Sachs price forecast)

Another financial analysis scenario is provided in **Figure 39**. This scenario assumes the UBS price forecast, which sits in the mid-range of all price forecasts (see **Figure 36**) and reflects a more realistic scenario for the Project. In this scenario, the Project fulfills its royalty obligations whilst maintaining positive operating cashflow, inclusive of all costs, for each year of the proposed Life of Mine. In this scenario, royalties paid to the state will exceed $43 million over the Life of Mine.

		Total	2028	2029	2030	2031	2032	2033	2034	....	2045	2046	2047
Operations													
Production	tonnes LCE	**98,195**	3,140	5,000	5,000	5,000	5,014	5,000	5,000	...	5,000	5,000	5,000
Lithium Price (Average)	USD / t_LCE	**17,600**	13,000	15,000	18,000	18,000	18,000	18,000	18,000	...	18,000	18,000	18,000
Revenue	USD '000	**1,736,812**	40,825	75,000	90,000	90,000	90,247	90,000	90,000	...	90,000	90,000	90,000
(-) Fixed Opex	**USD '000**	**(176,871)**	(8,862)	(8,837)	(8,837)	(8,837)	(8,862)	(8,837)	(8,837)	...	(8,837)	(8,837)	(8,837)
(-) Labor	USD '000	(103,025)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	...	(5,148)	(5,148)	(5,148)
(-) Miscellaneous	USD '000	(13,105)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	...	(655)	(655)	(655)
(-) G&A	USD '000	(60,740)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	...	(3,035)	(3,035)	(3,035)
(-) Variable Opex	**USD '000**	**(564,721)**	(18,061)	(28,755)	(28,755)	(28,755)	(28,834)	(28,755)	(28,755)	...	(28,755)	(28,755)	(28,755)
(-) Utilities	USD '000	(139,634)	(4,466)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	...	(7,110)	(7,110)	(7,110)
(-) Reagents	USD '000	(281,133)	(8,991)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	...	(14,315)	(14,315)	(14,315)
(-) Consumables	USD '000	(100,257)	(3,206)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	...	(5,105)	(5,105)	(5,105)
(-) Miscellaneous	USD '000	(43,697)	(1,397)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	...	(2,225)	(2,225)	(2,225)
(-)FFSL Royalty	**USD '000**	**(43,420)**	(1,021)	(1,875)	(2,250)	(2,250)	(2,256)	(2,250)	(2,250)	...	(2,250)	(2,250)	(2,250)
Effective FFSL Royalty	%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	...	2.5%	2.5%	2.5%
(-) Other Costs	**USD '000**	**(38,488)**	(2,736)	(2,880)	(2,873)	(2,750)	(2,629)	(2,504)	(2,381)	...	(1,025)	(902)	(771)
(+/-) Net W/C Adjustments	**USD '000**	**(4,065)**	(1,884)	(805)	(1,202)	(10)	(10)	(10)	(10)	...	(10)	(10)	(13)
Operating Cashflow	**USD '000**	**909,247**	8,262	31,848	46,082	47,397	47,656	47,644	47,767	...	49,122	49,245	49,374
Operating Margin	%	-	20.2%	42.5%	51.2%	52.7%	52.8%	52.9%	53.1%	...	54.6%	54.7%	54.9%

Figure 39: Operating cashflow analysis (mid-case – UBS price forecast)

Appendix C.8 (Profitability Analysis – Annual Cashflows) provides the financial analysis for the full range of lithium price forecasts shown in **Figure 36**. This analysis shows that based on these lithium price forecasts, royalties paid to the state will range from $26-93 million over the proposed Life of Mine.

In summary, the combination of pricing underpinned by strong market fundamentals, a binding take-or-pay offtake agreement covering 100% of production, competitive opex, and demonstrated positive cashflow under conservative pricing assumptions provide substantial evidence that the Project has the financial capability required to satisfy ongoing royalty obligations to the State over the proposed Life of Mine.

8.2.5 Permits, Approvals and Agreements (R652-21-200(8)(e))

Refer to **Section 12** for the full list of easements, permits, approvals, and agreements required for the Project, over the proposed Life of Mine, including the current status of each.

8.2.6 Reclamation Bonding (R652-21-200(8)(f))

Waterleaf is actively securing reclamation bonding for all project facilities through coordination with DOGM and FFSL. The reclamation bond will be administered by DOGM and will include provisions for facilities subject to FFSL jurisdiction on Utah sovereign lands lakeward of the Great Salt Lake Meander Line.

DOGM Bonding Status

On November 12th 2025, Waterleaf submitted a Notice of Intention ("NOI") (File No. M/003/0341) for a large mining operation with the Utah Division of Oil, Gas and Mining ("DOGM"). A copy of this NOI can be found on the DOGM website: Notice Of Intention To Commence Large Mining Operations For Waterleaf Phase 1, LLC, Waterleaf Great Salt Lake Lithium Project, Box Elder County - M/003/0341.

On November 26th 2025, DOGM deemed the NOI complete and proceeded to public comment. The public comment period ended on January 23rd 2026 and DOGM confirmed that no substantive public comments were received and no public hearing will be held. As per Rule R647-4-101 (6), Waterleaf should receive an NOI approval decision from DOGM within 30 days of the end of the public comment period on January 23rd, 2026.

Upon approval of the NOI, Waterleaf will provide a reclamation bond to DOGM in an amount sufficient to ensure completion of all reclamation obligations for project facilities, including a line item for FFSL-regulated infrastructure on sovereign lands. Waterleaf and DOGM have been working constructively to finalize the bond calculation methodology and surety amount. The reclamation bond will be provided to DOGM prior to execution of an Operations Royalty Agreement with FFSL, in accordance with Utah Administrative Code R652-21-704(3).

FFSL Coordination and Bonding Commitment

Waterleaf is coordinating with FFSL to ensure that reclamation bonding for facilities and disturbances on Utah sovereign lands is appropriately reflected in the DOGM-administered reclamation bond. The bond amount attributable to FFSL-regulated infrastructure will be calculated using cost estimates for anticipated reclamation activities on sovereign lands and will be finalized through coordination with FFSL and DOGM during final design and permitting phases.

The bond will be provided in a form acceptable to both DOGM and FFSL (surety bond, cash deposit, or irrevocable letter of credit) prior to execution of the Royalty Agreement and commencement of construction, in accordance with Utah Administrative Code R652-21-704(3).

Detailed reclamation standards and bonding procedures are provided in Section 10.10. Waterleaf commits to fulfilling all bonding requirements prior to commencement of construction activities.

8.2.7 First Marketable Product (R652-21-200(8)(g))

As stated in **Section 3.1**, the First Marketable Product for the Project, as defined in Rule R652-21, will be lithium carbonate. Throughout this application, Waterleaf has demonstrated the ability to produce a marketable lithium carbonate product, at commercial scale:

Product quality (Section 1.4.3)

Testwork by both Waterleaf and the Project's preferred downstream processing partner has confirmed production of battery-grade lithium carbonate meeting or exceeding the specifications in **Appendix C.3**, using GSL brine as feedstock.

Operator experience (Section 1.4)

The Project is supported by demonstrated technical and commercial capability across the full production chain. This includes Waterleaf's corporate experience across multiple brine DLE projects globally (**Section 1.4.1**), a commercial processing partnership with [redacted] – a tier-1 lithium processing technology company with proven battery-grade crystallization and drying capability at industrial scale (**Section 1.4.2**), and defined quality assurance protocols for consistent product specification compliance (**Section 1.4.3**).

Commercial-scale translation (Section 4)

Section 4.1 demonstrates how pilot-scale operating data have been translated into commercial design parameters, including a 15% scale-up factor applied to IX module sizing and conservative design margins across all major unit operations. **Section 4.2** presents the scalability analysis for each process stage from intake through product packaging. **Section 4.3** addresses seasonal operating considerations and confirms year-round production capability.

Contracted route to market and revenue certainty

As described in **Section 8.2.4**, Waterleaf has executed a binding 10-year take-or-pay offtake agreement with Traxys North America covering 100% of lithium carbonate production (refer to **Appendix C.2**). [redacted] The BG vs. T&IG historical pricing comparison is presented in

Figure 40.

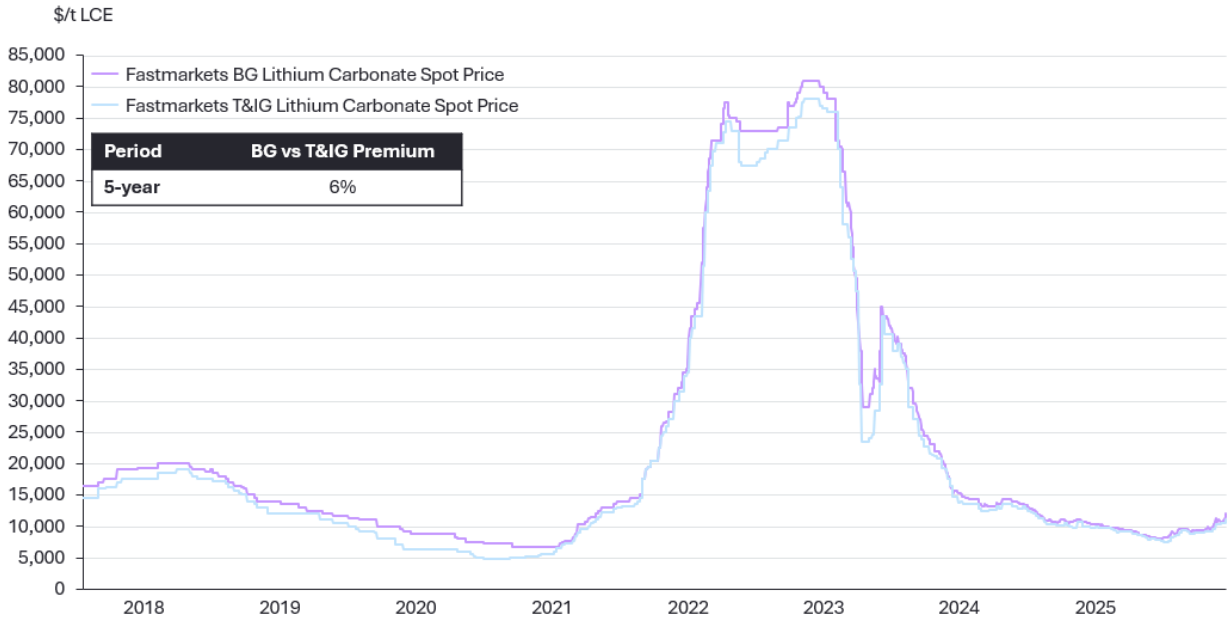


Figure 40: BG vs T&IG lithium carbonate price history (source: Fastmarkets)

In summary, based on demonstrated testwork validating product specifications, operator experience across the full production chain, translation of pilot-scale operating data into commercial design parameters, and a binding take-or-pay offtake agreement covering 100% of production, the Project has established a defined and contracted First Marketable Product in accordance with R652-21-200(8)(g). This confirms that lithium carbonate produced by the Project is both technically achievable and commercially marketable.

9 Cooperative Agreement

Pursuant to Utah Administrative Code R652-21-704(6) and R652-21-603, Waterleaf is required to enter into a Cooperative Agreement with other Great Salt Lake operators prior to issuance of an Operations Royalty Agreement. While an executed Cooperative Agreement is not required for Operations Application completeness, execution is required prior to Royalty Agreement approval.

FFSL is leading the Cooperative Agreement coordination process with all identified GSL operators having correlative rights in a common source of supply. FFSL issued an initial draft Cooperative Agreement to all operators on December 19, 2025. The Cooperative Agreement is currently under active discussion between operators and FFSL, and the most recent draft is included in **Appendix A.5**.

The draft agreement addresses statutory requirements including basis for concurrent operations, recognition of correlative rights, coordination mechanisms for access and information exchange, and protection of Great Salt Lake natural resources. Waterleaf commits to executing the finalized Cooperative Agreement prior to Royalty Agreement issuance as required by R652-21-704(6). The executed agreement will be provided to FFSL upon completion.

10 Reclamation and Closure Plan

Waterleaf's Commercial Project is subject to reclamation requirements under the jurisdiction of the Utah Division of Forestry, Fire and State Lands ("FFSL") for activities occurring on sovereign lands.

Certain components of the Project have also been regulated under the Utah Division of Oil, Gas and Mining ("DOGM") mineral exploration permit program. DOGM jurisdiction applies to Pilot Plant facilities (completed August 15, 2025) and commercial facilities located landward of the Great Salt Lake Meander Line, while FFSL jurisdiction applies to all activities on sovereign lands below the Meander Line.

Reclamation concepts developed under DOGM permitting – particularly the required practices specified in Utah Administrative Code R647-2-107, 108, and 109 (listed) – provide the technical foundation for this plan and have been incorporated where applicable to similar infrastructure and disturbance types. This Reclamation Plan serves as the governing framework for FFSL-regulated sovereign lands, while DOGM retains primary authority for facilities and disturbances on non-sovereign lands under applicable DOGM permits. Where infrastructure spans both jurisdictions, reclamation activities will be coordinated between FFSL and DOGM as described in **Section 10.11.**

DOGM Reclamation Standards Incorporated by Reference

DOGM's operation and reclamation required practices are specified in Utah Administrative Code R647-2-107, 108 and 109 and include the following measures:

1. Keep the exploration site in a safe, clean, and environmentally stable condition.
2. Permanently seal all shafts and tunnels to prevent unauthorized or accidental entry.
3. Plug drill holes with a five-foot cement surface plug. Holes that encounter fluids are to be plugged in the subsurface to prevent aquifer contamination, in accordance with R647-2-108.
4. Construct berms, fences, or barriers, when needed, above highwalls and excavations.
5. Remove, isolate, or neutralize all toxic materials in a manner compatible with federal and state regulations.
6. Remove all waste or debris from stream channels.
7. Dispose of any trash, scrap metal, wood, machinery, and buildings.
8. Conduct exploration activities so as to minimize erosion and control sediment.
9. Reclaim all roads that are not part of a permanent transportation system.
10. Remove and store suitable soil material where practical so it is available for reclamation.
11. Stabilize highwalls by backfilling or rounding to 45 degrees or less, where feasible; reshape the land to near its original contour and redistribute the topsoil and suitable overburden.

The reclamation standards listed above represent best management practices developed under DOGM's mineral exploration program. Where Waterleaf's Commercial Facility operations occur on Utah sovereign lands under FFSL jurisdiction, these DOGM standards have been incorporated and adapted to address the specific conditions and regulatory requirements applicable to Great Salt Lake extraction operations. The following sections describe how these principles will be implemented across all project infrastructure and disturbance areas.

10.1 Purpose and Reclamation Objective

This Reclamation Plan is submitted for review, coordination, and approval by the FFSL as part of the Commercial Facility easement and operations application. The plan incorporates and expands upon reclamation concepts previously developed for mineral exploration activities, and is intended to serve as the governing reclamation and closure framework for all disturbances regulated under FFSL authority.

The objective of reclamation is to ensure that all areas disturbed by construction, operation, maintenance, and eventual decommissioning of the commercial facility are returned to a safe, stable condition compatible with surrounding land uses, with minimized long-term impacts to soils, drainage patterns, vegetation, and Utah sovereign lands.

Final reclamation requirements, performance standards, monitoring periods, and bonding amounts will be established through coordination with FFSL and incorporated into an approved reclamation agreement prior to construction or operation of commercial facilities.

This Reclamation Plan is intended to function as a consolidated framework describing reclamation commitments for the Commercial Facility. Reclamation activities occurring on Utah sovereign lands will be subject to approval, oversight, and bond release by FFSL. Reclamation activities occurring outside sovereign lands will be subject to DOGM approval and bond release under applicable DOGM permits. Where reclamation activities span both jurisdictions, FFSL and DOGM will coordinate review, inspection, and acceptance as appropriate.

10.2 Areas Subject to Reclamation

Reclamation applies to all disturbances associated with the commercial facility, including but not limited to:

- Temporary construction and staging areas
- Equipment access routes and utility corridors
- Easement disturbance areas
- Stockpile and laydown areas
- Maintenance-related disturbance areas

Permanent infrastructure areas will be reclaimed upon facility closure, abandonment, or decommissioning unless otherwise approved in writing by FFSL.

10.3 Disturbance Minimization and Construction Controls

Disturbance during construction, operation, and maintenance will be limited to the minimum area necessary to safely complete authorized activities. Measures to minimize soil disturbance and compaction include:

- Use of tracked equipment configured, where practicable, to achieve ground pressures of 5 pounds per square inch or less
- Avoidance of construction during saturated soil conditions where feasible

- Use of temporary construction matting in localized soft-soil or sensitive areas
- Adjustment of construction timing (dry or frozen ground conditions) where appropriate

10.4 Interim Reclamation

Interim reclamation will be implemented on disturbed areas that are no longer required for active construction or operational use. Interim reclamation measures are intended to stabilize disturbed surfaces and reduce erosion potential prior to final reclamation and may include:

- Regrading to stable slopes and restoration of drainage patterns
- Soil decompaction where appropriate
- Replacement of salvaged topsoil
- Temporary stabilization using mulch, erosion control products, or interim seeding

Interim reclamation will be applied as soon as practicable following completion of the associated activity.

10.5 Final Reclamation

Final reclamation will occur following completion of construction activities or upon facility closure, abandonment, or decommissioning and includes:

- Final grading to blend reclaimed areas with surrounding topography
- Surface stabilization to prevent erosion, rutting, or ponding
- Redistribution of salvaged topsoil where available
- Site preparation to support revegetation where required

Final reclamation is intended to return the site to a condition that is physically stable, environmentally compatible, and suitable for approved post-reclamation land use.

The following subsections outline reclamation procedures for each major infrastructure category.

10.6 Pipe Infrastructure

Cessation of Operations

Upon termination of production activities, all pipeline systems will be safely shut down and isolated. All valves will be closed, and line pressure will be released under controlled conditions to ensure safety and compliance with state environmental regulations.

Purging and Cleaning

All pipes will be purged of fluids and gases using air or inert gas displacement techniques. The interior of the lines will be flushed to remove any remaining residues or processing materials.

Collected purge fluids and residues will be handled and disposed of in accordance with Utah Department of Environmental Quality (“UDEQ”) waste management regulations and hazardous waste regulations (Utah Administrative Code R315-261-2).

Removal and Disposal

After cleaning, pipelines and associated support structures, including pumps, valves, sensors, and aboveground supports, will be dismantled and removed. Materials suitable for recycling will be sent to licensed facilities, and all non-recyclable materials will be disposed of at approved waste management sites.

Site Restoration

The pipeline corridors will be backfilled and recontoured to match the surrounding topography. Erosion control measures such as straw wattles or silt fencing will be used as needed. Native vegetation will be reestablished using seed mixes approved by FFSL and local land management agencies to ensure ecological compatibility.

Monitoring will ensure stabilization and successful revegetation.

10.7 Ponds

Evaporation and Fluid Management

At the conclusion of operations, both intake and outfall surge ponds will be maintained in place until the contained liquids naturally evaporate or are removed under an approved water management plan. No new inputs will occur following cessation of production.

Sediment Removal and Cleaning

Once liquid removal is complete, any remaining sediments will be tested to determine potential environmental risk. Sediments classified as non-hazardous will be removed and disposed of at an approved landfill; any hazardous materials will be managed according to R315-260 standards. The pond floor and liner will be cleaned to eliminate any residual contaminants.

Liner and Containment Structures

Depending on the liner's condition and regulatory guidance at the time of closure, the pond liner and containment berms will be removed and disposed of at a licensed facility. In cases where FFSL determines that liner removal poses greater environmental risk than in-place stabilization, the liner and berms may be sealed and left in place under an approved closure plan.

Site Recontouring and Revegetation

Once liquid and liner removal is completed, pond basins will be backfilled, compacted, and regraded to natural contours that promote surface drainage and prevent erosion.

Native seed mixes approved by FFSL will be applied to reestablish vegetative cover consistent with the surrounding ecosystem. Monitoring and reseeding will be performed as necessary to achieve stable vegetation and minimize erosion.

10.8 Process Plant and Ancillary Facilities

Cessation of Operations

Production activities at the process plant will cease in a controlled manner, with all systems safely shut down and depressurized. Chemical reagents, feedstocks, and products will be secured or removed in accordance with applicable safety and environmental standards.

Cleaning and Decontamination

All process equipment including tanks, vessels, and piping will be drained, flushed, and cleaned to remove any residual process materials.

Cleaning agents and rinse waters will be collected and disposed of in compliance with UDEQ waste management standards. Any hazardous materials will be managed per Utah Administrative Code R315 hazardous waste regulations.

Equipment and Structural Removal

Once cleaned, process equipment, buildings, foundations, and other ancillary facilities (including utilities, electrical systems, and containment areas) will be dismantled and removed.

Reusable or recyclable components will be recovered where possible. All demolition and waste disposal will occur at licensed and permitted facilities.

Ground Surface Restoration

Following structure removal, the site will be regraded to a stable condition. Disturbed surfaces will be scarified to promote infiltration and seeded with native plant species compatible with the local environment.

If residual contamination is detected in soils, remediation will be undertaken per UDEQ standards before revegetation.

10.9 Reclamation Performance Standards and Success Criteria

Reclamation is successful when FFSL determines that, for sovereign lands and DOGM for DOGM-regulated areas:

- Disturbed areas are physically stable with no active erosion or subsidence
- Drainage patterns function as intended
- Vegetation is established and self-sustaining where required
- No hazardous conditions remain
- Reclaimed areas are compatible with adjacent land uses

10.10 Monitoring, Maintenance, and Bond Release

Reclaimed areas will be periodically monitored for a duration approved by FFSL and DOGM to verify surface stability, drainage performance, and vegetation establishment. Corrective actions, such as reseeding or erosion repair, will be implemented if reclamation success criteria are not met.

Bonding

Waterleaf will provide reclamation bonding in an amount sufficient to ensure completion of all reclamation obligations as determined by FFSL and DOGM. The reclamation bond will be administered by DOGM and will include provisions for facilities subject to both DOGM and FFSL regulatory jurisdiction.

FFSL Sovereign Lands Bonding: The reclamation bond will include a line item for facilities and disturbances on Utah sovereign lands, calculated using cost estimates for anticipated reclamation activities on FFSL-regulated infrastructure. The bond amount attributable to sovereign lands facilities is being finalized through coordination with FFSL and DOGM during the permitting and facility design phases. The bond will be provided in a form acceptable to both DOGM and FFSL prior to execution of the Royalty Agreement and commencement of construction, in accordance with Utah Administrative Code R652-21-704(3).

DOGM Upland Facilities Bonding: The reclamation bond administered by DOGM will cover all project facilities, including DOGM-regulated facilities located landward of the Great Salt Lake Meander Line and FFSL-regulated facilities on sovereign lands. Waterleaf submitted a Notice of Intention (NOI) to DOGM on November 12, 2025 (File No. M/003/0341), which was deemed complete on November 26, 2025. Following completion of the public comment period on January 23, 2026, DOGM approval is anticipated within 30 days per Rule R647-4-101(6). Upon approval of the NOI, Waterleaf will provide the reclamation bond to DOGM, which will include provisions for FFSL-regulated infrastructure, prior to execution of the Operations Royalty Agreement with FFSL. The bond amount and calculation methodology are being finalized through coordination with DOGM and FFSL. Additional detail on bonding status and commercial readiness is provided in **Section 8.2.6**.

Bond Release

Final reclamation acceptance and release of the bond will occur upon written approval by the applicable regulatory agency. DOGM will administer the bond release process in coordination with FFSL for facilities on sovereign lands. Where reclamation activities overlap jurisdictions, FFSL and DOGM will coordinate acceptance and bond release. Bond release will be contingent upon:

- Successful completion of all reclamation activities specified in the approved reclamation agreement
- Achievement of all performance standards outlined in **Section 10.9**
- Completion of the required monitoring period with documented success
- Final inspection and written acceptance by the applicable regulatory agency

10.11 Coordination, Approval Status, and Adaptive Management

This Reclamation Plan is proposed and has not yet been formally negotiated or approved by FFSL. Final reclamation procedures for all infrastructure categories (pipe infrastructure, ponds, process plant, and ancillary facilities) will be developed in collaboration with FFSL, UDEQ, DOGM, and other applicable agencies during the detailed design and pre-closure phases to ensure environmental protection and compliance with updated regulations and site-specific conditions.

The applicant commits to:

- Coordinating with FFSL to finalize reclamation requirements prior to construction
- Revising this plan as necessary based on agency review and conditions of approval
- Incorporating approved reclamation conditions into final design, construction, and bonding instruments
- Conducting joint inspections with FFSL and DOGM upon completion of reclamation to confirm compliance
- Implementing post-reclamation monitoring for durations and frequencies specified in the approved closure permit to ensure stabilization, vegetation success, and environmental integrity
- Implementing adaptive management of site conditions, operational methods, or regulatory requirements change

Table 38: Reclamation activities

Disturbance Category	Reclamation Action	Performance Standard	Bond Basis
Temporary construction areas	Regrade, decompact soils, replace topsoil, interim stabilization	No active erosion; stable drainage	Earthwork, topsoil salvage/replacement, erosion control materials, revegetation
Access routes & utility corridors	Remove facilities, regrade to surrounding contours, revegetate	Surface stability; vegetative cover	Pipeline/utility removal, earthwork, recontouring, seeding/mulching
Easement disturbance areas	Restore contours stabilize soils, revegetate where required	Compatibility with adjacent land uses	Earthwork, topsoil replacement, surface stabilization, seeding
Stockpile & laydown areas	Remove materials, regrade, stabilize	No debris; no ponding	Material removal/disposal, earthwork, surface stabilization
Process plant & ancillary facilities	Remove structures, foundations and utilities, remediate soils	No hazards; clean subgrade	Structure demolition, foundation removal, waste disposal, soil remediation (if needed), earthwork
Surge ponds & containment	Remove fluids/sediments,	No contamination, stable landform	Fluid/sediment removal, liner removal/disposal, berm

Disturbance Category	Reclamation Action	Performance Standard	Bond Basis
	remove or stabilize liners, backfill		removal, backfilling, recontouring
Permanent infrastructure (closure)	Full decommissioning and reclamation	Written approval per R652-21-704(3) and reclamation agreement	All infrastructure decommissioning, demolition, waste disposal, earthwork, revegetation, long-term monitoring

Note: Bond amounts will be calculated based on unit costs for each Bond Basis activity category, including labor, equipment, materials, contractor overhead, and contingency factors.

Bond Release Trigger

Bond will be released by the applicable regulatory agency after reclamation success criteria have been met and written acceptance is issued.

11 Anticipated Timeline and Schedule

11.1 High-Level Project Execution Approach

The project will be delivered through a structured execution approach progressing through engineering, procurement, construction, construction completion, staged system handover, and commissioning in defined phases to achieve safe and controlled start-up of the facility. The commissioning methodology is designed to systematically validate equipment and systems before introducing process operations, reducing execution risk through progressive testing and verification.

11.1.1 Overall Project Milestones

Table 39: Key project milestones and forecast schedule

Milestone	Date
Pilot Operations Complete	15 Aug 2025
Joint Pre-Application Meeting (FFSL, DWQ, GOGM)	5 Sept 2025
Engineering (FEL3) Study Completion	19 Dec 2025
Final Investment Decision	Q2 2026
Procurement Start	Q2 2026
Construction Start	Q2 2026
Commissioning Start (with groundwater)	Q4 2027
Mechanical Completion	Q4 2027
Brine Extraction Begins (Service Testing)	Q4 2027
Process Operations Begin	Q1 2028

11.2 Commissioning Strategy Overview

Commissioning will follow a phased approach that systematically validates facility readiness before introducing brine extraction and processing operations. This staged methodology enables the operator to identify and resolve issues early, minimizing operational risk and environmental exposure.

Phase 1: System Handover and Equipment Verification (Q1 2027)

Following mechanical completion, equipment and systems will be inspected, tested, and progressively energized to verify readiness for operation. Critical systems handling hazardous materials will undergo pressure testing using groundwater to confirm mechanical integrity before entering service. This verification phase ensures all equipment meets design specifications and safety requirements before any brine extraction occurs. The groundwater will be recirculated in the system during the pressure testing steps, and this water will not be discharged to the lake.

Phase 2: Service Testing with Brine Circulation (Q4 2027)

Brine will be extracted from the lake and circulated through intake/outfall infrastructure and plant systems to verify operational readiness under actual operating conditions. During this phase, brine will be returned to the lake in its natural, unchanged state – without chemical treatment or processing applied. This service testing approach validates pump performance, hydraulic stability, instrumentation accuracy, and control system functionality while maintaining brine characteristics identical to the source.

Phase 3: Progressive Introduction of Process Operations (Q1 2028)

Process systems will be brought into service systematically, starting from the front end of the plant and progressing through to the back end. During this phase, brine will be returned to the lake in various states of treatment as processing capability is introduced:

- Initially, brine returned following multimedia filtration
- Subsequently, brine returned after lithium extraction (post-DLE processing)

This controlled, sequential approach allows verification of each process stage independently before full integrated operations commence.

11.3 Brine Extraction and Return Summary

Table 40: Commissioning phase timeline and brine handling

Phase	Timing	Brine Extracted?	Process Systems Active?	Brine Return to Lake Condition
System Verification	Q4 2027	No	No	N/A
Intake/Outfall Service Testing	Q4 2027	Yes	No	Returned per permitted operating conditions
Progressive Process Startup	Q1 2028	Yes	Yes (staged front-to-back)	Returned per permitted operating conditions - intermittent flow
Steady-State Operations	Q1 2028 onward	Yes	Yes (full integration)	Returned per permitted operating conditions

12 Permits, Agreements and Authorizations

This section documents all permits, authorizations, agreements, and third-party arrangements applicable to the Project, fulfilling the requirements of Utah Administrative Code R652-21-704(4)(l).

The section is organized to address: the assignment of pre-existing assets and agreements to the Project operating entity (**Section 12.1**); the comprehensive permit and authorization matrix (**Section 12.2**); bonding status and timeline (**Section 12.3**); surface use and easement status (**Section 12.4**); and other agreements required for commercial operations (**Section 12.5**).

12.1 Assignment of Assets and Agreements to Waterleaf

The commercial lithium extraction project on Great Salt Lake has been under development by Waterleaf and its affiliated entities for multiple years, beginning with site identification, lease negotiation, and regulatory engagement. As a result, certain foundational agreements and assets – including the site lease agreement with Mango-Spiral Jetty LLC, regulatory permits obtained during feasibility operations, and other project-related contracts – are held by entities other than Waterleaf Phase 1, LLC, the designated operating entity for the commercial Project.

To consolidate all project assets under the operating entity, assignment agreements have been executed or are in the process of being executed to transfer all relevant rights, titles, interests, and associated obligations to Waterleaf Phase 1, LLC (or its designated holding company, Waterleaf P1 Holdco, LLC) for the benefit of the Project. These assignments include:

- **Site Lease Assignment:** Assignment of the lease agreement between Waterleaf Resources, LLC and Mango-Spiral Jetty LLC (dated March 16, 2023, as amended) to the Project entity, pursuant to the affiliate assignment provisions of the lease.
- **ProjectCo Asset Assignment:** Assignment of project-related assets and associated liabilities from Lilac Solutions, Inc. or Waterleaf Resources, LLC to Waterleaf Phase 1, LLC, including feasibility-phase permits and authorizations.

Copies of the assignment agreements are provided in **Appendix C.10**.

12.2 Permits, Approvals, and Authorizations

Table 41 provides a comprehensive summary of permits, approvals, and authorizations applicable to the Waterleaf Phase 1 Commercial Lithium Extraction Project, organized chronologically to show the project's regulatory progression from feasibility assessment through commercial operations. The matrix is intended to support FFSL review by clearly identifying applicable regulatory requirements, responsible agencies, permit status, and cross-references to the relevant sections and appendices of the Operations Application.

The permit matrix is organized to distinguish between approvals obtained during the feasibility phase and those required or in progress for the commercial-scale facility, reflecting the project's orderly progression from Pilot operations to commercial development under FFSL oversight. This structure

is intended to facilitate agency review by demonstrating regulatory continuity and documenting how prior authorizations inform and support the proposed commercial operations.

This matrix is provided in support of the required showings under Utah Administrative Code R652-21-700, including the identification of permits, approvals, easements, agreements, and other authorizations necessary for initiation and conduct of operations. Where permits have not yet been issued, the matrix identifies the current status of agency coordination and confirms Waterleaf's commitment to obtaining all required approvals prior to construction, introduction of process fluids, or commencement of commercial operations, as applicable.

The matrix is intended to function as a clear reference tool for FFSL and cooperating agencies, supporting coordinated regulatory review and ensuring that project implementation proceeds in compliance with applicable state and federal requirements.

Table 41: Project permit and authorization matrix – feasibility through commercial operations

Agency	Permit/Authorization	Applicability to Project	Status
Feasibility Assessment/Pilot Plant permits and authorizations			
FFSL	Feasibility Application	Pilot operations authorization	Approved
FFSL	Sampling Agreement	Royalty brine access for feasibility assessment	Approved
FFSL	Right of Entry	Lake bed access for Pilot infrastructure	Approved
DWQ	Utah Pollutant Discharge Elimination System ('UPDES') Permit	Discharge water quality standards	Approved
DWQ	Operator's Certificate	Discharge system operating authority	Approved
DWQ	Antidegradation Review ('ADR')	Water quality protection assessment	Approved
DWQ	Low Erosivity Waiver	Construction stormwater exemption	Approved
DWR	Water Right (Brine)	Temporary change application, from Salt Pointe water right	Approved
DAQ	Small Source Exemption	Air emission authorization	Approved
Box Elder County	Temporary Use Permit	Site plan approval for Pilot operations	Approved
DOGM	Exploration Notice of Intent ('NOI')	Mining site exploration authorization	Approved
DOGM	Reclamation Bond	Pilot site reclamation financial assurance	Approved

Agency	Permit/Authorization	Applicability to Project	Status
Commercial Facility permits and authorizations – approved			
DAQ	Fugitive Dust Control Plan	Site construction dust management	Approved (**Appendix A.3**)
ACOE	Nationwide Permit Verification	Lake bed construction authorization	Approved (**Appendix A.7**)
DWQ	Section 401 Water Quality Certification	Federal permit water quality certification	Approved (**Appendix A.8**)
Box Elder County	Road Encroachment Permit	County road access authorization	Approved (**Appendix A.3**)
DEQ	Aboveground Storage Tank ('AST') Registration	Fuel storage tank registration	Approved (**Appendix A.3**)
Commercial Facility permits and authorizations – in progress			
FFSL	Operations Royalty Agreement	Commercial lithium extraction from Great Salt Lake	Submitted; Deficiency response under preparation[(1)]
FFSL	Surface Use Authorization / Easement	Intake/outfall pipelines, access routes, facility footprint	Resubmission in process[(2)] (**Appendix A.3**)
FFSL	Reclamation Plan Approval & Bonding	Site closure and restoration	Under negotiation with FFSL[(3)]
FFSL	Cooperative Agreement	Common resource coordination with GSL operators	Draft submitted; execution pending[(4)]
DWQ	UPDES Discharge Permit (Commercial)	Commercial-scale discharge authorization	Submitted; under review
DWQ	Operator's Certificate (Commercial)	Commercial discharge system operating authority	Submitted; under review
DWQ	Antidegradation Review (Commercial)	Commercial-scale water quality protection	Submitted; under review
DWQ	Groundwater Protection Plan	Lined pond authorization and monitoring	Submitted; under review
DOGM	Large Mining Operation ('LMO') Permit	Commercial mining operations authorization	Submitted; under review
DOGM	Reclamation Bond (Commercial)	Commercial facility reclamation financial assurance	Coordination with LMO permit[(3)]

Agency	Permit/Authorization	Applicability to Project	Status
Division of Water Rights	Brine Water Rights Application	Appropriation of Great Salt Lake brine	Submitted; under review
DAQ	Synthetic Minor Source Air Permit	Commercial facility air emission authorization	Submitted; under review
Box Elder County	Site Plan Approval (Commercial)	Commercial facility construction authorization	Application in process[2]
Box Elder County	Business License	Commercial operations business authorization	Submitted; under review
Commercial Facility permits and authorizations – not started			
DWQ	Spill Prevention, Control, and Countermeasure ('SPCC') Plan	Facility spill prevention and emergency response	To be filed per 40 CFR 112[5]
Private Land Owner	Groundwater Appropriation Lease Agreement	Process water and fire suppression supply	Under negotiation[6]

Notes:

(1) "Submitted; Deficiency response under preparation" indicates formal Operations Application submitted November 10, 2025, with FFSL deficiency letter received December 24, 2025. This resubmission directly addresses all identified deficiencies.

(2) "Resubmission in process" or "Application in process; coordination ongoing" indicates active pre-application consultation or preparation of supplemental information requested by the agency during initial review.

(3) Reclamation Plan and Bonding: The reclamation plan reflects Waterleaf's submission to FFSL. Per R652-21-704(3), the reclamation plan was negotiated with and approved by FFSL February 18, 2026. DOGM bonding coordination is occurring in parallel with the LMO permit application. Proof of sufficient bonding with both FFSL and DOGM is required prior to Royalty Agreement execution per R652-21-704(3), although it is not required for Operations Application completeness.

(4) Cooperative Agreement: A draft Cooperative Agreement is provided in **Appendix A.5**. Per FFSL's December 24, 2025 correspondence, while an executed Cooperative Agreement is not required for Operations Application completeness, execution will be required prior to Royalty Agreement issuance per R652-21-704(6). Waterleaf is actively coordinating with other GSL operators and expects execution concurrent with Royalty Agreement negotiations.

(5) "To be filed prior to operations" indicates standard pre-operational requirements that will be completed after Operations Application approval but before commencement of commercial brine extraction or discharge. These filings are triggered by specific operational milestones and are not required for FFSL Operations Application approval.

(6) Groundwater Lease: This private agreement for supplemental water supply is being negotiated with the property owner and is not a regulatory requirement for FFSL Operations Application

approval. Water rights are addressed separately through the Division of Water Rights application process (see **Section 7**; **Appendix A.4**).

12.3 Bonding Status and Timeline

Commercial Project bonding for all facilities and infrastructure is being finalized through coordination with DOGM and FFSL. The reclamation bond will be administered by DOGM and will include provisions for:

- **DOGM-Regulated Facilities:** Landward facilities and equipment located beyond the GSL Meander Line (Section 10 provides reclamation plan details)
- **FFSL-Regulated Facilities:** Intake/outfall infrastructure waterward of the GSL Meander Line and facilities on Utah sovereign lands (included as a line item in the DOGM-administered bond)

Waterleaf acknowledges that proof of sufficient bonding is required prior to Royalty Agreement execution per R652-21-704(3), although it is not required for Operations Application completeness. The bond amount and calculation methodology are being finalized through coordination with DOGM and FFSL concurrent with facility design development.

Detailed bonding status, NOI timeline, and commercial readiness discussion are provided in **Section 8.2.6**.

12.4 Surface Use Authorization and Easement Application Status

Waterleaf's surface use authorization application for intake/outfall pipelines, access routes, and facility footprint on Utah sovereign lands was initially submitted September 5, 2025 and was returned by FFSL on September 22, 2025 (**Appendix A.2** FFSL Pre-Application Email Confirmation) without prejudice for incompleteness. A revised surface use authorization application incorporating FFSL's feedback, including metes and bounds descriptions and corrected GIS formats, will be submitted concurrently with this Operations Application resubmission.

The surface use authorization process is being coordinated in parallel with the Operations Royalty Agreement application to ensure efficient regulatory review. Waterleaf understands that surface use authorization approval is required prior to any construction activities on Utah sovereign lands.

Waterleaf commits to maintaining current status on all regulatory authorizations throughout the Operations Application review process and will notify FFSL immediately of any material changes in permit status, application outcomes, or coordination activities with other agencies. All permits, authorizations, and agreements will be finalized prior to introduction of process fluids or commencement of commercial operations, as required by applicable regulations.

12.5 Agreements

Commercial operations require a number of third-party service and supply agreements to support sustained production. This section summarizes the status of critical agreements for the Project. Where agreements have been executed or are in advanced negotiation, the relevant documentation is provided in the appendices. Remaining agreements will be finalized during the operational readiness planning phase prior to commissioning.

12.5.1 Third-Party Waste Management

Waterleaf's waste management strategy includes off-site disposal of process solids that cannot be returned to Great Salt Lake (see **Section 5.3** for detailed waste characterization). Third-party disposal contracts for the following waste streams are being discussed and finalized with the local landfill concurrently with facility construction planning:

- Neutralized eluate solids
- Depleted brine solids
- General facility waste and recyclables

Disposal facility selection and contracting will be completed prior to operations commencement. Transportation logistics, including truck volumes and routes, will be incorporated into Box Elder County site approval processes and are not required for FFSL Operations Application approval.

12.5.2 Fuel Supply

The Project requires a reliable fuel supply to operate on-site power generation equipment (see **Section 3.8.3**). Waterleaf has identified multiple potential fuel suppliers and has engaged in preliminary discussions regarding supply terms, delivery logistics, and pricing for the Project site in Box Elder County. Waterleaf is working towards a final fuel supply agreement and expects execution prior to commencement of construction activities.

12.5.3 Reagent Supply

The commercial facility requires a consistent supply of process reagents, including sulfuric acid, sodium hydroxide, soda ash, and other consumables as described in **Section 3.8.2** and **Appendix D.5**. Waterleaf has identified multiple qualified suppliers for each primary reagent and has engaged in early-stage procurement discussions. Reagent supply agreements will be finalized and executed prior to commencement of operations.

12.5.4 Ion Exchange Media Supply

The terms under which Lilac Solutions, Inc. will supply ion exchange media ("IXM") to the Project have been agreed between Lilac and Waterleaf. The IXM Supply Agreement provides for Lilac to supply replacement IXM in quantities sufficient to support the Project's target production capacity of approximately 5,000 mt/yr of lithium carbonate equivalent, including delivery and removal of spent IXM, quality assurance protocols, and performance guarantees. A draft term sheet setting out the key commercial terms and conditions of the IXM Supply Agreement is provided in **Appendix C.9**.

End of Main Application

Supporting documentation follows in Appendix A through H.

Appendix A Regulatory & Administrative Documentation

A.1 Feasibility Application Approval

A.2 FFSL Pre-Application Email Confirmation

A.3 Surface Use Permit Applications

A.4 Water Rights

A.5 Cooperative Agreement

A.6 Self-Certifications

A.7 USACE Nationwide Permit

A.8 DWQ 401

A.9 Sampling Royalty Agreement

A.1 Feasibility Application Approval

PURPOSE

This appendix provides the official authorization from the Utah Division of Forestry, Fire and State Lands (FFSL) approving Waterleaf's Feasibility Assessment Pilot Project for direct lithium extraction on Great Salt Lake.

CONTENTS SUMMARY

The appendix contains FFSL's approval letter dated December 20, 2024, which granted Waterleaf authorization to construct and operate a pilot-scale lithium extraction facility on the North Arm of Great Salt Lake. The approval followed submission of the initial Feasibility Application (October 20, 2024) and an amended application (November 22, 2024). The authorization was issued subject to specific conditions including comprehensive environmental monitoring, discharge permit compliance, and self-certification that operations would not negatively impact GSL biota or chemistry. This approval established the regulatory framework under which Waterleaf conducted Pilot operations from February through August 2025, validating the non-evaporative direct lithium extraction technology and generating the operational data necessary to support this commercial-scale Operations Application.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 1.4.1
- Section 2

DOCUMENT DETAILS

- Issued by: Utah Division of Forestry, Fire and State Lands (FFSL)
- Date: December 20, 2024
- Authorization Period: Limited-term feasibility permit (2024-2025)
- Page Count: 1 page (approval letter)

A.1 begins on next page

State of Utah

SPENCER J. COX
Governor

DEIDRE M. HENDERSON
Lieutenant Governor

Department of Natural Resources
Division of Forestry, Fire & State Lands

JOEL FERRY
Executive Director

JAMIE BARNES
Director/State Forester

Steve Morrey
Waterleaf Resources, LLC
9350 South 150 East, Suite 170
Sandy, Utah 84070

Re: Conditional Approval of Great Salt Lake Feasibility Application

Mr. Morrey,

Please accept this letter as approval of Waterleaf Resources, LLC's ("Waterleaf") Great Salt Lake Feasibility Application as submitted to FFSL on October 20, 2024 and amended on November 22, 2024 ("Application"), with conditions. Waterleaf's written acceptance of the required conditions is a condition precedent to proceeding with the Feasibility Assessment, as authorized by this letter. Waterleaf may commence its Feasibility Assessment on the conditions that Waterleaf shall:

- Provide Forestry, Fire and State Lands ("FFSL") with an operation schedule detailing the dates and times Waterleaf will operate the pilot plant for the purposes of the Feasibility Assessment;
- Provide FFSL with a daily log of operations detailing operational time, down time, volume of inflows and effluent, daily consumption of chemicals associated with the Feasibility Assessment;
- Include in the final report, the total quantity/weight of waste collected and/or removed throughout the operation of the feasibility assessment;
- Provide FFSL, and other relevant governmental organizations with a site tour while the Feasibility Assessment facilities are operational;
- Submit a quality assurance quality control ("QA/QC") plan for lab analysis of lake brines and effluents. This plan will be shared with FFSL's state and federal partners that conduct similar analysis of GSL brines to ensure quality and proper controls are in place; and
- Provide all analytical reports and analyses, whether internal or external laboratories, as a level IV data package (or equivalent, that includes all method-specified QA/QC sample results) for independent validation of reported results. Reported data packages shall be complete, including all QC test results described in the method, and analyses shall be sufficiently sensitive to support quantitation of all key constituents including trace metals.

Upon the Division's receipt of Waterleaf's written acceptance of the above conditions, Waterleaf shall be authorized to conduct its Feasibility Assessment as outlined in the Application, in accordance with the Sampling Royalty Agreement dated October 25, 2024 and in compliance with the requirements outlined in Utah Admin. Code R652-21-101 et al.

Respectfully,

Jamie Barnes (Dec 20, 2024 08:42 MST)
Jamie Barnes
Director
Forestry, Fire and State Lands

A.2 FFSL Pre-Application Email Confirmation

PURPOSE

This appendix provides evidence of the Joint application meeting taking place between FFSL and DWQ on Sept.5th 2025.

CONTENTS SUMMARY

This appendix contains FFSL's acknowledgment of receipt of Waterleaf Resources' complete Feasibility Report for its DLE Pilot project and confirmation that the required pre-filing meeting has occurred, thereby initiating the 30-day waiting period before an operations application may be submitted. The letter further states that Waterleaf's initial easement application was denied without prejudice due to incompleteness, specifically the absence of a meters and bounds description. It also outlines the applicable administrative rules, review timelines, and cure periods governing submission and the review of a complete operations application and clarifies that the correspondence does not confer any rights or entitlements to Waterleaf Resources.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 12

DOCUMENT DETAILS

- Issued by: Department of Forestry, Fire & State Lands
- Date: September 22, 2025
- Page Count: 2 pages

A.2 begins on next page

State of Utah

SPENCER J. COX
Governor

DEIDRE M. HENDERSON
Lieutenant Governor

Department of Natural Resources
Division of Forestry, Fire & State Lands

JOEL FERRY
Executive Director

JAMIE BARNES
Director/State Forester

September 22, 2025

Waterleaf Resources, LLC
% Lilac Solutions
9350 South 150 East Ste. 710
Sandy, UT 84070

Attn: Steve Morrey, Senior Project Director
Re: Pre-Filing Joint Meeting and Easement Application

Dear Steve,

This letter serves as the formal response of the Division of Forestry, Fire and State Lands ("FFSL") to Waterleaf Resources LLC ("WLR") Feasibility Report submission. In addition, this letter serves as notice that your initial Easement Application for the commercial scale operation has been denied without prejudice for lack of completeness. Furthermore, additional information on the Great Salt Lake Operations Application ("Operations Application") process is provided.

On August 29, 2025, FFSL received a complete Feasibility Report with respect to the Waterleaf Direct Lithium Extraction ("DLE") Pilot Project on Gunnison Bay of the Great Salt Lake.

On September 5, 2025, FFSL and the Division of Water Quality ("DWQ") jointly met with WLR to discuss the Feasibility Report submission and begin the review and comment process. FFSL finds that the September 5, 2025 meeting met the requirement of Utah Administrative Rule Section R652-21-703 (Pre-Filing Meeting). Thus, the 30-day period before an application for an Operations Royalty Agreement via FFSL's Operations Application may be filed will end on October 5, 2025. FFSL anticipates continued discussions and data sharing during the waiting period.

The initial submission of the Application for an Easement was deemed incomplete. Specifically, the application did not contain a metes and bounds description. Accordingly, the application is denied without prejudice. FFSL and WLR staff have communicated on expectations for the

Easement Application. Additionally, required showings for a complete Operations Application may be found in the Operations Application and in Utah Administrative Rule Section R652-21-704 (Required Showings). The application process is outlined in Utah Administrative Rules. Upon FFSL's receipt of the Operations Application from the applicant, Utah Administrative Rule Section R652-21-709 allows a 60-day review period for the state. Within 60-days, FFSL will render a decision either approving, denying, or considering the application incomplete. If incomplete, the applicant has 60-days to remedy any deficiencies or the application will be denied. For inquiries please reference the aforementioned rule citations or contact FFSL.

This letter does not provide any additional entitlements or vested rights to WLR.

Respectfully,

Jake Alexander
Minerals Operations Manager
(801) 385-2928
jhalexander@utah.gov

A.3 Surface Use Permit Applications

PURPOSE

This appendix documents the surface use authorizations, permit applications, and associated regulatory submittals required to construct and operate the GSL Phase 1 lithium extraction project and its associated intake and outfall infrastructure.

CONTENTS SUMMARY

The appendix compiles surface use–related approvals and applications submitted to local, state, and federal agencies in support of project development. Materials include:

- Landowner authorization for use of private lands
- Box Elder County site plan application
- Aboveground petroleum storage tank registration
- Easement application to the Utah Division of Forestry, Fire and State Lands
- Fugitive Dust Control Plan prepared in accordance with Utah Division of Air Quality requirements
- Road encroachment permit

Collectively, these documents demonstrate that surface disturbance has been minimized, environmental impacts are limited and mitigated, and the Project is being advanced in compliance with applicable land use, construction, and environmental regulations.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 3.1
- Section 12.2

DOCUMENT DETAILS

- Landowner Authorization (1 page, May 12, 2025)
- Box Elder Site Plan Application (1 page, October 3, 2025)
- Aboveground Petroleum Storage Tank Registration (4 pages, September 9, 2025)
- Easement Application (1 page, September 5, 2025)
- Fugitive Dust Control Plan and confirmation email (14 pages, April 4, 2025)
- Road Encroachment Permit (1 page, December 18, 2025))

A.3 begins on next page

MANGO – Spiral Jetty, LLC
111 East Broadway Suite 900
Salt Lake City, UT 84111

May 12, 2025

Mr. Scott Lyons, Director
Box Elder County Planning & Zoning
1 South Main Street, Room 34
Brigham City, Utah 84302

Re: Owner's Authorization – Waterleaf Resources, LLC Lithium Project

Dear Mr. Lyons;

Mango-Spiral Jetty, LLC ("Owner") is the owner of land located in Sections 30 through 32 of Township 9 North, Range 7 West, SLB&M, and designated as Box Elder County Tax ID 03-008-0049 (the "Subject Property"). Owner has leased certain lands and easements within the Subject Property to Waterleaf Resources, LLC ("Waterleaf") for development of its proposed lithium extraction and processing project (the "Project"), as described in that certain Memorandum of Lease and Easements recorded in the Official Records of Box Elder County on March 5, 2024 as Entry No. 472343 in Book 1577, Pages 1813-1820.

This letter serves as the Owner's Authorization for Waterleaf to proceed with applications to Box Elder County for all necessary land use and building permits, approvals, and entitlements for the Project as they relate to those portions of the Subject Property within the leased lands and easements. This authorization is without waiver of any rights that Owner may have under its lease with Waterleaf.

Please feel free to contact us with any questions or concerns.

Sincerely,

Mango-Spiral Jetty, LLC

By: _____
Name: Matthew B. Garff
Title: Manager

Box Elder County Planning

GSL Phase 1 Lithium Extraction *Community Development*

Overview

Status

✔ Active

Application Status

○ Under Review

Application Reviews

Pre-Review	APPROVED
Fire	APPROVED
Roads Supervisor	REVIEWING
County Engineer	NOT REVIEWED
Building	APPROVED
County Surveyor	REVIEWING
Final Review	NOT REVIEWED

Payment Receipts

TL4Y-91688122-E6MJ
10/03/2025

Application Status

Your application is being reviewed

You'll be notified via email when we're ready for you take any additional steps.

Messages

Send Box Elder County Planning a new message...

Sent by Applicant • 8:27 am (in a few seconds)

Good Morning, Checking in to see that we are on the agenda for presentation on the 20th? Let me know what we can have prepared for the meeting. Thanks Steve

Write a comment...

Sent by Diane Fuhriman • Sep 29 at 1:14 pm

Steve the engineering review fees for August exceeded the deposit amount by $1000.00 and is payable at your earliest convenience. You may call our office at 435-734-3354 to make the payment by debit or credit card or you can submit a check to Planning & Zoning 1 S Main Rm 34 Brigham. UT 84302. Thanks.

This site has updated. Hit Reload and Update to use most recent version. This will reload all tabs, so **make sure changes are saved first**.

Reload and Update

ll call in the card

Write a comment...

Utah Notification for Aboveground Petroleum Storage Tanks

Division of Environmental Response and Remediation Underground Storage Tank Section P.O. Box 144840 Salt Lake City, Utah 84114-4840	**Phone #** (801) 536-4100 **Fax #** (801) 359-8853 **Email:** TankCompliance@utah.gov **Web site:** deq.utah.gov	**STATE USE ONLY** Facility ID #: _____ Date Received: _____ Data Entry Clerk Initials: ____

This form must be completed for each location containing aboveground petroleum storage tanks (APSTs) that are regulated by the State of Utah.

I. Ownership of tank(s)

Owner Name: Waterleaf Resources
Mailing Address: 9350 S 150 E #710
City: Sandy State: Utah Zip: 84070
Contact: Steve Morrey
Phone #: NA Cell #: 801 694 2245
E-mail: steve.morrey@lilacsolutions.com

II. Location of tank(s)

Facility ID # *(unless new location)*: New
Facility Name: GSL Lithium Exttraction Phase 1
Street Address: NA
County: Box Elder City: NA Zip: 84307
Facility Phone #: NA
Latitude: 41 27'40.5" N Longitude: 112 41" 30.4" W

III. Type of Notification

- [x] New Notification
- [ ] Amended Notification
- [ ] Located on land within an Indian reservation or on other Indian trust lands. Name of Tribe: _____

IV. Other

- [ ] Federally regulated underground storage tanks are at this location. If so, please enter the Facility ID assigned in the space above under Section II.

V. Type of Owner

- [x] Commercial
- [ ] Private
- [ ] Federal Government
- [ ] State Government
- [ ] Local Government
- [ ] Tribal Government

VI. Type of Facility

- [ ] Auto Dealership
- [ ] Contractor
- [ ] Federal – Non-military
- [ ] Federal – Military
- [ ] Gas Station
- [x] Industrial
- [ ] Railroad
- [ ] Residential
- [ ] Trucking or Transport
- [ ] Utilities
- [ ] Other *(explain)* _____

VII. Exempt

- [ ] Commercial Airport *(fueling)*
- [ ] Farm/Agriculture
- [ ] Petroleum Distributor/Refiner *(SIC Code 2911 or 5171)*
- [ ] Oil or Gas Production and Gathering
- [ ] Heating Oil used on premises
- [ ] Less than 501 gallons

VIII. Contact Person in Charge of Tanks

Name: Steve Morrey Job Title: Sr. Project Director	E-mail: steve.morrey@lilacsolutions.	Address: 9350 S 150 E #710 Sandy, Utah 84070	Phone Number (Include Area Code): 801 694 2245

IX. Financial Responsibility

I plan to meet the financial responsibility requirements by using the following mechanism(s): *(check all that apply)*

- [ ] Bond Rating Test
- [ ] Commercial Insurance
- [ ] Guarantee
- [ ] Letter of Credit
- [ ] Local Government Financial Test
- [ ] Risk Retention Group
- [ ] Self-insurance *(Financial Test)*
- [x] State Fund *(Petroleum Storage Tank Fund)*
- [ ] Surety Bond
- [ ] Trust Fund
- [ ] Other Method (explain) _____

X. Certification (Read and sign after completing ALL SECTIONS of this notification form)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in Sections I through XI of this notification form and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, believe that the submitted information is true, accurate, and complete.

Steve Morrey — Signature — 9.09.2025

Name and official title of owner or owner's Authorized representative *(Print)* | Signature | Date Signed

XI. Description of Aboveground Petroleum Storage Tanks *(complete for each tank at this location)*					
Tank Identification Number *(use additional pages if more than 5 APSTs)*	Tank #	Tank #	Tank #	Tank #	Tank #
1. Tank system description *(check all that apply)* *(if either of these apply, the ApST is regulated)*					
Rests directly on soil *(including gravel)*	☐	☐	☐	☐	☐
Any portion of piping buried or touches soil *(including gravel)*	☐	☐	☐	☐	☐
2. Status of Tank *(check only one)*					
Currently in Use	☐	☐	☐	☐	☐
Temporarily Closed	☐	☐	☐	☐	☐
3. Date of Installation	ETA is 07.15.2026				
4. Capacity *(501 gallons and greater)*	1,500 gallons				
5. Tank Attributes *(check all that apply)*					
Asphalt Coated or Bare Steel	☐	☐	☐	☐	☐
Cathodically Protected Steel *(impressed current)*	☐	☐	☐	☐	☐
Cathodically Protected Steel *(sacrificial anodes)*	☐	☐	☐	☐	☐
Composite *(steel clad with non-corrodible material)*	☐	☐	☐	☐	☐
Concrete	☐	☐	☐	☐	☐
Double Walled	☑	☐	☐	☐	☐
Manifolded	☐	☐	☐	☐	☐
Compartmentalized	☐	☐	☐	☐	☐
Field – constructed	☐	☐	☐	☐	☐
Steel Secondary Containment	☐	☐	☐	☐	☐
Concrete Secondary Containment	☐	☐	☐	☐	☐
Earthen Secondary Containment	☑	☐	☐	☐	☐
Tank rests on cradles	☐	☐	☐	☐	☐
UL Listed APST	☐	☐	☐	☐	☐
Connected to an Emergency Generator	☐	☐	☐	☐	☐
Other, Specify Here	_____	_____	_____	_____	_____
6. Overfill Protection *(check all that apply)*					
Automatic Shutoff	☐	☐	☐	☐	☐
High-level Alarm	☑	☐	☐	☐	☐
7. Spill Prevention					
Single Walled	☐	☐	☐	☐	☐
Dry Connect Fitting	☑	☐	☐	☐	☐
Other, Specify Here	_____	_____	_____	_____	_____

8. Vapor Recovery Attributes *(check all that apply)*					
Pressure Vent Valve on Vent Pipe	☐	☐	☐	☐	☐
Coaxial Drop Tube at Tank	☐	☐	☐	☐	☐
Two Point Vapor Recovery at Tank	☐	☐	☐	☐	☐
Emergency Venting	☑	☐	☐	☐	☐
9. Piping Attributes *(check all that apply)*					
Bare Steel	☐	☐	☐	☐	☐
Galvanized Steel	☐	☐	☐	☐	☐
Fiberglass Reinforced Plastic	☐	☐	☐	☐	☐
Flexible Plastic	☐	☐	☐	☐	☐
Copper	☐	☐	☐	☐	☐
Cathodically Protected *(impressed current)*	☐	☐	☐	☐	☐
Cathodically Protected *(sacrificial anodes)*	☐	☐	☐	☐	☐
Double Walled	☐	☐	☐	☐	☐
Secondary Containment	☐	☐	☐	☐	☐
Airport Hydrant Piping	☐	☐	☐	☐	☐
Unknown	☐	☐	☐	☐	☐
Other, specify Here	_____	_____	_____	_____	_____
10. Piping Flexible Connectors *(tank end)*					
Containment sump	☐	☐	☐	☐	☐
Booted	☐	☐	☐	☐	☐
Not in contact with soil	☑	☐	☐	☐	☐
Cathodically Protected *(impressed current)*	☐	☐	☐	☐	☐
Cathodically Protected *(sacrificial anodes)*	☐	☐	☐	☐	☐
11. Piping Flexible Connectors *(dispenser end)*					
Containment sump	☑	☐	☐	☐	☐
Booted	☐	☐	☐	☐	☐
Not in contact with soil	☑	☐	☐	☐	☐
Cathodically Protected *(impressed current)*	☐	☐	☐	☐	☐
Cathodically Protected *(sacrificial anodes)*	☐	☐	☐	☐	☐
12. Piping Delivery Type					
Safe Suction *(no valve at tank)*	☐	☐	☐	☐	☐
U.S. Suction *(valve at tank)*	☐	☐	☐	☐	☐
Pressure	☑	☐	☐	☐	☐
Gravity Feed	☐	☐	☐	☐	☐

13. Substance										
Gasoline - Regular *(up to 10% ethanol)*	☐		☐		☐		☐		☐	
Gasoline - Midgrade *(up to 10% ethanol)*	☐		☐		☐		☐		☐	
Gasoline - Premium *(up to 10% ethanol)*	☐		☐		☐		☐		☐	
Gasoline – Ethanol Free	☐		☐		☐		☐		☐	
Gasoline Containing > 10% ethanol *(specify amount of ethanol and grade of product)*	_____		_____		_____		_____		_____	
Diesel	☐		☐		☐		☐		☐	
Off Road Diesel	☑		☐		☐		☐		☐	
Biodiesel	☐		☐		☐		☐		☐	
Diesel Containing > 20% biodiesel *(specify amount of biodiesel)*	_____		_____		_____		_____		_____	
Kerosene	☐		☐		☐		☐		☐	
Avgas	☐		☐		☐		☐		☐	
Jet Fuel	☐		☐		☐		☐		☐	
New Oil	☐		☐		☐		☐		☐	
Used Oil	☐		☐		☐		☐		☐	
Other, specify here	_____		_____		_____		_____		_____	
14. Release Detection *(check all that apply)*	Tank	Pipe	Tank	Pipe	Tank	Pipe	Tank	Pipe	Tank	Pipe
Tank Tightness Testing	☑		☐		☐		☐		☐	
Automatic Tank Gauging	☐		☐		☐		☐		☐	
Interstitial Monitoring	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Statistical Inventory Reconciliation	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐
Automatic Line Leak Detectors		☐		☐		☐		☐		☐
Line Tightness Testing		☑		☐		☐		☐		☐

Comments

Waterleaf Resources is submitting a registration of a small diesel refueling tank that will be used at the proposed new Lithium Extraction Facility on teh North arm of the Great Salt Lae in Box Elder County. The Tank will be a new double walled constructed tank used for fueling on site mobile equipment. The Tank will be inside a containment area to catch and contain any spill from the refueling process.

THE STATE OF UTAH
DIVISION OF FORESTRY, FIRE AND STATE LANDS

EASEMENT APPLICATION

EASEMENT NO: _____ DATE: 9/5/2025

APPLICANT INFORMATION:

Name(s): Waterleaf Resources
Steve Morrey

Address: 9350 S 150 E #710

City, St Zip: Sandy, Utah

Phone: 801 694 2245

***For Agency use only*:**

Lessee Number: _____

Legal Description Number: _____

I (we) hereby make application, pursuant to Title 65A, as amended, and Division rule, for an Easement on the following described Sovereign lands situated in Box Elder County County, for a term of 20 years.

Subdivision*	Township	Range	Meridian	Section(s)	Acres
NA	9 North	Range 7	Salt Lake Bas	31 and 32	7.46
*Attach a centerline description and platted survey if applicable.				Total Acres	7.46

I understand that the issuance of an easement will be based on the payment of at least fair market value as determined by the Division, and that the application must be received with a non-refundable application fee.

Steve Morrey
Applicant's Signature

Sr. Project Director
Title

NOTE: A non-refundable application fee of $150.00 must accompany this application.

Fugitive Dust

4/4/2025 12:16:13 PM

Introduction

Please complete the following information in order to create a Fugitive Dust Application for your project. You will have a chance to review the plan prior to final submission.

Introduction

A Fugitive Dust Control Plan is required if your project is 1/4 acre or larger and located in Cache, Box Elder, Weber, Davis, Salt Lake, Tooele or Utah County. Other areas and conditions are optional. Please complete the form to assess your project.

Project Location

Project Location

A Fugitive Dust Control Plan is required if your project is 1/4 acre or larger and located in Cache, Box Elder, Weber, Davis, Salt Lake, Tooele or Utah County. Other areas and conditions are optional.

Select the County where your project will be located : Box Elder

Utah Administrative Code (UAC) 307-309-6 requires that any person owning or operating a source of fugitive dust within PM10 and PM2.5 non-attainment and maintenance plan areas on cleared land greater than 1/4 acre in size must submit a completed Fugitive Dust Control Plan. The DAQ Temporary Relocation Form requires the submission of a Fugitive Dust Control Plan Permit Number for all temporary relocation projects.

Is this project a temporary relocation project?:

- [ ] Yes
- [X] No

Non-Attainment Dust Tutorial

What is Fugitive Dust?

Fugitive dust is dust that is stirred up, creating an air quality problem. It is made up of fine particles called particulate matter. It is a health concern because it irritates eyes and nasal tissue and seriously impacts the respiratory system.

Fugitive dust may come from gravel operations, construction or demolition activities, land clearing and exposed surfaces, roadways, and mining activities. Trackout from muddy work areas also create fugitive dust when the mud dries.



How We Measure Compliance-Opacity



Opacity is the amount of light that is blocked by something else such as smoke or a tinted window. The percentage of opacity can provide a measure of the particulate matter in the air.

Opacity is measured as a percentage - 0% means that all light passes through; 100% means that no light can pass through. The more particles present, the higher the opacity percentage.

0%	10%	20%	40%	60%	80%

Utah Fugitive Dust Rule R307-309-5

Non-attainment Dust Rule

Acknowledgements::

X I acknowledge that Utah regulation R307-309-5(1)(a) prohibits fugitive dust to exceed 10% opacity at the property boundary;

X I acknowledge that Utah regulation R307-309-5(1)(b) prohibits fugitive dust to exceed 20% opacity on site;

X I acknowledge that Utah regulation R307-309-5(3) exempts the opacity requirements above, ONLY when wind speed exceeds 25 miles per hour AND fugitive dust controls are maintained. The online fugitive dust control plan requires selection of appropriate control measures that must be implemented for this exemption to apply; and

X I acknowledge that failure to comply with fugitive dust rules may result in compliance action and penalties up to $10,000 per violation/day.

Applicant Information

Applicant Type:: Facility/Project Manager

Plan Certificate Number: 4D4704513E

Name: Steve Morrey

Mailing Address

Mailing Address - Address Line 1: 9350 S 153 E

Mailing Address - Address Line 2:

Mailing Address - City: Sandy

Mailing Address - State: Utah

Mailing Address - Zip: 84070

Email: steve.morrey@lilacsolutions.com

Phone: (801) 694-2245

Project Information

Project Name: Great Salt Lake Lithium

Project End Date: 12/27/2027

Project Location

Address Line 1: N Rozel Flts RD

Address Line 2:

City: Corinne

State: Utah

Zip: 84307

Site Directions: 16 miles past Golden Spike. Take the first left fork, then a right at the next fork. A right turn at the new facility gate, this is before the Spiral Jetty. 2. 1 miles past the gate is the location GPS points 41.462075, -112.694390

County: Box Elder

Acreage: 28

Calculated Acreage: 28.0

Latitude/Longitude Verification

For Manual Latitude and Longitude input:

Make sure to include at least 6 digits after the decimal and it must fall within the state of Utah.

Example 40.404976 or 40.404976232

Latitude (Decimals Only) : 41.462075

Longitude (Decimals Only) : -112694390

Map Verification

Copy the following URL into your browser so you can verify on a map that the project latitude and longitude you provided are correct.

Map Calculation: https://www.google.com/maps/place/41.462075,-112694390

Latitude/Longitude verification:

X The above Latitude and Longitude have been verified.

Point of Contact

Point of Contact for dust control matters and to whom a COMPLIANCE ACTION should be sent if necessary.

Name: Steve Morrey

Company: Waterleaf Resources

Address

Address Line 1: 9350 S 153 E #710

Address Line 2:

City: Sandy

State: Utah

Zip: 84070

Phone number: (801) 694-2245

Cell number: (801) 694-2245

Dust Suppressants

Do you plan on using chemical dust suppressing or stabilizing agents?:

Yes

X No

Best Management Practices (BMP) Checklist

Best Management Practices (BMP) Checklist Instructions

Place a check mark next to every activity that will be conducted on this site.

For each checked activity, complete the corresponding control measures/best management practices (BMP) selection page. When completed, we will email the entire plan to you.

Fugitive Dust Plan Number: 9599575B05

Select all that apply:

A.3

X 01. Backfilling area previously excavated or trenched.

02. Blasting soil and rock - drilling and blasting.

03. Clearing for site preparation and vacant land cleanup.

X 04. Clearing forms, foundations, slab clearing and cleaning of forms, foundations and slabs prior to pouring concrete.

05. Crushing of construction and demolition debris, rock and soil.

X 06. Cut and fill soils for site grade preparation.

07. Demolition - Implosive demolition of a structure, using explosives.

08. Demolition - mechanical/manual demolition of walls, stucco, concrete, freestanding structures, buildings and other structures.

X 09. Disturbed soil throughout project including between structures. THIS ACTIVITY MUST BE SELECTED FOR ALL PROJECTS.

X 10. Disturbed land - long term stabilization and erosion control of large tracts of disturbed land that will not have continuing activity for more than 30 days.

11. Hauling materials.

12. Paving/subgrade preparation for paving streets, parking lots, etc.

13. Sawing/cutting material, concrete, asphalt, block or pipe.

14. Screening of rock, soil or construction debris.

X 15. Staging areas, equipment storage, vehicle parking lots, and material storage areas.

16. Stockpiles materials (storage), other soils, rock or debris, for future use or export.

X 17. Tailings piles, ponds and erosion control.

X 18. Trackout, Prevention and cleanup of mud, silt and soil tracked out onto paved roads. (THIS ACTIVITY MUST BE SELECTED FOR ALL PROJECTS.)

X 19. Traffic - unpaved routes and parking, construction related traffic on unpaved interior and/or access roads and unpaved employee/worker parking areas.

X 20. Trenching with track or wheel mounted excavator, shovel, backhoe or trencher.

X 21. Truck loading with materials including construction and demolition debris, rock and soil.

BMP - 01 Backfilling area previously excavated or trenched.

GENERAL REQUIREMENT: ALL ACTIVITIES MUST MEET OPACITY REQUIREMENTS IN R307-309-5

MAKE AT LEAST ONE SELECTION FROM EACH SECTION.

Stabilize backfill material when not actively handling.:

X 01-01. Water backfill material to maintain moisture or to form crust.

01-02. Apply and maintain a chemical stabilizer to backfill material to form crust.

01-03. Cover (natural or synthetic) or enclose backfill material when not actively handling.

Stabilize backfill material during handling.:

X 01-04. Empty loader bucket slowly and minimize drop height from loader bucket. A.3

X 01-05. Dedicate water truck or large hose to backfilling equipment and apply water as needed.

01-06. Mix moist soil with dry soil until the optimum moisture is reached.

01-07. Apply and mix water into the backfill material until optimum moisture is reached.

01-08. Apply and mix water and chemical solution into the backfill material until optimum moisture is reached.

Stabilize backfill material when not actively handling.:

X 01-09. Apply water and maintain disturbed soils in a stable condition.

01-10. Apply and maintain a chemical stabilizer on disturbed soils to form a crust.

Stabilize material while using pipe padder equipment.:

01-11. Mix moist soil with dry soil until the optimum moisture is reached.

X 01-12. Dedicate water truck or large hose to equipment and apply water as needed.

01-13. Not applicable

BMP - 04 Clearing forms, foundations, slab clearing ... prior to pouring concrete.

GENERAL REQUIREMENT: ALL ACTIVITIES MUST MEET OPACITY REQUIREMENTS IN R307-309-5

MAKE AT LEAST ONE SELECTION FROM EACH SECTION.

Clearing forms:

X 04-01. Use water spray to clear forms, foundations and slabs.

04-02. Use sweeping and water spray to clear forms, foundations and slabs.

04-03. Use industrial vacuum to clear forms, foundations and slabs prior to the use of high pressure air to blow soil and debris.

04-04. Use industrial vacuum to clear forms, foundations and slabs.

BMP - 06 Cut and fill soils for site grade preparation.

GENERAL REQUIREMENT: ALL ACTIVITIES MUST MEET OPACITY REQUIREMENTS IN R307-309-5

MAKE AT LEAST ONE SELECTION FROM EACH SECTION.

Stabilize surface soils where support equipment and vehicles will operate.:

X 06-01. Pre-water and maintain surface soils in a stabilized condition.

06-02. Apply and maintain a chemical stabilizer to surface soils.

Pre-water soils.:

X 06-03. Dig a test hole to depth of cut or equipment penetration to determine if soils are moist at depth. Continue to pre-water if not moist to depth of cut. A.3

Stabilize soil during cut activities.:

X 06-04. Apply water to depth of cut prior to subsequent cuts.

Stabilize soil after cut and fill activities.:

X 06-05. Water disturbed soils to maintain moisture.

06-06. Apply and maintain a chemical stabilizer on disturbed soils to form crust following fill and compaction.

06-07. Apply cover (natural or synthetic).

BMP - 09 Disturbed soil throughout project including between structures.

GENERAL REQUIREMENT: ALL ACTIVITIES MUST MEET OPACITY REQUIREMENTS IN R307-309-5

MAKE AT LEAST ONE SELECTION FROM EACH SECTION.

Limit disturbance of soils where possible.:

09-01. Limit disturbance of soils with the use of fencing, barriers, barricades, and/or wind barriers.

X 09-02. Limit vehicle mileage and reduce speed.

Stabilize and maintain stability of all disturbed soil throughout construction site.:

X 09-03. Apply water to stabilize disturbed soils. Soil moisture must be maintained such that soils can be worked without generating fugitive dust.

09-04. Apply and maintain a chemical stabilizer.

09-05. Use wind breaks.

09-06. Apply cover (natural or synthetic).

BMP - 10 Disturbed land - long term stabilization and erosion control ... for more than 30 days.

GENERAL REQUIREMENT: ALL ACTIVITIES MUST MEET OPACITY REQUIREMENTS IN R307-309-5

MAKE AT LEAST ONE SELECTION FROM EACH SECTION.

Prevent access to limit soil disturbance.:

X 10-01. Prevent access by fencing, ditches, vegetation, berms or other suitable barrier.

Stabilize soil.:

- [ ] 10-02. Apply and maintain a chemical stabilizer on disturbed soils. A.3
- [ ] 10-03. Stabilize disturbed soil with vegetation.
- [ ] 10-04. Pave or apply surface rock.
- [ ] 10-05. Use wind breaks.
- [X] 10-06. Apply water and maintain soil moisture sufficient to avoid generating fugitive dust.

BMP - 15 Staging areas, equipment storage, vehicle parking lots, and material storage areas.

GENERAL REQUIREMENT: ALL ACTIVITIES MUST MEET OPACITY REQUIREMENTS IN R307-309-5

MAKE AT LEAST ONE SELECTION FROM EACH SECTION.

Limit visible dust opacity from vehicular operations.:

- [X] 15-01. Limit vehicle mileage and speed limit.
- [ ] 15-02. Apply water on all vehicle traffic areas in the staging areas and unpaved access routes.

Stabilize staging area soils during use.:

- [X] 15-03. Pre-water and maintain surface soils in a stabilized condition.
- [ ] 15-04. Apply and maintain a chemical stabilizer to surface soils.

Stabilize staging area soils at project completion.:

- [ ] 15-05. Apply a chemical stabilizer.
- [ ] 15-06. Apply screened or washed aggregate.
- [ ] 15-07. Use wind breaks.
- [ ] 15-08. Pave.
- [ ] 15-09. Completed project will cover staging area with buildings, paving, and/or landscaping.
- [X] 15-10. Apply water to form adequate crust and prevent access.

BMP - 17 Tailings piles, ponds and erosion control.

GENERAL REQUIREMENT: ALL ACTIVITIES MUST MEET OPACITY REQUIREMENTS IN R307-309-5

MAKE AT LEAST ONE SELECTION FROM EACH SECTION.

Stabilize piles and ponds.:

X 17-01. Pre-water and maintain surface soils in a stabilized condition. A.3

☐ 17-02. Apply and maintain a chemical stabilizer on surface soils

☐ 17-03. Install cover (natural or synthetic).

☐ 17-04. Apply wind break.

X 17-05. Avoid steep sides or faces.

☐ 17-06. Minimizing the area of disturbed tailings.

X 17-07. Restrict the speed of vehicles in and around the tailings operation.

BMP - 18 Trackout, Prevention and cleanup of mud, silt and soil tracked out onto paved roads.

GENERAL REQUIREMENT: ALL ACTIVITIES MUST MEET OPACITY REQUIREMENTS IN R307-309-5

MAKE AT LEAST ONE SELECTION FROM EACH SECTION.

Prevent dust from trackout.:

☐ 18-01. Clean trackout at the end of the work shift from paved surfaces to maintain dust control

X 18-02. Maintain dust control during working hours and clean trackout from paved surfaces at the end of the work shift/day.

☐ 18-03. Install gravel pad(s), clean, well-graded gravel or crushed rock. Minimum dimensions must be 30 feet wide by 3 inches deep, and, at minimum, 50' or the length of the longest haul truck, whichever is greater. Re-screen, wash or apply additional rock in gravel pad to maintain effectiveness.

☐ 18-04. Install wheel shakers. Clean wheel shakers on a regular basis to maintain effectiveness.

☐ 18-05. Install wheel washers. Maintain wheel washers on a regular basis to maintain effectiveness.

☐ 18-06. Motorized vehicles will only operate on paved surfaces.

☐ 18-07. Install cattle guard before paved road entrance.

All exiting traffic must be routed over selected trackout control device(s).:

X 18-08. Clearly establish and enforce traffic patterns to route traffic over selected trackout control device(s).

☐ 18-09. Limit site accessibility to routes with trackout control devices in place by installing effective barriers on unprotected routes.

Best Management Practice Selections - 19 Traffic - unpaved routes and parking, construction related traffic ... parking areas.

GENERAL REQUIREMENT: ALL ACTIVITIES MUST MEET OPACITY REQUIREMENTS IN R307-309-5

A.3

MAKE AT LEAST ONE SELECTION FROM EACH SECTION.

Stabilize surface soils where support equipment and vehicles will operate.:

- [X] 19-01. Limit vehicle mileage and speeds.
- [ ] 19-02. Apply and maintain water on surface soils.
- [ ] 19-03. Apply and maintain chemical stabilizers on surface soils.
- [ ] 19-04. Apply and maintain gravel on surface soils.
- [ ] 19-05. Supplement chemical stabilizers, water or aggregate applications as necessary.
- [ ] 19-06. Apply recycled asphalt (RAP) to surface soils.

BMP - 20 Trenching with track or wheel mounted excavator, shovel, backhoe or trencher.

GENERAL REQUIREMENT: ALL ACTIVITIES MUST MEET OPACITY REQUIREMENTS IN R307-309-5

MAKE AT LEAST ONE SELECTION FROM EACH SECTION.

Presoak soils prior to trenching activities.:

- [X] 20-01. Pre-water surface.

Stabilize surface soils where trenching equipment, support equipment and vehicles will operate.:

- [X] 20-02. Pre-water and maintain surface soils in a stabilized condition.
- [ ] 20-03. Apply and maintain a chemical stabilizer to surface soils.
- [ ] 20-04. Limit mileage and speed.

Stabilize soils after trenching.:

- [X] 20-05. Apply and maintain water on excavated soil.
- [ ] 20-06. Apply and maintain chemical stabilizer on excavated soil.

BMP - 21 Truck loading with materials including construction and demolition debris, rock and soil.

GENERAL REQUIREMENT: ALL ACTIVITIES MUST MEET OPACITY REQUIREMENTS IN R307-309-5

MAKE AT LEAST ONE SELECTION FROM EACH SECTION.

Apply and maintain a chemical stabilizer on surface soils where loaders, support equipment and vehicles will operate. : A.3

[X] 21-01. Pre-water and maintain surface soils in a stabilized condition where loaders, support equipment and vehicles will operate.

[ ] 21-02. Apply and maintain a chemical stabilizer on surface soils where loaders, support equipment and vehicles will operate.

[X] 21-03. Empty loader bucket slowly and keep loader bucket close to the truck to minimize the drop height while dumping.

Reviewing Your Plan

Please carefully review your plan before submitting it. Once the plan has been submitted, it CANNOT be edited.

BEFORE you submit your plan, if you need to make changes, navigate back to those sections via the left navigation or the Previous button to complete those changes.

When you are satisfied, submit your plan.

The plan will be available to download in the My Forms section, under the Done tab.

By submitting this plan I agree to the following terms:

A. I am authorized, on behalf of the individual or company listed in Section 1, as Applicant, to apply for a Fugitive Dust Control Plan and to commit to all of the terms and conditions of the requested plan.

B. Construction activities will be limited to lands that the applicant either owns or is authorized to use for construction activities.

C. The applicant accepts responsibility for assuring that all contractors, subcontractors, and all other persons on the construction site covered by this plan, comply with the terms and conditions of the Fugitive Dust Control Plan.

D. I understand that any false material statement, representation or certification made in this application may invalidate the plan or cause me to be subject to enforcement action pursuant to Utah Code Ann. 19-2-115.

E. Failure to comply with fugitive dust rules may result in compliance action and penalties up to $10,000 per violation/day.

Confirmation of terms:

[X] My plan is ready to be submitted.

Frequently Asked Questions

Division of Air Quality

Utah Department of Environmental Quality

Feedback

Division of Air Quality
Address: 195 North 1950 West
P.O. Box 144820
Salt Lake City, UT 84114-482
Contact Phone: 801-536-4000
Contact Fax: 801-536-4099

Frequently Asked Questions

Frequently Asked Questions

Division of Air Quality

Utah Department of Environmental Quality

Feedback

Division of Air Quality
Address: 195 North 1950 West
P.O. Box 144820
Salt Lake City, UT 84114-482
Contact Phone: 801-536-4000
Contact Fax: 801-536-4099

Steve Morrey

From: Steve.Morrey@lilacsolutions.com
To: Katie Andersen
Subject: Fugitive Dust application

From: Katie Andersen <kandersen@utah.gov>
Sent: Tuesday, October 21, 2025 10:53 AM
To: Steve Morrey <Steve.Morrey@lilacsolutions.com>
Subject: Re: Fugitive Dust application

Hi Steve,

Regarding your Fugitive Dust Control Plan, you need to do nothing further besides operating in accordance with the BMPs chosen in the FDCP.

Cheers,
Katie

On Tue, Oct 21, 2025 at 9:03 AM Steve Morrey <Steve.Morrey@lilacsolutions.com> wrote:

> Good Morning
>
> I wanted to reach out and confirm something about our filed Fugitive dust plan.
>
> I went in a few months back and filled out a plan online. Is there anything more I need to do from here?
>
> Thanks
>
> Steve
>
> Steve Morrey
>
> Sr. Project Director.
>
> Lilac Solutions, Inc.

Steve.morrey@lilacsolutions.com

www.lilacsolutions.com

Mobile: +1-801-694-2245



CONFIDENTIALITY NOTICE: The contents of this email message and any attachments are intended solely for the addressee(s) and may contain confidential and/or privileged information and may be legally protected from disclosure.

PERMIT NUMBER: 8579320
ISSUE DATE: 12/18/2025
EXPIRATION DATE: 12/17/2031

RIGHT OF WAY PERMIT

Permit Issued To (Applicant):

NAME: Steve Morrey
PHONE: (801) 694-2245
EMAIL: steve.morrey@lilacsolutions.com

CONTRACTOR: Geneva
PHONE: (435) 890-9893

Permit Issued For:

LOCATION: Rozel Flats road, form other Box Elder permits here is th address given: Rozel Flats Road, West Promontory Unincorporated E Elder County, Parcel # 03-008-0049
ENCROACHMENT TYPE: Minor Encroachment (≤ 200 sf)
TOTAL SQ. FOOTAGE: 150
POTHOLES: 0

COUNTY COMMENTS OR CONDITIONS OF APPROVAL:

GENERAL TERMS AND CONDITIONS OF PERMIT

PERMIT TO BE ON-SITE AT ALL TIMES WORK IS PERFORMED. FAILURE TO HAVE PERMIT ON SITE WILL STOP WORK. NOT COMPLYING WITH SCOPE OF PERMIT WILL STOP WORK

All work done shall be in accordance with the laws of Box Elder County and the State of Utah and shall meet the current APWA Standards, Utah Manual of Uniform Traffic Control Devices standards, and Box Elder County Standards and Specifications.

Permittee shall restore and replace all disturbed or damaged improvements, sprinklers, and landscaping. Permittee shall restore the right-of-way to original or better condition. All restoration to take place within 2 working days from the time of completion of the work. If the Permittee fails to do so, the County may make necessary restorations at the Permittee's expense and may use Permittee's assurance for this purpose.

All utilities must be potholed prior to crossing. All road cuts must be crack-sealed upon completion. Asphalt repairs must be completed per County standards. Compaction results must be provided to County inspector. A County inspector MUST be present when boring across utilities and prior to backfill.

No excavation allowed on Friday, Saturday, Sunday or holidays unless pre-approved by Box Elder County Roads Department. Permittee must notify emergency services, school district, and UTA at least 2 working days prior to any approved road closures.

Assurance will remain for one year after the County has inspected and accepted permit and restoration work. Contact County Public Works for inspections and assurance release. All inspections require a 48-hour notice.

Darin McFarland

Roads Superintendent Approval

BOX ELDER ROADS
5730 W 8800 N, Tremonton, Utah 84337
(435) 695-2580

A.4 Water Rights

PURPOSE

This appendix documents Waterleaf Phase 1 LLC's water right application materials and supporting correspondence with the Utah Division of Water Rights related to diversion and return of GSL water for commercial lithium extraction operations.

CONTENTS SUMMARY

The appendix contains correspondence and supporting materials submitted in connection with Fixed-Time Water Right Application No. F83873 (13-4097), seeking approval to divert and return GSL water for the proposed commercial phase of the Waterleaf lithium extraction project. The materials describe refinements to the proposed water right based on Pilot results, including a reduction in maximum annual diversion volume, consolidation to a single point of diversion, identification of intake and outfall locations coordinated with the Division of Forestry, Fire and State Lands, and confirmation of non-consumptive operations with full return of depleted brine. The appendix also outlines phased development plans, monitoring commitments, and coordination with state agencies to ensure compliance with Utah water law and GSL preservation objectives.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 3.1
- Section 12

DOCUMENT DETAILS

- Issued by: Stephen M. Styler (Utah Water Strategies, LLC)
- Date: September 19, 2025
- Page Count: 3 pages

A.4 begins on next page

WATER STRATEGIES

September 19, 2025

Teresa Wilhelmson
Utah State Engineer
1594 W. North Temple, Suite 220
P.O. Box 146300
Salt Lake City, UT 84114-6300

RE: Utah Water Right (13-4097) F83873

Dear Ms. Wilhelmson:

This letter will provide information in support of Fixed-Time Application No. F83873 and can be relied upon in further proceedings on the above-listed application. Waterleaf Resources LLC has completed its pilot direct lithium-ion extraction (DLE) project on Great Salt Lake and desires to move forward into its commercial phase. This will require approval of Fixed-Time Application No. F83873 (13-4097). We are grateful for the time and attention that has been provided by the Division of Water Rights on this project.

First, the State of Utah, acting through the Division of Forestry, Fire, and State Lands, and Waterleaf are in advanced discussions to complete a royalty agreement for the Waterleaf project. Utah Code Section 73-3-8(3) requires the completed royalty agreement to be filed with the Division of Water Rights. A copy of this agreement will be provided to the Division of Water Rights immediately upon its signature.

Second, based on results from the pilot phase of the Waterleaf project, Waterleaf has concluded that it can reduce the maximum proposed annual diversion of Great Salt Lake water from the 225,000 acre-feet requested in the application to 160,000 acre-feet for all phases of the commercial project. This is the feed stream water intended to be circulated through the lithium extraction process and returned to Great Salt Lake. Please regard the diversion amount requested under Application No. F83873 as being reduced to 160,000 acre-feet annually.

Third, Application No. F83873 asks for approval of three points of diversion. Waterleaf's physical plant design has progressed such that the proposed point of diversion (POD) designated as "(3) N1I Mango" in the application will be sufficient to supply Waterleaf's proposed use. Consequently, an order approving Application No. F83873 would need to

approve only that one POD, with Points of Diversion 1 and 2 being abandoned. Also, the POD location description in the application designates only the point on the Great Salt Lake meander line to which an intake line would be constructed. When the lake surface elevation is below the meander line, Waterleaf will need to extend the intake line (and thus the POD) from the meander line to a point at which water can be found at sufficient water depth for the intake pumps to function properly. A land use agreement with the Division of Forestry, Fire, and State Lands will implement this same approach to water access.

Fourth, the application did not identify the proposed location for return, or outfall, of the lake water after it is circulated through the DLE system. The proposed locations for both the water inlet and outfall are depicted on the attached map, transmitted with this letter. These locations have been identified working in cooperation with the Utah Division of Forestry, Fire, and State Lands.

Finally, Waterleaf continues to design its extraction process to be nonconsumptive. As presented in the initial protest hearing, locally sourced water near the DLE processing facility will be used within the commercial operation. This additional water will be used for filtration processes and will be released to the lake under an approved DEQ discharge permit. This released water will more than compensate for any inefficiency that may be occur in the filtration and diversion system prior to entry into the closed loop DLE system. Both the diverted water and the released water will be measured to ensure that there are no losses through the DLE extraction processes.

Upon approval of Application No. F83873, Waterleaf plans to expeditiously advance the development of Phase I of its commercial project. Phase I will divert approximately 40,000 acre-feet of Great Salt Lake water annually. Upon successful completion of Phase I, Waterleaf will evaluate the timing of future phases of its commercial development and will maintain regular communication with the Division of Water Rights.

We look forward to completion of the approval process on Fixed-Time Application No. F83873.

Respectfully submitted,



Stephen M. Styler
Utah Water Strategies, LLC
Consultant to Waterleaf Resources LLC

Cc: Michael Drake, Assistant State Engineer, michaeldrake@utah.gov
Skyler Buck, Regional Engineer, skylerbuck@utah.gov
Ben Stireman, Deputy Director, bstireman@utah.gov
Kent Jones, Utah Water Strategies, LLC
Warren Peterson, Utah Water Strategies, LLC

A.5 Cooperative Agreement

PURPOSE

The purpose of this appendix is to document the current draft of the cooperative agreement as per Utah Code § 65A-17-303.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 9
- Section 12

DOCUMENT DETAILS

- Page Count: 10 pages

A.5 begins on next page

COOPERATIVE AGREEMENT FOR CONCURRENT GREAT SALT LAKE RESOURCE EXTRACTION OPERATIONS

This Cooperative Agreement for Concurrent Great Salt Lake Extraction Operations ("**Agreement**") is dated effective as of [_____] ___, 2026 ("**Effective Date**"), by and between the following:

Waterleaf Phase 1, LLC, a Delaware limited liability company with a mailing address of 9350 South 150 East # 710, Sandy, Utah 84070 ("**Waterleaf**");

Compass Minerals Ogden Inc., a ____ with a mailing address of 9900 W. 109th St., Suite 100, Overland Park, KS 66210, Attn. Joe Havasi, VP Natural Resources ("**Compass Minerals**");

Morton Salt, a _____, with a mailing address of 1794 West Solar Road, Grantsville, UT 84029, Attn. Justin Hipple, General Manager ("**Morton"**);

Cargill, Incorporated, a____ Delaware corporation with a mailing address of 15100 Rowley Road, Grantsville, UT 84029, Attn. Ryan Doherty, General Manager ("**Cargill**");

Northshore Limited Partnership, a ____ with a mailing address of 2720 Wadman Dr., Ogden, UT 84401, c/o Bruce Anderson, Manager ("**Northshore**");

Earth's Elements, Inc., a ____ with a mailing address of c/o Craig Miles, 21 Vista Dr., Morgan, UT 84050 ("**Earth's Elements**"); and

The Utah Division of Forestry, Fire and State Lands, a division of the State of Utah Department of Natural Resources, with a address of 1594 West North Temple, Suite 3520, P.O. Box 146301, Salt Lake City, Utah 84114-6301, Attn. Jamie Barnes ("**FFSL**").

Waterleaf, Compass, Morton, Cargill, Northshore, and Earth's Elements are each a "**Party**" and collectively the "**Parties**" to this Agreement.

RECITALS

A. Waterleaf is assessing the feasibility of the construction and operation of a commercial direct lithium extraction facility to be located on leased private lands in Box Elder County, Utah, on Gunnison Bay on the eastern shore of the North Arm of the Great Salt Lake ("**GSL**"), more particularly described in **Exhibit A** attached hereto.

Waterleaf's facility would extract lithium from brines of the GSL through an ion exchange technology and would utilize a surface pipeline authorized by an easement to be issued by FFSL for intake and return to GSL. The intake and outfall pipes are located at least __ miles from any facility utilized by any other mineral extraction operator.

B. Compass Minerals has produced sodium chloride, sulfate of potash and magnesium chloride mineral products on GSL since 1968. Brine from remote areas on the North Arm is

pumped into a series of shallow ponds where the sun and wind naturally evaporate the water to produce minerals. Compass Minerals' products are used as a specialty fertilizer for agricultural production of vegetables, fruit and tree nuts as well as for deicing roads, water treatment and other industrial applications. Compass operates on the eastern and western shores of the North Arm of GSL, both on lands leased from FFSL and on private land, more particularly described in **Exhibit B** attached hereto.

C. Morton [describe operations, mineral(s) produced, location], on lands more particularly described in **Exhibit C** attached hereto.

D. US Magnesium [describe operations, mineral(s) produced, location], on lands more particularly described in **Exhibit D** attached hereto.

E. Cargill [describe operations, mineral(s) produced, location], on lands more particularly described in **Exhibit E** attached hereto.

F. North Shore [describe operations, mineral(s) produced, location], on lands more particularly described in **Exhibit F** attached hereto.

G. Earth's Elements [describe operations, mineral(s) produced, location], on lands more particularly described in **Exhibit G** attached hereto.

H. The signatory companies are each mineral extraction operators on the GSL, with their respective operations and access points depicted on the map in **Exhibit H** attached hereto and incorporated by reference.

I. FFSL manages all sovereign lands existing within the Great Salt Lake to balance public trust values and public interest benefits and policies pursuant to FFSL's statutory authorities, including Utah Code Title 65A, Chapter 10.

J. Utah Code § 65A-17-303 provides that as a condition of initial and continued operations on the GSL, FFSL shall require operators to enter into a cooperative agreement with other GSL operators with correlative rights in a common source of supply for a mineral or element in the GSL.

K. Capitalized terms used in this Agreement without being defined herein shall have the respective meanings given to them in the Great Salt Lake Preservation Act, Utah Code § 65A-17-101 et seq, and Utah Administrative Code R652-21-200 et seq.

Based on the foregoing, the Parties agree as follows:

1. **Public Trust**. All rights, responsibilities, and obligations contained in this Cooperative Agreement are subject to the public trust, as recognized in Utah Admin. Code R652-2-200, and to FFSL's duty to manage all public trust assets.

2. **Basis for Concurrent Operations**. To facilitate mutually beneficial concurrent operations, the Parties agree as follows:

(a) No Unreasonable Interference. The Parties have determined that their respective operations are not anticipated to unreasonably interfere with existing and separate operations of the other Parties, or are not anticipated to cause undue waste.

(b) Vested Rights. The Parties expressly recognize the rights of the other Parties to the extraction of minerals and elements from the GSL to the extent vested under applicable law. The Parties further commit to conduct their respective operations in a manner that will result in maximum recovery of minerals or elements with the minimum adverse effect on the ultimate maximum recovery of other minerals and elements.

(c) Mitigation Plan. If circumstances, described in Utah Code 65A-17-303(2)(c)(iii-iv), arise requiring a mitigation plan, any affected or impacted Party may notify FFSL of the circumstances that it believes justify a mitigation plan.

(d) Costs. The Parties recognize that their respective operations have not created and are not anticipated to create unnecessary costs to the operations of the other Parties. If any Party believes that another Party's operations or efforts to protect natural resources of the GSL have unreasonably increased its operational costs, the affected Party may seek resolution of the dispute through the dispute resolution mechanism provided in Utah Code Ann. 65A-17-304(3).

(e) Access. The Parties' operations and access points depicted on Exhibit F do not currently require coordination of access to operations due to the lack of proximity to each other's operations. In the event any coordination of access becomes necessary in the future, the impacted Party or Parties shall notify the other Parties and negotiate access as is practical and commercially reasonable.

(f) No Incremental Costs. The Parties do not currently anticipate increased costs to any other operator resulting from their concurrent operations on the GSL.

(g) No Surface Conflicts. The Parties' surface facilities are or will be governed by the terms of any affiliated permit and will comply with reclamation requirements imposed by the Division of Oil, Gas & Mining and FFSL, as applicable. At present, coordinated surface occupancy is not necessary due to lack of proximity to each other's operations. No impacts to correlative rights are anticipated. Any impacts to resources of the GSL must be addressed prior to the issuance of a permit for extraction operations.

(h) Information Exchange. The scope and extent of how geological, engineering, product, and water use data is disclosed or exchanged amongst the Parties will be governed by Section 6.

(i) No Joint Reclamation. At present, no joint reclamation obligation or plan is contemplated as a result of Waterleaf's operations due to lack of proximity between the other Parties' operations. Waterleaf's surface occupancy of lakebed lands below the meander line will be limited as described in Exhibit A.

(j) Bonding. Bonding with respect to the Waterleaf project will be governed by Section 5.

(k) Emergency Trigger. If the emergency trigger is reached, the Parties and FFSL agree that the curtailment imposed on the Parties' Great Salt Lake water rights under the Utah State Engineer's Great Salt Lake Distribution Management Plan is sufficient curtailment to address the emergency trigger.

3. Mutual Cooperation and Coordination. Each Party shall strive to conduct its operations in a cooperative and duly coordinated manner, using commercially reasonable efforts to protect GSL natural resources without unnecessary cost to the other Parties' operations, and to avoid unreasonable interference with the extraction, processing, or transportation activities of any other Party.

4. Resolution of Disputes. In the event a dispute arises concerning Waterleaf's potential operational interference with or material reduction in resource value of another Party, or any other provision of this Agreement, the injured Party shall send written notice to the Party or Parties allegedly causing the interference or material reduction in resource value. The relevant Parties agree to first attempt good faith negotiation, which may upon request of any Party be mediated by FFSL. In the event negotiations do not reach a mutually-agreed resolution within period of ninety (90) days after the injured Party delivers the written notice contemplated by this Section, the matter shall be submitted to FFSL for resolution as provided in Utah Code § 65A-17-304(3).

5. Bonding. Each Party shall be solely responsible for obtaining and maintaining its own bonding or financial assurance, in a form and amount sufficient to meet applicable legal and regulatory requirements for any lands it impacts, disturbs, or develops in connection with its mineral extraction and processing activities. The Parties may coordinate in good faith to ensure that all bonding obligations for any overlapping projects are satisfied and that no shortages in coverage exist, but each Party shall remain independently liable for securing and maintaining bonds for its respective operations.

6. Exchange of Operational Information. Geological, engineering, production, and water use data will be disclosed and exchanged as required by law and applicable permits. No Party will be required to disclose any information to any other Party that would be considered private or protected under the Utah Governmental Records Access and Management Act if submitted to FFSL.

7. Indemnification. Waterleaf agrees to indemnify and hold harmless the State of Utah, FFSL, and their respective officers, agents or employees, from any and all damages or liability resulting from Waterleaf's mineral extraction and processing operations to the extent authorized by statute.

8. Royalty Rate Reduction. Waterleaf agrees to fully comply with any of the requirements for obtaining royalty rate reduction to which Waterleaf is entitled.

9. Changed Circumstances. The terms and conditions contained in this Agreement are based on the Parties' understanding that Waterleaf's planned operations will proceed only as outlined in Exhibits A, F, and the Feasibility Assessment submitted to FFSL as required by Utah Administrative Code R652-21. If Waterleaf's planned operations change in any respect that would require a modification of Waterleaf's permits, Waterleaf shall notify the other Parties in writing.

The written notice shall include information sufficient to allow the other Parties to determine potential impacts to their operations caused by the change in Waterleaf's operations. The other Parties shall have sixty (60) days after receipt of the written notice to propose an amendment to this Agreement.

10. Governing Law. This Agreement shall be governed and construed in accordance with the laws of the State of Utah, without giving effect to any law, rule or regulation (whether of the State of Utah or other jurisdiction) which would cause the application of any law, rule or regulation other than those of the State of Utah.

11. Successors and Assigns. This Agreement shall be binding upon and inure solely to the benefit of each Party hereto and their legal representatives and successors, and assigns, and nothing in this Agreement, express or implied, is intended to confer upon any other person any rights or remedies of any nature whatsoever under or by reason of this Agreement. The rights and obligations conferred by this Agreement may be assigned by any Party to parent entities, subsidiaries, and project companies.

12. Severability. If any provision of this Agreement is held to be invalid or unenforceable by any court of competent jurisdiction, the other provisions of this Agreement shall remain in full force and effect.

13. Counterparts. This Agreement may be executed and delivered by each Party hereto in separate counterparts, each of which when so executed and delivered shall be deemed an original and all of which taken together shall constitute but one and the same Agreement.

14. Notices. Any required notice or communication shall be in writing and shall be effective when personally delivered or when sent via certified mail, postage prepaid, and addressed as follows:

If to Waterleaf:
Waterleaf Phase 1, LLC
9350 South 150 East, Suite 710
Sandy, UT 84093

If to Cargill:
Cargill, Incorporated – Salt
15407 McGinty Road West, MS - 16
Wayzata, Minnesota 55391
Attn: Salt – Business Development

With a copy to:

Cargill, Incorporated – Law
15407 McGinty Road West, MS - 24
Wayzata, Minnesota 55391
Attn: Salt – Commercial Lawyer

If to [Company]:
[Company Name]
[Address]

Any Party may, by notice given to the other Parties as provided in this section, change its mailing address for future notices.

[*Signatures on Following Pages*]

AGREED TO AND ACCEPTED THIS ___ day of _____, 2026.

Waterleaf Phase 1, LLC

By:

Name:

Title:_____

[Company Name]

By:_____

Name:_____

Title:_____

Utah Division of Forestry, Fire and State Lands, a division of the State of Utah Department of Natural Resources

By:

Name:

Title:_____

[add other signatories]

EXHIBIT A
to
COOPERATIVE AGREEMENT
COOPERATIVE AGREEMENT

LEGAL DESCRIPTION OF WATERLEAF FACILITY

A part of the West Half of fractional Section 31, Township 9 North, Range 7 West, Salt Lake Base Meridian, in Box Elder County, Utah:

Beginning at a point located 698.49 feet North 88°28'24" East along the North line of said Section 31; and 1458.29 feet South 1°31'36" East from a rebar with a cap stamped Box Elder County found marking the Northwest Corner of said Section 31; and running thence South 56°52'03" East 2084.03 feet; thence South 36°27'03" West 1386.95 to a point on the measured Chord of the Meander Line of the Great Salt Lake, being a line between rebars with caps stamped HAI set with Box Elder County Survey No. 2020-03496, said point is located 165.05 feet North 56°52'03" West along said Chord from the Southeasterly rebar and cap; thence North 56°52'03" West 1616.31 feet along said Chord to a point located 391.90 feet South 56°52'03" East along said Chord from the Northwesterly rebar and cap; thence North 17°30'00" East 1437.81 feet to the point of beginning.

Less and excepting any portion lying within the bounds of the Great Salt Lake.

Contains 50 acres, more or less

Tax Parcel No. 03-008-0049 (within)

Error! Unknown document property name.

A part of the West Half of fractional Section 31, Township 9 North, Range 7 West, Salt Lake Base Meridian, in Box Elder County, Utah:

Beginning at a point located 698.49 feet North 88°28'24" East along the North line of said Section 31; and 1458.29 feet South 1°31'36" East from a rebar with a cap stamped Box Elder County found marking the Northwest Corner of said Section 31; and running thence South 56°52'03" East 2084.03 feet; thence South 36°27'03" West 1386.95 to a point on the measured Chord of the Meander Line of the Great Salt Lake, being a line between rebars with caps stamped HAI set with Box Elder County Survey No. 2020-03496, said point is located 165.05 feet North 56°52'03" West along said Chord from the Southeasterly rebar and cap; thence North 56°52'03" West 1616.31 feet along said Chord to a point located 391.90 feet South 56°52'03" East along said Chord from the Northwesterly rebar and cap; thence North 17°30'00" East 1437.81 feet to the point of beginning.

Less and excepting any portion lying within the bounds of the Great Salt Lake.

Contains 50 acres, more or less

Tax Parcel No. 03-008-0049 (within)

4899-5327-5200
4912-9527-0742

A.6 Self-Certifications

PURPOSE

This appendix documents Waterleaf Phase 1 LLC's self-certifications and compliance commitments required under Utah law and administrative rules governing mineral extraction and water use on GSL sovereign lands.

CONTENTS SUMMARY

The appendix contains formal self-certifications submitted by Waterleaf Phase 1 LLC affirming compliance with the GSL Preservation Act, Utah Code § 65A-6 and § 65A-17, and applicable provisions of UAC R652-21. It includes a voluntary commitment to execute a Water Curtailment Agreement with the Division of Forestry, Fire and State Lands ("FFSL"), a draft voluntary curtailment agreement, certifications regarding lawful water appropriation and no-net-loss operations, and a written plan of compliance addressing reporting, inspection, enforcement, recordkeeping, and compliance conference requirements. Collectively, the documents demonstrate Waterleaf's acknowledgment of regulatory obligations and its commitment to operate in coordination with state agencies to protect lake elevation, ecological health, and sovereign land interests.

REFERENCED IN MAIN APPLICATION

- Section 1.3

DOCUMENT DETAILS

- Issued by: Waterleaf LLC
- Date: November 4, 2025
- Page Count: 7 pages

A.6 begins on next page

Self Certifications (previous Appendix J)

Proof of Voluntary Agreement with DFFSL to Curtail Water Usage

(Great Salt Lake Preservation Act, Utah Code § 65A-17-101 et seq.)

Waterleaf Phase 1 LLC affirms its voluntary commitment to comply with the **Great Salt Lake Preservation Act** and to coordinate with the **Division of Forestry, Fire and State Lands (FFSL)** on any curtailment of water use that may be necessary to protect the lake's elevation and ecological health.

Waterleaf will execute prior to commercial operations, a **Voluntary Water Curtailment Agreement** with FFSL consistent with § 65A-17-102 and § 65A-17-103, providing that:

1. **All brine withdrawals are fully metered and reported** to FFSL and the Utah Division of Water Rights (DWRi) on a monthly basis.
2. **No-net-loss of water** to the Great Salt Lake is maintained through full return of depleted brine and reuse of process water, as demonstrated in the Feasibility Final Report.
3. **Upon written request by FFSL or the State Engineer**, Waterleaf will **voluntarily reduce or suspend water withdrawals** from the North Arm of the Great Salt Lake in the event of critical low-elevation conditions or state-declared conservation measures.
4. Such curtailment will be implemented **without claim of compensation or impairment of right**, consistent with Waterleaf's policy to support statewide Great Salt Lake preservation goals.

A draft Voluntary Water Curtailment Agreement has been provided to FFSL for review and consideration. A draft is included below.

DRAFT – Voluntary Water Curtailment Agreement

This Voluntary Water Curtailment Agreement ("Agreement") is made and entered into as of the date of execution below, by and between **Waterleaf Phase 1 LLC ("Operator")** and the **Utah Division of Forestry, Fire & State Lands ("FFSL")**, collectively referred to herein as the "Parties."

Recitals

WHEREAS, the Utah Legislature enacted the *Great Salt Lake Preservation Act*, Utah Code § 65A-17-101 et seq., to promote the conservation, protection, and responsible use of the Great Salt Lake and its hydrologic system; and

WHEREAS, Waterleaf Phase 1 LLC, as Operator of the proposed lithium extraction project located on sovereign lands of the Great Salt Lake, recognizes the importance of maintaining adequate lake elevation and ecological balance; and

WHEREAS, FFSL encourages operators to implement voluntary water use curtailment measures consistent with the State's preservation objectives; and

WHEREAS, Waterleaf has prepared and submitted this draft Agreement for FFSL's review and acceptance in conjunction with its commercial application under Utah Code § 65A-6-4 et seq.

1. Purpose

The purpose of this Agreement is to document Waterleaf's voluntary commitment to reduce, suspend, or otherwise curtail water withdrawals or diversions associated with its mineral extraction operations in coordination with FFSL, when hydrologic or ecological conditions of the Great Salt Lake warrant such action.

2. Scope of Curtailment

Upon FFSL's request or upon triggering conditions mutually defined in the final Agreement (e.g., sustained lake elevation below designated thresholds or drought emergency declarations), Waterleaf shall promptly:

- Cease or proportionally reduce water usage or diversion rates as specified;
- Maintain non-consumptive operations; and
- Document and report all curtailment actions to FFSL within the agreed timeframe.

3. Implementation and Compliance

This voluntary curtailment shall form part of Waterleaf's operational compliance framework and will be integrated into its **Plan of Compliance** and **Self-Certification Statements** submitted pursuant to UAC R652-21-805 and R652-21-1200 through 1206.

4. Effectiveness

This Agreement shall become effective upon FFSL's acceptance of Waterleaf's commercial application and execution of the final Agreement by both Parties.

5. No Waiver of Authority

Nothing in this Agreement shall be construed as a waiver of FFSL's statutory authority or Waterleaf's lawful rights under any existing lease, license, or water appropriation.

6. Term

The Agreement shall remain in effect for the duration of the Operator's FFSL authorization or until terminated or superseded by mutual written consent of the Parties.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed as of the dates written below.

For Waterleaf Phase 1 LLC	**For Utah Division of Forestry, Fire & State Lands**
Name: _____	Name: _____
Title: _____	Title: _____
Signature: _____	Signature: _____
Date: _____	Date: _____

Self-Certification Regarding Utah Code § 65A-6-1(3)

(Use of Sovereign Lands and Appropriation of Water from the Great Salt Lake)

Pursuant to **UAC R652-21-705(1)** and **Utah Code § 65A-6-1(3)**, Waterleaf Phase 1 LLC ("Waterleaf") hereby **self-certifies** that all past and proposed operations related to lithium extraction from the Great Salt Lake **do not and will not constitute an unlawful appropriation, diversion, or depletion of sovereign-land waters**.

Specifically:

1. **All brine withdrawals** associated with the Feasibility Pilot Project were conducted under an **approved temporary water right** issued by the **Utah Division of Water Rights (DWRi)**, File No. **Temporary Change Application Number 15-306 (t52272) on October 29th, 2024.**
2. Waterleaf has **submitted an updated application to appropriate water** for continued mineral extraction and return flow to the lake. The **appropriation application is pending** before the State Engineer as of 9.15.2025, and proof of filing is attached as **Appendix G– DWRi Water Right Application Receipt**.
3. The **proposed diversion and return system maintain a "no-net-loss" of lake water**, as demonstrated in the Feasibility Final Report (Appendix B), consistent with the Great Salt Lake Preservation Act (§ 65A-17-101 et seq.) and State Engineer policy.
4. All future commercial operations will withdraw and return water **only in accordance with a valid, and monitored water right** approved by the State Engineer and recognized by FFSL.

Accordingly, Waterleaf certifies that its operations **may not violate Utah Code § 65A-6-1(3)** and are fully aligned with the State's legal framework for **sovereign-land mineral extraction and water appropriation**.

Self-Certification and Written Plan of Compliance

Pursuant to **UAC R652-21-705(1)**, **R652-21-805**, and **R652-21-1200 through 1206**, **Waterleaf Phase 1 LLC ("Waterleaf")** hereby **self-certifies** that it understands, accepts, and will comply with all applicable provisions of the Utah Administrative Code governing Great Salt Lake mineral extraction projects.

This certification applies specifically to:

- **R652-21-805 – Reporting**
- **R652-21-1200 – Inspection and Enforcement Authority**
- **R652-21-1201 – Great Salt Lake Element or Mineral Removal Certification**
- **R652-21-1202 – Right of Entry**
- **R652-21-1203 – Inspection Program**
- **R652-21-1204 – Availability of Records**
- **R652-21-1205 – Compliance Conference**
- **R652-21-1206 –**

Self-Certification Statement

Waterleaf certifies that:

1. All information submitted within this application and accompanying reports, monitoring data, and appendices is **true, complete, and accurate** to the best of its knowledge and belief.
2. Waterleaf's Great Salt Lake operations are conducted in compliance with the applicable provisions of **UAC R652-21** and all related FFSL conditions.
3. Waterleaf will **cooperate fully with FFSL and its representatives** in all inspection, compliance, and reporting activities described in **Sections 1200–1206**, and will maintain all required documentation for agency review.
4. Waterleaf understands that any false statement, omission, or failure to comply with permit conditions may subject the authorization to modification, suspension, or revocation under **R652-21-1200**.

Written Plan of Compliance

Regulatory Section	Requirement Summary	Waterleaf Compliance Plan
R652-21-805 *(Reporting)*	Requires reporting 30 after each fiscal quarter on required Sections R652-21-100 through R652-21-1206	Waterleaf will maintain all operational, environmental, and monitoring records during each Fiscal quarter. These reports will be made available to FFSL on Information in Sections R652-21-1200 through R652-21-1206 within 30 days of the end of each fiscal quarter.
R652-21-1200 *(Inspection and Enforcement Authority)*	Requires the operator to conduct operations under R652-21 and under an Operations Royalty Agreement or State law	Waterleaf will follow all rules and regulations during operations including R652-21, Operations Royalty Agreement and all applicable state laws and regulations.
R652-21-1201 *(Great Salt Lake Element of Mineral Removal Certification)*	Authorizes FFSL upon a violation of Section 65A-17-302 to file an agency action under subsection 63G-4-201(1)(a)	Waterleaf in the event of a violation and receipt of notice shall file a response within 20 days and follow the procedures for the informal adjudicative proceedings under UAC R652-21-1201.
R652-21-1202 *(Right of Entry)*	Authorizes FFSL and representatives to enter project areas for inspection.	Waterleaf grants full right of entry to FFSL and its designated agents during reasonable hours for inspection, monitoring, or enforcement. FFSL contact information will be posted at the site gate and included in the Site Safety Plan.
R652-21-1203 *(Inspection Program)*	Requires that the operator permit and assist inspection of facilities.	Waterleaf maintains an internal inspection and environmental audit program; inspection logs are available on-site. All FFSL inspections will be supported by Waterleaf's Health, Safety, and Environment (HSE) representative.
R652-21-1204 *(Availability of Records)*	Requires records to be kept and made available to FFSL.	Waterleaf will maintain all operational, environmental, and monitoring records (e.g., UPDES data, water balance, and brine analyses) for a minimum of five (5) years and make them available to FFSL upon request. Electronic copies are archived at the Sandy, Utah office.
R652-21-1205 *(Compliance Conference)*	Allows operator to meet with FFSL to discuss compliance issues.	Waterleaf will request or participate in a Compliance Conference within 10 business days of any FFSL notice or upon internal discovery of a potential compliance concern. Meeting minutes will be recorded and submitted to FFSL.
R652-21-1206		

Certification

“I certify under the provisions of UAC R652-21-705 and the Utah Unsworn Declaration Act (Section 78B-18a-101) that the statements and commitments contained herein are true and correct to the best of my knowledge and belief.”

Submitted by:
Steve Morrey
Sr. Project Director
Waterleaf Phase 1 LLC
9350 South 150 East, Suite 710
Sandy, Utah 84093
Email: Steve.Morrey@lilacsolutions.com | Phone: (801) 694-2245
Date: November 4, 2025

A.7 USACE Nationwide Permit

PURPOSE

The purpose of this appendix is to document federal authorization issued by the USACE for activities associated with construction of intake and outfall infrastructure related to the Project. The verification demonstrates compliance with Section 404 of the Clean Water Act for applicable activities in waters of the United States.

CONTENTS SUMMARY

This appendix includes the USACE verification letter, confirming authorization of Project-related activities under Nationwide Permit (NWP) No. 58 (Utility Line Activities for Water and Other Substances). The verification identifies the authorized scope of work, including construction of intake and outfall pipelines and associated infrastructure within the GSL, and documents permanent and temporary impact areas. The appendix also includes applicable general, regional, and project-specific permit conditions, Section 401 Water Quality Certification requirements, and compliance certification documentation. This material is provided to demonstrate that federally regulated aquatic impacts associated with the Project have been reviewed and authorized by the appropriate federal agency.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 12.2

DOCUMENT DETAILS

- Issued by: USACE
- Date: December 29, 2025
- Page Count: 3 pages

A.7 begins on next page

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

December 29, 2025

Regulatory Division (SPK-2025-00525)

Waterleaf Resources
Attn: Mr. Steven Morrey
9350 150 E Suite #710
Sandy, Utah 84070-2715
steve.morrey@lilacsolutions.com

Dear Mr. Morrey:

We are responding to your September 3, 2025, pre-construction notification for a Department of the Army (DA) permit for the Waterleaf Resources GSL Lithium Extraction project. The project site is located on the Great Salt Lake's North Arm, Latitude 41.461297°, Longitude -112.692050°, Box Elder County, Utah.

Based on the information you provided to this office, the Waterleaf Resources GSL Lithium Extraction project involves the discharge of fill material into 0.11 acre of waters of the U.S. for the construction of a water pipeline and intake and outfall system, subject to Section 404 of the Clean Water Act. The specific activities that require DA authorization is the intake system consisting of four centrifugal pumps positioned along two pipelines with intake/outfalls, approximately 4,000 to 7,000 linear feet from upland-based processing plant site. These activities will result in permanent effects to 0.04 acre (1,564 square feet) of Great Salt Lake (GSL) and temporary impacts to 0.07 acre (2,907 square feet) of Great Salt Lake. The proposed activities would be conducted in accordance with the Lilac Pipeline Site plans dated March 12, 2025.

We have determined that activities in waters of the U.S. associated with the project are authorized by Nationwide Permit Number (NWP) 58, Utility Line Activities for Water and Other Substances. You must comply with all terms and conditions of the NWP and applicable regional conditions. Enclosed is information about the NWP 58 terms and conditions (Enclosure 3) and Sacramento District regional conditions (Enclosure 4). In addition, your work must comply with the following special conditions:

1. You shall comply with all terms and conditions of the enclosed December 8, 2020, Section 401 Water Quality Certification (Enclosure 5).

Within **30 days** after completion of the authorized work, you must sign the enclosed Compliance Certification and return it to this office (Enclosure 6)**.**

This verification is valid until **March 14, 2026**, when the existing NWPs are scheduled to be modified, reissued, or revoked. Furthermore, if you commence or are under contract to commence this activity before the date the NWP is modified, reissued, or revoked, you will have **12 months** from the date of the modification, reissuance or revocation to complete the activity under the present terms and conditions. Failure to comply with the general and regional conditions of this NWP, or the project-specific special conditions of this authorization, may result in the suspension or revocation of your authorization.

We would appreciate your feedback on this permit action including your interaction with our staff and processes. For more information about our program or to complete our Regulatory Program national customer service survey, visit our website at www.spk.usace.army.mil/Missions/Regulatory.aspx.

Please refer to identification number SPK-2025-00525 in any correspondence concerning this project. If you have any questions, please contact Trevon Stephens at Utah Regulatory Field Office, 523 Heritage Park Blvd, Suite 1, Layton Utah 84041-5611, by email at *Trevon.W.Stephens@usace.army.mil*, or telephone at 385-303-9442.

Sincerely,



Jason Gipson
Chief, Utah Section

Enclosures

COMPLIANCE CERTIFICATION

Permit File Name: Waterleaf Resources GSL Lithium Extraction

Action ID: SPK-2025-00525

Nationwide Permit Number:

Permittee: Waterleaf Resources
Attn: Mr. Steven Morrey
9350 150 E Suite #710
Sandy, Utah 84070-2715

County: Box Elder County

Date of Verification: December 29, 2025

Within 30 days after completion of the activity authorized by this permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers
Sacramento District
Utah Regulatory Field Office
523 Heritage Park Blvd, Suite 1
Layton, Utah 84041-5611
SPKRegulatoryMailbox@usace.army.mil

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with the terms and conditions of the permit your authorization may be suspended, modified, or revoked. If you have any questions about this certification, please contact the U.S. Army Corps of Engineers.

* * * * * * * * *

I hereby certify that the work authorized by the above-referenced permit, including all the required mitigation, was completed in accordance with the terms and conditions of the permit verification.

Permittee Signature _____ Date _____

A.8 DWQ 401 Response

PURPOSE

The purpose of this appendix is to document DWQ review and concurrence regarding Section 401 Water Quality Certification applicability for Project activities authorized under a U.S. Army Corps of Engineers Nationwide Permit.

CONTENTS SUMMARY

This appendix includes correspondence from DWQ confirming that Project activities authorized under Nationwide Permit No. 58 are covered under the existing Section 401 Water Quality Certification for the 2021 Nationwide Permits. The correspondence documents DWQ's review and identifies applicable conditions, including the requirement to obtain any necessary UPDES permits.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 12.2

DOCUMENT DETAILS

- Issued by: DWQ
- Date: January 13, 2026
- Page Count: 2 pages

A.8 begins on next page

From: Linsey Shafer <lrshafer@utah.gov>
Sent: Tuesday, January 13, 2026 3:29 PM
To: Steve Morrey <Steve.Morrey@lilacsolutions.com>
Cc: John Mackey <jkmackey@utah.gov>; Nichols, Karen <karen.nichols@hdrinc.com>; Nichols, Nathan <nathan.nichols@hdrinc.com>
Subject: Re: Waterleaf Resources, GSL Ph. 1 Lithium Extraction Project----UDWQ Director Notification for 401 WQC consistency concurrence to support USACE 404 NWP authorization SPK-2025-00525

Good Afternoon,

The Utah Division of Water Quality (DWQ) appreciates the opportunity to comment on the proposed Waterleaf Resources Great Salt Lake (GSL) Lithium Extraction Project under the U.S. Army Corps of Engineers (USACE) Nationwide Permit (NWP) 58, located on the North Arm of the Great Salt Lake at Latitude 41.461297, Longitude -112.692050, Box Elder County, Utah. DWQ has reviewed the Director Notification Letter and related materials submitted by Senior Project Director Steve Morrey for Waterleaf Resources.

The Section 401 Water Quality Certification (WQC) issued for the 2021 NWPs condition 1(a) requires that project proponents provide Director Notification and Review for projects proposed within 500 ft of the Great Salt Lake. A response will be provided within two weeks. Waterleaf Resources originally submitted a 401 Water Quality Certification request to DWQ on December 5, 2025, for the proposed project. While working with the USACE to obtain the 404 USACE Permit, it was determined that the proposed project would qualify for coverage under NWP 58, Utility Line Activities for Water and Other Substances. Jason Gipson, the Utah Section Chief with the USACE, confirmed approved coverage under NWP 58 on December 29, 2025. Therefore, the project no longer needs to obtain a Letter of Permission. The specific activities that require authorization are the intake system, consisting of four centrifugal pumps along two pipelines with intake/outfalls, approximately 4,000 to 7,000 feet from the upland-based processing plant. These activities will result in permanent effects on 0.04 acre (1,564 sq ft) and temporary impacts to 0.07 acre (2,907 sq ft) of the Great Salt Lake. The proposed activities would be conducted in accordance with the Lilac Pipeline Site plans dated March 12, 2025.

DWQ acknowledges that the submitted documents meet the WQC condition 1(a) requirements. Furthermore, based on the review of the submitted notification documents, the DWQ does not have notable concerns with the proposed project. The 401 Water Quality Certification issued to NWP is sufficient to address water quality concerns for the

proposed project. The proposed project must comply with all conditions set forth in the 401 Water Quality Certification. A copy of the 401 Certification is attached. Waterleaf Resources or operators performing the work must obtain the applicable Utah Pollution Discharge Elimination System ("UPDES") Permits for construction work and dewatering. This email confirms that Waterleaf Resources has met WQC condition 1(a) of the WQC. If the proposed project is updated at any time and will require an alternative USACE 404 Permit, the project proponent must notify DWQ. Please keep a copy of this email for your records.

Please contact us with any questions. We appreciate your commitment to water quality in Utah.

Sincerely,

Linsey Shafer

A.9 Sampling Royalty Agreement

PURPOSE

The purpose of this appendix is to document the Sampling Royalty Agreement executed between Waterleaf Resources, LLC and FFSL authorizing limited brine extraction for feasibility assessment activities.

CONTENTS SUMMARY

This appendix includes the Sampling Royalty Agreement, which grants authorization to extract up to five acre-feet of GSL brine for non-commercial feasibility assessment purposes. The agreement outlines the scope of extraction, royalty payment terms, reporting requirements, duration, and applicable statutory and administrative authorities. The document clarifies that the authorization is limited in scope and term, does not constitute a mineral lease or commercial production agreement, and is subject to conditions and oversight by FFSL.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 1.6

DOCUMENT DETAILS

- Issued by: Division of Forestry, Fire and State Lands
- Date: October 25, 2024
- Page Count: 6 pages

A.9 begins on next page

Division of Forestry, Fire and State Lands
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Salt Lake City, UT 84114-5703
801-538-5418

Waterleaf Resources, LLC
1108 E. South Union Avenue
Salt Lake City, Utah, 84047

Sampling Royalty Agreement – Feasibility Assessment Stage

This Sampling Royalty Agreement – Feasibility Assessment Stage ("Agreement") is entered into on October 25, 2024, to be effective as provided in Section 9, between the Utah Division of Forestry, Fire and State Lands ("Division") and Waterleaf Resources, LLC ("Extractor"), collectively referred to as the "Parties."

1. Purpose and Scope. The Division is the managing agency of the sovereign lands below the meander line of Great Salt Lake, where suspended elements or minerals are present in brine. During the term of this Agreement, as provided in Section 11, the Division grants Extractor the right to extract the elements or minerals contained in five (5) acre-feet of brine from Great Salt Lake for the purpose of a Feasibility Assessment for the production of lithium, as authorized by Utah Code § 65A-6-4(6) and described in Utah Administrative Code R652-21-500. This Agreement is not a mineral lease or permanent or final royalty agreement and does not grant Extractor continuing rights beyond the term and scope specified herein.

2. Extraction Location. This Agreement does not grant Extractor a right of entry, easement, or other permission to access Great Salt Lake sovereign lands. Extractor shall inform the Division at least seven (7) days before the intended brine extraction of the location, time, and manner of extraction. In addition to the required approval of the Extractor's Feasibility Application, prior to the extraction of brine, the Division may approve the Extractor's proposed location of extraction by and through the evaluation and issuance of a right of entry for the limited extraction purposes specified in this Agreement. The Parties contemplate that the right of entry may be approved prior to the approval of the Feasibility Application. The extraction location shall not infringe upon or impede any existing rights. The Division reserves the right to access the extraction location and monitor the activities authorized under this Agreement.

3. Element or Mineral Extraction and Use. For the term of this Agreement, as described in Section 11, Extractor is granted a right to extract elements or minerals from five (5) acre-feet of brine from Great Salt Lake, in accordance with a valid application to appropriate such brine, filed with the Utah Division of Water Rights, or in accordance with an existing water right of at least five (5) acre-feet. Extractor shall conduct such extraction on Great Salt Lake in accordance with standard industry operating practices and shall avoid waste of any kind. Extractor shall comply

with all applicable laws, regulations, and permits, including but not limited to Utah Proclamation No. 2022-01 and any requirements of the Utah Division of Water Rights.

Extractor shall use any brine extracted under this Agreement for the express purpose of conducting a Feasibility Assessment, with the intent of proving commercial viability and sustainable and profitable lithium extraction, pursuant to Division rules and governing statutes. Extractor shall bear all costs and expenses associated with the extraction specified in this Agreement, including, but not limited to, equipment, transportation, and labor costs.

4. Sampling Royalty Rate. In consideration of the rights granted under this Agreement, Extractor agrees to pay the Division the sum of Five Thousand dollars ($5,000) per month during the entire time period in which minerals are being extracted from Great Salt Lake pursuant to this Agreement, payable on a pro-rated basis within thirty (30) days from the end of each fiscal quarter. Extractor will provide written notice to the Division of the commencement of the extraction specified in this Agreement and the date that extraction under the Feasibility Assessment ceases. The royalty provided for in this Agreement is intended to provide the State with the full value of all elements or minerals contained within the brine extracted. Extractor shall provide the Division with accurate reporting and associated documentation of the types and quantity of elements or minerals processed or produced from the extracted brine and the market values thereof. It is understood the royalty fee established in this section does not reflect any specific quantity of produced lithium, nor shall the royalty fee be construed as a reasonable rate for production. Rather, the royalty fee is a fixed fee for the purposes of allowing access to Great Salt Lake brine for further research and development through the Feasibility Assessment process.

5. No Sale; Transport of Eluate Out-of-State. The Parties acknowledge the purpose of the Feasibility Assessment is to permit the non-commercial extraction of lithium from Great Salt Lake brines for evaluating the possibility of future commercial production, and to assess the potential impact of brine extraction on the chemistry and biota of Great Salt Lake. Extractor agrees it will not sell lithium eluate or other products derived from brine production authorized under the Feasibility Assessment. Extractor may transport lithium eluate produced from Great Salt Lake for testing at out-of-state facilities and may permit third parties to use product samples for their own testing and evaluation.

6. Reporting Requirements. Reporting requirements shall be governed by the terms of Extractor's Feasibility Assessment, as approved by the Division. Upon request by the Division, Extractor shall provide any additional documentation or data relevant to the operations contemplated by this Agreement.

7. Reservation of Rights. The Division reserves all rights and privileges of every kind and nature, except as specifically granted in this Agreement. The Division reserves all oil, natural gas, coal, and/or any other hydrocarbons, and any other element, mineral, or ore not specifically granted in this Agreement. The Division reserves the right to enter into additional land use authorizations, royalty agreements, or mineral leases with any other third party desiring to extract elements or minerals from the Great Salt Lake, in accordance with applicable laws and rules governing state lands.

8. Curtailment and Withdrawal. The Division may, at any time, curtail or limit element or mineral production under this Agreement when, under the sole discretion of the Division, the condition of Great Salt Lake reaches the emergency trigger, as defined in Utah Code§ 65A-10-201. The Division reserves the right to withdraw lands, operations, extraction methods, or technologies from element or mineral production or operations at any time.

9. Effective Date. This Agreement shall become effective on the date the Division gives final approval of Extractor's Feasibility Assessment (the "Effective Date"). Until the Effective Date is triggered by the Division's approval of Extractor's Feasibility Application, Extractor is not entitled to the extraction of brine from Great Salt Lake and neither party is bound by the terms of this Agreement. In the event the Division receives notice Extractor extracted brine from GSL prior to the approval of their Feasibility Application by the Division, Extractor shall pay the Division liquidated damages in the amount of $5,000 and any pending Feasibility Application may be terminated in the interest of the beneficiaries pursuant to R652-3-400. In the event either Extractor withdraws its Feasibility Application before the Division issues a written decision or the Division denies Extractor's Feasibility Application pursuant to R652-21-502, this Agreement shall automatically terminate and the Division shall provide notice of the same to Waterleaf within five (5) days of its decision to deny Extractor's Feasibility Application.

10. No Vested Rights. Until the Effective Date of this Agreement as described in Section 9, Extractor acquires no vested rights or interest to the lawful extraction of Great Salt Lake brines by signing this Agreement.

11. Term and Termination. This Agreement shall become effective on the Effective Date as defined in Section 9 and shall remain in effect for the duration of the nine (9) month Feasibility Assessment term provided in Utah Administrative Code R652-21-503, unless otherwise extended by the Division and/or the Director. This Agreement shall also terminate upon the occurrence of any of the events specified in Utah Admin. Code R652-21-503(2).

12. Filing with Division of Water Rights. Extractor agrees to file this Agreement with the Division of Water Rights immediately upon execution.

13. Confidentiality. The Parties acknowledge the Division may request Extractor to submit proprietary information to the Division in connection with this Agreement. The Parties agree, pursuant to Utah Code § 65A-1-10, Extractor shall properly classify proprietary information pursuant to this Agreement and the Division shall keep such proprietary information confidential and may not disclose such information to third parties. Extractor may seek protection under the Government Records Access and Management Act ("GRAMA") against disclosure of trade secrets and commercial or financial information, as defined in Utah Code § 63G-2-305(2), by: (i) submitting a request for business confidentiality at the same time as records are provided and as an attachment to the records for which confidentiality is sought and (ii) complying with all requirements of GRAMA or other applicable privacy statutes. If Extractor complies with conditions (i) and (ii) above, the Division, to the extent permitted by law, shall keep such information confidential and may not disclose the same to any third party without the express written consent of Extractor or order by a court of competent jurisdiction.

14. Amendment. This Agreement may be amended, modified, or supplemented only by a written instrument duly executed by the Parties. The Parties anticipate there may be circumstances requiring amendment of this Agreement prior to the Effective Date, and therefore the Parties agree this Agreement may be amended pursuant to this Section prior to the Effective Date.

15. Governing Law and Jurisdiction. This Agreement shall be governed by, and construed in accordance with, the laws of the State of Utah. Any disputes arising out of, or in connection with, this Agreement shall be subject to the exclusive jurisdiction of the courts of the State of Utah, with venue being within Utah's Third Judicial District, Salt Lake County.

16. Transfer. This Agreement and any of the specified terms, conditions, rights, responsibilities, or benefits are not transferable or assignable except with the prior consent of the Division, which consent shall not be unreasonably withheld.

17. Entire Agreement. This Agreement constitutes the entire understanding and agreement between the Parties concerning the subject matter hereof and supersedes all prior negotiations, understandings, and agreements, whether oral or written. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

18. Severability. In the event any provision of this Agreement, or the application thereof, becomes or is declared by a court of competent jurisdiction to be illegal, void or unenforceable, the remainder of this Agreement will continue in full force and effect.

19. Remedies. In the event of any default, breach, or non-performance of any of the terms and conditions of this Agreement, in addition to all remedies under the law, the non-breaching party may seek specific performance and pursue injunctive relief to cure the default or breach.

20. Attorney's Fees. If a Party to this Agreement is required to initiate legal proceedings to enforce any of the terms and conditions of this Agreement, the prevailing party in the legal proceeding shall be entitled to attorney's fees and costs.

[Signatures on following page]

ACCEPTED AND AGREED TO BY:

Division of Forestry, Fire and State Lands
Jamie Barnes, Director/State Forester

Signature: Jamie Barnes (Oct 25, 2024 17:06 MDT)

Date: 10/25/2024

Waterleaf Resources, LLC
Steve Morrey, Director

Signature: Steve Morrey

Date: 10/25/2024

APPROVED AS TO FORM – UTAH ATTORNEY GENERAL'S OFFICE

Signature:
By: Emma K. Whitaker

Date: October 25, 2024

Waterleaf Sampling Royalty Agreement - Feasibility Assessment 10.25.24

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Appendix B Project Description and Feasibility

B.1 Final Monitoring Report

B.2 Log-Based Constituent Graphs

B.3 Feasibility Optimal Period Graphs

B.4 Commercial Plant Area

B.5 GIS Files – Roads and Other Improvements

B.1 Final Monitoring Report

PURPOSE

This appendix documents the complete results of Waterleaf's Pilot operations conducted from February through August 2025, including process performance, environmental monitoring, and verification of no negative impacts to GSL.

CONTENTS SUMMARY

The Final Monitoring Report, prepared by HDR, Inc., presents comprehensive water quality, flow, and biota monitoring data from Pilot operations. Water quality samples were collected weekly with flow-weighted composite analysis meeting all UPDES Permit requirements. Biota monitoring by Dr. Bonnie Baxter included microscopy, DNA sequencing, and growth studies demonstrating that North Arm microbial communities remained present and viable in discharge waters.

The Pilot achieved 86% lithium recovery during the 21-day performance run (May 20 – June 10, 2025) and operated IX columns at commercial flow rates over 1,000 cumulative hours. Environmental monitoring confirmed no adverse changes to water chemistry, no measurable disruption to microbial populations, complete mass balance with non-consumptive water use, and no release of process chemicals. The report validates that Pilot operations were environmentally neutral and provides the technical foundation for commercial-scale regulatory compliance.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 1.4.1
- Section 2
- Section 3
- Section 4 (multiple)

DOCUMENT DETAILS

- Prepared by: HDR, Inc., Salt Lake City, Utah
- Report Date: October 25, 2025
- Data Collection Period: February 6, 2025 – August 15, 2025
- Contributing Organizations: Chemtech-Ford Laboratory (water quality analysis), Dr. Bonnie Baxter/Westminster University (biota monitoring)
- Page Count: 48 pages plus appendices (Laboratory Data Results, Biota Monitoring Report, UPDES Permit)

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Final Monitoring Report

Waterleaf Resources Great Salt Lake Lithium Extraction Demonstration Plant

Prepared for
Waterleaf Resources

Prepared by
HDR, Inc.
2825 E. Cottonwood Parkway, Suite 200
Salt Lake City, UT 84121

October 25, 2025

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B. Laboratory Data Results
C. Biota Monitoring Report

Abbreviations

°C	degrees Celsius
af	acre-feet
Demonstration Plant	Great Salt Lake Lithium Extraction Demonstration Plant
DLE	direct lithium extraction
DMR	discharge monitoring report
DNA	deoxyribonucleic acid
DO	dissolved oxygen
EPA	U.S. Environmental Protection Agency
g/cm^3	grams per cubic centimeter
g/L	grams per liter
g/mL	grams per milliliter
g/mol	grams per mole
GSL	Great Salt Lake
IQR	interquartile range
ITS	internal transcribed spacer
IX	ion exchange
lb	pounds
maf	million acre-feet
MDL	minimum detection limit
mg/L	milligrams per liter
mL	milliliter
NA	not applicable
NetDMR	Network Discharge Monitoring Report
NVGD 1929	National Geodetic Vertical Datum of 1929
No.	number
rRNA	ribosomal ribonucleic acid
Si	silicon
SiO_2	silica (silicon dioxide)
UAC	Utah Administrative Code
UDFFSL	Utah Division of Forestry, Fire and State Lands
UDWQ	Utah Division of Water Quality
UGS	Utah Geological Survey
UPDES	Utah Pollutant Discharge Elimination System
USGS	U.S. Geological Survey
Waterleaf	Waterleaf Resources
WSE	water surface elevation

1 Introduction

Waterleaf Resources (Waterleaf) prepared this final monitoring report to present data and data analysis related to chemistry, flow, and biota data obtained during the operation of the Great Salt Lake (GSL) Lithium Extraction Demonstration Plant (Demonstration Plant).

The chemistry and flow data were collected, analyzed, and reported pursuant to Utah Pollutant Discharge Elimination System (UPDES) Permit No. UT0026280, which was issued to Waterleaf by the Utah Division of Water Quality (UDWQ) on February 4, 2025 (UDWQ 2025a). The Demonstration Plant's discharge of effluent to the GSL was authorized by the UPDES permit, which is provided in Appendix A, *UPDES Permit*. The UPDES permit also authorized the operation of the GSL lithium extraction facility, by certification by rule, under Utah Administrative Code (UAC) R317-16.

Summaries of the laboratory chemistry results and continuous flow monitoring data are provided in Appendix B, *Laboratory Test Results*.

The microbial diversity (biota) report (Baxter 2025; Appendix C, *Biota Monitoring Report*) is summarized in this final monitoring report. The biota report provides additional data that characterize the biota in the North Arm of the GSL and in the discharge flow of the Demonstration Plant. The UPDES permit did not require an assessment of the North Arm biota data.

1.1 Purpose

This report is being provided to support the applications for authorizations required to operate Waterleaf's GSL Phase 1 Lithium Extraction Commercial Plant. These applications are the UDWQ UPDES Permit UT0026280 modification, the UDWQ GSL Mineral Extraction Facility Operator Certification (Operator Certification) (UAC R317-16-5(4)), and Utah Division of Forestry, Fire and State Lands (UDFFSL) agreements.

The information in this report and appendices includes summaries of UPDES compliance monitoring data, continuous flow data, North Arm habitat identification, and additional data collected to characterize North Arm biota.

Demonstration Plant discharges are evaluated to determine that there would be no negative impacts to the GSL, as defined by UDWQ R317-16-16 and as supported by chemical monitoring results review and analysis, flow monitoring results, North Arm habitat inventory, and a North Arm biota monitoring study.

1.2 Background

The Waterleaf Resources Demonstration Plant operated from February 2025 through August 2025. The Demonstration Plant, a temporary facility, was operated to validate Waterleaf's proprietary ion-exchange (IX) direct lithium extraction (DLE) process. This proprietary technology is a nonconsumptive and nonevaporative process to extract lithium from GSL North Arm brine. GSL North Arm brine was conveyed to the plant, processed through the IX DLE equipment, and discharged back into the GSL with no brine depletion. Intake and outfall (influent and discharge) infrastructure was located in the open water of the North Arm of the GSL, and the Demonstration Plant's equipment and offices were located on the western slope of the Promontory Mountains in Box Elder County, Utah.

The North Arm (Gunnison Bay) of the GSL is classified as a Class 5B water of the state. It is protected by UDWQ for infrequent primary and secondary contact recreation, waterfowl, and shorebirds and other water-oriented wildlife including their necessary food chain (UAC R317-2-6.5). Numeric water quality standards for the North Arm are not established but narrative standards apply.

Influent brine and discharge water chemistry data, flow data, and biota data were collected during operation of the Demonstration Plant. Operation activities spanned 28 weeks during the winter, spring, and summer. The data collected reflect seasonal changes in GSL North Arm water surface levels, brine temperature, brine chemistry, salinity, and biota growth.

The influent and discharge chemistry weekly monitoring events summarized in this report were conducted and reported in accordance with the UPDES permit and UAC R317-16. The UPDES compliance monitoring data results, which were submitted electronically, can be accessed through the U.S. Environmental Protection Agency's (EPA) ECHO website for facility UT0026280.[1]

[1] U.S. Environmental Protection Agency, Enforcement and Compliance History Online (ECHO) website, National Pollutant Discharge Elimination System (NPDES) Monitoring Data Download page, https://echo.epa.gov/trends/loading-tool/get-data/monitoring-data-download.

2 Summary of Monitoring Means and Methods

This section summarizes the monitoring methods and means that were used to collect data during the Demonstration Plant's operation.

- **Water quality monitoring.** HDR conducted weekly composite water quality sampling and analysis on influent and discharge flows on behalf of Waterleaf.
- **Flow monitoring.** Waterleaf conducted continuous flow monitoring at the intake and outfall systems.
- **Biota monitoring.** Dr. Bonnie Baxter of Westminster University conducted biota monitoring on behalf of Waterleaf. Three biota monitoring events were conducted in 2025.

2.1 Water Quality Monitoring

HDR conducted the required water quality monitoring on behalf of Waterleaf. Required water quality monitoring occurred during the Demonstration Plant's operation in accordance with the UPDES permit (UDWQ 2025a). The data results were reported electronically via EPA's Network Discharge Monitoring Report (NetDMR) system. This section summarizes the means and methods that were used to collect water quality samples and perform the laboratory analyses.

2.1.1 Field and Laboratory Parameters and Methods

HDR collected weekly water quality samples, which were composited for laboratory analysis. Discrete samples were collected every 2 hours over a 6-hour duration. Instantaneous flow rates were measured and used to prepare the flow-weighted composites for chemical analysis by a state-certified analytical laboratory. Chemtech-Ford Laboratory in Salt Lake City, Utah, conducted all water chemistry laboratory analyses.

Silicon (Si) concentrations were calculated by using the UDWQ equation (UDWQ 2025b), using silica concentrations and a molar mass conversion equation:

$$[Si] * (SiO_2 \text{ molar mass} / Si \text{ molar mass}) = [SiO_2]$$

$$[Si] = [SiO_2] / (SiO_2 \text{ molar mass} / Si \text{ molar mass})$$

$$[Si] = [SiO_2] / (60.08 \text{ g/mol} / 28.09 \text{ g/mol})$$

$$\mathbf{[Si] = [SiO_2] / 2.139}$$

Where: Si = Silicon concentration, mg/L
SiO_2 = Silica concentration, mg/L

In addition to the laboratory chemical analyses, field measurements were taken and reported for pH, dissolved oxygen, and temperature using a Horiba U-53-2 handheld multimeter. Field measurements for density were made using an Anton-Paar density meter. Table 1 lists the constituents and methods that were used for the water quality analysis.

Table 1. Water Quality Monitoring Laboratory Methods

Analysis Method	Constituents
Metals (Total)	
EPA 200.7, Metals in Water by ICP-AES	Boron, calcium, lithium, potassium, silica[1], sodium
EPA 200.8, Metals in Water by ICP/MS	Aluminum, arsenic, barium, cadmium, chromium, copper, iron, lead, magnesium, manganese, molybdenum, nickel, selenium, silver, zinc
EPA 1631, Mercury in Water by CVAFS	Mercury
Inorganic Nonmetals	
EPA 300.0, Determination of Inorganic Anions by Ion Chromatography	Bromide, chloride, nitrate, sulfate
EPA 335.4, Determination of Total Cyanide by Semi-automated Colorimetry	Cyanide
SM 2320 B, Alkalinity by Titration	Alkalinity, bicarbonate, carbonate, hardness, hydroxide
SM 4500 NO_2 B, Nitrite by Colorimetry	Nitrite
SM 5210 B, 5-Day BOD Test	Biochemical oxygen demand (BOD)
Hach 8000, EPA Reactor Digestion Method	Chemical oxygen demand (COD)
APHA Standard Method 2540 C, Total Dissolved Solids Dried at 180°C	Total dissolved solids (TDS)
APHA Standard Method 2540 D, Total Suspended Solids Dried at 103–105°C	Total suspended solids (TSS)
Other Methods	
Field Measurement – Instantaneous	Dissolved oxygen, pH, water temperature, density, flow
Visual Observations	Unnatural deposits, floating debris, oil, scum, or other nuisances such as color or odor
Grab Sample	Oil and grease
Continuous Monitoring	Influent and discharge flows

Definitions: °C = degrees Celsius; AES = atomic emission spectroscopy; APHA = American Public Health Association; BOD = biochemical oxygen demand; CVAFS = cold vapor atomic fluorescence spectroscopy; EPA = U.S. Environmental Protection Agency; ICP = inductively coupled plasma; MS = mass spectrometry; NO_2 = nitrogen dioxide; SM = Standard Method

1. Silica data have been used to calculate silicon values.

2.1.2 Quality Assurance

Water quality data were analyzed in accordance with the UPDES permit requirements; these requirements include constituents analyzed, frequency, and laboratory minimum detection limits (MDLs). Additional UDWQ Director's requirements were included in the UPDES permit, including providing laboratory Level IV data quality packages. Level IV data quality packages were submitted electronically with the discharge monitoring reports (DMRs).

As a result of this process, Waterleaf observed the following:

- **Precision**
  - Field duplicate samples were collected by UDWQ staff during February and March 2025 as required by UPDES permit UT0026280 and were analyzed to validate Waterleaf's sample results.
  - The precision of the water quality results is documented in the Level IV data quality packages, which include equipment calibration and validation.
- **Accuracy and Bias**
  - Field instrument calibration met manufacturers' requirements.
  - Laboratory quality assurance/quality control (QA/QC) met each laboratory's internal method requirements.
  - Trace-level mercury was not detected in field blank samples when analyzed during the May 1, 2025, monitoring event.
- **Representativeness**
  - All field measurements and samples were collected from locations and on a frequency as required by UPDES permit UT0026280.
  - Weekly compliance monitoring events were conducted when the Demonstration Plant discharged to the GSL (February through August 2025). During the Demonstration Plant's operation, discharges to the GSL were suspended for thee 1-week periods, so compliance monitoring was not conducted during those three 1-week periods.
- **Completeness**
  - Field and laboratory completeness requirements were met.
- **Comparability**
  - Field conditions were within the range of the selected in-situ meter and probe capabilities.
  - Laboratory method detection limits were sufficient to meet UPDES requirements and data quality objectives (Waterleaf 2025a).

Detailed Level IV laboratory quality control and quality assurance documentation was submitted electronically via EPA's NetDMR system. This documentation can be accessed through EPA's ECHO website, as discussed in Section 1.2, *Background*.

2.2 Flow Monitoring

Waterleaf conducted continuous and instantaneous flow monitoring on influent and discharge flows during the Demonstration Plant's operation.

Continuous flow monitoring was conducted using Krohne Optiflux 4300 and Rosemount Magnetic flow meters installed in the Demonstration Plant's intake and outfall infrastructure, respectively. Influent flow monitoring occurred before GSL brine entered the intake holding tank; discharge flow monitoring occurred after brine was discharged from the outfall holding tank. Inline flow meters were installed to continuously monitor the influent flows from the GSL and discharges to the GSL.

Instantaneous flow monitoring was conducted by HDR during water chemistry monitoring events. For each discrete water quality sample, an instantaneous flow measurement was recorded. These instantaneous flow measurements were used to prepare the flow-weighted composite sample for laboratory analysis. Instantaneous flows were recorded from the Waterleaf continuous flow meters.

2.3 Biota Monitoring

Waterleaf contracted with Dr. Bonnie Baxter of Westminster University to study the microbial biomass and community (bacteria, archaea, algae, and fungi) in the influent to and discharge from the Demonstration Plant, which was located on the eastern shore of the North Arm of the GSL (Baxter 2025). The goals of the study were to characterize the biota community in the influent flow and evaluate whether the discharge from the Demonstration Plant affected the biota community of the North Arm.

The following data collection and analysis were conducted to evaluate the influent and discharge characteristics during the Demonstration Plant's operation:

- Identify the biota cells present to estimate cell density and measure biomass.
- Extract and sequence DNA associated with bacteria, archaea, algae, and fungi to determine their abundance and presence.
- Inoculate samples to determine cell growth rate for three conditions: influent, discharge, and a mix (50:50) of influent and discharge.

To identify the presence or absence of biota cells, Dr. Baxter collected water samples from the raw brine intake tank and the Demonstration Plant's discharge tank and pumped the samples through a sterile polyvinylidene fluoride (PVDF) membrane pressure filter unit with a pore size of 0.22 micrometer (µm) to analyze the accumulated biomass. The filter media were frozen on site with liquid nitrogen to preserve the samples and were transported to the lab frozen on dry ice. In the lab, the samples were run through a centrifuge and dried to create a pellet of the cells, and the dry weight of the cell pellet was measured. Using a hemacytometer (which provides a grid and special cover glass to control the distributed volume), the cell density in each of the samples was estimated. The presence of cells in the influent and discharge flows was then verified and further analyzed through biosignatures (DNA sequencing).

To identify microbial diversity, the filter samples were sent to an external laboratory to conduct the DNA sequencing, which establishes the species of life present. The lab

extracted the biota DNA from filters and then amplified the specific genes associated with bacteria, archaea, algae, and fungi. Evaluations were conducted on the DNA sequencing results to determine the presence and relative abundance of microbial taxa present in the influent and discharge water samples. The genetic data were examined and assembled by relative abundance, meaning that the abundance of species can be compared within a specific sample but not to other sample results.

Water samples were inoculated by Dr. Baxter, and biota and observations were logged over 24 days to document growth rates. Four water samples were inoculated: sterile, influent (raw brine), discharge brine, and a 50:50 mix of influent and discharge. The 50:50 mix represents North Arm brine mixed with discharge brine to determine whether the biota would grow that environment.

3 Water Quality Results

The results of each water quality compliance monitoring event were submitted electronically to EPA's NetDMR website in accordance with the UPDES permit requirements. Analytical laboratory data quality Level IV packages were submitted electronically. Laboratory results are provided in Appendix B, *Laboratory Data Results*. A summary of those results is provided below.

Influent and discharge samples were collected and analyzed weekly during the Demonstration Plant's operation. Table 2 lists the dates of the water quality compliance monitoring events annotated with a description of Demonstration Plant operation phases.

Table 2. Dates of Water Quality Compliance Monitoring Events

Week	Sampling Date	Influent Sampling	Discharge Sampling	Notes
1	2/6/25	✓	✓	Start-up operations
2	2/13/25	✓	✓	Start-up operations
3	2/20/25	—	—	No discharge
4	2/26/25	✓	✓	Start-up operations
5	3/425	✓	✓	Start-up operations
6	3/13/25	✓	✓	Equipment validation
7	3/18/25	✓	✓	Equipment validation
8	3/25/25	✓	✓	Equipment validation
9	4/2/25	✓	✓	Equipment validation
10	4/8/25	✓	✓	Equipment validation
11	4/15/25	✓	✓	Equipment validation
12	4/22/25	✓	✓	Equipment validation
13	5/1/25	✓	✓	Equipment validation
14	5/6/25	✓	✓	Equipment validation
15	5/12/25	—	—	No discharge
16	5/20/25	✓	✓	Performance run
17	5/29/25	✓	✓	Performance run
18	6/03/25	✓	✓	Performance run
19	6/12/25	✓	✓	Equipment validation
20	6/17/25	✓	✓	Equipment validation
21	6/24/25	✓	✓	Equipment validation
22	7/1/25	✓	✓	Equipment validation
23	7/10/25	✓	✓	Equipment validation
24	7/15/25	✓	✓	Equipment validation
25	7/22/25	—	—	No discharge
26	7/29/25	✓	✓	Equipment validation
27	8/7/25	✓	✓	Equipment validation
28	8/12/25	✓	✓	Equipment validation

3.1 Visual Observation Results

Observations of water quality covered by state narrative water quality standards were made and documented during compliance monitoring. These observations targeted unnatural deposits, floating debris, oil, scum, or other nuisances such as color or odor, that are specifically identified in the narrative standards. No floating debris, oil, scum, or odor were observed in the influent and discharge samples that were evaluated.

The color of the influent and discharge varied throughout the Demonstration Plant's operation; no color was observed early in the plant's operation (February and March), and color was increasingly observed in the influent for the remainder of the plant's operation (April through August). The color of the influent increasingly became pinker as the North Arm's brine temperatures rose and the presence of biota increased. This observation is normal and is supported by the biota monitoring that was conducted (see Appendix C, *Biota Monitoring Report*).

During the first several weeks of the Demonstration Plant's operation, steel rust flakes were observed in the discharge samples. The source of the rust flakes was determined to be corrosion from the intake and outfall steel holding tanks and other carbon steel equipment throughout the Demonstration Plant. Waterleaf observed that the steel holding tanks were corroding and that rust was flaking off the tank interiors as the brine levels fluctuated in the holding tanks and the exposed steel discolored and began to disintegrate.

After the observations were made, Waterleaf modified operation of the Demonstration Plant to minimize the change in water level in the tanks, thereby reducing the exposure of the steel tanks' interiors. The rust flakes were observed and recorded during the February biota monitoring event along with the presence of biota. The biota monitoring report concluded that the corrosion of the holding tanks was not adversely affecting the microorganisms in the discharge (Appendix C, *Biota Monitoring Report*). Rust flakes were not observed after week 5 of the Demonstration Plant's operation.

3.2 Chemistry Monitoring Results

The influent and discharge flows were sampled and analyzed in compliance with the UPDES permit and the Operator Certification. In all, 25 monitoring events were conducted at the Demonstration Plant during its 28-week operation (there was no discharge during 3 of the 28 weeks). A summary of all laboratory analytical results and laboratory MDLs is provided in Table 3 for each constituent in alphabetical order. Field measurements (density, dissolved oxygen, pH, and temperature) are discussed in Section 3.4, *Field Chemistry Results* including a discussion on salinity characteristics of the influent and discharge.

Additionally, as required by UDFFSL rules, a performance run period occurred during weeks 16 through 18 of operation (May 20 through June 10, 2025). During the performance run of the Demonstration Plant, equipment operations were optimized and maintained to measure certain performance metrics (Waterleaf 2025b). Table 4 summarizes average influent and discharge concentrations for this period.

In this section, Waterleaf examines the influent and discharge chemical data in context with laboratory MDLs and uncertainty or error. Also, the chemical data were evaluated for outliers based on interquartile range (IQR) outlier analysis.

During the 28-week operation of the Demonstration Plant, the plant operated in three phases: start-up operations, equipment validation, and performance run (see Table 2 for the duration of each phase). During start-up operations, spikes in some metal constituents and rust flakes were observed, as discussed above in Section 3.1. Data results during start-up are discussed in Section 3.3.3 and summarized in Table 6 for the specific metal constituents that had data spikes during start-up.

To assess whether Demonstration Plant mass loads changed North Arm background mass, loads for metals, salt, and manganese are compared in Table 7, Table 8, and Table 9.

Lithium concentrations and mass loading are provided in Table 10.

In addition to the chemical laboratory analyzes reported in this section, UPDES required the reporting of silicon. Waterleaf used the UDWQ molar mass equation, using silica laboratory results, including the MDL value for nondetect values. Using the UDWQ molar mass equation and the silica data results, the silicon data are:

- Influent characteristics:
    - Average concentration: 2.5 mg/L
    - Minimum concentration: 2.0 mg/L
    - Maximum concentration: 3.6 mg/L
- Discharge characteristics:
    - Average concentration: 2.7 mg/L
    - Minimum concentration: 2.0 mg/L
    - Maximum concentration: 4.3 mg/L

Table 3. Summary of All Laboratory Analytical Results (Weeks 1–28)

Constituent	Influent Average (min/max)	Discharge Average (min/max)	Minimum Detection Limit (mg/L)	UPDES Specified Minimum Detection Limit (mg/L)
Alkalinity	569 (526/599)	360 (119/504)	0.2	NA
Aluminum, total	1.7 (ND/5.2)	1.6 (ND/5.1)	1.2	NA
Arsenic, total	0.477 (0.361/0.620)	0.322 (0.054/0.483)	0.0044	0.180[1]
Barium, total	0.190 (ND/0.342)	0.169 (ND/0.322)	0.057	NA
Bicarbonate	569 (526/599)	360 (119/504)	0.2	NA
Biological oxygen demand	7.4 (ND/16)	6.7 (ND/13)	2.0	NA
Boron, total	60.3 (50.6/65.5)	56.7 (46.7/62.8)	0.61[2]	NA
Bromide	174 (140/201)	160 (132/186)	0.5[3]	NA
Cadmium, total	ND	ND	0.0012[4]	0.0052
Calcium, dissolved	302 (277/327)	288 (258/318)	0.7[5]	NA
Carbonate	ND	ND	0.2	NA
Chemical oxygen demand (COD)	2,420 (ND/7,020)	1,617 (ND/4,300)	617.0[6]	NA
Chloride	181,400 (159,000/194,00)	168,360 (144,000/181,000)	180.0	NA
Chromium, total	0.072 (0.014/0.250)	0.069 (ND/0.236)	0.0062[7]	0.0166
Copper, total	0.0391 (0.0182/0.0759)	0.0470 (0.0052/0.1360)	0.0182[8]	0.067
Cyanide, total	ND	ND	0.022[9]	0.0093
Hardness	59,692 (55,400/67,100)	56,256 (48,600/62,700)	11.7[10]	NA
Hydroxide	ND	ND	0.2	NA
Iron, total	0.58 (ND/0.80)	1.57 (ND/16.4)	0.57	NA
Lead, total	ND	ND[11]	0.0087[11]	0.0465
Lithium, total	67.7 (55.1/81.6)	30.8 (9.33/54.8)	0.403[12]	NA
Magnesium, total	14,312 (13,300/16,100)	13,480 (11,600/15,000)	2.4[13]	NA
Manganese, total	0.0411 (0.0264/0.0794)	0.2385 (0.0554/0.91)	0.0159[14]	NA
Mercury, total	33.2 ng/L (ND/211 ng/L)	39.9 ng/L (ND/109 ng/L)	9 ng/L[15]	0.000022
Molybdenum, total	0.136 (0.111/0.218)	0.111 (0.0169/0.312)	0.038[16]	NA
Nickel, total	0.049 (0.011/0.29)	0.052 (0.009/0.279)	0.0112[17]	0.376
Nitrate	ND	ND	6.64[18]	NA
Nitrite	ND	ND	0.01	NA
Oil and grease	ND	ND	5	NA
Potassium, total	8,662 (8,050/9,650)	8,138 (6,860/9,000)	8.6[19]	NA
Selenium, total	0.308 (0.074/0.908)	0.301 (0.012/0.933)	0.0141[20]	0.0079

Table 3. Summary of All Laboratory Analytical Results (Weeks 1–28)

Constituent	Influent Average (min/max)	Discharge Average (min/max)	Minimum Detection Limit (mg/L)	UPDES Specified Minimum Detection Limit (mg/L)
Silica, total	5.3 (ND/7.7)	5.7 (ND/9.2)	4.2	NA
Silver, total	ND	ND	0.008[21]	0.0899
Sodium, dissolved	92,920 (79,000/112,000)	86,568 (61,400/110,000)	343[22]	NA
Sulfate, dissolved	24,220 (10,200/28,100)	22,400 (12,600/28,200)	49.4[23]	NA
Total dissolved solids (TDS)	340,040 (311,000/363,000)	312,640 (259,000/362,000)	1,000[24]	NA
Total suspended solids (TSS)	111 (ND/530)	106 (6/454)	3[25]	NA
Zinc, total	ND	ND	0.05[26]	0.675

Definitions: max = maximum; MDL = minimum detection limit; mg/L = milligrams per liter; min = minimum; NA = not applicable; ND=nondetect (not detected above MDL); ng/L = nanograms per liter

1. MDL for arsenic was reported as 0.0088 mg/L for week 1 and 0.022 mg/L for week 24.
2. MDL for boron was reported as 12.1 mg/L for week 9.
3. MDL for bromide varied between 0.5 and 4.7 mg/L.
4. MDL for cadmium was reported as 0.0061 mg/L for week 24.
5. MDL for calcium was reported as 14.6 mg/L for week 24.
6. MDL for COD was reported as 154 mg/L for weeks 1 through 11, 308 mg/L for week 12, and 617 mg/L for weeks 13 through 28.
7. MDL for chromium varied between 0.0062 and 0.0618 mg/L.
8. MDL for copper was reported as 0.0364 mg/L for week 1 and 0.0036 mg/L for week 5.
9. MDL for cyanide varied between 0.004 and 0.132 mg/L.
10. MDL for hardness varied between 11.7 and 234 mg/L.
11. MDL for lead was reported as 0.0174 mg/L for week 1 and 0.0435 mg/L for week 24; discharge value was reported at 0.015 mg/L for week 20.
12. MDL for lithium was reported as 8.07 mg/L for week 8.
13. MDL for magnesium was reported as 48 mg/L for weeks 8, 14, 15, 18, and 24, and 4.8 mg/L for week 4.
14. MDL for manganese was reported as 0.0318 mg/L for week 1.
15. MDL for mercury was reported as 44.9 ng/L for week 1 and 70 ng/L for week 27.
16. MDL for molybdenum was reported as 0.0075 mg/L for week 1 and 0.0188 mg/L for week 24.
17. MDL for nickel was reported as 0.0223 mg/L for week 1 and 0.112 mg/L for week 17.
18. MDL for nitrate was reported as 33.2 mg/L for week 10.
19. MDL for potassium was reported as 171 mg/L for weeks 8, 16, 18, and 24.
20. MDL for selenium was reported as 0.0283 mg/L for week 1 and 0.0707 mg/L for week 24.
21. MDL for silver was reported as 0.017 mg/L for week 1 and 0.042 mg/L for week 24.
22. MDL for sodium was reported as 172 mg/L for week 6.
23. MDL for sulfate was reported as 247 mg/L for weeks 1, 7, 9, 10, 12, 17–20, 23, and 26–28.
24. MDL for TDS was reported as 20 mg/L for week 4.
25. MDL for TSS varied between 0.8 and 8 mg/L.
26. MDL for zinc was reported as 0.09 mg/L for week 1.

Table 4. Summary of Performance Run Laboratory Analytical Results (Weeks 16–18)

Constituent	Influent Average (Min/Max) (mg/L)	Discharge Average (Min/Max) (mg/L)
Alkalinity	560 (552/569)	373 (312/414)
Aluminum, total	2.7 (1.2/5.2)	2.5 (1.2/5.1)
Arsenic, total	0.43 (0.39/0.48)	0.31 (0.31/0.32)
Barium, total	0.19 (0.18/0.20)	0.16 (0.15/0.18)
Bicarbonate	560 (552/569)	373 (312/414)
Biological oxygen demand	10 (9/11)	9 (7/10)
Boron, total	60.2 (59.3/61.0)	58.0 (57.4/58.6)
Bromide	173 (140/201)	156 (139/170)
Cadmium, total	ND (ND/ND)	ND (ND/ND)
Calcium, dissolved	291 (277/300)	284 (270/293)
Calculated silicon[1]	2.5 (2.3/2.7)	3.1 (2.9/3.4)
Carbonate	ND (ND/ND)	ND (ND/ND)
Chemical oxygen demand (COD)	1,006 (617/1200)	845 (617/1,300)
Chloride	182,333 (177,000/187,000)	173,333 (166,000/181,000)
Chromium, total	0.048 (0.021/0.062)	0.051 (0.030/0.062)
Copper, total	0.039 (0.030/0.052)	0.040 (0.032/0.054)
Cyanide, total	ND (ND/ND)	ND (ND/ND)
Hardness	58,800 (58,100/59,600)	56,833 (55,500/57,900)
Hydroxide	ND (ND/ND)	ND (ND/ND)
Iron, total	ND (ND/ND)	1.72 (1.30/2.40)
Lead, total	ND (ND/ND)	ND (ND/ND)
Lithium, total	67.4 (66.1/69.6)	16.0 (14.4/18.8)
Magnesium, total	14,100 (13,900/14,300)	13,633 (13,300/13,900)
Manganese, total	0.038 (0.030/0.043)	0.163 (0.141/0.182)
Mercury, total	25.3 (23.3/27.2)	28.6 (24.9/31.4)
Molybdenum, total	0.126 (0.122/0.132)	0.081 (0.055/0.122)
Nickel, total	0.052 (0.015/ND)	.0512 (ND/ND)
Nitrate	ND (ND/ND)	ND (ND/ND)
Nitrite	ND (ND/ND)	ND (ND/ND)
Oil and grease	ND (ND/ND)	ND (ND/ND)
Potassium, total	8,423 (8,280/8,600)	8,137 (7,880/8,480)
Selenium, total	0.185 (0.101/0.238)	0.242 (0.121/0.342)
Silica, total	5.4 (5.0/5.8)	6.7 (6.3/7.3)
Silver, total	ND (ND/ND)	ND (ND/ND)
Sodium, dissolved	95,100 (94,200/96,700)	92,500 (90,300/93,600)
Sulfate, dissolved	25,400 (24,300/26,700)	25,167 (25,000/25,300)
Total dissolved solids (TDS)	341,667 (335,000/349,000)	328,667 (326,000/332,000)
Total suspended solids (TSS)	127 (62/228)	112 (64/175)
Zinc, total	ND (ND/ND)	ND (ND/ND)

Definitions: max = maximum; MDL = minimum detection limit; mg/L = milligrams per liter; min = minimum; NA = not applicable; ND=nondetect (not detected above MDL); ng/L = nanograms per liter

1. This is a calculated value based on silica data.

3.3 Chemistry Monitoring Results Discussion and Graphs

This section reviews the results Demonstration Plant weekly laboratory analyses and summarizes the monitoring results for metals, salts, manganese, and lithium. The metal constituents reviewed are aluminum, arsenic, barium, boron, cadmium, chromium, copper, iron, lead, mercury, molybdenum, nickel, selenium, silver, and zinc, and the salts constituents reviewed are calcium, chloride, magnesium, potassium, sodium, and sulfate. Metals and salts, as well as other constituents (manganese and lithium), are required to be analyzed and reported by the UPDES permit and GSL Mineral Extraction Facility Operator Certification rules.

Data results for all constituents are summarized in Table 3 above, and laboratory results spreadsheets are attached in Appendix B, *Laboratory Data Results*.

To evaluate whether changes in metals, salts, and minerals (manganese and lithium) discharge concentrations (as compared to intake concentrations) result in a change in chemistry in the North Arm of the GSL. Waterleaf uses various lines of evidence, which consist of the following,

- MDLs and uncertainty of data
- Lack of comparable historic North Arm chemistry data and numeric water quality standards
- Relative increase or decrease in average concentrations (Table 3 above) as compared to MDLs and uncertainty
- Relative increase or decrease in average concentrations during the performance run (Table 4 above)
- Outlier analysis (Table 5 below)
- Relative increase or decrease in normal operations average concentrations (removing the first 5 weeks of start-up operations; see Table 6 below)
- Total change in mass loadings (discharge load subtracted from influent load) based on average concentrations, as compared to North Arm mass, at current water surface elevations (WSE) (Table 7, Table 8, and Table 9 below)
- Biota study results

3.3.1 Minimum Detection Limits and Uncertainty

Chemical analyses on the GSL brine samples and specifically North Arm brine samples are difficult to perform because of the high density, high salinity, and other unique characteristics of GSL brine. These characteristics interfere with laboratory means and methods. Due to these interferences, data results can often have various MDLs, various dilution rates, and large spike recovery ranges, all of which create a level of error and uncertainty. Although this error and uncertainty exists, the individual laboratory test results met data quality criteria and equipment precision ranges.

Overall, the MDLs for the analyzed constituents were consistent and met UPDES requirements. The laboratory data quality packages reported a few cases in which the MDL for selenium was not met. Level IV laboratory data quality results also documented dilution rates and spike recovery rates to meet quality control and assurance requirements.

Waterleaf also uses context when reviewing the data. Some constituents were analyzed at MDLs that were less than designated by the UPDES, as shown in Table 3 above. For example, copper was analyzed with an MDL of 0.0182 mg/L, which is below the UPDES stated MDL of 0.067 mg/L. So, when the influent and discharge average values are calculated at 0.0391 mg/L and 0.0470mg/L, respectively, they are below the UPDES stated MDL and might be considered comparable. Very low MDLs can bias the review of the data by detecting increases and decreases in concentration that are insignificant compared to other data sets.

Error and uncertainty (lab interference) need to be considered when reviewing the data. The heavy brine requires that samples are diluted to effectively be analyzed by equipment that is normally processing fresh water samples. The dilution rates for analyses ranged from undiluted (rate of 1)to 6, 20, and 50 up to a high of 100. Also, all samples were analyzed independently, so the intake and discharge samples for the same day might be diluted differently. Laboratory method accuracy is measured by percent recovery, and these percent recoveries vary for the different methods used for this project. For example, salts generally have a ±20% recovery, while metals have a ±15% recovery. The Utah Geological Survey has estimated that, for most GSL data, a minimum error of about 10% could be attributed to the challenges of processing the brine, based on conversations with the analytical laboratory (UGS 2025).

Waterleaf did report all data to UDWQ consistent with UPDES compliance monitoring requirements. That being said, the laboratory chemical analyses and results provided are adequate to meet the data quality objectives of the monitoring, which are to characterize the chemistry of the North Arm raw brine that is used as influent water to the lithium extraction process and to characterize the discharge of the lithium-depleted brine back to the North Arm.

3.3.2 Outlier Analyses

As with any data set, results often include concentrations that are unusually high or low—or in other words, outside the normal or expected range. To evaluate the impact of outliers on the Demonstration Plant data set, an outlier analysis was performed to identify whether outliers occurred extensively throughout the data set. Waterleaf determined that they did not. Therefore, Waterleaf included all data in the calculation of average, minimum, and maximum. Below is a summary of the outlier analyses and the results.

An IQR outlier analysis was conducted on the laboratory data results for each constituent's influent and discharge data. This analysis requires calculating the upper-quartile boundaries and then comparing the data to this threshold. Data points above this threshold are considered outliers.

In all, of the 1,900 data points analyzed for 38 constituents, 18 constituents were determined to have 59 data exceedances; that is, 59 data points were above the upper-quartile boundary. Of these 59 data points, 34 were influent outlier points and 25 were discharge outlier points. The results of the outlier analyses for those constituents with data exceedances are shown in Table 5 below.

Of note, outlier analyses were not conducted on the 10 constituents with nondetected concentrations. Also, the lower-quartile boundary analyses were not completed due to the presence of nondetection concentrations.

This analysis provides further evidence that the significant variations in data results are limited—using the IQR analytical methodology, about 3.1% of the data reported are considered outliers (outside the upper-quartile boundary).

Based on the IQR outlier analyses for all constituents analyzed, Waterleaf determined that the outliers did not occur extensively. Therefore, all data are included in the calculation of average, minimum, and maximum concentrations.

Table 5. Summary of Outlier Analyses

Constituent	Influent Outliers			Discharge Outliers		
	Influent Average (mg/L)	Upper Boundary (mg/L)	Number of Exceedances	Discharge Average (mg/L)	Upper Boundary (mg/L)	Number of Exceedances
Aluminum, total	1.7	3.0	1	1.6	2.5	2
Barium, total	0.190	0.238	3	0.169	0.248	2
Bromide	0.173	200.5	1	160.1	192.5	0
COD	2,420	4,450	4	1,1617	4,650	0
Chromium, total	0.072	0.196	2	0.069	0.176	2
Copper, total	0.0391	0.0661	2	0.0470	0.0753	2
Hardness	59,692	64,100	2	56,256	65,200	0
Iron, total	0.58	0.57	1	1.57	2.4	2
Lead, total	0.0104	0.0087	0	0.0107	0.0087	1
Lithium, total	67.7	73.0	2	30.6	91.7	0
Magnesium, total	14,312	15,400	2	13,480	15,600	0
Manganese, total	0.0411	0.0550	2	0.239	0.511	1
Mercury, total	33.2	33.7	2	39.9	52.8	3
Molybdenum, total	0.136	0.163	1	0.111	0.178	4
Nickel, total	0.049	0.091	4	0.052	0.087	3
Potassium, total	8,662.4	9,535	1	8,138	9,455	0
Sodium, dissolved	92,920	108,100	1	86,568	114,300	0
TSS	110.9	278.5	3	105.6	264.0	3

Definitions: COD = chemical oxygen demand; mg/L = milligrams per liter; TSS = total suspended solids

3.3.3 Metals Discussion

In this section, Waterleaf reviews the laboratory data results for metal constituents. Metals are often the focus of review due to their potential toxicity and their regulation by the Clean Water Act. Metal MDLs and loads were specific components of the UPDES permit. As stated in Section 1.2, *Background*, the North Arm is protected for recreation and wildlife use; however, numeric water quality standards have not been established.

The metal constituents discussed below are aluminum, arsenic, barium, boron, cadmium, chromium, copper, iron, lead, mercury, molybdenum, nickel, selenium, silver, and zinc.

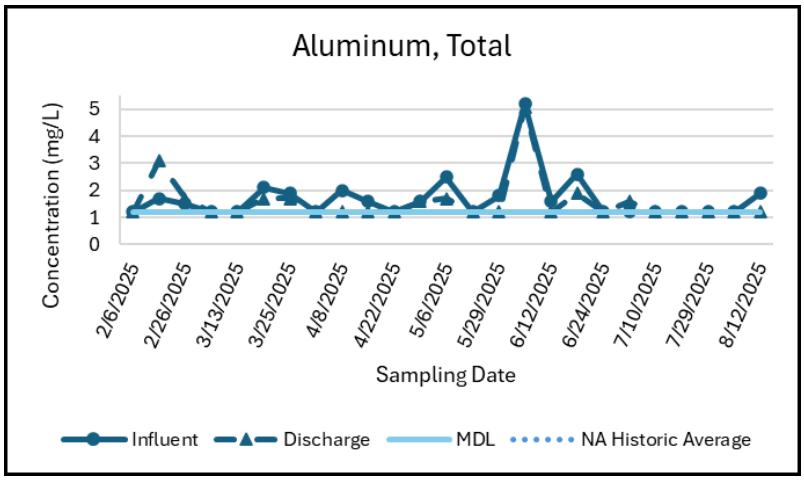
Metals That Were Not Detected. The data results reported four metal constituents (cadmium, lead, silver, and zinc) as nondetected for both influent and discharge concentrations for the entire 28-week operation of the Demonstration Plant, including the start-up and performance run periods (Table 3 above).

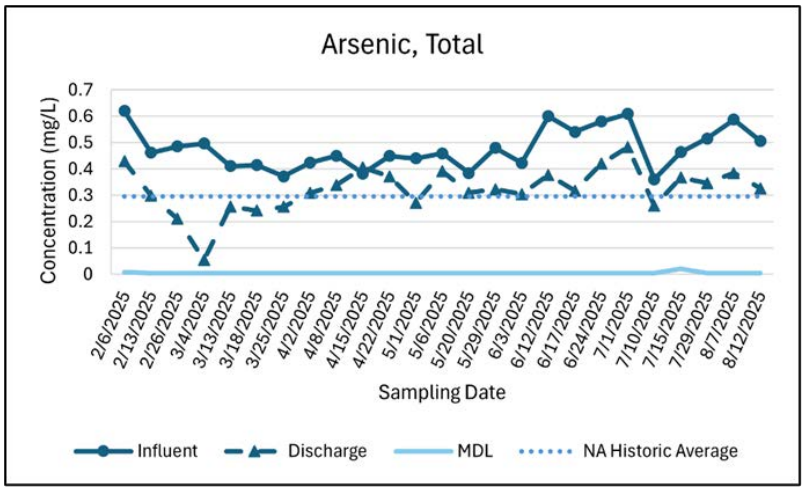
Metals with Lower Discharge Concentrations. Seven metal constituents (aluminum, arsenic, barium, boron, chromium, molybdenum, and selenium) were reported with lower average discharge concentrations than average influent concentrations during the Demonstration Plant's operation. Weekly laboratory data for influent and discharge concentrations are graphically shown below in Figure 1 for these seven constituents along with laboratory MDLs and North Arm historical averages. North Arm historical averages were determined by analyzing the UDWQ water quality database, North Arm monitoring locations, and reported values (HDR 2023). For some constituents, historical data were not available.

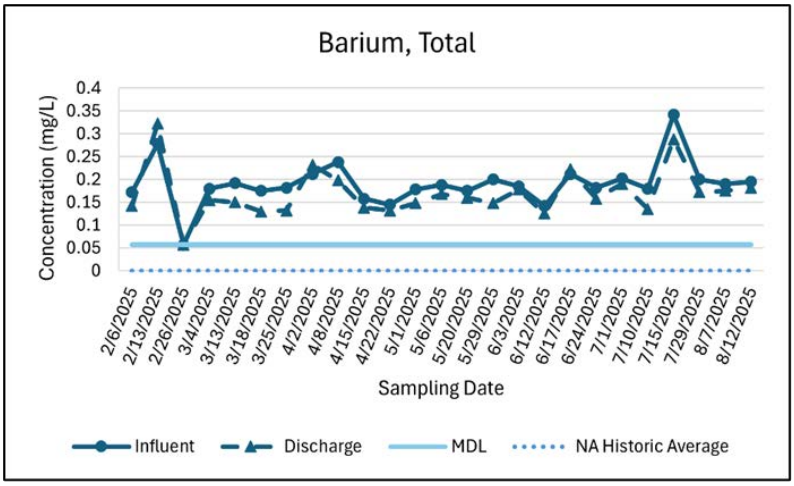
The data for the entire 28-week operation indicate the following decreases in average discharge concentrations compared to average influent concentrations: aluminum (decrease of 7%), arsenic (decrease of 32%), barium (decrease of 11%), boron (decrease of 6%), chromium (decrease of 4%), molybdenum (decrease of 18%), and selenium (decrease of 2%).

These constituents also showed average decreased concentrations compared to intake concentrations during the performance run (weeks 16–18) (Table 4 above), with the exception of chromium and selenium, for which average discharge concentrations increased above average intake concentrations. If the uncertainty estimate of 10% is taken into perspective, the decreases for aluminum, boron, chromium, and selenium are within this error range.

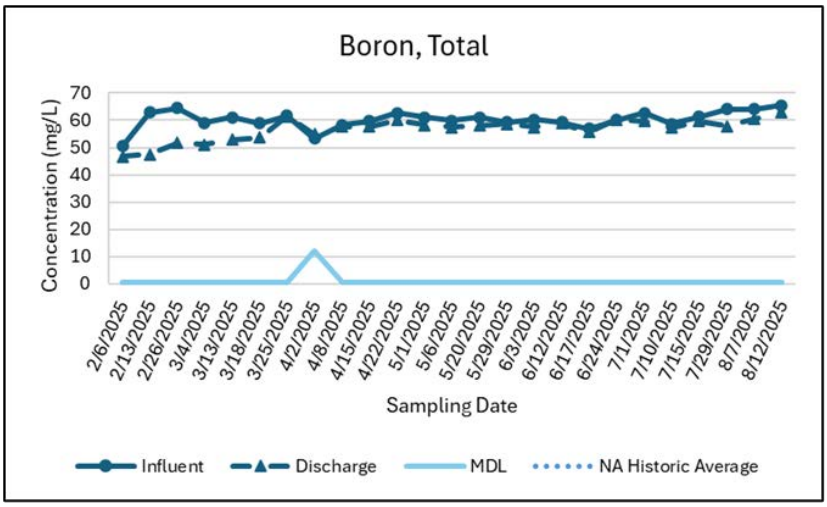
Figure 1. Graphs of Metal Constituents with Lower Average Discharge Concentrations

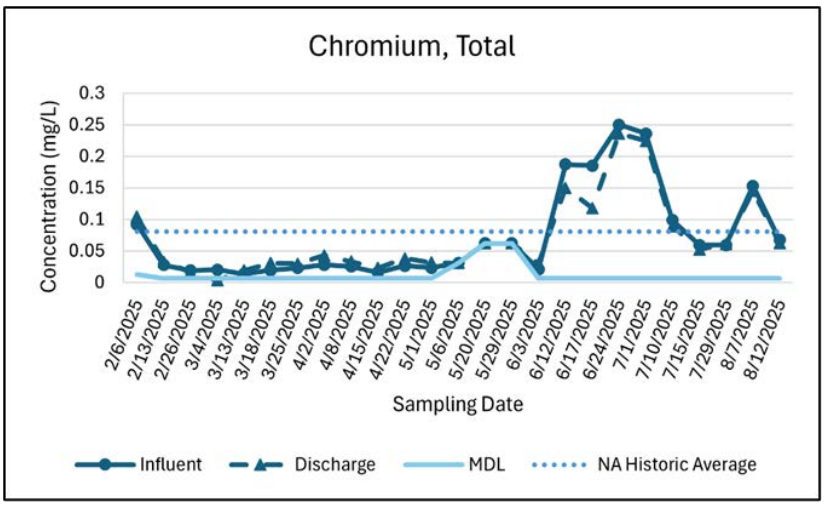


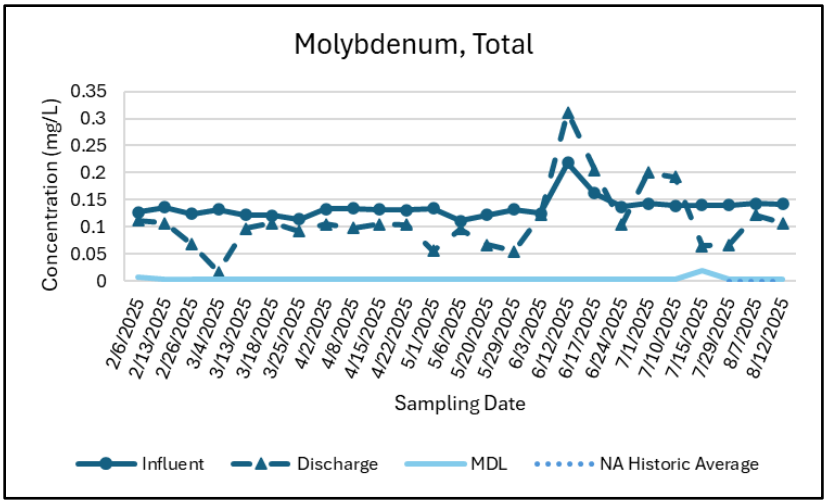


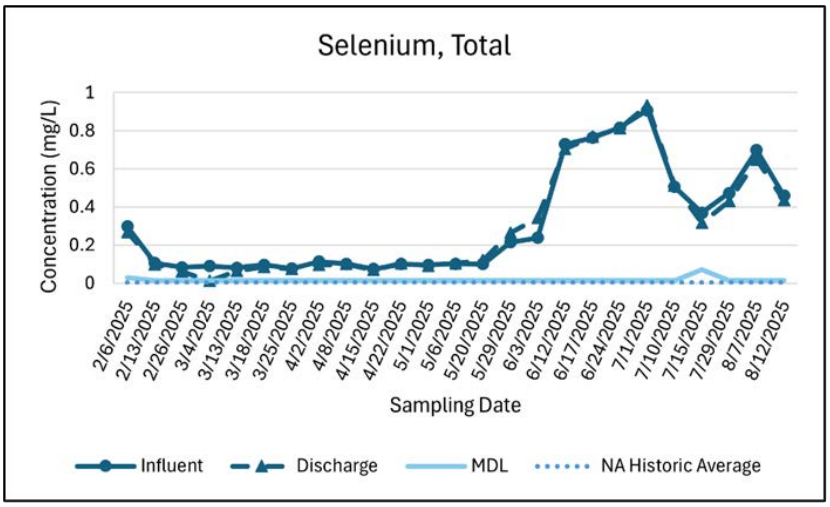


B.1


Boron, Total
Concentration (mg/L)
70
60
50
40
30
20
10
0
2/6/2025
2/13/2025
2/26/2025
3/4/2025
3/13/2025
3/18/2025
3/25/2025
4/2/2025
4/8/2025
4/15/2025
4/22/2025
5/1/2025
5/6/2025
5/20/2025
5/29/2025
6/3/2025
6/12/2025
6/17/2025
6/24/2025
7/1/2025
7/10/2025
7/15/2025
7/29/2025
8/7/2025
8/12/2025
Sampling Date
Influent
Discharge
MDL
NA Historic Average


Chromium, Total
Concentration (mg/L)
0.3
0.25
0.2
0.15
0.1
0.05
0
2/6/2025
2/13/2025
2/26/2025
3/4/2025
3/13/2025
3/18/2025
3/25/2025
4/2/2025
4/8/2025
4/15/2025
4/22/2025
5/1/2025
5/6/2025
5/20/2025
5/29/2025
6/3/2025
6/12/2025
6/17/2025
6/24/2025
7/1/2025
7/10/2025
7/15/2025
7/29/2025
8/7/2025
8/12/2025
Sampling Date
Influent
Discharge
MDL
NA Historic Average


Molybdenum, Total
Concentration (mg/L)
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
2/6/2025
2/13/2025
2/26/2025
3/4/2025
3/13/2025
3/18/2025
3/25/2025
4/2/2025
4/8/2025
4/15/2025
4/22/2025
5/1/2025
5/6/2025
5/20/2025
5/29/2025
6/3/2025
6/12/2025
6/17/2025
6/24/2025
7/1/2025
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Sampling Date
Influent
Discharge
MDL
NA Historic Average

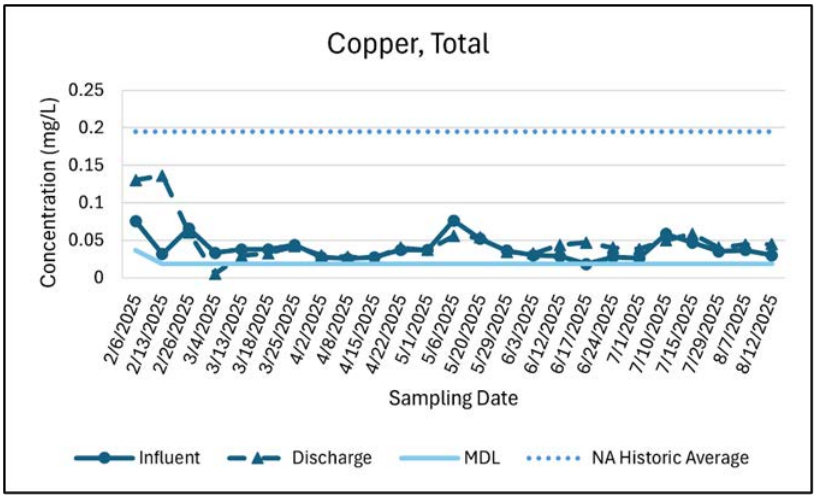


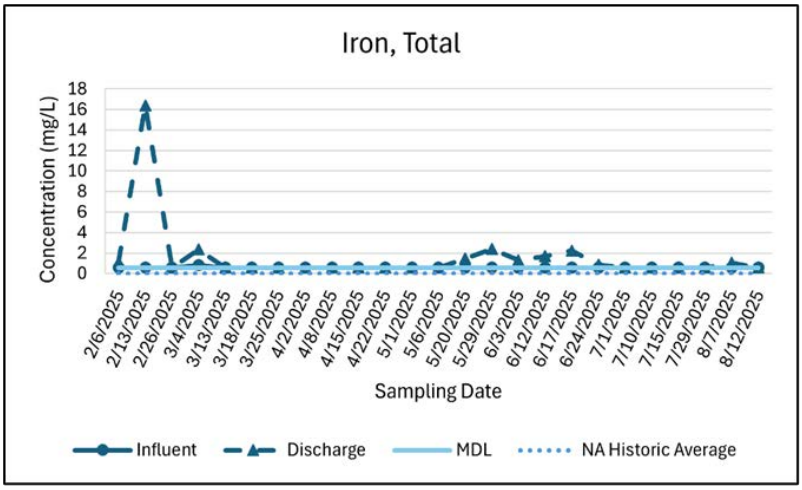
Metals with Higher Discharge Concentrations. Four metal constituents (copper, iron, mercury, and nickel) were reported with higher average discharge concentrations than average influent concentrations during the Demonstration Plant's operation. Weekly laboratory data for influent and discharge concentrations are graphically shown below in Figure 2 for these four constituents along with laboratory MDLs and North Arm historical averages. North Arm historical averages were determined by analyzing the UDWQ water quality database, North Arm monitoring locations, and reported values (HDR 2023).

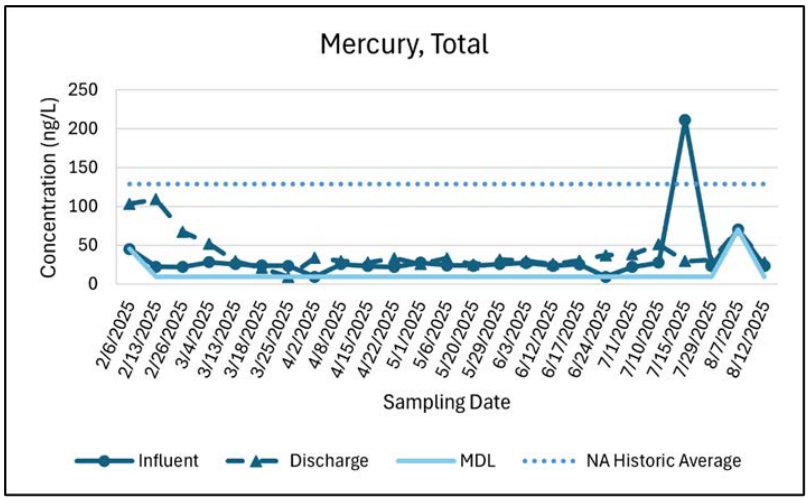
The increases in average discharge concentrations compared to the average influent concentrations are: copper (increase of 20%), iron (increase of 272%), mercury (increase of 20%), and nickel (increase of 6%). Based on a review of the graphs and the data, it is apparent that, during the Demonstration Plant's start-up period, discharge concentrations for these metals were higher than during the following weeks. Waterleaf conducted further review of the data and operations during this start-up period to determine the cause of the data spikes. Waterleaf determined that, during start-up operations (weeks 1–5), processes and equipment were the cause of the data spikes for certain metal constituents, because these four constituents are not a component of the DLE process.

B.1

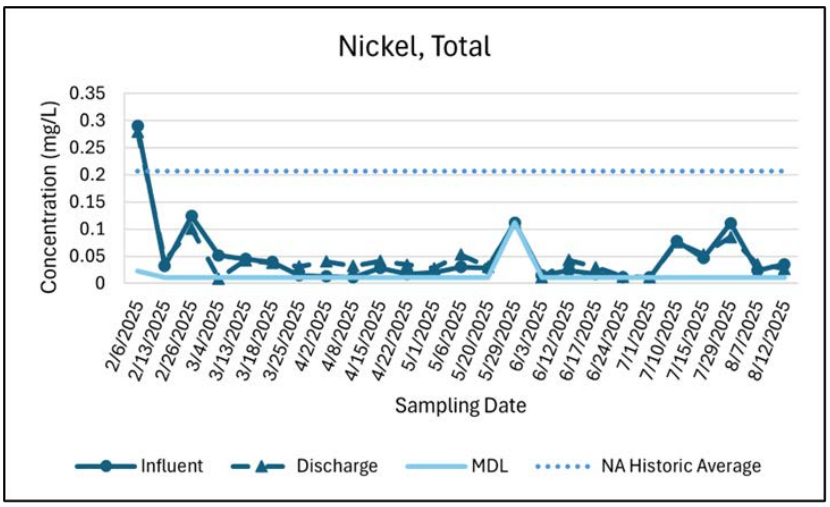
Figure 2. Graphs of Metal Constituents with Higher Average Discharge Concentrations







B.1



The increases in discharge concentrations (compared to influent concentrations) for copper, iron, mercury, and nickel during the start-up period can be partially attributed to the Demonstration Plant's equipment being made from carbon steel, stainless steel, and other corrodible materials. Equipment becomes corroded from exposure to the high-saline North Arm brine and exposure to oxygen. Evidence of corrosion consisted of higher concentrations of four metals (copper and iron, plus mercury and nickel) during the first 5 weeks, which was the Demonstration Plant's start-up period of operation, as well as visual observations of rust flakes in the discharge. During investigations to identify the source of the rust flakes in the discharge, observations were made confirming that the carbon steel frac tanks being used to store raw brine and depleted brine were in fact showing signs of corrosion.

After the initial start-up period of 5 weeks, rust flakes were not observed, and the discharge concentrations became more consistent. Table 6 compares the average influent and discharge results for the start-up period (weeks 1–5) and regular operations (weeks 6–28). As the data indicate, average discharge concentrations drastically reduced after the initial plant start-up process. After start-up, mercury and nickel average discharge concentrations decreased compared to average influent concentrations. Copper and iron results reported an increase in average discharge concentrations compared to average influent concentrations.

Table 6. Metal Concentration Data Comparison of Start-up and Regular Operations

Constituent	Start-up (Weeks 1–5)		Operation (Weeks 6–28)	
	Influent Average (mg/L)	Discharge Average (mg/L)	Influent Average (mg/L)	Discharge Average (mg/L)
Copper, total	0.0513	0.0829	0.0368	0.0401
Iron, total	0.628	5.10	ND (<0.57)	0.902
Mercury, total	29.2 ng/L	82.8 ng/L	34.0 ng/L	31.7 ng/L
Nickel, total	0.124	0.108	0.0348	0.0412

Definitions: mg/L = milligrams per liter; ND = nondetect; ng/L = nanograms per liter

These four constituents, along with chromium and selenium, had increased discharge concentrations compared to influent concentrations during the performance run period.

Waterleaf noticed that iron discharge concentrations increased during a 6-week period during regular operations and conducted further analyses. Most of the iron intake and discharge concentration results were reported nondetect, except during start-up operations and during a 6-week period (weeks 16–22). The increased discharge concentrations during start-up were discussed above. The increased discharge concentrations for weeks 16–22 followed a period of no discharge (week 15). During week 15, the plant experienced equipment failures and did not operate. When the plant was brought back online with replacement equipment operating, increases in iron discharges occurred until the process recovered (week 22). Iron discharge concentrations were reported nondetect during the remainder of operation (weeks 22–28).

Metal Load Analyses. To help determine impacts to North Arm chemistry due to operation of the Demonstration Plant, mass loads for the metal constituents were reviewed. Demonstration Plant mass loads were determined using all the laboratory data during operations (28 weeks), including outliers, compared to North Arm mass. Demonstration Plant loads were calculated by subtracting average influent concentration and influent volume from average discharge concentrations and discharge volume. North Arm mass was calculated using the average influent concentration and the North Arm volume at a WSE of 4,192 feet. The resulting mass load due to Demonstration Plant operation is shown in Table 7.

Table 7. Metals Load Comparison of Demonstration Plant Operations and North Arm

Constituent	Influent Average (mg/L)	Influent Load[1] (lb)	Discharge Average (mg/L)	Discharge Load[2] (lb)	Load to North Arm (lb)	North Arm Mass[3] (lb)
Aluminum, total	1.7	15.49	1.6	15.13	−0.36	14,978,200
Arsenic, total	0.477	4.35	0.322	3.04	−1.3	4,202,700
Barium, total	0.190	1.73	0.169	1.60	−0.13	1,674,000
Boron, total	60.3	549.3	56.7	536.1	−13.2	531,286,700
Chromium, total	0.072	0.66	0.069	0.65	−0.01	634,400
Copper, total	0.0391	0.36	0.0470	0.44	0.09	344,500
Iron, total	0.58	5.28	1.57	14.84	9.56	5,110,200
Mercury, total	0.0000332	1.65	0.0000399	2.0	0.35	290
Molybdenum, total	0.136	1.24	0.111	1.05	−0.19	1,198,300
Nickel, total	0.049	0.45	0.052	0.49	0.04	431,700
Selenium, total	0.308	2.81	0.301	2.85	0.04	2,713,700

Definitions: af = acre-feet; lb = pounds; mg/L = milligrams per liter; WSE = water surface elevation

1. Based on a Demonstration Plant total intake volume of 3.35 af
2. Based on a Demonstration Plant total discharge volume of 3.47 af
3. North Arm Mass based on WSE of 4,192 feet and volume of 3,240,000 af and average influent concentrations

In considering the mass decreases in the North Arm for aluminum, arsenic, barium, boron, chromium, and molybdenum discharges (Table 7 above), mass decreases due to

Demonstration Plant operations are in the range of 0.000002% to 0.00003% compared to North Arm total mass and are considered by Waterleaf to be *de minimis*.

In considering the mass load increases to the North Arm from the Demonstration Plant (Table 7 above), increases for copper (0.00002%), nickel (0.000009%) and selenium (0.0000015%) are considered by Waterleaf to be *de minimis*. The mass increase of iron to the North Arm is estimated at 9.6 pounds (lb), compared to 5.11 million pounds, or an increase of 0.0002%, which is also considered by Waterleaf to be *de minimis*.

The mercury data indicate that the mass load to the North Arm resulted in a 0.35-lb increase, compared to a North Arm mass of 290 lb, or an increase of 0.12%, which is considered by Waterleaf to be not significant. The bulk of this mass load occurred during the start-up period (Figure 2 and Table 6 above). Although mercury concentrations in the discharge during start-up operations were higher than in the influent, subsequently, during the remainder of the Demonstration Plant's operation, average discharge concentrations were less than average influent concentrations.

A review of the start-up comparison (Table 6 above) and investigation into the source of the corrosion revealed conditions specific to the Demonstration Plant's equipment. Comparing the data collected during remainder of the operations and performance run data run (Table 4 above), the temporary discharge of mercury mass load to the North Arm, due to start-up operations, is considered by Waterleaf to be not significant.

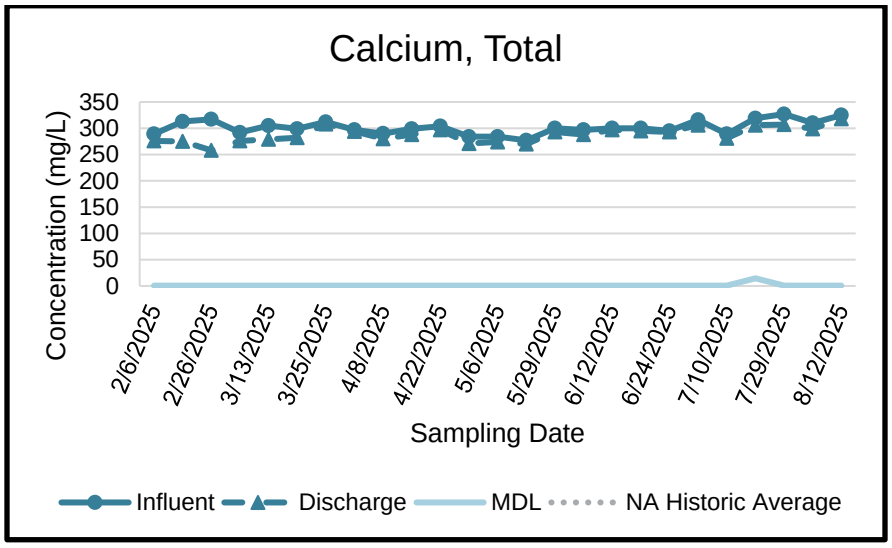
3.3.4 Salts Discussion

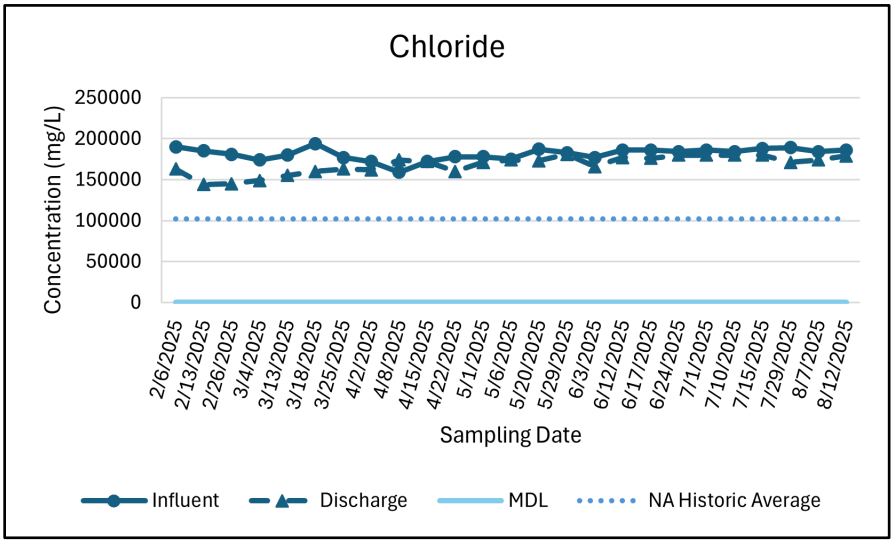
In this section, Waterleaf reviews the laboratory data results for salt constituents. GSL salts are important because they support the mineral extraction industry.

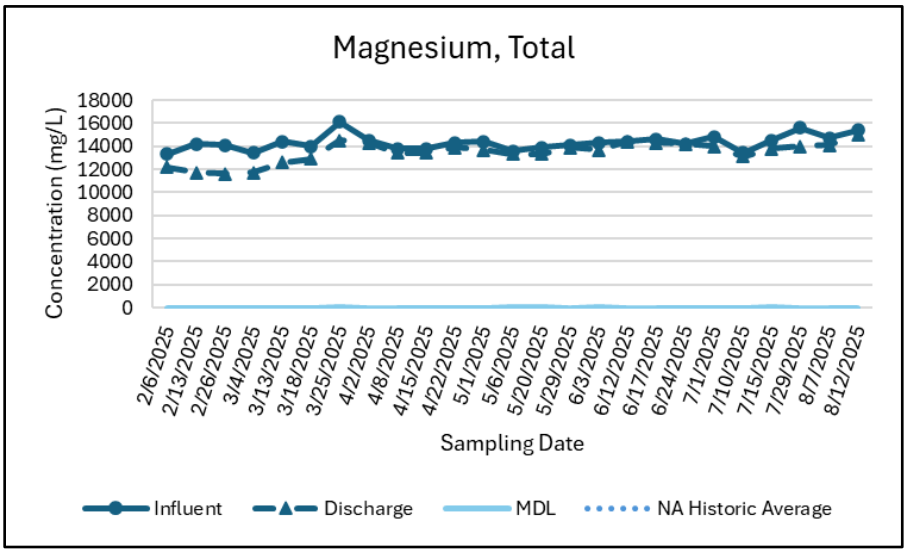
All salt cations and anions were reported with lower discharge concentrations than influent concentrations. These salt constituents are calcium, chloride, magnesium, potassium, sodium, and sulfate. The monitoring data for these constituents are graphed in Figure 3 below. Salt constituents' average discharge concentrations decreased in the range of 4.6% to 7.5% compared to average influent concentrations. This range is comparable to the average discharge concentration decrease in TDS of 8% compared to the average influent concentration.

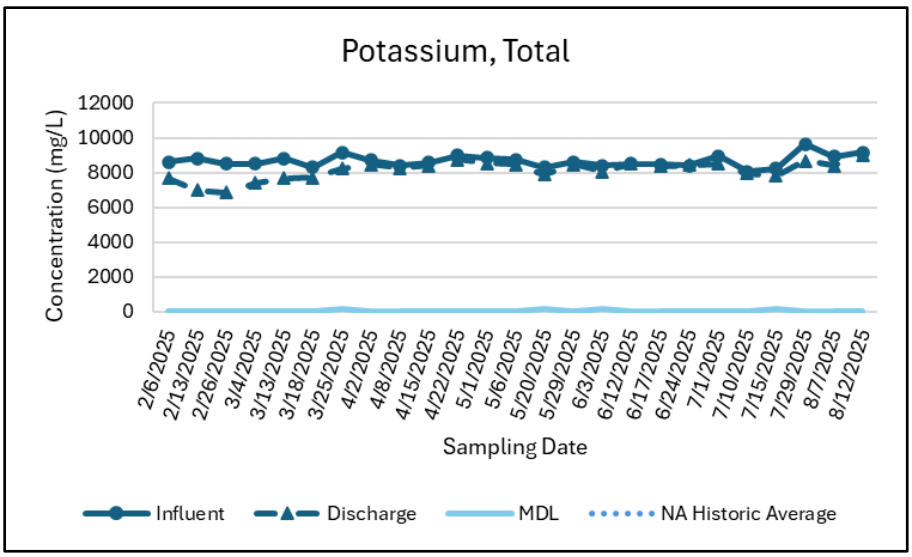
To help determine impacts to North Arm chemistry due to operation of the Demonstration Plant, mass loads for the salt constituents were reviewed. Demonstration Plant mass loads were determined using all the laboratory data during operations (28 weeks). Demonstration Plant mass loads were calculated by subtracting average influent concentration and influent volume from average discharge concentrations and discharge volume. North Arm mass was calculated using the average influent concentration and the North Arm volume at a WSE of 4,192 feet. The result indicates that the Demonstration Plant reduced the salt constituents mass in the North Arm. The mass load comparison is shown in Table 8 below.

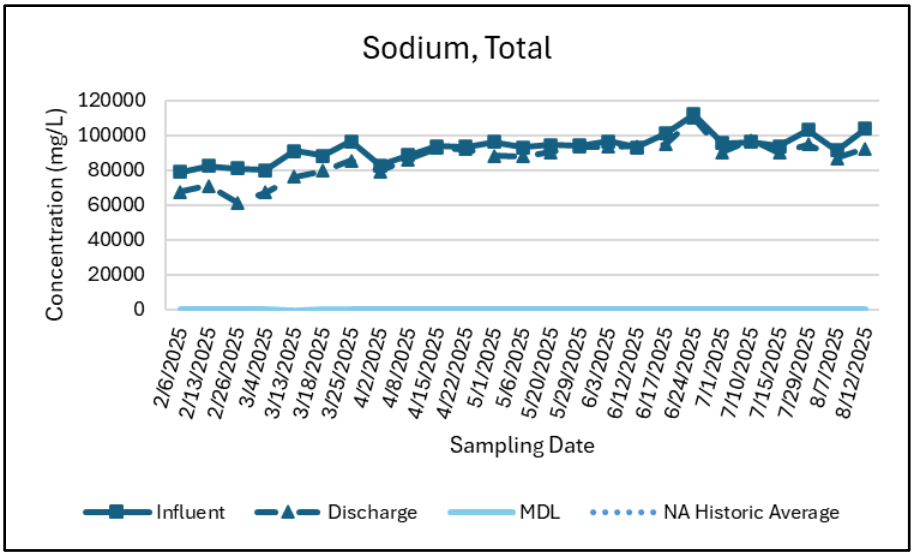
Figure 3. Graphs of Salt Constituents








Potassium, Total
Concentration (mg/L)
12000
10000
8000
6000
4000
2000
0
2/6/2025
2/13/2025
2/26/2025
3/4/2025
3/13/2025
3/18/2025
3/25/2025
4/2/2025
4/8/2025
4/15/2025
4/22/2025
5/1/2025
5/6/2025
5/20/2025
5/29/2025
6/3/2025
6/12/2025
6/17/2025
6/24/2025
7/1/2025
7/10/2025
7/15/2025
7/29/2025
8/7/2025
8/12/2025
Sampling Date
Influent
Discharge
MDL
NA Historic Average


Sodium, Total
Concentration (mg/L)
120000
100000
80000
60000
40000
20000
0
2/6/2025
2/13/2025
2/26/2025
3/4/2025
3/13/2025
3/18/2025
3/25/2025
4/2/2025
4/8/2025
4/15/2025
4/22/2025
5/1/2025
5/6/2025
5/20/2025
5/29/2025
6/3/2025
6/12/2025
6/17/2025
6/24/2025
7/1/2025
7/10/2025
7/15/2025
7/29/2025
8/7/2025
8/12/2025
Sampling Date
Influent
Discharge
MDL
NA Historic Average

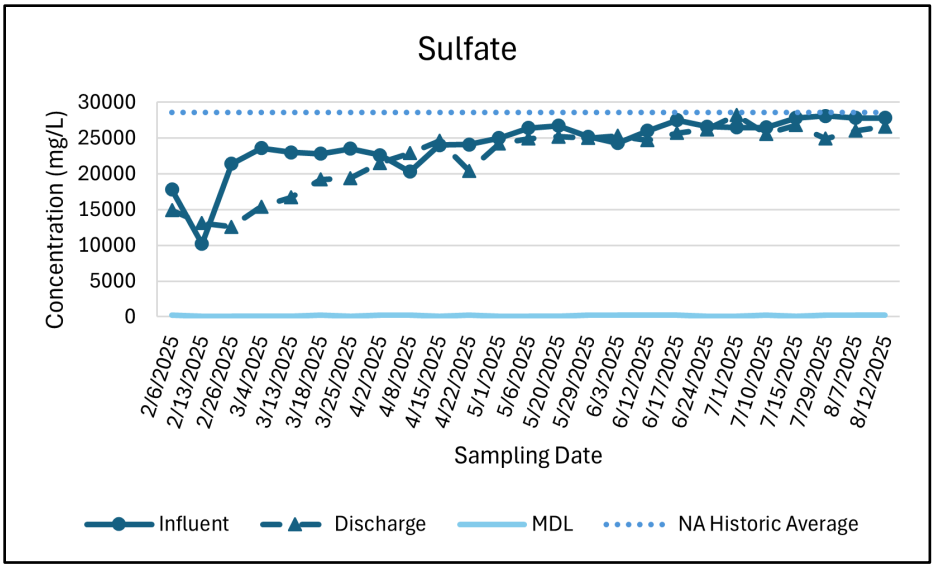

Sulfate
Concentration (mg/L)
30000
25000
20000
15000
10000
5000
0
2/6/2025
2/13/2025
2/26/2025
3/4/2025
3/13/2025
3/18/2025
3/25/2025
4/2/2025
4/8/2025
4/15/2025
4/22/2025
5/1/2025
5/6/2025
5/20/2025
5/29/2025
6/3/2025
6/12/2025
6/17/2025
6/24/2025
7/1/2025
7/10/2025
7/15/2025
7/29/2025
8/7/2025
8/12/2025
Sampling Date
Influent
Discharge
MDL
NA Historic Average

Table 8. Salt Load Comparison of Demonstration Plant Operations and North Arm

Constituent	Influent Average (mg/L)	Influent Load[1] (lb)	Discharge Average (mg/L)	Discharge Load[2] (lb)	Load to North Arm (lb)	North Arm Mass[3] (lb)
Calcium	302	2,750	288	2,720	−30	2,657,315,000
Chloride	181,400	1,652,500	168,400	1,591,900	−60,600	1,598,265,596,000
Magnesium	14,312	130,400	13,480	127,500	-2,900	126,099,103,000
Potassium	8,662	78,900	8,138	76,900	-2,000	76,322,028,000
Sodium	92.920	846,500	86,568	818,500	-28,000	818,692,609,000
Sulfate	24,220	220,600	22,400	211,800	-8,800	213,395,770,000

Definitions: af = acre-feet; lb = pounds; mg/L = milligrams per liter; WSE = water surface elevation

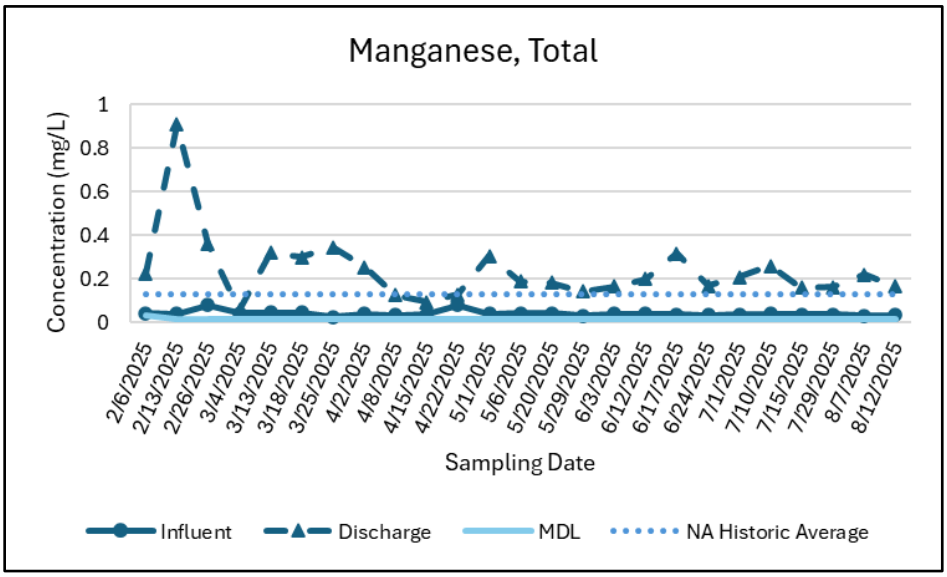
1. Based on a Demonstration Plant total intake volume of 3.35 af
2. Based on a Demonstration Plant total discharge volume of 3.47 af
3. North Arm Mass based on WSE of 4,192 feet and volume of 3,240,000 af with average influent concentrations

In assessing the mass decreases in the North Arm for salt constituents due to the Demonstration Plant's operation, mass decreases are considered by Waterleaf to be *de minimis*.

3.3.5 Manganese

Manganese is identified as a component of the DLE process and is discharged from the Demonstration Plant. This is the only constituent that resulted in higher concentrations in the discharge compared to the influent concentrations because of the DLE process. Figure 4 below shows the results of the weekly influent and discharge compliance sampling for manganese.

Figure 4. Graph of Manganese Influent and Discharge Data



Average discharge concentrations are reported higher than average influent concentrations over the entire duration of the Demonstration Plant's operation, including the start-up and performance run periods.

To help determine impacts to North Arm chemistry due to operation of the Demonstration Plant, the increase of the North Arm manganese mass was reviewed. Demonstration Plant manganese mass load was determined using all the laboratory data during operations (28 weeks). Demonstration Plant mass load was calculated by subtracting average influent concentration and influent volume from average discharge concentrations and discharge volume. North Arm mass was calculated using the average influent concentration and the North Arm volume at a WSE of 4,192 feet. The result indicates that the Demonstration Plant added about 1.88 lb of manganese to the mass in the North Arm, or, in other words, the mass of the North Arm increased by about 0.00052%. This increase in North Arm manganese mass due to the operation of the Demonstration Plant is considered by Waterleaf to be *de minimis*. The mass load comparison for manganese is shown in Table 9.

Table 9. Manganese Load Comparison of Demonstration Plant Operations and North Arm

Constituent	Influent Average (mg/L)	Influent Load[1] (lb)	Discharge Average (mg/L)	Discharge Load[2] (lb)	Load to North Arm (lb)	North Arm Mass[3] (lb)
Manganese	0.0411	0.37	0.2385	2.26	1.88	362,100

Definitions: af = acre-feet; lb = pounds; mg/L = milligrams per liter; WSE = water surface elevation

1. Based on a Demonstration Plant total intake volume of 3.35 af
2. Based on a Demonstration Plant total discharge volume of 3.47 af
3. North Arm Mass based on WSE of 4,192 feet and volume of 3,240,000 af with average influent concentrations

Waterleaf conducted additional data review related to the discharge of manganese. There are no federal or state water quality standards for manganese levels for

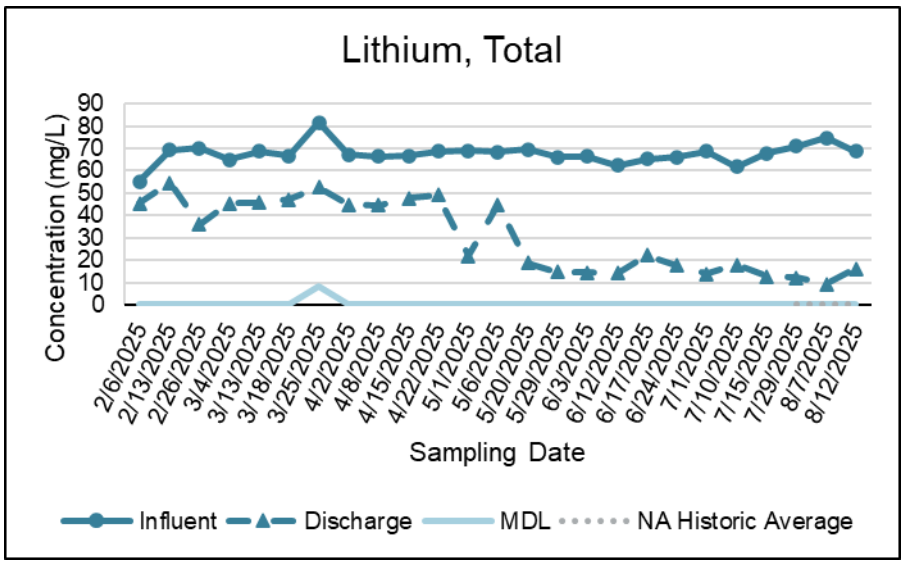
recreational exposures. Manganese is a mineral that exists naturally in the GSL and other freshwater bodies. Federal guidelines are published for dermal exposure to manganese during showering with tap water (drinking water) (HDR 2025). Waterleaf asserts that the manganese in the North Arm and in the depleted brine discharge is in solution and will not precipitate. This review determined that the increase in manganese discharged to the GSL due to the Demonstration Plant was not significant compared to existing standards and guidelines, existing North Arm loads, and protection of existing beneficial uses.

3.3.6 Lithium

Lithium is the targeted mineral for extraction by the Demonstration Plant. As a result, average discharge concentrations are less than average influent concentrations over the entire duration of the Demonstration Plant's operation, including the start-up and performance run periods. The extraction of lithium from the GSL is overseen by UDFFSL, and royalties are paid by Waterleaf in accordance with GSL mineral extraction facility rules.

Figure 5 shows the results of the weekly influent and discharge compliance sampling for lithium.

Figure 5. Graph of Lithium Influent and Discharge Data



To help determine impacts to North Arm chemistry due to operation of the Demonstration Plant, the decrease of the North Arm lithium mass was reviewed. Demonstration Plant lithium mass load was determined using all the laboratory data during operations (28 weeks). Demonstration Plant mass load was calculated by subtracting average influent concentration and influent volume from average discharge concentrations and discharge volume. North Arm mass was calculated using the average influent concentration and the North Arm volume at a WSE of 4,192 feet. The result indicates that the Demonstration Plant reduced the North Arm lithium mass by about 326 lb, or, in other words, the mass of the North Arm decreased by about 0.000055%. This decrease in North Arm lithium mass due to the operation of the Demonstration Plant is

considered by Waterleaf to be *de minimis*. The mass load comparison for lithium is shown in Table 10.

Table 10. Lithium Load Comparison of Demonstration Plant Operations and North Arm

Constituent	Influent Average (mg/L)	Influent Load[1] (lb)	Discharge Average (mg/L)	Discharge Load[2] (lb)	Load to North Arm (lb)	North Arm Mass[3] (lb)
Lithium	67.7	617	30.8	291	-326	594,724,000

Definitions: af = acre=feet; lb = pounds; mg/L = milligrams per liter; WSE = water surface elevation

1. Based on a Demonstration Plant total intake volume of 3.35 af
2. Based on a Demonstration Plant total discharge volume of 3.47 af
3. North Arm Mass based on WSE of 4,192 feet and volume of 3,240,000 af with average influent concentrations

3.4 Field Chemistry Results

As identified in Table 1 above, field measurements were taken during the compliance monitoring events for influent and discharge flows. These field measurements are density, dissolved oxygen, pH, and temperature.

Table 11 summarizes the field measurements. Parameter-specific discussions follow the table.

Table 11. Summary of Field Measurements

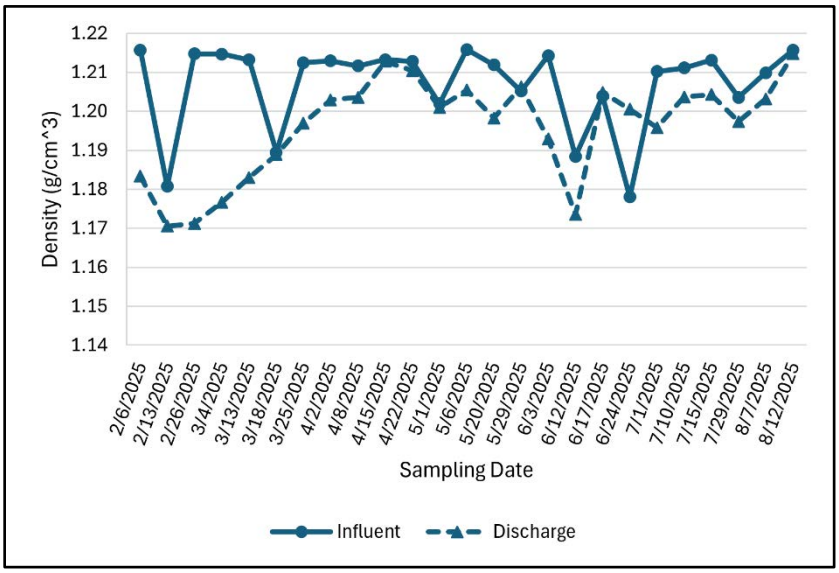
Field Parameter	Influent Average	Discharge Average	UPDES Limit
Density, g/cm^3	1.21	1.20	NA
Dissolved oxygen, mg/L	7.12	6.44	NA
pH	7.52	7.40	6.5–9
Temperature, °C	NA	NA	NA

Definitions: °C = degrees Celsius; g/cm^3 = grams per cubic centimeter; mg/L = milligrams per liter; NA = not applicable; UPDES = Utah Pollutant Discharge Elimination System

3.4.1 Density

Influent density was relatively consistent, ranging between 1.21 and 1.22 grams per cubic centimeter (g/cm^3). The influent density dipped on several occasions, and these dips were reasoned to be due to environmental conditions, specifically recent rainfall and the shallowness of the intake infrastructure (Figure 6 below).

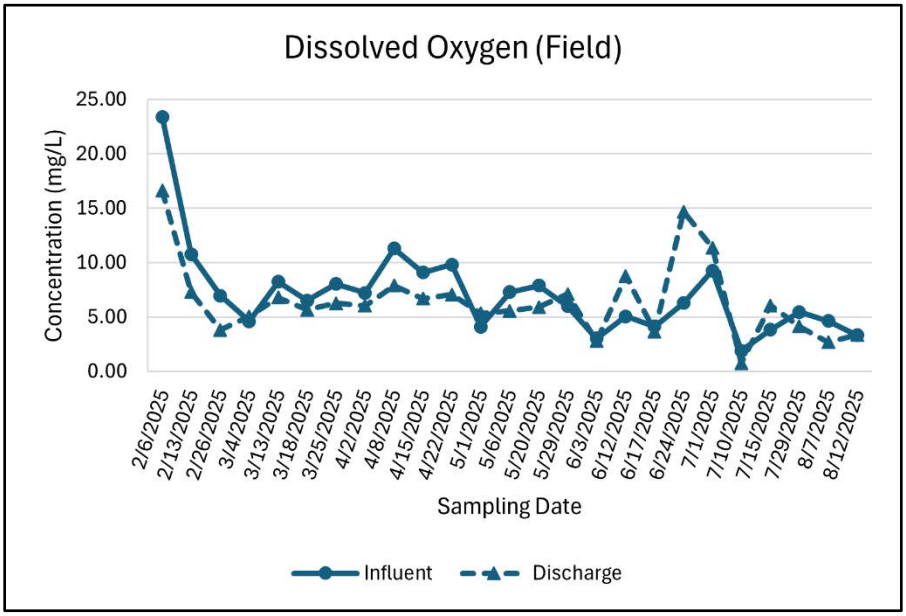
Figure 6. Density Graph



3.4.2 Dissolved Oxygen

Generally, the discharge dissolved oxygen (DO) measurements were less than the influent DO measurements. At the start of the Demonstration Plant's operation, more groundwater than North Arm brine was processed, resulting in higher DO levels (Figure 7).

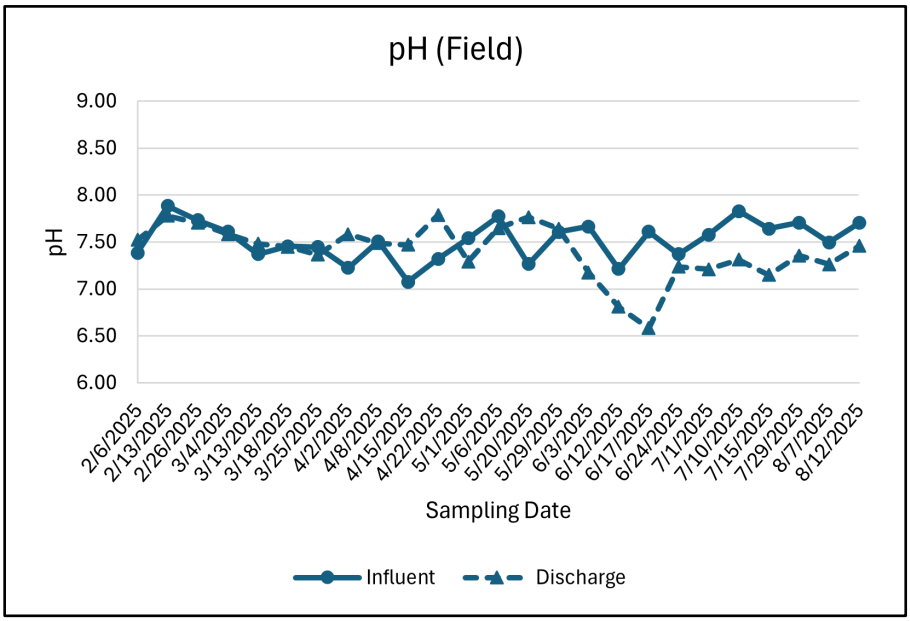
Figure 7. Dissolved Oxygen Graph



3.4.3 pH

Field measurements of pH for both the influent and discharge flows met the UPDES permit limit range of 6.5–9 (Figure 8).

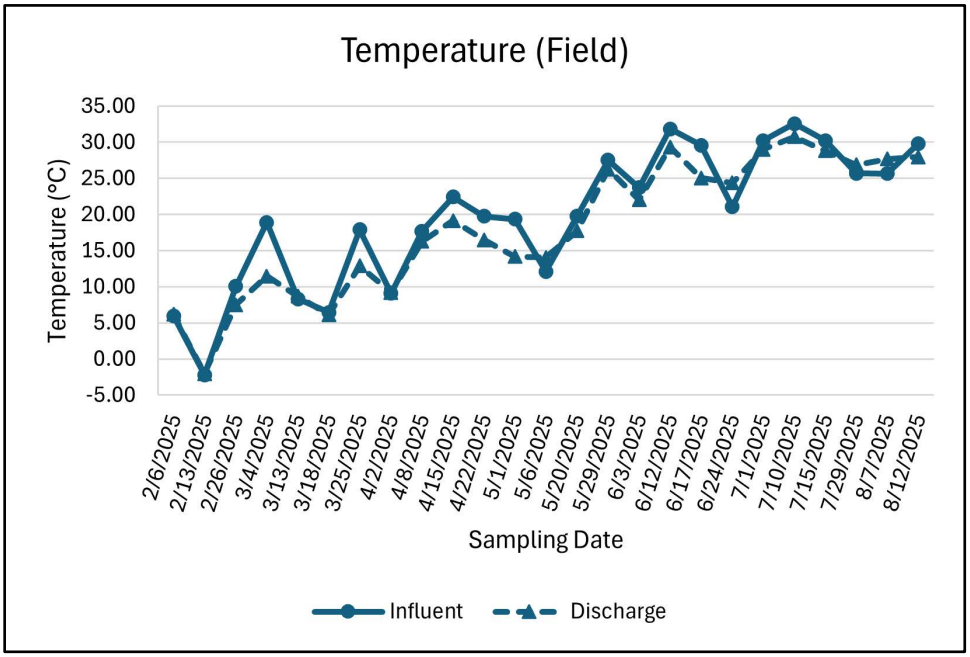
Figure 8. pH Graph



3.4.4 Temperature

Influent and discharge flow temperature measurements rose over the operation of the Demonstration Plant, following the expected seasonal warming of North Arm brine between February and August (Figure 9).

Figure 9. Temperature Graph



3.4.5 Influent and Discharge Water Salinity

HDR collected and reported the density at the intake and outfall locations during the Demonstration Plant's operation. These measurements were taken using an Anton Paar density meter. Per UDWQ rules, the Demonstration Plant cannot negatively alter the salinity of the North Arm of the GSL (UAC R317-16-2(16)(a)).

The GSL's salinity values were calculated using the formula below and documented in Open-File Report 0728, *Standard Operating Procedure – Great Salt Lake Water Density Measurement and Salinity Calculation* (UGS 2020).

$$S=\frac{\left(-(1.104708-(0.00112*T))+\left(\sqrt{\left(((1.04708-(0.00112*T))^{2})-\left(4*0.000314721*(-(\rho*1000)+(\rho^{0}*1000)+(0.00199*T^{2})-(1.21061*T)+184.01602)\right)\right)}\right)\right)}{(2*0.000314721)}$$

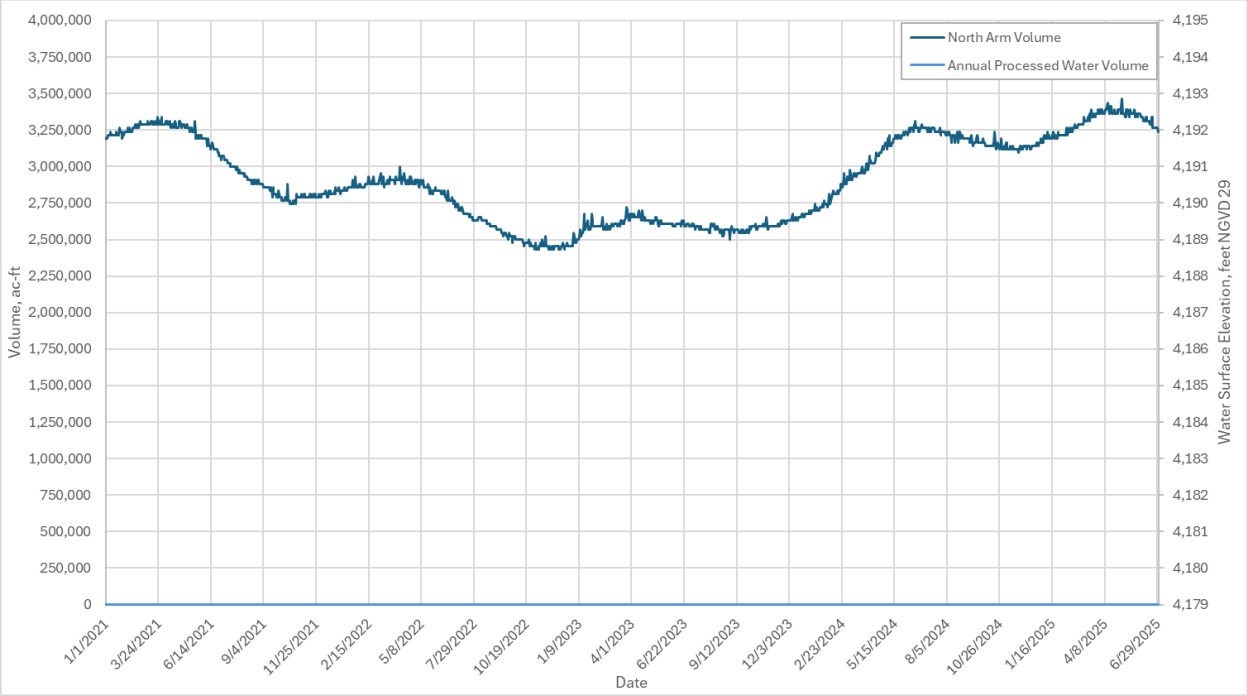
ρ = density of GSL water (g/cm^3)
ρ^0 = density of pure water (g/cm^3)
S = salinity (g/L)
T = water temperature (°K)

However, as described in Open-File Report 0728, this salinity calculation is specific to typical South Arm densities, or salinity values up to about 18%. For salinity values above 18%, the result "shall be noted as outside the salinity range used to develop the GSL Equation of State" (UGS 2020). In 2023, the U.S. Geological Survey (USGS) published a data release that increased the upper boundary of the GSL salinity equation to 1.214.

Because the North Arm densities exceed this upper boundary, the equation is not validated to calculate North Arm salinity values (USGS 2023). Therefore, the salinity values were not calculated for this report, and Waterleaf compared density values as a surrogate value for salinity. This analysis is provided to support the determination that the Demonstration Project did not negatively alter the salinity (density) of the GSL.

Density profile data are shown in Figure 6 above for the influent and discharge flows for each monitoring event. Table 12 on the following page shows the influent and discharge density values as measured. Waterleaf asserts that the discharge from the Demonstration Plant did not affect the overall density of the North Arm. This is based on (1) the density measurements made and (2) a comparison of the total volume of discharge (3.48 acre-feet [af]) to the total volume of the North Arm of about 3.25 million acre-feet (maf), at an average WSE of 4,192 feet mean sea level during the Demonstration Plant's operation (USGS 2006), as shown in Figure 10 below.

Figure 10. North Arm Volume



B.1

Table 12. Influent and Discharge Density Results

Date	Influent Density	Discharge Density
2/6/25	1.216	1.183
2/13/25	1.181	1.171
2/20/25	No discharge	
2/26/25	1.215	1.171
3/4/25	1.215	1.177
3/13/25	1.213	1.183
3/18/25	1.190	1.189
3/25/25	1.213	1.197
4/2/25	1.213	1.203
4/8/25	1.212	1.204
4/15/25	1.213	1.213
4/22/25	1.213	1.210
5/1/25	1.202	1.201
5/6/25	1.213	1.205
5/12/25	No discharge	
5/20/25	1.212	1.198
5/29/25	1.205	1.206
6/03/25	1.214	1.193
6/12/25	1.188	1.174
6/17/25	1.204	1.205
6/24/25	1.178	1.201
7/1/25	1.210	1.196
7/10/25	1.211	1.204
7/15/25	1.213	1.204
7/22/25	No discharge	
7/29/25	1.204	1.197
8/7/25	1.210	1.203
8/12/25	1.216	1.215

4 Flow Monitoring Results

In accordance with the UPDES permit requirements, continuous influent and discharge flow monitoring results were used to determine average weekly and monthly maximum and average flows. These data were used to calculate average weekly and annual loads. These flow values were used to calculate monthly volumes for the influent and discharge.

Instantaneous flow monitoring results are documented on weekly field data sheets and were used to determine flow-weighted composite sampling.

In addition, groundwater added to the process was recorded.

4.1 Monthly Volume Results

Continuous flow monitoring during the Demonstration Plant's operation recorded a final influent volume of 3.35 af and a final discharge volume of 3.48 af. Monthly average flows and volumes are shown in Table 13.

Table 13. Demonstration Plant Influent and Discharge Flow Volume

Month	Total Volume (af)	
	Influent	Discharge
February 2025	0.306	0.238
March 2025	0.201	0.237
April 2025	0.662	0.694
May 2025	0.427	0.431
June 2025	0.644	0.627
July 2025	0.730	0.781
August 2025	0.385	0.470
Total	**3.355**	**3.477**

Definitions: af = acre-feet

4.2 Total Water Balance

Total water is defined as sum of the brine and externally sourced water (UAC R317-16-2(21)). The Demonstration Plant's total water balance is provided below based on data from the intake and outfall continuous flow meters. The discharge volume includes the flow from the externally sourced groundwater.

- North Arm brine influent volume: 3.355 af
- Externally sourced groundwater: 0.265 af
- Discharge volume to North Arm: 3.477 af

The water balance shows that about 4% of the brine and groundwater flow is not discharged. This residual water was retained in the lithium sulfate product, which is a liquid. The lithium sulfate was shipped off site for further processing into the lithium carbonate equivalent product, which is a powder.

Based on USGS bathymetric and topographic data, the North Arm's volumes at WSEs of 4,190 and 4,198 feet (NVGD 1929) are 2.7 maf and 4.9 maf, respectively (USGS 2006). As of June 25, 2025, the North Arm's WSE was about 4,192.1 feet, and the North Arm had a volume of 3,241,855 af (USGS 2025).

5 Biota Monitoring Results

Three monitoring events were conducted by Dr. Bonnie Baxter of Westminster University during the Demonstration Plant's operation (Baxter 2025). By design, the first monitoring event occurred during the first month of operation, and the second monitoring event occurred 2 months later. The third monitoring event was added during the summer as the algae community began to grow as a result of the warmer brine temperatures. The first monitoring event occurred on February 28, 2025, during week 4 of operation; the second on April 24, 2025, during week 12 of operation; and the third on June 23, 2025, during week 21 of operation. The study design captured seasonal biota presence in the North Arm and the plant's discharge during its operation. This section summarizes the biota monitoring report, which is provided as Appendix C, *Biota Monitoring Report*.

In summary, North Arm biota were present in both the influent and discharge flows collected during all monitoring events, and the abundance and diversity of biota in the samples varied seasonally, as anticipated. The growth rates of biota in the influent, discharge, and mixed samples were similar. The study provides evidence that the Demonstration Plant's DLE process does not harm North Arm biota.

5.1 Presence of Biota

A hemacytometer (which provides a grid and special cover glass to control the distributed volume) was used to estimate the cell density in each of the influent and discharge samples. The results are shown in Table 14. The first samples, from February, demonstrated a robust cell density in the influent sample, but the discharge sample (with observed rust flakes) had few if any visible cells. The April samples had comparable numbers of cells in the discharge as in the influent, and the cells-per-milliliter counts were in the billions. The June samples had more cells in the influent than in the discharge. This decrease is mostly due to the presence of algae (which was not present in February and April) in the influent and reduced numbers in the discharge due to filtration. By comparing influent and discharge samples, this analysis provides evidence that the Demonstration Plant's DLE process does not reduce biota cell count for archaea, bacteria, or fungi; algae reductions, when they occurred, were due to filtration.

Table 14. Biota Cell Counts and Dry Weight

Month	Number of Cells Observed via Hemacytometer (cells per mL)		Dry Weight of Biota (g/L)	
	Influent	Discharge	Influent	Discharge
February 2025	2.8×10^8	None observed[1]	Not analyzed	
April 2025	3.6×10^9	4.6×10^9	3.7	4.5
June 2025	8.1×10^9	5.3×10^9	5.2	4.2

Definitions: g/L = grams per liter; mL = milliliters

1. Although no cells were observed using the hemacytometer, DNA sequencing revealed the presence and abundance of archaea, bacteria, and fungi in the discharge sample.

5.2 Biota Diversity

To document the species of biota that are present in both the influent and discharge flows, a consulting laboratory was contracted for DNA sequencing. The laboratory amplified DNA genes (16S rRNA, 18S rRNA, or ITS) associated with bacteria, archaea, algae, or fungi. The DNA is very specific to communities that might be present in North Arm brine. For the February and April monitoring events, archaea, bacteria, and fungi were present and abundant, but algae was not present. This is to be expected because the colder temperatures of North Arm brine in February and April do not support algae communities. Algae communities were observed in samples from the June monitoring event.

This analysis provides the relative abundance of the specific biota. It is important to note that the abundance is relative to other species in the influent or discharge samples, but no comparison of the influent to the discharge is valid. The abundance of archaea, bacteria, and fungi for the April monitoring event is shown in Figure 11. The abundance of archaea and bacteria (prokaryotes) and algae (eukaryotes) for the June monitoring event is shown in Figure 12.

By comparing influent and discharge (effluent) flow samples, this analysis provides evidence that the Demonstration Plant's DLE process does not reduce biota cell diversity in the North Arm of the GSL for archaea, bacteria, and fungi species. These biota are not affected by the DLE processes, including filtration, due to the small size (1–2 microns) of the individual organisms. When algae species are present during the warm summer months, the number of species is reduced by the filtration process due to the larger size (10–20 microns) of the individual organisms.

Figure 11. April 2025 Biota Abundance Graphs

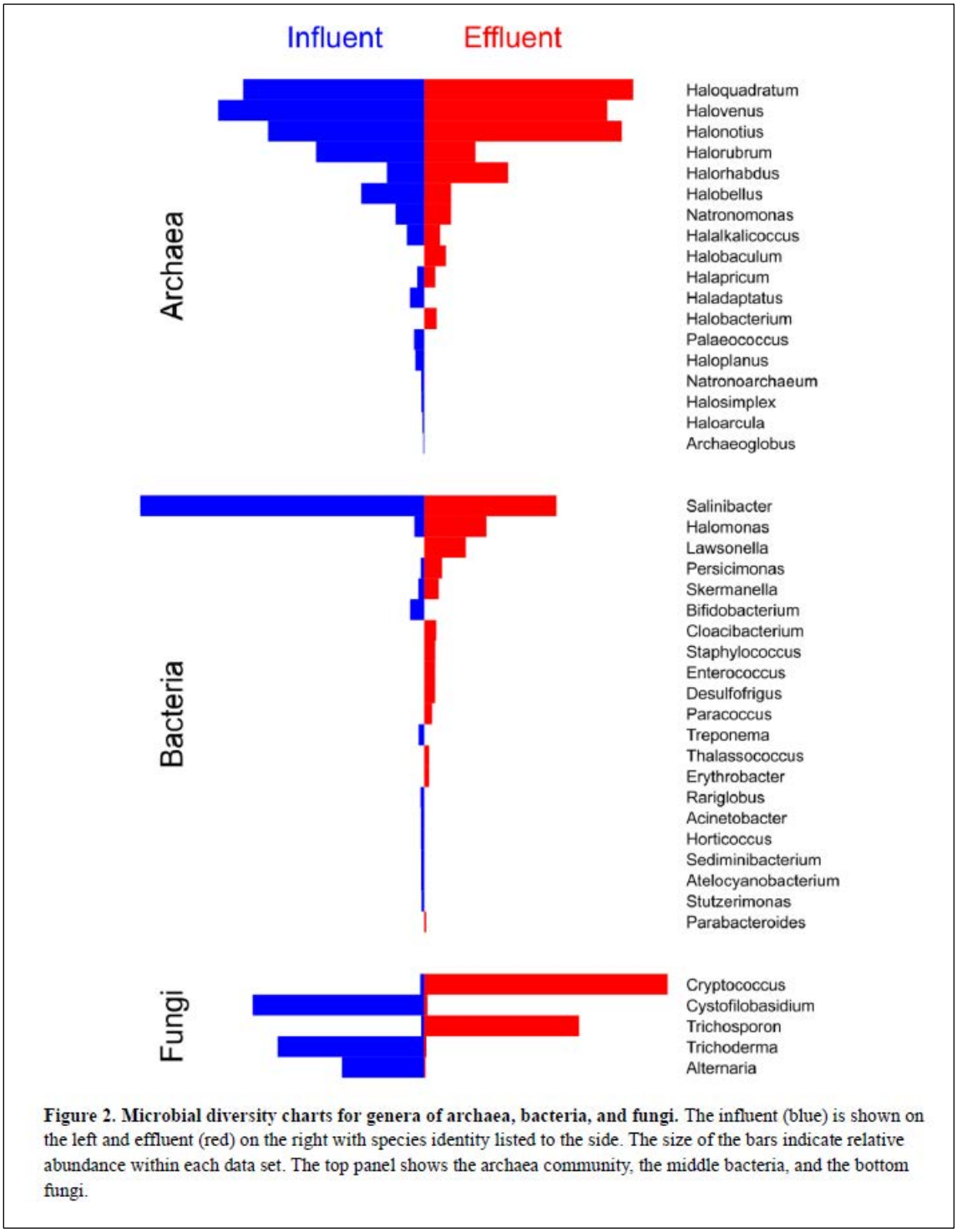


Figure 2. Microbial diversity charts for genera of archaea, bacteria, and fungi. The influent (blue) is shown on the left and effluent (red) on the right with species identity listed to the side. The size of the bars indicate relative abundance within each data set. The top panel shows the archaea community, the middle bacteria, and the bottom fungi.

Figure 12. June 2025 Biota Abundance Graphs

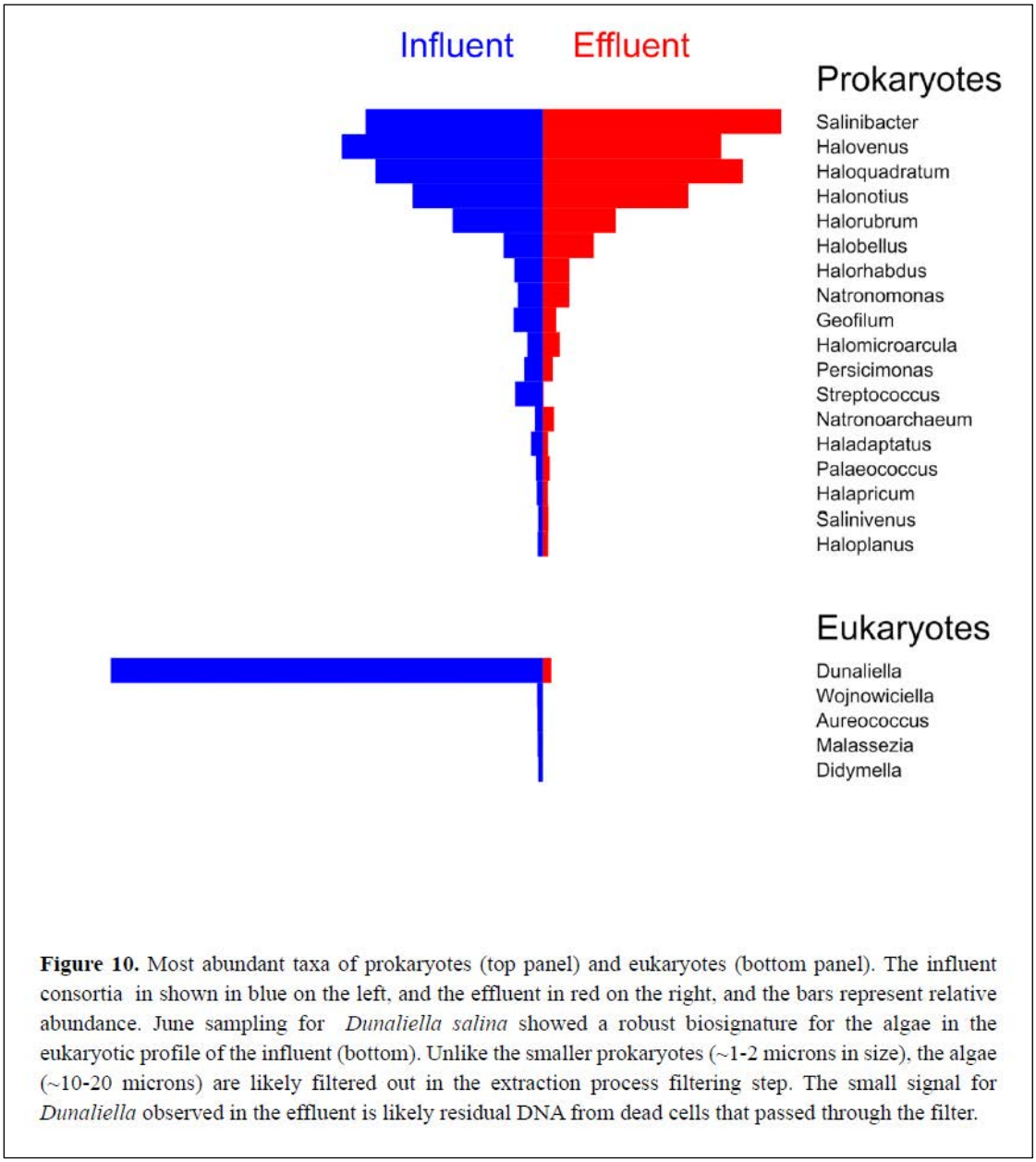


Figure 10. Most abundant taxa of prokaryotes (top panel) and eukaryotes (bottom panel). The influent consortia in shown in blue on the left, and the effluent in red on the right, and the bars represent relative abundance. June sampling for *Dunaliella salina* showed a robust biosignature for the algae in the eukaryotic profile of the influent (bottom). Unlike the smaller prokaryotes (~1-2 microns in size), the algae (~10-20 microns) are likely filtered out in the extraction process filtering step. The small signal for *Dunaliella* observed in the effluent is likely residual DNA from dead cells that passed through the filter.

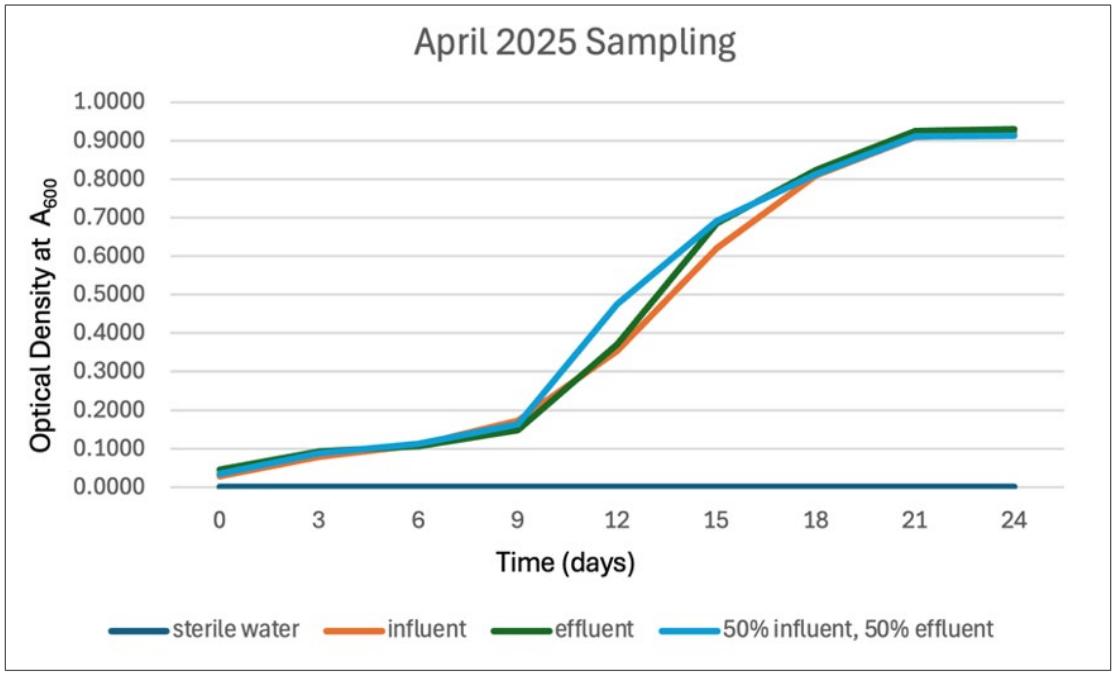
5.3 Biota Growth in Discharge

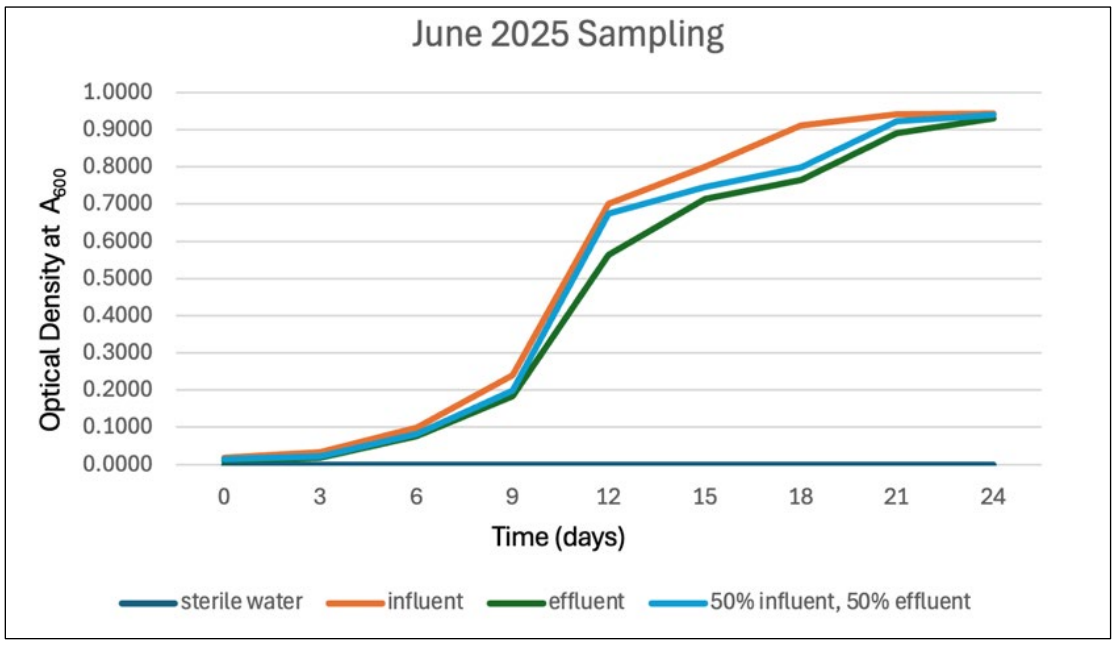
To understand the effects of discharges into the North Arm on biota growth, a time course growth experiment was conducted on influent, discharge, or a mix of the influent and discharge (representing North Arm brine after discharge). The protocol that was used consisted of inoculating 9 milliliters (mL) of 23% salt modified growth media (Dyall-Smith 2009) with 1 mL of sample. The inoculated samples consisted of (1) sterile deionized water serving as a control, (2) influent flow, (3) discharge (effluent) flow, and (4) a 50:50 mix of influent and discharge, which represents the in-lake mixture of discharge and brine.

Figure 13 shows the growth curves of the samples collected during the April and June monitoring events. All samples follow a standard growth curve. The microbial communities appear to have reached a stationary growth phase over this period of study. This is expected of healthy cultures. Also note that the sample representing the North Arm brine mixed with the discharge flow did not visibly affect growth of the biota. By comparing influent, discharge, and mixture sample results, this analysis provides evidence that the Demonstration Plant's DLE process does not prevent biota cell growth in the North Arm of the GSL.

B.1

Figure 13. April and June 2025 Biota Growth Results





6 Evaluation of No Negative Impact on the GSL from Demonstration Plant Operation

Waterleaf evaluated the results of the chemistry and biota analyses to determine whether negative impacts on the North Arm's chemistry and biota occurred during the operation of the Demonstration Plant.

Negative impact is defined by UDWQ R317-16-16 to include the following evaluation criteria:

> Negative impact includes any activity or action that:
>
> - Causes pollution, or negatively alters the salinity or other aspects of water chemistry in Great Salt Lake;
> - Negatively alters the volume or timing of water flows to Great Salt Lake, or water levels in Great Salt Lake or Great Salt Lake wetlands;
> - Reduces, degrades, or otherwise negatively alters habitat in and around Great Salt Lake; or
> - Results in harmful physiological impacts to Great Salt Lake biota, including disruptions to survival, reproduction, or growth.

Waterleaf asserts no negative impacts on the North Arm of the GSL based on the above criteria. These evaluation criteria are discussed below.

6.1 Impacts on North Arm Salinity or Water Quality Chemistry

Waterleaf asserts that there were no negative impacts on North Arm salinity or water quality chemistry from operation of the Demonstration Plant, based on the results, analysis and review provided in Section 3.3, *Chemistry Monitoring Results Discussion and Graphs*. This assertion is based on the following:

- Compliance monitoring met the requirements of the UPDES permit for protecting the beneficial uses of the North Arm of the GSL. No water quality standards were exceeded.
- The incremental decrease in volume discharged (0.142 af; influent and groundwater volume subtracted from discharge volume) compared to the total volume of the North Arm of the GSL (3.24 maf) indicates that the Demonstration Plant's retained volume is *de minimis* and would not impact North Arm salinity or water quality.
- The Demonstration Plant's operation was temporary (7 months).
- The results of the compliance monitoring analysis, comparing average discharge concentrations to average influent concentrations and MDLs, uncertainty and error consideration, association of specific monitoring results due to operational phases, comparison of the mass load to the North Arm from Demonstration Plant operations to existing North Arm mass loads, and results of the biota monitoring study provide evidence that the Demonstration Plant did not harm North Arm water quality.

- Manganese, a component of the DLE process, had higher average discharge concentrations compared to the average influent concentrations. Examination of federal and state standards for lake recreational contact revealed that no standards or guidelines exist. Discharge concentrations are well below federal guidelines for dermal exposure due to showering in drinking water.
- The density of the North Arm discharge did not vary significantly from the density of the influent. This data shows that the density (salinity) of the North Arm was not changed due to the operation of the Demonstration Plant.

6.2 Impacts on North Arm Volume, Flows, or Water Levels

Waterleaf asserts that there were no negative impacts on North Arm volume, flows, or water levels from operation of the Demonstration Plant. This assertion is based on continuous flow monitoring data collected during operation of the Demonstration Plant. The flow monitoring data documented that the influent and discharge flows were comparable during operation. The Demonstration Plant diverted raw brine directly from the open waters of the GSL and discharged depleted brine back to the open waters of the GSL. The processing time from when the raw brine was diverted to when the depleted brine was discharged was less than 8 hours. The Demonstration Plant did not divert any surface water flows for its operation.

The results of the flow monitoring events are summarized in Section 4, *Flow Monitoring Results*.

Based on the Demonstration Plant's flow monitoring and the final water balance, the volume of North Arm raw brine diverted and groundwater added was documented to be discharged back to the North Arm, less water lost to processing the product. The amount of water (about 0.142 af) used to produce the liquid product is considered by Waterleaf to be *de minimis* compared to the 3.24 maf in the North Arm (at a WSE of 4,192 feet). Because no surface waters were diverted, the Demonstration Plant did not alter the timing of water flows to the North Arm of the GSL.

Waterleaf asserts that the Demonstration Plant did not alter the volume or timing of water flows to the GSL or the water levels in the GSL or GSL wetlands.

6.3 Impacts on North Arm Habitat

Waterleaf asserts that there were no negative impacts on North Arm habitat. This assertion is based on evaluating the presence of microbialites that could be present or could grow in and along the open waters of the GSL. Based on the survey conducted on the intake and outfall pipe easements before construction of the Demonstration Plant, no microbialite structures were identified (HDR 2024).

Therefore, Waterleaf asserts that the Demonstration Plant did not reduce, degrade, or otherwise negatively alter habitat in and around the North Arm of the GSL.

6.4 Impacts on North Arm Biota

To evaluate impacts on North Arm biota, Waterleaf contracted with Dr. Bonnie Baxter of Westminster University to conduct biota monitoring during operation of the Demonstration Plant (Baxter 2025). The biota monitoring documented the presence and abundance of biota (archaea, bacteria, algae, and fungi) in the influent to and the discharge from the Demonstration Plant during its operation. The study also investigated whether biota could reproduce and grow in the discharge water from the Demonstration Plant.

The results of the biota analyses are summarized in Section 5, *Biota Monitoring Results*, and the complete report is provided as Appendix C, *Biota Monitoring Report*.

Based on the biota monitoring study and results, North Arm biota were documented to be present and abundant in the raw brine influent and Demonstration Plant discharge water during its operation. Biota were also documented to grow and reproduce in the discharge water from the Demonstration Plant. Therefore, Waterleaf asserts that the Demonstration Plant did not disrupt survival, reproduction, or growth of North Arm biota (archaea, algae, bacteria, and fungi) and did not have a negative impact on the biota of the North Arm of the GSL.

7 References

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APPENDIX A

UPDES Permit

STATE OF UTAH
DIVISION OF WATER QUALITY
DEPARTMENT OF ENVIRONMENTAL QUALITY
SALT LAKE CITY, UTAH

UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM (UPDES) PERMITS

Minor Industrial Permit No. **UT0026280**

In compliance with provisions of the Utah *Water Quality Act*, *Title 19*, *Chapter 5*, *Utah Code* (the *"Act"*),

WATERLEAF RESOURCES, LLC (Permittee),

is hereby authorized to discharge from

GREAT SALT LAKE LITHIUM PROJECT (Facility),

to receiving waters named **GUNNISON BAY**, **THE GREAT SALT LAKE,**

in accordance with specific limitations, outfalls, and other conditions set forth herein.

This permit shall become effective on **February 4th, 2025.**

This permit expires at midnight on **February 4th, 2028.**

Signed this **fourth day of February 2025**.

John K. Mackey, P.E.
Director

DWQ-2024-000479

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PART I
DISCHARGE PERMIT NO. UT0026280
WASTEWATER

I. DISCHARGE LIMITATIONS AND REPORTING REQUIREMENTS

A. Description of Discharge Points. The authorization to discharge wastewater provided under this part is limited to those outfalls specifically designated below as discharge locations. Discharges at any location not authorized under a UPDES permit are violations of the *Act* and may be subject to penalties under the *Act*. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge may be subject to criminal penalties as provided under the *Act*.

Outfall Number	Location of Discharge Outfall
001	Discharge to Gunnison Bay, Great Salt Lake. Located at latitude 41° 26' 44.16" and longitude 112° 41' 36.04".

B. Narrative Standard. It shall be a violation of this permit, for Permittee to discharge effluent or place any waste, pollutant, or other substance into Waters of the State in such a way as will be or may become offensive such as unnatural deposits, floating debris, oil, scum, or other nuisances such as color, odor or taste, or cause conditions which produce undesirable aquatic life, objectionable tastes in edible aquatic organisms; or result in concentrations or combinations of substances which produce undesirable physiological responses in desirable resident fish, or other desirable aquatic life, or undesirable human health effects, as determined by a bioassay or other tests performed in accordance with standard procedures.

C. Specific Limitations and Self-Monitoring Requirements.

1. Effective immediately, and lasting through the life of this permit, there shall be no acute or chronic toxicity in Outfall 001 as defined in *Part VIII*.

2. Discharge Limitations and Reporting Requirements:

   a. The limitations specified in this section shall be applied on a net basis, unless otherwise noted, if the source of the applicant's water supply is the same body of water into which the discharge is made. With the exception of calcium, there shall be no discharge of process wastewater pollutants into navigable waters. See Fact Sheet Statement of Basis for more information.
   b. Permittee must notify the Division of Water Quality (DWQ) fourteen (14) days prior to discharge. From the date the Permittee begins discharge, Permittee will be authorized to discharge from Outfall 001 for twelve (12) consecutive months only.
   c. Such discharges shall be limited and monitored by the Permittee as specified below:

Parameter	Effluent Limitations *a				
	Maximum Weekly Avg	Annual Load	Weekly Load	Daily Minimum	Daily Maximum
Total Flow *b, *c, *d Demonstration Plant	0.06	--	--	--	0.12
Temperature *d	Report	--	--	--	Report
pH, Standard Units	--	--	--	6.5	9
Oil & Grease	--	--	--	--	10.0
Total Alkalinity, *d	Report	--	--	--	Report
Total Dissolved Solids *d	Report	--	--	--	Report
Total Suspended Solids *d	Report	--	--	--	Report

Sulfate *d	Report	--	--	--	Report
Nitrate *d	Report	--	--	--	Report
Nitrite *d	Report	--	--	--	Report
Carbonate *d	Report	--	--	--	Report
Hydroxide *d	Report	--	--	--	Report
Chemical Oxygen Demand *d	Report	--	--	--	Report
Biological Oxygen Demand *d	Report	--	--	--	Report
Silica *d	Report	--	--	--	Report
Sodium *d	Report	--	--	--	Report
Calcium *d *e	Report	--	--	--	Report
Potassium *d	Report	--	--	--	Report
Boron *d	Report	--	--	--	Report
Bromine *d	Report	--	--	--	Report
Silicon *d	Report	--	--	--	Report
Total Lithium *d	Report	--	--	--	Report
Total Arsenic *d, *f	--	*g	*h	--	--
Total Cadmium *d, *f	--	*g	*h	--	--
Total Chromium *d, *f	--	*g	*h	--	--
Total Copper *d, *f	--	*g	*h	--	--
Total Lead *d, *f	--	*g	*h	--	--
Total Molybdenum *d, *f	--	*g	*h	--	--
Total Nickel *d, *f	--	*g	*h	--	--
Total Selenium *d, *f	--	*g	*h	--	--
Total Silver *d, *f	--	*g	*h	--	--
Total Zinc *d, *f	--	*g	*h	--	--
Total Cyanide *d, *f	--	*g	*h	--	--
Total Mercury *d, *f	--	*g	*h	--	--

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Total Flow *b, *c, *d	Continuous	Recorder	MGD
pH	Weekly	Instantaneous	SU
DO	Weekly	Instantaneous	mg/L
Temperature *d	Weekly	Instantaneous	mg/L
Oil & Grease *i	Weekly	Grab	mg/L
Total Alkalinity, *d	Weekly	Composite	mg/L
Total Dissolved Solids *d	Weekly	Composite	mg/L
Total Suspended Solids *d	Weekly	Composite	mg/L
Sulfate *d	Weekly	Composite	mg/L
Nitrate *d	Weekly	Composite	mg/L
Nitrite *d	Weekly	Composite	mg/L
Carbonate *d	Weekly	Composite	mg/L
Hydroxide *d	Weekly	Composite	mg/L
Chemical Oxygen Demand *d	Weekly	Composite	mg/L
Biological Oxygen Demand *d	Weekly	Composite	mg/L
Silica *d	Weekly	Composite	mg/L
Sodium *d	Weekly	Composite	mg/L
Calcium *d, *e	Weekly	Composite	mg/L
Potassium *d	Weekly	Composite	mg/L
Boron *d	Weekly	Composite	mg/L

Bromine *d	Weekly	Composite	mg/L
Silicon *d	Weekly	Composite	mg/L
Total Lithium *d	Weekly	Composite	mg/L
Total Arsenic	Weekly	Composite	mg/L, kg/day
Total Cadmium	Weekly	Composite	mg/L, kg/day
Total Chromium	Weekly	Composite	mg/L, kg/day
Total Copper	Weekly	Composite	mg/L, kg/day
Total Lead	Weekly	Composite	mg/L, kg/day
Total Molybdenum	Weekly	Composite	mg/L, kg/day
Total Nickel	Weekly	Composite	mg/L, kg/day
Total Selenium	Weekly	Composite	mg/L, kg/day
Total Silver	Weekly	Composite	mg/L, kg/day
Total Zinc	Weekly	Composite	mg/L, kg/day
Total Cyanide	Weekly	Composite	mg/L, kg/day
Total Arsenic	Yearly	Composite	kg/year
Total Cadmium	Yearly	Composite	kg/year
Total Chromium	Yearly	Composite	kg/year
Total Copper	Yearly	Composite	kg/year
Total Lead	Yearly	Composite	kg/year
Total Molybdenum	Yearly	Composite	kg/year
Total Nickel	Yearly	Composite	kg/year
Total Selenium	Yearly	Composite	kg/year
Total Silver	Yearly	Composite	kg/year
Total Zinc	Yearly	Composite	kg/year
Total Cyanide	Yearly	Composite	kg/year

*a See Definitions, *Part VIII*, for definition of terms.
*b Flow measurements of influent/effluent volume shall be made in such a manner that Permittee can affirmatively demonstrate that representative values are being obtained.
*c If the rate of discharge is controlled, the rate and duration of discharge shall be reported.
*d In addition to monitoring the final discharge, influent samples shall be taken and analyzed for this constituent at the same frequency as required for this constituent in the discharge.
*e Discharge of calcium is allowed as a process wastewater pollutant. See Fact Sheet Statement of Basis for more information.
*f The minimum detection limit (MDL) of the test method used for analysis must be below this limit in mg/L. If a test method is not available, Permittee must submit documentation to the Director regarding the method that will be used. Total Arsenic 0.180 mg/L, Total Cadmium 0.0052 mg/L, Total Chromium 0.0166 mg/L, Total Copper 0.067 mg/L, Total Lead 0.0465 mg/L, Total Molybdenum NA, Total Nickel 0.376 mg/L, Total Selenium 0.0079 mg/L, Total Silver 0.0899 mg/L, Total Zinc 0.675 mg/L, Total Cyanide 0.0093 mg/L, Total Mercury 0.000022 mg/L.
*g The average annual load for this parameter in the final discharge shall not exceed +10% of the load in the intake water as reported in kg/year.
*h The average weekly load for this parameter in the final discharge shall not exceed +10% of the load in the intake water as reported in kg/day.
*i Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report NA.

d. As authorized in Part VII.E.:
   (1) Permittee shall establish laboratory quality performance for the Great Salt Lake North Arm matrix as soon as possible, and present and review the laboratory quality performance with the Director.
      (a) Based on the laboratory quality performance, Permittee shall work with the Director to define suitable data quality objectives for the Demonstration Plant, that evidence protection of Great Salt Lake

chemistry and biota. Following the work with the Director, Permittee shall formalize the recommended data quality objectives, in writing, and submit to the Director prior to completion of testing at the Demonstration Plant.

(2) Permittee shall submit a Level IV data quality package with each compliance sample.

(3) Permittee shall coordinate with DWQ on the collection and delivery of a split sample for each compliance sample taken. Permittee shall handle and deliver split samples using proper chain of custody procedures as described in 40 C.F.R. § 136.

D. Reporting of Monitoring Results.

1. Reporting of Wastewater Monitoring Results Monitoring results obtained by the Permittee during the previous month shall be summarized for each month and reported to DWQ on a Discharge Monitoring Report Form (EPA No. 3320-1)* or by NetDMR, post-marked or entered into NetDMR no later than 28 days after the last day of the reporting period. The first report is due on **March 28, 2025**. If no discharge occurs during the reporting period, "no discharge" shall be reported. Legible copies of these, and all other reports including whole effluent toxicity (WET) test reports required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part VII.G*), and submitted by NetDMR, or to the Division of Water Quality at the following address:

Department of Environmental Quality
Division of Water Quality
PO Box 144870
Salt Lake City, Utah 84114-4870

* Starting January 1, 2017 monitoring results must be submitted using NetDMR unless Permittee has successfully petitioned for an exception.

II. PRETREATMENT REQUIREMENTS

A. Definitions. For this section, the following definitions shall apply:

1. *Indirect Discharge* means the introduction of pollutants into a publicly-owned treatment works (POTW) from any non-domestic source regulated under section 307 (b), (c) or (d) of the CWA.

2. *Interference* means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

   a. Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

   b. Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

3. *Pass Through means* a Discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

4. *Publicly Owned Treatment Works* or *POTW* means a treatment works, as defined by section 212 of the CWA, which is owned by a State or municipality (as defined by section 502(4) of the CWA). This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality, as defined in section 502(4) of the CWA, which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works.

5. *Significant Industrial User (SIU)* is defined as an Industrial User discharging to a POTW that satisfies any of the following:

   a. Has a process wastewater flow of 25,000 gallons or more per average work day;

   b. Has a flow greater than five percent of the flow carried by the municipal system receiving the waste;

   c. Is subject to Categorical Pretreatment Standards, or

   d. Has a reasonable potential for adversely affecting the operation of the POTW or violating any pretreatment standard or requirement.

6. *User or Industrial User (IU)* means a source of Indirect Discharge.

B. Discharge to POTW. Any wastewaters discharged to a Publicly Owned Treatment Works (POTW), either as an Indirect Discharge or as a hauled waste, are subject to Federal, State and local pretreatment regulations. Pursuant to Section 307 of The Water Quality Act of 1987, Permittee shall comply with all applicable federal General Pretreatment Regulations promulgated at 40 CFR 403, the State Pretreatment Requirements at Utah Administrative Code (UAC) R317-8-8, and any specific local discharge limitations developed by the POTW accepting the wastewaters. At a minimum, the discharge into a POTW must meet the requirements of Part II. C., D. and E. of the permit.

C. Hazardous Waste Notification. Permittee must notify the POTW, the EPA Regional Waste Management Director, the Director and the State hazardous waste authorities in writing if they discharge any substance into a POTW that, if otherwise disposed of, would be considered a hazardous waste under 40 CFR 261. This notification must include the name of the hazardous waste, the EPA hazardous waste number, and the type of discharge (continuous or batch).

D. General and Specific Prohibitions.

1. General Prohibitions. Permittee may not introduce into a POTW any pollutant(s) which cause Pass Through or Interference. These general prohibitions and the specific prohibitions in II. D. 2. of this section apply to the introducing pollutants into a POTW whether or not Permittee is subject to other National Pretreatment Standards or any national, State, or local Pretreatment Requirements.

2. Specific Prohibitions. The following pollutants shall not be introduced into a POTW:

   a. Pollutants which create a fire or explosion hazard in the publicly owned treatment works (POTW), including, but not limited to, wastestreams with a closed cup flashpoint of less than 140˚F (60˚C);

   b. Pollutants, which will cause corrosive structural damage to the POTW, but in no case, discharges with a pH lower than 5.0;

   c. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in Interference;

   d. Any pollutant, including oxygen demanding pollutants (BOD, etc.), released in a discharge at such volume or strength as to cause Interference in the POTW;

   e. Heat in amounts, which will inhibit biological activity in the POTW, resulting in Interference, but in no case, heat in such quantities that the influent to the sewage treatment works exceeds 104˚F (40˚C));

   f. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause Interference or Pass Through;

   g. Pollutants, which result in the presence of toxic gases, vapor, or fumes within the POTW in a quantity that may cause worker health or safety problems;

   h. Any trucked or hauled pollutants, except at discharge points designated by the POTW; or

   i. Any pollutant that causes Pass Through or Interference at the POTW.

j. Any specific pollutant which exceeds any Local Limitation established by the POTW.

E. Categorical Standards. In addition to the general and specific limitations expressed in *Part II. D.* of this section, applicable National Categorical Pretreatment Standards must be met by all Industrial Users discharging into a POTW. These standards are published in the federal regulations at *40 CFR 405 through 471*.

PART III
BIOSOLIDS

III. BIOSOLIDS REQUIREMENTS

A. Biosolids Treatment and Disposal. UAC R317-8-1.10 regulates the disposal of sewage sludge (biosolids), which incorporates the federal standards found in 40 CFR Part 503 by reference. However, this is an industrial facility that does not regularly produce regulated biosolids. Therefore, R317-8-1.10 does not apply at this time.

B. Biosolids – Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate biosolids limitations (and compliance schedule, if necessary), management practices, other appropriate requirements to protect public health and the environment, or if there have been substantial changes (or such changes are planned) in biosolids use or disposal practices; applicable management practices or numerical limitations for pollutants in biosolids have been promulgated which are more stringent than the requirements in this permit; and/or it has been determined that Permittee's biosolids use or land application practices do not comply with existing applicable state of federal regulations.

IV. STORM WATER REQUIREMENTS.

A. Industrial Storm Water Permit. Based on the type of industrial activities occurring at the Permitted Facility, Permittee is required to maintain separate coverage or an appropriate exclusion under the Multi-Sector General Permit (MSGP) for Storm Water Discharges Associated with Industrial Activities (UTR000000). If the Permitted Facility is not already covered, Permittee has thirty (30) days from when this permit is issued to submit the appropriate Notice of Intent (NOI) for the MSGP or exclusion documentation.

B. Construction Storm Water Permit. Any construction at the Permitted Facility that disturbs an acre or more of land, including less than an acre if it is part of a common plan of development or sale, is required to obtain coverage under the UPDES Construction General Storm Water Permit (UTRC00000). Permittee must obtain permit coverage prior to land disturbance. If the site qualifies, the Permittee may submit a Low Erosivity Waiver (LEW) Certification instead of permit coverage.

V. MONITORING, RECORDING & GENERAL REPORTING REQUIREMENTS

A. Representative Sampling. Permittee shall collect samples in compliance with the monitoring requirements established under *Part I* from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge. Samples of biosolids shall be collected at a location representative of the quality of biosolids immediately prior to the use-disposal practice.

B. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under UAC R317-2-10, UAC R317-8-4.1(10)(d), and/or 40 CFR § 503 utilizing sufficiently sensitive test methods unless other test procedures have been specified in this permit. Monitoring must be conducted according to the test procedures listed above unless another method is required under 40 CFR Chapter I subchapters N or O. Sufficiently sensitive test method means: (1) The method minimum level (ML) is at or below the level of the effluent limit established in the permit for the measured pollutant or pollutant parameter; or (2) The method has the lowest ML of the analytical methods approved under 40 CFR part 136 or required under 40 CFR chapter I, subchapter N or O for the measured pollutant or pollutant parameter as per 40 CFR 122.44(i)(1)(iv)(A).

C. Penalties for Tampering. Utah Code § 19-5-115(4) of the Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per day of violation, or by imprisonment for not more than six (6) months per violation, or by both.

D. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than fourteen (14) days following each schedule date.

E. Additional Monitoring by the Permittee. If Permittee monitors any parameter more frequently than required by this permit, using test procedures approved under Permit Part V.B., the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or the Biosolids Report Form.

F. Records Contents. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements:
2. The individual(s) who performed the sampling or measurements;
3. The date(s) and time(s) analyses were performed;
4. The individual(s) who performed the analyses;
5. The analytical techniques or methods used; and,
6. The results of such analyses.

G. Retention of Records. Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least five (5) years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time. A copy of this UPDES permit must be maintained on site during the duration of activity at the permitted location

H. Twenty-four (24) Hour Notice of Noncompliance Reporting.

1. In accordance with UAC R317-8-4, Permittee shall (orally) report any noncompliance which may endanger health or the environment, including transportation accidents, spills, and uncontrolled runoff from biosolids transfer or land application sites which may seriously endanger health or environment, as soon as possible, but no later than twenty-four (24) hours from the time Permittee first became aware of circumstances. The report shall be made to the DWQ via the 24-hour answering service (801) 536-4123.

2. The following occurrences of noncompliance shall initially be reported by telephone to the DWQ via the 24-hour answering service as soon as possible but no later than twenty-four (24) hours from the time Permittee becomes aware of the circumstances:

   a. Any noncompliance which may endanger health or the environment;

   b. Any unanticipated bypass, which exceeds any effluent limitation in the permit (See *Part VI.G, Bypass of Treatment Facilities.)*;

   c. Any Upset which exceeds any effluent limitation in the permit (See *Part VI.H, Upset Conditions*.);

   d. Violation of a daily discharge limitation for any of the pollutants listed in the permit. For other permit violations which will not endanger health or the environment, DWQ may otherwise be notified during business hours (801) 536-4300; or,

   e. Violation of any of the Table 3 metals limits, the pathogen limits, the vector attraction reduction limits or the management practices for biosolids that have been sold or given away.

3. A written submission shall also be provided within five (5) days of the time that Permittee becomes aware of the circumstances. The written submission shall contain:

   a. A description of the noncompliance and its cause;

   b. The period of noncompliance, including exact dates and times;

   c. The estimated time noncompliance is expected to continue if it has not been corrected;

   d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and,

   e. Steps taken, if any, to mitigate the adverse impacts on the environment and human health during the noncompliance period.

4. The Director may waive the written report on a case-by-case basis if the oral report has been received within twenty-four (24) hours by the Division of Water Quality, (801) 536-4300.

5. Reports shall be submitted to the addresses in *Part I.D, Reporting of Monitoring Results*.

I. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within twenty-four (24) hours shall be reported at the time that monitoring reports for *Part I.D* are submitted. The reports shall contain the information listed in *Part V.H.3.*

J. Inspection and Entry Permittee shall allow the Director, or an authorized representative (including an authorized contractor acting as a representative of the Director) upon the presentation of agency credentials and other documents as may be required by law, to:

1. Enter upon Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, including but not limited to, biosolids treatment, collection, storage facilities or area, transport vehicles and containers, and land application sites;

4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the *Act*, any substances or parameters at any location, including, but not limited to, digested biosolids before dewatering, dewatered biosolids, biosolids transfer or staging areas, any ground or surface waters at the land application sites or biosolids, soils, or vegetation on the land application sites; and,

5. The Permittee shall obtain permission or clearance from the landowner or leaseholder, if the landowner is someone other than the Permittee, to permit the Director, or authorized representative, to access the permitted facilities and activities for entry and inspection. The Permittee shall make necessary arrangements with any legally interested parties so as to permit the Director, or authorized representative, to enter and inspect without delay.

VI. COMPLIANCE RESPONSIBILITIES

A. Duty to Comply. Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of *the Act* and is grounds for administrative and civil enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. Permittee shall give sufficient advance notice to the Director of any planned changes in the Permitted Facility or activity, which may result in noncompliance with permit requirements so as to provide the Director with adequate time to review the changes and potentially appropriate remedies.

B. Penalties for Violations of Permit Conditions. Utah Code § 19-5-115 of the *Act* provides that any person who violates a permit condition, rule, or order implementing provisions of the *Act* is subject to a civil penalty not to exceed $10,000 per day of such violation. Except as provided at *Part VI.G, Bypass of Treatment Facilities* and *Part VI.H, Upset Conditions*, nothing in this permit shall be construed to relieve Permittee of the civil or criminal penalties for noncompliance.

C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. Duty to Mitigate. Permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment. Permittee shall also take all reasonable steps to minimize or prevent any land application in violation of this permit.

E. Proper Operation and Maintenance. Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

F. Removed Substances. Collected screening, grit, solids, sludge, or other pollutants removed in the course of treatment shall be disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. Sludge/digester supernatant and filter backwash shall not directly enter either the final effluent or waters of the state by any other direct route.

G. Bypass of Treatment Facilities.

1. Bypass Not Exceeding Limitations. Permittee may allow any bypass to occur which does not cause Permittee to exceed its permitted effluent limitations, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to paragraph 2 and 3 of this section.

2. Prohibition of Bypass.

   a. In accordance with Utah Admin. Code R317-8-4.1, bypass is prohibited, and the Director may take enforcement action against Permittee for bypass, unless:

(1) Bypass was unavoidable to prevent loss of human life, personal injury, or Severe Property Damage;

(2) There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance, and

(3) Permittee submitted notices as required under *Part VI.G.3*.

b. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed in *Parts VI.G.2.a (1), (2) and (3).*

3. Notice.

a. *Anticipated bypass*. Except as provided above in *Part VI.G.2* and below in *Part VI.G.3.b,* if Permittee knows in advance of the need for a bypass, it shall submit prior notice, at least ninety (90) days before the date of bypass. The prior notice shall include the following unless otherwise waived by the Director:

(1) Evaluation of alternative to bypass, including cost-benefit analysis containing an assessment of anticipated resource damages:

(2) A specific bypass plan describing the work to be performed including scheduled dates and times. Permittee must notify the Director in advance of any changes to the bypass schedule;

(3) Description of specific measures to be taken to minimize environmental and public health impacts;

(4) A notification plan sufficient to alert all downstream users, the public and others reasonably expected to be impacted by the bypass;

(5) A water quality assessment plan to include sufficient monitoring of the receiving water before, during and following the bypass to enable evaluation of public health risks and environmental impacts; and,

(6) Any additional information requested by the Director.

b. *Emergency Bypass*. Where ninety (90) days advance notice is not possible, Permittee must notify the Director, and the director of the Department of Natural Resources, as soon as it becomes aware of the need to bypass and provide to the Director the information in *Part VI.G.3.a.(1) through (6)* to the extent practicable.

c. *Unanticipated bypass*. Permittee shall submit notice of an unanticipated bypass to the Director as required under *Part IV.H*, Twenty-Four Hour Reporting. Permittee shall also immediately notify the director of the Department of Natural Resources,

the public and downstream users through means reasonably calculated to provide adequate advance notice of the unanticipated bypass and shall implement measures to minimize impacts to public health, safety, and environment to the extent practicable.

H. Upset Conditions.

1. Effect of an Upset. An Upset constitutes an affirmative defense to an action brought for noncompliance with technology-based permit effluent limitations if the requirements of paragraph 2 of this section are met. Director's administrative determination regarding a claim of Upset cannot be judiciously challenged by Permittee until such time as an action is initiated for noncompliance.

2. Conditions necessary for a demonstration of Upset. A permittee who wishes to establish the affirmative defense of Upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

   a. An Upset occurred and that the permittee can identify the cause(s) of the Upset;

   b. The permitted Facility was at the time being properly operated;

   c. The permittee submitted notice of the Upset as required under *Part V.H, Twenty-four Hour Notice of Noncompliance Reporting*; and,

   d. The permittee complied with any remedial measures required under *Part VI.D, Duty to Mitigate.*

3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an Upset has the burden of proof.

I. Toxic Pollutants. Permittee shall comply with effluent standards or prohibitions established under 33 U.S.C. § 1317,)(Section 307(a), *The Water Quality Act of 1987)* for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

J. Changes in Discharge of Toxic Substances. Permittee shall provide notice to the Director as soon as Permittee knows of, or has reason to believe:

1. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

   a. One hundred micrograms per liter (100 ug/L);

   b. Two hundred micrograms per liter (200 ug/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/L) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;

   c. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with *UAC R317-8-3.4(7)* or (10); or,

d. The level established by the Director in accordance with *UAC R317-8-4.2(6)*.

2. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

   a. Five hundred micrograms per liter (500 ug/L);

   b. One milligram per liter (1 mg/L) for antimony:

   c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with *UAC R317-8-3.4(9)*; or,

   d. The level established by the Director in accordance with *UAC R317-8-4.2(6)*.

VII. GENERAL REQUIREMENTS

A. Planned Changes. Permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the Permitted Facility. Notice is required only when:

1. The alteration or addition to a Permitted Facility may meet one of the criteria for determining whether a facility is a new source in 122.29(b); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit nor to notification requirements under Utah Admin. Code R317-8-4.1(15).

3. The alteration or addition results in a significant change in Permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. Permittee shall give notice to the Director of any planned changes at least 30 days prior to their implementation.

B. Anticipated Noncompliance. Permittee shall give advance notice to the Director of any planned changes to the Permitted Facility or activity, which may result in noncompliance with permit requirements.

C. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by Permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

D. Duty to Reapply. If Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, Permittee shall apply for and obtain a new permit. The application shall be submitted at least 180 days before the expiration date of this permit.

E. Duty to Provide Information. Permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

F. Other Information. When Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts or information.

G. Signatory Requirements. All applications, reports or information submitted to the Director shall be signed and certified.

1. All permit applications shall be signed by either a principal executive officer, ranking elected official or duly authorized representative of the signatory. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described above and submitted to the Director, and,

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the Permitted Facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. A duly authorized representative may thus be either a named individual or any individual occupying a named position.

(1) For a corporation. By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
   (a) A president, secretary, treasurer, vice-president or officer of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or
   (b) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the Permitted Facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

(2) For a partnership or sole proprietorship. By a general partner or the proprietor, respectively; or

(3) For a municipality, State, Federal, or other public agency. By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:
   (a) The chief executive officer of the agency, or
   (b) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person.

3. Changes to authorization. If an authorization under *Part VII.G.2* is no longer accurate because a different individual or position has responsibility for the overall operation of the Permitted Facility, a new authorization satisfying the requirements of *Part VII.G.2.* must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant administrative, criminal and civil penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

H. Penalties for Falsification of Reports. Section 19-5-115(4) of the he *Act* provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than $10,000.00 per day of violation, or by imprisonment for not more than six months per violation, or by both.

I. Availability of Reports. Except for data determined to be confidential under *UAC R317-8-3.2*, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the office of Director. As required by the *Act*, permit applications, permits and effluent data shall not be considered confidential.

J. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude Permittee of any legal action or relieve Permittee from any responsibilities, liabilities, or penalties to which Permittee is or may be subject under the *Act*.

K. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

L. Severability. The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

M. Transfers. This permit may be automatically transferred to a new permittee if:

1. The current permittee notifies the Director at least 20 days in advance of the proposed transfer date;

2. The notice includes a written agreement between the existing and new permittee's containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,

3. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph *2* above.

N. State or Federal Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve Permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by

Sections 19-5-117 and 510 of the Clean Water Act or any applicable Federal or State transportation regulations, such as but not limited to the Department of Transportation regulations.

O. Water Quality - Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations and compliance schedule, if necessary, if one or more of the following events occurs:

1. Water Quality Standards for the receiving water(s) to which Permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.

2. A final wasteload allocation is developed and approved by the State and/or EPA for incorporation in this permit.

3. Revisions to the current CWA § 208 areawide treatment management plans or promulgations/revisions to TMDLs (40 CFR 130.7) approved by the EPA and adopted by DWQ which calls for different effluent limitations than contained in this permit.

P. Toxicity Limitation - Reopener Provision. Use the following paragraph if WET testing is required at the Permitted Facility:

This permit may be reopened and modified (following proper administrative procedures) to include, whole effluent toxicity (WET) limitations, a compliance date, a compliance schedule, a change in the whole effluent toxicity (biomonitoring) protocol, additional or modified numerical limitations, or any other conditions related to the control of toxicants if one or more of the following events occur;

1. Toxicity is detected, as per *Part I.C.4.a/b* of this permit, during the duration of this permit.

2. The TRE results indicate that the toxicant(s) represent pollutant(s) or pollutant parameter(s) that may be controlled with specific numerical limits, and the Director concludes that numerical controls are appropriate.

3. Following the implementation of numerical control(s) of toxicant(s), the Director agrees that a modified biomonitoring protocol is necessary to compensate for those toxicants that are controlled numerically.

4. The TRE reveals other unique conditions or characteristics, which in the opinion of the permit issuing authority justify the incorporation of unanticipated special conditions in the permit.

Use the following paragraph if there is no WET testing is required at the Permitted Facility:

This permit may be reopened and modified (following proper administrative procedures) to include WET testing, a WET limitation, a compliance schedule, a compliance date, additional or modified numerical limitations, or any other conditions related to the control of toxicants if toxicity is detected during the life of this permit.

VIII. DEFINITIONS

A. Wastewater.

1. The “7-day (and weekly) average”, other than for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria. The 7-day and weekly averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week, which begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for that calendar week shall be included in the data for the month that contains Saturday.

2. The "30-day (and monthly) average," other than for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.

3. "Average annual discharge limit" means maximum allowable average of monthly discharges over a calendar year, calculated as the sum of all monthly discharges measured during a calendar year divided by the number of monthly discharges measured during the year. The timeframe is defined as from January 1st to December 31st.

4. “Act,” means the *Utah Water Quality Act*.

5. “Acute toxicity” occurs when 50 percent or more mortality is observed for either test species at any effluent concentration (lethal concentration or “LC_{50}”).

6. “Bypass,” means the diversion of waste streams from any portion of a treatment facility.

7. “Chronic toxicity” occurs when the IC_{25}< XX% effluent. The XX% effluent is the concentration of the effluent in the receiving water, at the end of the mixing zone expressed as per cent effluent.

8. "IC_{25}" is the concentration of toxicant (given in % effluent) that would cause a 25% reduction in mean young per female, or a 25% reduction in overall growth for the test population.

9. “Composite Samples” shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:

a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;

b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;

c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every "X" gallons of flow); and,

d. Continuous sample volume, with sample collection rate proportional to flow rate.

10. "CWA" means *The Federal Water Pollution Control Act*, as amended, by *The Clean Water Act of 1987*.

11. "Daily Maximum" (Daily Max.) is the maximum value allowable in any single sample or instantaneous measurement.

12. "EPA," means the United States Environmental Protection Agency.

13. "Director," means Director of the Division of Water Quality.

14. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.

15. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.

16. "Severe Property Damage," means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

17. "Upset," means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An Upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

APPENDIX B

Laboratory Data Results

B.1

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	Result	MDL	RL	UNC	UNITS	RPToMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake - Grab	25B0543-01	Water	Water	02/06/2025 09:58:00	02/11/2025 10:40:00	02/12/2025 11:50:00	BZB0473	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	ND	5	5		mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall - Grab	25B0543-02	Water	Water	02/06/2025 10:02:00	02/11/2025 10:40:00	02/12/2025 11:50:00	BZB0473	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	ND	5	5		mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/11/2025 12:03:00	02/11/2025 13:07:01	BZB0401	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	ND	44.9	100		ng/L	FALSE	NA	100					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:22:56	BZB0461	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	ND	1.2	1.5		mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:22:56	BZB0461	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	50.6	0.61	1.25		mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:22:56	BZB0461	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	0.172	0.057	0.125		mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:22:56	BZB0461	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	289	0.7	5		mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:22:56	BZB0461	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	ND	0.57	0.75		mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:22:56	BZB0461	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	55.1	0.403	0.5		mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:22:56	BZB0461	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	13300	2.4	5		mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:22:56	BZB0461	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	8600	8.6	12.5		mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:22:56	BZB0461	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	5.4	4.2	5		mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 12:03:00	BZB0461	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	79000	343	500		mg/L	FALSE	NA	500					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 14:59:36	BZB0331	As (T) 200.8	EPA 200.8	200.8	Arsenic, Total	0.62	0.009	0.025		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/12/2025 12:00:00	02/12/2025 14:06:52	BZB0507	Cd (T) 200.8	EPA 200.8	200.8	Cadmium, Total	ND	0.001	0.005		mg/L	FALSE	NA	25					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 15:37:52	BZB0331	Cr (T) 200.8	EPA 200.8	200.8	Chromium, Total	0.092	0.012	0.025		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 14:59:36	BZB0331	Cu (T) 200.8	EPA 200.8	200.8	Copper, Total	0.0754	0.036	0.05		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 14:59:36	BZB0331	Lead (T) 200.8	EPA 200.8	200.8	Lead, Total	ND	0.017	0.025		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 15:37:52	BZB0331	Mn (T) 200.8	EPA 200.8	200.8	Manganese, Total	0.0412	0.032	0.035		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 14:59:36	BZB0331	Mo (T) 200.8	EPA 200.8	200.8	Molybdenum, Total	0.127	0.008	0.025		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 14:59:36	BZB0331	Ni (T) 200.8	EPA 200.8	200.8	Nickel, Total	0.29	0.022	0.025		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 14:59:36	BZB0331	Se (T) 200.8	EPA 200.8	200.8	Selenium, Total	0.298	0.028	0.03		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 14:59:36	BZB0331	Silver (T) 200.8	EPA 200.8	200.8	Silver, Total	ND	0.017	0.025		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 14:59:36	BZB0331	Zn (T) 200.8	EPA 200.8	200.8	Zinc, Total	ND	0.09	0.5		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/07/2025 15:53:00	02/07/2025 15:53:00	BZB0306	Chloride (IC)	EPA 300.0	NO PREP	Chloride	190000	180	500		mg/L	FALSE	NA	500					EK																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/07/2025 14:15:00	02/07/2025 16:23:00	BZB0306	Nitrate	EPA 300.0	NO PREP	Nitrate as N	ND	6.64	10		mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/07/2025 14:15:00	02/07/2025 16:23:00	BZB0306	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	17800	247	500		mg/L	FALSE	NA	500					EK																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/10/2025 11:54:00	02/10/2025 18:24:00	BZB0350	Bromide (IC)	EPA 300.1	NO PREP	Bromide	165	2.3	5		mg/L	FALSE	NA	500					EK																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/10/2025 11:44:00	02/10/2025 16:10:00	BZB0348	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	ND	0.022	0.03		mg/L	FALSE	NA	6					RuB		B-03														1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/10/2025 12:28:00	02/10/2025 17:44:20	BZB0357	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	4750	154	250		mg/L	FALSE	NA	25					LLC																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/07/2025 10:41:00	02/07/2025 19:13:47	BZB0308	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	565	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/07/2025 10:41:00	02/07/2025 19:13:47	BZB0308	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	ND	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/07/2025 10:41:00	02/07/2025 19:13:47	BZB0308	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	ND	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/07/2025 10:41:00	02/07/2025 19:13:47	BZB0308	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	565	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:22:56	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	55400	11.7	33.1		mg/L	FALSE	NA	25					AB																0
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/07/2025 16:05:00	02/07/2025 16:15:00	BZB0320	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	329000	1000	1000		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/12/2025 14:12:00	02/12/2025 14:30:00	BZB0501	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	378	3	4		mg/L	FALSE	NA	1					DRO																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/07/2025 14:20:00	02/07/2025 16:16:00	BZB0307	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	ND	0.01	0.1		mg/L	FALSE	NA	1					RuB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B0543-03	Water	Water	02/06/2025 16:15:00	02/07/2025 14:59:00	02/12/2025 12:26:10	BZB0314	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	10	2	5		mg/L	FALSE	NA	1					DRO																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/11/2025 12:03:00	02/11/2025 13:24:59	BZB0401	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	103	44.9	100		ng/L	FALSE	NA	100					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:25:33	BZB0461	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	ND	1.2	1.5		mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:25:33	BZB0461	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	46.7	0.61	1.25		mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:25:33	BZB0461	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	0.142	0.057	0.125		mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:25:33	BZB0461	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	276	0.7	5		mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:25:33	BZB0461	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	1.1	0.57	0.75		mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:25:33	BZB0461	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	45.4	0.403	0.5		mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:25:33	BZB0461	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	12200	2.4	5		mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:25:33	BZB0461	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7670	8.6	12.5		mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:25:33	BZB0461	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	5.3	4.2	5		mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 12:23:06	BZB0461	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	67600	343	500		mg/L	FALSE	NA	500					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 15:00:56	BZB0331	As (T) 200.8	EPA 200.8	200.8	Arsenic, Total	0.429	0.009	0.025		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/12/2025 12:00:00	02/12/2025 14:09:24	BZB0507	Cd (T) 200.8	EPA 200.8	200.8	Cadmium, Total	ND	0.001	0.005		mg/L	FALSE	NA	25					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 15:39:10	BZB0331	Cr (T) 200.8	EPA 200.8	200.8	Chromium, Total	0.104	0.012	0.025		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 15:00:56	BZB0331	Cu (T) 200.8	EPA 200.8	200.8	Copper, Total	0.13	0.036	0.05		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 15:00:56	BZB0331	Lead (T) 200.8	EPA 200.8	200.8	Lead, Total	ND	0.017	0.025		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 15:39:10	BZB0331	Mn (T) 200.8	EPA 200.8	200.8	Manganese, Total	0.224	0.032	0.035		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 15:00:56	BZB0331	Mo (T) 200.8	EPA 200.8	200.8	Molybdenum, Total	0.112	0.008	0.025		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 15:00:56	BZB0331	Ni (T) 200.8	EPA 200.8	200.8	Nickel, Total	0.279	0.022	0.025		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 15:00:56	BZB0331	Se (T) 200.8	EPA 200.8	200.8	Selenium, Total	0.268	0.028	0.03		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 15:00:56	BZB0331	Silver (T) 200.8	EPA 200.8	200.8	Silver, Total	ND	0.017	0.025		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/10/2025 09:56:00	02/10/2025 15:00:56	BZB0331	Zn (T) 200.8	EPA 200.8	200.8	Zinc, Total	ND	0.09	0.5		mg/L	FALSE	NA	50					TM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/07/2025 16:08:00	02/07/2025 16:08:00	BZB0306	Chloride (IC)	EPA 300.0	NO PREP	Chloride	163000	180	500		mg/L	FALSE	NA	500					EK																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/07/2025 14:15:00	02/07/2025 16:38:00	BZB0306	Nitrate	EPA 300.0	NO PREP	Nitrate as N	ND	6.64	10		mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/07/2025 14:15:00	02/07/2025 16:38:00	BZB0306	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14900	49.4	100		mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/10/2025 21:00:00	02/10/2025 21:00:00	BZB0350	Bromide (IC)	EPA 300.1	NO PREP	Bromide	144	2.3	5		mg/L	FALSE	NA	500					EK																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/10/2025 11:44:00	02/10/2025 16:14:00	BZB0348	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	ND	0.022	0.03		mg/L	FALSE	NA	6					RuB		B-03														1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/10/2025 12:28:00	02/10/2025 17:44:20	BZB0357	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	4050	154	250		mg/L	FALSE	NA	25					LLC																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/07/2025 10:41:00	02/07/2025 20:13:22	BZB0308	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	438	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/07/2025 10:41:00	02/07/2025 20:13:22	BZB0308	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	ND	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/07/2025 10:41:00	02/07/2025 20:13:22	BZB0308	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	ND	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/07/2025 10:41:00	02/07/2025 20:13:22	BZB0308	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	438	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/12/2025 10:43:00	02/12/2025 13:25:33	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	50800	11.7	33.1		mg/L	FALSE	NA	25					AB																0
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B0543-04	Water	Water	02/06/2025 16:15:00	02/07/2025 16:05:00	02/07/2025 16:15:00	BZB0320	TDS	SM 2540 C

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPTxMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake Grab	25B1120-01	Water	Water	02/13/2025 16:10:00	02/19/2025 11:11:00	02/20/2025 13:45:00	BZB0747	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTP10169	FALSE	FALSE	ND	5	5	mg/L	FALSE	NA	1					TFW																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall Grab	25B1120-02	Water	Water	02/13/2025 16:30:00	02/19/2025 11:11:00	02/20/2025 13:45:00	BZB0747	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTP10169	FALSE	FALSE	ND	5	5	mg/L	FALSE	NA	1					TFW																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/18/2025 09:22:00	02/18/2025 12:01:30	BZB0867	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	22.2	9	20	ng/L	FALSE	NA	20					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/21/2025 10:33:00	02/21/2025 11:13:27	BZB0877	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	1.7	1.2	1.5	mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/21/2025 10:33:00	02/21/2025 11:13:27	BZB0877	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	62.9	0.61	1.25	mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/21/2025 10:33:00	02/21/2025 11:13:27	BZB0877	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.278	0.057	0.125	mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/21/2025 10:33:00	02/21/2025 11:13:27	BZB0877	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	313	0.7	5	mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/21/2025 10:33:00	02/21/2025 11:13:27	BZB0877	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/21/2025 10:33:00	02/21/2025 11:13:27	BZB0877	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	69.2	0.403	0.5	mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/21/2025 10:33:00	02/21/2025 11:13:27	BZB0877	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14200	2.4	5	mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/21/2025 10:33:00	02/21/2025 11:13:27	BZB0877	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8800	8.6	12.5	mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/21/2025 10:33:00	02/21/2025 11:13:27	BZB0877	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	6	4.2	5	mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/21/2025 10:33:00	02/21/2025 10:48:52	BZB0877	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	82600	343	500	mg/L	FALSE	NA	500					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 13:27:00	02/14/2025 14:09:13	BZB0640	As (T) 200.8	EPA 200.8	200.8	Arsenic, Total	7440-38-2	FALSE	FALSE	0.462	0.004	0.013	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 13:27:00	02/14/2025 14:09:13	BZB0640	Cd (T) 200.8	EPA 200.8	200.8	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 13:27:00	02/14/2025 15:41:50	BZB0640	Cr (T) 200.8	EPA 200.8	200.8	Chromium, Total	7440-47-3	FALSE	FALSE	0.0276	0.006	0.013	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 13:27:00	02/14/2025 14:09:13	BZB0640	Cu (T) 200.8	EPA 200.8	200.8	Copper, Total	7440-50-8	FALSE	FALSE	0.0313	0.018	0.025	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 13:27:00	02/14/2025 14:09:13	BZB0640	Lead (T) 200.8	EPA 200.8	200.8	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 13:27:00	02/14/2025 14:09:13	BZB0640	Mn (T) 200.8	EPA 200.8	200.8	Manganese, Total	7439-96-5	FALSE	FALSE	0.0408	0.018	0.018	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 13:27:00	02/14/2025 14:09:13	BZB0640	Mo (T) 200.8	EPA 200.8	200.8	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.136	0.004	0.013	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 13:27:00	02/14/2025 14:09:13	BZB0640	Ni (T) 200.8	EPA 200.8	200.8	Nickel, Total	7440-02-0	FALSE	FALSE	0.032	0.011	0.013	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 13:27:00	02/14/2025 14:09:13	BZB0640	Se (T) 200.8	EPA 200.8	200.8	Selenium, Total	7782-49-2	FALSE	FALSE	0.106	0.014	0.015	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 13:27:00	02/14/2025 14:09:13	BZB0640	Silver (T) 200.8	EPA 200.8	200.8	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 13:27:00	02/14/2025 14:09:13	BZB0640	Zn (T) 200.8	EPA 200.8	200.8	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 13:02:00	02/14/2025 23:39:00	BZB0636	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	185000	180	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 13:02:00	02/14/2025 23:39:00	BZB0636	Nitrate (IC)	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.84	10	mg/L	FALSE	NA	100					DD		R-05														1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 13:02:00	02/14/2025 23:39:00	BZB0636	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	10200	49.4	100	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/22/2025 00:28:00	02/22/2025 00:28:00	02/22/2025	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	177	4.7	10	mg/L	FALSE	NA	1000					LLC																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/21/2025 10:49:00	02/21/2025 15:42:00	BZB0880	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.022	0.03	mg/L	FALSE	NA	6					RuB		B-03														1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/18/2025 10:37:00	02/19/2025 15:57:21	BZB0674	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTP10649	FALSE	FALSE	7020	154	250	mg/L	FALSE	NA	25					LLC																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 12:17:00	02/14/2025 16:18:52	BZB0627	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	597	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 12:17:00	02/14/2025 16:18:52	BZB0627	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 12:17:00	02/14/2025 16:18:52	BZB0627	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 12:17:00	02/14/2025 16:18:52	BZB0627	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTP10279	FALSE	FALSE	597	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/21/2025 10:33:00	02/21/2025 11:15:27	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	59400	11.7	33.1	mg/L	FALSE	NA	25					AB																0
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 16:51:00	02/14/2025 17:08:00	BZB0657	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	CTP10226	FALSE	FALSE	340000	1000	1000	mg/L	FALSE	NA	1					WP																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/19/2025 11:05:00	02/19/2025 16:53:00	BZB0746	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	CTP10267	FALSE	FALSE	530	3	4	mg/L	FALSE	NA	1					EK																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 12:10:00	02/14/2025 17:00:00	BZB0626	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	14797-65-0	FALSE	FALSE	ND	0.01	0.1	mg/L	FALSE	NA	1					RuB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1120-03	Water	Water	02/13/2025 16:10:00	02/14/2025 14:05:00	02/19/2025 13:33:23	BZB0642	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	CTP10003	FALSE	FALSE	6	2	5	mg/L	FALSE	NA	1					LLC																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/18/2025 09:22:00	02/18/2025 12:19:27	BZB0867	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	109	9	20	ng/L	FALSE	NA	20					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/21/2025 10:33:00	02/21/2025 11:23:07	BZB0877	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	3.1	1.2	1.5	mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/21/2025 10:33:00	02/21/2025 11:07:35	BZB0877	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	47.5	1.21	2.5	mg/L	FALSE	NA	50					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/21/2025 10:33:00	02/21/2025 11:23:07	BZB0877	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.322	0.057	0.125	mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/21/2025 10:33:00	02/21/2025 11:23:07	BZB0877	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	275	0.7	5	mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/21/2025 10:33:00	02/21/2025 11:23:07	BZB0877	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	16.4	0.57	0.75	mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/21/2025 10:33:00	02/21/2025 11:23:07	BZB0877	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	54.8	0.403	0.5	mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/21/2025 10:33:00	02/21/2025 11:23:07	BZB0877	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	11700	2.4	5	mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/21/2025 10:33:00	02/21/2025 11:23:07	BZB0877	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	6990	8.6	12.5	mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/21/2025 10:33:00	02/21/2025 11:23:07	BZB0877	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	5.6	4.2	5	mg/L	FALSE	NA	25					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/21/2025 10:33:00	02/21/2025 10:59:16	BZB0877	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	71000	343	500	mg/L	FALSE	NA	500					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/14/2025 13:27:00	02/14/2025 14:13:06	BZB0640	As (T) 200.8	EPA 200.8	200.8	Arsenic, Total	7440-38-2	FALSE	FALSE	0.298	0.004	0.013	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/14/2025 13:27:00	02/14/2025 14:13:06	BZB0640	Cd (T) 200.8	EPA 200.8	200.8	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/14/2025 13:27:00	02/14/2025 15:43:09	BZB0640	Cr (T) 200.8	EPA 200.8	200.8	Chromium, Total	7440-47-3	FALSE	FALSE	0.0328	0.006	0.013	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/14/2025 13:27:00	02/14/2025 14:13:06	BZB0640	Cu (T) 200.8	EPA 200.8	200.8	Copper, Total	7440-50-8	FALSE	FALSE	0.136	0.018	0.025	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/14/2025 13:27:00	02/14/2025 14:13:06	BZB0640	Lead (T) 200.8	EPA 200.8	200.8	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/14/2025 13:27:00	02/14/2025 14:13:06	BZB0640	Mn (T) 200.8	EPA 200.8	200.8	Manganese, Total	7439-96-5	FALSE	FALSE	0.91	0.018	0.018	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/14/2025 13:27:00	02/14/2025 14:13:06	BZB0640	Mo (T) 200.8	EPA 200.8	200.8	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.107	0.004	0.013	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/14/2025 13:27:00	02/14/2025 14:13:06	BZB0640	Ni (T) 200.8	EPA 200.8	200.8	Nickel, Total	7440-02-0	FALSE	FALSE	0.0416	0.011	0.013	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/14/2025 13:27:00	02/14/2025 14:13:06	BZB0640	Se (T) 200.8	EPA 200.8	200.8	Selenium, Total	7782-49-2	FALSE	FALSE	0.0992	0.014	0.015	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/14/2025 13:27:00	02/14/2025 14:13:06	BZB0640	Silver (T) 200.8	EPA 200.8	200.8	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/14/2025 13:27:00	02/14/2025 14:13:06	BZB0640	Zn (T) 200.8	EPA 200.8	200.8	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	25					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/14/2025 13:02:00	02/15/2025 00:38:00	BZB0636	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	144000	180	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/14/2025 13:02:00	02/15/2025 00:38:00	BZB0636	Nitrate (IC)	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.84	10	mg/L	FALSE	NA	100					DD		R-05														1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/14/2025 13:02:00	02/15/2025 00:38:00	BZB0636	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	13100	49.4	100	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/22/2025 01:40:00	02/22/2025 01:40:00	BZB0836	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	158	4.7	10	mg/L	FALSE	NA	1000					LLC																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/21/2025 10:49:00	02/21/2025 15:47:00	BZB0880	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.022	0.03	mg/L	FALSE	NA	6					RuB		B-03														1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1120-04	Water	Water	02/13/2025 16:30:00	02/18/2025 10:37:00	02/19/2025 15:57:21	BZB0674	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTP10649	FALSE	FALSE	3100	154	250	mg/L	FALSE	NA	25		

B.1

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	Result	DL	RL	UNC	UNITS	RPToMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake-Grab	25B1871-01	Water	Water	02/25/2025 12:02:00	02/26/2025 17:56:00	02/27/2025 18:15:00	BZB1109	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	ND		5	5	mg/L	FALSE	NA	1					WP																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall-Grab	25B1871-02	Water	Water	02/25/2025 12:04:00	02/26/2025 17:56:00	02/27/2025 18:15:00	BZB1109	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	ND		5	5	mg/L	FALSE	NA	1					WP																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/27/2025 10:05:00	02/27/2025 11:54:00	BZB1127	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	21.7		9	20	ng/L	FALSE	NA	20					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:25:00	02/27/2025 13:02:51	BZB1087	Al (T) 200.7	EPA 200.7	EPA 200.7	Aluminum, Total	1.5	1.2	1.5		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:25:00	02/27/2025 13:02:51	BZB1087	B (T) 200.7	EPA 200.7	EPA 200.7	Boron, Total	64.5	0.61	1.25		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:25:00	02/27/2025 13:02:51	BZB1087	Ba (T) 200.7	EPA 200.7	EPA 200.7	Barium, Total	ND	0.057	0.125		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:25:00	02/27/2025 13:02:51	BZB1087	Ca (T) 200.7	EPA 200.7	EPA 200.7	Calcium, Total	317	0.7	5		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:25:00	02/27/2025 13:02:51	BZB1087	Fe (T) 200.7	EPA 200.7	EPA 200.7	Iron, Total	ND	0.57	0.75		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:25:00	02/27/2025 13:02:51	BZB1087	Li (T) 200.7	EPA 200.7	EPA 200.7	Lithium, Total	70.2	0.403	0.5		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:25:00	02/27/2025 11:46:17	BZB1087	Mg (T) 200.7	EPA 200.7	EPA 200.7	Magnesium, Total	14100	4.8	10		mg/L	FALSE	NA	10					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:25:00	02/27/2025 11:46:17	BZB1087	Potassium (T) 200.7	EPA 200.7	EPA 200.7	Potassium, Total	8510	17.1	25		mg/L	FALSE	NA	10					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:25:00	02/27/2025 13:02:51	BZB1087	SiO2 (T) 200.7	EPA 200.7	EPA 200.7	Silica, (as SiO2) Total	ND		4.2	5	mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:25:00	02/27/2025 12:33:38	BZB1087	Sodium (T) 200.7	EPA 200.7	EPA 200.7	Sodium, Total	81100	343	500		mg/L	FALSE	NA	100					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:24:00	02/27/2025 12:50:53	BZB1086	As (T) 200.8	EPA 200.8	200.8	Arsenic, Total	0.486	0.004	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:24:00	02/27/2025 12:50:53	BZB1086	Cd (T) 200.8	EPA 200.8	200.8	Cadmium, Total	ND	0.0012	0.005		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:24:00	02/27/2025 12:50:53	BZB1086	Cr (T) 200.8	EPA 200.8	200.8	Chromium, Total	0.0189	0.006	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:24:00	02/27/2025 12:50:53	BZB1086	Cu (T) 200.8	EPA 200.8	200.8	Copper, Total	0.0656	0.018	0.025		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:24:00	02/27/2025 12:50:53	BZB1086	Lead (T) 200.8	EPA 200.8	200.8	Lead, Total	ND	0.009	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:24:00	02/27/2025 12:50:53	BZB1086	Mn (T) 200.8	EPA 200.8	200.8	Manganese, Total	0.0794	0.016	0.018		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:24:00	02/27/2025 12:50:53	BZB1086	Mo (T) 200.8	EPA 200.8	200.8	Molybdenum, Total	0.124	0.004	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:24:00	02/27/2025 12:50:53	BZB1086	Ni (T) 200.8	EPA 200.8	200.8	Nickel, Total	0.124	0.011	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:24:00	02/27/2025 12:50:53	BZB1086	Se (T) 200.8	EPA 200.8	200.8	Selenium, Total	0.0838	0.014	0.015		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:24:00	02/27/2025 12:50:53	BZB1086	Silver (T) 200.8	EPA 200.8	200.8	Silver, Total	ND	0.008	0.012		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:24:00	02/27/2025 12:50:53	BZB1086	Zn (T) 200.8	EPA 200.8	200.8	Zinc, Total	ND	0.05	0.25		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 12:21:00	02/27/2025 03:06:00	BZB1059	Chloride (IC)	EPA 300.0	NO PREP	Chloride	181000	180	500		mg/L	FALSE	NA	500					LLC																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 12:21:00	02/27/2025 02:51:00	BZB1059	Nitrate	EPA 300.0	NO PREP	Nitrate as N	ND	6.64	10		mg/L	FALSE	NA	100					LLC		R-05														1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 12:21:00	02/27/2025 02:51:00	BZB1059	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	21400	49.4	100		mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 13:15:00	02/26/2025 13:55:00	BZB1063	Bromide (IC)	EPA 300.1	NO PREP	Bromide	197	4.7	10		mg/L	FALSE	NA	1000					LLC																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	03/05/2025 11:30:00	03/05/2025 15:53:00	BZC0150	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	ND	0.022	0.03		mg/L	FALSE	NA	6					RuB		B-03														1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/27/2025 11:28:00	02/27/2025 16:19:47	BZB1123	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	6700	154	250		mg/L	FALSE	NA	25					DD																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/27/2025 13:52:00	02/27/2025 13:52:00	BZB1117	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	537	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/27/2025 13:52:00	02/27/2025 13:52:00	BZB1117	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	ND	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/27/2025 13:52:00	02/27/2025 13:52:00	BZB1117	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	ND	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/27/2025 13:52:00	02/27/2025 13:52:00	BZB1117	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	537	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:25:00	02/27/2025 13:02:51	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	59000	21.6	53.7		mg/L	FALSE	NA	10					AB																0
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 11:05:00	02/26/2025 11:30:00	BZB1046	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	329000	20	20		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 15:00:00	02/26/2025 15:17:00	BZB1081	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	35		3	4	mg/L	FALSE	NA	1					LLC																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/26/2025 13:31:00	02/26/2025 14:02:00	BZB1067	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	ND		0.01	0.1	mg/L	FALSE	NA	1					RuB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25B1871-03	Water	Water	02/25/2025 16:40:00	02/27/2025 13:15:00	03/04/2025 10:39:40	BZB1124	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	7		2	5	mg/L	FALSE	NA	1					CA																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/27/2025 10:05:00	02/27/2025 12:03:00	BZB1127	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	67.2		9	20	ng/L	FALSE	NA	20					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:25:00	02/27/2025 13:12:28	BZB1087	Al (T) 200.7	EPA 200.7	EPA 200.7	Aluminum, Total	1.7	1.2	1.5		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:25:00	02/27/2025 13:12:28	BZB1087	B (T) 200.7	EPA 200.7	EPA 200.7	Boron, Total	51.8	0.61	1.25		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:25:00	02/27/2025 13:12:28	BZB1087	Ba (T) 200.7	EPA 200.7	EPA 200.7	Barium, Total	ND	0.057	0.125		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:25:00	02/27/2025 13:12:28	BZB1087	Ca (T) 200.7	EPA 200.7	EPA 200.7	Calcium, Total	258	0.7	5		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:25:00	02/27/2025 13:12:28	BZB1087	Fe (T) 200.7	EPA 200.7	EPA 200.7	Iron, Total	ND	0.57	0.75		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:25:00	02/27/2025 13:12:28	BZB1087	Li (T) 200.7	EPA 200.7	EPA 200.7	Lithium, Total	36.1	0.403	0.5		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:25:00	02/27/2025 13:12:28	BZB1087	Mg (T) 200.7	EPA 200.7	EPA 200.7	Magnesium, Total	11600	2.4	5		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:25:00	02/27/2025 13:12:28	BZB1087	Potassium (T) 200.7	EPA 200.7	EPA 200.7	Potassium, Total	6860	8.6	12.5		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:25:00	02/27/2025 13:12:28	BZB1087	SiO2 (T) 200.7	EPA 200.7	EPA 200.7	Silica, (as SiO2) Total	ND		4.2	5	mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:25:00	02/27/2025 12:40:47	BZB1087	Sodium (T) 200.7	EPA 200.7	EPA 200.7	Sodium, Total	61400	343	500		mg/L	FALSE	NA	100					AB																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:24:00	02/27/2025 12:54:48	BZB1086	As (T) 200.8	EPA 200.8	200.8	Arsenic, Total	0.211	0.004	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:24:00	02/27/2025 12:54:48	BZB1086	Cd (T) 200.8	EPA 200.8	200.8	Cadmium, Total	ND	0.001	0.005		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:24:00	02/27/2025 12:54:48	BZB1086	Cr (T) 200.8	EPA 200.8	200.8	Chromium, Total	0.0161	0.006	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:24:00	02/27/2025 12:54:48	BZB1086	Cu (T) 200.8	EPA 200.8	200.8	Copper, Total	0.0604	0.018	0.025		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:24:00	02/27/2025 12:54:48	BZB1086	Lead (T) 200.8	EPA 200.8	200.8	Lead, Total	ND	0.009	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:24:00	02/27/2025 12:54:48	BZB1086	Mn (T) 200.8	EPA 200.8	200.8	Manganese, Total	0.361	0.016	0.018		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:24:00	02/27/2025 12:54:48	BZB1086	Mo (T) 200.8	EPA 200.8	200.8	Molybdenum, Total	0.0681	0.004	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:24:00	02/27/2025 12:54:48	BZB1086	Ni (T) 200.8	EPA 200.8	200.8	Nickel, Total	0.101	0.011	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:24:00	02/27/2025 12:54:48	BZB1086	Se (T) 200.8	EPA 200.8	200.8	Selenium, Total	0.0612	0.014	0.015		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:24:00	02/27/2025 12:54:48	BZB1086	Silver (T) 200.8	EPA 200.8	200.8	Silver, Total	ND	0.008	0.012		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:24:00	02/27/2025 12:54:48	BZB1086	Zn (T) 200.8	EPA 200.8	200.8	Zinc, Total	ND	0.05	0.25		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 12:21:00	02/27/2025 04:06:00	BZB1059	Chloride (IC)	EPA 300.0	NO PREP	Chloride	145000	180	500		mg/L	FALSE	NA	500					LLC																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 12:21:00	02/27/2025 03:51:00	BZB1059	Nitrate	EPA 300.0	NO PREP	Nitrate as N	ND	6.64	10		mg/L	FALSE	NA	100					LLC		R-05														1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 12:21:00	02/27/2025 03:51:00	BZB1059	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	12600	49.4	100		mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 13:15:00	02/26/2025 15:07:00	BZB1063	Bromide (IC)	EPA 300.1	NO PREP	Bromide	151	4.7	10		mg/L	FALSE	NA	1000					LLC																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	03/05/2025 11:30:00	03/05/2025 15:57:00	BZC0150	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	ND	0.022	0.03		mg/L	FALSE	NA	6					RuB		B-03														1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/27/2025 11:28:00	02/27/2025 16:19:47	BZB1123	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	2820	154	250		mg/L	FALSE	NA	25					DD																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/27/2025 14:32:00	02/27/2025 14:32:00	BZB1117	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	347	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/27/2025 14:32:00	02/27/2025 14:32:00	BZB1117	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	ND	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/27/2025 14:32:00	02/27/2025 14:32:00	BZB1117	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	ND	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/27/2025 14:32:00	02/27/2025 14:32:00	BZB1117	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	347	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 15:25:00	02/27/2025 13:12:28	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	48600	11.7	33.1		mg/L	FALSE	NA	5					AB																0
Lilac Solutions	Steve Morrey	GSL DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25B1871-04	Water	Water	02/25/2025 16:20:00	02/26/2025 11:05:00	02/26/2025 11:30:00	BZB1046	TD

CLIENT	PROJECT	PROJECTNU	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	Result	DL	RL	UNC	UNITS	RPToMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUD	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake - Grab	25C0269-01	Water	Water	3/4/2025 8:55	3/6/2025 10:24	3/7/2025 16:21	BZC0215	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	ND		5	5	mg/L	FALSE	NA	1					TFW																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall - Grab	25C0269-02	Water	Water	3/4/2025 8:55	3/6/2025 10:24	3/7/2025 16:21	BZC0215	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	ND		5	5	mg/L	FALSE	NA	1					TFW																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/6/2025 11:26	3/6/2025 12:26	BZC0226	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total		28	9	20	ng/L	FALSE	NA	20					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/6/2025 12:19	3/7/2025 12:23	BZC0230	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	ND		1.2	1.5	mg/L	FALSE	NA	1.25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/6/2025 12:19	3/7/2025 12:23	BZC0230	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total		59	0.61	1.25	mg/L	FALSE	NA	1.25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/6/2025 12:19	3/7/2025 12:23	BZC0230	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total		0.18	0.057	0.125	mg/L	FALSE	NA	1.25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/6/2025 12:19	3/7/2025 12:23	BZC0230	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total		292	0.7	5	mg/L	FALSE	NA	1.25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/6/2025 12:19	3/7/2025 12:23	BZC0230	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total		0.8	0.57	0.75	mg/L	FALSE	NA	1.25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/6/2025 12:19	3/7/2025 12:23	BZC0230	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total		64.9	0.403	0.5	mg/L	FALSE	NA	1.25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/6/2025 12:19	3/7/2025 12:23	BZC0230	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total		13400	2.4	5	mg/L	FALSE	NA	1.25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/6/2025 12:19	3/7/2025 12:23	BZC0230	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total		8490	8.6	12.5	mg/L	FALSE	NA	1.25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/6/2025 12:19	3/7/2025 12:23	BZC0230	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	ND		4.2	5	mg/L	FALSE	NA	1.25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/6/2025 12:19	3/7/2025 12:48	BZC0230	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total		80000	343	500	mg/L	FALSE	NA	25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 14:34	3/6/2025 15:40	BZC0187	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total		0.497	0.0044	0.0125	mg/L	FALSE	NA	5					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 14:34	3/6/2025 15:40	BZC0187	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	ND		0.0012	0.005	mg/L	FALSE	NA	5					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 14:34	3/6/2025 15:40	BZC0187	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total		0.0201	0.0062	0.0125	mg/L	FALSE	NA	5					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 14:34	3/6/2025 15:40	BZC0187	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total		0.033	0.0182	0.025	mg/L	FALSE	NA	5					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 14:34	3/6/2025 15:40	BZC0187	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	ND		0.0087	0.0125	mg/L	FALSE	NA	5					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 14:34	3/6/2025 15:40	BZC0187	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total		0.0433	0.0159	0.0175	mg/L	FALSE	NA	5					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 14:34	3/6/2025 15:40	BZC0187	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total		0.132	0.0038	0.0125	mg/L	FALSE	NA	5					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 14:34	3/6/2025 15:40	BZC0187	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total		0.0516	0.0112	0.0125	mg/L	FALSE	NA	5					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 14:34	3/6/2025 15:40	BZC0187	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total		0.0906	0.0141	0.015	mg/L	FALSE	NA	5					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 14:34	3/6/2025 15:40	BZC0187	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	ND		0.008	0.012	mg/L	FALSE	NA	5					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 14:34	3/6/2025 15:40	BZC0187	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	ND		0.05	0.25	mg/L	FALSE	NA	5					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 15:46	3/6/2025 11:51	BZC0199	Chloride (IC)	EPA 300.0	NO PREP	Chloride		174000	180	500	mg/L	FALSE	NA	500					EK																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/6/2025 13:28	3/6/2025 13:28	BZC0199	Nitrate	EPA 300.0	NO PREP	Nitrate as N	ND		6.64	10	mg/L	FALSE	NA	100					EK			R-05													1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/6/2025 13:28	3/6/2025 13:28	BZC0199	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate		23600	49.4	100	mg/L	FALSE	NA	100					EK																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/6/2025 13:06	3/6/2025 13:06	BZC0167	Bromide (IC)	EPA 300.1	NO PREP	Bromide		161	4.7	10	mg/L	FALSE	NA	1000					EK																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 13:01	3/5/2025 16:06	BZC0150	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	ND		0.022	0.03	mg/L	FALSE	NA	6					RuB			B-03													1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 12:15	3/5/2025 15:53	BZC0155	COD	Hach 8000	NO PREP	Chemical Oxygen Demand		4080	154	250	mg/L	FALSE	NA	25					LLC																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 21:06	3/5/2025 21:06	BZC0143	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)		549	0.2	1	mg/L	FALSE	NA	1					HM																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 21:06	3/5/2025 21:06	BZC0143	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	ND		0.2	1	mg/L	FALSE	NA	1					HM																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 21:06	3/5/2025 21:06	BZC0143	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	ND		0.2	1	mg/L	FALSE	NA	1					HM																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 21:06	3/5/2025 21:06	BZC0143	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)		549	0.2	1	mg/L	FALSE	NA	1					HM																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/6/2025 12:19	3/7/2025 12:23	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3		56000	11.7	33.1	mg/L	FALSE	NA	1					AB																0
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 10:56	3/6/2025 11:20	BZC0221	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)		339000	1000	1000	mg/L	FALSE	NA	1					DAN																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 11:54	3/5/2025 12:06	BZC0152	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)		53	5	7	mg/L	FALSE	NA	1					LLC																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 13:52	3/5/2025 14:26	BZC0178	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	ND		0.01	0.1	mg/L	FALSE	NA	1					RuB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Intake	25C0269-03	Water	Water	3/4/2025 14:40	3/5/2025 14:08	3/10/2025 13:50	BZC0181	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand		8	2	5	mg/L	FALSE	NA	1					LLC			BOD-BL													1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/6/2025 11:26	3/6/2025 12:35	BZC0226	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total		51.9	9	20	ng/L	FALSE	NA	20					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/6/2025 12:19	3/7/2025 12:36	BZC0230	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	ND		1.2	1.5	mg/L	FALSE	NA	1.25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/6/2025 12:19	3/7/2025 12:36	BZC0230	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total		51.1	0.61	1.25	mg/L	FALSE	NA	1.25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/6/2025 12:19	3/7/2025 12:36	BZC0230	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total		0.155	0.057	0.125	mg/L	FALSE	NA	1.25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/6/2025 12:19	3/7/2025 12:36	BZC0230	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total		276	0.7	5	mg/L	FALSE	NA	1.25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/6/2025 12:19	3/7/2025 12:36	BZC0230	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total		2.34	0.57	0.75	mg/L	FALSE	NA	1.25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/6/2025 12:19	3/7/2025 12:36	BZC0230	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total		45.5	0.403	0.5	mg/L	FALSE	NA	1.25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/6/2025 12:19	3/7/2025 12:36	BZC0230	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total		11700	2.4	5	mg/L	FALSE	NA	1.25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/6/2025 12:19	3/7/2025 12:36	BZC0230	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total		7390	8.6	12.5	mg/L	FALSE	NA	1.25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/6/2025 12:19	3/7/2025 12:36	BZC0230	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	ND		4.2	5	mg/L	FALSE	NA	1.25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/6/2025 12:19	3/7/2025 12:52	BZC0230	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total		67200	343	500	mg/L	FALSE	NA	25					AB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 14:34	3/6/2025 15:44	BZC0187	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total		0.054	0.0009	0.0025	mg/L	FALSE	NA	1					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 14:34	3/6/2025 15:44	BZC0187	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	ND		0.0002	0.001	mg/L	FALSE	NA	1					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 14:34	3/6/2025 15:44	BZC0187	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total		0.0034	0.0012	0.0025	mg/L	FALSE	NA	1					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 14:34	3/6/2025 15:44	BZC0187	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total		0.0052	0.0036	0.005	mg/L	FALSE	NA	1					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 14:34	3/6/2025 15:44	BZC0187	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	ND		0.0017	0.0025	mg/L	FALSE	NA	1					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 14:34	3/6/2025 15:44	BZC0187	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total		0.0554	0.0032	0.0035	mg/L	FALSE	NA	1					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 14:34	3/6/2025 15:44	BZC0187	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total		0.0169	0.0008	0.0025	mg/L	FALSE	NA	1					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 14:34	3/6/2025 15:44	BZC0187	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total		0.0088	0.0022	0.0025	mg/L	FALSE	NA	1					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 14:34	3/6/2025 15:44	BZC0187	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total		0.0116	0.0028	0.003	mg/L	FALSE	NA	1					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 14:34	3/6/2025 15:44	BZC0187	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	ND		0.002	0.002	mg/L	FALSE	NA	1					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 14:34	3/6/2025 15:44	BZC0187	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	ND		0.009	0.05	mg/L	FALSE	NA	1					AME																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 15:46	3/6/2025 13:03	BZC0199	Chloride (IC)	EPA 300.0	NO PREP	Chloride		149000	180	500	mg/L	FALSE	NA	500					EK																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/6/2025 13:52	3/6/2025 13:52	BZC0199	Nitrate	EPA 300.0	NO PREP	Nitrate as N	ND		6.64	10	mg/L	FALSE	NA	100					EK			R-05													1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/6/2025 13:52	3/6/2025 13:52	BZC0199	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate		15400	49.4	100	mg/L	FALSE	NA	100					EK																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/6/2025 14:07	3/6/2025 14:07	BZC0167	Bromide (IC)	EPA 300.1	NO PREP	Bromide		132	4.7	10	mg/L	FALSE	NA	1000					EK																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 13:01	3/5/2025 16:10	BZC0150	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	ND		0.022	0.03	mg/L	FALSE	NA	6					RuB			B-03													1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 12:15	3/5/2025 15:53	BZC0155	COD	Hach 8000	NO PREP	Chemical Oxygen Demand		4300	154	250	mg/L	FALSE	NA	25					LLC																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 21:45	3/5/2025 21:45	BZC0143	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)		398	0.2	1	mg/L	FALSE	NA	1					HM																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 21:45	3/5/2025 21:45	BZC0143	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	ND		0.2	1	mg/L	FALSE	NA	1					HM																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 21:45	3/5/2025 21:45	BZC0143	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	ND		0.2	1	mg/L	FALSE	NA	1					HM																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 21:45	3/5/2025 21:45	BZC0143	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)		398	0.2	1	mg/L	FALSE	NA	1					HM																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/6/2025 12:19	3/7/2025 12:36	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3		49000	11.7	33.1	mg/L	FALSE	NA	1					AB																0
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/6/2025 10:56	3/6/2025 11:20	BZC0221	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)		268000	1000	1000	mg/L	FALSE	NA	1					DAN																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 11:54	3/5/2025 12:06	BZC0152	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)		53	5	7	mg/L	FALSE	NA	1					LLC																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 13:52	3/5/2025 14:28	BZC0178	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	ND		0.01	0.1	mg/L	FALSE	NA	1					RuB																1
Lilac Solutio	Steve Morr	Great Salt L	Chemtech-Ford	Outfall	25C0269-04	Water	Water	3/4/2025 15:18	3/5/2025 14:08	3/10/2025 13:52	BZC0181	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand		9	2	5	mg/L	FALSE	NA	1					LLC			BOD-BL													1

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPTofMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake - Grab	25C1108-01	Water	Water	03/13/2025 10:53:00	03/14/2025 10:44:00	03/14/2025 16:40:00	BZC0599	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND		5	5	mg/L	FALSE	NA	1					TFW															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall - Grab	25C1108-02	Water	Water	03/13/2025 11:01:00	03/14/2025 10:44:00	03/14/2025 16:40:00	BZC0599	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND		5	5	mg/L	FALSE	NA	1					TFW															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/19/2025 10:00:00	03/19/2025 11:34:26	BZC0767	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	25.4		9	20	ng/L	FALSE	NA	20					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 10:43:35	BZC0662	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND		1.2	1.5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 10:43:35	BZC0662	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	61.1	0.61	1.25	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 10:43:35	BZC0662	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.192	0.057	0.125	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 10:43:35	BZC0662	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	305		0.7	5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 10:43:35	BZC0662	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND		0.57	0.75	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 10:43:35	BZC0662	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	68.6	0.403	0.5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 10:43:35	BZC0662	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14400		2.4	5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 10:43:35	BZC0662	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8800		8.6	12.5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 10:43:35	BZC0662	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	ND		4.2	5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 11:06:28	BZC0662	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	91200		172	250	mg/L	FALSE	NA	10					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:40:08	BZC0663	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.411	0.004	0.013	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:40:08	BZC0663	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND		0.001	0.005	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:40:08	BZC0663	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.0135		0.006	0.013	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:40:08	BZC0663	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0375		0.018	0.025	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:40:08	BZC0663	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND		0.009	0.013	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:40:08	BZC0663	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.0445		0.018	0.018	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:40:08	BZC0663	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.122	0.004	0.013	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:40:08	BZC0663	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0449		0.011	0.013	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:40:08	BZC0663	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.0806		0.014	0.015	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:40:08	BZC0663	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND		0.008	0.012	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:40:08	BZC0663	Tl (T) 200.8	EPA 200.8	200.2	Thallium, Total	7440-28-0	FALSE	FALSE	ND		0.002	0.005	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:40:08	BZC0663	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND		0.05	0.25	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 12:00:00	03/15/2025 09:16:00	BZC0613	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	180000		180	500	mg/L	FALSE	NA	500					LLC															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 12:00:00	03/15/2025 09:01:00	BZC0613	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	6.64		10		mg/L	FALSE	NA	100					LLC															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 12:00:00	03/15/2025 09:01:00	BZC0613	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	23000		49.4	100	mg/L	FALSE	NA	100					LLC															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 14:55:00	03/14/2025 16:38:00	BZC0641	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	166		4.7	10	mg/L	FALSE	NA	1000					LLC															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/21/2025 11:13:00	03/21/2025 13:43:00	BZC0982	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND		0.022	0.03	mg/L	FALSE	NA	6					KC															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/18/2025 15:51:00	03/19/2025 13:56:05	BZC0790	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTF10049	FALSE	FALSE	6080		154	250	mg/L	FALSE	NA	25					LLC															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/15/2025 01:42:00	03/15/2025 01:42:38	BZC0596	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	558		0.2	1	mg/L	FALSE	NA	1					DAN															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/15/2025 01:42:00	03/15/2025 01:42:38	BZC0596	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND		0.2	1	mg/L	FALSE	NA	1					DAN															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/15/2025 01:42:00	03/15/2025 01:42:38	BZC0596	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND		0.2	1	mg/L	FALSE	NA	1					DAN															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/15/2025 01:42:00	03/15/2025 01:42:38	BZC0596	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTF10279	FALSE	FALSE	558		0.2	1	mg/L	FALSE	NA	1					DAN															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 10:56:32	BZC0660	[CALC]	Hardness AP		Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	60000		11.7	33.1	mg/L	FALSE	NA	1					AB															0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 12:25:00	03/14/2025 16:00:00	BZC0619	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	CTF10226	FALSE	FALSE	311000		1000	1000	mg/L	FALSE	NA	1					DAN															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/17/2025 14:35:00	03/17/2025 14:54:00	BZC0730	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	CTF10267	FALSE	FALSE	95		5	7	mg/L	FALSE	NA	1					DD															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 14:56:00	03/14/2025 16:54:00	BZC0645	OA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	14797-65-0	FALSE	FALSE	ND		0.01	0.1	mg/L	FALSE	NA	1					KC															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1108-03	Water	Water	03/13/2025 15:20:00	03/14/2025 14:10:00	03/19/2025 14:23:00	BZC0630	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	CTF10003	FALSE	FALSE	12		2	5	mg/L	FALSE	NA	1					DD															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/19/2025 10:00:00	03/19/2025 11:52:24	BZC0767	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	29.3		9	20	ng/L	FALSE	NA	20					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 10:56:32	BZC0662	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND		1.2	1.5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 10:56:32	BZC0662	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	53		0.61	1.25	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 10:56:32	BZC0662	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.15	0.057	0.125	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 10:56:32	BZC0662	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	279		0.7	5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 10:56:32	BZC0662	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND		0.57	0.75	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 10:56:32	BZC0662	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	45.7	0.403	0.5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 10:56:32	BZC0662	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	12600		2.4	5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 10:56:32	BZC0662	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	7660		8.6	12.5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 10:56:32	BZC0662	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	ND		4.2	5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:55:00	03/17/2025 11:11:51	BZC0662	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	76300		172	250	mg/L	FALSE	NA	10					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:44:01	BZC0663	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.257		0.004	0.013	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:44:01	BZC0663	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND		0.001	0.005	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:44:01	BZC0663	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.0191		0.006	0.013	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:44:01	BZC0663	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0292		0.018	0.025	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:44:01	BZC0663	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND		0.009	0.013	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:44:01	BZC0663	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.321		0.018	0.018	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:44:01	BZC0663	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.0972		0.004	0.013	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:44:01	BZC0663	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0427		0.011	0.013	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:44:01	BZC0663	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.0635		0.014	0.015	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:44:01	BZC0663	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND		0.008	0.012	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 16:56:00	03/18/2025 13:44:01	BZC0663	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND		0.05	0.25	mg/L	FALSE	NA	5					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 12:00:00	03/15/2025 10:16:00	BZC0613	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	155000		180	500	mg/L	FALSE	NA	500					LLC															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 12:00:00	03/15/2025 10:01:00	BZC0613	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND		6.64	10	mg/L	FALSE	NA	100					LLC															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 12:00:00	03/15/2025 10:01:00	BZC0613	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	16700		49.4	100	mg/L	FALSE	NA	100					LLC															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1108-04	Water	Water	03/13/2025 15:20:00	03/14/2025 14:35:00	03/14/2025 17:56:00	BZC0641	Bromide (IC)	EPA 300.1	NO

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	Result	DL	RL	UNC	UNITS	RPToMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake - Grab	25C1368-01	Water	Water	03/18/2025 11:30:00	03/19/2025 11:20:00	03/20/2025 12:10:00	BZC0829	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	ND	5	5		mg/L	FALSE	NA	1					TFW																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Effluent - Grab	25C1368-02	Water	Water	03/18/2025 11:30:00	03/19/2025 11:20:00	03/20/2025 12:10:00	BZC0829	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	ND	5	5		mg/L	FALSE	NA	1					TFW																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/19/2025 10:00:00	03/19/2025 11:58:24	BZC0767	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	23.6	9	20		ng/L	FALSE	NA	20					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:18:13	BZC0940	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	2.1	1.2	1.5		mg/L	FALSE	NA	5					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:18:13	BZC0940	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	58.9	0.61	1.25		mg/L	FALSE	NA	5					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:18:13	BZC0940	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	0.175	0.057	0.125		mg/L	FALSE	NA	5					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:18:13	BZC0940	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	299	0.7	5		mg/L	FALSE	NA	5					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:18:13	BZC0940	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	ND	0.57	0.75		mg/L	FALSE	NA	5					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:18:13	BZC0940	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	66.7	0.403	0.5		mg/L	FALSE	NA	5					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:18:13	BZC0940	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	14000	2.4	5		mg/L	FALSE	NA	5					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:18:13	BZC0940	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	8310	8.6	12.5		mg/L	FALSE	NA	5					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:18:13	BZC0940	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	ND	4.2	5		mg/L	FALSE	NA	5					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:40:43	BZC0940	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	88200	343	500		mg/L	FALSE	NA	100					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:15:07	BZC0938	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	0.415	0.004	0.013		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:15:07	BZC0938	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	ND	0.001	0.005		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:15:07	BZC0938	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	0.0194	0.006	0.013		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:15:07	BZC0938	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	0.0376	0.018	0.025		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:15:07	BZC0938	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	ND	0.009	0.013		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:15:07	BZC0938	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	0.0447	0.016	0.018		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:15:07	BZC0938	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	0.121	0.004	0.013		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:15:07	BZC0938	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	0.0393	0.011	0.013		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:15:07	BZC0938	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	0.097	0.014	0.015		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:15:07	BZC0938	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	ND	0.008	0.012		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:15:07	BZC0938	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	ND	0.05	0.25		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/19/2025 11:33:00	03/19/2025 12:16:00	BZC0831	Chloride (IC)	EPA 300.0	NO PREP	Chloride	194000	180	500		mg/L	FALSE	NA	500					DD																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/19/2025 11:33:00	03/19/2025 12:16:00	BZC0831	Nitrate	EPA 300.0	NO PREP	Nitrate as N	ND	6.64	10		mg/L	FALSE	NA	100					DD																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/19/2025 11:33:00	03/19/2025 12:16:00	BZC0831	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	22800	247	500		mg/L	FALSE	NA	500					DD																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/25/2025 14:47:00	03/25/2025 14:47:00	BZC1137	Bromide (IC)	EPA 300.1	NO PREP	Bromide	171	0.5	1		mg/L	FALSE	NA	100					EK																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/25/2025 12:49:00	03/25/2025 13:10:00	BZC1131	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	ND	0.004	0.005		mg/L	FALSE	NA	1					KC																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/21/2025 11:01:00	03/21/2025 16:19:33	BZC0979	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	925	154	250		mg/L	FALSE	NA	25					EK																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 20:28:00	03/20/2025 20:28:20	BZC0900	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	584	0.2	1		mg/L	FALSE	NA	1					DAN																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 20:28:00	03/20/2025 20:28:20	BZC0900	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	ND	0.2	1		mg/L	FALSE	NA	1					DAN																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 20:28:00	03/20/2025 20:28:20	BZC0900	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	ND	0.2	1		mg/L	FALSE	NA	1					DAN																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 20:28:00	03/20/2025 20:28:20	BZC0900	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	584	0.2	1		mg/L	FALSE	NA	1					DAN																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:18:13	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	58300	11.7	33.1		mg/L	FALSE	NA	5					AB																	0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/19/2025 11:28:00	03/19/2025 12:00:00	BZC0830	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	329000	1000	1000		mg/L	FALSE	NA	1					HM																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/21/2025 14:00:00	03/21/2025 14:30:00	BZC1056	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	24	5	7		mg/L	FALSE	NA	1					LLC																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/19/2025 17:04:00	03/19/2025 19:51:00	BZC0881	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	ND	0.01	0.1		mg/L	FALSE	NA	1					LN																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1368-03	Water	Water	03/18/2025 16:00:00	03/19/2025 13:55:00	03/24/2025 12:09:10	BZC0838	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	16	2	5		mg/L	FALSE	NA	1					LLC																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/19/2025 10:00:00	03/19/2025 12:16:21	BZC0767	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	20.5	9	20		ng/L	FALSE	NA	20					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:31:10	BZC0940	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	1.7	1.2	1.5		mg/L	FALSE	NA	5					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:31:10	BZC0940	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	53.7	0.61	1.25		mg/L	FALSE	NA	5					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:31:10	BZC0940	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	0.13	0.057	0.125		mg/L	FALSE	NA	5					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:31:10	BZC0940	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	282	0.7	5		mg/L	FALSE	NA	5					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:31:10	BZC0940	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	ND	0.57	0.75		mg/L	FALSE	NA	5					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:31:10	BZC0940	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	47.3	0.403	0.5		mg/L	FALSE	NA	5					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:31:10	BZC0940	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	12900	2.4	5		mg/L	FALSE	NA	5					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:31:10	BZC0940	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7710	8.6	12.5		mg/L	FALSE	NA	5					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:31:10	BZC0940	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	ND	4.2	5		mg/L	FALSE	NA	5					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:33:00	03/21/2025 11:45:02	BZC0940	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	79800	343	500		mg/L	FALSE	NA	100					AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:19:04	BZC0938	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	0.242	0.004	0.013		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:19:04	BZC0938	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	ND	0.001	0.005		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:19:04	BZC0938	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	0.0309	0.006	0.013		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:19:04	BZC0938	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	0.0325	0.018	0.025		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:19:04	BZC0938	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	ND	0.009	0.013		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:19:04	BZC0938	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	0.301	0.016	0.018		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:19:04	BZC0938	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	0.107	0.004	0.013		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:19:04	BZC0938	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	0.0377	0.011	0.013		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:19:04	BZC0938	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	0.0859	0.014	0.015		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:19:04	BZC0938	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	ND	0.008	0.012		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 15:30:00	03/24/2025 14:19:04	BZC0938	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	ND	0.05	0.25		mg/L	FALSE	NA	5					AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/19/2025 11:33:00	03/19/2025 13:16:00	BZC0831	Chloride (IC)	EPA 300.0	NO PREP	Chloride	160000	180	500		mg/L	FALSE	NA	500					DD																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/19/2025 11:33:00	03/19/2025 13:16:00	BZC0831	Nitrate	EPA 300.0	NO PREP	Nitrate as N	ND	6.64	10		mg/L	FALSE	NA	100					DD																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/19/2025 11:33:00	03/19/2025 13:16:00	BZC0831	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	19200	49.4	100		mg/L	FALSE	NA	100					DD																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/25/2025 15:49:00	03/25/2025 15:49:00	BZC1137	Bromide (IC)	EPA 300.1	NO PREP	Bromide	155	0.5	1		mg/L	FALSE	NA	100					EK																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/25/2025 12:49:00	03/25/2025 13:14:00	BZC1131	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	ND	0.004	0.005		mg/L	FALSE	NA	1					KC																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/21/2025 11:01:00	03/21/2025 16:19:33	BZC0979	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	900	154	250		mg/L	FALSE	NA	25					EK																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 20:44:00	03/20/2025 20:44:46	BZC0900	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	391	0.2	1		mg/L	FALSE	NA	1					DAN																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 20:44:00	03/20/2025 20:44:46	BZC0900	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	ND	0.2	1		mg/L	FALSE	NA	1					DAN																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 20:44:00	03/20/2025 20:44:46	BZC0900	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	ND	0.2	1		mg/L	FALSE	NA	1					DAN																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1368-04	Water	Water	03/18/2025 16:00:00	03/20/2025 20:44:00	03/20/2025 20:44:46	BZC0900	Alkal

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	Result	DL	RL	UNC	UNITS	RPToMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake - Grab	25C1894-01	Water	Water	03/25/2025 10:50:00	03/28/2025 10:08:00	03/31/2025 13:10:00	BZC1350	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	ND	5	5		mg/L	FALSE	NA	1					TFW																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall - Grab	25C1894-02	Water	Water	03/25/2025 10:52:00	03/28/2025 10:08:00	03/31/2025 13:10:00	BZC1350	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	ND	5	5		mg/L	FALSE	NA	1					TFW																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	04/01/2025 10:35:00	04/01/2025 13:55:34	BZD0038	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	23.2	9	20		ng/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:42:00	03/27/2025 11:19:40	BZC1229	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	1.9	1.2	1.5		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:42:00	03/27/2025 11:19:40	BZC1229	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	61.7	0.61	1.25		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:42:00	03/27/2025 11:19:40	BZC1229	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	0.182	0.057	0.125		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:42:00	03/27/2025 11:19:40	BZC1229	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	312	0.7	5		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:42:00	03/27/2025 11:19:40	BZC1229	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	ND	0.57	0.75		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:42:00	03/27/2025 11:42:40	BZC1229	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	81.6	8.07	10		mg/L	FALSE	NA	100					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:42:00	03/27/2025 11:42:40	BZC1229	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	16100	48	100		mg/L	FALSE	NA	100					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:42:00	03/27/2025 11:42:40	BZC1229	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	9170	171	250		mg/L	FALSE	NA	100					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:42:00	03/27/2025 11:19:40	BZC1229	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	ND	4.2	5		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:42:00	03/27/2025 11:42:40	BZC1229	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	96700	343	500		mg/L	FALSE	NA	100					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:44:00	03/27/2025 13:58:34	BZC1230	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	0.372	0.004	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:44:00	03/27/2025 13:58:34	BZC1230	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	ND	0.001	0.005		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:44:00	03/27/2025 13:58:34	BZC1230	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	0.023	0.006	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:44:00	03/27/2025 13:58:34	BZC1230	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	0.0436	0.018	0.025		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:44:00	03/27/2025 13:58:34	BZC1230	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	ND	0.009	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:44:00	03/27/2025 13:58:34	BZC1230	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	0.0264	0.016	0.018		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:44:00	03/27/2025 13:58:34	BZC1230	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	0.114	0.004	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:44:00	03/27/2025 13:58:34	BZC1230	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	0.0146	0.011	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:44:00	03/27/2025 13:58:34	BZC1230	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	0.0765	0.014	0.015		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:44:00	03/27/2025 13:58:34	BZC1230	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	ND	0.008	0.012		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:44:00	03/27/2025 13:58:34	BZC1230	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	ND	0.05	0.25		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 13:22:00	03/26/2025 22:48:00	BZC1210	Chloride (IC)	EPA 300.0	NO PREP	Chloride	177000	180	500		mg/L	FALSE	NA	500					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 22:33:00	03/26/2025 22:33:00	BZC1210	Nitrate	EPA 300.0	NO PREP	Nitrate as N	ND	6.64	10		mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 22:33:00	03/26/2025 22:33:00	BZC1210	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	23500	49.4	100		mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 16:03:00	03/26/2025 16:03:00	BZC1245	Bromide (IC)	EPA 300.1	NO PREP	Bromide	170	0.5	1		mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/28/2025 10:59:00	03/28/2025 12:55:00	BZC1364	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	ND	0.022	0.03		mg/L	FALSE	NA	6					KC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/28/2025 11:13:00	03/28/2025 16:59:55	BZC1370	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	2080	154	250		mg/L	FALSE	NA	25					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 18:17:00	03/26/2025 18:17:16	BZC1196	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	578	0.2	1		mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 18:17:00	03/26/2025 18:17:16	BZC1196	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	ND	0.2	1		mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 18:17:00	03/26/2025 18:17:16	BZC1196	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	ND	0.2	1		mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 18:17:00	03/26/2025 18:17:16	BZC1196	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	578	0.2	1		mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:42:00	03/27/2025 11:42:40	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	67100	199	424		mg/L	FALSE	NA	100					AB																0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 12:46:00	03/26/2025 13:10:00	BZC1206	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	334000	1000	1000		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:34:00	03/26/2025 14:46:00	BZC1226	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	71	5	7		mg/L	FALSE	NA	1					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 14:11:00	03/26/2025 14:28:00	BZC1220	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	ND	0.01	0.1		mg/L	FALSE	NA	1					KC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25C1894-03	Water	Water	03/25/2025 15:05:00	03/26/2025 13:35:00	03/31/2025 12:38:54	BZC1202	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	5	2	5		mg/L	FALSE	NA	1					LLC		BOD-BL														1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	04/01/2025 10:35:00	04/01/2025 14:19:32	BZD0038	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	ND	9	20		ng/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:42:00	03/27/2025 11:38:03	BZC1229	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	1.7	1.2	1.5		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:42:00	03/27/2025 11:38:03	BZC1229	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	61.4	0.61	1.25		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:42:00	03/27/2025 11:38:03	BZC1229	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	0.132	0.057	0.125		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:42:00	03/27/2025 11:38:03	BZC1229	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	308	0.7	5		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:42:00	03/27/2025 11:38:03	BZC1229	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	ND	0.57	0.75		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:42:00	03/27/2025 11:47:16	BZC1229	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	52.6	8.07	10		mg/L	FALSE	NA	100					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:42:00	03/27/2025 11:47:16	BZC1229	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	14500	48	100		mg/L	FALSE	NA	100					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:42:00	03/27/2025 11:47:16	BZC1229	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	8210	171	250		mg/L	FALSE	NA	100					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:42:00	03/27/2025 11:38:03	BZC1229	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	ND	4.2	5		mg/L	FALSE	NA	5					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:42:00	03/27/2025 11:47:16	BZC1229	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	85500	343	500		mg/L	FALSE	NA	100					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:44:00	03/27/2025 14:02:24	BZC1230	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	0.256	0.004	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:44:00	03/27/2025 14:02:24	BZC1230	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	ND	0.001	0.005		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:44:00	03/27/2025 14:02:24	BZC1230	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	0.0297	0.006	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:44:00	03/27/2025 14:02:24	BZC1230	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	0.0417	0.018	0.025		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:44:00	03/27/2025 14:02:24	BZC1230	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	ND	0.009	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:44:00	03/27/2025 14:02:24	BZC1230	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	0.346	0.016	0.018		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:44:00	03/27/2025 14:02:24	BZC1230	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	0.0918	0.004	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:44:00	03/27/2025 14:02:24	BZC1230	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	0.031	0.011	0.013		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:44:00	03/27/2025 14:02:24	BZC1230	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	0.0739	0.014	0.015		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:44:00	03/27/2025 14:02:24	BZC1230	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	ND	0.008	0.012		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 14:44:00	03/27/2025 14:02:24	BZC1230	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	ND	0.05	0.25		mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 13:22:00	03/26/2025 23:48:00	BZC1210	Chloride (IC)	EPA 300.0	NO PREP	Chloride	163000	180	500		mg/L	FALSE	NA	500					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 23:33:00	03/26/2025 23:33:00	BZC1210	Nitrate	EPA 300.0	NO PREP	Nitrate as N	ND	6.64	10		mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 23:33:00	03/26/2025 23:33:00	BZC1210	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	19400	49.4	100		mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 17:04:00	03/26/2025 17:04:00	BZC1245	Bromide (IC)	EPA 300.1	NO PREP	Bromide	158	0.5	1		mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/28/2025 10:59:00	03/28/2025 12:59:00	BZC1364	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	ND	0.022	0.03		mg/L	FALSE	NA	6					KC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/28/2025 11:13:00	03/28/2025 16:59:55	BZC1370	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	1200	154	250		mg/L	FALSE	NA	25					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 18:34:00	03/26/2025 18:34:40	BZC1196	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	405	0.2	1		mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 18:34:00	03/26/2025 18:34:40	BZC1196	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	ND	0.2	1		mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 18:34:00	03/26/2025 18:34:40	BZC1196	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	ND	0.2	1		mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25C1894-04	Water	Water	03/25/2025 15:15:00	03/26/2025 18:34:00	03/26/2025 18:34:40	BZC1196	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	405	0.2	1		mg/L	FALSE	NA	1					DAN	

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPTxMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake - Grab	25D0313-01	Water	Water	04/02/2025 08:45:00	04/09/2025 12:40:00	04/10/2025 15:25:00	BZD0483	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND	5	5	mg/L	FALSE	NA	1					TFW																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall - Grab	25D0313-02	Water	Water	04/02/2025 08:45:00	04/09/2025 12:40:00	04/10/2025 15:25:00	BZD0483	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND	5	5	mg/L	FALSE	NA	1					TFW																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/07/2025 09:37:00	04/07/2025 11:41:38	BZD0312	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	ND	9	20	ng/L	FALSE	NA	20					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:13:59	BZD0229	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:52:20	BZD0229	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	53.4	12.1	25	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:13:59	BZD0229	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.212	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:13:59	BZD0229	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	297	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:13:59	BZD0229	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:13:59	BZD0229	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	67.2	0.483	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:13:59	BZD0229	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14500	2.4	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:13:59	BZD0229	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8710	8.6	12.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:13:59	BZD0229	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	5.6	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:52:20	BZD0229	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	82800	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:04:11	BZD0230	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.424	0.004	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:04:11	BZD0230	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:04:11	BZD0230	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.0278	0.006	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:04:11	BZD0230	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0271	0.018	0.025	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:04:11	BZD0230	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:04:11	BZD0230	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.0388	0.016	0.018	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:04:11	BZD0230	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.133	0.004	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:04:11	BZD0230	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0129	0.011	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:04:11	BZD0230	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.113	0.014	0.015	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:04:11	BZD0230	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:04:11	BZD0230	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/03/2025 11:06:00	04/03/2025 12:06:00	BZD0159	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	172000	180	500	mg/L	FALSE	NA	500					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/03/2025 11:51:00	04/03/2025 11:51:00	BZD0159	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/03/2025 11:06:00	04/03/2025 12:06:00	BZD0159	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	22600	247	500	mg/L	FALSE	NA	500					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/03/2025 13:31:00	04/03/2025 20:38:00	BZD0188	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	155	0.5	1	mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/07/2025 09:46:00	04/07/2025 14:24:00	BZD0316	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.132	0.18	mg/L	FALSE	NA	6					KC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 11:36:00	04/04/2025 16:56:00	BZD0251	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTF10049	FALSE	FALSE	1750	154	250	mg/L	FALSE	NA	25					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/08/2025 11:33:00	04/08/2025 11:33:24	BZD0323	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	575	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/08/2025 11:33:00	04/08/2025 11:33:24	BZD0323	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/08/2025 11:33:00	04/08/2025 11:33:24	BZD0323	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/08/2025 11:33:00	04/08/2025 11:33:24	BZD0323	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTF10279	FALSE	FALSE	575	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:13:59	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	60400	11.7	33.1	mg/L	FALSE	NA	1					AB																0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/03/2025 12:44:00	04/03/2025 16:00:00	BZD0176	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	CTF10226	FALSE	FALSE	338000	1000	1000	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/04/2025 10:35:00	04/04/2025 16:00:00	BZD0239	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	CTF10267	FALSE	FALSE	65	0.8	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/03/2025 12:56:00	04/03/2025 12:56:00	BZD0169	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	14797-65-0	FALSE	FALSE	ND	0.01	0.1	mg/L	FALSE	NA	1					KC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0313-03	Water	Water	04/02/2025 15:00:00	04/03/2025 13:05:00	04/08/2025 10:49:47	BZD0164	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	CTF10003	FALSE	FALSE	7	2	5	mg/L	FALSE	NA	1					CA		BOD-BL														1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/07/2025 09:37:00	04/07/2025 11:59:35	BZD0312	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	33.5	9	20	ng/L	FALSE	NA	20					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:47:45	BZD0229	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:47:45	BZD0229	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	54.8	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:47:45	BZD0229	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.232	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:47:45	BZD0229	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	294	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:47:45	BZD0229	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:47:45	BZD0229	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	44.9	0.403	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:47:45	BZD0229	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14300	2.4	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:47:45	BZD0229	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8460	8.6	12.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:47:45	BZD0229	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	5.5	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:22:00	04/07/2025 12:56:57	BZD0229	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	79500	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:06:49	BZD0230	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.309	0.004	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:06:49	BZD0230	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:06:49	BZD0230	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.0428	0.006	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:06:49	BZD0230	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0298	0.018	0.025	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:06:49	BZD0230	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:06:49	BZD0230	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.254	0.016	0.018	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:06:49	BZD0230	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.105	0.004	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:06:49	BZD0230	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0402	0.011	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:06:49	BZD0230	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.0955	0.014	0.015	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:06:49	BZD0230	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/04/2025 08:24:00	04/07/2025 14:06:49	BZD0230	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/03/2025 11:06:00	04/03/2025 13:07:00	BZD0159	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	163000	180	500	mg/L	FALSE	NA	500					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/03/2025 12:52:00	04/03/2025 12:52:00	BZD0159	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/03/2025 11:06:00	04/03/2025 13:07:00	BZD0159	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	21500	247	500	mg/L	FALSE	NA	500					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/03/2025 13:31:00	04/03/2025 21:39:00	BZD0188	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	138	0.5	1	mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0313-04	Water	Water	04/02/2025 15:00:00	04/07/2025 09:46:00	04/07/2025 14:29:00	BZD0316	Cyanide,

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPTxMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake - Grab	25D0731-03	Water	Water	04/08/2025 12:00:00	04/09/2025 12:40:00	04/10/2025 15:25:00	BZD0483	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTP10169	FALSE	FALSE	ND	5	5	mg/L	FALSE	NA	1					TFW																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall- Grab	25D0731-04	Water	Water	04/08/2025 12:00:00	04/09/2025 12:40:00	04/10/2025 15:25:00	BZD0483	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTP10169	FALSE	FALSE	ND	5	5	mg/L	FALSE	NA	1					TFW																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/14/2025 09:05:00	04/14/2025 15:26:27	BZD0691	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	25.6	9	20	ng/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:29:00	04/10/2025 10:28:18	BZD0522	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	2	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:29:00	04/10/2025 10:28:18	BZD0522	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	58.2	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:29:00	04/10/2025 10:28:18	BZD0522	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.238	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:29:00	04/10/2025 10:28:18	BZD0522	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	290	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:29:00	04/10/2025 10:28:18	BZD0522	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:29:00	04/10/2025 10:28:18	BZD0522	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	66.5	0.403	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:29:00	04/10/2025 10:28:18	BZD0522	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	13800	2.4	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:29:00	04/10/2025 10:28:18	BZD0522	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8410	8.6	12.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:29:00	04/10/2025 10:28:18	BZD0522	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	ND	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:29:00	04/10/2025 10:46:43	BZD0522	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	88600	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:30:00	04/10/2025 15:03:36	BZD0523	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.45	0.004	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:30:00	04/10/2025 15:03:36	BZD0523	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:30:00	04/10/2025 15:03:36	BZD0523	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.0254	0.006	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:30:00	04/10/2025 15:03:36	BZD0523	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0254	0.018	0.025	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:30:00	04/10/2025 15:03:36	BZD0523	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:30:00	04/10/2025 15:03:36	BZD0523	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.0343	0.016	0.018	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:30:00	04/10/2025 15:03:36	BZD0523	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.134	0.004	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:30:00	04/10/2025 15:03:36	BZD0523	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	ND	0.011	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:30:00	04/10/2025 15:03:36	BZD0523	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.102	0.014	0.015	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:30:00	04/10/2025 15:03:36	BZD0523	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:30:00	04/10/2025 15:03:36	BZD0523	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 11:32:00	04/09/2025 13:07:00	BZD0473	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	159000	180	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 11:32:00	04/09/2025 13:07:00	BZD0473	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	33.2	50	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 11:32:00	04/09/2025 13:07:00	BZD0473	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	20300	247	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/14/2025 14:52:00	04/14/2025 14:52:00	BZD0722	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	174	0.5	1	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/11/2025 10:22:00	04/11/2025 13:05:00	BZD0620	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.004	0.005	mg/L	FALSE	NA	1					KC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/10/2025 10:06:00	04/10/2025 16:09:33	BZD0540	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTP10049	FALSE	FALSE	1650	154	250	mg/L	FALSE	NA	25					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/11/2025 18:11:00	04/11/2025 18:11:03	BZD0625	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	574	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/11/2025 18:11:00	04/11/2025 18:11:03	BZD0625	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/11/2025 18:11:00	04/11/2025 18:11:03	BZD0625	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/11/2025 18:11:00	04/11/2025 18:11:03	BZD0625	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTP10279	FALSE	FALSE	574	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:29:00	04/10/2025 15:28:18	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	57700	11.7	33.1	mg/L	FALSE	NA	1					AB																0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 12:07:00	04/09/2025 12:45:00	BZD0479	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	CTP10226	FALSE	FALSE	324000	1000	1000	mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 17:27:00	04/09/2025 17:35:00	BZD0531	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	CTP10267	FALSE	FALSE	62	3	4	mg/L	FALSE	NA	1					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 09:13:00	04/09/2025 10:29:00	BZD0449	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	14797-65-0	FALSE	FALSE	ND	0.01	0.1	mg/L	FALSE	NA	1					KC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D0731-01	Water	Water	04/08/2025 14:10:00	04/09/2025 16:50:00	04/14/2025 15:46:26	BZD0503	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	CTP10003	FALSE	FALSE	7	2	5	mg/L	FALSE	NA	1					DD		BOD-BL														1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/14/2025 09:05:00	04/14/2025 15:44:25	BZD0691	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	29.6	9	20	ng/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:29:00	04/10/2025 10:42:07	BZD0522	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:29:00	04/10/2025 10:42:07	BZD0522	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	57.6	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:29:00	04/10/2025 10:42:07	BZD0522	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.198	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:29:00	04/10/2025 10:42:07	BZD0522	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	280	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:29:00	04/10/2025 10:42:07	BZD0522	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:29:00	04/10/2025 10:42:07	BZD0522	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	44.7	0.403	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:29:00	04/10/2025 10:42:07	BZD0522	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	13400	2.4	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:29:00	04/10/2025 10:42:07	BZD0522	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8270	8.6	12.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:29:00	04/10/2025 10:42:07	BZD0522	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	ND	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:29:00	04/10/2025 10:51:18	BZD0522	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	86300	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:30:00	04/10/2025 15:06:14	BZD0523	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.339	0.004	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:30:00	04/10/2025 15:06:14	BZD0523	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:30:00	04/10/2025 15:06:14	BZD0523	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.0332	0.006	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:30:00	04/10/2025 15:06:14	BZD0523	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0276	0.018	0.025	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:30:00	04/10/2025 15:06:14	BZD0523	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:30:00	04/10/2025 15:06:14	BZD0523	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.125	0.016	0.018	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:30:00	04/10/2025 15:06:14	BZD0523	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.0979	0.004	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:30:00	04/10/2025 15:06:14	BZD0523	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0319	0.011	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:30:00	04/10/2025 15:06:14	BZD0523	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.101	0.014	0.015	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:30:00	04/10/2025 15:06:14	BZD0523	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 16:30:00	04/10/2025 15:06:14	BZD0523	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 11:32:00	04/09/2025 13:52:00	BZD0473	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	174000	180	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 11:32:00	04/09/2025 13:52:00	BZD0473	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	33.2	50	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/09/2025 11:32:00	04/09/2025 13:52:00	BZD0473	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	22900	247	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/14/2025 15:54:00	04/14/2025 15:54:00	BZD0722	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	164	0.5	1	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D0731-02	Water	Water	04/08/2025 14:15:00	04/11/2025 10:22:00	04/11/2025 13:09:00	BZD0620	Cyanide, Total	EPA 335.4	EPA

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPTxMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake - Grab	25D1314-01	Water	Water	04/15/2025 09:18:00	04/16/2025 12:00:00	04/16/2025 17:05:00	B2D0872	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTP10169	FALSE	FALSE	ND		5	5	mg/L	FALSE	NA	1					TFW																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall - Grab	25D1314-02	Water	Water	04/15/2025 09:18:00	04/16/2025 12:00:00	04/16/2025 17:05:00	B2D0872	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTP10169	FALSE	FALSE	ND		5	5	mg/L	FALSE	NA	1					TFW																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 11:02:00	04/17/2025 11:59:00	B2D0952	Mercury (T) 1631	EPA 1631G	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	23		9	20	ng/L	FALSE	NA	20					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:04:00	04/18/2025 11:39:08	B2D0994	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	1.6	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:04:00	04/18/2025 11:39:08	B2D0994	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	59.7	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:04:00	04/18/2025 11:39:08	B2D0994	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.158	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:04:00	04/18/2025 11:39:08	B2D0994	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	299	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:04:00	04/18/2025 11:39:08	B2D0994	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND		0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:04:00	04/18/2025 11:39:08	B2D0994	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	66.7	0.483	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:04:00	04/18/2025 11:39:08	B2D0994	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	13800	2.4	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:04:00	04/18/2025 11:39:08	B2D0994	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8580	8.6	12.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:04:00	04/18/2025 11:39:08	B2D0994	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	6.2	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:04:00	04/18/2025 11:30:30	B2D0994	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	93800	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:06:00	04/23/2025 16:05:38	B2D0992	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.383	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:06:00	04/23/2025 16:05:38	B2D0992	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND		0.001	0.005	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:06:00	04/23/2025 16:05:38	B2D0992	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.016	0.006	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:06:00	04/23/2025 16:05:38	B2D0992	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0272	0.018	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:06:00	04/23/2025 16:05:38	B2D0992	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND		0.009	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:06:00	04/23/2025 16:05:38	B2D0992	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.0352	0.016	0.018	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:06:00	04/23/2025 16:05:38	B2D0992	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.132	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:06:00	04/23/2025 16:05:38	B2D0992	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0284	0.011	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:06:00	04/23/2025 16:05:38	B2D0992	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.0738	0.014	0.015	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:06:00	04/23/2025 16:05:38	B2D0992	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND		0.008	0.012	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 16:06:00	04/23/2025 16:05:38	B2D0992	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND		0.05	0.25	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 07:45:00	04/17/2025 07:45:00	B2D0889	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	172000		180	500	mg/L	FALSE	NA	500					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 07:30:00	04/17/2025 07:30:00	B2D0889	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND		6.64	10	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 07:30:00	04/17/2025 07:30:00	B2D0889	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	24600	49.4	100	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/16/2025 23:48:00	04/17/2025 19:22:00	B2D0903	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	168	0.5	1	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/16/2025 12:48:00	04/17/2025 13:04:00	B2D0883	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND		0.022	0.03	mg/L	FALSE	NA	1					KC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 13:00:00	04/17/2025 15:52:10	B2D0962	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTP10049	FALSE	FALSE	2380	154	250	mg/L	FALSE	NA	25					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 17:58:08	04/17/2025 17:58:08	B2D0984	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	576	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 17:58:08	04/17/2025 17:58:08	B2D0984	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND		0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 17:58:08	04/17/2025 17:58:08	B2D0984	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND		0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/17/2025 17:58:08	04/17/2025 17:58:08	B2D0984	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTP10279	FALSE	FALSE	576	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/16/2025 11:39:08	04/17/2025 11:39:08	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	57600	11.7	33.1	mg/L	FALSE	NA	1					AB																0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/16/2025 14:32:00	04/16/2025 16:54:00	B2D0895	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	14797-65-0	FALSE	FALSE	ND		0.01	0.1	mg/L	FALSE	NA	1					RuB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1314-03	Water	Water	04/15/2025 15:30:54	04/16/2025 11:14:00	04/21/2025 12:09:45	B2D0856	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	CTP10003	FALSE	FALSE	10		2	5	mg/L	FALSE	NA	1					DD		BOD-BL														1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 11:02:00	04/17/2025 12:08:00	B2D0952	Mercury (T) 1631	EPA 1631G	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	27.4		9	20	ng/L	FALSE	NA	20					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:04:00	04/18/2025 11:52:05	B2D0994	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND		1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:04:00	04/18/2025 11:52:05	B2D0994	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	57.7	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:04:00	04/18/2025 11:52:05	B2D0994	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.138	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:04:00	04/18/2025 11:52:05	B2D0994	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	288	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:04:00	04/18/2025 11:52:05	B2D0994	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND		0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:04:00	04/18/2025 11:52:05	B2D0994	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	47.9	0.483	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:04:00	04/18/2025 11:52:05	B2D0994	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	13400	2.4	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:04:00	04/18/2025 11:52:05	B2D0994	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8400	8.6	12.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:04:00	04/18/2025 11:52:05	B2D0994	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	5.7	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:04:00	04/18/2025 11:34:50	B2D0994	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	92800	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:06:00	04/23/2025 16:08:16	B2D0992	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.406	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:06:00	04/23/2025 16:08:16	B2D0992	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND		0.001	0.005	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:06:00	04/23/2025 16:08:16	B2D0992	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.0228	0.006	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:06:00	04/23/2025 16:08:16	B2D0992	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.026	0.018	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:06:00	04/23/2025 16:08:16	B2D0992	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND		0.009	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:06:00	04/23/2025 16:08:16	B2D0992	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.0926	0.016	0.018	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:06:00	04/23/2025 16:08:16	B2D0992	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.105	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:06:00	04/23/2025 16:08:16	B2D0992	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0413	0.011	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:06:00	04/23/2025 16:08:16	B2D0992	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.0687	0.014	0.015	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:06:00	04/23/2025 16:08:16	B2D0992	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND		0.008	0.012	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 16:06:00	04/23/2025 16:08:16	B2D0992	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND		0.05	0.25	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 08:45:00	04/17/2025 08:45:00	B2D0889	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	172000		180	500	mg/L	FALSE	NA	500					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 08:30:00	04/17/2025 08:30:00	B2D0889	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND		6.64	10	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 08:30:00	04/17/2025 08:30:00	B2D0889	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	24600	49.4	100	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 00:50:00	04/17/2025 20:24:00	B2D0903	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	166	0.5	1	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/16/2025 12:48:00	04/17/2025 13:08:00	B2D0883	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND		0.022	0.03	mg/L	FALSE	NA	1					KC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 13:00:00	04/17/2025 15:52:10	B2D0962	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTP10049	FALSE	FALSE	1000	154	250	mg/L	FALSE	NA	25					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1314-04	Water	Water	04/15/2025 15:30:00	04/17/2025 18:14:00	04

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPTxMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake - Grab	25D1952-01	Water	Water	04/22/2025 10:25:00	04/28/2025 16:11:00	04/29/2025 13:40:00	8ZD1515	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND		5	5	mg/L	FALSE	NA	1					WP																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall - Grab	25D1952-02	Water	Water	04/22/2025 10:25:00	04/28/2025 16:11:00	04/29/2025 13:40:00	8ZD1515	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND		5	5	mg/L	FALSE	NA	1					WP																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/30/2025 09:47:00	05/01/2025 13:12:47	8ZD1531	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	21.9		9	20	ng/L	FALSE	NA	20					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 13:01:56	8ZD1501	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND		1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 13:01:56	8ZD1501	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	62.6	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 13:01:56	8ZD1501	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.145	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 13:01:56	8ZD1501	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	304	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 13:01:56	8ZD1501	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND		0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 13:01:56	8ZD1501	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	68.6	0.483	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 13:01:56	8ZD1501	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14300	2.4	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 13:01:56	8ZD1501	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	9000	8.6	12.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 13:01:56	8ZD1501	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	ND		4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 12:40:20	8ZD1501	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	93600	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:55:46	8ZD1500	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.449	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:55:46	8ZD1500	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND		0.001	0.005	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:55:46	8ZD1500	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.0264	0.006	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:55:46	8ZD1500	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.037	0.018	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:55:46	8ZD1500	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND		0.009	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:55:46	8ZD1500	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.0784	0.016	0.018	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:55:46	8ZD1500	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.131	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:55:46	8ZD1500	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.017	0.011	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:55:46	8ZD1500	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.1	0.014	0.015	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:55:46	8ZD1500	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND		0.008	0.012	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:55:46	8ZD1500	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND		0.05	0.25	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/23/2025 15:21:00	04/24/2025 06:42:00	8ZD1275	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	176000	180	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/23/2025 15:21:00	04/24/2025 06:42:00	8ZD1275	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND		6.64	10	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/23/2025 15:21:00	04/24/2025 06:42:00	8ZD1275	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	24100	247	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/28/2025 14:57:00	04/28/2025 21:31:00	8ZD1503	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	169	0.5	1	mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/29/2025 10:20:00	05/01/2025 14:10:00	8ZD1532	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND		0.022	0.03	mg/L	FALSE	NA	6					RuB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	05/01/2025 11:34:00	05/05/2025 15:04:44	8ZE0021	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTF10049	FALSE	FALSE	1650	308	500	mg/L	FALSE	NA	50					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/25/2025 21:55:00	04/25/2025 21:55:54	8ZD1383	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	586	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/25/2025 21:55:00	04/25/2025 21:55:54	8ZD1383	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND		0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/25/2025 21:55:00	04/25/2025 21:55:54	8ZD1383	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND		0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/25/2025 21:55:00	04/25/2025 21:55:54	8ZD1383	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTF10279	FALSE	FALSE	586	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/25/2025 14:26:00	04/29/2025 13:01:56	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	59500	11.7	33.1	mg/L	FALSE	NA	1					AB																0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/25/2025 14:30:00	04/25/2025 16:00:00	8ZD1422	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	CTF10226	FALSE	FALSE	340000	1000	1000	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/24/2025 14:42:00	04/24/2025 14:55:00	8ZD1356	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	CTF10267	FALSE	FALSE	146		5	7	mg/L	FALSE	NA	1					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/23/2025 16:06:00	04/23/2025 16:54:00	8ZD1287	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	14797-65-0	FALSE	FALSE	ND		0.01	0.1	mg/L	FALSE	NA	1					KC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25D1952-03	Water	Water	04/22/2025 14:30:00	04/23/2025 17:05:00	04/28/2025 13:22:52	8ZD1176	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	CTF10003	FALSE	FALSE	8		2	5	mg/L	FALSE	NA	1					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/30/2025 09:47:00	05/01/2025 13:30:43	8ZD1531	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	33.2		9	20	ng/L	FALSE	NA	20					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 13:14:55	8ZD1501	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND		1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 13:14:55	8ZD1501	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	60.1	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 13:14:55	8ZD1501	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.132	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 13:14:55	8ZD1501	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	297	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 13:14:55	8ZD1501	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND		0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 13:14:55	8ZD1501	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	49.2	0.483	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 13:14:55	8ZD1501	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	13900	2.4	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 13:14:55	8ZD1501	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8740	8.6	12.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 13:14:55	8ZD1501	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	5.5	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:26:00	04/29/2025 12:44:39	8ZD1501	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	92300	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:58:22	8ZD1500	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.372	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:58:22	8ZD1500	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND		0.001	0.005	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:58:22	8ZD1500	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.0382	0.006	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:58:22	8ZD1500	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0398	0.018	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:58:22	8ZD1500	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND		0.009	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:58:22	8ZD1500	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.128	0.016	0.018	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:58:22	8ZD1500	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.104	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:58:22	8ZD1500	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0341	0.011	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:58:22	8ZD1500	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.104	0.014	0.015	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:58:22	8ZD1500	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND		0.008	0.012	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:28:00	04/29/2025 13:58:22	8ZD1500	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND		0.05	0.25	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/23/2025 15:21:00	04/24/2025 07:43:00	8ZD1275	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	160000	180	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/23/2025 15:21:00	04/24/2025 07:43:00	8ZD1275	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND		6.64	10	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/23/2025 15:21:00	04/24/2025 07:43:00	8ZD1275	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	20400	49.4	100	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25D1952-04	Water	Water	04/22/2025 14:30:00	04/28/2025 14:57:00	04/28/2025 22:33:00	8ZD1503	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	165	0.5	1	mg/L	FALSE	NA	100					LLC										

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPTofMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/06/2025 13:48:00	05/06/2025 14:30:02	BZE0243	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	27.5	9	20	ng/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:40:15	BZE0136	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	1.6	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:40:15	BZE0136	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	61.1	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:40:15	BZE0136	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.178	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:40:15	BZE0136	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	284	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:40:15	BZE0136	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:40:15	BZE0136	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	68.9	0.403	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:40:15	BZE0136	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14400	2.4	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:40:15	BZE0136	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8860	8.6	12.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:40:15	BZE0136	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	ND	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:30:37	BZE0136	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	96300	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:53:18	BZE0135	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.44	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:53:18	BZE0135	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:53:18	BZE0135	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.0234	0.006	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:53:18	BZE0135	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0366	0.018	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:53:18	BZE0135	Pb (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:53:18	BZE0135	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.0385	0.016	0.018	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:53:18	BZE0135	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.134	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:53:18	BZE0135	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0196	0.011	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:53:18	BZE0135	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.0968	0.014	0.015	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:53:18	BZE0135	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:53:18	BZE0135	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/02/2025 14:06:00	05/02/2025 14:06:00	BZE0100	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	178000	180	500	mg/L	FALSE	NA	500					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/02/2025 13:04:00	05/02/2025 13:51:00	BZE0100	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/02/2025 13:04:00	05/02/2025 13:51:00	BZE0100	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	25000	49.4	100	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 14:36:00	05/05/2025 14:36:00	BZE0177	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	574	0.5	1	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/09/2025 13:52:00	05/09/2025 16:44:00	BZE0465	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.022	0.03	mg/L	FALSE	NA	6					RuB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/06/2025 14:53:00	05/07/2025 17:27:00	BZE0247	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTP10049	FALSE	FALSE	1200	617	1000	mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/02/2025 22:26:00	05/02/2025 22:26:46	BZE0097	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	573	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/02/2025 22:26:00	05/02/2025 22:26:46	BZE0097	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/02/2025 22:26:00	05/02/2025 22:26:46	BZE0097	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/02/2025 22:26:00	05/02/2025 22:26:46	BZE0097	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTP10279	FALSE	FALSE	573	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:40:15	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	60200	11.7	33.1	mg/L	FALSE	NA	1					AB																0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/06/2025 11:06:00	05/06/2025 12:00:00	BZE0214	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	CTP10226	FALSE	FALSE	347000	1000	1000	mg/L	FALSE	NA	1					TFW																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/05/2025 16:10:00	05/05/2025 16:47:00	BZE0194	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	CTP10267	FALSE	FALSE	221	5	7	mg/L	FALSE	NA	1					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/02/2025 15:51:00	05/02/2025 17:15:00	BZE0118	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	14797-65-0	FALSE	FALSE	ND	0.01	0.1	mg/L	FALSE	NA	1					SMS																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0114-01	Water	Water	05/01/2025 14:35:00	05/06/2025 13:48:00	05/06/2025 14:30:02	BZE0243	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	ND	9	20	ng/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:53:59	BZE0136	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	1.6	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:53:59	BZE0136	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	58.3	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:53:59	BZE0136	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.148	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:53:59	BZE0136	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	271	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:53:59	BZE0136	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:53:59	BZE0136	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	21.9	0.403	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:53:59	BZE0136	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	13700	2.4	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:53:59	BZE0136	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8530	8.6	12.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:53:59	BZE0136	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	ND	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:41:00	05/06/2025 12:33:25	BZE0136	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	88400	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:57:11	BZE0135	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.272	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:57:11	BZE0135	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:57:11	BZE0135	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.0314	0.006	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:57:11	BZE0135	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0366	0.018	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:57:11	BZE0135	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:57:11	BZE0135	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.305	0.016	0.018	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:57:11	BZE0135	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.0557	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:57:11	BZE0135	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0278	0.011	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:57:11	BZE0135	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.0916	0.014	0.015	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:57:11	BZE0135	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 09:40:00	05/05/2025 13:57:11	BZE0135	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/02/2025 15:06:00	05/02/2025 15:06:00	BZE0100	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	171000	180	500	mg/L	FALSE	NA	500					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/02/2025 13:04:00	05/02/2025 14:51:00	BZE0100	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/02/2025 13:04:00	05/02/2025 14:51:00	BZE0100	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	24200	49.4	100	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/05/2025 15:38:00	05/05/2025 15:38:00	BZE0177	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	165	0.5	1	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/09/2025 13:52:00	05/09/2025 16:49:00	BZE0465	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.022	0.03	mg/L	FALSE	NA	6					RuB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/06/2025 14:33:00	05/07/2025 17:27:00	BZE0247	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTP10049	FALSE	FALSE	1000	617	1000	mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/02/2025 22:48:00	05/02/2025 22:48:51	BZE0097	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	378	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0114-02	Water	Water	05/01/2025 14:35:00	05/02/2025 22:48:00	05/02/2025

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPTxMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall Grab	25E0394-01	Water	Water	05/06/2025 10:30:00	05/08/2025 14:00:00	05/09/2025 11:25:00	BZE0388	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTP10169	FALSE	FALSE	ND	5	5	mg/L	FALSE	NA	1					TFW																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake Grab	25E0394-02	Water	Water	05/06/2025 10:30:00	05/08/2025 14:00:00	05/09/2025 11:25:00	BZE0388	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTP10169	FALSE	FALSE	ND	5	5	mg/L	FALSE	NA	1					TFW																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/12/2025 09:11:00	05/12/2025 12:45:22	BZE0497	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	24	9	20	ng/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:24:11	BZE0270	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	2.5	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:24:11	BZE0270	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	59.8	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:24:11	BZE0270	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.188	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:24:11	BZE0270	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	284	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:24:11	BZE0270	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:24:11	BZE0270	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	68.4	0.403	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:11:14	BZE0270	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	13600	48	100	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:24:11	BZE0270	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8740	8.6	12.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:24:11	BZE0270	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	ND	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:11:14	BZE0270	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	93200	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:14:27	BZE0269	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.459	0.004	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:14:27	BZE0269	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 12:55:44	BZE0269	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	ND	0.031	0.063	mg/L	FALSE	NA	5					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:14:27	BZE0269	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0759	0.018	0.025	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:14:27	BZE0269	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:14:27	BZE0269	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.0431	0.018	0.018	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:14:27	BZE0269	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.111	0.004	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:14:27	BZE0269	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.03	0.011	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:14:27	BZE0269	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.102	0.014	0.015	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:14:27	BZE0269	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:14:27	BZE0269	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 14:33:00	05/08/2025 05:19:00	BZE0309	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	175000	180	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 14:33:00	05/08/2025 05:25:00	BZE0309	Nitrate as N	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 14:33:00	05/08/2025 05:19:00	BZE0309	Nitrate	EPA 300.0	NO PREP	Nitrate	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 14:33:00	05/08/2025 05:19:00	BZE0309	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	26400	49.4	100	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 15:04:00	05/07/2025 15:52:00	BZE0313	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	168	0.5	1	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/09/2025 13:52:00	05/09/2025 16:50:00	BZE0465	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.022	0.03	mg/L	FALSE	NA	6					RuB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/08/2025 12:30:00	05/08/2025 18:00:50	BZE0379	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTP10049	FALSE	FALSE	1200	617	1000	mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/08/2025 21:33:00	05/08/2025 21:33:54	BZE0354	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	572	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/08/2025 21:33:00	05/08/2025 21:33:54	BZE0354	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/08/2025 21:33:00	05/08/2025 21:33:54	BZE0354	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/08/2025 21:33:00	05/08/2025 21:33:54	BZE0354	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTP10279	FALSE	FALSE	572	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:24:11	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	56800	199	424	mg/L	FALSE	NA	20					AB																0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/09/2025 17:06:00	05/09/2025 17:15:00	BZE0486	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	CTP10226	FALSE	FALSE	318000	1000	1000	mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 15:11:00	05/07/2025 15:30:00	BZE0317	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	CTP10267	FALSE	FALSE	395	5	7	mg/L	FALSE	NA	1					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 17:13:00	05/07/2025 18:32:00	BZE0336	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	14797-65-0	FALSE	FALSE	ND	0.01	0.1	mg/L	FALSE	NA	1					RuB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E0394-03	Water	Water	05/06/2025 14:30:00	05/07/2025 16:35:00	05/12/2025 12:10:04	BZE0288	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	CTP10003	FALSE	FALSE	12	2	5	mg/L	FALSE	NA	1					DD		BOD-BL														1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/12/2025 09:11:00	05/12/2025 13:03:20	BZE0497	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	33.3	9	20	ng/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:45:30	BZE0270	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	1.7	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:45:30	BZE0270	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	57.4	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:45:30	BZE0270	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.168	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:45:30	BZE0270	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	274	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:45:30	BZE0270	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:45:30	BZE0270	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	45	0.403	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:15:33	BZE0270	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	13300	48	100	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:45:30	BZE0270	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8460	8.6	12.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:45:30	BZE0270	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	ND	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:25:00	05/08/2025 12:15:33	BZE0270	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	88000	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:17:10	BZE0269	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.391	0.004	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:17:10	BZE0269	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 12:58:33	BZE0269	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	ND	0.031	0.063	mg/L	FALSE	NA	5					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:17:10	BZE0269	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0554	0.018	0.025	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:17:10	BZE0269	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:17:10	BZE0269	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.168	0.016	0.018	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:17:10	BZE0269	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.0962	0.004	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:17:10	BZE0269	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0528	0.011	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:17:10	BZE0269	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.104	0.014	0.015	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:17:10	BZE0269	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 09:26:00	05/08/2025 11:17:10	BZE0269	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 14:33:00	05/08/2025 06:20:00	BZE0309	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	174000	180	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 14:33:00	05/08/2025 06:20:00	BZE0309	Nitrate as N	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 14:33:00	05/08/2025 06:20:00	BZE0309	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	24900	49.4	100	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E0394-04	Water	Water	05/06/2025 14:30:00	05/07/2025 15:04:00	05/07/2025 16:53:00	BZE0313	Bromide (IC)	EPA 300.1	NO PREP	Brom

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPTofMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake - Grab	25E1680-01	Water	Water	05/20/2025 09:49:00	05/22/2025 15:58:00	05/23/2025 14:27:00	BZE1131	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND	5	5	mg/L	FALSE	NA	1					WP																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall - Grab	25E1680-02	Water	Water	05/20/2025 09:50:00	05/22/2025 15:58:00	05/23/2025 14:27:00	BZE1131	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND	5	5	mg/L	FALSE	NA	1					WP																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 13:39:00	05/21/2025 14:15:13	BZE1028	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	23.3	9	20	ng/L	FALSE	NA	20					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:30:25	BZE1051	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND	1.2	1.5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:30:25	BZE1051	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	61	0.61	1.25	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:30:25	BZE1051	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.175	0.057	0.125	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:30:25	BZE1051	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	277	0.7	5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:30:25	BZE1051	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:30:25	BZE1051	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	68.6	0.403	0.5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:12:51	BZE1051	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	13900	48	100	mg/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:12:51	BZE1051	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8280	171	250	mg/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:30:25	BZE1051	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	5.8	4.2	5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:12:51	BZE1051	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	94400	343	500	mg/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:30:47	BZE1057	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.385	0.004	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:30:47	BZE1057	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:17:02	BZE1057	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	ND	0.062	0.125	mg/L	FALSE	NA	10					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:30:47	BZE1057	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0515	0.018	0.025	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:30:47	BZE1057	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:30:47	BZE1057	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.0434	0.016	0.018	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:30:47	BZE1057	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.122	0.004	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:30:47	BZE1057	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.028	0.011	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:30:47	BZE1057	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.101	0.014	0.015	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:30:47	BZE1057	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:30:47	BZE1057	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/22/2025 01:18:00	05/22/2025 01:18:00	BZE1035	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	187000	180	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/22/2025 01:18:00	05/22/2025 01:18:00	BZE1035	Nitrate as N	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/22/2025 01:18:00	05/22/2025 01:18:00	BZE1035	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	26700	49.4	100	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/27/2025 11:11:00	05/28/2025 15:59:00	BZE1226	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	201	0.5	1	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/28/2025 14:44:00	05/29/2025 10:56:00	BZE1345	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.022	0.03	mg/L	FALSE	NA	6					SMS																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 14:35:00	05/22/2025 11:33:27	BZE1041	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTF10049	FALSE	FALSE	1200	617	1000	mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/22/2025 18:30:00	05/22/2025 18:30:09	BZE1076	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	569	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/22/2025 18:30:00	05/22/2025 18:30:09	BZE1076	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/22/2025 18:30:00	05/22/2025 18:30:09	BZE1076	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/22/2025 18:30:00	05/22/2025 18:30:09	BZE1076	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTF10279	FALSE	FALSE	569	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:30:25	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	58100	199	424	mg/L	FALSE	NA	20					TM																0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/22/2025 11:37:00	05/22/2025 11:45:00	BZE1093	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	CTF10226	FALSE	FALSE	335000	1000	1000	mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:35:37	BZE1058	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	CTF10267	FALSE	FALSE	62	3	4	mg/L	FALSE	NA	1					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 14:11:00	05/21/2025 18:10:00	BZE1033	OA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	14797-65-0	FALSE	FALSE	ND	0.01	0.1	mg/L	FALSE	NA	1					RuB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E1680-03	Water	Water	05/20/2025 14:15:00	05/21/2025 16:15:00	05/26/2025 13:44:09	BZE1045	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	CTF10003	FALSE	FALSE	11	2	5	mg/L	FALSE	NA	1					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 13:39:00	05/21/2025 14:33:11	BZE1028	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	24.9	9	20	ng/L	FALSE	NA	20					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:35:37	BZE1051	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND	1.2	1.5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:35:37	BZE1051	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	58.1	0.61	1.25	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:35:37	BZE1051	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.16	0.057	0.125	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:35:37	BZE1051	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	270	0.7	5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/22/2025 11:43:00	05/23/2025 13:42:56	BZE1094	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	1.46	0.57	0.75	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:35:37	BZE1051	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	18.8	0.403	0.5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:15:27	BZE1051	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	13300	48	100	mg/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:15:27	BZE1051	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	7880	171	250	mg/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:35:37	BZE1051	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	6.6	4.2	5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 15:56:00	05/22/2025 10:15:27	BZE1051	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	90300	343	500	mg/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:33:31	BZE1057	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.31	0.004	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:33:31	BZE1057	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:19:46	BZE1057	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	ND	0.062	0.125	mg/L	FALSE	NA	10					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:33:31	BZE1057	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0535	0.018	0.025	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:33:31	BZE1057	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:33:31	BZE1057	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.182	0.016	0.018	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:33:31	BZE1057	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.0672	0.004	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:33:31	BZE1057	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0304	0.011	0.013	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:33:31	BZE1057	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.121	0.014	0.015	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:33:31	BZE1057	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/21/2025 16:18:00	05/22/2025 11:33:31	BZE1057	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/22/2025 02:18:00	05/22/2025 02:18:00	BZE1035	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	173000	180	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/22/2025 02:18:00	05/22/2025 02:18:00	BZE1035	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/22/2025 02:18:00	05/22/2025 02:18:00	BZE1035	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	25200	49.4	100	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	06/02/2025 16:07:00	06/02/2025 16:07:00	BZF0074	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	158	2.3	5	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E1680-04	Water	Water	05/20/2025 14:15:00	05/28/2025 14:44:00	05/29/2025 11:00:00	BZE1345	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPTtoMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake - Grab	25E2428-01	Water	Water	05/29/2025 10:35:00	06/02/2025 16:19:00	06/03/2025 14:30:00	BZF0078	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND	5	5	mg/L	FALSE	NA	1					WP																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall - Grab	25E2428-02	Water	Water	05/29/2025 10:35:00	06/02/2025 16:19:00	06/03/2025 14:30:00	BZF0078	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND	5	5	mg/L	FALSE	NA	1					WP																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/06/2025 10:58:00	06/06/2025 13:09:51	BZF0323	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	25.5	9	20	ng/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 11:50:21	BZF0061	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	1.8	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 11:50:21	BZF0061	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	59.3	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 11:50:21	BZF0061	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.2	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 11:50:21	BZF0061	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	300	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 11:50:21	BZF0061	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 11:50:21	BZF0061	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	66.1	0.403	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 11:50:21	BZF0061	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14100	2.4	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 11:50:21	BZF0061	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8600	8.6	12.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 11:50:21	BZF0061	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	5	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 11:33:52	BZF0061	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	94200	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:22:08	BZF0060	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.48	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:22:08	BZF0060	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 09:56:43	BZF0060	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	ND	0.062	0.125	mg/L	FALSE	NA	10					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:22:08	BZF0060	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0359	0.018	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:22:08	BZF0060	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:22:08	BZF0060	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.0298	0.016	0.018	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:22:08	BZF0060	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.132	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 09:56:43	BZF0060	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	ND	0.112	0.125	mg/L	FALSE	NA	10					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:22:08	BZF0060	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.215	0.014	0.015	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:22:08	BZF0060	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:22:08	BZF0060	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	05/30/2025 12:57:00	05/31/2025 05:52:00	BZE1481	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	183000	180	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	05/30/2025 12:57:00	05/31/2025 05:52:00	BZE1481	Nitrate as N	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	05/30/2025 12:57:00	05/31/2025 05:52:00	BZE1481	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	25200	247	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	05/30/2025 11:54:00	05/30/2025 18:19:00	BZE1471	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	179	0.5	1	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/04/2025 13:05:00	06/04/2025 16:23:00	BZF0196	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.132	0.18	mg/L	FALSE	NA	6					RuB		R-05														1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/06/2025 13:23:00	06/09/2025 12:30:30	BZF0346	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTF10049	FALSE	FALSE	1200	617	1000	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	05/30/2025 23:54:00	05/30/2025 23:54:19	BZE1513	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	552	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	05/30/2025 23:54:00	05/30/2025 23:54:19	BZE1513	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	05/30/2025 23:54:00	05/30/2025 23:54:19	BZE1513	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	05/30/2025 23:54:00	05/30/2025 23:54:19	BZE1513	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTF10279	FALSE	FALSE	552	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	05/30/2025 11:50:21	05/30/2025 11:50:21	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	58700	11.7	33.1	mg/L	FALSE	NA	1					AB																0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	05/30/2025 16:02:00	05/30/2025 16:30:00	BZE1521	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	CTF10226	FALSE	FALSE	341000	1000	1000	mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	06/02/2025 14:36:00	06/03/2025 14:26:00	BZF0065	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	CTF10267	FALSE	FALSE	91	3	4	mg/L	FALSE	NA	1					CA																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	05/30/2025 14:03:00	05/30/2025 15:19:00	BZE1489	OA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	14797-65-0	FALSE	FALSE	ND	0.01	0.1	mg/L	FALSE	NA	1					SMS																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25E2428-03	Water	Water	05/29/2025 14:36:00	05/30/2025 11:46:00	06/04/2025 13:18:54	BZE1467	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	CTF10003	FALSE	FALSE	9	2	5	mg/L	FALSE	NA	1					CA																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/06/2025 10:58:00	06/06/2025 13:27:48	BZF0323	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	31.4	9	20	ng/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 12:07:19	BZF0061	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 12:07:19	BZF0061	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	58.6	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 12:07:19	BZF0061	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.148	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 12:07:19	BZF0061	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	293	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 12:07:19	BZF0061	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	2.4	0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 12:07:19	BZF0061	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	14.7	0.403	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 12:07:19	BZF0061	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	13900	2.4	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 12:07:19	BZF0061	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8480	8.6	12.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 12:07:19	BZF0061	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	6.3	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:10:00	06/03/2025 11:57:12	BZF0061	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	93600	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:24:44	BZF0060	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.323	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:24:44	BZF0060	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:51:50	BZF0060	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	ND	0.124	0.25	mg/L	FALSE	NA	20					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:24:44	BZF0060	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0344	0.018	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:24:44	BZF0060	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:24:44	BZF0060	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.141	0.016	0.018	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:24:44	BZF0060	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.0548	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:00:37	BZF0060	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	ND	0.112	0.125	mg/L	FALSE	NA	10					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:24:44	BZF0060	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.264	0.014	0.015	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:24:44	BZF0060	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/02/2025 14:12:00	06/03/2025 10:24:44	BZF0060	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	05/30/2025 12:57:00	05/31/2025 06:52:00	BZE1481	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	181000	180	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	05/30/2025 12:57:00	05/31/2025 06:52:00	BZE1481	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	05/30/2025 12:57:00	05/31/2025 06:52:00	BZE1481	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	25000	247	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	05/30/2025 11:54:00	05/30/2025 19:41:00	BZE1471	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	170	0.5	1	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25E2428-04	Water	Water	05/29/2025 14:36:00	06/04/2025 13:05:00	06/04/2025 16:27:00	BZF0196	Cyanide, Total	EPA 335.4	EPA 9

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPTofMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake Grab	25F0273-01	Water	Water	06/03/2025 09:55:00	06/05/2025 13:15:00	06/06/2025 13:00:00	BZF0245	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND	5	5		mg/L	FALSE	NA	1					TFW															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall Grab	25F0273-02	Water	Water	06/03/2025 09:55:00	06/05/2025 13:15:00	06/06/2025 13:00:00	BZF0245	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND	5	5		mg/L	FALSE	NA	1					TFW															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/08/2025 10:58:00	06/08/2025 13:33:46	BZF0323	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	27.2	9	20		ng/L	FALSE	NA	20					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:52:23	BZF0173	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	5.2	1.2	1.5		mg/L	FALSE	NA	1					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:52:23	BZF0173	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	60.2	0.61	1.25		mg/L	FALSE	NA	1					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:52:23	BZF0173	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.185	0.057	0.125		mg/L	FALSE	NA	1					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:52:23	BZF0173	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	297	0.7	5		mg/L	FALSE	NA	1					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:52:23	BZF0173	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75		mg/L	FALSE	NA	1					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:52:23	BZF0173	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	66.4	0.403	0.5		mg/L	FALSE	NA	1					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:39:22	BZF0173	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14300	48	100		mg/L	FALSE	NA	20					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:39:22	BZF0173	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8390	171	250		mg/L	FALSE	NA	20					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:52:23	BZF0173	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	5.3	4.2	5		mg/L	FALSE	NA	1					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:39:22	BZF0173	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	96700	343	500		mg/L	FALSE	NA	20					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:39:30	BZF0174	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.423	0.004	0.013		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:39:30	BZF0174	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:39:30	BZF0174	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.0208	0.006	0.013		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:39:30	BZF0174	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0299	0.018	0.025		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:39:30	BZF0174	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:39:30	BZF0174	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.04	0.016	0.018		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:39:30	BZF0174	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.125	0.004	0.013		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:39:30	BZF0174	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0152	0.011	0.013		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:39:30	BZF0174	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.238	0.014	0.015		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:39:30	BZF0174	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:39:30	BZF0174	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 16:45:00	06/04/2025 21:56:00	BZF0218	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	177000	180	500		mg/L	FALSE	NA	500					DD															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 16:45:00	06/04/2025 21:56:00	BZF0218	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10		mg/L	FALSE	NA	100					DD															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 16:45:00	06/04/2025 21:56:00	BZF0218	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	24300	247	500		mg/L	FALSE	NA	500					DD															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/09/2025 15:09:00	06/09/2025 22:06:00	BZF0423	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	140	0.5	1		mg/L	FALSE	NA	100					DD															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 13:05:00	06/04/2025 16:28:00	BZF0196	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.132	0.18		mg/L	FALSE	NA	6					RuB		R-05													1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/11/2025 12:36:00	06/11/2025 17:38:09	BZF0536	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTF10049	FALSE	FALSE	ND	617	1000		mg/L	FALSE	NA	100					LLC															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 15:39:00	06/04/2025 15:39:31	BZF0183	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	559	0.2	1		mg/L	FALSE	NA	1					DAN															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 15:39:00	06/04/2025 15:39:31	BZF0183	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND	0.2	1		mg/L	FALSE	NA	1					DAN															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 15:39:00	06/04/2025 15:39:31	BZF0183	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND	0.2	1		mg/L	FALSE	NA	1					DAN															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 15:39:00	06/04/2025 15:39:31	BZF0183	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTF10279	FALSE	FALSE	559	0.2	1		mg/L	FALSE	NA	1					DAN															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 11:52:23	[CALC]	Hardness AP	SM 2340 B	[CALC]	NO PREP	Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	57100	199	424		mg/L	FALSE	NA	20					TM															0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/05/2025 10:33:00	06/05/2025 16:00:00	BZF0250	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	CTF10226	FALSE	FALSE	340000	1000	1000		mg/L	FALSE	NA	1					DAN															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/06/2025 15:36:00	06/06/2025 16:00:00	BZF0366	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	CTF10267	FALSE	FALSE	228	8	10		mg/L	FALSE	NA	1					DAN															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 15:34:00	06/05/2025 11:54:00	BZF0213	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	14797-65-0	FALSE	FALSE	ND	0.01	0.1		mg/L	FALSE	NA	1					KC															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F0273-03	Water	Water	06/03/2025 14:40:00	06/04/2025 17:30:00	06/09/2025 15:12:42	BZF0221	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	CTF10003	FALSE	FALSE	10	2	5		mg/L	FALSE	NA	1					EK															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/06/2025 10:58:00	06/06/2025 13:51:44	BZF0323	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	29.4	9	20		ng/L	FALSE	NA	20					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:57:35	BZF0173	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	5.1	1.2	1.5		mg/L	FALSE	NA	1					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:57:35	BZF0173	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	57.4	0.61	1.25		mg/L	FALSE	NA	1					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:57:35	BZF0173	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.178	0.057	0.125		mg/L	FALSE	NA	1					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:57:35	BZF0173	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	288	0.7	5		mg/L	FALSE	NA	1					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:57:35	BZF0173	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	1.3	0.57	0.75		mg/L	FALSE	NA	1					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:57:35	BZF0173	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	14.4	0.403	0.5		mg/L	FALSE	NA	1					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:49:46	BZF0173	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	13700	48	100		mg/L	FALSE	NA	20					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:49:46	BZF0173	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8050	171	250		mg/L	FALSE	NA	20					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:57:35	BZF0173	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	7.3	4.2	5		mg/L	FALSE	NA	1					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:02:00	06/05/2025 11:57:35	BZF0173	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	93600	343	500		mg/L	FALSE	NA	20					TM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:43:27	BZF0174	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.305	0.004	0.013		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:43:27	BZF0174	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:43:27	BZF0174	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.03	0.006	0.013		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:43:27	BZF0174	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0322	0.018	0.025		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:43:27	BZF0174	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:43:27	BZF0174	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.166	0.016	0.018		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:43:27	BZF0174	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.122	0.004	0.013		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:43:27	BZF0174	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	ND	0.011	0.013		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:43:27	BZF0174	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.342	0.014	0.015		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:43:27	BZF0174	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 11:03:00	06/05/2025 14:43:27	BZF0174	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25		mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 16:45:00	06/04/2025 22:56:00	BZF0218	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	166000	180	500		mg/L	FALSE	NA	500					DD															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 16:45:00	06/04/2025 22:56:00	BZF0218	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10		mg/L	FALSE	NA	100					DD															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 16:45:00	06/04/2025 22:56:00	BZF0218	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	25300	49.4	100		mg/L	FALSE	NA	100					DD															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/09/2025 15:09:00	06/09/2025 23:19:00	BZF0423	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	139	0.5	1		mg/L	FALSE	NA	100					DD															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F0273-04	Water	Water	06/03/2025 14:40:00	06/04/2025 13:05:00	06/04/2025 16:35:00	BZF0196	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total

B.1

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPTtoMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake Grab	25F1263-01	Water	Water	06/12/2025 11:24:00	06/18/2025 12:30:00	06/18/2025 16:50:00	B2F0899	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND	5	5		mg/L	FALSE	NA	1				TFW																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall Grab	25F1263-02	Water	Water	06/12/2025 11:24:00	06/18/2025 12:30:00	06/18/2025 16:50:00	B2F0899	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND	5	5		mg/L	FALSE	NA	1				TFW																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/18/2025 11:19:00	06/18/2025 11:48:26	B2F0747	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	23.5	9	20	ng/L	FALSE	NA	20				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:21:00	06/17/2025 12:10:26	B2F0784	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	1.6	1.2	1.5	mg/L	FALSE	NA	1				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:21:00	06/17/2025 12:10:26	B2F0784	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	59.2	0.61	1.25	mg/L	FALSE	NA	1				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:21:00	06/17/2025 12:10:26	B2F0784	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.142	0.057	0.125	mg/L	FALSE	NA	1				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:21:00	06/17/2025 12:10:26	B2F0784	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	300	0.7	5	mg/L	FALSE	NA	1				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:21:00	06/17/2025 12:10:26	B2F0784	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	1				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:21:00	06/17/2025 12:10:26	B2F0784	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	62.3	0.403	0.5	mg/L	FALSE	NA	1				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:21:00	06/17/2025 12:10:26	B2F0784	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14400	2.4	5	mg/L	FALSE	NA	1				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:21:00	06/17/2025 12:10:26	B2F0784	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8510	8.6	12.5	mg/L	FALSE	NA	1				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:21:00	06/17/2025 12:10:26	B2F0784	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	5.2	4.2	5	mg/L	FALSE	NA	1				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:21:00	06/17/2025 11:50:38	B2F0784	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	93300	343	500	mg/L	FALSE	NA	20				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:19:00	06/18/2025 15:18:06	B2F0786	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.6	0.004	0.013	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:19:00	06/18/2025 15:18:06	B2F0786	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:19:00	06/18/2025 15:18:06	B2F0786	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.187	0.006	0.013	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:19:00	06/18/2025 15:18:06	B2F0786	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0286	0.018	0.025	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:19:00	06/18/2025 15:18:06	B2F0786	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:19:00	06/18/2025 15:18:06	B2F0786	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.0404	0.018	0.018	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:19:00	06/18/2025 15:18:06	B2F0786	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.218	0.004	0.013	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:19:00	06/18/2025 15:18:06	B2F0786	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.024	0.011	0.013	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:19:00	06/18/2025 15:18:06	B2F0786	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.729	0.014	0.015	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:19:00	06/18/2025 15:18:06	B2F0786	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:19:00	06/18/2025 15:18:06	B2F0786	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/13/2025 14:32:00	06/13/2025 22:46:00	B2F0706	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	186000	180	500	mg/L	FALSE	NA	500				DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/13/2025 14:32:00	06/13/2025 22:31:00	B2F0706	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100				DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/13/2025 14:32:00	06/13/2025 22:46:00	B2F0706	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	26000	247	500	mg/L	FALSE	NA	500				DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/17/2025 13:27:00	06/18/2025 03:45:00	B2F0829	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	181	0.5	1	mg/L	FALSE	NA	100				LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/20/2025 12:41:00	06/21/2025 10:19:00	B2F1066	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.022	0.03	mg/L	FALSE	NA	6				RuB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 11:25:00	06/17/2025 12:22:06	B2F0751	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTF10049	FALSE	FALSE	ND	617	1000	mg/L	FALSE	NA	100				EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 10:39:00	06/16/2025 12:26:47	B2F0739	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	526	0.2	1	mg/L	FALSE	NA	1				HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 10:39:00	06/16/2025 12:26:47	B2F0739	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1				HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 10:39:00	06/16/2025 12:26:47	B2F0739	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1				HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 10:39:00	06/16/2025 12:26:47	B2F0739	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTF10279	FALSE	FALSE	526	0.2	1	mg/L	FALSE	NA	1				HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/16/2025 16:21:00	06/17/2025 12:10:26	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	60200	11.7	33.1	mg/L	FALSE	NA	1				AB																0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/13/2025 15:53:00	06/13/2025 16:00:00	B2F0724	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	CTF10226	FALSE	FALSE	359000	1000	1000	mg/L	FALSE	NA	1				HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1263-03	Water	Water	06/12/2025 16:00:51	06/13/2025 15:50:00	06/18/2025 14:23:42	B2F0701	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	CTF10003	FALSE	FALSE	7	2	5	mg/L	FALSE	NA	1				CA																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 11:19:00	06/16/2025 12:06:24	B2F0747	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	25.4	9	20	ng/L	FALSE	NA	20				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:21:00	06/17/2025 12:26:24	B2F0784	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND	1.2	1.5	mg/L	FALSE	NA	1				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:21:00	06/17/2025 12:26:24	B2F0784	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	58.9	0.61	1.25	mg/L	FALSE	NA	1				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:21:00	06/17/2025 12:26:24	B2F0784	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.125	0.057	0.125	mg/L	FALSE	NA	1				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:21:00	06/17/2025 12:26:24	B2F0784	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	297	0.7	5	mg/L	FALSE	NA	1				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:21:00	06/17/2025 12:26:24	B2F0784	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	1.69	0.57	0.75	mg/L	FALSE	NA	1				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:21:00	06/17/2025 12:26:24	B2F0784	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	14.1	0.403	0.5	mg/L	FALSE	NA	1				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:21:00	06/17/2025 12:26:24	B2F0784	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14400	2.4	5	mg/L	FALSE	NA	1				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:21:00	06/17/2025 12:26:24	B2F0784	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8490	8.6	12.5	mg/L	FALSE	NA	1				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:21:00	06/17/2025 12:26:24	B2F0784	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	5.6	4.2	5	mg/L	FALSE	NA	1				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:21:00	06/17/2025 11:53:42	B2F0784	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	94000	343	500	mg/L	FALSE	NA	20				AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:19:00	06/18/2025 15:19:24	B2F0786	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.377	0.004	0.013	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:19:00	06/18/2025 15:19:24	B2F0786	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:19:00	06/18/2025 15:19:24	B2F0786	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.15	0.006	0.013	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:19:00	06/18/2025 15:19:24	B2F0786	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0434	0.018	0.025	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:19:00	06/18/2025 15:19:24	B2F0786	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:19:00	06/18/2025 15:19:24	B2F0786	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.201	0.018	0.018	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:19:00	06/18/2025 15:19:24	B2F0786	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.312	0.004	0.013	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:19:00	06/18/2025 15:19:24	B2F0786	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0429	0.011	0.013	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:19:00	06/18/2025 15:19:24	B2F0786	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.705	0.014	0.015	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:19:00	06/18/2025 15:19:24	B2F0786	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 16:19:00	06/18/2025 15:19:24	B2F0786	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1				AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/13/2025 14:32:00	06/13/2025 23:46:00	B2F0706	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	177000	180	500	mg/L	FALSE	NA	500				DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/13/2025 14:32:00	06/13/2025 23:31:00	B2F0706	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100				DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/13/2025 14:32:00	06/13/2025 23:46:00	B2F0706	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	24700	247	500	mg/L	FALSE	NA	500				DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/17/2025 13:27:00	06/18/2025 04:46:00	B2F0829	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	172	0.5	1	mg/L	FALSE	NA	100				LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/20/2025 12:41:00	06/21/2025 10:21:00	B2F1066	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.022	0.03	mg/L	FALSE	NA	6				RuB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 11:25:00	06/17/2025 12:22:06	B2F0751	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTF10049	FALSE	FALSE	1000	617	1000	mg/L	FALSE	NA	100				EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1263-04	Water	Water	06/12/2025 15:30:00	06/16/2025 10:39:00	06/16/2025 12:44:16	B2F0739	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	119	0.2	1	mg/L	FALSE	NA	1				HM									

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPTofMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/24/2025 12:49:00	06/24/2025 14:13:08	BZF1193	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	25.3	9	20		ng/L	FALSE	NA	20				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:37:11	BZF0995	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	2.6	1.2	1.5		mg/L	FALSE	NA	1				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:37:11	BZF0995	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	56.9	0.61	1.25		mg/L	FALSE	NA	1				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:37:11	BZF0995	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.212	0.057	0.125		mg/L	FALSE	NA	1				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:37:11	BZF0995	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	300	0.7	5		mg/L	FALSE	NA	1				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:37:11	BZF0995	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75		mg/L	FALSE	NA	1				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:37:11	BZF0995	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	65.2	0.403	0.5		mg/L	FALSE	NA	1				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:37:11	BZF0995	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14600	2.4	5		mg/L	FALSE	NA	1				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:37:11	BZF0995	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8470	8.6	12.5		mg/L	FALSE	NA	1				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:37:11	BZF0995	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	5.8	4.2	5		mg/L	FALSE	NA	1				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:29:22	BZF0995	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	101000	343	500		mg/L	FALSE	NA	20				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:30:07	BZF0997	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.541	0.004	0.013		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:30:07	BZF0997	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:30:07	BZF0997	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.185	0.006	0.013		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:30:07	BZF0997	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	ND	0.018	0.025		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:30:07	BZF0997	Pb (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:30:07	BZF0997	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.0377	0.016	0.018		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:30:07	BZF0997	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.162	0.004	0.013		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:30:07	BZF0997	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.017	0.011	0.013		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:30:07	BZF0997	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.763	0.014	0.015		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:30:07	BZF0997	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:30:07	BZF0997	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/18/2025 11:47:00	06/18/2025 12:35:00	BZF0892	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	186000	180	500		mg/L	FALSE	NA	500				LLC																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/18/2025 11:47:00	06/18/2025 12:20:00	BZF0892	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10		mg/L	FALSE	NA	100				LLC																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/18/2025 11:47:00	06/18/2025 12:35:00	BZF0892	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	27500	247	500		mg/L	FALSE	NA	500				LLC																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/21/2025 00:36:00	06/21/2025 00:36:00	BZF1067	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	177	0.5	1		mg/L	FALSE	NA	100				LLC																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/20/2025 12:41:00	06/21/2025 10:25:00	BZF1066	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.022	0.03		mg/L	FALSE	NA	6				RuB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/20/2025 10:51:00	06/20/2025 15:51:27	BZF1046	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTF10049	FALSE	FALSE	2800	617	1000		mg/L	FALSE	NA	100				DD																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 09:21:00	06/20/2025 09:29:07	BZF0954	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	550	0.2	1		mg/L	FALSE	NA	1				DAN																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 09:21:00	06/20/2025 09:29:07	BZF0954	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND	0.2	1		mg/L	FALSE	NA	1				DAN																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 09:21:00	06/20/2025 09:29:07	BZF0954	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND	0.2	1		mg/L	FALSE	NA	1				DAN																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 09:21:00	06/20/2025 09:29:07	BZF0954	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTF10279	FALSE	FALSE	550	0.2	1		mg/L	FALSE	NA	1				DAN																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:37:11	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	60700	11.7	33.1		mg/L	FALSE	NA	1				AB																	0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/20/2025 11:01:00	06/20/2025 11:40:00	BZF1048	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	CTF10226	FALSE	FALSE	356000	1000	1000		mg/L	FALSE	NA	1				HM																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/18/2025 14:23:00	06/18/2025 15:30:00	BZF0921	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	CTF10267	FALSE	FALSE	ND	3	4		mg/L	FALSE	NA	1				DD																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F1492-01	Water	Water	06/17/2025 12:15:00	06/18/2025 13:09:00	06/18/2025 15:31:00	BZF0904	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	14797-65-0	FALSE	FALSE	ND	0.01	0.1		mg/L	FALSE	NA	1				SMS																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-01	Water	Water	06/17/2025 12:15:00	06/18/2025 15:22:00	06/23/2025 14:03:23	BZF0929	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	CTF10003	FALSE	FALSE	5	2	5		mg/L	FALSE	NA	1				DD																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/24/2025 12:49:00	06/24/2025 14:31:06	BZF1193	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	30	9	20		ng/L	FALSE	NA	20				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:45:00	BZF0995	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	1.9	1.2	1.5		mg/L	FALSE	NA	1				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:45:00	BZF0995	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	55.6	0.61	1.25		mg/L	FALSE	NA	1				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:45:00	BZF0995	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.222	0.057	0.125		mg/L	FALSE	NA	1				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:45:00	BZF0995	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	295	0.7	5		mg/L	FALSE	NA	1				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:45:00	BZF0995	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	2.22	0.57	0.75		mg/L	FALSE	NA	1				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:45:00	BZF0995	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	22.3	0.403	0.5		mg/L	FALSE	NA	1				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:45:00	BZF0995	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14300	2.4	5		mg/L	FALSE	NA	1				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:45:00	BZF0995	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8380	8.6	12.5		mg/L	FALSE	NA	1				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:45:00	BZF0995	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	6	4.2	5		mg/L	FALSE	NA	1				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/20/2025 09:31:59	BZF0995	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	94900	343	500		mg/L	FALSE	NA	20				AB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:34:07	BZF0997	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.317	0.004	0.013		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:34:07	BZF0997	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:34:07	BZF0997	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.118	0.006	0.013		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:34:07	BZF0997	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0466	0.018	0.025		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:34:07	BZF0997	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	0.015	0.009	0.013		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:34:07	BZF0997	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.318	0.016	0.018		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:34:07	BZF0997	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.205	0.004	0.013		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:34:07	BZF0997	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0298	0.011	0.013		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:34:07	BZF0997	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.768	0.014	0.015		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:34:07	BZF0997	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/19/2025 07:45:00	06/19/2025 15:34:07	BZF0997	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25		mg/L	FALSE	NA	1				AME																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/18/2025 11:47:00	06/18/2025 13:35:00	BZF0892	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	176000	180	500		mg/L	FALSE	NA	500				LLC																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/18/2025 11:47:00	06/18/2025 13:20:00	BZF0892	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10		mg/L	FALSE	NA	100				LLC																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/18/2025 11:47:00	06/18/2025 13:35:00	BZF0892	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	25700	247	500		mg/L	FALSE	NA	500				LLC																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/21/2025 01:48:00	06/21/2025 01:48:00	BZF1067	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	186	0.5	1		mg/L	FALSE	NA	100				LLC																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/20/2025 12:41:00	06/21/2025 10:32:00	BZF1066	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.022	0.03		mg/L	FALSE	NA	6				RuB																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02	Water	Water	06/17/2025 12:15:00	06/20/2025 10:51:00	06/20/2025 15:51:27	BZF1046	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTF10049	FALSE	FALSE	2400	617	1000		mg/L	FALSE	NA	100				DD																	1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F1492-02

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPTxMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake - Grab	25F2188-01	Water	Water	06/24/2025 09:20:00	06/27/2025 11:15:00	06/27/2025 14:25:00	BZF1396	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND		6	7	mg/L	FALSE	NA	1					TFW															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall - Grab	25F2188-02	Water	Water	06/24/2025 13:36:00	06/27/2025 11:15:00	06/27/2025 14:25:00	BZF1396	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND		5	5	mg/L	FALSE	NA	1					TFW															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	07/01/2025 09:00:00	07/01/2025 11:21:23	BZF1481	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	ND		9	20	ng/L	FALSE	NA	20					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:20:00	06/26/2025 11:35:26	BZF1277	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND	1.2	1.5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:20:00	06/26/2025 11:35:26	BZF1277	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	60.1	0.61	1.25	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:20:00	06/26/2025 11:35:26	BZF1277	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.182	0.057	0.125	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:20:00	06/26/2025 11:35:26	BZF1277	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	295	0.7	5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:20:00	06/26/2025 11:35:26	BZF1277	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:20:00	06/26/2025 11:35:26	BZF1277	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	66.2	0.403	0.5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:20:00	06/26/2025 11:35:26	BZF1277	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14200	2.4	5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:20:00	06/26/2025 11:35:26	BZF1277	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8400	8.6	12.5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:20:00	06/26/2025 11:35:26	BZF1277	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	ND		4.2	5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:20:00	06/26/2025 11:22:22	BZF1277	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	112000	343	500	mg/L	FALSE	NA	20					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:25:00	06/26/2025 14:13:56	BZF1276	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.58	0.004	0.013	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:25:00	06/26/2025 14:13:56	BZF1276	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND		0.001	0.005	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:25:00	06/26/2025 14:13:56	BZF1276	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.25	0.006	0.013	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:25:00	06/26/2025 14:13:56	BZF1276	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0276	0.018	0.025	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:25:00	06/26/2025 14:13:56	BZF1276	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND		0.009	0.013	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:25:00	06/26/2025 14:13:56	BZF1276	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.0348	0.016	0.018	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:25:00	06/26/2025 14:13:56	BZF1276	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.137	0.004	0.013	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:25:00	06/26/2025 14:13:56	BZF1276	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	ND		0.011	0.013	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:25:00	06/26/2025 14:13:56	BZF1276	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.817	0.014	0.015	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:25:00	06/26/2025 14:13:56	BZF1276	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:25:00	06/26/2025 14:13:56	BZF1276	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND		0.05	0.25	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/26/2025 02:01:00	06/26/2025 02:01:00	BZF1269	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	184000	180	500	mg/L	FALSE	NA	500					EK															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 13:35:00	06/26/2025 01:46:00	BZF1269	Nitrate as N	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					EK															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 13:35:00	06/26/2025 01:46:00	BZF1269	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	26600	49.4	100	mg/L	FALSE	NA	100					EK															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 21:54:00	06/25/2025 21:54:00	BZF1295	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	182	0.5	1	mg/L	FALSE	NA	100					EK															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	07/02/2025 11:56:00	07/03/2025 15:42:00	BZG0114	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.005	0.004	0.005	mg/L	FALSE	NA	1					SMS															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	07/02/2025 11:30:00	07/03/2025 10:50:05	BZG0110	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTF10049	FALSE	FALSE	2400	617	1000	mg/L	FALSE	NA	100					CA															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/27/2025 12:19:00	06/27/2025 12:19:27	BZF1381	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	563	0.2	1	mg/L	FALSE	NA	1					DAN															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/27/2025 12:19:00	06/27/2025 12:19:27	BZF1381	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND		0.2	1	mg/L	FALSE	NA	1					DAN															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/27/2025 12:19:00	06/27/2025 12:19:27	BZF1381	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND		0.2	1	mg/L	FALSE	NA	1					DAN															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/27/2025 12:19:00	06/27/2025 12:19:27	BZF1381	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTF10279	FALSE	FALSE	563	0.2	1	mg/L	FALSE	NA	1					DAN															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:20:00	06/26/2025 11:35:26	[CALC]	Hardness, AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	59100	11.7	33.1	mg/L	FALSE	NA	1					AB															0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/27/2025 10:22:00	06/27/2025 11:00:00	BZF1388	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	CTF10226	FALSE	FALSE	351000	1000	1000	mg/L	FALSE	NA	1					HM															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/26/2025 13:51:00	06/26/2025 14:46:00	BZF1345	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	CTF10267	FALSE	FALSE	9		3	4	mg/L	FALSE	NA	1					LLC															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 14:33:00	06/26/2025 12:59:00	BZF1281	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	14797-65-0	FALSE	FALSE	ND	0.01	0.1	mg/L	FALSE	NA	1					RJN															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25F2188-03	Water	Water	06/24/2025 09:20:00	06/25/2025 15:19:00	06/30/2025 15:11:11	BZF1288	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	CTF10003	FALSE	FALSE	ND		2	5	mg/L	FALSE	NA	1					CA															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	07/01/2025 09:00:00	07/01/2025 11:39:20	BZF1481	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	37.1		9	20	ng/L	FALSE	NA	20					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:20:00	06/26/2025 11:51:22	BZF1277	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND	1.2	1.5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:20:00	06/26/2025 11:51:22	BZF1277	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	60.2	0.61	1.25	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:20:00	06/26/2025 11:51:22	BZF1277	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.158	0.057	0.125	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:20:00	06/26/2025 11:51:22	BZF1277	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	293	0.7	5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:20:00	06/26/2025 11:51:22	BZF1277	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	0.85	0.57	0.75	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:20:00	06/26/2025 11:51:22	BZF1277	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	17.6	0.403	0.5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:20:00	06/26/2025 11:51:22	BZF1277	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14200	2.4	5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:20:00	06/26/2025 11:51:22	BZF1277	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8450	8.6	12.5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:20:00	06/26/2025 11:51:22	BZF1277	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	ND		4.2	5	mg/L	FALSE	NA	1					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:20:00	06/26/2025 11:24:58	BZF1377	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	110000	343	500	mg/L	FALSE	NA	20					AB															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:25:00	06/26/2025 14:17:51	BZF1276	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.42	0.004	0.013	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:25:00	06/26/2025 14:17:51	BZF1276	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:25:00	06/26/2025 14:17:51	BZF1276	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.236	0.006	0.013	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:25:00	06/26/2025 14:17:51	BZF1276	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.04	0.018	0.025	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:25:00	06/26/2025 14:17:51	BZF1276	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND		0.009	0.013	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:25:00	06/26/2025 14:17:51	BZF1276	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.168	0.016	0.018	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:25:00	06/26/2025 14:17:51	BZF1276	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.104	0.004	0.013	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:25:00	06/26/2025 14:17:51	BZF1276	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0125	0.011	0.013	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:25:00	06/26/2025 14:17:51	BZF1276	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.813	0.014	0.015	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:25:00	06/26/2025 14:17:51	BZF1276	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 14:25:00	06/26/2025 14:17:51	BZF1276	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND		0.05	0.25	mg/L	FALSE	NA	1					AME															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/26/2025 03:01:00	06/26/2025 03:01:00	BZF1269	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	180000	180	500	mg/L	FALSE	NA	500					EK															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 13:35:00	06/26/2025 02:46:00	BZF1269	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					EK															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 13:35:00	06/26/2025 02:46:00	BZF1269	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	26200	49.4	100	mg/L	FALSE	NA	100					EK															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	06/25/2025 22:35:00	06/25/2025 22:35:00	BZF1295	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	174	0.5	1	mg/L	FALSE	NA	100					EK															1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25F2188-04	Water	Water	06/24/2025 16:45:00	07/02/2025 11:56:00	07/03/2025 15:42:00	BZG0114	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.005	0.004

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPTxMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake - Grab	25G0181-01	Water	Water	07/01/2025 08:30:00	07/03/2025 14:21:00	07/03/2025 16:00:00	B2G0228	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND	5	5	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall - Grab	25G0181-02	Water	Water	07/01/2025 08:30:00	07/03/2025 14:21:00	07/03/2025 16:00:00	B2G0228	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND	5	5	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/07/2025 09:29:00	07/07/2025 12:19:52	B2G0259	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	21.8	9	20	ng/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 12:05:10	B2G0108	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 12:05:10	B2G0108	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	62.7	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 12:05:10	B2G0108	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.202	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 12:05:10	B2G0108	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	316	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 12:05:10	B2G0108	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 12:05:10	B2G0108	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	68.8	0.483	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 12:05:10	B2G0108	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14800	2.4	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 12:05:10	B2G0108	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8960	8.6	12.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 12:05:10	B2G0108	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	7.7	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 11:50:26	B2G0108	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	95400	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:55:28	B2G0107	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.609	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:55:28	B2G0107	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:55:28	B2G0107	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.236	0.006	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:55:28	B2G0107	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0259	0.018	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:55:28	B2G0107	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:55:28	B2G0107	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.038	0.016	0.018	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:55:28	B2G0107	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.143	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:55:28	B2G0107	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	ND	0.011	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:55:28	B2G0107	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.908	0.014	0.015	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:55:28	B2G0107	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:55:28	B2G0107	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:57:00	07/02/2025 12:44:00	B2G0116	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	186000	180	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:57:00	07/02/2025 12:44:00	B2G0116	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:57:00	07/02/2025 12:44:00	B2G0116	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	26500	49.4	100	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/07/2025 12:52:00	07/07/2025 15:17:00	B2G0294	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	176	0.5	1	mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/03/2025 11:56:00	07/03/2025 15:47:00	B2G0114	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.004	0.005	mg/L	FALSE	NA	1					SMS																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:56:00	07/03/2025 15:22:00	B2G0216	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTF10049	FALSE	FALSE	1300	617	1000	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 20:01:00	07/02/2025 20:01:33	B2G0179	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	581	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 20:01:00	07/02/2025 20:01:33	B2G0179	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 20:01:00	07/02/2025 20:01:33	B2G0179	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 20:01:00	07/02/2025 20:01:33	B2G0179	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTP10279	FALSE	FALSE	581	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 12:05:10	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	61700	11.7	33.1	mg/L	FALSE	NA	1					AB																0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 14:11:00	07/02/2025 16:00:00	B2G0148	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	CTP10226	FALSE	FALSE	350000	1000	1000	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 14:11:00	07/02/2025 16:00:00	B2G0148	TDS	SM 2540 D	NO PREP	Total Dissolved Solids (TSS)	CTP10267	FALSE	FALSE	7	3	4	mg/L	FALSE	NA	1					CA																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 16:23:00	07/02/2025 17:59:00	B2G0173	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	14797-65-0	FALSE	FALSE	ND	0.01	0.1	mg/L	FALSE	NA	1					RIN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G0181-03	Water	Water	07/01/2025 14:30:00	07/02/2025 17:20:00	07/07/2025 13:06:50	B2G0161	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	CTF10003	FALSE	FALSE	5	2	5	mg/L	FALSE	NA	1					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/07/2025 09:29:00	07/07/2025 12:37:50	B2G0259	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	37.8	9	20	ng/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 12:20:06	B2G0108	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	1.6	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 12:20:06	B2G0108	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	59.7	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 12:20:06	B2G0108	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.19	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 12:20:06	B2G0108	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	306	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 12:20:06	B2G0108	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 12:20:06	B2G0108	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	13.8	0.483	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 12:20:06	B2G0108	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14000	2.4	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 12:20:06	B2G0108	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8500	8.6	12.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 12:20:06	B2G0108	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	9.2	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/03/2025 11:53:15	B2G0108	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	90400	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:59:23	B2G0107	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.483	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:59:23	B2G0107	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:59:23	B2G0107	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.224	0.006	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:59:23	B2G0107	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0383	0.018	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:59:23	B2G0107	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:59:23	B2G0107	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.209	0.016	0.018	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:59:23	B2G0107	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.2	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:59:23	B2G0107	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	ND	0.011	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:59:23	B2G0107	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.933	0.014	0.015	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:59:23	B2G0107	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:25:00	07/02/2025 15:59:23	B2G0107	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:57:00	07/02/2025 13:44:00	B2G0116	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	180000	180	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:57:00	07/02/2025 13:44:00	B2G0116	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:57:00	07/02/2025 13:44:00	B2G0116	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	28200	49.4	100	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/07/2025 12:52:00	07/07/2025 16:18:00	B2G0294	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	155	0.5	1	mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G0181-04	Water	Water	07/01/2025 14:30:00	07/02/2025 11:56:00	07/03/2025 15:52:00	B2G0114	Cyanide, Total	EPA 335.4

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPTtoMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 09:33:00	07/14/2025 14:40:34	BZ00651	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	27.4	9	20		ng/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:29:49	BZ00716	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND	1.2	1.5		mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:29:49	BZ00716	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	58.7	0.61	1.25		mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:29:49	BZ00716	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.18	0.057	0.125		mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:29:49	BZ00716	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	289	0.7	5		mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:29:49	BZ00716	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75		mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:29:49	BZ00716	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	61.9	0.403	0.5		mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:29:49	BZ00716	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	13400	2.4	5		mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:29:49	BZ00716	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8050	8.6	12.5		mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:29:49	BZ00716	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	6.1	4.2	5		mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:16:07	BZ00716	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	96400	343	500		mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:26:22	BZ00714	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.361	0.004	0.013		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:26:22	BZ00714	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:26:22	BZ00714	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.0988	0.006	0.013		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:26:22	BZ00714	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0582	0.018	0.025		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:26:22	BZ00714	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:26:22	BZ00714	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.0392	0.016	0.018		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:26:22	BZ00714	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.139	0.004	0.013		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:26:22	BZ00714	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.078	0.011	0.013		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:26:22	BZ00714	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.506	0.014	0.015		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:26:22	BZ00714	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:26:22	BZ00714	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/11/2025 12:17:00	07/12/2025 03:11:00	BZ00597	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	184000	180	500		mg/L	FALSE	NA	500					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/11/2025 12:17:00	07/12/2025 02:56:00	BZ00597	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10		mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/11/2025 12:17:00	07/12/2025 03:11:00	BZ00597	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	26500	247	500		mg/L	FALSE	NA	500					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/11/2025 14:19:00	07/11/2025 16:52:00	BZ00624	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	182	0.5	1		mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/16/2025 11:20:00	07/16/2025 17:22:00	BZ00826	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.022	0.03		mg/L	FALSE	NA	6					KC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 11:43:00	07/14/2025 16:08:51	BZ00683	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTP10049	FALSE	FALSE	2300	617	1000		mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 11:35:00	07/14/2025 13:06:01	BZ00680	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	538	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 11:35:00	07/14/2025 13:06:01	BZ00680	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 11:35:00	07/14/2025 13:06:01	BZ00680	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 11:35:00	07/14/2025 13:06:01	BZ00680	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTP10279	FALSE	FALSE	538	0.2	1		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:29:49	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	55900	11.7	33.1		mg/L	FALSE	NA	1					AB																0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/11/2025 15:51:00	07/11/2025 16:15:00	BZ00636	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	CTP10226	FALSE	FALSE	350000	1000	1000		mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/14/2025 11:33:00	07/14/2025 12:05:00	BZ00677	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	CTP10267	FALSE	FALSE	40	0.8	1		mg/L	FALSE	NA	1					CA																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/11/2025 14:31:00	07/11/2025 15:04:00	BZ00627	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	14797-65-0	FALSE	FALSE	ND	0.01	0.1		mg/L	FALSE	NA	1					RJN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1035-01	Water	Water	07/10/2025 15:28:00	07/16/2025 15:15:00	07/16/2025 12:57:20	BZ00628	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	CTP10003	FALSE	FALSE	6	2	5		mg/L	FALSE	NA	1					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 09:33:00	07/14/2025 14:58:32	BZ00651	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	51	9	20		ng/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:43:32	BZ00716	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND	1.2	1.5		mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:43:32	BZ00716	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	57.2	0.61	1.25		mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:43:32	BZ00716	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.135	0.057	0.125		mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:43:32	BZ00716	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	281	0.7	5		mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:43:32	BZ00716	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75		mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:43:32	BZ00716	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	17.8	0.403	0.5		mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:43:32	BZ00716	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	13100	2.4	5		mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:43:32	BZ00716	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	7950	8.6	12.5		mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:43:32	BZ00716	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	7	4.2	5		mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:36:00	07/15/2025 11:20:41	BZ00716	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	97200	343	500		mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:30:16	BZ00714	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.26	0.004	0.013		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:30:16	BZ00714	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:30:16	BZ00714	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.0891	0.006	0.013		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:30:16	BZ00714	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0496	0.018	0.025		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:30:16	BZ00714	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:30:16	BZ00714	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.26	0.016	0.018		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:30:16	BZ00714	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.192	0.004	0.013		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:30:16	BZ00714	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0756	0.011	0.013		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:30:16	BZ00714	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.512	0.014	0.015		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:30:16	BZ00714	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 15:31:00	07/15/2025 14:30:16	BZ00714	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25		mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/11/2025 12:17:00	07/12/2025 04:11:00	BZ00597	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	180000	180	500		mg/L	FALSE	NA	500					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/11/2025 12:17:00	07/12/2025 04:56:00	BZ00597	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10		mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/11/2025 12:17:00	07/12/2025 04:11:00	BZ00597	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	25600	247	500		mg/L	FALSE	NA	500					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/11/2025 14:19:00	07/11/2025 17:54:00	BZ00624	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	172	0.5	1		mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/16/2025 11:20:00	07/16/2025 17:29:00	BZ00826	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.022	0.03		mg/L	FALSE	NA	6					KC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/2025 15:28:00	07/14/2025 11:43:00	07/14/2025 16:08:51	BZ00683	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTP10049	FALSE	FALSE	2800	617	1000		mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1035-02	Water	Water	07/10/

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPTxMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/21/2025 10:12:00	07/21/2025 11:30:22	BZ01043	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	211	9	20	ng/L	FALSE	NA	20					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 12:06:27	BZ00822	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 12:06:27	BZ00822	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	61.2	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 12:06:27	BZ00822	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.342	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 11:52:45	BZ00822	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	319	14.6	100	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 12:06:27	BZ00822	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 12:06:27	BZ00822	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	68	0.403	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 11:52:45	BZ00822	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14500	48	100	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 11:52:45	BZ00822	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8230	171	250	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 12:06:27	BZ00822	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	6.4	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 11:52:45	BZ00822	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	93900	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:30:04	BZ00823	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.464	0.022	0.063	mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:30:04	BZ00823	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.006	0.025	mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:27:30	BZ00823	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.0594	0.006	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:27:30	BZ00823	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0467	0.018	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:30:04	BZ00823	Pb (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.044	0.063	mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:27:30	BZ00823	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.0353	0.016	0.018	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:30:04	BZ00823	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.14	0.019	0.063	mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:27:30	BZ00823	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0464	0.011	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:30:04	BZ00823	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.37	0.071	0.075	mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:30:04	BZ00823	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.042	0.062	mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:27:30	BZ00823	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/17/2025 04:04:00	07/17/2025 04:04:00	BZ00844	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	188000	180	500	mg/L	FALSE	NA	500					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/17/2025 03:49:00	07/17/2025 03:49:00	BZ00844	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/17/2025 03:49:00	07/17/2025 03:49:00	BZ00844	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	27800	49.4	100	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 17:10:00	07/16/2025 17:10:00	BZ00843	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	182	0.5	1	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 11:20:00	07/16/2025 17:16:00	BZ00826	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.022	0.03	mg/L	FALSE	NA	6					KC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 12:48:00	07/17/2025 11:08:01	BZ00841	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTP10049	FALSE	FALSE	1600	617	1000	mg/L	FALSE	NA	100					CA																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/18/2025 10:05:00	07/18/2025 12:28:24	BZ00977	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	584	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/18/2025 10:05:00	07/18/2025 12:28:24	BZ00977	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/18/2025 10:05:00	07/18/2025 12:28:24	BZ00977	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/18/2025 10:05:00	07/18/2025 12:28:24	BZ00977	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTP10279	FALSE	FALSE	584	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 11:52:45	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	60500	234	662	mg/L	FALSE	NA	20					AB																0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 12:32:00	07/16/2025 16:00:00	BZ00837	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	CTP10226	FALSE	FALSE	349000	1000	1000	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 11:51:00	07/16/2025 12:06:00	BZ00834	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	CTP10267	FALSE	FALSE	16	3	4	mg/L	FALSE	NA	1					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 15:45:00	07/16/2025 16:22:00	BZ00862	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	14797-65-0	FALSE	FALSE	ND	0.01	0.1	mg/L	FALSE	NA	1					SMS																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25O1349-01	Water	Water	07/15/2025 15:16:00	07/16/2025 12:40:00	07/21/2025 15:07:23	BZ00832	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	CTP10003	FALSE	FALSE	5	2	5	mg/L	FALSE	NA	1					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/21/2025 10:12:00	07/21/2025 11:48:20	BZ01043	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	29.1	9	20	ng/L	FALSE	NA	20					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 12:20:11	BZ00822	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 12:20:11	BZ00822	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	59.6	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 12:20:11	BZ00822	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.288	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 11:57:19	BZ00822	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	306	14.6	100	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 12:20:11	BZ00822	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 12:20:11	BZ00822	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	12.7	0.403	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 11:57:19	BZ00822	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	13800	48	100	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 11:57:19	BZ00822	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	7830	171	250	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 12:20:11	BZ00822	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	5.8	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/17/2025 11:57:19	BZ00822	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	90000	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:40:52	BZ00823	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.367	0.022	0.063	mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:40:52	BZ00823	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.006	0.025	mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:31:22	BZ00823	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.0523	0.006	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:31:22	BZ00823	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0583	0.018	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:40:52	BZ00823	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.044	0.063	mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:31:22	BZ00823	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.159	0.016	0.018	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:40:52	BZ00823	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.0645	0.019	0.063	mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:31:22	BZ00823	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0536	0.011	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:40:52	BZ00823	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.316	0.071	0.075	mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:40:52	BZ00823	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.042	0.062	mg/L	FALSE	NA	5					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 10:54:00	07/16/2025 14:31:22	BZ00823	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/17/2025 05:04:00	07/17/2025 05:04:00	BZ00844	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	180000	180	500	mg/L	FALSE	NA	500					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/17/2025 04:49:00	07/17/2025 04:49:00	BZ00844	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/17/2025 04:49:00	07/17/2025 04:49:00	BZ00844	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	26800	49.4	100	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 18:12:00	07/16/2025 18:12:00	BZ00843	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	171	0.5	1	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 11:20:00	07/16/2025 17:21:00	BZ00826	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.022	0.03	mg/L	FALSE	NA	6					KC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/16/2025 12:48:00	07/17/2025 11:08:01	BZ00841	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTP10049	FALSE	FALSE	2100	617	1000	mg/L	FALSE	NA	100					CA																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25O1349-02	Water	Water	07/15/2025 15:16:00	07/18/2025 10:05:00	07/18/2025 12:51:34	BZ00977	Alkalinity (w/total)	SM 2320 B	NO PREP	Alk

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPTxMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake Grab	25G2495-01	Water	Water	07/29/2025 09:00:00	07/31/2025 10:29:00	08/01/2025 17:05:00	B2G1573	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND		5	5	mg/L	FALSE	NA	1					TFW																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall Grab	25G2495-02	Water	Water	07/29/2025 09:00:00	07/31/2025 10:29:00	08/01/2025 17:05:00	B2G1573	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND		5	5	mg/L	FALSE	NA	1					TFW																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	08/04/2025 09:42:00	08/04/2025 12:45:40	B2H0088	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	22.9		9	20	ng/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:23:34	B2G1487	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND		1.2	1.5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:23:34	B2G1487	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	64.1	0.61	1.25	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:23:34	B2G1487	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.2	0.057	0.125	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:23:34	B2G1487	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	327	0.7	5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:23:34	B2G1487	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND		0.57	0.75	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:23:34	B2G1487	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	70.9	0.403	0.5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:23:34	B2G1487	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	15600	2.4	5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:23:34	B2G1487	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	9650	8.6	12.5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:23:34	B2G1487	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	6.4	4.2	5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:02:00	B2G1487	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	103000	343	500	mg/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:00:19	B2G1486	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.516	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:00:19	B2G1486	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND		0.001	0.005	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:00:19	B2G1486	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.0592	0.006	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:00:19	B2G1486	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.035	0.018	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:00:19	B2G1486	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND		0.009	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:00:19	B2G1486	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.036	0.016	0.018	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:00:19	B2G1486	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.14	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:00:19	B2G1486	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.111	0.011	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:00:19	B2G1486	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.473	0.014	0.015	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:00:19	B2G1486	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND		0.008	0.012	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:00:19	B2G1486	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND		0.05	0.25	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 10:49:00	07/30/2025 12:11:00	B2G1485	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	189000	180	500	mg/L	FALSE	NA	500					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 10:49:00	07/30/2025 12:11:00	B2G1485	Nitrate as N	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND		6.64	10	mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 10:49:00	07/30/2025 12:11:00	B2G1485	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	28100	247	500	mg/L	FALSE	NA	500					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 13:03:00	07/30/2025 16:01:00	B2G1516	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	190	0.5	1	mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/31/2025 13:43:00	07/31/2025 16:06:00	B2G1616	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND		0.004	0.005	mg/L	FALSE	NA	1					SMS																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/31/2025 11:11:00	07/31/2025 16:59:04	B2G1590	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTF10049	FALSE	FALSE	2500	617	1000	mg/L	FALSE	NA	100					EK																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/31/2025 09:56:00	07/31/2025 13:09:44	B2G1565	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	599	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/31/2025 09:56:00	07/31/2025 13:09:44	B2G1565	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND		0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/31/2025 09:56:00	07/31/2025 13:09:44	B2G1565	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND		0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/31/2025 09:56:00	07/31/2025 13:09:44	B2G1565	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTF10279	FALSE	FALSE	599	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:32:12	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	64900	11.7	33.1	mg/L	FALSE	NA	1					TM																0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	08/01/2025 10:48:00	08/01/2025 10:50:00	B2H0034	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	CTF10226	FALSE	FALSE	341000	1000	1000	mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 12:15:00	07/30/2025 12:35:00	B2G1509	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	CTF10267	FALSE	FALSE	10		3	4	mg/L	FALSE	NA	1					CA																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:10:00	07/30/2025 15:16:00	B2G1494	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	14797-65-0	FALSE	FALSE	ND		0.01	0.1	mg/L	FALSE	NA	1					KC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Intake	25G2495-03	Water	Water	07/29/2025 14:27:00	07/30/2025 11:25:00	08/04/2025 13:38:58	B2G1483	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	CTF10003	FALSE	FALSE	ND		2	5	mg/L	FALSE	NA	1					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	08/04/2025 09:42:00	08/04/2025 13:03:37	B2H0088	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	30.9		9	20	ng/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:32:12	B2G1487	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND		1.2	1.5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:32:12	B2G1487	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	57.8	0.61	1.25	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:32:12	B2G1487	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.172	0.057	0.125	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:32:12	B2G1487	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	307	0.7	5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:32:12	B2G1487	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND		0.57	0.75	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:32:12	B2G1487	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	12.3	0.403	0.5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:32:12	B2G1487	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14000	2.4	5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:32:12	B2G1487	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8690	8.6	12.5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:32:12	B2G1487	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	8.7	4.2	5	mg/L	FALSE	NA	1					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:05:00	07/31/2025 10:14:56	B2G1487	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	94900	343	500	mg/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:04:14	B2G1486	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.346	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:04:14	B2G1486	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND		0.001	0.005	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:04:14	B2G1486	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.061	0.006	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:04:14	B2G1486	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0398	0.018	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:04:14	B2G1486	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND		0.009	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:04:14	B2G1486	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.161	0.016	0.018	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:04:14	B2G1486	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.0672	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:04:14	B2G1486	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0852	0.011	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:04:14	B2G1486	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.431	0.014	0.015	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:04:14	B2G1486	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND		0.008	0.012	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 11:23:00	07/31/2025 14:04:14	B2G1486	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND		0.05	0.25	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 10:49:00	07/30/2025 13:11:00	B2G1485	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	171000	180	500	mg/L	FALSE	NA	500					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 10:49:00	07/30/2025 12:56:00	B2G1485	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND		6.64	10	mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 10:49:00	07/30/2025 13:11:00	B2G1485	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	24900	247	500	mg/L	FALSE	NA	500					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/30/2025 13:03:00	07/30/2025 17:03:00	B2G1516	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	166	0.5	1	mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, Inc	Outfall	25G2495-04	Water	Water	07/29/2025 14:27:00	07/31/2025 13:43:00	07/31/2025 16:10:

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPToMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake Grab	25H0713-01	Water	Water	08/07/2025 07:30:00	08/13/2025 11:46:00	08/14/2025 15:20:00	B2H0603	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND	5	5	mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall Grab	25H0713-02	Water	Water	08/07/2025 07:30:00	08/13/2025 11:46:00	08/14/2025 15:20:00	B2H0603	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND	5	5	mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:44:27	B2H0453	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:44:27	B2H0453	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	64.1	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:44:27	B2H0453	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.19	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:44:27	B2H0453	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	310	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:44:27	B2H0453	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:44:27	B2H0453	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	74.8	0.403	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:44:27	B2H0453	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14700	2.4	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:44:27	B2H0453	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8900	8.6	12.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:44:27	B2H0453	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	6.7	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:28:58	B2H0453	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	91600	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:11:22	B2H0454	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.588	0.0044	0.0125	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:11:22	B2H0454	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.0012	0.005	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:11:22	B2H0454	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.153	0.0062	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:11:22	B2H0454	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0367	0.0182	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:11:22	B2H0454	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.0087	0.0125	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:11:22	B2H0454	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.0316	0.0159	0.0175	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:11:22	B2H0454	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.143	0.0038	0.0125	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:11:22	B2H0454	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0239	0.0112	0.0125	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:11:22	B2H0454	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.698	0.0141	0.015	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:11:22	B2H0454	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:11:22	B2H0454	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/11/2025 11:37:00	08/11/2025 17:06:35	B2H0475	Mercury (T) 245.1	EPA 245.1	Default Prep Hg	Mercury, Total	7439-97-6	FALSE	FALSE	ND	7E-05	0.0002	mg/L	FALSE	NA	1					LN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 12:13:00	08/08/2025 12:29:00	B2H0418	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	184000	180	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 12:13:00	08/08/2025 12:29:00	B2H0418	Nitrate as N	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 12:13:00	08/08/2025 12:29:00	B2H0418	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	27800	247	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/13/2025 11:15:00	08/14/2025 23:39:00	B2H0595	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	164	2.3	5	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/11/2025 14:35:00	08/12/2025 14:20:00	B2H0486	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.004	0.005	mg/L	FALSE	NA	1					SMS																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 10:47:00	08/08/2025 15:22:16	B2H0398	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTF10049	FALSE	FALSE	1500	617	1000	mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 11:36:00	08/08/2025 14:40:41	B2H0412	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	591	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 11:36:00	08/08/2025 14:40:41	B2H0412	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 11:36:00	08/08/2025 14:40:41	B2H0412	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 11:36:00	08/08/2025 14:40:41	B2H0412	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTF10279	FALSE	FALSE	591	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:44:27	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	61400	11.7	33.1	mg/L	FALSE	NA	1					AB																0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/11/2025 15:24:00	08/11/2025 15:45:00	B2H0490	TDS	SM 2540 C	NO PREP	Total Dissolved Solids (TDS)	CTF10226	FALSE	FALSE	351000	1000	1000	mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 14:22:00	08/08/2025 14:40:00	B2H0438	TSS	SM 2540 D	NO PREP	Total Suspended Solids (TSS)	CTF10267	FALSE	FALSE	7	3	4	mg/L	FALSE	NA	1					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 12:31:00	08/08/2025 14:51:00	B2H0423	DA - Nitrite	SM 4500 NO2-B	*** DEFAULT PREP ***	Nitrite as N	14797-65-0	FALSE	FALSE	ND	0.01	0.1	mg/L	FALSE	NA	1					RuB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H0713-03	Water	Water	08/07/2025 13:35:00	08/08/2025 12:40:00	08/13/2025 09:53:53	B2H0394	BOD	SM 5210 B	NO PREP	Biochemical Oxygen Demand	CTF10003	FALSE	FALSE	6	2	5	mg/L	FALSE	NA	1					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:58:10	B2H0453	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:58:10	B2H0453	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	60.4	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:58:10	B2H0453	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.175	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:58:10	B2H0453	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	299	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:58:10	B2H0453	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	1.04	0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:58:10	B2H0453	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	9.33	0.403	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:58:10	B2H0453	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	14100	2.4	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:58:10	B2H0453	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	8400	8.6	12.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:58:10	B2H0453	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	7.5	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:53:00	08/11/2025 12:31:26	B2H0453	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	86800	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:15:17	B2H0454	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.385	0.0044	0.0125	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:15:17	B2H0454	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.0012	0.005	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:15:17	B2H0454	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.145	0.0062	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:15:17	B2H0454	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.044	0.0182	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:15:17	B2H0454	Lead (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.0087	0.0125	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:15:17	B2H0454	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.221	0.0159	0.0175	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:15:17	B2H0454	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.122	0.0038	0.0125	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:15:17	B2H0454	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0351	0.0112	0.0125	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:15:17	B2H0454	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.647	0.0141	0.015	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:15:17	B2H0454	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 17:46:00	08/11/2025 14:15:17	B2H0454	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/11/2025 11:37:00	08/11/2025 17:11:51	B2H0475	Mercury (T) 245.1	EPA 245.1	Default Prep Hg	Mercury, Total	7439-97-6	FALSE	FALSE	ND	7E-05	0.0002	mg/L	FALSE	NA	1					LN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 12:13:00	08/08/2025 13:29:00	B2H0418	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	174000	180	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 12:13:00	08/08/2025 13:29:00	B2H0418	Nitrate	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/08/2025 12:13:00	08/08/2025 13:29:00	B2H0418	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	26000	247	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/13/2025 11:15:00	08/15/2025 00:40:00	B2H0595	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	163	2.3	5	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H0713-04	Water	Water	08/07/2025 13:35:00	08/11/2025 14:35

CLIENT	PROJECT	PROJECTNUM	LabName	SAMPLENAME	LABSAMPID	MATRIX	RPTMATRIX	SAMPDATE	PREPDATE	ANADATE	BATCH	METHODCODE	METHODNAME	PREPNAME	ANALYTE	CASNUMBER	SURROGATE	TIC	Result	DL	RL	UNC	UNITS	RPTxMDL	BASIS	DILUTION	SPIKELEVEL	RECOVERY	UPPERCL	LOWERCL	ANALYST	PSOLIDS	LNOTE	ANOTE	LATITUDE	LONGITUDE	sComment	SNOTE1	SNOTE2	SNOTE3	SNOTE4	SNOTE5	SNOTE6	SNOTE7	SNOTE8	SNOTE9	SNOTE10	ANALYTEORDER
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake Grab	25H1074-01	Water	Water	08/12/2025 09:15:00	08/13/2025 11:46:00	08/14/2025 15:20:00	82H0603	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND	5	5	mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall Grab	25H1074-02	Water	Water	08/12/2025 09:15:00	08/13/2025 11:46:00	08/14/2025 15:20:00	82H0603	O&G	EPA 1664B	NO PREP	Oil & Grease (HEM)	CTF10169	FALSE	FALSE	ND	5	5	mg/L	FALSE	NA	1					HM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/18/2025 10:00:00	08/18/2025 12:15:00	82H0830	Mercury (T) 1631	EPA 1631	NO PREP	Mercury, Total	7439-97-6	FALSE	FALSE	23	9	20	ng/L	FALSE	NA	20					TM																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:33:50	82H0653	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	1.9	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:33:50	82H0653	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	65.5	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:33:50	82H0653	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.195	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:33:50	82H0653	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	325	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:33:50	82H0653	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:33:50	82H0653	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	68.7	0.4603	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:33:50	82H0653	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	15400	2.4	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:33:50	82H0653	Mn (T) 200.7	EPA 200.7	EPA 200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.839	0.016	0.018	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:33:50	82H0653	Mo (T) 200.7	EPA 200.7	EPA 200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.142	0.004	0.013	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:33:50	82H0653	Ni (T) 200.7	EPA 200.7	EPA 200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0354	0.011	0.013	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:20:09	82H0653	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	104000	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:15:00	08/14/2025 14:42:51	82H0654	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.507	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:15:00	08/14/2025 14:42:51	82H0654	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:15:00	08/14/2025 14:42:51	82H0654	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.0676	0.006	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:15:00	08/14/2025 14:42:51	82H0654	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0298	0.018	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:15:00	08/14/2025 14:42:51	82H0654	Pb (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:15:00	08/14/2025 14:42:51	82H0654	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.0339	0.016	0.018	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:15:00	08/14/2025 14:42:51	82H0654	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.142	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:15:00	08/14/2025 14:42:51	82H0654	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.0354	0.011	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:15:00	08/14/2025 14:42:51	82H0654	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.459	0.014	0.015	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:15:00	08/14/2025 14:42:51	82H0654	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 16:15:00	08/14/2025 14:42:51	82H0654	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 15:46:00	08/14/2025 01:09:00	82H0640	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	186000	180	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 15:46:00	08/14/2025 01:09:00	82H0640	Nitrate (IC)	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 15:46:00	08/14/2025 01:09:00	82H0640	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	27800	247	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/13/2025 11:15:00	08/15/2025 01:01:00	82H0595	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	177	2.3	5	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/19/2025 11:32:00	08/19/2025 13:43:00	82H0893	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.022	0.03	mg/L	FALSE	NA	6					KC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/14/2025 07:18:00	08/14/2025 12:20:25	82H0666	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTF10049	FALSE	FALSE	1000	617	1000	mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/15/2025 10:02:00	08/15/2025 12:13:25	82H0746	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	588	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/15/2025 10:02:00	08/15/2025 12:13:25	82H0746	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Carbonate (as CaCO3)	3812-32-6	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/15/2025 10:02:00	08/15/2025 12:13:25	82H0746	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Hydroxide (as CaCO3)	14280-30-9	FALSE	FALSE	ND	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/15/2025 10:02:00	08/15/2025 12:13:25	82H0746	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Total (as CaCO3)	CTF10279	FALSE	FALSE	588	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Intake	25H1074-03	Water	Water	08/12/2025 14:19:00	08/15/2025 16:17:00	08/14/2025 12:33:50	[CALC]	Hardness AP	SM 2340 B	[CALC]	Hardness, Total as CaCO3	471-34-1	FALSE	FALSE	64100	11.7	33.1	mg/L	FALSE	NA	1					AB																0
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:47:33	82H0653	Al (T) 200.7	EPA 200.7	EPA 200.2	Aluminum, Total	7429-90-5	FALSE	FALSE	ND	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:47:33	82H0653	B (T) 200.7	EPA 200.7	EPA 200.2	Boron, Total	7440-42-8	FALSE	FALSE	62.8	0.61	1.25	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:47:33	82H0653	Ba (T) 200.7	EPA 200.7	EPA 200.2	Barium, Total	7440-39-3	FALSE	FALSE	0.182	0.057	0.125	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:47:33	82H0653	Ca (T) 200.7	EPA 200.7	EPA 200.2	Calcium, Total	7440-70-2	FALSE	FALSE	318	0.7	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:47:33	82H0653	Fe (T) 200.7	EPA 200.7	EPA 200.2	Iron, Total	7439-89-6	FALSE	FALSE	ND	0.57	0.75	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:47:33	82H0653	Li (T) 200.7	EPA 200.7	EPA 200.2	Lithium, Total	7439-93-2	FALSE	FALSE	16.1	0.403	0.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:47:33	82H0653	Mg (T) 200.7	EPA 200.7	EPA 200.2	Magnesium, Total	7439-95-4	FALSE	FALSE	15000	2.4	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:47:33	82H0653	Potassium (T) 200.7	EPA 200.7	EPA 200.2	Potassium, Total	7440-09-7	FALSE	FALSE	9400	8.6	12.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:47:33	82H0653	Si (T) 200.7	EPA 200.7	EPA 200.2	Silicon, Total	7440-21-3	FALSE	FALSE	6.7	4.2	5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:47:33	82H0653	SiO2 (T) 200.7	EPA 200.7	EPA 200.2	Silica, (as SiO2) Total	7631-86-9	FALSE	FALSE	ND	1.2	1.5	mg/L	FALSE	NA	1					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 16:17:00	08/14/2025 12:24:43	82H0653	Sodium (T) 200.7	EPA 200.7	EPA 200.2	Sodium, Total	7440-23-5	FALSE	FALSE	92600	343	500	mg/L	FALSE	NA	20					AB																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 15:15:00	08/14/2025 14:46:46	82H0654	As (T) 200.8	EPA 200.8	200.2	Arsenic, Total	7440-38-2	FALSE	FALSE	0.326	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 15:15:00	08/14/2025 14:46:46	82H0654	Cd (T) 200.8	EPA 200.8	200.2	Cadmium, Total	7440-43-9	FALSE	FALSE	ND	0.001	0.005	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 15:15:00	08/14/2025 14:46:46	82H0654	Cr (T) 200.8	EPA 200.8	200.2	Chromium, Total	7440-47-3	FALSE	FALSE	0.0619	0.006	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 15:15:00	08/14/2025 14:46:46	82H0654	Cu (T) 200.8	EPA 200.8	200.2	Copper, Total	7440-50-8	FALSE	FALSE	0.0444	0.018	0.025	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 15:15:00	08/14/2025 14:46:46	82H0654	Pb (T) 200.8	EPA 200.8	200.2	Lead, Total	7439-92-1	FALSE	FALSE	ND	0.009	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 15:15:00	08/14/2025 14:46:46	82H0654	Mn (T) 200.8	EPA 200.8	200.2	Manganese, Total	7439-96-5	FALSE	FALSE	0.166	0.016	0.018	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 15:15:00	08/14/2025 14:46:46	82H0654	Mo (T) 200.8	EPA 200.8	200.2	Molybdenum, Total	7439-98-7	FALSE	FALSE	0.107	0.004	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 15:15:00	08/14/2025 14:46:46	82H0654	Ni (T) 200.8	EPA 200.8	200.2	Nickel, Total	7440-02-0	FALSE	FALSE	0.027	0.011	0.013	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 15:15:00	08/14/2025 14:46:46	82H0654	Se (T) 200.8	EPA 200.8	200.2	Selenium, Total	7782-49-2	FALSE	FALSE	0.436	0.014	0.015	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 15:15:00	08/14/2025 14:46:46	82H0654	Silver (T) 200.8	EPA 200.8	200.2	Silver, Total	7440-22-4	FALSE	FALSE	ND	0.008	0.012	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 15:15:00	08/14/2025 14:46:46	82H0654	Zn (T) 200.8	EPA 200.8	200.2	Zinc, Total	7440-66-6	FALSE	FALSE	ND	0.05	0.25	mg/L	FALSE	NA	1					AME																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 15:46:00	08/14/2025 02:09:00	82H0640	Chloride (IC)	EPA 300.0	NO PREP	Chloride	16887-00-6	FALSE	FALSE	179000	180	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 15:46:00	08/14/2025 02:09:00	82H0640	Nitrate (IC)	EPA 300.0	NO PREP	Nitrate as N	14797-55-8	FALSE	FALSE	ND	6.64	10	mg/L	FALSE	NA	100					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 15:46:00	08/14/2025 02:09:00	82H0640	Sulfate (IC)	EPA 300.0	NO PREP	Sulfate	14808-79-8	FALSE	FALSE	26600	247	500	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/13/2025 11:15:00	08/15/2025 01:21:00	82H0595	Bromide (IC)	EPA 300.1	NO PREP	Bromide	24959-67-9	FALSE	FALSE	171	2.3	5	mg/L	FALSE	NA	500					DD																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/19/2025 11:32:00	08/19/2025 14:07:00	82H0893	Cyanide, Total	EPA 335.4	EPA 9010C	Cyanide, Total	57-12-5	FALSE	FALSE	ND	0.022	0.03	mg/L	FALSE	NA	6					KC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/14/2025 07:18:00	08/14/2025 12:20:25	82H0666	COD	Hach 8000	NO PREP	Chemical Oxygen Demand	CTF10049	FALSE	FALSE	ND	617	1000	mg/L	FALSE	NA	100					LLC																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/15/2025 10:02:00	08/15/2025 12:32:51	82H0746	Alkalinity (w/total)	SM 2320 B	NO PREP	Alkalinity - Bicarbonate (as CaCO3)	71-52-3	FALSE	FALSE	290	0.2	1	mg/L	FALSE	NA	1					DAN																1
Lilac Solutions	Steve Morrey	Great Salt Lake DLE Pilot Plant	Chemtech-Ford, LLC	Outfall	25H1074-04	Water	Water	08/12/2025 14:19:00	08/15/2025 10:02:00	08/15/2025 12:32:

APPENDIX C

Biota Monitoring Report

Microbial Analysis Report
Bonnie K. Baxter, Ph.D.
July 28, 2025

Microbial analyses at the Waterleaf Resources pilot plant, Great Salt Lake, Utah

This reports presents data from an analysis of the microbial communities in the brine flowing into the plant, "influent," and the post-extraction brine that is in a holding tank before being released back into the lake, "effluent." The research question at hand is: ***what is the impact of introducing post-extraction effluent into the Great Salt Lake north arm*.** This analysis includes microscopy, genomic surveys, and inoculation experiments to measure growth in the laboratory.

Sampling:

Influent and effluent samples were obtained at the Utah Waterleaf Lilac facility on February 28, April 24, and June 24, 2025 (Figure 1). At each timepoint, 100 ml each were collected for laboratory analysis.



Figure 1. Samples were taken from the north tank for influent brine (valve circled in yellow) and the south tank for effluent (valve circled in red).

In addition,100 ml of brine from each sample were filtered through a sterile PVDF membrane pressure filter unit, pore size 0.22 µm, which captures all the cells present in the microbial communities of the brine. The filters were used to extract DNA and create the sequencing libraries (Figure 2).

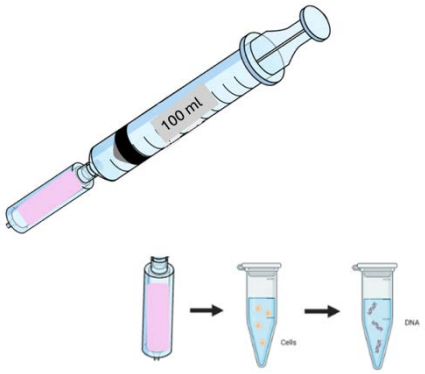


Figure 2. North arm brine from the influent tank and post-extraction effluent brine were filtered separately through a PVDF membrane cartridge to collect all cells in the sample. These filters were subsequently used to isolate DNA with a DNA extraction kit (QIAGEN, Venlo, Netherlands).

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Biomass:

The relative biomass of aquatic communities can be assessed by centrifuging at high speeds to force cells to the bottom of the tube. I centrifuged 1 ml of the influent (I) sample and 1 ml of the effluent (E) sample at each sampling. These tubes were allowed to dry for two days. The dry weight was measured. I was unable to do this properly at the February sampling since I did not see a cell pellet in the effluent, only rust flakes, which likely came from corrosion of the holding tank and affected the dry weight. The other samples, however, yielded reliable data, and there were no rust flakes present. The April influent pellet was 3.7 mg of dry mass per milliliter of brine, and the effluent pellet was 4.5 mg per milliliter. The June influent pellet was 5.2 mg of dry mass per milliliter of brine, and the effluent pellet was 4.2 mg per milliliter. All were pink in color, which indicated that halophilic bacteria, archaea, and/or algae (all of which contain carotenoid pigments) were present in abundance in both (Figure 3). ***This colorful cell pellet was a good sign that there was a healthy population in the effluent.***



Figure 3. From the April samples, 1 ml of the influent (I) and effluent (E) were separately centrifuged to pellet the cells in the sample, which were both pink in color, indicating an abundance of halophiles (salt-tolerant bacteria and archaea have carotenoid pigments that make the cells pink).

Cell Counts:

Another way to assess biomass is to count the individual cells. Using a hemacytometer, which provides a grid and special cover glass to control the distributed volume, I estimated the cell density in each of the samples (e.g. Figure 4).

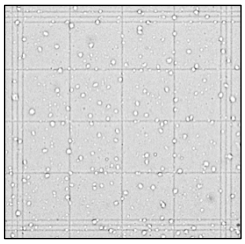


Figure 4. February influent sample on a hemacytometer. Note the grid that allows one to quantify the cells/ml. The cells are translucent but reflect light. They appear as small reflective orbs.

The results are shown in Table 1. The first samples from February demonstrated a robust cell density in the influent sample, but the effluent had very few if any visible cells. It's possible that the cell density was not zero, just low and not detectable by these methods. The April sampling had comparable numbers of cells in the effluent as the influent, the cells per milliliter counts were in the billions. The June samples also showed similar numbers for influent and effluent but higher cell counts.

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Table 1. Cell counts by hemacytometer for each sampling

Sampling Date	Influent	Effluent
February 28, 2025	2 x 10^8 cells per ml	None detected, rust flakes present.
April 24, 2025	3.6 x 10^9 cells per ml	4.6 x 10^9 cells per ml
June 24, 2025	8.1 x 10^9 cells per ml	5.3 x 10^9 cells per ml

Note the values for April and June are higher at these warmer sampling times likely because the increased temperature supported microbial growth in the brine. The optimal temperature of GSL microorganisms is typically around the same as human cells, 37°C. ***Most importantly, the lithium extraction procedure did not reduce the cell count or have adverse effects on the cells.***

Given the intrusion of rust flakes and the results of the biomass and microscopy assays for the February sampling, I focused on the April and June samplings for addressing the question regarding impact on the extraction process on the microbial community.

Microbial Diversity:

In the GSL north arm, prior studies have revealed evidence for microorganisms in all three domains of life (Figure 5). The eukaryotes have nuclei and a higher-level organization; we typically see low levels of algae and fungi in the hypersaline brine. The prokaryotes have a simpler cell structure, such as salt thriving bacteria. The most prevalent domain in the north arm is archaea, which are abundant in all extreme environments on Earth (Baxter and Zalar, 2019; Ameida-Dalmet and Baxter, 2020).

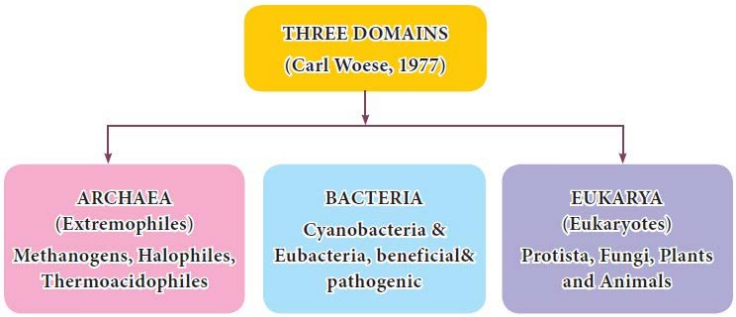


Figure 5. The three domains of life are all represented in the microbial diversity of Great Salt Lake.

To examine the microbial diversity of the influent and effluent, I wanted to sequence all the DNA from the onsite filtration described above. The microbial cells in the brine adhere to the sampling filters while the liquid is pumped through. After filtration, I froze the filters in a dry ice bath so that no degradation would occur, and the samples could be transported back to the lab for extraction. Under sterile conditions, the filter casings were cracked, and DNA was extracted from each membrane. This pool of DNA is derived from all of the life forms in the water sample. The next step is to figure out the species of life that are present. For this I used a consulting lab for

DNA sequencing. They amplify genes (16S rRNA, 18S rRNA, or ITS) associated with either bacteria, archaea, algae, or fungi. The DNA in the regions targeted is very specific, and this allows us to see "who" is present in the community and in what relative abundance. I analyzed the genetic data by first running a programming script that we developed in my lab to prune out any contaminants present in the controls and to connect to a taxonomic database to assign their phylogenetic classification. From here we can produce charts that help in visualizing the data.

Although the February effluent I analyzed did not seem to have cells (by microscopy nor a cell pellet), there were DNA signatures of microorganisms. This could be because the cells were in small numbers and therefore escaped the less sensitive methods, or it could be because there are biosignatures; the DNA from dead cells adhered to the filter but no intact cells did. A quick review of the prokaryotes in these samples indicate a similar community profile in the effluent when compared with the influent community e.g. the most prominent members of the community were common to both data sets.

The cell counts suggested that the April sampling would provide an excellent data set for sequencing analysis. I have confidence in the comparison between influent and effluent communities, and therefore, I have analyzed the April sample species composition below. The prokaryotes were split into bacteria and archaea for visual simplicity. The eukaryotic primers that would reveal algae species gave no hits (apart from plants that were blown in from the surrounding steppe), so there is no chart representing algae for April. We do know of two species that are present in the north arm, but in low numbers and only in warmer temperatures. Fungi require specific primers for reliable sequencing, so they were probed separately. Below I present the taxonomic profiles for each category of microorganisms. I have aligned the data for ease of comparison of the influent versus the effluent (Figure 6).

Archaea. Many of Earth's extremophiles fall in the category of Archaea, simple prokaryotes that look like bacteria but are genetically distinct. These make up the bulk of the Great Salt Lake north arm microbiota as shown in past studies (Baxter and Zalar, 2019; Almeida-Dalmet and Baxter, 2020). In this experiment, ***The difference between the Waterleaf influent and effluent genera present is negligible*** (Fig. 6, top panel).

Bacteria. In past work, because archaea are more typical in extreme environments, we were surprised to find robust bacterial communities at the north arm (Almeida-Dalmet and Baxter, 2020). ***In the Waterleaf samples, the bacterial genera present were also similar between the influent and effluent*** (Fig. 6, middle panel). Note the bacteria (and archaea) that are present in small abundance, towards the bottom of the graphics, are likely small in number because they prefer more moderate salinity and are introduced by the south arm water. The north arm salinity may suppress their growth.

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Fungi. Recently my lab has explored the fungal species of the Great Salt Lake north arm (Parrott and Baxter, 2024). The Internal Transcribed Spacer (ITS) segment is widely used as a universal fungal barcode because of its variability between species. In the Waterleaf experiment, this marker revealed only a few species and different yeast taxa present in the influent and effluent (Fig. 6, bottom panel). Some of these species, in our prior study, have been associated with plants, soils or animals from the surrounding landscape. For example, *Alternaria* and *Cryptococcus* were discovered in the plant soil microbiomes Because the spores of fungi can become airborne, wind can introduce spores to the brine. ***The differences in the fungi present in the Waterleaf influent and effluent are likely not important with regards to the ecosystem since these species do not play a role in nutrient cycling.***

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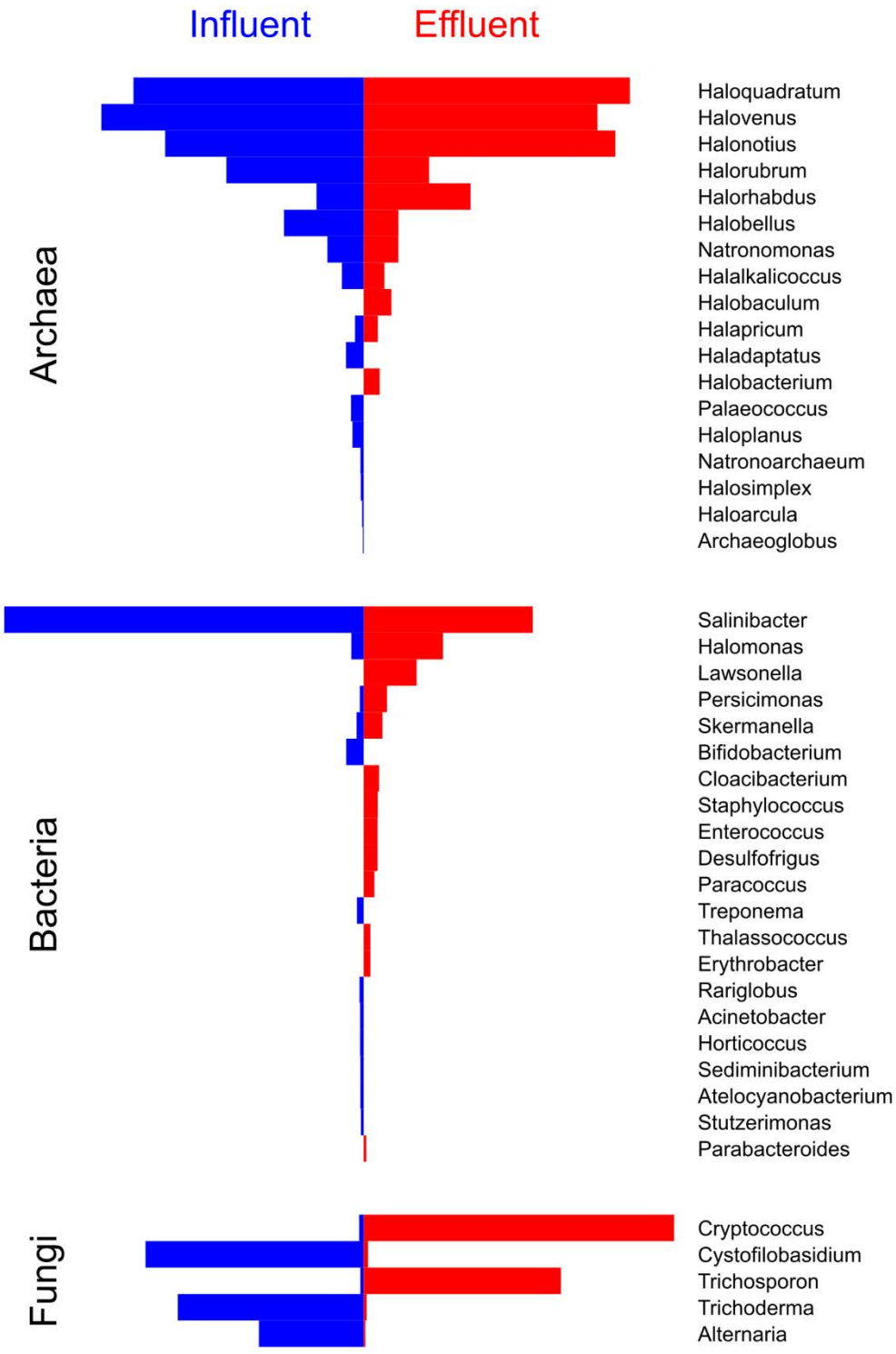


Figure 6. Microbial diversity charts for genera of archaea, bacteria, and fungi. The influent (blue) is shown on the left and effluent (red) on the right with species identity listed to the side. The size of the bars indicate relative abundance within each data set. The top panel shows the archaea community, the middle bacteria, and the bottom fungi.

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Inoculation Experiment:

In order to probe more deeply into the potential impacts of discharging the effluent into the Great Salt Lake north arm, I performed a time course growth experiment, growing either influent, effluent, or a mixture. Optical density measurement at a light absorbance of 600nm (A_{600}) is a common methodology in microbiology for following growth of a culture over time (e.g. Stevenson et al. 2016). The cells absorb light at this wavelength, and so the concentration of microbes is proportional to the light absorbed. I used a spectrophotometer to measure the optical density over time, which allows us to see the growth curve of the population as the cells grow and divide. Since the initial levels of microorganisms are very low (and non-existent in the sterile water blank control), this is called the "lag phase." As the population starts to double rapidly, you can see logarithmic growth for some species "log phase." Beyond these phases, the bacterial population will stabilize and then decline. Figure 7 shows a standard growth curve for lab model microbes; we would expect slower growth in environmental organisms.

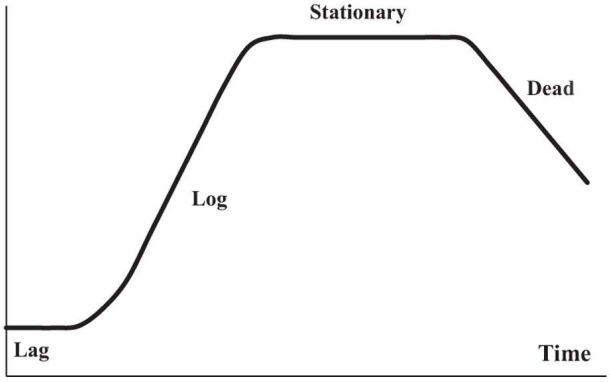


Figure 7. A textbook growth curve to show the expected phases of bacterial proliferation. My goal was to plot log phase in the samples and examine if introducing effluent to influent communities had an impact.

I attempted a couple of early trials to work out conditions, and this revealed that the experiment moved too slowly without growth media to enhance growth rates. The protocol that gave the best results for our timeframe was inoculating 9 ml of 23% salt MGM media (Dyall-Smith, 2025) with 1 ml of sample. The samples were 1) sterile deionized water serving as a control, 2) influent, 3) effluent, 4) a 50:50 mixture of effluent and influent. I did this experiment with brine from all three sampling dates. In each experiment, I used the control as a blank to set the optical density to zero. Thus, any absorbance observed was due to cells proliferating.

In Figure 8, the top panel shows growth curves featuring the February samples inoculated. The influent sample, which was rich in microorganisms, displays a typical growth curve, with a short lag phase, followed by fast growth, and then the beginnings of a plateau (orange line, top panel). The effluent (green line, top panel) by contrast, has delayed growth, but it does appear to have a low-density community that begins to take off albeit slowly. The mixture has a middle of the road growth curve (light blue line, top panel), which means that nothing in the effluent is inhibiting the growth of the microbes in the influent.

The middle panel of Figure 8 represents the growth curves of the April samples and the bottom panel is June. ***All of the samples from the April and June samplings follow a standard growth curve***. The microbial communities appear to have just reached stationary phase over this period of study. This is expected of healthy cultures. Also to note, ***mixing effluent and influent had no visible impact on growth***.

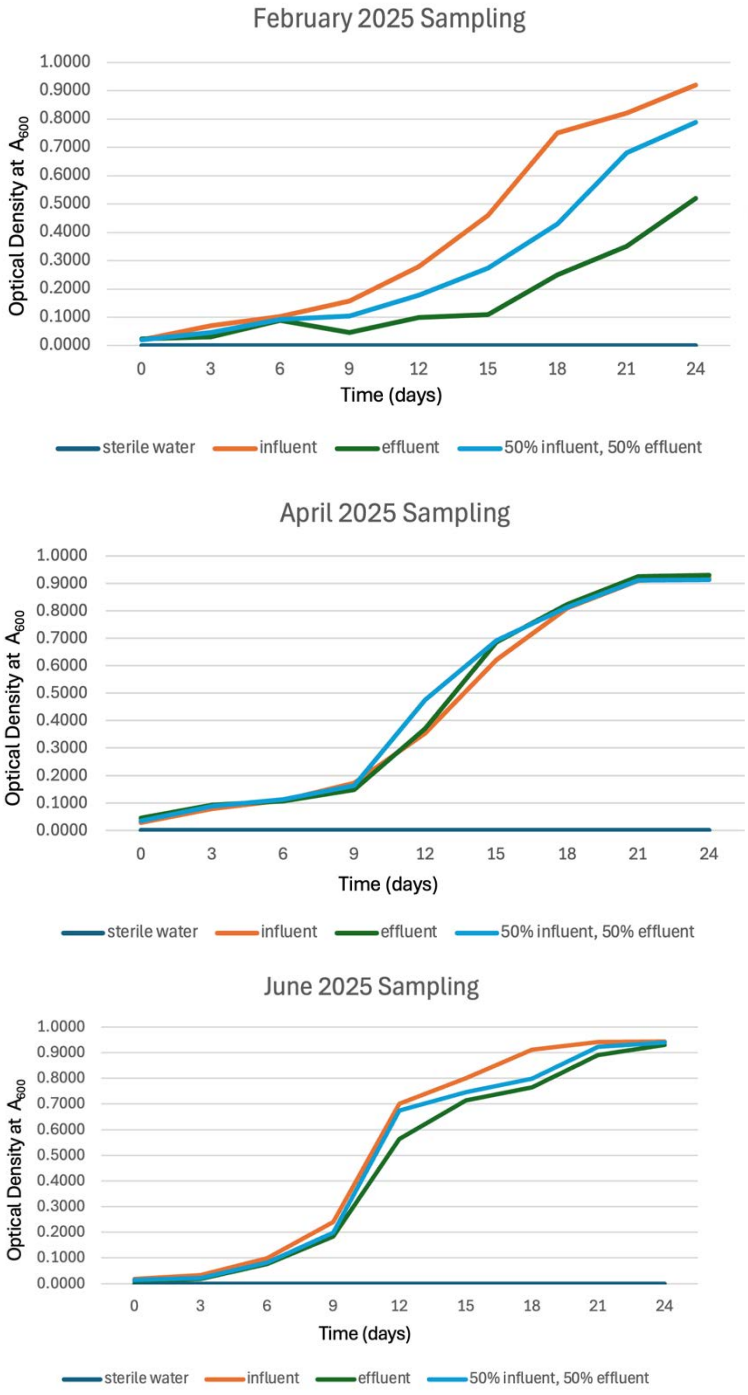


Figure 8. The top panel represents the February sampling at Waterleaf while the middle represents April and the bottom represents June. The sterile water inoculation control, dark blue, served as a blank for the optical density measurements at A600 and showed no contamination in the experiment. The influent samples are shown in orange, the effluent in green, and the 50:50 mixture in light blue.

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Algae Experiments

In the February and April samples, there was no evidence for the presence of algae. I did not see the larger distinctive cells in the microscopy examinations nor the signature for them in the DNA sequencing for microbial diversity. This is not unusual as the main algae species of the north arm, *Dunaliella salina*, blooms in the warm summer months (Baxter and Zalar, 2019). These eukaryotes do photosynthesis for the lake, accumulate glycerol to balance the inside of the cell with the outside hypersaline water, and make pigments to mediate cellular damage from the extreme environment (Figure 9). Despite being a seasonal participant, they are a key player to supplying nutrients to the north arm microbial community.

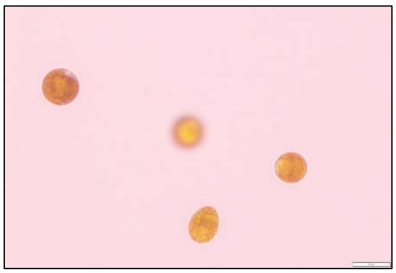


Figure 9. GSL north arm *Dunaliella salina*, a prevalent algae species in the summer months at Rozel. Beta carotene gives them the notable orangish color. A 20 micron scale bar is indicated in the lower right corner. Prokaryotes (bacteria and archaea) are typically only 1-2 microns, for comparison.

In the June sampling, I wanted to examine the impact of effluent on *Dunaliella salina* in the brine. For the DNA sequencing, I probed the broad categories of prokaryotes and eukaryotes. For this experiment, there is no need to distinguish between archaea and bacteria amongst the prokaryote signals and it was not important to track fungi separately amongst the eukaryotes. ***In future experiments for monitoring at this site, this streamlined approach would offer an option for routine checks.*** The results are shown in Figure 10.

The DNA sequencing surveys of the prokaryotes in the influent versus effluent shows the same pattern as before (Figure 6), making this a good control for standardization. The species distribution of the influent are preserved in similar abundances in the post-extraction effluent (Figure 10, top panel). These prokaryotes represent small archaea and bacteria, only ~1-2 microns, which are not filtered in the lithium extraction process. The *Dunaliella salina* algae are high in abundance in the influent as predicted for the summer season, but they are lacking in the effluent (Figure 10 bottom panel). ***These algae are much larger, ~10-20 microns, than the prokaryotes and were likely filtered in the early filtration step of the mineral extraction process.*** Note the small signal of *Dunaliella* in the effluent; this is likely from DNA released from dead cells in the environment, and these molecules would pass through filtration.

Microbial Analysis Report
Bonnie K. Baxter, Ph.D.
July 28, 2025

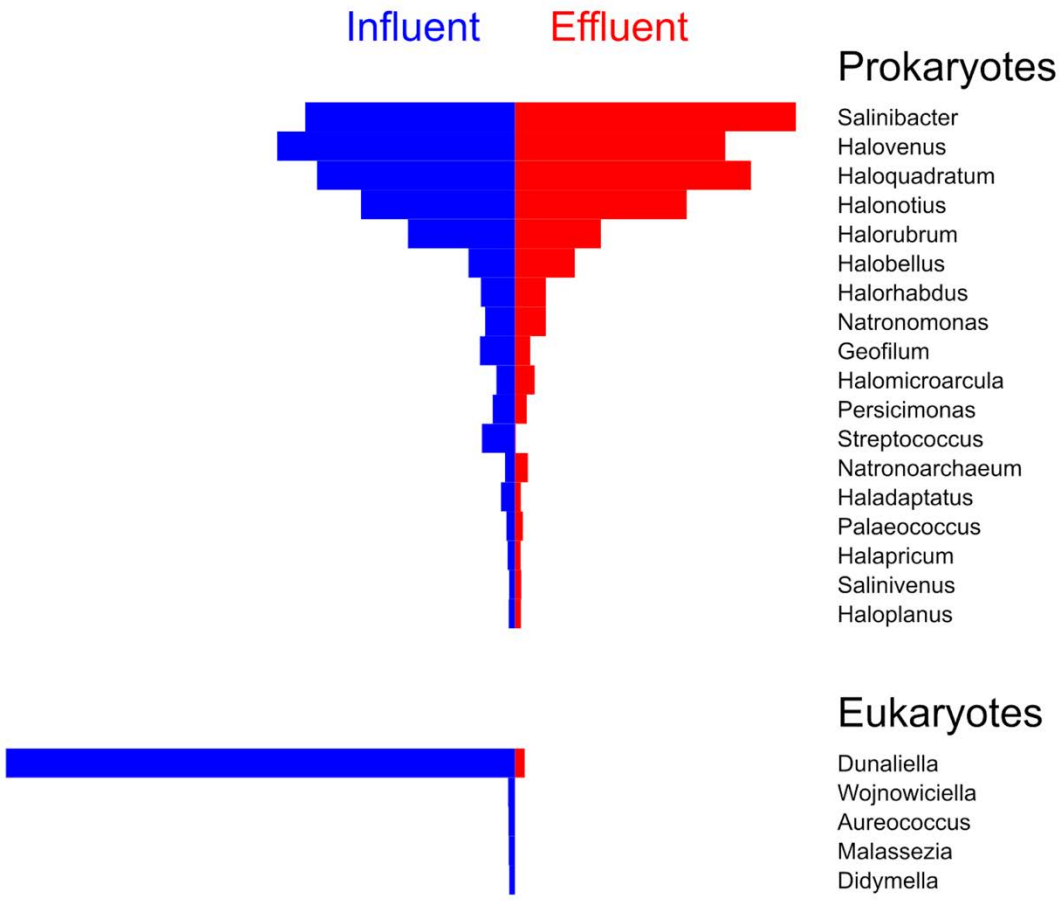


Figure 10. Most abundant taxa of prokaryotes (top panel) and eukaryotes (bottom panel). The influent consortia in shown in blue on the left, and the effluent in red on the right, and the bars represent relative abundance. June sampling for *Dunaliella salina* showed a robust biosignature for the algae in the eukaryotic profile of the influent (bottom). Unlike the smaller prokaryotes (~1-2 microns in size), the algae (~10-20 microns) are likely filtered out in the extraction process filtering step. The small signal for *Dunaliella* observed in the effluent is likely residual DNA from dead cells that passed through the filter.

Microbial Analysis Report

Bonnie K. Baxter, Ph.D.

July 28, 2025

Conclusions:

Is the extraction process changing the microbial community?

- The biomass analysis (Figure 3), cell counting (Table 1), and DNA sequencing (Figure 6 and 10) demonstrate that the extraction process is allowing prokaryotic microorganisms to remain in and survive in the effluent.
- The inoculation experiment (Figure 8) demonstrated that the effluent brine population is as healthy as the influent. There is no evidence of a longer lag time in the growth curves and they approach log phase at the same rate.
- The archaea and bacteria genera composition and abundance measures are remarkably similar between the influent and effluent (Figures 6 and 10), suggesting the survival/recovery of the microorganisms following the lithium extraction process.
- The fungi, however, have a different composition post extraction (Figure 6). There are only a few species that emerged in our study, but they are different in the influent versus the effluent. Since fungi have amazing dispersal mechanisms, the origin of the fungi we observed may have been introduced from the surrounding landscape, given the species present. There is no need to track fungi for surveying the health of the lake ecosystem.
- Algae were absent in both February and April samples, likely due to time of year. In the June sampling, the *Dunaliella salina* summer bloom was detected in the influent. However, filtration in the lithium extraction process appears to remove the *Dunaliella salina* as it is not present in the effluent (Figure 10).

Would the introduction of effluent to lake brine have impacts on the native biota?

- The inoculation experiment, where the influent and effluent are mixed 50:50, is a proxy for modeling the recovery of the microbial community after discharge. There is no evidence of negative impacts in the 50:50 mixed sample (Figure 8).
- Although the filtration step in the lithium extraction process may remove the *Dunaliella salina*, the absence of algae in the effluent should not be a problem when the effluent is discharged to the lake. The microbial community is not impacted by the introduction of effluent in the inoculation experiments (Figure 8).

Recommendations for future monitoring of the microbial communities:

- Fungal signatures are introduced from the environment and are not valuable for this study. Monitoring of fungi going forward is not necessary.
- Most of the microbial community in the north arm are mesophiles, meaning they are more prolific at moderately warm temperatures, optimal 20 to 45 °C (68 to 113 °F). Summer sampling is recommended for future monitoring efforts, and this approach would also allow you to see the bloom of *Dunaliella salina*.
- Continual monitoring the prokaryotes (the most prolific life forms) would give a nice benchmark for microbial commnunies surviving in the effluent. Any changes in process, scale up, or seasonal impacts could be followed over time.

References:

Almeida-Dalmet, S. and Baxter, B.K. 2020. Unexpected Complexity at Salinity Saturation: Microbial Diversity of the North Arm of Great Salt Lake. In Baxter, B.K. and Butler J.K., Eds. *Great Salt Lake Biology*. pp. 87-118. Springer, Cham.

Baxter, B.K. and Zalar, P., 2019. The extremophiles of Great Salt Lake: Complex microbiology in a dynamic hypersaline ecosystem. *Model Ecosystems in Extreme Environments*, pp.57-99.

Dyall-Smith, M. 2025. The HaloHandbook. https://haloarchaea.com/wp-content/uploads/2025/02/Halohandbook_2009_REV_v2.pdf (Accessed June 2, 2025).

Parrott Jr, D.L. and Baxter, B.K., 2024. Fungi of Great Salt Lake, Utah, USA: a spatial survey. *Frontiers in Fungal Biology*, *5*, p.1438347.

Stevenson, K., McVey, A.F., Clark, I.B., Swain, P.S. and Pilizota, T. 2016. General calibration of microbial growth in microplate readers. *Scientific Reports*, *6*(1), p.38828.

B.2 Log-Based Constituent Graphs

PURPOSE

This appendix documents the intake and outfall concentrations of UPDES permit monitoring constituents from February through August 2025 on log-based graphs. Log-based graphs visualize significant changes in the plant over the operating period of the Pilot.

CONTENTS SUMMARY

Graphs plotted on the log-based concentration for biochemical oxygen demand, chemical oxygen demand, total dissolved solids, total suspended solids, aluminum, arsenic, boron, cadmium, calcium, chromium, copper, iron, lead, lithium, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, silica, silver, sodium, zinc, bromide, chloride, and cyanide.

REFERENCED IN MAIN APPLICATION

- Section 2
- Section 4.1.2
- Section 4.1.6

DOCUMENT DETAILS

- Prepared by: HDR, Inc., Salt Lake City, Utah
- Report Date: October 25, 2025
- Data Collection Period: February 6, 2025 – August 15, 2025
- Contributing Organizations: Chemtech-Ford Laboratory
- Page Count: 8 pages

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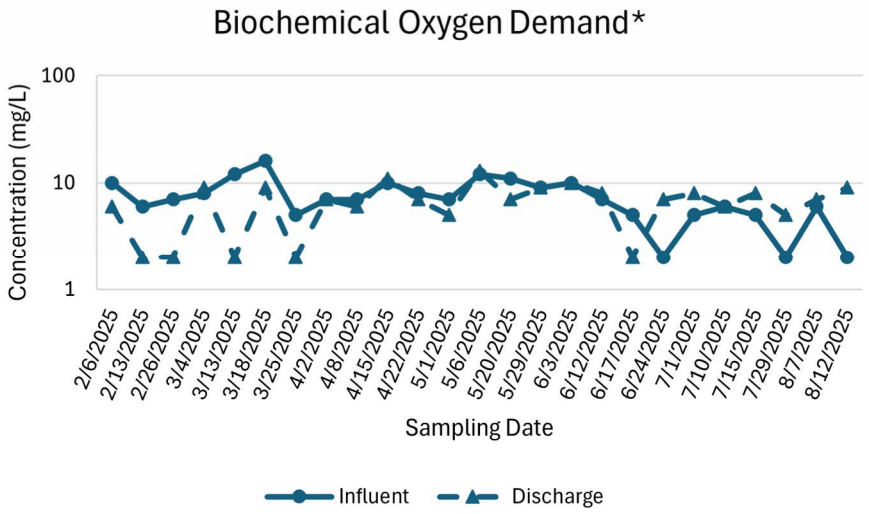


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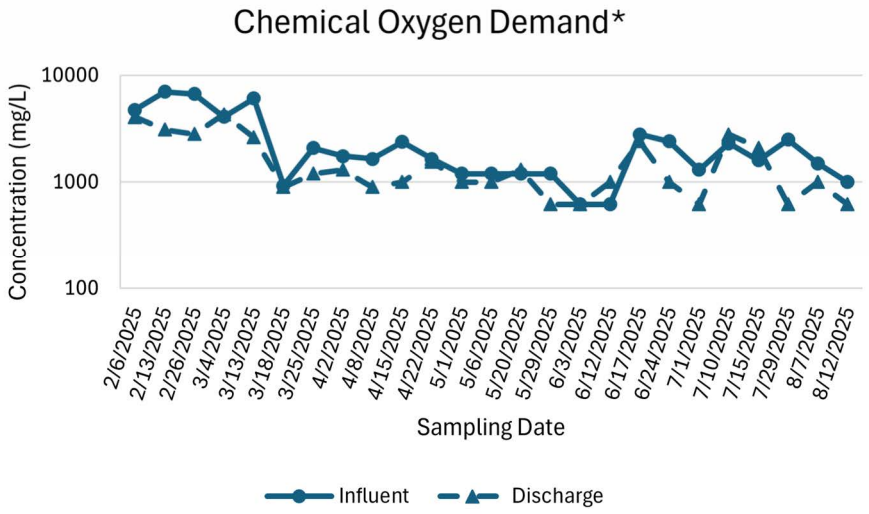


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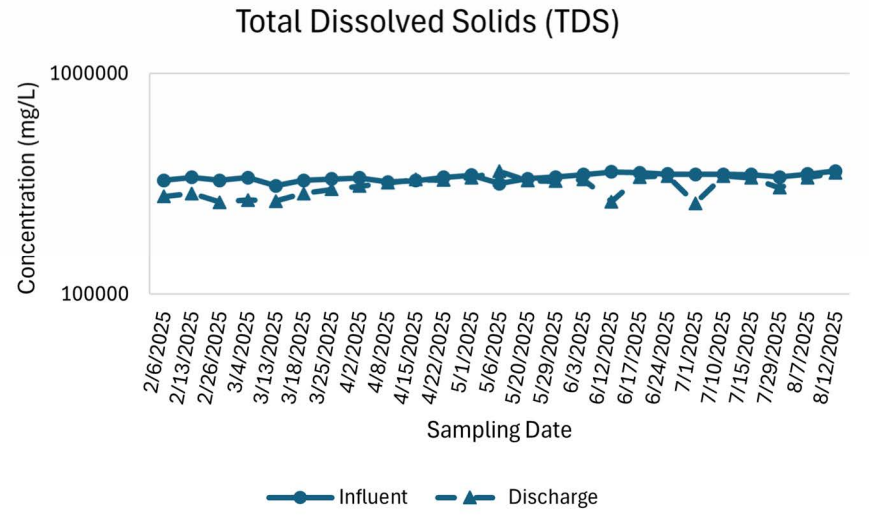


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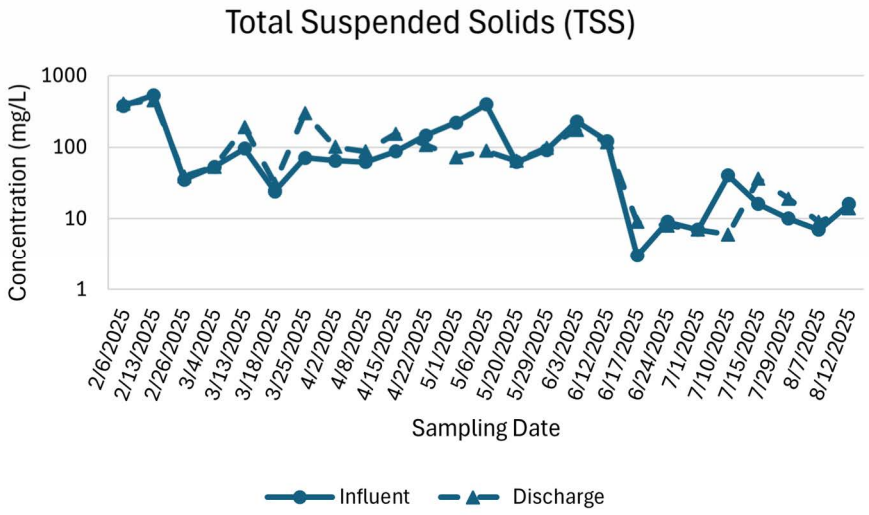


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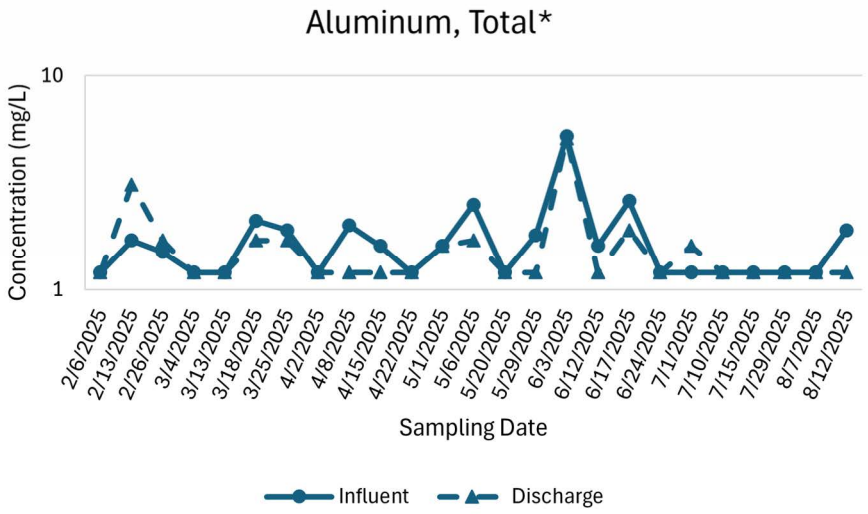


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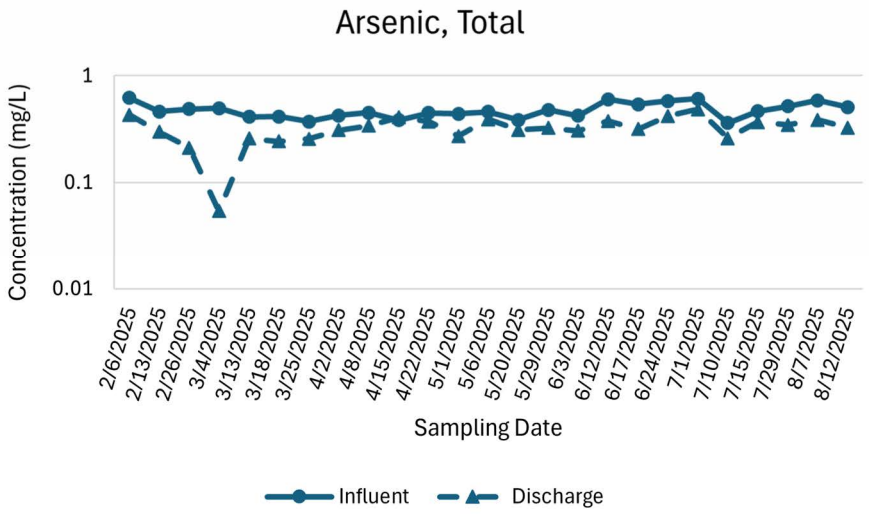


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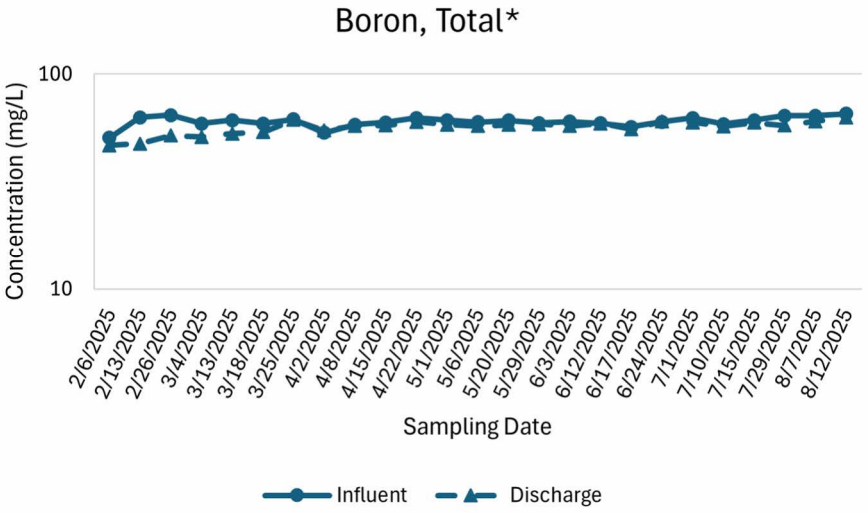


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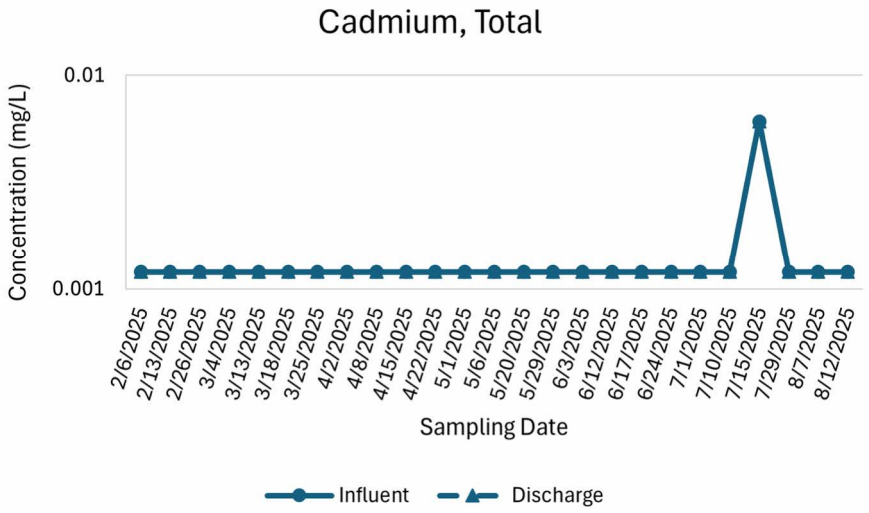


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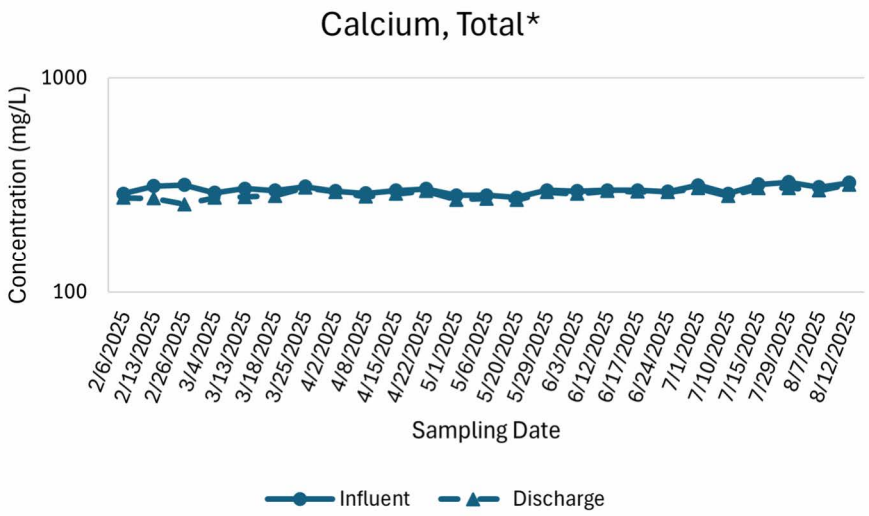


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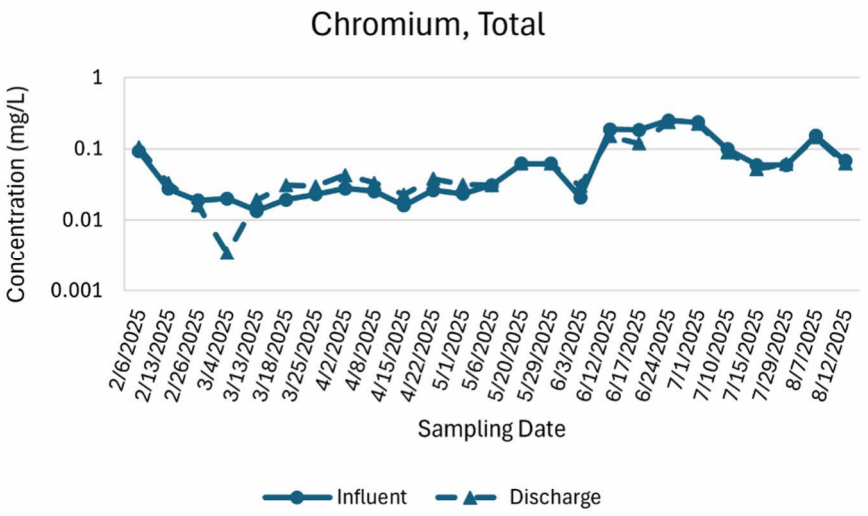


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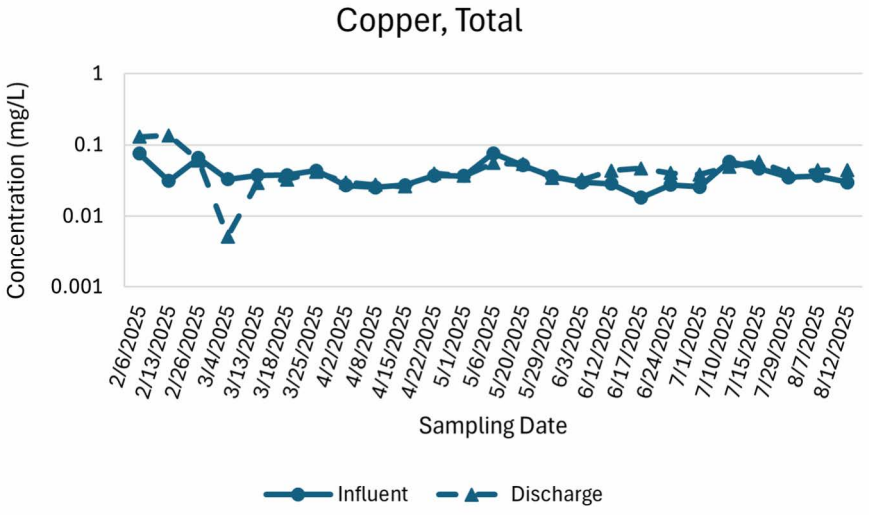


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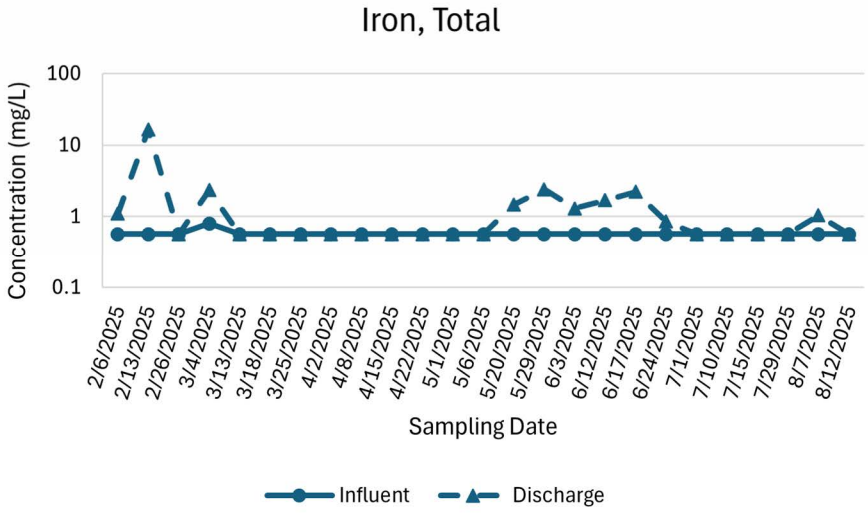


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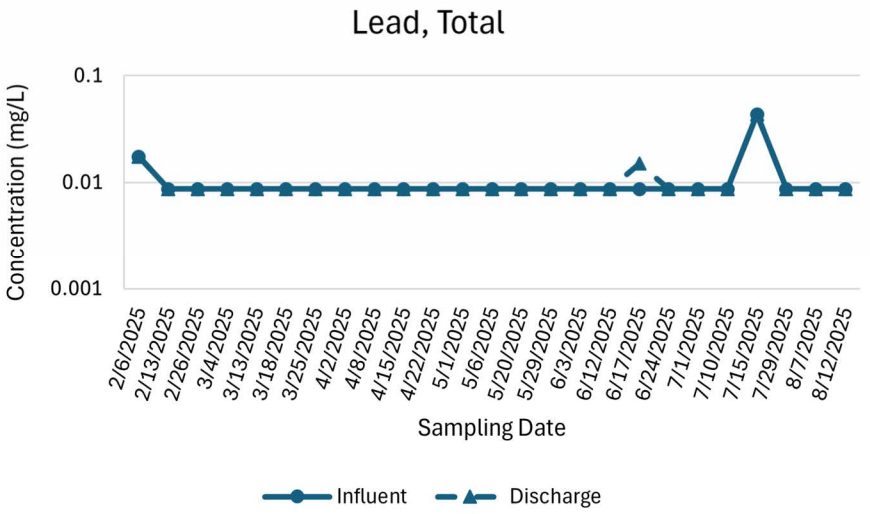


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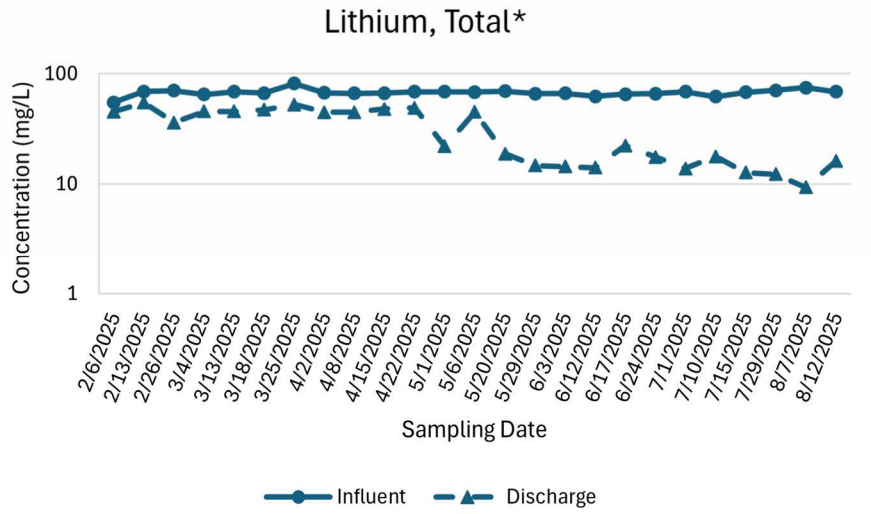


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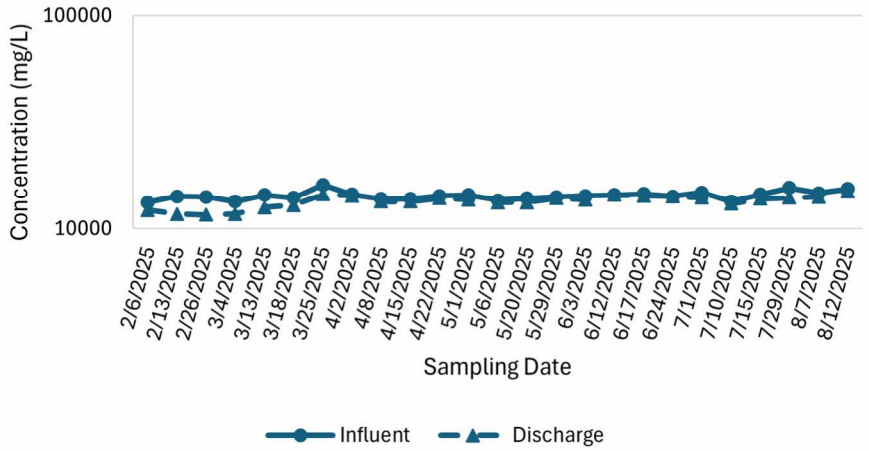


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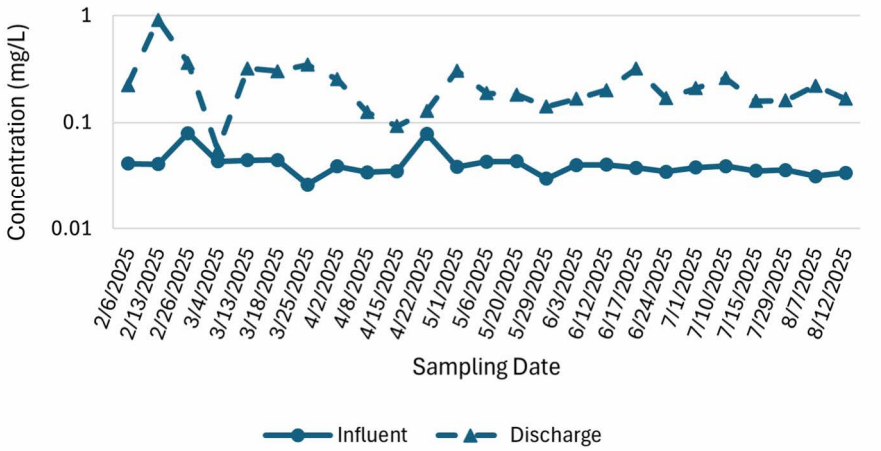


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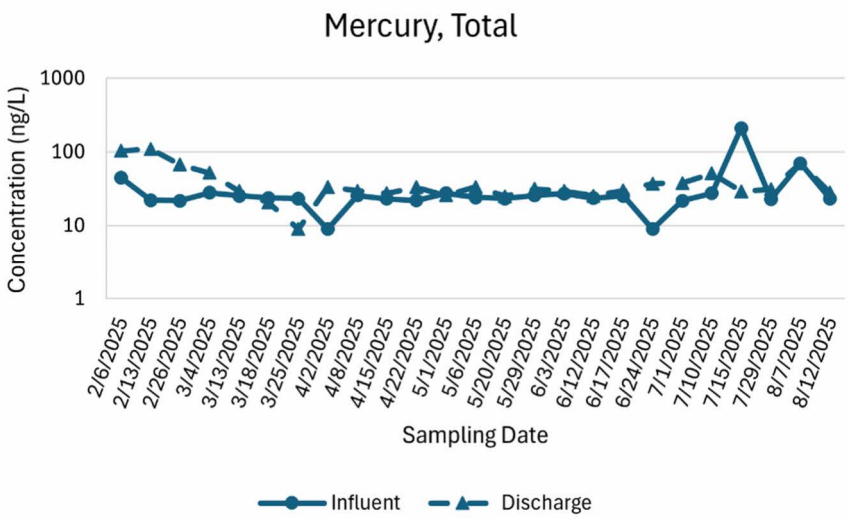


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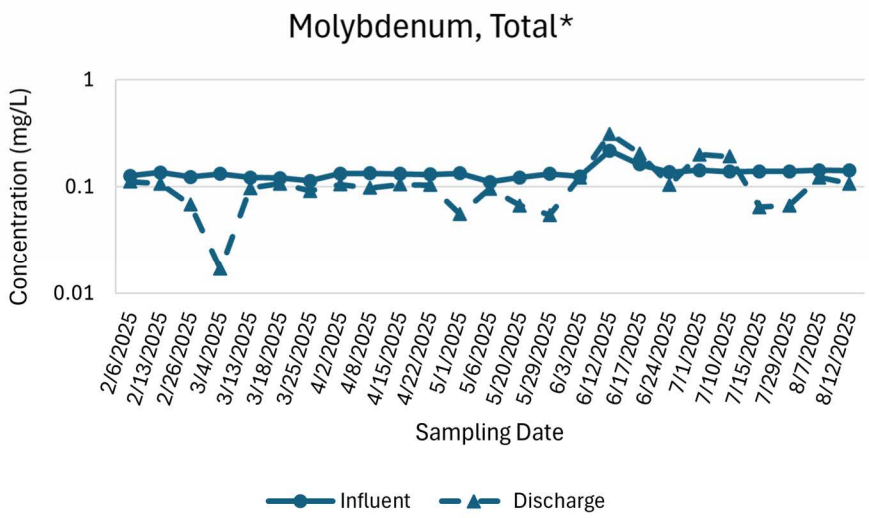


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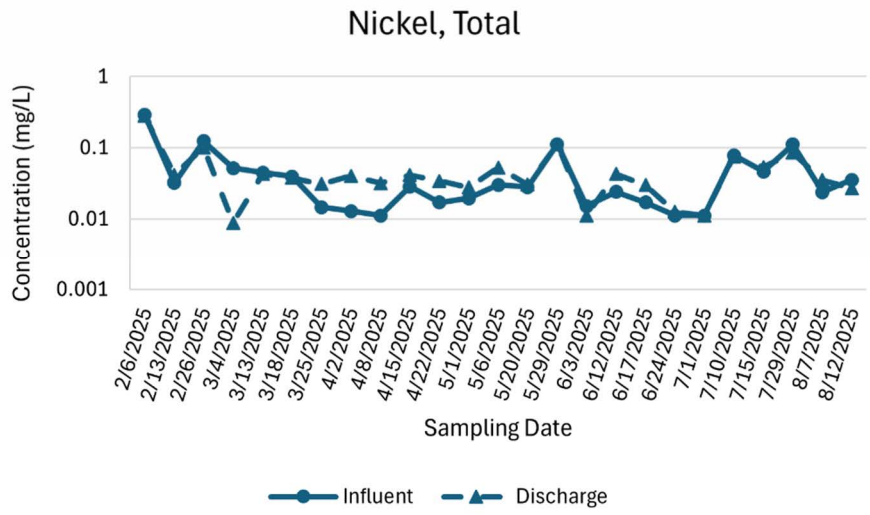


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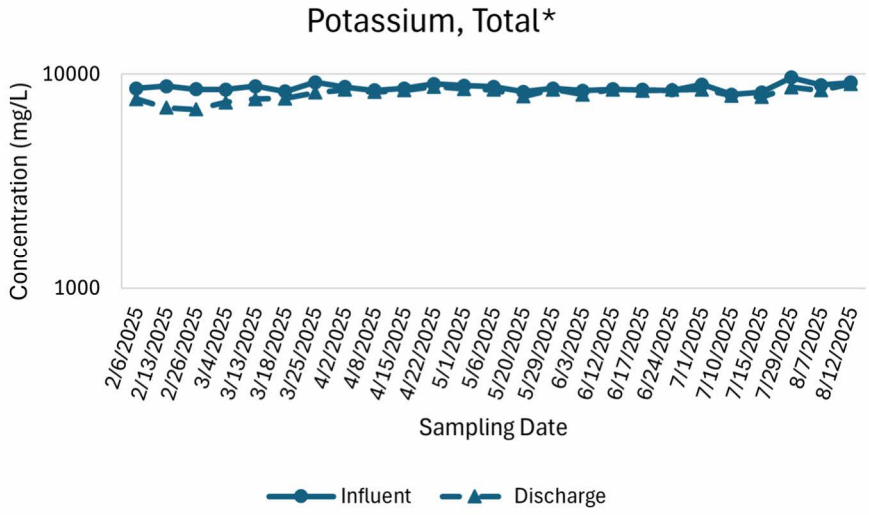


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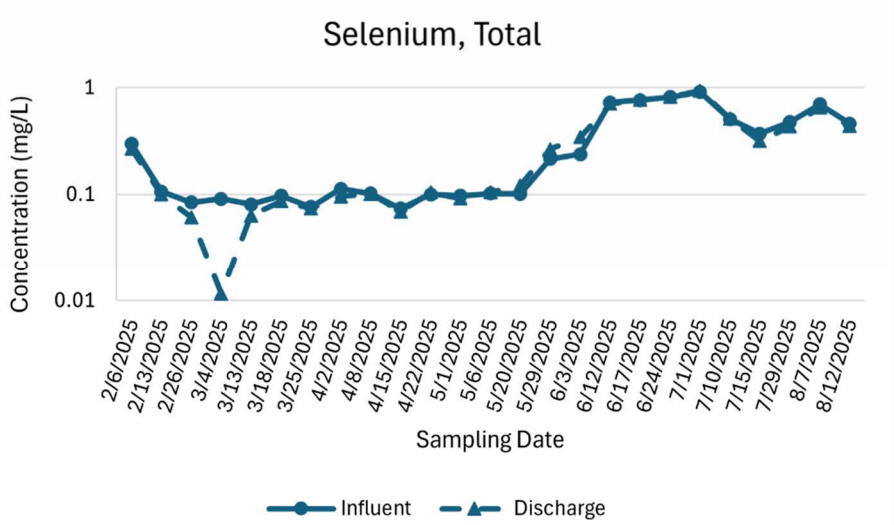


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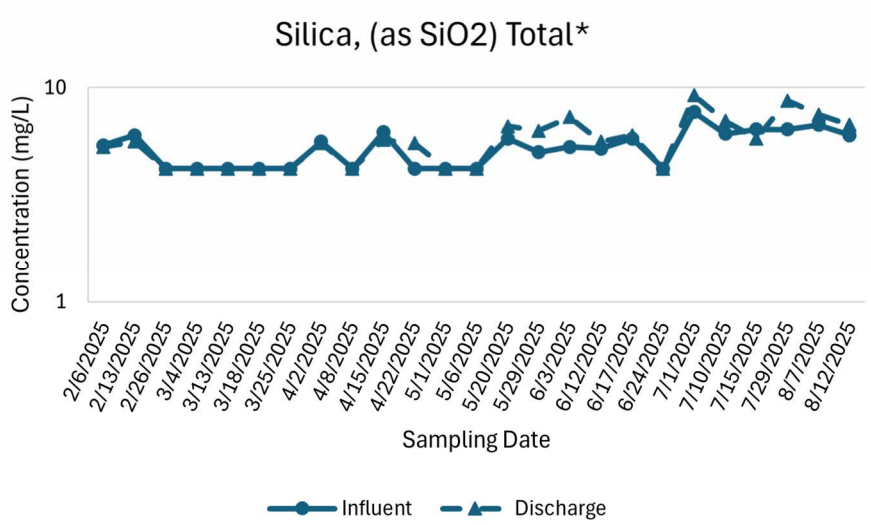


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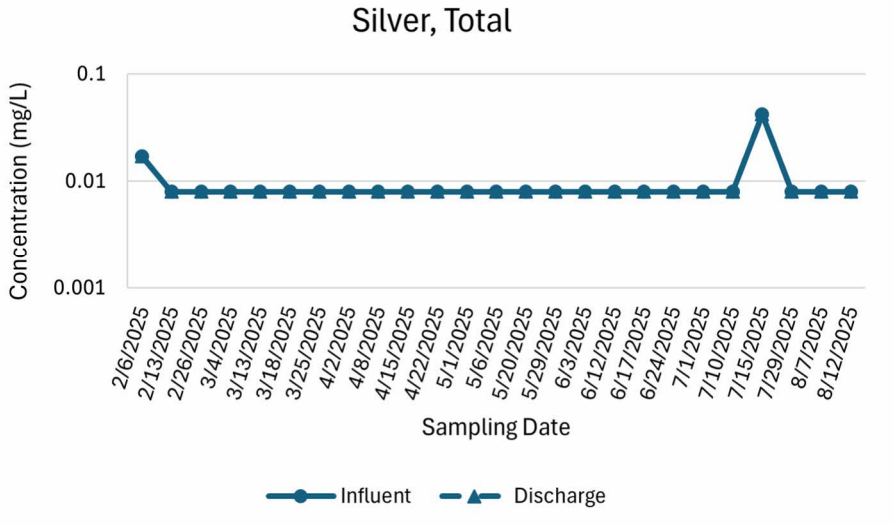


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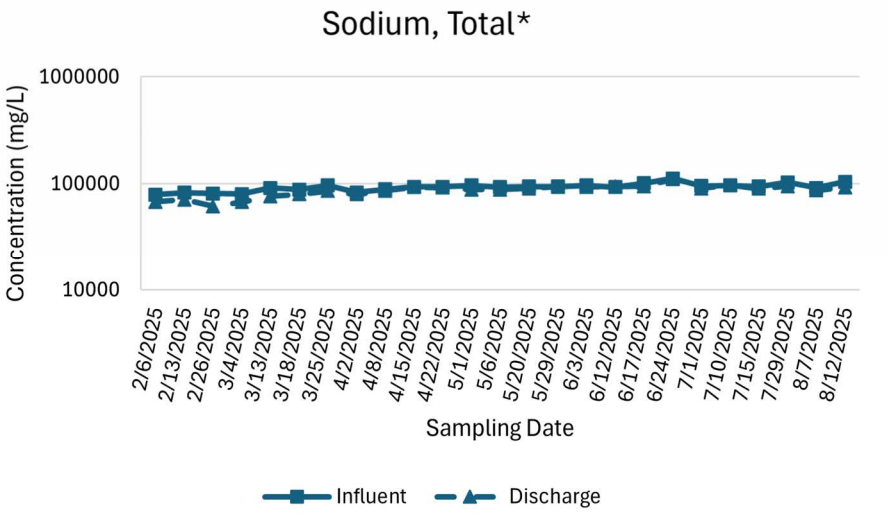


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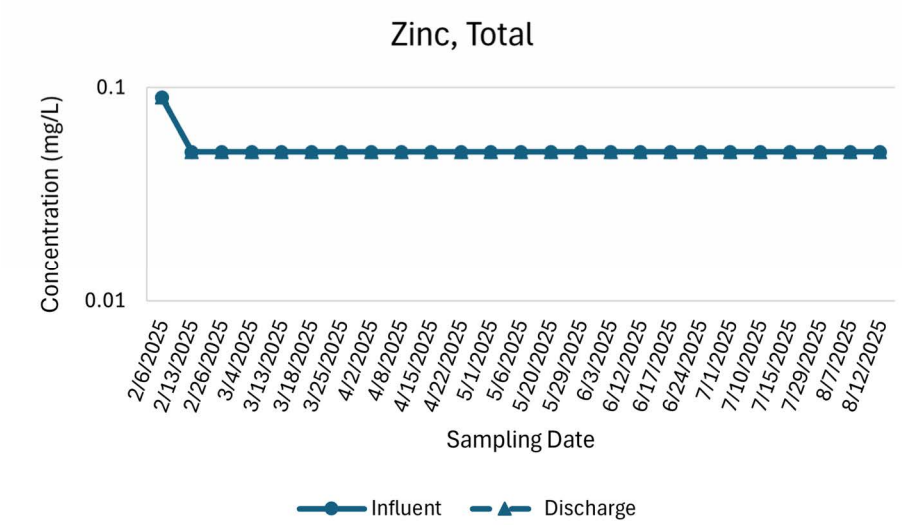


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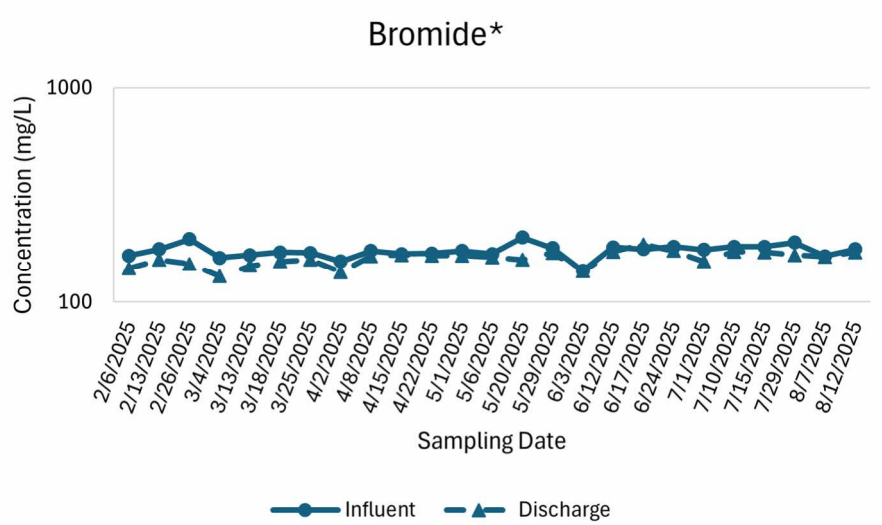


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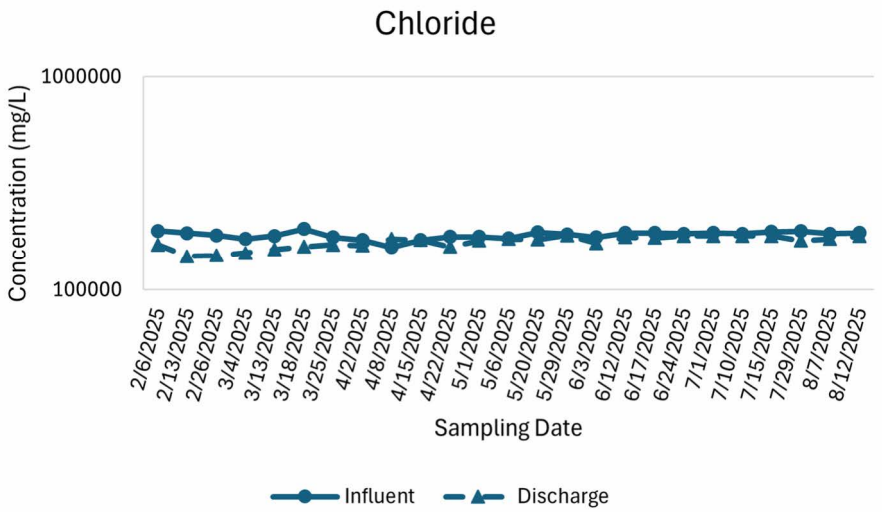


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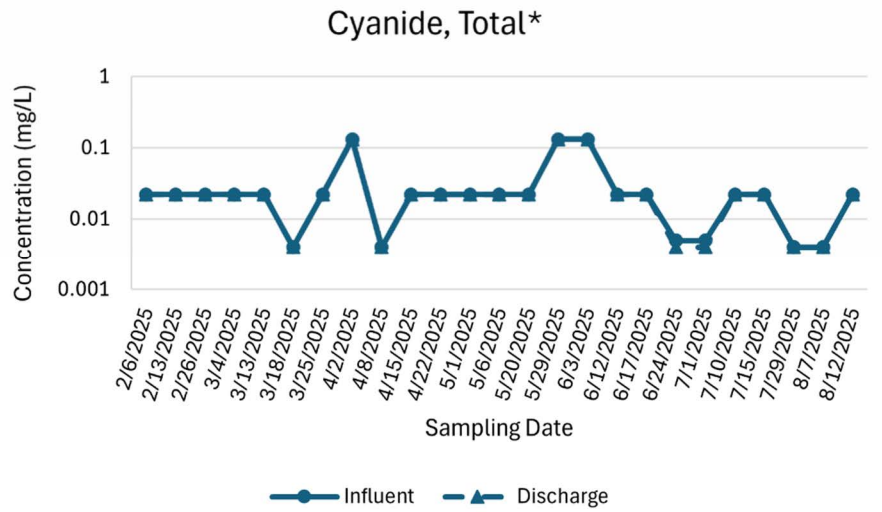


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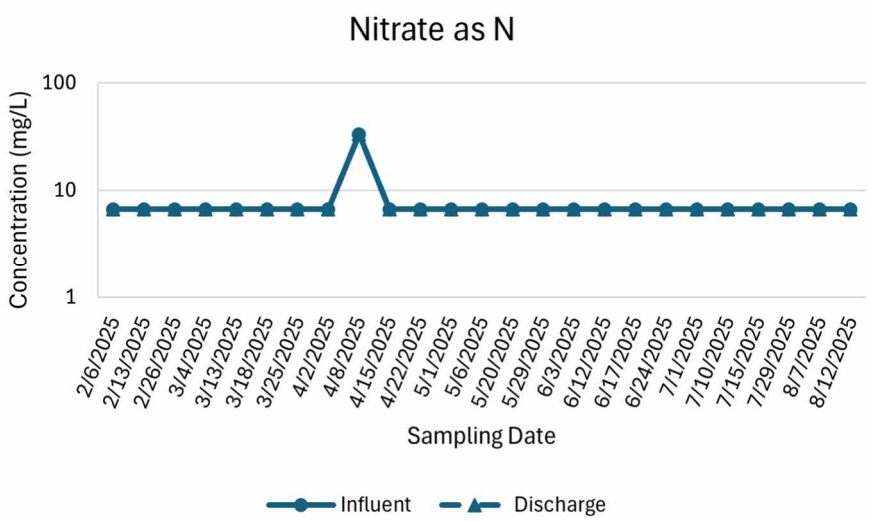


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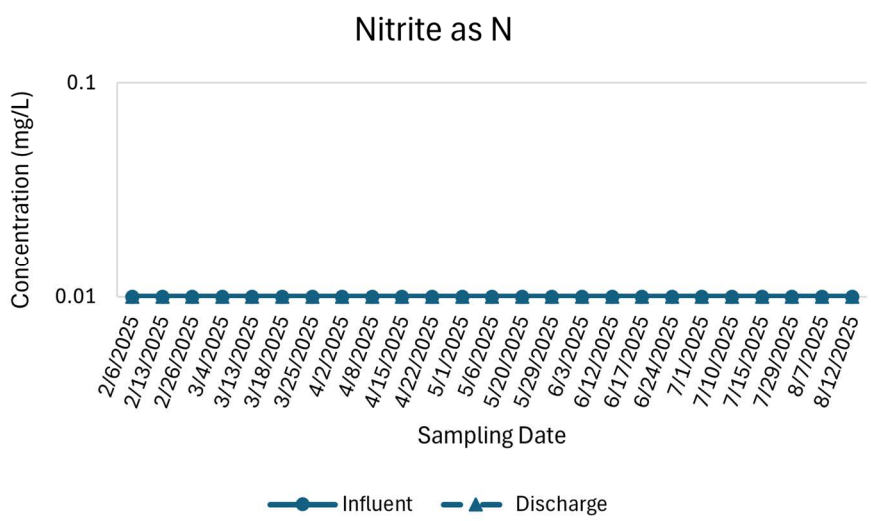


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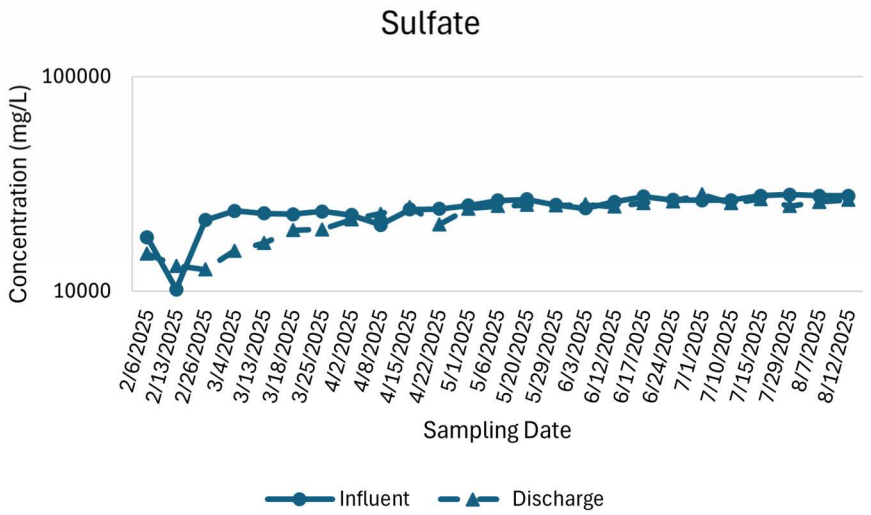


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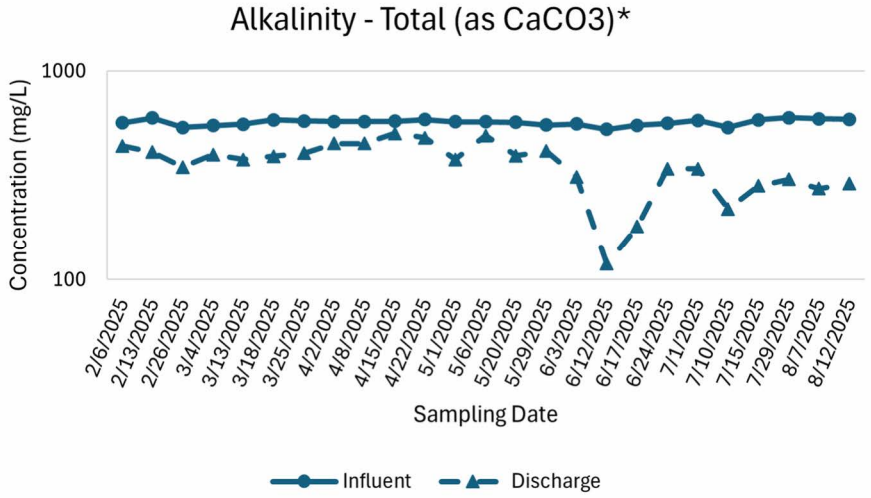


Figure 32

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B.3 Feasibility Optimal Period Graphs

PURPOSE

This appendix documents the intake and outfall concentrations of UPDES permit monitoring constituents from February through August 2025 on graphs overlayed with the Pilot operating periods.

CONTENTS SUMMARY

Graphs plotted on the concentration for biochemical oxygen demand, chemical oxygen demand, total dissolved solids, total suspended solids, aluminum, arsenic, boron, cadmium, calcium, chromium, copper, iron, lead, lithium, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, silica, silver, sodium, zinc, bromide, chloride, and cyanide. The operating phases are overlayed on the figures for brine filter transition to ceramic UF, IX media improvement from Gen 3 to 4, IX configuration upgrade, IX media upgrade from Gen 4 to 5, brine filter upgrade to MMF, beginning of the performance run, end of the performance run, and the end of operations.

REFERENCED IN MAIN APPLICATION

- Section 4.1.2

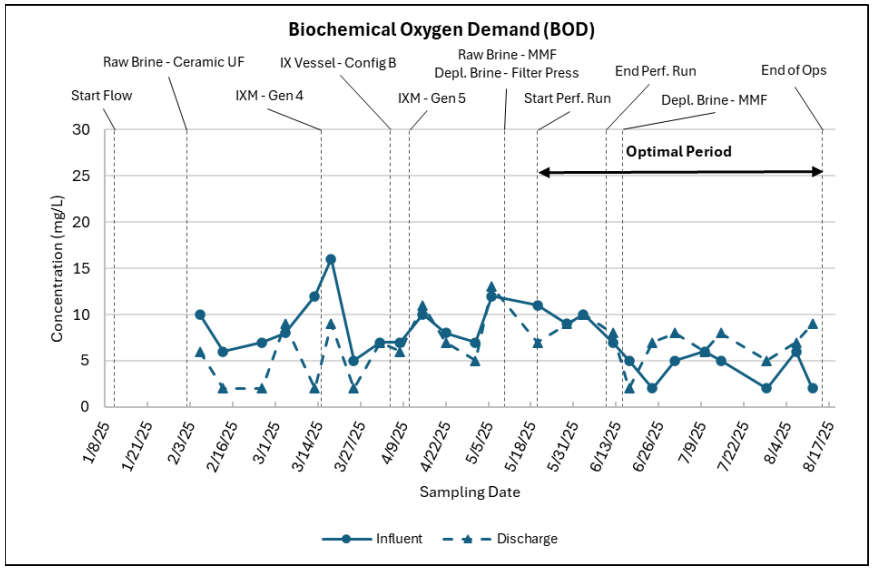
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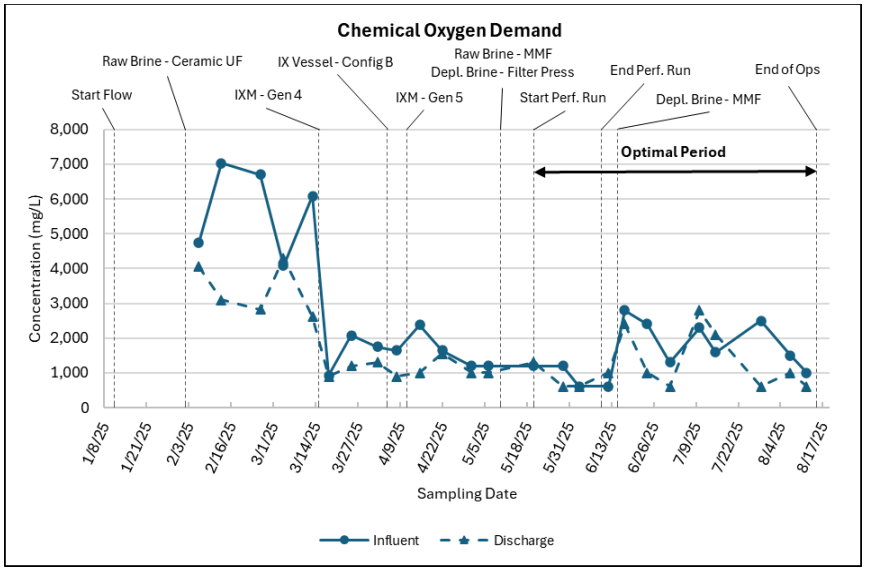
- Prepared by: Waterleaf
- Data Collection Period: February 6, 2025 – August 15, 2025
- Contributing Organizations: Chemtech-Ford Laboratory
- Page Count: 7 pages

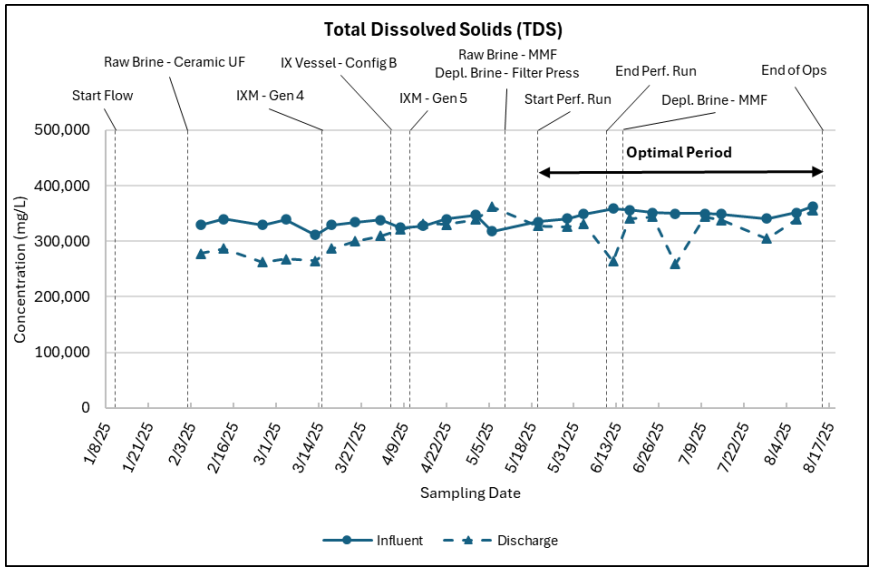
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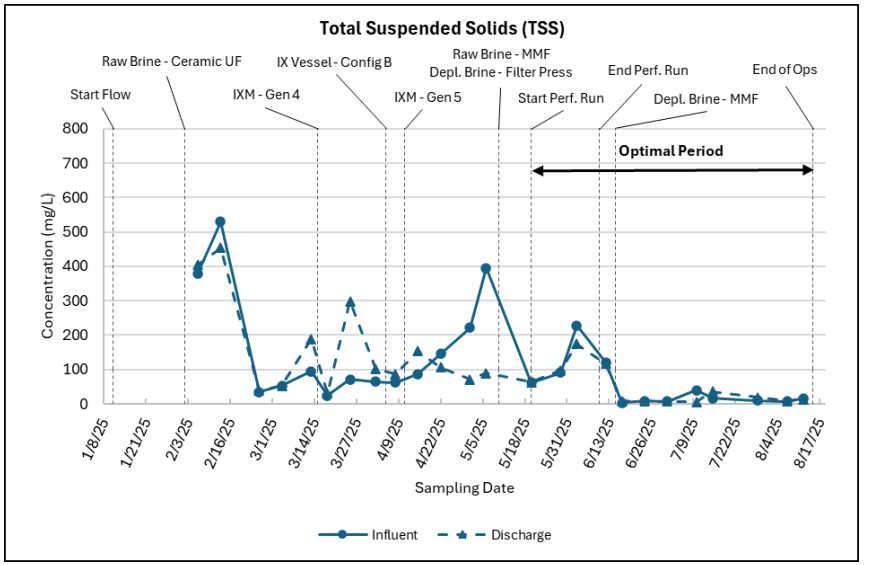
Waterleaf RESOURCES

Feasibility Optimal Period Graphs

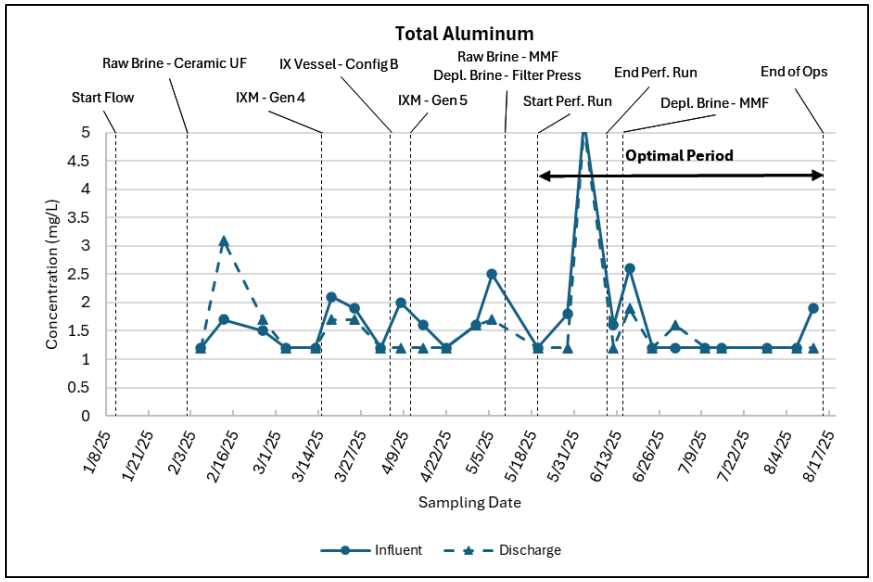


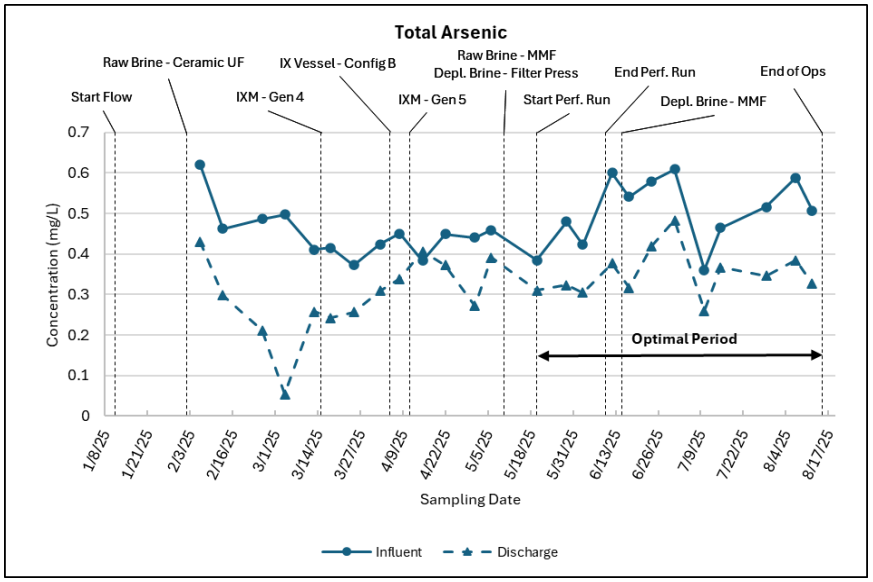


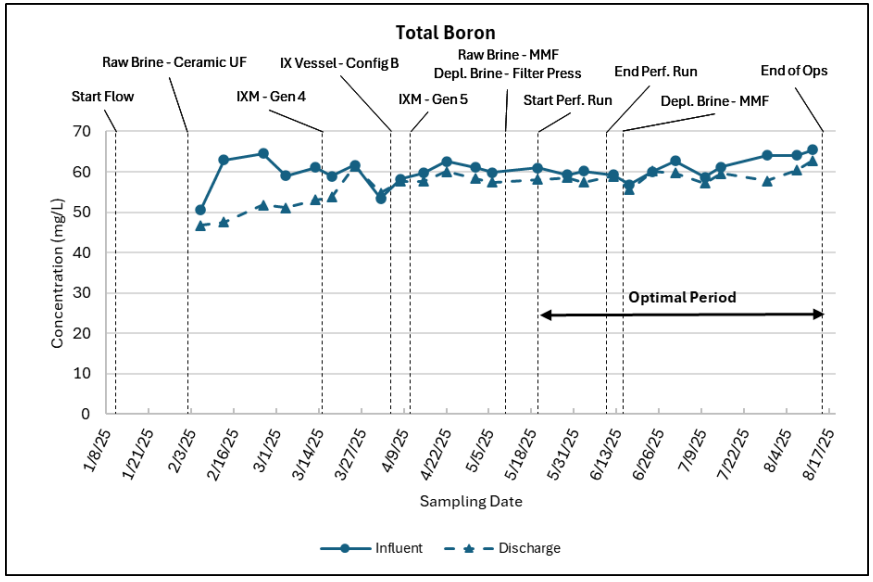


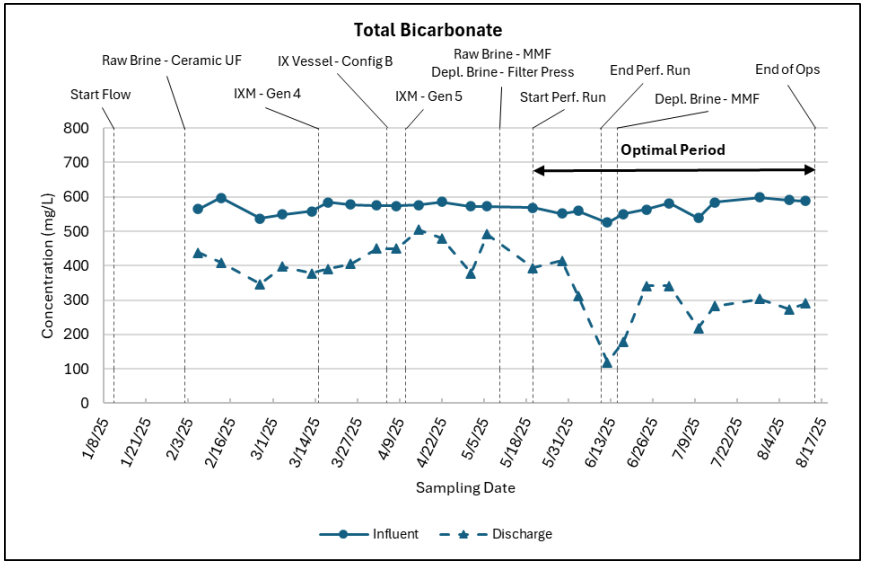


Feasibility Optimal Period Graphs



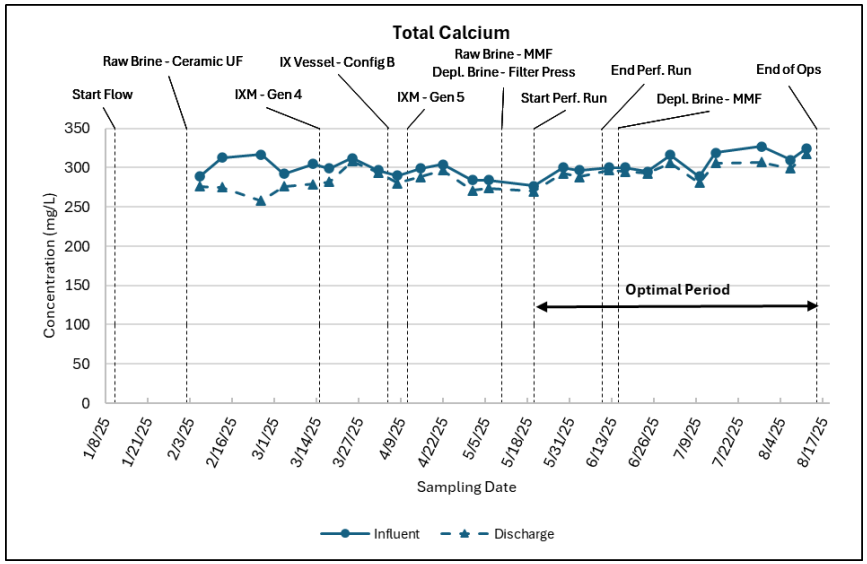


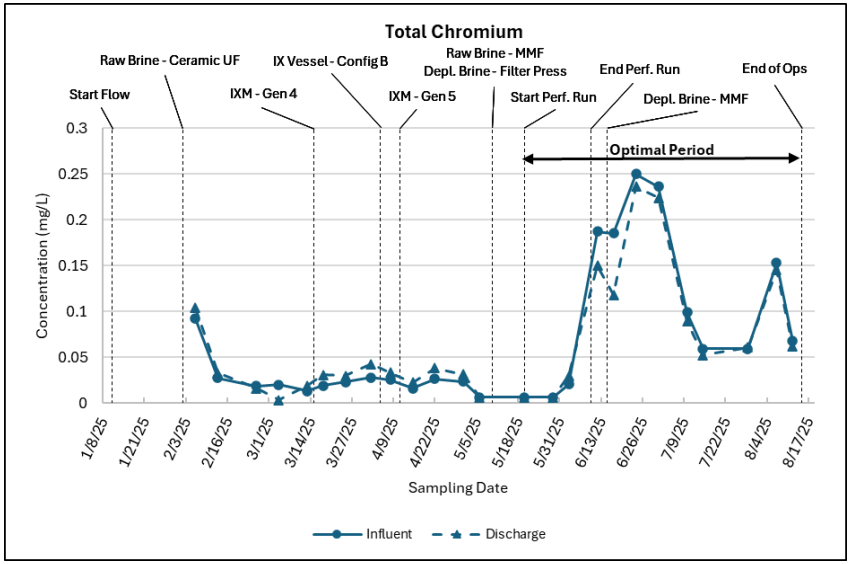


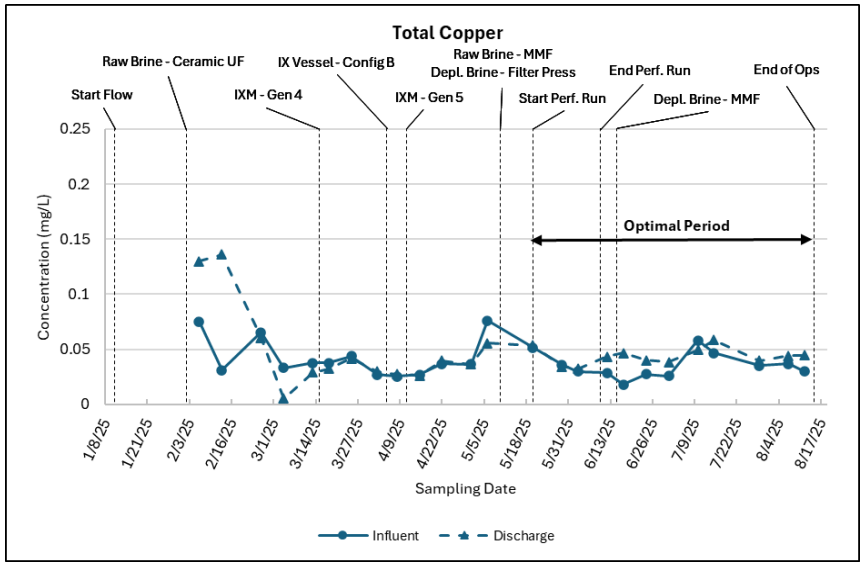


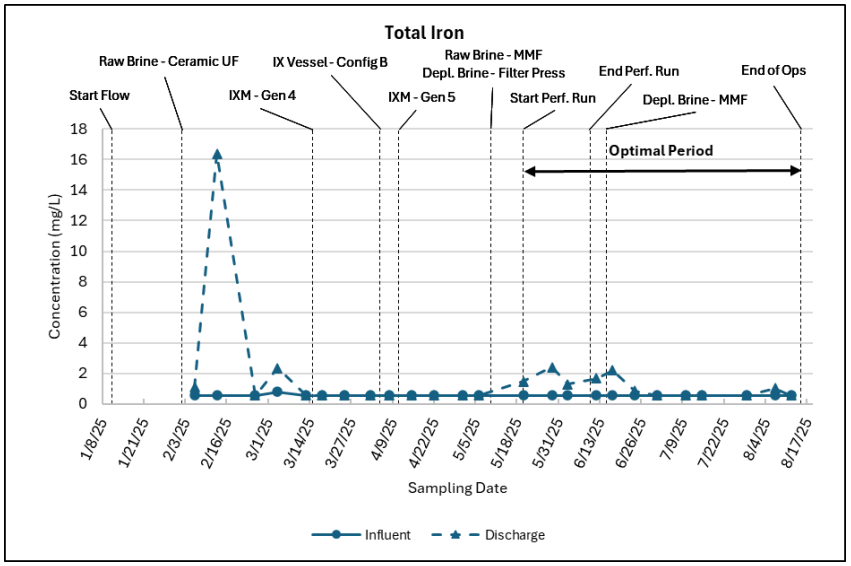
Waterleaf RESOURCES

Feasibility Optimal Period Graphs



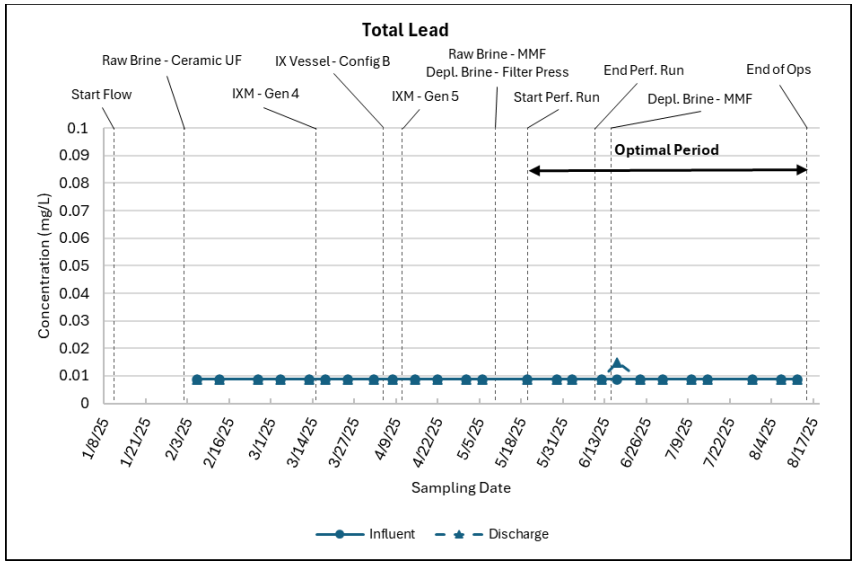


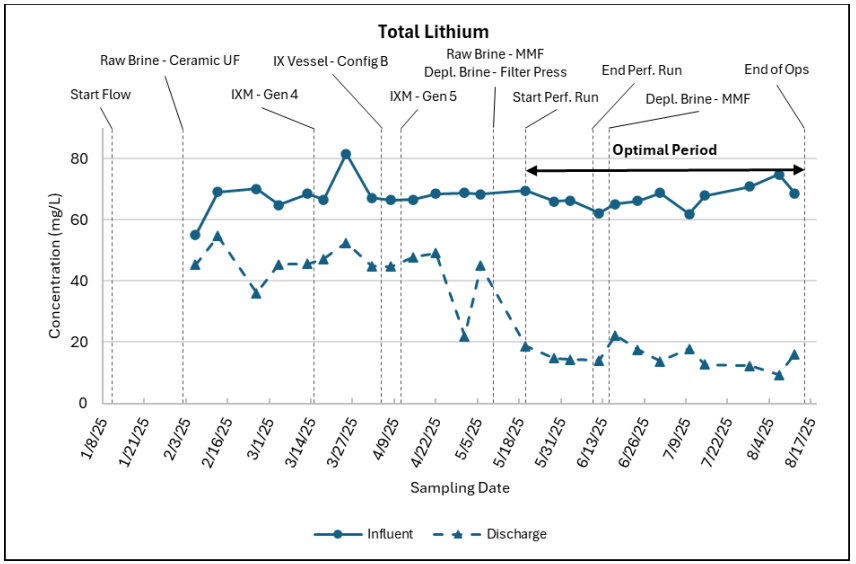


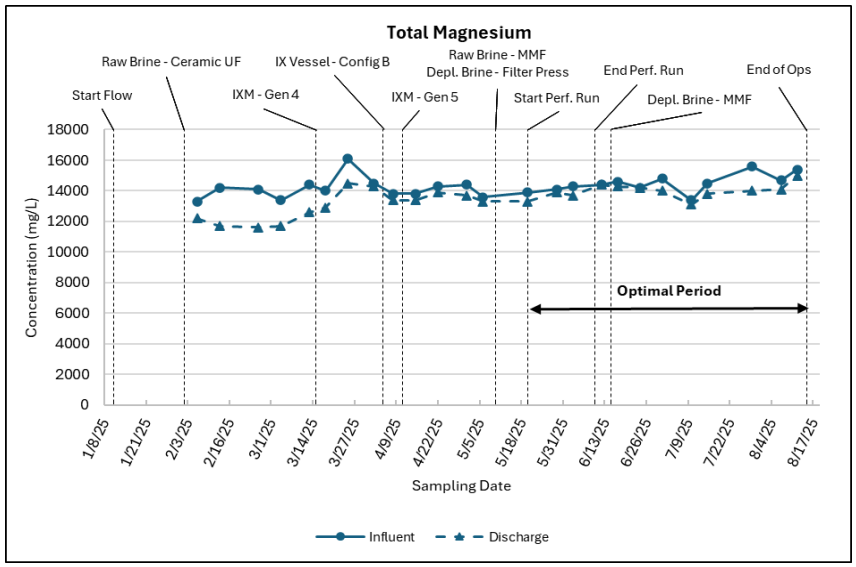


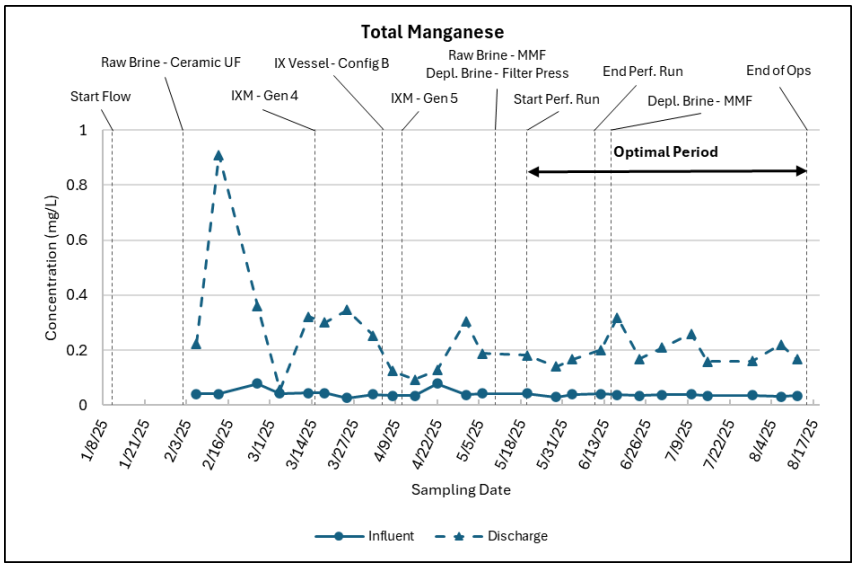
Waterleaf RESOURCES

Feasibility Optimal Period Graphs

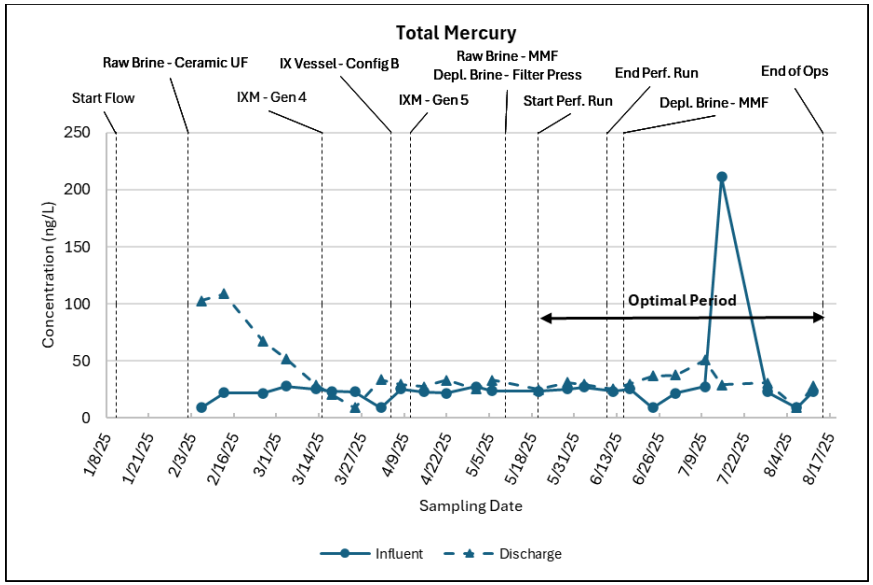


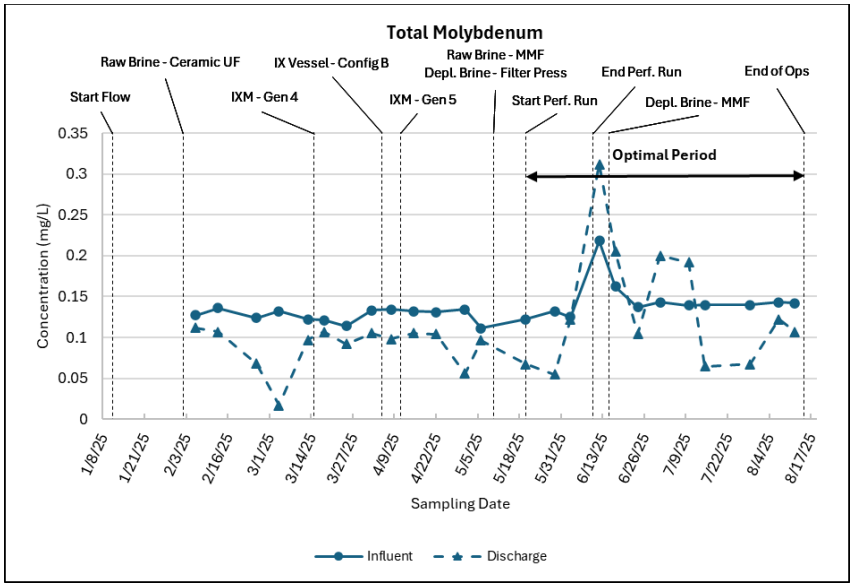


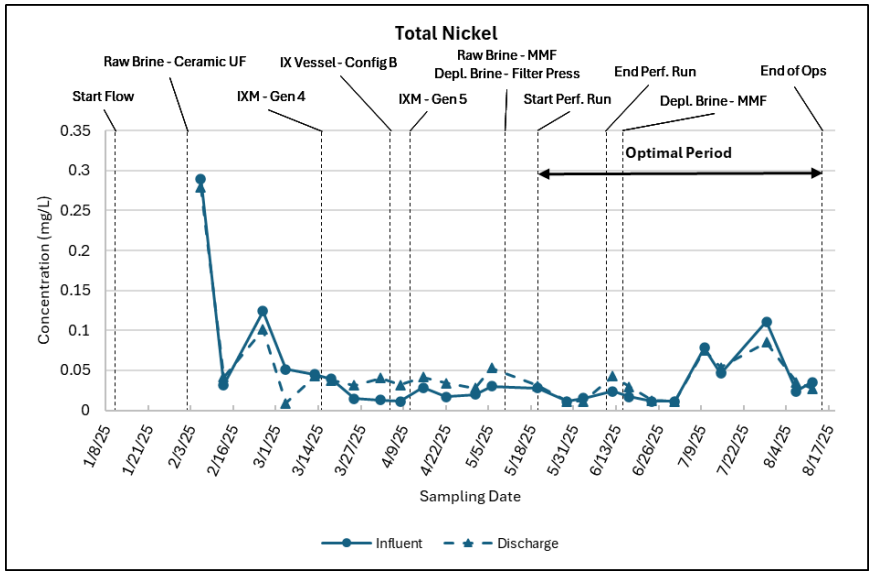


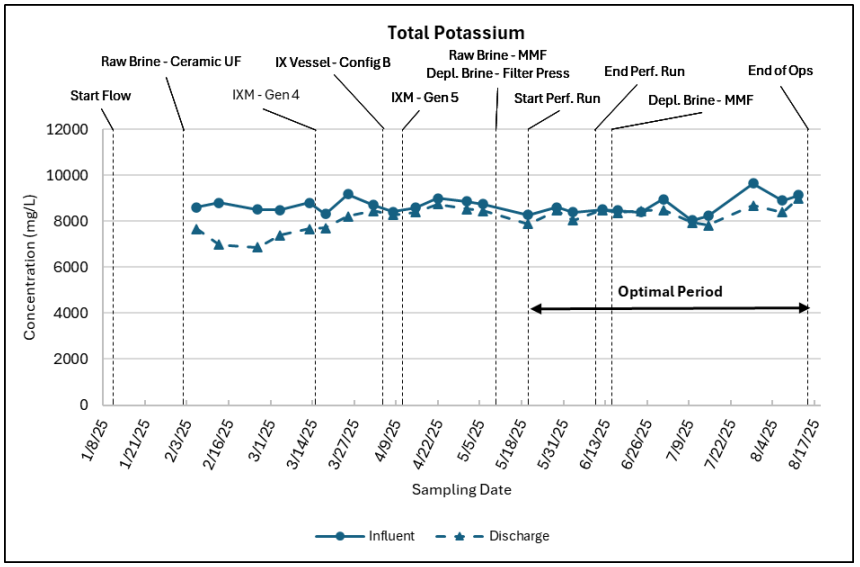


Feasibility Optimal Period Graphs

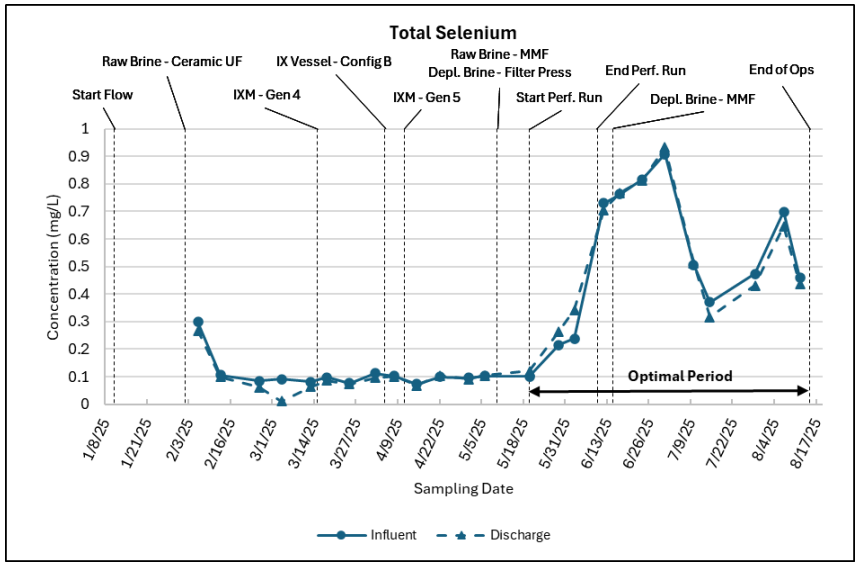


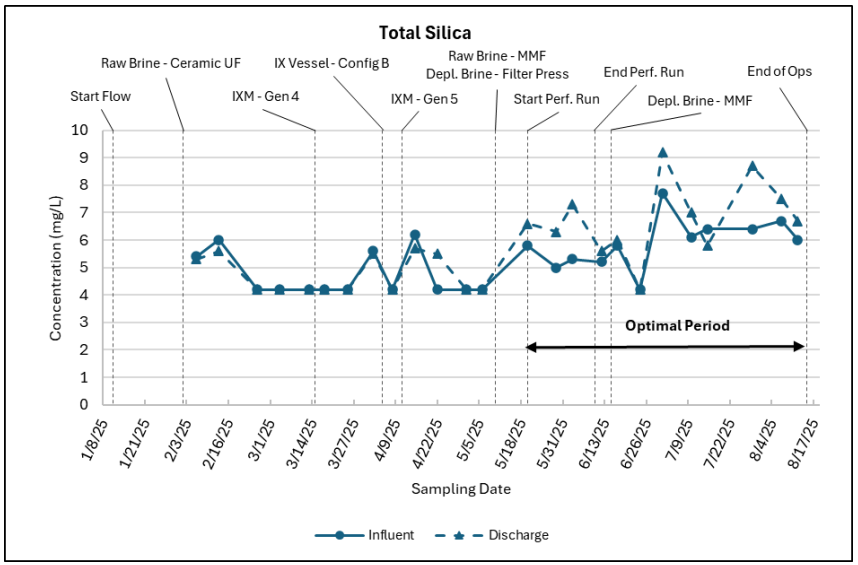


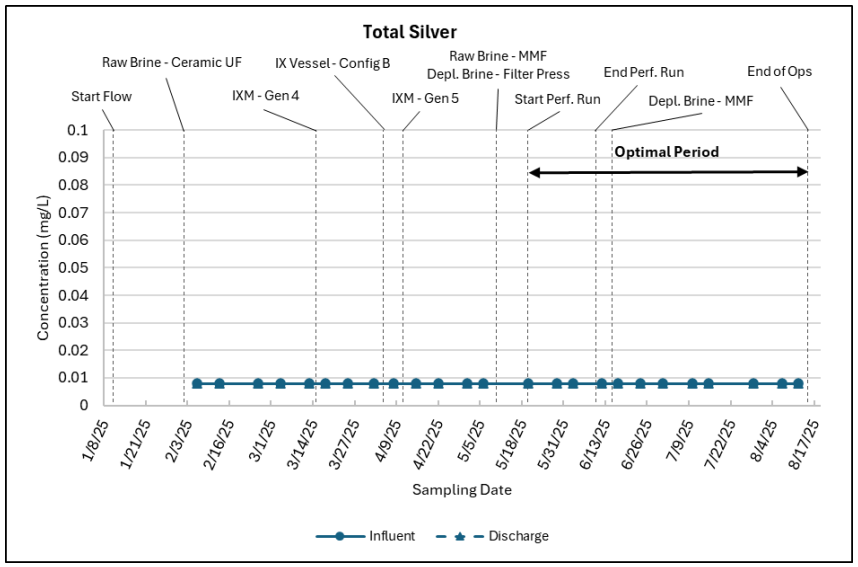


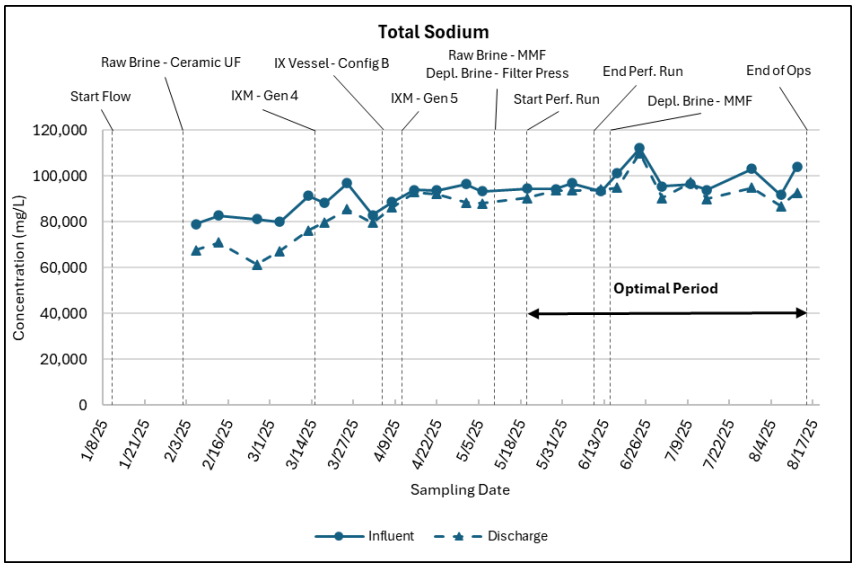


Feasibility Optimal Period Graphs

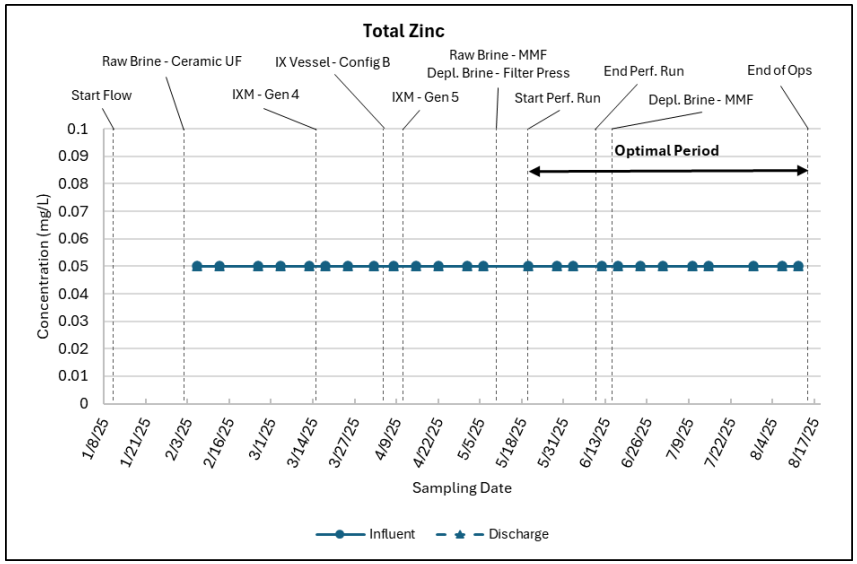


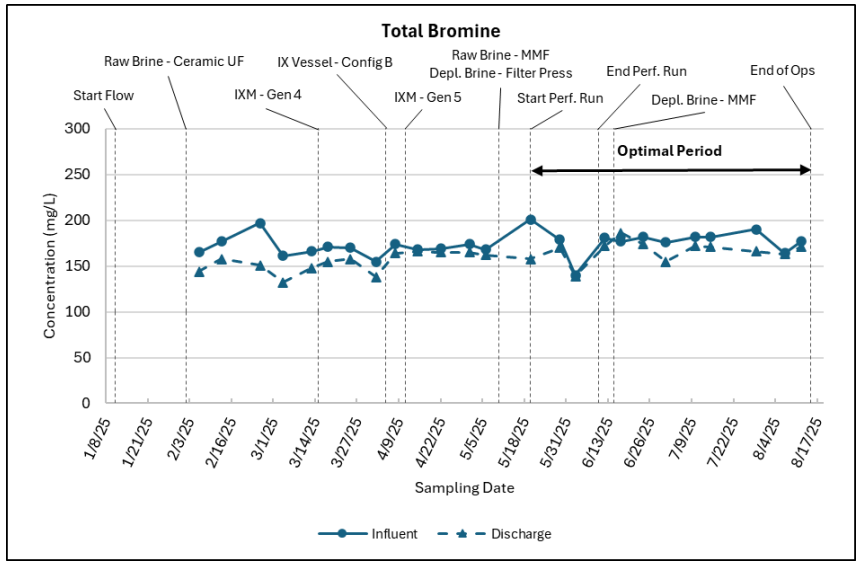


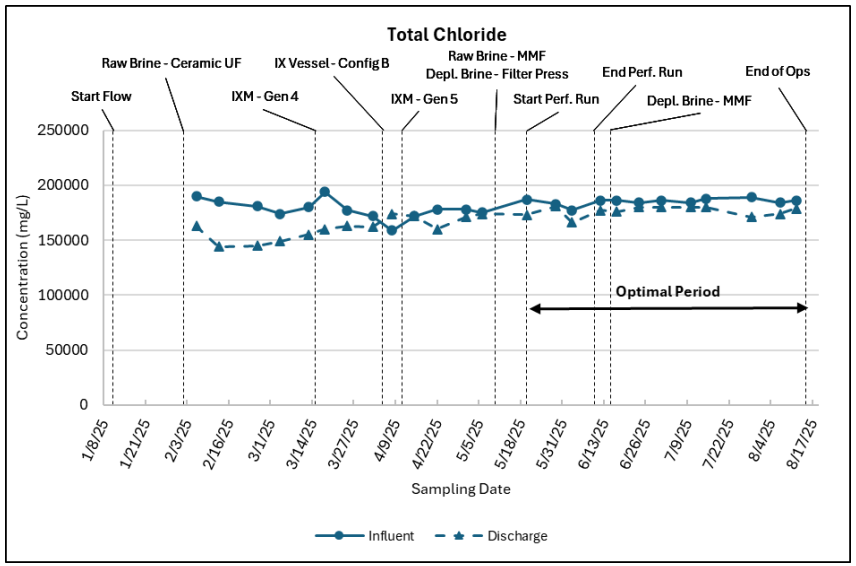


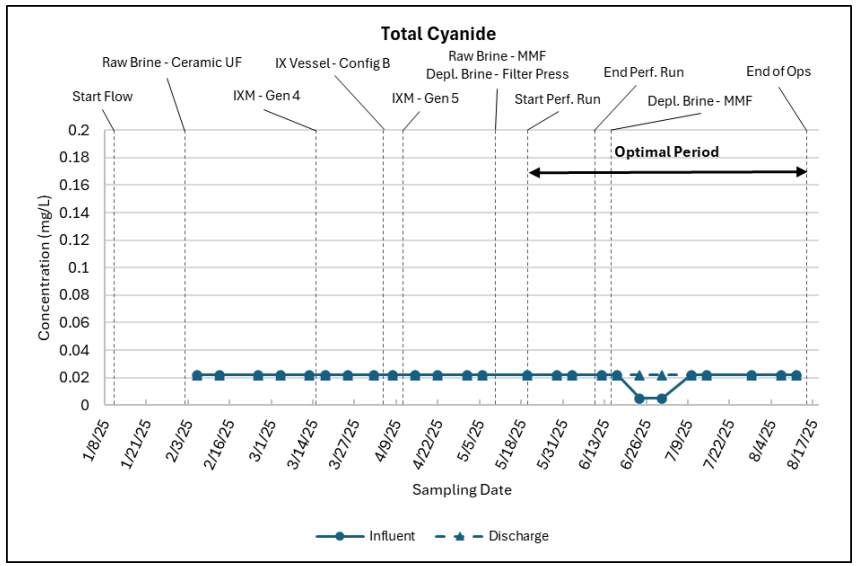


Feasibility Optimal Period Graphs

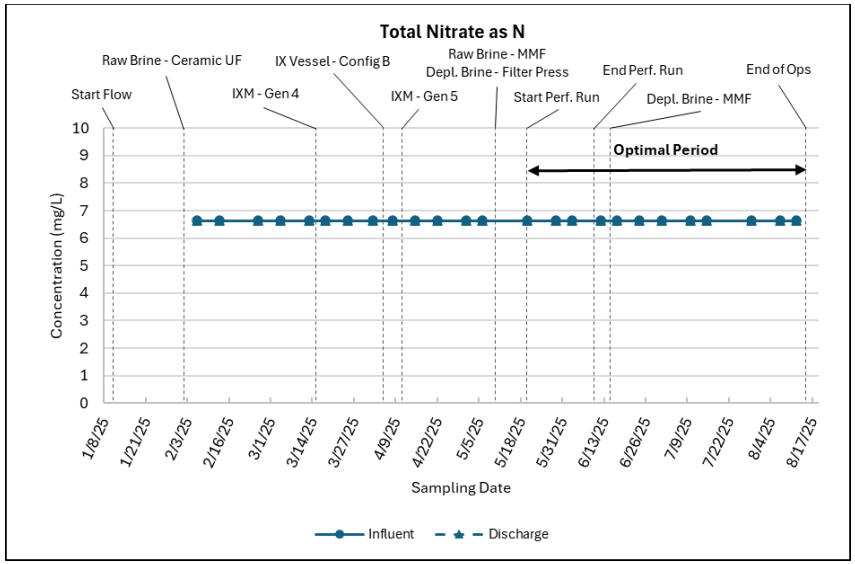


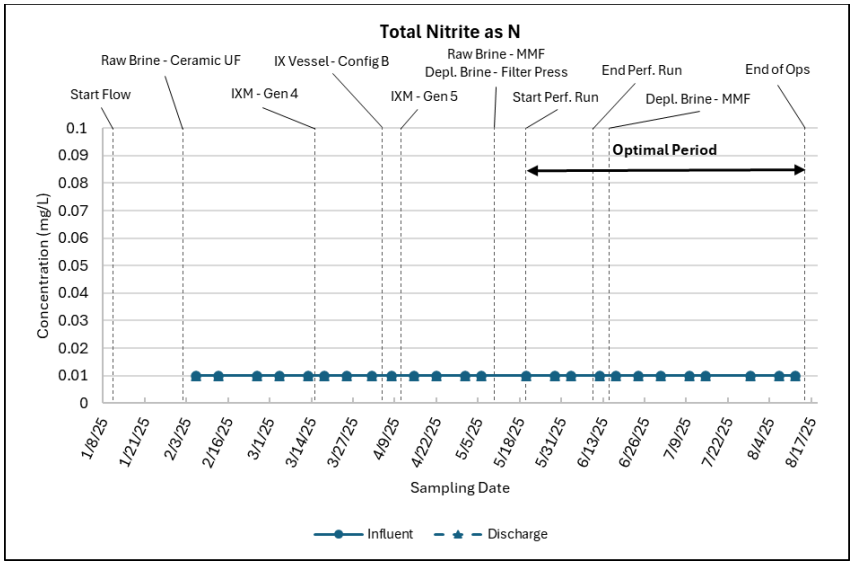


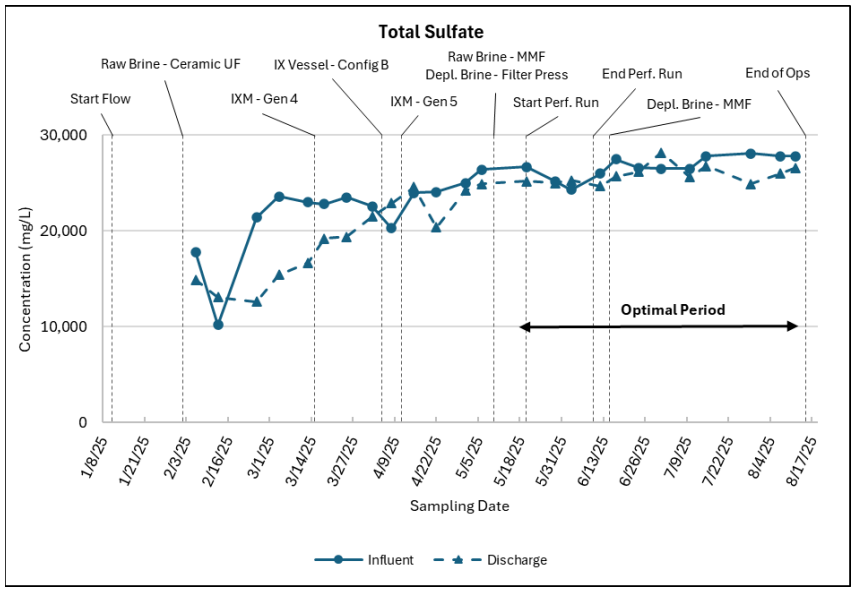


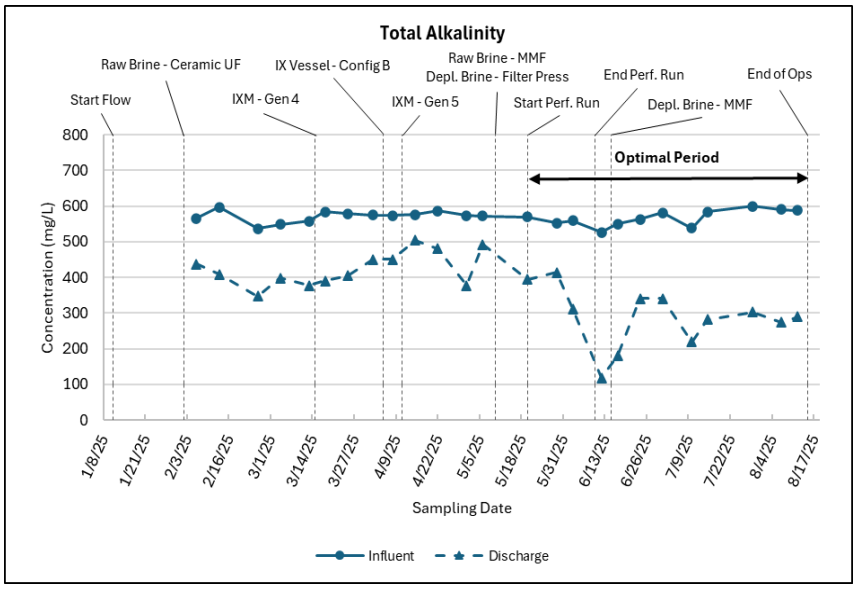


Feasibility Optimal Period Graphs









B.4 Commercial Plant Area

PURPOSE

This appendix provides the legal description, boundary survey, and site plan for the 50-acre commercial facility location to establish the operational footprint for regulatory review and permitting.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 3.1
- Section 6

DOCUMENT DETAILS

- Survey Date: July 10, 2023 (legal description by AWA Engineering)
- Drawing Date: March 13, 2025
- Total Area: 50 acres (contains portions above high-water mark)
- Page Count: 15 pages

B.4 begins on next page

ALTA/NSPS LAND TITLE SURVEY

MANGO-SPIRAL JETTY,LLC, A UTAH LIMITED LIABILITY COMPANY

LOCATED IN THE WEST HALF OF SECTION 31,
TOWNSHIP 9 NORTH, RANGE 7 WEST, SALT LAKE BASE & MERIDIAN



LEGEND

- BOUNDARY LINE
- ROAD
- BOUNDARY TIES
- FENCE LINE
- EASEMENT
- SECTION LINE
- 4205 MAJOR CONTOUR LINE
- MINOR CONTOUR LINE
- MEANDER LINE
- SECTION CORNER (FOUND)
- SECTION CORNER (NOT FOUND)
- BOUNDARY CORNER
- MONUMENT

VICINITY MAP



LEGAL DESCRIPTION

Proposed 50-acre carve-out produced by AWA Engineering, dated July 10, 2023:

A part of the West Half of fractional Section 31, Township 9 North, Range 7 West, Salt Lake Base and Meridian, in Box Elder County, Utah:

Beginning at a point located 698.49 feet North 88°28'24" East along the North line of said Section 31; and 1458.29 feet South 1°31'36" East from a rebar with a cap stamped Box Elder County found marking the Northwest Corner of said Section 31; and running thence South 56°52'03" East 2084.03 feet; thence South 36°27'03" West 1386.95 feet to a point on the measured Chord of the Meander Line of the Great Salt Lake, being a line between rebar's with caps stamped HAI set with Box Elder County Survey No. 2020-03496, said point is located 165.05 feet North 56°52'03" West along said Chord from the Southeasterly rebar and cap; thence North 56°52'03" West 1616.31 feet along said Chord to a point located 391.90 feet South 56°52'03" East along said Chord from the Northwesterly rebar and cap; thence North 17°30'00" East 1437.81 feet to the Point of Beginning.

Less and excepting any portion lying within the bounds of the Great Salt Lake.

Contains 50 acres, more or less.

NOTE

The boundary has been rotated 0°00'04" to match Box Elder County Survey No. 2020-03496.

TITLE COMMITMENT

FIRST AMERICAN TIITLE
HERITAGE WEST TITLE INSURANCE AGENCY OF BOX ELDER COUNTY, LLC
ISSUING OFFICE FILE NUMBER: 11032BC
COMMITMENT DATE: MARCH 19, 2024 AT 8:00 A.M.

SCHEDULE B, PART II-EXCEPTIONS

EXCEPTIONS 1 - 15 ARE NOT SURVEY MATTERS AND ARE NOT SHOWN..

16. Lease Agreement dated March 16, 2023, by and between Mango-Spiral Jetty, LLC, a Utah limited liability company and Waterleaf Resources, LLC, a Delaware limited liability company.

Memorandum of Lease and Easements, dated February 28, 2024, by and between Mango-Spiral Jetty, LLC, a Utah limited liability company and Waterleaf Resources, LLC, a Delaware limited liability company, recorded March 5, 2024, as Entry No. 472343, in Book 1577, at Page 1813, of the official records.

SURVEY CERTIFICATION

To (name of insured, if known), (name of lender, if known), (name of insurer, if known), First American Title Insurance Company:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes no Items of Table A thereof. The fieldwork was completed on January 05, 2025.

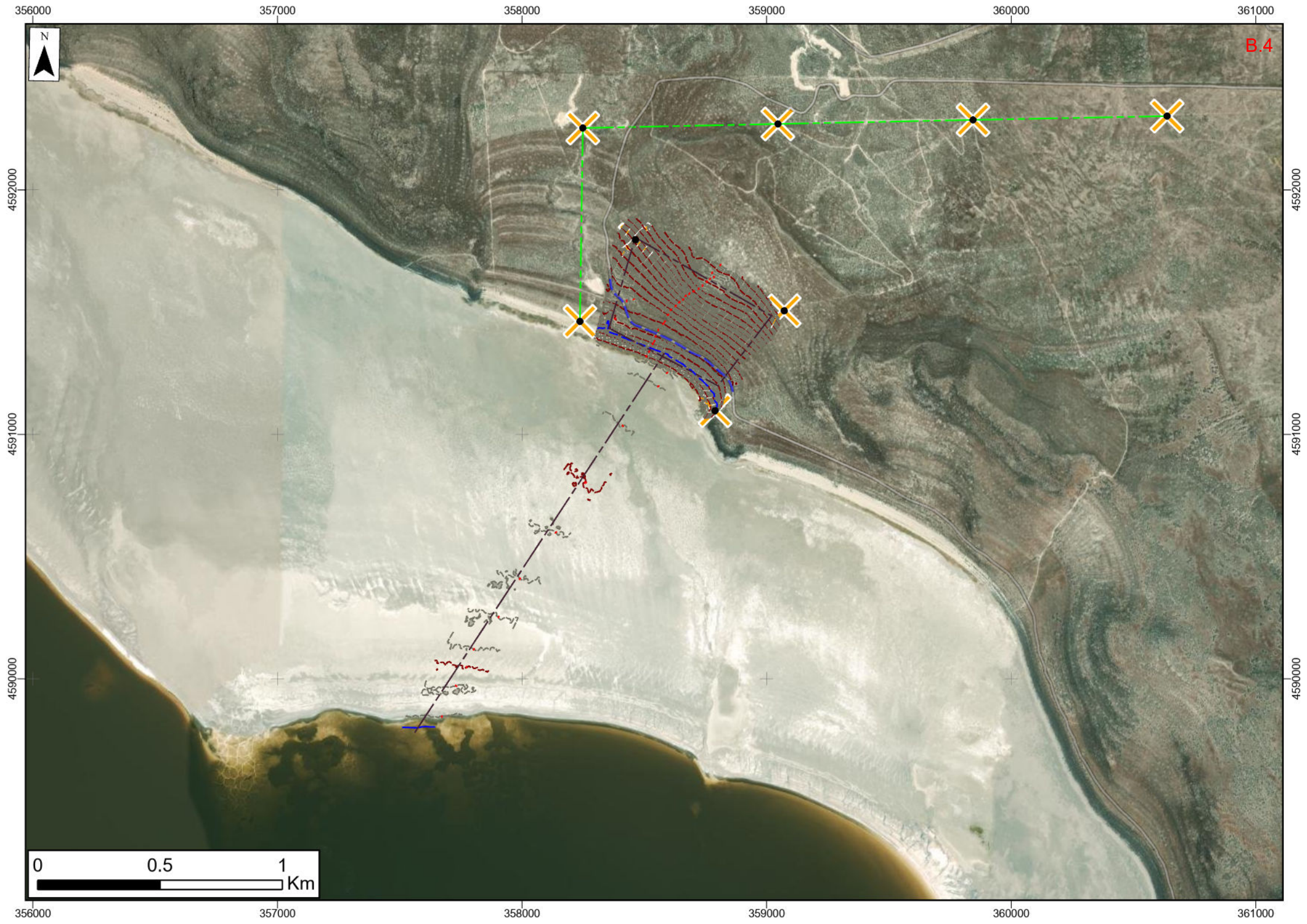
Date of Plat or Map: March 14, 2025

LICENSED PROFESSIONAL LAND SURVEYOR
3/13/2025
No. 270814
CRAIG E. AHRENS
STATE OF UTAH

CRAIG E. AHRENS P.L.S.
UTAH NO. 270814

DATE: 3-13-2025	PSOMAS	DESIGNED TM	SHEET 1
PLOT DATE:	11456 South Temple Drive, Suite 200 Salt Lake City, Utah 84123 (801) 270-5777 (801) 270-5782 (FAX)	DRAFTED TM	OF 1
SCALE 1"=150'		CHECKED CEA	
PROJECT NUMBER 8KLE012000			


356000
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359000
360000
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Lilac Lease Boundary
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First American Title™

Commitment for Title Insurance
Utah - 2021 v. 01.00 (07-01-2021)

File No. 11032BC

ALTA COMMITMENT FOR TITLE INSURANCE
issued by
FIRST AMERICAN TITLE INSURANCE COMPANY

NOTICE

IMPORTANT–READ CAREFULLY: THIS COMMITMENT IS AN OFFER TO ISSUE ONE OR MORE TITLE INSURANCE POLICIES. ALL CLAIMS OR REMEDIES SOUGHT AGAINST THE COMPANY INVOLVING THE CONTENT OF THIS COMMITMENT OR THE POLICY MUST BE BASED SOLELY IN CONTRACT.

THIS COMMITMENT IS NOT AN ABSTRACT OF TITLE, REPORT OF THE CONDITION OF TITLE, LEGAL OPINION, OPINION OF TITLE, OR OTHER REPRESENTATION OF THE STATUS OF TITLE. THE PROCEDURES USED BY THE COMPANY TO DETERMINE INSURABILITY OF THE TITLE, INCLUDING ANY SEARCH AND EXAMINATION, ARE PROPRIETARY TO THE COMPANY, WERE PERFORMED SOLELY FOR THE BENEFIT OF THE COMPANY, AND CREATE NO EXTRACONTRACTUAL LIABILITY TO ANY PERSON, INCLUDING A PROPOSED INSURED.

THE COMPANY'S OBLIGATION UNDER THIS COMMITMENT IS TO ISSUE A POLICY TO A PROPOSED INSURED IDENTIFIED IN SCHEDULE A IN ACCORDANCE WITH THE TERMS AND PROVISIONS OF THIS COMMITMENT. THE COMPANY HAS NO LIABILITY OR OBLIGATION INVOLVING THE CONTENT OF THIS COMMITMENT TO ANY OTHER PERSON.

COMMITMENT TO ISSUE POLICY

Subject to the Notice; Schedule B, Part I–Requirements; Schedule B, Part II–Exceptions; and the Commitment Conditions, First American Title Insurance Company, a Nebraska Corporation (the "Company"), commits to issue the Policy according to the terms and provisions of this Commitment. This Commitment is effective as of the Commitment Date shown in Schedule A for each Policy described in Schedule A, only when the Company has entered in Schedule A both the specified dollar amount as the Proposed Amount of Insurance and the name of the Proposed Insured.

If all of the Schedule B, Part I–Requirements have not been met within six months after the Commitment Date, this Commitment terminates and the Company's liability and obligation end.

FIRST AMERICAN TITLE INSURANCE COMPANY

By: 
Kenneth D. DeGiorgio, President

By: 
Lisa W. Cornehl, Secretary

Issued through the office of Heritage West Title Insurance Agency of Box Elder County, LLC

HERITAGE WEST
TITLE INSURANCE AGENCY
OF BOX ELDER COUNTY, LLC


Authorized Signatory

This page is only a part of a 2021 ALTA Commitment for Title Insurance[issued by Heritage West Title Insurance Agency of Box Elder County, LLC]. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I–Requirements;[and] Schedule B, Part II–Exceptions[; and a counter-signature by the Company or its issuing agent that may be in electronic form].

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Form 50122149 (5-16-22)

COMMITMENT CONDITIONS

1. DEFINITIONS
   a. "Discriminatory Covenant": Any covenant, condition, restriction, or limitation that is unenforceable under applicable law because it illegally discriminates against a class of individuals based on personal characteristics such as race, color, religion, sex, sexual orientation, gender identity, familial status, disability, national origin, or other legally protected class.
   b. "Knowledge" or "Known": Actual knowledge or actual notice, but not constructive notice imparted by the Public Records.
   c. "Land": The land described in Item 5 of Schedule A and improvements located on that land that by State law constitute real property. The term "Land" does not include any property beyond that described in Schedule A, nor any right, title, interest, estate, or easement in any abutting street, road, avenue, alley, lane, right-of-way, body of water, or waterway, but does not modify or limit the extent that a right of access to and from the Land is to be insured by the Policy.
   d. "Mortgage": A mortgage, deed of trust, trust deed, security deed, or other real property security instrument, including one evidenced by electronic means authorized by law.
   e. "Policy": Each contract of title insurance, in a form adopted by the American Land Title Association, issued or to be issued by the Company pursuant to this Commitment.
   f. "Proposed Amount of Insurance": Each dollar amount specified in Schedule A as the Proposed Amount of Insurance of each Policy to be issued pursuant to this Commitment.
   g. "Proposed Insured": Each person identified in Schedule A as the Proposed Insured of each Policy to be issued pursuant to this Commitment.
   h. "Public Records": The recording or filing system established under State statutes in effect at the Commitment Date under which a document must be recorded or filed to impart constructive notice of matters relating to the Title to a purchaser for value without Knowledge. The term "Public Records" does not include any other recording or filing system, including any pertaining to environmental remediation or protection, planning, permitting, zoning, licensing, building, health, public safety, or national security matters.
   i. "State": The state or commonwealth of the United States within whose exterior boundaries the Land is located. The term "State" also includes the District of Columbia, the Commonwealth of Puerto Rico, the U.S. Virgin Islands, and Guam.
   j. "Title": The estate or interest in the Land identified in Item 3 of Schedule A.

2. If all of the Schedule B, Part I–Requirements have not been met within the time period specified in the Commitment to Issue Policy, this Commitment terminates and the Company's liability and obligation end.

3. The Company's liability and obligation is limited by and this Commitment is not valid without:
   a. the Notice;
   b. the Commitment to Issue Policy;
   c. the Commitment Conditions;
   d. Schedule A;
   e. Schedule B, Part I–Requirements;**[** and**]**
   f. Schedule B, Part II–Exceptions**[**; and
   g. a counter-signature by the Company or its issuing agent that may be in electronic form**]**.

4. COMPANY'S RIGHT TO AMEND
   The Company may amend this Commitment at any time. If the Company amends this Commitment to add a defect, lien, encumbrance, adverse claim, or other matter recorded in the Public Records prior to the Commitment Date, any liability of the Company is limited by Commitment Condition 5. The Company is not liable for any other amendment to this Commitment.

5. LIMITATIONS OF LIABILITY
   a. The Company's liability under Commitment Condition 4 is limited to the Proposed Insured's actual expense incurred in the interval between the Company's delivery to the Proposed Insured of the Commitment and the delivery of the amended Commitment, resulting from the Proposed Insured's good faith reliance to:
      i. comply with the Schedule B, Part I–Requirements;
      ii. eliminate, with the Company's written consent, any Schedule B, Part II–Exceptions; or
      iii. acquire the Title or create the Mortgage covered by this Commitment.
   b. The Company is not liable under Commitment Condition 5.a. if the Proposed Insured requested the amendment or had Knowledge of the matter and did not notify the Company about it in writing.
   c. The Company is only liable under Commitment Condition 4 if the Proposed Insured would not have incurred the expense had the Commitment included the added matter when the Commitment was first delivered to the Proposed Insured.
   d. The Company's liability does not exceed the lesser of the Proposed Insured's actual expense incurred in good faith and described in Commitment Condition 5.a. or the Proposed Amount of Insurance.
   e. The Company is not liable for the content of the Transaction Identification Data, if any.
   f. The Company is not obligated to issue the Policy referred to in this Commitment unless all of the Schedule B, Part I–Requirements have been met to the satisfaction of the Company.
   g. The Company's liability is further limited by the terms and provisions of the Policy to be issued to the Proposed Insured.

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Form 50122149 (5-16-22)

6. LIABILITY OF THE COMPANY MUST BE BASED ON THIS COMMITMENT; CHOICE OF LAW AND CHOICE OF FORUM
   a. Only a Proposed Insured identified in Schedule A, and no other person, may make a claim under this Commitment.
   b. Any claim must be based in contract under the State law of the State where the Land is located and is restricted to the terms and provisions of this Commitment. Any litigation or other proceeding brought by the Proposed Insured against the Company must be filed only in a State or federal court having jurisdiction.
   c. This Commitment, as last revised, is the exclusive and entire agreement between the parties with respect to the subject matter of this Commitment and supersedes all prior commitment negotiations, representations, and proposals of any kind, whether written or oral, express or implied, relating to the subject matter of this Commitment.
   d. The deletion or modification of any Schedule B, Part II–Exception does not constitute an agreement or obligation to provide coverage beyond the terms and provisions of this Commitment or the Policy.
   e. Any amendment or endorsement to this Commitment must be in writing**[** and authenticated by a person authorized by the Company**]**.
   f. When the Policy is issued, all liability and obligation under this Commitment will end and the Company's only liability will be under the Policy.

7. IF THIS COMMITMENT IS ISSUED BY AN ISSUING AGENT
   The issuing agent is the Company's agent only for the limited purpose of issuing title insurance commitments and policies. The issuing agent is not the Company's agent for closing, settlement, escrow, or any other purpose.

8. PRO-FORMA POLICY
   The Company may provide, at the request of a Proposed Insured, a pro-forma policy illustrating the coverage that the Company may provide. A pro-forma policy neither reflects the status of Title at the time that the pro-forma policy is delivered to a Proposed Insured, nor is it a commitment to insure.

9. CLAIMS PROCEDURES
   This Commitment incorporates by reference all Conditions for making a claim in the Policy to be issued to the Proposed Insured. Commitment Condition 9 does not modify the limitations of liability in Commitment Conditions 5 and 6.

10. CLASS ACTION
    ALL CLAIMS AND DISPUTES ARISING OUT OF OR RELATING TO THIS COMMITMENT, INCLUDING ANY SERVICE OR OTHER MATTER IN CONNECTION WITH ISSUING THIS COMMITMENT, ANY BREACH OF A COMMITMENT PROVISION, OR ANY OTHER CLAIM OR DISPUTE ARISING OUT OF OR RELATING TO THE TRANSACTION GIVING RISE TO THIS COMMITMENT, MUST BE BROUGHT IN AN INDIVIDUAL CAPACITY. NO PARTY MAY SERVE AS PLAINTIFF, CLASS MEMBER, OR PARTICIPANT IN ANY CLASS OR REPRESENTATIVE PROCEEDING. ANY POLICY ISSUED PURSUANT TO THIS COMMITMENT WILL CONTAIN A CLASS ACTION CONDITION.

11. ARBITRATION
    The Policy contains an arbitration clause. All arbitrable matters when the Proposed Amount of Insurance is $2,000,000 or less may be arbitrated at the election of either the Company or the Proposed Insured as the exclusive remedy of the parties. A Proposed Insured may review a copy of the arbitration rules at http://www.alta.org/arbitration.

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Form 50122149 (5-16-22)

First American Title™

Commitment for Title Insurance
Utah - 2021 v. 01.00 (07-01-2021)

Transaction Identification Data, for which the Company assumes no liability as set forth in Commitment Condition 5.e.:
Issuing Agent: Heritage West Title Insurance Agency of Box Elder County, LLC
Issuing Office: 11 West Forest Street, Brigham City, Utah 84302
Issuing Office's ALTA® Registry ID: 1115393
Issuing Office File Number: **11032BC**
Property Address: Vacant Land, UT

SCHEDULE A

Commitment Date: March 19, 2024 at 8:00 AM

Policy to be issued:

2021 ALTA® Standard Owners Policy **$TBD**
Premium: **$TBD**

Proposed Insured: **Waterleaf Resources, LLC, a Delaware limited liability company**

Endorsements: **ALTA 13** **$N/C**

2021 ALTA® Loan Policy (Extended) **$**
Premium: **$**

Proposed Insured:

Endorsements: **$0.00**

The estate or interest in the Land at the Commitment Date is:
FEE SIMPLE

The Title is, at the Commitment Date, vested in:
Mango-Spiral Jetty, LLC, a Utah limited liability company

The Land is described as follows:

See Attached Exhibit "A"

The following is show for informational purposes only:
Parcel Number: 03-008-0049

Countersigned at Heritage West Title Insurance Agency of Box Elder County, LLC

By: _____
Authorized Signatory

This page is only a part of a 2021 ALTA Commitment for Title Insurance[issued by Heritage West Title Insurance Agency of Box Elder County, LLC]. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I–Requirements;[and] Schedule B, Part II–Exceptions[; and a counter-signature by the Company or its issuing agent that may be in electronic form].

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Form 50122149 (5-16-22)

Exhibit "A"

Part of 03-008-0049
A part of the West half of fractional Section 31, Township 9 North, Range 7 West, Salt Lake Base and Meridian, in Box Elder County, Utah:
Beginning at a point located 698.49 feet North 88°28'24" East along the North line of said Section 31, and 1458.29 feet South 01°31'36" East from a rebar with a cap stamped Box Elder County found marking the Northwest corner of said Section 31; and running thence South 56°52'03" East 2084.03 feet; thence South 36°27'03" West 1386.95 feet to a point on the measured chord of the Meander Line of the Great Salt Lake, being a line between rebars with caps stamped HAI set with Box Elder County Survey No. 2020-03496, said point is located 165.05 feet North 56°52'03" West along said chord from the Southeasterly rebar and cap; thence North 56°52'03" West 1616.31 feet along said chord to a point located 391.90 feet South 56°52'03" East along said chord from the Northwesterly rebar and cap; thence North 17°30'00" East 1437.81 feet to the point of beginning.
Less and excepting any portion lying within the bounds of the Great Salt Lake.

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First American Title™

File No. 11032BC

SCHEDULE B, PART I–Requirements

All of the following Requirements must be met:

1. The Proposed Insured must notify the Company in writing of the name of any party not referred to in this Commitment who will obtain an interest in the Land or who will make a loan on the Land. The Company may then make additional Requirements or Exceptions.

2. Pay the agreed amount for the estate or interest to be insured.

3. Pay the premiums, fees, and charges for the Policy to the Company.

4. Documents satisfactory to the Company that convey the Title or create the Mortgage to be insured, or both, must be properly authorized, executed, delivered, and recorded in the Public Records.

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SCHEDULE B, PART II–Exceptions

Some historical land records contain Discriminatory Covenants that are illegal and unenforceable by law. This Commitment and the Policy treat any Discriminatory Covenant in a document referenced in Schedule B as if each Discriminatory Covenant is redacted, repudiated, removed, and not republished or recirculated. Only the remaining provisions of the document will be excepted from coverage.

The Policy will not insure against loss or damage resulting from the terms and conditions of any lease or easement identified in Schedule A, and will include the following Exceptions unless cleared to the satisfaction of the Company:

1. ***(a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property, or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.***

2. ***Any facts, rights, interest, or claims which are not shown by the Public Records but that could be ascertained by an inspection of the Land or by making inquiry of persons in possession thereof.***

3. ***Easements, claims of easement or encumbrances that are not shown by the Public Records.***

4. ***Any encumbrance, violation, variation, adverse circumstance, boundary line overlap, or encroachment (including an encroachment of an improvement across the boundary lines of the Land), that would be disclosed by an accurate and complete land title survey of the Land and that are not shown in Public Records.***

5. ***a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.***

6. ***Any lien or right to a lien for services, labor or material, unless such lien is shown by the Public Records at Date of Policy.***

7. ***Any defect, lien, encumbrance, adverse claim, or other matter that appears for the first time in the Public Records or is created, attaches, or is disclosed between the Commitment Date and the date on which all of the Schedule B, Part I–Requirements are met.***

8. General property taxes for the year 2023 are paid in the amount of $97.86.
   General property taxes for the year 2024 are accruing as a lien but are not yet due and payable.
   Tax I.D. No. 03-008-0049.

9. Said property is located within the boundaries of Box Elder County Unincorporated (District 101), Box Elder County, Utah and is subject to all charges and assessments levied therein.

10. Claim, right, title or interest to water or water rights whether or not shown by the Public Records.

(Continued)

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SCHEDULE B, PART II–Exceptions (Continued)

11. Subject to all existing roads, streets, alleys, ditches, reservoirs, utilities, canals, pipe lines, power, telephone, sewer, gas or water lines, and Right of Way and Easements thereof.

12. Excepting therefrom all oil, gas, and/or other minerals from said land, together with the right of ingress and egress necessary for the purpose of mining and removing said oil, gas, and/or other minerals from said land.

13. Subject to the lack of access to and from subject property by means of any public road, right-of-way or easement.

14. Subject to the accretion, reliction, riparian and maintenance rights of others in and to the Great Salt Lake as their interest may appear.

15. The effect of the 1969 Farmland Assessment Act, wherein there is a five year roll-back provision with regard to assessment and taxation which becomes due upon a change in the use of all or part of the eligible land, by reason of that certain Annual Application for Assessment and Taxation of Agricultural Land recorded September 16, 2022, as Entry No. 456427 in Book 1537, Page 0293, Records of BOX ELDER County, Utah.

16. Lease Agreement dated March 16, 2023, by and between Mango-Spiral Jetty, LLC, a Utah limited liability company and Waterleaf Resources, LLC, a Deleware limited liability company.

    Memorandum of Lease and Easements, dated February 28, 2024, by and between Mango-Spiral Jetty, LLC, a Utah limited liability company and Waterleaf Resources, LLC, a Deleware limited liability company, recorded March 5, 2024, as Entry No. 472343, in Book 1577, at Page 1813, of the official records.

Note: The following items were found affecting the subject property in a search of the Utah State Construction Registry:
None.

NOTE: According to Official Records of BOX ELDER County, Utah, there have been no documents conveying the land described herein within a period of **24 months** prior to the date of this commitment, except as follows: **NONE**

NOTE: The names of Mango-Spiral Jetty, LLC and Waterleaf Resources, LLC have been checked for Judgments and Tax Liens, etc., in the appropriate offices and if any were found would appear as Exceptions to the title under Schedule B, Section 2 herein.

(Continued)

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SCHEDULE B, PART II–Exceptions (Continued)

Title inquiries may be directed to Scott Westover at 435-723-1007 or scott@heritagewesttitle.com

Escrow inquiries may be directed to Brad Mortensen at 435-723-1007 or brad@heritagewesttitle.com

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Form 50122149 (5-16-22)

DRAWING NUMBER
Book 03 Page 008
SAFCO PRODUCTS • NEW HOPE, MINNESOTA
REORDER BY PART NUMBER 6552
POSITION EDGE FLUSH ON THIS LINE

DRAWING NUMBER
SAFCO PRODUCTS • NEW HOPE, MINNESOTA
REORDER BY PART NUMBER 6552
POSITION EDGE OF PRINT ON THIS LINE

TOWNSHIP 9N RANGE 7W S.L.B.&M.

Book 3 Page 8

SCALE: 1" = 2,000'

PREFIX 03-008 TAX UNIT 01

ALL LOTS CONTAIN 40 ACRES UNLESS OTHERWISE SHOWN.

MAP NUMBER: 03-008

BK 3 PAGE 9

BK 3 PAGE 7

THIS OWNERSHIP PLAT IS FOR REFERENCE PURPOSES ONLY. NO LIABILITY IS ASSUMED FOR ACCURACY OR VARIATIONS WITH THE ACTUAL SURVEY.

LAST NO. USED



First American Title™

Privacy Notice

Notice Last Updated: December 1, 2022

This Privacy Policy ("Policy") describes how First American Financial Corporation and its subsidiaries and affiliates (collectively, "First American," "we," "us," or "our") collect, use, store, and share your information when: (1) when you access or use our websites, mobile applications, web-based applications, or other digital platforms where this Policy is posted ("Sites"); (2) when you use our products and services ("Services"); (3) when you communicate with us in any manner, including by e-mail, in-person, telephone, or other communication method ("Communications"); and (4) when we obtain your information from third parties, including service providers, business partners, and governmental departments and agencies ("Third Parties").

This Policy applies wherever it is posted. To the extent a First American subsidiary or affiliate has different privacy practices, such entity shall have their own privacy statement posted as applicable.

What Type Of Information Do We Collect About You? We collect a variety of categories of information about you. To learn more about the categories of information we collect, please visit https://www.firstam.com/privacy-policy/.

How Do We Collect Your Information? We collect your information: (1) directly from you; (2) automatically when you interact with us; and (3) from third parties, including business parties and affiliates.

How Do We Use Your Information? We may use your information in a variety of ways, including but not limited to providing the services you have requested, fulfilling your transactions, comply with relevant laws and our policies, and handling a claim. To learn more about how we may use your information, please visit https://www.firstam.com/privacy-policy/.

How Do We Share Your Information? We do not sell your personal information. We only share your information, including to subsidiaries, affiliates, and to unaffiliated third parties: (1) with your consent; (2) in a business transfer; (3) to service providers; (4) to subsidiaries and affiliates; and (5) for legal process and protection. To learn more about how we share your information, please visit https://www.firstam.com/privacy-policy/.

How Do We Store and Protect Your Information? The security of your information is important to us. That is why we take commercially reasonable steps to make sure your information is protected. We use our best efforts to maintain commercially reasonable technical, organizational, and physical safeguards, consistent with applicable law, to protect your information.

How Long Do We Keep Your Information? We keep your information for as long as necessary in accordance with the purpose for which it was collected, our business needs, and our legal and regulatory obligations.

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Contact Us dataprivacy@firstam.com or toll free at 1-866-718-0097.

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Form 50122149 (5-16-22)





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For California Residents

If you are a California resident, you may have certain rights under California law, including but not limited to the California Consumer Privacy Act of 2018, as amended by the California Privacy Rights Act and its implementing regulations ("CCPA"). All phrases used in this section shall have the same meaning as those phrases are used under California law, including the CCPA.

Right to Know. You have a right to request that we disclose the following information to you: (1) the categories of personal information we have collected about or from you; (2) the categories of sources from which the personal information was collected; (3) the business or commercial purpose for such collection and/or disclosure; (4) the categories of third parties with whom we have shared your personal information; and (5) the specific pieces of your personal information we have collected. To submit a verified request for this information, go to our online privacy policy at www.firstam.com/privacy-policy or call toll-free at 1-866-718-0097. You may also designate an authorized agent to submit a request on your behalf by going to our online privacy policy at www.firstam.com/privacy-policy or by calling toll-free at 1-866-718-0097.

Right to Correct. You have a right to request that we correct your personal information. This right is subject to certain exceptions available under the CCPA and other applicable law. To submit a verified request for correction, go to our online privacy policy at www.firstam.com/privacy-policy or call toll-free at 1-866-718-0097.

Right of Deletion. You also have a right to request that we delete the personal information we have collected from and about you. This right is subject to certain exceptions available under the CCPA and other applicable law. To submit a verified request for deletion, go to our online privacy policy at www.firstam.com/privacy-policy or call toll-free at 1-866-718-0097. You may also designate an authorized agent to submit a request on your behalf by going to our online privacy policy at www.firstam.com/privacy-policy or by calling toll-free at 1-866-718-0097.

Verification Process. For a request to know, correct or delete, we will verify your identity before responding to your request. To verify your identity, we will generally match the identifying information provided in your request with the information we have on file about you. Depending on the sensitivity of the information requested, we may also utilize more stringent verification methods to verify your identity, including but not limited to requesting additional information from you and/or requiring you to sign a declaration under penalty of perjury.

Notice of Sale and Share. We have not sold or shared the personal information of California residents in the past 12 months. To the extent any First American affiliated entity has a different practice, it will be stated in the applicable privacy policy. We do not knowingly sell or share the personal information of any California resident under the age of 16.

Right of Non-Discrimination. You have a right to exercise your rights under California law, including under the CCPA, without suffering discrimination. Accordingly, First American will not discriminate against you in any way if you choose to exercise your rights under the CCPA.

Notice of Collection. To learn more about the categories of personal information we have collected about California residents over the last 12 months, how we have used that information, and how we share that information, please see "California Privacy Rights Act and Disclosures" in https://www.firstam.com/privacy-policy.

Notice of Disclosure. To learn more about the categories of personal information we may have disclosed about California residents in the past 12 months, please see "California Privacy Rights Act and Disclosures" in https://www.firstam.com/privacy-policy.

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B.5 GIS Files – Roads and Other Improvements

PURPOSE

This appendix provides geospatial and engineering documentation for proposed road improvements, access easements, and associated civil infrastructure required to support construction and operation of the Project.

CONTENTS SUMMARY

The appendix contains GIS mapping products, survey exhibits, and detailed civil engineering drawings depicting the alignment, geometry, and design of proposed access roads and related improvements connecting the project site to existing infrastructure. Materials include orthorectified aerial imagery overlays, legal descriptions and exhibits for a 50-foot-wide road and access easement, plan and profile drawings, typical sections, and cross-sections prepared for construction. The documentation defines road grades, widths, surface treatments, drainage considerations, and disturbance limits, and demonstrates that access improvements are designed to minimize surface disturbance while meeting engineering, safety, and regulatory requirements for reliable project access

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 3.1

DOCUMENT DETAILS

- Issued by: R&M Engineering Consultants
- Date: 21 July 2025
- Page Count: 18 pages

B.5 begins on next page

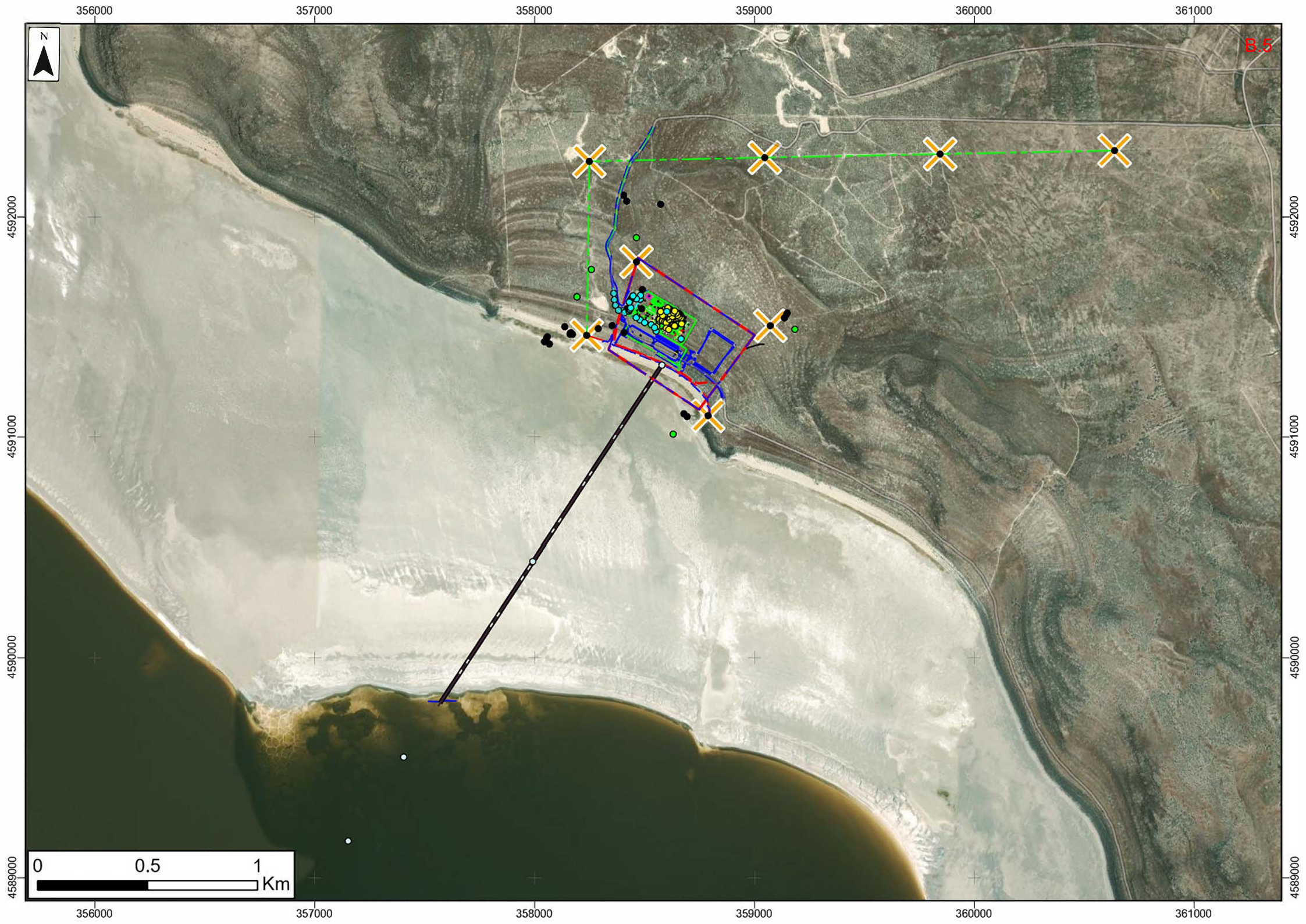
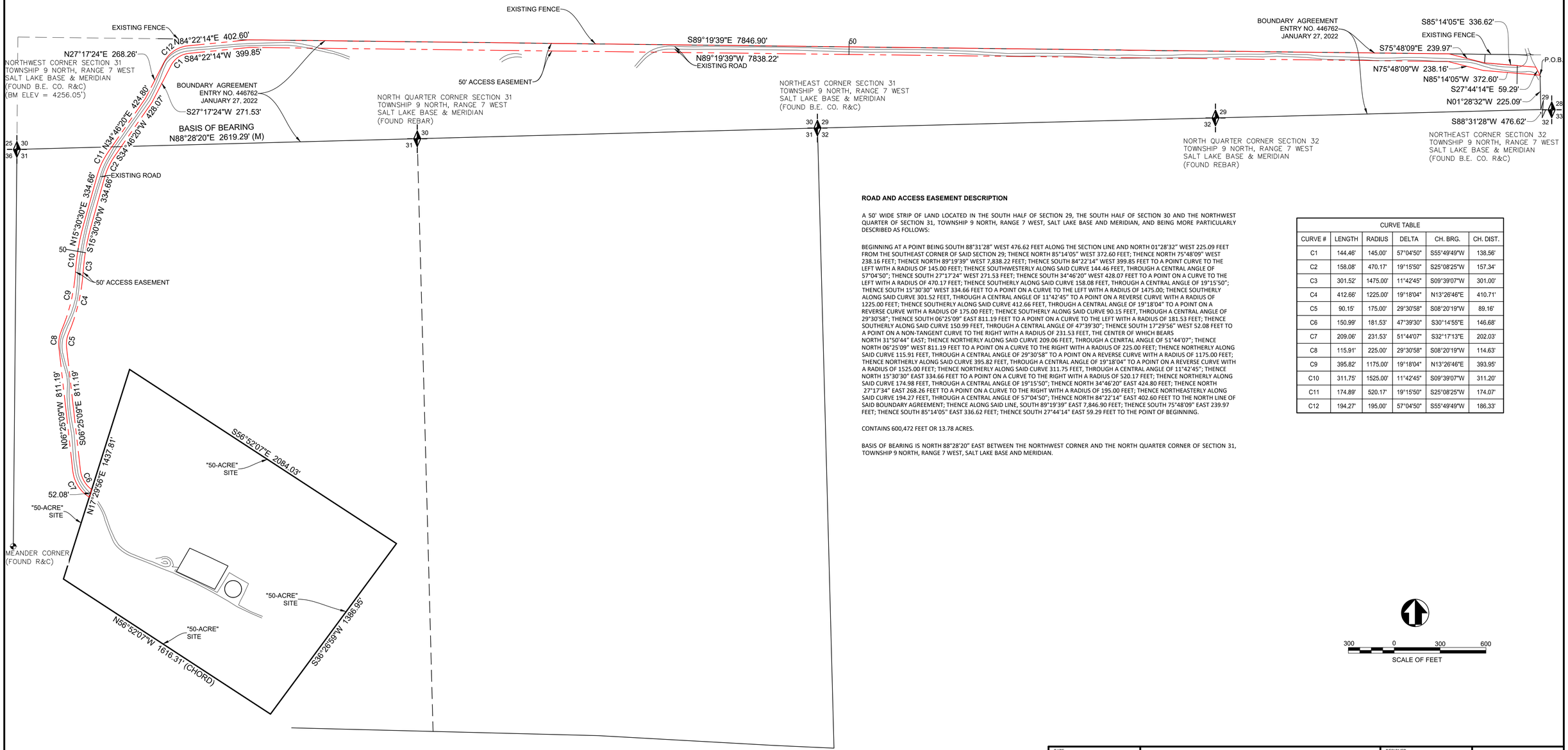

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EXHIBIT
ROAD AND ACCESS EASEMENT



ROAD AND ACCESS EASEMENT DESCRIPTION

A 50' WIDE STRIP OF LAND LOCATED IN THE SOUTH HALF OF SECTION 29, THE SOUTH HALF OF SECTION 30 AND THE NORTHWEST QUARTER OF SECTION 31, TOWNSHIP 9 NORTH, RANGE 7 WEST, SALT LAKE BASE AND MERIDIAN, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT BEING SOUTH 88°31'28" WEST 476.62 FEET ALONG THE SECTION LINE AND NORTH 01°28'32" WEST 225.09 FEET FROM THE SOUTHEAST CORNER OF SAID SECTION 29; THENCE NORTH 85°14'05" WEST 372.60 FEET; THENCE NORTH 75°48'09" WEST 238.16 FEET; THENCE NORTH 89°19'39" WEST 7,838.22 FEET; THENCE SOUTH 84°22'14" WEST 399.85 FEET TO A POINT CURVE TO THE LEFT WITH A RADIUS OF 145.00 FEET; THENCE SOUTHWESTERLY ALONG SAID CURVE 144.46 FEET, THROUGH A CENTRAL ANGLE OF 57°04'50"; THENCE SOUTH 27°17'24" WEST 271.53 FEET; THENCE SOUTH 34°46'20" WEST 428.07 FEET TO A POINT ON A CURVE TO THE LEFT WITH A RADIUS OF 470.17 FEET; THENCE SOUTHERLY ALONG SAID CURVE 158.08 FEET, THROUGH A CENTRAL ANGLE OF 19°15'50"; THENCE SOUTH 15°30'30" WEST 334.66 FEET TO A POINT ON A CURVE TO THE LEFT WITH A RADIUS OF 1475.00; THENCE SOUTHERLY ALONG SAID CURVE 301.52 FEET, THROUGH A CENTRAL ANGLE OF 11°42'45" TO A POINT ON A REVERSE CURVE WITH A RADIUS OF 1225.00 FEET; THENCE SOUTHERLY ALONG SAID CURVE 412.66 FEET, THROUGH A CENTRAL ANGLE OF 19°18'04" TO A POINT ON A REVERSE CURVE WITH A RADIUS OF 175.00 FEET; THENCE SOUTHERLY ALONG SAID CURVE 90.15 FEET, THROUGH A CENTRAL ANGLE OF 29°30'58"; THENCE SOUTH 06°25'09" EAST 811.19 FEET TO A POINT ON A CURVE TO THE LEFT WITH A RADIUS OF 181.53 FEET; THENCE SOUTHERLY ALONG SAID CURVE 150.99 FEET, THROUGH A CENTRAL ANGLE OF 47°39'30"; THENCE SOUTH 17°29'56" WEST 52.08 FEET TO A POINT ON A NON-TANGENT CURVE TO THE RIGHT WITH A RADIUS OF 231.53 FEET, THE CENTER OF WHICH BEARS NORTH 31°50'44" EAST; THENCE NORTHERLY ALONG SAID CURVE 209.06 FEET, THROUGH A CENRTAL ANGLE OF 51°44'07"; THENCE NORTH 06°25'09" WEST 811.19 FEET TO A POINT ON A CURVE TO THE RIGHT WITH A RADIUS OF 225.00 FEET; THENCE NORTHERLY ALONG SAID CURVE 115.91 FEET, THROUGH A CENTRAL ANGLE OF 29°30'58" TO A POINT ON A REVERSE CURVE WITH A RADIUS OF 1175.00 FEET; THENCE NORTHERLY ALONG SAID CURVE 395.82 FEET, THROUGH A CENTRAL ANGLE OF 19°18'04" TO A POINT ON A REVERSE CURVE WITH A RADIUS OF 1525.00 FEET; THENCE NORTHERLY ALONG SAID CURVE 311.75 FEET, THROUGH A CENTRAL ANGLE OF 11°42'45"; THENCE NORTH 15°30'30" EAST 334.66 FEET TO A POINT ON A CURVE TO THE RIGHT WITH A RADIUS OF 520.17 FEET; THENCE NORTHERLY ALONG SAID CURVE 174.98 FEET, THROUGH A CENTRAL ANGLE OF 19°15'50"; THENCE NORTH 34°46'20" EAST 424.80 FEET; THENCE NORTH 27°17'34" EAST 268.26 FEET TO A POINT ON A CURVE TO THE RIGHT WITH A RADIUS OF 195.00 FEET; THENCE NORTHEASTERLY ALONG SAID CURVE 194.27 FEET, THROUGH A CENTRAL ANGLE OF 57°04'50"; THENCE NORTH 84°22'14" EAST 402.60 FEET TO THE NORTH LINE OF SAID BOUNDARY AGREEMENT; THENCE ALONG SAID LINE, SOUTH 89°19'39" EAST 7,846.90 FEET; THENCE SOUTH 75°48'09" EAST 239.97 FEET; THENCE SOUTH 85°14'05" EAST 336.62 FEET; THENCE SOUTH 27°44'14" EAST 59.29 FEET TO THE POINT OF BEGINNING.

CONTAINS 600,472 FEET OR 13.78 ACRES.

BASIS OF BEARING IS NORTH 88°28'20" EAST BETWEEN THE NORTHWEST CORNER AND THE NORTH QUARTER CORNER OF SECTION 31, TOWNSHIP 9 NORTH, RANGE 7 WEST, SALT LAKE BASE AND MERIDIAN.

CURVE TABLE					
CURVE #	LENGTH	RADIUS	DELTA	CH. BRG.	CH. DIST.
C1	144.46'	145.00'	57°04'50"	S55°49'49"W	138.56'
C2	158.08'	470.17'	19°15'50"	S25°08'25"W	157.34'
C3	301.52'	1475.00'	11°42'45"	S09°39'07"W	301.00'
C4	412.66'	1225.00'	19°18'04"	N13°26'46"E	410.71'
C5	90.15'	175.00'	29°30'58"	S08°20'19"W	89.16'
C6	150.99'	181.53'	47°39'30"	S30°14'55"E	146.68'
C7	209.06'	231.53'	51°44'07"	S32°17'13"E	202.03'
C8	115.91'	225.00'	29°30'58"	S08°20'19"W	114.63'
C9	395.82'	1175.00'	19°18'04"	N13°26'46"E	393.95'
C10	311.75'	1525.00'	11°42'45"	S09°39'07"W	311.20'
C11	174.89'	520.17'	19°15'50"	S25°08'25"W	174.07'
C12	194.27'	195.00'	57°04'50"	S55°49'49"W	186.33'

300 0 300 600
SCALE OF FEET

DATE:	10-15-2025
PLOT DATE:	
SCALE	1"=300'
PROJECT NUMBER	8KLE010124

PSOMAS
11456 South Temple Drive, Suite 200
Salt Lake City, Utah 84123
(801) 270-5777 (801) 270-5782 (FAX)

DESIGNED	GMH
DRAFTED	GMH
CHECKED	CEA

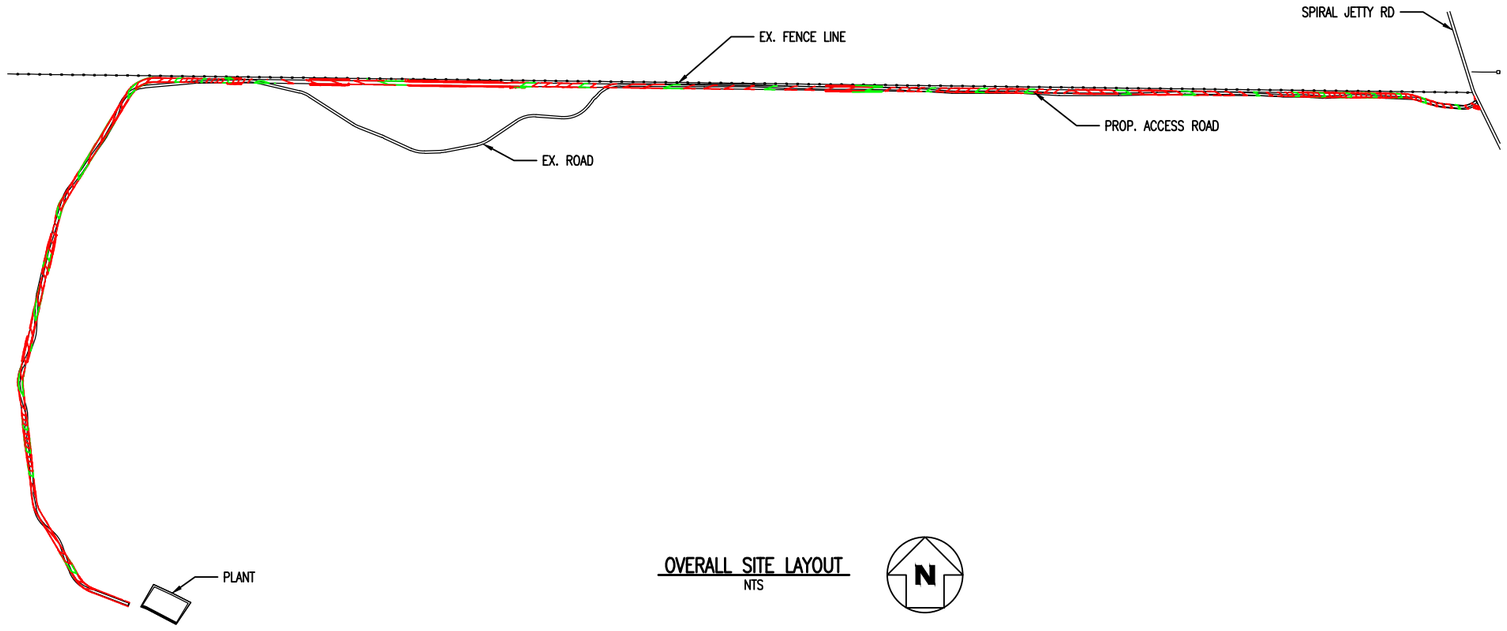
SHEET 1 OF 1

CIVIL DRAWING SET

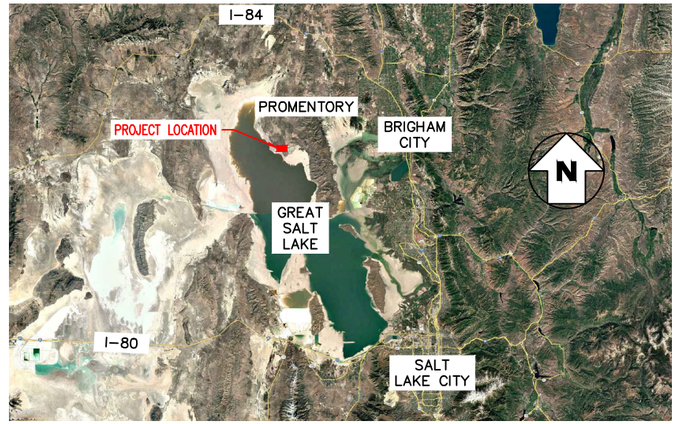
FOR

THE GSL LITHIUM PROJECT

BOX ELDER COUNTY, UTAH



OVERALL SITE LAYOUT
NTS



LOCATION
NTS



VICINITY
NTS

DRAWING INDEX	
DRAWING No.	TITLE
23101-C-01	COVER SHEET
23101-C-02	GENERAL NOTES
23101-C-03	TYPICAL SECTIONS
23101-C-04	OVERALL PLAN
23101-C-05 THRU 23101-C-11	CIVIL GRADING PLAN & PROFILE
23101-C-12 THRU 23101-C-16	CIVIL GRADING CROSS SECTIONS
23101-C-30 ON	RESERVED FOR PLANT CIVIL

LICENSED PROFESSIONAL ENGINEER
8415988
MICHAEL W. DEAN
07/21/2025
STATE OF UTAH

R&M ENGINEERING CONSULTANTS
5280 Commerce Dr. Suite E-130
Murray, UT 84107
Phone: 801-263-3419
www.rmstructural.com

WATERLEAF RESOURCES

THE GSL LITHIUM PROJECT
BOX ELDER COUNTY
UTAH

REV NO.	DATE	DESCRIPTION	BY	CHKD
A	06/13/25	ISSUED FOR BID	JBH	-
0	07/21/25	ISSUED FOR CONSTRUCTION	R&M	JBH

PROJECT #:	23101
DWG SIZE:	11x17
SCALE:	AS SHOWN
PRINT DATE:	07/21/25
DESIGNED BY:	MWD
DRAWN BY:	KRL
CHECKED BY:	JBH

CIVIL GRADING COVER SHEET

DRAWING NUMBER	REV
23101-C-01	0

W:\23101 LILAC BE DRAINAGE\DRAWINGS\CIVIL DWG\23101 CIVIL COVER-NOTES-TYP SECTIONS-DETAILS.DWG

GENERAL CONSTRUCTION NOTES:

1. ALL CONSTRUCTION SHALL BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, ALL SUBSEQUENT ADDENDA, AND ALL RULES AND REGULATIONS APPURTENANT THERETO. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.
2. ALL CONSTRUCTION ACTIVITY SHALL BE COORDINATED WITH WATERLEAF RESOURCES AND PROJECT SUPERVISOR PRIOR TO ANY DISTURBANCE.
3. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS, LAYOUT DIMENSIONS, AND CLEARANCES THAT ARE SHOWN ON THE DRAWINGS. ANY DISCREPANCIES WITHIN THE DRAWINGS, EXISTING FIELD CONDITIONS, SPECIFICATIONS, CODES OR REGULATIONS ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
4. DESIGN ELEVATIONS & BEARINGS ARE BASED ON SURVEY OF EXISTING CONDITIONS PERFORMED BY PSOMAS ON 01/10/25.
5. PLAN LOCATIONS AND DIMENSIONS SHALL BE STRICTLY ADHERED TO UNLESS OTHERWISE DIRECTED BY THE ENGINEER. DO NOT DETERMINE DIMENSIONS BY SCALING DRAWINGS.
6. EXISTING UTILITIES ARE SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION AND IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO VERIFY AND ALLOW FOR THEIR LOCATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADHERING TO ALL EROSION AND SEDIMENTATION CONTROL MEASURES NECESSARY TO COMPLY WITH THE STATE OF UTAH AND BOX ELDER COUNTY UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED.
8. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PROTECT ALL INSTALLED PIPING UNTIL THE COMPLETION OF CONSTRUCTION OF THE PROJECT. PIPES WITH SHALLOW COVER SHALL BE PROTECTED FROM DAMAGE BY CONSTRUCTION MACHINERY WITH ADEQUATE TEMPORARY COVER.

CIVIL GRADING NOTES:

1. PROPOSED GRADING (CONTOURS, ELEVATIONS & SLOPES) SHOWN IN PLANS, PROFILES, TYPICAL SECTIONS & CROSS-SECTIONS ARE TOP OF ROAD IN IMPROVED AREAS AND FINISH GRADE IN DRAINAGE CHANNELS AND ADJOINING AREAS.
2. SOIL RECOMMENDATIONS ARE BASED ON GEOTECHNICAL EVALUATION & REPORT PROVIDED BY KLEINFELDER, 05/15/24 (PROJECT NO. 24003588.001A).
3. SUBGRADE PREPARATION AT PROPOSED ROADWAY:
   A) ANY EXISTING VEGETATION, LOOSE SOILS, AND DEBRIS ALONG PROPOSED ROADWAY SHOULD BE REMOVED AND HAULED AWAY PRIOR TO ROADWAY CONSTRUCTION.
   B) FOLLOWING CLEARING & GRUBBING (& EXCAVATING IN CUT AREAS), EXPOSED NATIVE SOILS SHOULD BE PROOF ROLLED WITH A FULLY LOADED TANDEM-AXLE DUMP TRUCK OR FULLY LOADED WATER TRUCK AND OBSERVED BY THE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE TO IDENTIFY SOFT, LOOSE, OR UNSTABLE AREAS.
   C) SUBGRADE WITHIN PROPOSED ROADWAY FOOTPRINT TO BE COMPACTED AS NEEDED PRIOR TO FILL OR ROAD BASE PLACEMENT. AREAS OUTSIDE EXISTING ROAD FOOTPRINT TO BE SCARIFIED 12" AND COMPACTED TO 95% DRY DENSITY PER ASTM D1557 WITH A MOISTURE CONTENT WITHIN 2% OF OPTIMUM.
      (a) SUBGRADE MATERIALS SHOULD BE KEPT MOIST AND NOT BE ALLOWED TO DRY OUT AND CRACK. IF THE SUBGRADE HAS BEEN DISTURBED OR DRIED OUT PRIOR TO PLACEMENT OF FILL OR ROAD BASE, THE EXPOSED SOILS SHOULD BE MOISTURE-CONDITIONED AND RECOMPACTED.
      (b) IF EXPOSED TO EXCESS MOISTURE AND REPEATED CONSTRUCTION TRAFFIC, NATIVE NEAR SURFACE SOILS WILL BECOME UNSTABLE, ESPECIALLY DURING WET WEATHER.
   D) SUBGRADE FILL SHALL MEET THE FOLLOWING GRADATION & SOIL PROPERTY REQUIREMENTS:

FILL GRADATION:	
SIEVE SIZE	PERCENT PASSING
6"	100
No. 4	50-100
No. 200	50 (MAX.)

   FILL SHALL BE PLACED IN MIN. 8" LIFTS AND COMPACTED TO A MAXIMUM DRY DENSITY OF 95% PER ASTM D1557. MOISTURE CONTENT SHOULD BE WITHIN 2% OF OPTIMUM.
4. AN 8" LAYER OF ROAD BASE SHALL BE PLACED AT ALL ROADWAYS. ROAD BASE SHALL BE CRUSHED ROCK THAT MEETS THE FOLLOWING GRADATION REQUIREMENTS.

ROAD BASE GRADATION:	
SIEVE SIZE	PERCENT PASSING
1"	82-100
3/4"	76-94
1/2"	71-89
3/8"	66-84
No. 4	54-68
No. 16	25-35
No. 200	8-13

   ROADBASE SHALL BE PLACED IN MIN. 6" LIFTS AND COMPACTED TO A MAXIMUM DRY DENSITY OF 95% PER ASTM D1557. MOISTURE CONTENT SHOULD BE WITHIN 2% OF OPTIMUM.
5. SUBSTANTIAL EXCAVATION MAY EXPOSE HIGH PLASTICITY FINE-GRAINED SOILS THAT WERE OBSERVED BELOW SHALLOW SAND UNITS.
6. PIPE CULVERTS SHALL BE PLACED AT THE LOCATION, ELEVATION, SLOPE AND ALIGNMENT SHOWN ON THE DRAWINGS. CULVERTS SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS & TYPICAL CULVERT SECTION ON DWG 23101-C-06.
7. INSTALL RIPRAP AT ENDS OF ALL PROPOSED CULVERTS. RIPRAP ROCKS SHALL BE GOOD QUALITY, HARD, DURABLE, RESISTANT TO WEATHERING AND WATER ACTION, AND FREE FROM OVERBURDEN, SPOIL, SHALE AND ORGANIC MATERIAL. THE ROCK SHALL BE WELL GRADED WITH A MIN. SIZE OF 3" AND A MAX. SIZE OF 12". ROCK SHALL BE PLACED WITH A MAX. SPACING OF 2".

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07/21/2025
STATE OF UTAH

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WATERLEAF RESOURCES

THE GSL LITHIUM PROJECT
BOX ELDER COUNTY
UTAH

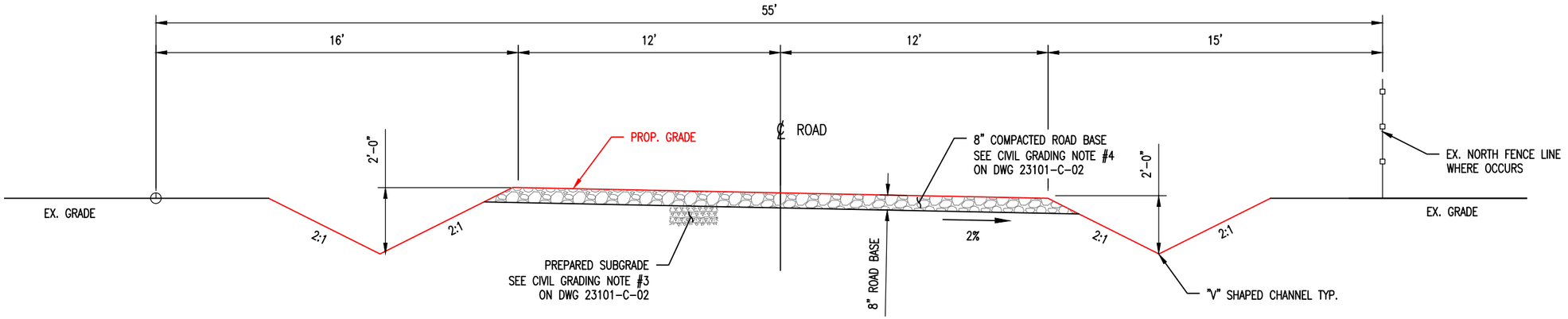
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0	07/21/25	ISSUED FOR CONSTRUCTION	R&M	JBH

PROJECT #:	23101
DWG SIZE:	11x17
SCALE:	AS SHOWN
PRINT DATE:	07/21/25
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DRAWN BY:	KRL
CHECKED BY:	JBH

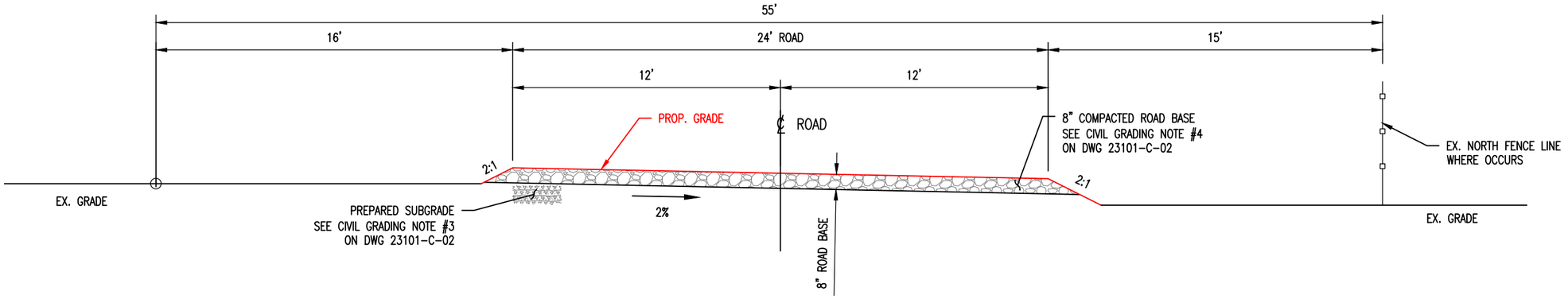
GENERAL NOTES

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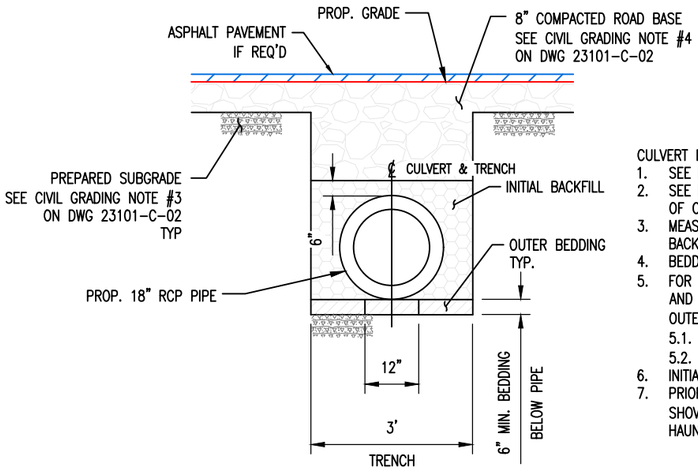
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TYPICAL SECTION – ACCESS ROAD & CHANNELS
NTS



TYPICAL SECTION – ACCESS ROAD
NTS



TYPICAL CULVERT SECTION
NTS

CULVERT INSTALLATION NOTES:
1. SEE DRAWING 23101-C-02 FOR PIPING & CIVIL GRADING NOTES.
2. SEE DRAWING 23101-C-08 THRU 23101-C-14 FOR DIAMETER, LENGTH & SLOPE OF CULVERT PIPES.
3. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
4. BEDDING AND INITIAL BACKFILL SHALL BE ASTM D2321 CLASS I OR II MATERIAL.
5. FOR BEDDING INSTALLATION, THE MIDDLE 12" OF THE BEDDING SHALL BE LOOSE AND UNIFORM IN DEPTH AND CONSISTENCY. AFTER PIPE IS IN PLACE, COMPACT OUTER BEDDING IN PLACE, 12" LOOSE LIFTS
   5.1. WITH JUMPING JACK OR SMALL VIBRATORY COMPACTOR (CLASS I MATERIAL)
   5.2. TO MIN. 95% STANDARD PROCTOR DENSITY (CLASS II MATERIAL)
6. INITIAL BACKFILL MATERIAL SHALL BE INSTALLED PER ASTM D2321.
7. PRIOR TO FINAL COMPACTION EFFORT, WORK BACKFILL INTO HAUNCH ZONES BY SHOVELING IN PLACE AND DIAGONALLY WALKING (STOMPING) THE SOIL INTO THE HAUNCH ZONE. THIS EFFORT WILL MAKE VERTICAL COMPACTION MORE EFFECTIVE.



NOTES:
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2. PROPOSED GRADING (CONTOURS, ELEVATIONS & SLOPES) SHOWN IN PLANS, PROFILES, TYPICAL SECTIONS & CROSS-SECTIONS ARE TOP OF ROAD IN IMPROVED AREAS AND FINISHED GRADE IN DRAINAGE CHANNELS AND ADJOINING AREAS.

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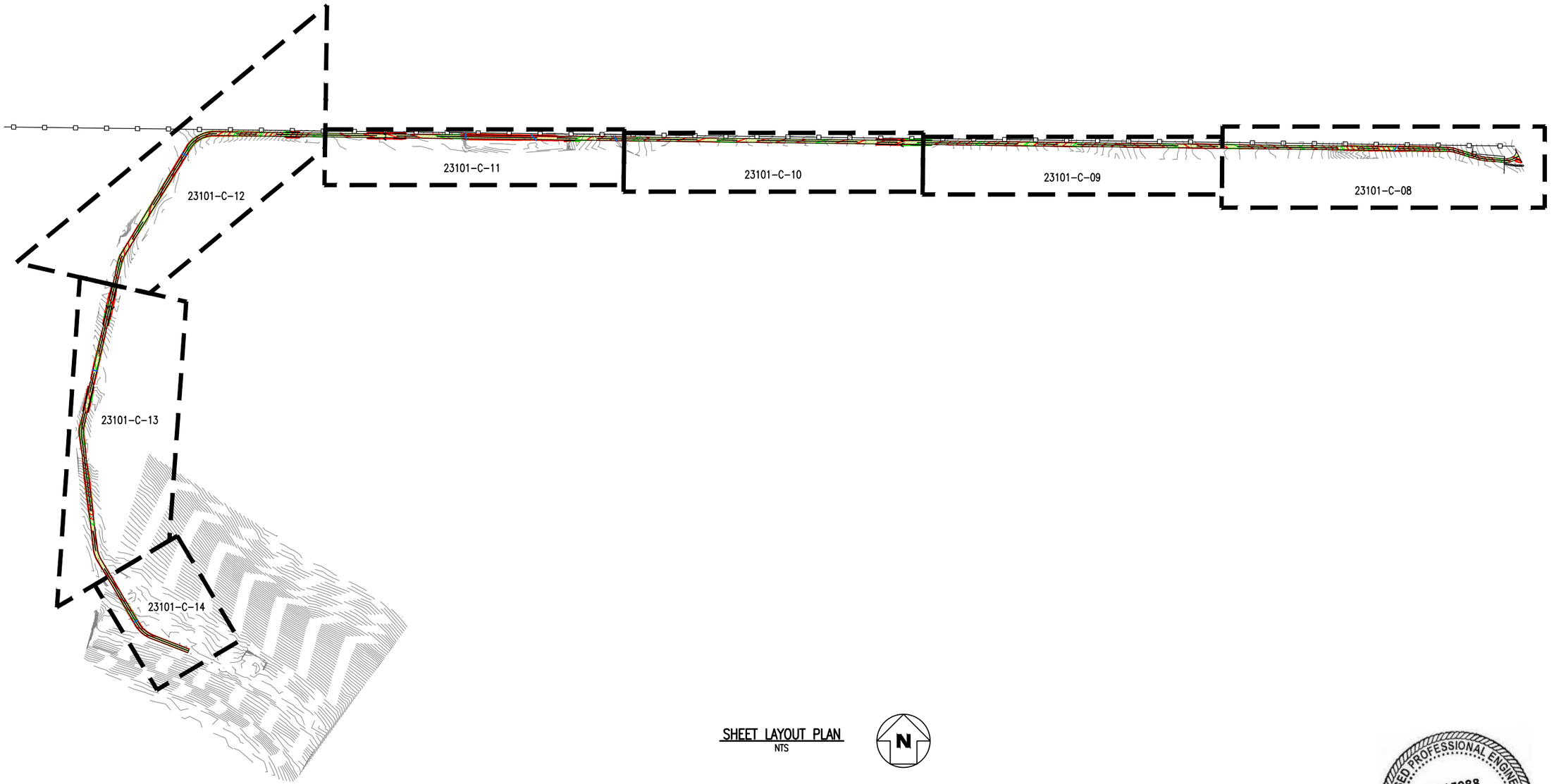
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CIVIL GRADING TYPICAL SECTIONS

DRAWING NUMBER	REV
23101-C-03	0

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SHEET LAYOUT PLAN
NTS

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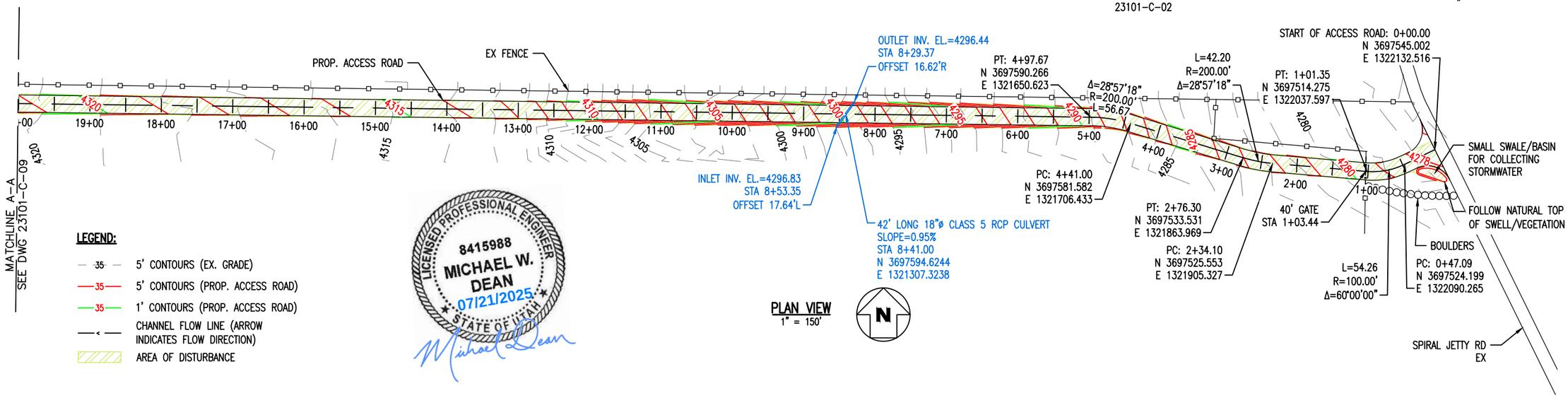
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07/21/2025
STATE OF UTAH

CIVIL GRADING OVERALL PLAN

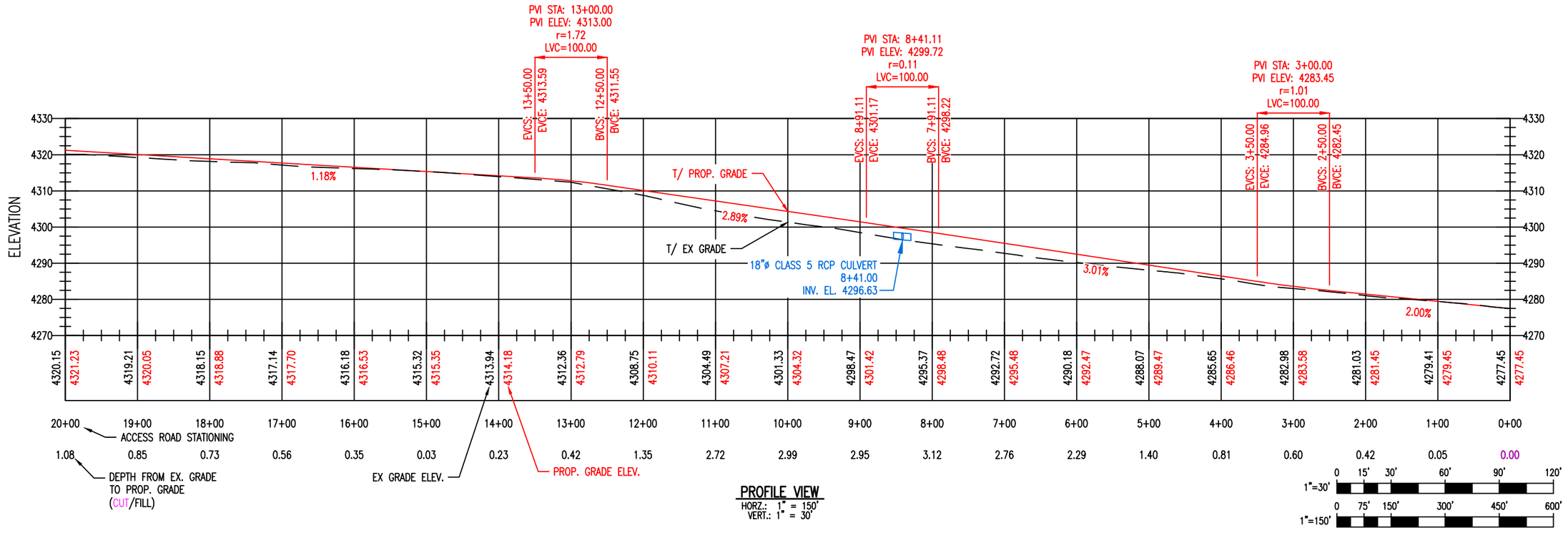
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NOTES:
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3. PLACE RIP-RAP AT BOTH ENDS OF ALL CULVERTS. SEE CIVIL GRADING NOTE #7 ON DWG 23101-C-02



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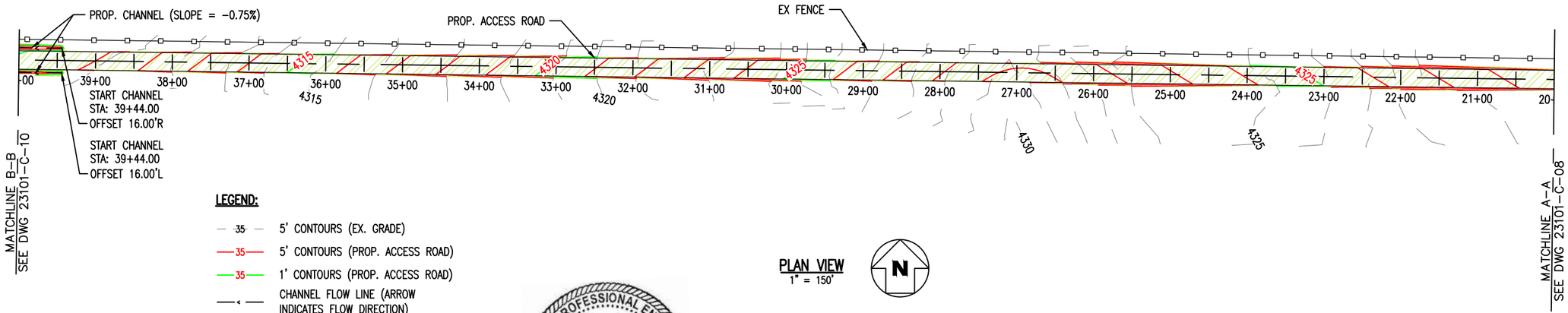
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CIVIL GRADING PLAN AND PROFILE

DRAWING NUMBER: 23101-C-05
REV: 0

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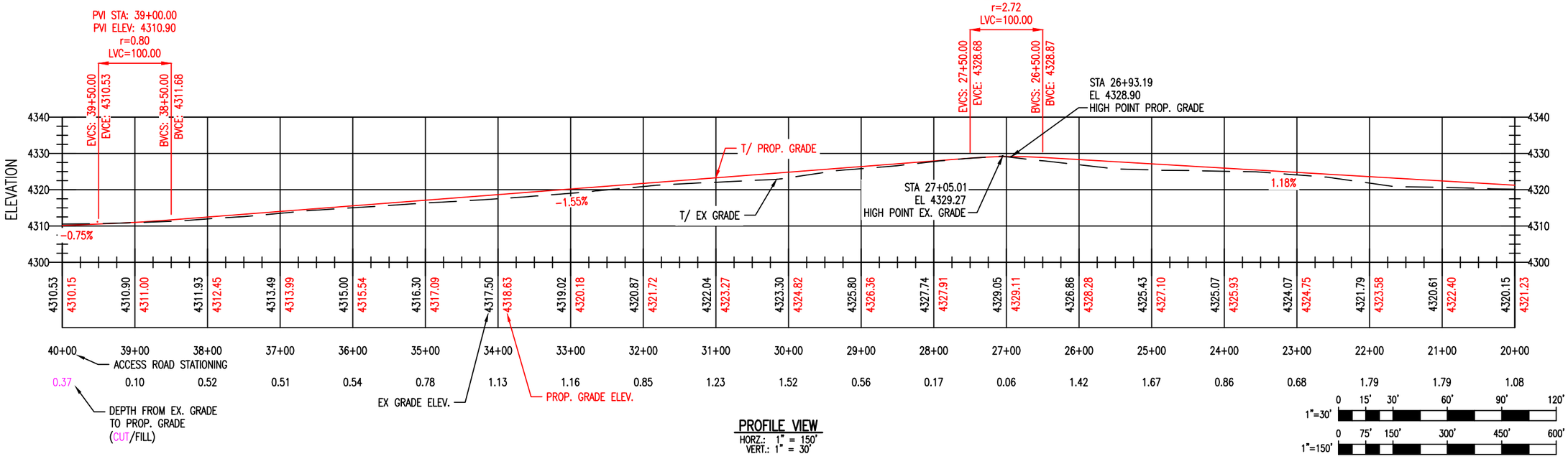
LEGEND:

- 35 — 5' CONTOURS (EX. GRADE)
- 35 — 5' CONTOURS (PROP. ACCESS ROAD)
- 35 — 1' CONTOURS (PROP. ACCESS ROAD)
- CHANNEL FLOW LINE (ARROW INDICATES FLOW DIRECTION)
- AREA OF DISTURBANCE

PLAN VIEW
1" = 150'

N

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MICHAEL W. DEAN
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PROFILE VIEW
HORZ.: 1" = 150'
VERT.: 1" = 30'

1"=30' 0 15' 30' 60' 90' 120'
1"=150' 0 75' 150' 300' 450' 600'

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UTAH

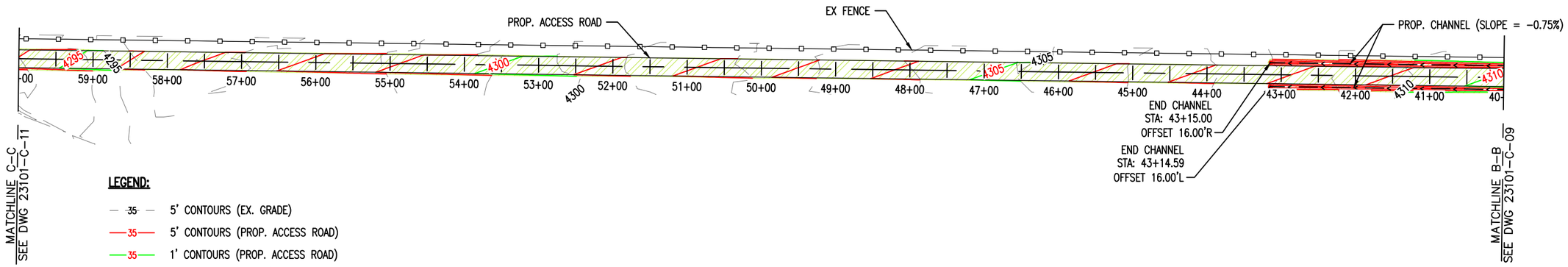
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DESIGNED BY:	MWD
DRAWN BY:	KRL
CHECKED BY:	JBH

CIVIL GRADING PLAN AND PROFILE

DRAWING NUMBER: 23101-C-06
REV: 0

NOTES:
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3. PLACE RIP-RAP AT BOTH ENDS OF ALL CULVERTS. SEE CIVIL GRADING NOTE #7 ON DWG 23101-C-02

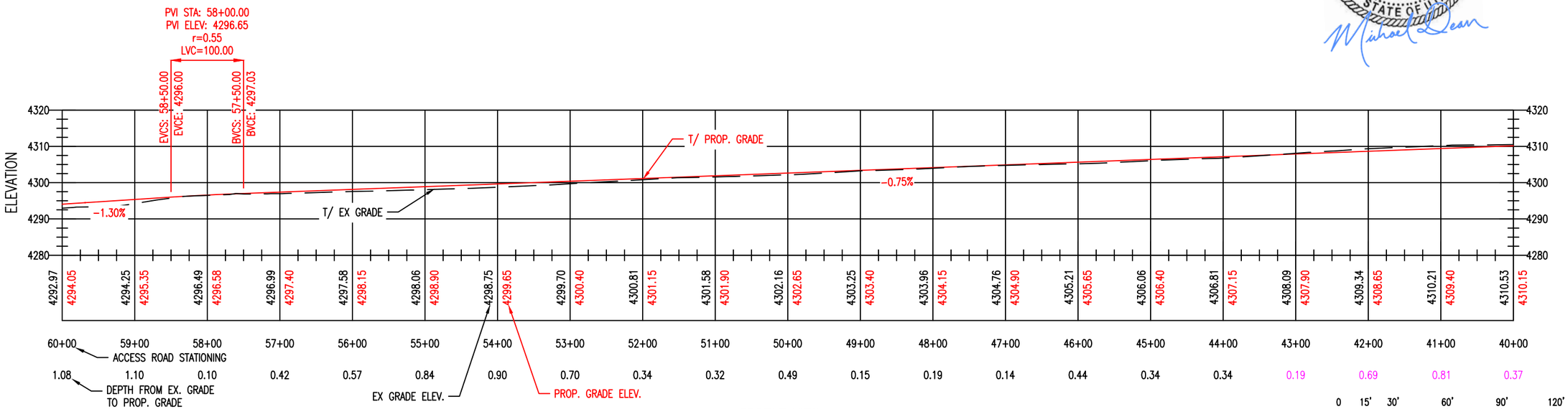


LEGEND:

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- 35 — 1' CONTOURS (PROP. ACCESS ROAD)
- CHANNEL FLOW LINE (ARROW INDICATES FLOW DIRECTION)
- AREA OF DISTURBANCE

PLAN VIEW
1" = 150'

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PROFILE VIEW
HORZ.: 1" = 150'
VERT.: 1" = 30'

1"=30' 0 15' 30' 60' 90' 120'

1"=150' 0 75' 150' 300' 450' 600'

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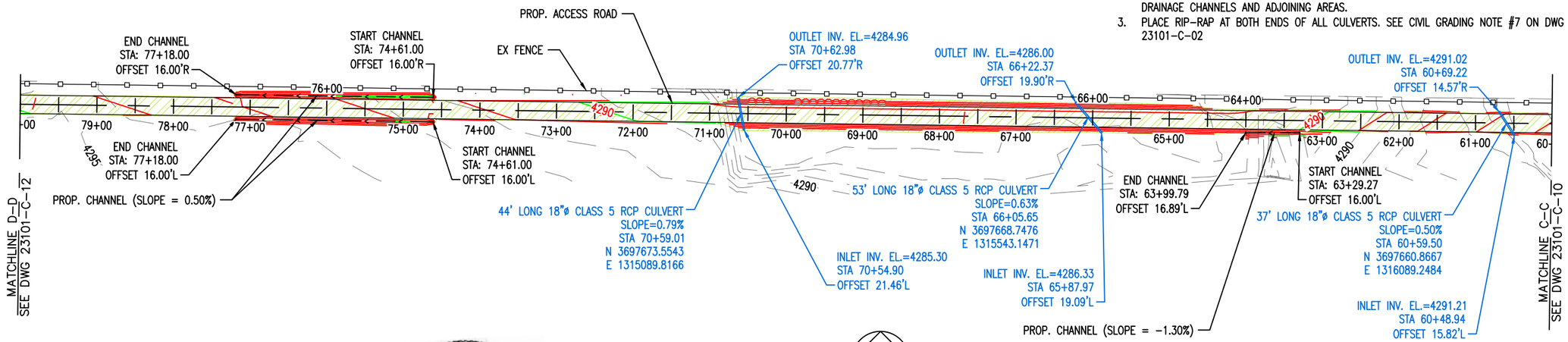
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CIVIL GRADING PLAN AND PROFILE

DRAWING NUMBER: 23101-C-07
REV: 0

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NOTES:
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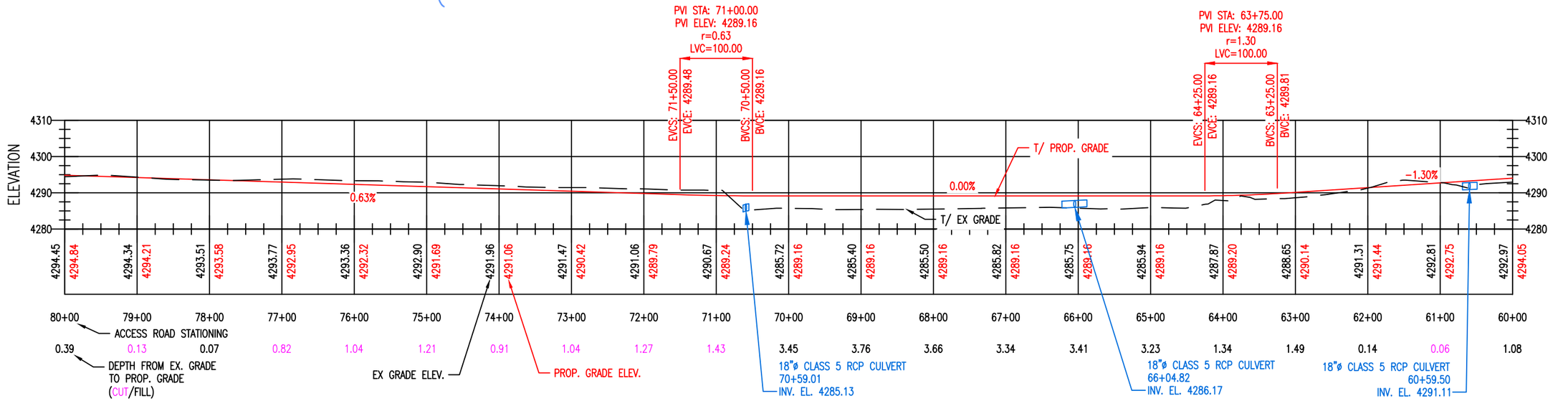


PLAN VIEW
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PROFILE VIEW
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VERT.: 1" = 30'

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UTAH

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CIVIL GRADING PLAN AND PROFILE

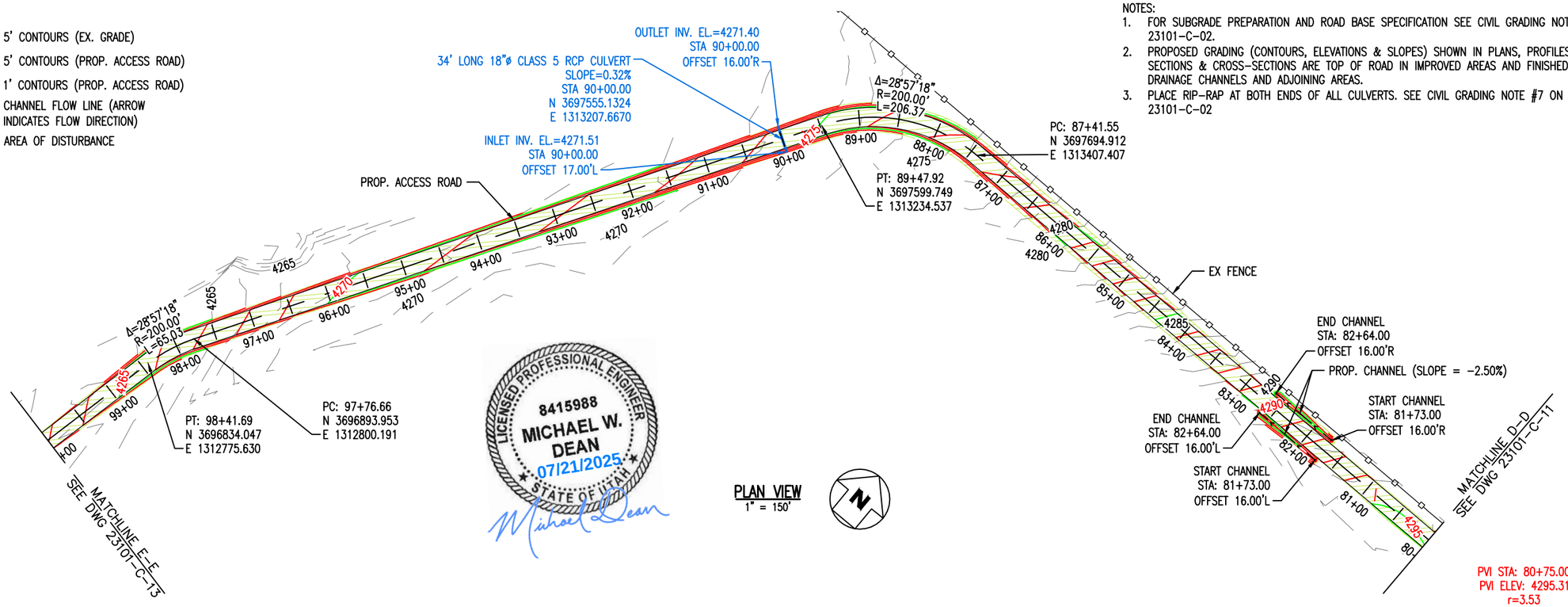
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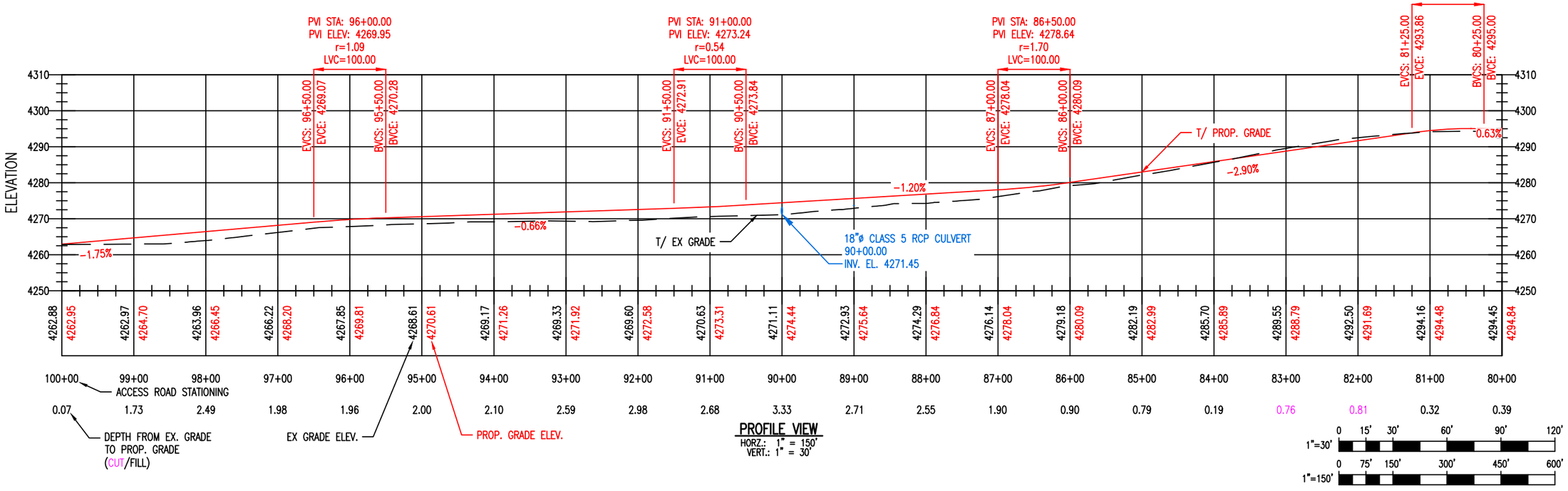
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PLAN VIEW
1" = 150'



PROFILE VIEW
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1"=30' 0 15' 30' 60' 90' 120'

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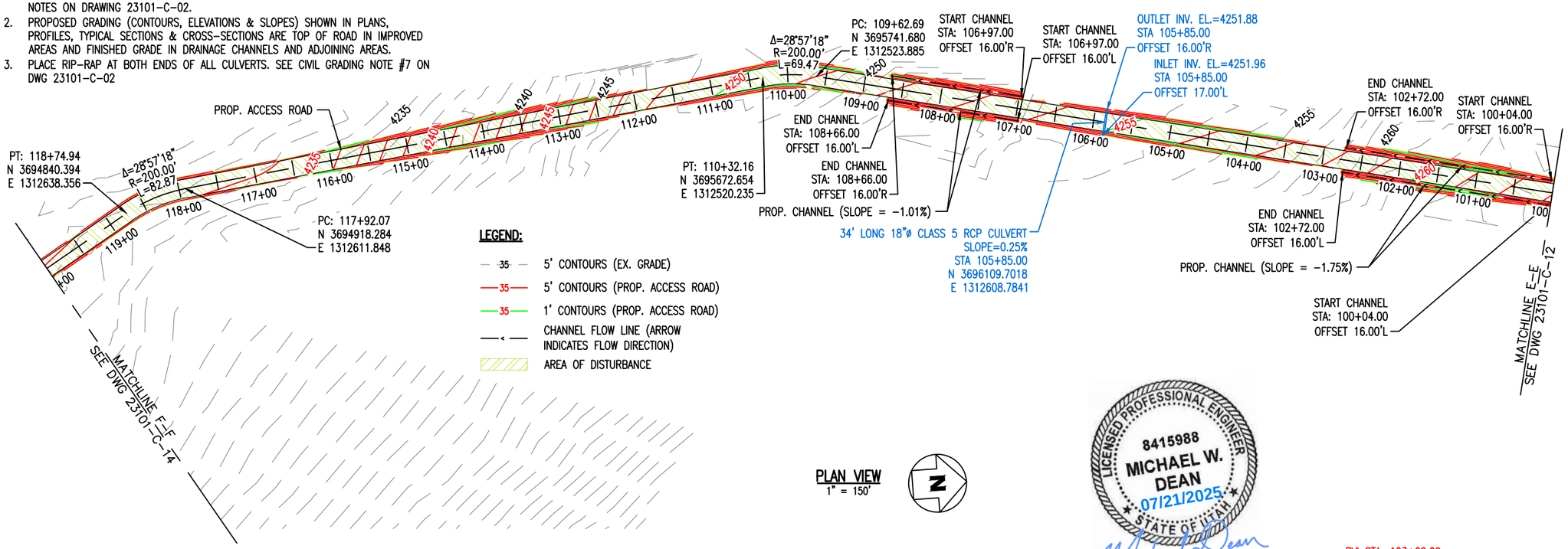
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DRAWN BY:	KRL
CHECKED BY:	JBH

CIVIL GRADING PLAN AND PROFILE

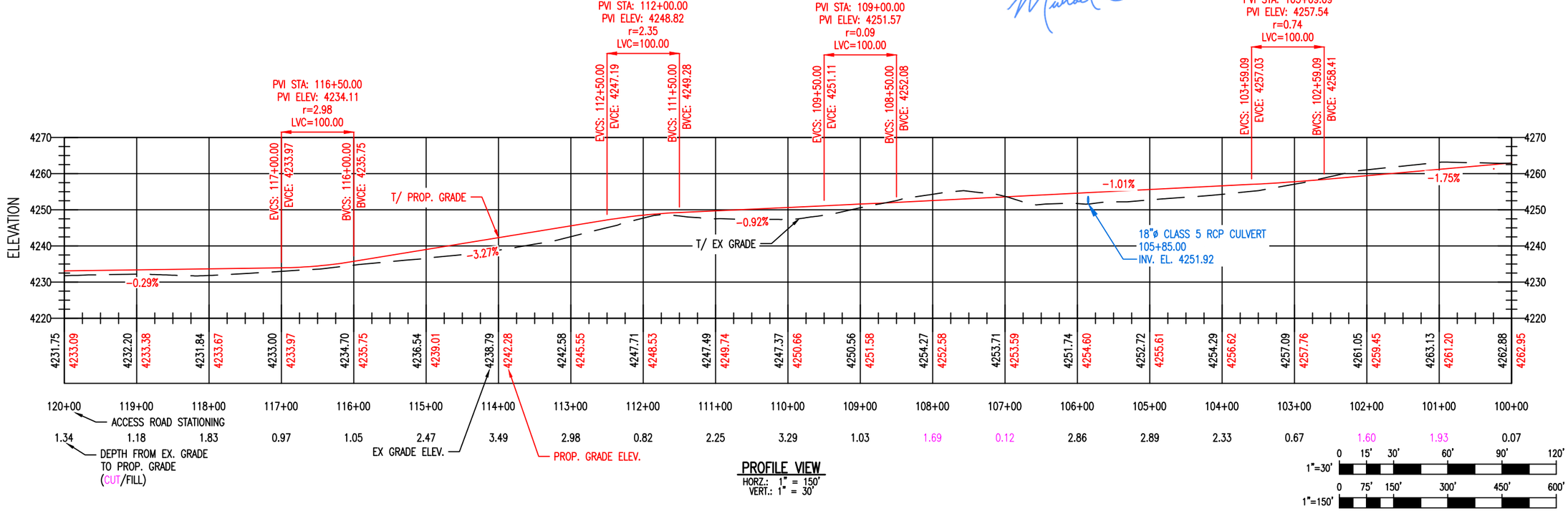
DRAWING NUMBER: 23101-C-09
REV: 0

NOTES:
1. FOR SUBGRADE PREPARATION AND ROAD BASE SPECIFICATION SEE CIVIL GRADING NOTES ON DRAWING 23101-C-02.
2. PROPOSED GRADING (CONTOURS, ELEVATIONS & SLOPES) SHOWN IN PLANS, PROFILES, TYPICAL SECTIONS & CROSS-SECTIONS ARE TOP OF ROAD IN IMPROVED AREAS AND FINISHED GRADE IN DRAINAGE CHANNELS AND ADJOINING AREAS.
3. PLACE RIP-RAP AT BOTH ENDS OF ALL CULVERTS. SEE CIVIL GRADING NOTE #7 ON DWG 23101-C-02



PLAN VIEW
1" = 150'





PROFILE VIEW
HORZ.: 1" = 150'
VERT.: 1" = 30'

1"=30' 0 15' 30' 60' 90' 120'
1"=150' 0 75' 150' 300' 450' 600'

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Murray, UT 84107
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WATERLEAF RESOURCES

THE GSL LITHIUM PROJECT
BOX ELDER COUNTY
UTAH

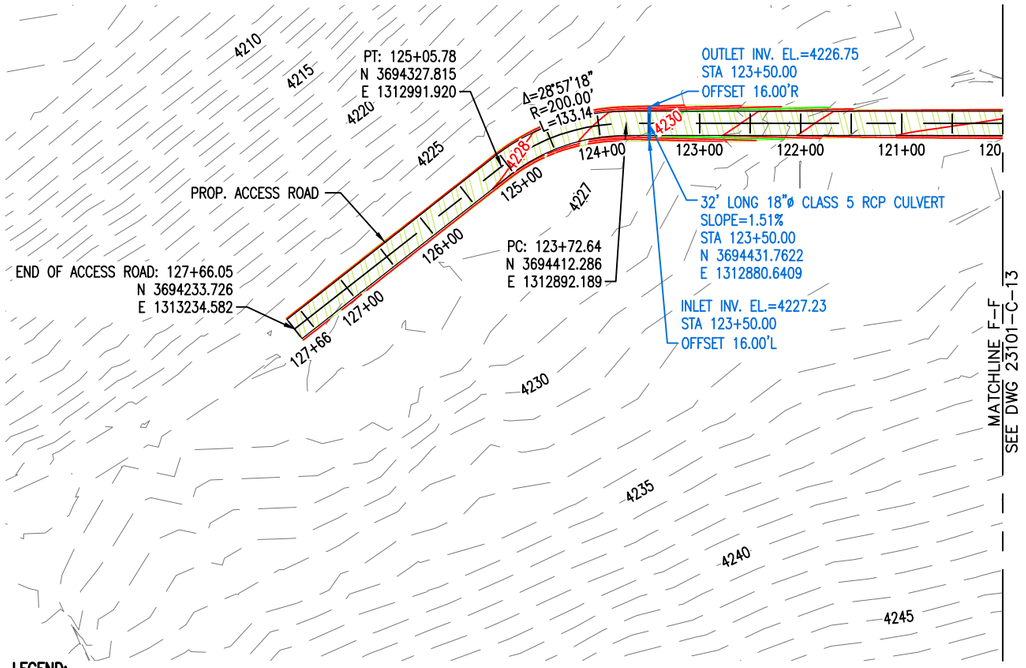
REV NO.	DATE	DESCRIPTION	BY	CHKD
A	06/13/25	ISSUED FOR BID	JBH	-
0	07/21/25	ISSUED FOR CONSTRUCTION	R&M	JBH

PROJECT #:	23101
DWG SIZE:	11x17
SCALE:	AS SHOWN
PRINT DATE:	07/21/25
DESIGNED BY:	MWD
DRAWN BY:	KRL
CHECKED BY:	JBH

CIVIL GRADING PLAN AND PROFILE

DRAWING NUMBER 23101-C-10
REV 0

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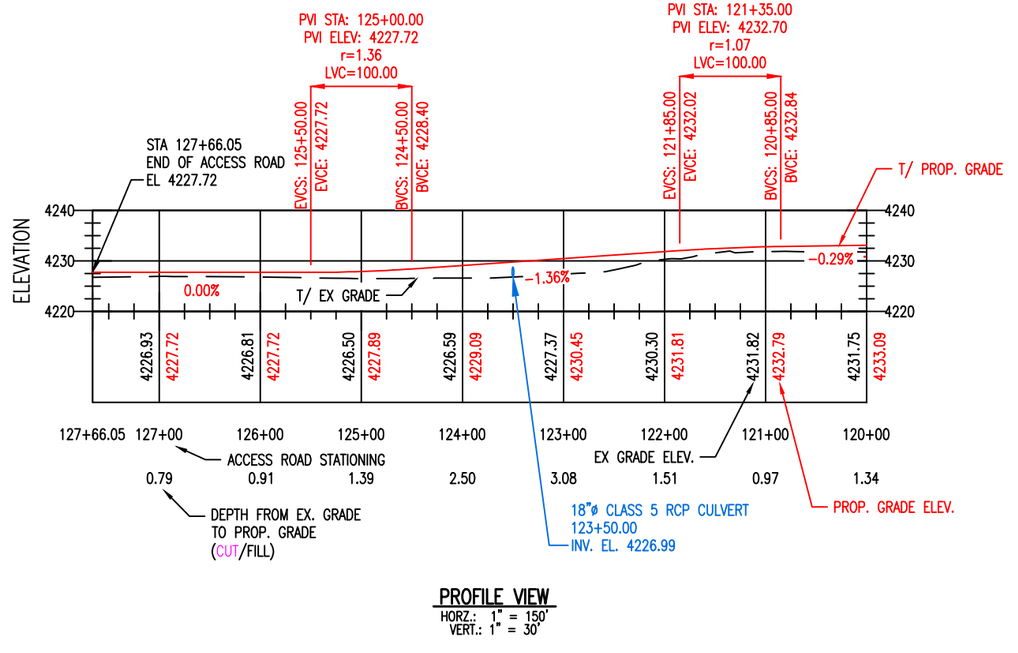


LEGEND:

- 35 — 5' CONTOURS (EX. GRADE)
- 35 — 5' CONTOURS (PROP. ACCESS ROAD)
- 35 — 1' CONTOURS (PROP. ACCESS ROAD)
- CHANNEL FLOW LINE (ARROW INDICATES FLOW DIRECTION)
- AREA OF DISTURBANCE

PLAN VIEW
1" = 150'

NOTES:
1. FOR SUBGRADE PREPARATION AND ROAD BASE SPECIFICATION SEE CIVIL GRADING NOTES ON DRAWING 23101-C-02.
2. PROPOSED GRADING (CONTOURS, ELEVATIONS & SLOPES) SHOWN IN PLANS, PROFILES, TYPICAL SECTIONS & CROSS-SECTIONS ARE TOP OF ROAD IN IMPROVED AREAS AND FINISHED GRADE IN DRAINAGE CHANNELS AND ADJOINING AREAS.
3. PLACE RIP-RAP AT BOTH ENDS OF ALL CULVERTS. SEE CIVIL GRADING NOTE #7 ON DWG 23101-C-02



PROFILE VIEW
HORZ.: 1" = 150'
VERT.: 1" = 30'

1"=30' 0 15' 30' 60' 90' 120'

1"=150' 0 75' 150' 300' 450' 600'

LICENSED PROFESSIONAL ENGINEER
8415988
MICHAEL W. DEAN
07/21/2025
STATE OF UTAH

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WATERLEAF RESOURCES

THE GSL LITHIUM PROJECT
BOX ELDER COUNTY
UTAH

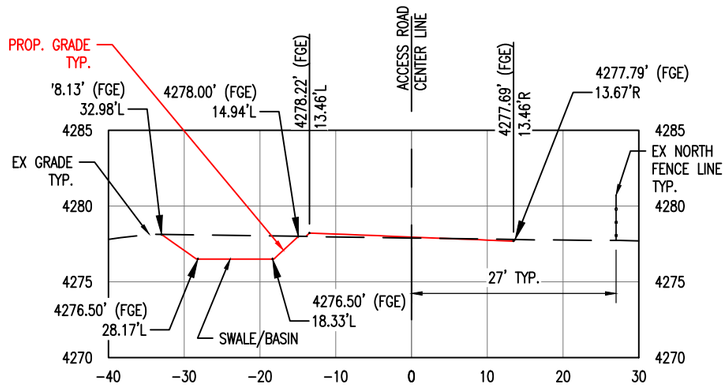
REV NO.	DATE	DESCRIPTION	BY	CHKD
A	06/13/25	ISSUED FOR BID	JBH	-
0	07/21/25	ISSUED FOR CONSTRUCTION	R&M	JBH

PROJECT #:	23101
DWG SIZE:	11x17
SCALE:	AS SHOWN
PRINT DATE:	07/21/25
DESIGNED BY:	MWD
DRAWN BY:	KRL
CHECKED BY:	JBH

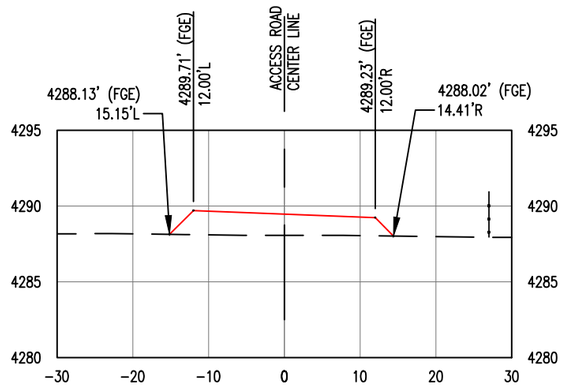
CIVIL GRADING PLAN AND PROFILE

DRAWING NUMBER: 23101-C-11
REV: 0

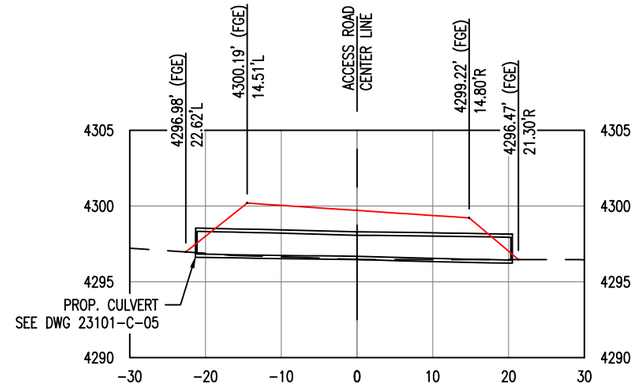
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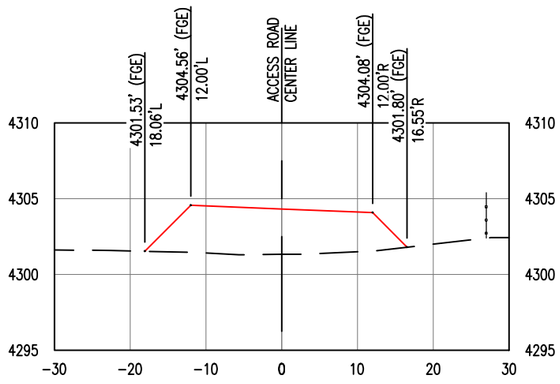
PROP. ACCESS ROAD STA: 0+25



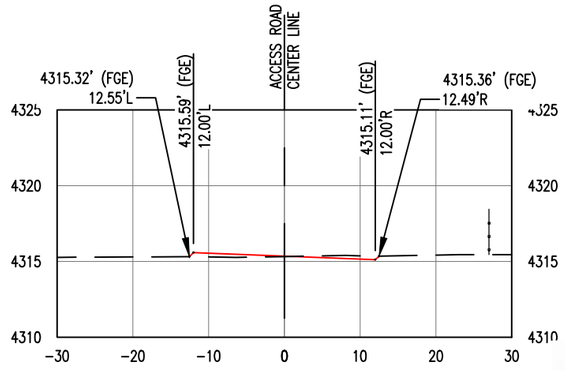
PROP. ACCESS ROAD STA: 5+00



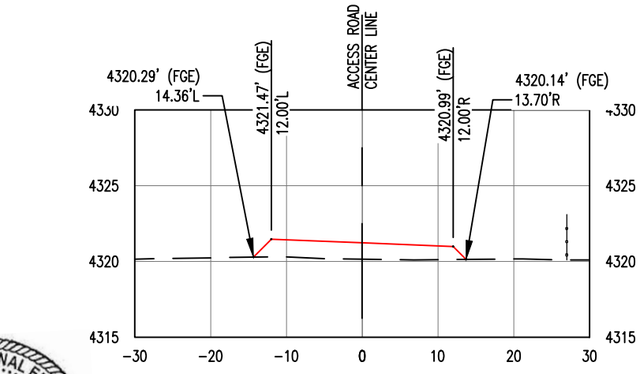
PROP. ACCESS ROAD STA: 8+41



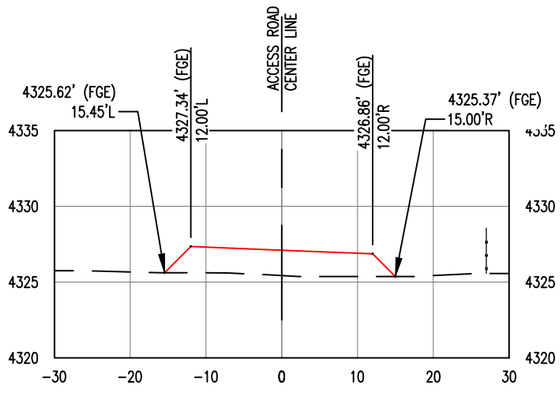
PROP. ACCESS ROAD STA: 10+00



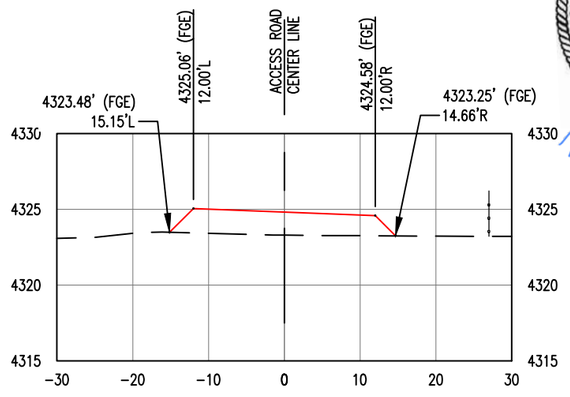
PROP. ACCESS ROAD STA: 15+00



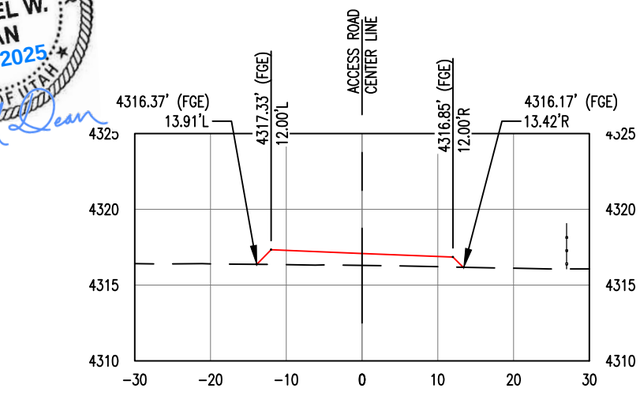
PROP. ACCESS ROAD STA: 20+00



PROP. ACCESS ROAD STA: 25+00



PROP. ACCESS ROAD STA: 30+00



PROP. ACCESS ROAD STA: 35+00

KEY:
FGE = FINISHED GRADE ELEVATION
FLE = FLOW LINE ELEVATION

CROSS SECTIONS
HORZ.: 1" = 20'
VERT.: 1" = 10'

1"=10' 0 5' 10' 20' 30' 40'
1"=20' 0 10' 20' 40' 60' 80'

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UTAH

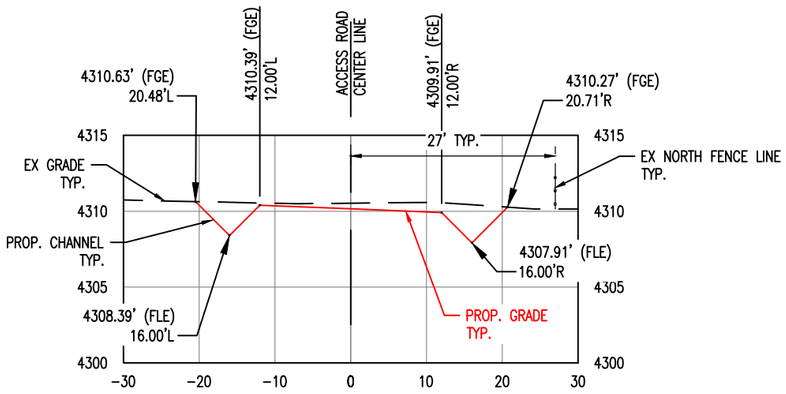
REV NO.	DATE	DESCRIPTION	BY	CHKD
A	06/13/25	ISSUED FOR BID	JBH	-
0	07/21/25	ISSUED FOR CONSTRUCTION	R&M	JBH

PROJECT #:	23101
DWG SIZE:	11x17
SCALE:	AS SHOWN
PRINT DATE:	07/21/25
DESIGNED BY:	MWD
DRAWN BY:	KRL
CHECKED BY:	JBH

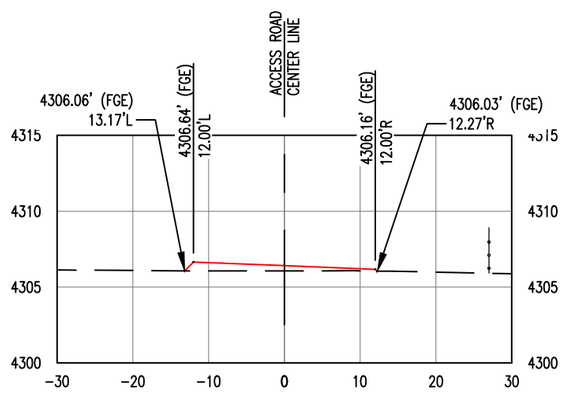
CIVIL GRADING CROSS SECTIONS

DRAWING NUMBER 23101-C-12
REV 0

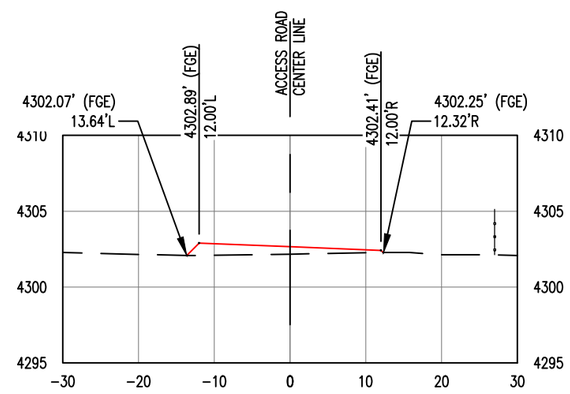
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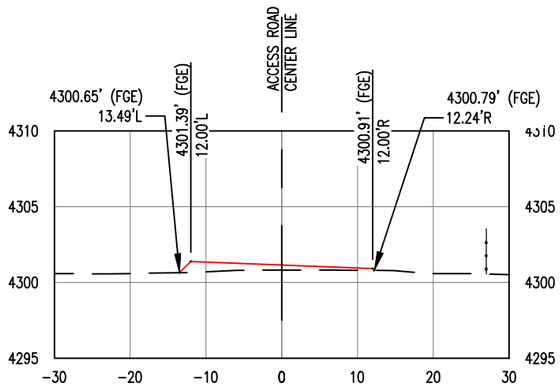
PROP. ACCESS ROAD STA: 40+00



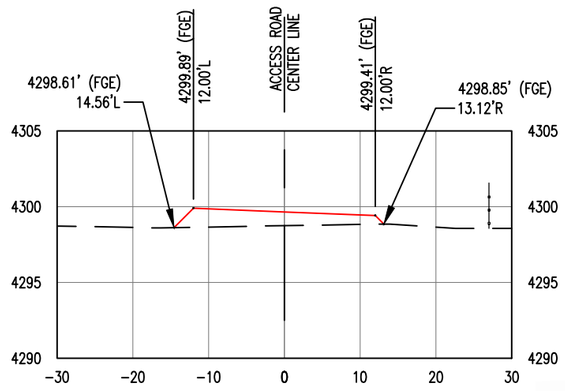
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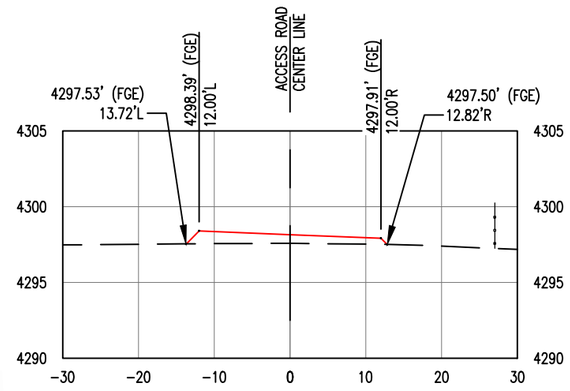
PROP. ACCESS ROAD STA: 50+00



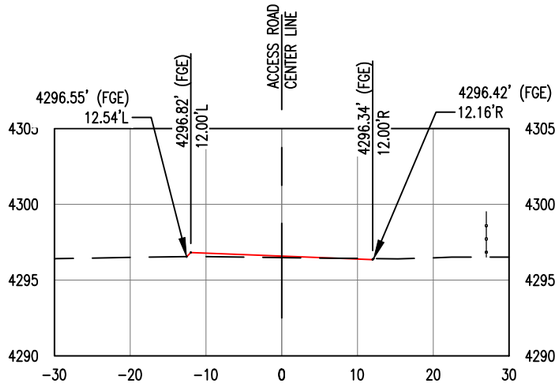
PROP. ACCESS ROAD STA: 52+00



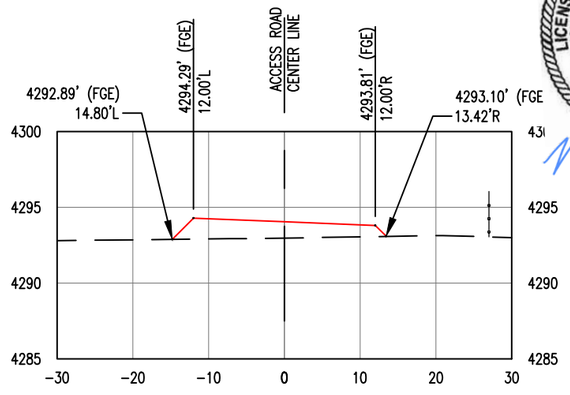
PROP. ACCESS ROAD STA: 54+00



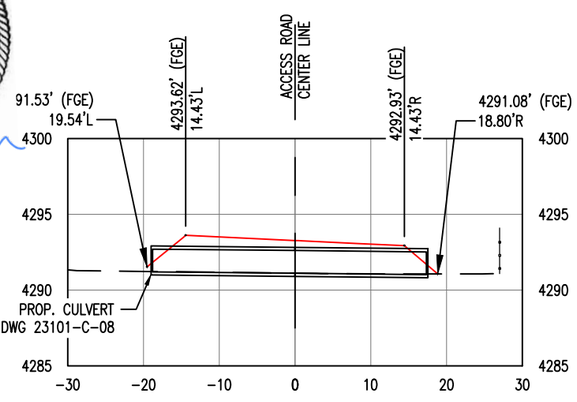
PROP. ACCESS ROAD STA: 56+00



PROP. ACCESS ROAD STA: 58+00



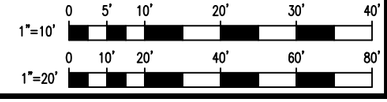
PROP. ACCESS ROAD STA: 60+00



PROP. ACCESS ROAD STA: 60+59

KEY:
FGE = FINISHED GRADE ELEVATION
FLE = FLOW LINE ELEVATION

CROSS SECTIONS
HORZ.: 1" = 20'
VERT.: 1" = 10'





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WATERLEAF RESOURCES

THE GSL LITHIUM PROJECT
BOX ELDER COUNTY
UTAH

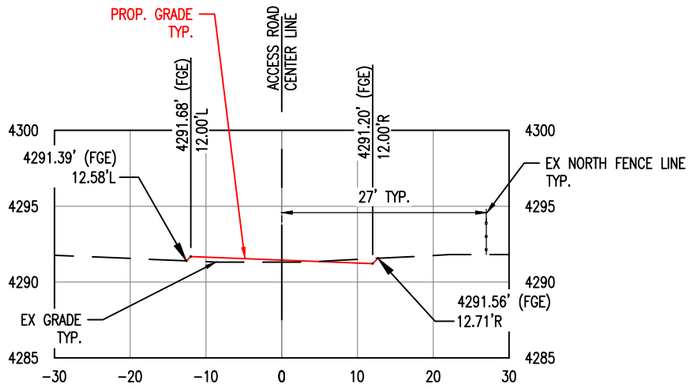
REV NO.	DATE	DESCRIPTION	BY	CHKD
A	06/13/25	ISSUED FOR BID	JBH	-
0	07/21/25	ISSUED FOR CONSTRUCTION	R&M	JBH

PROJECT #:	23101
DWG SIZE:	11x17
SCALE:	AS SHOWN
PRINT DATE:	07/21/25
DESIGNED BY:	MWD
DRAWN BY:	KRL
CHECKED BY:	JBH

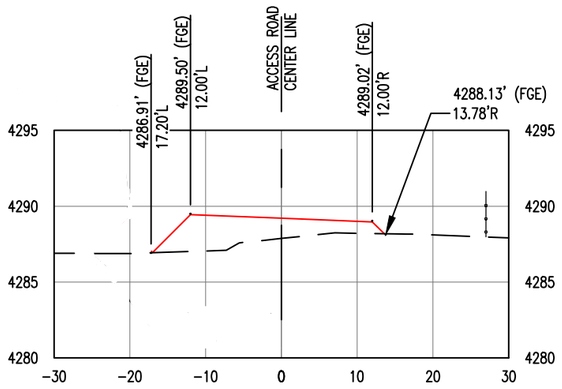
CIVIL GRADING CROSS SECTIONS

DRAWING NUMBER: 23101-C-13
REV: 0

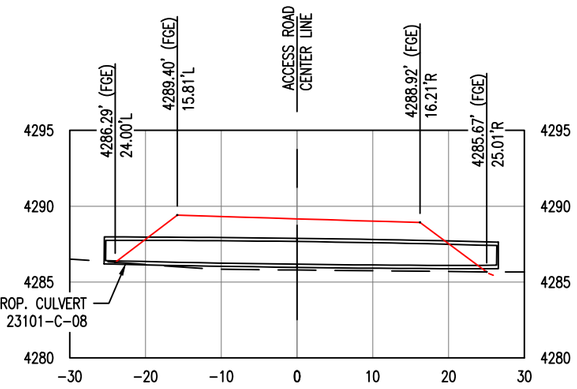
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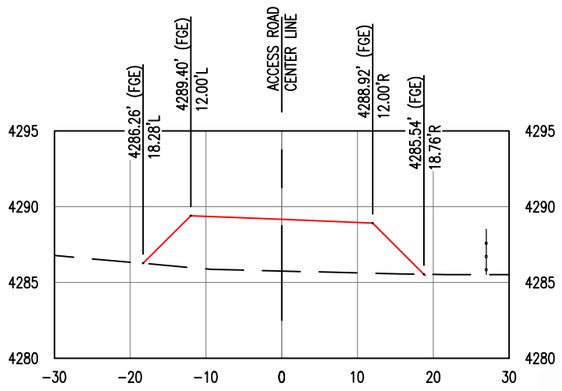
PROP. ACCESS ROAD STA: 62+00



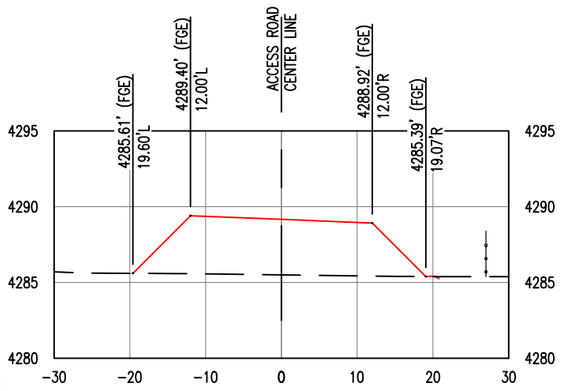
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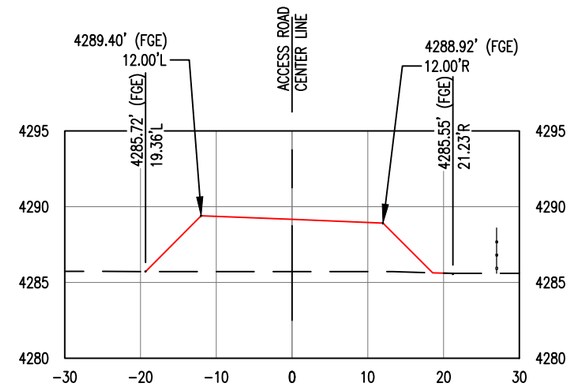
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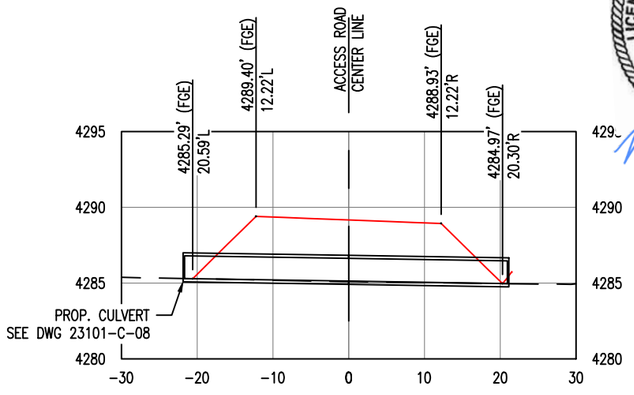
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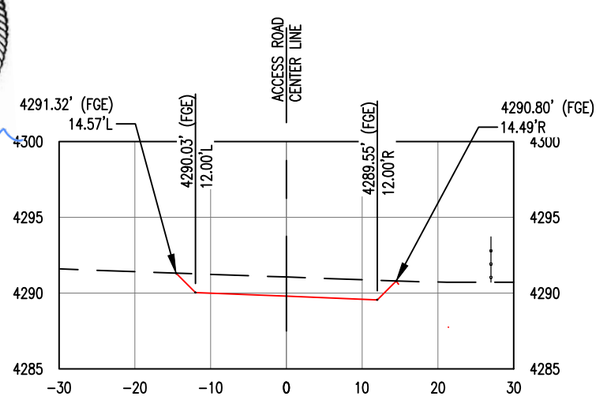
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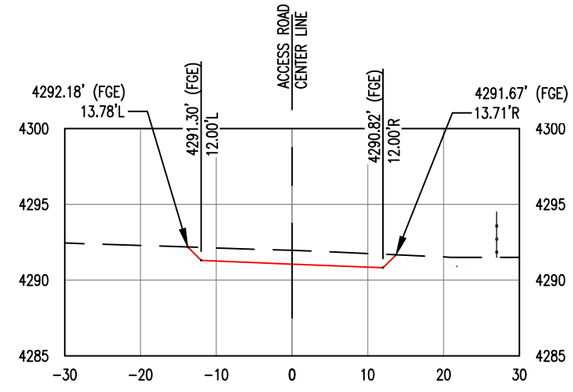
PROP. ACCESS ROAD STA: 70+00



PROP. ACCESS ROAD STA: 70+59



PROP. ACCESS ROAD STA: 72+00



PROP. ACCESS ROAD STA: 74+00



KEY:
FGE = FINISHED GRADE ELEVATION
FLE = FLOW LINE ELEVATION

CROSS SECTIONS
HORZ.: 1" = 20'
VERT.: 1" = 10'

1"=10' 0 5' 10' 20' 30' 40'

1"=20' 0 10' 20' 40' 60' 80'

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THE GSL LITHIUM PROJECT
BOX ELDER COUNTY
UTAH

REV NO.	DATE	DESCRIPTION	BY	CHKD
A	06/13/25	ISSUED FOR BID	JBH	-
0	07/21/25	ISSUED FOR CONSTRUCTION	R&M	JBH

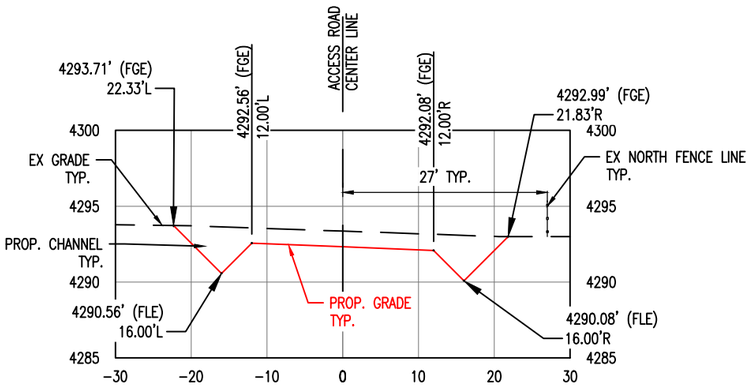
PROJECT #:	23101
DWG SIZE:	11x17
SCALE:	AS SHOWN
PRINT DATE:	07/21/25
DESIGNED BY:	MWD
DRAWN BY:	KRL
CHECKED BY:	JBH

CIVIL GRADING CROSS SECTIONS

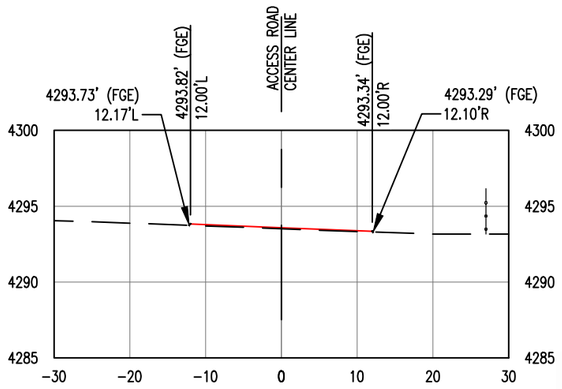
DRAWING NUMBER 23101-C-14

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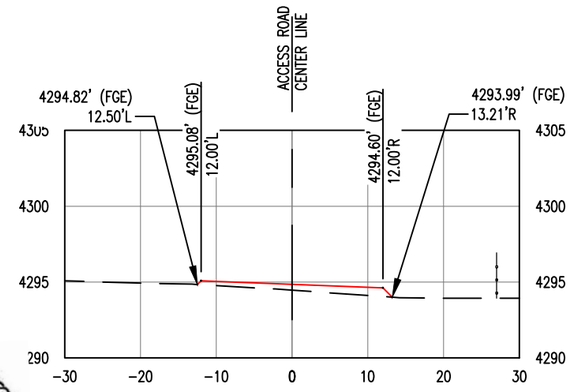
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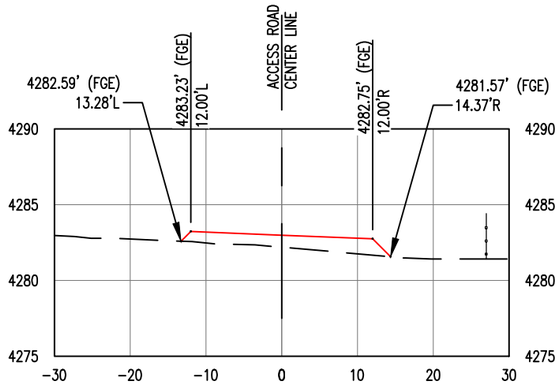
PROP. ACCESS ROAD STA: 76+00



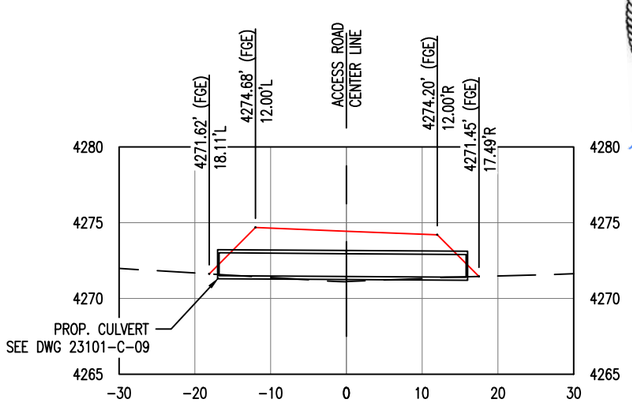
PROP. ACCESS ROAD STA: 78+00



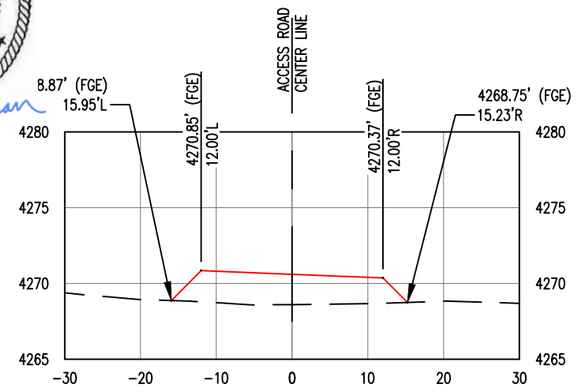
PROP. ACCESS ROAD STA: 80+00



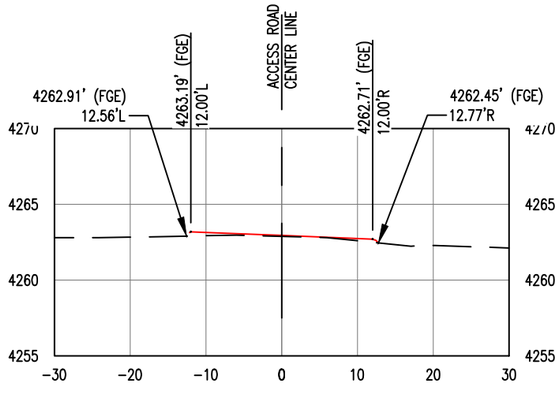
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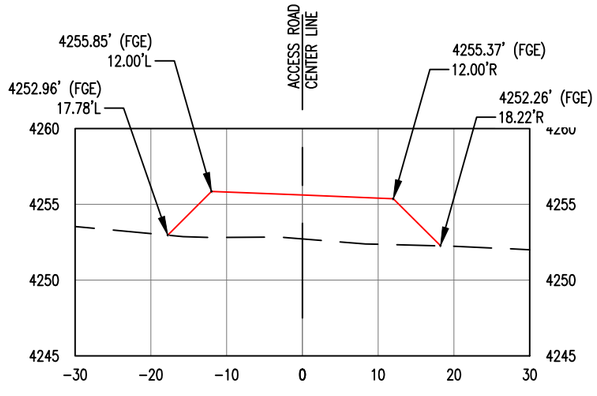
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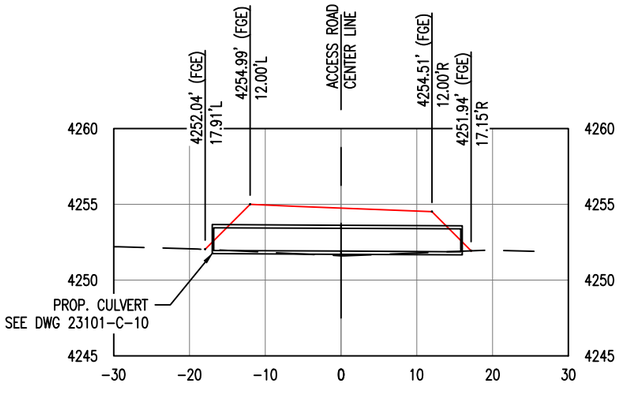
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PROP. ACCESS ROAD STA: 105+00



PROP. ACCESS ROAD STA: 105+85

KEY:
FGE = FINISHED GRADE ELEVATION
FLE = FLOW LINE ELEVATION

CROSS SECTIONS
HORZ.: 1" = 20'
VERT.: 1" = 10'

1"=10' 0 5' 10' 20' 30' 40'

1"=20' 0 10' 20' 40' 60' 80'

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WATERLEAF RESOURCES

THE GSL LITHIUM PROJECT
BOX ELDER COUNTY
UTAH

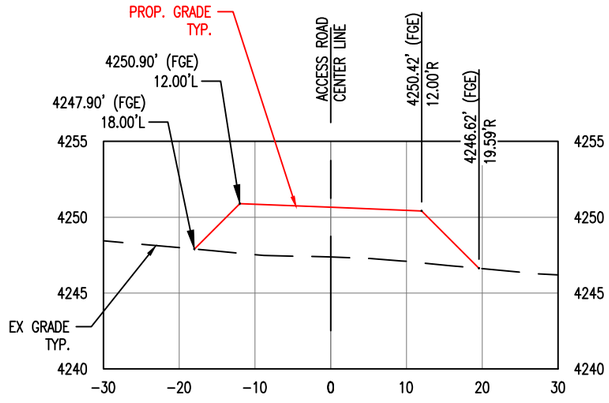
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0	07/21/25	ISSUED FOR CONSTRUCTION	R&M	JBH

PROJECT #:	23101
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SCALE:	AS SHOWN
PRINT DATE:	07/21/25
DESIGNED BY:	MWD
DRAWN BY:	KRL
CHECKED BY:	JBH

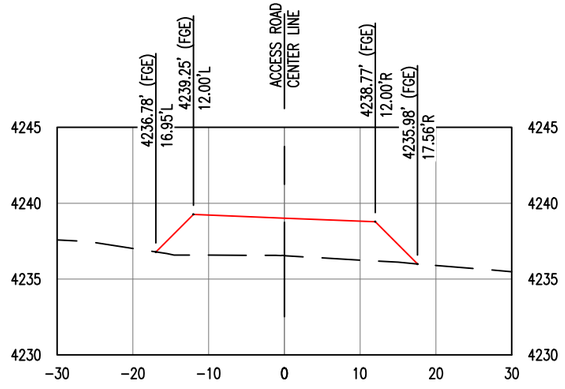
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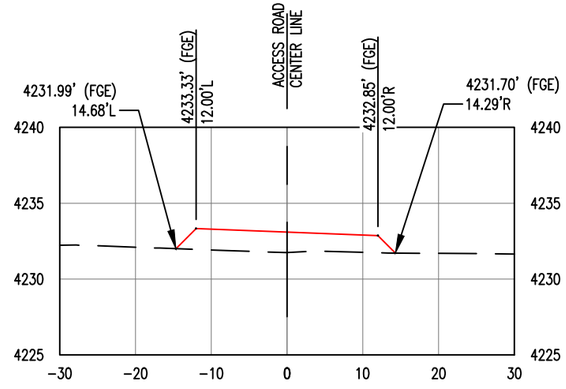
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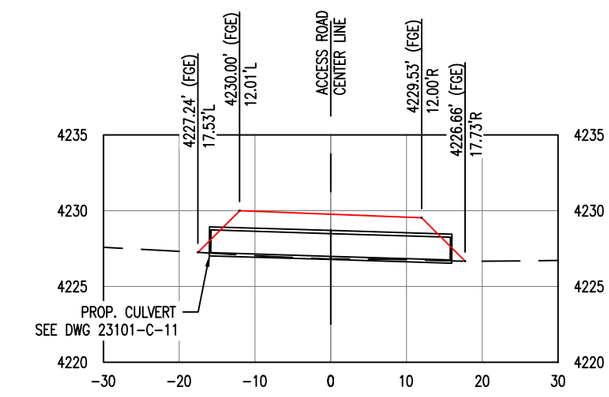
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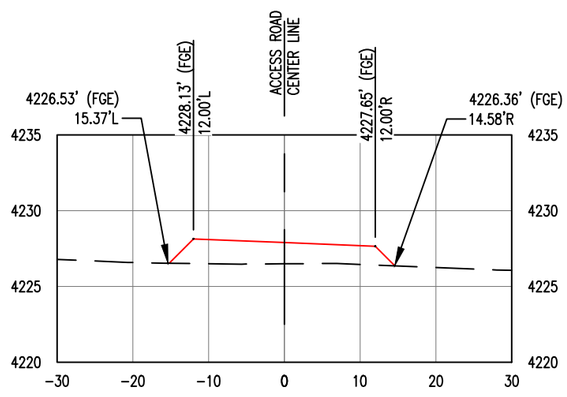
PROP. ACCESS ROAD STA: 115+00



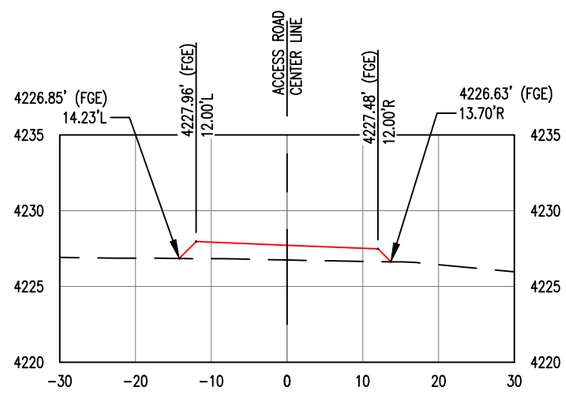
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PROP. ACCESS ROAD STA: 125+00



PROP. ACCESS ROAD STA: 127+66

CROSS SECTIONS
HORZ.: 1" = 20'
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1"=10' 0 5' 10' 20' 30' 40'

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WATERLEAF RESOURCES

THE GSL LITHIUM PROJECT
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REV NO.	DATE	DESCRIPTION	BY	CHKD
A	06/13/25	ISSUED FOR BID	JBH	-
0	07/21/25	ISSUED FOR CONSTRUCTION	R&M	JBH

PROJECT #:	23101
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DRAWN BY:	KRL
CHECKED BY:	JBH

CIVIL GRADING CROSS SECTIONS

DRAWING NUMBER 23101-C-16

REV 0

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Appendix C Commercial and Market Documentation

C.1 Project Operating Cost Estimate

C.2 Lilac-Traxys Announcement – Offtake Agreement

C.3 Product Specifications

C.4 [redacted]

C.5 Lilac Product Test Report

C.6 [redacted]

C.7 [redacted]

C.8 Profitability Analysis – Annual Cashflows

C.9 IXM Supply Agreement

C.10 Assignment Agreements

C.11 [redacted]

C.1 Project Operating Cost Estimate

PURPOSE

The purpose of this appendix is to document the basis and methodology used to estimate operating costs for the Project.

CONTENTS SUMMARY

This appendix presents a breakdown of estimated operating expenditures for the Project, including costs associated with reagents, labor, maintenance, power, consumables, miscellaneous operating expenses, and general and administrative functions. The information describes the assumptions, calculation methods, and unit cost bases used to develop operating cost estimates and identifies key cost drivers influencing overall operating expenditures.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 8.2

DOCUMENT DETAILS

- Issued by: Waterleaf
- Date: February 3, 2026
- Page Count: 11

C.1 begins on next page

C.2 Lilac-Traxys Announcement – Offtake Agreement

PURPOSE

This appendix provides supporting documentation demonstrating that the Great Salt Lake project has secured long-term commercial offtake for its Phase 1 lithium carbonate production, underscoring project viability and progress toward final investment decision.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 1.4
- Section 8.2

DOCUMENT DETAILS

- Issued by: Lilac
- Date: January 12, 2026
- Page Count: 2 pages

C.2 begins on next page

Lilac and Traxys Announce Binding 10-Year Offtake Agreement for Great Salt Lake Lithium Production

Definitive agreement secures 100% of Phase 1 production, advancing project toward final investment decision

OAKLAND, Calif. and NEW YORK, Jan. 12, 2026 — Lilac Solutions, a leading provider of direct lithium extraction technology, and Traxys North America, a leading global physical trader and merchant in metals and natural resources, today announced a binding 10-year offtake agreement for lithium carbonate produced at Lilac's Great Salt Lake facility in Utah. The agreement represents a major milestone in advancing the project toward construction and establishes a clear commercial pathway for one of the nearest-term domestic lithium projects in the United States.

Under the terms of the definitive agreement, Traxys will purchase 50,000 tonnes of lithium carbonate over a 10-year period, representing 100% of the planned Phase 1 production capacity. The agreement is take-or-pay, with agreed pricing mechanisms linked to market indices.

The Great Salt Lake Phase 1 facility is designed to produce 5,000 tonnes per annum of battery-grade lithium carbonate, which would nearly double current U.S. lithium carbonate production. The project leverages Lilac's proven Gen 5 ion exchange technology, which achieved 87% lithium recovery on the lake's ultra-low-grade brine (69 mg/L lithium) during successful pilot plant operations completed in 2025.

"Traxys, one of the world's leading lithium traders, has been an excellent partner as we've developed this project, and formalizing this long-term offtake agreement is a key step toward achieving final investment decision," said Raef Sully, chief executive officer of Lilac Solutions. "With FEL-3 engineering complete and regulatory approvals progressing, securing offtake for 100% of planned output moves us closer to construction of a significant new source of domestic lithium."

“Traxys is pleased to enter this 10-year offtake agreement with Lilac to advance our shared vision for a robust U.S. lithium supply chain”, said Martim Facada, managing director lithium trading at Traxys. “Lilac’s unique technology and deep sector experience combined with Traxys’ global market reach, expertise in natural resources and supply chain financing will contribute greatly to bring Lilac's lithium carbonate to market to supply the lithium-ion battery industry.”

The Great Salt Lake project represents one of the most significant near-term opportunities to expand domestic lithium supply. Phase 1 would nearly double current U.S. production, with a future Phase 2 expansion bringing total capacity to 20,000 tpa LCE— close to four times current domestic output.

The facility will use ion exchange media manufactured at Lilac's Fernley, Nevada facility and will generate local tax revenues and royalties to support lake preservation and create jobs in Utah. Lilac's non-consumptive process returns lithium-depleted brine to the lake and does not lower lake water levels.

Lilac has completed FEL-3 engineering for the facility and is working with state regulators to finalize permits required for construction and operations.

About Lilac

Lilac delivers modern direct lithium extraction technology that unlocks brine resources to scale supply for global electrification. Lilac's ion exchange technology enables high lithium recovery with minimal water use and no evaporation ponds, providing a sustainable alternative to conventional extraction methods. Lilac's technology has been proven through multiple pilot and demonstration plants globally and is now advancing to commercial scale. Lilac is headquartered in Oakland, California, with manufacturing in Fernley, Nevada. Learn more at lilacsolutions.com.

About Traxys

Traxys is a physical commodity trader and merchant in the metals and natural resources sectors. Its logistics, marketing, distribution, supply chain management, and trading activities are conducted by over 450 employees in over 20 offices worldwide, and its annual turnover is in excess of USD 10 billion. Traxys is engaged in sourcing, trading, marketing, and distributing non-ferrous metals, ferro-alloys, minerals, industrial raw materials, and energy.

The Group serves a broad base of industrial customers and offers a full range of commercial and financial services. Traxys is committed to the highest internationally recognized principles for responsible business conduct, and to ensuring that its operations are equitable, sustainable, and transparent.

Traxys premises its practices on environmental, social, and governance (ESG) standards that enable Traxys to set a leading example for the responsible sourcing and trading of metals and minerals. To learn more about Traxys, go to: www.traxys.com.

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Traxys Media Contact:

FGS Global
traxys-global@fgsglobal.com

C.3 Product Specifications

PURPOSE

This appendix documents battery-grade and technical-grade lithium carbonate product specifications for the Project.

REFERENCED IN MAIN APPLICATION

- Section 1.4
- Section 3.1
- Section 3.6
- Section 8.2

DOCUMENT DETAILS

- Issued by: Waterleaf
- Page Count: 1 page

C.3 begins on next page

Battery-Grade Product Specification

Chemical	Unit	Guaranteed
Li_2CO_3	wt%	>99.5
H_2O (LOI at 110°C)	wt%	<0.25
Na	wppm	<300
K	wppm	<10
Mg	wppm	<50
Ca	wppm	<100
Al	wppm	<10
Ni	wppm	<10
Zn	wppm	<5
Cu	wppm	<5
Fe	wppm	<5
Cl	wppm	<100
SO_4	wppm	<500
B	wppm	10
Cr	wppm	10
Pb	wppm	10
Mn	wppm	10
Particle Size D90 below 40 Microns		

Technical and Industrial-Grade Product Specification

Chemical	Unit	Guaranteed
Li_2CO_3	wt%	>99.0
H_2O (LOI at 110°C)	wt%	<0.5
Na	wppm	<3,000
K	wppm	<1,000
Mg	wppm	<500
Ca	wppm	<500
Al	wppm	<30
Ni	wppm	<50
Zn	wppm	<50
Cu	wppm	<50
Fe	wppm	<50
Cl	wppm	<200
SO_4	wppm	<1,500
B	wppm	<30
Cr	wppm	<30
Pb	wppm	<30
Mn	wppm	<30
Particle Size D90 below 100 Microns		

C.4 [redacted] Product Test Report

PURPOSE

This appendix documents the bench-scale crystallization test work conducted by [redacted] to validate the proposed commercial process design for producing battery-grade lithium carbonate from lithium sulfate brine for the GSL project.

CONTENTS SUMMARY

The appendix contains a detailed technical report prepared by [redacted] in September 2025 describing laboratory-scale test work undertaken to replicate and validate the full lithium carbonate production flowsheet, including preconcentration, carbonation, bicarbonation, and decarbonation stages. The report presents experimental methodologies, analytical results, and process performance data demonstrating lithium recovery, impurity entrainment behavior, crystal growth characteristics, and centrifuge dewatering performance. The results confirm that battery-grade lithium carbonate meeting specification can be produced from GSL lithium sulfate brine, validate key design assumptions and mass balances, and identify sulfate entrainment as the controlling impurity for final product quality, with appropriate purge strategies defined for commercial operation

REFERENCED IN MAIN APPLICATION

- Section 1.4
- Section 3.2
- Section 4.2

DOCUMENT DETAILS

- Issued by: [redacted]
- Date: September 2025
- Page Count: 48 pages

C.4 begins on next page

C.5 Lilac Product Test Report

PURPOSE

The purpose of this appendix is to document pilot-scale testing conducted to evaluate the conversion of GSL Pilot eluate into battery grade lithium carbonate. The information supports assessment of downstream processing feasibility and product quality.

CONTENTS SUMMARY

This appendix includes a technical report prepared by Lilac Solutions summarizing pilot-scale crystallization testing of lithium-rich eluate produced at the GSL Pilot facility. The report describes process steps including divalent ion exchange polishing, evaporation, crude lithium carbonate crystallization, bicarbonation, and final recrystallization, and presents analytical results for intermediate and final products. Product quality data, including impurity profiles and comparison to battery grade specifications, are provided to demonstrate the capability of the process to produce battery grade lithium carbonate under representative operating conditions.

REFERENCED IN MAIN APPLICATION

- Section 1.4 (multiple)
- Section 3.1
- Section 4.2

DOCUMENT DETAILS

- Issued by: Lilac Solutions
- Date: January 1, 2026
- Page Count: 23

C.5 begins on next page



Lilac Report Revision 1 | January 2026

BATTERY GRADE LITHIUM CARBONATE CRYSTALLIZATION

GSL Pilot

Minh Nguyen, Process Engineer

Confidential Information

1 Summary

Lilac received 3 cubic meter totes of RO concentrated lithium rich eluate produced at the Great Salt Lake (GSL) pilot plant for downstream conversion into battery grade lithium carbonate. ICP analysis of the received feed material is described in Table 1.1.

Table 1.1 ICP Analysis of Pilot Crystallization Feed

Sample	Li (mg/L)	Na (mg/L)	Mg (mg/L)	Ca (mg/L)	K (mg/L)	B (mg/L)	Sr (mg/L)	SO_4 (mg/L)	Si (mg/L)
Tote 1	11,400	3,710	2.5	103	954	3.3	1.3	81,100	18.0
Tote 2	9,670	4,400	0.5	165	1,170	3.3	2.2	66,200	17.1
Tote 3	9,420	4,680	1.2	113	1,000	3.0	2.0	59,500	10.7

The required processing steps to convert the eluate stream into lithium carbonate were divalent ion exchange (IX), evaporation, crude lithium carbonate crystallization, bicarbonation, and pure lithium carbonate crystallization. As of January 2026, approximately 41 kg of purified lithium carbonate has been produced. The average, median, and standard deviation of the purified lithium carbonate solids measured via ICP are outlined in Table 1.2.

Table 1.2 Statistics of the ICP Analyses of Pure Lithium Carbonate Solids

	Na (mg/kg)	Mg (mg/kg)	Ca (mg/kg)	K (mg/kg)	B (mg/kg)	Sr (mg/kg)	SO_4 (mg/kg)	Si (mg/kg)
Specification	300	50	100	10	10	N/A	500	N/A
Average	57	1.5	15	0.8	1.8	1.2	384	47
St.Dev	63	2.6	17	0.4	0.9	1.5	55	29
Median	<33.9	<1	<3.4	<0.8	<1.6	<0.3	273	47
	Al (mg/kg)	**Ni (mg/kg)**	**Zn (mg/kg)**	**Cu (mg/kg)**	**Fe (mg/kg)**	**Cr (mg/kg)**	**Pb (mg/kg)**	**Mn (mg/kg)**
Specification	10	10	5	5	5	10	10	10
Average	2.3	1.7	0.5	0.6	0.9	1.6	<3.8	0.3
St.Dev	2.0	4.1	0.4	0.0	0.8	1.2	0.0	0.4
Median	5.3	<0.7	<0.4	<0.6	0.5	1.0	<3.8	<0.2

Of the 41 kg of purified lithium carbonate produced, 30 kg has met the battery grade specification for sulfate, with the other 11 kg having sulfate contents between 500-563 mg/kg against a specification of 500 mg/kg. This was due to manual control over the sulfate bleed from this process while the commercial process will be maintained by a programmable logic controller. When the bleed of bicarbonation slurry water from the system is too low, high sulfates are precipitated into the lithium carbonate. If needed at scale, a larger bleed stream will purge additional sulfate from this process to achieve a lower sulfate content in the produced lithium carbonate solids. However, increased bleed reduces the lithium recovery during bicarbonation.

2 Divalent Ion Exchange Polishing

Three totes of eluate were received from the pilot plant for conversion into battery grade lithium carbonate. The totes were numbered as received and designated, Tote 1, Tote 2, and Tote 3. Each tote had approximately 900 L of eluate. Initial ICP analysis of each tote is described in Table 2.1.

Table 2.1: ICP Analysis of Pilot Crystallization Feed

Sample	Li (mg/L)	Na (mg/L)	Mg (mg/L)	Ca (mg/L)	K (mg/L)	B (mg/L)	Sr (mg/L)	SO_4 (mg/L)	Si (mg/L)
Tote 1	11,400	3,710	2.5	103	954	3.3	1.3	81,100	18.0
Tote 2	9,670	4,400	0.5	165	1,170	3.3	2.2	66,200	17.1
Tote 3	9,420	4,680	1.2	113	1,000	3.0	2.0	59,500	10.7

The three totes were fed through two 2” diameter clear PVC columns in series that each contained two liters of Lewatit MonoPlus TP 208 IX resin. The totes were circulated into themselves as divalent ions were removed in bulk. Due to eluate polishing via IX being after reverse osmosis, no pH adjustment was required as the pH was adjusted prior to reverse osmosis. Commercially, eluate will be polished via divalent IX directly after softening and filtration and will require a pH adjustment down from a pH of 11 to 10. Once divalent ion concentrations in the feed were sufficiently low (feeding the columns below approximately 50 mg/L of divalent ions), IX column product was collected in 30-gallon drums for testing. Continuing to feed columns after divalent ions breakthrough to the product stream allows the media to saturate with divalent ions to reduce the number of manual regenerations performed. Commercially, three columns will be used in a lead-lag-regen configuration with feed material at approximately 30 mg/L of divalent ions. This configuration allows for regeneration of a saturated column offline while two columns are still in operation. ICP analysis was used to confirm all divalent ion concentrations were below 1 mg/L before moving the material downstream for evaporative concentration. Polished eluate was collected in 30-gallon drums for analysis. ICP analysis of three representative batches is presented in Table 2.2. Samples were analyzed at a lower dilution ratio to improve divalent ion analysis accuracy. Lithium was excluded from the analysis due to it being outside of the range of analysis at the lower dilution ratio.

Table 2.2 ICP Analysis of Divalent IX Column Product

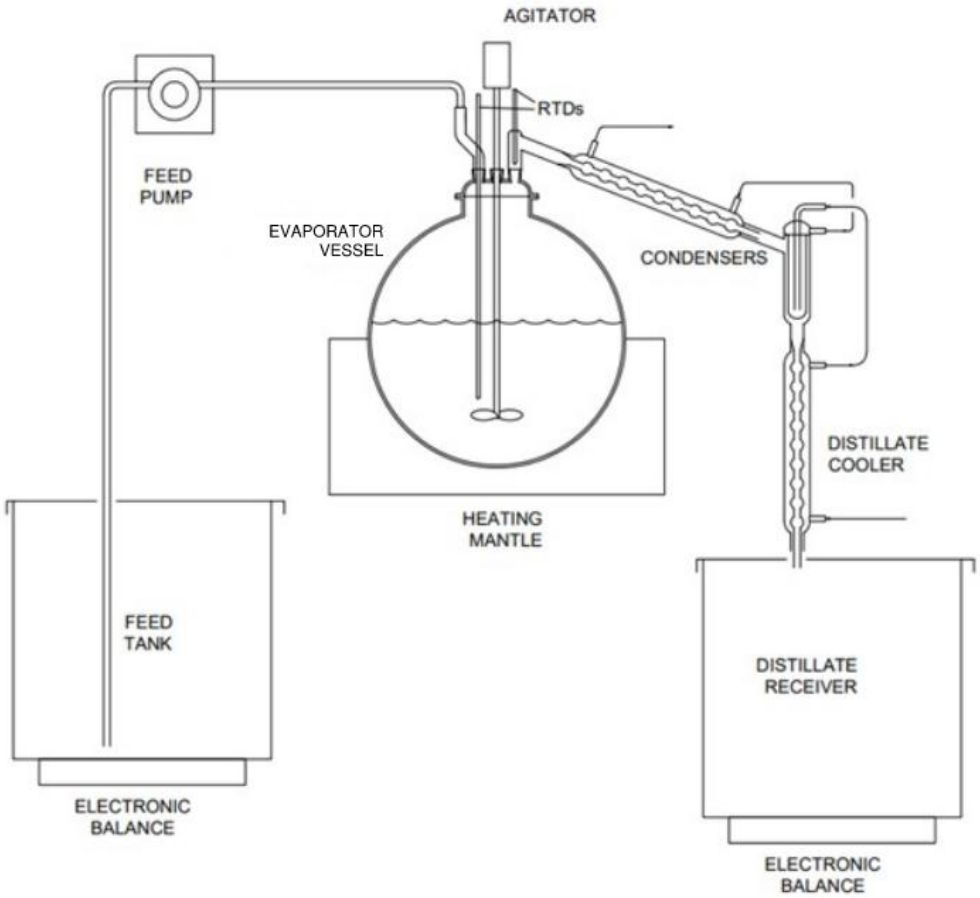
Sample	Na (mg/L)	Mg (mg/L)	Ca (mg/L)	K (mg/L)	B (mg/L)	Sr (mg/L)	SO_4 (mg/L)	Si (mg/L)
IX Product A	5,980	<0.04	0.21	1,280	3.8	0.02	77,300	13.1
IX Product B	5,070	<0.04	0.50	1,070	3.2	0.01	63,700	11.1
IX Product C	4,980	<0.04	<0.05	1,040	3.2	<0.01	65,500	10.8

3 Evaporative Concentration

The equipment used for evaporative concentration of the polished eluate was an agitated glass 22 L kettle with an external electric heating mantle and glass condensing train. Two similar systems were set up using 22 L glass kettles along with take-off condenser trains, peristaltic feed pumps, and 7-gallon HDPE feed tanks and condensate receivers sitting on electronic scales. Inconel RTD temperature elements were mounted in the 22 L kettle and condensing trains to measure the concentrate and water vapor temperatures in each kettle. The temperature elements were first calibrated by boiling pure water (100 C).

The eluate was concentrated by measuring the mass of total feed, mass of collected distillate, and estimating a concentration factor to target a final lithium concentration between 28-32 g Li/L. The feed tanks were refilled, and the distillate receivers were drained as required. The weights of feed and recovered distillate were measured and recorded. At the end of each test, the composition of the evaporative concentrate was measured via ICP OES to confirm the target concentration was achieved. A diagram of the evaporation system is shown in Figure 3.1.

Figure 3.1 Evaporation System



The concentrated eluate was clear with a slight yellow color. No foaming was observed during the evaporation tests. Due to the lack of foam formation during evaporation, commercial evaporation

will not need to consider the effects of foam carrying fluid into the vapor duct of the evaporator, making processing easier. Evaporation was completed over many batches as needed to feed the crude lithium carbonate crystallization step. Batches were collected in 16-18 L batches to prevent overfilling and boil-over of the 22 L glass evaporation kettles. Due to operation in glassware, rather than the expected stainless steel of the commercial unit, approximately 10-40 mg/L of silica was absorbed by the process fluid during evaporation. ICP analysis of three representative batches of evaporative concentrate are shown in Table 3.1.

Table 3.1: ICP Analysis of Eluate Evaporative Concentrate

Sample	Li (mg/L)	Na (mg/L)	K (mg/L)	B (mg/L)	SO_4 (mg/L)	Si (mg/L)
Evaporative Concentrate A	30,400	18,100	3,390	13.9	228,000	46.5
Evaporative Concentrate B	29,000	13,200	2,550	6.30	188,000	43.6
Evaporative Concentrate C	29,600	21,500	3,600	11.7	228,000	75.2

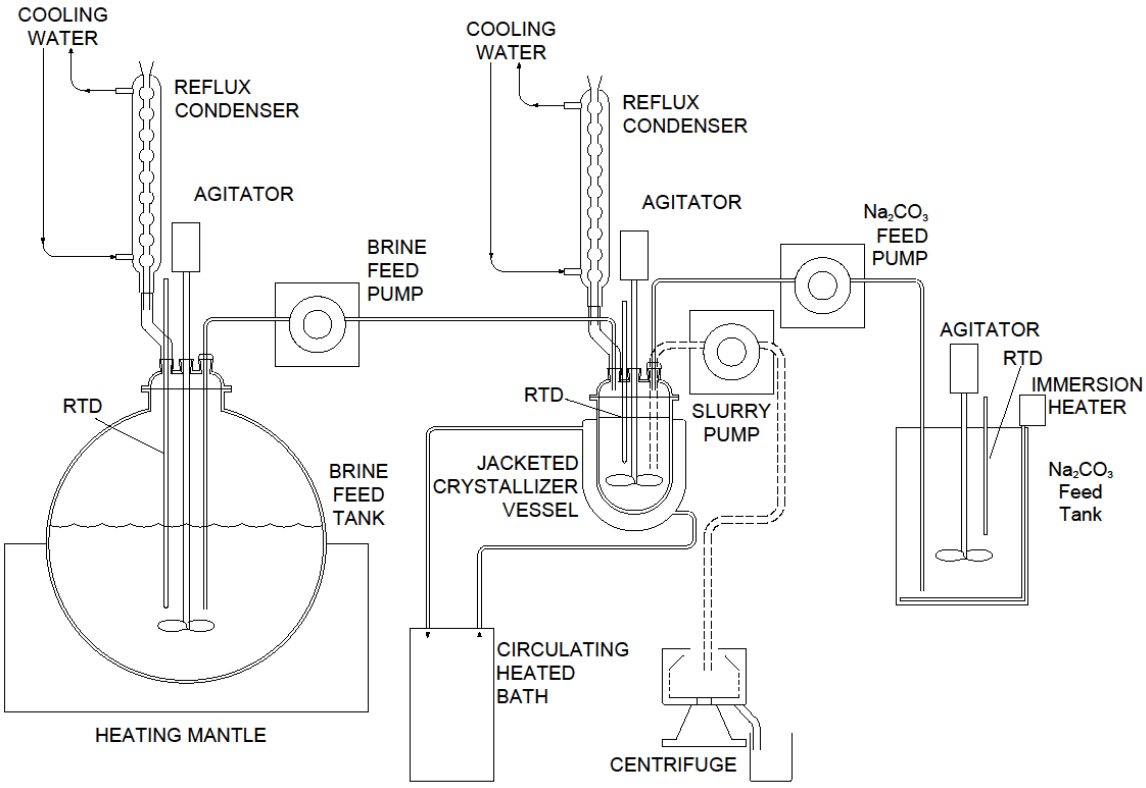
4 Crude Lithium Carbonate Crystallization

Lithium carbonate crystallization was carried out using two main crystallization methods. The first method used a continuous stirred tank reactor, or CSTR, crystallizer while the second method used a draft tube baffle, or DTB, crystallizer. Both the CSTR and DTB crystallizers used identical peripheral equipment. A glass 22 L kettle was used to store eluate with a 1500 W heating mantle used to preheat the feed. A 10-gallon HDPE tank was used to store soda ash with a stainless-steel immersion heater used to maintain temperature at 50°C. Peristaltic pumps were used to deliver both feeds to the crystallizer. A large peristaltic pump was used to pump the lithium carbonate slurry into a stainless-steel basket centrifuge to separate the solids. The solids were washed on the centrifuge with approximately 1.5 times the mass of the cake using hot DI water before being dried in a lab oven overnight.

Continuous Stirred Tank Reactor Crystallization

For the CSTR system, a 3 L jacketed kettle was used as the crystallizer with a heated circulating bath at 92°C, maintaining a reactor temperature of 80°C. Product streams were drawn from the crystallizer directly every 30 minutes. Initially, the crystallizer was charged with an hour of soda ash feed and only the eluate feed was started. Startup using this method produces relatively more pure crystals compared to starting empty or starting with eluate and feeding soda ash only. After an hour, the feed and the agitator were stopped, to allow the slurry to settle, and clear mother liquor (ML) was drawn from the crystallizer. At this point, the agitator was restarted and both feeds were started and regular operation proceeded by alternating pulling clear ML and slurry every 30 minutes, starting with ML. This procedure, combined with appropriate feed rates, gives the solid crystals approximately a two-hour retention time. A diagram of the CSTR crystallization system can be seen in Figure 4.1.

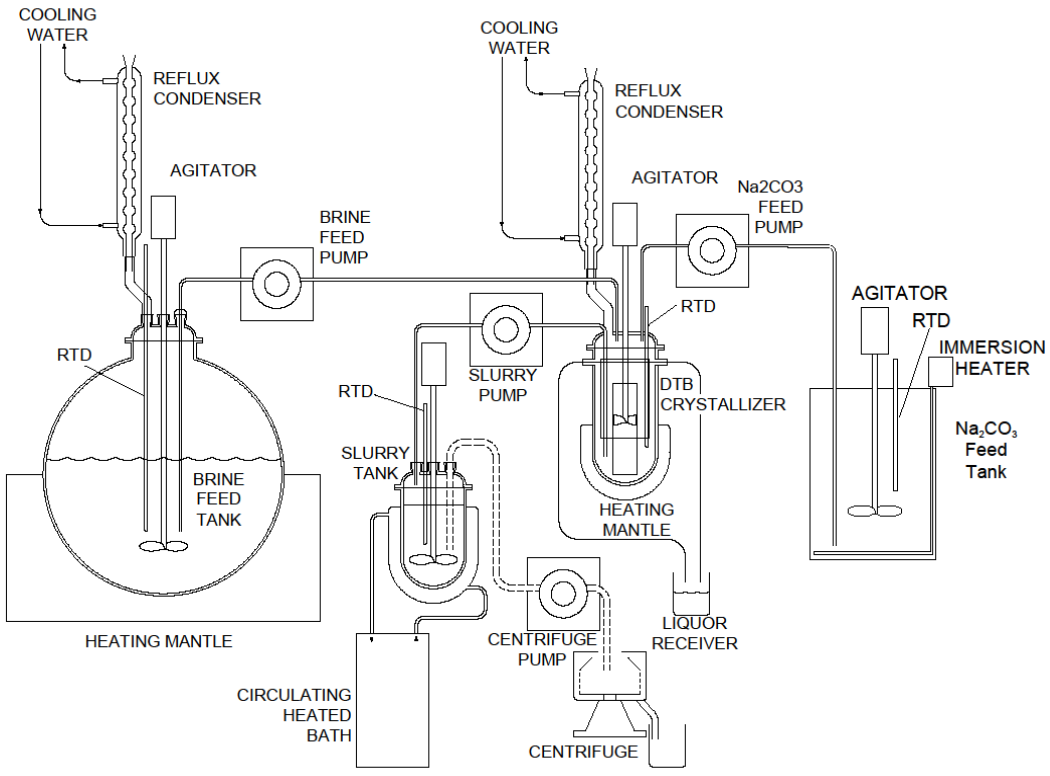
Figure 4.1 CSTR Crystallization System



Draft Tube Baffle Crystallization

For the continuous DTB crystallizer, a 4 L kettle with two additional side ports was used along with a 3 L jacketed kettle to hold crystal slurry until enough was retained to centrifuge slurry. A 1000 W heating mantle was used to maintain the crystallizer temperature at around 85°C. An additional peristaltic pump was used to continuously withdraw slurry from the crystallizer while excess liquid was allowed to overflow from the two side ports to continuously remove clear ML. The crystallizer was initially filled with ML from prior tests. This filled the vessel with liquor to allow slurry to be pushed throughout the crystallizer, as liquor must overflow both the inner draft tube, and the outer baffle region for solids mixing and clear liquor overflow respectively. Both feeds were started simultaneously while only clear liquor was allowed to overflow from the reactor for the first two hours. This thickened the lithium carbonate slurry up to approximately 12 w/w% to allow for more surface area for crystallization and therefore higher purity crystals. After which, the slurry pump was started so both crystal slurry and ML were being continuously drawn from the reactor. A diagram of the DTB system is shown in Figure 4.2.

Figure 4.2 DTB Crystallization System



On startup, the crystallizer was charged with 3 L of mother liquor from prior work. Both feed pumps were then calibrated and started at the same time, with the brine and soda ash feeds calibrated to target a 10% stoichiometric soda ash excess. For the initial two hours of operation, slurry was not drawn from the crystallizer to thicken the lithium carbonate (LC) and target a two-hour solids retention time. At the end of operation, both feeds were shut down and all LC slurry from the slurry tank and crystallizer was drained, centrifuged, and washed as normal.

Results

Batches of LC were collected every hour during crystallization. From select batches, approximately 0.5 g was digested into a 50 mL dilution and analyzed via ICP to determine impurity content. The average, standard deviation, and median of the results of lithium carbonate produced via CSTR crystallization are shown in Table 4.1. Similar statistics of the results of lithium carbonate produced via DTB crystallization are shown in Table 4.2. A full table of analyses can be seen in Appendix A.

Table 4.1: Statistics of the ICP Analysis of Crude CSTR Lithium Carbonate Solids

	Na (mg/kg)	Mg (mg/kg)	Ca (mg/kg)	K (mg/kg)	B (mg/kg)	Sr (mg/kg)	SO_4 (mg/kg)	Si (mg/kg)
Average	1,620	10.9	20.0	48.0	1.76	2.08	6,690	28.3
St.Dev	1,380	24.2	15.1	39.7	1.73	1.89	5,120	18.3
Median	1,140	4.49	15.7	38.6	1.19	1.54	5,290	24.8

Table 4.2: Statistics of the ICP Analysis of Crude DTB Lithium Carbonate Solids

	Na (mg/kg)	Mg (mg/kg)	Ca (mg/kg)	K (mg/kg)	B (mg/kg)	Sr (mg/kg)	SO_4 (mg/kg)	Si (mg/kg)
Average	1,170	2.51	9.80	28.0	3.38	2.33	5,180	27.1
St.Dev	825	2.66	7.71	13.4	3.93	1.33	1,880	9.60
Median	824	1.98	7.02	25.8	2.17	2.72	4,680	27.3

Results from both crystallization methods follow similar trends across impurity profiles. Due to conversion from lithium sulfate eluate, sulfate inclusion into the crude lithium carbonate is high, relative to other impurities. Commercially, a DTB crystallizer will be used for this stage of crystallization. This design decision is supported by the purer crystals produced using DTB crystallization relative to the crystal quality produced by CSTR crystallization.

5 Pure Lithium Carbonate Crystallization

Crude lithium carbonate solids were used as feed material for recrystallization. Material was purified in a two-stage process of bicarbonation and recrystallization. The bicarbonation process dissolves the lithium carbonate solids by sparging carbon dioxide gas into a 4 w% lithium carbonate equivalent slurry. This raises the solubility of lithium carbonate by converting the material into lithium bicarbonate. This is performed in a glass 22 L kettle in approximately 18 L batches. A pressurized carbon dioxide cylinder feeds gas through a submerged, ceramic sparging stone. During this process, undissolved carbon dioxide gas is vented to a safe, well-ventilated location while during the commercial process, undissolved gas will be recovered. An overhead agitator with a 4" impeller at 350 rpm maintains a suspended slurry while the solids are dissolving. Once the solids are dissolved, the clear liquor is filtered to remove insoluble material before being reintroduced into the same 22 L kettle.

The recrystallization process uses heat from a 1540 W heating mantle to increase the temperature of the solution and convert bicarbonate ions into carbonate ions and carbon dioxide gas. This recrystallizes the solid lithium carbonate while leaving aqueous impurities dissolved in solution. During this process, a reflux condenser is fixed to the head of the reaction vessel to prevent water loss. The recrystallization slurry is held at approximately 85°C for one hour to decarbonate the solution. The slurry is then pumped into a 6" vertical basket centrifuge to separate the lithium carbonate crystals from the recrystallization mother liquor. The solids are then washed in the centrifuge with approximately 1.5x the mass of solids as hot wash water. The majority of the mother liquor is recycled to use as feed liquor for the next bicarbonation batch while a small amount is bled off to control impurities. The bleed stream is used to dissolve soda ash for use in crude lithium carbonate crystallization. The solids are then dried in a lab oven at 120°C overnight. A 0.5 g sample of each sample was digested in nitric acid and diluted to 50 mL for analysis via ICP. Approximately 41 kg of purified lithium carbonate solids have been crystallized to date. The average, standard deviation, and median of the results are shown in Table 5.1. A full table of analyses can be seen in Appendix B.

Table 5.1: Statistics of the ICP Analyses of Pure Lithium Carbonate Solids

	Na (mg/kg)	Mg (mg/kg)	Ca (mg/kg)	K (mg/kg)	B (mg/kg)	Sr (mg/kg)	SO_4 (mg/kg)	Si (mg/kg)
Specification	300	50	100	10	10	N/A	500	N/A
Average	57	1.5	15	0.8	1.8	1.2	384	47
St.Dev	63	2.6	17	0.4	0.9	1.5	55	29
median	<33.9	<1	<3.4	<0.8	<1.6	<0.3	273	47
	Al (mg/kg)	**Ni (mg/kg)**	**Zn (mg/kg)**	**Cu (mg/kg)**	**Fe (mg/kg)**	**Cr (mg/kg)**	**Pb (mg/kg)**	**Mn (mg/kg)**
Specification	10	10	5	5	5	10	10	10
Average	2.3	1.7	0.5	0.6	0.9	1.6	<3.8	0.3
St.Dev	2.0	4.1	0.4	0.0	0.8	1.2	0.0	0.4
median	5.3	<0.7	<0.4	<0.6	0.5	1.0	<3.8	<0.2

Of the 41 kg of purified lithium carbonate, approximately 30 kg of that material is within specification for SO_4 with 11 kg produced with a sulfate content between 500-563 against a battery grade sulfate specification of 500. Sulfates are the main impurity the purification process is aiming to remove. Therefore, the size of the bleed stream must be calculated to control the sulfate content of the recycled liquor used for bicarbonation. For the pilot crystallization process, the size of the bleed stream was manually calculated for each batch based on the sulfate content of the mother liquor. For commercial operation, finer control over the size of the bleed stream is expected to create more consistent final product sulfate content. If needed, the size of this bleed stream can be increased to lower the sulfate content of the final product, to achieve battery grade specifications. Due to operation in glassware, the lithium carbonate solution absorbed some silica from the borosilicate glass, raising the Si content of the mother liquor and purified solids above what would be expected from commercial operation in stainless steel vessels.

Appendix A: Crude Lithium Carbonate ICP Analyses

Sample	DTB	Na (mg/kg)	Mg (mg/kg)	Ca (mg/kg)	K (mg/kg)	B (mg/kg)	Sr (mg/kg)	SO_4 (mg/kg)	Si (mg/kg)
LoD	N/A	34	1.0	3.4	0.8	1.6	0.3	123	19
CR2-78-05	TRUE	2,350	<1.0	14.9	56.3	<1.6	<0.3	5,890	27.0
CR2-78-11	TRUE	955	<1.0	16.6	29.1	<1.6	<0.3	4,110	31.8
CR2-78-13	TRUE	592	<1.0	11.8	21.2	<1.6	<0.3	3,450	28.0
CRS-4402-B10	FALSE	3,640	<1.0	20.8	87.7	<1.6	<0.3	8,130	27.0
CRS-4402-B11	FALSE	1,800	14.0	38.8	55.6	<1.6	<0.3	6,800	25.7
CRS-4402-B6	FALSE	601	<1.0	13.3	23.6	<1.6	<0.3	3,690	23.5
CRS-4402-B7	FALSE	921	<1.0	13.8	28.5	<1.6	<0.3	3,770	20.5
CRS-4402-B9	FALSE	3,000	<1.0	12.1	61.0	<1.6	<0.3	5,470	19.4
CR1-173-02	FALSE	6,650	<1.0	26.8	60.7	<1.6	<0.3	6,440	41.6
CR1-173-05	TRUE	1,780	<1.0	25.3	15.6	<1.6	<0.3	2,890	31.2
CR1-173-09	TRUE	3,760	<1.0	24.7	55.6	<1.6	<0.3	6,040	27.6
CR1-173-12	TRUE	2,860	<1.0	26.4	47.3	<1.6	<0.3	5,740	25.9
CR1-173-15	TRUE	1,750	<1.0	27.2	35.8	<1.6	<0.3	4,720	28.2
CR1-180-02	TRUE	444	1.4	15.4	26.4	4.0	<0.3	6,330	53.7
CR1-180-09	TRUE	1,000	1.2	11.8	42.0	1.6	<0.3	9,710	24.9
CR1-182-15	FALSE	1,400	<1.0	6.2	43.1	<1.6	<0.3	4,750	<19
CR1-182-01	FALSE	814	<1.0	8.0	14.9	<1.6	<0.3	1,600	22.8
CR1-180-16	TRUE	1,840	1.5	12.8	54.3	1.9	<0.3	8,540	23.8
CR1-186-03	FALSE	4,540	<1.0	<3.4	73.0	<1.6	<0.3	5,550	<19
CR1-188-03	FALSE	4,100	<1.0	<3.4	72.6	<1.6	<0.3	5,530	<19
CR1-188-07	FALSE	5,490	<1.0	<3.4	95.9	<1.6	<0.3	7,430	<19
CR1-188-11	FALSE	2,810	<1.0	<3.4	53.6	<1.6	<0.3	5,490	<19
CR1-191-03	FALSE	6,690	<1.0	<3.4	99.2	<1.6	0.6	8,840	<19
CR10-11-03	FALSE	3,080	4.2	23.1	44.9	<1.6	1.5	4,210	23.0
CR10-11-05	FALSE	1,180	4.5	28.1	31.7	1.7	2.9	5,350	27.4
CR10-11-09	FALSE	3,370	4.3	28.8	68.1	2.1	3.0	8,730	25.8
CR10-12-03	FALSE	14,000	4.1	23.0	185	<1.6	1.1	14,100	29.8
CR10-12-05	FALSE	5,080	3.8	28.5	88.7	2.3	2.4	8,420	24.5
CR10-9-3	FALSE	20,000	5.2	28.6	325	2.2	1.5	25,500	44.7
CR10-20-01	FALSE	2,030	1.5	11.6	25.6	<1.6	1.1	3,850	22.9
CR10-20-02	FALSE	525	1.4	10.8	12.0	<1.6	1.1	2,960	<19
CR10-20-03	FALSE	461	1.6	11.6	19.9	<1.6	1.2	3,910	<19
CR10-17-03	FALSE	851	3.1	21.3	20.6	<1.6	2.0	3,830	32.1
CR10-17-04	FALSE	2,580	3.0	20.2	59.7	1.7	2.2	8,070	24.8
CR10-23-01	FALSE	716	<1.0	3.8	10.1	<1.6	0.7	1,500	22.1
CR10-25-01	FALSE	2,900	1.9	5.9	63.6	<1.6	0.8	5,970	25.5
CR10-28-01	FALSE	641	1.7	4.1	14.7	<1.6	0.6	2,650	27.2

Sample	DTB	Na (mg/kg)	Mg (mg/kg)	Ca (mg/kg)	K (mg/kg)	B (mg/kg)	Sr (mg/kg)	SO_4 (mg/kg)	Si (mg/kg)
CR10-28-04	FALSE	488	<1.0	3.6	17.0	2.2	<0.3	3,650	<19
CR10-25-03	FALSE	592	1.0	6.8	30.3	1.7	2.5	10,800	22.6
CR10-29-01	FALSE	960	1.7	5.5	17.0	<1.6	<0.3	1,920	26.9
CR10-29-04	FALSE	471	<1.0	<3.4	15.2	<1.6	<0.3	2,430	<19
CR10-35-01	FALSE	960	<1.0	<3.4	7.6	<1.6	<0.3	1,100	<19
CR10-35-02	FALSE	1,430	<1.0	<3.4	5.9	<1.6	<0.3	1,060	<19
CR10-35-03	FALSE	889	<1.0	<3.4	6.7	<1.6	<0.3	1,100	<19
CR1-190-13	FALSE	288	<1.0	<3.4	<0.8	<1.6	<0.3	<123	22.3
CR10-30-01	FALSE	913	5.1	19.0	27.7	<1.6	0.5	5,070	73.0
CR10-30-02	FALSE	846	3.0	15.8	35.5	<1.6	<0.3	9,320	56.5
CR10-32-01	FALSE	1,810	1.2	12.7	68.3	1.7	1.6	13,200	109
CR10-32-02	FALSE	2,310	<1.0	10.4	109	3.4	2.0	24,500	103
CR10-32-03	FALSE	1,440	<1.0	8.2	57.3	2.1	0.5	17,000	66.3
CR10-32-04	FALSE	892	<1.0	9.0	39.7	2.4	<0.3	14,000	58.2
CR10-33-01	FALSE	558	4.9	17.6	16.2	<1.6	<0.3	4,230	49.4
CR10-33-02	FALSE	374	4.7	29.6	21.3	<1.6	<0.3	9,500	57.4
CR10-33-03	FALSE	415	3.6	27.1	19.7	<1.6	<0.3	6,940	45.9
CR10-33-04	FALSE	461	4.0	26.6	18.0	<1.6	<0.3	5,000	53.6
CR10-45-01	FALSE	1,140	<1.0	<3.4	23.3	<1.6	<0.3	3,210	<19
CR10-45-02	FALSE	976	<1.0	<3.4	19.4	<1.6	<0.3	2,820	27.0
CR10-45-03	FALSE	1,280	<1.0	<3.4	34.8	2.0	<0.3	5,240	<19
CR10-43-01	FALSE	2,150	<1.0	<3.4	44.1	<1.6	<0.3	3,390	22.9
CR10-43-02	FALSE	1,240	<1.0	<3.4	23.3	<1.6	<0.3	2,800	<19
CR2-84-05	FALSE	895	1.0	13.6	16.8	<1.6	<0.3	2,890	29.0
CR2-84-09	FALSE	830	<1.0	10.0	15.1	<1.6	<0.3	2,930	<19
CR2-84-13	FALSE	1,430	94.8	12.7	69.5	<1.6	<0.3	2,600	26.6
CR2-84-19	FALSE	1,340	87.8	12.6	64.5	<1.6	<0.3	2,520	28.5
CR2-85-05	FALSE	3,020	1.7	11.8	33.4	<1.6	<0.3	3,400	<19
CR2-85-09	FALSE	2,080	107	11.9	80.8	<1.6	<0.3	2,670	<19
CR2-85-13	FALSE	3,060	95.9	12.1	84.7	<1.6	<0.3	3,770	<19
CR2-86-05	FALSE	2,460	106	13.4	70.7	<1.6	<0.3	1,210	<19
CR2-86-09	FALSE	6,880	1.1	10.7	47.6	<1.6	<0.3	4,270	<19
CR2-85-05	FALSE	3,020	1.7	11.8	33.4	<1.6	<0.3	3,400	<19
CR2-85-09	FALSE	2,080	107	11.9	80.8	<1.6	<0.3	2,670	<19
CR2-85-13	FALSE	3,100	97.2	12.3	85.9	<1.6	<0.3	3,830	<19
CR2-85-17	FALSE	873	<1.0	6.2	24.4	<1.6	<0.3	8,840	<19
CR2-85-20	FALSE	1,370	<1.0	5.9	24.7	<1.6	<0.3	8,660	<19
CR2-88-05	FALSE	671	1.3	8.1	18.4	<1.6	<0.3	2,390	<19
CR2-88-16	FALSE	267	1.6	6.3	14.7	<1.6	<0.3	2,980	<19
CR2-87-05	FALSE	250	1.5	9.3	9.3	10.3	<0.3	1,560	<19
CR2-87-09	FALSE	709	<1.0	8.0	20.0	<1.6	<0.3	3,010	<19

Sample	DTB	Na (mg/kg)	Mg (mg/kg)	Ca (mg/kg)	K (mg/kg)	B (mg/kg)	Sr (mg/kg)	SO_4 (mg/kg)	Si (mg/kg)
CR2-87-12	FALSE	203	<1.0	7.3	10.5	<1.6	<0.3	2,340	<19
CR2-87-15	FALSE	146	<1.0	7.0	9.8	<1.6	<0.3	2,320	<19
CR2-90-09	FALSE	3,010	1.6	<3.4	45.1	2.7	<0.3	5,340	114
CR2 -90-19	FALSE	289	1.8	<3.4	9.9	2.4	<0.3	3,070	86.0
CR2-91-05	FALSE	1,780	3.8	9.4	27.9	15.6	<0.3	2,970	98.2
CR2-91-15	TRUE	715	2.8	9.9	24.3	14.5	<0.3	5,120	100
CR2-92-05	TRUE	1,080	1.9	<3.4	24.2	2.8	<0.3	4,460	*C
CR2-92-18	TRUE	346	2.1	<3.4	14.4	3.4	<0.3	3,740	*C
CR2-93-06	TRUE	1,760	16.6	27.9	34.1	5.3	<0.3	4,890	*C
CR2-93-19	TRUE	543	2.3	<3.4	15.9	6.2	<0.3	4,040	*C
CR2-94-07	TRUE	486	1.9	<3.4	17.1	2.6	<0.3	4,090	*C
CR2-94-20	TRUE	1,650	1.7	<3.4	30.9	3.0	<0.3	4,640	*C
CR2-94-22	TRUE	763	2.2	4.8	15.6	<1.6	<0.3	4,000	*C
CR2-97-18	TRUE	1,950	2.0	6.9	40.2	<1.6	3.2	9,030	*C
CR2-97-06	TRUE	985	1.7	6.1	22.1	<1.6	1.7	6,280	*C
CR2-95-16	TRUE	884	1.8	5.5	14.6	<1.6	<0.3	3,880	*C
CR2-96-20	TRUE	460	1.9	4.3	11.6	<1.6	0.3	3,920	*C
CR2-94-21	TRUE	1,140	2.2	5.4	17.8	<1.6	<0.3	4,020	*C
CR2-95-05	TRUE	690	1.8	5.5	15.4	<1.6	<0.3	4,040	*C
CR2-96-07	TRUE	597	1.8	4.5	13.6	<1.6	<0.3	3,870	*C
CR2-98-07	TRUE	553	3.8	9.2	13.0	10.1	2.4	2,290	*C
CR2-98-15	TRUE	733	3.3	7.2	26.0	10.9	3.7	3,600	*C
CR2-99-07	TRUE	654	2.2	6.3	28.4	3.7	3.0	5,790	*C
CR2-99-16	TRUE	286	2.2	5.6	17.8	3.6	3.1	4,850	*C
CR2-101-19	TRUE	482	3.1	6.3	25.7	<1.6	2.5	6,390	<19
CR2-100-15	TRUE	658	2.7	8.0	32.6	5.2	3.7	8,080	<19
CR2-101-05	TRUE	1,400	3.0	8.4	50.5	<1.6	2.7	7,230	23.5
CR2-100-05	TRUE	742	2.7	10.6	36.4	6.3	4.1	9,410	29.6
CR2-105-20	TRUE	1,180	7.7	21.2	80.0	2.0	7.8	20,100	48.0
CR2-106-05	TRUE	2,520	8.0	20.5	62.3	<1.6	2.6	5,830	47.6
CR2-106-17	TRUE	1,170	6.2	19.4	45.3	<1.6	4.3	12,000	31.2
CR2-104-13	FALSE	769	5.0	18.5	39.4	<1.6	4.9	9,180	49.8
CR2-105-05	FALSE	1,070	8.5	21.3	24.0	<1.6	2.5	2,720	42.9
CR2-105-13	FALSE	1,150	7.9	23.1	73.1	<1.6	7.8	18,000	47.7
CR2-104-20	FALSE	1,210	4.9	17.0	82.4	2.2	7.9	21,500	51.9
CR2-103-07	FALSE	1,210	5.6	15.4	45.1	<1.6	4.6	10,300	60.6
CR2-103-13	FALSE	875	4.2	13.9	37.9	<1.6	4.6	8,850	46.5
CR2-102-05	FALSE	929	5.8	23.9	37.4	<1.6	3.7	7,870	46.9
CR2-102-08	FALSE	1,810	4.7	19.4	49.1	<1.6	3.4	7,040	31.2
CR2-104-05	FALSE	1,130	8.7	21.9	27.7	<1.6	3.8	3,600	45.0
CR2-107-05	FALSE	919	6.9	18.4	17.3	<1.6	1.9	2,100	<19

Sample	DTB	Na (mg/kg)	Mg (mg/kg)	Ca (mg/kg)	K (mg/kg)	B (mg/kg)	Sr (mg/kg)	SO_4 (mg/kg)	Si (mg/kg)
CR2-107-17	FALSE	1,190	6.2	17.2	57.1	<1.6	4.7	13,900	20.1
CR2-108-05	FALSE	971	7.5	14.9	35.5	<1.6	1.5	2,780	33.6
CR2-108-16	FALSE	1,120	6.6	14.0	64.1	<1.6	4.9	13,600	31.9
CR2-109-05	FALSE	1,910	8.2	28.5	37.7	<1.6	1.2	3,320	<19
CR2-109-13	FALSE	2,090	6.6	39.7	57.7	<1.6	1.8	7,310	23.7
CR2-109-20	FALSE	654	7.6	45.9	30.6	<1.6	2.6	6,470	23.6
CR2-110-05	FALSE	2,920	8.7	37.9	64.3	<1.6	0.8	5,140	22.2
CR2-110-13	FALSE	603	7.1	45.3	23.5	<1.6	0.9	4,750	30.9
CR2-110-24	FALSE	654	8.2	59.5	31.0	<1.6	1.8	6,660	27.7
CR2-114-05	FALSE	620	9.5	28.9	18.6	1.9	<0.3	2,270	20.8
CR2-114-21	FALSE	670	11.5	44.4	38.6	3.5	<0.3	7,340	22.3
CR2-112-24	FALSE	717	13.2	77.4	44.2	3.8	2.2	9,040	33.3
CR2-113-05	FALSE	1,090	9.2	34.1	33.0	2.1	<0.3	3,120	23.5
CR2-113-17	FALSE	717	11.3	52.1	43.7	3.6	0.7	9,100	24.6
CR2-111-17	FALSE	850	10.4	68.3	46.4	7.6	2.3	8,700	33.5
CR2-111-103	FALSE	586	4.9	15.5	31.7	3.7	4.2	6,970	26.0
CR2-112-05	FALSE	2,860	10.3	46.3	79.1	3.1	0.8	6,030	30.3
CR2-111-05	FALSE	4,060	11.6	46.7	109	3.1	1.0	7,540	32.3
CR2-115-17	FALSE	2,280	9.6	36.5	69.3	2.8	<0.3	6,590	22.8
CR2-116-02	FALSE	843	7.5	43.2	41.4	2.7	1.7	7,430	31.3
CR2-115-05	FALSE	1,050	11.8	31.1	33.6	<1.6	<0.3	3,760	26.1
CR2-116-07	FALSE	976	7.9	37.5	44.6	2.7	0.9	8,260	27.5
CR2-116-11	FALSE	1,460	8.6	38.9	83.8	3.3	0.7	14,300	27.2
CR2-116-15	FALSE	1,560	8.8	36.9	98.3	3.6	0.5	17,900	29.5
CR2-116-19	FALSE	1,480	9.1	36.7	97.7	3.7	0.4	19,300	31.3
CR2-117-05	FALSE	911	7.2	25.3	25.1	4.1	<0.3	3,300	19.0
CR2-117-13	FALSE	1,210	7.6	32.1	57.5	5.0	<0.3	13,300	19.1

*C – No data due to contamination of ICP preparation blanks with silica.

Appendix B: Pure Lithium Carbonate ICP Analyses

Sample	Mass (g)	Na (mg/kg)	Mg (mg/kg)	Ca (mg/kg)	K (mg/kg)	B (mg/kg)	Sr (mg/kg)	SO_4 (mg/kg)	Si (mg/kg)
LoD	N/A	33.9	1.0	3.4	0.8	1.6	0.3	123.0	18.7
CR1-176-16	70.1	<34	<1.0	<3.4	<0.8	<1.6	<0.3	<123	<19
CR1-176-10	171.3	40.2	<1.0	<3.4	<0.8	<1.6	<0.3	123.9	<19
CR1-176-13	133.7	104.3	<1.0	<3.4	<0.8	<1.6	<0.3	140.2	<19
CR1-178-01	151.4	79.1	<1.0	<3.4	<0.8	<1.6	<0.3	179.6	<19
CR1-174-18	87.3	<34	<1.0	<3.4	<0.8	<1.6	<0.3	195.0	<19
CR1-174-24	71.6	112.3	<1.0	<3.4	<0.8	<1.6	<0.3	198.2	<19
CR1-178-04	152.4	48.5	1.5	<3.4	<0.8	<1.6	<0.3	226.4	<19
CR1-174-15	84.8	105.0	<1.0	<3.4	<0.8	<1.6	<0.3	231.3	<19
CR1-175-13	37.9	40.8	<1.0	<3.4	<0.8	<1.6	<0.3	235.5	<19
CR1-174-21	77.8	132.3	<1.0	<3.4	<0.8	<1.6	<0.3	235.8	<19
CR1-175-07	178.2	86.5	<1.0	<3.4	<0.8	<1.6	<0.3	282.2	<19
CR1-175-10	91.1	76.8	<1.0	<3.4	<0.8	<1.6	<0.3	270.0	<19
CR1-174-06	95.4	<34	<1.0	<3.4	<0.8	<1.6	<0.3	284.8	<19
CR1-174-03	185.7	95.3	<1.0	<3.4	<0.8	<1.6	<0.3	258.1	<19
CR1-174-09	94.2	73.0	<1.0	<3.4	<0.8	<1.6	<0.3	319.2	<19
CR1-174-12	52.9	83.2	<1.0	<3.4	<0.8	<1.6	<0.3	315.3	<19
CR1-184-13	176.6	<34	<1.0	<3.4	<0.8	<1.6	<0.3	277.7	84.7
CR1-184-01	170.0	<34	<1.0	6.9	<0.8	<1.6	<0.3	392.7	104.6
CR1-184-01	62.8	<34	<1.0	6.9	<0.8	<1.6	<0.3	392.7	104.6
CR1-184-10	158.0	56.1	1.4	15.0	2.2	<1.6	<0.3	402.8	112.1
CR1-184-04	140.8	<34	<1.0	5.0	<0.8	<1.6	<0.3	405.8	113.6
CR1-189-16	99.7	<34	<1.0	<3.4	<0.8	<1.6	<0.3	468.4	28.0
CR1-189-10	196.2	<34	<1.0	<3.4	<0.8	<1.6	<0.3	454.3	31.0
CR1-192-19	28.1	80.6	<1.0	<3.4	1.0	<1.6	<0.3	308.7	66.6
CR10-03-13	232.0	106.2	<1.0	<3.4	<0.8	<1.6	<0.3	296.0	56.6
CR1-187-16	154.4	111.7	<1.0	<3.4	0.9	<1.6	<0.3	544.5	105.1
CR1-190-10	119.1	124.1	<1.0	<3.4	<0.8	<1.6	<0.3	<123	<19
CR1-189-07	152.6	49.3	<1.0	<3.4	<0.8	<1.6	<0.3	467.5	25.3
CR1-187-19	98.4	114.7	<1.0	<3.4	1.1	<1.6	<0.3	546.3	106.6
CR1-190-04	124.2	201.8	<1.0	<3.4	<0.8	<1.6	<0.3	<123	28.1
CR1-189-13	213.4	<34	<1.0	<3.4	<0.8	<1.6	<0.3	475.2	30.7
CR1-190-07	66.3	105.7	<1.0	<3.4	<0.8	<1.6	<0.3	<123	31.7
CR1-192-01	140.2	205.9	<1.0	<3.4	1.8	<1.6	<0.3	528.5	46.4

Sample	Mass (g)	Na (mg/kg)	Mg (mg/kg)	Ca (mg/kg)	K (mg/kg)	B (mg/kg)	Sr (mg/kg)	SO_4 (mg/kg)	Si (mg/kg)
CR10-03-10	201.4	189.6	<1.0	<3.4	2.7	<1.6	<0.3	376.1	52.8
CR1-187-22	329.8	96.8	<1.0	<3.4	<0.8	<1.6	<0.3	562.8	105.5
CR10-03-07	125.1	217.9	<1.0	<3.4	1.4	<1.6	<0.3	385.6	58.6
CR10-03-04	165.2	86.9	<1.0	<3.4	<0.8	<1.6	<0.3	381.8	52.3
CR1-192-16	106.5	126.7	<1.0	<3.4	1.1	<1.6	<0.3	382.3	63.4
CR1-192-13	96.9	173.4	<1.0	<3.4	1.5	<1.6	<0.3	397.3	65.9
CR1-187-13	122.4	59.8	<1.0	<3.4	<0.8	<1.6	<0.3	527.2	106.4
CR10-8-01	285.4	53.6	2.0	12.2	1.7	<1.6	1.4	391.2	96.7
CR1-187-13	57.4	59.8	<1.0	<3.4	<0.8	<1.6	<0.3	527.2	106.4
CR1-187-22	9.8	96.8	<1.0	<3.4	<0.8	<1.6	<0.3	562.8	105.5
CR1-192-10	107.3	154.3	<1.0	<3.4	1.6	<1.6	<0.3	512.9	50.0
CR10-8-04	227.4	48.3	1.1	12.4	1.4	<1.6	1.3	380.9	94.9
CR10-8-10	256.0	43.0	<1.0	6.6	1.1	<1.6	1.0	412.9	91.2
CR10-8-07	262.8	75.5	1.0	8.7	1.5	<1.6	1.1	449.7	89.0
CR10-16-02	318.0	<34	2.8	15.0	<0.8	<1.6	1.8	535.6	113.0
CR10-7-07	141.4	132.9	<1.0	<3.4	1.9	<1.6	<0.3	423.1	67.1
CR10-7-04	194.2	103.8	<1.0	<3.4	1.7	<1.6	<0.3	421.5	61.0
CR10-7-01	181.3	205.3	1.8	5.1	2.3	<1.6	<0.3	434.7	73.3
CR10-03-10	89.6	189.6	<1.0	<3.4	2.7	<1.6	<0.3	376.1	52.8
CR1-192-07	61.7	113.8	<1.0	<3.4	0.8	<1.6	<0.3	451.7	40.0
CR10-15-01	293.7	158.3	6.5	27.5	1.7	9.8	3.0	461.0	99.2
CR10-16-01	266.6	<34	2.9	15.1	1.0	<1.6	1.7	545.4	108.1
CR10-18-02	193.4	<34	1.1	<3.4	1.8	<1.6	<0.3	383.2	113.3
CR10-27-04	258.2	63.2	6.4	38.8	1.1	1.6	1.3	252.8	104.0
CR1-189-01	140.0	100.7	<1.0	<3.4	<0.8	<1.6	<0.3	556.8	22.7
CR10-44-02	552.7	214.3	1.0	<3.4	<0.8	<1.6	<0.3	140.6	<19
CR10-40-02	601.9	224.0	<1.0	<3.4	<0.8	<1.6	<0.3	<123	<19
CR10-27-04	44.0	63.2	6.4	38.8	1.1	1.6	1.3	252.8	104.0
CR1-189-07	22.0	49.3	<1.0	<3.4	<0.8	<1.6	<0.3	467.5	25.3
CR1-189-04	75.8	<34	<1.0	<3.4	<0.8	<1.6	<0.3	547.6	23.3
CR1-190-13	196.4	285.0	<1.0	<3.4	<0.8	<1.6	<0.3	<123	22.0
CR10-48-02	463.4	<34	1.3	10.0	<0.8	<1.6	1.7	225.6	81.7
CR10-38-03	526.4	266.4	<1.0	<3.4	<0.8	<1.6	<0.3	<123	<19
CR10-40-01	546.6	45.0	<1.0	<3.4	<0.8	<1.6	<0.3	<123	<19
CR10-39-03	509.0	<34	<1.0	<3.4	<0.8	<1.6	<0.3	<123	<19
CR10-47-01	562.0	<34	<1.0	<3.4	<0.8	<1.6	<0.3	<123	<19
CR10-52-03	520.0	<34	<1.0	<3.4	<0.8	<1.6	<0.3	<123	22.0

Sample	Mass (g)	Na (mg/kg)	Mg (mg/kg)	Ca (mg/kg)	K (mg/kg)	B (mg/kg)	Sr (mg/kg)	SO_4 (mg/kg)	Si (mg/kg)
CR10-52-06	478.0	<34	<1.0	<3.4	<0.8	<1.6	<0.3	<123	<19
CR10-53-03	570.0	<34	<1.0	<3.4	<0.8	<1.6	<0.3	<123	<19
CR10-53-06	570.2	<34	<1.0	<3.4	<0.8	<1.6	<0.3	<123	<19
CR10-53-06	570.2	<34	<1.0	<3.4	<0.8	<1.6	<0.3	<123	<19
CR10-56-03	545.6	190.3	26.6	60.9	1.0	<1.6	<0.3	252.3	19.9
CR10-57-03	415.0	<34	<1.0	<3.4	<0.8	<1.6	<0.3	<123	<19
CR10-58-03	507.2	<34	<1.0	11.0	<0.8	<1.6	<0.3	293.7	76.0
CR10-58-06	499.6	<34	<1.0	<3.4	<0.8	<1.6	<0.3	<123	34.5
CR10-59-03	360.0	<34	<1.0	<3.4	<0.8	<1.6	<0.3	132.2	<19
CR10-60-03	512.8	<34	<1.0	<3.4	<0.8	<1.6	<0.3	<123	<19
CR10-61-03	423.9	<34	<1.0	<3.4	<0.8	<1.6	<0.3	154.7	23.3
CR10-61-06	175.6	<34	<1.0	<3.4	<0.8	<1.6	<0.3	<123	20.3
CR10-62-03	360.2	<34	<1.0	<3.4	<0.8	<1.6	<0.3	192.4	<19
CR10-62-06	455.9	<34	<1.0	<3.4	<0.8	<1.6	<0.3	<123	34.3
CR10-63-03	411.3	<34	<1.0	<3.4	<0.8	<1.6	<0.3	<123	28.1
CR10-63-06	516.3	<34	<1.0	<3.4	<0.8	<1.6	<0.3	<123	47.7
CR10-65-03	500.1	<34	<1.0	16.3	<0.8	<1.6	<0.3	147.5	31.3
CR10-65-06	492.4	<34	<1.0	<3.4	<0.8	<1.6	<0.3	171.0	68.9
CR10-66-03	493.1	<34	<1.0	<3.4	<0.8	<1.6	<0.3	151.1	39.6
CR10-66-06	586.6	<34	<1.0	<3.4	<0.8	3.4	<0.3	132.8	86.7
CR10-67-01	250.0	42.1	2.7	8.6	<0.8	<1.6	0.5	131.8	69.3
CR10-68-03	466.4	<34	<1.0	<3.4	<0.8	<1.6	<0.3	126.4	56.8
CR10-69-03	615.6	47.6	<1.0	10.7	<0.8	<1.6	1.6	276.2	89.4
CR10-70-03	482.7	36.2	<1.0	11.9	<0.8	4.7	2.2	316.0	107.8
CR10-70-06	490.8	<34	<1.0	<3.4	<0.8	<1.6	<0.3	189.6	63.6
CR10-72-03	488.0	<34	<1.0	<3.4	<0.8	<1.6	<0.3	206.9	71.3
CR10-72-06	449.0	<34	<1.0	<3.4	<0.8	<1.6	<0.3	226.9	44.6
CR10-73-03	485.0	<34	<1.0	<3.4	<0.8	4.7	<0.3	215.1	46.9
CR10-73-06	489.0	<34	<1.0	<3.4	<0.8	<1.6	<0.3	221.1	81.6
CR10-74-03	440.0	<34	<1.0	<3.4	<0.8	<1.6	<0.3	191.5	76.6
CR10-74-06	517.0	<34	<1.0	<3.4	<0.8	<1.6	<0.3	244.5	<19
CR10-77-03	461.0	<34	1.1	24.1	<0.8	<1.6	6.9	332.2	56.9
CR10-78-04	462.0	<34	<1.0	18.1	<0.8	<1.6	6.5	242.7	30.4
CR10-81-03	500.0	<34	1.5	47.4	<0.8	<1.6	3.6	231.2	57.1
CR10-81-06	476.0	<34	1.3	46.9	<0.8	<1.6	3.4	215.3	46.1
CR10-82-03	424.0	<34	1.6	66.3	<0.8	<1.6	3.7	267.0	41.1
CR10-82-06	471.0	<34	1.7	35.9	<0.8	<1.6	1.5	294.6	51.1

Sample	Mass (g)	Na (mg/kg)	Mg (mg/kg)	Ca (mg/kg)	K (mg/kg)	B (mg/kg)	Sr (mg/kg)	SO_4 (mg/kg)	Si (mg/kg)
CR10-82-10	500.0	<34	1.2	36.2	0.9	<1.6	1.4	267.0	67.5
CR10-83-03	322.0	<34	2.1	8.6	<0.8	<1.6	<0.3	510.5	<19
CR10-84-09	458.0	<34	1.3	37.9	<0.8	4.2	0.9	324.9	47.2
CR10-85-04	520.3	<34	<1.0	55.7	<0.8	<1.6	2.8	239.0	36.2
CR10-85-08	509.3	<34	<1.0	61.9	<0.8	<1.6	3.6	324.2	30.0
CR10-79-10	443.2	<34	<1.0	26.3	<0.8	<1.6	8.6	412.8	36.0
CR10-76-09	458.9	<34	<1.0	20.4	<0.8	<1.6	5.2	340.6	60.9
CR10-79-05	511.8	<34	<1.0	10.1	<0.8	<1.6	3.1	321.8	50.1
CR10-76-03	441.2	<34	<1.0	5.0	<0.8	<1.6	1.4	350.3	81.3
CR10-86-03	522.6	<34	<1.0	44.1	<0.8	<1.6	1.2	165.9	28.6
CR10-86-07	506.2	<34	<1.0	37.1	<0.8	<1.6	0.7	367.1	27.6
CR10-87-03	543.6	<34	<1.0	57.1	<0.8	<1.6	2.1	222.4	28.6
CR10-87-07	490.6	<34	<1.0	9.2	<0.8	<1.6	<0.3	332.8	44.8
CR10-88-03	535.5	<34	<1.0	41.0	<0.8	<1.6	0.7	249.7	22.9
CR10-88-07	497.2	<34	<1.0	32.3	<0.8	<1.6	1.8	242.6	<19
CR10-89-03	552.0	<34	<1.0	91.7	<0.8	<1.6	6.0	318.3	50.4
CR10-89-07	532.0	<34	<1.0	33.4	<0.8	<1.6	1.8	270.1	<19
CR10-75-06	446.8	<34	<1.0	<3.4	<0.8	<1.6	<0.3	308.6	97.8
CR10-75-03	434.2	<34	<1.0	14.6	<0.8	<1.6	3.8	285.2	58.3
CR10-76-03	441.2	<34	<1.0	5.0	<0.8	<1.6	1.4	350.3	81.3
CR10-76-09	458.9	<34	<1.0	20.4	<0.8	<1.6	5.2	340.6	60.9

Sample	Al (mg/kg)	Ni (mg/kg)	Zn (mg/kg)	Cu (mg/kg)	Fe (mg/kg)	Cr (mg/kg)	Pb (mg/kg)	Mn (mg/kg)
LoD	1.2	0.7	0.4	0.6	0.4	0.5	3.8	0.2
CR1-176-16	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	0.2
CR1-176-10	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	0.4
CR1-176-13	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	0.3
CR1-178-01	<1.2	1.8	<0.4	<0.6	1.2	0.7	<3.8	0.3
CR1-174-18	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	0.2
CR1-174-24	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	0.2
CR1-178-04	<1.2	<0.7	<0.4	<0.6	0.4	<0.5	<3.8	0.4
CR1-174-15	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	0.2
CR1-175-13	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	0.2
CR1-174-21	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	0.3
CR1-175-07	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	<0.2

Sample	Al (mg/kg)	Ni (mg/kg)	Zn (mg/kg)	Cu (mg/kg)	Fe (mg/kg)	Cr (mg/kg)	Pb (mg/kg)	Mn (mg/kg)
CR1-175-10	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	0.2
CR1-174-06	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	<0.2
CR1-174-03	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	0.2
CR1-174-09	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	0.5
CR1-174-12	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	<0.2
CR1-184-13	<1.2	0.8	1.1	<0.6	0.8	0.9	<3.8	0.6
CR1-184-01	<1.2	1.1	1.8	0.6	1.0	1.1	<3.8	0.6
CR1-184-01	<1.2	1.1	1.8	0.6	1.0	1.1	<3.8	0.6
CR1-184-10	<1.2	1.1	2.6	0.7	1.2	1.1	<3.8	0.7
CR1-184-04	<1.2	0.9	2.2	<0.6	1.0	1.1	<3.8	0.6
CR1-189-16	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	<0.2
CR1-189-10	<1.2	<0.7	<0.4	<0.6	<0.4	0.5	<3.8	0.2
CR1-192-19	<1.2	0.9	<0.4	<0.6	1.0	0.8	<3.8	0.2
CR10-03-13	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	0.4
CR1-187-16	<1.2	<0.7	0.7	<0.6	<0.4	0.7	<3.8	0.3
CR1-190-10	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	<0.2
CR1-189-07	<1.2	<0.7	<0.4	<0.6	<0.4	2.8	<3.8	<0.2
CR1-187-19	<1.2	<0.7	0.5	<0.6	<0.4	<0.5	<3.8	<0.2
CR1-190-04	<1.2	<0.7	<0.4	<0.6	<0.4	0.5	<3.8	<0.2
CR1-189-13	<1.2	<0.7	0.4	<0.6	<0.4	0.6	<3.8	<0.2
CR1-190-07	<1.2	<0.7	<0.4	<0.6	<0.4	0.6	<3.8	<0.2
CR1-192-01	<1.2	8.0	<0.4	<0.6	0.7	2.4	<3.8	0.4
CR10-03-10	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	2.5
CR1-187-22	<1.2	<0.7	0.6	<0.6	<0.4	<0.5	<3.8	<0.2
CR10-03-07	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	3.2
CR10-03-04	<1.2	0.7	<0.4	<0.6	<0.4	<0.5	<3.8	0.6
CR1-192-16	<1.2	1.4	<0.4	<0.6	0.8	0.6	<3.8	<0.2
CR1-192-13	<1.2	1.4	<0.4	<0.6	0.9	0.8	<3.8	0.2
CR1-187-13	<1.2	<0.7	0.5	<0.6	<0.4	0.5	<3.8	<0.2
CR10-8-01	<1.2	<0.7	<0.4	<0.6	<0.4	0.5	<3.8	<0.2
CR1-187-13	<1.2	<0.7	0.5	<0.6	<0.4	0.5	<3.8	<0.2
CR1-187-22	<1.2	<0.7	0.6	<0.6	<0.4	<0.5	<3.8	<0.2
CR1-192-10	<1.2	<0.7	0.5	<0.6	<0.4	<0.5	<3.8	0.2
CR10-8-04	<1.2	<0.7	<0.4	<0.6	<0.4	0.5	<3.8	<0.2
CR10-8-10	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	<0.2
CR10-8-07	<1.2	<0.7	<0.4	<0.6	0.5	<0.5	<3.8	<0.2
CR10-16-02	<1.2	<0.7	<0.4	<0.6	0.8	0.7	<3.8	<0.2

Sample	Al (mg/kg)	Ni (mg/kg)	Zn (mg/kg)	Cu (mg/kg)	Fe (mg/kg)	Cr (mg/kg)	Pb (mg/kg)	Mn (mg/kg)
CR10-7-07	<1.2	<0.7	0.4	<0.6	<0.4	<0.5	<3.8	<0.2
CR10-7-04	<1.2	<0.7	<0.4	<0.6	0.4	<0.5	<3.8	<0.2
CR10-7-01	<1.2	8.7	<0.4	<0.6	1.0	2.7	<3.8	0.2
CR10-03-10	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	2.5
CR1-192-07	<1.2	0.9	<0.4	<0.6	0.6	<0.5	<3.8	0.2
CR10-15-01	<1.2	15.6	<0.4	<0.6	2.6	4.5	<3.8	0.4
CR10-16-01	<1.2	<0.7	<0.4	<0.6	0.9	0.7	<3.8	<0.2
CR10-18-02	<1.2	0.7	0.7	<0.6	0.5	0.8	<3.8	<0.2
CR10-27-04	<1.2	<0.7	0.5	<0.6	2.0	0.6	<3.8	0.5
CR1-189-01	<1.2	<0.7	<0.4	<0.6	<0.4	3.4	<3.8	<0.2
CR10-44-02	<1.2	<0.7	<0.4	<0.6	0.9	<0.5	<3.8	<0.2
CR10-40-02	<1.2	<0.7	<0.4	<0.6	0.9	<0.5	<3.8	<0.2
CR10-27-04	<1.2	<0.7	0.5	<0.6	2.0	0.6	<3.8	0.5
CR1-189-07	<1.2	<0.7	<0.4	<0.6	<0.4	2.8	<3.8	<0.2
CR1-189-04	<1.2	<0.7	<0.4	<0.6	<0.4	3.8	<3.8	<0.2
CR1-190-13	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	<0.2
CR10-48-02	<1.2	<0.7	<0.4	<0.6	1.0	1.2	<3.8	<0.2
CR10-38-03	<1.2	9.3	<0.4	<0.6	1.5	2.5	<3.8	<0.2
CR10-40-01	<1.2	<0.7	<0.4	<0.6	0.8	<0.5	<3.8	<0.2
CR10-39-03	<1.2	<0.7	1.0	<0.6	2.6	0.6	<3.8	<0.2
CR10-47-01	<1.2	<0.7	<0.4	<0.6	0.6	0.6	<3.8	<0.2
CR10-52-03	<1.2	18.6	<0.4	<0.6	4.1	5.0	<3.8	0.3
CR10-52-06	<1.2	<0.7	<0.4	<0.6	1.1	<0.5	<3.8	<0.2
CR10-53-03	<1.2	<0.7	<0.4	<0.6	1.6	<0.5	<3.8	<0.2
CR10-53-06	<1.2	<0.7	<0.4	<0.6	1.1	<0.5	<3.8	<0.2
CR10-53-06	<1.2	<0.7	<0.4	<0.6	1.1	<0.5	<3.8	<0.2
CR10-56-03	<1.2	34.7	4.0	<0.6	5.1	8.6	<3.8	1.3
CR10-57-03	<1.2	<0.7	<0.4	<0.6	<0.4	<0.5	<3.8	<0.2
CR10-58-03	<1.2	<0.7	<0.4	<0.6	1.4	0.6	<3.8	0.3
CR10-58-06	<1.2	<0.7	0.8	<0.6	1.2	<0.5	<3.8	0.4
CR10-59-03	<1.2	<0.7	<0.4	<0.6	0.4	<0.5	<3.8	<0.2
CR10-60-03	<1.2	<0.7	<0.4	<0.6	0.6	<0.5	<3.8	0.2
CR10-61-03	<1.2	<0.7	<0.4	<0.6	1.3	0.6	<3.8	0.3
CR10-61-06	<1.2	<0.7	<0.4	<0.6	2.9	1.4	<3.8	0.3
CR10-62-03	<1.2	<0.7	<0.4	<0.6	1.1	1.5	<3.8	0.3
CR10-62-06	<1.2	<0.7	0.5	<0.6	0.9	1.1	<3.8	0.4
CR10-63-03	<1.2	<0.7	<0.4	<0.6	0.7	1.7	<3.8	0.3

Sample	Al (mg/kg)	Ni (mg/kg)	Zn (mg/kg)	Cu (mg/kg)	Fe (mg/kg)	Cr (mg/kg)	Pb (mg/kg)	Mn (mg/kg)
CR10-63-06	<1.2	<0.7	<0.4	<0.6	1.2	2.0	<3.8	0.5
CR10-65-03	<1.2	<0.7	<0.4	<0.6	1.2	2.1	<3.8	0.3
CR10-65-06	<1.2	<0.7	<0.4	<0.6	1.8	2.7	<3.8	0.4
CR10-66-03	<1.2	<0.7	<0.4	<0.6	0.7	2.1	<3.8	0.3
CR10-66-06	<1.2	<0.7	<0.4	<0.6	0.7	3.0	<3.8	0.3
CR10-67-01	<1.2	0.7	1.6	<0.6	4.8	1.8	<3.8	0.5
CR10-68-03	<1.2	<0.7	<0.4	<0.6	0.5	3.0	<3.8	0.4
CR10-69-03	<1.2	<0.7	<0.4	<0.6	1.0	2.1	<3.8	0.2
CR10-70-03	<1.2	<0.7	<0.4	<0.6	<0.4	1.8	<3.8	<0.2
CR10-70-06	<1.2	<0.7	<0.4	<0.6	<0.4	2.8	<3.8	<0.2
CR10-72-03	<1.2	<0.7	<0.4	<0.6	<0.4	1.1	<3.8	<0.2
CR10-72-06	<1.2	<0.7	<0.4	<0.6	<0.4	0.9	<3.8	<0.2
CR10-73-03	<1.2	<0.7	<0.4	<0.6	<0.4	1.2	<3.8	<0.2
CR10-73-06	<1.2	<0.7	<0.4	<0.6	<0.4	1.0	<3.8	<0.2
CR10-74-03	<1.2	<0.7	<0.4	<0.6	<0.4	1.1	<3.8	<0.2
CR10-74-06	<1.2	<0.7	<0.4	<0.6	<0.4	1.0	<3.8	<0.2
CR10-77-03	<1.2	<0.7	<0.4	<0.6	1.4	2.5	<3.8	0.5
CR10-78-04	<1.2	<0.7	0.5	<0.6	1.2	2.2	<3.8	0.5
CR10-81-03	<1.2	<0.7	0.6	<0.6	0.8	2.2	<3.8	0.7
CR10-81-06	<1.2	<0.7	0.7	<0.6	0.8	2.3	<3.8	0.7
CR10-82-03	<1.2	<0.7	0.8	0.6	0.9	2.5	<3.8	0.7
CR10-82-06	<1.2	<0.7	0.5	0.6	1.8	2.6	<3.8	0.7
CR10-82-10	<1.2	<0.7	0.7	<0.6	0.8	2.3	<3.8	0.7
CR10-83-03	<1.2	<0.7	0.6	<0.6	0.7	2.4	<3.8	0.6
CR10-84-09	<1.2	<0.7	0.7	<0.6	2.2	2.9	<3.8	0.6
CR10-85-04	<1.2	<0.7	0.4	<0.6	1.3	2.8	<3.8	0.4
CR10-85-08	<1.2	<0.7	0.4	<0.6	0.8	2.5	<3.8	0.4
CR10-79-10	<1.2	<0.7	<0.4	<0.6	<0.4	1.6	<3.8	<0.2
CR10-76-09	<1.2	<0.7	<0.4	<0.6	0.4	1.2	<3.8	<0.2
CR10-79-05	<1.2	<0.7	<0.4	<0.6	<0.4	1.6	<3.8	<0.2
CR10-76-03	<1.2	<0.7	<0.4	<0.6	<0.4	1.2	<3.8	<0.2
CR10-86-03	<1.2	<0.7	<0.4	<0.6	0.4	2.3	<3.8	0.2
CR10-86-07	<1.2	<0.7	<0.4	<0.6	<0.4	1.8	<3.8	<0.2
CR10-87-03	<1.2	<0.7	<0.4	<0.6	<0.4	2.4	<3.8	0.2
CR10-87-07	<1.2	<0.7	<0.4	<0.6	<0.4	1.6	<3.8	<0.2
CR10-88-03	<1.2	<0.7	<0.4	<0.6	<0.4	1.9	<3.8	<0.2
CR10-88-07	<1.2	<0.7	<0.4	<0.6	<0.4	1.8	<3.8	<0.2

Sample	Al (mg/kg)	Ni (mg/kg)	Zn (mg/kg)	Cu (mg/kg)	Fe (mg/kg)	Cr (mg/kg)	Pb (mg/kg)	Mn (mg/kg)
CR10-89-03	<1.2	<0.7	<0.4	<0.6	<0.4	1.9	<3.8	<0.2
CR10-89-07	<1.2	<0.7	<0.4	<0.6	<0.4	2.1	<3.8	0.3
CR10-75-06	<1.2	<0.7	<0.4	<0.6	<0.4	1.6	<3.8	<0.2
CR10-75-03	<1.2	<0.7	<0.4	<0.6	<0.4	1.3	<3.8	<0.2
CR10-76-03	<1.2	<0.7	<0.4	<0.6	<0.4	1.2	<3.8	<0.2
CR10-76-09	<1.2	<0.7	<0.4	<0.6	0.4	1.2	<3.8	<0.2

C.6 [redacted] Reference Projects and Credentials

PURPOSE

This appendix provides evidence of [redacted] technical capability and relevant experience in the design and supply of 218rystallization, evaporation, and drying systems for lithium, battery chemicals, and related industrial applications.

CONTENTS SUMMARY

The appendix presents a comprehensive reference list of [redacted] projects spanning several decades, detailing the design and supply of crystallisers, evaporators, dryers, and Zero-Liquid-Discharge ("ZLD") systems across the lithium, battery chemicals, mining, metals, and chemical processing sectors. The references include numerous lithium and battery-grade chemical projects for major global clients, demonstrating [redacted] experience with technologies such as forced circulation and draft tube baffle crystallisers, falling film evaporators, mechanical vapor recompression, and fluid bed drying. Collectively, the listed projects establish [redacted] track record in delivering complex, large-scale process equipment relevant to the proposed Great Salt Lake lithium project

REFERENCED IN MAIN APPLICATION

- Section 1.4

DOCUMENT DETAILS

- Issued by: [redacted]
- Date: 2025
- Page Count: 11 pages

C.6 begins on next page

C.7 [redacted] Design Confirmation Letter

PURPOSE

This appendix provides independent confirmation from [redacted] that the crystallization and evaporation process design for the GSL lithium project has been appropriately scaled from bench-scale testing to commercial design using proven methodologies and representative feed samples.

CONTENTS SUMMARY

The appendix contains a design confirmation letter from [redacted] documenting its role in completing pre-project basic design and bench-scale process simulation test work for the Great Salt Lake lithium extraction project. The letter describes [redacted] validated scale-up methodology, the representative laboratory test program conducted on eluate produced at Waterleaf's Pilot Plant, and the key parameters evaluated to support equipment sizing and process design. It concludes that the proposed commercial facility is expected to meet throughput, battery-grade product purity specifications, and defined power and water consumption limits, providing a high level of confidence in reliable commercial operation.

REFERENCED IN MAIN APPLICATION

- Section 1.4
- Section 4.2

DOCUMENT DETAILS

- Issued by: [redacted]
- Date: January 16, 2026
- Page Count: 2 pages

C.7 begins on next page

C.8 Profitability Analysis – Annual Cashflows

PURPOSE

This appendix demonstrates commercial profitability under multiple lithium price scenarios (Fastmarkets, Benchmark, Morgan Stanley, Goldman Sachs, and UBS) to satisfy the commercial viability requirements of Utah Administrative Code R652-21-707. Annual cashflow projections show sustained positive operating margins and cashflows available for equity across a range of market conditions over the facility's 20-year operating life.

CONTENTS SUMMARY

The appendix presents five detailed cashflow scenarios, each showing:

- Annual production volumes and revenue projections
- Fixed and variable operating expenditures
- FFSL royalty payments (2.5% baseline, escalating to 5.0% under Fastmarkets scenario)
- Utah severance and property taxes
- Operating cashflows and margins
- Tax treatment and cashflows available for equity

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 8.2

DOCUMENT DETAILS

- Issued by: Waterleaf
- Date: February 15, 2026
- Page Count: 3 pages

C.8 begins on next page

Great Salt Lake Project Annual Cashflow - Price Scenario: Fastmarkets

All unites is USD'000, Unless stated		Total	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047
Production	tonnes LCE	**98,195**	**3,140**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**
Lithium Price (Average)	USD / t_LCE	**20,120**	**15,471**	**17,850**	**18,463**	**22,456**	**22,012**	**21,490**	**20,860**	**20,292**	**20,292**	**20,292**	**20,292**	**20,292**	**20,292**	**20,292**	**20,292**	**20,292**	**20,292**	**20,292**	**20,292**	**20,292**
Revenue	USD '000	**1,984,356**	**48,585**	**89,250**	**92,315**	**112,280**	**110,362**	**107,450**	**104,300**	**101,460**	**101,738**	**101,460**	**101,460**	**101,460**	**101,738**	**101,460**	**101,460**	**101,460**	**101,738**	**101,460**	**101,460**	**101,460**
(-) Fixed Opex	**USD '000**	**(176,871)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**
(-) Labor	USD '000	(103,025)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)
(-) Miscellaneous	USD '000	(13,105)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)
(-) G&A	USD '000	(60,740)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)
(-) Variable Opex	**USD '000**	**(564,721)**	**(18,061)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**
(-) Utilities	USD '000	(139,634)	(4,466)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)
(-) Reagents	USD '000	(281,133)	(8,991)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)
(-) Consumables	USD '000	(100,257)	(3,206)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)
(-) Miscellaneous	USD '000	(43,697)	(1,397)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)
(-)FFSL Royalty	**USD '000**	**(93,464)**	**(1,215)**	**(2,231)**	**(2,308)**	**(5,614)**	**(5,518)**	**(5,373)**	**(5,215)**	**(5,073)**	**(5,087)**	**(5,073)**	**(5,073)**	**(5,073)**	**(5,087)**	**(5,073)**	**(5,073)**	**(5,073)**	**(5,087)**	**(5,073)**	**(5,073)**	**(5,073)**
Effective FFSL Royalty	%	4.6%	2.5%	2.5%	2.5%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
(-) Rogers Royalty	**USD '000**	**(2,354)**	**-**	**(61)**	**(112)**	**(115)**	**(140)**	**(138)**	**(134)**	**(130)**	**(127)**	**(127)**	**(127)**	**(127)**	**(127)**	**(127)**	**(127)**	**(127)**	**(127)**	**(127)**	**(127)**	**(127)**
(-) Utah Severance Tax	**USD '000**	**(15,478)**	**(379)**	**(696)**	**(720)**	**(876)**	**(861)**	**(838)**	**(814)**	**(791)**	**(794)**	**(791)**	**(791)**	**(791)**	**(794)**	**(791)**	**(791)**	**(791)**	**(794)**	**(791)**	**(791)**	**(791)**
(-) Utah Property Tax	**USD '000**	**(24,941)**	**(2,418)**	**(2,295)**	**(2,171)**	**(2,048)**	**(1,925)**	**(1,802)**	**(1,679)**	**(1,555)**	**(1,432)**	**(1,309)**	**(1,186)**	**(1,063)**	**(939)**	**(816)**	**(693)**	**(570)**	**(447)**	**(323)**	**(200)**	**(69)**
(+/-) Net W/C Adjustments	**USD '000**	**(4,767)**	**(2,866)**	**(956)**	**(254)**	**(1,366)**	**162**	**192**	**234**	**210**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(13)**
Operating Cashflow	**USD '000**	**1,101,761**	**14,785**	**45,419**	**49,158**	**64,668**	**64,384**	**61,899**	**59,100**	**56,527**	**56,593**	**56,557**	**56,680**	**56,804**	**57,086**	**57,050**	**57,173**	**57,296**	**57,579**	**57,543**	**57,666**	**57,794**
Operating Margin	%	-	30.4%	50.9%	53.3%	57.6%	58.3%	57.6%	56.7%	55.7%	55.6%	55.7%	55.9%	56.0%	56.1%	56.2%	56.4%	56.5%	56.6%	56.7%	56.8%	57.0%
(-) Taxes	USD '000	(191,738)	**(319)**	**(6,670)**	**(7,687)**	**(10,821)**	**(11,343)**	**(11,120)**	**(10,820)**	**(10,180)**	**(10,095)**	**(10,086)**	**(10,116)**	**(10,147)**	**(10,215)**	**(10,207)**	**(10,237)**	**(10,267)**	**(10,336)**	**(10,327)**	**(10,357)**	**(10,387)**
(+) Tax Credits Monetized	USD '000	62,538	**62,538**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cashflow Available for Equity	**USD '000**	**972,561**	**77,005**	**38,749**	**41,471**	**53,847**	**53,041**	**50,779**	**48,280**	**46,347**	**46,498**	**46,471**	**46,564**	**46,657**	**46,870**	**46,843**	**46,936**	**47,030**	**47,243**	**47,215**	**47,309**	**47,407**

Great Salt Lake Project Annual Cashflow - Price Scenario: Benchmark

All unites is USD'000, Unless stated		Total	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047
Production	tonnes LCE	**98,195**	**3,140**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**
Lithium Price (Average)	USD / t_LCE	**17,180**	**9,550**	**10,325**	**11,450**	**12,975**	**15,275**	**18,025**	**19,000**	**19,000**	**19,000**	**19,000**	**19,000**	**19,000**	**19,000**	**19,000**	**19,000**	**19,000**	**19,000**	**19,000**	**19,000**	**19,000**
Revenue	USD '000	**1,701,231**	**29,991**	**51,625**	**57,250**	**64,875**	**76,584**	**90,125**	**95,000**	**95,000**	**95,260**	**95,000**	**95,000**	**95,000**	**95,260**	**95,000**	**95,000**	**95,000**	**95,260**	**95,000**	**95,000**	**95,000**
(-) Fixed Opex	**USD '000**	**(176,871)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**
(-) Labor	USD '000	(103,025)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)
(-) Miscellaneous	USD '000	(13,105)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)
(-) G&A	USD '000	(60,740)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)
(-) Variable Opex	**USD '000**	**(564,721)**	**(18,061)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**
(-) Utilities	USD '000	(139,634)	(4,466)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)
(-) Reagents	USD '000	(281,133)	(8,991)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)
(-) Consumables	USD '000	(100,257)	(3,206)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)
(-) Miscellaneous	USD '000	(43,697)	(1,397)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)
(-)FFSL Royalty	**USD '000**	**(42,531)**	**(750)**	**(1,291)**	**(1,431)**	**(1,622)**	**(1,915)**	**(2,253)**	**(2,375)**	**(2,375)**	**(2,382)**	**(2,375)**	**(2,375)**	**(2,375)**	**(2,382)**	**(2,375)**	**(2,375)**	**(2,375)**	**(2,382)**	**(2,375)**	**(2,375)**	**(2,375)**
Effective FFSL Royalty	%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
(-) Rogers Royalty	**USD '000**	**(2,008)**	**-**	**(37)**	**(65)**	**(72)**	**(81)**	**(96)**	**(113)**	**(119)**	**(119)**	**(119)**	**(119)**	**(119)**	**(119)**	**(119)**	**(119)**	**(119)**	**(119)**	**(119)**	**(119)**	**(119)**
(-) Utah Severance Tax	**USD '000**	**(13,270)**	**(234)**	**(403)**	**(447)**	**(506)**	**(597)**	**(703)**	**(741)**	**(741)**	**(743)**	**(741)**	**(741)**	**(741)**	**(743)**	**(741)**	**(741)**	**(741)**	**(743)**	**(741)**	**(741)**	**(741)**
(-) Utah Property Tax	**USD '000**	**(24,941)**	**(2,418)**	**(2,295)**	**(2,171)**	**(2,048)**	**(1,925)**	**(1,802)**	**(1,679)**	**(1,555)**	**(1,432)**	**(1,309)**	**(1,186)**	**(1,063)**	**(939)**	**(816)**	**(693)**	**(570)**	**(447)**	**(323)**	**(200)**	**(69)**
(+/-) Net W/C Adjustments	**USD '000**	**(4,462)**	**(513)**	**(318)**	**(457)**	**(616)**	**(924)**	**(1,103)**	**(398)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(13)**
Operating Cashflow	**USD '000**	**872,429**	**(846)**	**9,689**	**15,087**	**22,419**	**33,446**	**46,576**	**52,103**	**52,607**	**52,879**	**52,853**	**52,977**	**53,100**	**53,372**	**53,346**	**53,470**	**53,593**	**53,865**	**53,839**	**53,963**	**54,091**
Operating Margin	%	-	(2.8%)	18.8%	26.4%	34.6%	43.7%	51.7%	54.8%	55.4%	55.5%	55.6%	55.8%	55.9%	56.0%	56.2%	56.3%	56.4%	56.5%	56.7%	56.8%	56.9%
(-) Taxes	USD '000	(138,220)	**-**	**-**	**-**	**-**	**(1,364)**	**(7,002)**	**(8,820)**	**(9,121)**	**(9,188)**	**(9,181)**	**(9,212)**	**(9,242)**	**(9,308)**	**(9,302)**	**(9,332)**	**(9,362)**	**(9,429)**	**(9,422)**	**(9,452)**	**(9,483)**
(+) Tax Credits Monetized	USD '000	62,538	**62,538**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cashflow Available for Equity	**USD '000**	**796,746**	**61,692**	**9,689**	**15,087**	**22,419**	**32,083**	**39,573**	**43,283**	**43,486**	**43,691**	**43,672**	**43,765**	**43,858**	**44,064**	**44,044**	**44,138**	**44,231**	**44,436**	**44,417**	**44,510**	**44,608**

Great Salt Lake Project Annual Cashflow - Price Scenario: Morgan Stanley

All unites is USD'000, Unless stated		Total	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047
Production	tonnes LCE	**98,195**	**3,140**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**
Lithium Price (Average)	USD / t_LCE	**13,745**	**14,000**	**14,000**	**14,000**	**13,700**	**13,700**	**13,700**	**13,700**	**13,700**	**13,700**	**13,700**	**13,700**	**13,700**	**13,700**	**13,700**	**13,700**	**13,700**	**13,700**	**13,700**	**13,700**	**13,700**
Revenue	USD '000	**1,349,216**	**43,966**	**70,000**	**70,000**	**68,500**	**68,688**	**68,500**	**68,500**	**68,500**	**68,688**	**68,500**	**68,500**	**68,500**	**68,688**	**68,500**	**68,500**	**68,500**	**68,688**	**68,500**	**68,500**	**68,500**
(-) Fixed Opex	**USD '000**	**(176,871)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**
(-) Labor	USD '000	(103,025)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)
(-) Miscellaneous	USD '000	(13,105)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)
(-) G&A	USD '000	(60,740)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)
(-) Variable Opex	**USD '000**	**(564,721)**	**(18,061)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**
(-) Utilities	USD '000	(139,634)	(4,466)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)
(-) Reagents	USD '000	(281,133)	(8,991)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)
(-) Consumables	USD '000	(100,257)	(3,206)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)
(-) Miscellaneous	USD '000	(43,697)	(1,397)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)
(-)FFSL Royalty	**USD '000**	**(33,730)**	**(1,099)**	**(1,750)**	**(1,750)**	**(1,713)**	**(1,717)**	**(1,713)**	**(1,713)**	**(1,713)**	**(1,717)**	**(1,713)**	**(1,713)**	**(1,713)**	**(1,717)**	**(1,713)**	**(1,713)**	**(1,713)**	**(1,717)**	**(1,713)**	**(1,713)**	**(1,713)**
Effective FFSL Royalty	%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
(-) Rogers Royalty	**USD '000**	**(1,601)**	**-**	**(55)**	**(88)**	**(88)**	**(86)**	**(86)**	**(86)**	**(86)**	**(86)**	**(86)**	**(86)**	**(86)**	**(86)**	**(86)**	**(86)**	**(86)**	**(86)**	**(86)**	**(86)**	**(86)**
(-) Utah Severance Tax	**USD '000**	**(10,524)**	**(343)**	**(546)**	**(546)**	**(534)**	**(536)**	**(534)**	**(534)**	**(534)**	**(536)**	**(534)**	**(534)**	**(534)**	**(536)**	**(534)**	**(534)**	**(534)**	**(536)**	**(534)**	**(534)**	**(534)**
(-) Utah Property Tax	**USD '000**	**(24,941)**	**(2,418)**	**(2,295)**	**(2,171)**	**(2,048)**	**(1,925)**	**(1,802)**	**(1,679)**	**(1,555)**	**(1,432)**	**(1,309)**	**(1,186)**	**(1,063)**	**(939)**	**(816)**	**(693)**	**(570)**	**(447)**	**(323)**	**(200)**	**(69)**
(+/-) Net W/C Adjustments	**USD '000**	**(2,356)**	**(2,282)**	**(10)**	**(10)**	**109**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(13)**
Operating Cashflow	**USD '000**	**534,474**	**10,902**	**27,752**	**27,843**	**26,634**	**26,719**	**26,763**	**26,886**	**27,010**	**27,211**	**27,256**	**27,379**	**27,502**	**27,704**	**27,749**	**27,872**	**27,995**	**28,197**	**28,241**	**28,365**	**28,493**
Operating Margin	%	-	24.8%	39.6%	39.8%	38.9%	38.9%	39.1%	39.3%	39.4%	39.6%	39.8%	40.0%	40.1%	40.3%	40.5%	40.7%	40.9%	41.1%	41.2%	41.4%	41.6%
(-) Taxes	USD '000	(56,047)	**-**	**(2,629)**	**(2,887)**	**(2,655)**	**(2,629)**	**(2,721)**	**(2,838)**	**(2,868)**	**(2,917)**	**(2,928)**	**(2,958)**	**(2,988)**	**(3,038)**	**(3,048)**	**(3,079)**	**(3,109)**	**(3,158)**	**(3,169)**	**(3,199)**	**(3,229)**
(+) Tax Credits Monetized	USD '000	62,538	**62,538**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cashflow Available for Equity	**USD '000**	**540,965**	**73,440**	**25,123**	**24,956**	**23,979**	**24,090**	**24,042**	**24,049**	**24,142**	**24,294**	**24,328**	**24,421**	**24,514**	**24,667**	**24,700**	**24,793**	**24,887**	**25,039**	**25,073**	**25,166**	**25,264**

Great Salt Lake Project Annual Cashflow - Price Scenario: Goldman Sachs

All unites is USD'000, Unless stated		Total	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047
Production	tonnes LCE	**98,195**	**3,140**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**
Lithium Price (Average)	USD / t_LCE	**10,900**	**9,500**	**10,500**	**11,000**	**11,000**	**11,000**	**11,000**	**11,000**	**11,000**	**11,000**	**11,000**	**11,000**	**11,000**	**11,000**	**11,000**	**11,000**	**11,000**	**11,000**	**11,000**	**11,000**	**11,000**
Revenue	USD '000	**1,072,937**	**29,834**	**52,500**	**55,000**	**55,000**	**55,151**	**55,000**	**55,000**	**55,000**	**55,151**	**55,000**	**55,000**	**55,000**	**55,151**	**55,000**	**55,000**	**55,000**	**55,151**	**55,000**	**55,000**	**55,000**
(-) Fixed Opex	**USD '000**	**(176,871)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**
(-) Labor	USD '000	(103,025)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)
(-) Miscellaneous	USD '000	(13,105)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)
(-) G&A	USD '000	(60,740)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)
(-) Variable Opex	**USD '000**	**(564,721)**	**(18,061)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**
(-) Utilities	USD '000	(139,634)	(4,466)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)
(-) Reagents	USD '000	(281,133)	(8,991)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)
(-) Consumables	USD '000	(100,257)	(3,206)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)
(-) Miscellaneous	USD '000	(43,697)	(1,397)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)
(-)FFSL Royalty	**USD '000**	**(26,823)**	**(746)**	**(1,313)**	**(1,375)**	**(1,375)**	**(1,379)**	**(1,375)**	**(1,375)**	**(1,375)**	**(1,379)**	**(1,375)**	**(1,375)**	**(1,375)**	**(1,379)**	**(1,375)**	**(1,375)**	**(1,375)**	**(1,379)**	**(1,375)**	**(1,375)**	**(1,375)**
Effective FFSL Royalty	%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
(-) Rogers Royalty	**USD '000**	**(1,272)**	**-**	**(37)**	**(66)**	**(69)**	**(69)**	**(69)**	**(69)**	**(69)**	**(69)**	**(69)**	**(69)**	**(69)**	**(69)**	**(69)**	**(69)**	**(69)**	**(69)**	**(69)**	**(69)**	**(69)**
(-) Utah Severance Tax	**USD '000**	**(8,369)**	**(233)**	**(410)**	**(429)**	**(429)**	**(430)**	**(429)**	**(429)**	**(429)**	**(430)**	**(429)**	**(429)**	**(429)**	**(430)**	**(429)**	**(429)**	**(429)**	**(430)**	**(429)**	**(429)**	**(429)**
(-) Utah Property Tax	**USD '000**	**(24,941)**	**(2,418)**	**(2,295)**	**(2,171)**	**(2,048)**	**(1,925)**	**(1,802)**	**(1,679)**	**(1,555)**	**(1,432)**	**(1,309)**	**(1,186)**	**(1,063)**	**(939)**	**(816)**	**(693)**	**(570)**	**(447)**	**(323)**	**(200)**	**(69)**
(+/-) Net W/C Adjustments	**USD '000**	**(1,282)**	**(493)**	**(408)**	**(209)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(13)**
Operating Cashflow	**USD '000**	**268,657**	**(978)**	**10,446**	**13,158**	**13,476**	**13,642**	**13,723**	**13,846**	**13,969**	**14,135**	**14,216**	**14,339**	**14,462**	**14,628**	**14,708**	**14,832**	**14,955**	**15,121**	**15,201**	**15,325**	**15,453**
Operating Margin	%	-	(3.3%)	19.9%	23.9%	24.5%	24.7%	25.0%	25.2%	25.4%	25.6%	25.8%	26.1%	26.3%	26.5%	26.7%	27.0%	27.2%	27.4%	27.6%	27.9%	28.1%
(-) Taxes	USD '000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(+) Tax Credits Monetized	USD '000	62,538	**62,538**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cashflow Available for Equity	**USD '000**	**331,196**	**61,560**	**10,446**	**13,158**	**13,476**	**13,642**	**13,723**	**13,846**	**13,969**	**14,135**	**14,216**	**14,339**	**14,462**	**14,628**	**14,708**	**14,832**	**14,955**	**15,121**	**15,201**	**15,325**	**15,453**

Great Salt Lake Project Annual Cashflow - Price Scenario: UBS

All unites is USD'000, Unless stated		Total	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047
Production	tonnes LCE	**98,195**	**3,140**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**	**5,014**	**5,000**	**5,000**	**5,000**
Lithium Price (Average)	USD / t_LCE	**17,600**	**13,000**	**15,000**	**18,000**	**18,000**	**18,000**	**18,000**	**18,000**	**18,000**	**18,000**	**18,000**	**18,000**	**18,000**	**18,000**	**18,000**	**18,000**	**18,000**	**18,000**	**18,000**	**18,000**	**18,000**
Revenue	USD '000	**1,736,812**	**40,825**	**75,000**	**90,000**	**90,000**	**90,247**	**90,000**	**90,000**	**90,000**	**90,247**	**90,000**	**90,000**	**90,000**	**90,247**	**90,000**	**90,000**	**90,000**	**90,247**	**90,000**	**90,000**	**90,000**
(-) Fixed Opex	**USD '000**	**(176,871)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**	**(8,862)**	**(8,837)**	**(8,837)**	**(8,837)**
(-) Labor	USD '000	(103,025)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)	(5,162)	(5,148)	(5,148)	(5,148)
(-) Miscellaneous	USD '000	(13,105)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)	(657)	(655)	(655)	(655)
(-) G&A	USD '000	(60,740)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)	(3,043)	(3,035)	(3,035)	(3,035)
(-) Variable Opex	**USD '000**	**(564,721)**	**(18,061)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**	**(28,834)**	**(28,755)**	**(28,755)**	**(28,755)**
(-) Utilities	USD '000	(139,634)	(4,466)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)	(7,129)	(7,110)	(7,110)	(7,110)
(-) Reagents	USD '000	(281,133)	(8,991)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)	(14,354)	(14,315)	(14,315)	(14,315)
(-) Consumables	USD '000	(100,257)	(3,206)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)	(5,119)	(5,105)	(5,105)	(5,105)
(-) Miscellaneous	USD '000	(43,697)	(1,397)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)	(2,231)	(2,225)	(2,225)	(2,225)
(-)FFSL Royalty	**USD '000**	**(43,420)**	**(1,021)**	**(1,875)**	**(2,250)**	**(2,250)**	**(2,256)**	**(2,250)**	**(2,250)**	**(2,250)**	**(2,256)**	**(2,250)**	**(2,250)**	**(2,250)**	**(2,256)**	**(2,250)**	**(2,250)**	**(2,250)**	**(2,256)**	**(2,250)**	**(2,250)**	**(2,250)**
Effective FFSL Royalty	%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
(-) Rogers Royalty	**USD '000**	**(2,059)**	**-**	**(51)**	**(94)**	**(113)**	**(113)**	**(113)**	**(113)**	**(113)**	**(113)**	**(113)**	**(113)**	**(113)**	**(113)**	**(113)**	**(113)**	**(113)**	**(113)**	**(113)**	**(113)**	**(113)**
(-) Utah Severance Tax	**USD '000**	**(13,547)**	**(318)**	**(585)**	**(702)**	**(702)**	**(704)**	**(702)**	**(702)**	**(702)**	**(704)**	**(702)**	**(702)**	**(702)**	**(704)**	**(702)**	**(702)**	**(702)**	**(704)**	**(702)**	**(702)**	**(702)**
(-) Utah Property Tax	**USD '000**	**(24,941)**	**(2,418)**	**(2,295)**	**(2,171)**	**(2,048)**	**(1,925)**	**(1,802)**	**(1,679)**	**(1,555)**	**(1,432)**	**(1,309)**	**(1,186)**	**(1,063)**	**(939)**	**(816)**	**(693)**	**(570)**	**(447)**	**(323)**	**(200)**	**(69)**
(+/-) Net W/C Adjustments	**USD '000**	**(4,065)**	**(1,884)**	**(805)**	**(1,202)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(10)**	**(13)**
Operating Cashflow	**USD '000**	**907,189**	**8,262**	**31,797**	**45,988**	**47,285**	**47,543**	**47,531**	**47,654**	**47,778**	**48,036**	**48,024**	**48,147**	**48,270**	**48,529**	**48,516**	**48,640**	**48,763**	**49,022**	**49,009**	**49,133**	**49,261**
Operating Margin	%	-	20.2%	42.4%	51.1%	52.5%	52.7%	52.8%	52.9%	53.1%	53.2%	53.4%	53.5%	53.6%	53.8%	53.9%	54.0%	54.2%	54.3%	54.5%	54.6%	54.7%
(-) Taxes	USD '000	(145,393)	**-**	**(2,799)**	**(6,595)**	**(7,351)**	**(7,410)**	**(7,641)**	**(7,911)**	**(7,941)**	**(8,005)**	**(8,002)**	**(8,032)**	**(8,062)**	**(8,125)**	**(8,122)**	**(8,152)**	**(8,182)**	**(8,245)**	**(8,242)**	**(8,273)**	**(8,303)**
(+) Tax Credits Monetized	USD '000	62,538	**62,538**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Cashflow Available for Equity	**USD '000**	**824,334**	**70,800**	**28,998**	**39,393**	**39,934**	**40,133**	**39,890**	**39,743**	**39,836**	**40,032**	**40,022**	**40,115**	**40,208**	**40,404**	**40,394**	**40,488**	**40,581**	**40,776**	**40,767**	**40,860**	**40,959**

C.9 IXM Supply Agreement

PURPOSE

This appendix provides the key commercial terms and conditions governing the supply of ion exchange media (IXM) by Lilac Solutions, Inc. to the Project, establishing the contractual basis for assured access to the proprietary extraction media required for commercial-scale lithium production.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 12.5

DOCUMENT DETAILS

- IXM Supply Agreement Term Sheet, Draft (8 pages, October 24, 2025)

C.9 begins on next page

C.10 Assignment Agreements

PURPOSE

This appendix provides assignment agreements transferring Project permits, contracts, and associated assets to Waterleaf Phase 1 LLC as the Project Company.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 12.1

DOCUMENT DETAILS

- Lease Assignment, Waterleaf Resources LLC to Waterleaf P1 Holdco LLC (4 pages, February 2026)
- Assignment Agreement, Lilac Solutions Inc. / Waterleaf Resources LLC to Waterleaf Phase 1 LLC, including Schedule A — Assigned Assets (7 pages, draft)

C.10 begins on next page

C.11 begins on next page

Appendix D Process Design and Technical Basis

D.1 Process Schematic - Pilot Plant

D.2 Process Schematic - Commercial Plant

D.3 Pilot Plant Mass Balances

D.4 Commercial Plant Mass Balance

D.5 List of Chemicals & Supplier Specifications

D.6 Non-Target Mineral Balances

D.7 Gen 5 Lilac IX – Technical White Paper

D.8 Waterleaf Magnesium Technical Presentation

D.9 Solids Waste Characterization

D.10 Evaporative Losses

D.1 Process Schematic - Pilot Plant

PURPOSE

This appendix provides the process schematic for the pilot-scale lithium extraction and lithium carbonate production plant used to generate representative operating data for process validation and scale-up.

CONTENTS SUMMARY

The appendix presents the process schematic for the Pilot Plant, illustrating the major unit operations and process flows used to produce lithium carbonate from GSL brine, including brine pretreatment, direct lithium extraction, purification, concentration, and lithium carbonate crystallization. The schematic demonstrates how the Pilot replicates the key elements of the proposed commercial flowsheet and supports the generation of representative performance, recovery, and product quality data used to inform commercial facility design.

REFERENCED IN MAIN APPLICATION

- Section 4.1

DOCUMENT DETAILS

- Issued by: Waterleaf
- Date: February 5, 2026
- Page Count: 1

D.1 begins on next page

D.2 Process Schematic - Commercial Plant

PURPOSE

This appendix provides the process schematic for the proposed commercial-scale lithium extraction and lithium carbonate production facility for the GSL project.

CONTENTS SUMMARY

The appendix presents the commercial facility process schematic, depicting the integrated process flow and major equipment for full-scale lithium carbonate production, including brine handling, direct lithium extraction, purification, concentration, crystallization, solid-liquid separation, and recycle streams. The schematic reflects the validated design basis informed by Pilot testing and engineering studies and illustrates the intended configuration, material flows, and operating logic of the commercial facility.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 3.2
- Section 4.1

DOCUMENT DETAILS

- Issued by: Waterleaf
- Date: February 5, 2026
- Page Count: 1

D.2 begins on next page

D.3 Pilot Plant Mass Balances

PURPOSE

The purpose of this appendix is to document the mass balance developed for Pilot operations conducted at GSL.

CONTENTS SUMMARY

This appendix presents the Pilot Plant mass balance summarizing brine intake, lithium recovery, reagent usage, intermediate streams, product generation, and waste streams generated during Pilot operations. The mass balance is based on measured Pilot data, analytical results, and operating records from the "optimal period" (weeks 16-28) and is used to quantify material flows and recovery efficiencies under representative pilot-scale operating conditions. The information provided supports interpretation of Pilot performance and informs scale-up considerations for commercial operations.

REFERENCED IN MAIN APPLICATION

- Section 4.1

DOCUMENT DETAILS

- Issued by: Waterleaf
- Page Count: 8
  Data collection period: May 5, 2025 – August 15, 2025

D.3 begins on next page

D.4 Commercial Plant Mass Balance

PURPOSE

The purpose of this appendix is to document the mass balance developed for the proposed commercial facility based on design-basis assumptions.

CONTENTS SUMMARY

This appendix presents the commercial-scale mass balance for the proposed Project, including brine intake and discharge, lithium recovery, reagent consumption, intermediate process streams, product output, and solid and liquid waste streams. The mass balance is based on Pilot results, process design criteria, and engineering assumptions and is used to demonstrate internal consistency of process flows and alignment with waste management, discharge, and resource sustainability evaluations presented in the application.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 4 (multiple)
- Section 5.3 (multiple)

DOCUMENT DETAILS

- Issued by: Waterleaf
- Date: February 5, 2026
- Page Count: 32

D.4 begins on next page

D.5 List of Chemicals & Supplier Specifications

PURPOSE

This appendix provides a complete inventory of all chemicals, reagents, and materials used in the commercial facility.

CONTENTS SUMMARY

The appendix lists all process chemicals planned to be used at the commercial facility. For each chemical, the listing includes chemical name, formula, physical form, storage capacity/volume, and specific application in the lithium extraction process. The product specification sheets or COAs for each commercial chemical are also attached in the same order as listed. All chemicals are stored in appropriate vessels (storage tanks for liquids, silos for solids, bulk bags for specialty materials) with capacities designed to support continuous operation.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 3 (multiple)
- Section 4.1
- Section 6

DOCUMENT DETAILS

- Prepared by: Waterleaf Phase 1 LLC
- Date: November 2025
- Commercial Chemicals: 16 reagents listed with commercial-scale capacities and COAs.
- Page Count: Page 1 – Commercial Project proposed Chemicals Usage
  Page 2-35 – Commercial Chemical COA's

D.5 begins on next page

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Commercial Project proposed Chemicals Usage

No	Chemical Name	Chemical Formula	Physical Form/ Storage Vessel	Storage Capacity	Use
1	Sodium Hydroxide (Caustic Soda) (50%)	NaOH	Liquid/ Storage Tank	8,500 gal	pH adjustment
2	Calcium Hydroxide (Hydrated Lime)	$Ca(OH)_2$	Solid / Storage Silo	60,000 lb	pH adjustment
3	Calcium Carbonate (Limestone)	$CaCO_3$	Solid / Storage Silo	90,000 lb	pH adjustment
4	Sulfuric Acid (93 %)	H_2SO_4	Liquid / Storage Tank	23,000 gal	DLE elution (recovery of lithium from IX DLE media)
5	Sodium Carbonate (Soda Ash)	Na_2CO_3	Solid/Saturator	230,000 lb	Eluate softening
6	Carbon Dioxide	CO_2	Liquid / Storage Tank	60,000 lb	pH adjustment
7	Sodium Hypochlorite (Bleach) (12%)	NaOCl	Liquid / Storage Tank	17,500 gal	Conditioning agent and cleaning agent
8	Sodium Sulfite	Na_2SO_3	Solid / Bulk Bags	7,000 lb	Oxidation-reduction potential (ORP) control
9	Citric Acid	$C_6H_8O_7$	Solid / Bulk Bags	20,000 lb	Cleaning agent for filters
10*	Argon	Ar	Liquid / Dewars	4,500 ft^3	Laboratory equipment (ICP-OES machine)
11*	Nitric Acid	HNO_3	Liquid / Storage Drum	50 gal	Analytical reagent (ICP-OES machine)
12	Flocculant (Polyacrylamide)	N/A	Solid / Bulk Bags	5,000 lb	Chemical treatment of TSS
13	Diatomaceous Earth	N/A	Solid / Bulk Bags	5,000 lb	Filtration Aid
14	Antiscalant	N/A	Liquid / Tote	500 gal	Fouling prevention at Boiler and RO systems
15	Sodium Metabisulfite	$Na_2S_2O_5$	Liquid / Tote	500 gal	De-chlorination of RO Feed water
16	Corrosion Inhibitor	N/A	Liquid / Tote	500 gal	Prevent corrosion of mechanical equipment

*Laboratory Reagents, no COA available yet.

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Reagent 1 begins on next page

PRODUCT SPECIFICATION

Liquid Caustic Soda, 50%

Product Grade: **Membrane**
Chemical Name: **Sodium Hydroxide (NaOH)**

Parameter		Unit	Specification
Sodium Hydroxide	**(NaOH)**	Wt. %	48.5 – 51.0
Sodium Oxide	**(Na_2O)**	Wt. %	37.59 – 39.52
Sodium Chloride	**(NaCl)**	PPM	100 MAX
Sodium Carbonate	**(Na_2CO_3)**	Wt. %	0.15 MAX
Sodium Sulfate	**(Na_2SO_4)**	PPM	80 MAX
Iron	**(Fe)**	PPM	5.0 MAX

Brenntag Global Marketing, LLC
4620 Creekstone Drive, Suite 140
Durham, NC 27703 - USA

Updated: March 5, 2013

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Reagent 2 begins on next page

CERTIFICATE OF ANALYSIS

MISSISSIPPI LIME COMPANY, LLC (dba MLC)
16147 US HWY 61, STE GENEVIEVE, MO, 63670, US

UNIVAR SOLUTIONS USA LLC
777 BRISBANE
HOUSTON, TX 77052
US

SHIP DATE: 02/18/2025
SHIPPER #: 73164
PO #: 4527318144

DRIVER COPY

Vessel No: CTC016 **Tractor No:** 016

Mfg. Date: 02/13/2025 **Best Used By:** 08/15/2025

Product: VITACAL® H-1700#

THIS HYDRATED LIME MEETS THE CURRENT EDITION OF THE FOOD CHEMICALS CODEX SPECIFICATIONS

LOT NUMBER: VCH-021325

PROPERTIES	SPECIFICATIONS	ANALYSIS	TEST METHOD
-325 MESH - %	96.5 min	99.8	MLCO-72
Acid Insolubles Analysis - %	0.5 max	< 0.5	F.C.C. 14th Edition
Arsenic Analysis - ppm	3.0 max	< 3.0	F.C.C. 14th Edition
Carbonate -		PASS	F.C.C.14th Edition
Fluoride - ppm	50 max	34	MLCO-38C
Identification -		PASS	F.C.C 14th Editiion
Lead - ppm	2 max	< 2	F.C.C 14th Editiion
Magnesium & Alkali Salts Analysis - %	4.8 max	< 4.8	F.C.C 14th Editiion
Moisture - %	1.0 max	0.2	MLCO-43
Total Ca(OH)2 (Assay) - %	95.0 to 100.5	99.2	ASTM C1271-99

BY: *Kevin Flieg*
LABORATORY SUPERVISOR
Phone: 573-883-4034

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Reagent 3 begins on next page

MARBLEWHITE® (LUCERNE VALLEY, CA)

Ground Calcium Carbonate

FEATURES

- High Brightness
- Controlled Particle Size

BENEFITS

- Used in a variety of applications such as paints, polymers, caulks and putties, joint compound, rubber and building products.
- Manufactured from a high quality deposit of calcium carbonate.

SHIPPING INFORMATION

MARBLEWHITE® products ship from Lucerne Valley, CA.

Product is available in 50 LB. bags and supersacks.

For availability and minimum order quantity, contact customer service.

SALES OFFICES

Lucerne Valley, CA

800-255-5832

Bethlehem, PA, USA

800-801-1031

www.mineralstech.com

Product Description

MARBLEWHITE® limestone products are high purity calcium carbonates characterize by high brightness and controlled particle size. MARBLEWHITE® limestone products are used in a variety of applications such as paints, polymers, caulks and putties, joint compound, rubber and building products.

Consistent MARBLEWHITE® limestone quality is assured by manufacturing process control, from mining of the calcite ore to final packaging. All MARBLEWHITE® limestone products are manufactured from high quality deposit of calcium carbonate in Lucerne Valley, CA. Chemical and mineralogical compositions are the same for all Lucerne Valley, MARBLEWHITE® limestone products.

Typical Physical Properties	MW 325	MW 350	MW 200	MW 195	MW 125
Median Particle Size (sedigraph 5100, microns)	13.0	15.0	17.0	20.0	26.0
Specific Gravity	2.7	2.7	2.7	2.7	2.7
Oil Absorption (grams/100 grams)	12	12	11	---	---
Dry Brightness (Hunter Y, Rd value)	92	92	92	91	90
Bulk Density (pounds/ft^3) (grams/cc)	45.6 0.73	50.10 0.80	51.0 0.82	53.0 0.85	57.2 0.92
Tap Denisty (pounds/ft^3) (grams/cc)	97.5 1.56	102.3 1.64	109.5 1.75	110.0 1.75	111.4 1.75

Chemical Composition

Calcium Carbonate ($CaCO_3$)	98%
Magnesium Carbonate ($MgCO_3$)	1.2%
Iron as (Fe_2O_3)	<0.1%
Moisture (% weight loss @ 110° C)	0.2%

All products are sold on the understanding that the user is solely responsible for determining their suitability for the intended use. All information given and recommendations made herein are based upon our research and are believed to be accurate, but no guarantee, either expressed or implied, is made with respect thereto or with respect to the infringement of any patent. SMI MAKES NO WARRANTY OF MERCHANTABILITY OR SUITABILITY FOR ANY PARTICULAR PURPOSE IN CONNECTION WITH ANY SALE OF THE PRODUCTS DESCRIBED HEREIN. Inconsistent terms and conditions contained in Buyer's purchase order shall not be binding on SMI unless reflected in writing signed by SMI's representative. This information is not to be copied, used in evidence, released for publication or public distribution without written permission from Specialty Minerals Inc.

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Specialty MINERALS
A MINERALS TECHNOLOGIES COMPANY

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RESOURCES

Reagent 4 begins on next page

Rio Tinto

Rio Tinto Commercial Americas Inc.
200 E. Randolph Street
Suite 7100
CHICAGO IL 60601-7329
USA
Tel:
Fax:

Ship To:
Univar Solutions USA Inc
650 WEST 800 SOUTH
SALT LAKE CITY UT 84104
USA

Certificate of Analysis

Shipment Number 11578014
Delivery Number: 802295579
Customer Order: Univar SLC R Oct
Shipping Date: 10/10/2024

Sold To:
Univar Solutions USA Inc
650 West 800 South
SALT LAKE CITY UT 84104
USA

Material Description: Sulfuric Acid (Including H2O)
Total Weight: 201100.000 LB

Handling Unit	PO No.	Weight	H2SO4 (%)	Tran (%)	Fe (PPM)	NOX (PPM)	SO2 (PPM)
GATX008141	4527192871	100.550 TON	93.400	97.000	3.7400	38.500	1.500

Certificate of Analysis issued by Rio Tinto Commercial Americas Inc.

Remarks:

Rio Tinto Commercial Americas Inc.

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RESOURCES

Reagent 5 begins on next page

TATA CHEMICALS NORTH AMERICA INC.

Soda Ash Dense

Technical Data Sheet

Dense Ash

99000101

January 2022

Characteristics

Tata Chemicals' dense soda ash, or sodium carbonate (CAS name: disodium carbonate), is a white, granular, alkaline material.

Properties*

Chemical Formula	Na_2CO_3
Molecular Weight	105.99
Absolute Density, g/cm³ @ 25°C	2.533
Melting Point, °C	851
Solubility, max % @ 35.4°C	33.2
pH of 1% solution @ 25°C	11.34

*Properties of pure sodium carbonate
**See graph for solubility at other temperatures

Physical Properties

Sodium Carbonate (Na_2CO_3) %	99.5 Min
Bulk Density: lb./ft.³	62.4 – 68.6
GPL	1000 - 1100

Screen Analysis | Cumulative Weight Percent

On US30 (600 µm)	4 Max
US100 (150 µm)	85 Minimum
Thru US200 (75 µm)	2 Max

Chemical Properties

NaCl Weight %	0.04 Max
SiO2 %	0.03 Max
Organic Matter as C %	0.01 Max

TATA CHEMICALS NORTH AMERICA INC.

Product Markets & Usage

Glass
Chemical Intermediates
Soap and Detergent Formulations
Water Treatment
Flue Gas Desulfurization
Pulp and Paper

Meets Product Requirements

AWWA B201-08
ANSI/ASTM 0458-85 (1998)
Federal Spec. O-S-571G (11/13/97)
NSF Standard 60 (Plant Certified 9/90)

HALAL
Kosher
ISO 9001:2015

Grades, Forms, and Shipping Containers (Dense Ash*)

Bulk hopper cars and trucks
50 lb. (22.7 kg) bags
One-ton Super Sacks

*Suitable for water treatment in accordance with AWWA Standard 0201-92 for soda ash

Production/Shipping Location

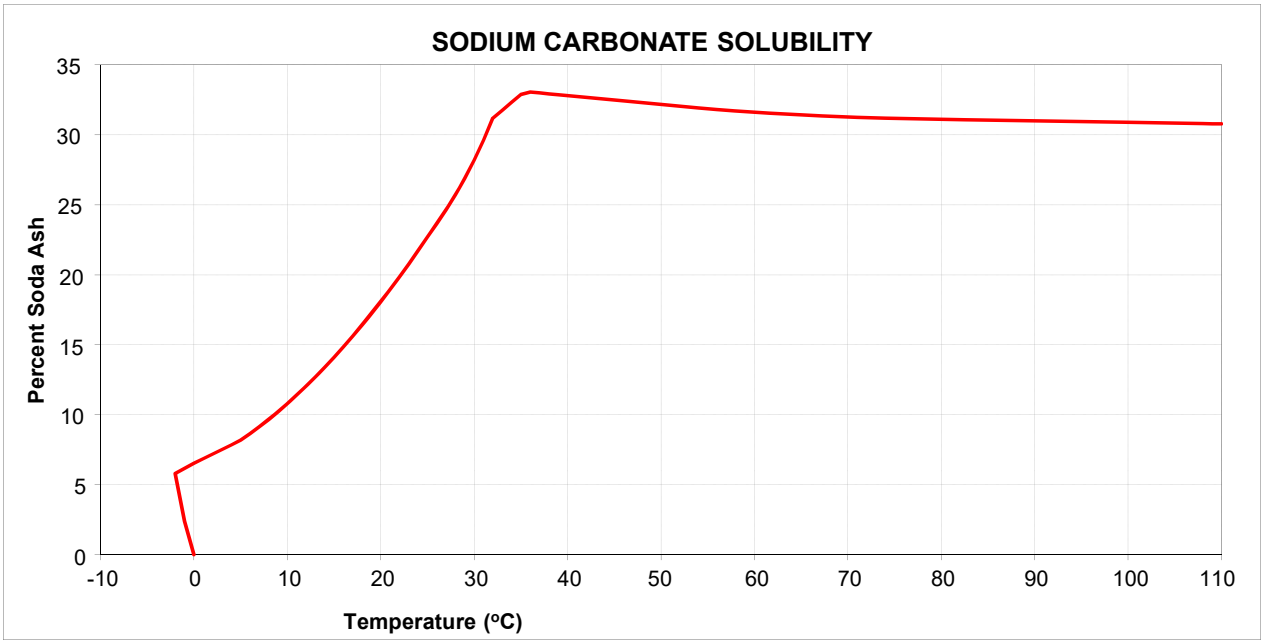
Green River, Wyoming

Shipping Regulations

Not Regulated

TATA CHEMICALS NORTH AMERICA INC.

Solubility in Water



Product Safety Information

Soda ash may cause eye injury and skin irritation. May be harmful if swallowed.

As with any chemical, soda ash requires care in handling. Anyone responsible for the procurement, use or disposal of this product should familiarize himself and those handling it with the appropriate safety and handling precautions. This Information is available in the Material Safety Data Sheet, which may be obtained by contacting our Customer Service or Technical Service groups (see information below).

Product Information

To obtain additional information*, place an order, obtain samples or pricing, or check on availability, call us toll-free at (800)819-8568, or send written inquiries to our address below.

*soda ash Product Bulletin (NO. GC100DP)

Disclaimer

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RESOURCES

Reagent 6 begins on next page

Certificate of Conformance - *Industrial Grade*
Liquid Carbon Dioxide

This product conforms to the requirements of Compressed Gas Association CGA G-6.2-2004, Commodity Specification for Carbon Dioxide, Quality Verification Level G. The listed components are analyzed on a batch, lot, or other routine sampling basis.

Parameter	Formula	Industrial Grade	Units
Carbon Dioxide Purity	CO_2	≥ 99	% vol
Water Vapor	H_2O	≤ 32	ppm vol
Total Volatile Hydrocarbons as Methane	N/A	≤ 50	ppm vol
Oxygen	O_2	≤ 50	ppm vol
Total Sulfur Content as Sulfur Dioxide	S	≤ 0.5	ppm vol
Acetaldehyde	CH_3CHO	≤ 0.5	ppm vol
Non Volatile Residue	N/A	≤ 10	ppm wt
Odor in Water	N/A	No foreign	None

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RESOURCES

Reagent 7 begins on next page

THATCHER COMPANY, INC.
1905 Fortune Rd, Salt Lake City, UT 84104
(801) 972-4587 PHONE
(801) 972-4606 FAX

CHEM

CERTIFICATE OF ANALYSIS

T-CHLOR 12.5

This is to certify that the listed lot was assayed with the following results:

Date:	February 28, 2025
Lot Number:	2502281122
Date of Analysis:	02/28/2025
Retest Date:	Three (3) months from Date of Analysis

Property	Specification	Result
Available Chlorine (g/L)	145-154	151
Excess Caustic Soda (g/L)	3.0-8.0	5.7
Density (g/ml)	Report	1.197
Sodium Hypochlorite (%)	12.7-13.6%	13.2%

Certifications:

EPA Registration Number: 9768-53
Product meets AWWA B-300-80 Specifications

CLASSIFIED UL WATER QUALITY

SODIUM HYPOCHLORITE
ANSI/NSF 60
<35Y2>

MUL = 84 mg/L

Erik Stevning
Thatcher Company, Inc.
Authorized Signature

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RESOURCES

Reagent 8 begins on next page

Chem-Impex International, Inc.

Tel: (630) 766-2112
Fax: (630) 766-2218
E-mail: sales@chemimpex.com
Web site: www.chemimpex.com
Shipping and Correspondence:
935 Dillon Drive
Wood Dale, IL 60191
Manufacturing site:
825 Dillon Drive
Wood Dale, IL 60191

Certificate of Analysis

Catalogue Number	01630
Lot Number	002251-03214
Product	**Sodium sulfite**
CAS Number	7757-83-7
Molecular Formula	Na_2SO_3
Molecular Weight	126.04

Appearance	White crystalline powder
Solubility	28 g in 100 mL Water at 84 ºC
Heavy Metals	< 0.001% (as Pb)
Anion	Chloride (Cl^-): < 0.02%
Cation	Iron (Fe): < 0.001%
Insoluble material	0.003%
Titrable	Titrable free base: 0.025 meq/g
Assay by titration	99.13%
Grade	ACS reagent
Application	Reducing agent.
Storage	Store at RT
Additional Information	Free acid: Passes test Identification: Passes test
Remarks	See material safety data sheet for additional information For laboratory use only

The foregoing is a copy of the Certificate of Analysis as provided by our supplier



Bala Kumar
Quality Control Manager

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RESOURCES

Heavy metals in this COA are reported as a lead (Pb) equivalent.

For impurity analysis, heavy metals from sodium sulfite are assumed to be three heavy metals commonly found in industrial reagents.

These heavy metals are assumed to be evenly split, and are converted to each respective metal on a molar basis as seen below:

Heavy Metals	<0.001% (as Pb)

Lead (Pb)	0.00033%
Arsenic (As)	0.00012%
Cadmium (Cd)	0.00018%

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RESOURCES

Reagent 9 begins on next page

Sucroal
NIT 891.300.959-8

Univar Solutions Batch #AG22F236DA
Material #16148542

D.5

Certificate of Analysis

SEND TO : **UNIVAR SOLUTIONS USA, INC.**
3 Waterway Square place Suite 1000
The Woodlands, TX 77 TEXAS
EE.UU.

ATTN: **QCLab**

PRODUCT: **CITRIC ACID ANHYDROUS GRANULAR * 1000 KG**

REPORT DATE: **22/07/22**

Customer PO #: **4525132379**
ORDER #: **3446012387**
MATERIAL #: **13628**
Qty Shipped: **2000,00 KG**

ANALYTICAL DATA

LOT NUMBER: **AG22F263DA**
MFG DATE (dd/mm/yy): **26/06/22**
EXP DATE (dd/mm/yy): **26/06/25**
PACKAGE SIZE: **1000,00 KG**

REQUIREMENTS	UNITS	RESULTS	SPECIFICATIONS MIN	SPECIFICATIONS MAX
ASSAY (Anhydrous basis)	%w/w	100,02	99,50	100,50
WATER (Karl Fischer)	%w/w	0,089	0,000	0,500
COLOR OF SOLUTION (sol. 40% w/v, 420 nm)	%T	99,8	99,0	100,0
CLARITY OF SOLUTION (sol. 40% w/v)	NTU	0,798	0,000	3,000
**LEAD (as Pb)	ppm	0,009	0,000	0,500
**CALCIUM (as Ca)	ppm	1,45	0,00	75,00
**ARSENIC (as As)	ppm	0,006	0,000	1,000
**MERCURY (as Hg)	ppm	Not detec.	0,000	1,000
**IRON (as Fe, sol 40% w/v, 670 nm)	ppm	0,10	0,00	5,00
**RESIDUE ON IGNITION	%w/w	0,007	0,000	0,050
**EVALUATION OF INSOLUBLES	-	PASS	PASS	PASS
**FOREIGN MATTER	-	PASS	PASS	PASS
**IDENTIFICATION (test IR)	-	PASS	PASS	PASS
**RELATED SUBSTANCES (isocitric acid)	-	PASS	PASS	PASS
*UV ABSORBANCE	-	PASS	PASS	PASS
*ORGANIC VOLATILE IMPURITIES	-	PASS	PASS	PASS
CARBONIZABLE SUBSTANCES (1g, 470 nm)	-	PASS	PASS	PASS
ODOR(Characteristic odor)	-	PASS	PASS	PASS
APPEARANCE	-	WHITE CRYSTAL	PASS	PASS
TASTE (Strong acid taste)	-	ACIDIC	ACIDIC	ACIDIC
**OXALATE (as oxalic acid dihydrate,520nm)	ppm	<100	0	100
**HEAVY METALS (as Pb)	ppm	<5,0	0,0	5,0
**SULPHATES (as sulphate, sol.40% w/v)	ppm	<150	0	150
*TRIDODECYLAMINE	ppm	<0,1	0,0	0,1
RETAINED ON 1400 um US STD 14	%w/w	0,41	0,00	5,00
PASS THRU 300 um US STD 50	%w/w	0,06	0,00	10,00

****NOTE: Test made by skip_lot_model.**

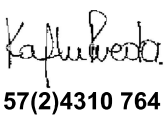
*** NOTE: No potential such substances to be present in process.**

Non - GMO Project Verified

This material conforms to current EP, Commission Regulation (EU) No. 231/2012 (E330), USP, FCC, JSFA & JP.

The data in this COA has been verified by plant QA manager or designee.

REPORTED BY **Leslie Katherine Rueda**
Directora Calidad Cítrico



lkrueda@sucroal.com.co, Phone: 57(2)4310 764

LB 10/20/2022

Reagent 10 (Not Included)

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Reagent 11 (Not Included)

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RESOURCES

Reagent 12 begins on next page

TEL: (86) 25-52103259 FAX: (86) 25-58325099 EMAIL: sales@landoilchem.com

LANDOIL Chemical Group Co.,Ltd.

Certificate Of Analysis

Product Name: Polyacrylamide Manufacture Date :2020-01-14 Packing: 25KG/BAG	Type:A689 Expiry Date:2022-01-13 Batch No.:90560018

Item	Standard	Test result
Appearance	Off white, or yellowish granular	Off white, or yellowish granular
Solid Content(%)	≥90%	90%
Molecular Weight (Million)	High	High
PH (0.5% Solu.@25℃)	7.0-8.0	7.2
Monomer free	≤0.05%	Conform
Hydrolysis degree(%)	Very high	Very high
Insoluble Content	≤3.0%	2.6%
Mixing Ration	0.05-0.5%	0.3%
Particle volume concentration	2.0 -5.5%	4.0%
Mesh Size	60-100	80
Residue Acrylamine %	≤5ppm	2ppm
Dissolving Time(min) 30°C	20-60	Conform

Verify :

南京良友化工有限公司
Nanjing Landoil Chemical Group Co., Ltd

Inspector:

Date:2020-01-15

Waterleaf
RESOURCES

Reagent 13 begins on next page

CELATOM® FW-14

TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Origin	Fresh Water Diatomite
Description	Flux-Calcined DE
Color	Pink to White
Sieve Analysis (Tyler) +150 Mesh (>105 µm)	7.1%
Particle Exclusion Potential (µm)	1.00
Median Particle Diameter (µm)	28
pH (10% slurry)	9.5
Free Moisture (max % H_20)	0.5
Wet Bulk Density (lb/ft^3) / (g/L)	21 / 336
Dry Bulk Density (lb/ft^3) / (g/L)	14 /224
Permeability (millidarcy) [1]	1450
Specific Gravity	2.33

[1] Determined w/VEL Permeameter

TYPICAL CHEMICAL ANALYSIS (TOTAL CHEMISTRY)

SiO_2 (Silicon Dioxide)	89.0%
Al_2O_3 (Aluminum Oxide)	4.10%
Fe_2O_3 (Iron Oxide)	1.50%
CaO (Calcium Oxide)	0.60%
MgO (Magnesium Oxide)	0.30%
TiO_2 (Titanium Dioxide)	0.20%
Na_2O (Sodium Oxide)	4.00%
P_2O_5 (Phosphorus pentoxide)	0.02%
MnO (Manganese Oxide)	<0.01%
K_2O (Potassium Oxide)	0.20%
Cr_2O_3 (Chromium Oxide)	<0.01%
LOI (Loss on Ignition)	0.10%

Updated: August 2024 (v.2)

U.S. SILICA COMPANY
24275 Katy Freeway, Suite 600
Katy, TX 77494
(800) 243-7500
ussilica.com

DISCLAIMER: The information set forth in this Technical Data Sheet represents typical properties of the product described; **THE INFORMATION AND THE TYPICAL VALUES ARE NOT SPECIFICATIONS**. EP Minerals makes no representation or warranty concerning the products, expressed or implied, by this Technical Data Sheet.

READ APPROPRIATE SAFETY DATA SHEETS PRIOR TO USE. For access to product SDS, please visit www.ussilica.com.

Waterleaf
RESOURCES

Reagent 14 begins on next page

ANGEL CHEMICALS
PLOT NO. 374/2, NR. HANUMAN MANDIR,
VADODARA, GUJARAT, INDIA , 390010,
Contact no.: 9825512916
angelchembaroda@gmail.com
GSTIN : 24AMRPP8733G1ZK

DATE: 1 NOVEMBER 19

CERTIFICATE OF ANALYSIS

SPECIFICATION OF RO ANTISCALANT

CHEMICAL NAME: RO ANTISCALANT
COMPANY NAME:

	SPECIFICATION	TEST RESULTS
Physical Appearance	Clear light yellow liquid	pass
Ph	Acidic (2.5 to 3.5)	Pass
Sp. Gravity	1.05-1.10	1.09
Solubility	Miscible with water	pass
Mfg Date	02/2019	
Exp Date	01/2021	
BATCH NO		

FOR ANGEL CHEMICALS

Waterleaf
RESOURCES

Reagent 15 begins on next page

Goods Receipt Date: 02/21/2025

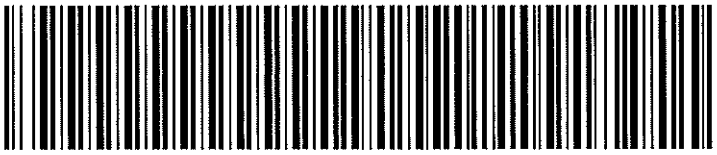
Plant: 0905 **DALLAS BEKAY ST PLANT**

Material: 16140932 **SOD METABISULFITE SSK390**

Batch: 01C5

Purchase Order/Item: 4527453209 / 00010

Vendor: 213987 **INEOS CALABRIAN CORPORATION**



00000000001614093201C5

INEOS Calabrian

INEOS Calabrian
5500 HWY 366
Port Neches, TX 77651

Tel: 409-727-1471

Dallas Bekay St Plant .
10889 Bekay St
Dallas Tx 75238
Customer PO # 4527453209
Sales Order # 172557

February 17, 2025

CERTIFICATE OF ANALYSIS
Sodium Metabisulfite
(Food Grade)

Property	Specification	Analysis
Lot #	Required	01C5
Assay, wt%	98.7 min	99.5
Date of Manufacture	Report	12/30/2024
Sodium Sulfite, wt %	≤ 0.6	0.4
Available SO_2, wt%	≥ 66.5	≥ 66.5
Heavy Metals as Pb, ppm	10 ppm max	≤ 10
Iron (Fe), ppm	2 ppm max	≤ 2
Insoluble Matter, wt %	≤ 0.005%	≤ 0.005
Chloride, wt %	≤ 0.05%	≤ 0.05
Thiosulfate, wt %	≤ 0.05%	≤ 0.05
Arsenic, ppm	≤ 1 ppm	≤ 1
Selenium, ppm	≤ 5 ppm	≤ 5
Lead, ppm	≤ 2 ppm	≤ 2
pH of 10% Solution	4.0 – 4.6	Pass
Appearance	White free flowing Crystals	Pass
Appearance in Solution	Clear and free from insoluble matter except for a slight flocculence	Pass
Particle Size (U.S. Sieve), wt %		
Through No. 20	92 - 100%	Pass
On No. 40	10 - 50%	Pass
Through No. 100	0 - 15%	Pass

Shelly Kluma

INEOS CALABRIAN CORPORATION
Any SMBS to Univar USA must be produced within 3 months of the ship date

Waterleaf
RESOURCES

Reagent 16 begins on next page

THATCHER COMPANY P.O. BOX 27407 SALT LAKE CITY, UTAH 84127
(801) 972-4587 PHONE
(801) 972-8693 FAX

PRODUCT SPECIFICATION

SODIUM BISULFITE 38-40%

CAS NUMBER: 7631-90-5
CHEMICAL FORMULA: $NaHSO_3$

PRODUCT DESCRIPTION:	Clear, colorless to pale yellow solution with a slight odor of sulfur dioxide	
SPECIFICATIONS:	Assay (% $NaHSO_3$)	39.9-40.4
	pH:	5.0-5.4
	Specific Gravity (15C):	1.345-1.365
	Iron (ppm):	20 max.

WARRANTY

This information is, to the best of our knowledge, accurate, but may not be complete. Thatcher Company furnishes this information in good faith, but without warranty, representation or guarantee of its accuracy, completeness or reliability.

4/5/2011

D.6 Non-Target Mineral Balances

PURPOSE

This appendix provides stream tables for specific ionic species in the commercial mass balance. This provides clarity as to the sources and fate of these constituents in the process facility.

CONTENTS SUMMARY

This appendix provides block flow diagrams and stream table excerpts for the following constituents: Lithium, Sodium, Magnesium, Calcium, Manganese, Potassium, Sulfate, Chloride, Silica, and Arsenic.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 4.1

DOCUMENT DETAILS

- Issued by: Waterleaf
- Date: February 10, 2025
- Page Count: 21

D.6 begins on next page

D.7 Gen 5 Lilac IX – Technical White Paper

PURPOSE

This appendix provides a technical overview of Lilac Solutions' Generation 5 ion exchange (Gen 5 Lilac IX) direct lithium extraction technology, documenting its performance, scalability, and cost advantages relative to conventional lithium brine extraction methods.

CONTENTS SUMMARY

The appendix contains Lilac Solutions' technical white paper describing the development, performance, and commercial readiness of its Gen 5 Lilac IX technology. The document outlines the limitations of legacy brine extraction technologies and presents detailed performance data demonstrating significant improvements in lithium recovery, media productivity, durability, eluate quality, and water efficiency achieved with Gen 5. It summarizes validation results from multiple pilot plants, including the GSL Pilot, and provides comparative cost, environmental, and scalability analyses showing that Gen 5 Lilac IX enables first-quartile project economics across a wide range of brine chemistries while reducing freshwater use, land footprint, and greenhouse gas emissions.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 3.2
- Section 3.4

DOCUMENT DETAILS

- Issued by: Lilac Solutions
- Date: October, 2025
- Page Count: 29 pages

D.7 begins on next page

High-Performance, Low-Cost Lithium Extraction with Gen 5 Lilac IX

Lilac Solutions, Inc. October 2025



Amos Indranada
VICE PRESIDENT, TECHNOLOGY

Peter Bouzalas
SENIOR MANAGER, CORPORATE DEVELOPMENT & STRATEGY

David Snydacker
PRESIDENT AND CHIEF TECHNOLOGY OFFICER

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2. The Lithium Industry 4

3. Limitations of Legacy Brine Technologies 6

Evaporation Ponds 6

Alumina Adsorbents 7

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Brine Pretreatment 12

Media Productivity 13

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Eluate Quality 16

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7. Environmental Impact 27

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1. Executive Summary

In 2025, global lithium demand continues to see strong growth, yet lithium producers and developers are facing significant cost pressure. Prices have been driven down by Chinese investment, and this has impacted companies developing new projects, particularly in jurisdictions with lower lithium grades or higher capital costs. Permitting has also become more challenging, as lithium development has strained water resources and community relations around large lithium resources.

Developers of new lithium brine projects are seeking improved technology to reduce production costs and alleviate permitting challenges, but their options have been limited. For thirty years, conventional direct lithium extraction (DLE) technology based on alumina adsorbents (AA) has struggled to deliver the necessary improvements in water, energy, and capital cost.

Lilac has developed a unique ion exchange (IX) technology to overcome the limitations of AA and address the challenges facing project developers. Lilac first validated its Gen 1 technology in 2017 and has continued to invest in R&D to refine the IX media, reactor, and flowsheet to improve performance and reduce cost. In June 2024, Lilac unveiled its Gen 4 technology, sharing detailed performance data with the public for the first time.

Over the last 16 months, we've made significant improvements to the Lilac IX technology on key metrics including materials durability, reactor throughput, eluate quality, and production costs. These improvements have culminated in our latest Gen 5 technology.

Lilac's Gen 5 IX technology provides exceptional performance and cost for a wide variety of brine resources. Four key attributes enable significantly reduced capital and operating costs:

- **Solids Tolerance:** the IX system allows passage of 70x larger particles, enabling use of low-cost multi-media filtration and avoiding expensive ultrafiltration often required by AA.
- **Media Productivity:** the lithium production rate per volume of IX media is 20x higher than AA, reducing the required number of reactors and first fill media volume.
- **Media Durability:** delivers up to 10,000 cycles before replacement, which is orders of magnitude higher than competing IX technologies.
- **Eluate Quality:** 7x higher lithium concentration and higher purity with 100x lower boron:lithium ratio than AA, simplifying downstream concentration and purification.

The Gen 5 technology leverages the same proven equipment package used in our Gen 4 demonstration plants with a scalable modular design, off-the-shelf components, and 10x lower water consumption compared to AA. Lilac manufactures its IX Media in the U.S., avoiding the risk of Chinese export bans.

This white paper presents detailed performance data, field validation, and cost modeling for Lilac's Gen 5 technology, demonstrating how these advances can help customers develop lithium projects that are cost competitive and scalable.

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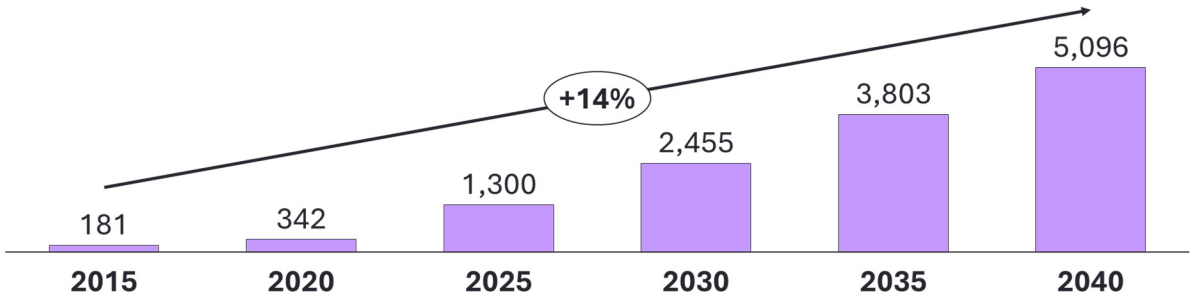
2. The Lithium Industry

Lithium is a critical mineral essential to modern battery technology, underpinning energy security, national defense, and industrial competitiveness. Lithium-ion batteries power electric vehicles, enable defense technologies, and stabilize the electric grid as AI compute grows exponentially.

Lithium's dominance as the mobile ion for advanced batteries relates to its high energy density, fast charging, and compatibility with a variety of electrode materials. Competing sodium-ion batteries have delivered advantages only for niche applications with extreme temperatures or when lithium prices are at unsustainably high levels. Other battery chemistries, including zinc and iron, have been marketed for stationary grid applications, but low energy density has kept balance of system costs stubbornly high. Lithium represents not only an entrenched incumbent but a fundamentally superior class of technologies from a first principles standpoint.

As a result of these factors, lithium demand is growing rapidly. While demand growth for most metals typically matches GDP growth of around 1-3%, lithium is seeing a 14% compounded annual growth rate from 2015 to 2040.

Figure 2.1: Global Lithium Demand (kilotonnes LCE per annum)[1]



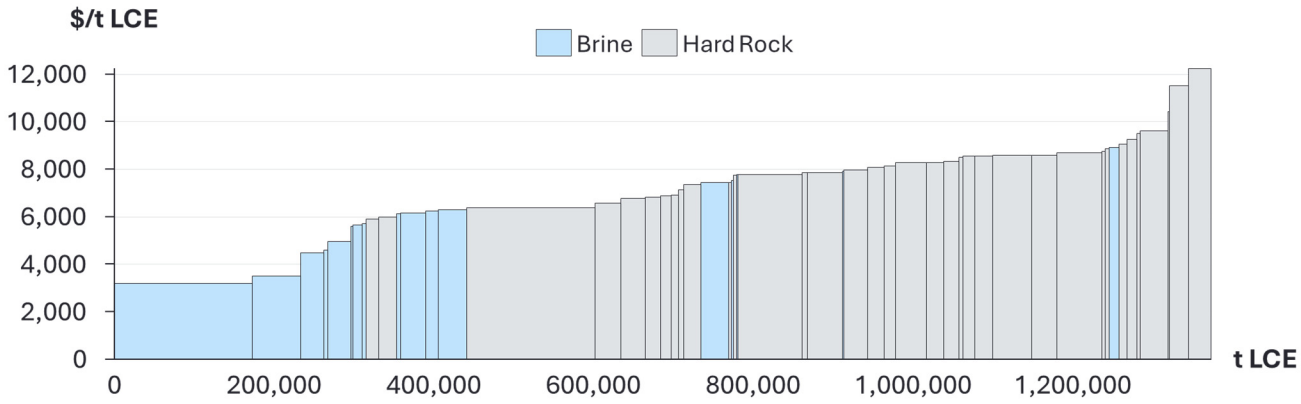
Lithium supply has expanded rapidly to meet this growing demand. Prior to 2015, a few South American brine projects dominated global production, benefiting from high grades and low operating costs. However, challenges with legacy extraction technologies limited the growth of brine production, allowing hard rock mining to surge ahead and account for ~80-90% of new greenfield supply over the last decade.

[1] Benchmark Minerals Intelligence

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Today, the supply stack is far more diverse, with hard rock holding a >60% global market share. In addition, the global cost curve has shifted higher as developers mine progressively lower-grade hard rock resources.

Figure 2.2: Global Lithium Cost Curve, 2025 C1 Costs[1]



The growth in hard rock supply has deepened the industry's dependence on China. Hard rock concentrate from mines in Australia, Africa, and Brazil is typically refined into battery-grade product in China, which now processes ~70% of global lithium supply, giving it significant market power.

Hard rock mining also carries a heavy environmental burden, emitting 18–20 t CO_2/t LCE, using over 500 m^2/t LCE of land, and consuming 80–193 t H_2O/t LCE of freshwater; this is far higher than brine operations (see Section 7).

To meet surging demand, reduce costs, de-risk supply chains, and do so with less land and freshwater consumption, the industry must find new ways to unlock lithium from brine resources.

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3. Limitations of Legacy Brine Technologies

Evaporation Ponds

Lithium production from brines began in the 1960s using evaporation ponds. This approach pumps brine into large man-made ponds, where it is gradually evaporated via solar irradiation and dry winds. This leaves behind solid salt tailings and a concentrated solution that is processed to remove magnesium (Mg), calcium (Ca), boron (B), and other impurities, and then reacted with sodium carbonate to yield lithium carbonate.

This method has been deployed at the Salar de Atacama in Chile, where lithium is present at very high concentrations (>2,000 mg/L). However, even at high grade resources, there are significant challenges related to water balance and land use, which have prompted many regulators to restrict new evaporation ponds.

Beyond the Atacama, ponds are often impossible to implement due to lower lithium grades and higher impurities. To illustrate this, consider that a typical brine in Argentina with 400 mg/L of lithium would require 5x more water to be evaporated and 5x larger evaporation ponds compared to the Atacama in Chile. Since 2015, only two new evaporation pond projects have come online in South America. Ponds are effectively impossible to implement at new projects in the United States or Europe because of brine chemistry, weather, and permitting.

Table 3.1: Challenges with Evaporation Ponds

Challenge	Description
Low Lithium Recovery	• Projects typically recover only 40-60% of the lithium in the brine, constraining production rates and impacting economics
Poor Product Quality	• The evaporation process concentrates not only lithium, but also impurities such as Mg, Ca, and B, increasing processing costs • This can also lead to product quality issues; for example, the Olaroz and Cauchari-Olaroz evaporation pond projects in Argentina are unable to achieve 100% output of battery-grade product
Require Arid Weather	• Arid weather is needed to efficiently evaporate brine and avoid excessive rainfall that causes process upsets to the open-air system • Outside of South America, arid conditions rarely coincide with brine resources
Land Use	• Vast areas of flat land are needed to site sufficiently large ponds that enable lithium production at commercially relevant levels • Outside of South America, vast areas of unused flat land rarely coincide with brine resources
Water Impacts	• Evaporation depletes brine aquifers, which can lead to subsidence and degradation of overlying freshwater aquifers • This issue creates resistance to evaporation ponds from local communities in water-scarce regions, like in South America

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Alumina Adsorbents

Alumina adsorbents (AA) are a class of technology used to selectively recover lithium from brine. This technology is sometimes referred to as Layered Double Hydroxide (LDH) or simply "sorbents." The active alumina-based material is typically embedded in a composite with a polymer matrix. The material adsorbs charge-neutral lithium chloride (LiCl) from the brine, driven by salinity changes, and uses large volumes of freshwater to wash the materials and elute (release) the lithium.

AA was first commercialized in 1998 at Project Fenix on the Salar de Hombre Muerto in Argentina, a ~700 mg/L Li brine resource. Despite being in commercial production for nearly thirty years, AA only contributes to ~10% of global lithium supply. Beyond Project Fenix, the only significant growth in AA production has come from a handful of projects in China that typically extract lithium from pre-concentrated streams of potash effluent. There are multiple challenges that have prevented AA technology from increasing market share:

Table 3.2: Challenges with Conventional Alumina Adsorbents for Delivering New Lithium Supply

Challenge	Description
Evaporation Still Required	• Projects typically pre-concentrate the brine through evaporation prior to AA extraction; this applies to Project Fenix in Argentina as well as projects in China
Low Lithium Recovery	• Project Fenix recovers only 42% of the lithium (despite the high 700 mg/L lithium grade) when considering the aggregate performance of AA and the evaporation ponds used to pre-concentrate the brine (calculated from published data)[2]; this constrains production rates and impacts economics
High Freshwater Consumption	• At Project Fenix, 100–120 m^3/t LCE of freshwater is consumed (calculated from published data)[2], and not easily recycled due to mixing of washate and eluate • A recent study found a 90% reduction in vegetated wetland area near Project Fenix directly linked to freshwater extraction for the AA process[3]
Brine Heating	• Brine requires heating to 60–90 °C for AA to function optimally[4], increasing costs, energy consumption, and GHG emissions • As lithium grades decrease over time with reservoir dilution due to reinjection, brine flowrates and corresponding heating costs can increase dramatically
Low Tolerance to Impurities[5,6]	• AA struggles with As, Pb, SO_4^{2-}, and CO_3^{2-}, which cause fouling and capacity loss • Additional brine pre-treatment steps are often required to remove these impurities, leading to increased flowsheet complexity and cost

Most companies marketing next-generation DLE systems use AA and claim performance improvements on existing systems, including the elimination of evaporation ponds. While these companies have proposed many projects over the last 15 years, only one large-scale project has

[2] *Salar del Hombre Muerto: Pre-Feasibility Study* (Arcadium Lithium Corporation, 2023, [PDF], effective 31 Dec 2022).
[3] *Density Constrains Environmental Impacts of Fluid Abstraction in Closed-Basin Lithium Brines* (Corkran et al., 2025, *Water Resources Research*).
[4] *Adsorption-type aluminium-based direct lithium extraction: The effect of heat, salinity and lithium content* (Boroumand & Razmjou, 2024, *Desalination*).
[5] *Arsenate Sorption on Lithium/Aluminum Layered Double Hydroxide Intercalated by Chloride and on Gibbsite: Sorption Isotherms, Envelopes, and Spectroscopic Studies* (Liu *et al.*, 2006, *Environmental Science & Technology*, 40 (24), pp. 7784–7789).
[6] *Webinar: Escalate with Aluminate – Optimizing LADH Performance* (Forward Water Technologies Corp., 2024, [video], YouTube, 11 March).

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been built without evaporation ponds to pre-concentrate the feed brine: Centenario Ratones in Argentina. The project completed construction in 2024 but has experienced commissioning delays and slow ramp-up, so performance of the AA technology remains unclear.

Even after decades of work to improve AA performance and impurity tolerance, many AA projects continue to struggle with brine impurities including As, Pb, SO_4^{2-}, and CO_3^{2-}, which must be removed at high cost prior to lithium recovery. One notable example is a 50,000 tpa LCE project planned to start construction in late 2025 at the Mamicuo Lake in the Tibetan region of China. This project was analyzed by researchers at the Argonne National Lab, identifying the requirement for extensive brine pretreatment to remove carbonates and sulfates.[7] The environmental impact assessment filed for the project indicated that sulfate must be reduced via nanofiltration from 13,000 ppm to below 100 ppm prior to feed into the AA circuit.[8] Sulfate impurities are common in lithium brines, including large South American salars.

[7] Battery-Grade Lithium Materials: Virgin Production and Recycling, a Techno-Economic Comparison (Gallagher *et al.*, 2025, *Advanced Energy Materials*, e01813. DOI: 10.1002/aenm.202501813

[8] Tibet Autonomous Region Environmental Protection Agency, Tibet Autonomous Region Gertse County Mamicuo Salt Lake Lithium Boron Mining Project Environmental Impact Report 2023 (accessed: March 2025).

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4. Lilac IX Technology Development

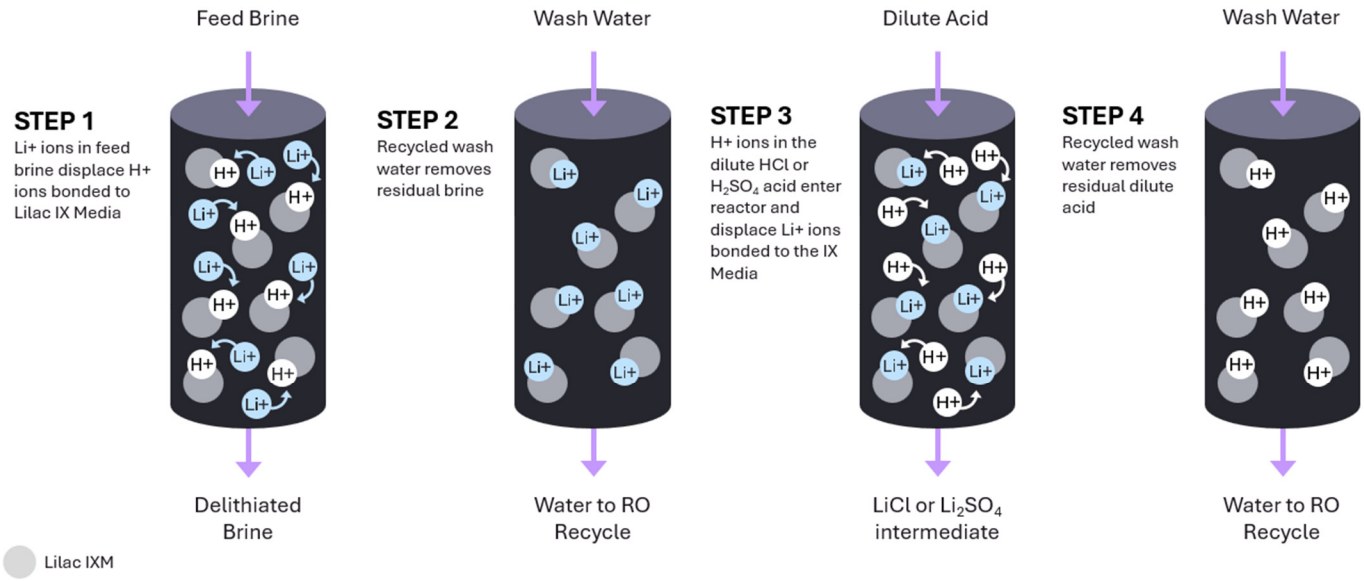
The leading alternative to AA technology for direct lithium extraction (DLE) is ion exchange (IX). IX technologies are widely used across industries including water treatment, metals refining, and food processing. Every IX technology utilizes a material called an ion exchange media (IXM) to selectively absorb target metals from liquid streams. IX does particularly well with applications where large volumes of water need to be processed to recover low concentrations of a specific metal.

IX technology has long been seen as the “holy grail” for lithium extraction due to its dominance in similar applications, such as uranium extraction and water softening. However, for decades, the lithium industry struggled to develop an IXM that could perform well in both selectivity and durability. Polymers lacked selectivity and ceramics lacked durability; neither category could deliver both, so most lithium companies abandoned IX technology.

Lilac’s core innovation is a ceramic IXM that delivers both selectivity and durability, along with high capacity and low cost, unlocking the IX category for lithium production.

The Lilac IXM works by selectively absorbing lithium ions into a ceramic crystal structure through an intercalation reaction. Once the IXM is saturated with lithium, a small volume of freshwater is used to wash out residual brine while the lithium remains bound inside the IXM. Then, the lithium can be eluted (released) from the IXM using dilute hydrochloric or sulfuric acid to yield an eluate stream comprising lithium chloride or lithium sulfate. Lilac achieves high acid conversion efficiencies, the acid can be produced on site from NaCl, and all acidity is neutralized in the process prior to release of the lithium-depleted brine. Lilac’s eluate features high purity, allowing for streamlined downstream processing. The eluate can be processed with conventional unit operations to yield a finished battery-grade lithium carbonate or lithium hydroxide product.

Figure 4.1. The Lilac IX Lithium Extraction Process



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Since its founding in 2016, Lilac has delivered step changes in performance across 5 generations of IX technology. Lilac's multi-disciplinary technology team has leveraged deep expertise in materials, chemical, and mechanical engineering to steadily improve the performance and cost of the IX media, reactor, and flowsheet.

Figure 4.2. Lilac IX Technology Development[9]

Lilac IX Technology	Gen 1	Gen 2	Gen 3	Gen 4	Gen 5
Year	2016-2019	2020-2021	2022-2023	2024	2025
IX Reactor Model	**A**	**B**	**C**	**C**	**C**
Media Productivity (kg LCE/day/m^3)	120	300	550	800	1,500
Lithium Recovery	80%	80%	85%	95%	>95%
IXM Cycle Life	300	1,000	3,000	4,000	**10,000+**

Gen 1 provided early proof of concept, demonstrating high lithium recovery and impurity rejection.

Gen 2 improved cycle life and set the stage for optimization of reactor design.

Gen 3 represented a major breakthrough, increasing IXM cycle life again while improving reliability and operability. Gen 3 also introduced the IX reactor Model C, also used in Gen 4 and 5. This eliminated all custom IX reactor components, incorporating only off-the-shelf equipment for improved cost and reliability. Model C also supported a breakthrough in water efficiency.

Gen 4 delivered a step change in lithium recovery, and media productivity was now significantly higher than competing AA. Most notably, lithium recoveries increased to greater than 90% for most brines, while DLE system capital costs were cut by almost 50% through higher media productivity.

Gen 5 features an improved IXM formulation with significantly extended cycle life and relaxed filtration requirements, enabling low-cost production from a variety of brine chemistries. Gen 5 utilizes the same proven reactor module as Gen 3 and 4 with ultra-low water consumption but optimized around the new IXM for higher throughput and lower cost. Gen 5 establishes a significant cost advantage relative to conventional alumina adsorbent technology.

[9] Metrics shown in Figure 4.2 are for a 300 mg/L medium-grade brine

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5. Gen 5 Lilac IX: Higher Performance, Lower Cost

Lilac's Gen 5 technology was the result of a focused effort to improve project economics for low grade brines, and the resulting technology also helps projects with higher lithium grades. Gen 5 delivers four primary performance improvements: reduced brine pretreatment, higher IX media productivity, longer IX media cycle life, and a higher-purity eluate product. Collectively, these improvements lower equipment and processing needs, simplifying the flowsheet and cutting both CAPEX and OPEX.

Table 5.1: Gen 5 Lilac IX Features and Their Cost Advantages

Features	Cost Advantages
1. Brine Pretreatment	• The solids filtration requirement for brine feeding the IX reactor is significantly relaxed. Particle size cutoff is increased by 70x relative to ultrafiltration, which is required for many AA flowsheets and adds significant cost. Only large solids need to be removed; this can be done with low-cost multi-media filtration. Bacteria in the brine can pass through the plant. • Does not require costly removal of CO_3^{2-}, SO_4^{2-}, As, Pb; only requires removal of Mn/Fe, which are typically in low concentrations and cheap to remove • No brine heating required
2. Media Productivity	• Industry-leading media productivity (20x higher than AA), requiring less media for a given lithium production rate • High throughput reactors with small footprint and low balance of system costs • High media capacity and precise elution mean 10x less water than competing AA technology
3. Media Durability	• Delivering up to 10,000 cycles before replacement, orders of magnitude higher than competing IX technologies • Reduced IX media replacement costs • Lower replacement frequency, higher uptime
4. Eluate Quality	• High purity eluate requires less downstream processing: o Ultra-low boron eliminates unit operation for boron IX or SX, B:Li ratio is 100x lower than AA o Low Mg/Ca decreases reagent consumption o Low Na/K decreases bleed and increases yield in Li_2CO_3 crystallizer • Very high eluate lithium concentration, up to 8,000 mg/L and 7x higher than AA, decreases or eliminates the need for eluate reverse osmosis

Gen 5 also delivers low water consumption as discussed in Section 7, and leverages a U.S. supply chain as described in Section 6.

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Brine Pretreatment

Lilac IX's high impurity rejection eliminates the need for most chemical pretreatment steps. The only metals that need to be removed from the brine are iron and manganese, which are present in certain oilfield and geothermal brines, and can be removed through simple air sparge and pH adjustment. This contrasts with alumina adsorbent systems, which can require more expensive chemical pretreatment of carbonates, sulfates, arsenic, and lead, in addition to iron and manganese. These impurities are common in salar, oilfield, and geothermal brines, necessitating costly chemical processes that increase both capital costs, operating costs, and operational complexity.

Lilac IX does not require any brine heating to operate effectively, as fast IX kinetics facilitate cost-efficient lithium extraction at ambient temperatures. AA technology requires high brine temperatures, about 60–90°C, to efficiently extract lithium[4]. Though some proposed AA projects claim to eliminate brine heating, this comes at the expense of slower adsorption kinetics and lower extraction efficiency, typically undermining project economics through reduced lithium recovery or substantially increased DLE equipment size.

For suspended solids removal, Gen 5 requires only multimedia filtration - a proven, low-cost technology using layered sand and anthracite media in vessels. This approach is simpler and less expensive than more stringent filtration systems such as ultrafiltration, which is required for many proposed AA flowsheets. Gen 5 does not require ultrafiltration because the Lilac IXM and reactor can accommodate passage of larger solids without impacting performance.

This simplified pretreatment scope reduces capital expenditure, minimizes reagent consumption, and enables deployment across a broad range of brine resources.

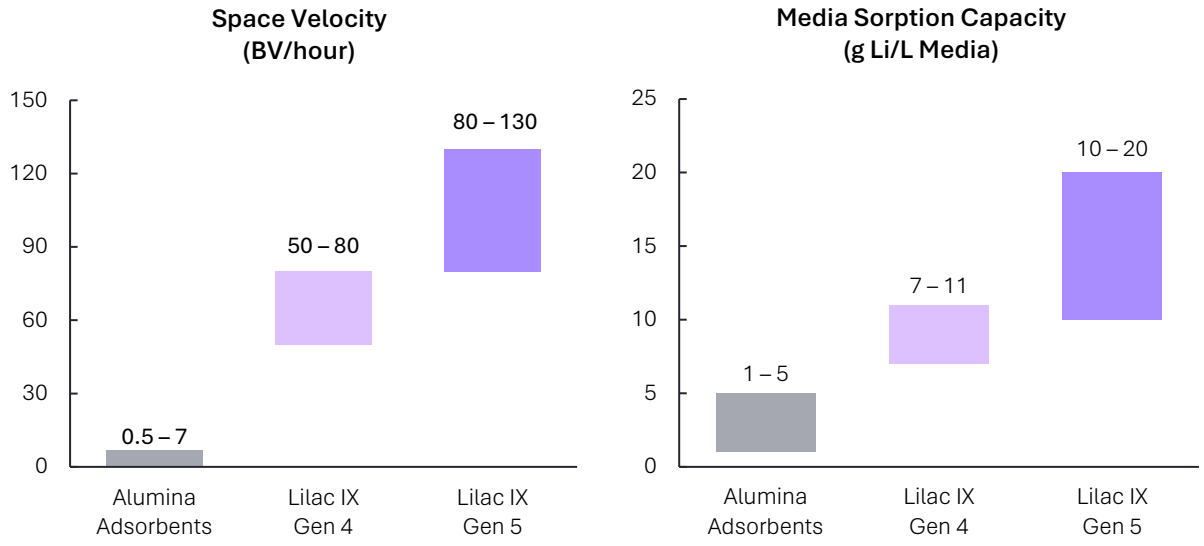
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Media Productivity

Media productivity, the rate of lithium production per media volume (kg LCE/day/m^3), is an often overlooked but key factor in IX- and AA-based DLE systems. Media productivity is closely related to reactor throughput and footprint and has a major impact on DLE capital cost. Media productivity depends on two factors: space velocity of the reactor (BV/hour)[10], or the rate at which brine can flow through the reactor, and volumetric lithium sorption capacity of the media (g Li/L), or the amount of lithium that can be absorbed by the media. Ultimately, fast space velocities and high-capacity media enable compact, high-throughput reactors with lower capital cost.

Lilac's technology delivers exceptionally high media productivity due to fast material kinetics and reactor engineering. Gen 5 achieves space velocities of 80–130 BV/hour and sorption capacity of 10–20 g Li/L media, substantially higher than AA (0.5–7 BV/hour and 1–5 g Li/L), as shown in Figure 5.1. These absorption capacities reflect performance under commercially relevant conditions using economically viable cycle times.

Figure 5.1. Lilac Reactor Space Velocity and Media Sorption Capacity, Compared to Alumina Adsorbents[11,12,13]

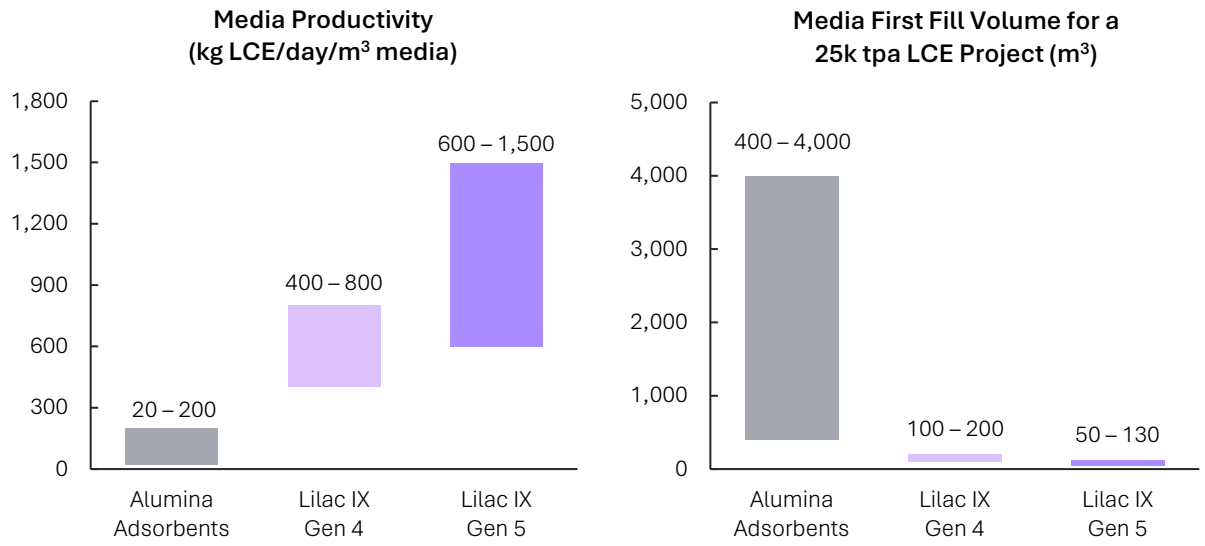


[10] BV = Bed Volumes – a dimensionless measure equal to the ratio of liquid volume passed through a packed bed to the bed's total volume (including both packed material and void spaces)
[11] *LSM-201H (Lanshentec, n.d., [webpage]).*
[12] *DLE Solution for South America* (Jiuwu Membrane, 2025, [PDF]).
[13] *Clearwater Project NI 43-101 Technical Report: Pre-Feasibility Study, Bashaw District, Central Alberta* (E3 Lithium, 2024, [PDF], effective 20 Jun 2024).

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High space velocity and sorption capacity are valuable individually, but their combined impact on media productivity amplifies the economic benefit. Media productivity determines two critical cost drivers: the volume of extraction vessels required for a given production rate, and the initial media inventory needed to fill those vessels ("first fill"). As shown in Figure 5.2, Lilac's superior media productivity substantially reduces overall media volume.

Figure 5.2. Lilac Media Productivity and First Fill Volume, Compared to Alumina Adsorbents[12]



Examining the media productivity and media volume of AA projects highlights Lilac's significant advantage in these critical performance metrics. The newly planned Zangge Mining Mamicuo project in China, with 780 mg/L in the DLE feed, has a media productivity of only ~43 kg LCE/day/m^3 and would require ~2,800 m^3 of AA media to achieve 25k tpa LCE capacity.[8] For a project with comparable lithium grade, Lilac delivers media productivity of >1,000 kg LCE/day/m^3 and therefore requires <100 m^3 of IX media; Lilac outperforms on media productivity and fill volume by >20x.

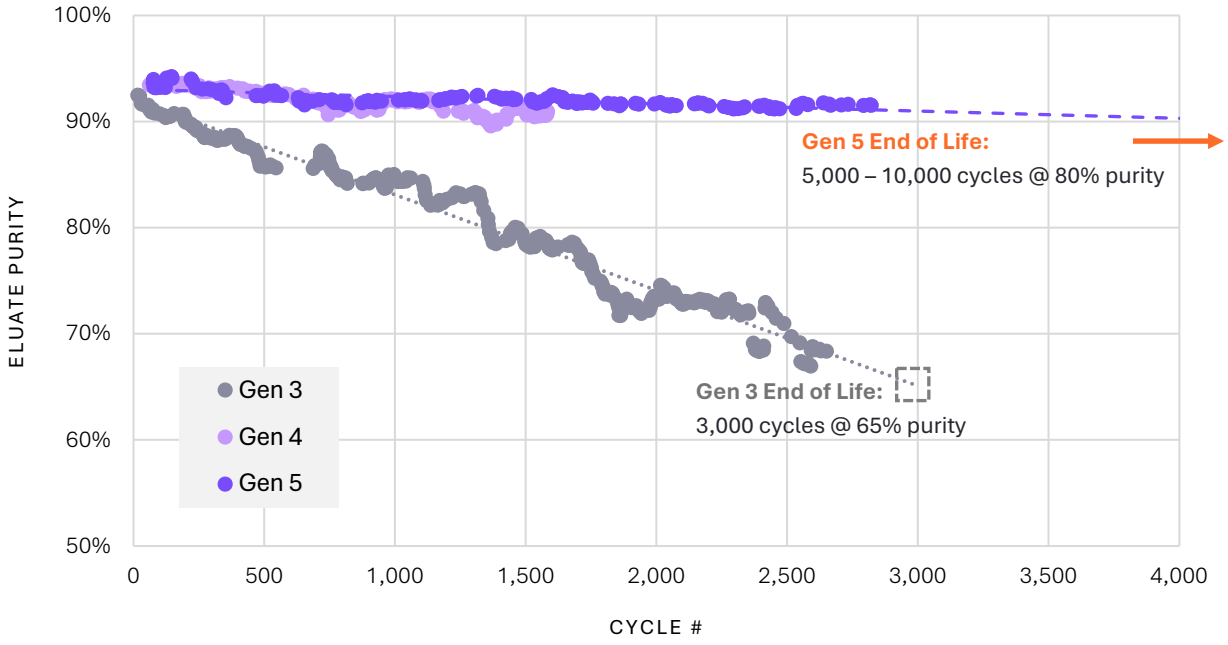
Compared to AA technology, Lilac's reduction in media volume and corresponding reduction in reactor count enables a much smaller footprint for the DLE system with lower capital cost.

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Media Durability

IXM durability directly impacts operating costs through lower frequency media replacement and supports higher eluate quality over the asset lifetime. For Lilac's IXM, cycle life is determined by tracking the gradual loss of eluate purity over successive absorption-elution cycles until purity falls below a threshold value. This threshold value is set at an economic optimum through detailed modeling of full project CAPEX and OPEX. Figure 5.3 shows the eluate molar purity—the percentage of lithium relative to total cations in the eluate—as a function of cycle number for Gen 3, Gen 4, and Gen 5 media.

Figure 5.3: Lilac Eluate Purity During IX Cycling for Different Generations of Technology



All three generations exhibit approximately linear purity decline, but Gen 4 and Gen 5 demonstrate significantly slower degradation rates. Gen 3 media required replacement at approximately 3,000 cycles when eluate purity declined to 65%, while the Gen 4 and Gen 5 media are expected to be replaced at around 5,000 to 10,000 cycles when the eluate purity declines to 80%, depending on the feed brine.

The improved durability reduces media replacement costs and extends replacement intervals, lowering operating expenses and improving uptime. Additionally, maintaining higher eluate purity throughout the media life simplifies and reduces the cost of downstream processing (see below).

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Eluate Quality

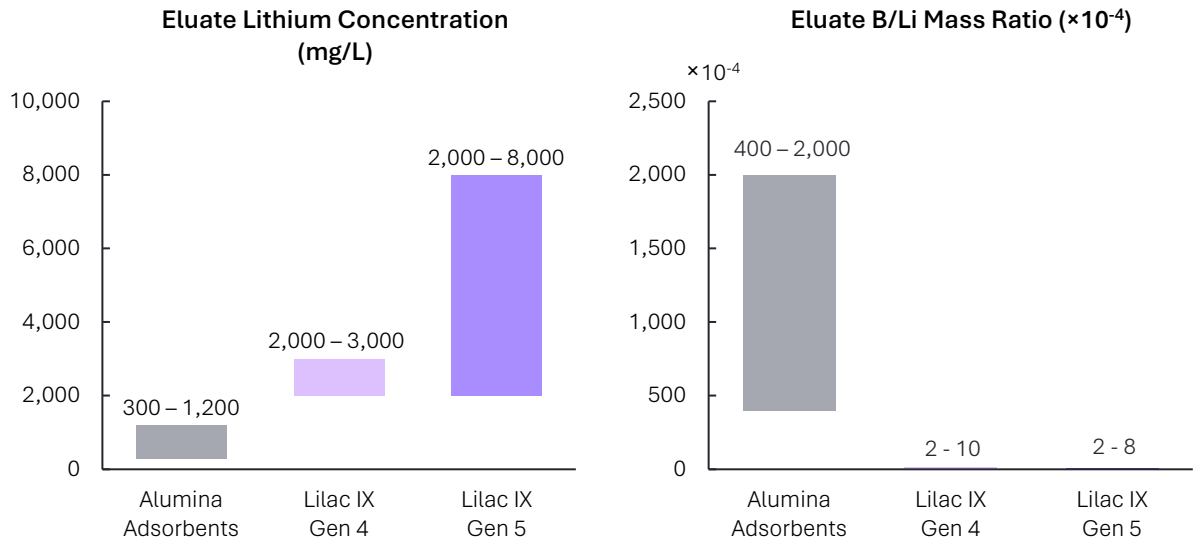
Eluate product quality, both lithium concentration and purity, directly impacts downstream conversion economics. Higher lithium concentrations reduce the eluate volume and water recovery systems, while lower impurity levels simplify purification and reduce reagent consumption.

Gen 5 Lilac IX produces eluate at lithium concentrations up to 8,000 mg/L directly out of the IX reactor without concentration, a significant improvement compared to AA, as shown in Figure 5.4. This concentration difference has substantial flowsheet implications. AA systems require large reverse osmosis units and forced evaporation steps to concentrate the eluate before conversion into a battery-grade product. With Gen 5, in lithium chloride flowsheets, the reverse osmosis system can be eliminated entirely in most cases, and high-efficiency MVR evaporators can be downsized in some cases. In sulfate flowsheets, the reverse osmosis system can be downsized or sometimes eliminated. These improvements reduce capital cost, energy consumption, and process complexity.

Gen 5 demonstrates exceptional selectivity for lithium over competing cations. Low Mg and Ca content reduces reagent requirements for divalent removal. High Na and K rejection, exceeding 99.9% across most brines, decreases bleed volume and increases single pass recovery during crystallization of lithium carbonate or hydroxide.

Boron rejection is particularly noteworthy. Lilac achieves B/Li mass ratios approximately 100x lower than conventional AA media. Boron is among the most challenging impurities to remove and requires dedicated solvent extraction or ion exchange systems in alumina adsorbent flowsheets. Lilac's high boron rejection eliminates this unit entirely, delivering significant capital and operating cost savings.

Figure 5.4: Lilac Eluate Lithium Concentration and B/Li Mass Ratio Compared to AA[14,15,16]



[14] *NI 43-101 Technical Report for the Definitive Feasibility Study for Commercial Lithium Extraction Plant at Lanxess South Plant* (Standard Lithium, 2023, [PDF], effective 18 Aug 2023).
[15] *Prairie Project PFS JORC Report* (Prairie Lithium / Arizona Lithium, 2023, [PDF], effective 30 Dec 2023).
[16] *NI 43-101 Technical Report: Preliminary Economic Assessment of the Lithium Brines in the Viewfield Area – Phase 1, Southern Saskatchewan, Canada* (EMP Metals, 2023, [PDF], effective 31 Oct 2023).

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As shown in Table 5.2, Gen 5's high eluate lithium concentration and high eluate purity has been validated across multiple brine chemistries, ranging from ultra-low grade (70 mg/L Li) to high grade (860 mg/L Li) resources, including salar, oilfield, and salt lake brines.

Table 5.2: Gen 5 Lilac IX Performance Across a Wide Variety of Brines

Element	Li	Na	Mg	Ca	K	B
Ultra-Low Grade Brine from Great Salt Lake, USA Lithium Recovery: 86%. Eluate Lithium Purity: 94 mol%						
Brine Concentration (mg/L)	70	86,000	13,000	300	8,400	51
Eluate Concentration (mg/L)	5,000	570	310	170	190	1
Medium Grade Oilfield Brine from Smackover, USA Lithium Recovery: 96%. Eluate Lithium Purity: 93 mol%						
Brine Concentration (mg/L)	310	69,000	2,300	43,000	3,900	180
Eluate Concentration (mg/L)	5,000	420	55	1,000	80	3
Medium Grade Salar Brine, Argentina Lithium Recovery: 95%. Eluate Lithium Purity: 94 mol%						
Brine Concentration (mg/L)	300	64,000	1,400	830	4,600	480
Eluate Concentration (mg/L)	8,200	1,300	320	920	220	6
High Grade Salar Brine, Chile Lithium Recovery: 95%. Eluate Lithium Purity: 93 mol%						
Brine Concentration (mg/L)	860	100,000	5,000	480	7,600	300
Eluate Concentration (mg/L)	4,800	610	220	220	280	4

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Performance Comparison: Gen 5 Lilac IX vs. Alumina Adsorbents

These four improvements position Gen 5 favorably compared to AA. While both technologies use packed-bed systems, they differ significantly in operational parameters and capabilities, as shown in Table 5.3. Several metrics, particularly media productivity, eluate concentration, eluate boron-to-lithium ratio, and freshwater use, show order-of-magnitude improvements that substantially affect project economics. Furthermore, the combination of simplified pretreatment and high impurity tolerance enables Gen 5 Lilac IX deployment across a wide variety of brine resources, including low-grade salar, geothermal, and oilfield brines.

Table 5.3: Comparison of Key Metrics between Alumina Adsorbents vs. Gen 5 Lilac IX

Metric	Alumina Adsorbents	Gen 5 Lilac IX
Feed Brine Requirements		
Impurity Pre-Treatment	Fe, Mn, SO_4^{2-}, CO_3^{2-}, As, Pb[5,6]	Fe, Mn
Brine Temperature (°C)	60–90[4]	0–50
Economic Cut-Off Grade (mg/L Li)	200*	50
DLE Performance		
Lithium Recovery (%)	30–95[17]	85–98
Space Velocity (BV/hour)	0.5–7[11]	80–130
Adsorption Capacity (g Li/L Media)	1–5[12,13]	10–20
Media Productivity (kg LCE/day/m^3)	20–200[12]	600–1,500
Eluate Product Quality		
Eluate Concentration (mg/L Li)	300–1,200[14,15]	2,000–8,000
Boron/Lithium Mass Ratio ($\times 10^{-4}$)	400–2,000[14,16]	2–8
Environmental Impact		
Freshwater Use (t H_2O/t LCE)	70–200[23]	5–20
Evaporation Ponds Requirement	Sometimes**	No
CO_2 Emissions (t CO_2/t LCE)	8–13[24]	3–5

**AA projects in commercial production today operate on brine grades significantly higher than 200 mg/L, however companies developing new AA technologies have reported that they can recover lithium economically from lower grades. This has yet to be proven in commercial production or demonstrated in conditions relevant to commercial production, including extended cycle counts.*

***All existing AA projects use evaporation ponds, some new proposed projects do not rely on evaporation ponds in their designs.*

[17] *South West Arkansas Project NI 43-101 Technical Report & Definitive Feasibility Study* (Standard Lithium, 2025, [PDF], effective 3 Sept 2025).

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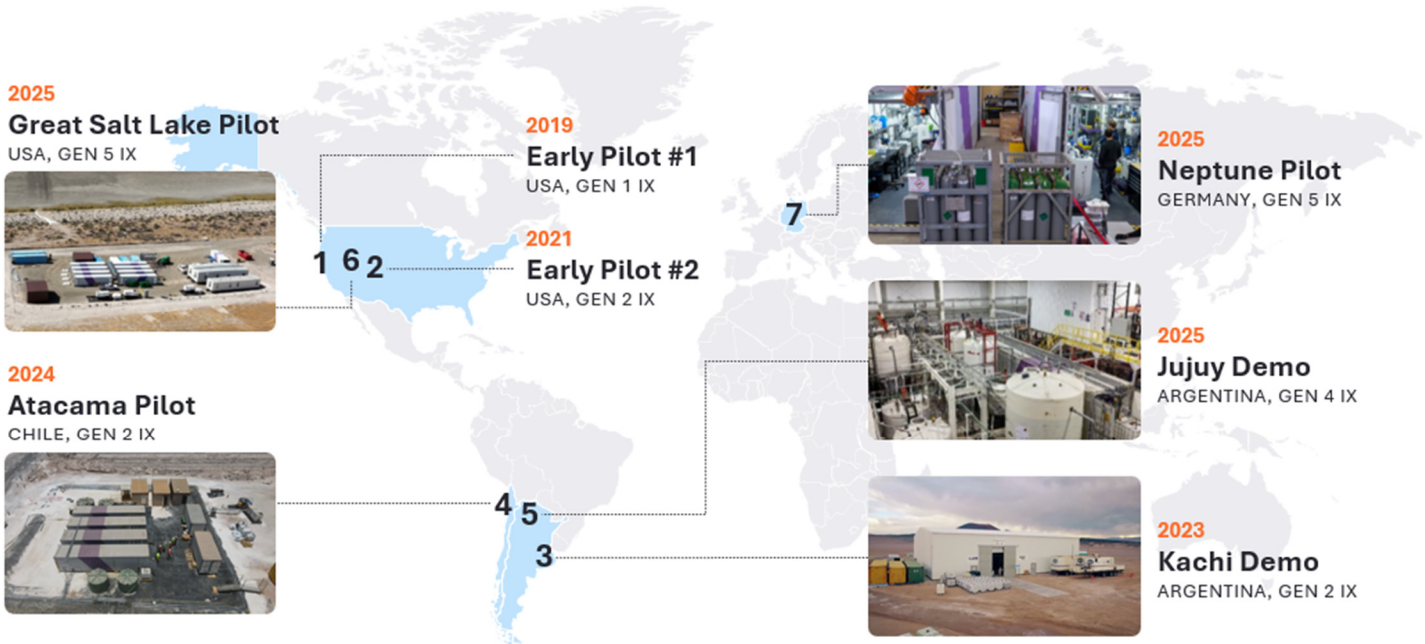
6. Proven at Scale, Ready for Deployment

Lilac's readiness for commercial deployment rests on three pillars: validated technology, first-quartile project costs, and secure and scalable supply chains. Lilac has systematically validated the performance and reliability of its technology through progressive scale-up across seven pilot and demonstration plants spanning three continents. These pilot and demo plants have been opened to leading EPCM firms to collect samples and data for engineering of large-scale plants, showing production costs in the bottom quartile globally. Lilac has de-risked supply of its IXM by constructing a manufacturing facility in Fernley, Nevada. This stands in contrast to many alumina adsorbent competitors that purchase/license their media from companies based in China. Together, these elements enable rapid scaling of lithium production to meet accelerating demand.

Validated Technology

Performance has been validated at seven pilot and demonstration plants across diverse brine types including salar, oilfield, and surface lake resources. These installations have processed over 12 million liters of brine and produced over 1 million liters of lithium eluate over 14,000 operational hours, demonstrating robust performance across diverse brine chemistries ranging from 70 to 2,200 mg/L lithium. Figure 6.1 illustrates the geographic distribution and technology evolution across multiple pilot and demonstration plants. The two latest pilots, at the Great Salt Lake and with Neptune Energy in Germany, featured Gen 5 technology and validated performance on ultra-low grade surface lake brine and unconventional oilfield brine, respectively, expanding the addressable resource base beyond traditional high-grade salar resources.

Figure 6.1: Progressive Technology Validation Across Global Brine Resources



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Lilac's strategy to validate its technology begins with exhaustive mini-pilot testing before field deployment. The company has accumulated over 850,000 hours of automated mini-pilot IX testing on more than 80 different brines globally. These fully automated, continuous mini-pilot modules enable rapid optimization of process parameters for new brine chemistries and provide high-confidence performance predictions prior to field deployment.

This mini-pilot foundation has enabled scale-up to pilot and demonstration plants with predictable performance. Lilac's approach to scale-up fixes all intrinsic parameters like pressure, concentration, and residence time, while extrinsic quantities like total consumption of brine, IXM, acid, and other reagents all scale linearly and are straightforward to engineer to commercial scale. Across the seven pilot and demonstration installations, Lilac's technology has demonstrated consistent performance at progressively larger scales, with results confirming the robustness of the technology and scale-up approach.

Gen 5 utilizes the same IX reactor (Model C) that has been validated across multiple installations since 2022, providing Lilac with over three years of operational experience and continuous refinement of this reactor platform. This reactor design incorporates only off-the-shelf equipment, ensuring reliable procurement, competitive pricing, and straightforward maintenance using widely available components and expertise.

Lilac's modular design philosophy enables commercial scale-up through parallel operation of standardized units, rather than custom large-scale equipment development. Multiple parallel IX vessels combine to form a reactor module, with typical commercial plants consisting of two to four modules. Production capacity scales simply by adding modules, leveraging proven equipment designs and operating protocols validated across multiple installations.

Great Salt Lake Pilot

The Great Salt Lake pilot plant demonstrated Gen 5 performance on one of the most challenging lithium resources globally: ultra-low-grade brine at 70 mg/L lithium with a Mg:Li ratio exceeding 170:1. Table 6.1 compares pilot performance against engineering study design basis across four key performance indicators.

Table 6.1: Great Salt Lake Pilot Performance vs. FEL-3 Engineering Study Design Basis

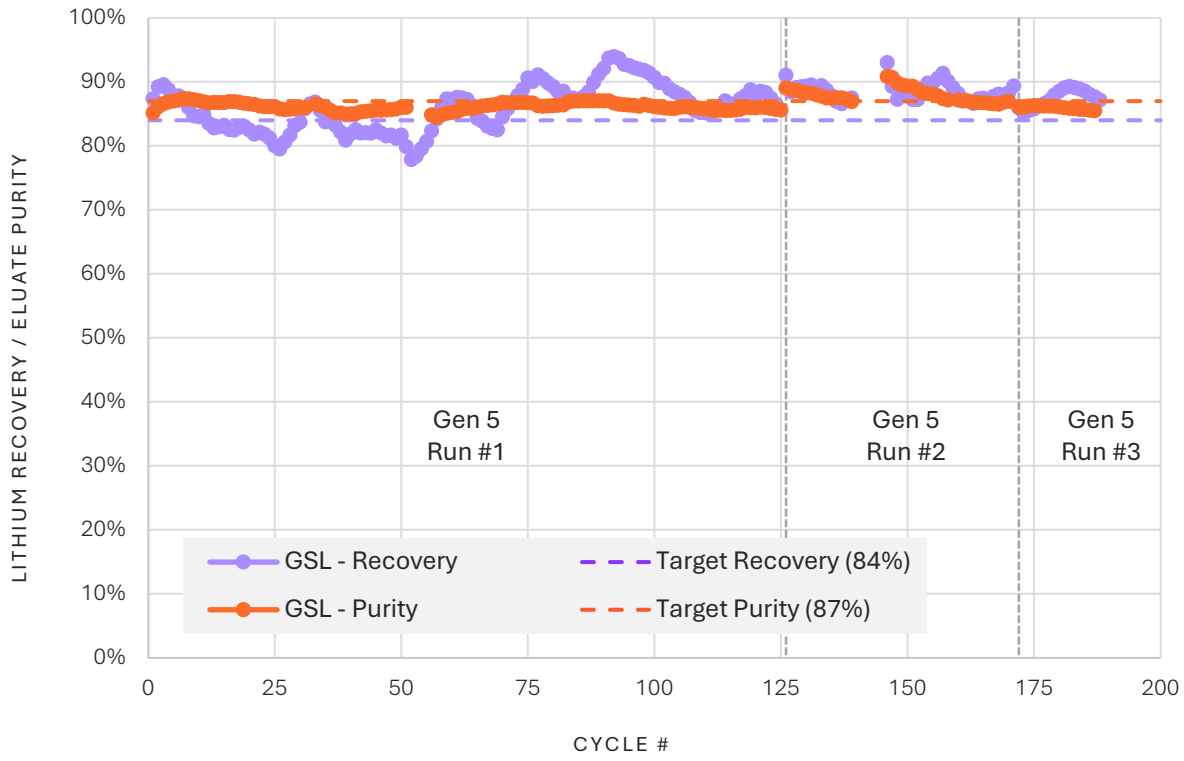
KPI	FEL-3 Study Design Basis	Pilot Performance - Average	
Lithium Recovery	84%	87%	✓
Eluate Purity	87%	87%	✓
Space Velocity (BV/hour)	80	80–103	✓
Overall Impurity Rejection	99.97%	99.97%	✓

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The pilot plant completed three distinct performance campaigns totaling over 200 cycles: Run 1 demonstrated commercial viability to Utah State regulators, Run 2 systematically optimized IX operating parameters including evaluation of flowrates up to 103 BV/hour, and Run 3 validated scale-up by increasing from 3 to 8 parallel IX vessels without loss of performance. The engineering study design basis was supplemented with over 15,000 cycles of mini-pilot data across a range of test conditions.

Despite the ultra-low lithium grade and challenging brine chemistry, Gen 5 achieved 87% average lithium recovery while rejecting 99.97% of impurities at brine flowrates of 80–103 BV/hour. The pilot utilized an early form of Gen 5 technology, producing an average eluate lithium concentration of 2,044 mg/L. Toward the end of operations, Lilac implemented the final aspects of the Gen 5 technology to achieve a 4,087 mg/L eluate lithium concentration, representing a 58x concentration factor from brine to eluate through IX alone, without reverse osmosis.

Figure 6.2: Great Salt Lake (GSL) Pilot Plant: Lithium Recovery and Eluate Purity from 70 mg/L Lithium Brine

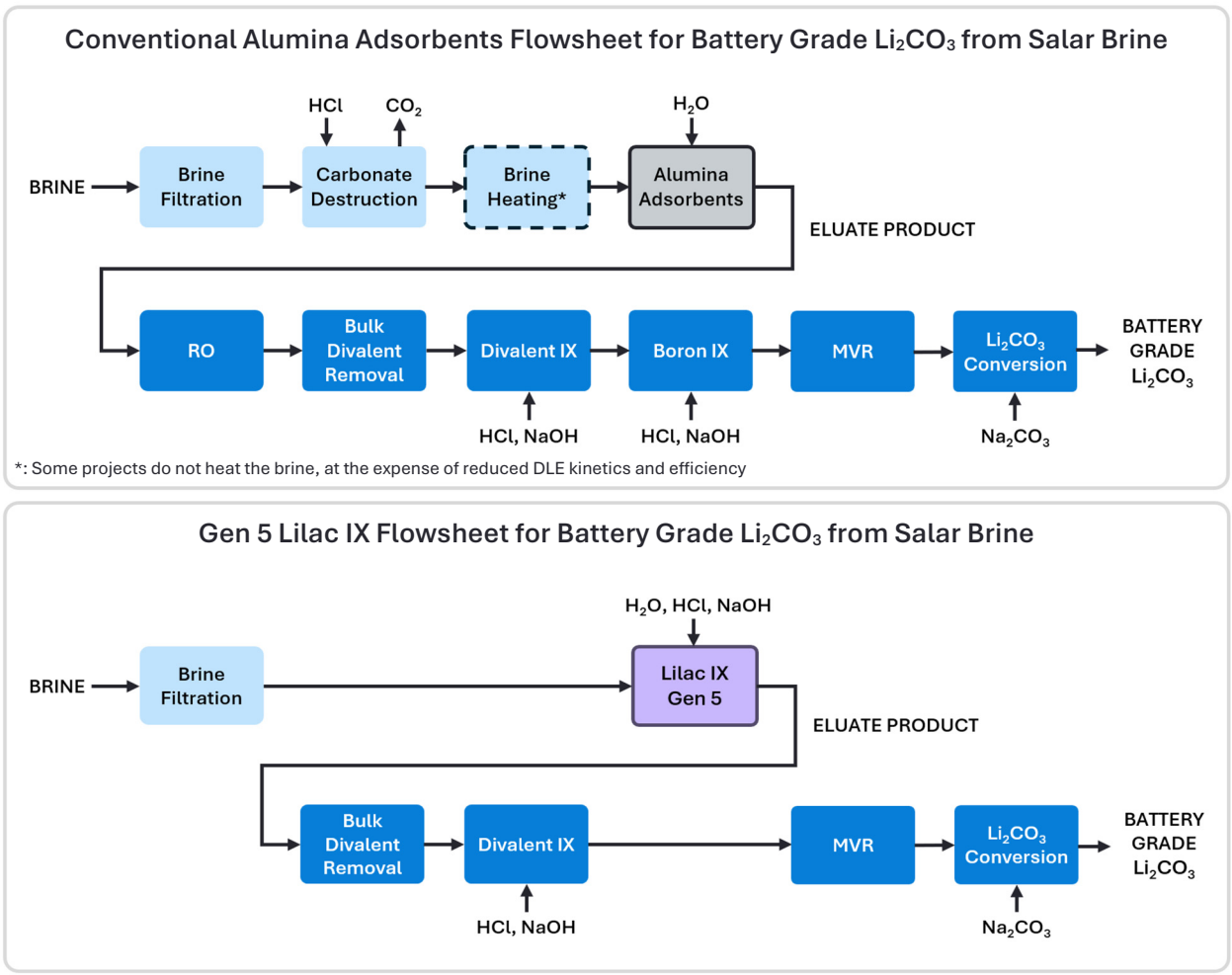


First Quartile Project Costs

The technical advantages of Gen 5 Lilac IX—simplified pretreatment, high media productivity, long cycle life, and superior eluate quality—translate directly into competitive costs for lithium production across a variety of brine projects. As shown in Figure 6.3, compared to AA, Gen 5 eliminates multiple unit operations, enabling reductions in both CAPEX and OPEX.

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Figure 6.3: LiCl Flowsheet Comparison between Alumina Adsorbents and Gen 5 Lilac IX, for a Typical Salar Brine



Both AA and Lilac IX use acid to process lithium brine. AA uses acid to reduce brine pH and remove carbonate, which fouls the adsorbent media. Lilac uses dilute acid (1-3 wt% sulfuric acid or hydrochloric acid) during IX media elution and a base (sodium hydroxide or calcium hydroxide) for pH adjustment. In a typical project, Lilac IX consumes approximately 2.0 t H_2SO_4 or 1.5 t HCl per tonne of LCE in eluate, along with 1.5 t $Ca(OH)_2$ or 1.6 t NaOH per tonne of LCE in eluate. While Lilac IX has higher reagent consumption than AA, this enables higher performance, a simpler flowsheet, and therefore lower costs overall. At many project sites, sulfuric acid can be sourced as a low-cost byproduct from copper smelting. Alternatively, sulfuric or hydrochloric acid can be produced on site using proven technologies such as sulfur combustion, chlor-alkali, or bipolar electrodialysis.

Lilac has worked extensively with leading EPCM companies specializing in metals and mining to estimate capital and operating costs for lithium brine projects. This work includes seven FEL-2 studies and two FEL-3 studies. These engineering studies provide a cost basis for estimation of Gen 5 project costs.

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Table 6.2 summarizes capital and operating cost estimates for four Gen 5 project case studies across a range of resource types, grades, and project sizes. Capital intensities range from $20,000 to $49,000/tpa LCE, while operating costs range from $3,200 to $5,500/t LCE. Cost estimates assume a greenfield project with a fully integrated scope covering wellfield, brine pretreatment, DLE and lithium carbonate production. Indirect costs, owner's costs, contingency, and media first fill are included in the estimate. Table 6.3 and Table 6.4 present more detailed breakdowns of the capital and operating cost estimates for each project.

Table 6.2: Gen 5 Lilac IX Case Study Summaries, Battery-Grade Lithium Carbonate

	Great Salt Lake Phase 2, USA	Smackover, USA	Jujuy, Argentina	Atacama, Chile
Brine Type	Surface Lake	Oilfield	Salar	Salar
Brine Grade (mg/L)	70	375	270	2,223
Lithium Production (tpa LCE)	15,000	22,500	25,000	50,000
CAPEX ($M)	728	1,034	878	1,042
Capital Intensity ($/tpa LCE)	48,533	45,956	35,120	20,840
OPEX[18] ($/t LCE)	5,447	4,198	3,414	3,211

Table 6.3: Project Capital Cost Breakdown, Gen 5 Lilac IX, Battery-Grade Lithium Carbonate

CAPEX ($M)	Great Salt Lake Phase 2, USA	Smackover, USA	Jujuy, Argentina	Atacama, Chile
On-Site/Off-Site Infrastructure	91*	54	64	96
H_2S Removal	-	42	-	-
Brine Pre-Treatment	39	25	25	22
Lilac IX	66	50	55	83
Eluate Processing	48	48	54	79
Crystallization	40	87	67	140
Water, Reagents, Utilities	111	84	84	99
Chlor-Alkali	-	-	85	-
Sub-Total	**395**	**390**	**434**	**519**
Indirect Cost	163	154	172	239
Owner's Cost	33	32	36	49
Contingency	136	134	149	204
Wellfield	-	324	87	31
Grand Total	**728**	**1,034**	**878**	**1,042**
Capital Intensity ($/tpa LCE)	**48,533**	**45,956**	**35,120**	**20,840**

**GSL Phase 2 includes cost to build a grid interconnection for power supply*

[18] Represents C1 cash costs

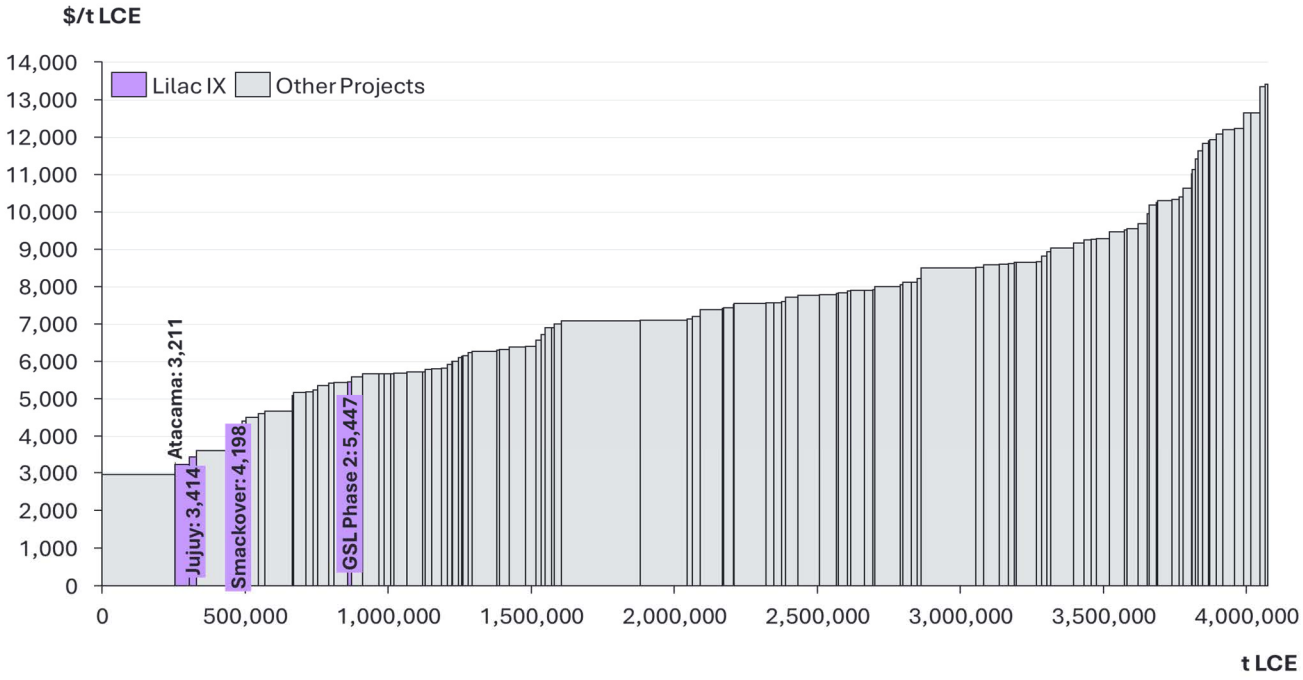
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Table 6.4: Project Operating Cost Breakdown, Lilac IX Gen 5, Battery-Grade Lithium Carbonate

OPEX ($/t LCE)	GSL Phase 2	Smackover	Jujuy	Atacama
Fixed Costs				
Labor	768	656	635	516
G&A	154	163	158	128
Maintenance Materials	399	111	98	73
Sub-Total	**1,321**	**930**	**891**	**717**
Variable Costs				
Utilities	1,366	871	789	348
Reagents	1,693	1,690	1,082	1,595
Consumables	548	262	258	168
Miscellaneous	519	445	394	383
Sub-Total	**4,126**	**3,268**	**2,523**	**2,494**
Grand Total	**5,447**	**4,198**	**3,414**	**3,211**

Gen 5 Lilac IX enables economic lithium production from a diverse range of resources. The Gen 5 case studies are projected to rank in the first quartile of the 2035 global C1 cost curve as shown in Figure 6.4. This illustrates Lilac's strategic advantage: by enabling economic extraction from diverse brine types, including low-grade brines, Lilac IX expands the range of developable lithium resources while maintaining cost competitiveness.

Figure 6.4: C1 Cost of All Operating Projects in 2035, Lilac Gen 5 Case Studies Included[19]

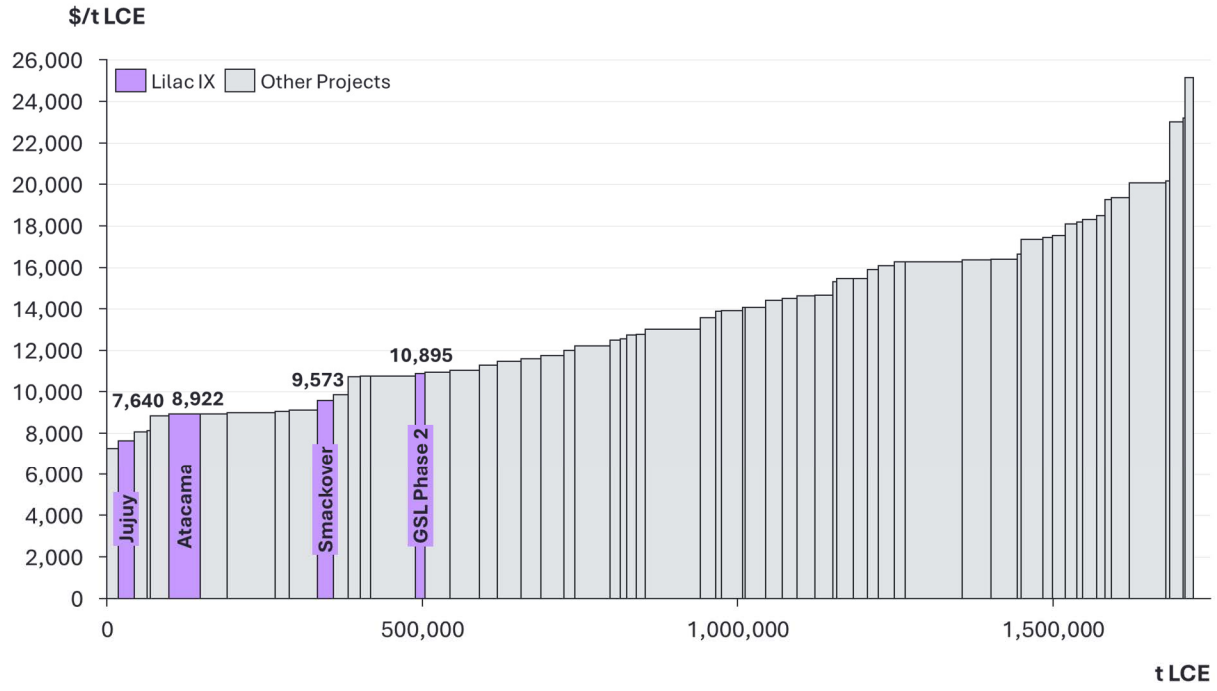


[19] 2035 C1 Cost Curve data from Benchmark Minerals Intelligence

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Similarly, the Gen 5 case studies rank in the first quartile of the 2035 global Total Economic Cost curve, as shown in Figure 6.5. The Total Economic Cost includes all C1 costs, royalties, and an estimated capital charge necessary for investment. This is the appropriate metric to use when assessing the overall cost competitiveness of a new project, as it incorporates both CAPEX and OPEX. Figure 6.5 only displays the Total Economic Cost for new projects forecast to come online between 2025 and 2035, which is the appropriate comparison set for the Gen 5 case studies.

Figure 6.5: Total Economic Cost of All New Supply in 2035, Lilac Gen 5 Case Studies Included[20]



[20] 2035 Total Economic Cost Curve data from Benchmark Minerals Intelligence; only new projects forecast to come online between 2025 and 2035 are shown

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Secure Supply Chains: IX Media Manufacturing in the United States

A key risk for critical mineral supply chains is a growing reliance on Chinese equipment, technology, and expertise. Concerningly, most commercial alumina adsorbent technologies are manufactured and licensed from providers in China, exposing lithium projects to supply chain vulnerabilities in their most important feedstock, the extraction media. This risk has been highlighted by recent announcements of export controls by China for key technologies across the battery supply chain.

To provide customers with a secure, stable supply of media over the life of their projects, Lilac will manufacture its proprietary IX media at its commercial facility in Fernley, Nevada using commodity precursors sourced locally and from friendly nations. This enables Lilac to provide customers with a secure, stable supply of media over the life of their projects. Construction is nearing completion and production is scheduled to begin in H1 2026.

Lilac's Fernley facility will initially have sufficient capacity to support 100,000 tpa LCE production, equivalent to multiple large-scale projects. The Fernley facility and its power supply are sufficient to expand media manufacturing capacity to support up to 500,000 tpa LCE of lithium production capacity.

Figure 6.6: Lilac Commercial-Scale IX Media Manufacturing Facility in Fernley, Nevada, USA
(Photo Taken: 2024)



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7. Environmental Impact

Gen 5 Lilac IX delivers substantial environmental advantages compared to conventional lithium extraction technologies, including a 10x reduction in freshwater consumption, elimination of evaporation ponds, and low greenhouse gas emissions. These environmental metrics are reported in Table 7.1.

Table 7.1: Summary of Environmental Metrics for Lithium Production

Extraction Method	Freshwater Consumption (t H_2O/t LCE)	Land Use* (m^2/tpa LCE)	GHG Emissions (t CO_2/t LCE)
Hard Rock	80–193[21, 22]	527[21]	18–20[22]
Evaporation Ponds	16–57[22]	190–950	3–8[22]
Alumina Adsorbents**	70–200[17, 23]	10–150[17,23]	8–13[24]
Gen 5 Lilac IX***	5–20	5	3–5

** Includes evaporations ponds (if applicable) and processing plant footprint; excludes wellfield.*
***Assumes conventional Project Fenix-type AA process for a typical Argentinian salar brine that is pre-heated and pre-concentrated*
**** Based on FEL-2 study by an independent engineering firm; assumes power supply is 50% solar PV, 50% Argentinian grid.*

Lilac achieves industry-leading water consumption as a result of high efficiency water washing in its IX reactors. AA uses large amounts of water to elute lithium, and because AA uses water both during washing and elution, there is a high degree of mixing between adsorbed lithium, water, and brine. This increases the TDS of the spent wash water and makes water recovery impractical beyond a certain threshold. Unlike AA, Lilac uses separate fluids for washing and elution, allowing for sharp separation of spent wash water for high efficiency recycling using reverse osmosis.

Because Lilac does not use evaporation ponds, its land use is low. Today, all operating AA projects use evaporation ponds, although newer proposals for AA projects suggest the ponds can be eliminated. Lilac's benefit in greenhouse gas emissions results from low energy usage compared to AA, which typically requires brine heating with natural gas.

[21] Minviro Environmental Report (Canadian Mining Journal, 2021)
[22] Energy, greenhouse gas, and water life cycle analysis of lithium carbonate and lithium hydroxide monohydrate from brine and ore resources and their use in lithium ion battery cathodes and lithium ion batteries (Kelly et al., 2021, Resources, Conservation & Recycling, 174, 105762)
[23] Resource and Reserve Report - Pre-Feasibility Study - Salar del Hombre Muerto (Livent, November 2023)
Calculation Methodology: it is reported that in 2022 the process extracted 355 m^3/h of freshwater and used 330 hectares of pre-concentration ponds to produce 26,100 t LCE.
[24] 2022 Sustainability Report (Livent, 2022)

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8. The Future of Lithium Brine Production

The lithium industry is entering a new phase. For decades, producers have relied on evaporation ponds and hard rock mining to meet demand, but these methods can no longer deliver the scale, cost, and sustainability required for the energy transition. Brine resources remain abundant and globally distributed, yet the technologies to extract lithium from them efficiently and responsibly have lagged behind.

Lilac's ion exchange technology changes this equation. With proven performance, validated cost advantages, and scalable U.S.-manufactured supply chains, Gen 5 Lilac IX enables a new generation of projects that combine high recovery, low environmental impact, and strong economics. This shift transforms brine extraction from a niche solution into the most promising path for long-term lithium supply growth.

As global demand accelerates toward millions of tonnes of lithium per year, the industry's success will depend on rapidly deploying technologies that can unlock new resources while minimizing water use, energy consumption, and carbon footprint. Lilac's technology has been engineered for exactly this challenge, opening up brines once considered uneconomic and providing the foundation for reliable, low-cost lithium supply worldwide. Lilac continues to advance its technology through ongoing R&D, pushing the boundaries of productivity, sustainability, and cost efficiency, and expanding the range of resources that can be developed economically.

The next decade will define the winners in the lithium sector. Those who adopt high-performance extraction technologies will lead the transition to sustainable, first-quartile cost production. With Lilac IX, the future of lithium brine production is not only cleaner and faster, it's finally scalable.

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D.8 Waterleaf Magnesium Technical Presentation

PURPOSE

This technical presentation was prepared for the joint DWQ and FFSL meeting held February 18, 2026.

REFERENCED IN MAIN APPLICATION

- Section 5.3

DOCUMENT DETAILS

- GSL Phase 1 DWQ & FFSL Meeting Technical Presentation (13 pages, February 18, 2026)

D.8 begins on next page

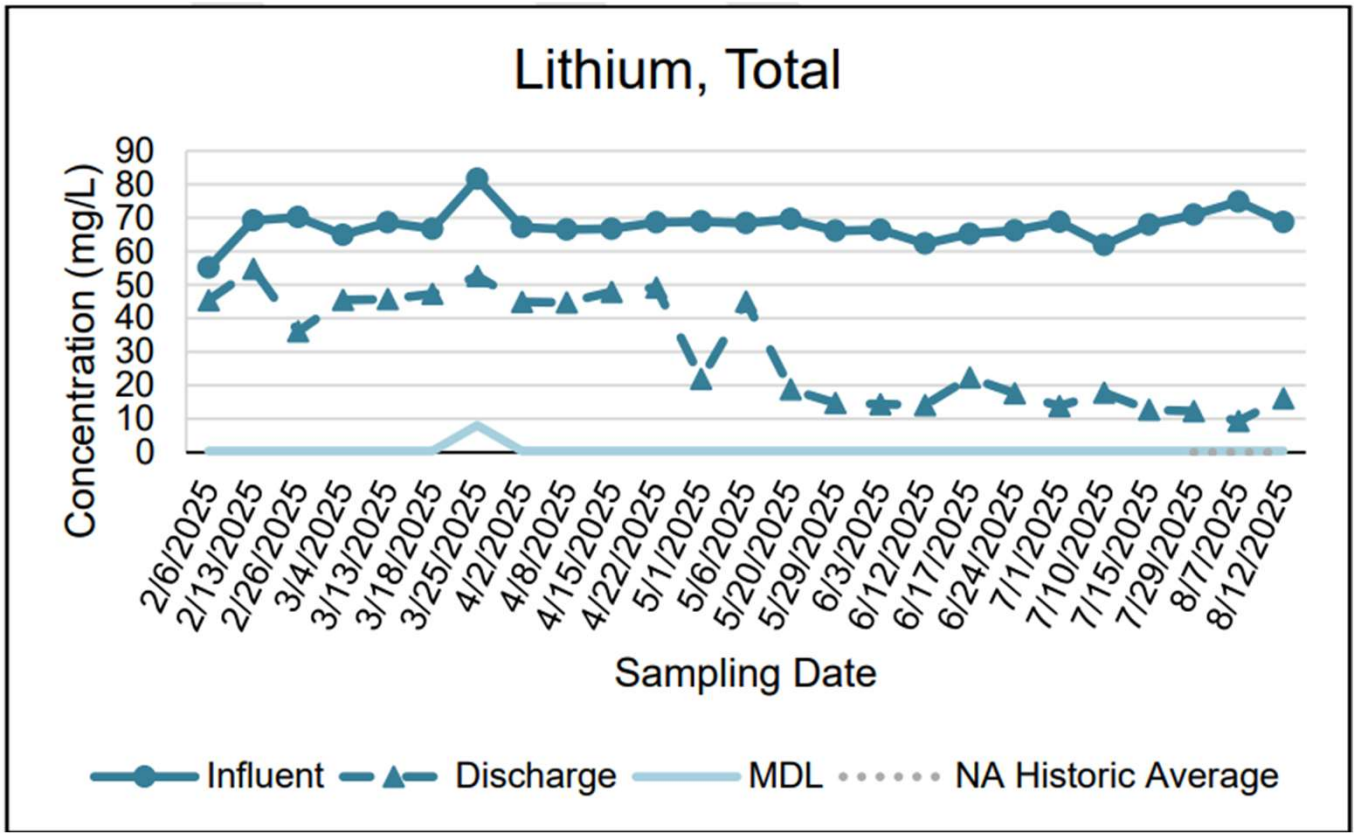
February 18, 2026

GSL Phase 1
DWQ & FFSL Meeting

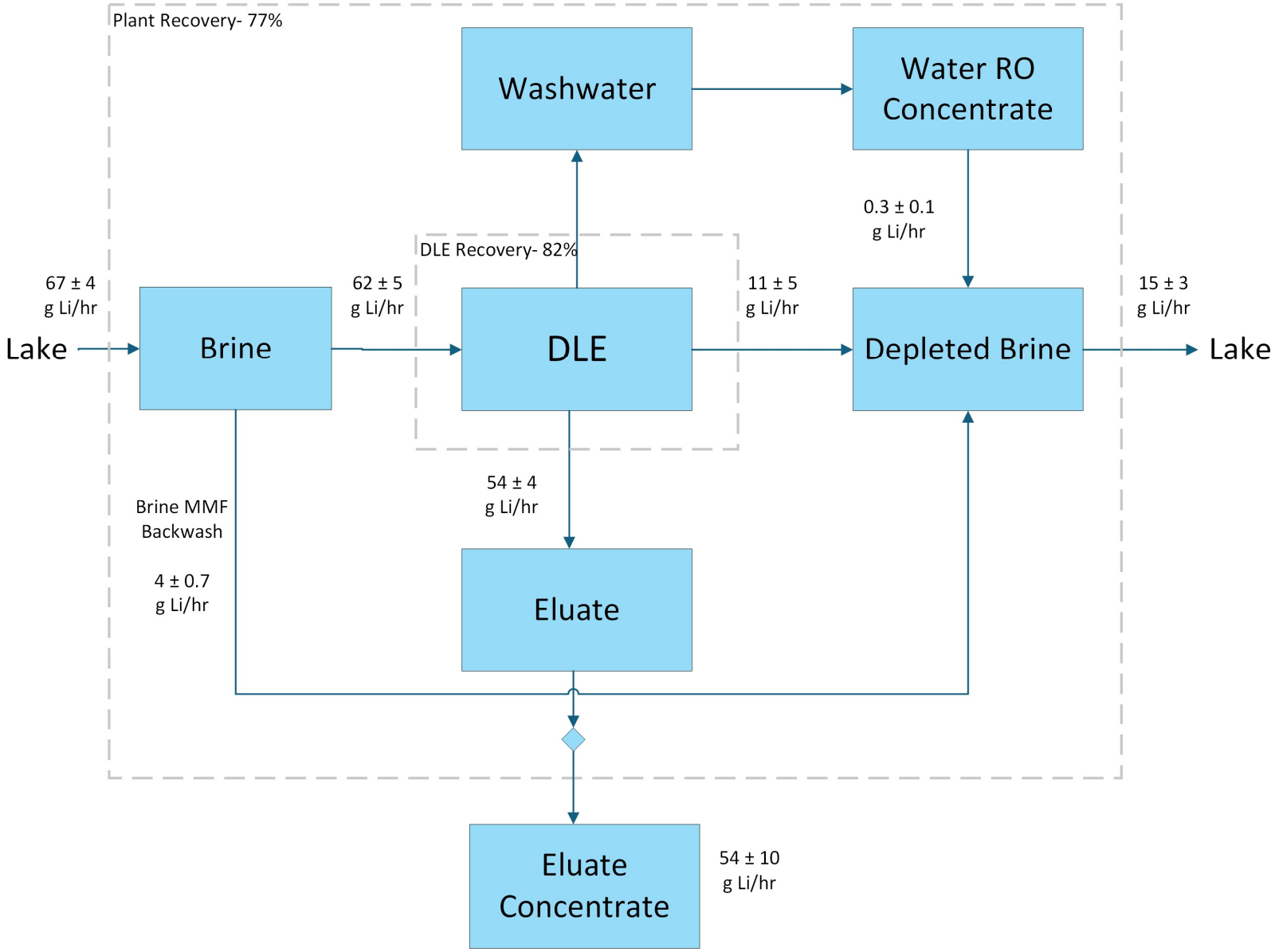
INTERNAL



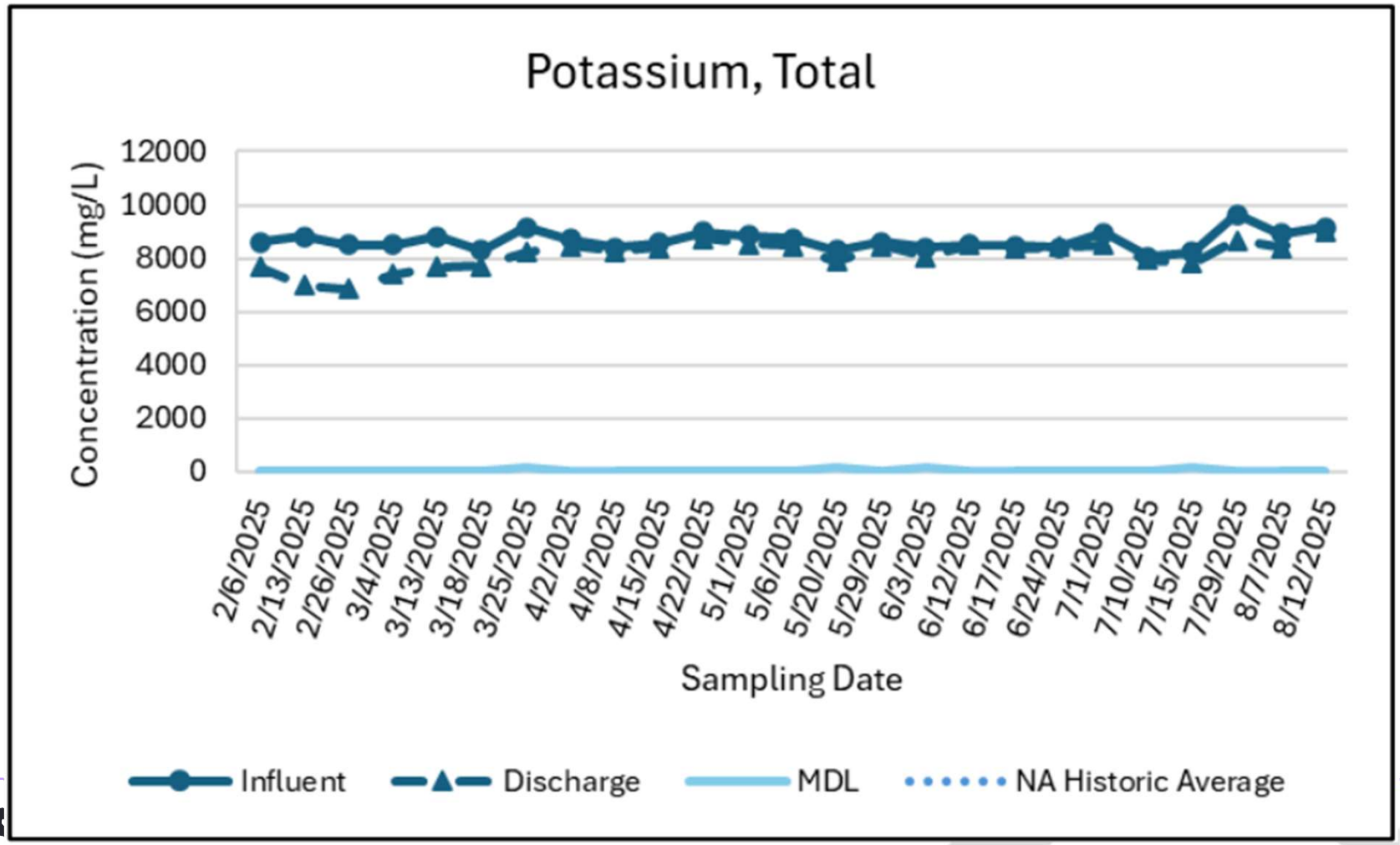
Lithium concentration - Pilot



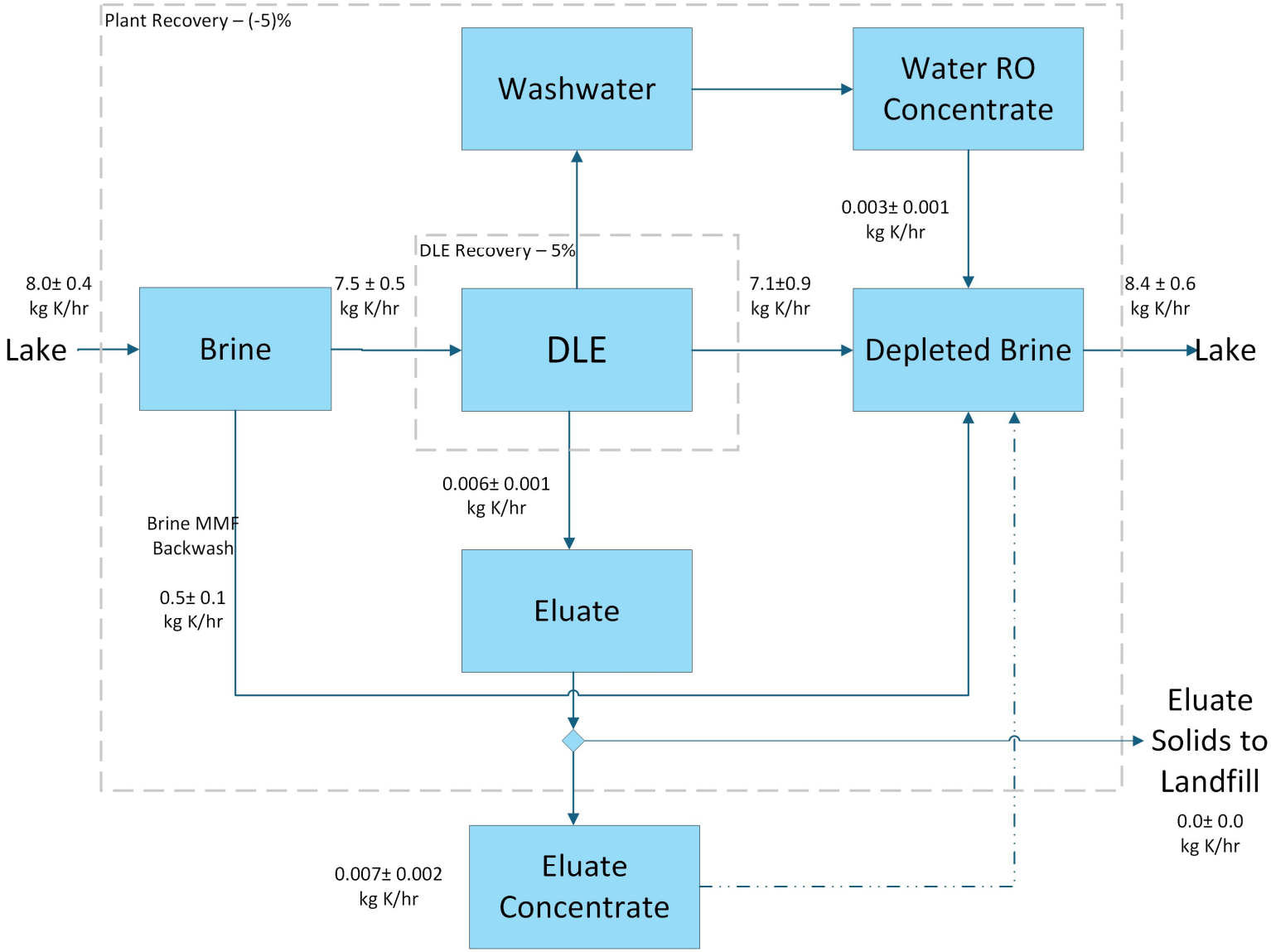
Lithium mass balance - Pilot



Potassium concentration - Pilot

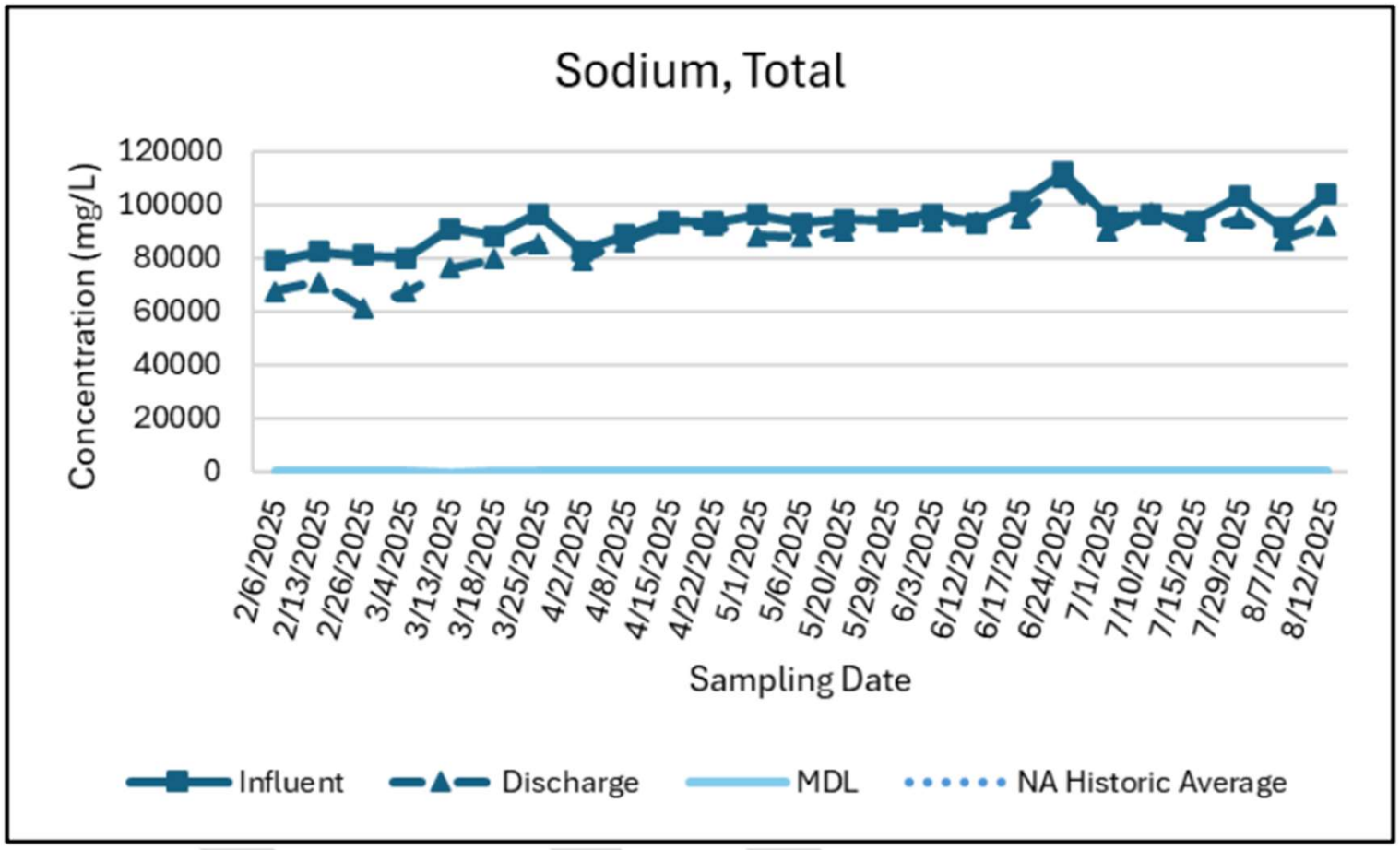


Potassium mass balance - Pilot

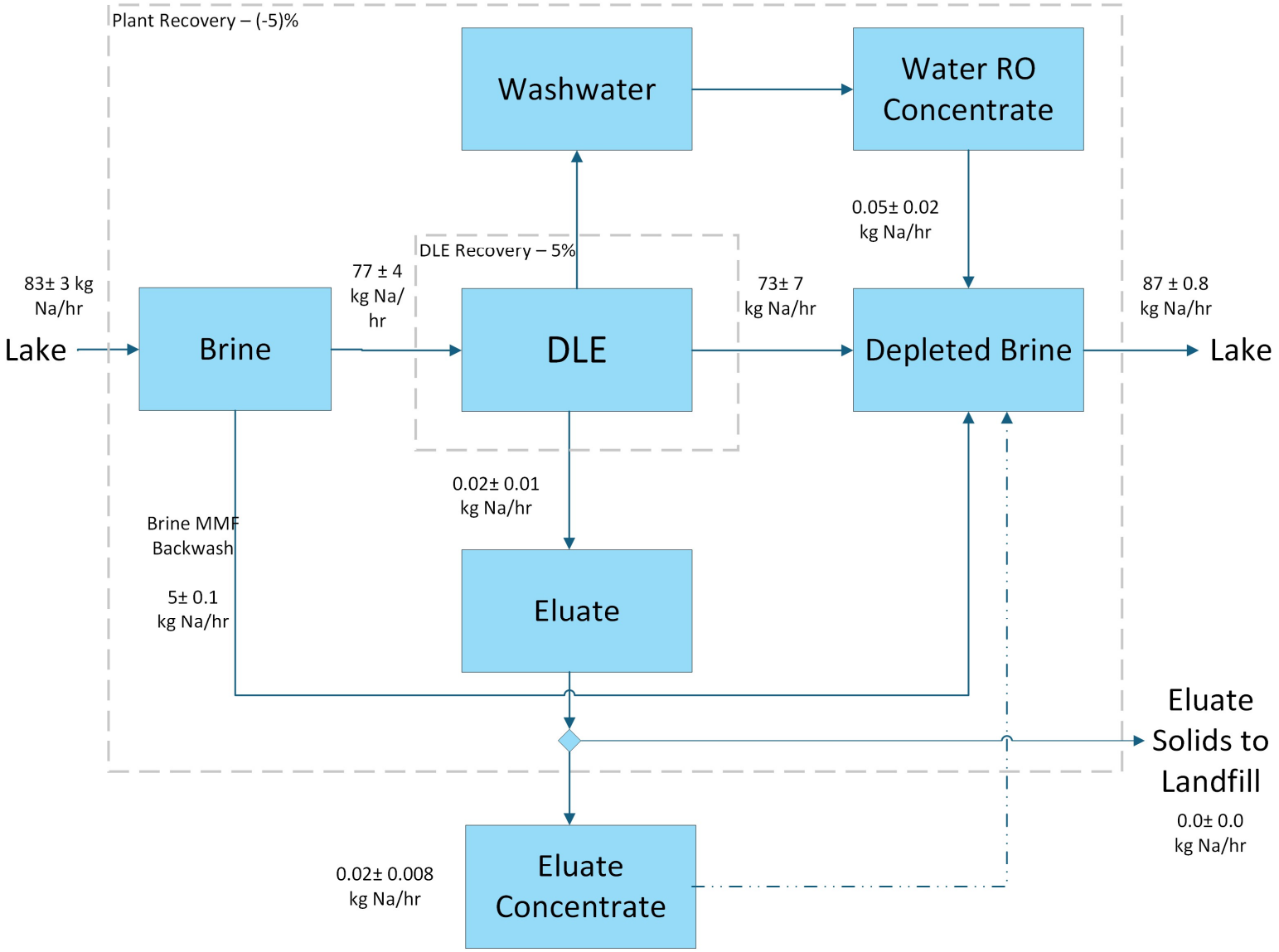


*Potassium returns to the depleted brine in the commercial design via recycle streams

Sodium concentration - Pilot

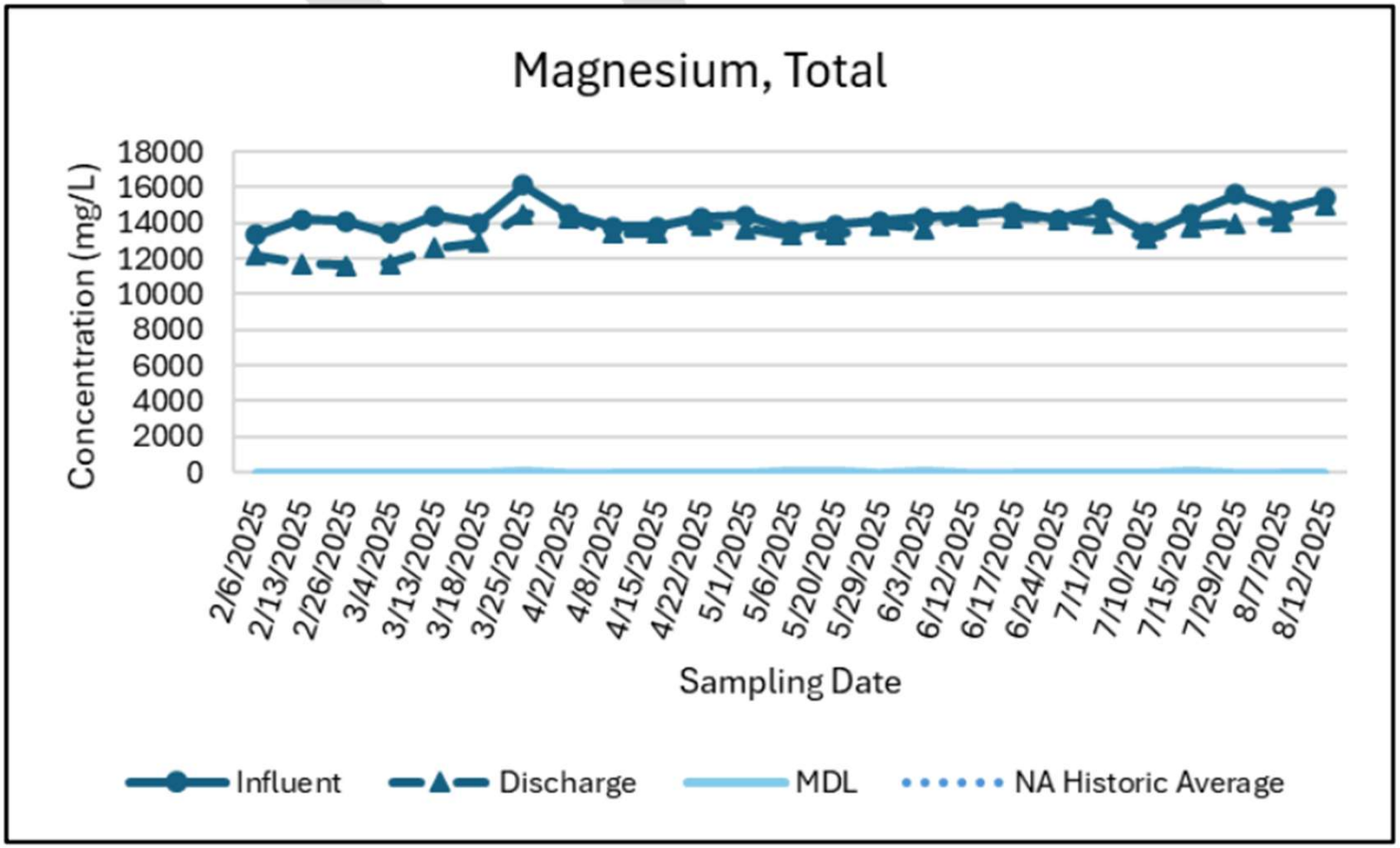


Sodium mass balance - Pilot

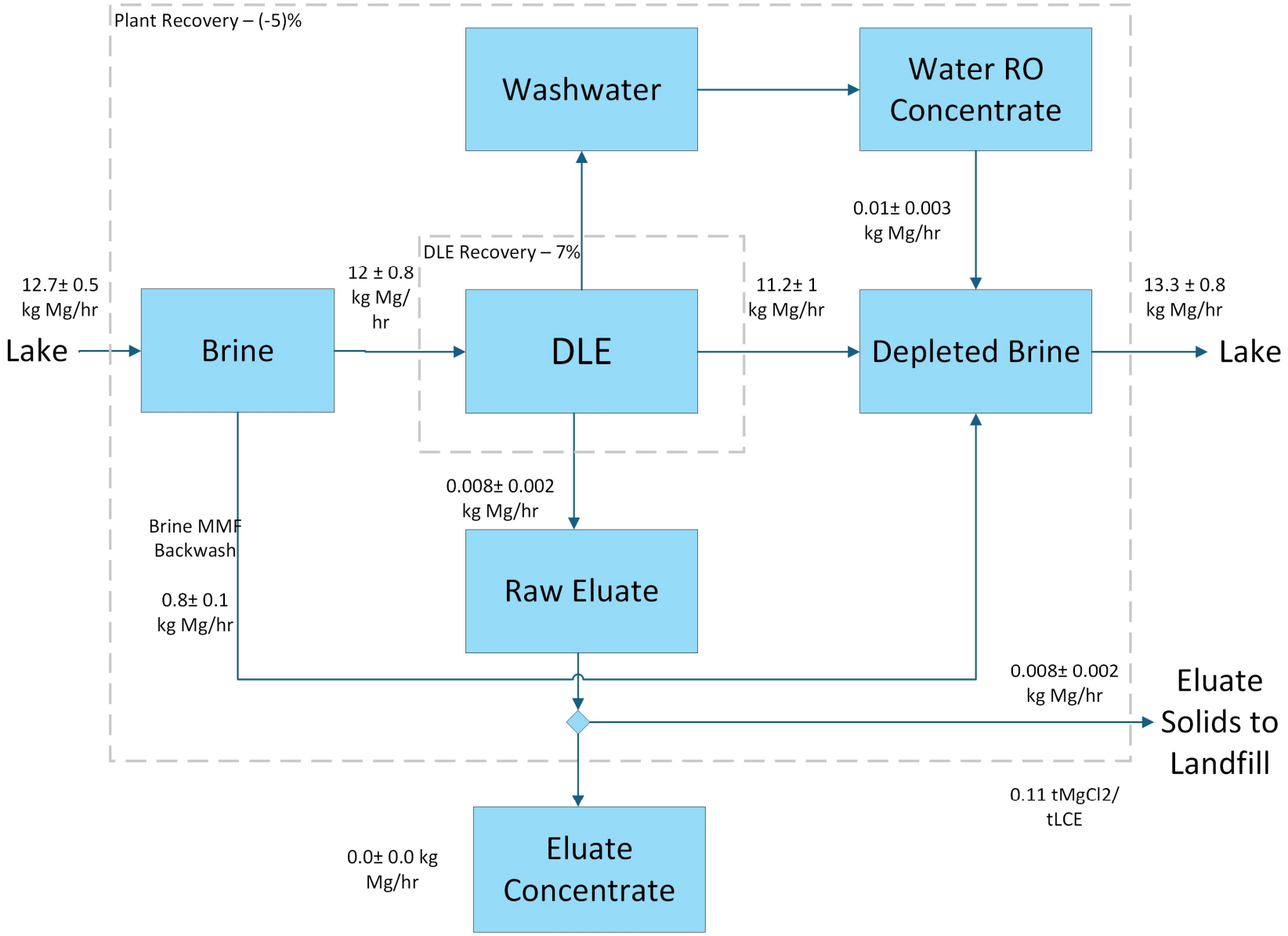


*Sodium returns to the depleted brine in the commercial design via recycle streams

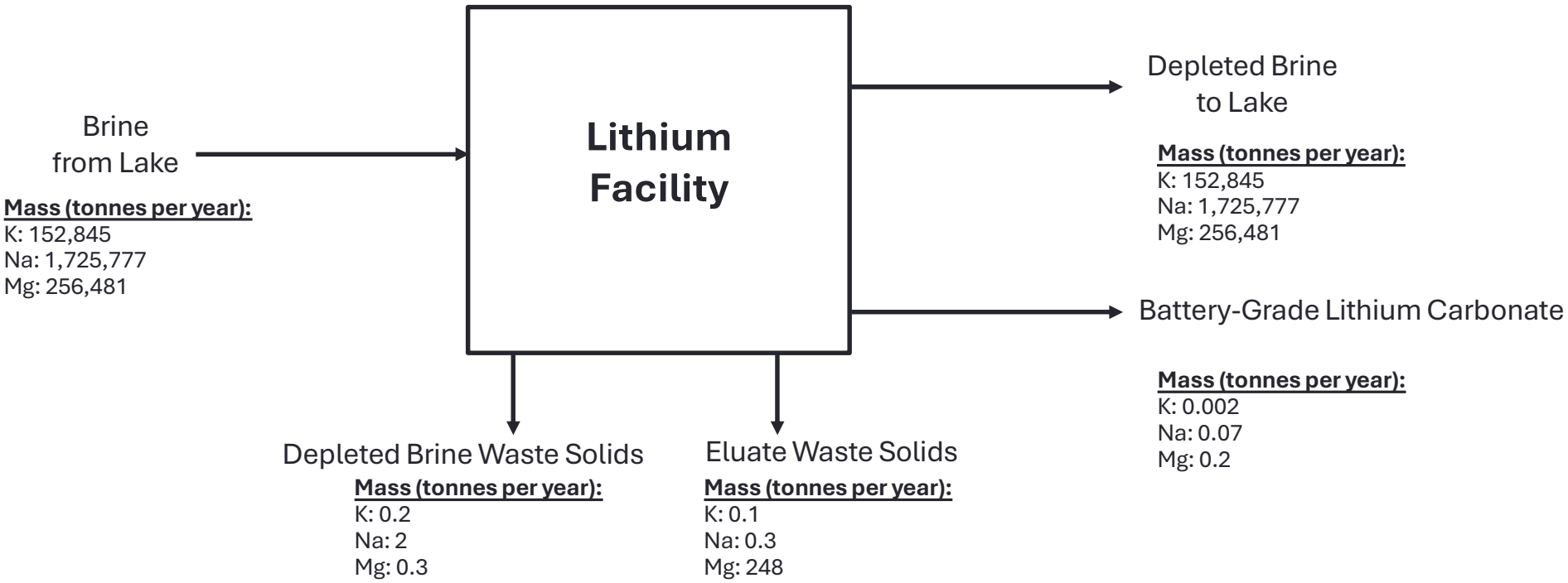
Magnesium concentration - Pilot



Magnesium mass balance - Pilot



Commercial Plant Block Diagram



Updated 2/6/26- Calculations include design margin (15%) and uptime factor (90%).

Magnesium Calculations - Commercial

	Li	K	Na	Mg
Pilot Eluate*	1922	197	634	284
Commercial Eluate	2308	189	418	498

*These are the averages of the constituents during the permit performance run period of 20 May to 10 June

- Phase 1 brine flowrate: 11,300 gpm (nominal)
- Calculates to a mass flow of magnesium in the brine at 256,481 tonnes per year (nominal)
- Destination of magnesium: waste solids from eluate goes to landfill (the magnesium is part of a solids from eluate neutralization, where there are other constituents in the solids)
- Both sodium and potassium do not come out of solution and recycle to depleted brine back to the lake
- Commercial eluate solids will be washed to recover lithium, sodium, and potassium. Pilot solids were not washed.

Final Product Calculations - Commercial

Constituent	Units	Value
Li_2CO_3	wt%	99.5
K2SO4	mg/kg	1.7
Na2SO4	mg/kg	65
NaCl	mg/kg	8
Mg(OH)2	mg/kg	97

- Phase 1 product tonnage: 5,000 tpa LCE
- Calculates to following tonnes of constituents that goes out with the final product:

Item	Units	Value
Potassium tonnes in product	tpa	0.002
Sodium tonnes in product	tpa	0.07
Magnesium tonnes in product	tpa	0.25

Updated 2/6/26- Calculations include design margin (15%) and uptime factor (90%).

D.9 Solids Waste Characterization

PURPOSE

The purpose of this appendix is to document the characterization of solid waste streams generated by the Project. The information provided supports waste classification, handling, transport, and disposal decisions in accordance with applicable regulatory requirements.

CONTENTS SUMMARY

This appendix presents analytical results, compositional data, and supporting information for process-related solid waste streams generated by the Project.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 4.1 (multiple)
- Section 5.3 (multiple)

DOCUMENT DETAILS

- Issued by: Waterleaf
- Data collection period: Pilot operations: Feb – August 2025
- Page Count: 7

D.9 begins on next page

Eluate Neutralization Solids Characterization



[1]Internal measurements on the same sample support a higher SO_4, in line with most solids being present as $CaSO_4 \bullet 2H_2O$

Eluate Neutralization Solids Analysis against Hazardous Waste Characterization

Hazardous Waste Characterization (Utah Admin. Code R315-301 / R315-261):

- **Ignitability (D001):** Not applicable – the material is damp, inorganic, and non-combustible.
- **Corrosivity (D002):** Not applicable – pH 11.1 is below the 12.5 threshold.
- **Reactivity (D003):** Not applicable – gypsum and magnesium hydroxide are chemically stable and non-reactive.
- **Toxicity (D004–D043):** Evaluated using EPA Method 1311 (TCLP).

TCLP Toxicity Screening: EPA Method 1311 uses a 20:1 liquid-to-solid ratio (20 mL extraction fluid per gram of solid). All analytes shown below assume100% leachability. All measured metals are below the total concentrations that would exceed TCLP thresholds:

Analyte	Analyzed Waste Composition	Leached Composition	TCLP Limit
Units	mg/kg	mg/L	mg/L
Arsenic (As)	6.1	0.3	5
Lead (Pb)	ND	ND	5
Cadmium (Cd)	ND	ND	1.0
Mercury (Hg)	0.1	0.05	0.2

Conclusion: The eluate neutralization waste solids sampled from the pilot site are not classified as hazardous waste under Utah Admin Code R315-301 / R315-261. Commercially produced waste solids will be tested on a case-by-case basis and will be categorized and disposed of according to its categorization under Utah Admin Code R315-301 / R315-261.

Depleted Brine Solids Characterization

Depleted Brine Waste Solids Analysis

Depleted Brine Waste Solids[1]				
Description		**Unit**	**Chemtech Ford Analysis**	**Lilac Analysis**
Overall Composition				
	Solids	mg/kg	433,000	571,000
	Moisture	mg/kg	567,000	429,000
Component (Wet Basis)				
	Li	mg/kg	85	7.4
	Na	mg/kg	133,718	30,186
	Mg	mg/kg	23,788	5,897
	Ca	mg/kg	2,425	399
	K	mg/kg	11,178	3,092
	B	mg/kg	Not Measured	45
	Sr	mg/kg	Not Measured	3.3
	Fe	mg/kg	3,995	2,017
	Mn	mg/kg	120	40
	Si	mg/kg	106	93
	Pb	mg/kg	ND	ND
	Ba	mg/kg	Not Measured	ND
	Zn	mg/kg	32	6.7
	As	mg/kg	42	ND
	Al	mg/kg	Not Measured	271
	Cu	mg/kg	ND	6.4
	Cd	mg/kg	ND	Not Measured
	Hg	mg/kg	0.04	Not Measured
	Ni	mg/kg	2.4	5.0
	Mo	mg/kg	6.9	ND
	SO_4	mg/kg	30,023	10,203
	Cl	mg/kg	267,898	64,946
	Filtration Aid (SiO_2)	mg/kg	Not Quantified	432,520
	Flocculant	mg/kg	Not Quantified	0.0
	Other Brine Solids	mg/kg	Not Quantified	20,995

[1]The same solids sample was analyzed by both Chemtech Ford and Lilac

Depleted Brine Solids Analysis against Hazardous Waste Characterization

Hazardous Waste Characterization (Utah Admin. Code R315-301 / R315-261):

- **Ignitability (D001):** Not applicable – high water content and inorganic salts mean no flash point or flammable solids. No oxidizers or organic fuels present.
- **Corrosivity (D002):** Not applicable – pH 7.2 is below the 12.5 threshold.

- **Reactivity (D003):** Not applicable – Diatomaceous earth (Filtration Aid) and brine solids are chemically stable and non-reactive. The liquor is brine, saturated in stable mineral salts.
- **Toxicity (D004–D043):** Evaluated using EPA Method 1311 (TCLP).

TCLP Toxicity Screening: EPA Method 1311 uses a 20:1 liquid-to-solid ratio (20 mL extraction fluid per gram of solid). All analytes shown below assume100% leachability. All measured metals are below the total concentrations that would exceed TCLP thresholds:

Analyte	Analyzed Waste Composition	Leached Composition	TCLP Limit
Units	mg/kg	mg/L	mg/L
Arsenic (As)	42	2.1	5.0
Lead (Pb)	ND	ND	5.0
Cadmium (Cd)	ND	ND	1.0
Mercury (Hg)	0.04	0.002	0.2

Conclusion: The depleted brine waste solids sampled from the pilot site are not classified as hazardous waste under Utah Admin Code R315-301 / R315-261. Commercially produced waste solids will be tested on a case-by-case basis and will be categorized and disposed of according to its categorization under Utah Admin Code R315-301 / R315-261.

[redacted]

4/8/2025

Work Order: 25C1903
Project: GSL DLE Pilot Plant

Lilac Solutions
Attn: Steve Morrey
1700 20th St
Oakland, CA 94607

Client Service Contact: 801.262.7299

The analyses presented on this report were performed in accordance with the National Environmental Laboratory Accreditation Program (NELAP) unless noted in the comments, flags, or case narrative. If the report is to be used for regulatory compliance, it should be presented in its entirety, and not be altered.

[redacted]

Approved By:

Mark Broadhead, Project Manager

Chemtech-Ford Laboratories
Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com

Certificate of Analysis

Lilac Solutions
Steve Morrey
1700 20th St
Oakland, CA 94607

PO#:
Receipt: **3/26/25 10:04 @ 20.8** °C
Date Reported: 4/8/2025
Project Name: **GSL DLE Pilot Plant**

Sample ID: **4620-FLP-001**

Matrix: **Solid**
Lab ID: **25C1903-04**

Date Sampled: **3/5/25 3:00**
Sampled By: **Client**

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Inorganic							
Chloride, Soluble (IC)	116000	mg/kg dry	2310	EPA 300.0	3/31/25	3/31/25	
Sulfate, Soluble (IC)	13000	mg/kg dry	231	EPA 300.0	3/31/25	3/31/25	
Total Solids	43.3	%	0.1	CTF8000	3/26/25	3/26/25	SPH
Metals							
Antimony, Total	1.16	mg/kg dry	0.49	EPA 6020A/3050B	3/27/25	4/2/25	
Arsenic, Total	18.3	mg/kg dry	0.486	EPA 6020A/3050B	3/27/25	4/2/25	
Cadmium, Total	ND	mg/kg dry	0.486	EPA 6020A/3050B	3/27/25	4/2/25	
Calcium, Total	1050	mg/kg dry	22.5	EPA 6010D/3050B	3/26/25	3/27/25	
Chromium, Total	2.71	mg/kg dry	0.777	EPA 6020A/3050B	3/27/25	4/2/25	
Cobalt, Total	ND	mg/kg dry	0.486	EPA 6020A/3050B	3/27/25	4/2/25	
Copper, Total	ND	mg/kg dry	0.680	EPA 6020A/3050B	3/27/25	4/2/25	
Iron, Total	1730	mg/kg dry	8.03	EPA 6010D/3050B	3/26/25	3/27/25	
Lead, Total	ND	mg/kg dry	0.486	EPA 6020A/3050B	3/27/25	4/2/25	
Lithium, Total	36.6	mg/kg dry	3.21	EPA 6010D/3050B	3/26/25	3/27/25	
Magnesium, Total	10300	mg/kg dry	32.1	EPA 6010D/3050B	3/26/25	3/27/25	
Manganese, Total	52.1	mg/kg dry	0.972	EPA 6020A/3050B	3/27/25	4/2/25	
Mercury, Total	0.040	mg/kg dry	0.026	EPA 7471A	3/27/25	4/1/25	
Molybdenum, Total	2.97	mg/kg dry	1.94	EPA 6020A/3050B	3/27/25	4/2/25	
Nickel, Total	1.02	mg/kg dry	0.486	EPA 6020A/3050B	3/27/25	4/2/25	
Potassium, Total	4840	mg/kg dry	56.1	EPA 6010D/3050B	3/26/25	3/27/25	
Selenium, Total	ND	mg/kg dry	2.43	EPA 6020A/3050B	3/27/25	4/3/25	
Silica, (as SiO2) Total	46.0	mg/kg dry	20.0	EPA 6010D/3050B	3/26/25	3/27/25	
Sodium, Total	57900	mg/kg dry	112	EPA 6010D/3050B	3/26/25	3/27/25	
Vanadium, Total	24.4	mg/kg dry	0.874	EPA 6020A/3050B	3/27/25	4/2/25	
Zinc, Total	13.8	mg/kg dry	9.72	EPA 6020A/3050B	3/27/25	4/2/25	
Thallium, Total	ND	mg/kg dry	0.486	EPA 6020A/3050B	3/27/25	4/2/25	

D.10 Evaporative Losses

PURPOSE

This appendix quantifies evaporative water losses from the commercial facility.

REFERENCED IN MAIN APPLICATION

- Section 4.1.5

DOCUMENT DETAILS

- Issued by: Waterleaf

D.10 begins on next page

Evaporation Rate from Surge Ponds

This document outlines the method, assumptions and calculations for the water loss via evaporation from the lined surge ponds for the brine and depleted brine ponds.

Methodology and Assumptions

Pan Evaporation Data

Monthly pan evaporation data for the Great Salt Lake region was obtained from the Western Regional Climate Center (WRCC) database, as shown in Figure 1.

https://wrcc.dri.edu/Climate/comp_table_show.php?stype=pan_evap_avg

UTAH
MONTHLY AVERAGE PAN EVAPORATION (INCHES)

	PERIOD OF RECORD	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
ARCHES NATL PARK HQ	1980-2005	0.00	0.00	0.00	7.44	9.81	12.33	12.94	11.15	8.16	4.73	0.00	0.00	66.56
BEAR RIVER BAY	1969-1996	0.00	0.00	0.00	6.27	10.17	12.59	13.86	12.29	7.83	4.89	0.00	0.00	67.90
BEAR RIVER REFUGE	1948-1984	0.00	0.00	0.00	4.80	7.21	8.66	10.46	9.30	6.13	3.27	1.27	0.00	51.10
BRYCE CANYON NAT'L PRK	1971-1978	0.00	0.00	0.00	0.00	6.86	7.86	8.07	7.21	5.30	0.00	0.00	0.00	35.30
FARMINGTON USU FLD STN	1948-2005	0.00	0.00	0.00	0.00	7.33	6.35	9.25	8.62	4.63	2.97	0.00	0.00	39.15
FERRON	1948-2005	0.00	0.00	0.00	5.20	5.66	8.06	6.58	6.39	5.49	3.53	0.00	0.00	40.91
FISH SPRINGS REFUGE	1960-2005	0.00	0.00	0.00	7.02	10.70	12.90	15.92	13.58	9.92	5.84	0.00	0.00	75.88
FLAMING GORGE	1957-2005	0.00	0.00	0.00	0.00	6.23	8.74	9.71	8.62	5.76	3.94	0.00	0.00	43.00
FORT DUCHESNE	1894-2005	0.00	0.00	0.00	5.16	7.41	8.61	9.06	7.98	5.57	3.25	0.00	0.00	47.04
GREEN RIVER AVIATION	1893-2005	0.00	0.00	0.00	6.07	8.07	9.29	9.49	7.97	5.74	3.52	1.60	0.00	51.75
GUNNISON	1956-1990	0.00	0.00	0.00	5.10	7.23	8.70	9.65	8.26	6.03	3.81	0.00	0.00	48.78
HITE	1949-1962	0.00	0.00	0.00	7.84	11.74	14.14	14.01	12.44	8.34	4.86	1.94	0.00	75.31
LOGAN USU EXP STN	1950-1978	0.00	0.00	0.00	4.01	5.98	7.05	8.37	7.50	5.02	2.92	0.00	0.00	40.85
LOGAN 5 SW EXP FARM	1969-2005	0.00	0.00	3.30	4.57	6.57	8.48	10.05	8.93	5.88	3.51	0.00	0.00	51.29
MANILA	1952-2005	0.00	0.00	0.00	0.00	7.31	8.66	9.83	8.37	6.50	4.63	0.00	0.00	45.30
MEXICAN HAT	1948-2005	0.00	0.00	6.31	8.45	11.99	14.42	14.87	12.48	9.37	5.52	2.25	0.00	85.66
MILFORD	1906-2005	0.00	0.00	0.00	7.47	10.22	13.54	15.47	13.24	9.88	6.16	2.32	0.00	78.30
MOAB	1889-2005	0.00	0.00	4.19	7.29	10.41	12.03	12.72	10.75	7.66	4.25	2.26	0.00	71.56
MORGAN	1948-2005	0.00	0.00	0.00	4.94	6.96	7.30	9.07	8.01	6.15	3.74	0.00	0.00	46.17
PIUTE DAM	1948-1971	0.00	0.00	0.00	0.00	7.91	9.98	10.13	8.40	6.98	4.60	0.00	0.00	48.00
PROVO AIRPORT	1948-1953	0.00	0.00	2.91	6.03	6.83	8.62	8.88	8.36	6.09	3.41	0.00	0.00	51.13
PROVO BYU	1980-2005	0.00	0.00	2.59	4.71	6.81	8.77	9.85	8.70	5.59	2.92	0.00	0.00	49.94
PROVO RADIO KAYK	1952-1977	0.00	0.00	0.00	4.38	5.94	7.53	8.32	7.58	5.40	3.21	1.53	0.00	43.89
ST GEORGE	1862-2005	0.00	0.00	4.57	7.36	10.08	12.22	13.17	11.55	8.22	4.83	2.68	0.00	74.68
SALTAIR SALT PLANT	1956-1991	0.00	0.00	3.66	6.20	9.19	11.88	14.40	12.67	8.58	4.86	2.32	0.00	73.76
SCOFIELD DAM	1948-1991	0.00	0.00	0.00	0.00	5.52	7.84	8.29	6.94	5.13	3.90	0.00	0.00	37.62
SEVIER DRY LAKE	1987-1993	0.00	0.00	2.93	6.33	13.52	16.06	18.32	0.00	0.00	0.00	0.00	0.00	57.16
STRAWBERRY RESERVOIR EA	1956-1977	0.00	0.00	0.00	0.00	5.82	7.28	7.87	7.31	5.08	3.02	0.00	0.00	36.38
UTAH LAKE LEHI	1928-2003	0.00	0.00	2.77	5.19	7.11	8.80	9.61	8.58	6.10	3.81	1.42	0.00	53.39
VERNAL ARPT	1928-2005	0.00	0.00	0.00	5.07	6.41	7.48	6.64	6.34	4.89	2.92	0.00	0.00	39.75
WANSHIP DAM	1955-2005	0.00	0.00	0.00	0.00	6.09	6.79	7.41	6.59	4.79	3.19	0.00	0.00	34.86

Figure 1: Average Monthly Pan Evaporation near Great Salt Lake

Pan-to-Lake Evaporation Coefficient

Pan evaporation rates were converted to open-water evaporation estimates using findings from *"Model Calibration and Evaporation Predictions from Great Salt Lake, Utah"* by Amidon et al. (2025) The study evaluated pan evaporation measurements collected at six sites surrounding the Great Salt Lake and assessed appropriate pan-to-lake coefficients for open-water bodies in arid, high-salinity environments.

The authors determined that a pan evaporation coefficient of 0.67 provides the most accurate representation of open-water evaporation when converting pan data to natural water body conditions.

This coefficient is applicable to the project site because:

- The local climate is arid with high solar radiation and low relative humidity, consistent with the conditions evaluated in the Great Salt Lake study.
- The project ponds are open-water surfaces subject to similar evaporative processes.

Figure 2, below shows the outcome of the pan evaporation data multiplied by the 0.67 conversion coefficient. The average annual evaporation rate is therefore 4.12 in/month.

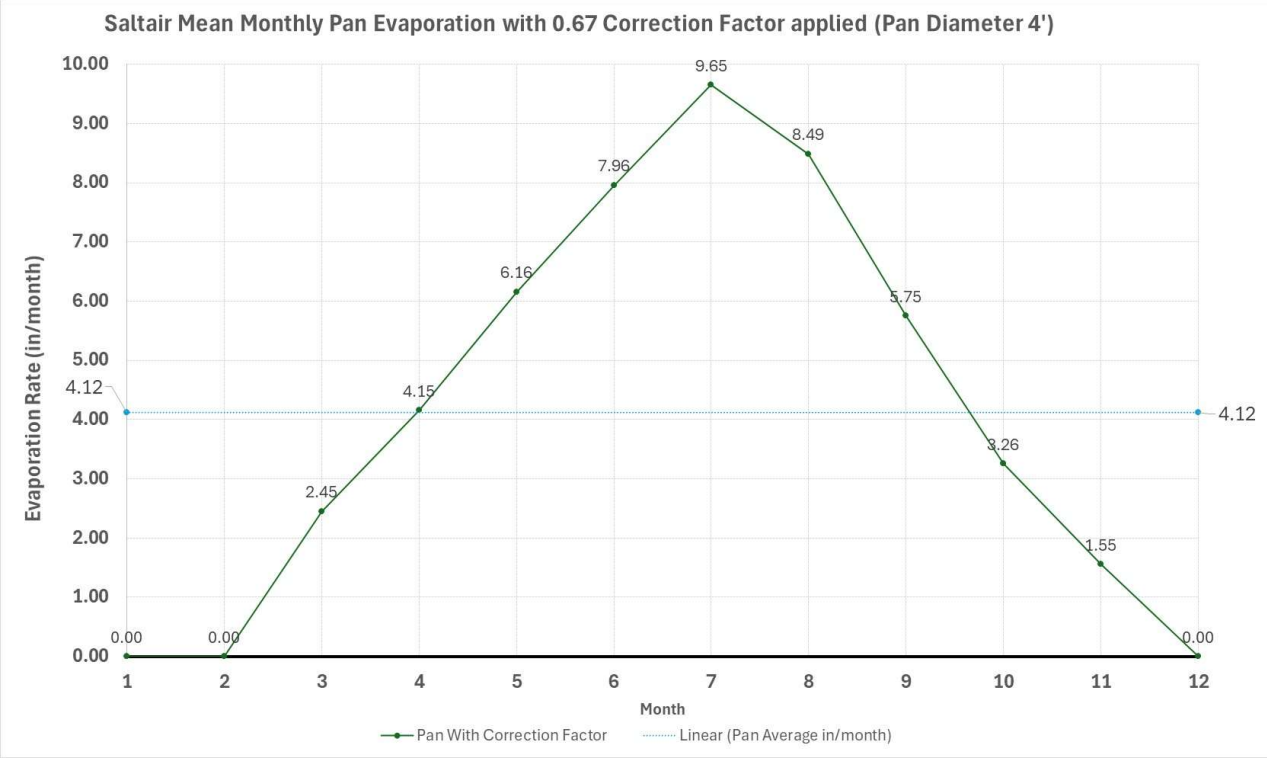


Figure 2: Mean Monthly Pan Evaporation Rates

Calculations

Average Evaporation Rate

The average pan evaporation rate derived from Figure 2 is 4.12 in/month (0.105 m/month).

Single Pond Evaporation

For a single pond the surface area is 3,754 m^2

The evaporation loss across this surface area calculates to:

$$\frac{12\frac{mon}{yr} x\ 3{,}754\ m^2 x 0.105\ m/mon}{8{,}760\ hr/yr} = 0.54\frac{m^3}{hr}$$ = 4,713 m^3/year (2.37 gpm)

Combined Evaporation

The combined surface area of the intake and depleted brine ponds is 7,509 m^2, yielding a total estimated evaporation loss of approximately 9,425 m^3/year (4.74 gpm).

Conclusions

Nominal Evaporation Rate

The nominal rate take plant uptime into account. Therefore:

9,425 m3/yr = 1.076 m3/hr * 90% plant uptime = 0.97 m3/hr

Design Evaporation Rate

The design rate includes a 15% design margin. Therefore:

1.076 m3/hr * 1.15 = 1.24 m3/hr

Appendix E Hydrology, Hydrogeology and Water Quality

E.1 Resource Report – Montgomery & Associates

E.2 SLR Groundwater Analysis

E.3 HR Wallingford Hydrodynamic / Dispersion Model

E.4 Great Salt Lake Mass Balance - Impact of Waterleaf Operations

E.1 Resource Report – Montgomery & Associates

PURPOSE

This appendix provides an independent technical resource assessment of the lithium brine resource in the North Arm of the GSL, supporting the Project's resource definition and demonstrating reasonable prospects for eventual economic extraction.

CONTENTS SUMMARY

The appendix contains an updated Technical Resource Assessment prepared by Montgomery & Associates, documenting measured lithium resources for the GSL Project based on comprehensive brine sampling campaigns conducted in 2024 and 2025. The report presents sampling methodologies, laboratory analytical results, quality assurance and quality control procedures, and three-dimensional Leapfrog modeling used to estimate brine volume and lithium distribution. All lithium resources are classified as Measured under international reporting standards, totaling approximately 0.27 million tonnes of lithium (1.42 million tonnes LCE) at an average concentration of 67 mg/L, and the Qualified Persons conclude that the Project has reasonable prospects for eventual economic extraction using Lilac's direct lithium extraction technology.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 3.1
- Section 4.3

DOCUMENT DETAILS

- Issued by: Montgomery & Associates
- Date: May 16, 2025
- Data collection period: 2024 & 2025
- Page Count: 22 pages

E.1 begins on next page

E.2 SLR Groundwater Analysis

PURPOSE

The purpose of this appendix is to document groundwater production testing and water quality characterization conducted at the Mango Spiral Jetty LLC Well 13-4110. The information provided supports evaluation of groundwater availability and suitability for potential future water supply development associated with the Project.

CONTENTS SUMMARY

This appendix includes the final technical memorandum prepared by SLR Consulting summarizing the results of a well production and recovery test, aquifer hydraulic analysis, and groundwater quality assessment for Well 13-4110. The memorandum presents well construction observations, pumping test methodology, drawdown and recovery data, calculated aquifer hydraulic parameters, and laboratory analytical results for inorganic, organic, and radiochemical constituents. Supporting figures, tables, field logs, and laboratory reports are included to document data collection and analysis. The information in this appendix is intended to provide technical context for groundwater resource evaluation and does not constitute a final design or permitting determination for groundwater development.

REFERENCED IN MAIN APPLICATION

- Section 3.8
- Section 4.1

DOCUMENT DETAILS

- Issued by: SLR Consulting (Lanon Beck)
- Date: May 5, 2025
- Data collection period: April 7th, 2025
- Page Count: 8 pages with 18 pages in attachments

E.2 begins on next page

DURANGO, CO 81301
TELEPHONE: (970) 459-4865
EMAIL: LBECK@SLRCONSULTING.COM

TECHNICAL MEMORANDUM

To	Mark Mulligan – VP Engineering, Lilac Solutions; Steve Morrey – Project Director, Lilac Solutions	**Ref #**	123.020485.02-TM2
CC		**Date**	5/5/2025
From	Landon Beck		
Subject	Mango Spiral Jetty Well 13-4110 Well Test – Final Data Presentation		

INTRODUCTION

A well production and recovery test was conducted at Mango Spiral Jetty LLC (MSJ) water well 13-4110, as identified by the Utah Division of Water Rights, on behalf of Lilac Solutions (Lilac) the week of April 7th, 2025. The purpose of this test is to help determine general production capability of the aquifer to consider as a potential future drilling target for a new groundwater supply well approximately five miles south-southwest of this test well at or near the proposed Lilac commercial site. The location of well 13-4110, in relation to the Lilac lease and other MSJ infrastructure is shown in **Figure 1**. The same figure but with a surface geology overlay is shown in **Figure 2**. Hydraulic test data and groundwater quality have been evaluated, with laboratory water quality results reported by the lab on April 30, 2025. This technical memorandum updates the previous version submitted on April 18, 2025, titled Mango Spiral Jetty Well 13-4110 Well Test – Preliminary Data Presentation.

WELL CONSTRUCTION AND HYDROSTATIGRAPHY

No drill hole hydrostratigraphic information exists such as a water well driller's log or well construction report per a records search for well 13-4110 with the Utah Division of Water Rights. The well owner, MSJ, was not in possession of any records of well 13-4110, which would have been passed down by the previous property owner. The well, upon SLR and Artesian Services Inc. (ASI) arrival for inspection, contained severely corroded remnants of a high-capacity vertical line shaft turbine pump system. The 6-inch column pipe, 7/8-inch lineshaft, and 1-2/3-inch line shaft steel tubing had to be fished from the well in order to access the well to install the test pump. Substantial vegetative material and rodent remains were observed both by downhole video inspection logs and during removal of the old pump system, so an air-lift and air-jetting was required to remove these materials, as well as attempt to remove some of the well casing corrosion, prior to conducting the production test. This was accomplished using 3-inch galvanized steel pipe and a 13-inch diameter jetting tool with air supplied by an 1,800 CFM compressor. The air-lifting was conducted over two days, working the wetted section of the wellbore. Visual inspection of the well by several downhole video inspection logs conducted by ASI found it to be constructed of 16-inch carbon steel casing from ground surface to approximately 194 feet total depth. It should be noted that the actual terminus of the 16-inch casing was not observed. No perforations were observed in

the video logs from surface to the water level at 74.6 feet. Below water level no perforations were observed due to severe corrosion of the steel casing, however in many locations the corrosion seemed to orient vertically, in the typical orientation of perforations of this type of water well construction. The corrosion was so bad in places it almost appeared as if the casing was non-existent. The well is presumed to be 50 years or greater in age and drilled by cable tool drilling rig. It is unlikely that there is a well cap at bottom presuming it was cable tool drilled, and one was not found after the well clean-out by air-lifting. Therefore, it cannot be estimated what proportion of flow into the well would be through perforations versus the open total depth end of the 16-inch casing. It is possible that all of the presumed perforations were corroded so badly as to plug them from the aquifer, and all production was from the open total depth end of the casing.

This well, as evidenced by four downhole video log inspections from prior to any work conducted to the post-test pump removal, appears to be substantially impaired due to corrosion and scaling below the static water level of 74.6 feet below ground surface, even following air-lifting and jetting operations conducted by ASI prior to the production test.

The downhole video logs can be viewed and downloaded here:

- Lilac_3-25-2025_Initial Video.ASF
- Lilac_3-31-2025_Post Turbine Removal.ASF
- Video prior to pump removal
- Video following pump removal

Despite lack of hydrostratigraphic data existing for well 13-4110, a temperature gradient 2-inch PVC well named Rozen-1 was installed by the Utah Geological Survey (UGS) and the US Geological Survey (USGS) in 2012 approximately 1/2 mile NNW of well 13-4110 and the geologist's stratigraphic log has been obtained through the Utah Division of Water Rights website and was reviewed by SLR. This well location is shown in both **Figures 1 and 2**. The Rozen-1 stratigraphy is presented in the original geologist's lithologic log as **Attachment 1**.

For the purposes of comparison, the ground surface elevations of both Rozen-1 and 13-4110 are considered equal. Materials encountered during drilling of Rozen-1 documented by the UGS geologist were coarse sand and gravels from approximately 20 to 160 feet below ground surface. The sand and gravel were reported to range in composition from basalt, quartz and limestone, and from well-rounded to subangular in shape. From 130 feet the sand and gravel compositions were mostly limestone. From 160 to 190 feet below ground surface an increasing and dominant fraction of silty clay was found. At 190 to 210 feet below ground surface the materials encountered were documented to lack the silty clay found from 160 to 190 feet, returning to coarse sand and pebbles of limestone and "variable provenance". This sequence to 210 feet depth below ground surface is likely representative of the aquifer produced by well 13-4110. Unfortunately, Rozen-1 was not drilled to be a water well, so the drilling method used actually sealed off groundwater to improve

the integrity of the stratigraphic sample collection, and thus there is no hydrostratigraphic information such as first water encountered, or water production measured at different depths.

This 8-inch Rozen-1 borehole was drilled to 610 feet below ground surface. To summarize the stratigraphy below the 210 feet below ground surface, which was most pertinent to well 13-4110 but may be useful for future groundwater exploration, the UGS geologist documented unconsolidated materials of sand and gravel with varying amounts of silty clay to a depth of 390 feet below ground surface. From 390 to approximately 470 feet below ground surface a consolidated basalt unit was encountered. The remainder of the borehole from 470 to 610 feet was documented to be more unconsolidated sand, gravel and marl with varying proportions of clay.

WELL PRODUCTION TEST

GENERAL METHODOLOGY

A conventional well production and recovery test, typically referred to as a pumping test, was conducted from April 9 through April 12, 2025. This time period includes initial baseline well water level stabilization after the test pump was installed, the 24-hour period of pumping (drawdown), and an approximate 24-hour period of water level recovery to stabilization post-pumping.

The well was initially understood to be a 6-inch diameter, 200-foot depth modern PVC water well based on information provided to SLR. Thus, a nominal 6-inch electric submersible pump (ESP) was specified for the test, with capacity for 200 gpm production rate. However, upon arrival onsite, well 13-4110 was found to be a 16-inch diameter steel cased and perforated well, likely 50 years or older in age. Furthermore, a previous oil-lube lineshaft turbine pump and related pipe column, lineshaft, and ¼-inch copper air tubing had been left in disrepair, corroding in the well for an unknown time period. This equipment was successfully fished from the well by ASI, and based on general inspection, it was found to likely have supported up to 1000 gpm production when new, indicating well 13-4110 is, or was at one time, a very high-production water well.

DATA COLLECTION

Data collection during this single-well aquifer test included the static (pre-pumping) water level measurement, pumping water level measurements taken manually and by datalogging pressure transducer during the drawdown phase, discharge flow rate (Q) measurement, running total production volume measurements and the standard field water quality parameters of temperature, pH, specific conductance (SC), total dissolved solids (TDS), oxygen reduction potential (ORP), dissolved oxygen (DO), and turbidity. Recovery water level measurements were taken by the datalogging pressure transducer at 10-second intervals. A representative groundwater sample for an extensive suite of water well analytical parameters for inorganic, organic, nutrients, general chemistry and radioactivity was collected and submitted to ACZ Labs for standard two-week reporting turnaround from April 14th.

DATA PRESENTATION & ASSESSMENT

Well Hydraulics

Table 1 presents the hydraulic parameters recorded on a standard field log during the production test. **Table 2** presents the water quality field parameters recorded on a standard field log during the production test. **Figure 3** shows a plot of the full period of record of the well 13-4110 test water level from initial function testing of the pump following installation, the stabilization period following the function test, the 24-hour pumping period, and the 24-hour recovery period. The production rate is also plotted on the secondary y-axis.

Specific capacity is a standard production test metric used to assess well productivity. It is the rate of discharge of a water well per unit of drawdown, typically presented as gpm/foot. It varies with duration of discharge, so typically a production test is run to the point that the drawdown has stabilized in order to determine the most accurate specific capacity. In the case of this test at well 13-4110, there was approximately 30 feet of drawdown at a discharge rate of approximately 195 gpm, thus a calculated specific capacity of 6.5 gpm/ft. This value is not very good for a 16-inch production well with evidence it once was outfitted with a 1000 gpm pump. Working backwards, 1000 gpm/6.5 gpm/ft would create 154 feet of drawdown, which would be larger than the available amount of drawdown in the well. This indicates the well has most likely lost substantial production capacity since its installation, which is supported by the downhole video log observations of corrosion and scaling. This reiterates that the well specific capacity metric does not simply assess the aquifer but is substantially affected by the well construction and condition, and is thus generally considered a well performance test to assess condition over time and assess need for maintenance, versus an aquifer test.

The drawdown phase shows that after approximately seven hours of production, the well begins to recover while still being pumped. While the production rate did decline during this period due to pump head pressure losses, the drawdown curve suggests that this aquifer is so productive that the approximate 200 gpm production rate did not stress the aquifer, and the initial wellbore losses were regained over time. It can therefore be assumed that this well is more than capable of sustaining 200 gpm continuously for a period of 1 day or more. As previously discussed, the old pump system fished from this well was estimated to be capable of producing approximately 1000 gpm. The caveat to this assumption is that this test was not planned to be a long-term drawdown test of days to weeks that would identify no-flow boundary conditions that would indicate a limited extent of the aquifer.

Figure 4 shows at a fine time scale of what is otherwise shown in **Figure 3** that well 13-4110 effectively fully recovered within approximately 5 minutes after stopping the pump. This indicates very high aquifer transmissivity and hydraulic conductivity. Over the

remaining hours of observed recovery, the well level continued to increase above the initial static pre-pumping water level suggesting spring seasonal recharge of the aquifer was ongoing.

The recovery data has been analyzed using industry standard well test software (AQTESOLV). The standard analytical solution for this type of post-production recovery is the 1935 Theis residual drawdown/recovery model. Recovery data is analyzed in priority to the drawdown data for single well (no observation well) pumping tests as it generally compensates for pumping rate variations and wellbore storage effects. The analytical plot is shown as **Figure 4**. This calculates an aquifer transmissivity of approximately 6,770 ft^2/day. The aquifer saturated thickness has been estimated as 121.4 feet, which is simply the total depth of the well at 194 feet below ground surface to the static water level measured at 72.60 feet below ground surface, which presumes the aquifer is unconfined. Hydraulic conductivity, which is calculated as transmissivity divided by aquifer thickness, is then estimated as 56 ft/day. This is within the textbook hydraulic conductivity range of a gravel aquifer, which are typically the highest yielding aquifers.

Groundwater Quality

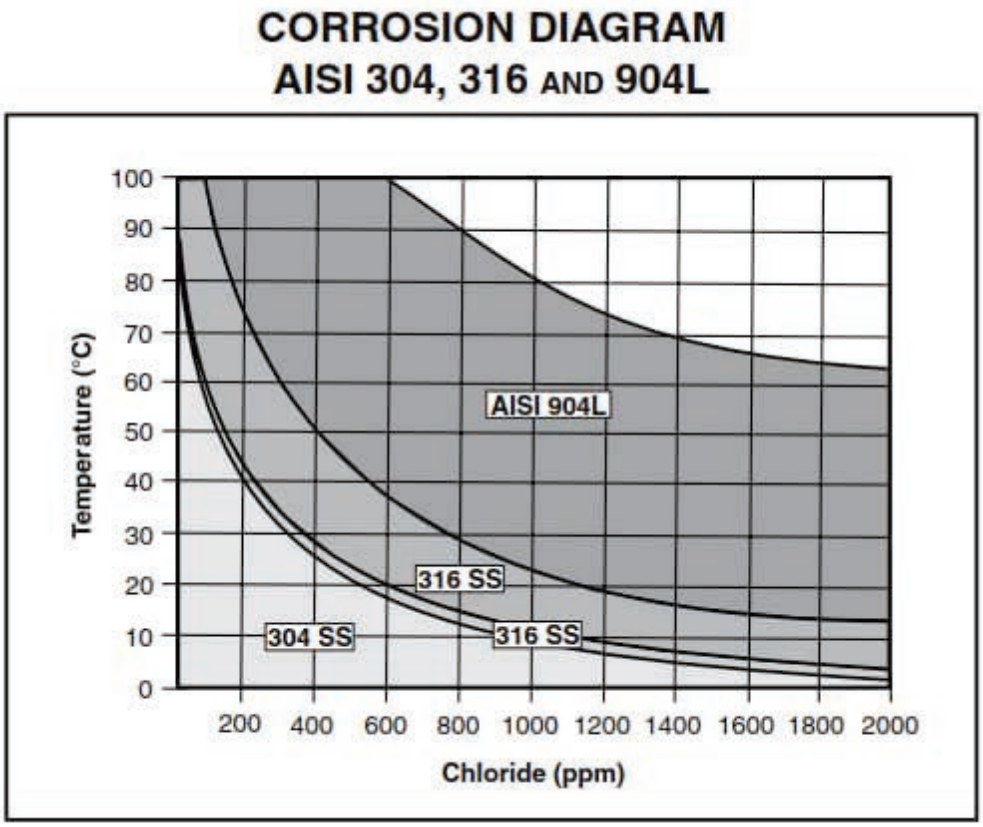
The groundwater chemistry was documented during the 24-hour pumping test for field parameters and demonstrated normal temperature, near-neutral pH, relatively high specific conductivity, slightly reducing conditions, and low turbidity. Dissolved oxygen was in the range for a shallow unconfined aquifer with ongoing recharge, however that parameter may have been biased by the extensive air-lifting operations. These observations are documented in **Table 2**. The results for the well 13-4110 water sample, as analyzed and reported by ACZ Laboratories, Inc., are given in **Attachment 2**.

Inorganics by EPA 200.7/EPA 200.8, as shown on page 2 of the ACZ report, indicated very low or non-detect values for most constituents. The notable exception was sodium, which was reported at the high level of 884 mg/L. This sodium value indicates the water is hazardous for application to most all crops, including alfalfa, as high-sodium water has the potential to stop water from moving into soil. (Colorado State University Extension Fact Sheet 0.506) This is further discussed below. There were no exceedances of the Utah Groundwater Quality Protection Program Table 1 of R317-6-2.1 standards.

Wet chemistry by various methods to assess major ions, alkalinity, hardness, nitrate/nitrite, total dissolved solids and sodium absorption ration (SAR) were reported in the ACZ report on page 3. Nitrate/nitrite values were found to be negligible. Major ions are elevated, specifically chloride at 1,700 mg/L, and bicarbonate at 174 mg/L, and sodium as stated above, at 884 mg/L. This contributes to a reported high total dissolved solids (TDS) value of 2,890 mg/L. This TDS value indicates this water when used for irrigation creates severe crop growth limitations due to its salinity, which is generally the case when above 2000

mg/L. (New Mexico State Extension Guide W-102). The reported SAR is 21, which is far above the criteria of >9 which may cause severe limitation to soil properties. Chloride values of irrigation water above 350 mg/L can cause severe problems for crops. The lab-reported hardness of 352 mg/L is in the extreme hardness range, which would cause problematic encrustation for irrigation sprinkler nozzles, however near-neutral pH generally keeps the encrustation to a minimum.

The reported chloride value of 1,700 mg/L also places it into a significantly problematic range for corrosion of metals, which explains the extreme steel casing corrosion observed in the downhole video logs As the figure from Grundfos Pumps below shows, the well 13-4110 groundwater chloride level at the measured temperature during the pumping test of approximately 18 degrees Celsius is too high for even standard stainless steel (304 and 316) to resist severe corrosion, and rather would require specialized alloy material typical for brackish or sea water contact. This information supports the advice that any future production well in or penetrating through this aquifer should be constructed of either PVC or appropriate corrosion resistant steel alloy. Likewise, any potential future dedicated equipment in well 13-4110 or another well completed in this aquifer, such as pumps, piping, and related metallic fittings, must be specified as appropriate corrosion resistant alloy or plastic material.



No benzene, toluene, ethylbenzene, or xylene (BTEX) volatile organics were detected in the sample. BTEX was analyzed due to the history of crude oil presence in the vicinity of Rozel Point. (UGS Special Studies No. 5, 1963)

Gross alpha radionuclide particle activity was found to be 18 pCi/L which is elevated above the Utah Groundwater Quality Protection Program Table 1 of R317-6-2.1 standard of 15 pCi/L. Dissolved uranium was reported at a low value of 0.00274 mg/L, one order of magnitude below the R317-6-2.1 standard, but there may be presence of radium-226 and/or radium-228 (neither analyzed here) contributing to the alpha particle radionuclide presence. Note that the lab accuracy for gross alpha particle activity is reported at +/- 20 pCi/L, so the measured level is near the detection limit for the analytical method. This method provides a screening-level analysis.

It should be noted that while the laboratory reported value of pH was 8.2, pH is a field parameter with a hold time of 15 minutes, and preferably observed immediately. Therefore, the appropriate pH value to consider for well 13-4110 is 7.7, as reported in **Table 2,** the value reported at the time of groundwater sample collection. This was also the value observed for almost the entirety of the 24-hour production period, which yielded 275,990 gallons in total, certainly indicating a representative sample from the aquifer.

In summary, the groundwater sample collected at well 13-4110 is of high TDS, high SAR, high hardness, with particularly high dissolved sodium and chloride, indicating the water in this aquifer is unsuitable for irrigation of crops including alfalfa. The high chloride also presents corrosion challenges to any permanent infrastructure such as water well casing, or dedicated equipment such as pumps, piping, and related fittings and equipment. The groundwater chloride value of 1,700 mg/L at 18C in this aquifer must be addressed in the potential future specification of materials contacting this water.

CONCLUSION

The downhole video inspections, pumping test, and groundwater quality analysis at MSJ well 13-4110 provided substantial information regarding this well and the unconsolidated unconfined aquifer it produces.

The pumping test indicated that based on specific yield, the well performance is relatively poor on a basis of production rate per foot of drawdown. This result was confirmed by four downhole well video log inspections that showed substantial corrosion and encrustation limiting production perforations in the well casing. Regardless, the well easily produced approximately 200 gpm continuously for 24 hours, and even recovered during the production period, indicating 200 gpm does not stress the aquifer. This said, the purpose of this test was not to conduct a long-term pumping test of days to weeks to identify any potential no-flow or gaining boundary conditions that would indicate limitation to the aquifer capacity, but rather determine general production capability

of the aquifer to consider as a potential future drilling target for a new groundwater supply well approximately five miles south-southwest of this test well at or near the proposed Lilac commercial site. The aquifer transmissivity was calculated to be approximately 6,770 ft^2/day. The aquifer hydraulic conductivity was calculated to be approximately 56 ft/day. These values are consistent with those of a gravel aquifer. The nearby (1/2 mile north) Rozel-1 well, which was thoroughly documented in a lithology log prepared by the UGS and obtained after this test through the Utah Water Rights website, indicates that borehole penetrated a prolific gravel aquifer.

The groundwater chemistry was documented during the 24-hour pumping test for field parameters and demonstrated neutral pH, relatively high specific conductivity, slightly reducing conditions, and low turbidity. A water sample was collected at the conclusion of the 24-hour pumping test and submitted to an accredited water quality laboratory for a variety of inorganic, organic, and general wet chemistry analyses, as well as a radionuclide screening for gross alpha and beta particles. The results indicated that the aquifer is high TDS. The high TDS level, as suggested by the high specific conductance field parameter observations, indicate this groundwater is poor for irrigation. The high TDS is primarily a result of elevated sodium, which contributes to a high SAR, a specific parameter in this case indicating non-suitability for irrigation. Chloride is the other significant contributor to the high TDS; chloride at the reported level suggests toxicity to most crop species and the concentrations found in this aquifer indicate the groundwater is extremely corrosive to metallic materials, which was confirmed by both the retrieved steel components of the former lineshaft turbine pump system, as well as multiple downhole video log inspections documenting extreme corrosion of the steel casing.

TABLE 1

Well 13-4110 Test Hydraulic Data Field Log

SLR

Pumping Test Log

Recorded by: Landon Beck
Pumping Well ID: 13-4110
Well Location: Corinna, ME
Static Depth to Water & Time (ft): 74.88' to pitless access, 0850 - 73.65' Level Troll
Stick-up from Datum (ft): 2.16' for ESP, 2.44' for water level & transducer
Well Screen Interval (ft): uncertain
Well Screen Diameter (in): 16"
Well Casing Interval (ft): 0'-204'
Well Casing Diameter (in): 16"
Pump Intake Depth (ft): 168.9'

Start Pump: Date: 4/10/25 Time: 09:00
Stop Pump: Date: 4/11/25 Time: 09:00

Notes: Lilac Solutions - Mango Spiral Jetty LLC owned well. Test to inform Lilac groundwater supply exploration. Former agricultural use supply well that was outfitted w/ line shaft turbine pump estimated to produce 1000gpm.
Test pump is Grundfos 6" model 230S200-5-BP on 6" 25 HP Hitachi 3-phase 60Z 460/230V motor.

Date/Time	Drawdown Elapsed Time (min)	Recovery Elapsed Time (min)	Manual Water Level Depth (ft BD)	Downhole Pressure Transducer Level (ft BD)	Downhole Pressure Transducer Pressure (psi)	Drawdown or Residual Drawdown (ft)	Flow Meter Rate (gpm)	Flow Meter Total (gallons)	Discharge Pipe Pressure (psi)	Comments
4/10/25 0858	-	-	74.88	73.65	53.45	-	0	14612	0	pre-start
0902	2	-		91.63	49.76	17.98	208	15408	49	
0908	8	-	96.95	96.81	43.40	23.16	206	16310	47	
0925	25	-	~~100.08~~	100.08	42.00	26.43	205	20000	44	
0936	36	-	101.46	99.98	41.93	26.33	202	21760	44	
0943	43	-	102.46	101.10	41.54	27.45	201	23600	43	
0955	~~55~~	-	102.59	100.95	41.47	27.30	202	26100	42	
1019	79	-	103.28	101.91	41.20	28.26	201	31000	42	
1039	99	-	103.42	102.15	41.10	28.50	201	34800	41	
1135	155	-	103.38	102.69	41.01	29.04	198	45900	41	
1247	227	-	104.19	102.91	40.91	29.26	197	60100	40.5	
1329	269	-	104.22	103.96	40.79	30.31	195	68000	40.5	
1400	300	-	104.16	103.84	40.74	29.36	195	74100	40.5	
1505	365	-	104.59	103.34	40.67	29.69	194	86700	40	
1539	399	-	104.48	103.32	40.63	29.67	195	93400	40	
1629	449	-	104.35	103.23	40.62	29.60	195	102900	40	Generator all 3 lines 277 volts, fuel 86%
1706	489	-	104.41	103.29	40.61	29.64	194	110000	40	
1742	522	-	104.43	103.22	40.73	29.57	194	116900	40	Gen fuel 86%.

offsite @ 1810 for the night

SLR

Pumping Test Log

Start Pump: Date: 4/10/25 Time: 0900
Stop Pump: Date: 4/11/25 Time: 0900

Notes:

Recorded by: Landon Bark
Pumping Well ID: 13-4110
Well Location: Corinne, UT
Static Depth to Water & Time (ft): 74.83' Top of access, 0850 4/10/25; 73.85' Level Troll transducer
Stick-up from Datum (ft): 2.10' for ESP, 2.44' for water level & transducer
Well Screen Interval (ft): uncertain
Well Screen Diameter (in): 16"
Well Casing Interval (ft): 0'-204'
Well Casing Diameter (in): 16"
Pump Intake Depth (ft): 168.9'

Date/Time	Drawdown Elapsed Time (min)	Recovery Elapsed Time (min)	Manual Water Level Depth (ft BD)	Downhole Pressure Transducer Level (ft BD)	Downhole Pressure Transducer Pressure (psi)	Drawdown or Residual Drawdown (ft)	Flow Meter Rate (gpm)	Flow Meter Total (gallons)	Discharge Pipe Pressure (psi)	Comments
4/11/25 0832			102.51	101.49	41.53	27.84	~~281600~~ 191	281000	41	Generator - all lines 277 V, fuel = 34%
0839			102.59	101.00	41.46	28.15	191	286200	41	downhole T = 17.65 C
0845			102.56	101.23	41.37	27.58	191	287370	41	
0856			102.54	101.41	41.41	27.76	191	290100	41	
0900										pump shut in 2" valve, breaker turned off and left generator fuel end 34%
0916	–	16	66.42	74.03	53.27	-0.38	0	290602	0	
0933	–	33	66.82	73.99	53.29	-0.34	0	290602	0	Total pumped 275,990 gal
0942	–	42	75.18	74.01	53.27	-0.36	0	290602	0	tape not giving reliable reading - 0916, 0933
1006	–	60	75.09	74.02	53.29	-0.37	0	290602	0	

TABLE 2

Well 13-4110 Water Quality Field Parameter Data Field Log

SLR

Pumping Test Water Quality Monitoring Log

Recorded by: Landon Berk
Pumping Well ID: 13-4110
Well Location: Corinne, UT
Static Depth to Water & Time (ft): 74.88' top of access; 73.65' Level Troll
Stick-up from Datum (ft): 2.10' for ESP, 2.44' for access pipe
Well Screen Interval (ft): uncertain
Well Screen Diameter (in): 16"
Well Casing Interval (ft): 0'-204'
Well Casing Diameter (in): 16"
Pump Intake Depth (ft): 168.9'

Start Pump: Date: 4/10/25 Time: 0900
Stop Pump: Date: 4/11/25 Time: 0900

Notes: Lilac Solutions Project. Mongo Spiral Jetty LLC owned well. Test to inform Lilac groundwater supply exploration. Former agriculture supply well that was outfitted with a line shaft turbine pump estimated to produce 1000gpm. Test pump is Grundfos 6" model 230S200-5-BP on 6" 25 HP Hitachi 3-phase 60Hz 460/230V motor.

Date/Time	Temperature (C)	Specific Conductance (µS/cm)	pH (SU)	Oxygen Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Flow Meter Totalizer (gallons)	Discharge Pipe Pressure (psi)	Manual Water Level Depth (ft BD)	Comments
0900	–	–	–	–	–	–	14612	0	74.88	start pump
0905	18.87	5206	7.57	+34.6	3.73	–	15890	48	–	
0914	19.15	5220	7.58	+16.0	3.69	–	17970	42.5	–	
0927	18.27	5249	7.79	-2.3	4.78	–	20340	43	101.46	
0935	18.6	5256	7.77	-8.9	4.60	32	21760	43	–	
0945	18.10	5258	7.76	-19.4	4.64	–	~	–	–	
0952	18.32	5258	7.75	-21	5.13	19	26100	42	102.59	down hole T= 17.82 C
1007	–	–	–	–	–	–	–	–	–	save log to RITS tablet, start next test @ 1 min
1021	18.6	5256	7.76	-26.4	4.76	19	31000	42	103.28	
1048	18.07	5258	7.75	-33.3	4.73	–	36400	41	103.47	
1143	18.03	5261	7.74	-37.3	4.73	11	47310	41	–	
1250	18.09	5252	7.74	-34.0	4.70	11	60100	40.5	104.19	down hole T= 17.96C
1335	18.09	5249	7.74	-34.5	4.73	4	69230	40.5	104.32	down hole T= 17.75C
1407	18.20	5235	7.75	-31.3	4.73	9.7	75180	40.5	104.16	
1511	18.08	5249	7.73	-33.7	4.75	8.3	87890	40	104.59	
1542	18.11	5248	7.73	-30.0	4.78	7.8	93400	40	104.48	
1632	18.17	5240	7.72	-25.1	4.79	11	102900	40	104.45	down hole T= 17.71C
1709	18.01	5254	7.74	-31.4	4.80	6.7	110000	40	104.41	
1545	18.03	5250	7.73	-31.2	4.80	6.3	116900	40	104.43	

SLR

Pumping Test Water Quality Monitoring Log

Start Pump: Date: 4/10/25 **Time:** 0900
Stop Pump: Date: 4/11/25 **Time:** 0900

Notes:

Recorded by: Landon Beck
Pumping Well ID: 13-4110
Well Location: Corinne, UT
Static Depth to Water & Time (ft): 74.58' to pt of access 0850 4/10/25; 73.65 Level Troll transducer
Stick-up from Datum (ft): 2.10' for ESP, 2.44' for water levels & transducer (Level Troll)
Well Screen Interval (ft): uncertain
Well Screen Diameter (in): 16"
Well Casing Interval (ft): 0'-204'
Well Casing Diameter (in): 16"
Pump Intake Depth (ft): 168.9'

Date/Time	Temperature (C)	Specific Conductance (µS/cm)	pH (SU)	Oxygen Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Flow Meter Totalizer (gallons)	Discharge Pipe Pressure (psi)	Manual Water Level Depth (ft BD)	Comments
4/11/25 0809	17.82	5252	7.73	+19.5	4.96	8.5	281100	41	102.51	1st readings in mixing & restarting flow cell
0842	17.86	5267	7.73	-3.7	4.94	—	287200	41	102.55	downhole T=17.62 C
0845	17.89	5255	7.73	-2.4	4.95	2.5	287870	41	102.56	collect sample "SLR-WW-BASELINE" suite ID "13-4110" to ACZ Labs Saturday delivery UPS

FIGURE 1

Well 13-4110 Location Map with Aerial Photo

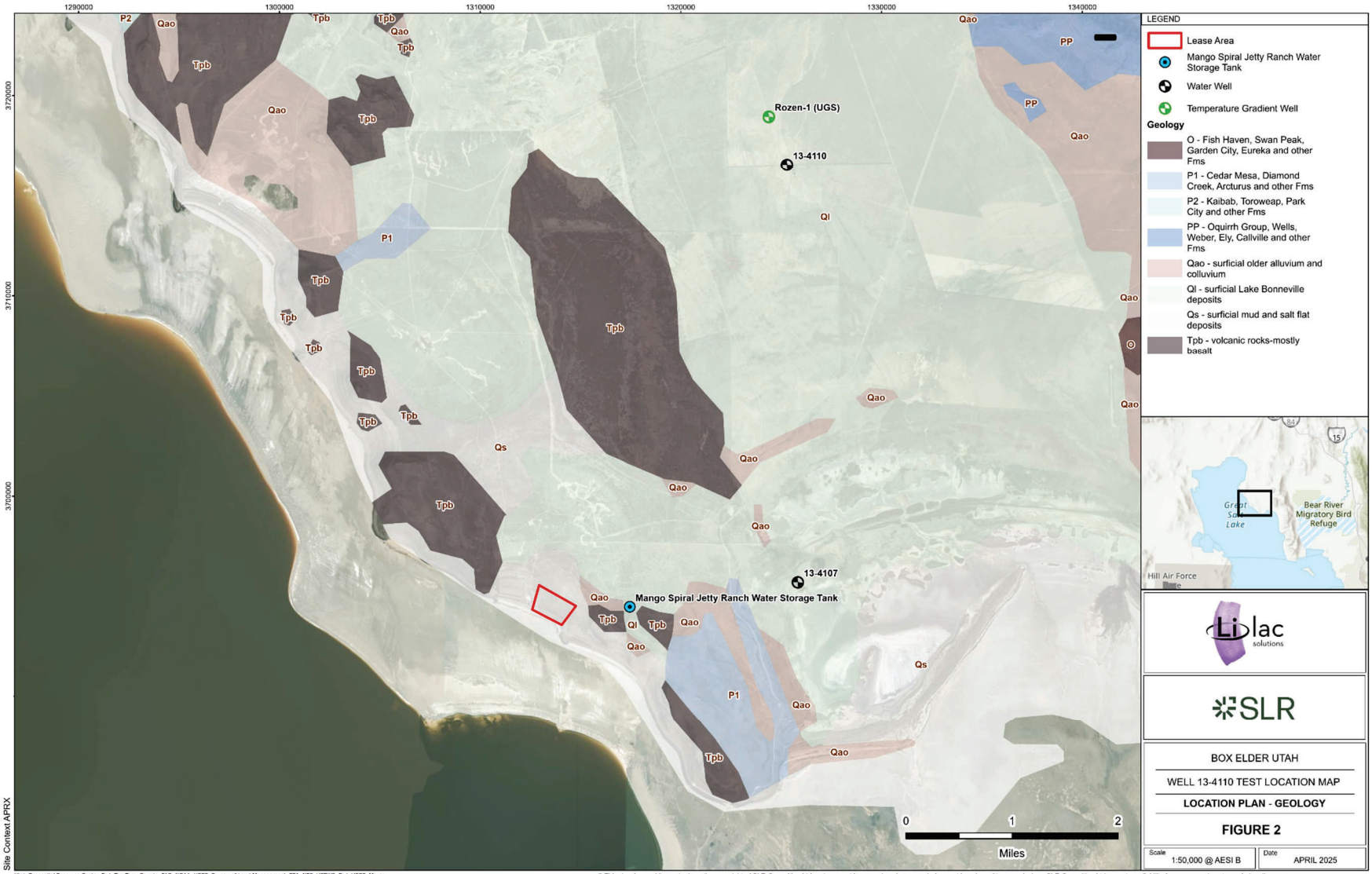


Utah Geospatial Resource Center, Esri, TomTom, Garmin, FAO, NOAA, USGS, Bureau of Land Management, EPA, NPS, USFWS, Esri, USGS, Maxar
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FIGURE 2

Well 13-4110 Location Map with Surface Geology & Aerial Photo



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FIGURE 3

Well 13-4110 Well 24-Hr Pumping Test Water Level & Production Rate Plot

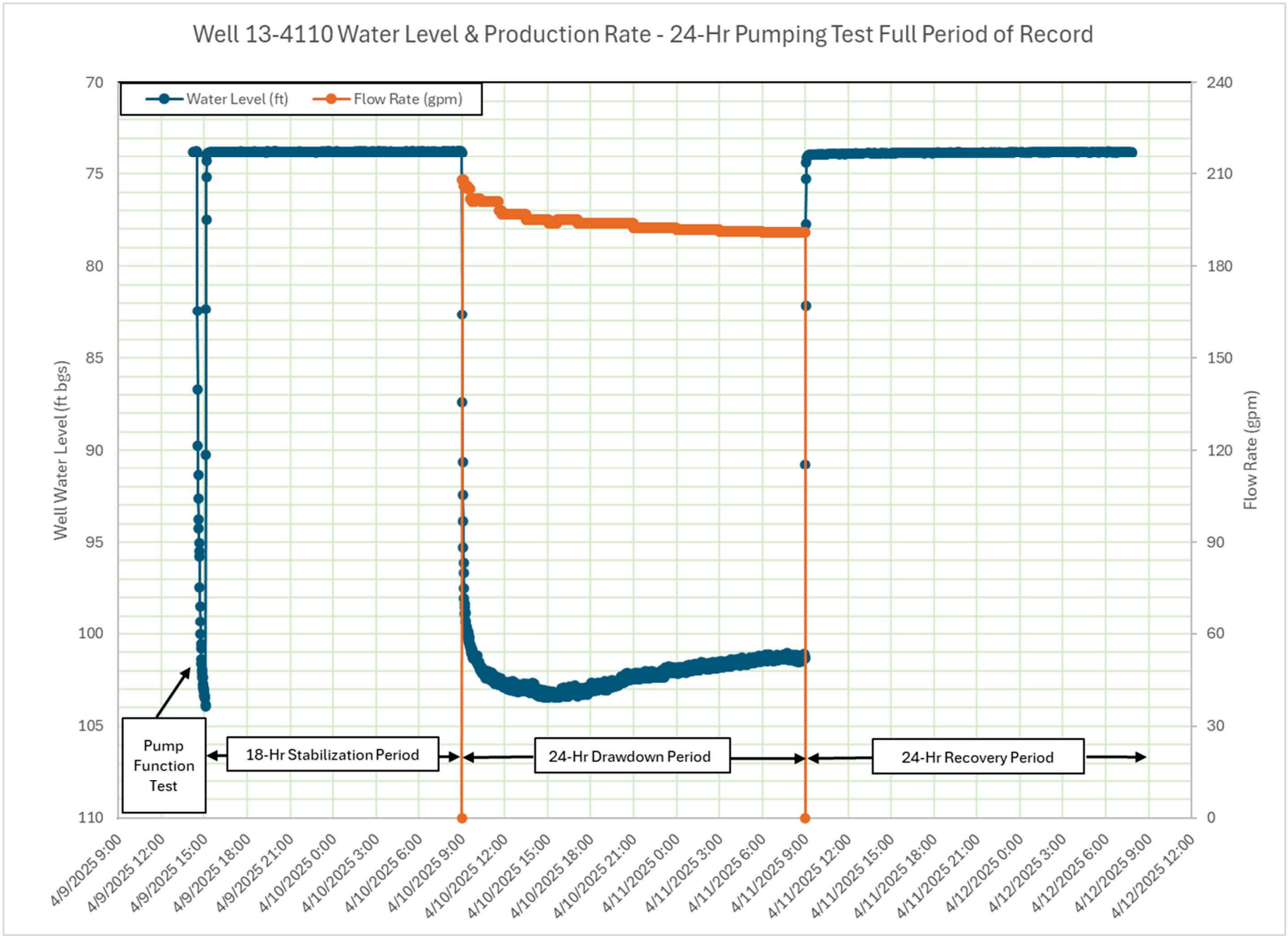

Well 13-4110 Water Level & Production Rate - 24-Hr Pumping Test Full Period of Record
Water Level (ft)
Flow Rate (gpm)
Well Water Level (ft bgs)
Flow Rate (gpm)
70
75
80
85
90
95
100
105
110
240
210
180
150
120
90
60
30
0
Pump Function Test
18-Hr Stabilization Period
24-Hr Drawdown Period
24-Hr Recovery Period
4/9/2025 9:00
4/9/2025 12:00
4/9/2025 15:00
4/9/2025 18:00
4/9/2025 21:00
4/10/2025 0:00
4/10/2025 3:00
4/10/2025 6:00
4/10/2025 9:00
4/10/2025 12:00
4/10/2025 15:00
4/10/2025 18:00
4/10/2025 21:00
4/11/2025 0:00
4/11/2025 3:00
4/11/2025 6:00
4/11/2025 9:00
4/11/2025 12:00
4/11/2025 15:00
4/11/2025 18:00
4/11/2025 21:00
4/12/2025 0:00
4/12/2025 3:00
4/12/2025 6:00
4/12/2025 9:00
4/12/2025 12:00

FIGURE 4

Well 13-4110 Well 24-Hr Pumping Test Recovery Plot, 0-15 Minutes

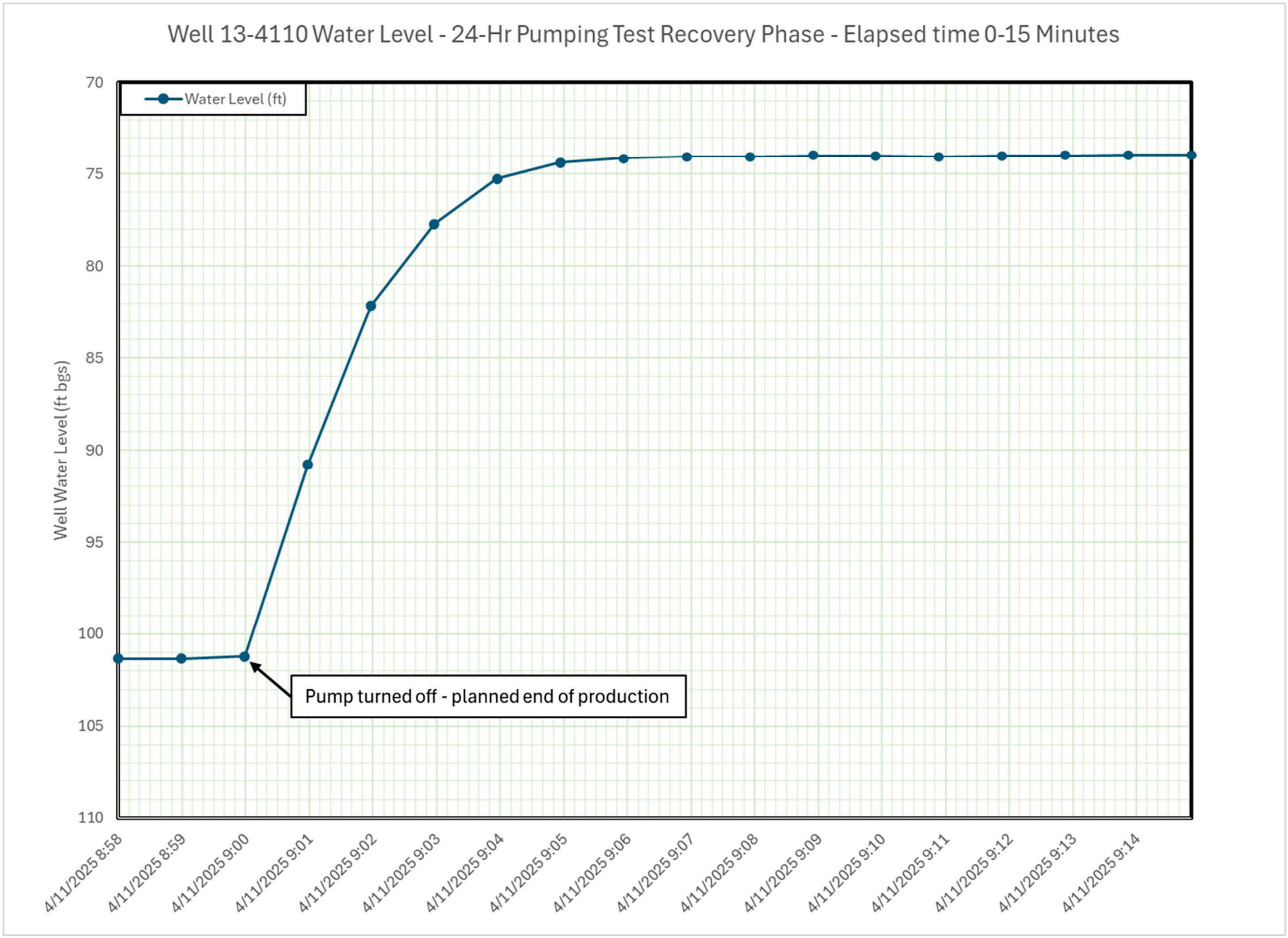
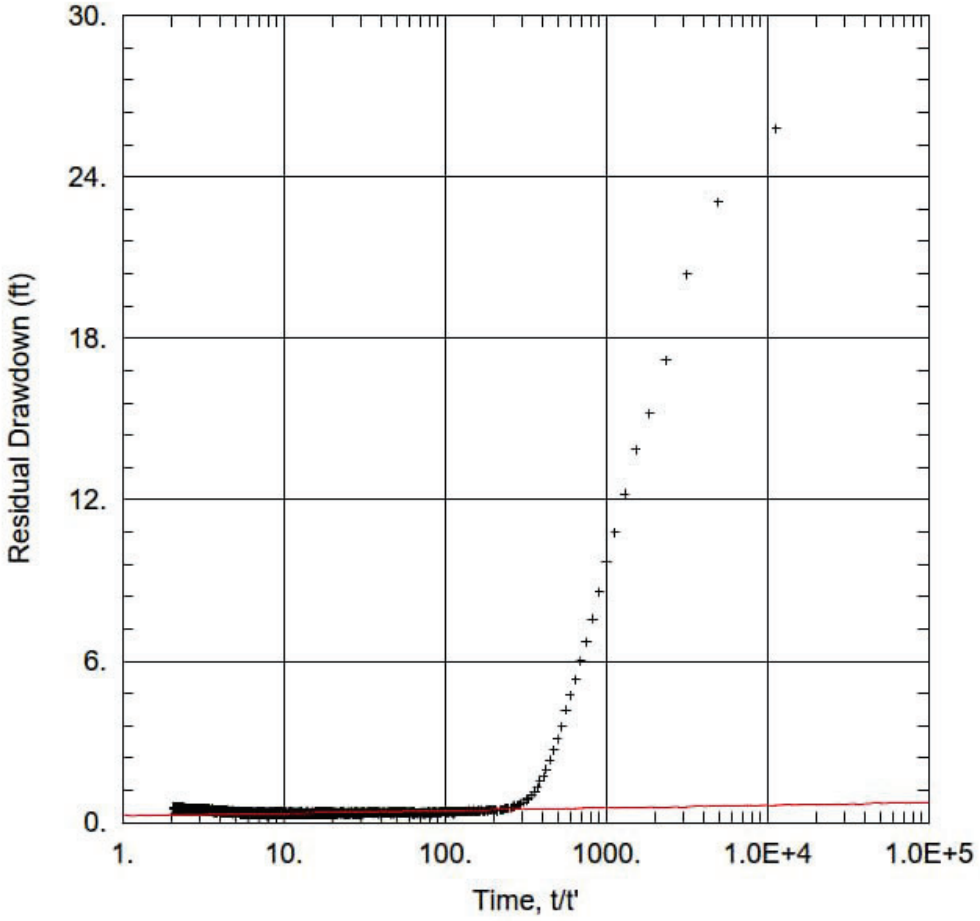

Well 13-4110 Water Level - 24-Hr Pumping Test Recovery Phase - Elapsed time 0-15 Minutes
Water Level (ft)
Well Water Level (ft bgs)
70
75
80
85
90
95
100
105
110
Pump turned off - planned end of production
4/11/2025 8:58
4/11/2025 8:59
4/11/2025 9:00
4/11/2025 9:01
4/11/2025 9:02
4/11/2025 9:03
4/11/2025 9:04
4/11/2025 9:05
4/11/2025 9:06
4/11/2025 9:07
4/11/2025 9:08
4/11/2025 9:09
4/11/2025 9:10
4/11/2025 9:11
4/11/2025 9:12
4/11/2025 9:13
4/11/2025 9:14

FIGURE 5

13-4110 Well Test AQTSOLV Recovery Data Analysis



WELL TEST ANALYSIS

Data Set: X:\!Lilac Solutions\13-4110 Theis Recovery.aqt
Date: 04/18/25 Time: 15:51:20

PROJECT INFORMATION

Company: SLR
Client: Lilac Solutions
Location: Corinne, UT
Test Well: 13-4110
Test Date: 4/10/25 - 4/12/25

AQUIFER DATA

Saturated Thickness: 121.4 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
13-4110	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
+ 13-4110	0	0

SOLUTION

Aquifer Model: Unconfined Solution Method: Theis (Recovery)
T = 6.77E+4 ft^2/day S/S' = 0.004004

ATTACHMENT 1

Rozen-1 Lithologic Log, UGS 2012

WIN # 436281
W.R. # 1213004M00

Utah Geological Survey
Lithologic Log

Well ID: Rozel-1 TGH

Well Location: (B-09-07)04cdd / 28.2 miles W of Corinne, Utah

UTM: x 0362021 m, y 4598906 m NAD 83 N 41.529915636 W 112.65391336 (NAD 83)

~~N~~ X 483 ft, ~~E~~ W 565 ft from S 1/4 Corner, Sec 04, T 09N ~~N~~ S R 07W ~~E~~ W, SLBM ~~X~~ X

Start Date 13 Nov 2012 Completion Date 20 Nov 2012 Driller Jack Hennagan, USGS

Drilling Method: Mud/Rotary from 0 to 610 ft
Shelby Tube Core from 300 to 303 ft
Shelby Tube Core from 540 to 5433 ft

Total Depth 610 ft
Static Water Level UNK
Water Level Date
Measured From

Borehole Diameter: 7 7/8-in from 0 to 610 ft

Casing Type & Diameter: 2-in SCH 80 PVC from +0.0 to 3.0 ft
from +0.0 to 610 ft

Screen Type & Diameter: N/A from to
N/A from to

Ground Elevation: 4,343 ft (1,324 m)
Logged By: M. Gwynn/R. Blackett (UGS)
P. Galanis (USGS)

Geophysical Log [X] Yes [ ] No Other Logs: sonic, gamma, sp, resist., caliper, temp.

DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
5	------:O -----:O: ------:O -----:O: ------:O ----::::	XX| |XX XX| 8"|XX XX| |XX \/| B |\/ \/| O |\/ \/| R |\/ \/| E |\/	Ground-flush well cover cemented in with 4'x4' well pad. Annulus filled with Bentonite grout (30% solids) to TD. 7.875-in borehole to TD.	0-10': Gy-tan [10YR6/3] silty clay w/ some angular basaltic pebbles.
10	----O:O: -----:O:O	\/| |\/ \/| H |\/		10-20': Approx. 50% gy-tan silty clay. Remainder poorly sorted coarse sand and angular-well rounded <25mm pebbles of variable provenance (basalt,qtz, ls, etc.).
15	----O:O: ----:O:O	\/| O |\/ \/| L |\/		
20	----:O:O --O:O:O: :O:O:O:O	\/| E |\/ \/| |\/ \/| W |\/		20-30': Moderately sorted coarse sand and subangular-well rounded < 25mm pebbles, becoming less sorted with depth. Minimal silt and clay.
25	O:O:O:O: :O:O:O:O	\/| I |\/ \/| T |\/		
30	O:O:O:O: :O:O:O:O	\/| H |\/ \/| |\/ \/| 2"|\/		30-40': AA
35	O:O:O:O: :O:O:O:O	\/| |\/ \/| S |\/		
40	O:O:O:O: :O:O:O:O	\/| C |\/ \/| H |\/ \/| |\/		40-50': Moderately sorted coarse sand and some fine pebbles of variable provenance (most angular-subrounded and some well rounded).
45	O:O:O:O: :O:O:O:O O:O:O:O:	\/| 8 |\/ \/| 0 |\/ \/| |\/ \/| P |\/ \/| V |\/ \/| C |\/		

DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
		8" BORE HOLE		50-60': AA, except slightly more gravel.
55				
60				60-70': AA with minor tan silty clay lower in interval.
65				
70				70-80': AA, except almost no silt/clay.
75				
80				80-90': AA
85				
90				90-100': AA
95				
100				100-110': AA
105			Hard layer 106-108'	
110				110-120': AA, except slightly more pebbles.
115				
120				120-130': AA
125				
130				130-140': Pooly sorted coarse sand and angular - subrounded and angular-subangular <25mm gravel (mainly limestone). Approx. 50/50 sand/gravel.
135				
140				140-150': AA, except less gravel.
145				

DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
	o:o:o:o:	\/| | \/	Hard layer	150-160': AA in upper section with moderate qty tan
	:o:o:o:o	\/| 8" | \/	149-154'	silty sand and minor very fine sand toward bottom
	o:o:o:o:	\/| | \/		of interval.
155		\/| B | \/		
	:o:o:o::	\/| O | \/		
	o:o:o:::	\/| R | \/		
160		\/| E | \/		160-170': 60% tan silty clay. 40% Coarse sand and
	-----o:o	\/| | \/		<25mm subangular-subrounded gravel (mostly
	-----:o:	\/| H | \/		limestone).
165	-----o:o	\/| O | \/		
	-----:o:	\/| L | \/		
	-----o:o	\/| E | \/		
170		\/| | \/		170-180': AA, except 70% silty clay/30 % S&G.
	-----:o:	\/| W | \/		
	-----o:o	\/| I | \/		
175	-----:o:	\/| T | \/		
	-----o:o	\/| H | \/		
	-----:o:	\/| | \/		
180		\/| 2" | \/		180-190': Mostly tan silty clay at top with
	--------o	\/| | \/		increasing coarse sand and pebbles (mainly
	--------:	\/| S | \/		limestone) toward bottom of interval.
185	--------o	\/| C | \/		
	------o:	\/| H | \/		
	------:o	\/| | \/		190-200': 70% coarse sand and angular-subangular
190		\/| 8 | \/		pebble gravel (variable provenance). 30% tan silty
	o:o:o:--	\/| 0 | \/		clay.
	:o:o:o--	\/| | \/		
195	o:o:o:--	\/| P | \/		
	:o:o:o--	\/| V | \/		
	o:o:o:--	\/| C | \/		
200		\/| | \/		200-210': AA
	:o:o:o--	\/| | \/		
	o:o:o:--	\/| | \/		
205	:o:o:o--	\/| | \/		
		\/| | \/		
	o:o:o:--	\/| | \/		
	:o:o:o--	\/| | \/		
210		\/| | \/		210-220': 50/50 mix of S&G/silty clay as described
	o:o:----	\/| | \/		above.
	:o:o----	\/| | \/		
215	o:o:----	\/| | \/		
		\/| | \/		
	:o:o----	\/| | \/		
	o:o:----	\/| | \/		
220		\/| | \/		220-230': 75/25 mix of silty clay/S&G as described
	-----:o:	\/| | \/		above.
	-----o:o	\/| | \/		
225	-----:o:	\/| | \/		
		\/| | \/		
	-----o:o	\/| | \/		
	-----:o:	\/| | \/		
230		\/| | \/		230-240': 80% tan silty clay and some fine-medium
	-----o:o	\/| | \/		sand. 20% coarse sand and minor pebble gravel.
	-----:o:	\/| | \/		
235	-----o:o	\/| | \/		
		\/| | \/		
	-----:o:	\/| | \/		
	-----o:o	\/| | \/		
240		\/| | \/		240-250': AA, except slight increase in <25mm
	-----:o:	\/| | \/		pebble gavel.
	-----o:o	\/| | \/		
245	----o:o:	\/| | \/		
	-----o:o	\/| | \/		
	-----:o:			

DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
	-----o:o	\/| |\/		250-260': AA
	-----:o:	\/| 8"|\/		
255	-----o:o	\/| |\/		
	-----:o:	\/| B |\/		
	------:o	\/| O |\/		
260	-------:	\/| R |\/		260-270': 90% silty clay (60% lt gray-tan/40% tan).
	-------:	\/| E |\/		10% fine-coarse sand.
	-------:	\/| |\/		
265	-------:	\/| H |\/		
	-------:	\/| O |\/		
	-------:	\/| L |\/		
270	-------:	\/| E |\/		
	-------:	\/| |\/		270-280': AA, except clay is 60% lt gray/20% dk
	-------:	\/| W |\/		gray/20% tan.
275	-------:	\/| I |\/		
	-------:	\/| T |\/		
	-------:	\/| H |\/		
280	-------:	\/| |\/		280-290': Lt gray-tan silty clay.
	--------	\/| 2"|\/		
	--------	\/| |\/		
285	--------	\/| S |\/		
	--------	\/| C |\/		
	--------	\/| H |\/		
290	--------	\/| |\/		290-300': AA
	--------	\/| 8 |\/		End of sampling/decriptions by M.Gwynn. Begin
	--------	\/| 0 |\/		sampling by P. Galanis and descriptions by R.
295	--------	\/| |\/		Blackett. End 13 Nov 12 drilling.
	--------	\/| P |\/		
	--------	\/| V |\/		
300	--------	\/| C |\/	100% core	300-310': Pea gravel and clay, lt tan.
	o:o:----	\/| |\/	recovery	Begin 14 Nov 12 drilling.
	:o:o----	\/| |\/	300-303'	
305	o:o:----	\/| |\/		
	:o:o----	\/| |\/		
	o:o:----	\/| |\/		
310	:o:o----	\/| |\/		310-320': AA
	o:o:----	\/| |\/		
315	:o:o----	\/| |\/		
	o:o:----	\/| |\/		
	:o:o----	\/| |\/		
320	o:o:----	\/| |\/		320-330': AA
	:o:o----	\/| |\/		
325	o:o:----	\/| |\/		
	:o:o----	\/| |\/		
	o:o:----	\/| |\/		
330	:o:o----	\/| |\/		330-340': AA
	o:o:----	\/| |\/		
335	:o:o----	\/| |\/		
	o:o:----	\/| |\/		
	:o:o----	\/| |\/		
340	o:o:----	\/| |\/		340-350': AA
	:o:o----	\/| |\/		
345	o:o:----	\/| |\/		
	:o:o----	\/| |\/		
	o:o:----			

DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
	o:o:----	\/| | \/		350-360': AA
	:o:o----	\/| 8" | \/		
355	o:o:----	\/| | \/		
	:o:o----	\/| B | \/		
	o:o:----	\/| O | \/		
360	:o:o----	\/| R | \/		360-370': AA
	o:o:----	\/| E | \/		
365	:o:o----	\/| H | \/		
	o:o:----	\/| O | \/		
	:o:o----	\/| L | \/		
370	o:o:----	\/| E | \/		370-380': AA
	:o:o----	\/| | \/		
375	o:o:----	\/| W | \/		
	:o:o----	\/| I | \/		
	o:o:----	\/| T | \/		
380	::::::::	\/| H | \/		380-390': Coarse sand.
	::::::::	\/| | \/		
385	::::::::	\/| 2" | \/		
	::::::::	\/| | \/		
	::::::::	\/| S | \/		
390	||||||||	\/| C | \/		390-400': Basalt, black chips, possible cinders/ debris.
	||||||||	\/| H | \/		
395	||||||||	\/| | \/		
	||||||||	\/| 8 | \/		
	||||||||	\/| 0 | \/		
400	||||||||	\/| | \/		400-410': AA
	||||||||	\/| P | \/		
	||||||||	\/| V | \/		
405	||||||||	\/| C | \/		
	||||||||	\/| | \/		
	||||||||	\/| | \/		
410	||||||||	\/| | \/		410-420': AA
	||||||||	\/| | \/		Begin sampling/descriptions by R. Blackett.
	||||||||	\/| | \/		
415	||||||||	\/| | \/		
	||||||||	\/| | \/		
	||||||||	\/| | \/		
420	||||||||	\/| | \/		420-430': Basalt, black chips, clay with some gravel with mixed clasts.
	||||||||	\/| | \/		
	||||||||	\/| | \/		Begin 15 Nov 12 drilling.
425	||||||||	\/| | \/		
	||||||||	\/| | \/		
	||||||||	\/| | \/		
430	||||||||	\/| | \/		430-440': Basalt, black chips with pebbles.
	||||||||	\/| | \/		
	||||||||	\/| | \/		
435	||||||||	\/| | \/		
	||||||||	\/| | \/		
	||||||||	\/| | \/		
440	||||||||	\/| | \/		440-450': Basalt, chips with black and brown clasts.
	||||||||	\/| | \/		
	||||||||	\/| | \/		
445	||||||||	\/| | \/		
	||||||||	\/| | \/		
	||||||||	\/| | \/		

DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
		8" BORE HOLE		450-460': Basalt, chips with black and brown clasts. Lt tan-red bown clay.
455				
				460-470': Basalt, chips, black with mixed lithic fragments (~20%).
460				
465				
				470-480': Basalt/clay, chips with lithic fragments and lt tan clay (~40%).
470				
475				
				480-490': Sand and lt tan clay, very coarse with some basalt pebbles and lithic fragments.
480				
485				
				490-500': AA
490				
495				
				500-510': Sand/gravel/clay, sand coarse grained, gravel mixed lithologies.
500				
505				
				510-520': Clay/sand/gravel, clay-lt tan, ~50%.
510				
515				
				520-530': Clay/sand/gravel, clay lt tan, ~70%.
520				
525				
				530-540': Clay/sand/gravel, clay lt tan, ~20%.
530				
535				
			100% core recovery 540-543'	540-548': Sand/gravel, with minor clay Begin 16 Nov 12 drilling.
540				
545				
				548'-558' Clay, lt tan to wh, minor sand/pebbles.

DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
555	------:o ------o: ------:o ------o: --I---I- ----I--- --I---I- ----I--- --I---I- ----I--- --I---I- ----I--- --I---I- ----I--- --I---Io ----I--o --I---Io ----I--o --I---Io ----I--o --I---Io I---I--o --I---Io I---I-oo --I---Io I---I-oo --I---Io I---I-oo	\/| 8"|\/ \/| |\/ \/| B |\/ \/| O |\/ \/| R |\/ \/| E |\/ \/| |\/ \/| H |\/ \/| O |\/ \/| L |\/ \/| E |\/ \/| |\/ \/| W |\/ \/| I |\/ \/| T |\/ \/| H |\/ \/| |\/ \/| 2"|\/ \/| |\/ \/| S |\/ \/| C |\/ \/| H |\/ \/| |\/ \/| 8 |\/ \/| 0 |\/ \/| |\/ \/| P |\/ \/| V |\/ \/| C |\/ \/| |\/ \/| |\/ \/| |\/ \/| |\/ \/| |\/		558'-568': Clay, lt. tan with white marl(?). 568'-578': Marl/clay, white to tan. 578'-588': Clay/marl/gravel. 588'-598': AA 598'-610': Gravel/marl, gravel consists of basalt pebbles and mixed lithologies, marl - white, indurated. Total Depth - 610 feet (1324 m)
610				
615				
620				
625				
630				
635				
640				
645				

ATTACHMENT 2

Well 13-4110 Groundwater Sample Analytical Laboratory Report, ACZ Labs 4/30/2025 L94016

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

April 30, 2025

Report to:
Landon Beck
SLR International Corporation
22118 20th Avenue SE
Suite G-202
Bothell, WA 98021

Bill to:
Accounts Payable
SLR International Corporation
2175 N California Blvd

Walnut Creek, CA 94596

Project ID:
ACZ Project ID: L94016

Landon Beck:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on April 12, 2025. This project has been assigned to ACZ's project number, L94016. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L94016. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after May 30, 2025. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

Mark McNeal

Mark McNeal has reviewed and approved this report.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

SLR International Corporation
Project ID:
Sample ID: 13-4110

ACZ Sample ID: ***L94016-01***
Date Sampled: *04/11/25 08:45*
Date Received: *04/12/25*
Sample Matrix: *Groundwater*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Lab Filtration (0.45um) & Acidification	EPA 200.7/200.8/3005A Filter								04/16/25 10:10	smw

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	EPA 200.7	2	<0.14	U		mg/L	0.14	0.5	04/22/25 19:27	wtc
Arsenic, dissolved	EPA 200.8	1	0.00133			mg/L	0.0002	0.001	04/21/25 14:27	gjl
Barium, dissolved	EPA 200.7	1	0.0573			mg/L	0.009	0.035	04/21/25 17:33	msp
Boron, dissolved	EPA 200.7	1	0.295			mg/L	0.03	0.1	04/21/25 17:33	msp
Cadmium, dissolved	EPA 200.8	1	<0.00005	U		mg/L	0.00005	0.00025	04/21/25 14:27	gjl
Calcium, dissolved	EPA 200.7	1	82.9			mg/L	0.1	0.5	04/21/25 17:33	msp
Chromium, dissolved	EPA 200.8	1	0.00108	B		mg/L	0.0005	0.002	04/21/25 14:27	gjl
Copper, dissolved	EPA 200.8	2	0.00812			mg/L	0.0016	0.004	04/22/25 15:19	jrj
Iron, dissolved	EPA 200.7	1	<0.06	U		mg/L	0.06	0.15	04/21/25 17:33	msp
Lead, dissolved	EPA 200.8	1	<0.0001	U		mg/L	0.0001	0.0005	04/21/25 14:27	gjl
Magnesium, dissolved	EPA 200.7	1	35.2			mg/L	0.2	1	04/21/25 17:33	msp
Manganese, dissolved	EPA 200.7	1	0.065			mg/L	0.01	0.05	04/21/25 17:33	msp
Mercury, dissolved	EPA 245.1	1	<0.0002	U		mg/L	0.0002	0.001	04/17/25 11:35	rjw
Molybdenum, dissolved	EPA 200.8	1	0.00240			mg/L	0.0002	0.0005	04/21/25 14:27	gjl
Nickel, dissolved	EPA 200.7	1	<0.008	U		mg/L	0.008	0.04	04/21/25 17:33	msp
Potassium, dissolved	EPA 200.7	1	27.6			mg/L	0.5	1	04/21/25 17:33	msp
Selenium, dissolved	EPA 200.8	1	0.00244			mg/L	0.0001	0.00025	04/21/25 14:27	gjl
Silver, dissolved	EPA 200.8	1	<0.0001	U		mg/L	0.0001	0.0005	04/21/25 14:27	gjl
Sodium, dissolved	EPA 200.7	1	884			mg/L	0.2	1	04/21/25 17:33	msp
Uranium, dissolved	EPA 200.8	1	0.00274			mg/L	0.0001	0.0005	04/21/25 14:27	gjl
Zinc, dissolved	EPA 200.7	1	0.119			mg/L	0.02	0.05	04/21/25 17:33	msp

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

SLR International Corporation
Project ID:
Sample ID: 13-4110

ACZ Sample ID: ***L94016-01***
Date Sampled: *04/11/25 08:45*
Date Received: *04/12/25*
Sample Matrix: *Groundwater*

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM 2320 B-2011									
Bicarbonate as CaCO3		1	174			mg/L	2	20	04/16/25 0:00	asn
Carbonate as CaCO3		1	7.1	B		mg/L	2	20	04/16/25 0:00	asn
Hydroxide as CaCO3		1	<2	U		mg/L	2	20	04/16/25 0:00	asn
Total Alkalinity		1	181			mg/L	2	20	04/16/25 0:00	asn
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-6.9			%			04/30/25 0:00	calc
Sum of Anions			54			meq/L			04/30/25 0:00	calc
Sum of Cations			47			meq/L			04/30/25 0:00	calc
Chloride	SM 4500-Cl E-2011	100	1700			mg/L	100	200	04/21/25 14:59	jqr
Fluoride	SM 4500-F C-2011	1	0.70			mg/L	0.15	0.35	04/30/25 14:36	emk
Hardness as CaCO3 (dissolved)	Calculation (SM 2340 B-2011)		352			mg/L	0.2	5	04/30/25 0:00	calc
Lab Filtration (0.45um filter)	SOPWC050	1							04/15/25 10:17	cob
Nitrate as N	Calculation (NO3NO2-NO2)		1.31			mg/L	0.02	0.1	04/30/25 0:00	calc
Nitrate/Nitrite as N	EPA 353.2	1	1.31		*	mg/L	0.02	0.1	04/13/25 0:01	pjb
Nitrite as N	EPA 353.2	1	<0.01	U	*	mg/L	0.01	0.05	04/13/25 0:01	pjb
Nitrogen, ammonia	EPA 350.1	1	<0.1	U	*	mg/L	0.1	0.2	04/24/25 12:54	gfm
pH (lab)	SM 4500-H+ B-2011									
pH		1	8.2	H		units	0.1	0.1	04/16/25 0:00	asn
pH measured at		1	21.6			C	0.1	0.1	04/16/25 0:00	asn
Residue, Filterable (TDS) @180C	SM 2540 C-2011	1	2890			mg/L	20	40	04/17/25 9:53	asn
Sodium Adsorption Ratio in Water	USGS - I1738-78		21						04/30/25 0:00	calc
Sulfate	ASTM D516-07/-11/-16	5	105		*	mg/L	5	25	04/21/25 13:23	jqr

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(4) EPA SW-846. Test Methods for Evaluating Solid Waste.
(5) Standard Methods for the Examination of Water and Wastewater.

Comments

(1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3) Animal matrices for Inorganic analyses are reported on an "as received" basis.
(4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(5) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click:
https://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf

REP001.03.15.02

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

SLR

ACZ Project ID: ***L94016***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609519													
WG609519LCSW3	LCSW	04/15/25 16:29	WC250325-1	820.0001		788.3	mg/L	96	90	110			
WG609519PBW2	PBW	04/15/25 18:39				U	mg/L		-20	20			
WG609519LCSW9	LCSW	04/15/25 22:08	WC250325-1	820.0001		801	mg/L	98	90	110			
WG609519PBW3	PBW	04/15/25 22:19				U	mg/L		-20	20			
WG609519LCSW12	LCSW	04/16/25 2:35	WC250325-1	820.0001		803.2	mg/L	98	90	110			
WG609519PBW4	PBW	04/16/25 2:46				3.3	mg/L		-20	20			
L94029-02DUP	DUP	04/16/25 5:52			55.9	55	mg/L				2	20	
WG609519LCSW15	LCSW	04/16/25 6:14	WC250325-1	820.0001		809.2	mg/L	99	90	110			

Aluminum, dissolved EPA 200.7

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609952													
WG609952ICV	ICV	04/22/25 19:06	II250324-1	2		2.01	mg/L	101	95	105			
WG609952ICB	ICB	04/22/25 19:08				U	mg/L		-0.21	0.21			
WG609952LFB	LFB	04/22/25 19:16	II250416-4	1.0025		.987	mg/L	98	85	115			
L93992-01AS	AS	04/22/25 19:22	II250416-4	1.0025	U	.967	mg/L	96	85	115			
L93992-01ASD	ASD	04/22/25 19:24	II250416-4	1.0025	U	.978	mg/L	98	85	115	1	20	

Arsenic, dissolved EPA 200.8

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609817													
WG609817ICV	ICV	04/21/25 13:20	MS250314-4	.05		.05227	mg/L	105	90	110			
WG609817ICB	ICB	04/21/25 13:22				U	mg/L		-0.00044	0.00044			
WG609817LFB	LFB	04/21/25 13:24	MS250421-2	.0501		.04822	mg/L	96	85	115			
L93992-01AS	AS	04/21/25 14:21	MS250421-2	.0501	.00162	.05461	mg/L	106	70	130			
L93992-01ASD	ASD	04/21/25 14:23	MS250421-2	.0501	.00162	.05255	mg/L	102	70	130	4	20	

Barium, dissolved EPA 200.7

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609897													
WG609897ICV	ICV	04/21/25 16:53	II250324-1	2		1.94	mg/L	97	95	105			
WG609897ICB	ICB	04/21/25 16:55				U	mg/L		-0.027	0.027			
WG609897LFB	LFB	04/21/25 17:03	II250416-4	.501		.513	mg/L	102	85	115			
L94102-07AS	AS	04/21/25 17:52	II250416-4	.501	.0522	.535	mg/L	96	85	115			
L94102-07ASD	ASD	04/21/25 17:54	II250416-4	.501	.0522	.526	mg/L	95	85	115	2	20	

Boron, dissolved EPA 200.7

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609897													
WG609897ICV	ICV	04/21/25 16:53	II250324-1	2		2	mg/L	100	95	105			
WG609897ICB	ICB	04/21/25 16:55				U	mg/L		-0.09	0.09			
WG609897LFB	LFB	04/21/25 17:03	II250416-4	.5005		.525	mg/L	105	85	115			
L94102-07AS	AS	04/21/25 17:52	II250416-4	.5005	U	.499	mg/L	100	85	115			
L94102-07ASD	ASD	04/21/25 17:54	II250416-4	.5005	U	.506	mg/L	101	85	115	1	20	

ACZ Laboratories, Inc.
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Inorganic QC Summary

SLR

ACZ Project ID: ***L94016***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Cadmium, dissolved EPA 200.8

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609817													
WG609817ICV	ICV	04/21/25 13:20	MS250314-4	.05		.052865	mg/L	106	90	110			
WG609817ICB	ICB	04/21/25 13:22				U	mg/L		-0.00011	0.00011			
WG609817LFB	LFB	04/21/25 13:24	MS250421-2	.05005		.046462	mg/L	93	85	115			
L93992-01AS	AS	04/21/25 14:21	MS250421-2	.05005	U	.053084	mg/L	106	70	130			
L93992-01ASD	ASD	04/21/25 14:23	MS250421-2	.05005	U	.05036	mg/L	101	70	130	5	20	

Calcium, dissolved EPA 200.7

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609897													
WG609897ICV	ICV	04/21/25 16:53	II250324-1	100		98.2	mg/L	98	95	105			
WG609897ICB	ICB	04/21/25 16:55				U	mg/L		-0.3	0.3			
WG609897LFB	LFB	04/21/25 17:03	II250416-4	68.16417		69.7	mg/L	102	85	115			
L94102-07AS	AS	04/21/25 17:52	II250416-4	68.16417	6.09	76	mg/L	103	85	115			
L94102-07ASD	ASD	04/21/25 17:54	II250416-4	68.16417	6.09	75	mg/L	101	85	115	1	20	

Chloride SM 4500-Cl E-2011

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609878													
WG609878ICV	ICV	04/21/25 10:16	WI250102-6	40		37.92	mg/L	95	90	110			
WG609878ICB	ICB	04/21/25 10:16				U	mg/L						
WG609878LFB	LFB	04/21/25 14:19	WI250418-2	20		20.59	mg/L	103	90	110			
L94125-05AS	AS	04/21/25 14:39	WI250418-2	20	10.3	29.67	mg/L	97	90	110			
L94125-05ASD	ASD	04/21/25 14:41	WI250418-2	20	10.3	29.85	mg/L	98	90	110	1	20	

Chromium, dissolved EPA 200.8

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609817													
WG609817ICV	ICV	04/21/25 13:20	MS250314-4	.05		.05295	mg/L	106	90	110			
WG609817ICB	ICB	04/21/25 13:22				U	mg/L		-0.0011	0.0011			
WG609817LFB	LFB	04/21/25 13:24	MS250421-2	.05005		.04704	mg/L	94	85	115			
L93992-01AS	AS	04/21/25 14:21	MS250421-2	.05005	.00124	.04919	mg/L	96	70	130			
L93992-01ASD	ASD	04/21/25 14:23	MS250421-2	.05005	.00124	.04703	mg/L	91	70	130	4	20	

Copper, dissolved EPA 200.8

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609957													
WG609957ICV	ICV	04/22/25 14:48	MS250314-4	.05		.05112	mg/L	102	90	110			
WG609957ICB	ICB	04/22/25 14:50				U	mg/L		-0.00176	0.00176			
WG609957LFB	LFB	04/22/25 14:52	MS250421-2	.05005		.05114	mg/L	102	85	115			
L94082-01AS	AS	04/22/25 15:32	MS250421-2	.05005	.00387	.05087	mg/L	94	70	130			
L94082-01ASD	ASD	04/22/25 15:33	MS250421-2	.05005	.00387	.05093	mg/L	94	70	130	0	20	

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Inorganic QC Summary

SLR

ACZ Project ID: ***L94016***

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Fluoride SM 4500-F C-2011

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG610422													
WG610422ICV	ICV	04/30/25 14:15	WC250417-1	2		2.13	mg/L	107	90	110			
WG610422ICB	ICB	04/30/25 14:20				U	mg/L		-0.3	0.3			
WG610422LFB	LFB	04/30/25 14:32	WC241104-8	5		5.23	mg/L	105	90	110			
L94016-01AS	AS	04/30/25 14:40	WC241104-8	5	.7	5.52	mg/L	96	90	110			
L94016-01ASD	ASD	04/30/25 14:48	WC241104-8	5	.7	5.57	mg/L	97	90	110	1	20	

Iron, dissolved EPA 200.7

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609897													
WG609897ICV	ICV	04/21/25 16:53	II250324-1	2		1.97	mg/L	99	95	105			
WG609897ICB	ICB	04/21/25 16:55				U	mg/L		-0.18	0.18			
WG609897LFB	LFB	04/21/25 17:03	II250416-4	1.003		1.06	mg/L	106	85	115			
L94102-07AS	AS	04/21/25 17:52	II250416-4	1.003	.105	1.08	mg/L	97	85	115			
L94102-07ASD	ASD	04/21/25 17:54	II250416-4	1.003	.105	1.07	mg/L	96	85	115	1	20	

Lead, dissolved EPA 200.8

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609817													
WG609817ICV	ICV	04/21/25 13:20	MS250314-4	.05		.05368	mg/L	107	90	110			
WG609817ICB	ICB	04/21/25 13:22				U	mg/L		-0.00022	0.00022			
WG609817LFB	LFB	04/21/25 13:24	MS250421-2	.05005		.04694	mg/L	94	85	115			
L93992-01AS	AS	04/21/25 14:21	MS250421-2	.05005	U	.05291	mg/L	106	70	130			
L93992-01ASD	ASD	04/21/25 14:23	MS250421-2	.05005	U	.05077	mg/L	101	70	130	4	20	

Magnesium, dissolved EPA 200.7

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609897													
WG609897ICV	ICV	04/21/25 16:53	II250324-1	100		96.6	mg/L	97	95	105			
WG609897ICB	ICB	04/21/25 16:55				U	mg/L		-0.6	0.6			
WG609897LFB	LFB	04/21/25 17:03	II250416-4	49.97249		49.7	mg/L	99	85	115			
L94102-07AS	AS	04/21/25 17:52	II250416-4	49.97249	1.4	51.3	mg/L	100	85	115			
L94102-07ASD	ASD	04/21/25 17:54	II250416-4	49.97249	1.4	50.3	mg/L	98	85	115	2	20	

Manganese, dissolved EPA 200.7

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609897													
WG609897ICV	ICV	04/21/25 16:53	II250324-1	2		1.95	mg/L	98	95	105			
WG609897ICB	ICB	04/21/25 16:55				U	mg/L		-0.03	0.03			
WG609897LFB	LFB	04/21/25 17:03	II250416-4	.504		.52	mg/L	103	85	115			
L94102-07AS	AS	04/21/25 17:52	II250416-4	.504	.013	.512	mg/L	99	85	115			
L94102-07ASD	ASD	04/21/25 17:54	II250416-4	.504	.013	.501	mg/L	97	85	115	2	20	

ACZ Laboratories, Inc.
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Inorganic QC Summary

SLR

ACZ Project ID: ***L94016***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Mercury, dissolved EPA 245.1

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609652													
WG609652ICV	ICV	04/17/25 10:33	HG250303-3	.00501		.00519	mg/L	104	90	110			
WG609652ICB	ICB	04/17/25 10:34				U	mg/L		-0.0006	0.0006			
WG609650													
WG609650LRB	LRB	04/17/25 11:24				U	mg/L		-0.00044	0.00044			
WG609650LFB	LFB	04/17/25 11:25	HG250416-6	.002002		.00201	mg/L	100	85	115			
L85479-67LFM	LFM	04/17/25 11:29	HG250416-6	.002002	U	.00204	mg/L	102	85	115			
L85479-67LFMD	LFMD	04/17/25 11:30	HG250416-6	.002002	U	.00204	mg/L	102	85	115	0	20	

Molybdenum, dissolved EPA 200.8

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609817													
WG609817ICV	ICV	04/21/25 13:20	MS250314-4	.02004		.02145	mg/L	107	90	110			
WG609817ICB	ICB	04/21/25 13:22				U	mg/L		-0.00044	0.00044			
WG609817LFB	LFB	04/21/25 13:24	MS250421-2	.05005		.0461	mg/L	92	85	115			
L93992-01AS	AS	04/21/25 14:21	MS250421-2	.05005	.00091	.05438	mg/L	107	70	130			
L93992-01ASD	ASD	04/21/25 14:23	MS250421-2	.05005	.00091	.05231	mg/L	103	70	130	4	20	

Nickel, dissolved EPA 200.7

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609897													
WG609897ICV	ICV	04/21/25 16:53	II250324-1	2.004		1.91	mg/L	95	95	105			
WG609897ICB	ICB	04/21/25 16:55				U	mg/L		-0.024	0.024			
WG609897LFB	LFB	04/21/25 17:03	II250416-4	.5005		.506	mg/L	101	85	115			
L94102-07AS	AS	04/21/25 17:52	II250416-4	.5005	U	.477	mg/L	95	85	115			
L94102-07ASD	ASD	04/21/25 17:54	II250416-4	.5005	U	.473	mg/L	95	85	115	1	20	

Nitrate/Nitrite as N EPA 353.2

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609388													
WG609388ICV	ICV	04/12/25 23:49	WI250408-7	2.4161		2.555	mg/L	106	90	110			
WG609388ICB	ICB	04/12/25 23:50				U	mg/L		-0.02	0.02			
WG609388LFB	LFB	04/12/25 23:54	WI250201-3	2		2.011	mg/L	101	90	110			
L94013-01DUP	DUP	04/13/25 0:00			.142	.129	mg/L				10	20	RA
L94012-01AS	AS	04/13/25 0:04	WI250201-3	40	30.6	70.312	mg/L	99	90	110			

Nitrite as N EPA 353.2

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609388													
WG609388ICV	ICV	04/12/25 23:49	WI250408-7	.6089		.603	mg/L	99	90	110			
WG609388ICB	ICB	04/12/25 23:50				U	mg/L		-0.01	0.01			
WG609388LFB	LFB	04/12/25 23:54	WI250201-3	1		1.012	mg/L	101	90	110			
L94012-01AS	AS	04/12/25 23:56	WI250201-3	1	.024	1.038	mg/L	101	90	110			
L94013-01DUP	DUP	04/13/25 0:00			.013	.011	mg/L				17	20	RA

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Inorganic QC Summary

SLR

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Nitrogen, ammonia EPA 350.1

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG610098													
WG610098ICV	ICV	04/24/25 11:30	WI250401-3	11.988		11.804	mg/L	98	90	110			
WG610098ICB	ICB	04/24/25 11:32				U	mg/L		-0.1	0.1			
WG610107													
WG610107LFB	LFB	04/24/25 12:34	WI241105-4	10		10.777	mg/L	108	90	110			
L93984-01AS	AS	04/24/25 12:37	WI241105-4	10	U	10.483	mg/L	105	90	110			
L93984-02DUP	DUP	04/24/25 12:40			U	U	mg/L				0	20	RA

pH (lab) SM4500H+ B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609519													
WG609519LCSW1	LCSW	04/15/25 16:23	PCN626571	6		6.1	units	102	5.9	6.1			
WG609519LCSW4	LCSW	04/15/25 18:28	PCN626571	6		6.1	units	102	5.9	6.1			
WG609519LCSW7	LCSW	04/15/25 22:02	PCN626571	6		6.1	units	102	5.9	6.1			
WG609519LCSW10	LCSW	04/16/25 2:29	PCN626571	6		6.1	units	102	5.9	6.1			
L94029-02DUP	DUP	04/16/25 5:52			9.5	9.5	units				0	20	
WG609519LCSW13	LCSW	04/16/25 6:08	PCN626571	6		6.1	units	102	5.9	6.1			

Potassium, dissolved EPA 200.7

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609897													
WG609897ICV	ICV	04/21/25 16:53	II250324-1	20		19.6	mg/L	98	95	105			
WG609897ICB	ICB	04/21/25 16:55				U	mg/L		-1.5	1.5			
WG609897LFB	LFB	04/21/25 17:03	II250416-4	100.2506		99.7	mg/L	99	85	115			
L94102-07AS	AS	04/21/25 17:52	II250416-4	100.2506	.57	100	mg/L	99	85	115			
L94102-07ASD	ASD	04/21/25 17:54	II250416-4	100.2506	.57	98.6	mg/L	98	85	115	1	20	

Residue, Filterable (TDS) @180C SM 2540 C-2011

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609671													
WG609671PBW	PBW	04/17/25 9:25				U	mg/L		-20	20			
WG609671LCSW	LCSW	04/17/25 9:29	PCN628440	1000		994	mg/L	99	90	110			
L93992-01DUP	DUP	04/17/25 9:45			692	698	mg/L				1	10	

Selenium, dissolved EPA 200.8

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609817													
WG609817ICV	ICV	04/21/25 13:20	MS250314-4	.05		.05497	mg/L	110	90	110			
WG609817ICB	ICB	04/21/25 13:22				.00014	mg/L		-0.00022	0.00022			
WG609817LFB	LFB	04/21/25 13:24	MS250421-2	.05005		.04803	mg/L	96	85	115			
L93992-01AS	AS	04/21/25 14:21	MS250421-2	.05005	.00107	.06036	mg/L	118	70	130			
L93992-01ASD	ASD	04/21/25 14:23	MS250421-2	.05005	.00107	.05704	mg/L	112	70	130	6	20	

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Inorganic QC Summary

SLR

ACZ Project ID: ***L94016***

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Silver, dissolved EPA 200.8

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609817													
WG609817ICV	ICV	04/21/25 13:20	MS250314-4	.02		.0217	mg/L	109	90	110			
WG609817ICB	ICB	04/21/25 13:22				U	mg/L		-0.00022	0.00022			
WG609817LFB	LFB	04/21/25 13:24	MS250421-2	.01		.00938	mg/L	94	85	115			
L93992-01AS	AS	04/21/25 14:21	MS250421-2	.01	U	.00904	mg/L	90	70	130			
L93992-01ASD	ASD	04/21/25 14:23	MS250421-2	.01	U	.00819	mg/L	82	70	130	10	20	

Sodium, dissolved EPA 200.7

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609897													
WG609897ICV	ICV	04/21/25 16:53	II250324-1	100		98.7	mg/L	99	95	105			
WG609897ICB	ICB	04/21/25 16:55				U	mg/L		-0.6	0.6			
WG609897LFB	LFB	04/21/25 17:03	II250416-4	100.0754		100	mg/L	100	85	115			
L94102-07AS	AS	04/21/25 17:52	II250416-4	100.0754	2	103	mg/L	101	85	115			
L94102-07ASD	ASD	04/21/25 17:54	II250416-4	100.0754	2	100	mg/L	98	85	115	3	20	

Sulfate ASTM D516-07/-11/-16

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609853													
WG609853ICV	ICV	04/21/25 10:37	WI250418-1	20.06		20.6	mg/L	103	85	115			
WG609853ICB	ICB	04/21/25 10:37				U	mg/L		-2.5	2.5			
WG609853LFB	LFB	04/21/25 13:09	WI241001-1	10		11.3	mg/L	113	85	115			
L94125-05AS	AS	04/21/25 13:47	SO4TURB5X	10	55.8	52.5	mg/L	-33	85	115			M3
L94125-05ASD	ASD	04/21/25 13:48	SO4TURB5X	10	55.8	63.9	mg/L	81	85	115	20	20	M3

Uranium, dissolved EPA 200.8

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609817													
WG609817ICV	ICV	04/21/25 13:20	MS250314-4	.05		.05221	mg/L	104	90	110			
WG609817ICB	ICB	04/21/25 13:22				U	mg/L		-0.00022	0.00022			
WG609817LFB	LFB	04/21/25 13:24	MS250421-2	.05		.04536	mg/L	91	85	115			
L93992-01AS	AS	04/21/25 14:21	MS250421-2	.05	.00383	.05891	mg/L	110	70	130			
L93992-01ASD	ASD	04/21/25 14:23	MS250421-2	.05	.00383	.05662	mg/L	106	70	130	4	20	

Zinc, dissolved EPA 200.7

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG609897													
WG609897ICV	ICV	04/21/25 16:53	II250324-1	2		1.89	mg/L	95	95	105			
WG609897ICB	ICB	04/21/25 16:55				U	mg/L		-0.06	0.06			
WG609897LFB	LFB	04/21/25 17:03	II250416-4	.50045		.5	mg/L	100	85	115			
L94102-07AS	AS	04/21/25 17:52	II250416-4	.50045	U	.521	mg/L	104	85	115			
L94102-07ASD	ASD	04/21/25 17:54	II250416-4	.50045	U	.51	mg/L	102	85	115	2	20	

ACZ **Laboratories, Inc.**
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

SLR International Corporation

ACZ Project ID: ***L94016***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L94016-01	WG609388	Nitrate/Nitrite as N	EPA 353.2	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			EPA 353.2	ZU	Analysis date/time preceeds filter date/time. A portion of sample was filtered and analyzed prior to the creation of a Filter workgroup.
		Nitrite as N	EPA 353.2	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			EPA 353.2	ZU	Analysis date/time preceeds filter date/time. A portion of sample was filtered and analyzed prior to the creation of a Filter workgroup.
	WG610107	Nitrogen, ammonia	EPA 350.1	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG609853	Sulfate	ASTM D516-07/-11/-16	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.

ACZ Laboratories, Inc.
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Organic Analytical Results

SLR International Corporation
Project ID:
Sample ID: 13-4110

ACZ Sample ID: ***L94016-01***
Date Sampled: *04/11/25 8:45*
Date Received: *04/12/25*
Sample Matrix: *Groundwater*

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: **EPA 8021B**
Extract Method: **5030C**

Workgroup: **WG609973**
Analyst: ipc
Extract Date: 04/22/25 18:11
Analysis Date: 04/22/25 18:11

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
Benzene	71-43-2	<1	U	1	*	ug/L	1	5
Ethylbenzene	100-41-4	<1	U	1	*	ug/L	1	5
m p Xylene	1330-20-7	<2	U	1	*	ug/L	2	10
o Xylene	95-47-6	<1	U	1	*	ug/L	1	5
Toluene	108-88-3	<1	U	1	*	ug/L	1	5

Surrogate Recoveries	CAS	% Recovery	Dilution	XQ	Units	LCL	UCL
Bromofluorobenzene	30135-88-7	110.6	1		%	70	130

ACZ Laboratories, Inc.
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Organic Analytical Results

SLR International Corporation
Project ID:
Sample ID: TB250314-1

ACZ Sample ID: ***L94016-02***
Date Sampled: *04/11/25 8:45*
Date Received: *04/12/25*
Sample Matrix: *Groundwater*

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: **EPA 8021B**
Extract Method: **5030C**

Workgroup: **WG609973**
Analyst: ipc
Extract Date: 04/22/25 17:38
Analysis Date: 04/22/25 17:38

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
Benzene	71-43-2	<1	U	1	*	ug/L	1	5
Ethylbenzene	100-41-4	<1	U	1	*	ug/L	1	5
m p Xylene	1330-20-7	<2	U	1	*	ug/L	2	10
o Xylene	95-47-6	<1	U	1	*	ug/L	1	5
Toluene	108-88-3	<1	U	1	*	ug/L	1	5
Surrogate Recoveries	**CAS**	**% Recovery**		**Dilution**	**XQ**	**Units**	**LCL**	**UCL**
Bromofluorobenzene	30135-88-7	110.7		1		%	70	130

ACZ Laboratories, Inc.
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Organic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
LCL	Lower Control Limit
MDL	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #4) Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
UCL	Upper Control Limit
Sample	Value of the Sample of interest

QC Sample Types

SURR	Surrogate	*LFB*	Laboratory Fortified Blank
INTS	Internal Standard	*LFM*	Laboratory Fortified Matrix
AS	Analytical Spike (Post Digestion)	*LFMD*	Laboratory Fortified Matrix Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LRB*	Laboratory Reagent Blank
DUP	Sample Duplicate	*MS/MSD*	Matrix Spike/Matrix Spike Duplicate
LCSS	Laboratory Control Sample - Soil	*PBS*	Prep Blank - Soil
LCSW	Laboratory Control Sample - Water	*PBW*	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

O	Analyte concentration is estimated due to result exceeding calibration range.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
J	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/4-90/020. Methods for the Determination of Organic Compounds in Drinking Water (I), July 1990.
(3)	EPA 600/R-92/129. Methods for the Determination of Organic Compounds in Drinking Water (II), July 1990.
(4)	EPA SW-846. Test Methods for Evaluating Solid Waste.
(5)	Standard Methods for the Examination of Water and Wastewater.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Excluding Oil & Grease, solid & biological matrices for organic analyses are reported on a wet weight basis.
(3)	An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(4)	If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click:
https://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf

ACZ Laboratories, Inc.
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Organic QC Summary

SLR International Corporation

ACZ Project ID: ***L94016***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Benzene, Toluene, Ethylbenzene & Xylenes

EPA 8021B

WG609973

AS **Sample ID: L94016-01AS** **PCN/SCN: B250325-2-ICV** **Analyzed: 04/22/25 18:44**

Compound	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
BENZENE	25.1	U	30.9	ug/L	123.0	70	130			
ETHYLBENZENE	25.1	U	32.5	ug/L	130.0	70	130			
M P XYLENE	50.2	U	62.8	ug/L	125.0	70	130			
O XYLENE	50.3	U	60.6	ug/L	120.0	70	130			
TOLUENE	75.3	U	94.3	ug/L	125.0	70	130			
BROMOFLUOROBENZENE (surr)				%	110.8	70	130			

LCSW **Sample ID: WG609973LCSW** **PCN/SCN: B250325-2-ICV** **Analyzed: 04/22/25 15:24**

Compound	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
BENZENE	25.1		26.5	ug/L	106.0	70	130			
ETHYLBENZENE	25.1		27.6	ug/L	110.0	70	130			
M P XYLENE	50.2		53.8	ug/L	107.0	70	130			
O XYLENE	50.3		52.8	ug/L	105.0	70	130			
TOLUENE	75.3		80.4	ug/L	107.0	70	130			
BROMOFLUOROBENZENE (surr)				%	110.5	70	130			

LCSWD **Sample ID: WG609973LCSWD** **PCN/SCN: B250325-2-ICV** **Analyzed: 04/22/25 15:58**

Compound	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
BENZENE	25.1		26.7	ug/L	107.0	70	130	1	20	
ETHYLBENZENE	25.1		27.9	ug/L	111.0	70	130	1	20	
M P XYLENE	50.2		54.5	ug/L	109.0	70	130	1	20	
O XYLENE	50.3		53.5	ug/L	106.0	70	130	1	20	
TOLUENE	75.3		81.1	ug/L	108.0	70	130	1	20	
BROMOFLUOROBENZENE (surr)				%	109.7	70	130			

PBW **Sample ID: WG609973PBW** **Analyzed: 04/22/25 17:05**

Compound	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
BENZENE			U	ug/L		-5	5			
ETHYLBENZENE			U	ug/L		-5	5			
M P XYLENE			U	ug/L		-10	10			
O XYLENE			U	ug/L		-5	5			
TOLUENE			U	ug/L		-5	5			
BROMOFLUOROBENZENE (surr)				%	110.8	70	130			

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Organic Extended Qualifier Report

ACZ Project ID: ***L94016***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L94016-01	WG609973	Benzene	EPA 8021B	Q9	Insufficient sample received to meet method QC requirements.
		Ethylbenzene	EPA 8021B	Q9	Insufficient sample received to meet method QC requirements.
		m p Xylene	EPA 8021B	Q9	Insufficient sample received to meet method QC requirements.
		o Xylene	EPA 8021B	Q9	Insufficient sample received to meet method QC requirements.
		Toluene	EPA 8021B	Q9	Insufficient sample received to meet method QC requirements.
L94016-02	WG609973	Benzene	EPA 8021B	Q9	Insufficient sample received to meet method QC requirements.
		Ethylbenzene	EPA 8021B	Q9	Insufficient sample received to meet method QC requirements.
		m p Xylene	EPA 8021B	Q9	Insufficient sample received to meet method QC requirements.
		o Xylene	EPA 8021B	Q9	Insufficient sample received to meet method QC requirements.
		Toluene	EPA 8021B	Q9	Insufficient sample received to meet method QC requirements.

ACZ **Laboratories, Inc.**
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

RadioChemistry Analytical Results

SLR International Corporation
Project ID:
Sample ID: 13-4110
Locator:

ACZ Sample ID: ***L94016-01***
Date Sampled: *04/11/25 8:45*
Date Received: *04/12/25*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, total
EPA 900.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	04/21/25 0:25		18	20	51	pCi/L	*	ajp
Gross Beta	04/21/25 0:25		21	15	40	pCi/L		ajp

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Radiochemistry Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Error(+/-)	Calculated sample specific uncertainty
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
LCL	Lower Control Limit, in % (except for LCSS, mg/Kg)
LLD	Calculated sample specific Lower Limit of Detection
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RER	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
UCL	Upper Control Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

DUP	Sample Duplicate	*MS/MSD*	Matrix Spike/Matrix Spike Duplicate
LCSS	Laboratory Control Sample - Soil	*PBS*	Prep Blank - Soil
LCSW	Laboratory Control Sample - Water	*PBW*	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.

Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

(1)	Solid matrices are reported on a dry weight basis.
(2)	Preparation method: "Method" indicates preparation defined in analytical method.
(3)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(4)	An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click:
https://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf

ACZ **Laboratories, Inc.**
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Radiochemistry QC Summary

SLR

ACZ Project ID: ***L94016***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Alpha EPA 900.0 **Units:** pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG609473																
WG609473PBW	PBW	04/21/25						-.14	0.32	0.78			1.56			
WG609473LCSWA	LCSW	04/21/25	RC250331-10	81.3				81	6.7	0.89	100	67	144			
L93888-01DUP	DUP-RPD	04/21/25			280	54	34	320	62	38				13	20	
L93908-01MSA	MS	04/21/25	RC250331-10	100	5.9	3.6	7.3	140	16	5.9	134	67	144			M1
L94016-01DUP	DUP-RPD	04/21/25			18	20	51	-1.2	13	44				229	20	RG
L94016-01DUP	DUP-RER	04/21/25			18	20	51	-1.2	13	44				0.8	2	

Beta EPA 900.0 **Units:** pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG609473																
WG609473PBW	PBW	04/21/25						-1.6	2	2.3			4.6			
WG609473LCSWB	LCSW	04/21/25	RC241007-10	81.3				78	5.2	1.9	96	82	122			
L93888-01DUP	DUP-RPD	04/21/25			51	12	31	38	13	37				29	20	RG
L93888-01DUP	DUP-RER	04/21/25			51	12	31	38	13	37				0.73	2	
L93957-02MSB	MS	04/21/25	RC241007-10	100	5.4	2.9	8.6	110	7.5	10	105	82	122			
L94016-01DUP	DUP-RPD	04/21/25			21	15	40	18	13	45				15	20	

ACZ **Laboratories, Inc.**
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

RadChem Extended Qualifier Report

SLR International Corporation

ACZ Project ID: ***L94016***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L94016-01	WG609473	Gross Alpha	EPA 900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.

ACZ **Laboratories, Inc.**
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Certification Qualifiers

SLR International Corporation

ACZ Project ID: ***L94016***

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

SLR International Corporation

ACZ Project ID: L94016
Date Received: 04/12/2025 11:24
Received By:
Date Printed: 4/14/2025

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?		X	
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?		X	

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? [1]	X		
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?	X		
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?	X		
18) Were all samples received within hold time?	X		

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
NA44782	3.4	<=6.0	15	Yes

Was ice present in the shipment container(s)?

Yes - Wet ice was present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

SLR International Corporation

ACZ Project ID:	L94016
Date Received:	04/12/2025 11:24
Received By:	
Date Printed:	4/14/2025

[1] The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

L94016

CHAIN of CUSTODY

Report to:

Name: Landon Beck
Company: SLR International
E-mail: Lbeck@slrconsulting.com
Address: 232 Ute Pass West
Durango, CO 81301
Telephone: 970 403 2090

Copy of Report to:

Name:
Company:
E-mail:
Telephone:

Invoice to:

Name: Landon Beck c/o AP
Company: SLR International
E-mail: Lbeck@slrconsulting.com
Address: 232 Ute Pass West
Durango, CO 81301
Telephone: 970 403 2090

Copy of Invoice to:

Name: AP
Company: SLR International
E-mail: ap-us@slrconsulting.com
Address: 22118 20Th Ave SE suite G-202
Bothell, WA 98021
Telephone:

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: Landon Beck Sampler's Site Information State UT Zip code 84307 Time Zone MDT

*Sampler's Signature:

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #: SLR-WW-BASELINE
PO#: 123.020485.00002
Reporting state for compliance testing:
Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED (attach list or use quote number)

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	SLR-WW-BASELINE
13-4110	4/11/25 0845	GW	3	X

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Reference SLR project # 123.020485.00002 on invoice.
ACZ-provided trip blank included in cooler. Thanks, Landon

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
Landon Beck	4/11/25 1300		4/12/25 1124

Qualtrax ID: 1984 Revision #: 3 White - Return with sample. Yellow - Retain for your records.

L94016 Chain of Custo

E.3 HR Wallingford Hydrodynamic / Dispersion Model

PURPOSE

This appendix provides an independent hydrodynamic and dispersion modelling assessment evaluating the interaction of lithium-depleted return brine with GSL waters and the potential for recirculation at the proposed intake for the Project.

CONTENTS SUMMARY

The appendix contains a dispersion modelling report prepared by HR Wallingford assessing short-term (1-year) and long-term (20-year) dispersion of lithium-depleted brine discharged to the North Arm of the GSL. Using the TELEMAC-3D hydrodynamic model, the study evaluates multiple operational and lake-level scenarios, including variations in production rate, intake and discharge locations, wind conditions, breach inflows, and third-party extractions. The results indicate that depleted brine is effectively dispersed by wind-driven currents, predicted recirculation at the intake is limited, and lithium concentrations at the intake remain within a narrow range relative to background under all modeled scenarios. The modelling further concludes that total lithium mass in the North Arm is not depleted under the proposed operating conditions, supporting the technical and environmental viability of the project's intake and discharge configuration.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 3 (multiple)
- Section 4.3
- Section 5 (multiple)

DOCUMENT DETAILS

- Issued by: HR Wallingford
- Date: 23 July 2025
- Page Count: 41 pages

E.3 begins on next page

E.4 Great Salt Lake Mass Balance - Impact of Waterleaf Operations

PURPOSE

This appendix documents the methodology, assumptions, and results of the 10-year mass balance modeling used to quantify the incremental impact of Waterleaf Phase 1 operations on GSL North and South Arm mass loads and concentrations under a range of lake level, breach flow, and third-party extraction scenarios

CONTENTS SUMMARY

This report presents a 10-year, monthly mass-balance modelling assessment of the incremental impact of Waterleaf Phase 1 operations (5,000 mt/yr LCE nominal and maximum loading cases) on the GSL North and South Arms, incorporating lake-level projections, breach flow configurations, Compass Minerals extraction scenarios, and plant mass loading assumptions. The analysis demonstrates that Waterleaf's operations result in de minimis changes to North Arm mass loads and concentrations (generally within ±3.2% nominal and ±4.0% maximum over 10 years, including a modeled 2–4% reduction in lithium), and only minor South Arm effects under hypothetical bidirectional breach flow conditions, confirming that lake level and breach exchange remain the dominant controls on long-term concentration dynamics

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 5 (multiple)

DOCUMENT DETAILS

- Issued by: Waterleaf Resources
- Date: February 6, 2026
- Page Count: 126

E.4 begins on next page

Great Salt Lake Mass Balance - Impact of Waterleaf Operations

06th February 2026

Methodology Overview

The model applies a monthly, mass-conserving balance to simulate concentration changes in the Great Salt Lake North and South Arms over a 10-year period for conservative ions affected by the Waterleaf process through either positive (mass addition) or negative (mass removal) loading. Each component is simulated under five scenarios (1a-1e) incorporating multiple forecast lake level conditions, breach flow rates, and third-party extraction scenarios. Scenarios 1a to 1c are consistent with the assumptions and inputs used in the dispersion model study, while the additional scenarios 1d and 1e extend the analysis to test sensitivity to alternative breach configurations.

Model outputs are generated for both "with Waterleaf operations" and "without Waterleaf operations" cases to quantify the incremental effect of Waterleaf activities on North and South Arm average concentrations.

Forecast lake levels are based on the Utah Great Salt Lake Strike Team projections and historical lake data. Levels were sampled at monthly time steps and converted to corresponding arm volumes using the project bathymetry (level–volume) relationships. Exchange across the breach is represented explicitly in both directions (South → North and North → South). For each month, the mass transferred across the breach is calculated using scenario-specific breach flow rates and the concentration in the source arm.

Additional operational mass terms include (i) Compass extraction, modelled as a volume-based withdrawal and converted to a mass removal rate using the North Arm concentration, and (ii) Waterleaf commercial mass loading/extraction, applied as a component-specific mass term consistent with the input assumptions. To maintain numerical stability and avoid circular dependency, concentration-dependent mass transfer terms (including breach transfers and Compass extraction) are calculated using the previous month's concentration. The arm mass loads are then updated sequentially each month, and concentrations are recalculated from the updated loads and corresponding arm volumes.

For components for which dissolved concentration is not expected to scale linearly with net mass under Great Salt Lake conditions, the same monthly mass balance framework is applied to quantify net and cumulative mass loading or removal attributable to Waterleaf operations, and results are expressed in terms of mass change rather than concentration.

Inputs

Plant mass loading

Nominal Commercial Operating Case (5,000 TPA LCE)

Plant mass loading to the lake was calculated from the difference between influent and effluent concentrations combined with intake and outtake volumetric flow rates, and expressed as annual mass loads representative of a 5,000 tpa LCE Lithium commercial operation (Table 1). Negative values indicate a net removal of mass from the lake (extraction), while positive values indicate a net addition to the lake.

Components identified by marker (1) were treated as primarily conservative over the concentration ranges evaluated; for these components, results are reported in terms of both mass load and corresponding concentration.

Table 1 – Commercial Plant Mass Loading Assumptions to the North Arm (average nominal calculations, related to 5,000tpa LCE)

Constituent	Influent Concentration (mg/L)	Influent Loading (lb/yr)	Effluent Concentration (mg/L)	Effluent Loading (lb/yr)	Mass Loading to Lake (lb/yr)	Mass Loading to Lake (tonnes/yr)	Mass Loading to Lake (tons/yr)
Aluminum	1.65	63668.6	1.49	58118.7	-5549.9	**-2.52**	**-2.77**
Arsenic	0.51	19745.1	0.36	13951.9	-5793.1	**-2.63**	**-2.90**
Barium	0.20	7864.0	0.18	7070.7	-793.2	**-0.36**	**-0.40**
Boron (1)	61.97	2391415.5	59.50	2321256.0	-70159.6	**-31.82**	**-35.08**
Bromine (1)	177.9	6865205.3	166.2	6484620.1	-380585.2	**-172.63**	**-190.29**
Calcium	308.64	11910507.7	300.2	11711921.9	-198585.7	**-90.08**	**-99.29**
Chloride (1)	183942.01	7098478909.4	182006.5	7100903590.6	2424681.2	**1099.82**	**1212.34**
Iron	0.57*	22093.4	0.57*	22117.1	23.7	**0.01**	**0.01**
Lead	0.01*	335.7	0.01*	351.6	15.9	**0.01**	**0.01**
Lithium (1)	68.0	2624160.3	14.2	554335.2	-2069825.1	**-938.86**	**-1034.91**
Magnesium (1)	14633.54	564720950.1	14461.9	564223719.2	-497230.9	**-225.54**	**-248.62**
Manganese	0.04	1398.0	0.04	1413.4	15.4	**0.01**	**0.01**
Molybdenum	0.14	5554.3	0.13	4950.6	-603.7	**-0.27**	**-0.30**
Potassium (1)	8720.58	336534698.7	8626.5	336558912.0	24213.3	**10.98**	**12.11**
Selenium	0.54	20887.0	0.53	20635.2	-251.8	**-0.11**	**-0.13**
Silica	6.06	233900.0	7.01	273516.4	39616.3	**17.97**	**19.81**
Sodium	98464.32	3799822087.6	97741.6	3813345429.6	13523342.0	**6134.08**	**6761.67**
Sulfate	26975.64	1041012835.3	27202.4	1061290649.1	20277813.8	**9197.86**	**10138.91**

* using MDL when ND

Maximum Loading Case (design flow rates, no downtime)

In addition to the nominal operating case, a maximum loading sensitivity case was evaluated assuming continuous operation at up to 115% of nominal throughput, consistent with the design flow rates, with no allowance for downtime (the nominal case uses 90% plant availability). Results are summarized in Table 2.

Table 2 – Maximum loading case

Constituent	Influent Concentration (mg/L)	Influent Loading (lb/yr)	Effluent Concentration (mg/L)	Effluent Loading (lb/yr)	Mass Loading to Lake (lb/yr)	Mass Loading to Lake (tonnes/yr)	Mass Loading to Lake (tons/yr)
Aluminum	1.65	81354.3	1.49	74263	-7092	**-3.22**	**-3.54**
Arsenic	0.51	25229.9	0.36	17827	-7402	**-3.36**	**-3.71**
Barium	0.2	10048.4	0.18	9035	-1014	**-0.46**	**-0.51**
Boron (1)	61.97	3055697.6	59.5	2966049	-89648	**-40.66**	**-44.82**
Bromine (1)	177.9	8772206.8	166.2	8285903	-486303	**-220.58**	**-243.15**
Calcium	308.64	15218982.1	300.2	14965234	-253748	**-115.10**	**-126.87**
Chloride (1)	183942.01	9070278606.5	182006.5	9073376810	3098204	**1405.33**	**1549.10**
Iron	0.57*	28230.5	0.57*	28261	30	**0.01**	**0.01**
Lead	0.01*	429.0	0.01*	449	20	**0.01**	**0.01**
Lithium (1)	68	3353093.7	14.2	708317	-2644777	**-1199.65**	**-1322.39**
Magnesium (1)	14633.54	721587880.7	14461.9	720952530	-635351	**-288.19**	**-317.68**
Manganese	0.04	1786.3	0.04	1806	20	**0.01**	**0.01**
Molybdenum	0.14	7097.2	0.13	6326	-771	**-0.35**	**-0.38**
Potassium (1)	8720.58	430016559.5	8626.5	430047499	30939	**14.03**	**15.47**
Selenium	0.54	26688.9	0.53	26367	-322	**-0.14**	**-0.17**
Silica	6.06	298872.2	7.01	349493	50621	**22.96**	**25.31**
Sodium	98464.32	4855328223.0	97741.6	4872608049	17279826	**7837.99**	**8639.91**
Sulfate	26975.64	1330183067.3	27202.4	1356093607	25910540	**11752.82**	**12955.27**

* using MDL when ND

Lake Level Scenarios

Three lake level scenarios were considered to represent a reasonable range of future Great Salt Lake elevations based on observed historical behaviour and the Utah Great Salt Lake Strike Team lake level projections (2025). The Strike Team base case mean projection was adopted as the central case (1b), and provides the baseline forecast used for assessing expected lake-level evolution under current assumptions. Two additional scenarios were included to bound potential outcomes around this central forecast. The first is a continued-decline scenario (1a) in which lake levels decrease at approximately 0.35 ft/year based on the historical average over the period 2000-2025, representing persistently negative water balance conditions relative to the baseline. The second is a Strike Team conservation scenario (1c) consistent with enhanced inflow conditions with an incremental +250,000 acre-ft/year in inflow. Together, these three scenarios provide a practical range for evaluating concentration under plausible future lake-level conditions.

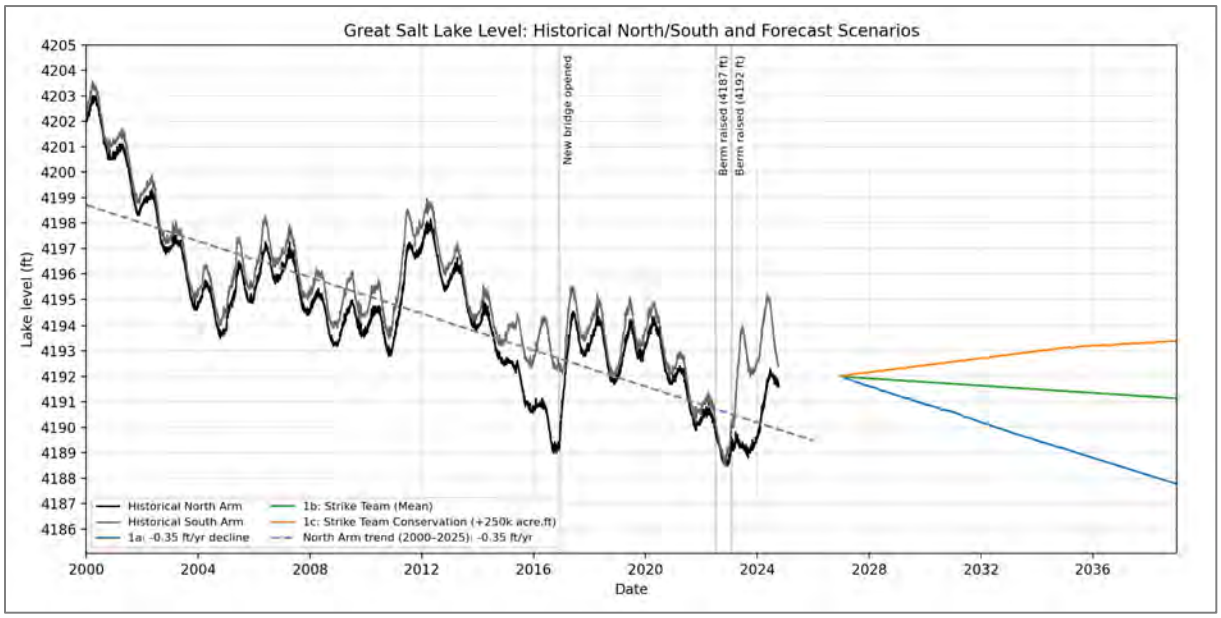


Figure 1 – Projected Lake Levels

Table 3 – Lake Level Assumptions

Scenario	Lake Level Scenario	Comment
1a (Low lake level)	0.35 ft/year	Unidirectional flow
1b (Mid Lake level)	Strike Team Base (Mean)	Unidirectional flow
1c (High Lake Level)	Strike Team Conservation +250kacre.ft/y (Mean)	Unidirectional flow
1d (Mid lake level, lowered berm)	Strike Team Base (Mean)	Bidirectional flow based on 2022 data
1e (Mid lake level, lowered berm)	Strike Team Base (Mean)	Bidirectional flow based on 2021 data

Breach Assumptions

Following the breach modifications implemented in 2022, flow exchange between the South and North Arms is interpreted to be predominantly unidirectional from the South Arm to the North Arm based on the analysis of the USGS breach flow data. Under these conditions, Waterleaf operations influence North Arm mass load and concentrations, while the South Arm concentration remains effectively unchanged by Waterleaf activity (i.e., the South Arm acts as an upstream boundary condition for breach inflow).

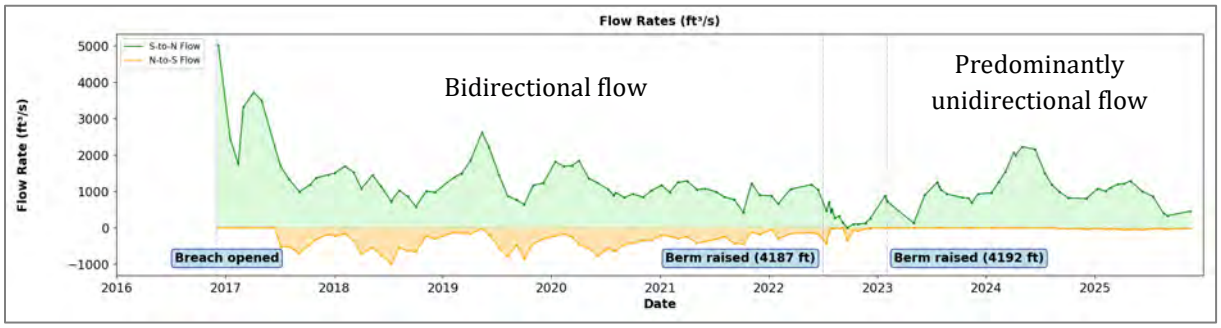


Figure 2- Breach instantaneous flow rates

Table 4 – Yearly Average Flow Rates across the breach

Year	S-to-N Flow (ft^3/s)	N-to-S Flow (ft^3/s)	Net Flow to N (ft^3/s)	% N-S Flow / over total exchange
2017	2,105	-228	1,877	9.8%
2018	1,125	-508	617	31.1%
2019	1,432	-348	1,084	19.6%
2020	1,254	-430	824	25.5%
2021	989	-286	703	22.4%
2022	623	-134	489	17.7%
2023	750	0	750	0.0%
2024	1,375	-10	1,365	0.7%
2025	848	-35	813	4.0%

Contingency scenarios 1d and 1e were also included to represent conditions under which the berm crest may be lowered, resulting in a return to bidirectional exchange across the breach observed in 2021 (1e) and 2022 (1d). These scenarios are important for sensitivity testing because a resumed North → South transfer pathway would allow Waterleaf-related changes in the North Arm to propagate back into the South Arm under certain lake-level conditions.

Several breach exchange cases were evaluated to represent a practical range of plausible long term flow regimes. These cases include combinations of South → North, and North → South breach flow rates consistent with the current raised-berm configuration and a potential bidirectional configuration. The breach flows applied in the model are summarised below:

Table 5 – Breach Flow Rate Assumptions

Scenario	S-to-N Flow (ft^3/s)	N-to-S Flow (ft^3/s)	Comment
1a (Low lake level)	179	0	Unidirectional flow
1b (Mid Lake level)	448	0	Unidirectional flow
1c (High Lake Level)	622	0	Unidirectional flow
1d (Mid lake level, lowered berm)	623	-134	Bidirectional flow based on 2022 data
1e (Mid lake level, lowered berm)	989	-286	Bidirectional flow based on 2021 data

Compass Extraction Scenarios

Several Compass Minerals extraction scenarios were evaluated to reflect the range of historical withdrawals and their dependence on lake level. The underlying assumption is that extraction is constrained at lower lake levels (reduced pumping and/or operational limitations) and can be higher at higher lake levels, consistent with historical operating patterns.

Table 6 – Compass Mineral Historical Extraction Rates

Year	Average North Arm water surface elevation above NGVD 1929 (ft)	Compass Minerals Extraction (acre.ft/yr)	Compass Minerals Extraction (ft^3/s)
2017	4193.14	-110,048	-152
2018	4193.03	-115,116	-159
2019	4193.08	-71,676	-99
2020	4193.05	-104,256	-144
2021	4191.20	-109,324	-151
2022	4189.70	-55,024	-76
2023	4189.25	-52,128	-72
2024	4191.37	-13,032	-18
2025	4191.78	Not available	Not available

These scenarios were developed using the historical Compass extraction rate data (expressed as annual withdrawal volume) and the associated lake level records. The historical dataset shows that higher extraction volumes typically coincide with periods of higher lake elevation, while extraction volumes decline as lake level decreases. This relationship was used to define both fixed and lake-level-dependent (variable) extraction cases:

Table 7 – Compass Mineral Projected Extraction Rates Assumptions

Scenario	Compass Extraction (acre.ft/y)	Comment

1a (Low lake level)	53,000 declining to 0 as the level reduces to 4188ft	Unidirectional flow
1b (Mid Lake level)	53,000	Unidirectional flow
1c (High Lake Level)	112,000	Unidirectional flow
1d (Mid lake level, lowered berm)	53,000	Bidirectional flow based on 2022 data
1e (Mid lake level, lowered berm)	53,000	Bidirectional flow based on 2021

South Arm Concentrations

USGS monitoring data over the period 2020-2025 were used to define South Arm concentrations for each component included in the mass balance. Where direct South Arm concentration measurements were not available for a given ion, concentrations were estimated using South Arm salinity as a proxy, applying consistent scaling to preserve the expected ionic composition under South Arm brine conditions. These concentrations were treated as fixed boundary conditions for South → North breach inflow in the modelled scenarios.

Observed South Arm concentrations are relatively stable over time, with variability typically within approximately ±25%, primarily driven by changes in inflow and any return flow from the more saline North Arm. The raised berm has been effective in reducing North → South exchange and thereby reducing South Arm concentrations. Consistent with this behaviour, multiple South Arm concentration scenarios were evaluated to capture plausible variability, aligned with the lake level projections and breach flow assumptions applied elsewhere in the modelling.

Table 8 - South Arm Concentrations Assumptions

Scenario	1a (Low lake level), mg/L	1b (Mid Lake level), mg/L	1c (High Lake Level), mg/L	1d (Mid lake level, lowered berm), mg/L	1e (Mid lake level, lowered berm), mg/L
Aluminum	0.6	0.6	0.4	0.7	0.7
Arsenic	0.2	0.2	0.1	0.2	0.2
Barium	0.1	0.1	0.1	0.1	0.1
Boron	18.6	18.6	13.4	21.2	21.2
Bromine	50.6	50.6	36.5	57.8	57.8
Calcium	232.0	232.0	167.0	264.9	264.9
Chloride	71424.0	71424.0	51425.3	81547.1	81547.1
Iron	0.2	0.2	0.1	0.2	0.2
Lead	0.0	0.0	0.0	0.0	0.0
Lithium	25.0	25.0	18.0	28.5	28.5
Magnesium	4973.9	4973.9	3581.2	5678.9	5678.9

Manganese	0.0	0.0	0.0	0.0	0.0
Molybdenum	0.1	0.1	0.0	0.1	0.1
Potassium	2969.4	2969.4	2138.0	3390.3	3390.3
Selenium	0.2	0.2	0.1	0.2	0.2
Silica	2.2	2.2	1.6	2.5	2.5
Sodium	39278.4	39278.4	28280.4	44845.4	44845.4
Sulfate	8326.5	8326.5	5995.1	9506.6	9506.6

Summary of all Scenarios (average nominal calculations, related to 5,000tpa LCE)

Nominal Commercial Operating Case (5,000 TPA LCE)

Table 9 – Scenarios (average nominal calculations, related to 5,000tpa LCE)

Component	Scenario	Lake level scenario (North)	Breach Flow Rate S to N (ft3/s)	Breach Flow Rate N to S (ft3/s)	Compass extraction, acre.ft/yr	Waterleaf Li extraction, tonnes, LCE/yr	Component Mass Loading to Lake (North), tonnes/yr	Initial Component Concentration (North), mg/L	Initial Component Concentration (South), mg/L
Aluminum	1a	1a	179.1	0	Variable	5000	-2.517	1.6	0.6
Aluminum	1b	1b	447.9	0	-53000	5000	-2.517	1.6	0.6
Aluminum	1c	1c	622.1	0	-112000	5000	-2.517	1.6	0.4
Aluminum	1d	1b	623	134	-53000	5000	-2.517	1.6	0.7
Aluminum	1e	1b	989	286	-53000	5000	-2.517	1.6	0.7
Arsenic	1a	1a	179.1	0	Variable	5000	-2.628	0.5	0.2
Arsenic	1b	1b	447.9	0	-53000	5000	-2.628	0.5	0.2
Arsenic	1c	1c	622.1	0	-112000	5000	-2.628	0.5	0.1
Arsenic	1d	1b	623	134	-53000	5000	-2.628	0.5	0.2
Arsenic	1e	1b	989	286	-53000	5000	-2.628	0.5	0.2
Barium	1a	1a	179.1	0	Variable	5000	-0.360	0.2	0.1
Barium	1b	1b	447.9	0	-53000	5000	-0.360	0.2	0.1
Barium	1c	1c	622.1	0	-112000	5000	-0.360	0.2	0.1
Barium	1d	1b	623	134	-53000	5000	-0.360	0.2	0.1
Barium	1e	1b	989	286	-53000	5000	-0.360	0.2	0.1
Boron	1a	1a	179.1	0	Variable	5000	-31.824	62.0	18.6
Boron	1b	1b	447.9	0	-53000	5000	-31.824	62.0	18.6
Boron	1c	1c	622.1	0	-112000	5000	-31.824	62.0	13.4
Boron	1d	1b	623	134	-53000	5000	-31.824	62.0	21.2
Boron	1e	1b	989	286	-53000	5000	-31.824	62.0	21.2
Bromine	1a	1a	179.1	0	Variable	5000	-172.631	177.9	50.6
Bromine	1b	1b	447.9	0	-53000	5000	-172.631	177.9	50.6
Bromine	1c	1c	622.1	0	-112000	5000	-172.631	177.9	36.5
Bromine	1d	1b	623	134	-53000	5000	-172.631	177.9	57.8
Bromine	1e	1b	989	286	-53000	5000	-172.631	177.9	57.8
Calcium	1a	1a	179.1	0	Variable	5000	-90.077	308.6	232.0

Calcium	1b	1b	447.9	0	-53000	5000	-90.077	308.6	232.0
Calcium	1c	1c	622.1	0	-112000	5000	-90.077	308.6	167.0
Calcium	1d	1b	623	134	-53000	5000	-90.077	308.6	264.9
Calcium	1e	1b	989	286	-53000	5000	-90.077	308.6	264.9
Chloride	1a	1a	179.1	0	Variable	5000	1099.817	183942.0	71424.0
Chloride	1b	1b	447.9	0	-53000	5000	1099.817	183942.0	71424.0
Chloride	1c	1c	622.1	0	-112000	5000	1099.817	183942.0	51425.3
Chloride	1d	1b	623	134	-53000	5000	1099.817	183942.0	81547.1
Chloride	1e	1b	989	286	-53000	5000	1099.817	183942.0	81547.1
Iron	1a	1a	179.1	0	Variable	5000	0.011	0.6	0.2
Iron	1b	1b	447.9	0	-53000	5000	0.011	0.6	0.2
Iron	1c	1c	622.1	0	-112000	5000	0.011	0.6	0.1
Iron	1d	1b	623	134	-53000	5000	0.011	0.6	0.2
Iron	1e	1b	989	286	-53000	5000	0.011	0.6	0.2
Lead	1a	1a	179.1	0	Variable	5000	0.007	0.0	0.0
Lead	1b	1b	447.9	0	-53000	5000	0.007	0.0	0.0
Lead	1c	1c	622.1	0	-112000	5000	0.007	0.0	0.0
Lead	1d	1b	623	134	-53000	5000	0.007	0.0	0.0
Lead	1e	1b	989	286	-53000	5000	0.007	0.0	0.0
Lithium	1a	1a	179.1	0	Variable	5000	-938.857	68.0	25.0
Lithium	1b	1b	447.9	0	-53000	5000	-938.857	68.0	25.0
Lithium	1c	1c	622.1	0	-112000	5000	-938.857	68.0	18.0
Lithium	1d	1b	623	134	-53000	5000	-938.857	68.0	28.5
Lithium	1e	1b	989	286	-53000	5000	-938.857	68.0	28.5
Magnesium	1a	1a	179.1	0	Variable	5000	-225.540	14633.5	4973.9
Magnesium	1b	1b	447.9	0	-53000	5000	-225.540	14633.5	4973.9
Magnesium	1c	1c	622.1	0	-112000	5000	-225.540	14633.5	3581.2
Magnesium	1d	1b	623	134	-53000	5000	-225.540	14633.5	5678.9
Magnesium	1e	1b	989	286	-53000	5000	-225.540	14633.5	5678.9
Manganese	1a	1a	179.1	0	Variable	5000	0.007	0.0	0.0
Manganese	1b	1b	447.9	0	-53000	5000	0.007	0.0	0.0
Manganese	1c	1c	622.1	0	-112000	5000	0.007	0.0	0.0
Manganese	1d	1b	623	134	-53000	5000	0.007	0.0	0.0
Manganese	1e	1b	989	286	-53000	5000	0.007	0.0	0.0
Molybdenum	1a	1a	179.1	0	Variable	5000	-0.274	0.1	0.1
Molybdenum	1b	1b	447.9	0	-53000	5000	-0.274	0.1	0.1
Molybdenum	1c	1c	622.1	0	-112000	5000	-0.274	0.1	0.0

Molybdenum	1d	1b	623	134	-53000	5000	-0.274	0.1	0.1
Molybdenum	1e	1b	989	286	-53000	5000	-0.274	0.1	0.1
Potassium	1a	1a	179.1	0	Variable	5000	10.983	8720.6	2969.4
Potassium	1b	1b	447.9	0	-53000	5000	10.983	8720.6	2969.4
Potassium	1c	1c	622.1	0	-112000	5000	10.983	8720.6	2138.0
Potassium	1d	1b	623	134	-53000	5000	10.983	8720.6	3390.3
Potassium	1e	1b	989	286	-53000	5000	10.983	8720.6	3390.3
Selenium	1a	1a	179.1	0	Variable	5000	-0.114	0.5	0.2
Selenium	1b	1b	447.9	0	-53000	5000	-0.114	0.5	0.2
Selenium	1c	1c	622.1	0	-112000	5000	-0.114	0.5	0.1
Selenium	1d	1b	623	134	-53000	5000	-0.114	0.5	0.2
Selenium	1e	1b	989	286	-53000	5000	-0.114	0.5	0.2
Silica	1a	1a	179.1	0	Variable	5000	17.970	6.1	2.2
Silica	1b	1b	447.9	0	-53000	5000	17.970	6.1	2.2
Silica	1c	1c	622.1	0	-112000	5000	17.970	6.1	1.6
Silica	1d	1b	623	134	-53000	5000	17.970	6.1	2.5
Silica	1e	1b	989	286	-53000	5000	17.970	6.1	2.5
Sodium	1a	1a	179.1	0	Variable	5000	6134.085	98464.3	39278.4
Sodium	1b	1b	447.9	0	-53000	5000	6134.085	98464.3	39278.4
Sodium	1c	1c	622.1	0	-112000	5000	6134.085	98464.3	28280.4
Sodium	1d	1b	623	134	-53000	5000	6134.085	98464.3	44845.4
Sodium	1e	1b	989	286	-53000	5000	6134.085	98464.3	44845.4
Sulfate	1a	1a	179.1	0	Variable	5000	9197.862	26975.6	8326.5
Sulfate	1b	1b	447.9	0	-53000	5000	9197.862	26975.6	8326.5
Sulfate	1c	1c	622.1	0	-112000	5000	9197.862	26975.6	5995.1
Sulfate	1d	1b	623	134	-53000	5000	9197.862	26975.6	9506.6
Sulfate	1e	1b	989	286	-53000	5000	9197.862	26975.6	9506.6

Maximum Loading Case (design flow rates, no downtime)

Table 10 – Scenarios (maximum loading case – design flow rates, no downtime)

Component	Scenario	Lake level scenario (North)	Breach Flow Rate S to N (ft3/s)	Breach Flow Rate N to S (ft3/s)	Compass extraction, acre.ft/yr	Waterleaf Li extraction, tonnes, LCE/yr	Component Mass Loading to Lake (North), tonnes/yr	Initial Component Concentration (North), mg/L	Initial Component Concentration (South), mg/L
Aluminum	1a	1a	179.1	0	Variable	6389	-3.217	1.6	0.6
Aluminum	1b	1b	447.9	0	-53000	6389	-3.217	1.6	0.6
Aluminum	1c	1c	622.1	0	-112000	6389	-3.217	1.6	0.4
Aluminum	1d	1b	623	134	-53000	6389	-3.217	1.6	0.7
Aluminum	1e	1b	989	286	-53000	6389	-3.217	1.6	0.7
Arsenic	1a	1a	179.1	0	Variable	6389	-3.358	0.5	0.2
Arsenic	1b	1b	447.9	0	-53000	6389	-3.358	0.5	0.2
Arsenic	1c	1c	622.1	0	-112000	6389	-3.358	0.5	0.1
Arsenic	1d	1b	623	134	-53000	6389	-3.358	0.5	0.2
Arsenic	1e	1b	989	286	-53000	6389	-3.358	0.5	0.2
Barium	1a	1a	179.1	0	Variable	6389	-0.460	0.2	0.1
Barium	1b	1b	447.9	0	-53000	6389	-0.460	0.2	0.1
Barium	1c	1c	622.1	0	-112000	6389	-0.460	0.2	0.1
Barium	1d	1b	623	134	-53000	6389	-0.460	0.2	0.1
Barium	1e	1b	989	286	-53000	6389	-0.460	0.2	0.1
Boron	1a	1a	179.1	0	Variable	6389	-40.664	62.0	18.6
Boron	1b	1b	447.9	0	-53000	6389	-40.664	62.0	18.6
Boron	1c	1c	622.1	0	-112000	6389	-40.664	62.0	13.4
Boron	1d	1b	623	134	-53000	6389	-40.664	62.0	21.2
Boron	1e	1b	989	286	-53000	6389	-40.664	62.0	21.2
Bromine	1a	1a	179.1	0	Variable	6389	-220.583	177.9	50.6
Bromine	1b	1b	447.9	0	-53000	6389	-220.583	177.9	50.6
Bromine	1c	1c	622.1	0	-112000	6389	-220.583	177.9	36.5
Bromine	1d	1b	623	134	-53000	6389	-220.583	177.9	57.8
Bromine	1e	1b	989	286	-53000	6389	-220.583	177.9	57.8
Calcium	1a	1a	179.1	0	Variable	6389	-115.098	308.6	232.0
Calcium	1b	1b	447.9	0	-53000	6389	-115.098	308.6	232.0
Calcium	1c	1c	622.1	0	-112000	6389	-115.098	308.6	167.0

Calcium	1d	1b	623	134	-53000	6389	-115.098	308.6	264.9
Calcium	1e	1b	989	286	-53000	6389	-115.098	308.6	264.9
Chloride	1a	1a	179.1	0	Variable	6389	1405.322	183942.0	71424.0
Chloride	1b	1b	447.9	0	-53000	6389	1405.322	183942.0	71424.0
Chloride	1c	1c	622.1	0	-112000	6389	1405.322	183942.0	51425.3
Chloride	1d	1b	623	134	-53000	6389	1405.322	183942.0	81547.1
Chloride	1e	1b	989	286	-53000	6389	1405.322	183942.0	81547.1
Iron	1a	1a	179.1	0	Variable	6389	0.014	0.6	0.2
Iron	1b	1b	447.9	0	-53000	6389	0.014	0.6	0.2
Iron	1c	1c	622.1	0	-112000	6389	0.014	0.6	0.1
Iron	1d	1b	623	134	-53000	6389	0.014	0.6	0.2
Iron	1e	1b	989	286	-53000	6389	0.014	0.6	0.2
Lead	1a	1a	179.1	0	Variable	6389	0.009	0.0	0.0
Lead	1b	1b	447.9	0	-53000	6389	0.009	0.0	0.0
Lead	1c	1c	622.1	0	-112000	6389	0.009	0.0	0.0
Lead	1d	1b	623	134	-53000	6389	0.009	0.0	0.0
Lead	1e	1b	989	286	-53000	6389	0.009	0.0	0.0
Lithium	1a	1a	179.1	0	Variable	6389	-1199.650	68.0	25.0
Lithium	1b	1b	447.9	0	-53000	6389	-1199.650	68.0	25.0
Lithium	1c	1c	622.1	0	-112000	6389	-1199.650	68.0	18.0
Lithium	1d	1b	623	134	-53000	6389	-1199.650	68.0	28.5
Lithium	1e	1b	989	286	-53000	6389	-1199.650	68.0	28.5
Magnesium	1a	1a	179.1	0	Variable	6389	-288.190	14633.5	4973.9
Magnesium	1b	1b	447.9	0	-53000	6389	-288.190	14633.5	4973.9
Magnesium	1c	1c	622.1	0	-112000	6389	-288.190	14633.5	3581.2
Magnesium	1d	1b	623	134	-53000	6389	-288.190	14633.5	5678.9
Magnesium	1e	1b	989	286	-53000	6389	-288.190	14633.5	5678.9
Manganese	1a	1a	179.1	0	Variable	6389	0.009	0.0	0.0
Manganese	1b	1b	447.9	0	-53000	6389	0.009	0.0	0.0
Manganese	1c	1c	622.1	0	-112000	6389	0.009	0.0	0.0
Manganese	1d	1b	623	134	-53000	6389	0.009	0.0	0.0
Manganese	1e	1b	989	286	-53000	6389	0.009	0.0	0.0
Molybdenum	1a	1a	179.1	0	Variable	6389	-0.350	0.1	0.1
Molybdenum	1b	1b	447.9	0	-53000	6389	-0.350	0.1	0.1
Molybdenum	1c	1c	622.1	0	-112000	6389	-0.350	0.1	0.0
Molybdenum	1d	1b	623	134	-53000	6389	-0.350	0.1	0.1
Molybdenum	1e	1b	989	286	-53000	6389	-0.350	0.1	0.1

Potassium	1a	1a	179.1	0	Variable	6389	14.034	8720.6	2969.4
Potassium	1b	1b	447.9	0	-53000	6389	14.034	8720.6	2969.4
Potassium	1c	1c	622.1	0	-112000	6389	14.034	8720.6	2138.0
Potassium	1d	1b	623	134	-53000	6389	14.034	8720.6	3390.3
Potassium	1e	1b	989	286	-53000	6389	14.034	8720.6	3390.3
Selenium	1a	1a	179.1	0	Variable	6389	-0.146	0.5	0.2
Selenium	1b	1b	447.9	0	-53000	6389	-0.146	0.5	0.2
Selenium	1c	1c	622.1	0	-112000	6389	-0.146	0.5	0.1
Selenium	1d	1b	623	134	-53000	6389	-0.146	0.5	0.2
Selenium	1e	1b	989	286	-53000	6389	-0.146	0.5	0.2
Silica	1a	1a	179.1	0	Variable	6389	22.961	6.1	2.2
Silica	1b	1b	447.9	0	-53000	6389	22.961	6.1	2.2
Silica	1c	1c	622.1	0	-112000	6389	22.961	6.1	1.6
Silica	1d	1b	623	134	-53000	6389	22.961	6.1	2.5
Silica	1e	1b	989	286	-53000	6389	22.961	6.1	2.5
Sodium	1a	1a	179.1	0	Variable	6389	7837.997	98464.3	39278.4
Sodium	1b	1b	447.9	0	-53000	6389	7837.997	98464.3	39278.4
Sodium	1c	1c	622.1	0	-112000	6389	7837.997	98464.3	28280.4
Sodium	1d	1b	623	134	-53000	6389	7837.997	98464.3	44845.4
Sodium	1e	1b	989	286	-53000	6389	7837.997	98464.3	44845.4
Sulfate	1a	1a	179.1	0	Variable	6389	11752.823	26975.6	8326.5
Sulfate	1b	1b	447.9	0	-53000	6389	11752.823	26975.6	8326.5
Sulfate	1c	1c	622.1	0	-112000	6389	11752.823	26975.6	5995.1
Sulfate	1d	1b	623	134	-53000	6389	11752.823	26975.6	9506.6
Sulfate	1e	1b	989	286	-53000	6389	11752.823	26975.6	9506.6

Outputs

Impact on North Arm

The impact of Waterleaf operations on North Arm loads and concentrations was assessed by calculating mass load and concentration time series under both “with operations” and “without operations” cases. Initial dissolved mass loads for each component were derived from the concentrations in the North Arm and the corresponding lake volume. For each component, the incremental effect of Waterleaf was quantified as the percentage difference between the two cases, isolating the operational signal from background drivers such as lake level variation and breach inflow.

The cumulative impact after 10 years on the North Arm mass load and, where applicable, concentration is summarised in Table 11 for the Nominal case and Table 12 for the Maximum Loading Case in Table 12.

Across all modelled components, the impact of Waterleaf operations on North Arm mass load remains de minimis, with relative changes of less than 3.2% over 10 years of Operations for the Nominal case and 4.0% for the maximum loading case. For components expected to behave conservatively, the modelled impact on North Arm concentrations likewise remains less than 3.2% (nominal)/ 4.0 % (maximum loading), including for lithium.

In addition, the magnitude and direction of the modelled Waterleaf impacts are consistent across the range of scenarios evaluated. While absolute values vary with lake level, breach flow configuration, and Compass extraction assumptions, the overall Waterleaf response in both the North and South Arms remains similar across scenarios. This indicates that the modelled impacts are not highly sensitive to individual scenario assumptions and that the results presented are representative of expected conditions across plausible future lake-level and operational outcomes.

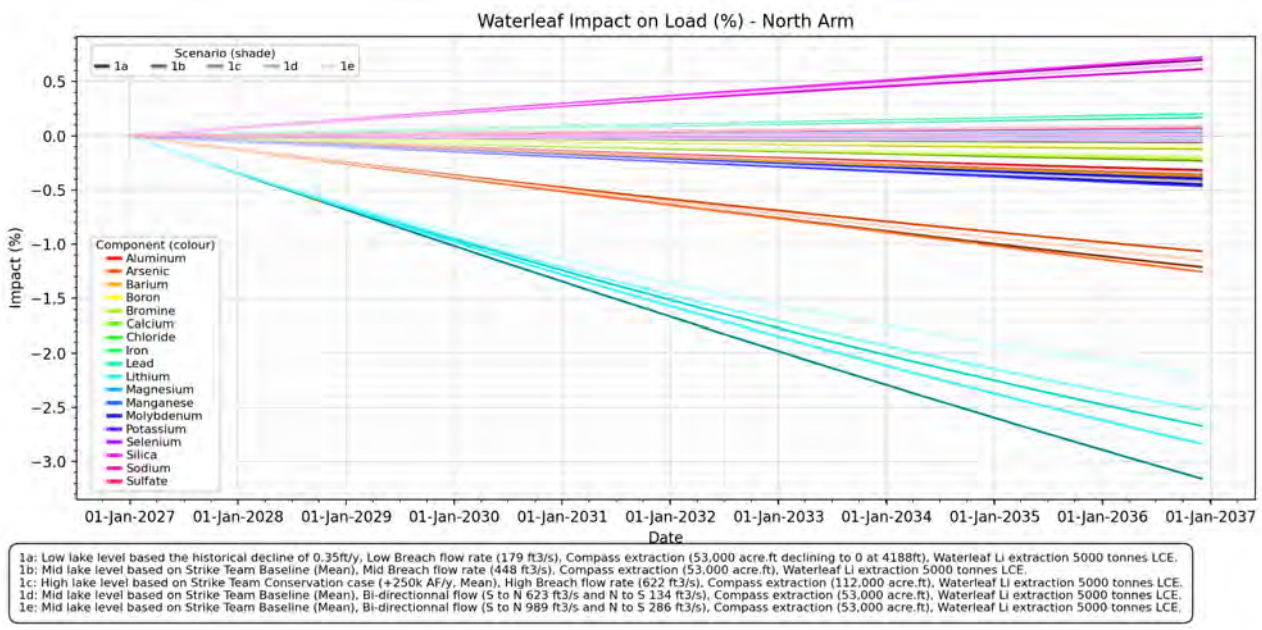


Figure 3 - Waterleaf Impact on Load (%), Nominal Case - North Arm

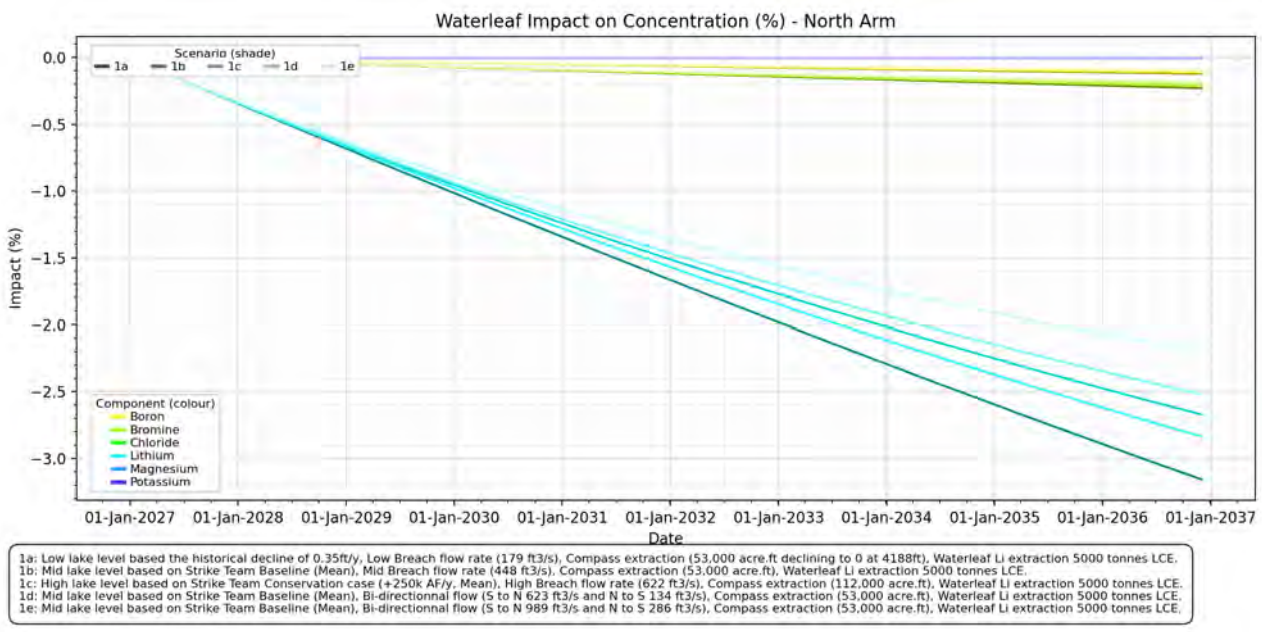


Figure 4 - Waterleaf Impact on Concentrations (%), Nominal Case - North Arm

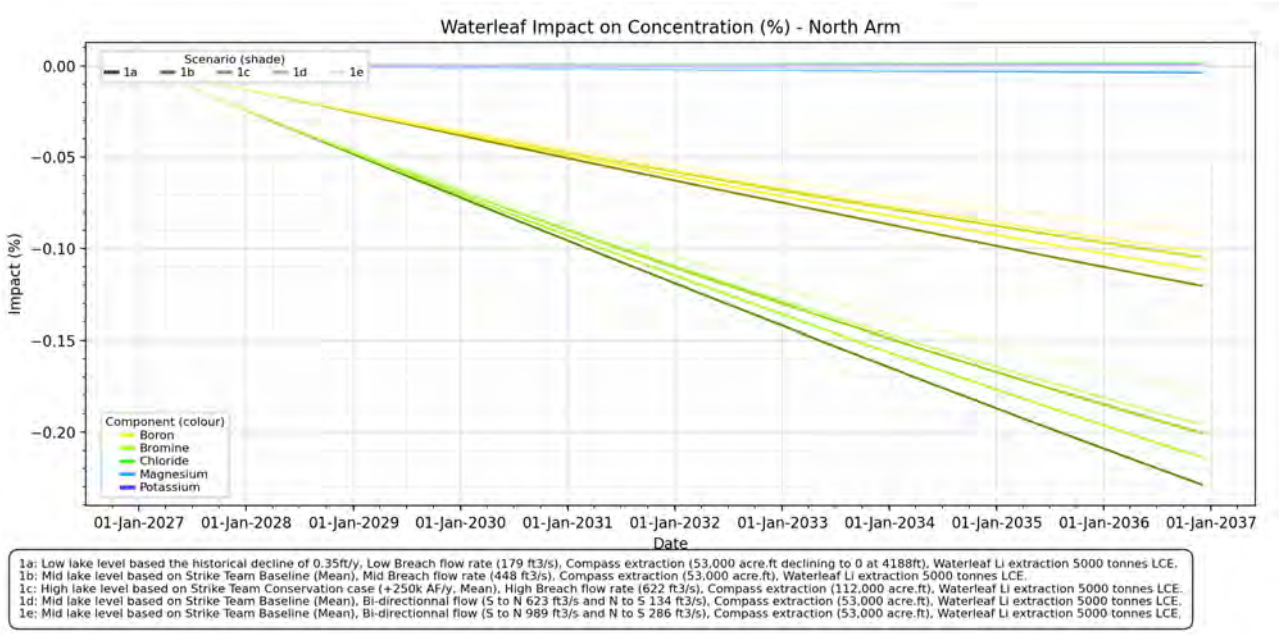


Figure 5 - Waterleaf Impact on Concentrations excluding Lithium (%), Nominal Case - North Arm

Table 11 - Impact of Waterleaf Operations on Component Load in the North Arm after 10 years (N, %) - Nominal Case

Scenario	1a (Low lake level), %	1b (Mid Lake level), %	1c (High Lake Level), %	1d (Mid lake level, lowered berm), %	1e (Mid lake level, lowered berm), %
Aluminum	-1.21	-0.32	-0.37	-0.32	-1.21
Arsenic	-1.15	-1.21	-1.07	-1.21	-1.15
Barium	-0.40	-0.42	-0.37	-0.42	-0.40
Boron	-0.09	-0.12	-0.10	-0.12	-0.09
Bromine	-0.18	-0.23	-0.20	-0.23	-0.18
Calcium	-0.03	-0.06	-0.05	-0.06	-0.03
Chloride	0.00	0.00	0.00	0.00	0.00
Iron	0.00	0.00	0.00	0.00	0.00
Lead	0.19	0.20	0.17	0.20	0.19
Lithium	-2.19	-3.16	-2.67	-3.16	-2.19
Magnesium	0.00	0.00	0.00	0.00	0.00
Manganese	0.04	0.05	0.04	0.05	0.04
Molybdenum	-0.43	-0.45	-0.39	-0.45	-0.43
Potassium	0.00	0.00	0.00	0.00	0.00
Selenium	-0.05	-0.05	-0.04	-0.05	-0.05
Silica	0.66	0.70	0.61	0.70	0.66
Sodium	0.01	0.01	0.01	0.01	0.01
Sulfate	0.09	0.08	0.07	0.08	0.09

Impact (%) is calculated as the difference between the component mass load at Year 10 with Waterleaf operations and the corresponding mass load without Waterleaf operations, expressed as a percentage of the mass load without Waterleaf operations.

Table 12 - Impact of Waterleaf Operations on Component Load in the North Arm after 10 years (N, %) – Maximum mass loading Case

Scenario	1a (Low lake level), %	1b (Mid Lake level), %	1c (High Lake Level), %	1d (Mid lake level, lowered berm), %	1e (Mid lake level, lowered berm), %
Aluminum	-1.55	-0.40	-0.48	-0.40	-1.55
Arsenic	-1.47	-1.55	-1.36	-1.55	-1.47
Barium	-0.50	-0.53	-0.47	-0.53	-0.50
Boron	-0.12	-0.15	-0.13	-0.15	-0.12
Bromine	-0.23	-0.29	-0.26	-0.29	-0.23
Calcium	-0.04	-0.08	-0.06	-0.08	-0.04
Chloride	0.00	0.00	0.00	0.00	0.00
Iron	0.01	0.01	0.00	0.01	0.01
Lead	0.24	0.25	0.22	0.25	0.24
Lithium	-2.80	-4.03	-3.41	-4.03	-2.80
Magnesium	0.00	0.00	0.00	0.00	0.00
Manganese	0.06	0.06	0.05	0.06	0.06
Molybdenum	-0.54	-0.57	-0.50	-0.57	-0.54
Potassium	0.00	0.00	0.00	0.00	0.00
Selenium	-0.06	-0.06	-0.06	-0.06	-0.06
Silica	0.85	0.89	0.79	0.89	0.85
Sodium	0.02	0.02	0.02	0.02	0.02
Sulfate	0.11	0.10	0.09	0.10	0.11

Impact (%) is calculated as the difference between the component mass load at Year 10 with Waterleaf operations and the corresponding mass load without Waterleaf operations, expressed as a percentage of the mass load without Waterleaf operations.

Impact on South Arm

The South Arm is only affected by Waterleaf operations under bidirectional breach flow conditions, which would primarily occur if the berm were lowered or further eroded. Scenarios 1d and 1e were specifically modelled to represent this condition.

For these scenarios, the North → South saline mass transfer rate is calculated at each time step using the North Arm concentration time series, evaluated separately for the "with operations" and "without operations" cases. The difference between these two cases represents the net mass effect attributable to Waterleaf operations (positive or negative), which is accumulated over time in the South Arm.

The resulting operational mass difference expressed as an equivalent concentration change (mg/L) by dividing the cumulative mass difference by the corresponding South Arm lake volume. A positive concentration change indicates that Waterleaf operations increase South Arm concentration relative to the no-operations case (i.e., higher mass transfer to the South Arm), while a negative concentration change indicates a reduction in South Arm concentration attributable to the operations.

The incremental impact on South concentrations after 10 years is summarised below for the nominal case (Table 13) and maximum loading case (Table 14)

Table 13 - Impact of Waterleaf Operations (South Arm), Nominal Case

Component	Scenario	Initial concentration (S), mg/L	Impact on concentrations at 10 years (S), mg/L	Percentage of initial concentration, %
Boron	1d	21	-0.006	-0.03
Boron	1e	21	-0.012	-0.06
Bromine	1d	58	-0.034	-0.06
Bromine	1e	58	-0.066	-0.11
Chloride	1d	81547	0.219	0.00
Chloride	1e	81547	0.421	0.00
Lithium	1d	29	-0.187	-0.65
Lithium	1e	29	-0.360	-1.26
Magnesium	1d	5679	-0.045	0.00
Magnesium	1e	5679	-0.086	0.00
Potassium	1d	3390	0.002	0.00
Potassium	1e	3390	0.004	0.00

Table 14 - Impact of Waterleaf Operations (South Arm), Maximum mass loading Case

Component	Scenario	Initial concentration (S), mg/L	Impact on concentrations at 10 years (S), mg/L	Percentage of initial concentration, %
Boron	1d	21	-0.008	-0.04
Boron	1e	21	-0.016	-0.07
Bromine	1d	58	-0.044	-0.08
Bromine	1e	58	-0.084	-0.15
Chloride	1d	81547	0.280	0.00
Chloride	1e	81547	0.538	0.00
Lithium	1d	29	-0.239	-0.84
Lithium	1e	29	-0.459	-1.61
Magnesium	1d	5679	-0.057	0.00
Magnesium	1e	5679	-0.110	0.00
Potassium	1d	3390	0.003	0.00
Potassium	1e	3390	0.005	0.00

Summary

The following observations can be made from the 10-year mass-balance simulations:

1. The North Arm mass load is primarily affected by breach inflow (South → North). The South → North exchange across the breach is the dominant driver of long-term changes in mass load in the North Arm. As a result, berm management is a key control on whether North Arm mass loads continue to accumulate over time (net import) or stabilise (reduced import and/or increased return flow).

2. The North Arm concentrations are primarily driven by lake level (volume). While breach inflow controls the mass entering the North Arm, the lake level projection is the main effect on concentration because it dictates the available water volume for dilution or concentration. Lower projected lake levels result in higher concentrations for a given mass load.

3. Waterleaf's impact on lithium in the North Arm mass load and concentrations is in the order of a 2-4% reduction across all scenarios after 10 years of operations.

4. For all components other than Lithium, the impact on load over 10 years is between -1.2% (Arsenic) and +0.70% (Silica) in the nominal case and -1.5%, +0.85% in the max loading case.

5. Besides Lithium, Arsenic shows the largest relative response, with a modelled North Arm load reduced by ~-1.2 % (Nominal) / - 1.5% (Maximum loading) after 10 years of Operations.

6. South Arm impacts occur only under bidirectional breach flow conditions, if the berm were to be lowered from its current level. Under the current raised-berm configuration (primarily unidirectional South → North), Waterleaf does not influence the South Arm concentrations. If bidirectional exchange resumes (e.g., through berm lowering or overtopping), Waterleaf-driven changes in North Arm concentration can propagate back to the South Arm via North → South flow. The maximum impact in this scenario is a 1.3% (nominal) / 1.6% (maximum) reduction of Lithium in the South Arm, after 10 years. For other components, the change does not exceed -0.1%/0.15% after 10 years.

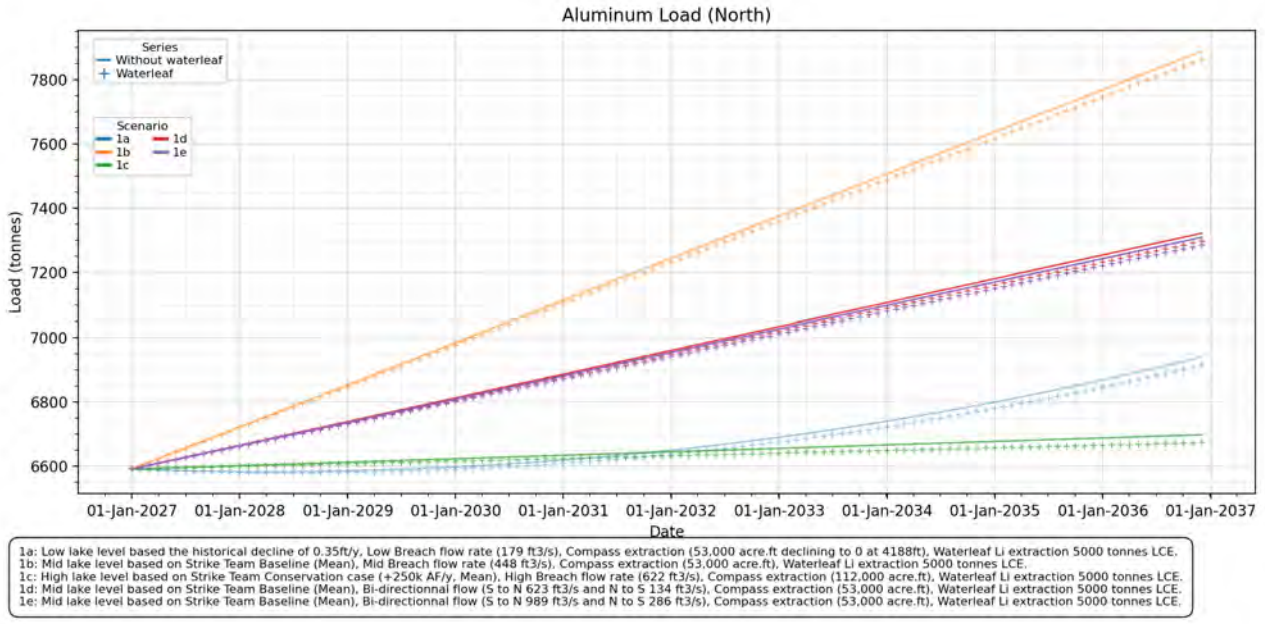


Figure 6: Summary: Aluminum load (Nominal Case)

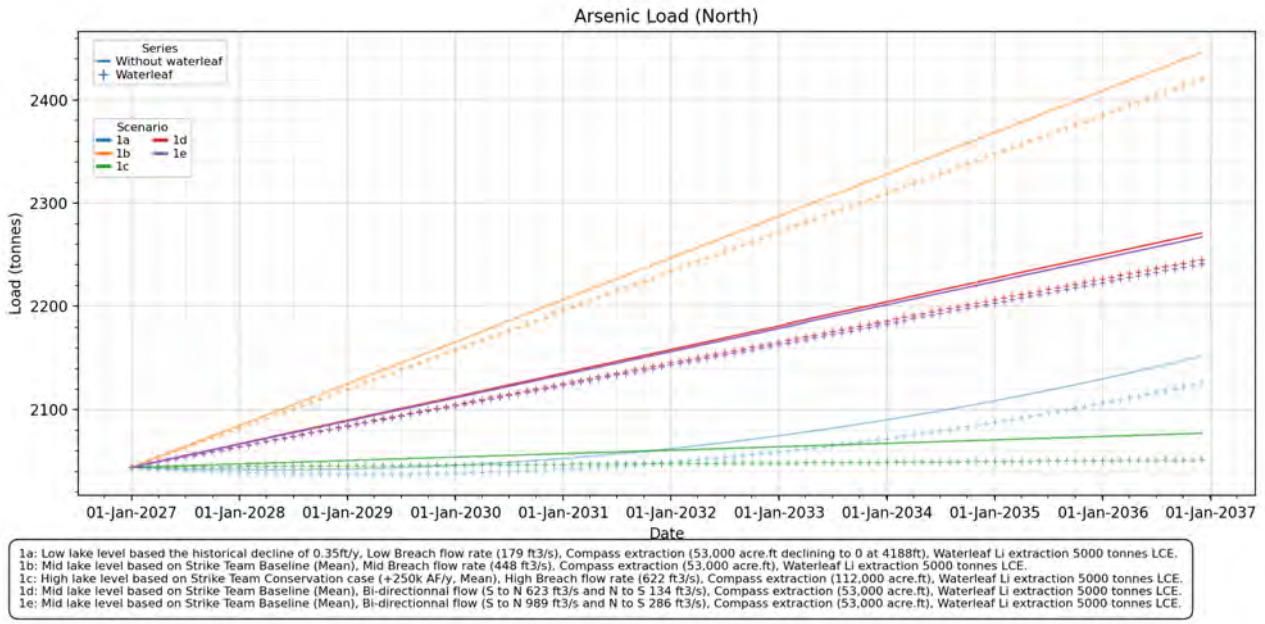


Figure 7: Summary: Arsenic load (Nominal Case)

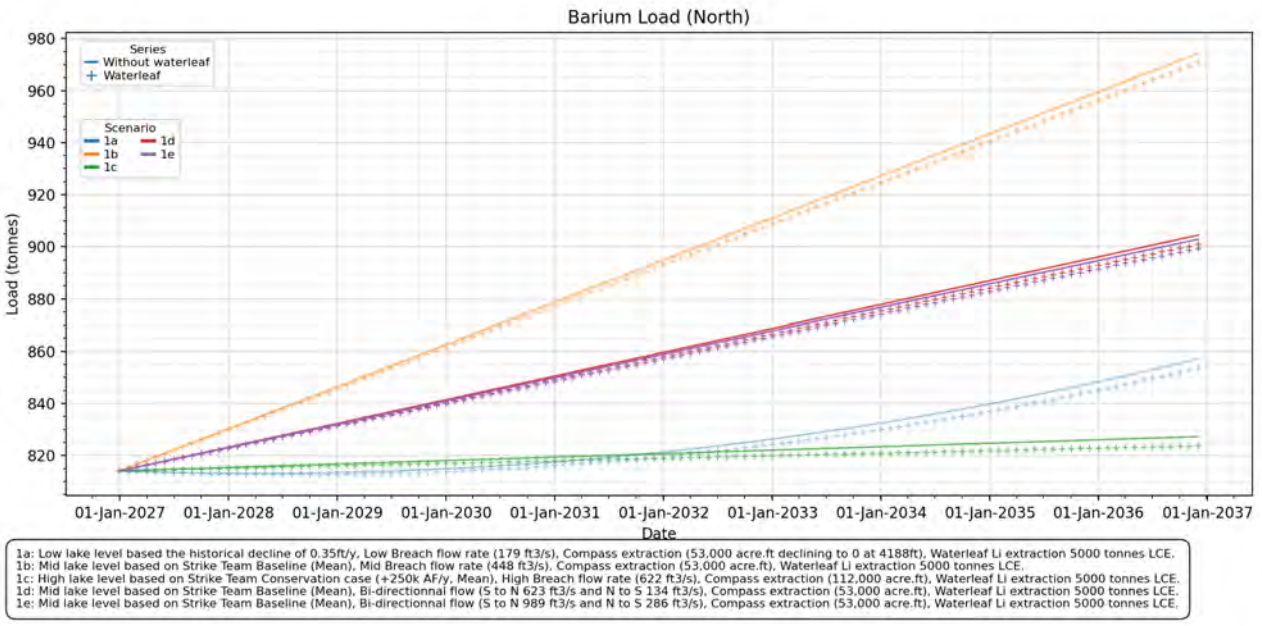


Figure 8: Summary: Barium load (Nominal Case)

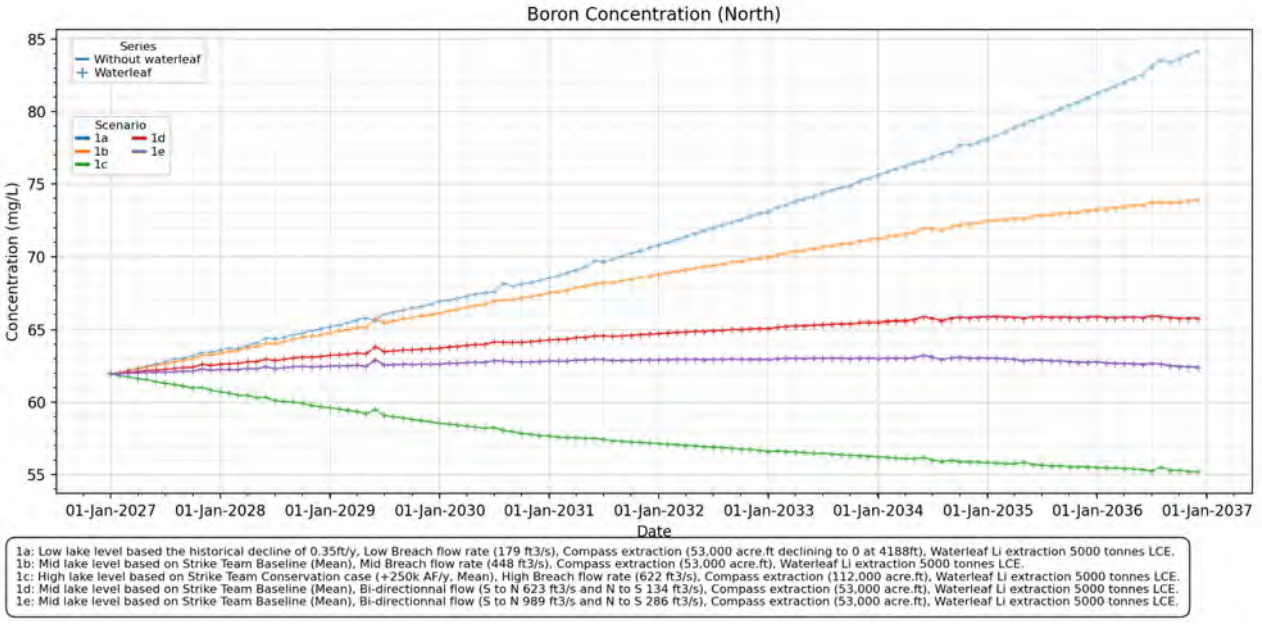


Figure 9: Summary: Boron concentration (Nominal Case)

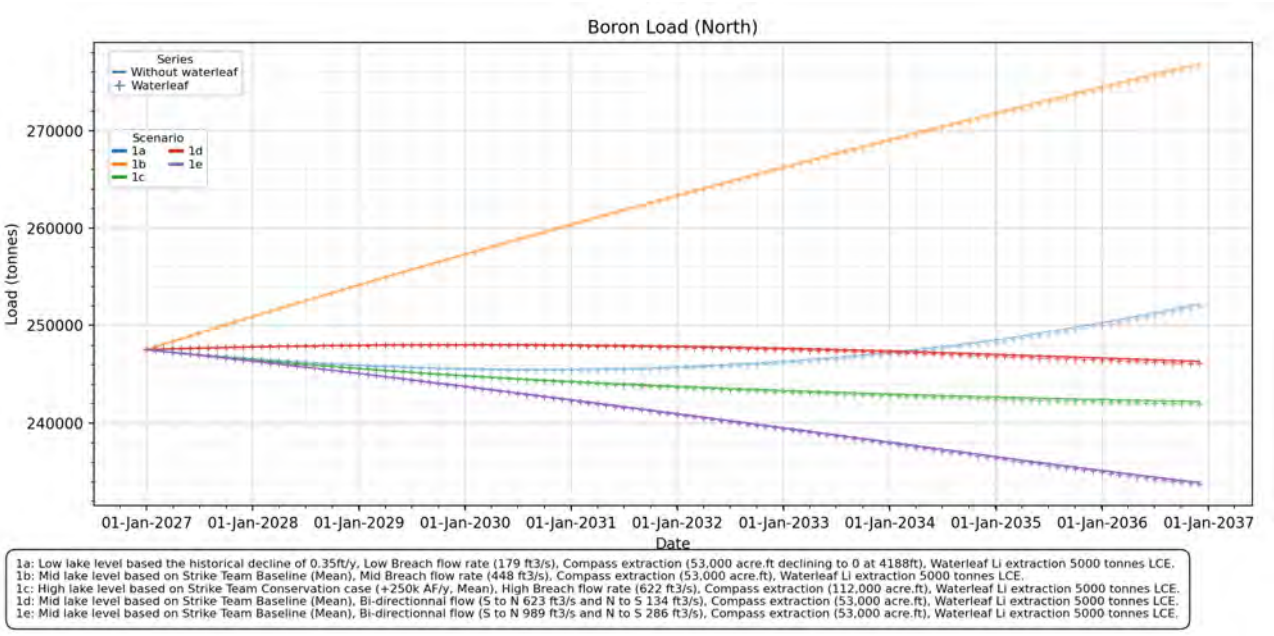


Figure 10: Summary: Boron load (Nominal Case)

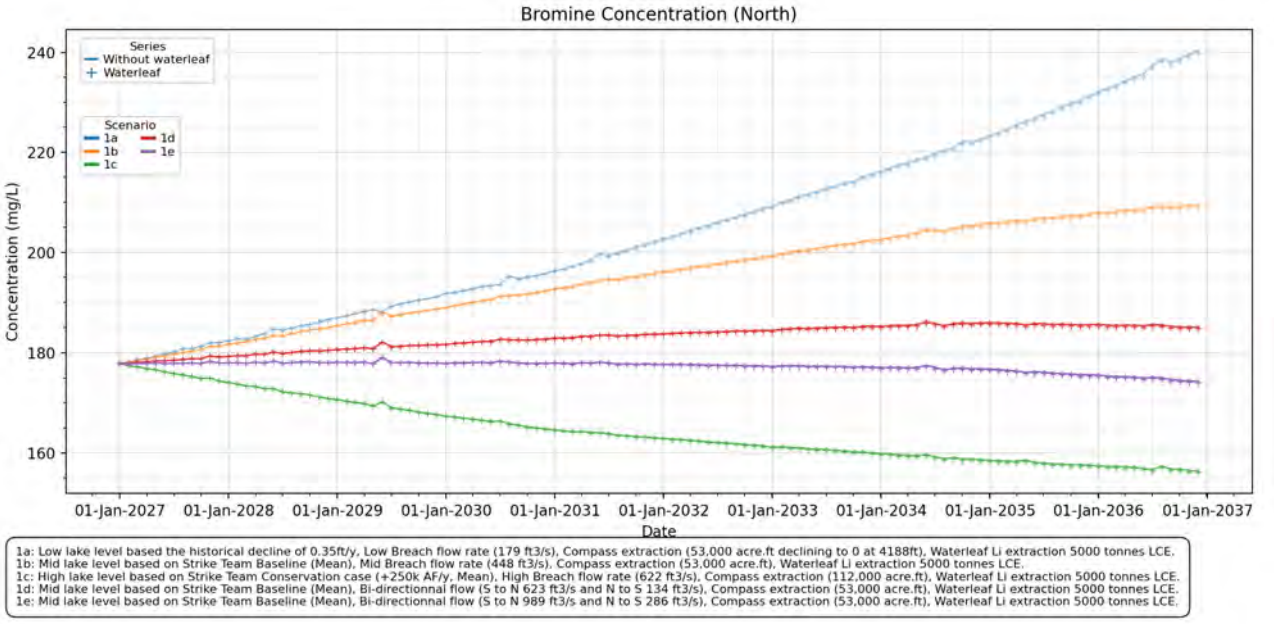


Figure 11: Summary: Bromine concentration (Nominal Case)

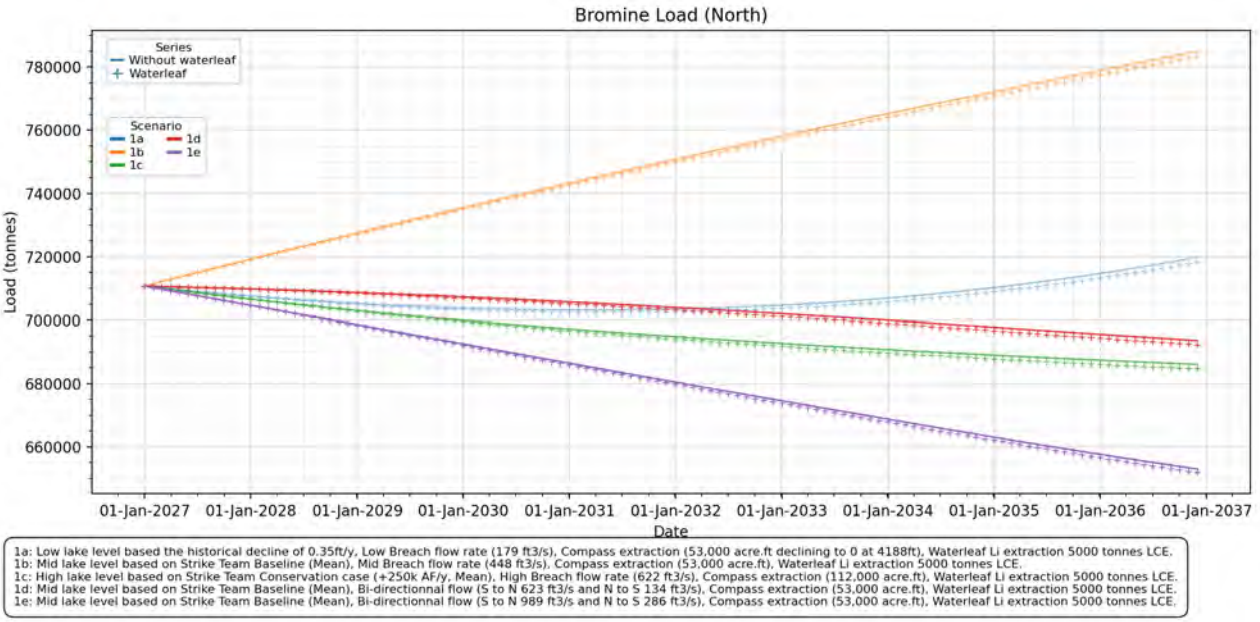


Figure 12: Summary: Bromine load (Nominal Case)

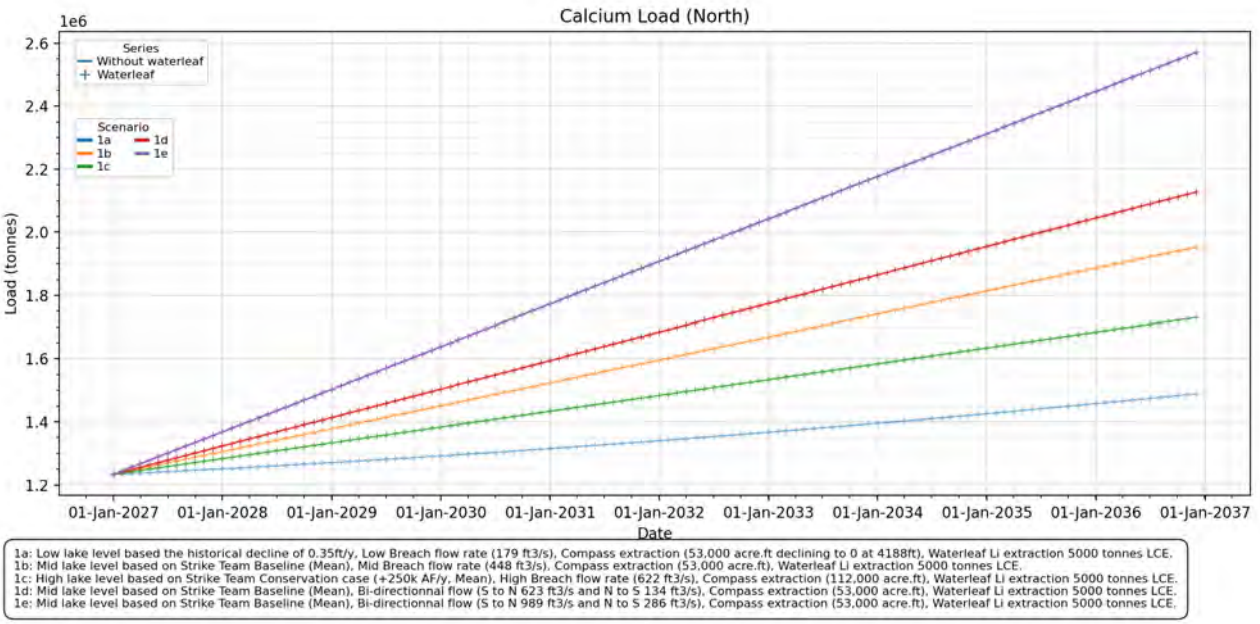


Figure 13: Summary: Calcium load (Nominal Case)

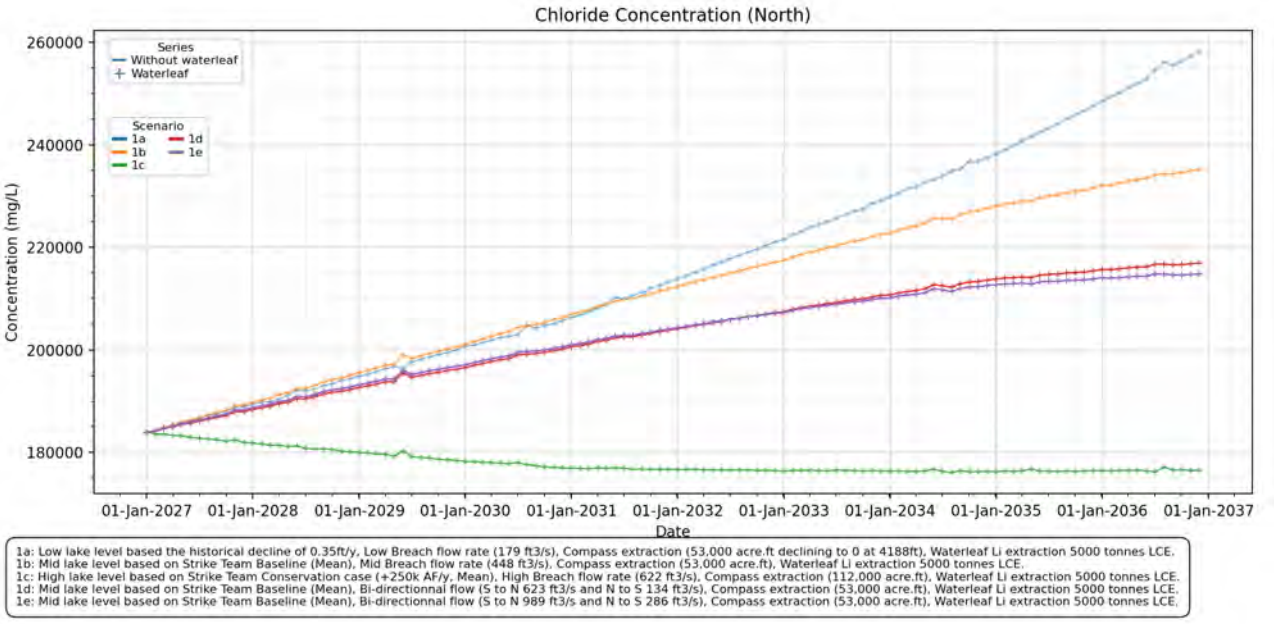


Figure 14: Summary: Chloride concentration (Nominal Case)

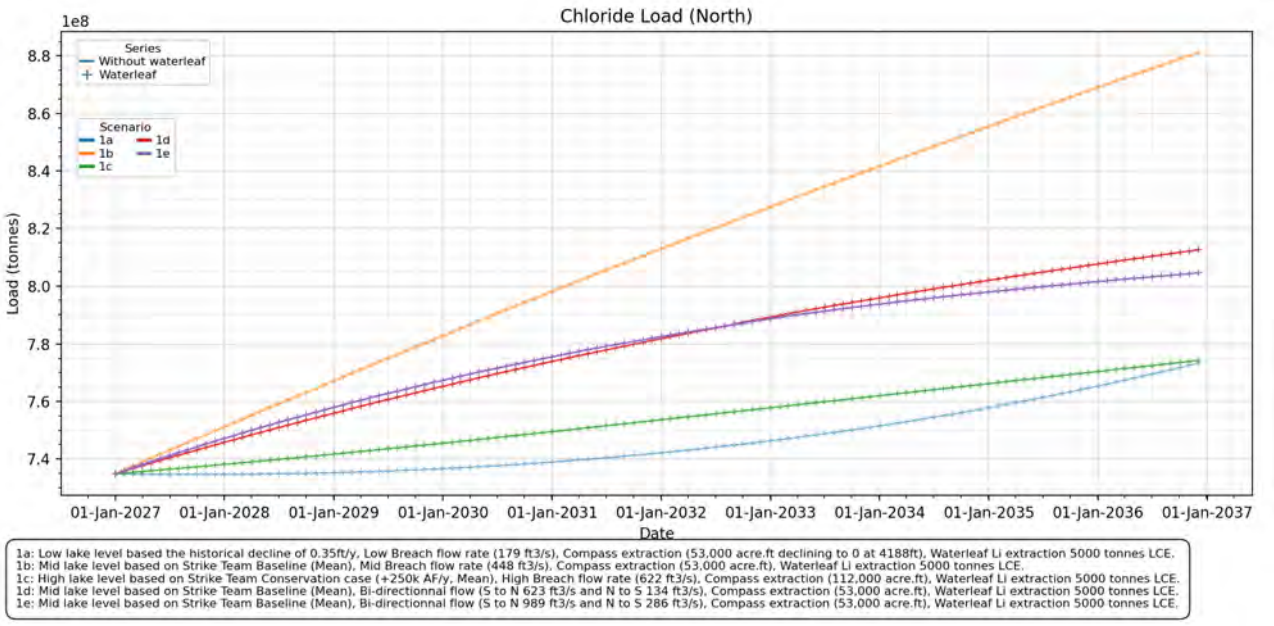


Figure 15: Summary: Chloride load (Nominal Case)

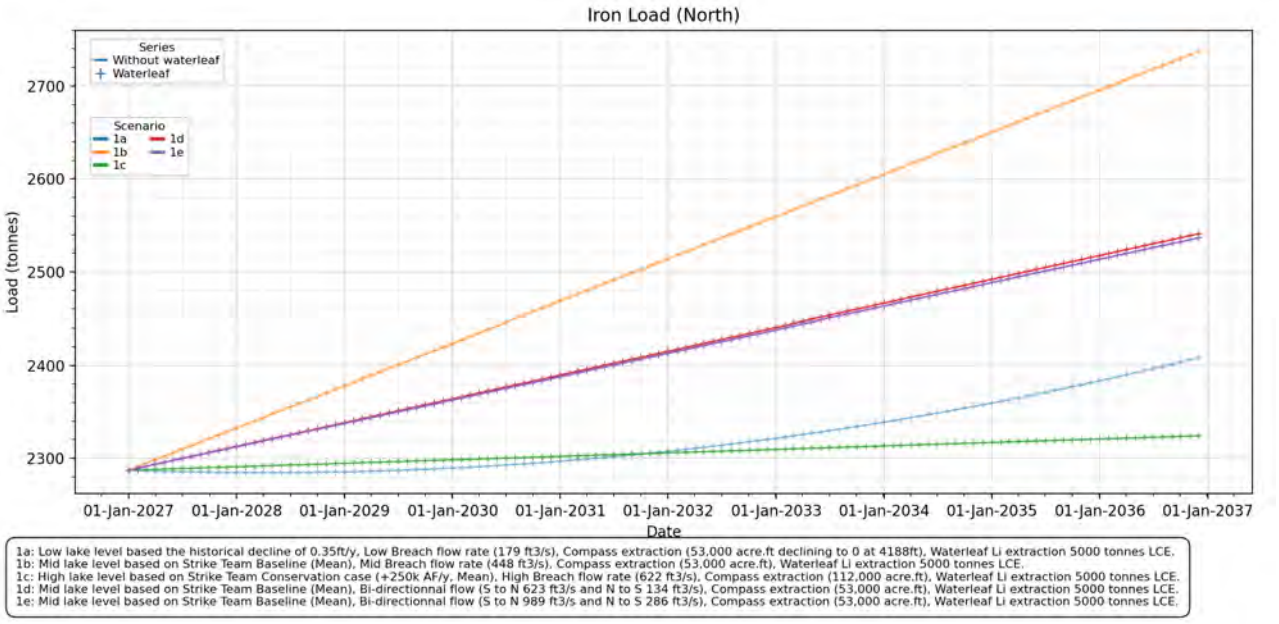


Figure 16: Summary: Iron load (Nominal Case)

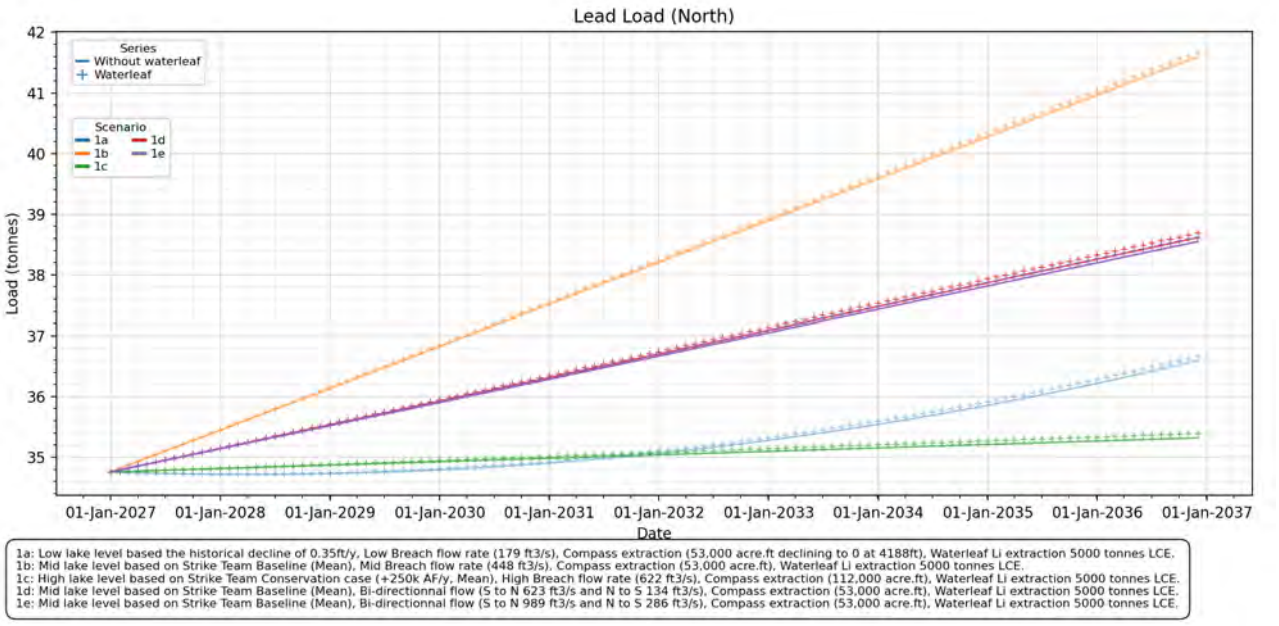


Figure 17: Summary: Lead load (Nominal Case)

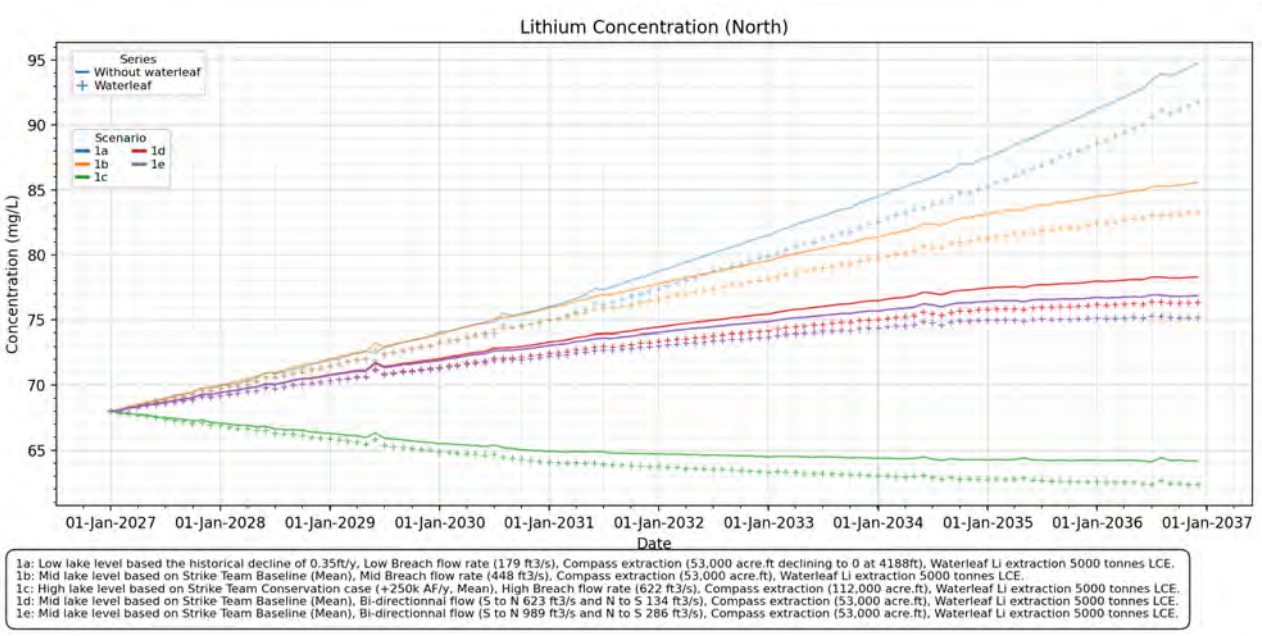


Figure 18: Summary: Lithium concentration (Nominal Case)

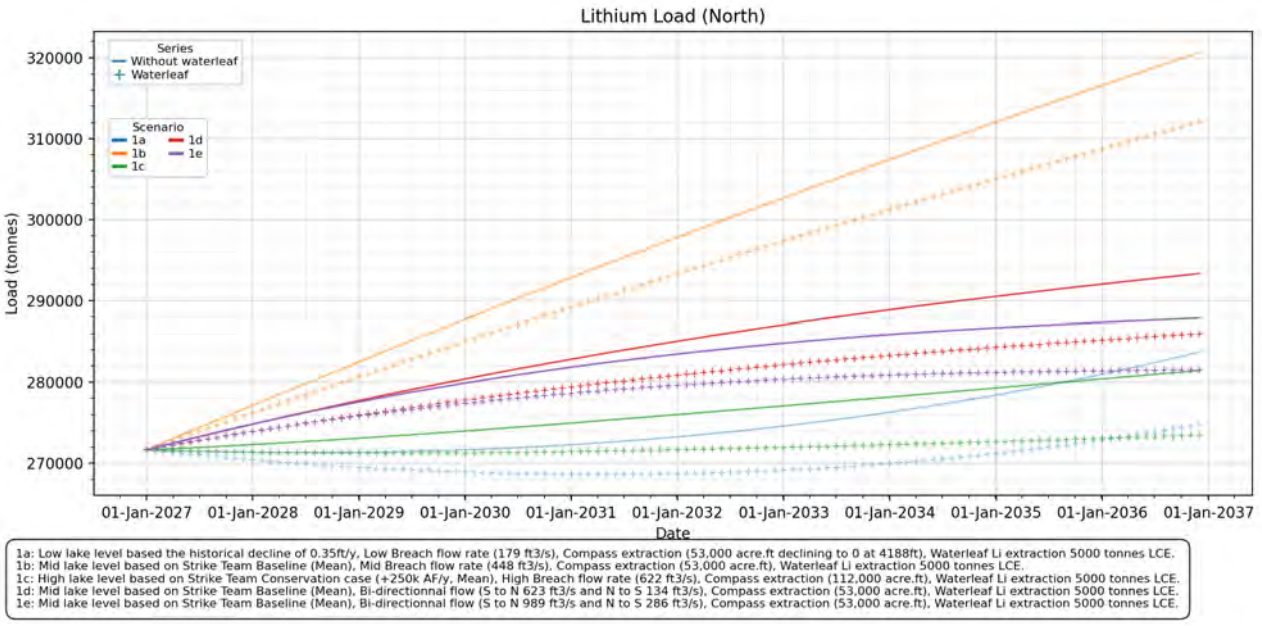


Figure 19: Summary: Lithium load (Nominal Case)

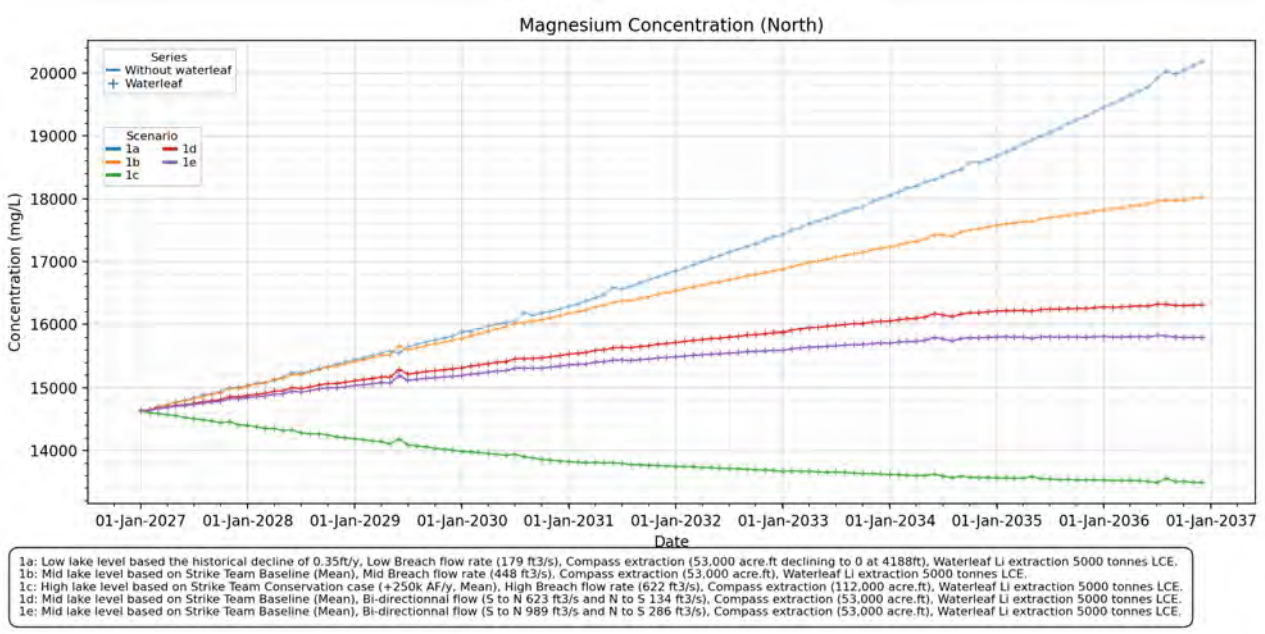


Figure 20: Summary: Magnesium concentration (Nominal Case)

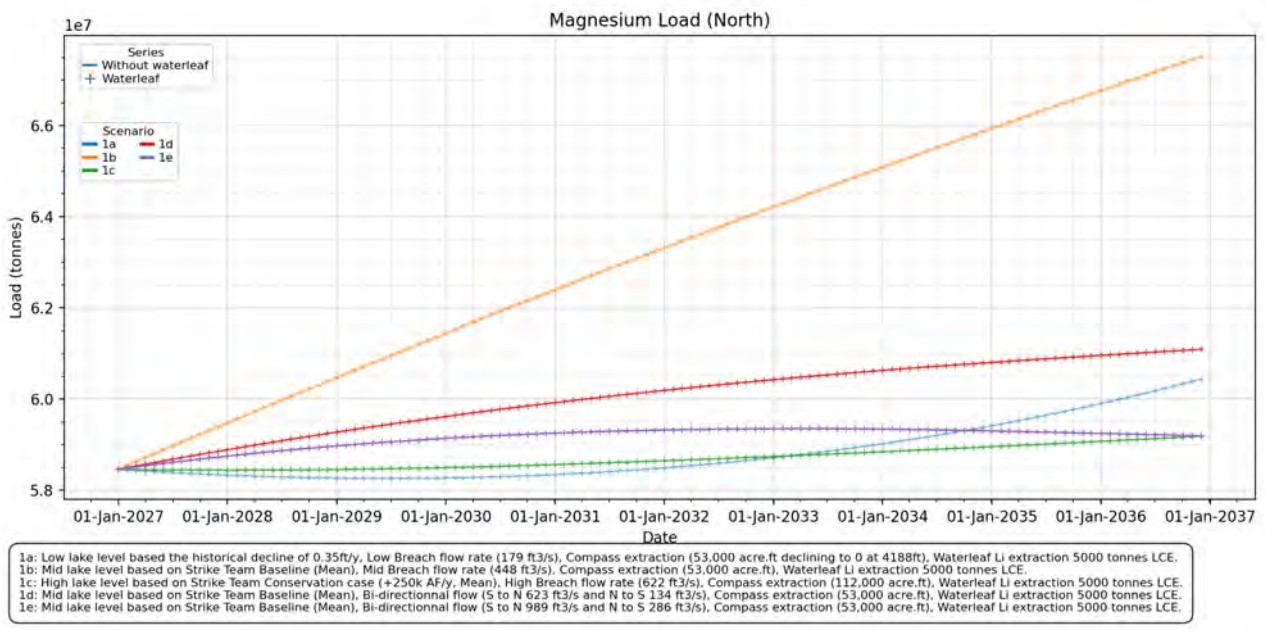


Figure 21: Summary: Magnesium load (Nominal Case)

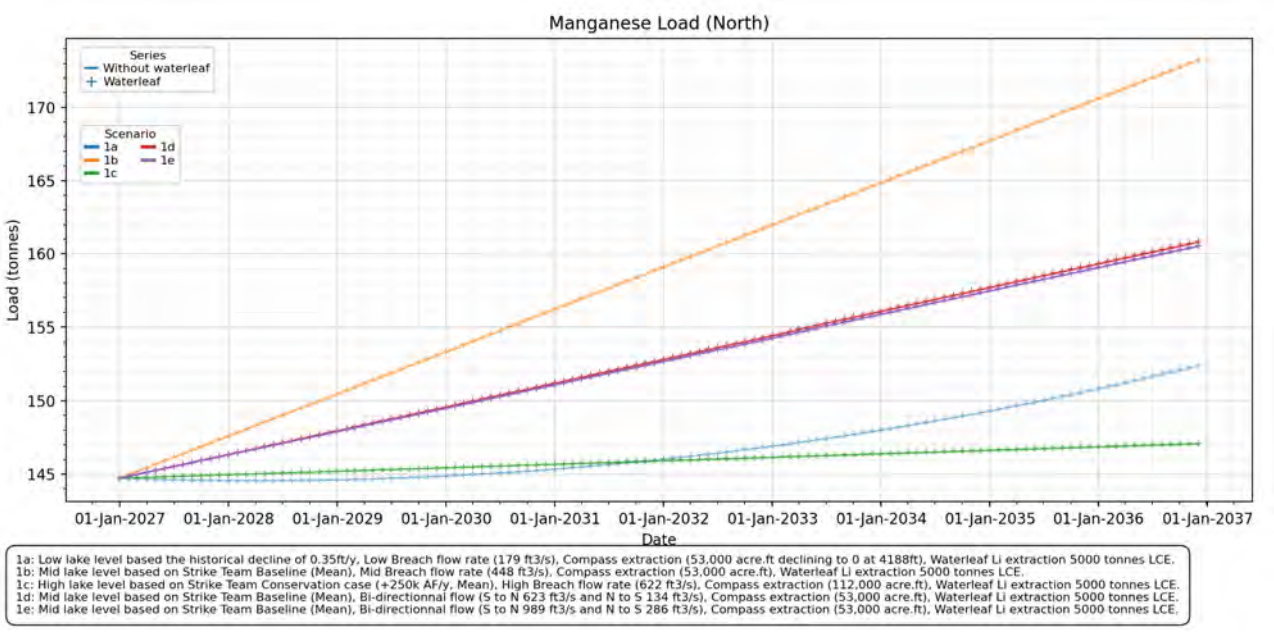


Figure 22: Summary: Manganese load (Nominal Case)

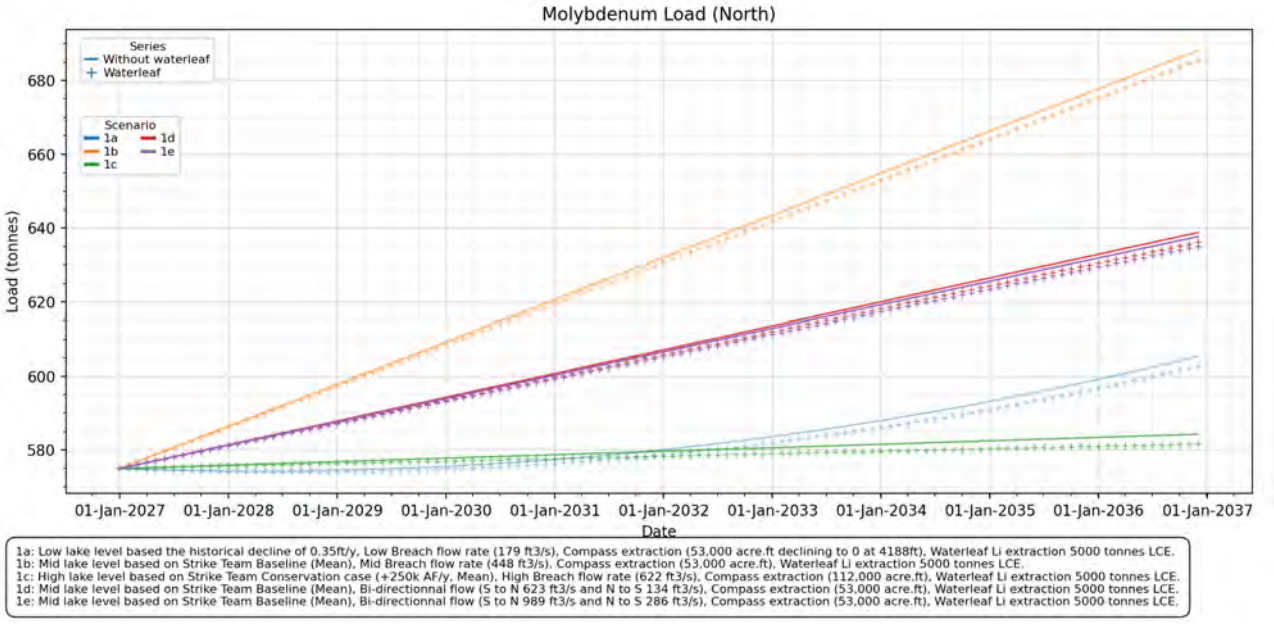


Figure 23: Summary: Molybdenum load (Nominal Case)

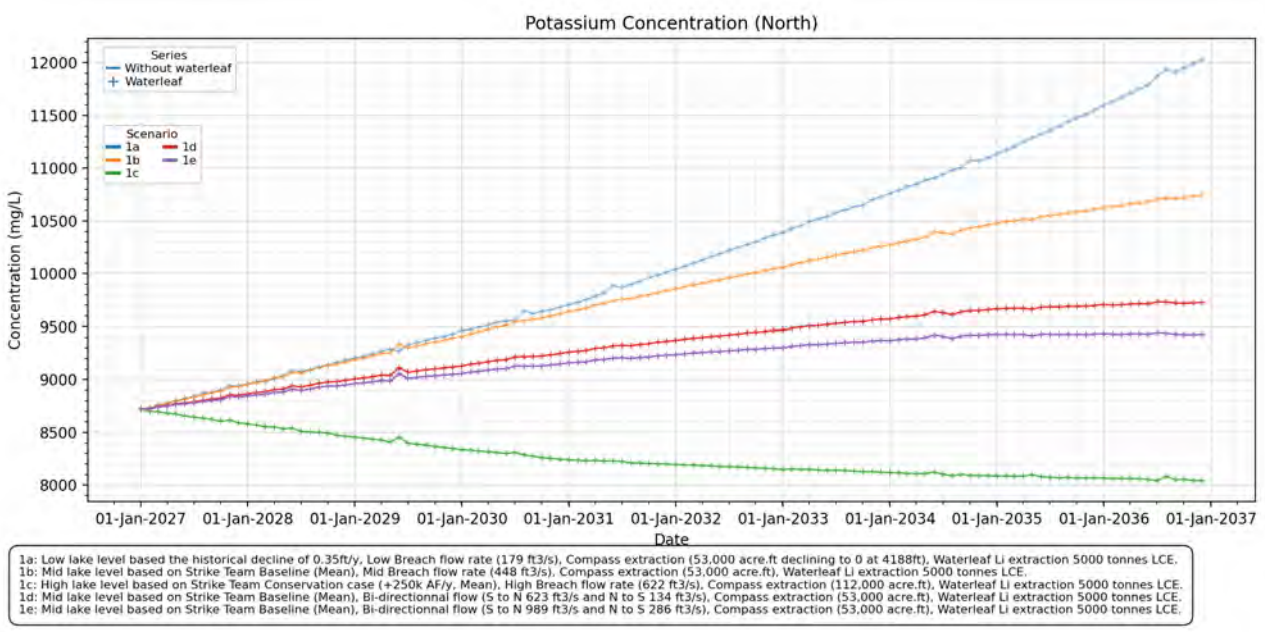


Figure 24: Summary: Potassium concentration (Nominal Case)

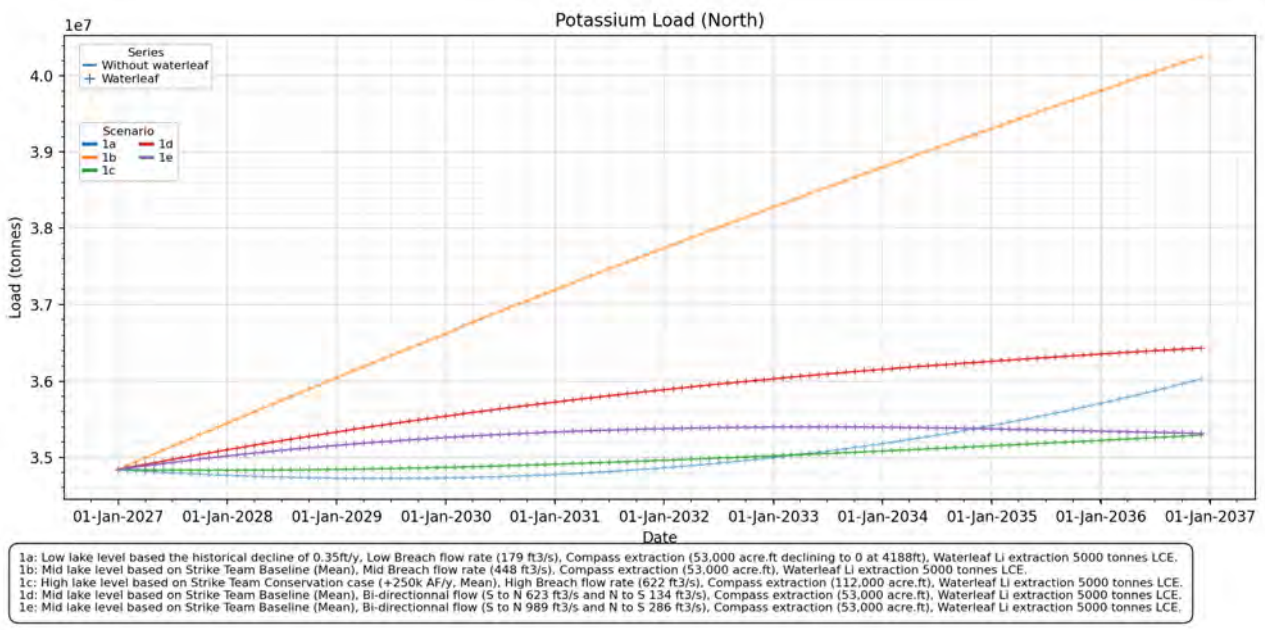


Figure 25: Summary: Potassium load (Nominal Case)

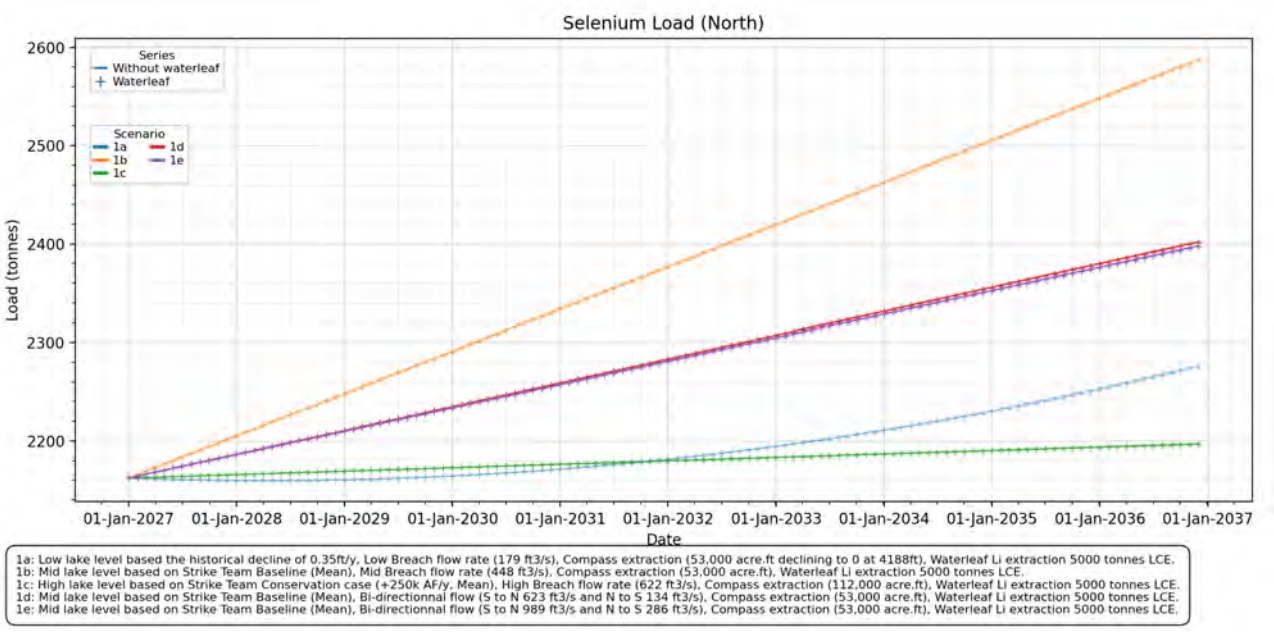


Figure 26: Summary: Selenium load (Nominal Case)

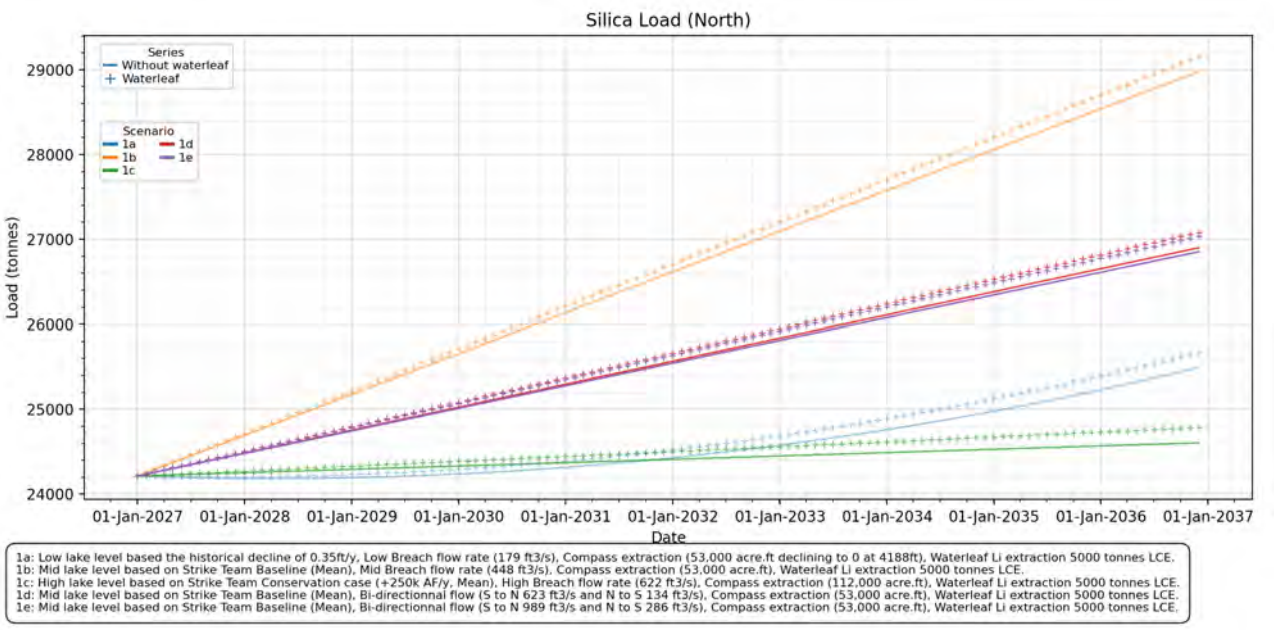


Figure 27: Summary: Silica load (Nominal Case)

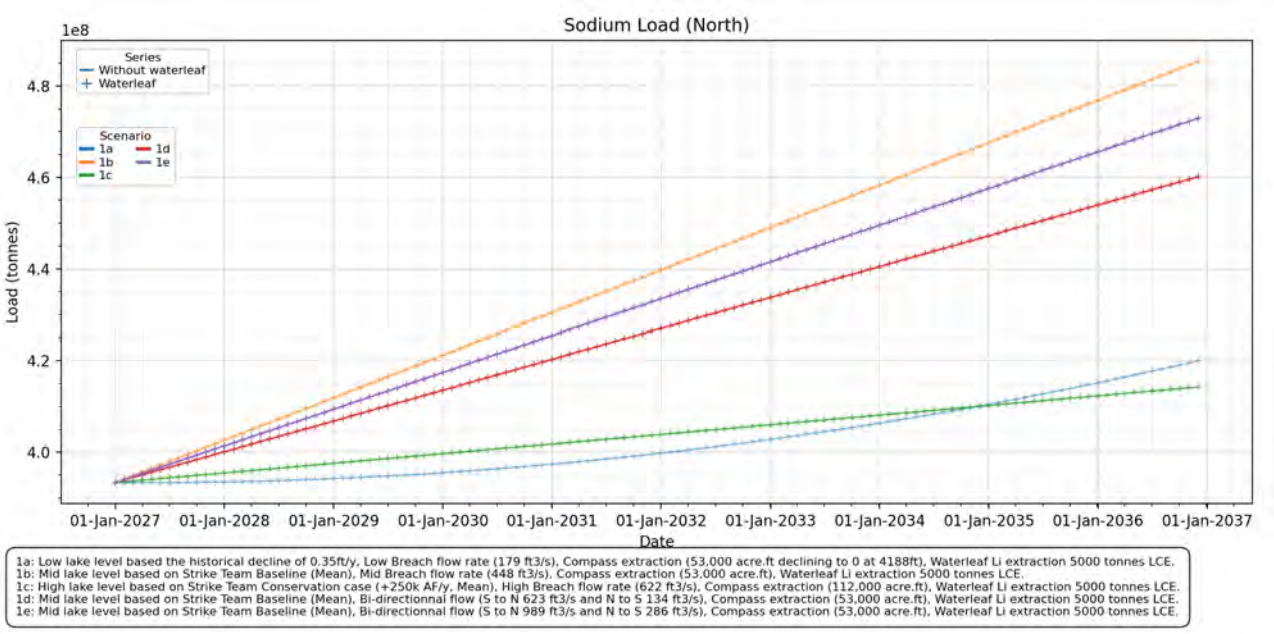


Figure 28: Summary: Sodium load (Nominal Case)

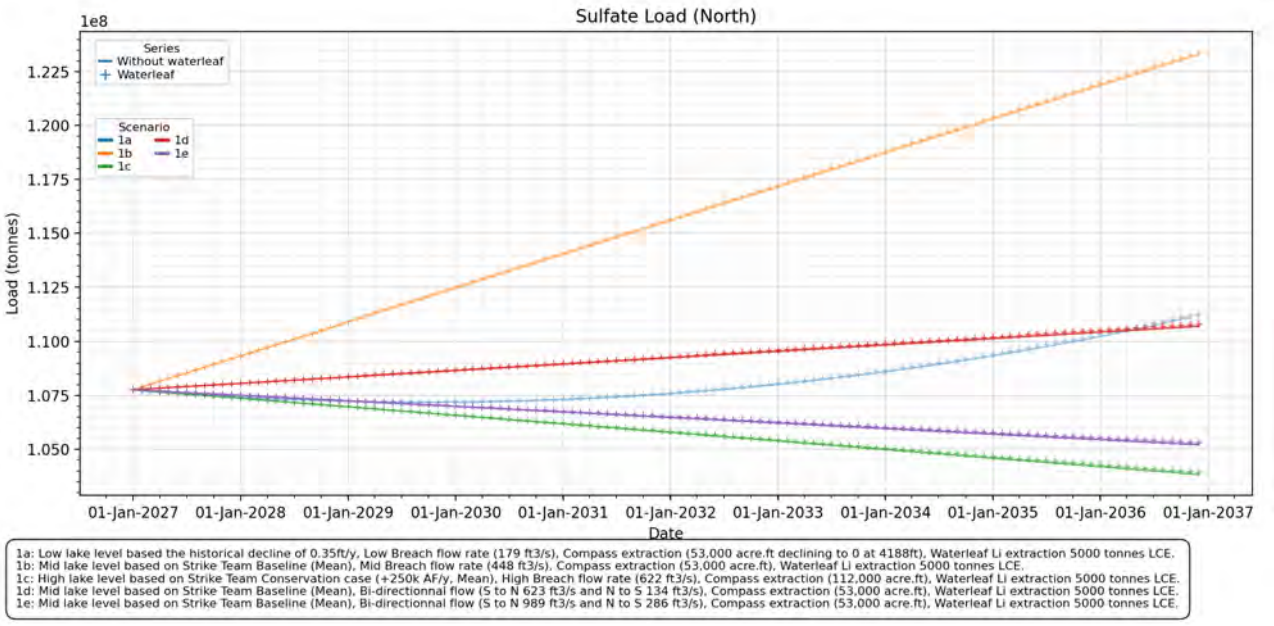


Figure 29: Summary: Sulfate load (Nominal Case)

Supplementary figures are provided for the nominal case showing the individual and combined effects of causeway breach exchange, third-party mineral extraction, and Waterleaf extraction on lithium mass balance and concentration over time.

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Plots (Nominal Case)

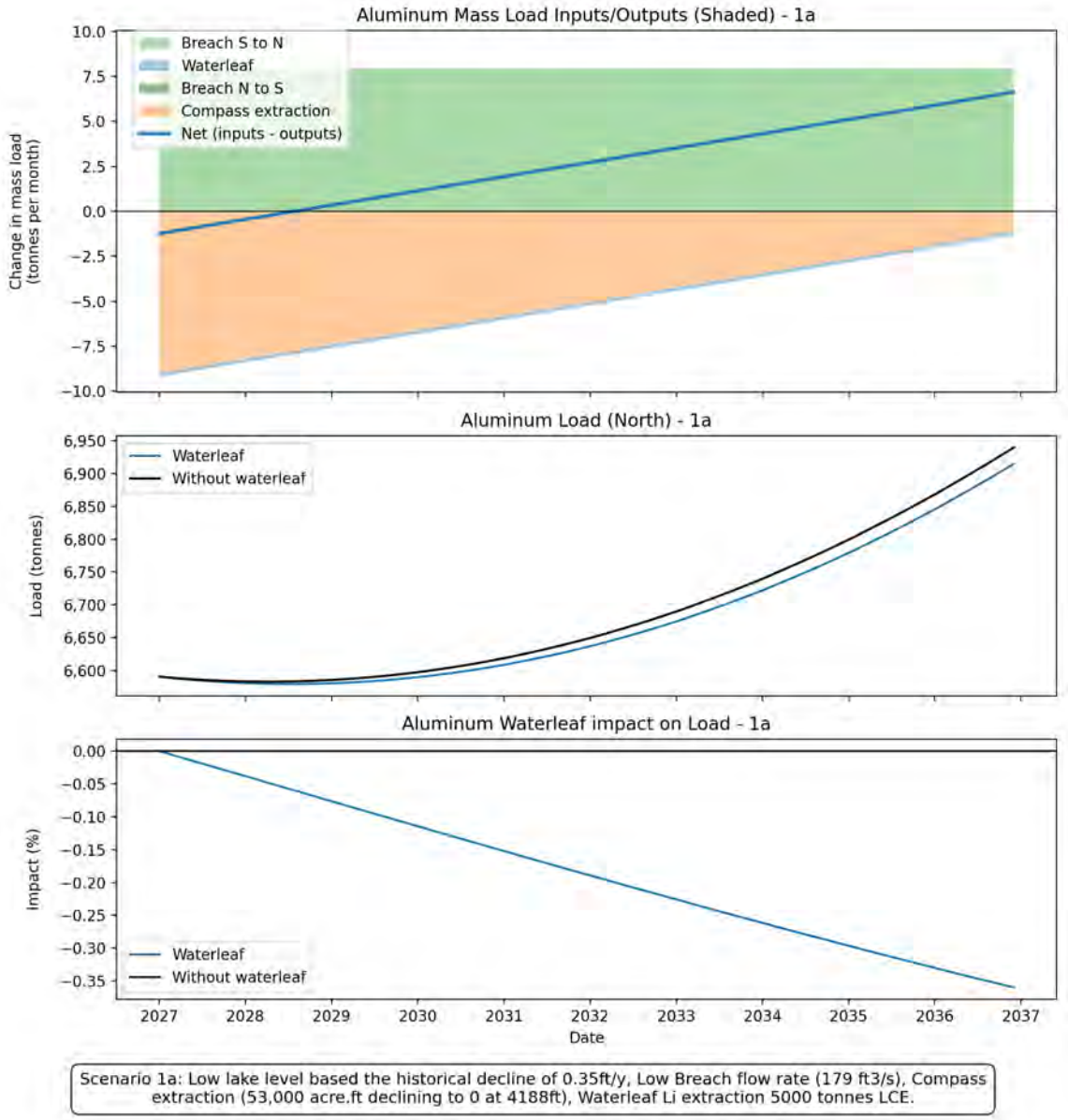


Figure 30: monthly mass balance aluminum 1a

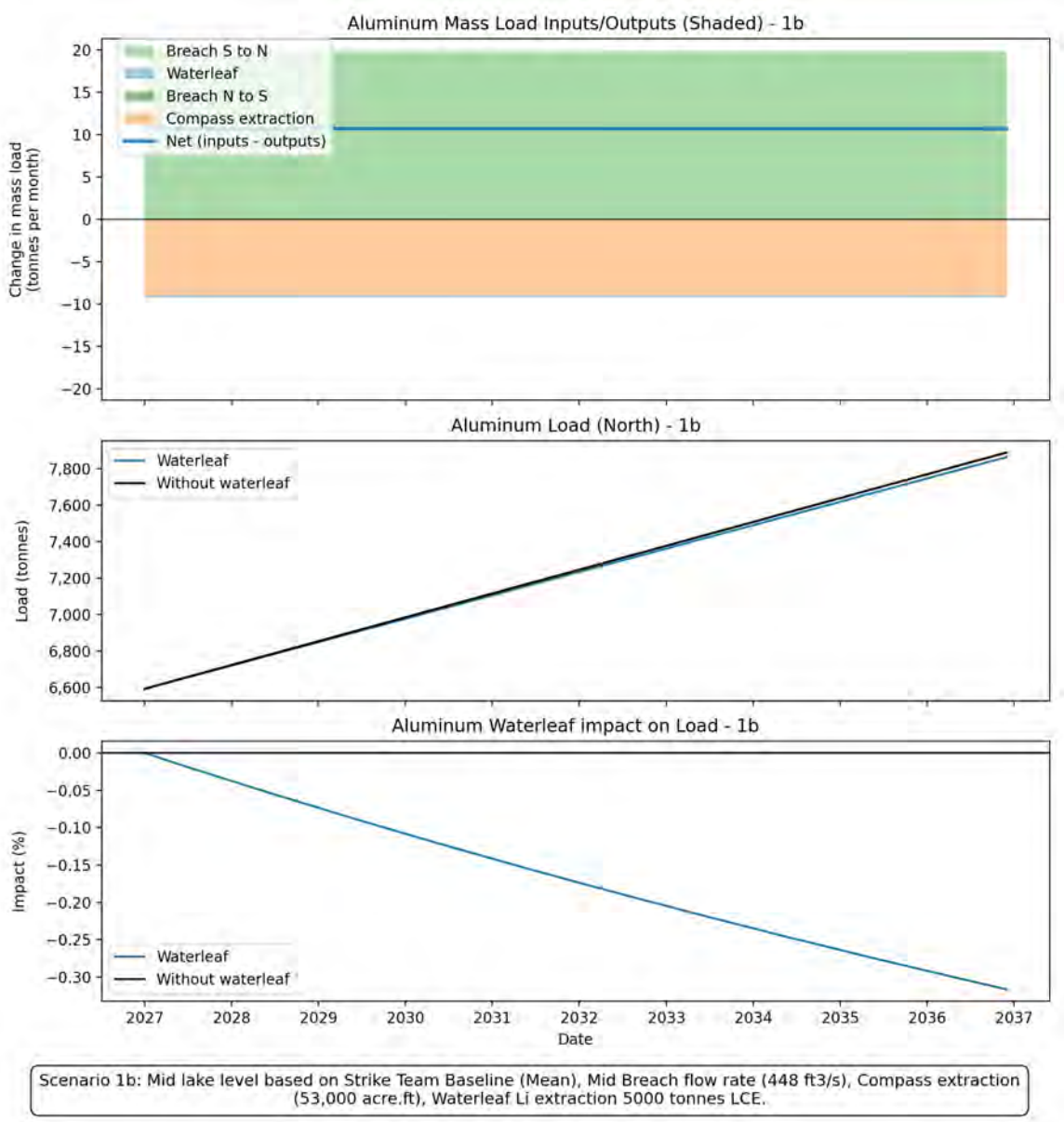


Figure 31: monthly mass balance aluminum 1b

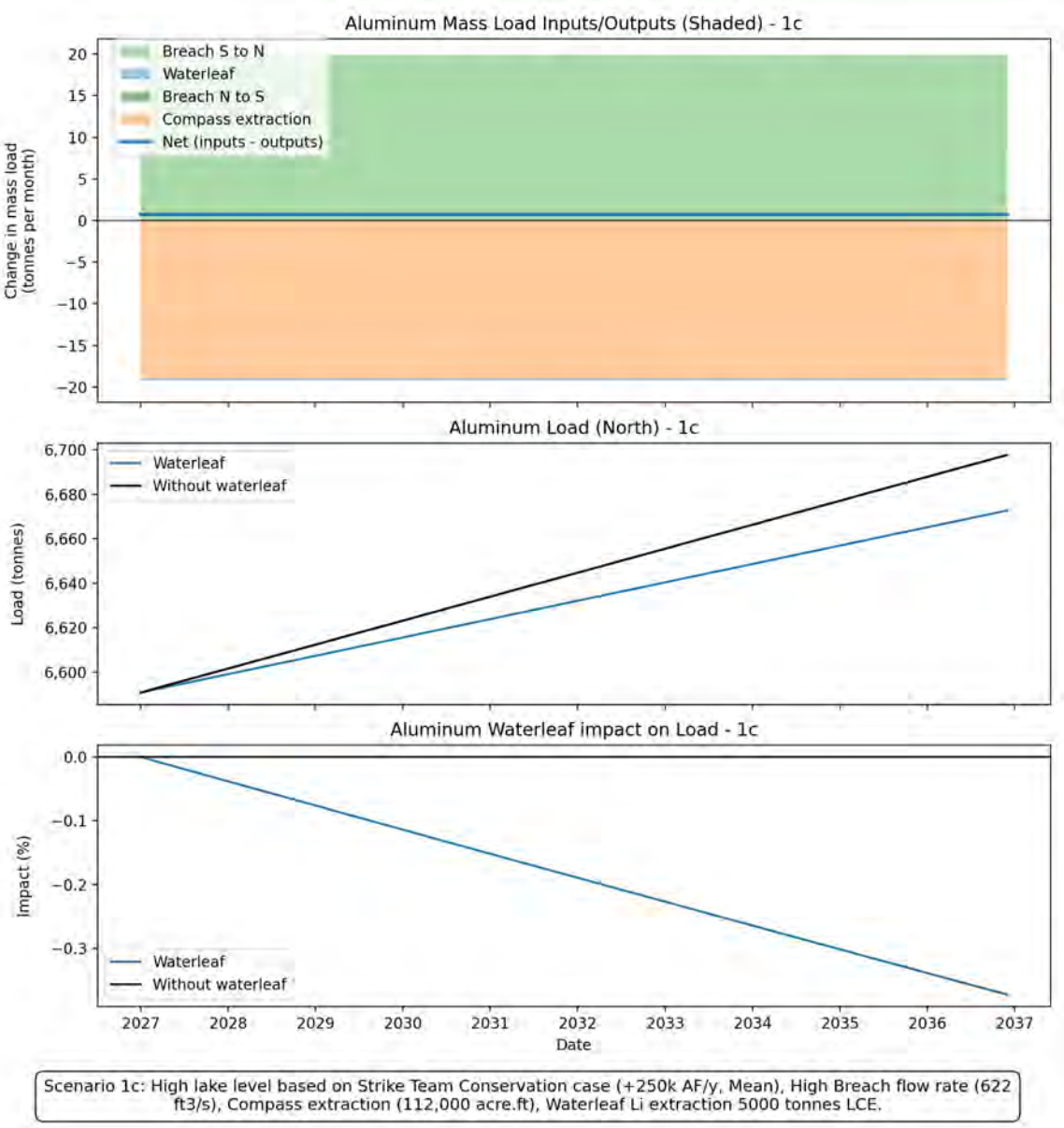


Figure 32: monthly mass balance aluminum 1c

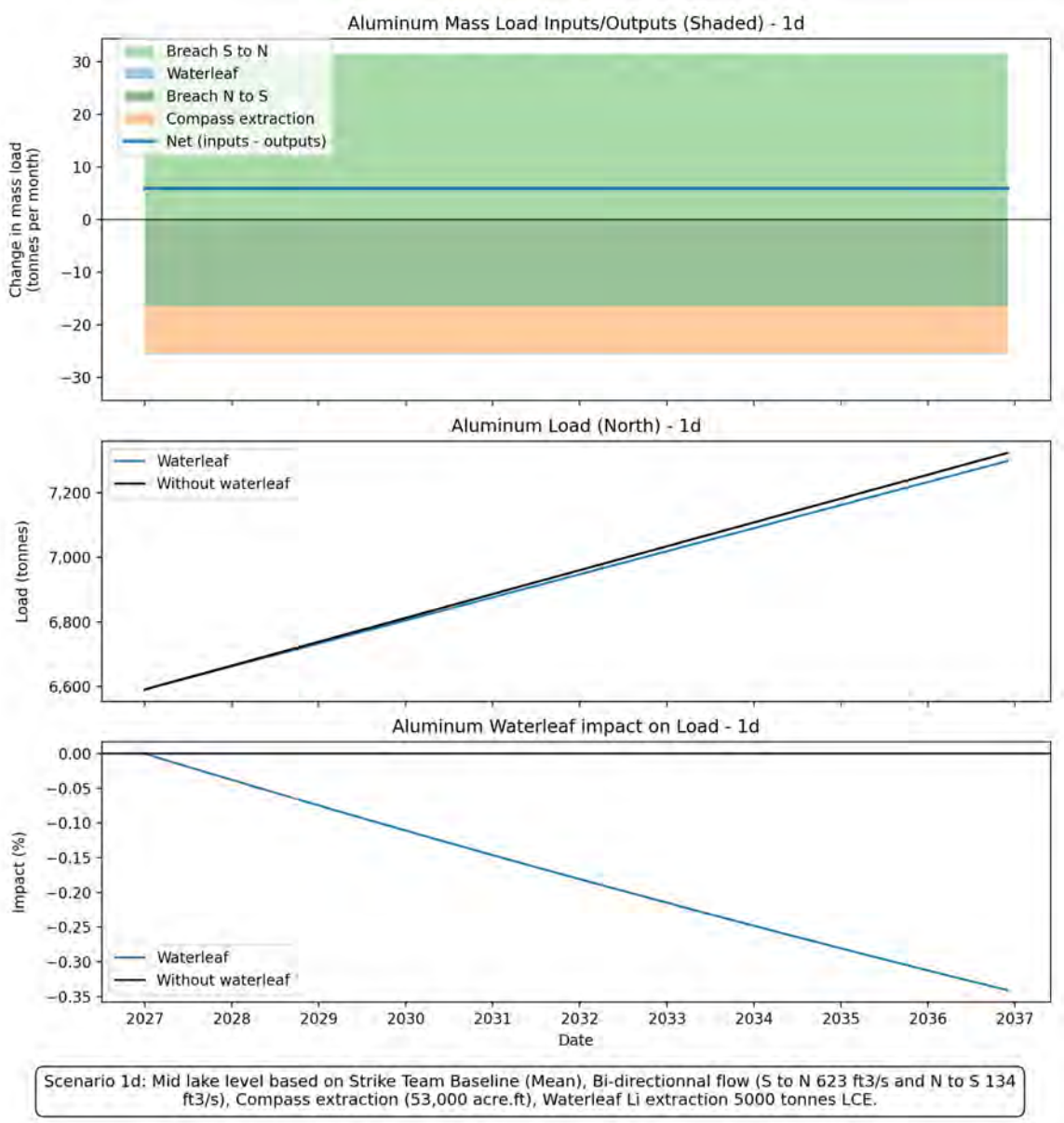


Figure 33: monthly mass balance aluminum 1d

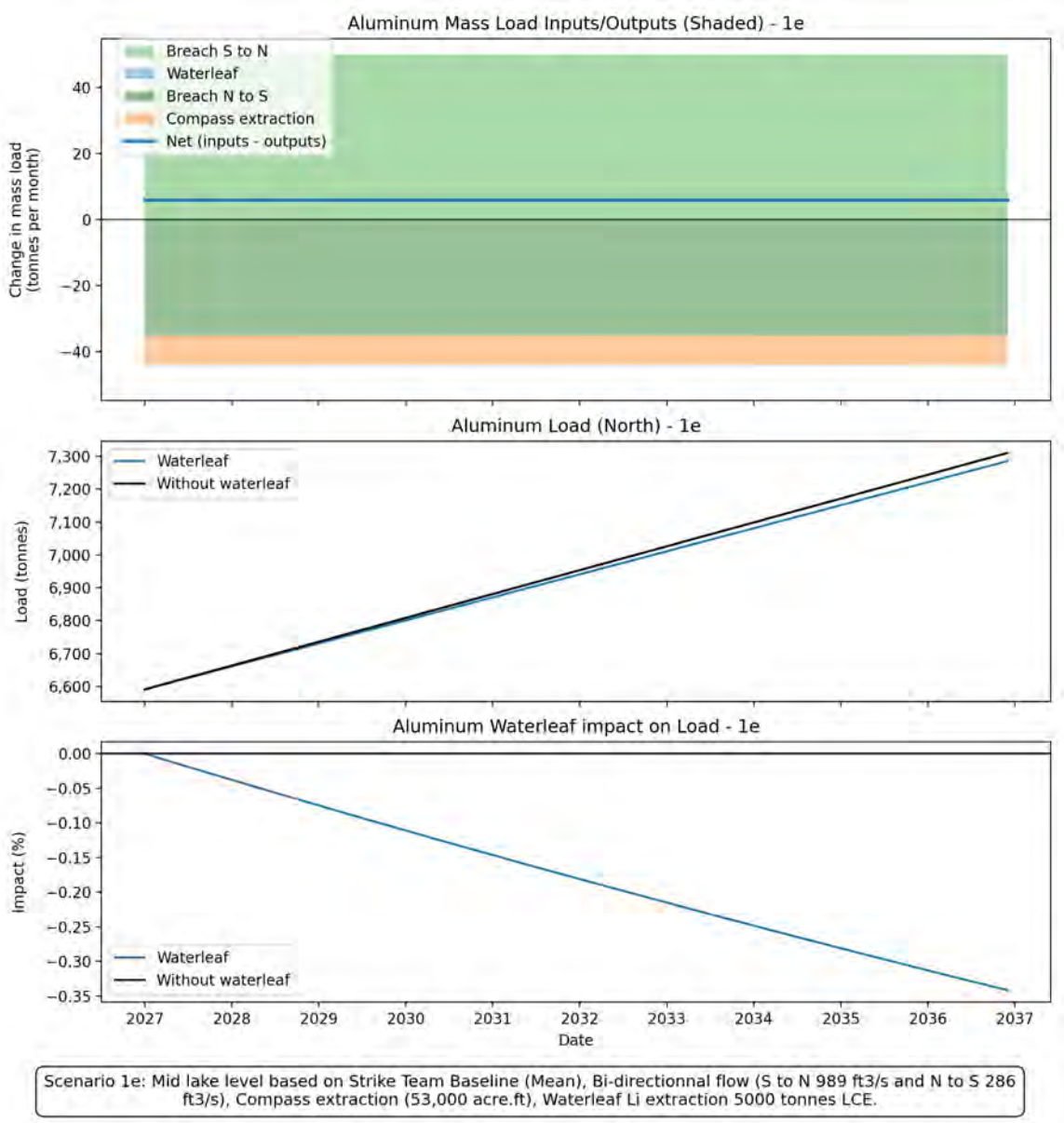


Figure 34: monthly mass balance aluminum 1e

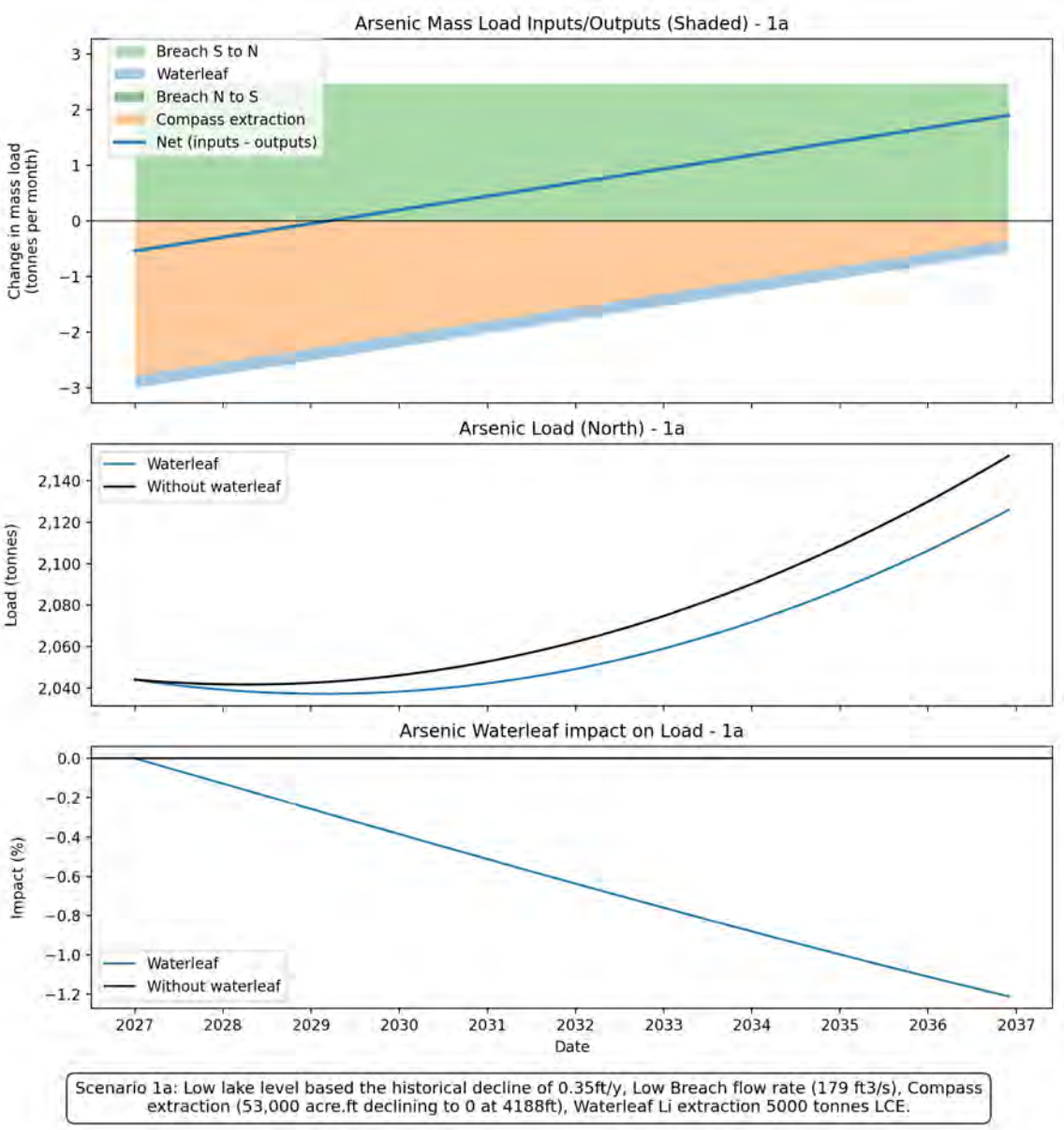


Figure 35: monthly mass balance arsenic 1a

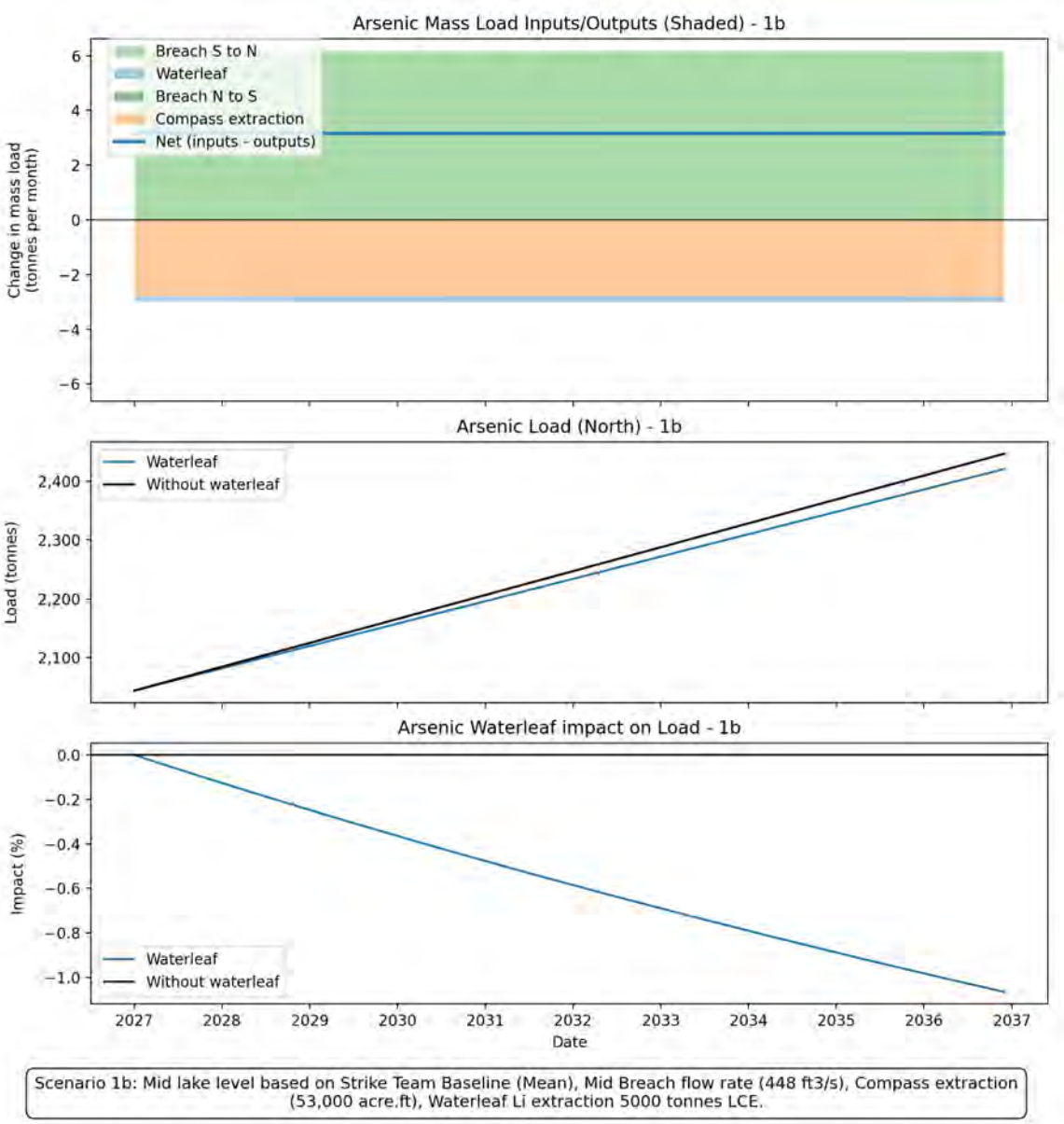


Figure 36: monthly mass balance arsenic 1b

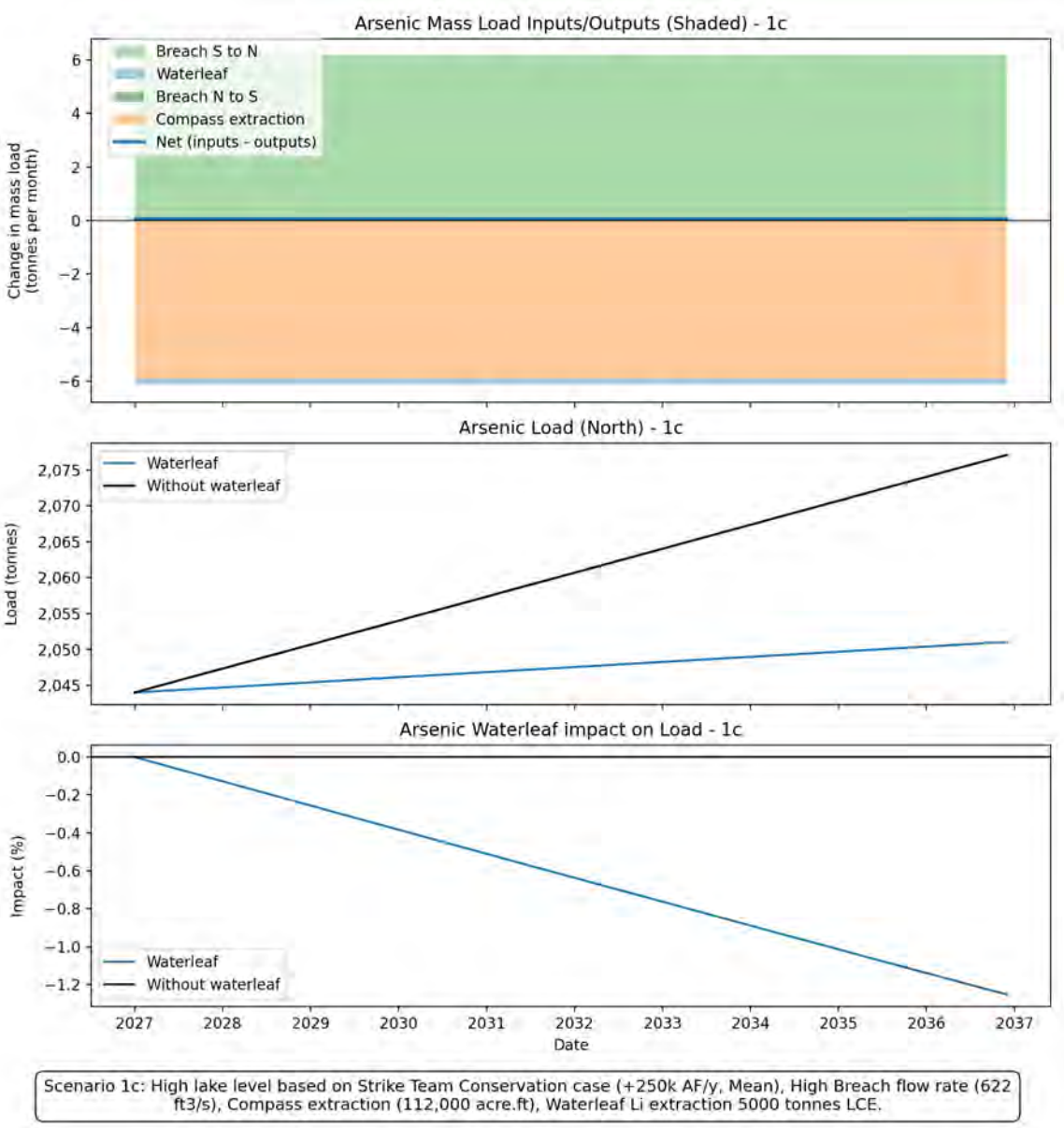


Figure 37: monthly mass balance arsenic 1c

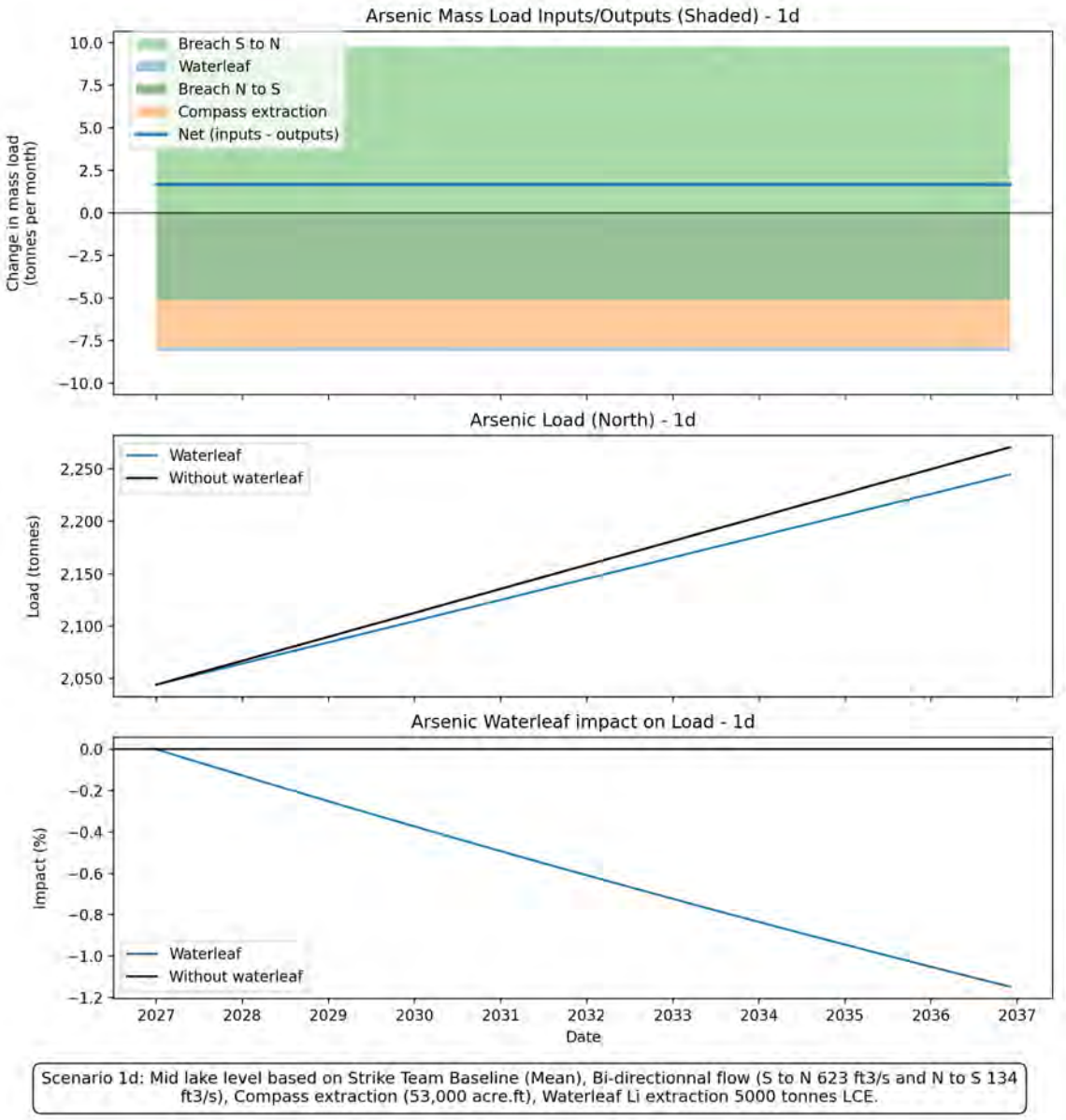


Figure 38: monthly mass balance arsenic 1d

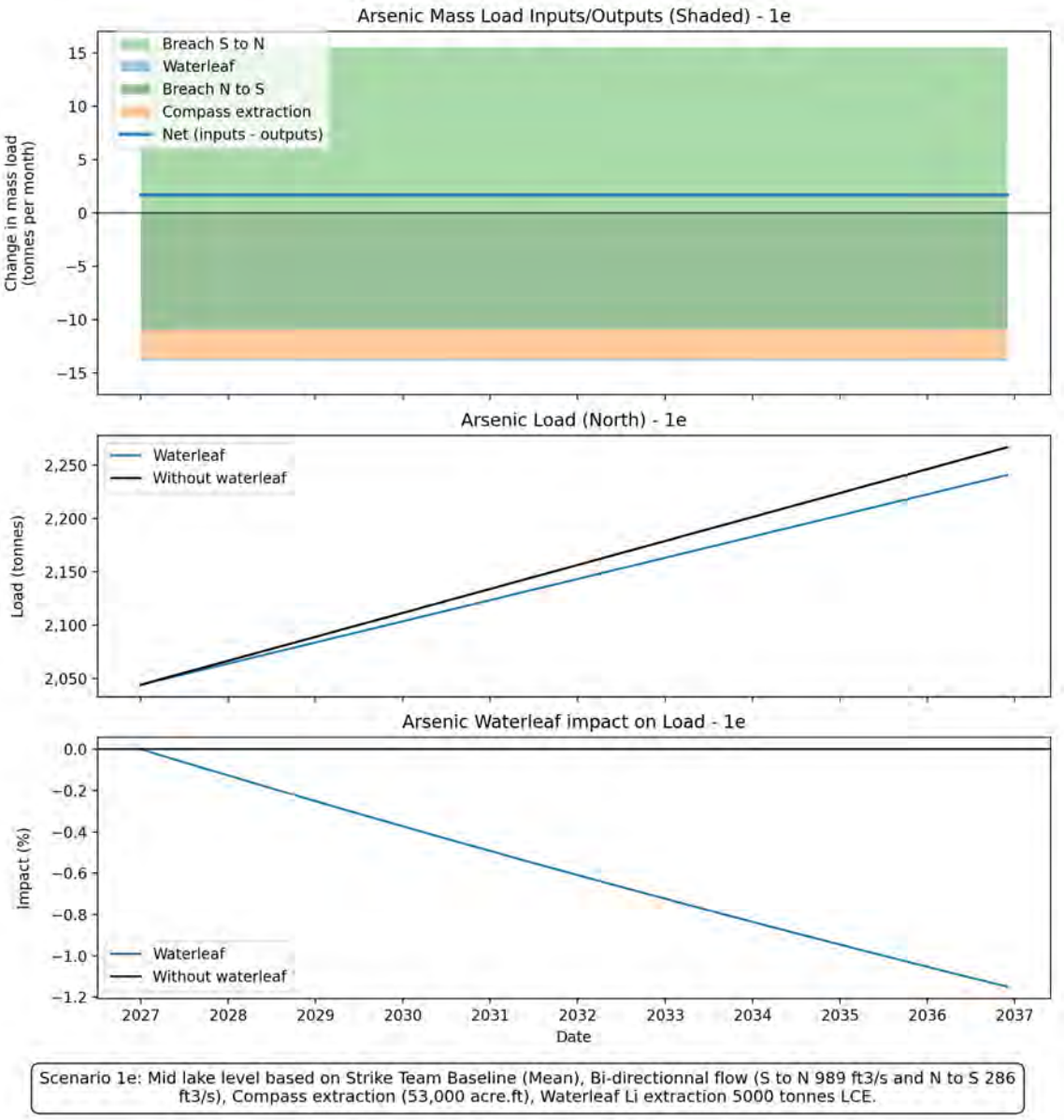


Figure 39: monthly mass balance arsenic 1e

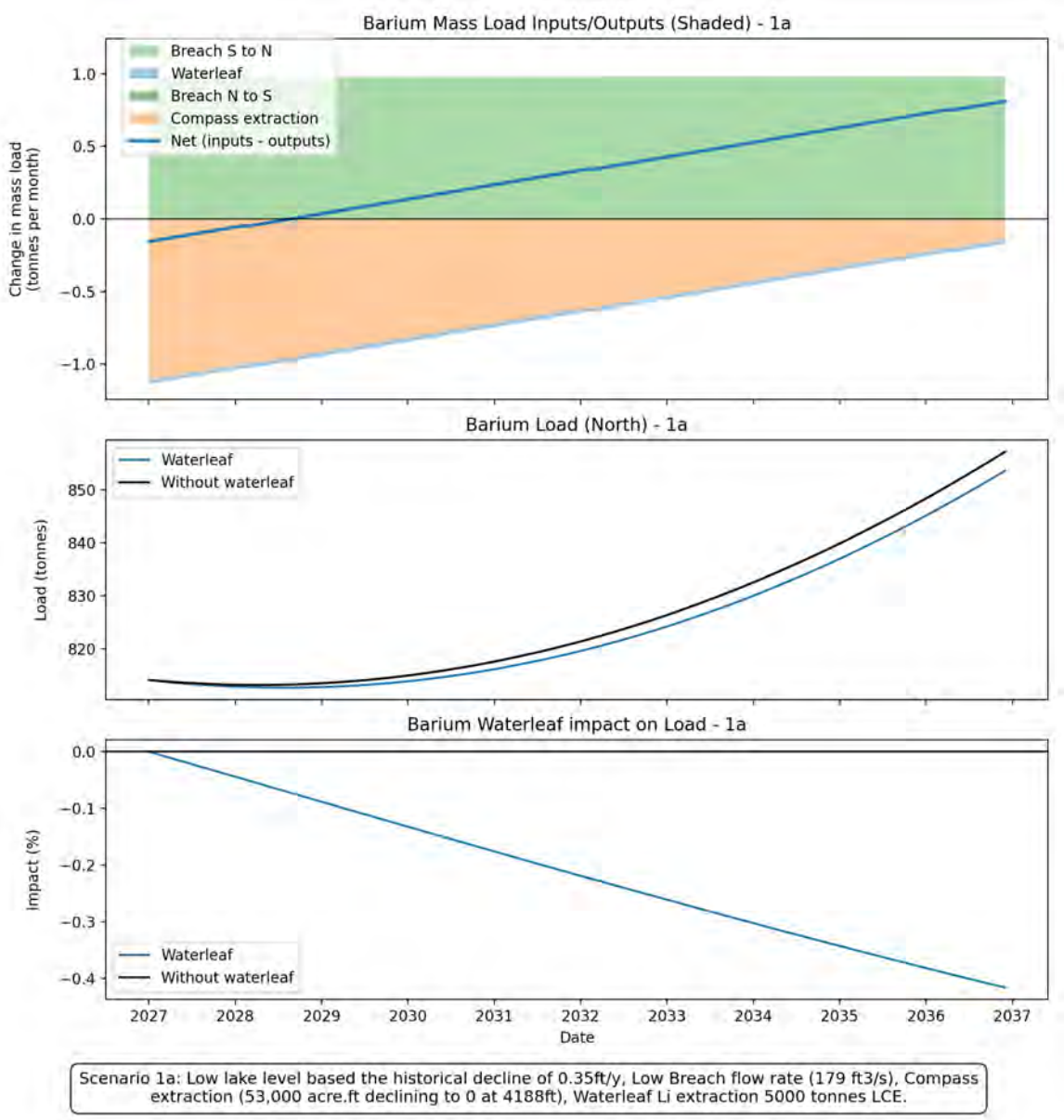


Figure 40: monthly mass balance barium 1a

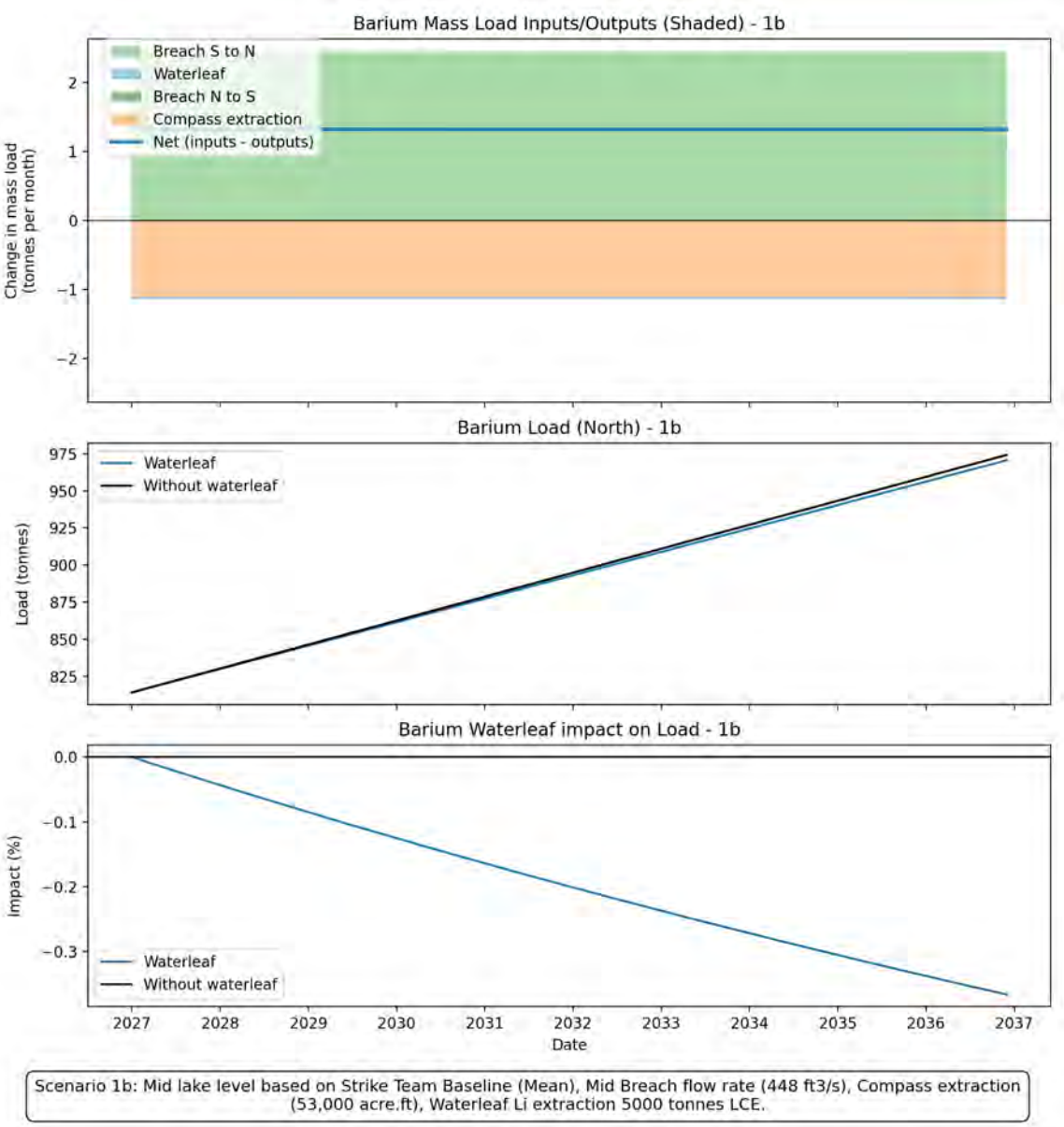


Figure 41: monthly mass balance barium 1b

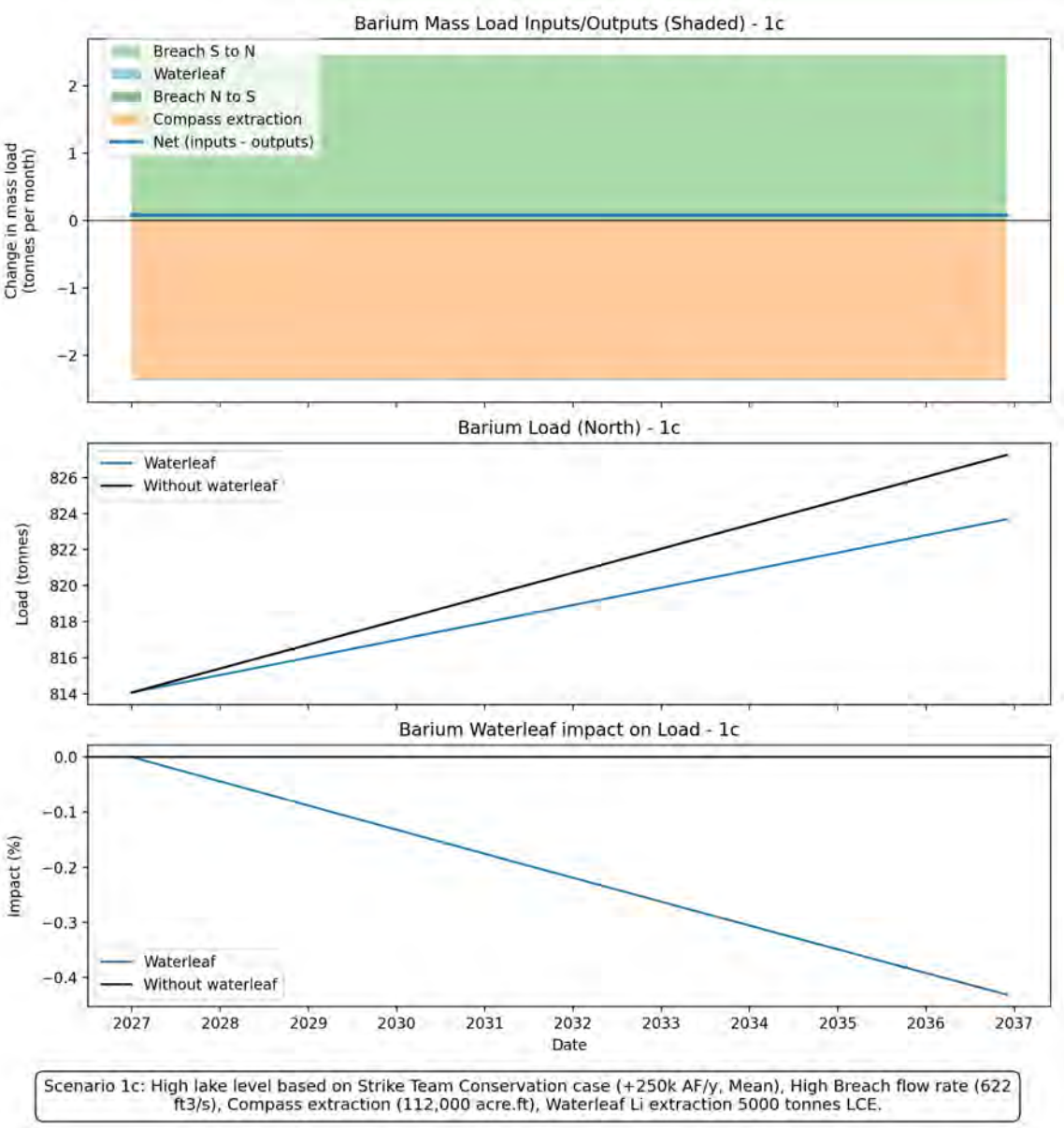


Figure 42: monthly mass balance barium 1c

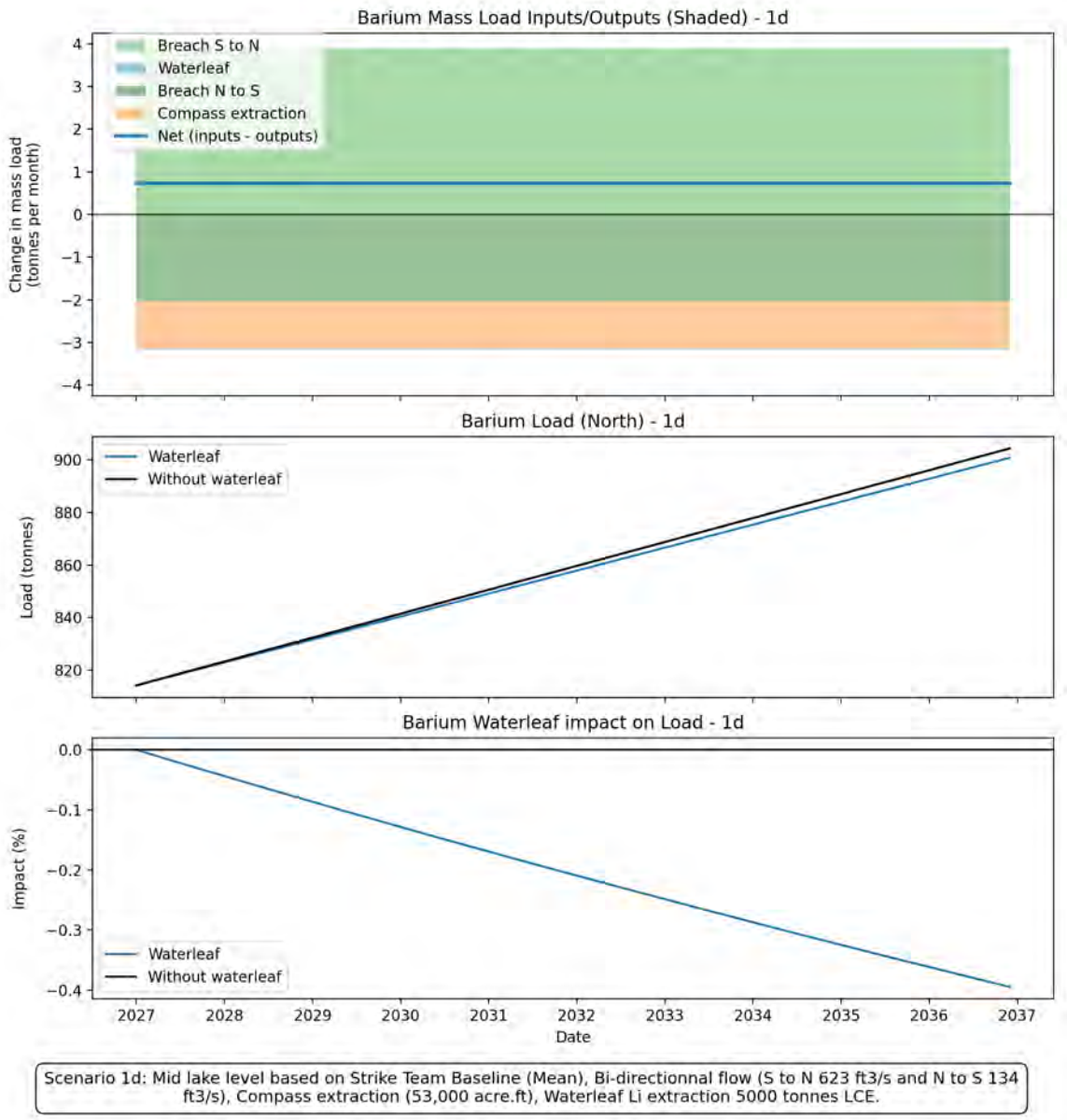


Figure 43: monthly mass balance barium 1d

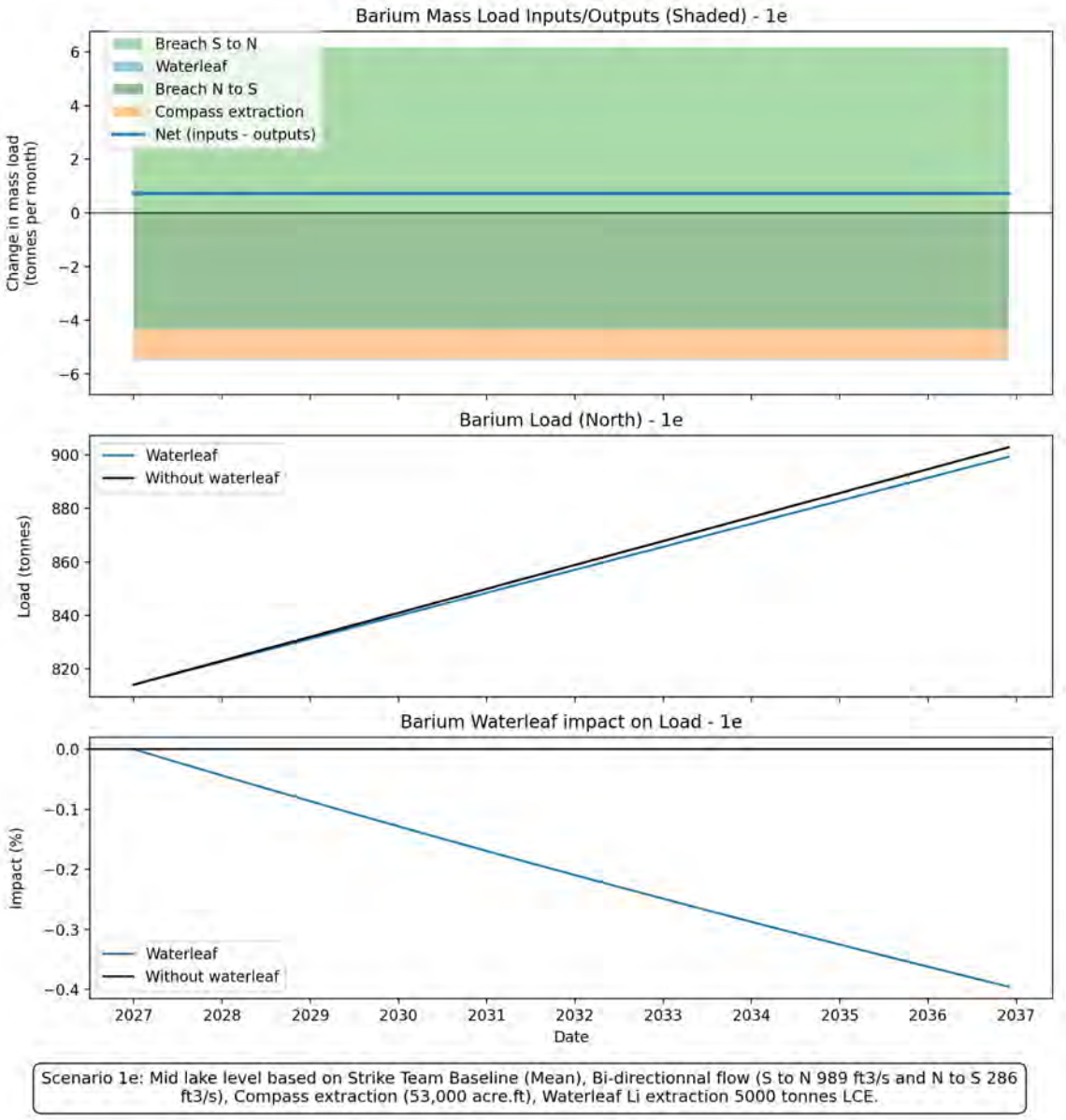


Figure 44: monthly mass balance barium 1e

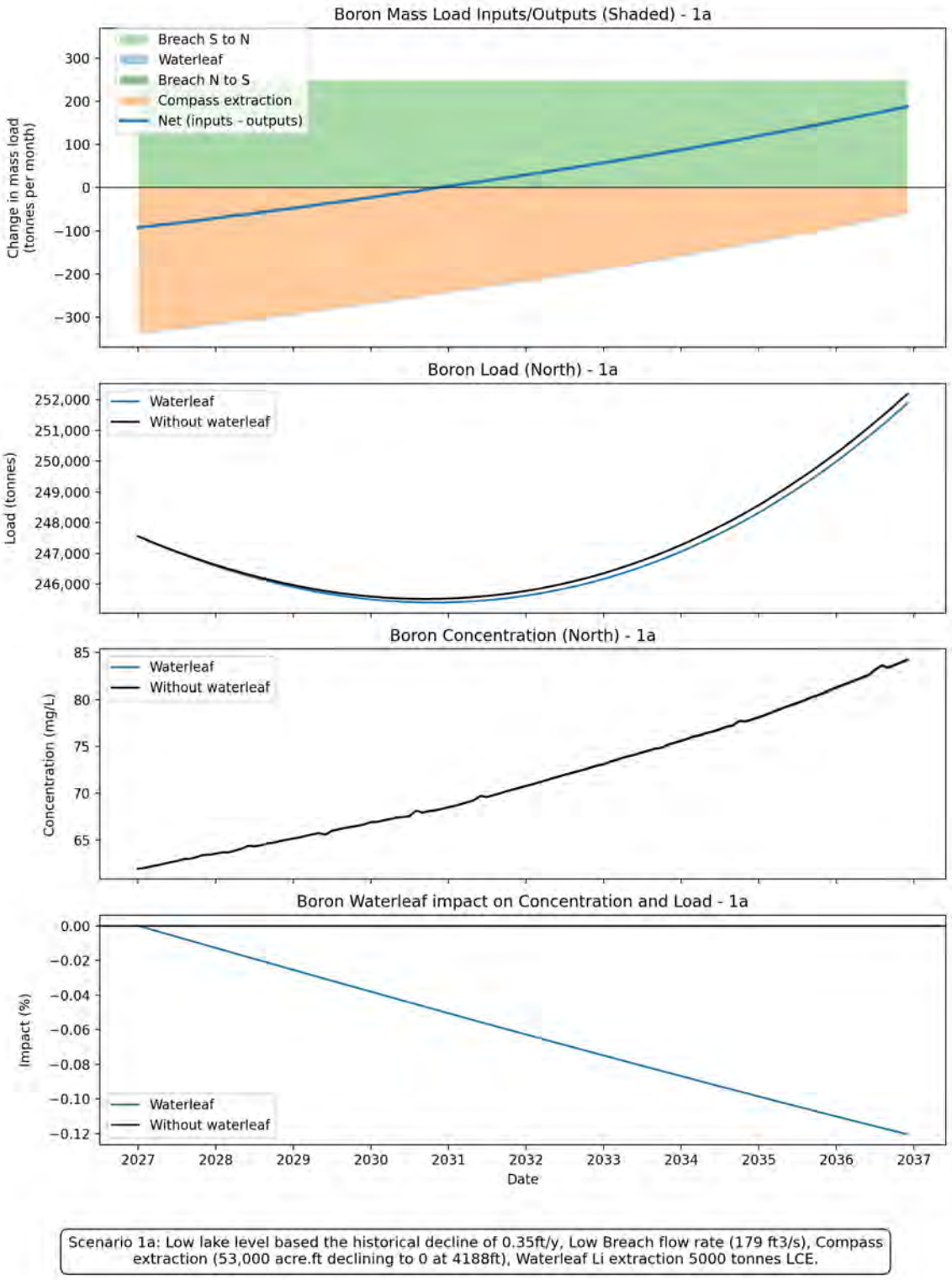


Figure 45: monthly mass balance boron 1a

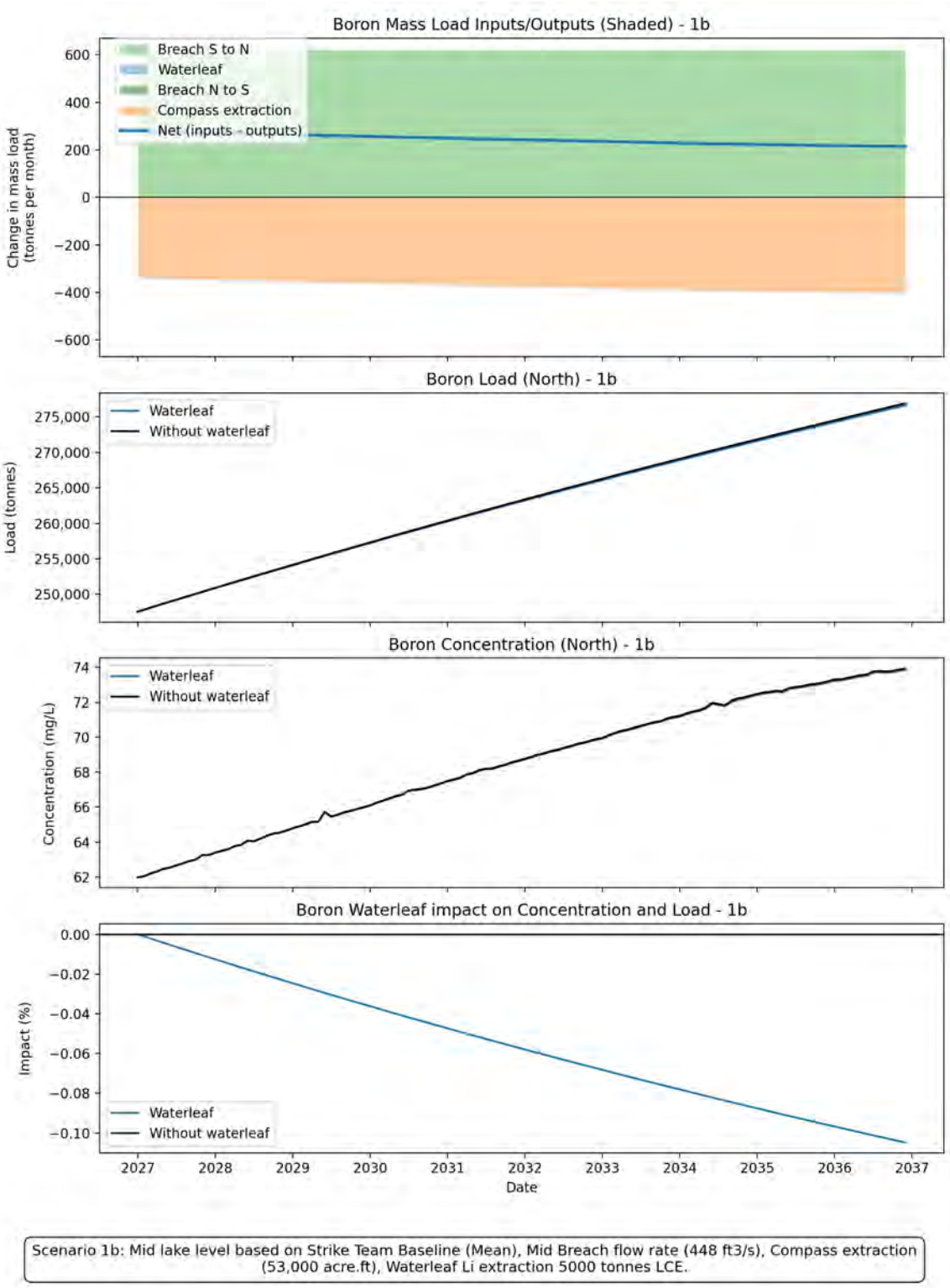


Figure 46: monthly mass balance boron 1b

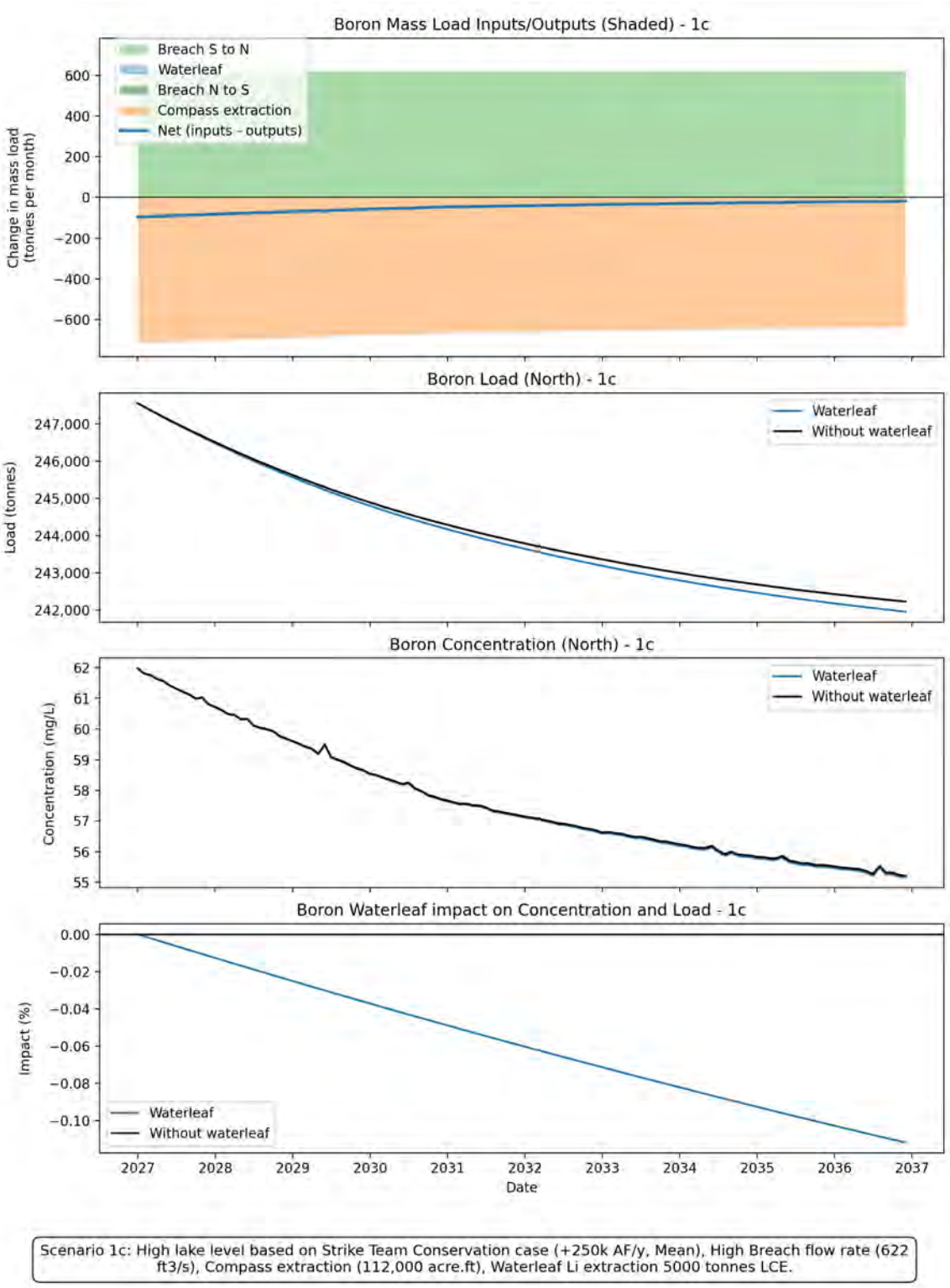


Figure 47: monthly mass balance boron 1c

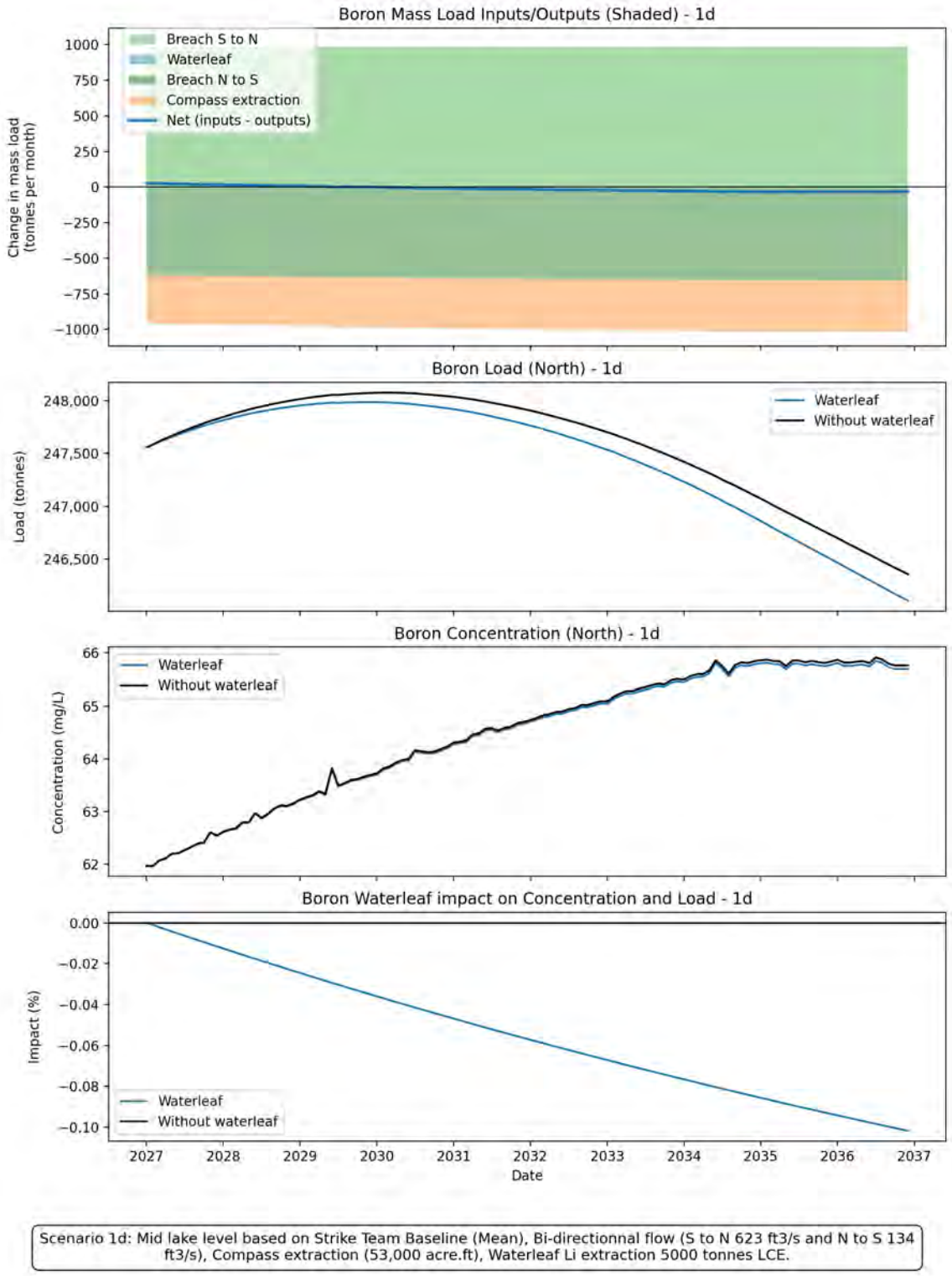


Figure 48: monthly mass balance boron 1d

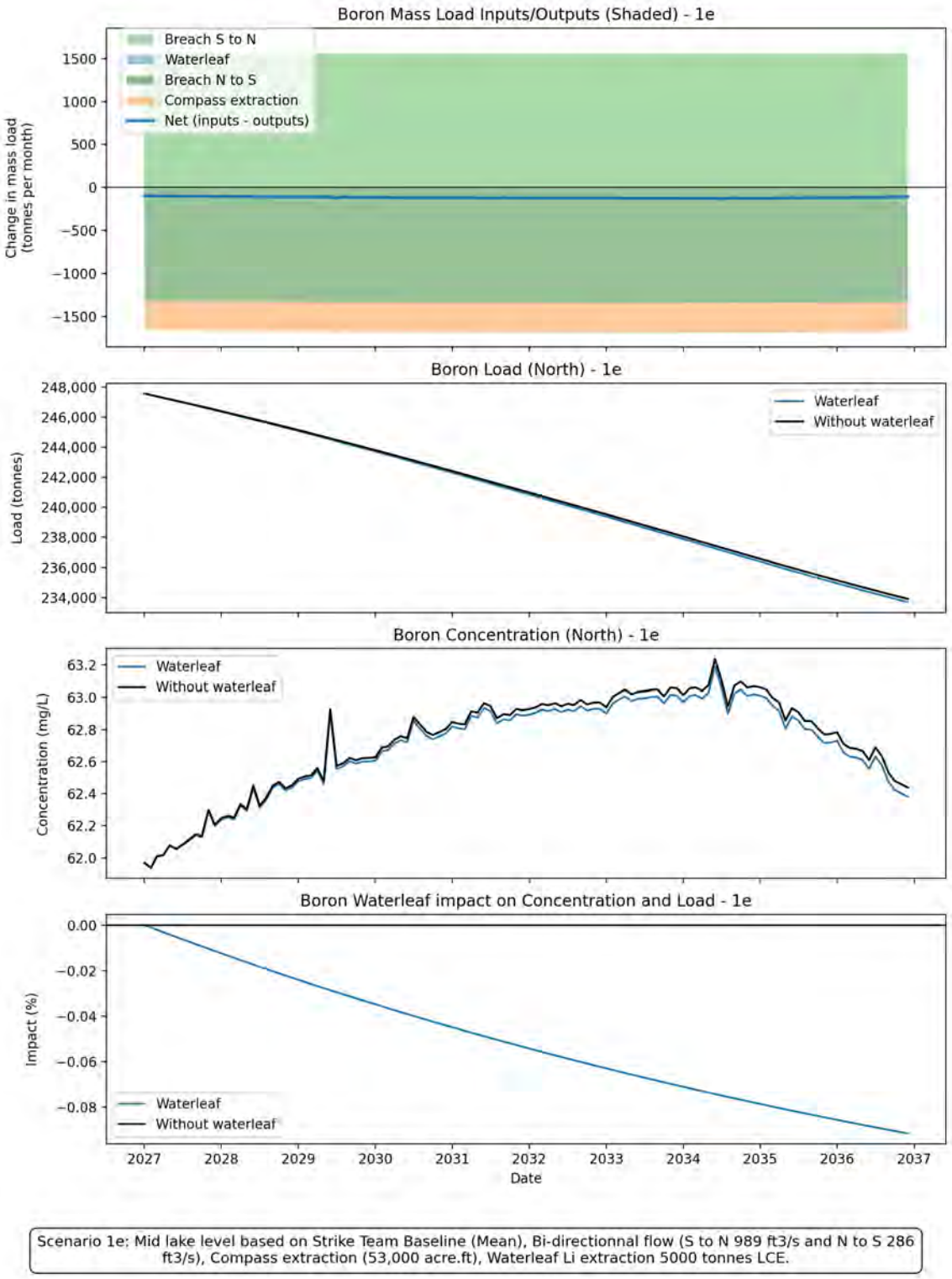


Figure 49: monthly mass balance boron 1e

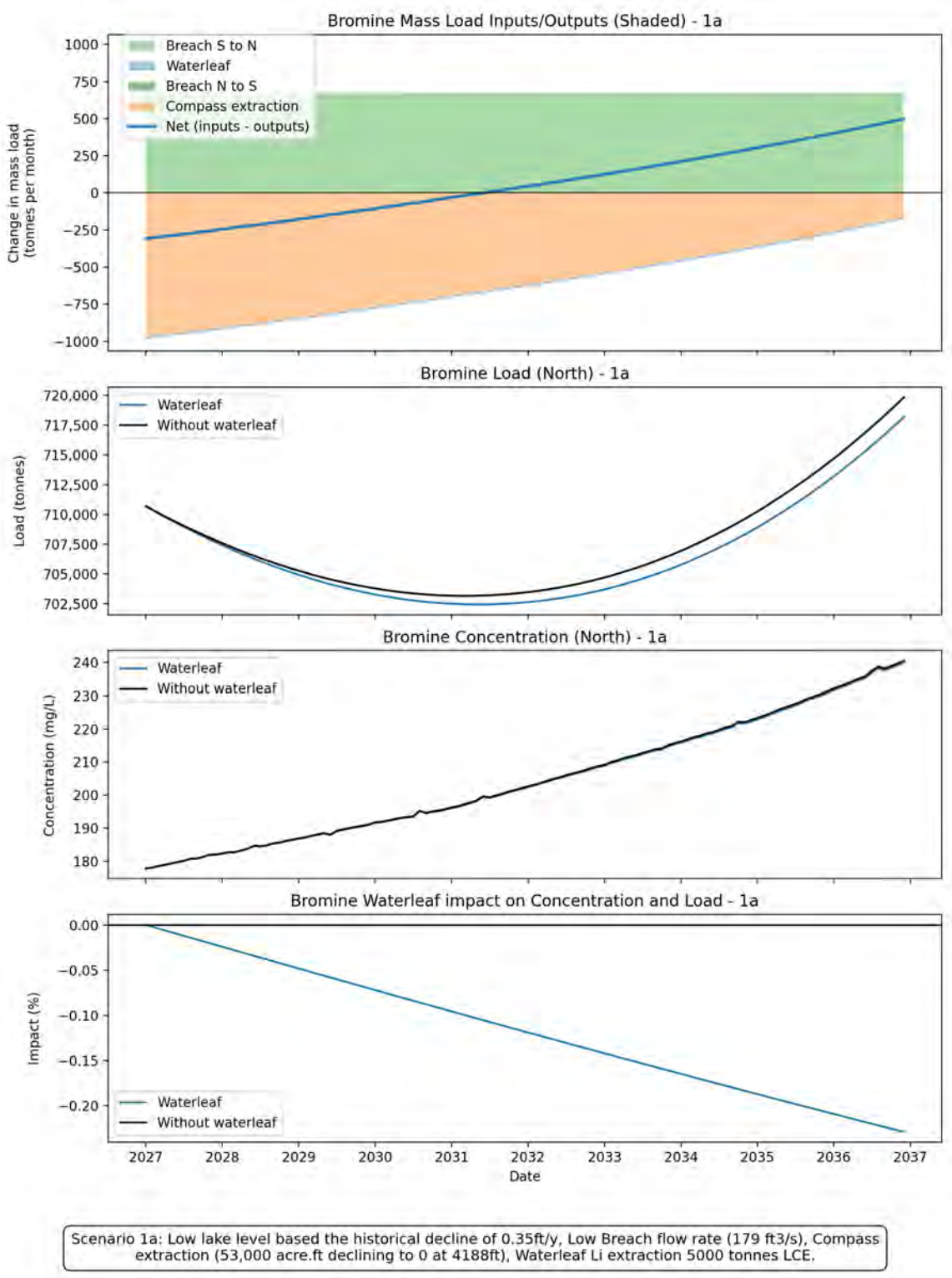


Figure 50: monthly mass balance bromine 1a

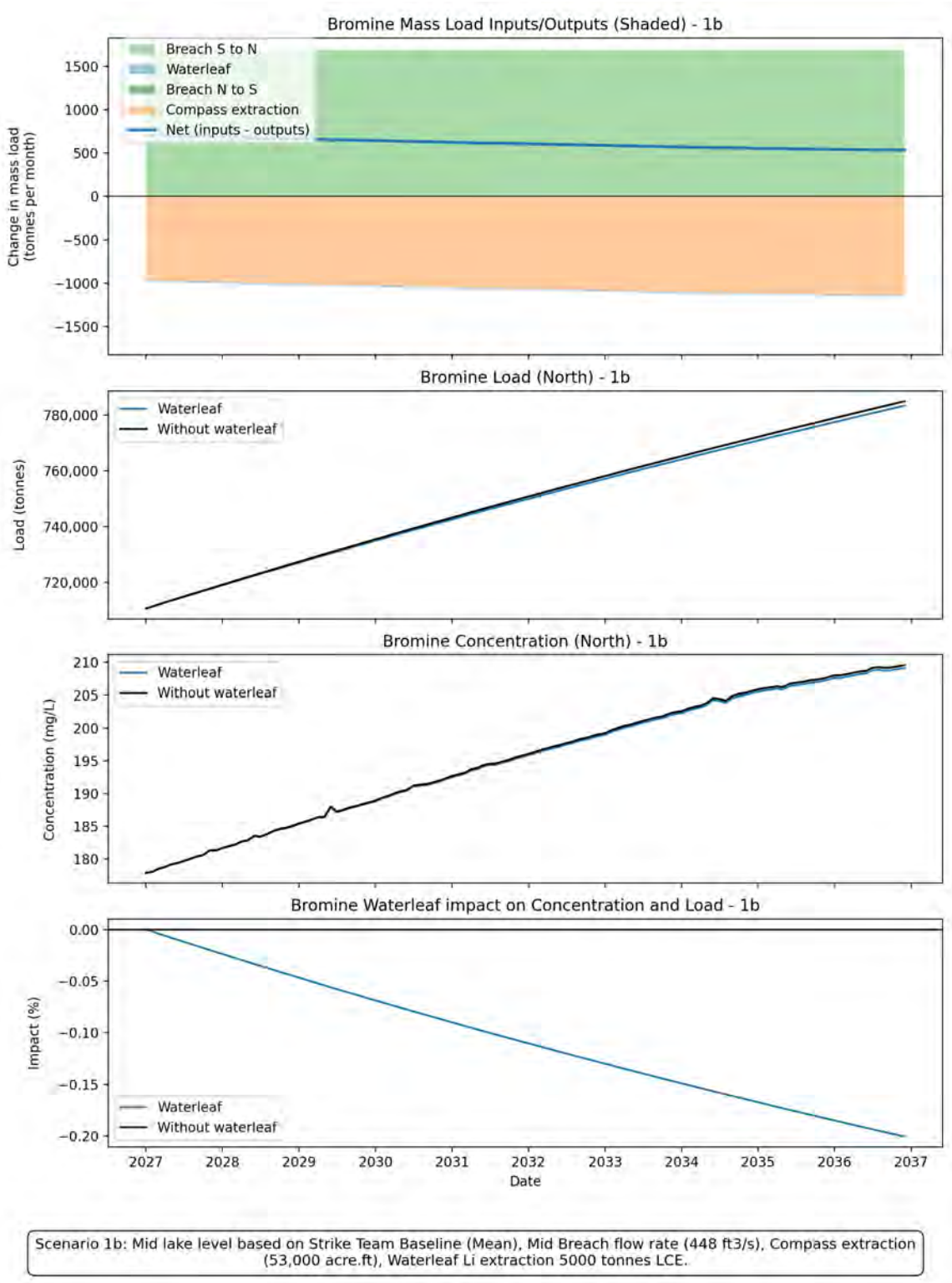


Figure 51: monthly mass balance bromine 1b

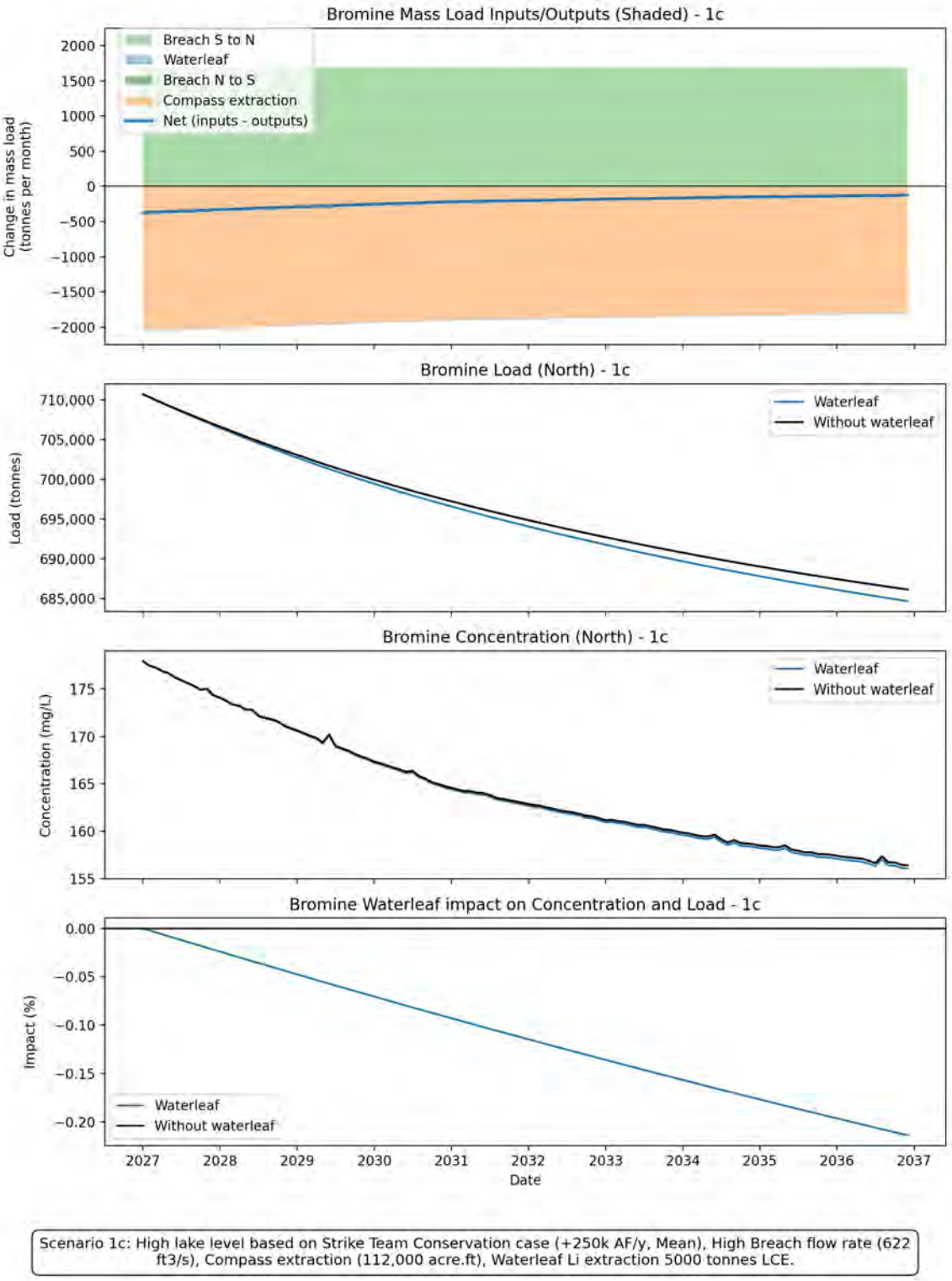


Figure 52: monthly mass balance bromine 1c

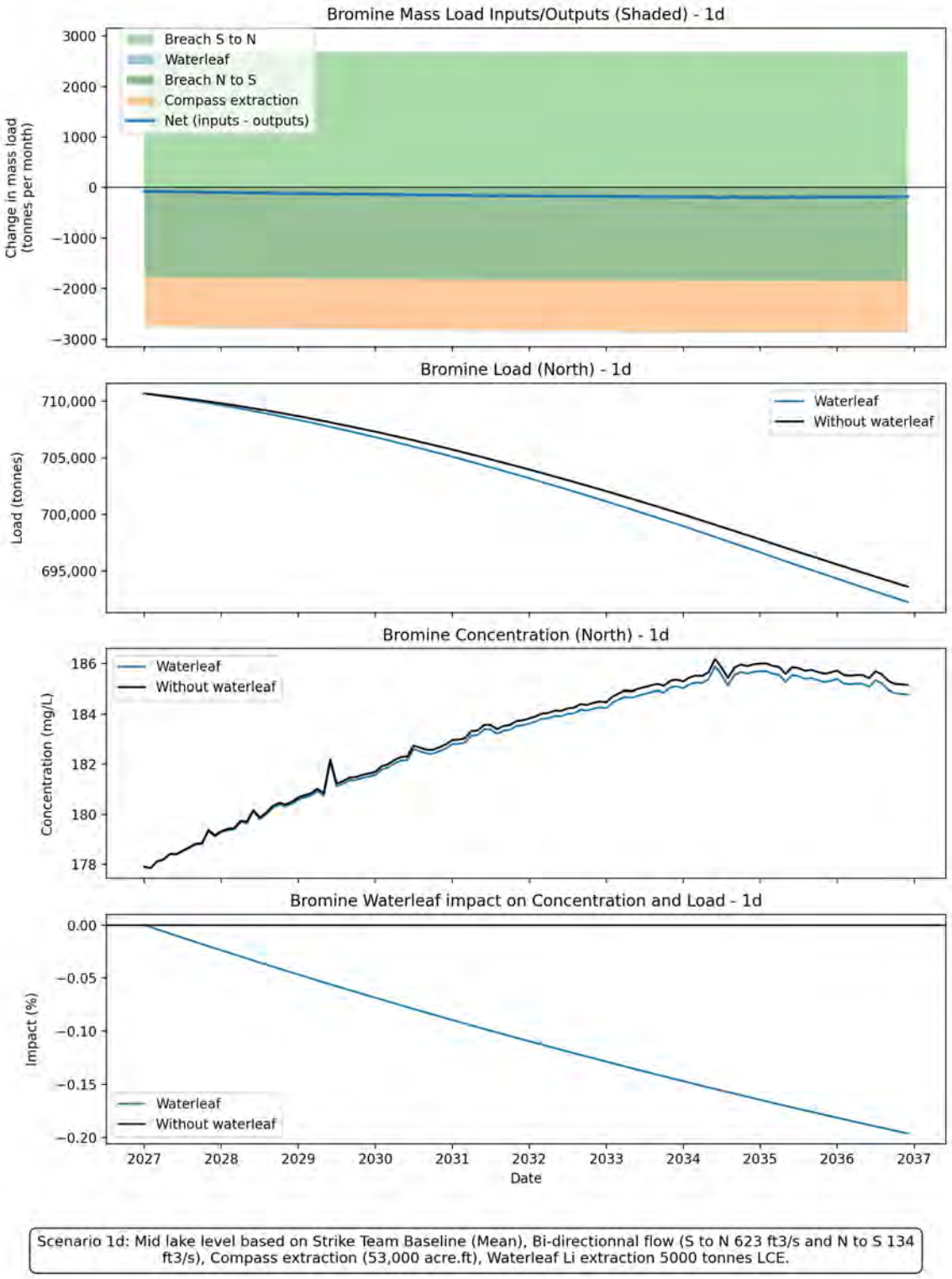


Figure 53: monthly mass balance bromine 1d

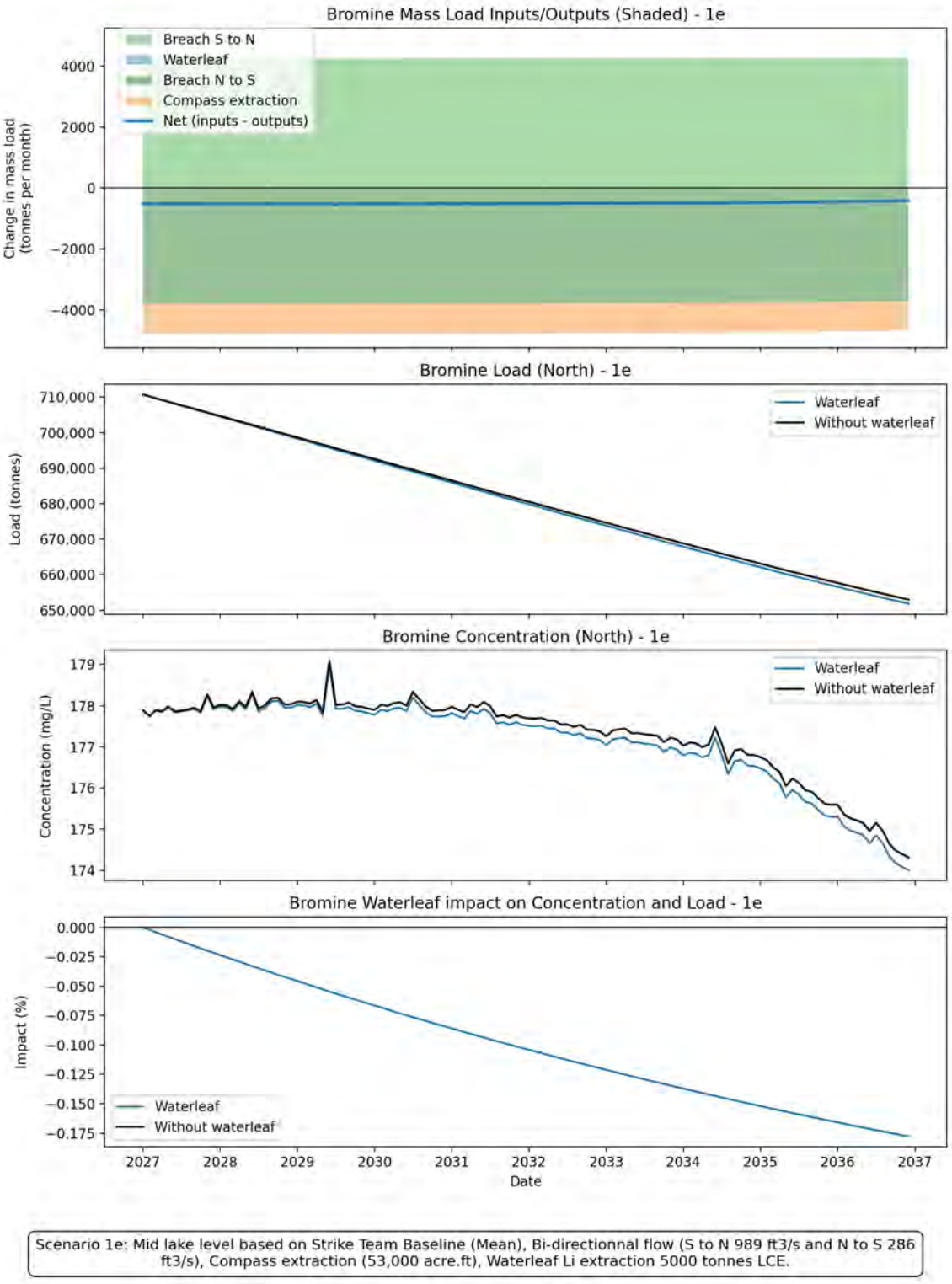


Figure 54: monthly mass balance bromine 1e

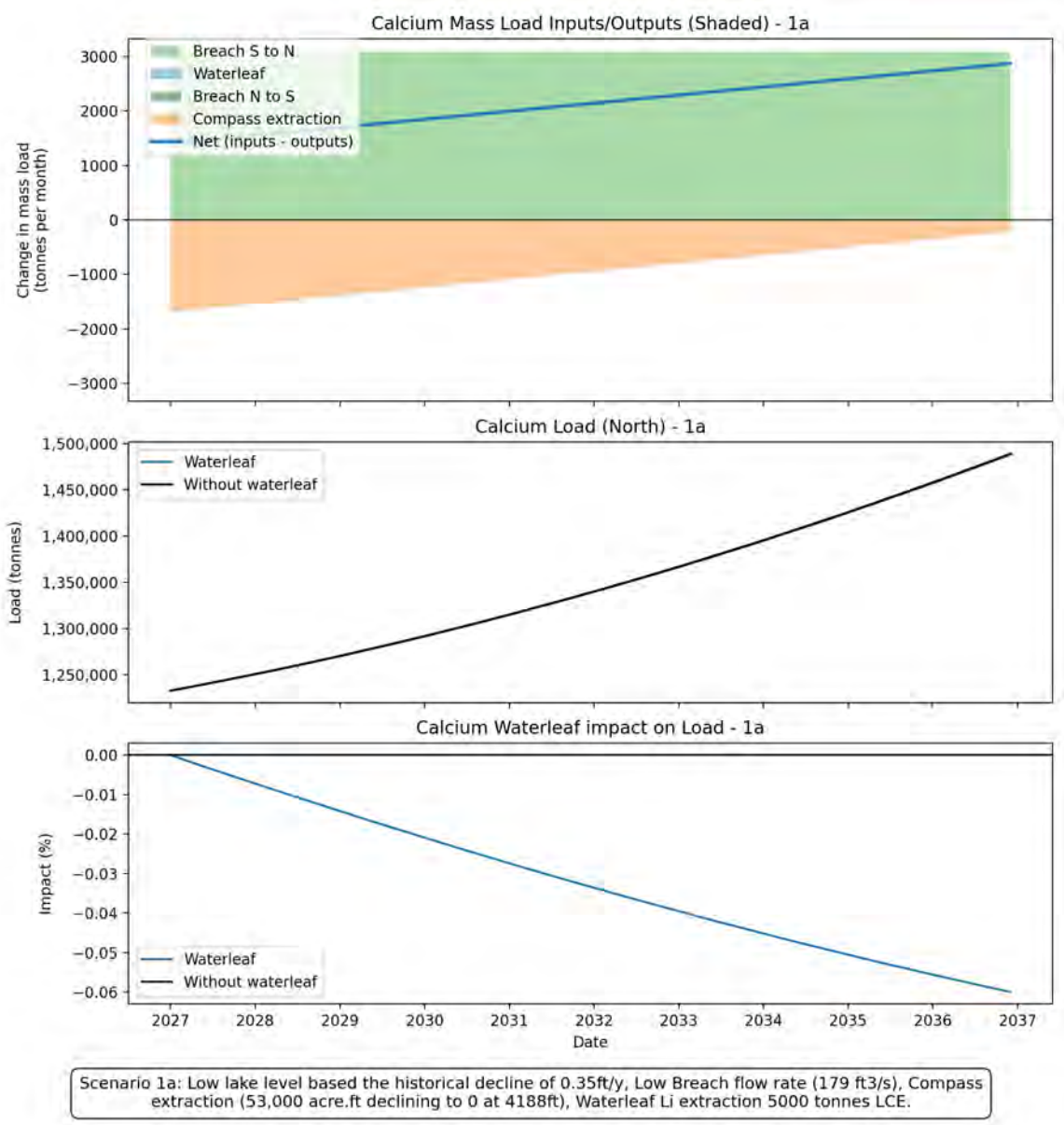


Figure 55: monthly mass balance calcium 1a

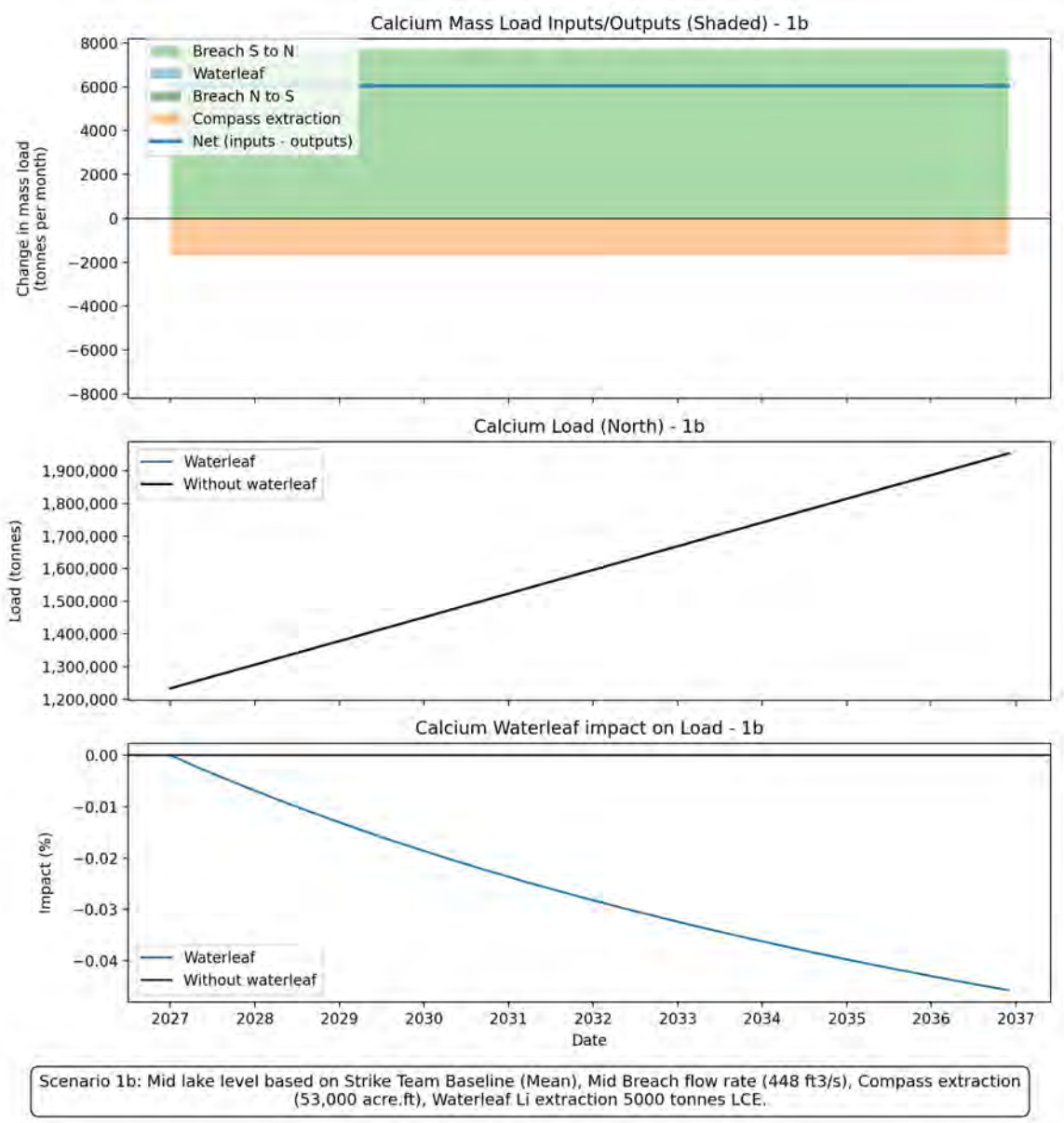


Figure 56: monthly mass balance calcium 1b

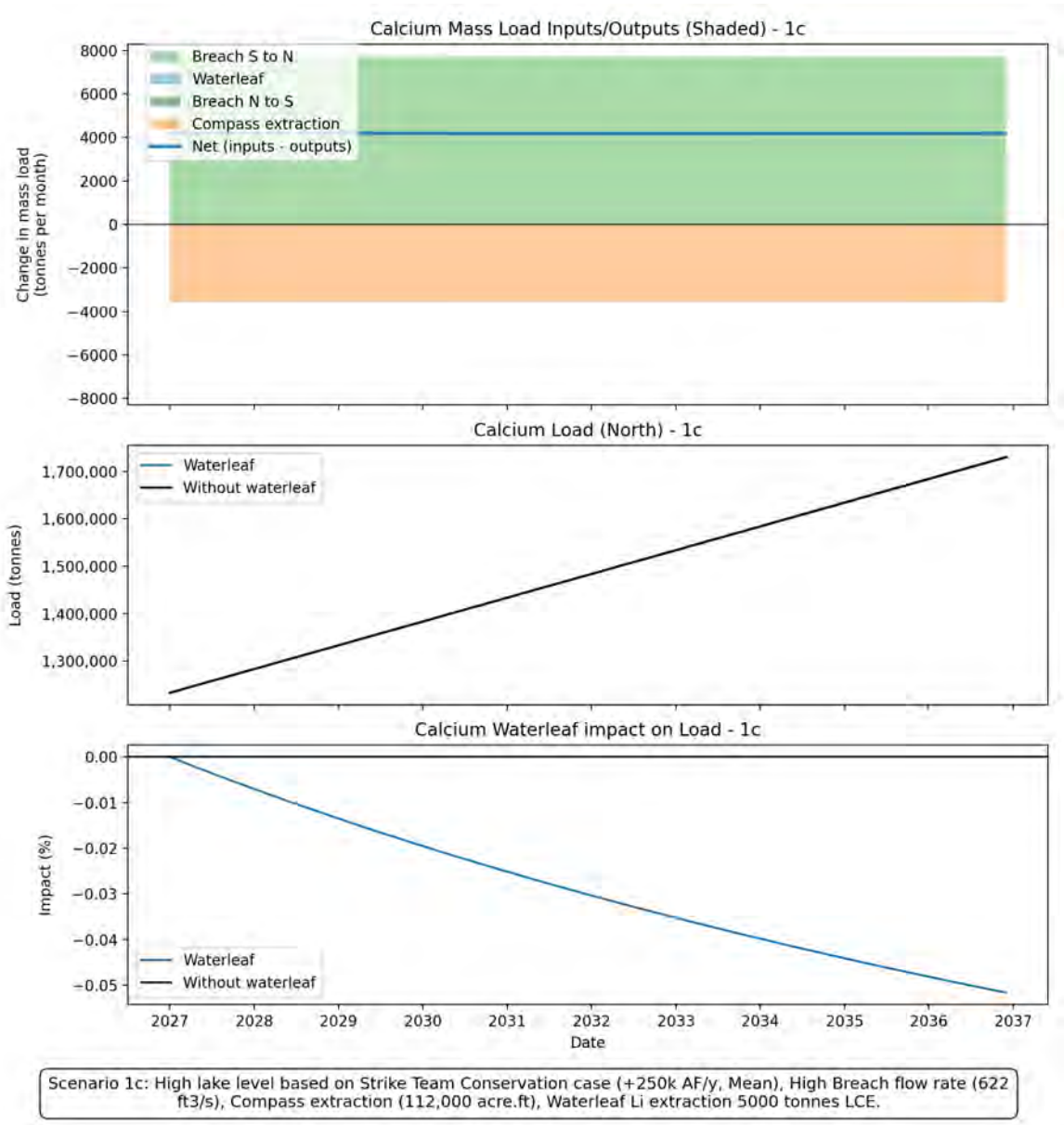


Figure 57: monthly mass balance calcium 1c

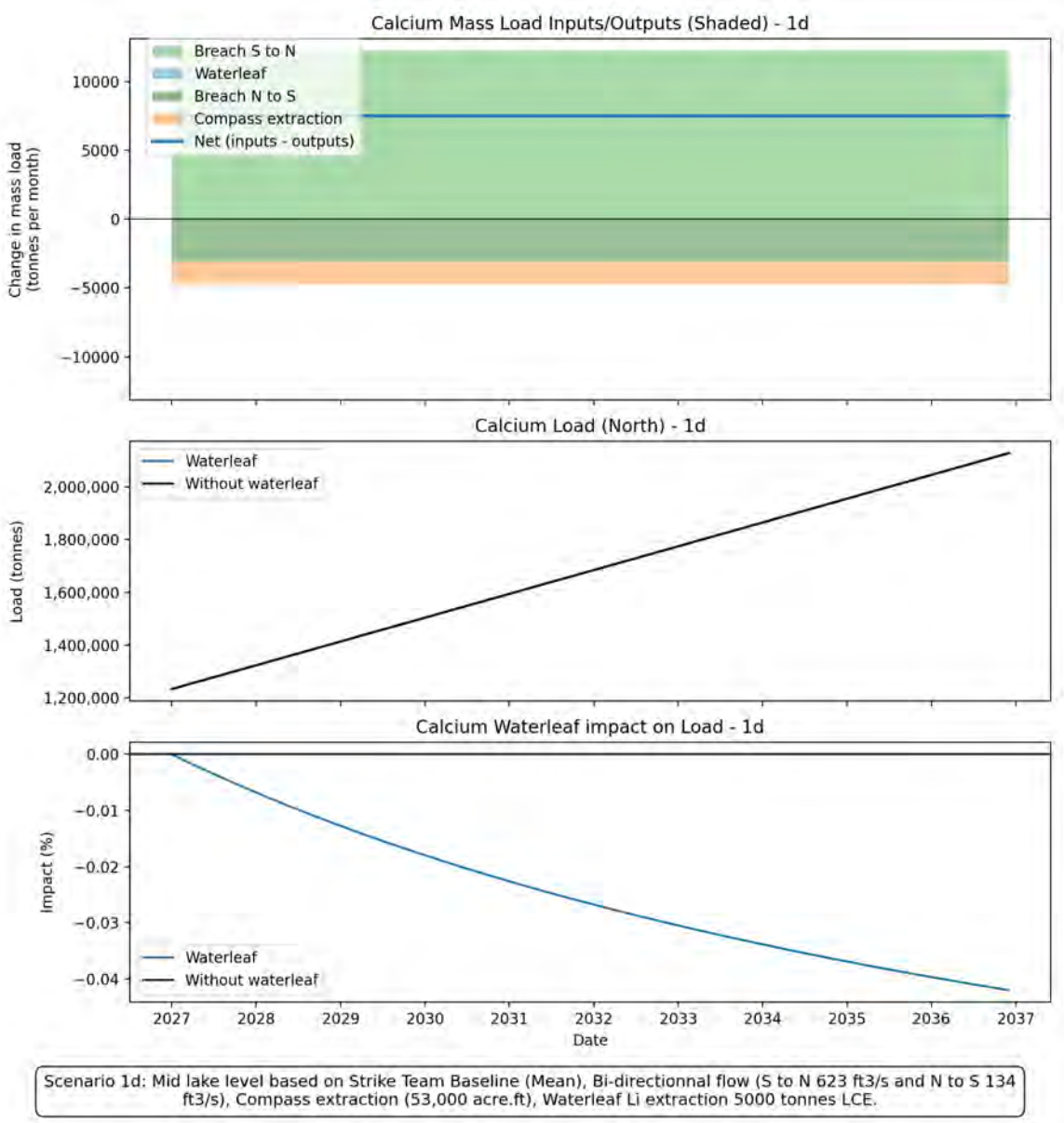


Figure 58: monthly mass balance calcium 1d

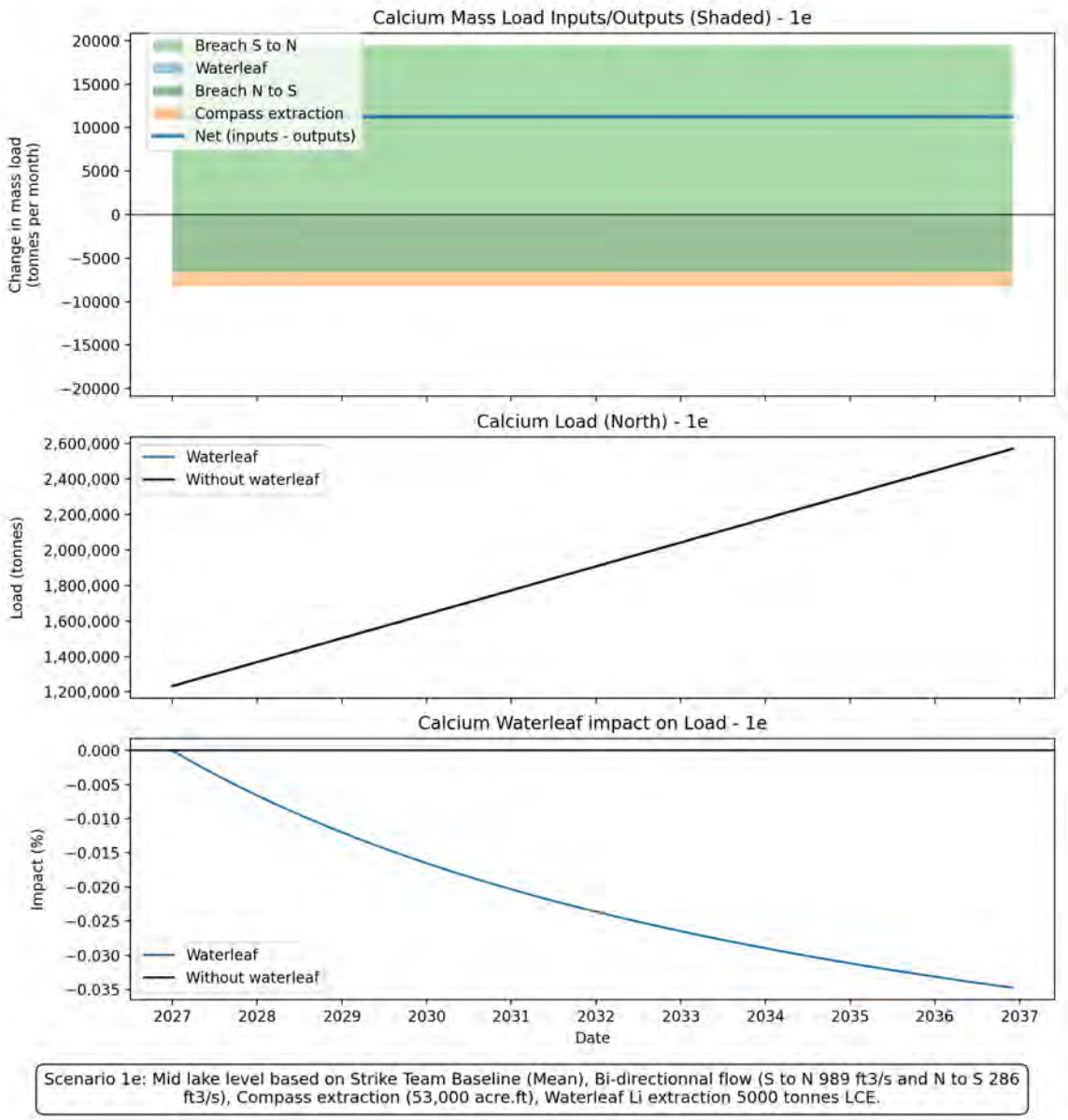


Figure 59: monthly mass balance calcium 1e

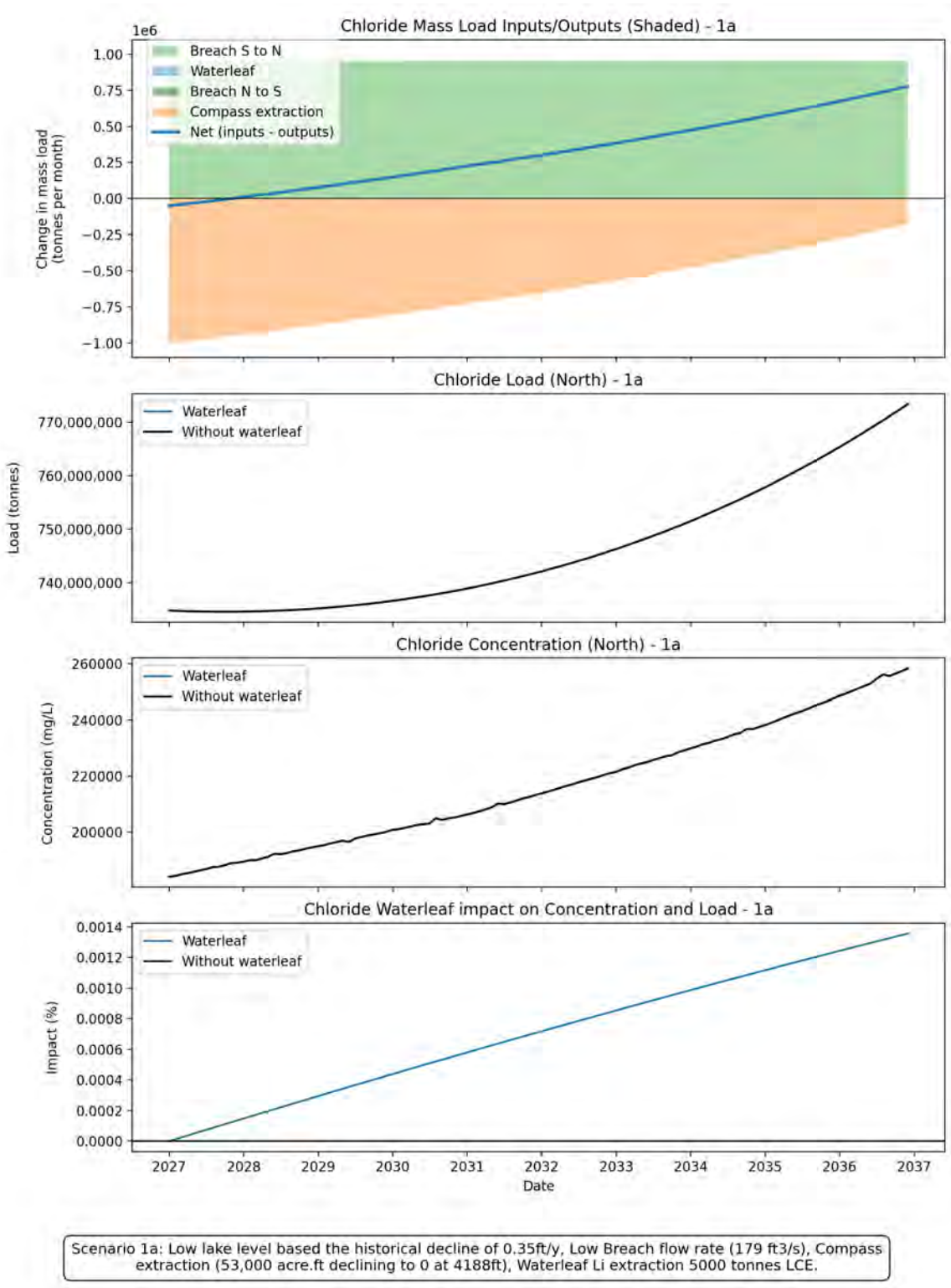


Figure 60: monthly mass balance chloride 1a

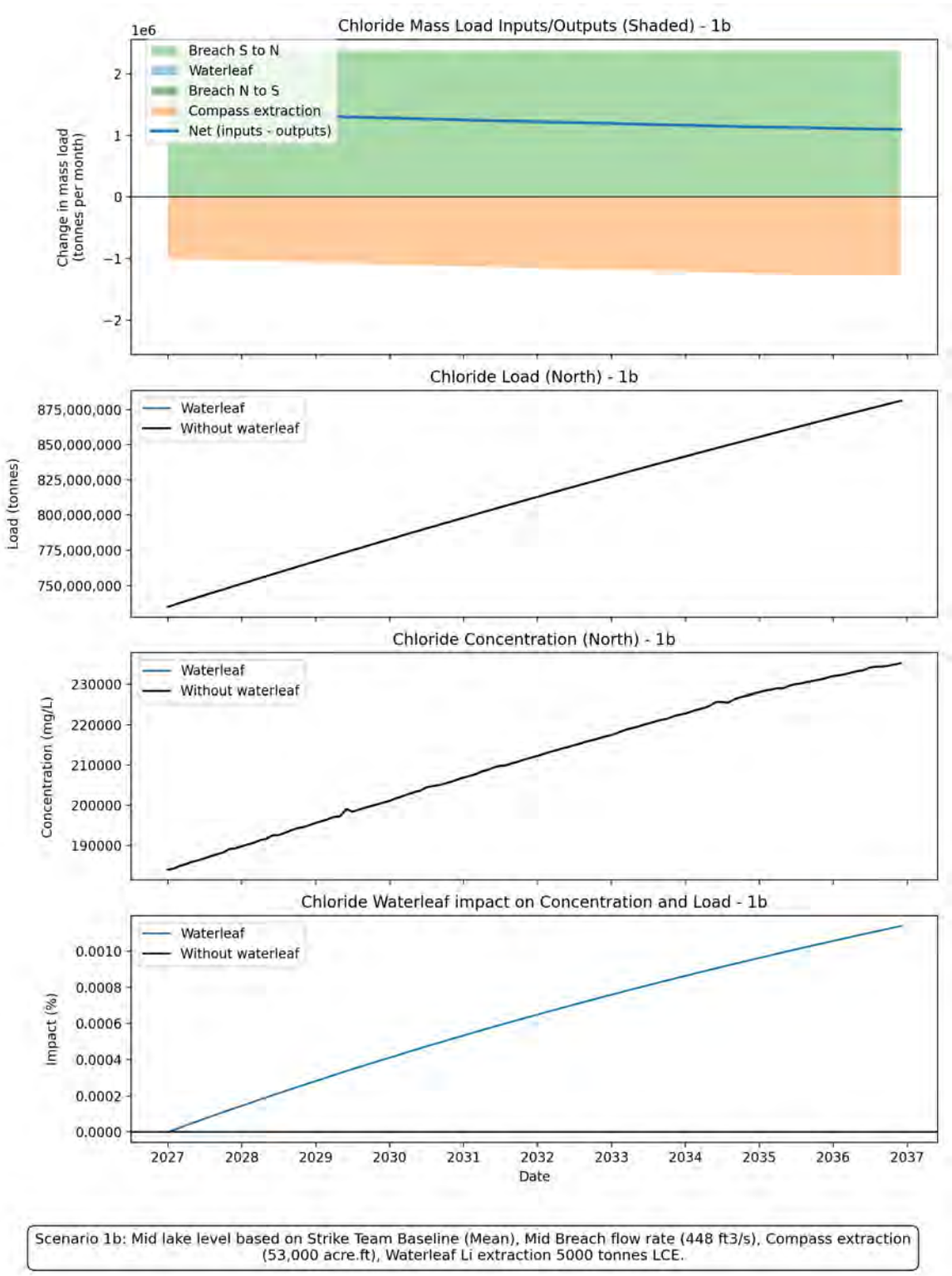


Figure 61: monthly mass balance chloride 1b

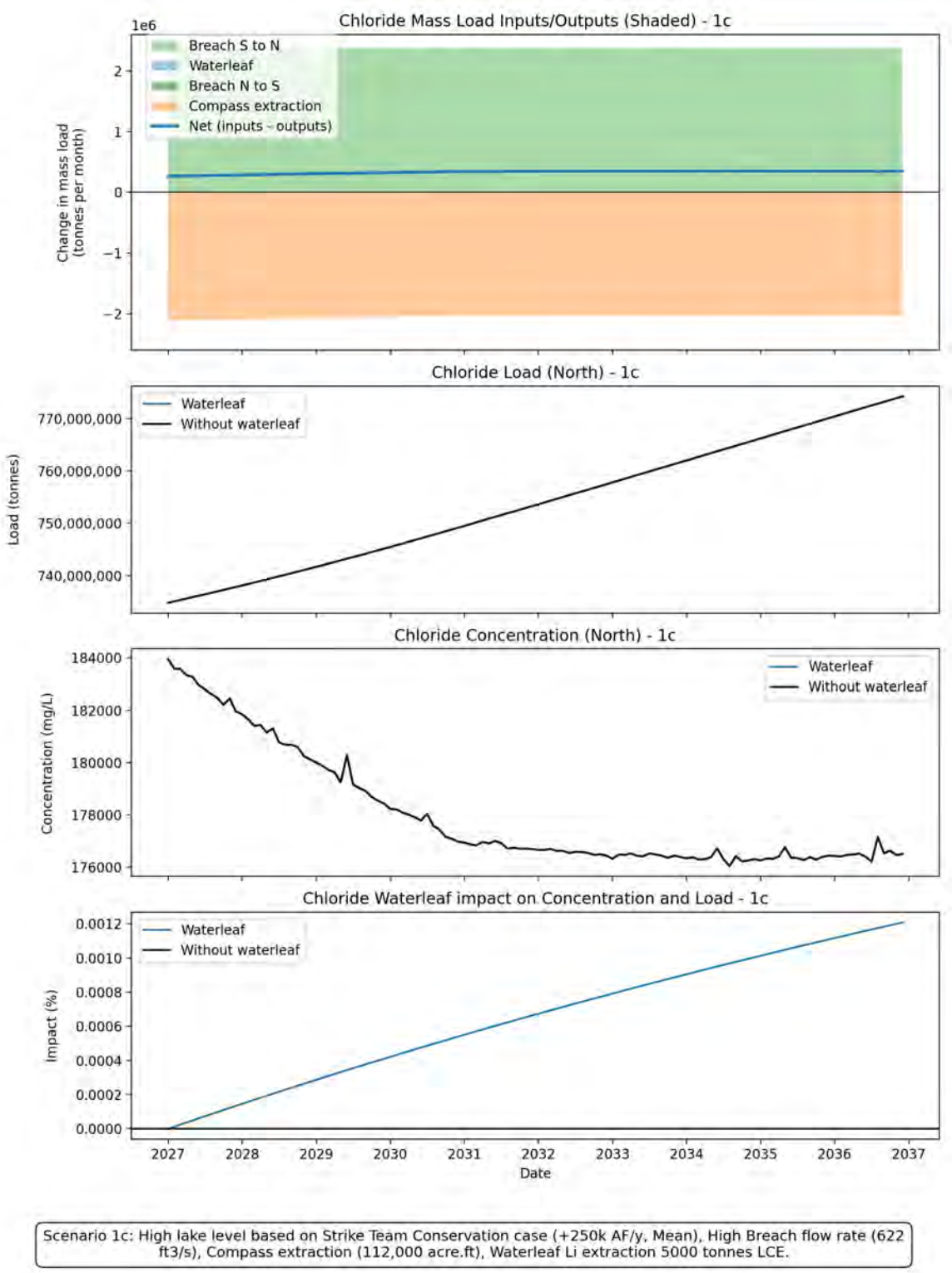


Figure 62: monthly mass balance chloride 1c

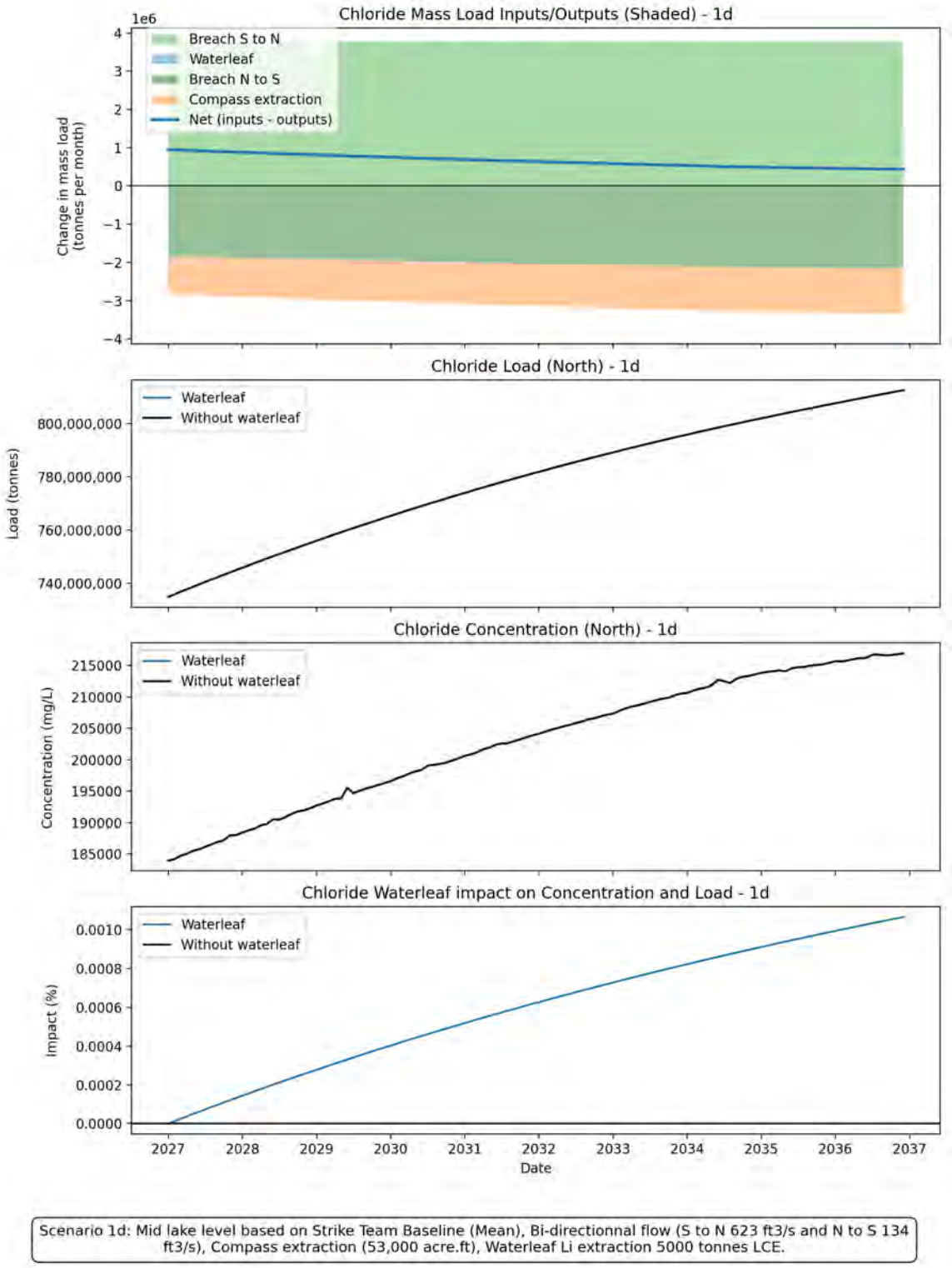


Figure 63: monthly mass balance chloride 1d

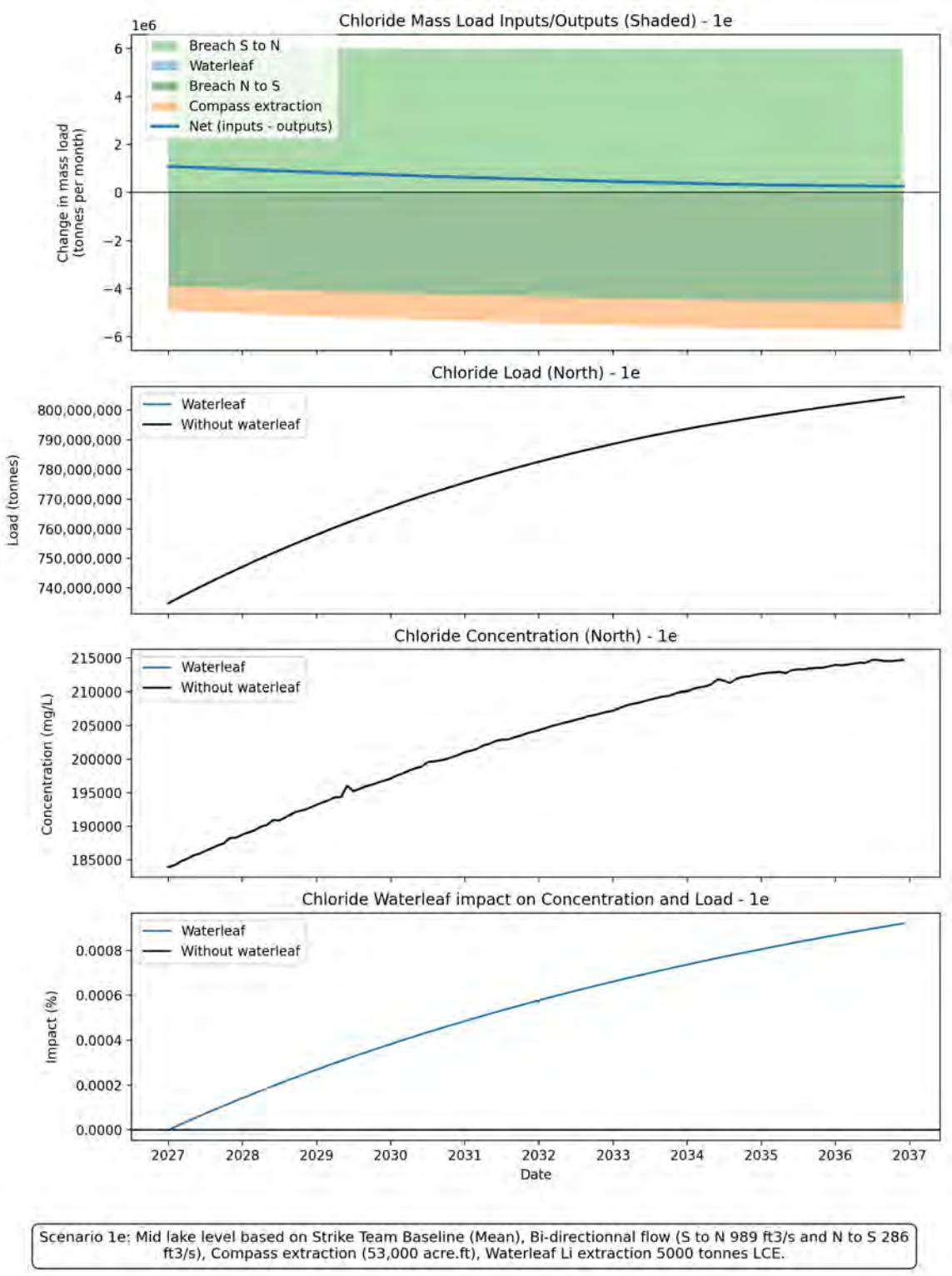


Figure 64: monthly mass balance chloride 1e

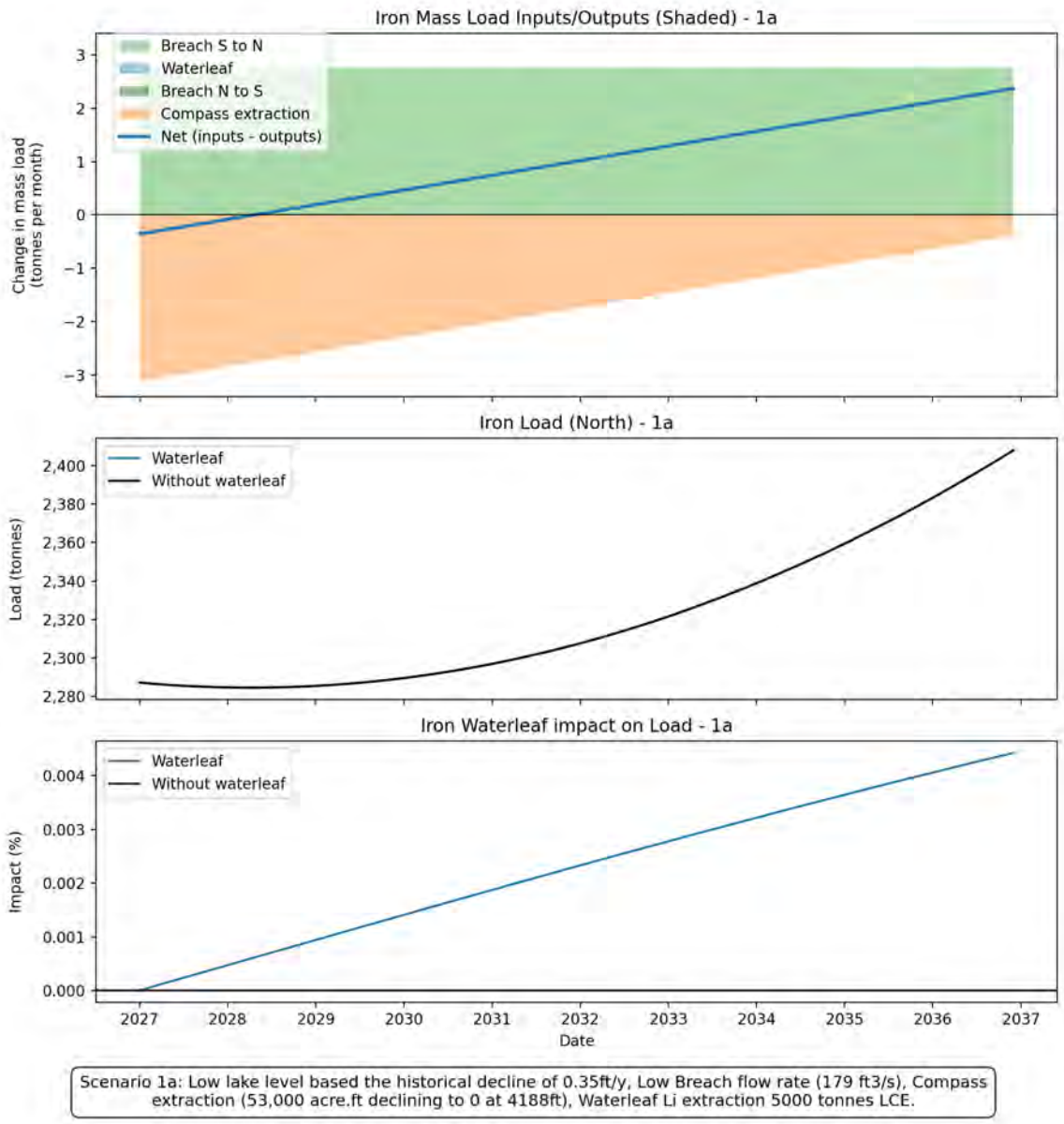


Figure 65: monthly mass balance iron 1a

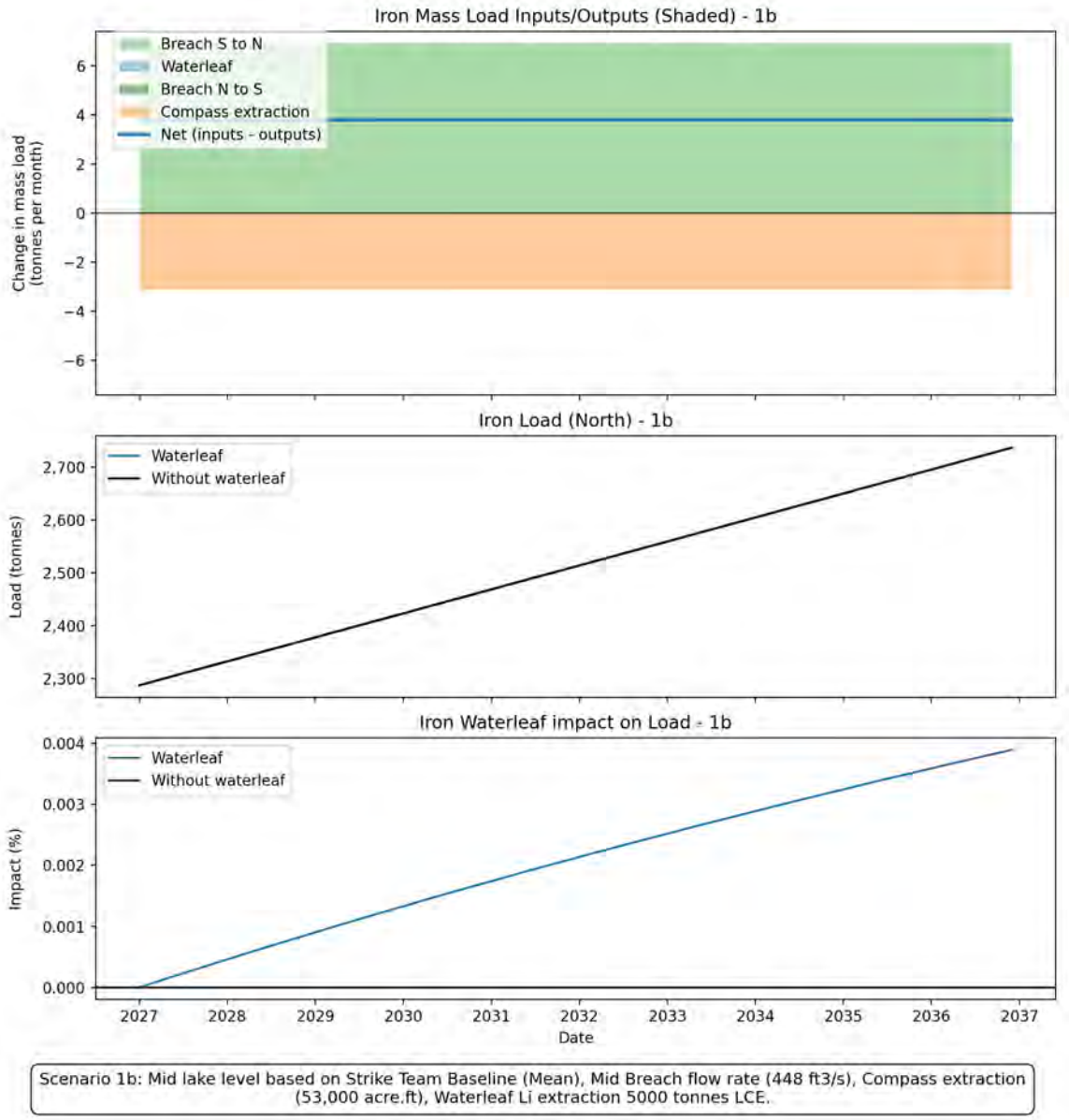


Figure 66: monthly mass balance iron 1b

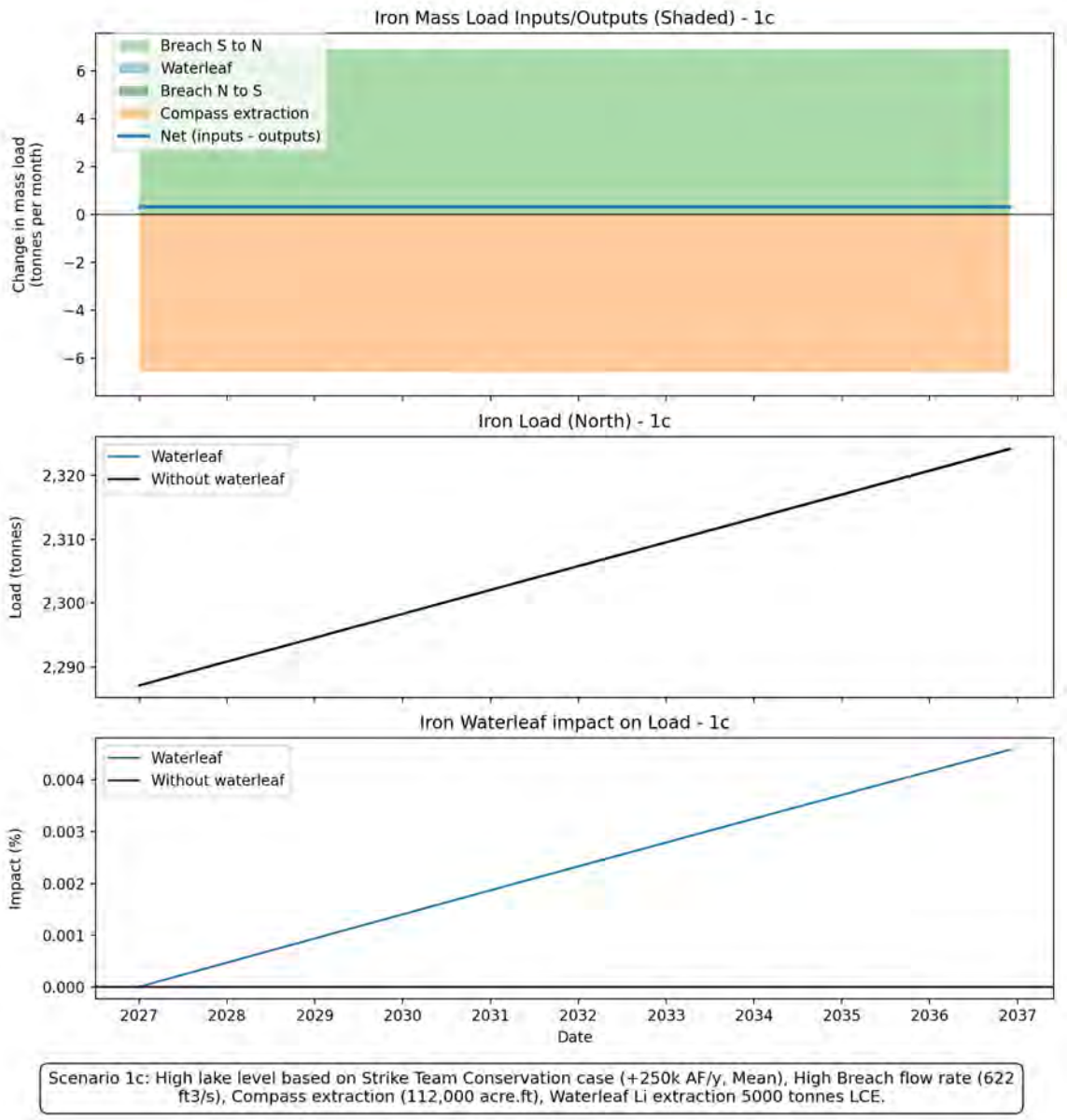


Figure 67: monthly mass balance iron 1c

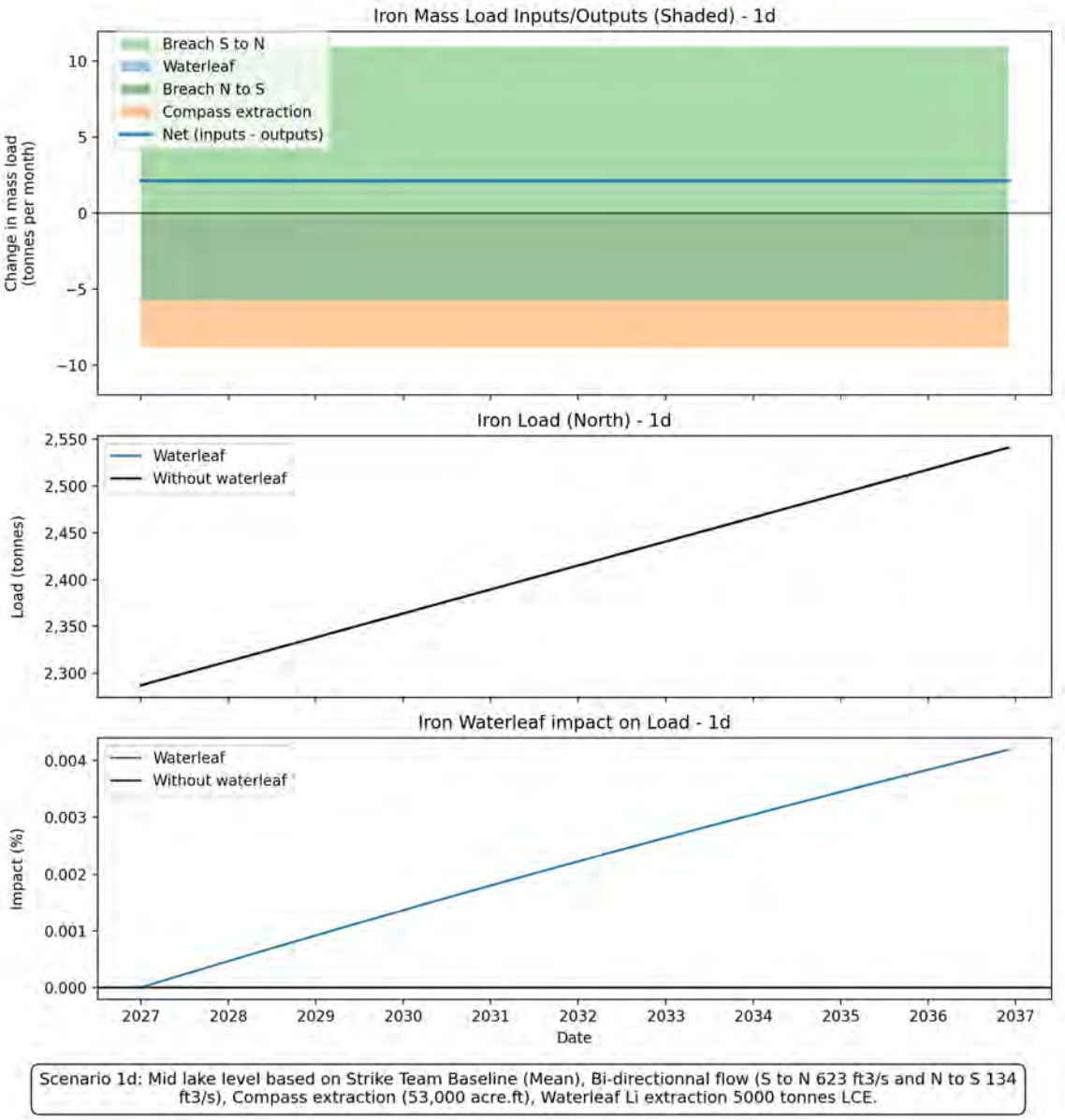


Figure 68: monthly mass balance iron 1d

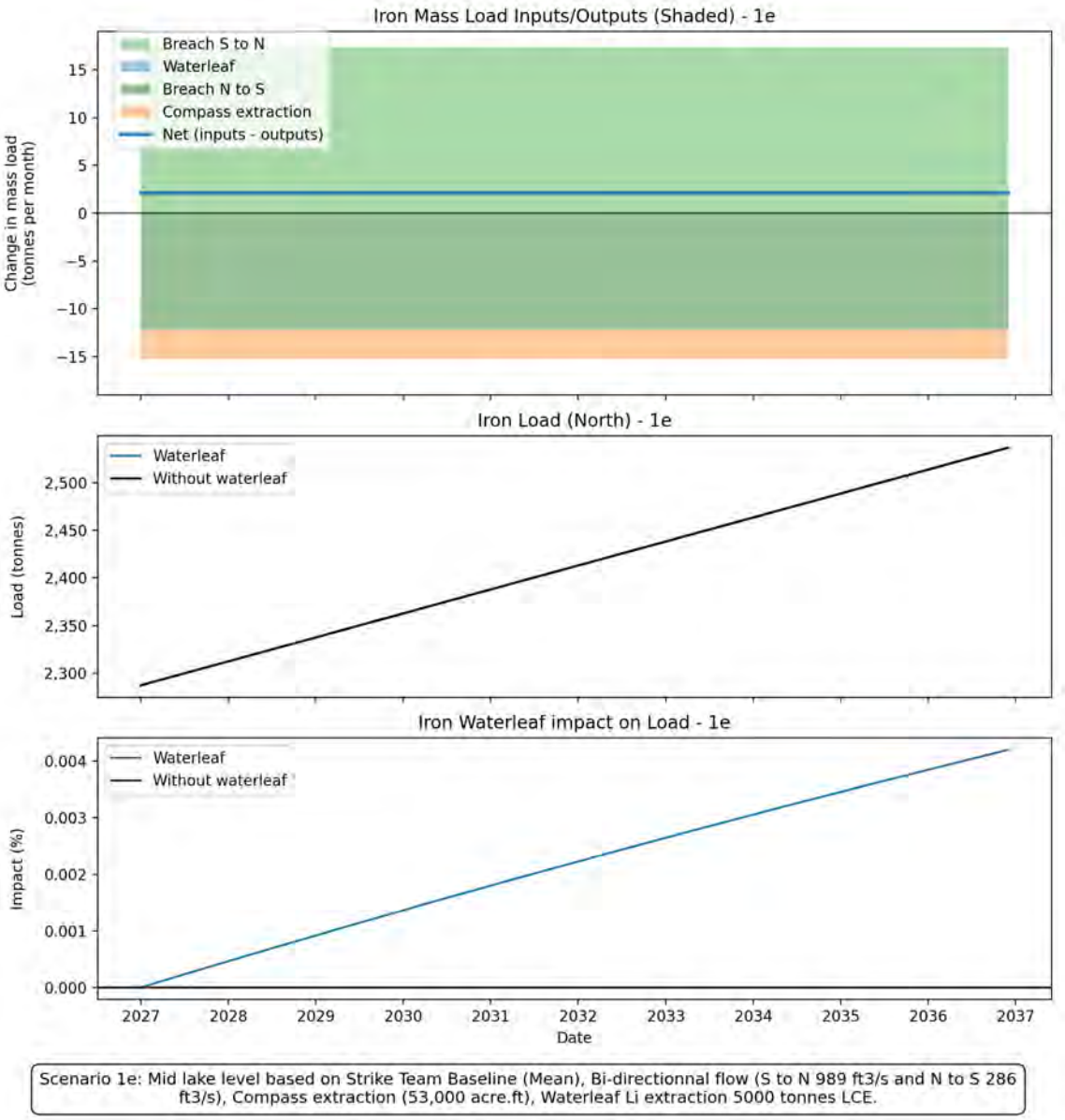


Figure 69: monthly mass balance iron 1e

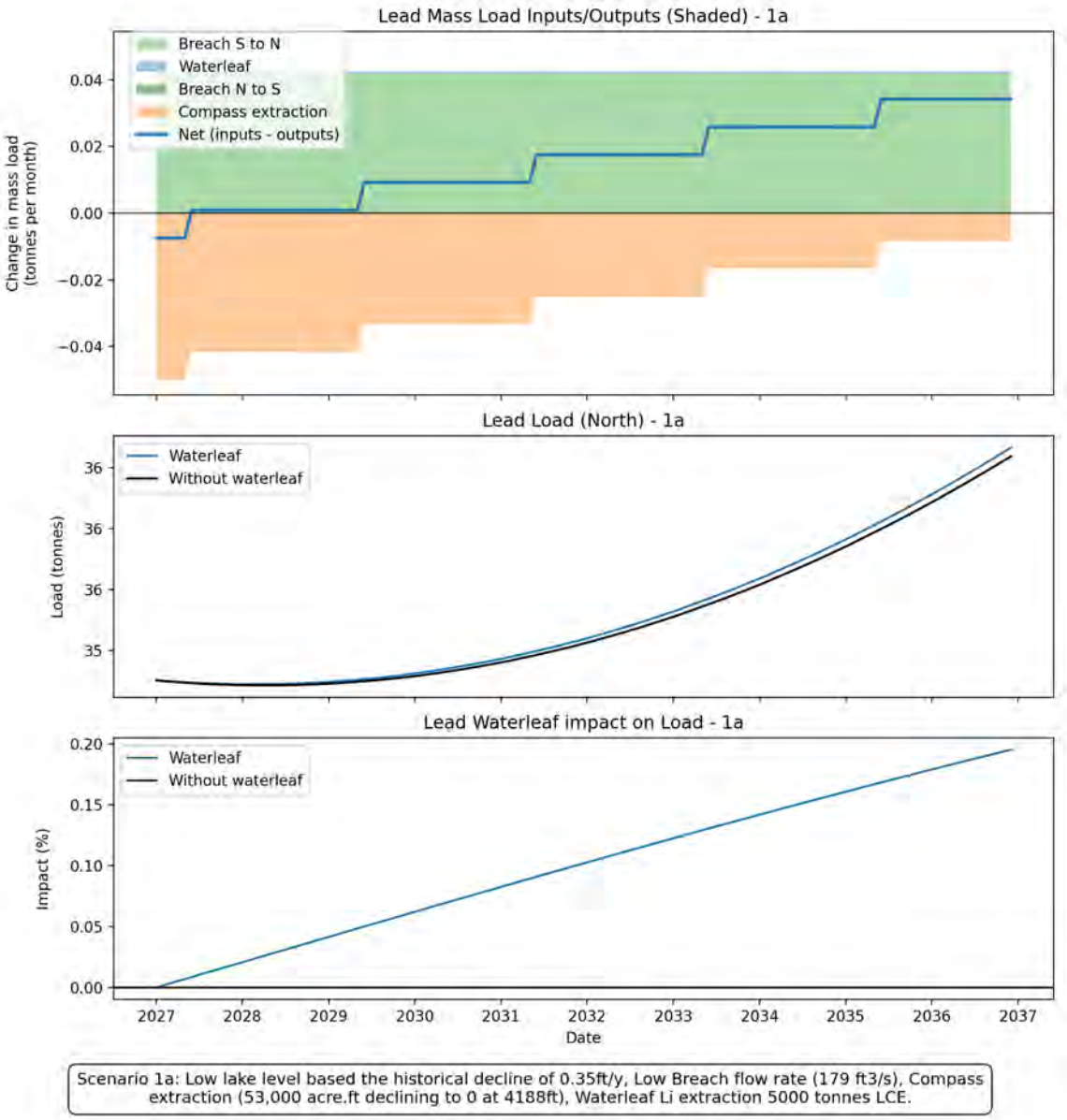


Figure 70: monthly mass balance lead 1a

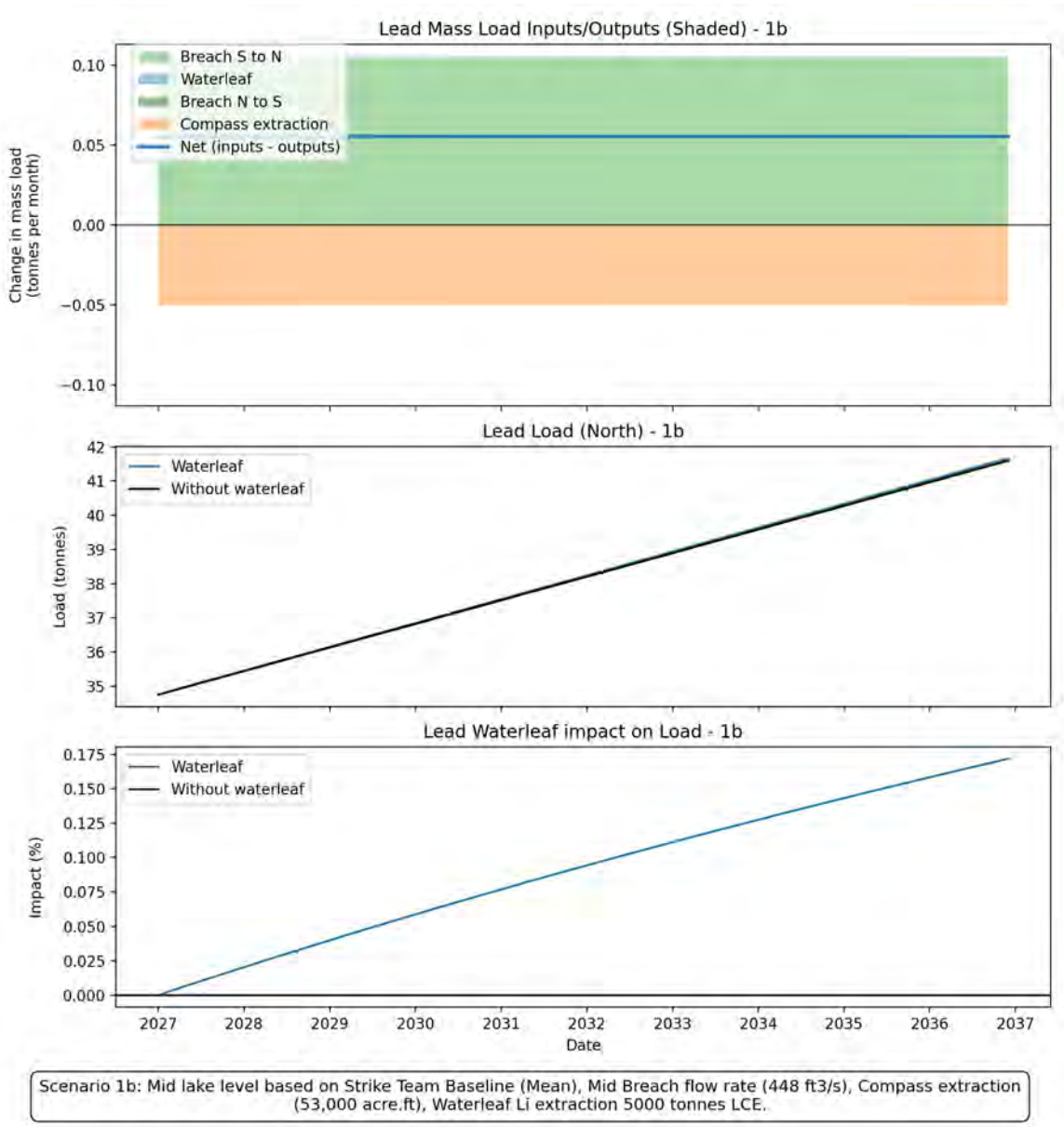


Figure 71: monthly mass balance lead 1b

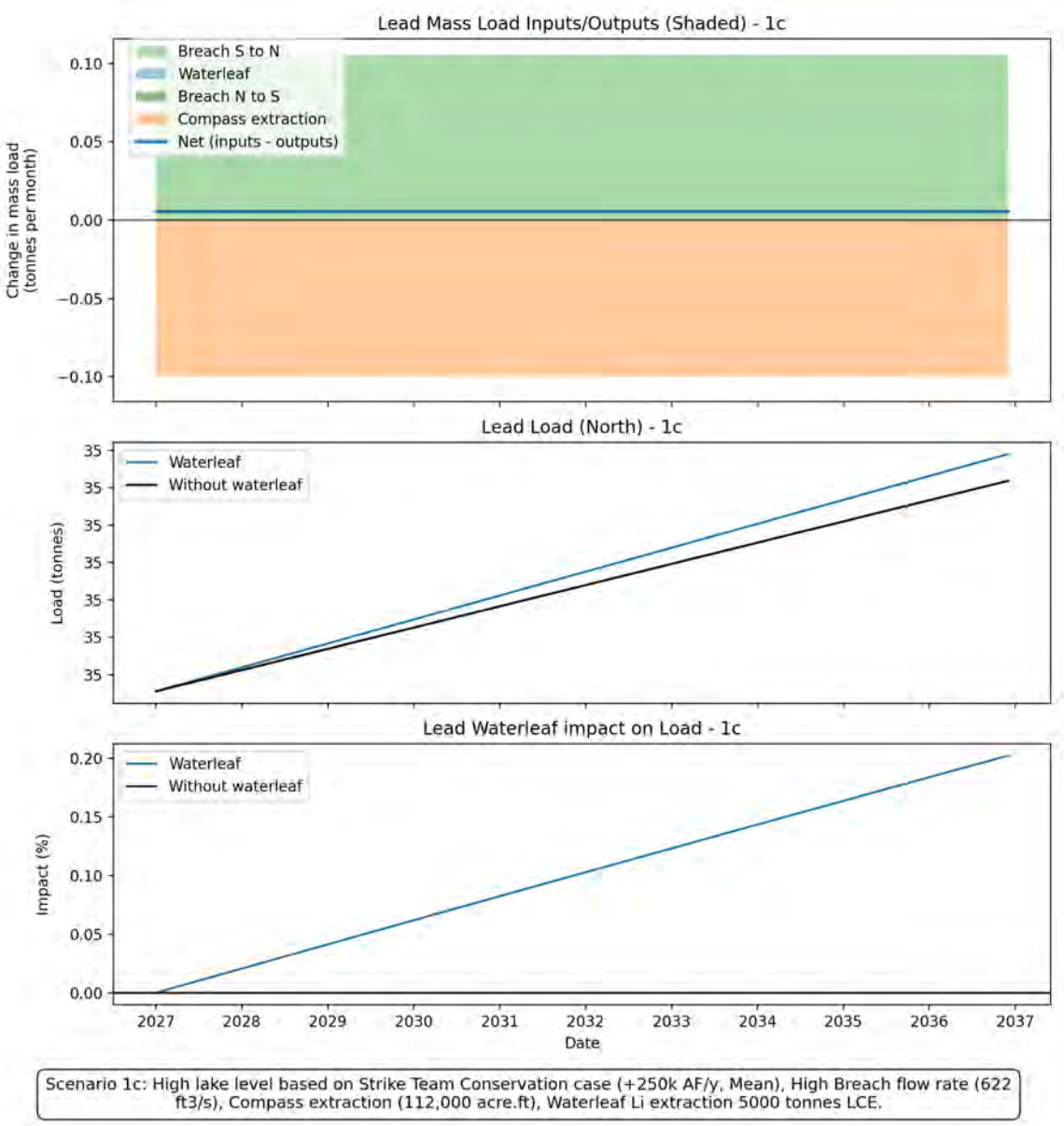


Figure 72: monthly mass balance lead 1c

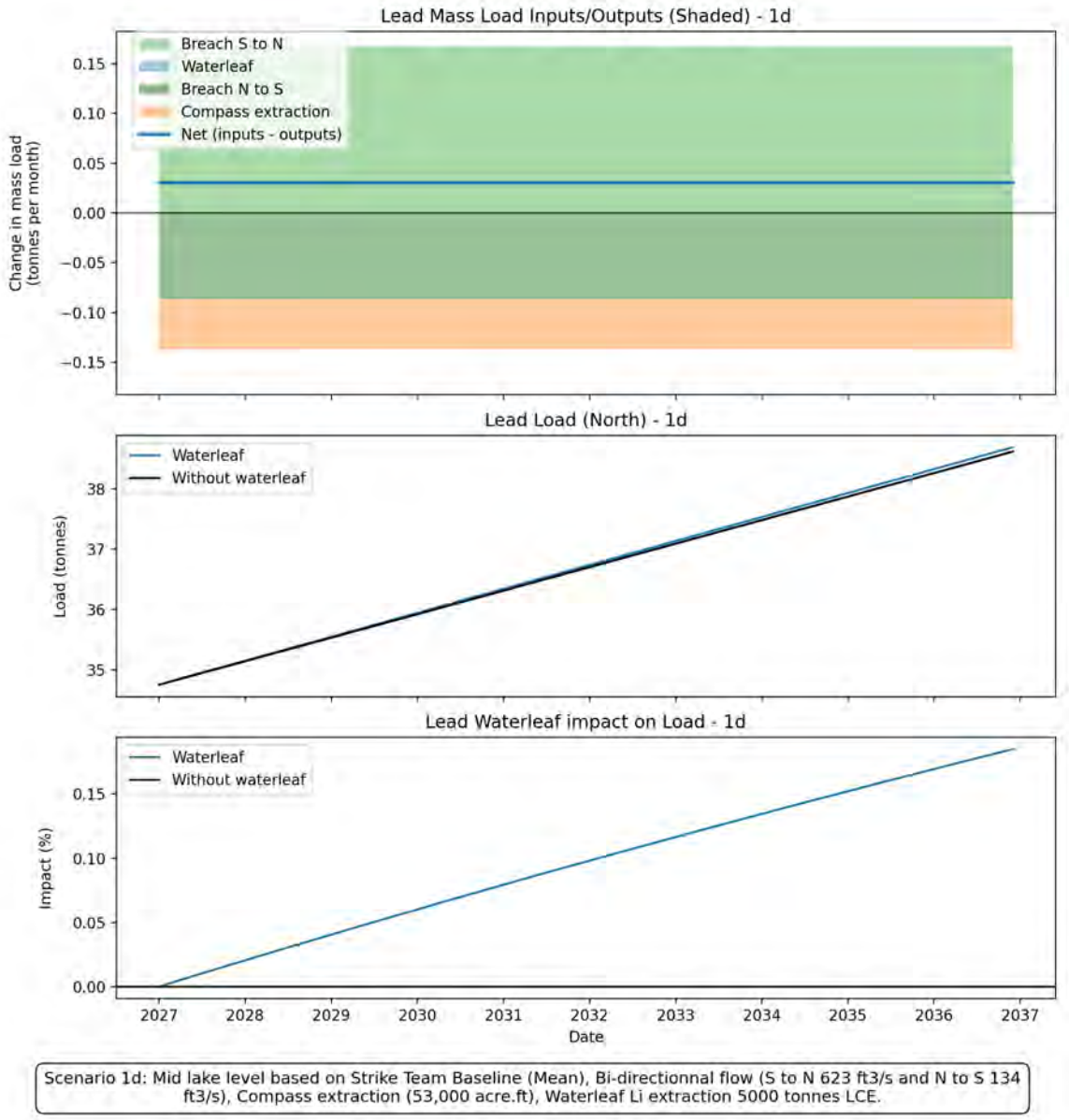


Figure 73: monthly mass balance lead 1d

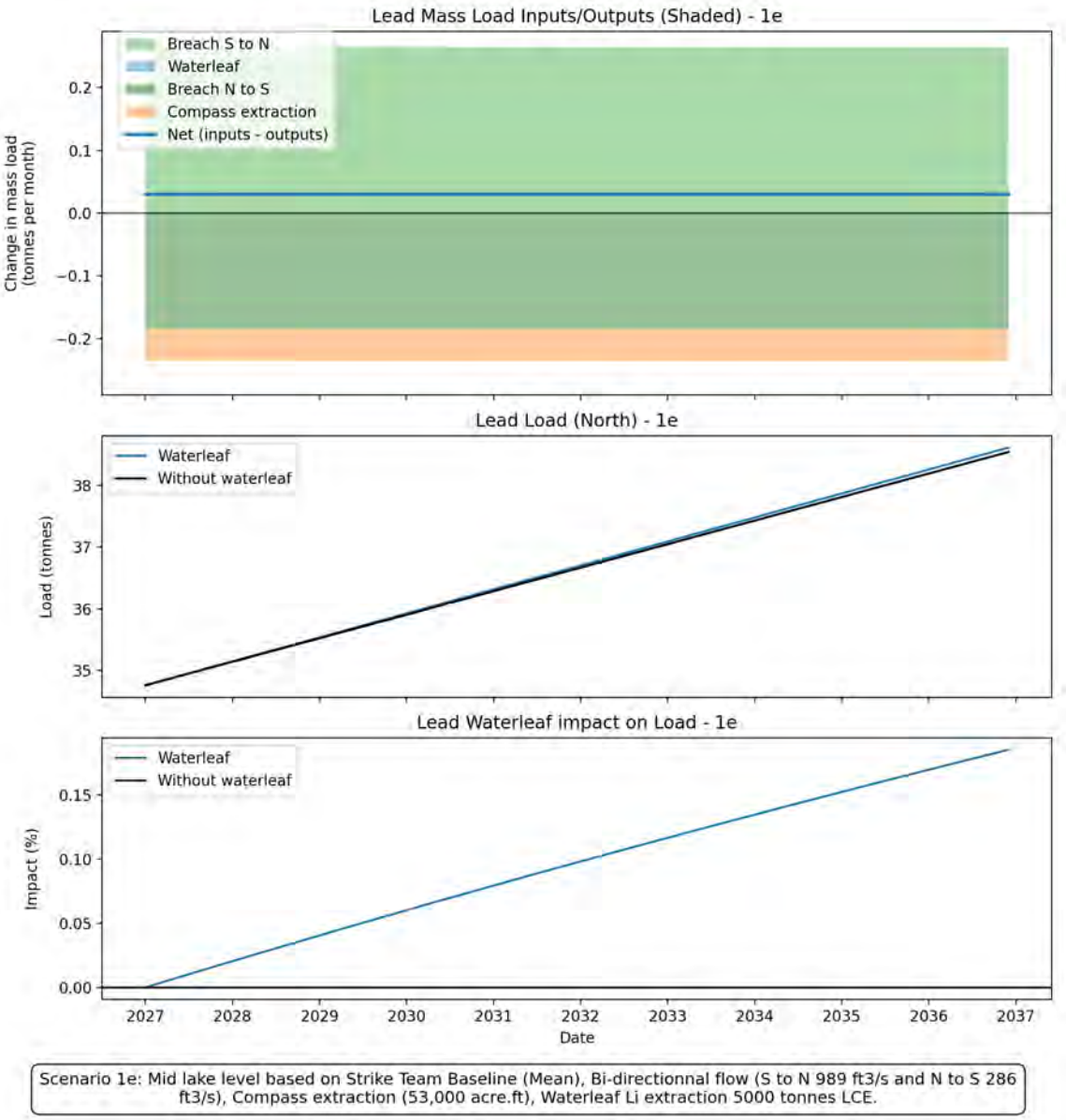


Figure 74: monthly mass balance lead 1e

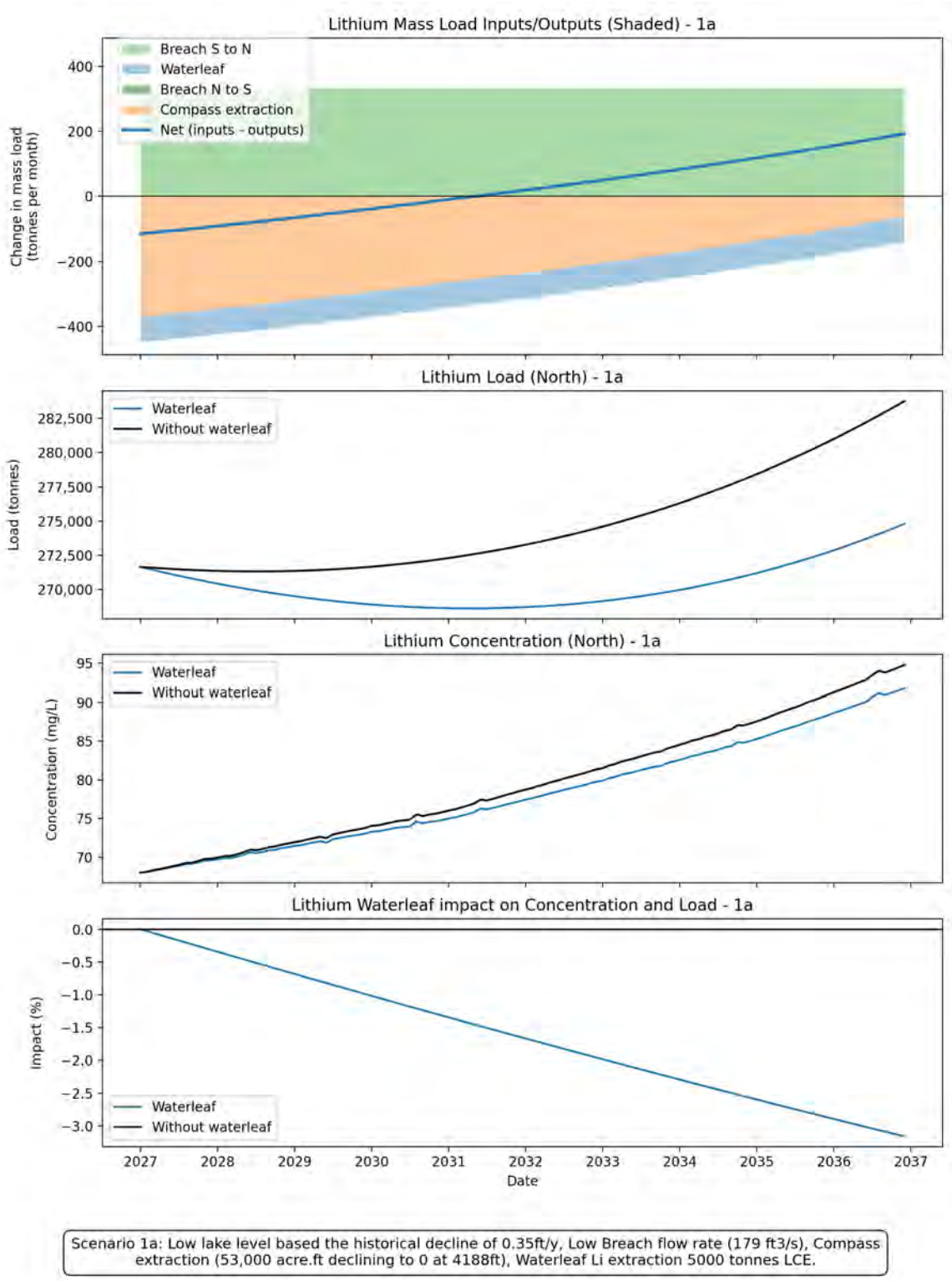


Figure 75: monthly mass balance lithium 1a

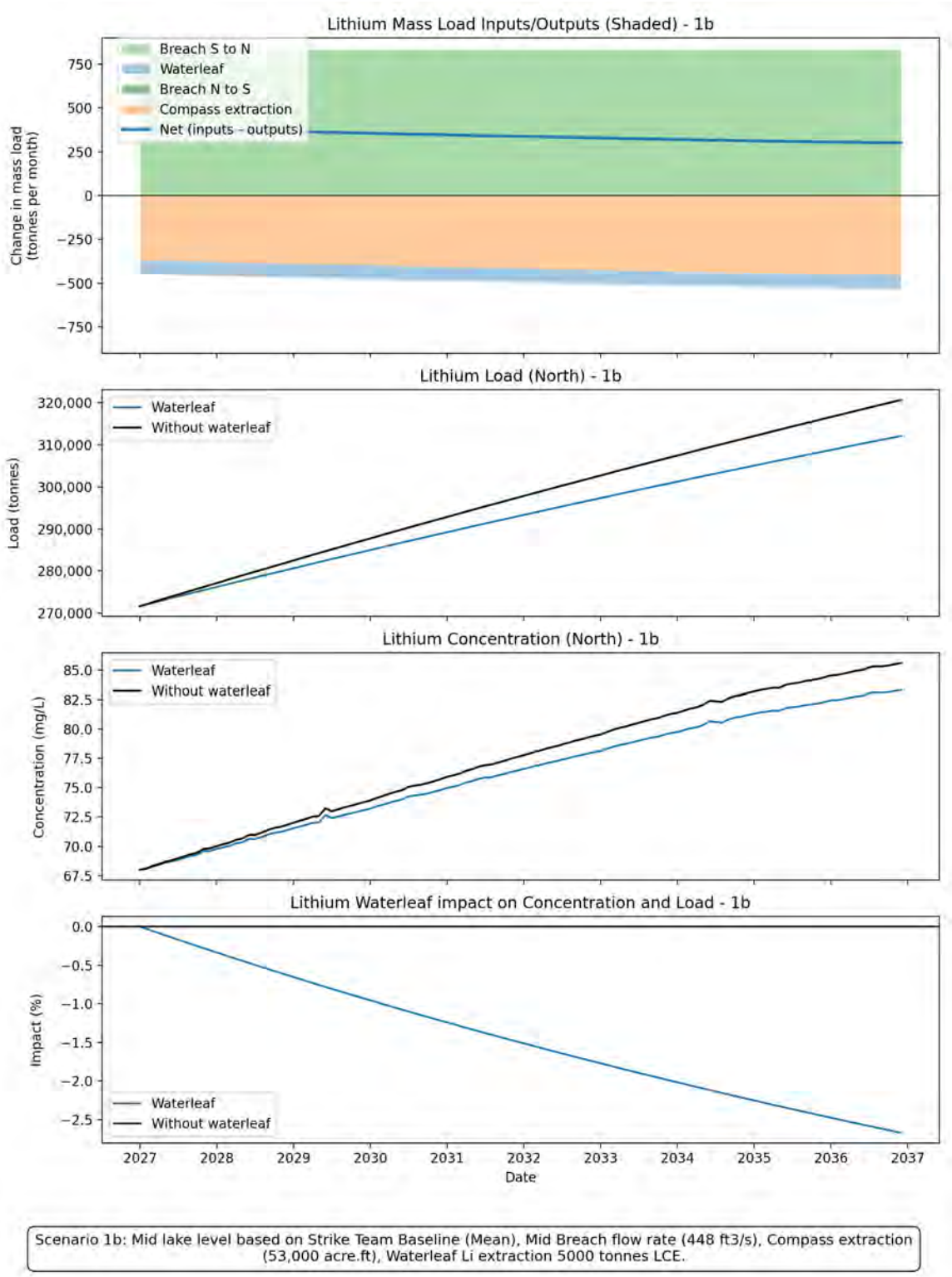


Figure 76: monthly mass balance lithium 1b

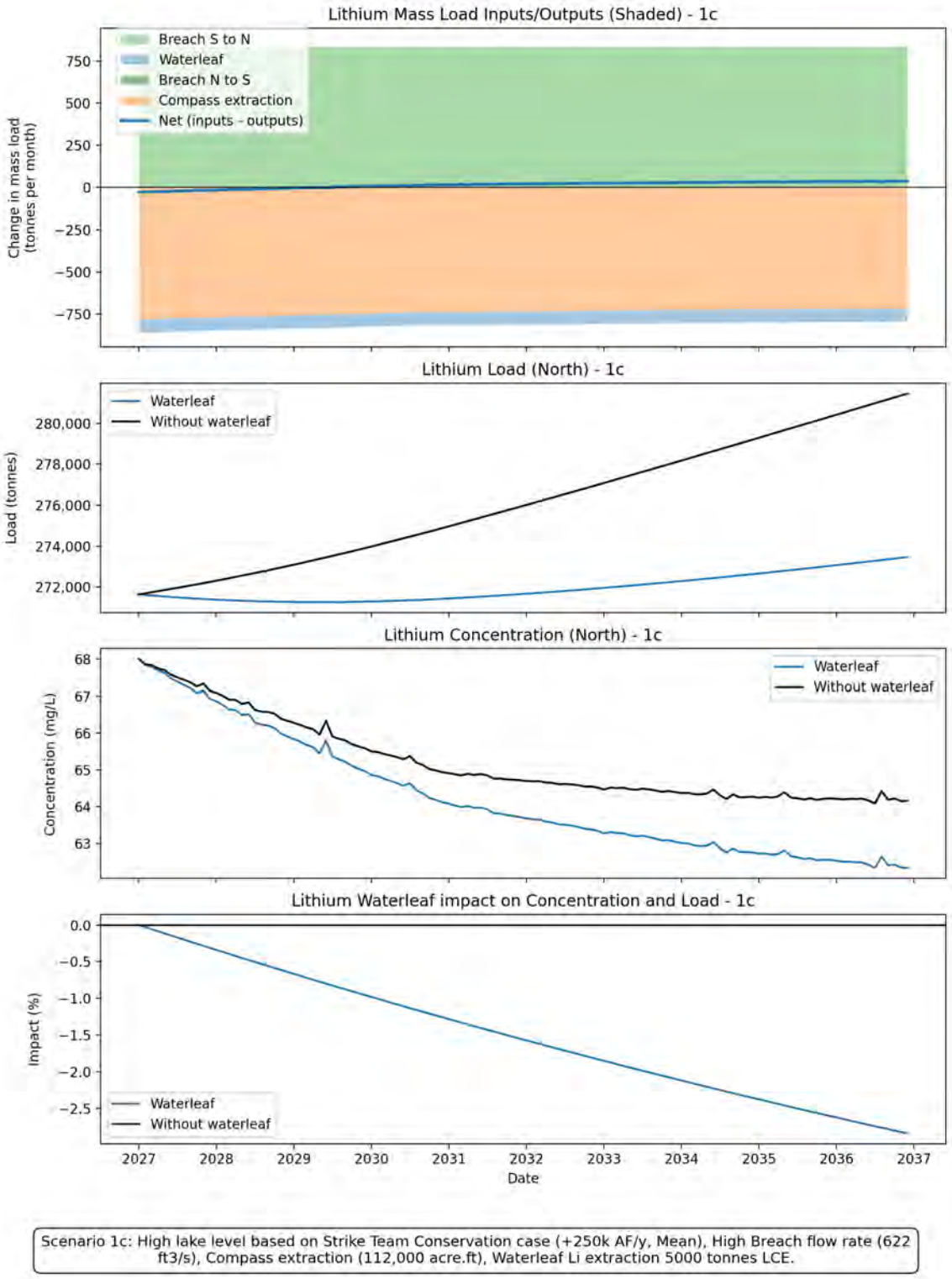


Figure 77: monthly mass balance lithium 1c

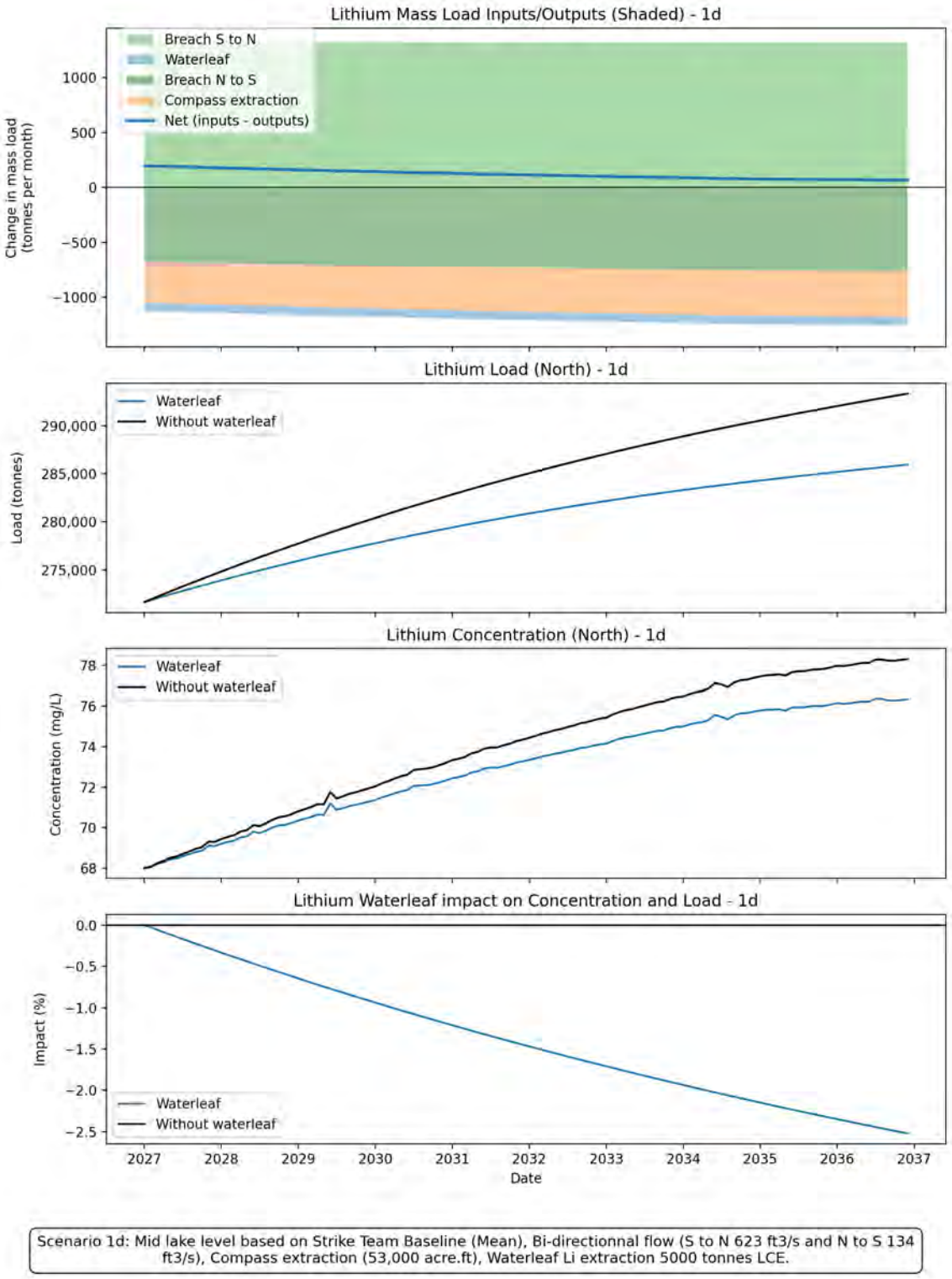


Figure 78: monthly mass balance lithium 1d

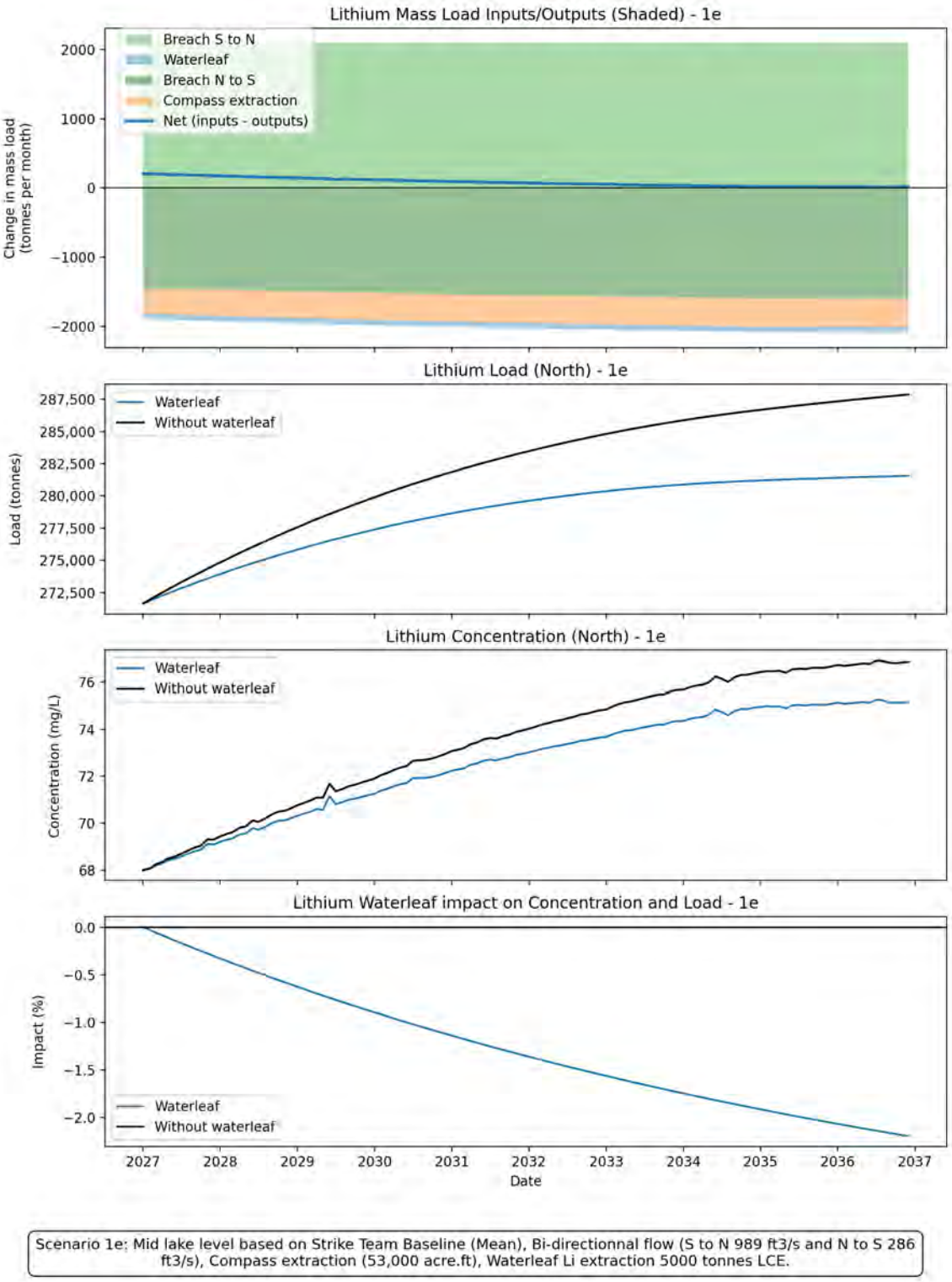


Figure 79: monthly mass balance lithium 1e

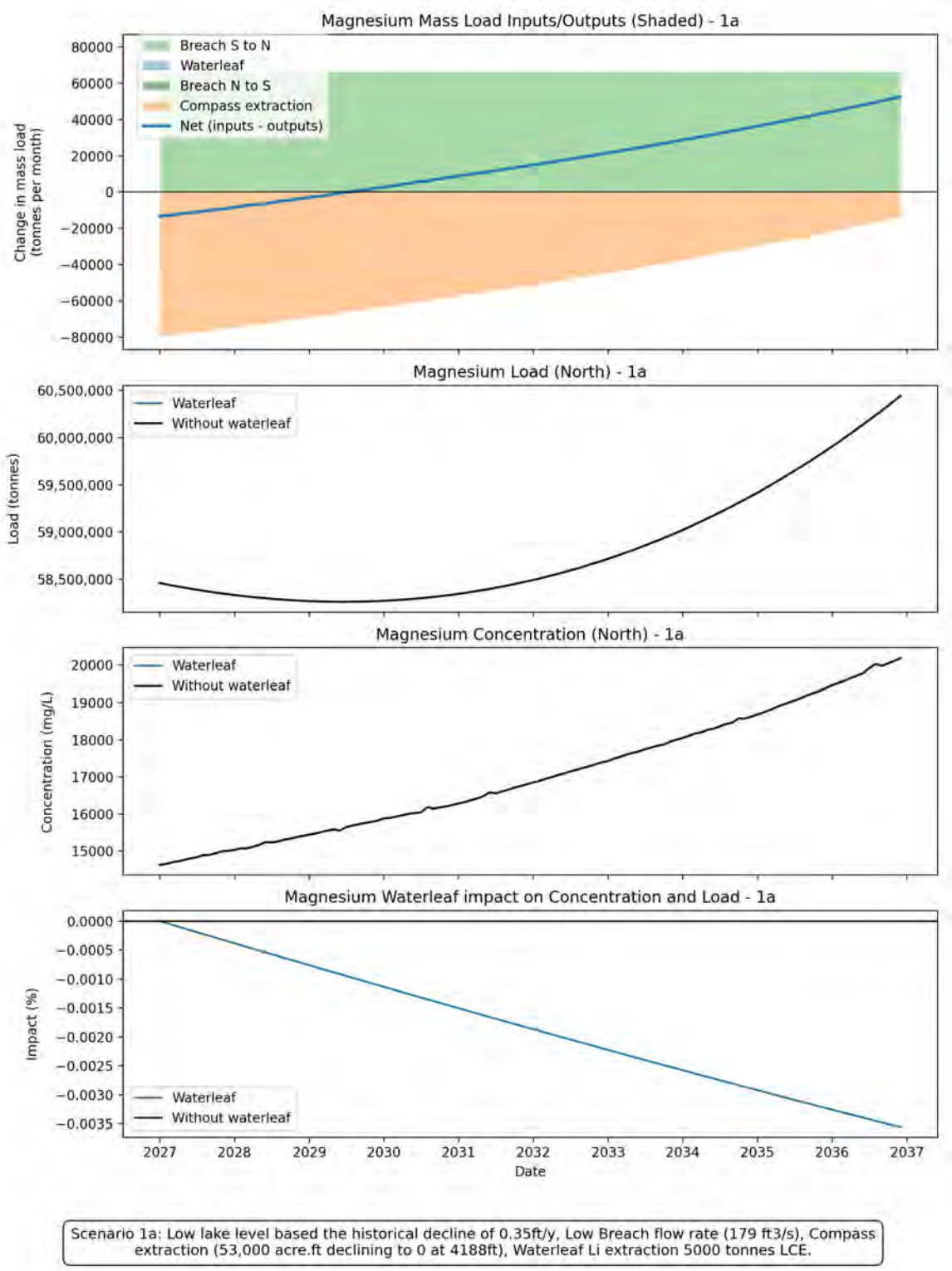


Figure 80: monthly mass balance magnesium 1a

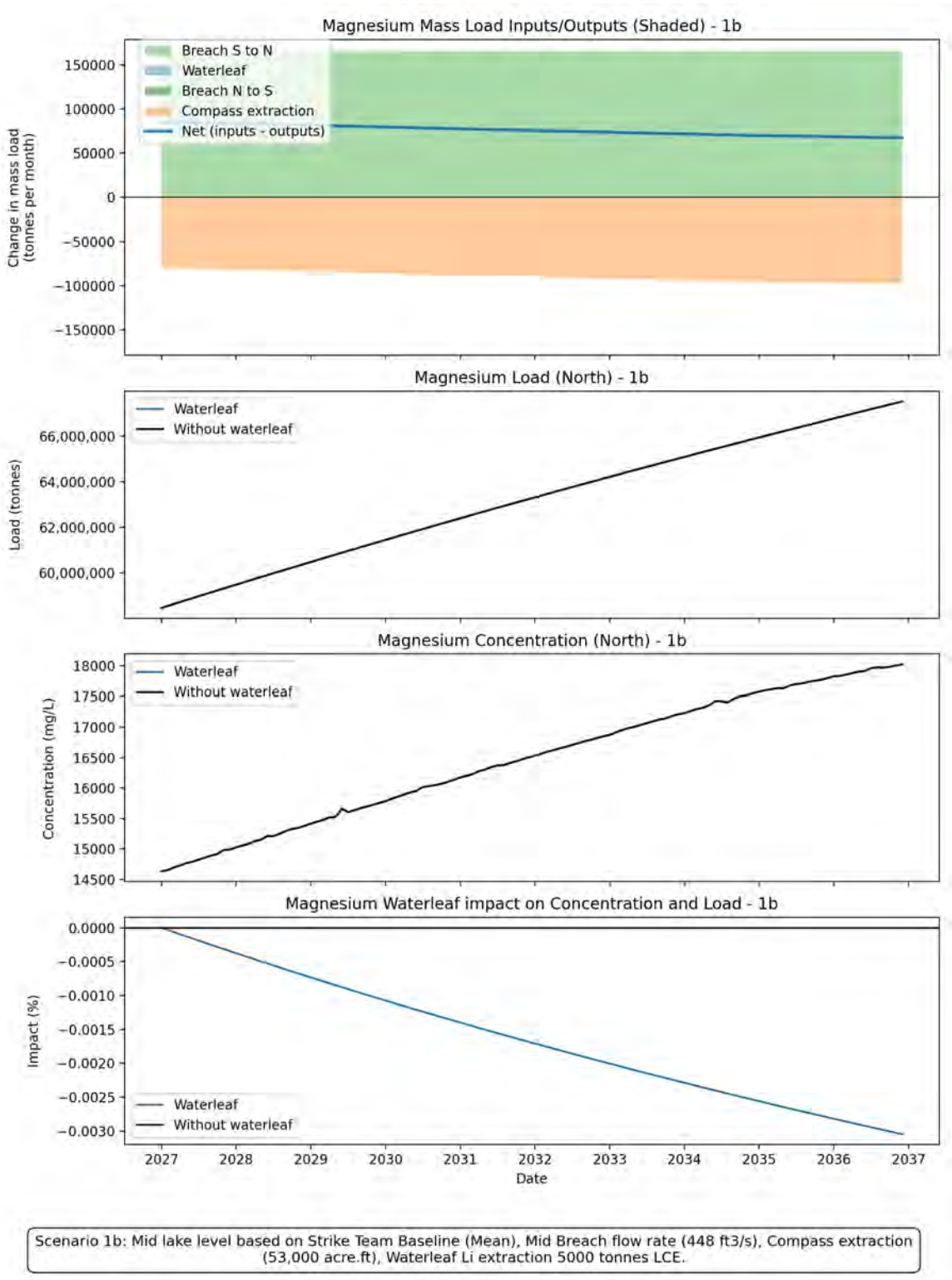


Figure 81: monthly mass balance magnesium 1b

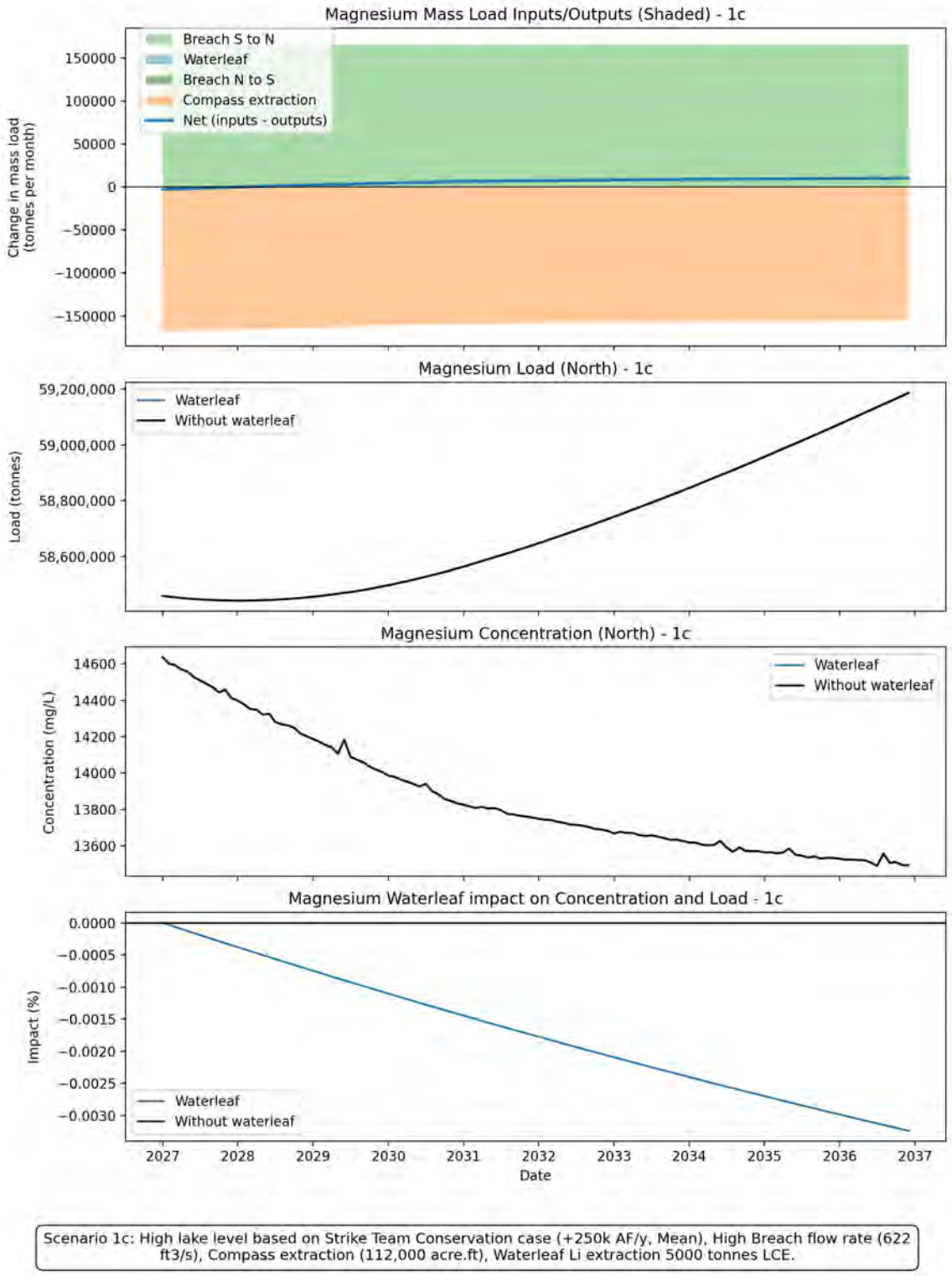


Figure 82: monthly mass balance magnesium 1c

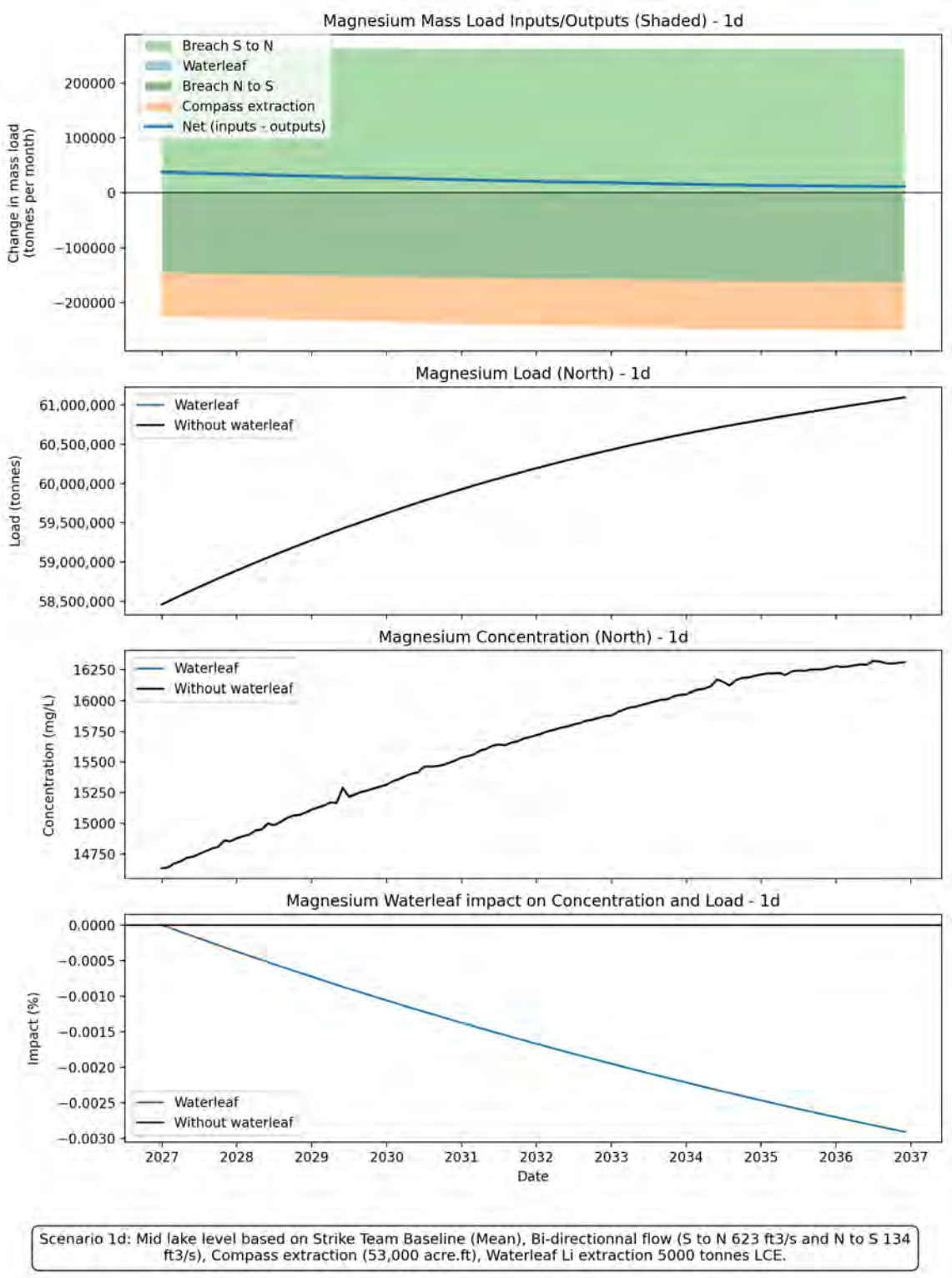


Figure 83: monthly mass balance magnesium 1d

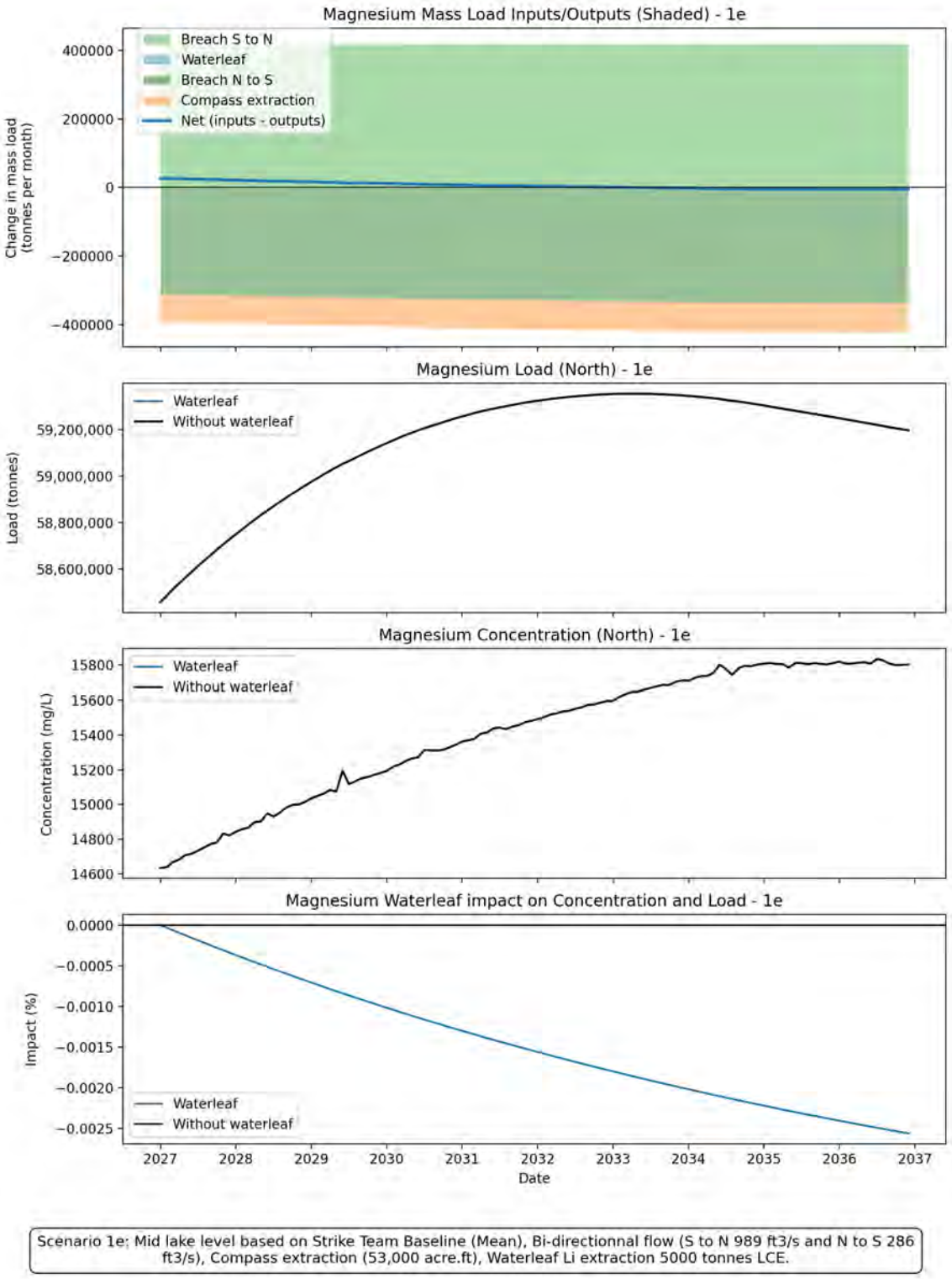


Figure 84: monthly mass balance magnesium 1e

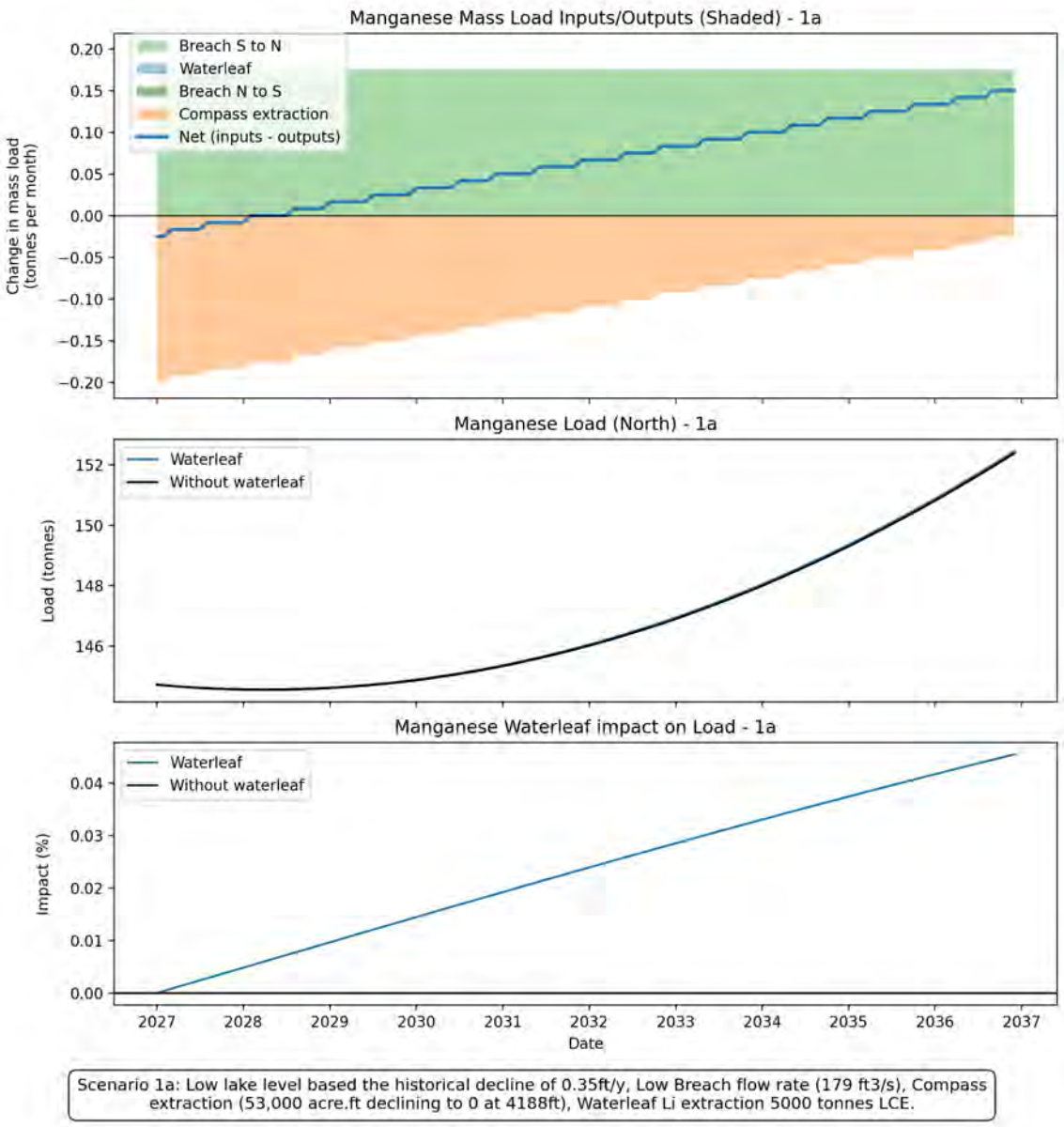


Figure 85: monthly mass balance manganese 1a

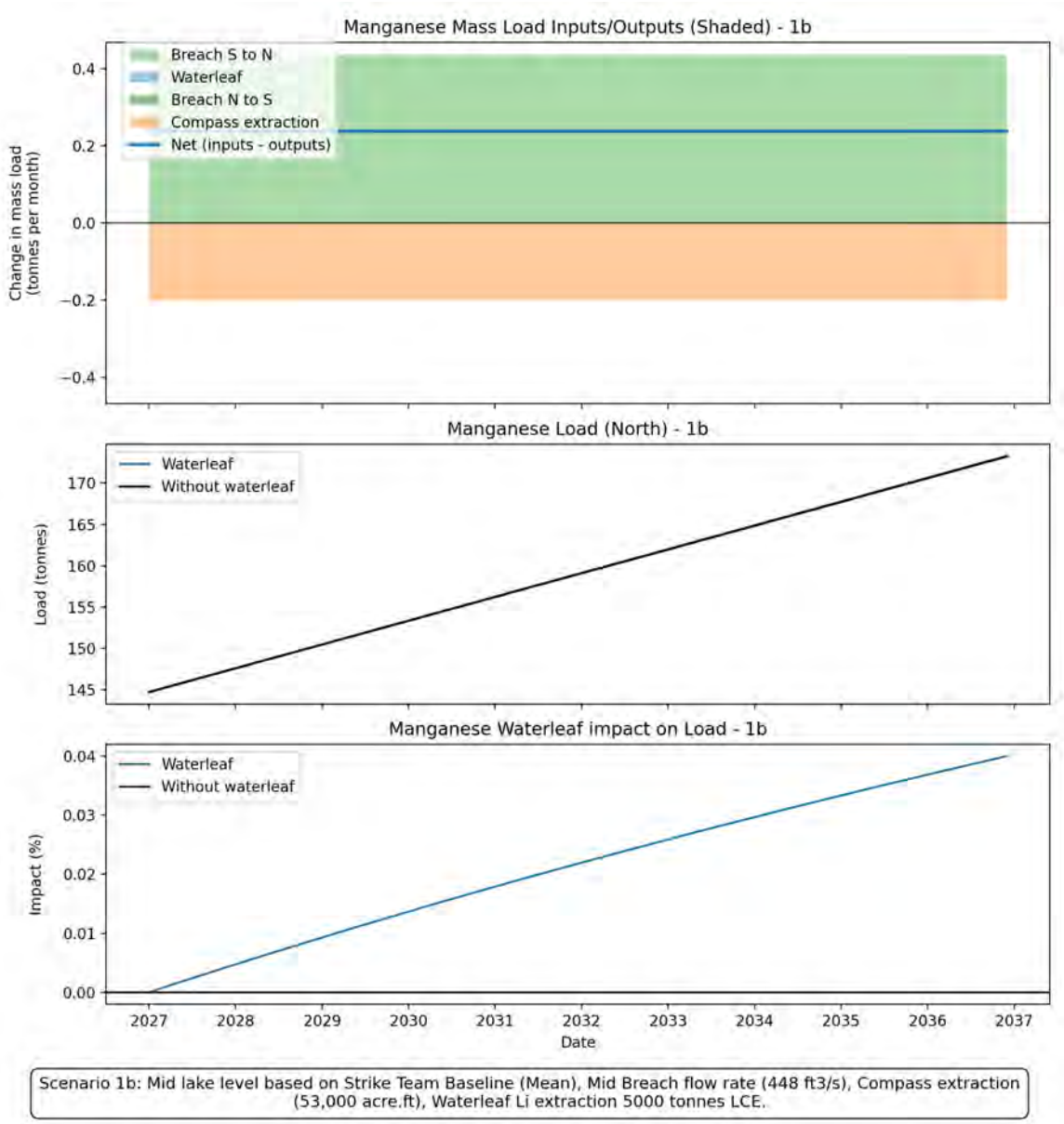


Figure 86: monthly mass balance manganese 1b

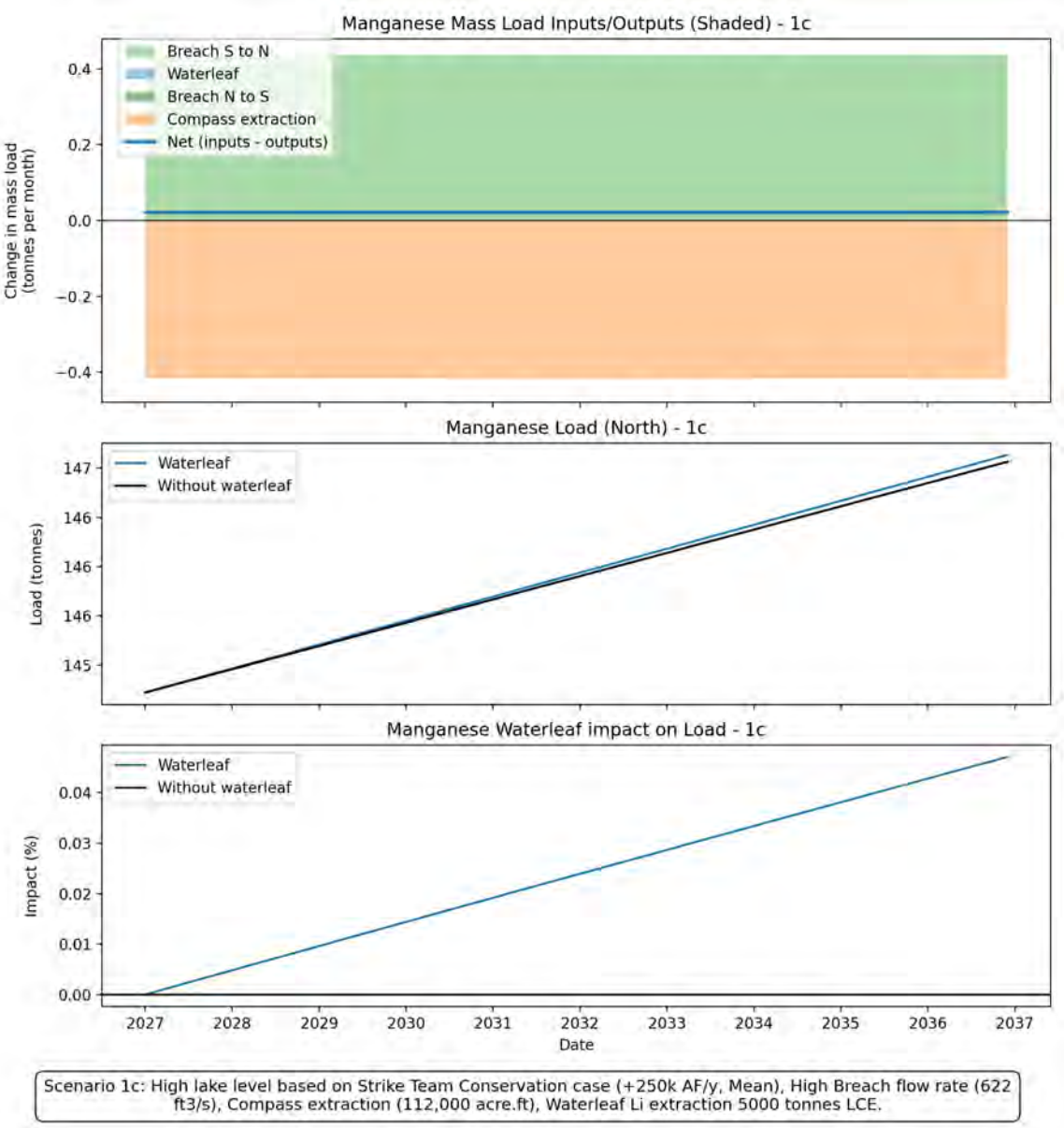


Figure 87: monthly mass balance manganese 1c

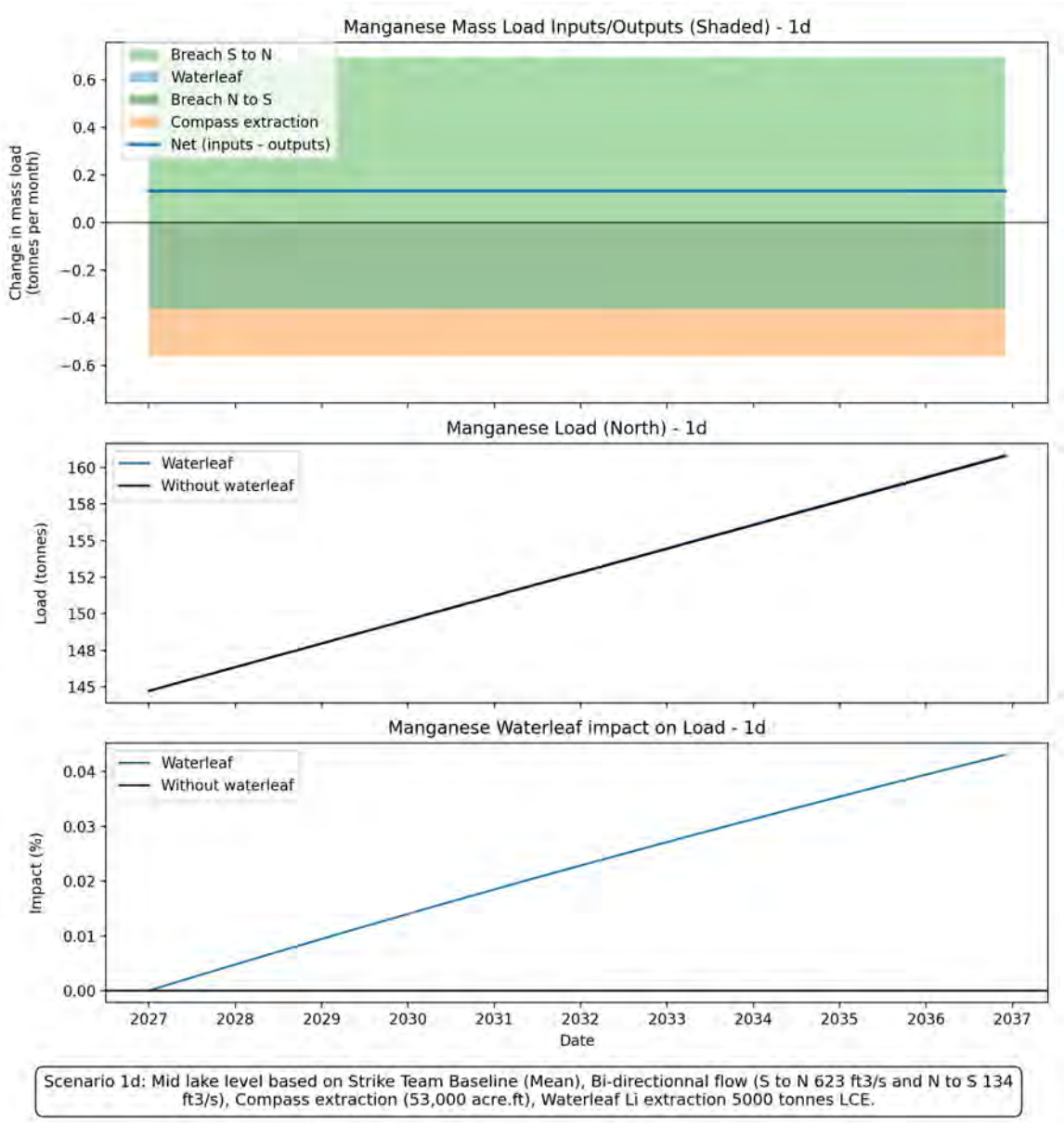


Figure 88: monthly mass balance manganese 1d

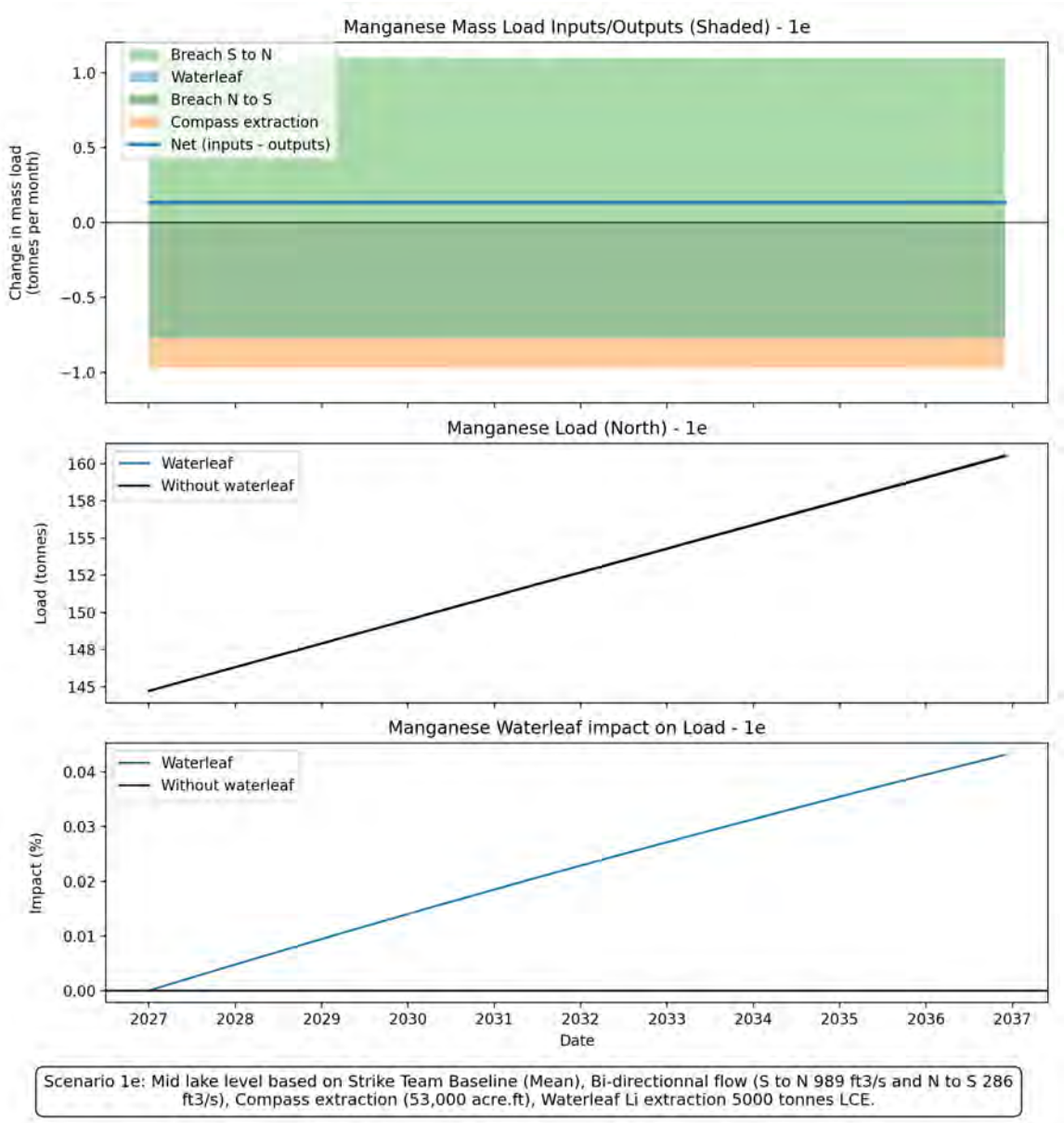


Figure 89: monthly mass balance manganese 1e

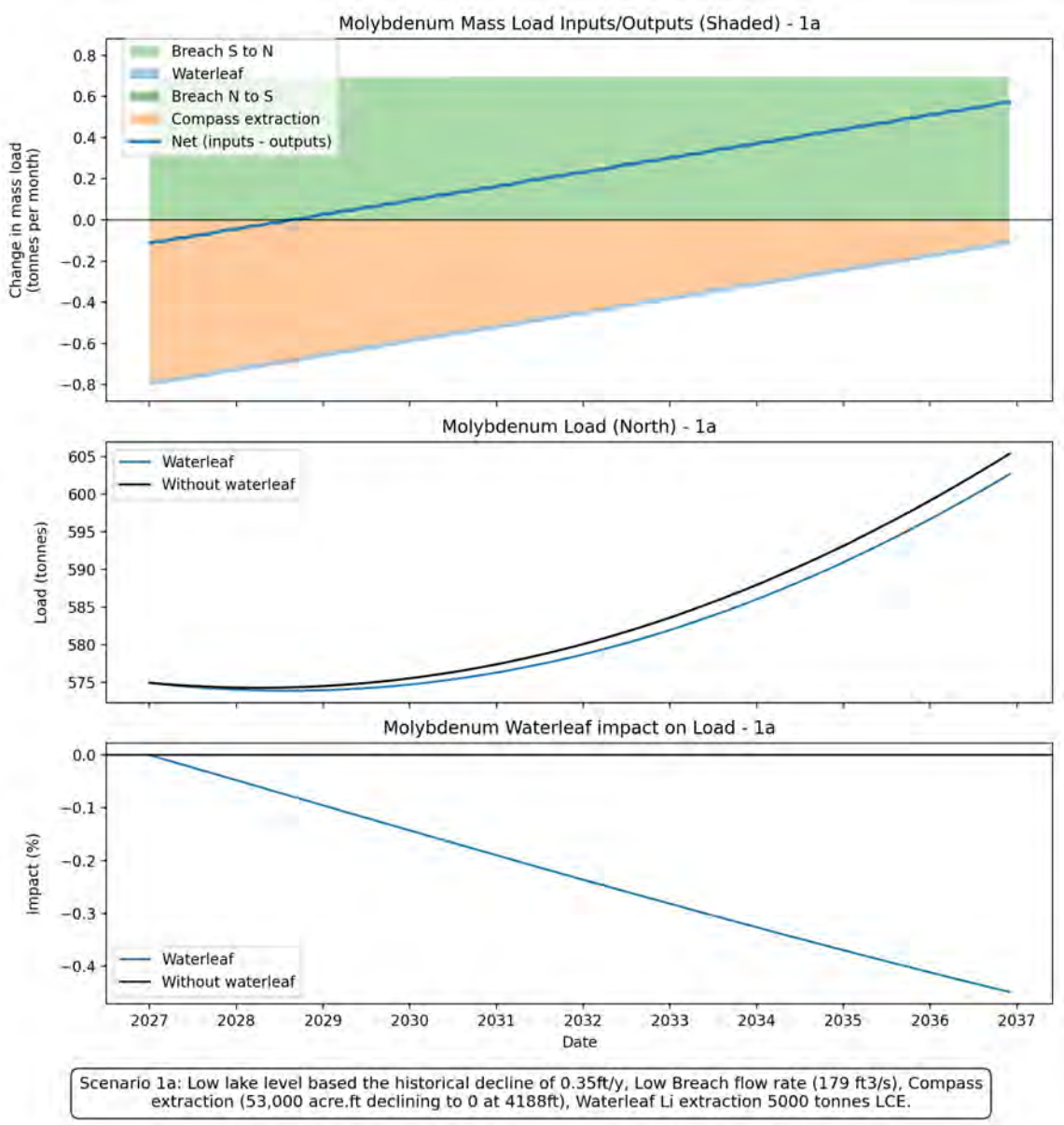


Figure 90: monthly mass balance molybdenum 1a

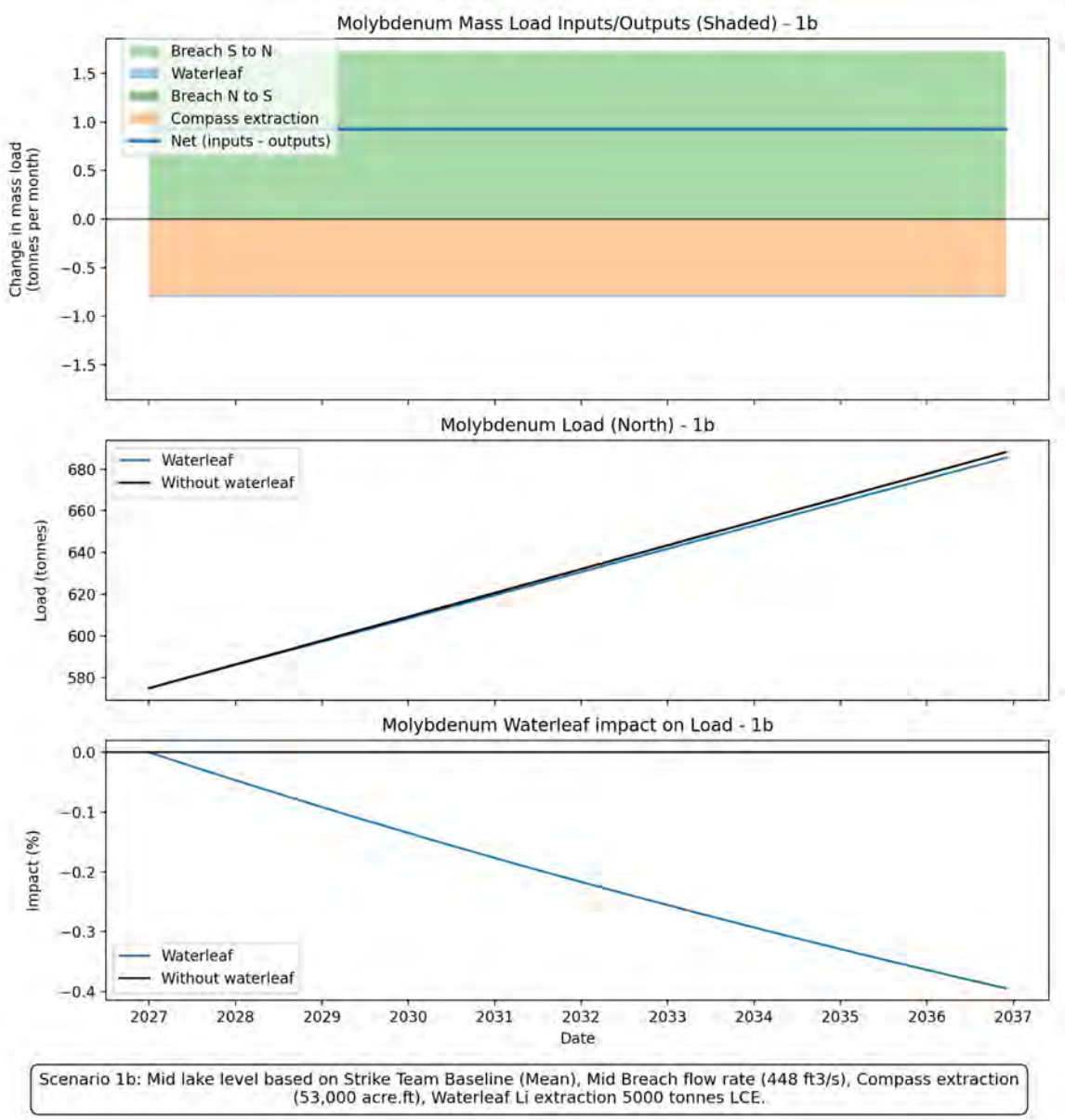


Figure 91: monthly mass balance molybdenum 1b

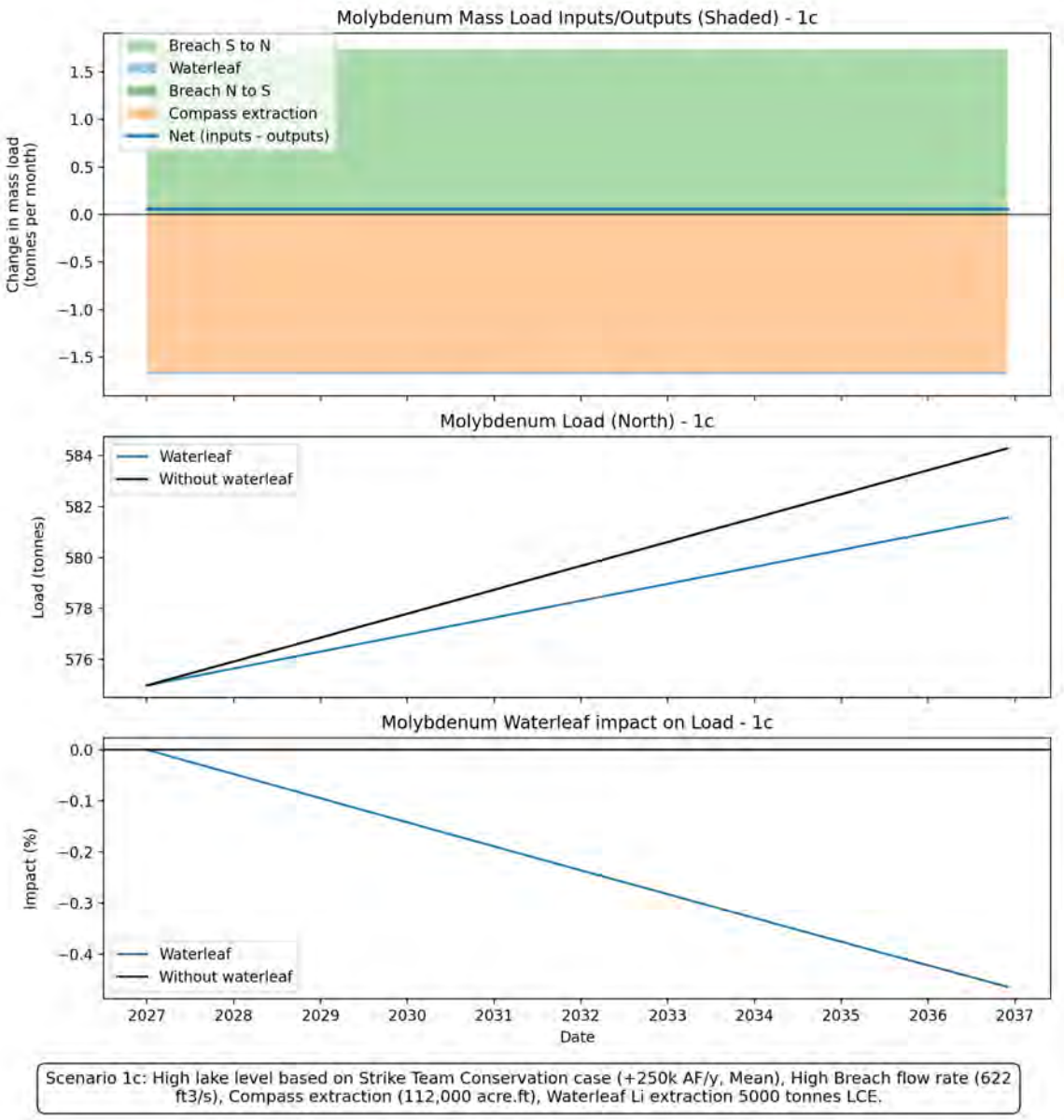


Figure 92: monthly mass balance molybdenum 1c

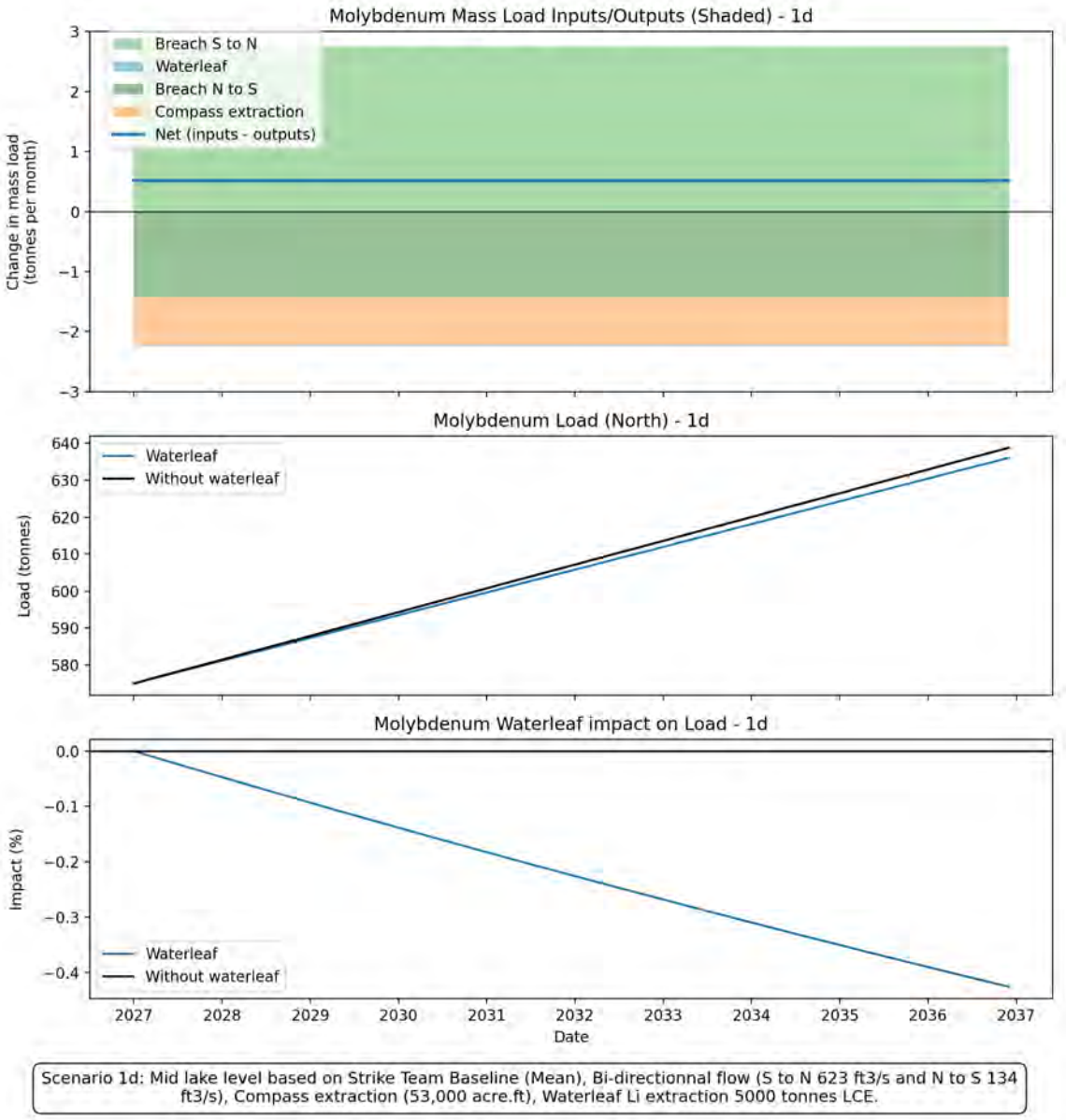


Figure 93: monthly mass balance molybdenum 1d

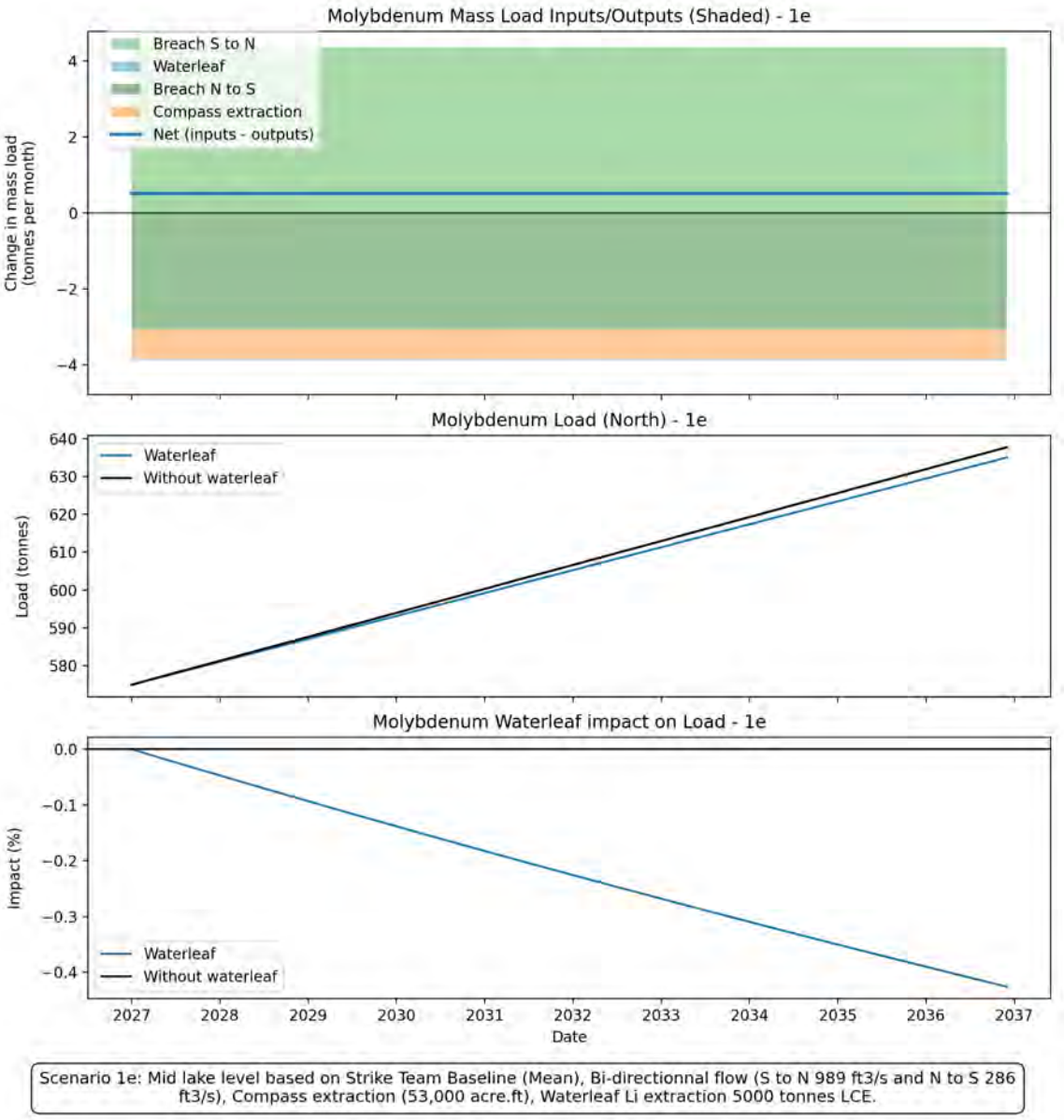


Figure 94: monthly mass balance molybdenum 1e

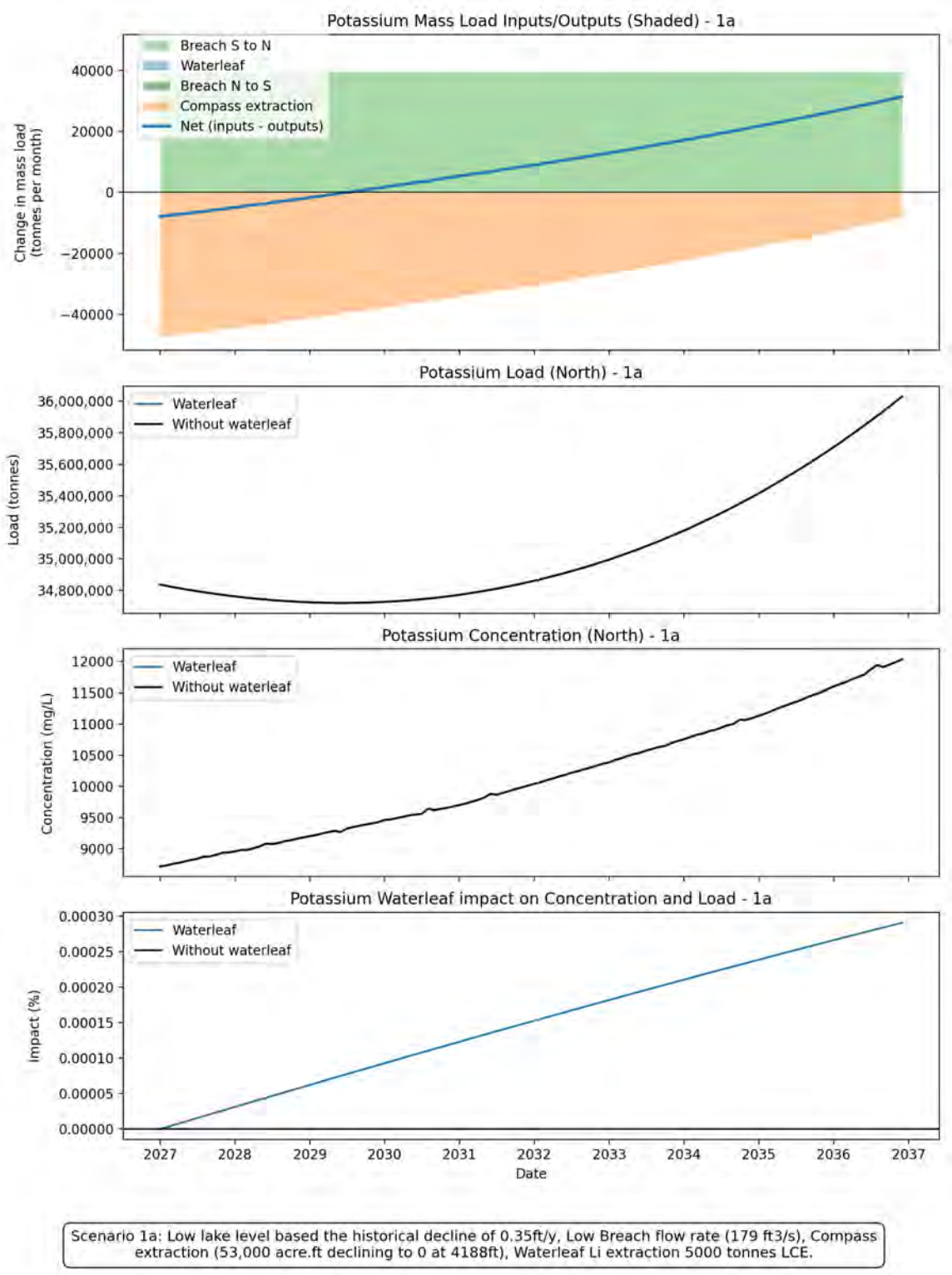


Figure 95: monthly mass balance potassium 1a

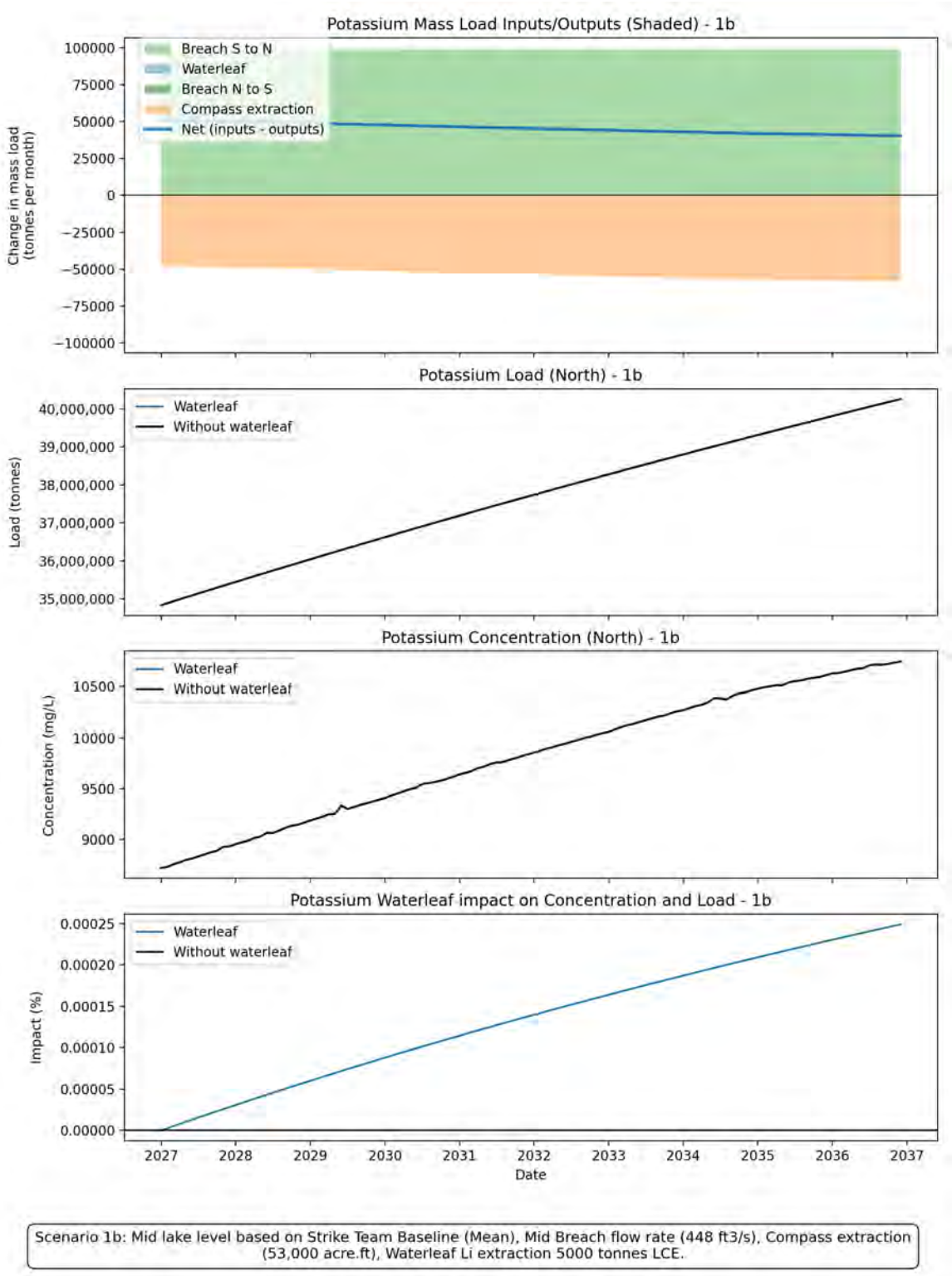


Figure 96: monthly mass balance potassium 1b

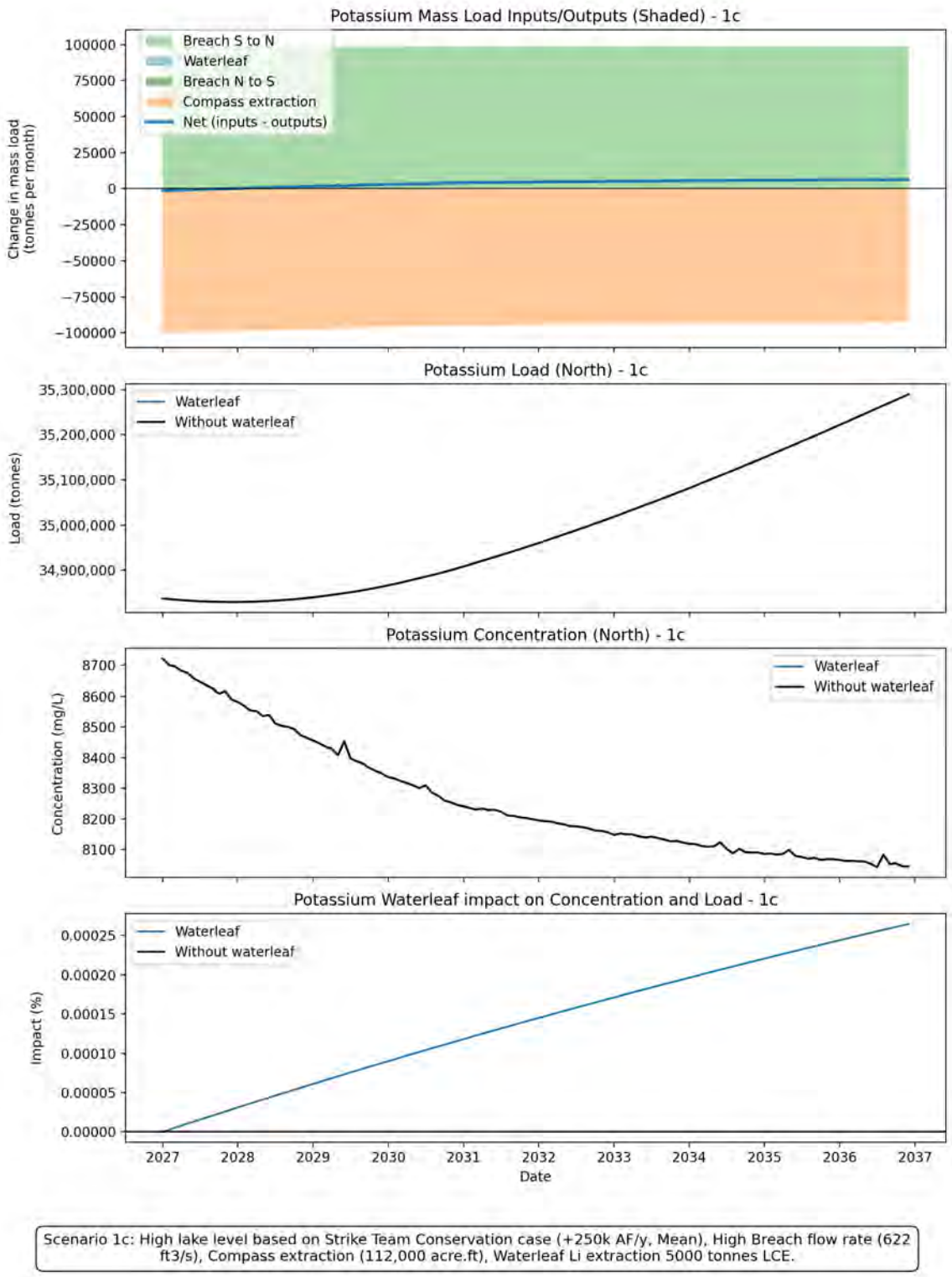


Figure 97: monthly mass balance potassium 1c

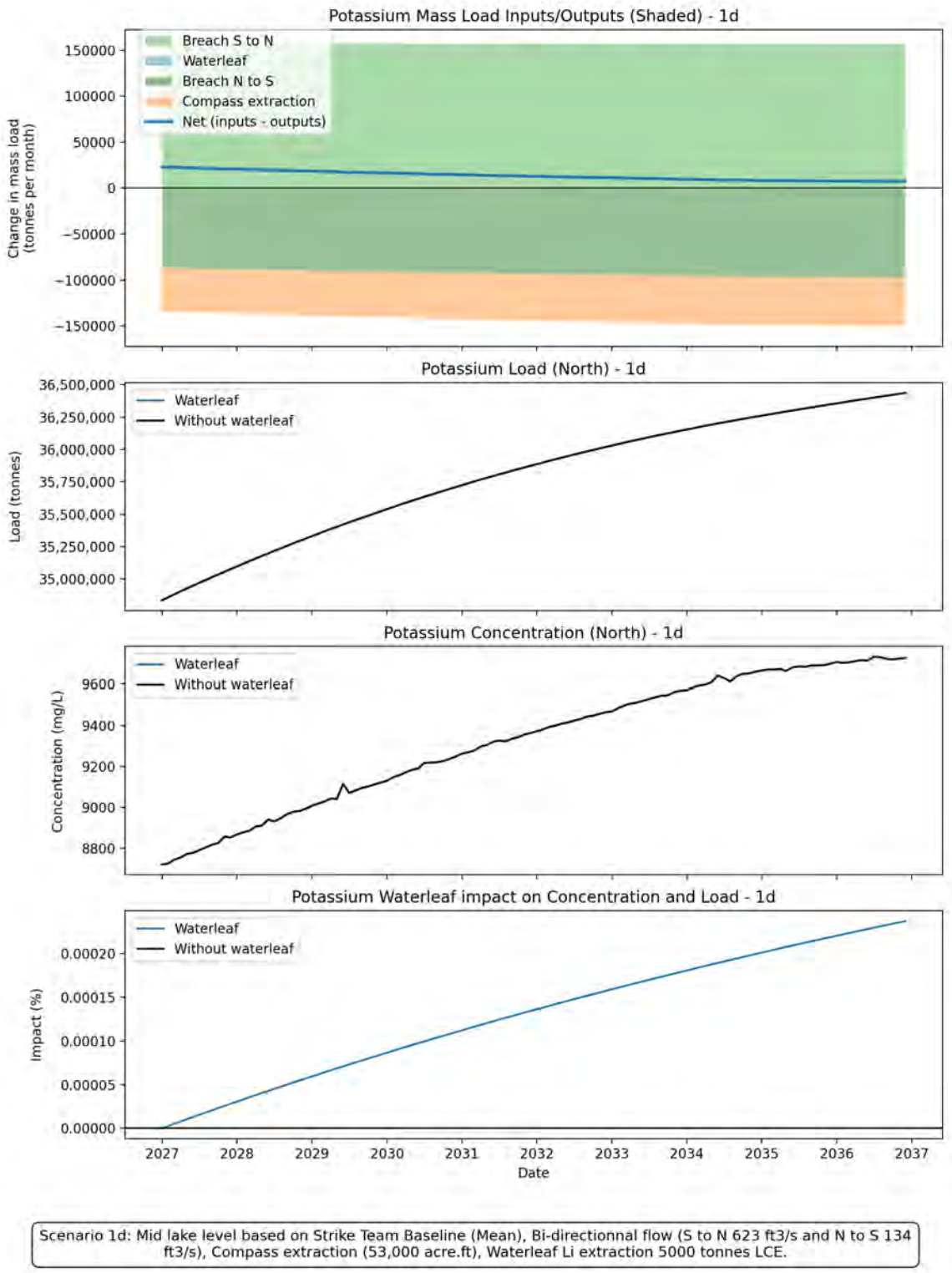


Figure 98: monthly mass balance potassium 1d

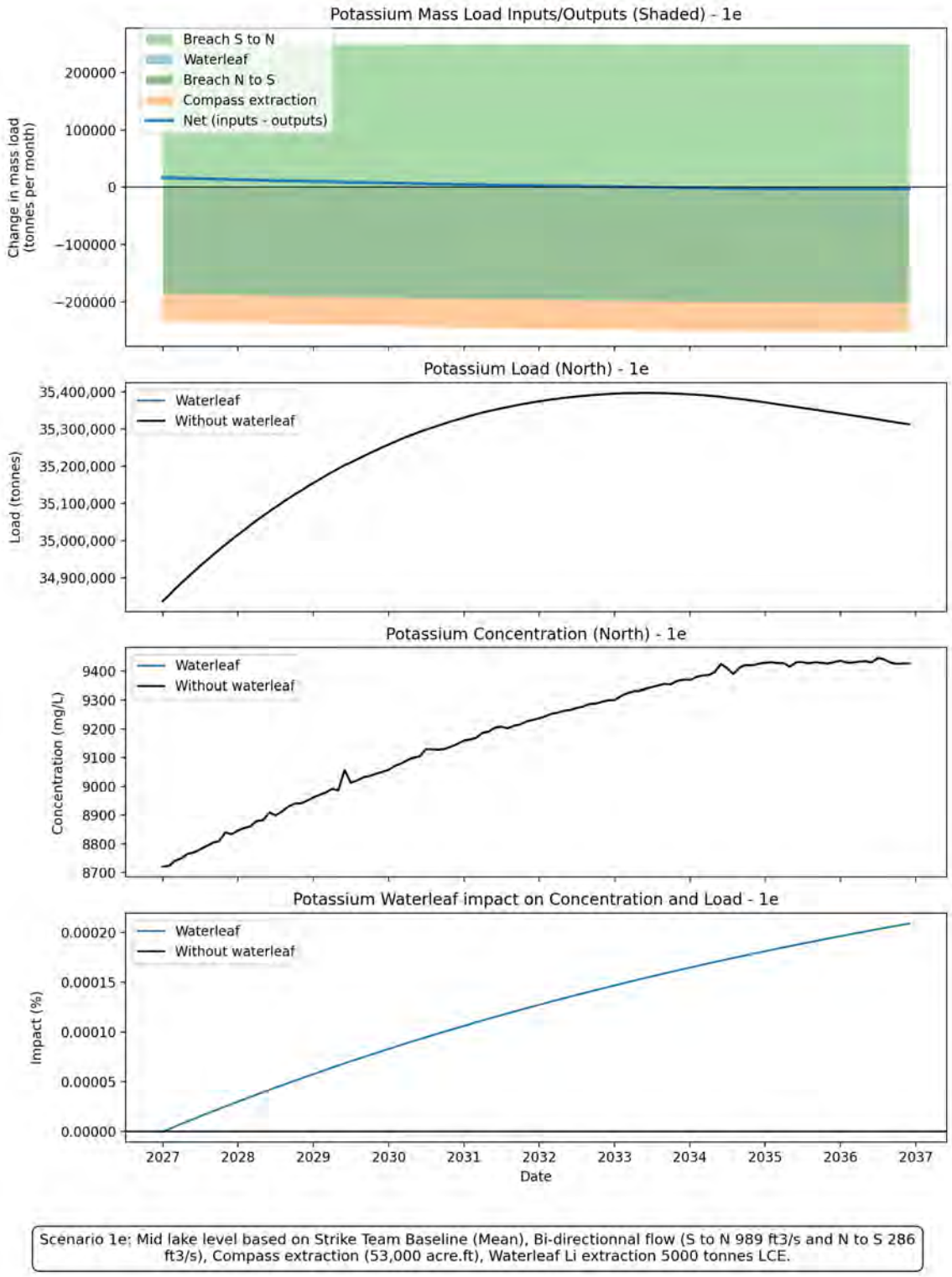


Figure 99: monthly mass balance potassium 1e

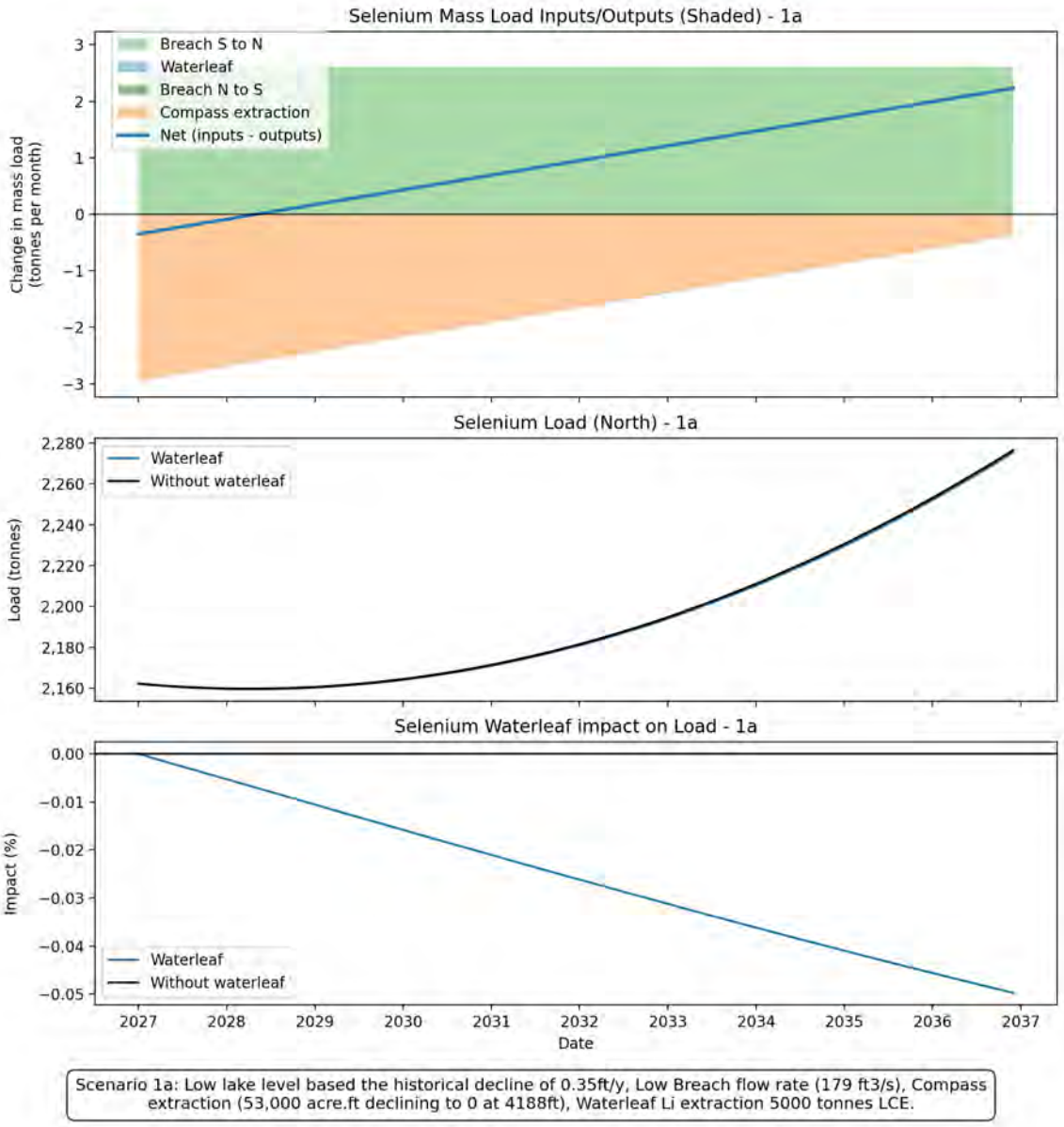


Figure 100: monthly mass balance selenium 1a

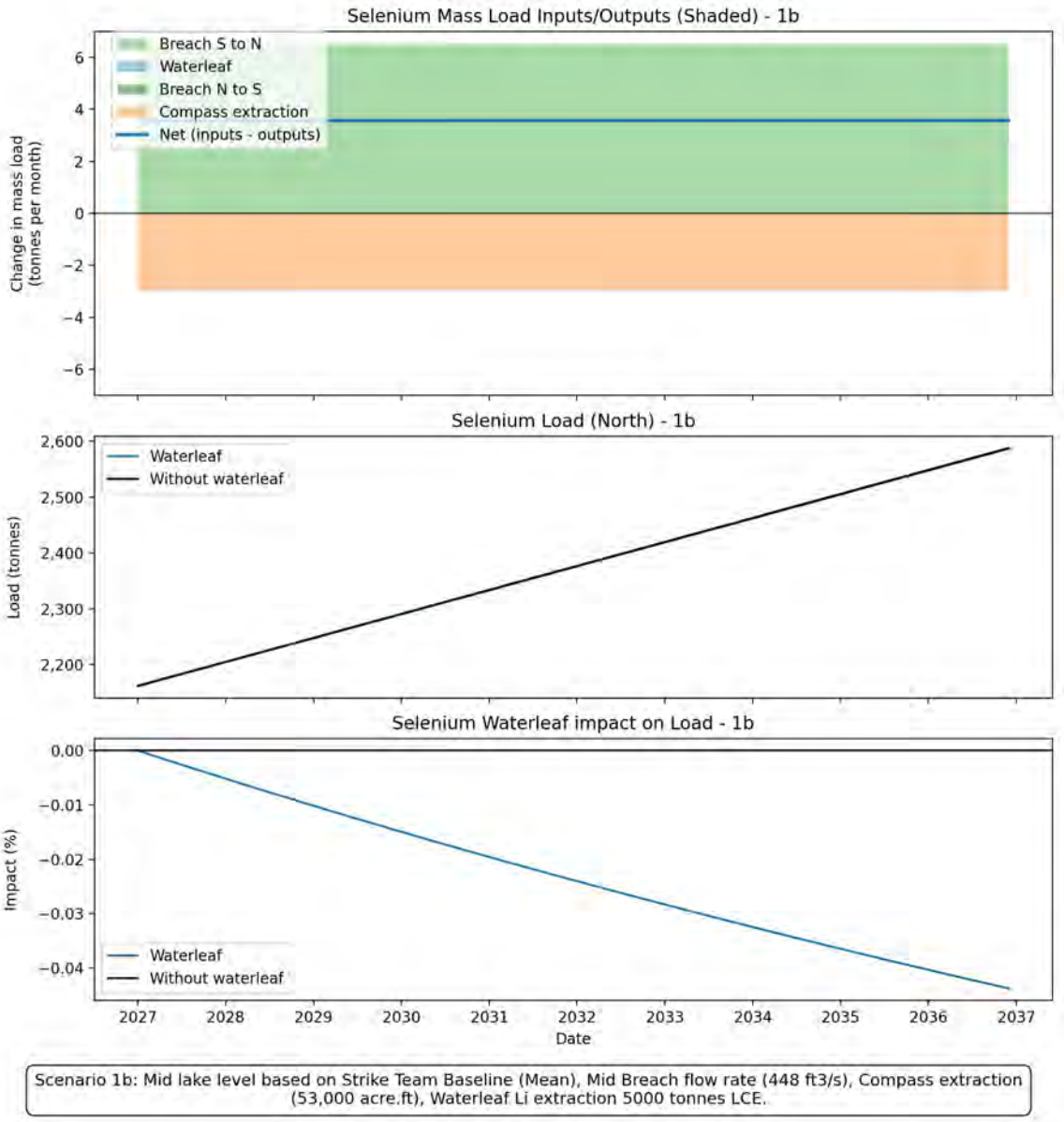


Figure 101: monthly mass balance selenium 1b

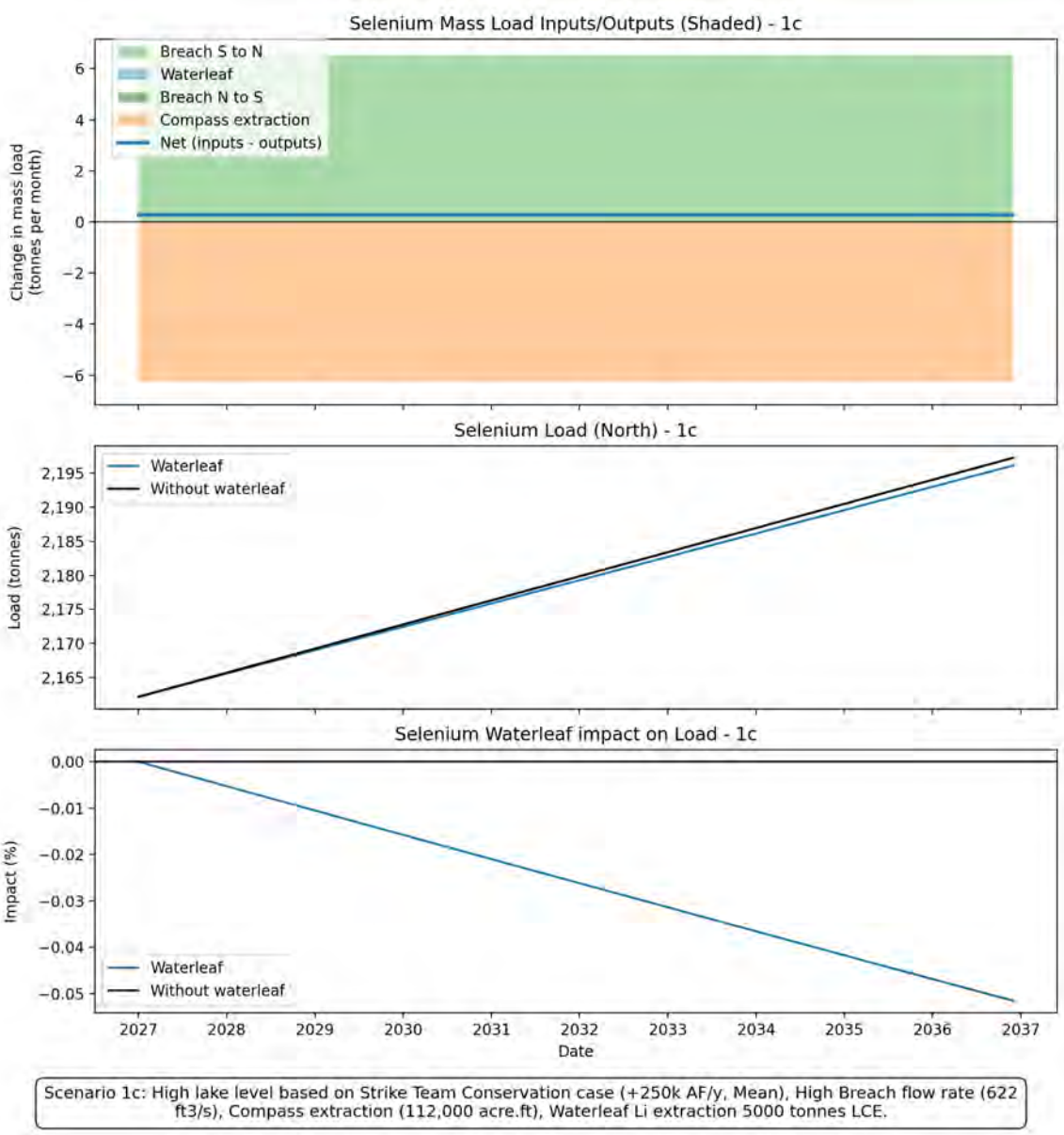


Figure 102: monthly mass balance selenium 1c

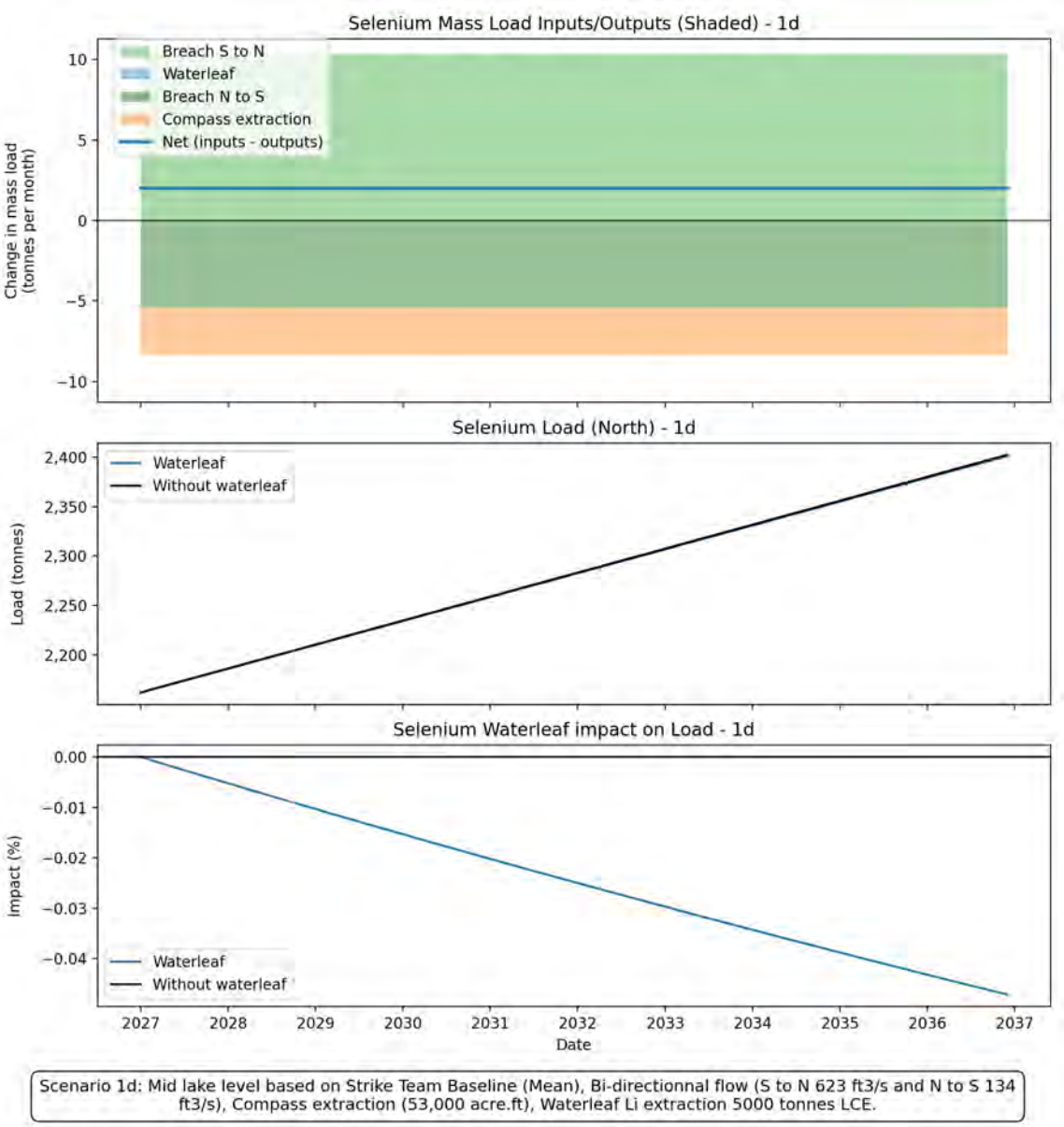


Figure 103: monthly mass balance selenium 1d

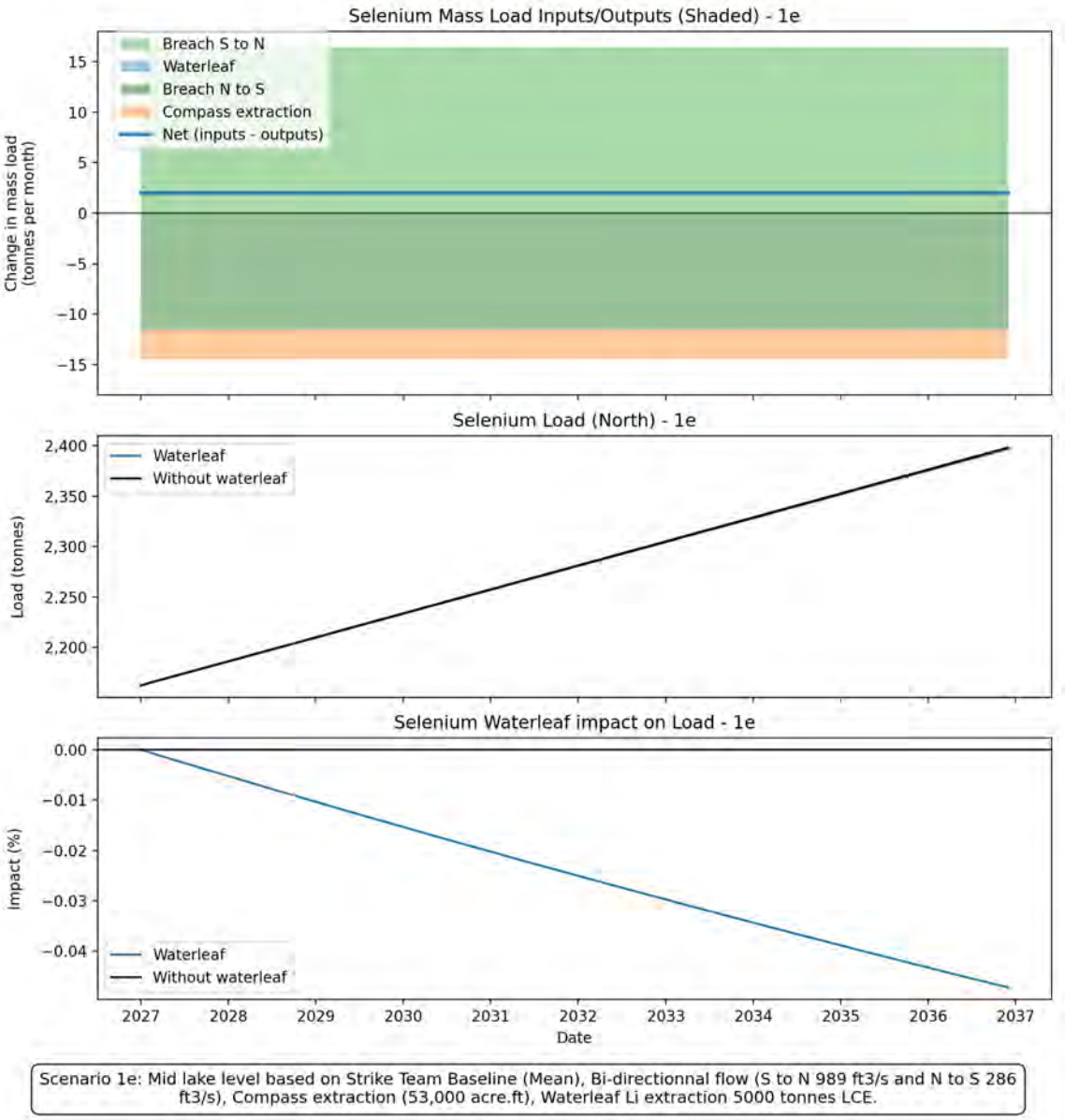


Figure 104: monthly mass balance selenium 1e

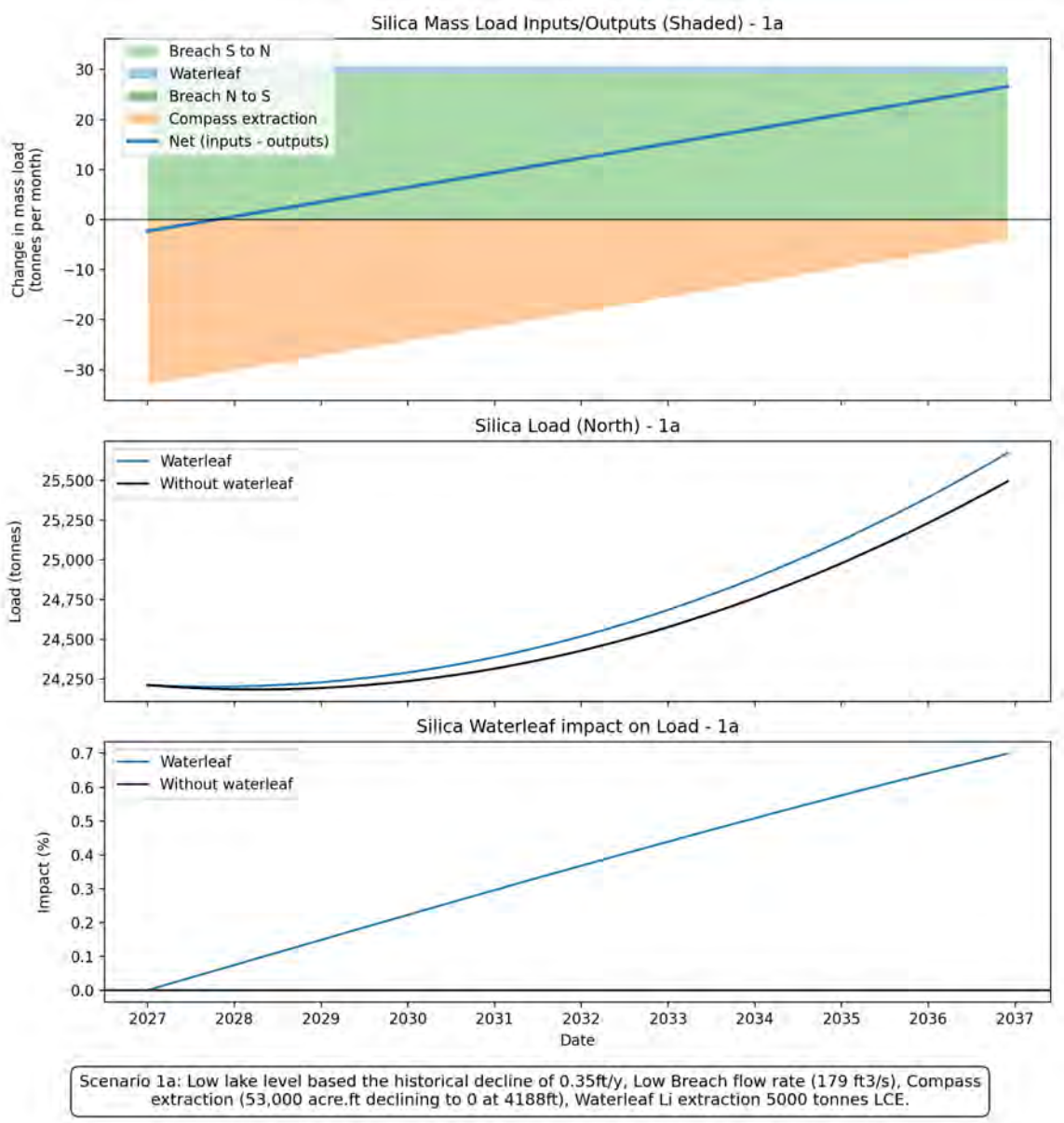


Figure 105: monthly mass balance silica 1a

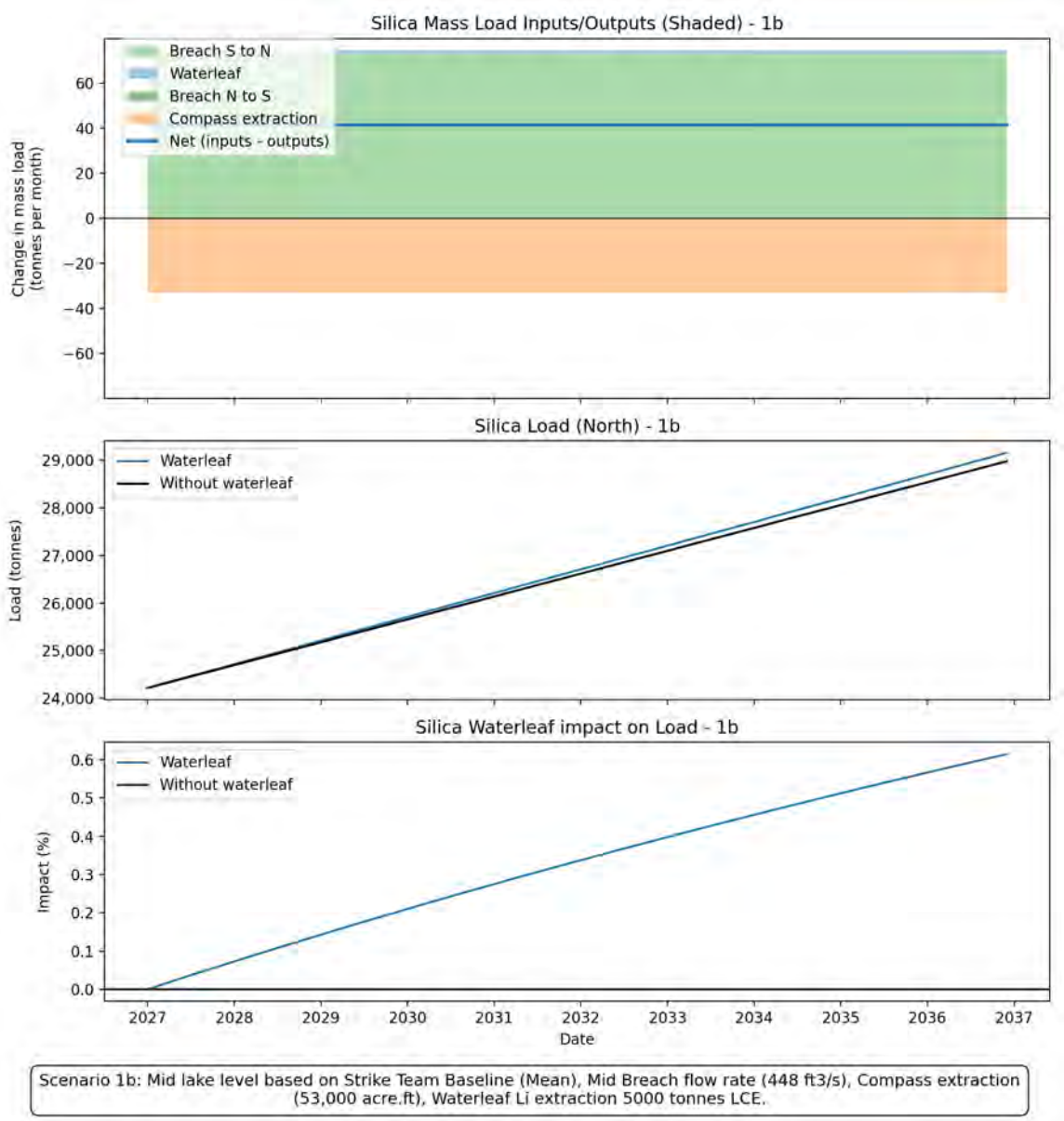


Figure 106: monthly mass balance silica 1b

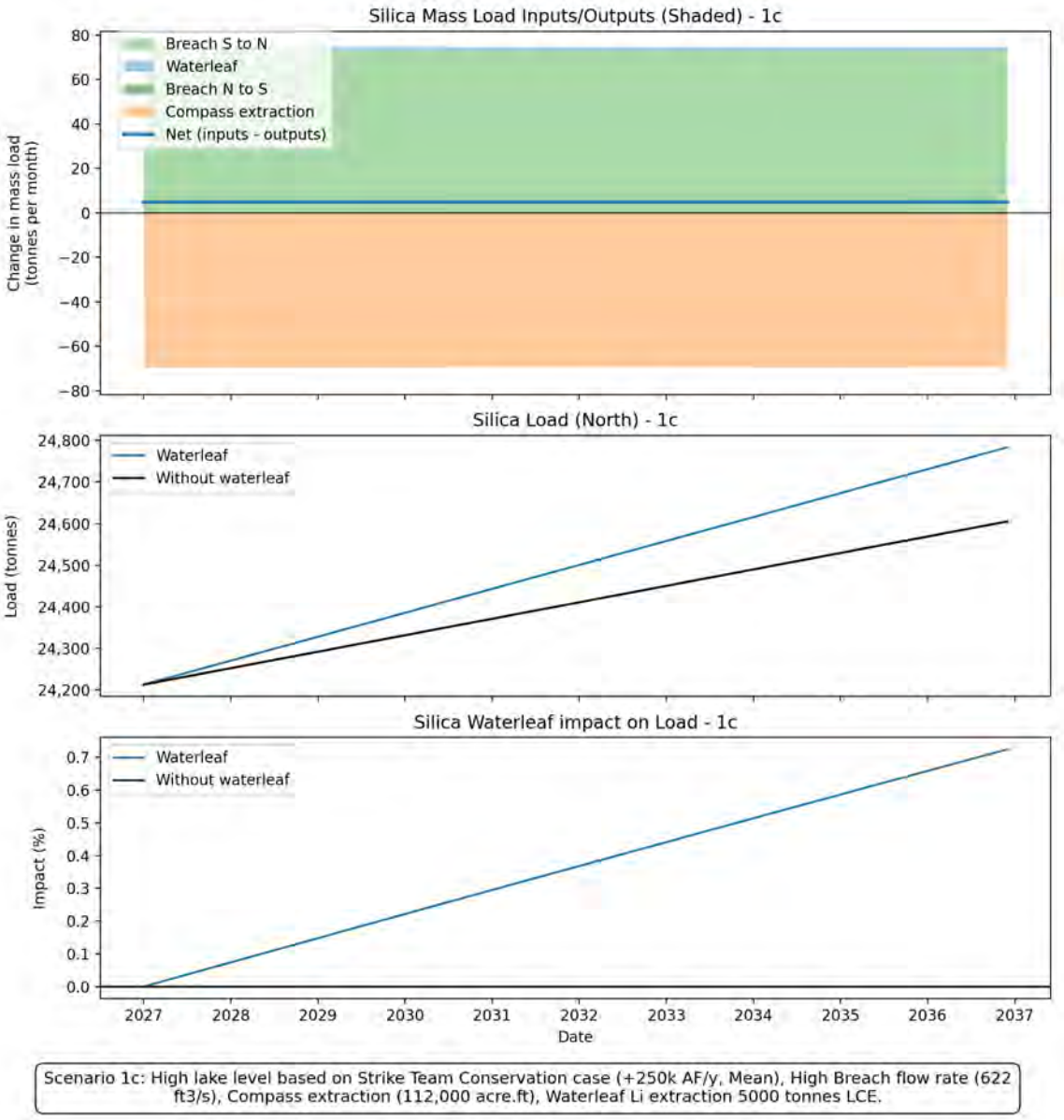


Figure 107: monthly mass balance silica 1c

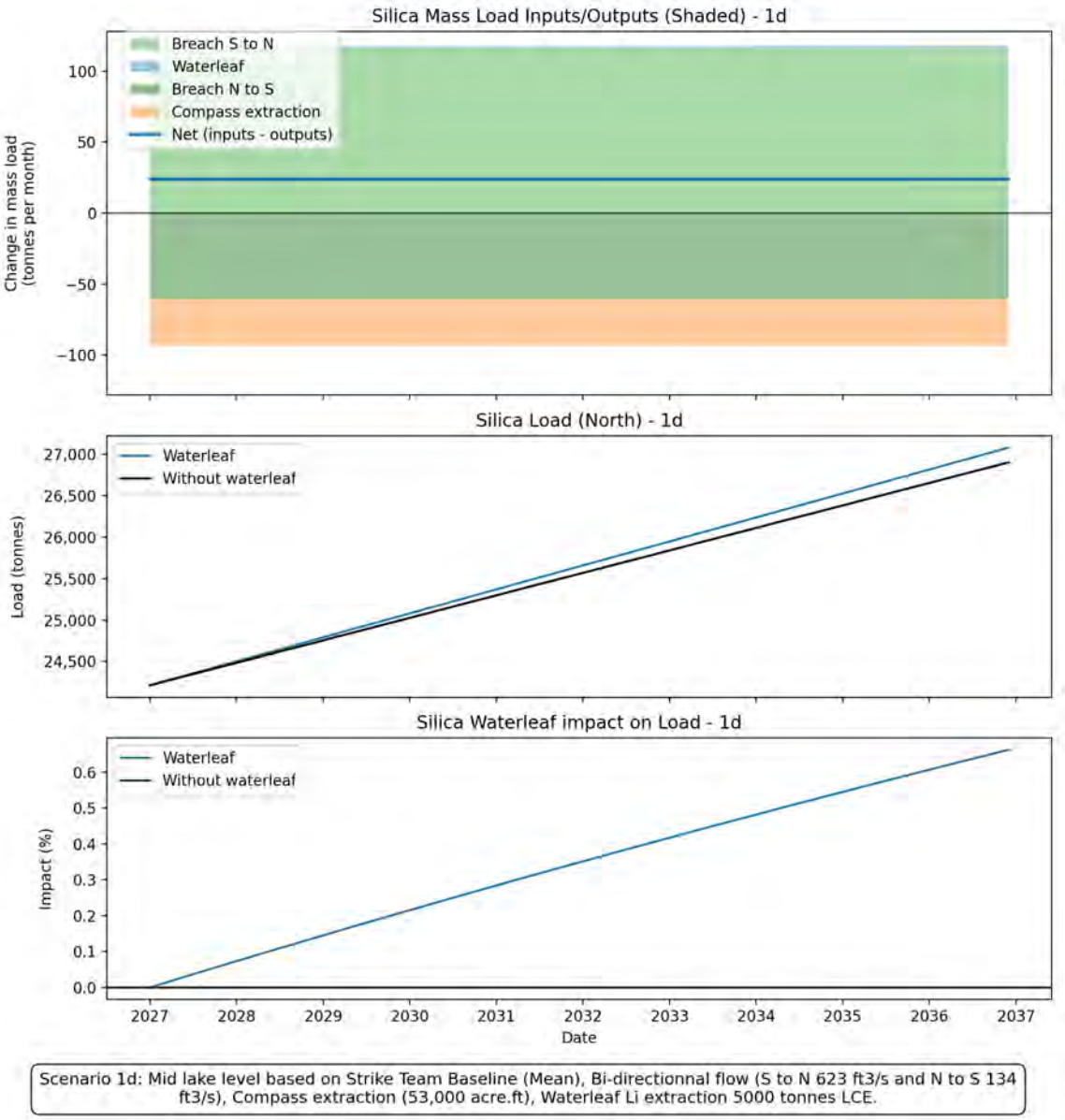


Figure 108: monthly mass balance silica 1d

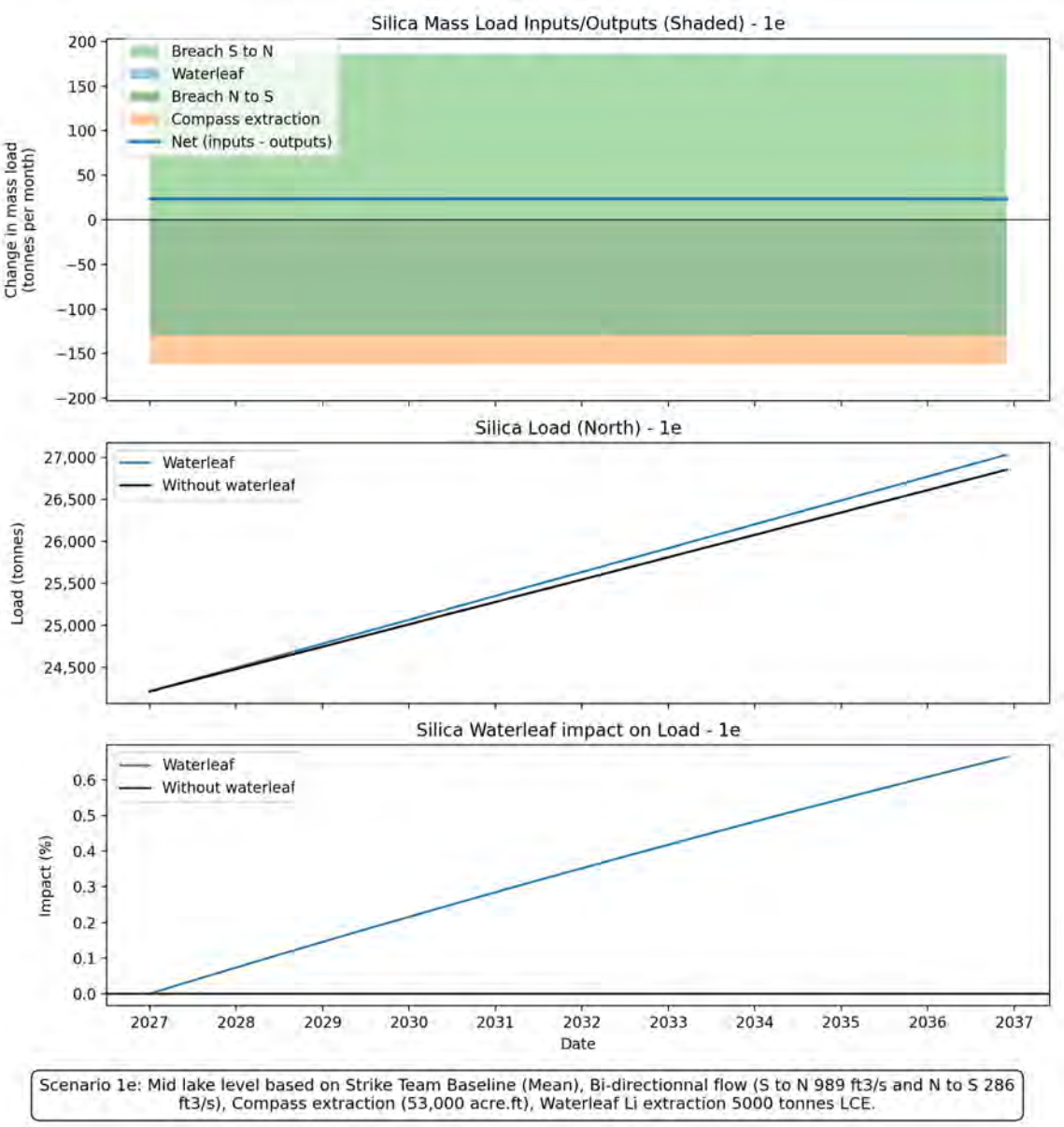


Figure 109: monthly mass balance silica 1e

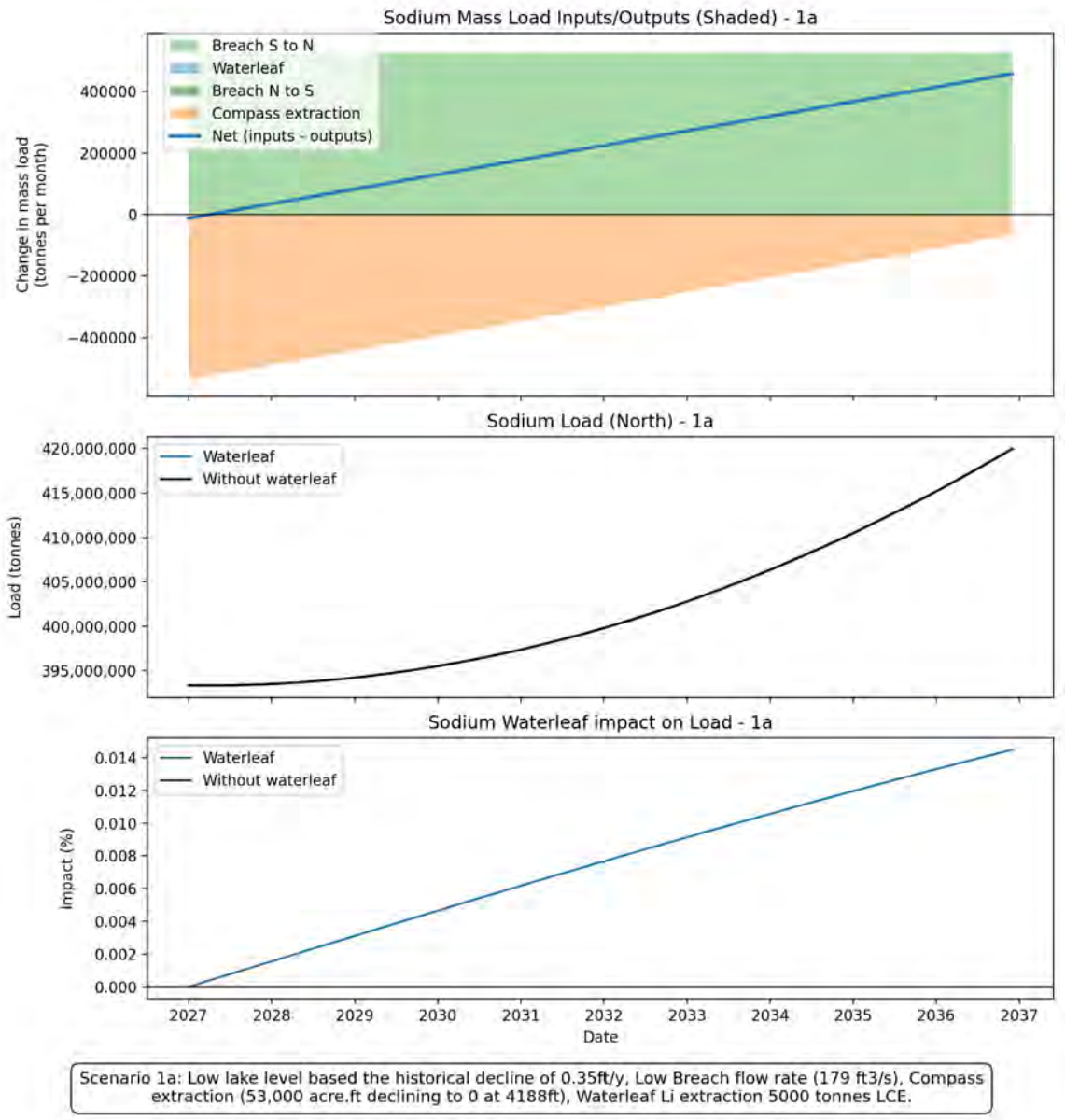


Figure 110: monthly mass balance sodium 1a

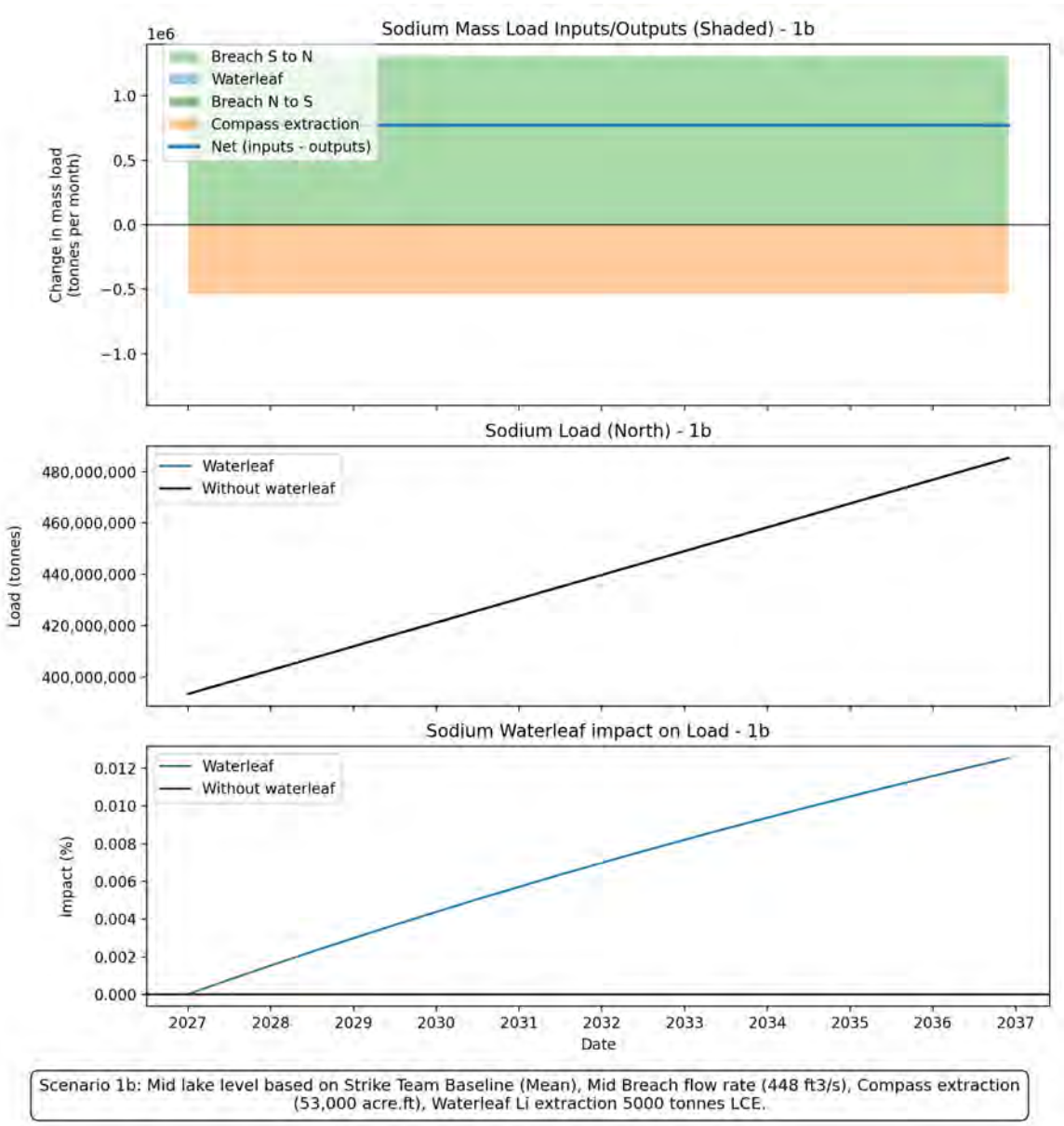


Figure 111: monthly mass balance sodium 1b

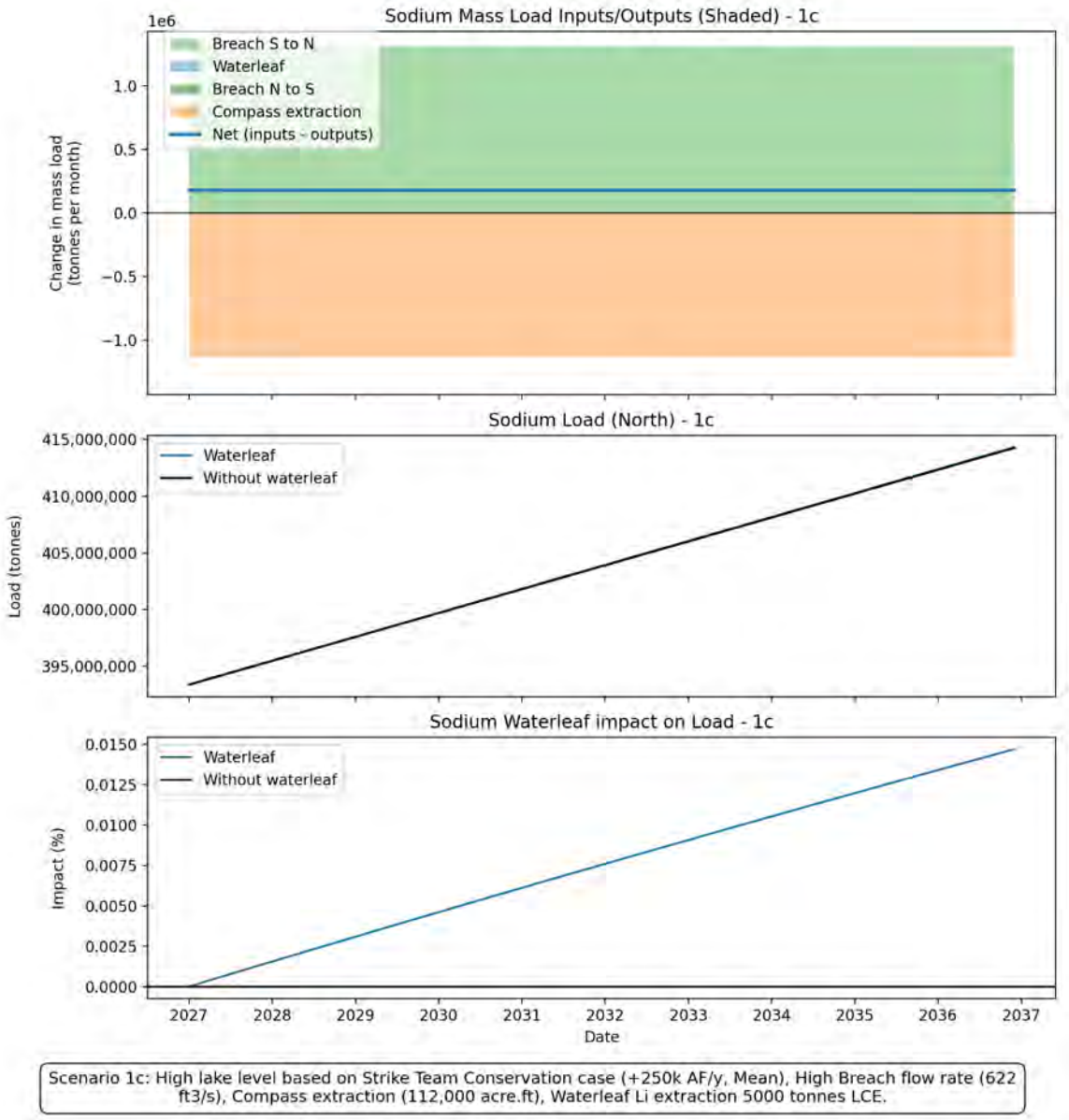


Figure 112: monthly mass balance sodium 1c

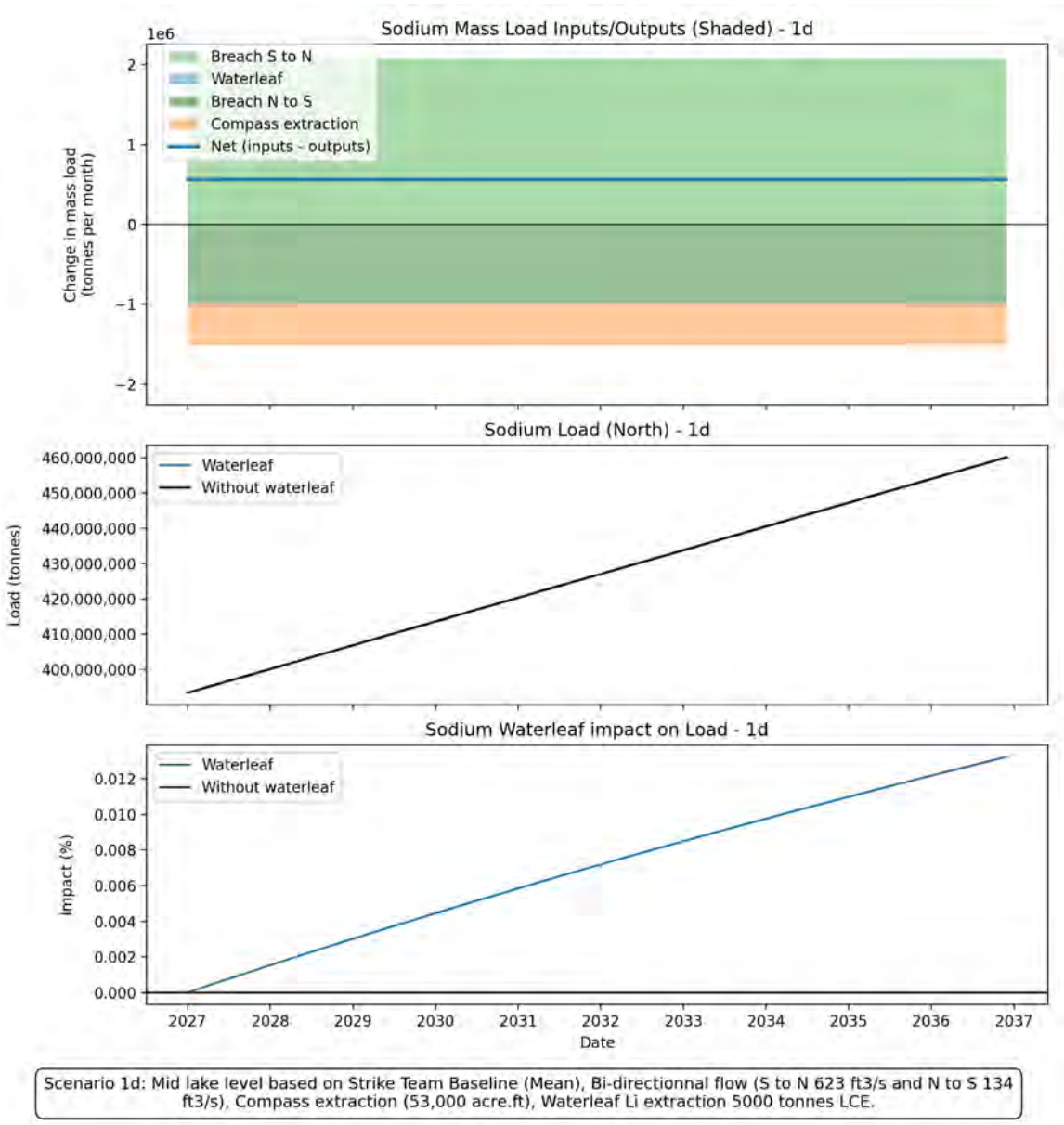


Figure 113: monthly mass balance sodium 1d

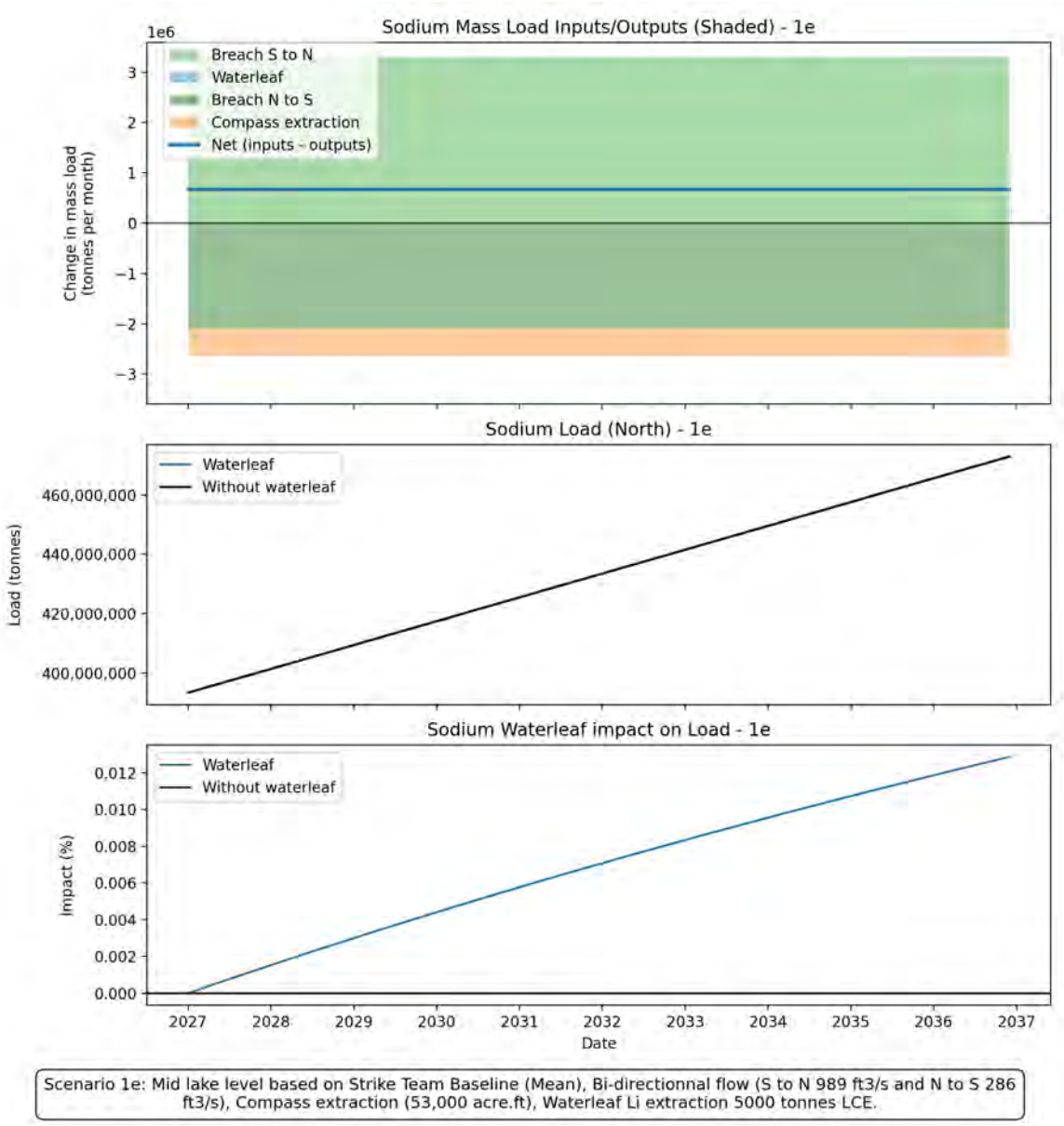


Figure 114: monthly mass balance sodium 1e

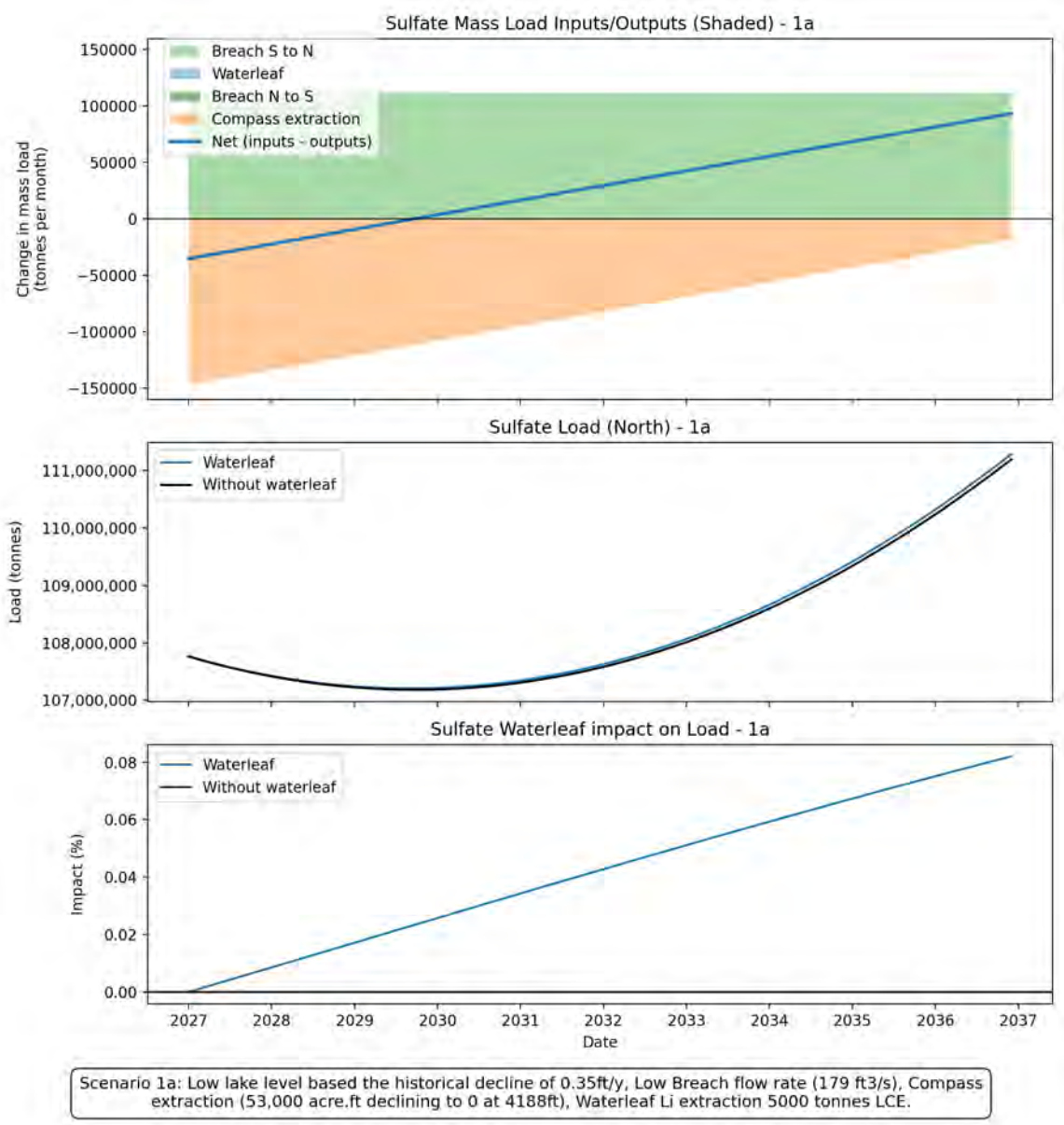


Figure 115: monthly mass balance sulfate 1a

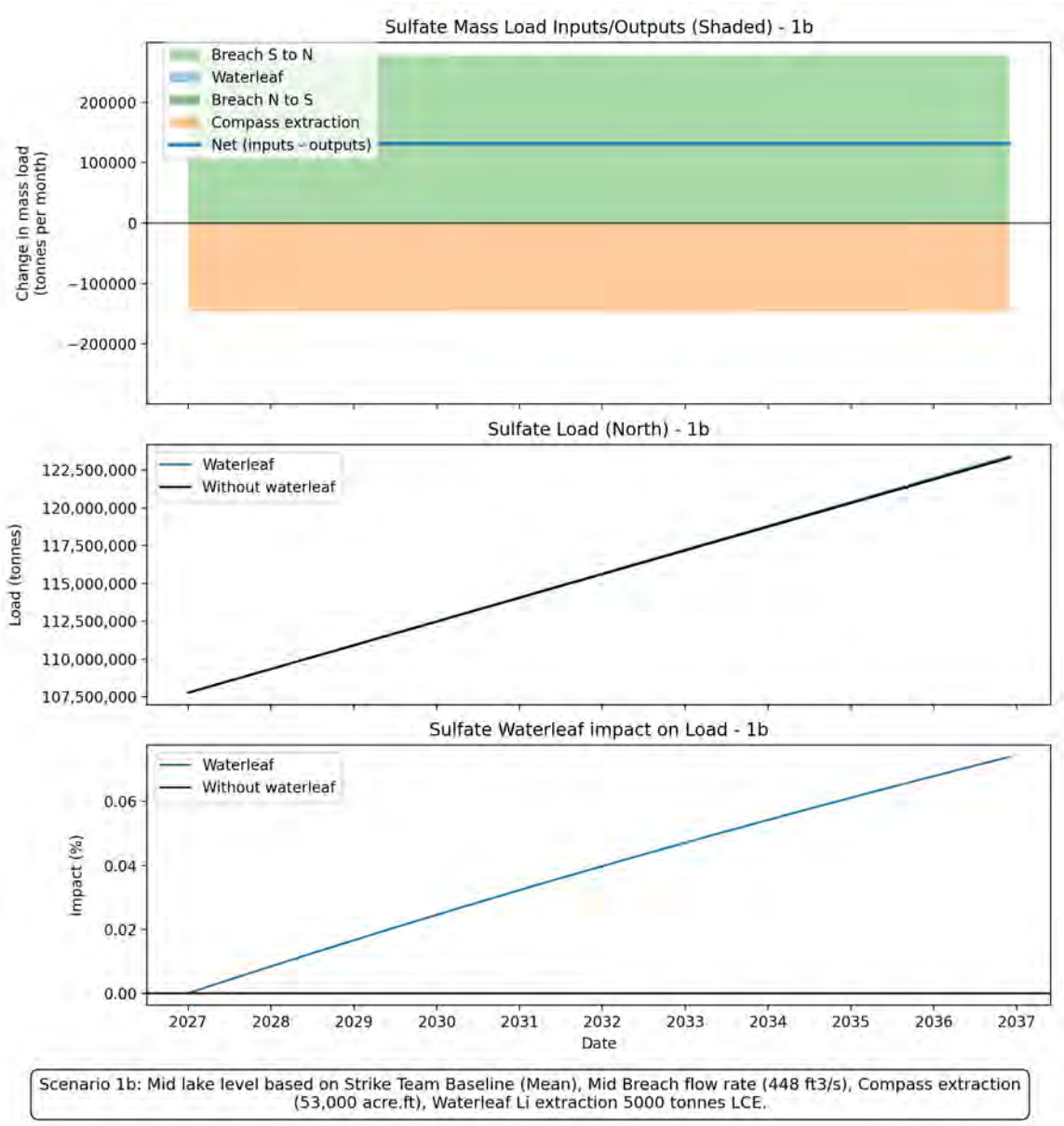


Figure 116: monthly mass balance sulfate 1b

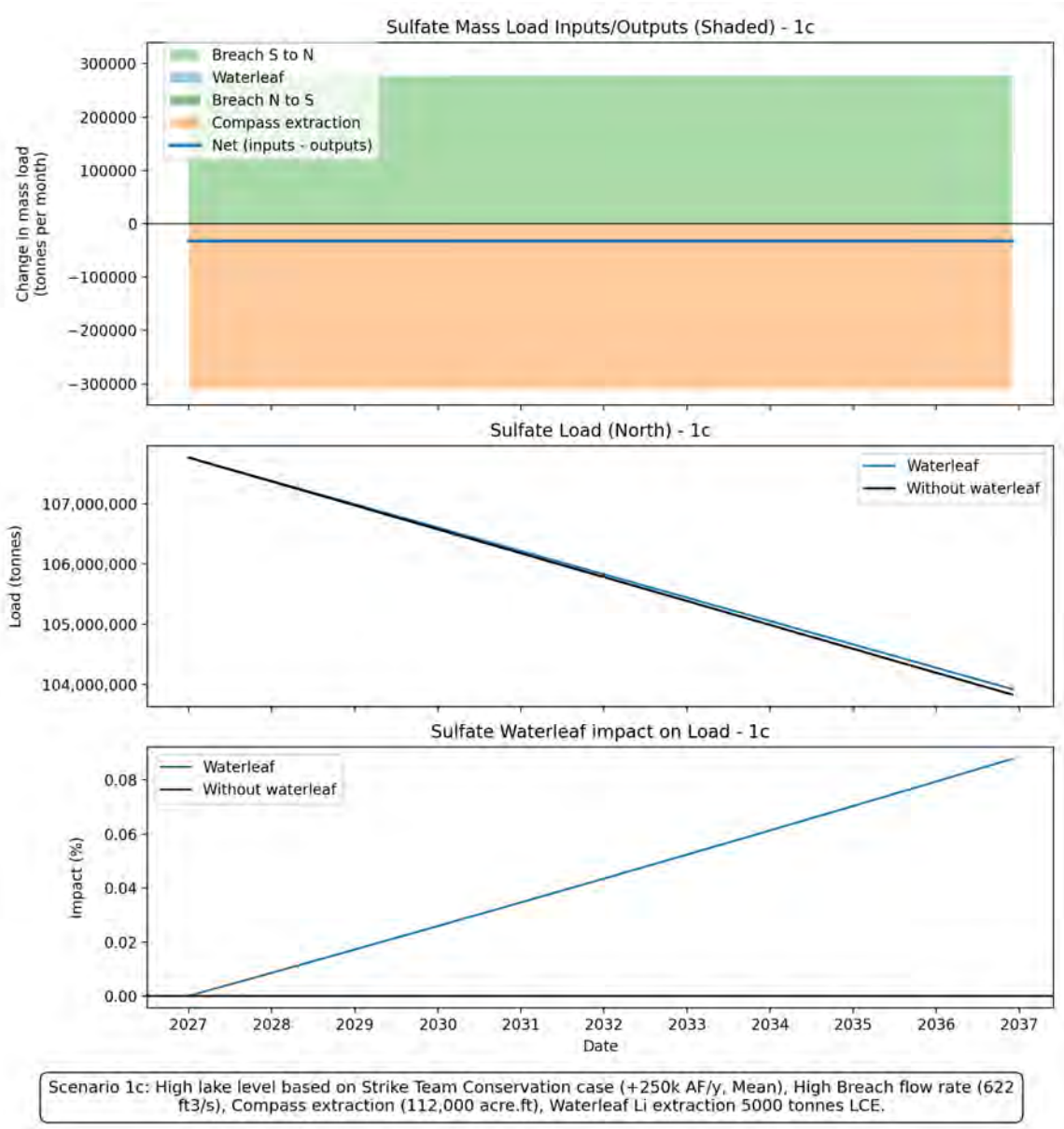


Figure 117: monthly mass balance sulfate 1c

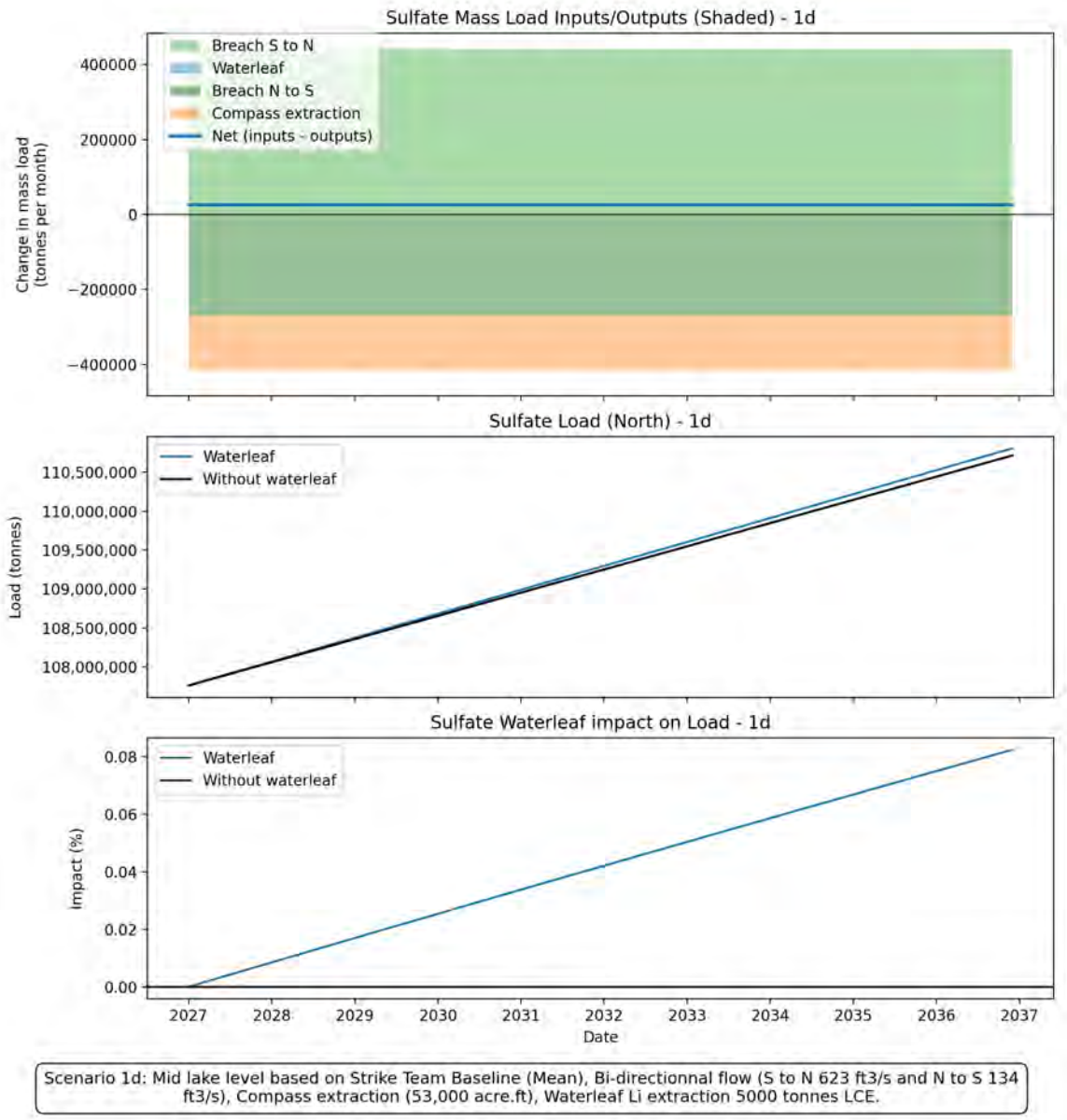


Figure 118: monthly mass balance sulfate 1d

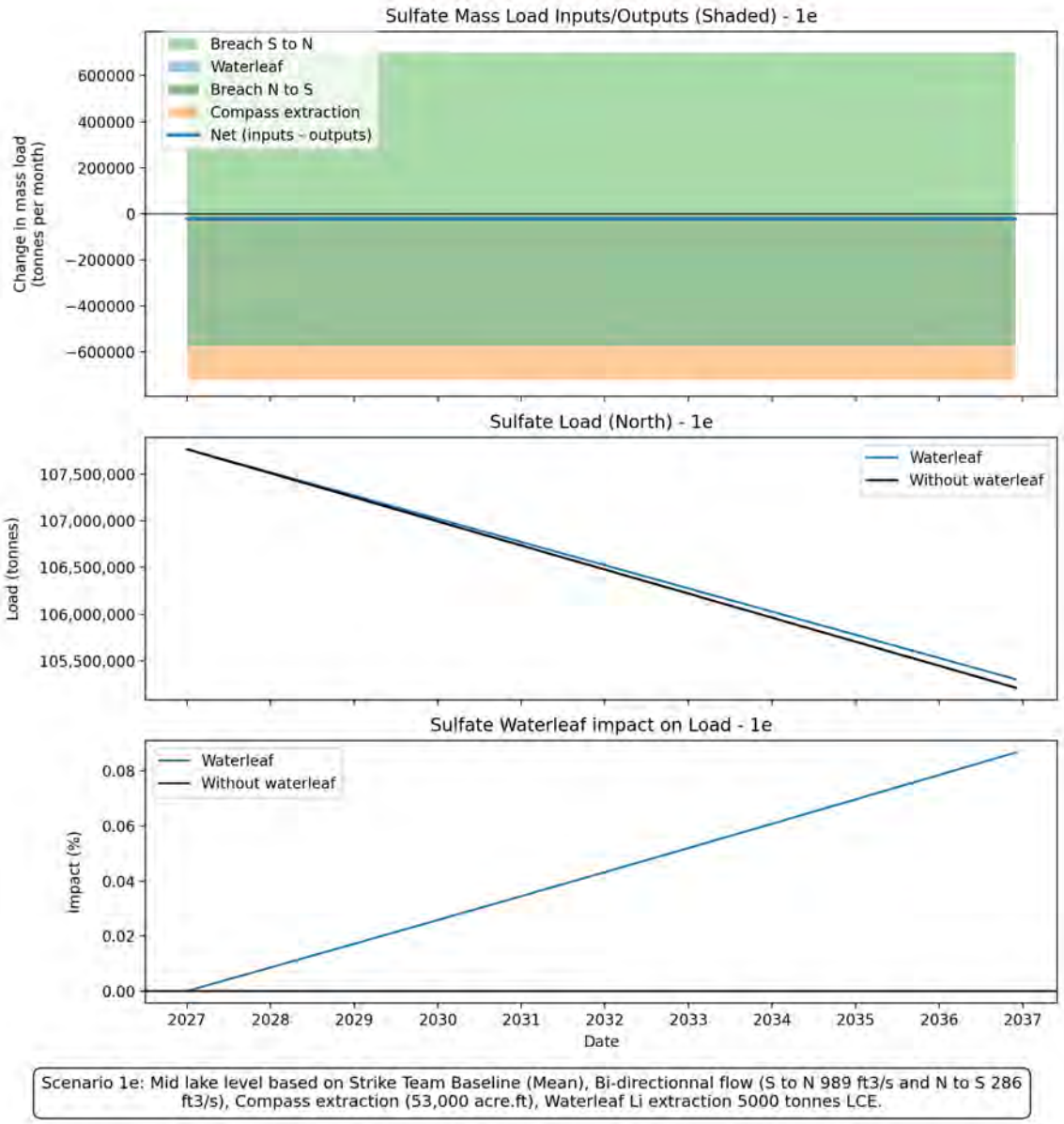


Figure 119: monthly mass balance sulfate 1e

Data sources used

The analyses documented in this memorandum are based on the following data sources:

- **USGS lake level records**

  North arm (Gunnison Bay): USGS station **10010100**

  South arm (Gilbert Bay): USGS station **10010000**

- **USGS causeway breach flow measurements**

  South-to-north flow: USGS station **10010025**

  North-to-south flow: USGS station **10010026**

- **Brine data**

  Utah Geological Survey, Great Salt Lake brine chemistry database

  Compass Minerals Minerals data (CMP Ex96.1 Revised Ogden Lithium Technical Report Summary, 2020)

  Waterleaf and Montgomery sampling campaigns (2024–2025)

  Pilot data

- **Causeway berm elevation and modification records**

  Utah Department of Natural Resources

  Union Pacific Railroad documentation

- **Third-party mineral extraction data**

  Compass Minerals Minerals production and withdrawal records

- **Independent lithium mass and concentration estimates**

  Montgomery (2024, 2025)

- **Lake level–area–volume relationships**

  USGS published bathymetric and hypsometric datasets

Appendix F Environmental, Site and Biota Studies

F.1 Hydrodynamic Exchange, Lithium Mass Balance, and Long-Term Implications for Gunnison Bay

F.2 Biota Study

F.3 Environmental Site Assessment

F.4 Avian Habitat Survey and Impact Analysis

F.5 Aquatic Resources Desktop Review for the Waterleaf Resources GSL Lithium

F.6 Waterleaf Resources GSL Lithium Project Habitat Assessment and Resource Surveys

F.7 Archaeological Resources Survey for Waterleaf Resources GSL Lithium

F.1 Hydrodynamic Exchange, Lithium Mass Balance, and Long-Term Implications for Gunnison Bay

PURPOSE

The purpose of this appendix is to document the hydrodynamic and mass-balance analyses conducted to evaluate lithium transport, concentration, and long-term resource behavior within the North Arm of the Great Salt Lake. The information supports resource assessment, forecasting assumptions, and evaluation of potential system-scale impacts.

CONTENTS SUMMARY

This appendix includes a technical memorandum summarizing analysis of hydrodynamic exchange between the north and south arms of the Great Salt Lake, reconstruction of time-varying lithium mass load and concentration in the North Arm, and development of long-term forecasting assumptions. The memorandum applies a dynamic control-volume framework and an iterative mass-balance methodology using measured lake levels, breach flow data, lithium concentration measurements, and third-party extraction records. Results demonstrate how causeway berm configuration and lake-level variability influence exchange regimes and lithium accumulation trends in the north arm. Supporting figures, tables, equations, and compiled water chemistry data are provided to document the analytical methods and basis for long-term dispersion and resource modeling.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 5.1

DOCUMENT DETAILS

- Issued by: Waterleaf Resources
- Date: February 5, 2026
- Page Count: 17 pages

F.1 begins on next page

Waterleaf
RESOURCES

Hydrodynamic Exchange, Lithium Mass Balance, and Long-Term Implications for Gunnison Bay

05th February 2026

Purpose and scope

This memorandum documents the analyses undertaken to characterize hydrodynamic exchange between the north arm (Gunnison Bay) and the south arm (Gilbert Bay) of the Great Salt Lake, reconstruct the time-varying lithium mass load and concentration in Gunnison Bay since the opening of the Union Pacific Railroad (UPRR) causeway breach, and assess the implications of lake elevation, salinity variability, and causeway berm management for lithium resources and long-term dispersion and impact modelling.

The analyses combine measured lake levels, breach flow rates, lithium concentrations, and third-party extraction data to support resource estimation, inform physically defensible forecasting assumptions, and assess potential impacts at commercial scale.

System context and lake management

The Great Salt Lake is a terminal hydrologic system comprising two primary basins, Gunnison Bay (north arm) and Gilbert Bay (south arm), which are hydraulically connected through breaches in the UPRR causeway. Exchange through the causeway represents the dominant solute flux between the two arms and is influenced by:

- Relative lake surface elevations between the arms
- Density contrasts driven by salinity differences
- State-managed modifications to the causeway berm intended to influence south-arm salinity

These controls are external to the Applicant and vary over time. Consequently, lithium mass and concentration in Gunnison Bay are inherently dynamic and must be evaluated using time-dependent methods.

A summary of the data sources used is provided in section 8.

Conceptual hydrodynamic model and exchange regimes

Gunnison Bay was analysed as a dynamic control volume with moving boundary conditions, rather than as a hydraulically isolated basin. This approach recognises the Great Salt Lake as a

single terminal hydrologic system while defining an assessment domain that is directly relevant to the proposed operations and supported by available data.

Data from the sampling campaigns conducted by Waterleaf/Montgomery (2024 and 2025, Figure 1) and Compass Minerals (2020, Table 2) indicate that Lithium concentrations are spatially broadly consistent. All material exchanges with the remainder of the lake are explicitly represented through time-varying boundary fluxes derived from measured lake levels, breach flows, and concentration data. This approach allows the effects of lake-wide hydrodynamics to be incorporated.

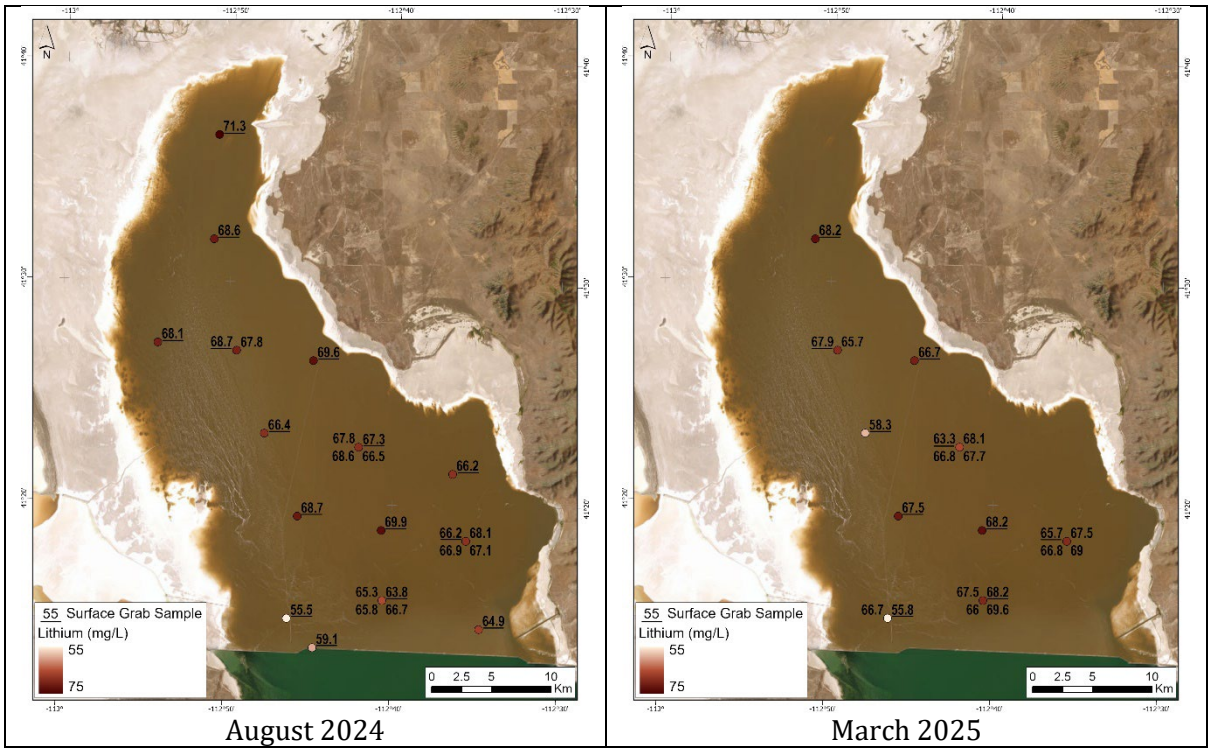


Figure 1- Map of Brine Samples Location (Waterleaf/Montgomery , 2024 and 2025) showing spatially consistent Li concentrations in the North Arm

Two broad hydrodynamic regimes are evident since the breach opening in 2016 (Figure 2):

- Pre-berm modification period: Exchange through the breach is predominantly bi-directional, with surface flow from the south arm to the north arm driven by hydraulic head differences, and compensating deep flow of denser north-arm brine toward the south arm.
- Post-berm modification period: Successive increases in berm elevation substantially reduce deep north-to-south exchange. Under these conditions, flow becomes

predominantly unidirectional, dominated by south-to-north transport, with limited residual reverse flow.

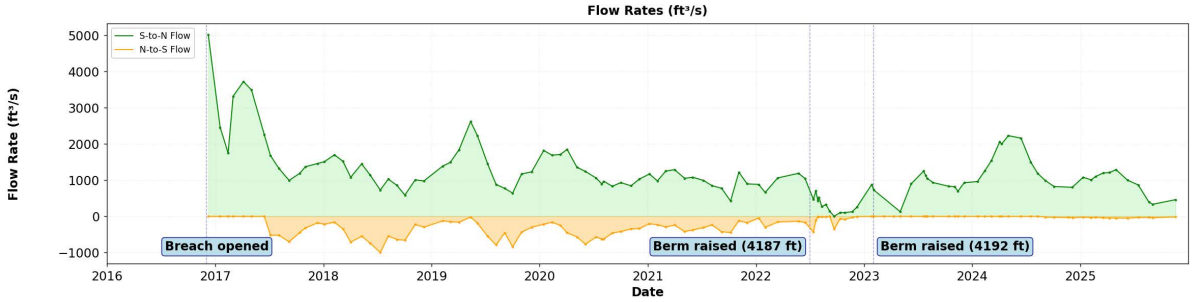


Figure 2 – Volumetric flow rates (ft³/s) through the breach, south-to-north (positive) and north-to-south (negative)

Flow inversion depth, and physical basis of exchange

Evaluation of the flow inversion depth provides a physically based means of determining whether bi-directional exchange between the north and south arms is possible under a given set of lake-level and salinity conditions, and of placing the available breach flow estimates in their proper physical context.

Exchange through the causeway is governed by the combined effects of hydraulic head difference and density contrast between the two arms. Under these conditions, surface flow may occur in one direction while deeper flow occurs in the opposite direction. The flow inversion depth represents the elevation at which hydrostatic pressures in the two arms are equal and therefore defines the boundary between opposing flow directions.

Comparing the calculated inversion depth with the elevation of the causeway berm provides an objective criterion for assessing whether deep, density-driven exchange can occur. When the inversion depth lies above the berm crest, bi-directional flow is physically possible. When the inversion depth lies below the berm crest, deep exchange is hydraulically constrained and flow becomes predominantly unidirectional.

The inversion depth is given by:

$$d = \frac{\rho_S}{\rho_N - \rho_S} \left(\text{Lake Level}_{South} - \text{Lake Level}_{North}\right)$$

The corresponding inversion elevation is:

$$\text{Inversion Elevation} = \text{Lake Level}_{North} - d$$

Definitions

- d: flow inversion depth below the north-arm lake surface
- ρ_N: density of north-arm brine
- ρ_S: density of south-arm brine
- $\text{Lake Level}_{South}$: lake surface elevation in the south arm

- Lake Level$_{North}$: lake surface elevation in the north arm

Figure 3 shows that prior to berm modifications, the inversion elevation frequently lays above the berm, consistent with sustained bi-directional exchange.

Following berm raises, the inversion elevation increasingly lies below the berm crest, explaining the observed suppression of deep north-to-south flow.

Continued south-to-north flow during periods when south-arm lake levels are below the nominal berm crest suggests local lowering of the effective berm elevation, consistent with erosion near approximately 4187 ft, as discussed in the topobathymetric analysis of the causeway breach by Root et al.

The close correspondence between calculated inversion elevation and observed flow behaviour demonstrates that inter-arm exchange is governed by well-understood hydrostatic controls. Under the current berm configuration, these controls indicate a predominantly unidirectional exchange regime, with flow largely from the south arm to the north arm, which is expected to persist provided the effective berm elevation is maintained and no further erosion occurs.

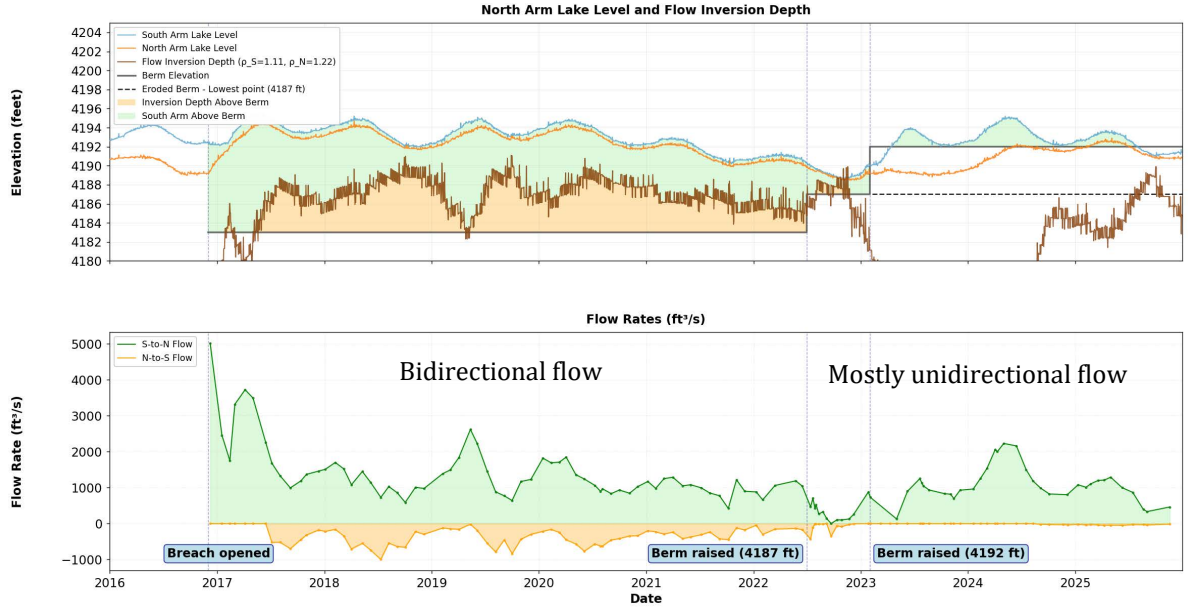


Figure 3- Flow inversion depth relative to berm elevation

Iterative reconstruction of lithium mass load, concentration, and mass flow through the breach

Methodological overview

To reconstruct the time-varying lithium inventory in Gunnison Bay and quantify lithium mass exchange with the south arm, an iterative mass-balance approach was applied. The purpose of the iteration is to resolve the coupled dependency between lithium mass load, lithium concentration, and lithium mass flow through the causeway breach in a physically consistent manner.

Conceptual basis

The methodology is based on the following relationships:

- At any point in time, the average lithium concentration in Gunnison Bay is determined by the total lithium mass present and the contemporaneous lake volume.
- Lithium mass flow associated with breach exchange and third-party extraction depends on the lithium concentration of the source water.
- Total lithium mass in Gunnison Bay therefore evolves over time as a function of these concentration-dependent mass flows.

Because lithium concentration depends on lithium mass, and lithium mass changes depend on concentration, the system cannot be solved directly and must be resolved iteratively.

Boundary condition

For calculation of lithium mass fluxes associated with south-to-north exchange, lithium concentration in the south arm is specified as a fixed boundary condition derived from available measurements (25 mg/L). Variability in lithium concentration within Gunnison Bay is resolved dynamically through the iterative mass-balance calculation.

Iterative procedure

The reconstruction proceeds as follows:

1. Initial condition
   The calculation is anchored to a known reference state defined by an average lithium concentration measured during the Montgomery 2024 extensive sampling campaign and the corresponding lithium mass load in Gunnison Bay at a known date.
2. Calculation of lithium mass flows
   Using the lithium concentration from the current iteration, lithium mass fluxes are calculated for:
   - south-to-north exchange through the causeway breach (USGS),
   - north-to-south exchange through the breach (USGS), and

- third-party extraction from the north arm; data available until 2024 included.

These fluxes are derived from measured UGS volumetric flow rates combined with the lithium concentration of the source water.

3. Update of lithium mass load
   The net lithium mass flux is integrated forward and backward in time from the reference date to update the lithium mass load in Gunnison Bay at each time step.
4. Update of lithium concentration
   A revised lithium concentration time series is calculated from the updated lithium mass load and the corresponding lake volume.
5. Convergence check
   Steps 2 through 4 are repeated until the change in lithium mass load between successive iterations falls below a defined convergence threshold, indicating a stable solution.

The equations used to reconstruct the time-varying lithium mass load, concentration, and mass flow can be found in section 9.

Observed behaviour and reconstructed results derived from this methodology are presented in subsequent sections.

Reconstructed lithium concentration

Lithium concentrations derived from the reconstructed mass load and time-varying lake volume were compared with USGS (LVG4 and RD2), Compass in 2020 (LVG4 and RD2) and Montgomery in 2024 and 2025 (11+ stations across the lake).

The reconstructed concentration time series exhibits:

- short-term variability driven by inter-arm exchange and extraction, and
- short and long-term trends associated with changes in hydrodynamic regime and lake level.

Agreement between reconstructed and measured concentrations confirms the internal consistency of the coupled mass load–concentration–mass flow approach.

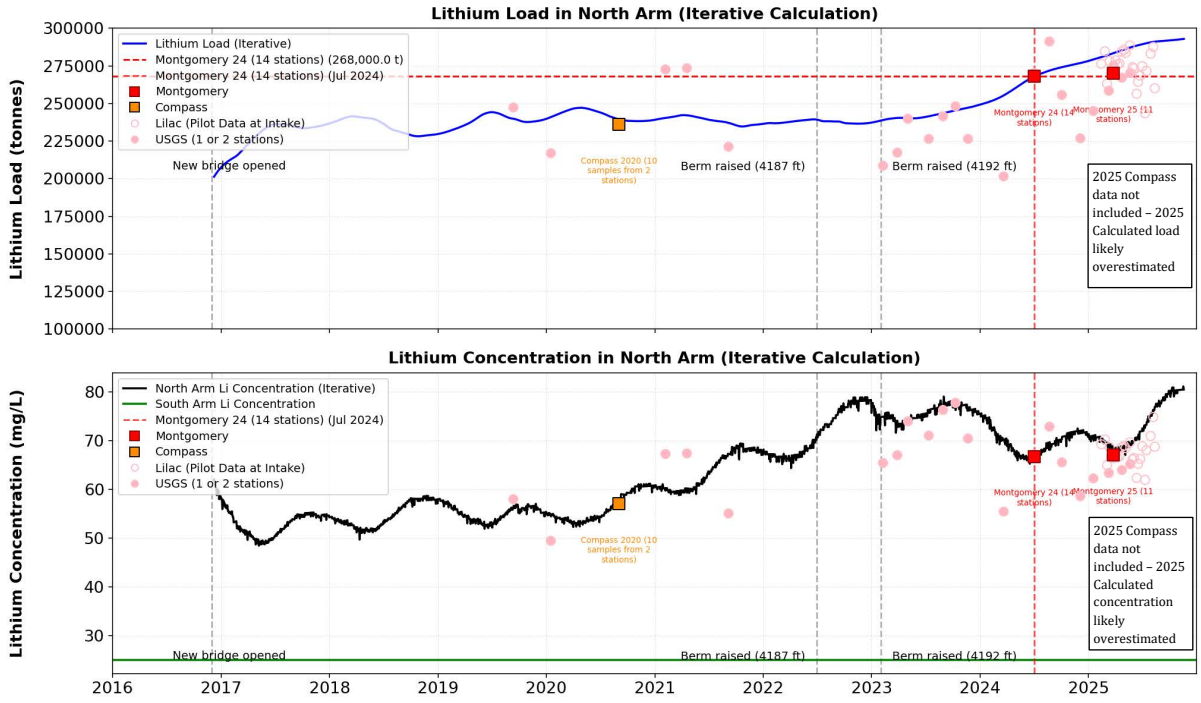


Figure 4 - Reconstructed Lithium concentration (mg/L) and Lithium Load (metric tonnes) in the North Arm (Note that 2025 load is not corrected for Compass Minerals mineral extraction and therefore are likely to overestimate 2025 concentration)

Lithium resource context and forecasting assumptions

Historical evolution of lithium mass

Reconstruction of lithium mass flow, cumulative mass balance, lithium load, and lithium concentration since opening of the UPRR causeway breach in 2016 demonstrates that lithium resources in Gunnison Bay evolve in response to externally driven hydrodynamic conditions, rather than remaining static over time.

Immediately following breach opening, volumetric flow and lithium mass-flow data indicate a period of adjustment as hydraulic connection between the south and north arms was established (Figure 5). During this interval, substantial south-to-north lithium inflow was accompanied by compensating north-to-south losses and third-party extraction. This resulted in variability in instantaneous lithium mass flow but no sustained trend in cumulative lithium mass.

The cumulative net lithium mass-flow curve over this period remains broadly flat, indicating that lithium inputs from the south arm were largely offset by southward losses and extraction. Reconstructed lithium load evolves smoothly and remains consistent with independent

concentration measurements (Figure 4), confirming that observed sampling results represent instantaneous snapshots within a continuously evolving mass balance.

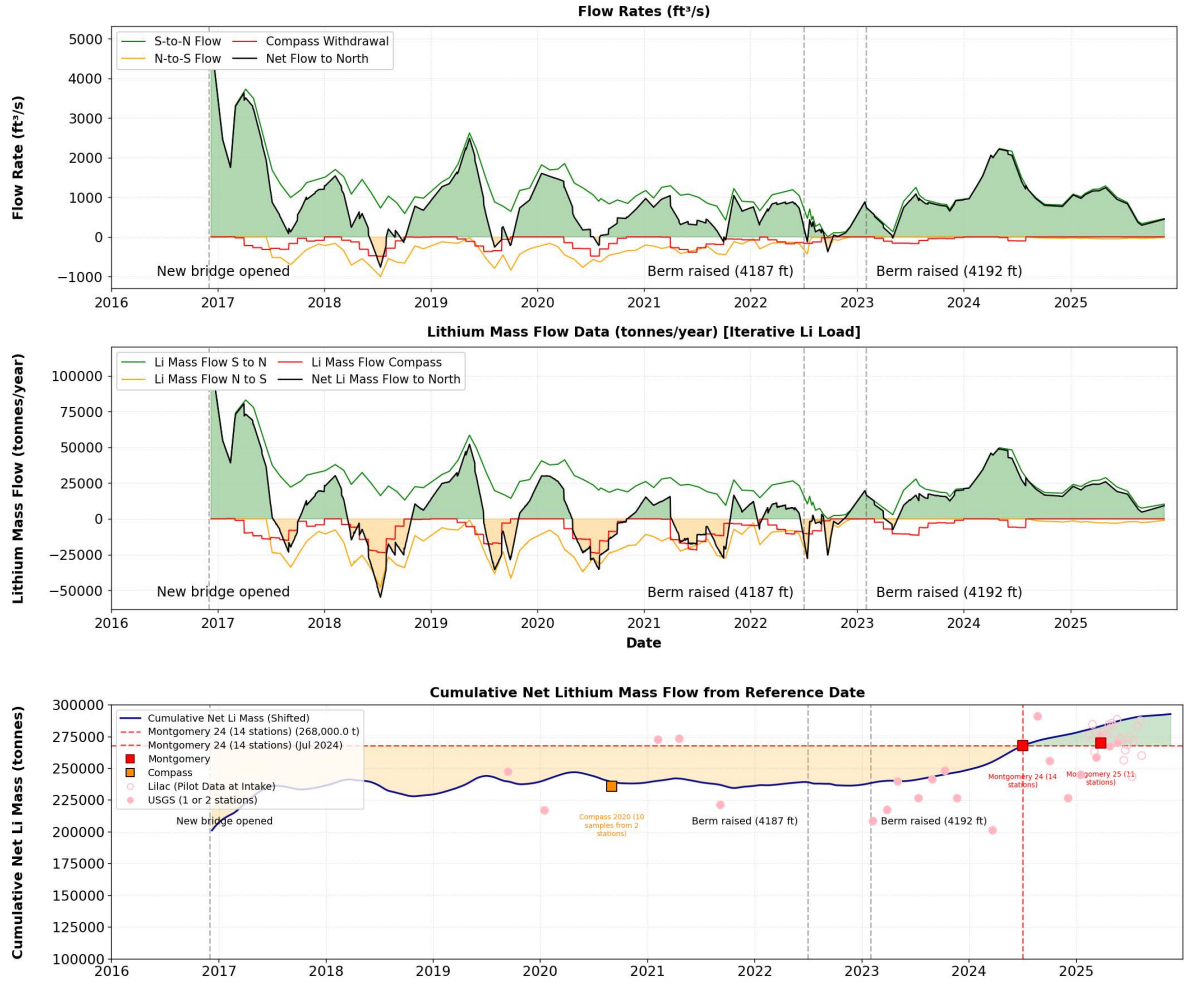


Figure 5 - Volumetric flow rate and corresponding mass flow (metric tonnes Li). (Note that 2025 load is not corrected for Compass Minerals mineral extraction)

Effect of causeway berm modifications on resource behavior

A clear change in lithium mass behavior is observed following successive increases in causeway berm elevation. After berm raises, north-to-south volumetric flow and associated lithium mass flow are substantially reduced, while south-to-north flow persists (Figure 5 and Table 1).

This shift in exchange regime is reflected in the cumulative net lithium mass-flow curve, which transitions from near-neutral behavior to a sustained positive trend. Under current berm conditions and as long as the South Arm level remains above the berm, net lithium mass flow to the north arm is expected to remain positive, indicating systematic accumulation of lithium in Gunnison Bay.

The reconstructed lithium load responds coherently to this change in exchange regime, showing a gradual and sustained increase over time following suppression of southward losses. The apparent increase in lithium load in 2025 reflects net mass inflow through the breach and does not account for third-party extraction, for which data are not yet available.

Consequently, the reconstructed increase for this period represents an upper bound, and the actual lithium inventory and concentration increase is expected to be lower once Compass Minerals 2025 extraction data are incorporated.

Table 1 Yearly Average Flow Rates and Mass Rates

Year	S-to-N Flow (ft^3/s)	N-to-S Flow (ft^3/s)	Compass Minerals Flow (ft^3/s)	Net Flow (ft^3/s)	Li Mass S-to-N (tonnes Li/y)	Li Mass N-to-S (tonnes Li/y)	Li Mass Compass Minerals (tonnes Li/y)	Net Li Mass to North (tonnes Li/y)
2017	2,105	-228	-152	**1,724**	46,987	-10,895	-7,013	**29,080**
2018	1,125	-508	-159	**459**	25,122	-24,583	-7,542	**-7,003**
2019	1,432	-348	-99	**986**	31,979	-17,154	-4,735	**10,089**
2020	1,254	-430	-144	**679**	27,991	-21,485	-7,116	**-610**
2021	989	-286	-151	**552**	22,082	-16,242	-8,536	**-2,695**
2022	623	-134	-76	**413**	13,915	-8,379	-4,705	**831**
2023	750	-0	-72	**678**	16,749	-6	-4,834	**11,909**
2024	1,375	-10	-18	**1,347**	30,688	-633	-1,078	**28,977**
2025	848	-35	-[1]	**813**[1]	18,936	-2,273	-[1]	**16,663**[1]

(1) Excludes 2025 extraction from Compass Minerals (data unavailable)

Basis for forecasting assumptions

The forecasting assumptions applied in long-term dispersion modelling and resource assessment are grounded in the historical behavior described above and the current physical configuration of the system. Forecast scenarios are anchored to the most recent validated lithium mass load and concentration state, which is consistent with reconstructed trends and independent measurements.

Given the current berm configuration and the associated near suppression of deep north-to-south exchange, a predominantly unidirectional south-to-north exchange regime is assumed for future conditions. This assumption is considered reasonable provided the effective berm elevation is maintained and no further erosion occurs.

To address uncertainty associated with future lake elevation, salinity evolution, berm management, and third-party extraction, forecasting does not rely on a single deterministic assumption. Instead, multiple long-term scenarios are evaluated, with lithium influx through the breach and extraction rates varied within bounded ranges derived from historical behavior. The specific inputs used for long-term modelling scenarios are summarized in Figure 6.

Table 3.2: Inputs for modelled long-term scenario

Scenario	Water level projection	Lilac production scenario	Inlet/outlet location	Lithium influx through the breach	Compass Minerals' production (extraction) scenario
1a	Historical trend (0.35 ft/year drop in lake level)	5 kTPA	As modelled in short-term Scenario 1. The inlet and outlet were moved together to a deeper location when water levels reached 4188 ft, to maintain sufficient depth at the outlet.	4,000 t/year (at 25 mg/l concentration)	Linear decline from 53,000 to 0 AF/year, once the level reaches 4188 ft
1b	Strike Team Baseline (Mean)	5 kTPA	As modelled in short-term Scenario 1.	10,000 t/year (at 25 mg/l concentration)	53,000 AF/year
1c	Strike Team Conservation (+ 250 KAF/year) (Mean)	5 kTPA	As modelled in short-term Scenario 1.	10,000 t/year (at 18 mg/l concentration)	112,000 AF/year
2b	Strike team Baseline (Mean)	• 5 kTPA (2027-2031) • 20 kTPA (2031-2047)	• As modelled in short-term Scenario 1. • Inlet moved 500 m offshore as modelled in short-term Scenario 3.	10,000 t/year (at 25 mg/l concentration)	53,000 AF/year

Source: Lilac

Figure 6- Assumptions for Long Term Forecasts

Summary

This memorandum documents analyses undertaken to characterize hydrodynamic exchange between the north and south arms of the Great Salt Lake, reconstruct the time-varying lithium mass load and concentration in Gunnison Bay, and establish a defensible basis for long-term resource forecasting and dispersion modelling.

Hydraulic connectivity between Gunnison Bay and Gilbert Bay is explicitly incorporated through time-varying boundary conditions derived from measured lake levels, breach flow data, and salinity-driven density contrasts. Gunnison Bay is treated as a dynamic control volume rather than a hydraulically isolated basin, allowing external exchanges to be accounted for while focusing the analysis on the portion of the system directly subject to extraction. Evaluation of flow inversion depth demonstrates that inter-arm exchange is governed by well-understood hydrostatic controls and explains observed transitions between bi-directional and predominantly unidirectional exchange regimes associated with causeway berm modifications.

An iterative mass-balance approach was applied to reconstruct lithium mass load, concentration, and mass flow through the causeway breach since breach opening. This approach resolves the coupled relationship between lithium mass, concentration, and exchange fluxes and is constrained by measured volumetric flows, lake volumes, concentration data, and third-party extraction. Reconstructed lithium load and concentration trends are consistent with independent measurements, confirming that resource estimates represent instantaneous conditions within a continuously evolving system.

The reconstructed history shows that lithium mass in Gunnison Bay remained broadly stable under earlier bi-directional exchange conditions due to compensating inflows and outflows. Following successive berm raises, suppression of deep north-to-south exchange resulted in a predominantly unidirectional south-to-north exchange regime and sustained net lithium accumulation in the north arm. These changes reflect externally controlled lake management practices rather than project-related effects.

Under these conditions, potential impacts to Gilbert Bay are expected to be minimal. Current hydrodynamics limit north-to-south transport from Gunnison Bay, and any residual exchange represents a small fraction of total system-scale fluxes.

Long-term forecasting assumptions applied in dispersion and impact modelling are grounded in observed system behavior and the current physical configuration of the causeway. Forecast scenarios are anchored to the most recent validated lithium mass state and incorporate ranges of lithium influx, lake level evolution, and third-party extraction to address uncertainty, avoiding reliance on a single deterministic outcome.

Data sources used

The analyses documented in this memorandum are based on the following data sources:

- **USGS lake level records**

  North arm (Gunnison Bay): USGS station **10010100**

  South arm (Gilbert Bay): USGS station **10010000**

- **USGS causeway breach flow measurements**

  South-to-north flow: USGS station **10010025**

  North-to-south flow: USGS station **10010026**

- **Lithium concentration measurements**

  Utah Geological Survey, Great Salt Lake brine chemistry database

  Compass Minerals Minerals data (CMP Ex96.1 Revised Ogden Lithium Technical Report Summary, 2020)

  Waterleaf and Montgomery sampling campaigns (2024–2025)

- **Causeway berm elevation and modification records**

  Utah Department of Natural Resources

  Union Pacific Railroad documentation

- **Third-party mineral extraction data**

  Compass Minerals Minerals production and withdrawal records

- **Independent lithium mass and concentration estimates**

  Montgomery (2024, 2025)

- **Lake level–area–volume relationships**
  - USGS published bathymetric and hypsometric datasets

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Appendices

Table 2 - Compass Minerals Sampling Results at FB2 and LVG4 locations (2020)

Compass Minerals International, Inc.
GSL Facility – Updated Lithium Resource Estimate - Technical Report Summary 45

Table 7.2: Summary of Compass Minerals Sampling Split by Location and Depth Classification

Row Labels	Count	Average of Boron (mg/L)	Average of Calcium (mg/L)	Average of Potassium (mg/L)	Average of Lithium (mg/L)	Average of Magnesium (mg/L)
FB-2 Deep	6	34.9	314	4,642	37.8	7,293
FB-2 Deep Intermediate	6	28	306	3,908	30.7	6,102
FB-2 Deep Shallow	6	24.5	282	3,162	25.9	5,002
FB-2 Shallow	5	23.8	280	3,380	27.2	5,274
FB-2 Shallow Intermediate	6	25	275	3,442	27.6	5,347
LVG-4 Deep	6	45.9	398	7,870	58.6	11,877
LVG-4 Intermediate	6	46.2	355	7,475	56.8	11,448
LVG-4 Shallow	6	45.8	348	7,545	57	11,550
LVG-4 Surface	4	42.8	342	7,058	52.6	10,595
RD-2 Deep	6	47.7	349	7,305	55.2	11,073
RD-2 Intermediate	6	46.6	371	7,463	56.8	11,332
RD-2 Shallow	6	48.5	401	7,665	57.4	11,545
RD-2 Surface	1	48.4	266	7,380	51.6	9,920
Sub Total	70	38.5	335	5,934	45.4	9,058

Source: Compass Minerals, 2021

It is the QPs' opinions the sampling methods involved are appropriate and representative of the GSL and by using a similar process to the UGS allows for the databases to be combined within the current estimates. The QPs believe that the samples labelled as shallow, intermediate, and deep in the North Arm of the GSL are the most indicative of lake concentration since surface samples are susceptible to recent precipitation events and the stratification of fresher water. Review of lithium concentrations in the shallow, intermediate, and deep profiles generally fall within the 55 mg/L and 60 mg/L range.

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Appendix A

Equations for Iterative Reconstruction of Lithium Mass Load and Concentration

This appendix summarizes the equations used to reconstruct the time-varying lithium mass load, concentration, and mass flow in Gunnison Bay using an iterative mass-balance approach.

A1. Lithium concentration in Gunnison Bay

The average lithium concentration in Gunnison Bay at time $t$is calculated from lithium mass load and lake volume:

$$C_{Li}(t) = \frac{M_{Li}(t) \times 10^6}{V(t)}$$

A2. Lithium mass fluxes

Lithium mass fluxes are calculated from volumetric flow rates and lithium concentrations as follows.

South-to-north lithium mass flux

$$\Phi_{S\to N}(t) = Q_{S\to N}(t) \cdot C_S \cdot 10^{-6}$$

North-to-south lithium mass flux

$$\Phi_{N\to S}(t) = Q_{N\to S}(t) \cdot C_{Li}(t) \cdot 10^{-6}$$

Third-party extraction lithium mass flux

$$\Phi_{ext}(t) = Q_{ext}(t) \cdot C_{Li}(t) \cdot 10^{-6}$$

A3. Net lithium mass flux

The net lithium mass flux affecting Gunnison Bay is given by:

$$\Phi_{net}(t) = \Phi_{S\to N}(t) + \Phi_{N\to S}(t) + \Phi_{ext}(t)$$

A4. Update of lithium mass load

Lithium mass load at time $t$is obtained by integrating the net lithium mass flux from a reference time t_{ref}:

$$M_{Li}(t) = M_{Li,ref} + \int_{t_{ref}}^{t} \Phi_{net}(\tau)\, d\tau$$

For discrete daily time steps:

$$M_{Li}(t_k) = M_{Li,ref} + \sum_{j=ref}^{k} \frac{\Phi_{net}(t_j)}{365}$$

A5. Iterative solution

At iteration $i+1$, lithium concentration and mass load are updated as:

$$C_{Li}^{(i+1)}(t) = \frac{M_{Li}^{(i)}(t) \times 10^6}{V(t)}$$
$$M_{Li}^{(i+1)}(t) = M_{Li,ref} + \int_{t_{ref}}^{t} \Phi_{net}^{(i)}(\tau)\, d\tau$$

A6. Convergence criterion

The iterative solution is considered converged when:

$$\max_t \mid M_{Li}^{(i+1)}(t) - M_{Li}^{(i)}(t) \mid < \varepsilon$$

A7. Variable definitions

- $M_{Li}(t)$— lithium mass load in Gunnison Bay at time t(tonnes)
- $C_{Li}(t)$— average lithium concentration in Gunnison Bay at time t(mg/L)
- $V(t)$— volume of Gunnison Bay at time t(m^3)
- C_S— lithium concentration in the south arm (mg/L), prescribed boundary condition
- $Q_{S\to N}(t)$— volumetric flow rate from south arm to north arm (m^3/year)
- $Q_{N\to S}(t)$— volumetric flow rate from north arm to south arm (m^3/year)
- $Q_{ext}(t)$— volumetric extraction rate from Gunnison Bay (m^3/year)
- $\Phi(t)$— lithium mass flux (tonnes/year)
- $M_{Li,ref}$— reference lithium mass load at time t_{ref}
- ε— convergence tolerance

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Appendix B

Water chemistry data from the North Arm collected from 2017 - 2025 were compiled from multiple sources, including the UGS Great Salt Lake Brine Chemistry Database; Compass Minerals Technical Resource Assessment (2020-2021); ALS laboratory results from the 2024 and 2025 campaigns conducted by Montgomery and Associates for Waterleaf Resources (with duplicate samples analyzed at the Lilac Oakland lab); and brine data from the 2025 pilot plant inlet. All available chemical constituent data were merged into a single dataset. Lake elevation on each sampling date was recorded, and lake volume was calculated using the USGS Calculation of Area and Volume for the North Part of Great Salt Lake, Utah report. Daily average concentrations were then used to calculate constituent mass loads by multiplying concentration by lake volume.

Date	NA Water Level NGVD 29 (ft)	NA Volume (m3)	Lake Volume (N) acre. Ft	B Conc. (mg/L)	Li Conc. (mg/L)	Mg Conc. (mg/l)	Si Conc. (mg/L)	Mn Conc. (mg/L)	Mo Conc. (mg/L)	Ni Conc. (mg/L)	Se Conc. (mg/L)	Br Conc. (mg/L)	B Mass Load (tonnes)	Li Mass Load (tonnes)	Mg Mass Load (tonnes)	Si Mass Load (tonnes)	Mn Mass Load (tonnes)	Mo Mass Load (tonnes)	Ni Mass Load (tonnes)	Se Mass Load (tonnes)	Br Mass Load (tonnes)	Comments
09/03/2017	4192.70	4,207,711,338	3,412,580			12950.0									54,489,862							Averaged from 2 data points from site(s): SJ-1
12/04/2017	4193.50	4,459,452,281	3,616,750			12350.0									55,074,236							Averaged from 2 data points from site(s): SJ-1
24/08/2017	4193.30	4,396,014,003	3,565,299			13145.5									57,787,602							Averaged from 11 data points from site(s): LVG4, RD2
18/09/2018	4192.10	4,023,655,012	3,263,305			14200.0									57,135,901							Averaged from 10 data points from site(s): LVG4, RD2
12/09/2019	4192.90	4,269,808,169	3,462,943		57.93	13515.4								247,331	57,708,100							Averaged from 13 data points from site(s): LVG4, RD2
19/11/2019	4192.80	4,238,759,753	3,437,761			12000.0									50,865,117							Averaged from 2 data points from site(s): SJ-1
15/01/2020	4193.30	4,396,014,003	3,565,299	41.46	48.66	10633.3							182,243	213,912	46,744,282							Averaged from 3 data points from site(s): SJ-1
17/08/2020	4192.80	4,238,759,753	3,437,761			12600.0									53,408,373							Averaged from 2 data points from site(s): SJ-1
01/09/2020	4192.48	4,140,350,877	3,357,949	51.92	57.00	12340.0							214,967	236,000	51,091,930							Averaged from 5 data points from site(s): LVG4-Compass, RD2-Compass
04/02/2021	4192.20	4,054,144,885	3,288,033	56.40	67.30	13900.0							228,654	272,844	56,352,614							1 station: LVG4
18/04/2021	4192.20	4,054,144,885	3,288,033	55.30	67.45	13100.0							224,194	273,452	53,109,298							Average of 2 samples from: LVG4, RD2
24/08/2021	4190.60	3,582,756,762	2,905,723			12250.0									43,888,770							Average of 2 samples from: SJ-1
05/09/2021	4192.10	4,023,655,012	3,263,305	46.30	55.05	10800.0							186,295	221,502	43,455,474							Average of 2 samples from: LVG4, RD2
25/05/2021	4191.90	3,963,311,755	3,214,365			11531.3									43,888,770							Averaged from 16 data points from site(s): LVG4, RD2
24/08/2021	4190.60	3,582,756,762	2,905,723			12250.0									43,888,770							Averaged from 2 data points from site(s): SJ-1
04/05/2022	4190.40	3,525,775,172	2,859,509			13200.0									46,540,232							Averaged from 2 data points from site(s): SJ-1
07/02/2023	4189.20	3,191,247,752	2,588,198		65.40	16266.7								208,708	51,910,963							Averaged from 3 data points from site(s): SJ-1
28/03/2023	4189.40	3,246,081,658	2,632,670		67.00	14988.0								217,487	48,652,272							Averaged from 2 data points from site(s): SJ-1
03/05/2023	4189.40	3,246,081,658	2,632,670		73.95	13900.0								240,048	45,120,535							Averaged from 2 data points from site(s): SJ-1
12/07/2023	4189.20	3,191,247,752	2,588,198		71.00	15500.0								226,579	49,464,340							Averaged from 1 data points from site(s): SJ-1
29/08/2023	4189.10	3,163,830,799	2,565,962		76.30	16600.0								241,400	52,519,591							Averaged from 2 data points from site(s): SJ-1
10/10/2023	4189.20	3,191,247,752	2,588,198		77.80	16350.0								248,279	52,176,901							Averaged from 2 data points from site(s): SJ-1
21/11/2023	4189.30	3,218,664,705	2,610,434		70.40	16050.0								226,594	51,659,569							Averaged from 2 data points from site(s): SJ-1

Date	NA Water Level NGVD 29 (ft)	NA Volume (m3)	Lake Volume (N) acre. Ft	B Conc. (mg/L)	Li Conc. (mg/L)	Mg Conc. (mg/l)	Si Conc. (mg/L)	Mn Conc. (mg/L)	Mo Conc. (mg/L)	Ni Conc. (mg/L)	Se Conc. (mg/L)	Br Conc. (mg/L)	B Mass Load (tonnes)	Li Mass Load (tonnes)	Mg Mass Load (tonnes)	Si Mass Load (tonnes)	Mn Mass Load (tonnes)	Mo Mass Load (tonnes)	Ni Mass Load (tonnes)	Se Mass Load (tonnes)	Br Mass Load (tonnes)	Comments
20/03/2024	4190.80	3,640,171,365	2,952,288		55.40	12250.0								201,665	44,592,099							Averaged from 2 data points from site(s): SJ-1
01/07/2024	4192.10	4,023,655,012	3,263,305		67.17	14600.0								270,255	58,745,363							Averaged from 3 data points from site(s): SJ-1
02/07/2024	4192.08	4,017,991,004	3,258,711	54.04	66.70	13868.0							217,132	268,000	55,721,499							Averaged from 25 data points from site(s): GSL-A, GSL-B, GSL-C, GSL-D, GSL-E, GSL-F, GSL-G, GSL-H, GSL-I, GSL-J, GSL-K, GSL-L, GSL-M, GSL-N
21/08/2024	4192.00	3,993,165,138	3,238,577		72.93	15266.7								291,235	60,962,321							Averaged from 3 data points from site(s): SJ-1
02/10/2024	4191.70	3,903,604,989	3,165,941		65.55	14900.0								255,881	58,163,714							Averaged from 4 data points from site(s): SJ-1
03/12/2024	4191.60	3,873,751,606	3,141,729		58.55	12850.0								226,808	49,777,708							Averaged from 2 data points from site(s): SJ-1
16/01/2025	4191.80	3,933,458,372	3,190,153		62.30	15050.0								245,054	59,198,549							Averaged from 2 data points from site(s): SJ-1
13/02/2025	4192.00	3,993,165,138	3,238,577	62.90	69.20	14200.0		0.041	0.136	0.03	0.11	177.00	251,170	276,327	56,702,945		163	543	128	423	706,790	Averaged from 1 data points from site(s): Intake
25/02/2025	4192.20	4,054,144,885	3,288,033	64.50	70.20	14100.0		0.079	0.124	0.12	0.08	197.00	261,492	284,601	57,163,443		322	503	503	340	798,667	Averaged from 1 data points from site(s): Intake
04/03/2025	4192.20	4,054,144,885	3,288,033	59.00	64.90	13400.0		0.043	0.132	0.05	0.09	161.00	239,195	263,114	54,325,541		176	535	209	367	652,717	Averaged from 1 data points from site(s): Intake
10/03/2025	4192.30	4,084,634,759	3,312,761		63.33	13333.3								258,694	54,461,797							Averaged from 3 data points from site(s): SJ-1
13/03/2025	4192.20	4,054,144,885	3,288,033	61.10	68.60	14400.0		0.045	0.122	0.04	0.08	166.00	247,708	278,114	58,379,686		180	495	182	327	672,988	Averaged from 1 data points from site(s): Intake
18/03/2025	4192.20	4,054,144,885	3,288,033	58.90	66.70	14000.0		0.045	0.121	0.04	0.10	171.00	238,789	270,411	56,758,028		181	491	159	393	693,259	Averaged from 1 data points from site(s): Intake
25/03/2025	4192.12	4,029,850,746	3,268,330	54.71	67.00	13955.1	7.10	0.027	0.114	0.30	0.08	170.00	220,464	270,000	56,236,963	28,606	111	459	1,205	308	685,075	Averaged from 27 data points from site(s): GSL-A, GSL-B, GSL-D, GSL-E, GSL-F, GSL-G, GSL-H, GSL-K, GSL-L, GSL-M, Intake
26/03/2025	4192.50	4,145,614,506	3,362,218		67.00	14050.0								277,756	58,245,884							Averaged from 4 data points from site(s): GSL-H
02/04/2025	4192.50	4,145,614,506	3,362,218	53.40	67.20	14500.0		0.039	0.133	0.01	0.11	155.00	221,376	278,585	60,111,410		161	551	53	468	642,570	Averaged from 1 data points from site(s): Intake
08/04/2025	4192.50	4,145,614,506	3,362,218	58.20	66.50	13800.0		0.034	0.134		0.10	174.00	241,275	275,683	57,209,480		142	556		423	721,337	Averaged from 1 data points from site(s): Intake
15/04/2025	4192.50	4,145,614,506	3,362,218	59.70	66.70	13800.0		0.035	0.132	0.03	0.07	168.00	247,493	276,512	57,209,480		146	547	118	306	696,463	Averaged from 1 data points from site(s): Intake
22/04/2025	4192.50	4,145,614,506	3,362,218	62.60	68.60	14300.0		0.078	0.131	0.02	0.10	169.00	259,515	284,389	59,282,287		325	543	70	415	700,609	Averaged from 1 data points from site(s): Intake
23/04/2025	4192.60	4,176,662,922	3,387,399	56.03	64.03	14433.3						153.00	234,032	267,446	60,283,168						639,029	Averaged from 3 data points from site(s): SJ-1
01/05/2025	4192.50	4,145,614,506	3,362,218	61.10	68.90	14400.0		0.039	0.134	0.02	0.10	174.00	253,297	285,633	59,696,849		160	556	81	401	721,337	Averaged from 1 data points from site(s): Intake
06/05/2025	4192.50	4,145,614,506	3,362,218	59.80	68.40	13600.0		0.043	0.111	0.03	0.10	168.00	247,908	283,560	56,380,357		179	460	124	423	696,463	Averaged from 1 data points from site(s): Intake
20/05/2025	4192.50	4,145,614,506	3,362,218	61.00	69.60	13900.0		0.043	0.122	0.03	0.10	201.00	252,882	288,535	57,624,042		180	506	116	419	833,269	Averaged from 1 data points from site(s): Intake
21/05/2025	4192.50	4,145,614,506	3,362,218	57.85	65.25	14000.0						210.00	239,824	270,501	58,038,603						870,579	Averaged from 2 data points from site(s): SJ-1
29/05/2025	4192.50	4,145,614,506	3,362,218	59.30	66.10	14100.0		0.030	0.132		0.22	179.00	245,835	274,025	58,453,165		124	547		891	742,065	Averaged from 1 data points from site(s): Intake
03/06/2025	4192.40	4,115,124,632	3,337,490	60.20	66.40	14300.0		0.040	0.125	0.02	0.24	140.00	247,731	273,244	58,846,282		165	514	63	979	576,117	Averaged from 1 data points from site(s): Intake

Date	NA Water Level NGVD 29 (ft)	NA Volume (m3)	Lake Volume (N) acre. Ft	B Conc. (mg/L)	Li Conc. (mg/L)	Mg Conc. (mg/l)	Si Conc. (mg/L)	Mn Conc. (mg/L)	Mo Conc. (mg/L)	Ni Conc. (mg/L)	Se Conc. (mg/L)	Br Conc. (mg/L)	B Mass Load (tonnes)	Li Mass Load (tonnes)	Mg Mass Load (tonnes)	Si Mass Load (tonnes)	Mn Mass Load (tonnes)	Mo Mass Load (tonnes)	Ni Mass Load (tonnes)	Se Mass Load (tonnes)	Br Mass Load (tonnes)	Comments
12/06/2025	4192.40	4,115,124,632	3,337,490	59.20	62.30	14400.0		0.040	0.218	0.02	0.73	181.00	243,615	256,372	59,257,795		166	897	99	3,000	744,838	Averaged from 1 data points from site(s): Intake
17/06/2025	4192.20	4,054,144,885	3,288,033	56.90	65.20	14600.0		0.038	0.162	0.02	0.76	177.00	230,681	264,330	59,190,515		153	657	69	3,093	717,584	Averaged from 1 data points from site(s): Intake
24/06/2025	4192.20	4,054,144,885	3,288,033	60.10	66.20	14200.0		0.035	0.137		0.82	182.00	243,654	268,384	57,568,857		141	555		3,312	737,854	Averaged from 1 data points from site(s): Intake
01/07/2025	4192.00	3,993,165,138	3,238,577	62.70	68.80	14800.0		0.038	0.143		0.91	176.00	250,371	274,730	59,098,844		152	571		3,626	702,797	Averaged from 1 data points from site(s): Intake
10/07/2025	4191.80	3,933,458,372	3,190,153	58.70	61.90	13400.0		0.039	0.139	0.08	0.51	182.00	230,894	243,481	52,708,342		154	547	307	1,990	715,889	Averaged from 1 data points from site(s): Intake
15/07/2025	4192.00	3,993,165,138	3,238,577	61.20	68.00	14500.0		0.035	0.140	0.05	0.37	182.00	244,382	271,535	57,900,895		141	559	185	1,477	726,756	Averaged from 1 data points from site(s): Intake
29/07/2025	4192.00	3,993,165,138	3,238,577	64.10	70.90	15600.0		0.036	0.140	0.11	0.47	190.00	255,962	283,115	62,293,376		144	559	443	1,889	758,701	Averaged from 1 data points from site(s): Intake
07/08/2025	4191.50	3,843,898,223	3,117,517	64.10	74.80	14700.0		0.032	0.143	0.02	0.70	164.00	246,394	287,524	56,505,304		121	550	92	2,683	630,399	Averaged from 1 data points from site(s): Intake
12/08/2025	4191.30	3,785,373,321	3,070,051	65.50	68.70	15400.0		0.034	0.142	0.04	0.46	177.00	247,942	260,055	58,294,749		128	538	134	1,737	670,011	Averaged from 1 data points from site(s): Intake

F.2 Biota Study

PURPOSE

This appendix provides an independent scientific assessment of the potential impacts of lithium extraction and return brine discharge on microbial communities in the North Arm of the GSL.

CONTENTS SUMMARY

The appendix contains a microbial and biota study conducted by Dr. Bonnie K. Baxter, evaluating the composition, biomass, and viability of microbial communities in influent brine and post-extraction effluent from the Waterleaf Pilot Plant. Using microscopy, biomass measurements, cell counts, DNA sequencing, and controlled inoculation experiments across multiple sampling events in 2025, the study demonstrates that prokaryotic microbial communities (archaea and bacteria) remain viable and largely unchanged following lithium extraction. While seasonal algae (Dunaliella salina) are removed during filtration, experimental results indicate no adverse effects on microbial growth or ecosystem function upon mixing effluent with native brine. The study concludes that discharge of post-extraction effluent is not expected to negatively impact native microbial communities in the GSL North Arm.

REFERENCED IN MAIN APPLICATION

- Section 1.3

DOCUMENT DETAILS

- Issued by: Bonnie K. Baxter, Ph.D.
- Date: July 28, 2025
- Page Count: 12 pages

F.2 begins on next page

Microbial Analysis Report
Bonnie K. Baxter, Ph.D.
July 28, 2025

Microbial analyses at the Waterleaf Resources pilot plant, Great Salt Lake, Utah

This reports presents data from an analysis of the microbial communities in the brine flowing into the plant, "influent," and the post-extraction brine that is in a holding tank before being released back into the lake, "effluent." The research question at hand is: ***what is the impact of introducing post-extraction effluent into the Great Salt Lake north arm*.** This analysis includes microscopy, genomic surveys, and inoculation experiments to measure growth in the laboratory.

Sampling:

Influent and effluent samples were obtained at the Utah Waterleaf Lilac facility on February 28, April 24, and June 24, 2025 (Figure 1). At each timepoint, 100 ml each were collected for laboratory analysis.



Figure 1. Samples were taken from the north tank for influent brine (valve circled in yellow) and the south tank for effluent (valve circled in red).

In addition,100 ml of brine from each sample were filtered through a sterile PVDF membrane pressure filter unit, pore size 0.22 µm, which captures all the cells present in the microbial communities of the brine. The filters were used to extract DNA and create the sequencing libraries (Figure 2).

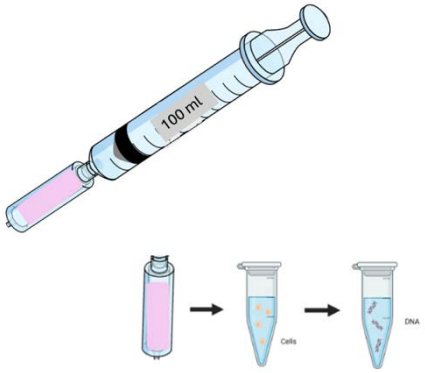


Figure 2. North arm brine from the influent tank and post-extraction effluent brine were filtered separately through a PVDF membrane cartridge to collect all cells in the sample. These filters were subsequently used to isolate DNA with a DNA extraction kit (QIAGEN, Venlo, Netherlands).

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Biomass:

The relative biomass of aquatic communities can be assessed by centrifuging at high speeds to force cells to the bottom of the tube. I centrifuged 1 ml of the influent (I) sample and 1 ml of the effluent (E) sample at each sampling. These tubes were allowed to dry for two days. The dry weight was measured. I was unable to do this properly at the February sampling since I did not see a cell pellet in the effluent, only rust flakes, which likely came from corrosion of the holding tank and affected the dry weight. The other samples, however, yielded reliable data, and there were no rust flakes present. The April influent pellet was 3.7 mg of dry mass per milliliter of brine, and the effluent pellet was 4.5 mg per milliliter. The June influent pellet was 5.2 mg of dry mass per milliliter of brine, and the effluent pellet was 4.2 mg per milliliter. All were pink in color, which indicated that halophilic bacteria, archaea, and/or algae (all of which contain carotenoid pigments) were present in abundance in both (Figure 3). ***This colorful cell pellet was a good sign that there was a healthy population in the effluent.***



Figure 3. From the April samples, 1 ml of the influent (I) and effluent (E) were separately centrifuged to pellet the cells in the sample, which were both pink in color, indicating an abundance of halophiles (salt-tolerant bacteria and archaea have carotenoid pigments that make the cells pink).

Cell Counts:

Another way to assess biomass is to count the individual cells. Using a hemacytometer, which provides a grid and special cover glass to control the distributed volume, I estimated the cell density in each of the samples (e.g. Figure 4).

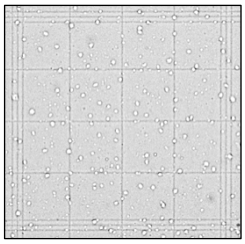


Figure 4. February influent sample on a hemacytometer. Note the grid that allows one to quantify the cells/ml. The cells are translucent but reflect light. They appear as small reflective orbs.

The results are shown in Table 1. The first samples from February demonstrated a robust cell density in the influent sample, but the effluent had very few if any visible cells. It's possible that the cell density was not zero, just low and not detectable by these methods. The April sampling had comparable numbers of cells in the effluent as the influent, the cells per milliliter counts were in the billions. The June samples also showed similar numbers for influent and effluent but higher cell counts.

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Table 1. Cell counts by hemacytometer for each sampling

Sampling Date	Influent	Effluent
February 28, 2025	2 x 10^8 cells per ml	None detected, rust flakes present.
April 24, 2025	3.6 x 10^9 cells per ml	4.6 x 10^9 cells per ml
June 24, 2025	8.1 x 10^9 cells per ml	5.3 x 10^9 cells per ml

Note the values for April and June are higher at these warmer sampling times likely because the increased temperature supported microbial growth in the brine. The optimal temperature of GSL microorganisms is typically around the same as human cells, 37°C. ***Most importantly, the lithium extraction procedure did not reduce the cell count or have adverse effects on the cells.***

Given the intrusion of rust flakes and the results of the biomass and microscopy assays for the February sampling, I focused on the April and June samplings for addressing the question regarding impact on the extraction process on the microbial community.

Microbial Diversity:

In the GSL north arm, prior studies have revealed evidence for microorganisms in all three domains of life (Figure 5). The eukaryotes have nuclei and a higher-level organization; we typically see low levels of algae and fungi in the hypersaline brine. The prokaryotes have a simpler cell structure, such as salt thriving bacteria. The most prevalent domain in the north arm is archaea, which are abundant in all extreme environments on Earth (Baxter and Zalar, 2019; Ameida-Dalmet and Baxter, 2020).

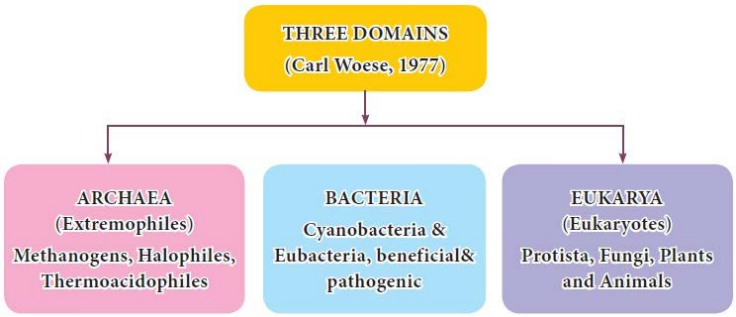


Figure 5. The three domains of life are all represented in the microbial diversity of Great Salt Lake.

To examine the microbial diversity of the influent and effluent, I wanted to sequence all the DNA from the onsite filtration described above. The microbial cells in the brine adhere to the sampling filters while the liquid is pumped through. After filtration, I froze the filters in a dry ice bath so that no degradation would occur, and the samples could be transported back to the lab for extraction. Under sterile conditions, the filter casings were cracked, and DNA was extracted from each membrane. This pool of DNA is derived from all of the life forms in the water sample. The next step is to figure out the species of life that are present. For this I used a consulting lab for

DNA sequencing. They amplify genes (16S rRNA, 18S rRNA, or ITS) associated with either bacteria, archaea, algae, or fungi. The DNA in the regions targeted is very specific, and this allows us to see "who" is present in the community and in what relative abundance. I analyzed the genetic data by first running a programming script that we developed in my lab to prune out any contaminants present in the controls and to connect to a taxonomic database to assign their phylogenetic classification. From here we can produce charts that help in visualizing the data.

Although the February effluent I analyzed did not seem to have cells (by microscopy nor a cell pellet), there were DNA signatures of microorganisms. This could be because the cells were in small numbers and therefore escaped the less sensitive methods, or it could be because there are biosignatures; the DNA from dead cells adhered to the filter but no intact cells did. A quick review of the prokaryotes in these samples indicate a similar community profile in the effluent when compared with the influent community e.g. the most prominent members of the community were common to both data sets.

The cell counts suggested that the April sampling would provide an excellent data set for sequencing analysis. I have confidence in the comparison between influent and effluent communities, and therefore, I have analyzed the April sample species composition below. The prokaryotes were split into bacteria and archaea for visual simplicity. The eukaryotic primers that would reveal algae species gave no hits (apart from plants that were blown in from the surrounding steppe), so there is no chart representing algae for April. We do know of two species that are present in the north arm, but in low numbers and only in warmer temperatures. Fungi require specific primers for reliable sequencing, so they were probed separately. Below I present the taxonomic profiles for each category of microorganisms. I have aligned the data for ease of comparison of the influent versus the effluent (Figure 6).

Archaea. Many of Earth's extremophiles fall in the category of Archaea, simple prokaryotes that look like bacteria but are genetically distinct. These make up the bulk of the Great Salt Lake north arm microbiota as shown in past studies (Baxter and Zalar, 2019; Almeida-Dalmet and Baxter, 2020). In this experiment, ***The difference between the Waterleaf influent and effluent genera present is negligible*** (Fig. 6, top panel).

Bacteria. In past work, because archaea are more typical in extreme environments, we were surprised to find robust bacterial communities at the north arm (Almeida-Dalmet and Baxter, 2020). ***In the Waterleaf samples, the bacterial genera present were also similar between the influent and effluent*** (Fig. 6, middle panel). Note the bacteria (and archaea) that are present in small abundance, towards the bottom of the graphics, are likely small in number because they prefer more moderate salinity and are introduced by the south arm water. The north arm salinity may suppress their growth.

Fungi. Recently my lab has explored the fungal species of the Great Salt Lake north arm (Parrott and Baxter, 2024). The Internal Transcribed Spacer (ITS) segment is widely used as a universal fungal barcode because of its variability between species. In the Waterleaf experiment, this marker revealed only a few species and different yeast taxa present in the influent and effluent (Fig. 6, bottom panel). Some of these species, in our prior study, have been associated with plants, soils or animals from the surrounding landscape. For example, *Alternaria* and *Cryptococcus* were discovered in the plant soil microbiomes Because the spores of fungi can become airborne, wind can introduce spores to the brine. ***The differences in the fungi present in the Waterleaf influent and effluent are likely not important with regards to the ecosystem since these species do not play a role in nutrient cycling.***

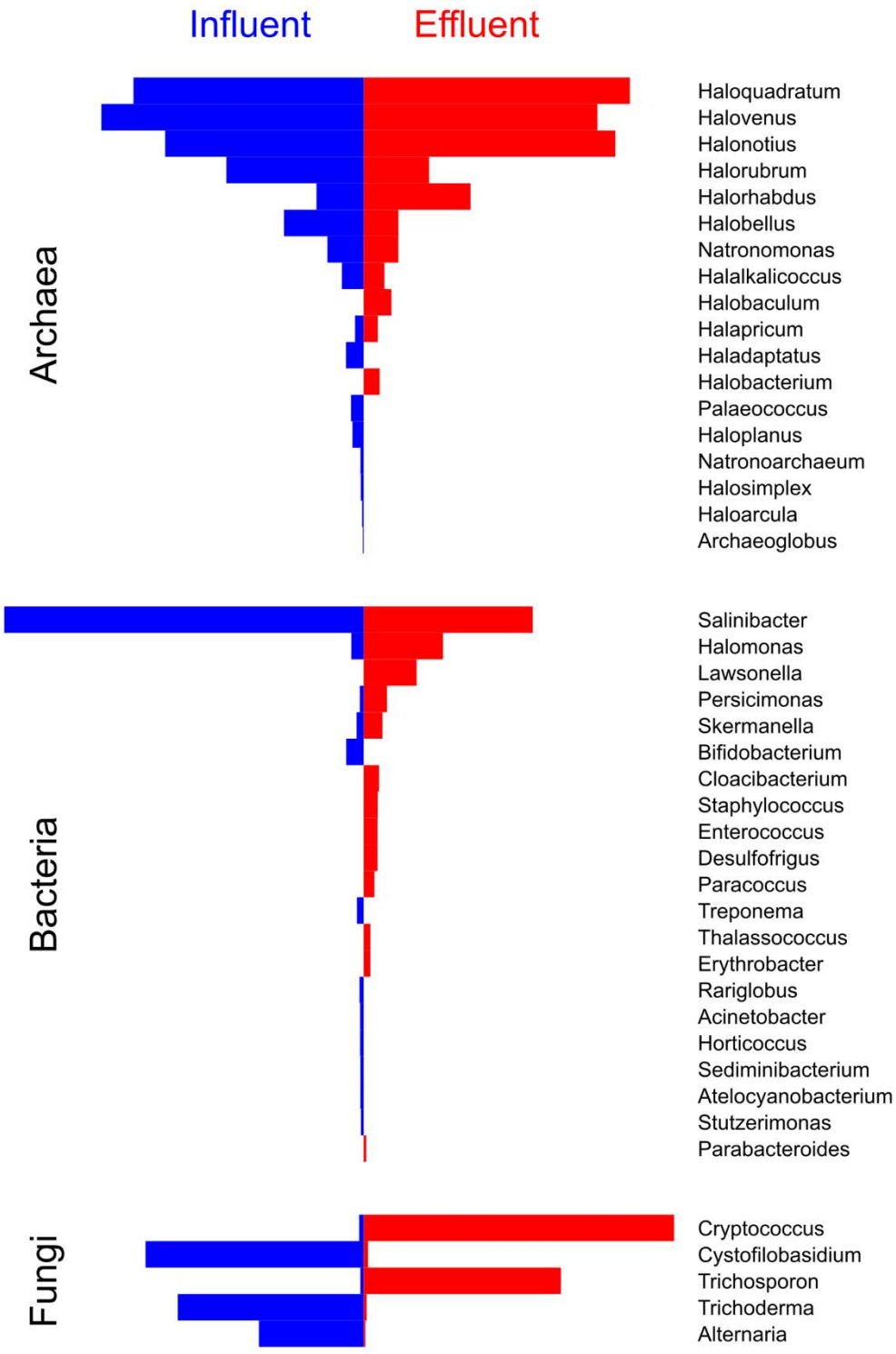


Figure 6. Microbial diversity charts for genera of archaea, bacteria, and fungi. The influent (blue) is shown on the left and effluent (red) on the right with species identity listed to the side. The size of the bars indicate relative abundance within each data set. The top panel shows the archaea community, the middle bacteria, and the bottom fungi.

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Inoculation Experiment:

In order to probe more deeply into the potential impacts of discharging the effluent into the Great Salt Lake north arm, I performed a time course growth experiment, growing either influent, effluent, or a mixture. Optical density measurement at a light absorbance of 600nm (A_{600}) is a common methodology in microbiology for following growth of a culture over time (e.g. Stevenson et al. 2016). The cells absorb light at this wavelength, and so the concentration of microbes is proportional to the light absorbed. I used a spectrophotometer to measure the optical density over time, which allows us to see the growth curve of the population as the cells grow and divide. Since the initial levels of microorganisms are very low (and non-existent in the sterile water blank control), this is called the "lag phase." As the population starts to double rapidly, you can see logarithmic growth for some species "log phase." Beyond these phases, the bacterial population will stabilize and then decline. Figure 7 shows a standard growth curve for lab model microbes; we would expect slower growth in environmental organisms.

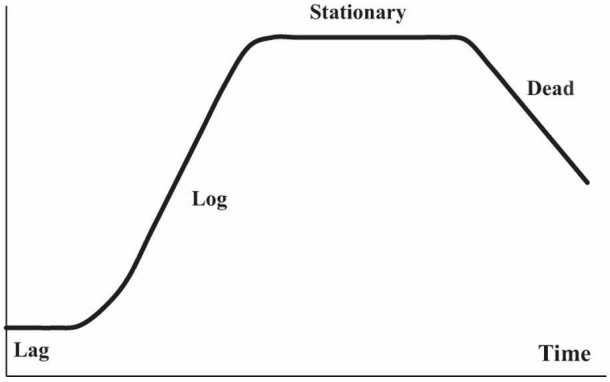


Figure 7. A textbook growth curve to show the expected phases of bacterial proliferation. My goal was to plot log phase in the samples and examine if introducing effluent to influent communities had an impact.

I attempted a couple of early trials to work out conditions, and this revealed that the experiment moved too slowly without growth media to enhance growth rates. The protocol that gave the best results for our timeframe was inoculating 9 ml of 23% salt MGM media (Dyall-Smith, 2025) with 1 ml of sample. The samples were 1) sterile deionized water serving as a control, 2) influent, 3) effluent, 4) a 50:50 mixture of effluent and influent. I did this experiment with brine from all three sampling dates. In each experiment, I used the control as a blank to set the optical density to zero. Thus, any absorbance observed was due to cells proliferating.

In Figure 8, the top panel shows growth curves featuring the February samples inoculated. The influent sample, which was rich in microorganisms, displays a typical growth curve, with a short lag phase, followed by fast growth, and then the beginnings of a plateau (orange line, top panel). The effluent (green line, top panel) by contrast, has delayed growth, but it does appear to have a low-density community that begins to take off albeit slowly. The mixture has a middle of the road growth curve (light blue line, top panel), which means that nothing in the effluent is inhibiting the growth of the microbes in the influent.

The middle panel of Figure 8 represents the growth curves of the April samples and the bottom panel is June. ***All of the samples from the April and June samplings follow a standard growth curve***. The microbial communities appear to have just reached stationary phase over this period of study. This is expected of healthy cultures. Also to note, ***mixing effluent and influent had no visible impact on growth***.

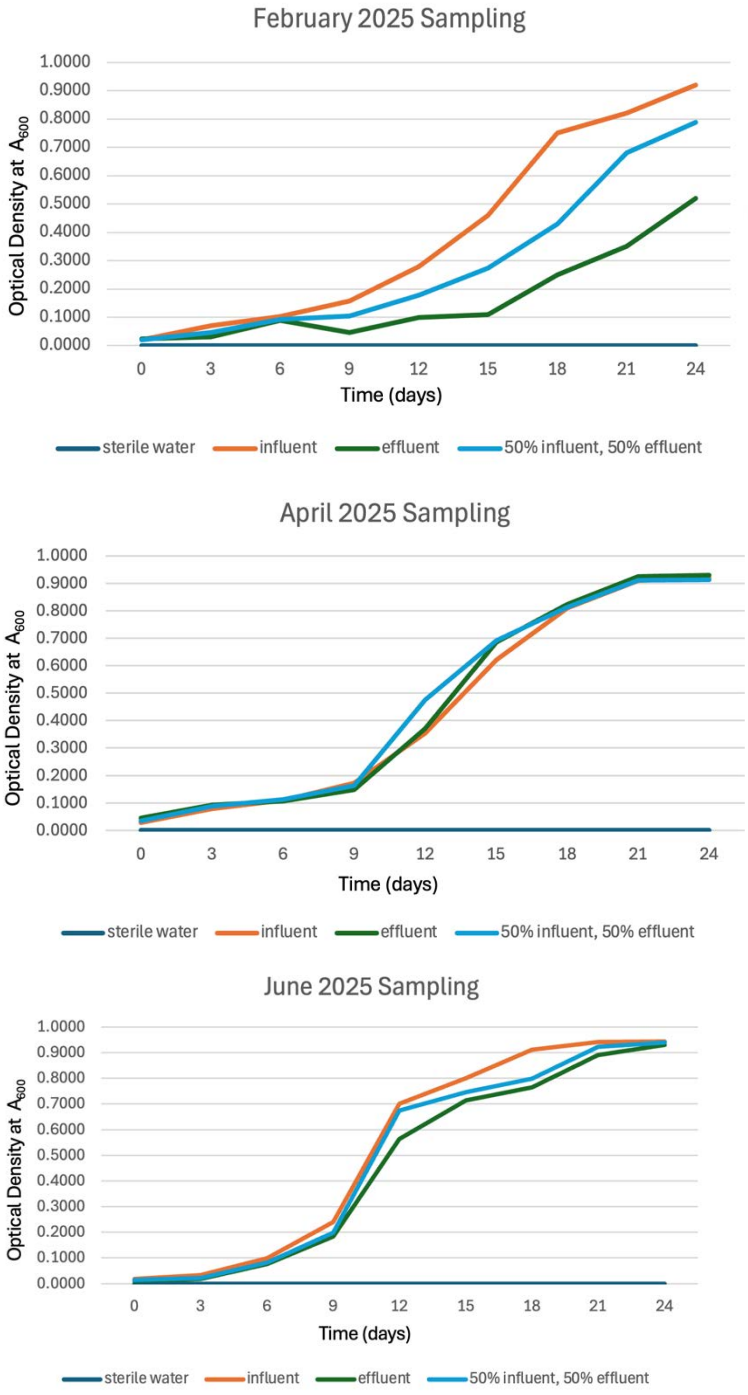


Figure 8. The top panel represents the February sampling at Waterleaf while the middle represents April and the bottom represents June. The sterile water inoculation control, dark blue, served as a blank for the optical density measurements at A600 and showed no contamination in the experiment. The influent samples are shown in orange, the effluent in green, and the 50:50 mixture in light blue.

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Algae Experiments

In the February and April samples, there was no evidence for the presence of algae. I did not see the larger distinctive cells in the microscopy examinations nor the signature for them in the DNA sequencing for microbial diversity. This is not unusual as the main algae species of the north arm, *Dunaliella salina*, blooms in the warm summer months (Baxter and Zalar, 2019). These eukaryotes do photosynthesis for the lake, accumulate glycerol to balance the inside of the cell with the outside hypersaline water, and make pigments to mediate cellular damage from the extreme environment (Figure 9). Despite being a seasonal participant, they are a key player to supplying nutrients to the north arm microbial community.

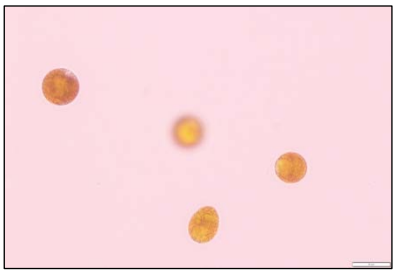


Figure 9. GSL north arm *Dunaliella salina*, a prevalent algae species in the summer months at Rozel. Beta carotene gives them the notable orangish color. A 20 micron scale bar is indicated in the lower right corner. Prokaryotes (bacteria and archaea) are typically only 1-2 microns, for comparison.

In the June sampling, I wanted to examine the impact of effluent on *Dunaliella salina* in the brine. For the DNA sequencing, I probed the broad categories of prokaryotes and eukaryotes. For this experiment, there is no need to distinguish between archaea and bacteria amongst the prokaryote signals and it was not important to track fungi separately amongst the eukaryotes. ***In future experiments for monitoring at this site, this streamlined approach would offer an option for routine checks.*** The results are shown in Figure 10.

The DNA sequencing surveys of the prokaryotes in the influent versus effluent shows the same pattern as before (Figure 6), making this a good control for standardization. The species distribution of the influent are preserved in similar abundances in the post-extraction effluent (Figure 10, top panel). These prokaryotes represent small archaea and bacteria, only ~1-2 microns, which are not filtered in the lithium extraction process. The *Dunaliella salina* algae are high in abundance in the influent as predicted for the summer season, but they are lacking in the effluent (Figure 10 bottom panel). ***These algae are much larger, ~10-20 microns, than the prokaryotes and were likely filtered in the early filtration step of the mineral extraction process.*** Note the small signal of *Dunaliella* in the effluent; this is likely from DNA released from dead cells in the environment, and these molecules would pass through filtration.

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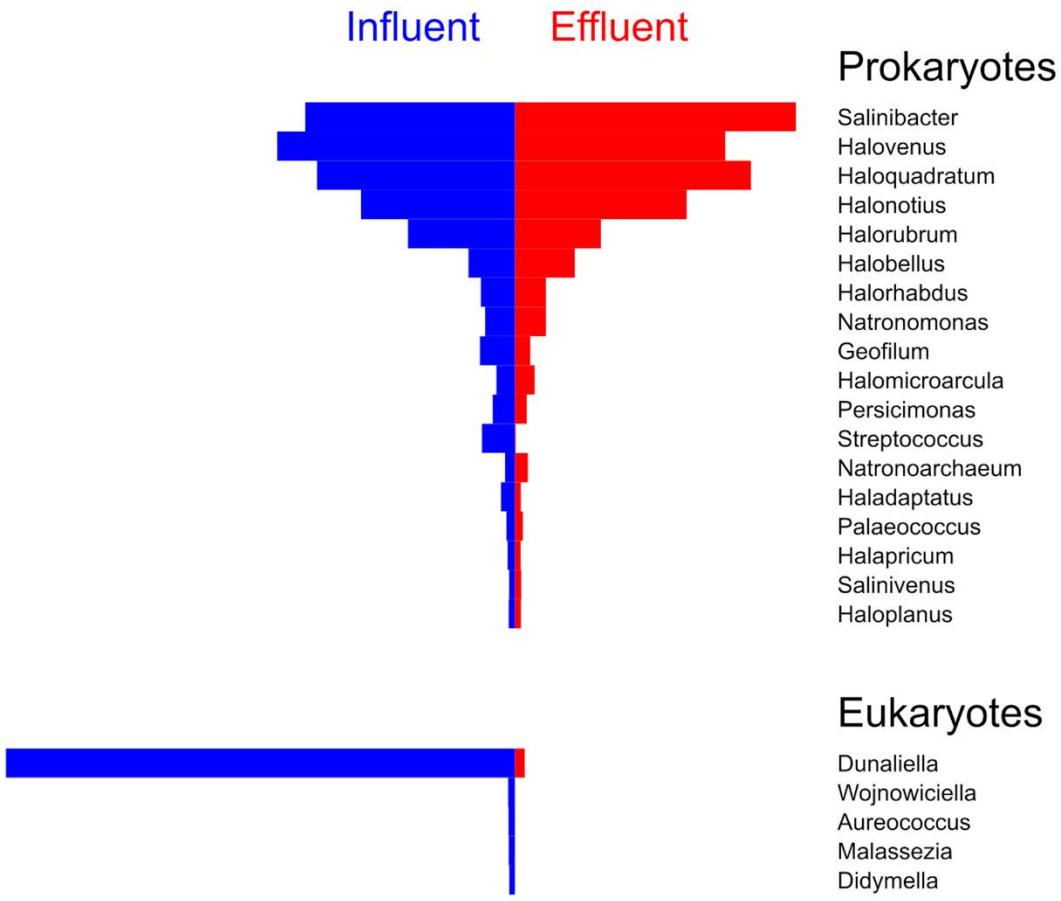


Figure 10. Most abundant taxa of prokaryotes (top panel) and eukaryotes (bottom panel). The influent consortia in shown in blue on the left, and the effluent in red on the right, and the bars represent relative abundance. June sampling for *Dunaliella salina* showed a robust biosignature for the algae in the eukaryotic profile of the influent (bottom). Unlike the smaller prokaryotes (~1-2 microns in size), the algae (~10-20 microns) are likely filtered out in the extraction process filtering step. The small signal for *Dunaliella* observed in the effluent is likely residual DNA from dead cells that passed through the filter.

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Conclusions:

Is the extraction process changing the microbial community?

- The biomass analysis (Figure 3), cell counting (Table 1), and DNA sequencing (Figure 6 and 10) demonstrate that the extraction process is allowing prokaryotic microorganisms to remain in and survive in the effluent.
- The inoculation experiment (Figure 8) demonstrated that the effluent brine population is as healthy as the influent. There is no evidence of a longer lag time in the growth curves and they approach log phase at the same rate.
- The archaea and bacteria genera composition and abundance measures are remarkably similar between the influent and effluent (Figures 6 and 10), suggesting the survival/recovery of the microorganisms following the lithium extraction process.
- The fungi, however, have a different composition post extraction (Figure 6). There are only a few species that emerged in our study, but they are different in the influent versus the effluent. Since fungi have amazing dispersal mechanisms, the origin of the fungi we observed may have been introduced from the surrounding landscape, given the species present. There is no need to track fungi for surveying the health of the lake ecosystem.
- Algae were absent in both February and April samples, likely due to time of year. In the June sampling, the *Dunaliella salina* summer bloom was detected in the influent. However, filtration in the lithium extraction process appears to remove the *Dunaliella salina* as it is not present in the effluent (Figure 10).

Would the introduction of effluent to lake brine have impacts on the native biota?

- The inoculation experiment, where the influent and effluent are mixed 50:50, is a proxy for modeling the recovery of the microbial community after discharge. There is no evidence of negative impacts in the 50:50 mixed sample (Figure 8).
- Although the filtration step in the lithium extraction process may remove the *Dunaliella salina*, the absence of algae in the effluent should not be a problem when the effluent is discharged to the lake. The microbial community is not impacted by the introduction of effluent in the inoculation experiments (Figure 8).

Recommendations for future monitoring of the microbial communities:

- Fungal signatures are introduced from the environment and are not valuable for this study. Monitoring of fungi going forward is not necessary.
- Most of the microbial community in the north arm are mesophiles, meaning they are more prolific at moderately warm temperatures, optimal 20 to 45 °C (68 to 113 °F). Summer sampling is recommended for future monitoring efforts, and this approach would also allow you to see the bloom of *Dunaliella salina*.
- Continual monitoring the prokaryotes (the most prolific life forms) would give a nice benchmark for microbial commnunies surviving in the effluent. Any changes in process, scale up, or seasonal impacts could be followed over time.

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F.3 Environmental Site Assessment

PURPOSE

This appendix provides a Phase I Environmental Site Assessment ("ESA") to identify recognized environmental conditions associated with the project site in accordance with applicable industry standards.

CONTENTS SUMMARY

The appendix contains a Phase I Environmental Site Assessment prepared for the Project site, documenting a review of historical land use, regulatory records, environmental databases, site reconnaissance, and interviews conducted in accordance with ASTM Phase I ESA standards. The assessment evaluates the potential presence of recognized environmental conditions, historical environmental concerns, and other environmental liabilities that could affect current or future site development. The report provides baseline environmental due diligence information to support project planning, permitting, and compliance activities.

REFERENCED IN MAIN APPLICATION

- Section 3.1

DOCUMENT DETAILS

- Issued by: Kleinfelder Inc.
- Date: July 2025

F.3 begins on next page

ENVIRONMENTAL ASSESSMENT

for the

WATERLEAF RESOURCES GREAT SALT LAKE LITHIUM EXTRACTION PROJECT



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July 2025

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List of Acronyms and Abbreviations

3D	three-dimensional
AA	alumina adsorbents
APE	Area of Potential Effects
bgs	below ground surface
BMPs	best management practices
CFR	Code of Federal Regulations
CRECs	Controlled Recognized Environmental Conditions
DLE	direct lithium extraction
EA	Environmental Assessment
EAP	Emergency Action Plan
ESA	Environmental Site Assessment
FFSL	Utah Division of Forestry, Fire, and State Lands
GHG	greenhouse gas
GIS	Geographic Information System
GLO	General Land Office
GPS	Global Positioning System
GSL	Great Salt Lake
H_2SO_4	sulfuric acid
HCl	hydrochloride
hdpe	high density polyethylene
hp	horsepower
HRECs	Historical Recognized Environmental Conditions
IF	isolated find
IX	ion exchange
LCE	lithium carbonate equivalent
LiCL	lithium chloride
Li_2SO_4	lithium sulfate
LiDAR	Light Detection and Ranging
Lilac	Lilac Solutions
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act

NHD	National Hydrography Dataset
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
OSHA	Occupational Safety and Health Administration
PPE	personal protective equipment
ppm	parts per million
Project	Waterleaf Great Salt Lake Lithium Phase 1 Project
REC	Recognized Environmental Condition
RO	reverse osmosis
SHPO	State Historic Preservation Office
SLC	Salt Lake City
tpa	tons per annum
UDAQ	Utah Division of Air Quality
UDEQ	Utah Department of Environmental Quality
UDOGM	Utah Division of Oil, Gas, and Mining
UDWQ	Utah Division of Water Quality
UDWR	Utah Division of Water Rights
UPDES	Utah Pollutant Discharge Elimination System
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geologic Survey
Waterleaf	Waterleaf Resources, LLC
WSEL	water surface elevation
WOUS	Waters of the United States

1.0 PURPOSE AND NEED

1.1 Introduction

This Environmental Assessment (EA) has been prepared to address the potential direct, indirect, and cumulative environmental impacts of Waterleaf Resources' (Waterleaf) proposal to extract commercial volumes of lithium from the Great Salt Lake (GSL) (i.e., the Proposed Action) using non-evaporative technology. The Proposed Action does not require a federal permit, will not use federal funding, and is not considered a "federal action." However, in the spirit of and consistent with intent of the National Environmental Policy Act (NEPA) of 1969, Lilac has proactively requested the preparation of this EA.

1.2 Purpose and Need

The purpose of the Waterleaf Great Salt Lake Lithium Phase 1 Project (Project) is to extract and produce commercial volumes of lithium, a critical ingredient in the rechargeable batteries used in electric vehicles. The U.S. has a high net import reliance for lithium, meaning it imports more lithium than it produces domestically. The current U.S. production of lithium is less than 6,000 tons per annum (tpa). The construction and operation of the Phase 1 facility alone would double the domestic supply of lithium available which would be a substantial beneficial impact to the U.S. economy to support battery production for electric vehicles (EVs) and utility-scale storage. Therefore, the need for the Project is support U.S. goals for energy independence and transition to clean energy.

The purpose of this EA is to evaluate the potential impacts of the Project and to identify ways to eliminate, reduce, or offset any potential adverse impacts. The need for this EA is to provide interested parties and stakeholders an opportunity to learn about and provide comments on the Project.

1.3 Proposed Action

Waterleaf, a wholly owned subsidiary of Lilac Solutions, LLC (Lilac) is proposing a non-evaporative lithium extraction facility (Project) located in Box Elder County, Utah, on the eastern shore of the North Arm of the GSL (**Figure 1 – Project Location**). To support technology demonstration required by the state of Utah, Waterleaf is pursuing phased development of the Project, including a Pilot study to demonstrate the technology, followed by Phase 1 Small Commercial development. The Pilot study was initiated in January of 2025 and is expected to conclude in July 2025. Phase 1 commercial development is anticipated to begin in 2027.

An overview of these Project phases is provided in **Table 1-1**. The date for operational start of Phase 1 is subject to permitting/regulatory approvals and Project financing.

Figure 1. Project Location



Table 1-1 – Pilot and Phase 1 Commercial Development

Phase	Lithium Production Capacity (Prelim.)	Operating Duration	Operational Start (actual or target)
Pilot/Demonstration	4 tons per annum (tpa) lithium carbonate equivalent (LCE)	7 months	January 2025
Phase 1 – Small Commercial	5,000 tpa LCE	20 years	2027

1.3.1 Project Phase Facility Descriptions

Pilot/Demonstration Facility

The temporary Pilot Facility was constructed in 2024 and began operation in January 2025. The Pilot Facility processes small volumes of brine from the North Arm of the GSL to produce LCE product in the form of an intermediate such as lithium sulfate. Intermediate product from the Pilot Facility is then further processed to produce 1 kilogram (kg) of lithium carbonate or lithium hydroxide monohydrate that meets published battery grade specifications. Lithium carbonate equivalent product produced during the Pilot phase is being provided to select customers for technological validation. The data produced from the Pilot Facility will be used to inform the design of the larger commercial scale extraction facility. Operation of the Pilot program began in January 2025 and is expected to operate for a period of approximately 4 months (not including installation, commissioning, and decommissioning).

The Pilot Facility layout is shown on **Figure 2 – Pilot/Demonstration System Layout** and is composed of:

- Temporary surface-laid intake/outfall system
  - The intake pipeline is approximately 9,000 feet of 3-inch diameter, high density polyethylene (HDPE) pipeline that extends approximately 1,500 feet into the GSL
  - The outfall pipeline consists of approximately 6,000 feet of 6-inch diameter HDPE pipeline that terminates at the edge of the lakebed allowing return of water to the GSL
- Two, approximately 19,000-gallon temporary, modular containers for storage of raw brine intake and delithiated brine return.
- Four additional surge tanks including a reverse osmosis (RO) water tank, freshwater tank, filtered depleted brine tank, and a treated brine tank
- Six temporary, modular process containers (modular “buildings”) including:
  - Control Room
  - Brine Filtration
  - Lithium Extraction
  - Eluate Treatment
  - Water Recovery
  - Delithiated Brine Treatment
- A modular, mobile field laboratory,
- One mobile office with restroom facilities,
- An approximately 250-horsepower (hp) generator that is used for electrical power, and

The Pilot Facility footprint is approximately 1.5 acres in size. The throughput of the Pilot Facility is approximately 15,800 gallons per day at max capacity.

Figure 2. Pilot Facility Layout



The Pilot study process involves the following general processing steps:

- Pumping the raw GSL brine from the lake to the temporary facility through a 3-inch diameter hdpe surface-laid pipeline where it is stored in a 19,000-gallon modular tank
- Next, the raw brine goes to the Brine Filtration unit where the solids are removed (through a physical filtration process), and the treated filtered brine goes to the treated brine surge tank
- The treated (filtered) brine then moves to the Lithium Extraction process container, where the lithium is extracted using a reactor – this is done by flowing the treated brine over the beads which collect the lithium. This cycle takes approximately 180 minutes to complete and then the flow of brine stops, and the reactor is shut in
    - The lithium ions are then pulled off the beads through an acid wash. Lithium eluate is the result of this process
    - Once the lithium eluate is removed the beads, the beads are then recharged with another acid wash (which gives them the missing sodium ion that is exchanged with the lithium when the brine is flowed over the beads)
    - Once recharged, the beads are then washed with the RO water to wash the acid off and prepare the beads for the next cycle of lithium extraction from the treated (filtered) brine
        - The RO water used to wash the beads is recycled and put through the Water Recovery process container to clean it for reuse in future processes. Once the RO water has been used fully and can no longer be used as process water, the remaining water is eventually pushed to the delithiated brine tank and returned to the GSL with the delithiated brine
- From the Lithium Extraction process, there are two streams that come from that process container:
    - Stream #1 – Depleted or Delithiated Brine – which is the brine that has been treated and had lithium removed from it
    - Stream #2 – Eluate (Lithium Sulfate) – which is lithium-rich fluid that has been extracted from the brine
- Stream #1, the depleted brine, goes to the Delithiated Brine Treatment process container for post treatment. The depleted brine is evaluated for chemical changes, including correcting the low pH which is treated with caustic soda to bring the pH back up. Waterleaf's permit with the Utah Division of Forestry, Fire, and State Lands (FFSL) allows for the pH of the depleted brine to be between 7 and 9, in order to return it to the GSL
    - The treated depleted brine is stored in the filtered depleted brine surge tank for final evaluation for any chemical changes, and then eventually moved to the delithiated brine return tank. To meet Waterleaf's permit requirements with the FFSL, the delithiated brine must be built up to have approximately 6 hours of flow to discharge through the 6-inch hdpe surface pipeline that flows directly back into the GSL to meet Waterleaf's permit requirements
- Stream #2, the Eluate (Lithium Sulfate) goes to the Eluate Treatment process container for further processing to remove impurities (i.e., magnesium chloride, calcium chloride, etc.). The Eluate is then concentrated to lithium sulfate of 700-1,200 parts per million

(ppm). This is where the pilot process stops, with a concentrated liquid lithium sulfate.

- The liquid lithium sulfate produced in the pilot process just described, is then trucked to California for further processing and technological validation

Lithium product produced as part of the pilot study is not being made available for commercial sale but as previously stated, is being provided to select customers for testing and technological validation. Feedback on the pilot study lithium product will be used to inform and improve commercial sale products that would be produced during Phase 1 Commercial Facility, including sellable product of lithium carbonate.

Following the conclusion of the pilot study, the Pilot Facility will be completely decommissioned, and all infrastructure will be removed.

Figure 3 illustrates the above-described process flow.

Phase 1 Commercial Facility

Detailed engineering is still in progress for the Phase 1 Commercial Facility. As such, all quantified data (e.g., volumes, durations, vehicle counts, disturbance acreages) within this EA are considered the best estimate at this time.

The Phase 1 Commercial Facility would have an annual production capacity of up to 5,000 tpa LCE, producing saleable lithium products. The facility would include the necessary equipment and unit operations to produce saleable lithium product. Following extraction, the lithium-depleted brine would be filtered, tested to be consistent with the analytics of the existing lake, and returned via outfall to the North Arm otherwise unchanged.

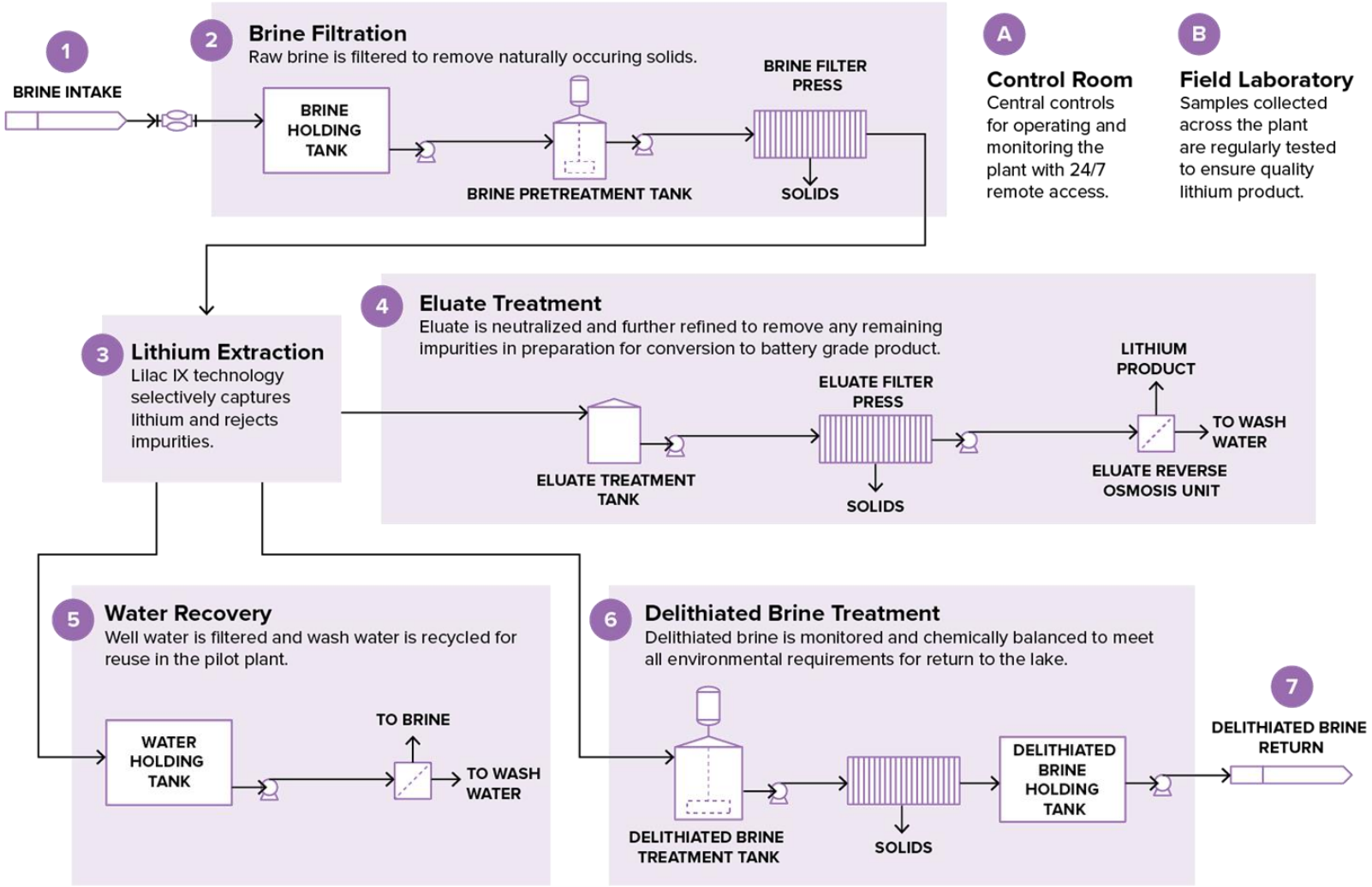
To supply the plant and discharge processed brine back to the GSL, raw GSL brine would flow to and from the Facility via three to four offshore pumps with surface intake/outfall pipeline system to and from the GSL water.

Equipment at the Phase 1 Commercial Facility would include similar infrastructure and processes to the Pilot study but at a larger, commercial scale as shown in the model in **Figure 4**.

Equipment and infrastructure for small commercial production would be located within an approximate 20 to 25-acre parcel for the Phase 1 Commercial Facility plus approximately 12 acres for the access road. The throughput of the Phase 1 Commercial Facility would be approximately 16 million gallons per day at max capacity.

Phase 1 Commercial development would involve similar processing steps to the Pilot (on a larger scale) but would also further process the liquid lithium sulfate (the final product at the end of the Pilot process) to become lithium carbonate through evaporation and crystallization processes. This would be achieved by removing the water from the lithium sulfate, crystalizing it, and then crushing it to get lithium carbonate. The lithium carbonate created in the Phase 1 Commercial Facility would be battery-grade lithium that is 99.5 percent pure lithium carbonate. The water that is removed from the lithium sulfate would be recycled and reused in the process and eventually returned to the GSL with the delithiated brine once it’s no longer able to be used as process water.

Figure 3. Lithium Extraction Process Flow Diagram



Some differences between the Pilot and the Phase 1 Commercial Facility include:

- Pumping the raw GSL brine through the 24-inch diameter HPDE intake pipeline into a pond (as opposed to a modular tank) that would have in the future plans, solar panels over the top of it. Additionally, the delithiated brine would also have a pond with future solar panels planned, and the 28-inch diameter HDPE outfall pipeline would come from the pond to return the delithiated brine to the GSL.
    - The solar panels on the two ponds would serve multiple purposes, including generating solar power to offset the power being generated by the diesel generators to run the facility. The solar panels would also help to reduce evaporation of the raw GSL brine and the delithiated brine as they sit in the ponds.
- As previously described, the Phase 1 Commercial Facility would continue to process the liquid lithium sulfate into the lithium carbonate. The Phase 1 Commercial Facility would have additional facilities onsite for this conversion of intermediate (lithium sulfate) to commercial product (lithium carbonate).
- There would be an area at the Phase 1 Commercial Facility for the bagging and packaging of the lithium carbonate (commercial product)
- Finally, the Phase 1 Commercial Facility would include a truck offloading facility for transportation of commercial product for sale.

Waterleaf anticipates that the Phase 1 Commercial production would continue for a 10-20 year period.

Figure 4. Phase 1 Commercial Scale Model



1.3.2 Project Related Traffic and Transportation

The types and volumes of project-related traffic and transportation would depend on the phase of the project and volumes of commercial lithium product being produced. All traffic and transportation counts reflect best estimates at the time of this EA.

Under the pilot study, traffic has been limited to trucks and heavy equipment required to transport and install the largely modular buildings and the surface-laid intake/outfall pipelines. Employee traffic is limited to 4 (2 trucks per shift and 2 shifts per day) personal vehicles traversing the 2.5-mile, private access road, 7 days per week. The quantities of lithium product produced for select customers for testing and technological validation are being transported to those customers via approximately 6 truck trips per the operations.

Under Phase 1 Commercial production, traffic would increase during both the construction and production phases. During construction, construction equipment would generally involve the transportation of and use of heavy equipment, such as a dozer, flat blade, dump truck, and crane. Construction and installation of Phase 1 Commercial Facility infrastructure and associated construction traffic would last approximately 52 weeks. Employee traffic would also increase to 8-10 personal vehicles traversing the 2.5-mile, private access road, 7 days per week, with two shifts operating over 24-hour operations. Transport of commercial volumes of lithium product would require an engineered truck load out area. Transport of commercial lithium product would involve up to 3 truckloads per week.

1.4.1 Scoping and Issues

As this Project is not a federal action, formal scoping or public involvement typically required during the NEPA process is not required. However, Waterleaf has been actively engaged with the public, project stakeholders, and regulatory agencies.

As discussed more in **Section 4.3**, Waterleaf has been actively engaged and communicating with numerous agencies including the Utah Division of Forestry, Fire, and State Lands (FFSL), Utah Division of Oil, Gas, and Mining (UDOGM), Utah Division of Water Rights (UDWR), Utah Division of Water Quality (UDWQ), Utah Division of Air Quality (UDAQ), U.S. Army Corps of Engineers (USACE), Box Elder County, and other local and federal government agencies.

Waterleaf has hosted numerous tours of the Pilot project, during which Waterleaf provides an overview of the Pilot Study process and the future Phase 1 Commercial development process.

Waterleaf is also committed to understanding Project concerns of the local community and other stakeholders. For example, Waterleaf has worked with the Dia Art Foundation to make sure they understood any concerns about potential visual impacts to the Spiral Jetty (see **Section 3.7**) and to address ways to mitigate those concerns (e.g., rotating the configuration of project related buildings to minimize visibility from the Spiral Jetty).

2.0 ALTERNATIVES

2.1 Summary

Waterleaf completed a robust evaluation of alternatives to the Proposed Action, including other potential locations on GSL, and other types of project activities/infrastructure. A brief description

of these alternatives considered but dismissed from analysis is provided below.

2.1.1 Alternative Locations on GSL

Waterleaf explored other geographic locations on the north shore of GSL for the project but did not find options that allowed for close proximity to the lakebed and/or agreement could be reached with the landowner. The selected project location was chosen because of its proximity to the lakebed; permission from the landowner with whom they have a fully executed lease agreement; and proximity to an existing access road. However, the chosen location became the only collection of parcels that would allow a lease with Waterleaf and was close enough to the lakebed.

2.1.2 Alternative Piping Options

Waterleaf also evaluated alternatives for piping. Alternatives considered included installing a suspended pipeline system using 200+ piers from the Project location to the lake. This alternative was not chosen because the system would have used significantly more materials and would have been visible from the Spiral Jetty. Piping under the Proposed Action (i.e., installing the intake and outfall pipes on the lakebed with a few land anchors) requires substantially less materials/infrastructure and would have minimal visual impact to Spiral Jetty users.

2.2 No Action Alternative

Under the No Action Alternative, the GSL Lithium Extraction Phase 1 Project would not occur, and the Pilot Facility would be decommissioned and deconstructed on the site. The GSL and surrounding habitat would remain as it is today subject to effects from other projects and land/water uses in and around the area. The Project's contribution to lithium production, which is a critical element for electrical vehicle batteries, would not be realized.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Summary

This section describes the effects of the Proposed Alternative on the area's environmental resources. The following sections describe the environmental resources evaluated in detail, including the existing conditions, no action alternative and the effects of the Proposed Action. The proposed measures to avoid, reduce, minimize, mitigate or compensate for any potential significant effects are included as well. In determining effects, the consequences of the proposed alternatives are compared to the consequences of taking no action. Any potential impacts are identified either as direct or indirect, then effects are assessed for significance based on significance criteria. The significance criteria used in this document are based on factual or scientific information and data, and regulatory standards of federal and state agencies.

The Project area (Phase 1 Commercial Facility) would cover approximately 20 acres of private land in Box Elder County, Utah, located approximately 30 miles west of Brigham City in Section 31 Township 9 North and Range 7 West. Additionally, the Project includes a 2.5-mile access road to the facility. This area is in a largely rural and undeveloped area on the northeastern shore of GSL. For the analysis in this EA, Waterleaf evaluated a 50-acre analysis area for

resources (i.e., waters and wetlands, threatened and endangered species, etc.) which includes the proposed 1.25-acre footprint of the Pilot Facility and the approximately 20-acre footprint of the Phase 1 Commercial Facility. The 2.5-mile-long (approximately 12 acres) access road was also included in the analysis area. These areas are referred to as the Project area throughout the EA.

3.2 Resource Topics Dismissed from Detailed Analysis

The following resources have been dismissed from detailed analysis in this document.

Table 3-1 – Resources Dismissed from Detailed Analysis

Resource	Reason for being Dismissed
Prime and Unique Farmlands	The Project area does not fall within prime and unique farmlands
Microbial Mats	No microbial mats were identified within the Project area easement.
Recreation	There is no public access to the Project area, and the project would have no impact on recreational activities in or around the lake.
Aquatic Species	Due to the high salinity in the North Arm of GSL, about 300 g/L, brine shrimp are not likely to occur. Brine shrimp usually survive in waters with salinity between about 30 to 300 g/L (Qi, et al., 2021)

3.3 Water Resources and Quality

3.3.1 Affected Environment

Surface Waters

The Project area is relatively flat, with small hills, and ranges in elevation from 4,215 to 4,294 feet. The area is within the Rozel Hills in the larger Great Basin and is largely dominated by Great Basin and Intermountain Introduced Annual Grassland, Inter-Mountain Basins Semi-Desert Shrub-Steppe, and Inter-Mountain Basins Playa from the receding water of GSL. GSL also has three main tributaries, the Jordan, Weber, and Bear Rivers, and no outlets (SWCA, 2024a). According to publicly available National Hydrography Dataset (NHD) data, various small streams and underground water pipelines are present in the landscape adjacent to but not overlapping the Project area (Utah Automated Geographic Reference Center and U.S. Geological Survey, 2023).

Section 73-3-29 of the Utah Code requires any person, governmental agency, or other organization wishing to alter the bed or banks of a natural stream to obtain written authorization from the State Engineer, Utah Division of Water Rights before beginning work. The State of Utah asserts jurisdiction over natural streams, which are defined in Rule R655-13-4 of the Utah Administrative Code as “any waterway, along with its fluvial system, that receives sufficient water to sustain an ecosystem (typically identified by changes in vegetations) that distinguishes it from the surrounding upland environment.”

Waterleaf had SWCA Environmental Consultants (SWCA) perform wetlands and waterbody desktop review and field survey of the Project area to confirm the presence or absence of Waters of the U.S. (WOUS) in 2024.

According to the Utah Division of Water Resources, areas to the west and south of the Project, such as wet flats, are predominantly used for surface waters. No wetland or non-wetland waters are within the assessment area based on topographic maps and aerial imagery. However, two

aquatic resources have been mapped approximately 140 feet from the southwestern boundary of the Project area (Utah Automated Geographic Reference Center and U.S. Geological Survey, 2023). A perennial stream meanders south approximately 1.33 miles from a 0.27-acre intermittent pond approximately 0.74-mile northeast of the Project. The stream then reaches a 0.80-acre intermittent pond within 200 feet of the southwestern boundary of the Project area before an artificial connector extends 0.17 miles before reaching boundaries of GSL (Utah Automated Geographic Reference Center and U.S. Geological Survey, 2023). According to National Wetland Inventory (NWI) data, this stream is classified as a riverine perennial system connecting to a palustrine unconsolidated shore (U.S. Fish and Wildlife Service, 2023). The location of these nearby aquatic resources indicates that they likely have some type of hydrologic connection to GSL, a traditional navigable water. However, no WOUS or waters of the state are contained within the Project area (SWCA, 2024a).

Water Quality

The current water quality of GSL is monitored by the Utah Department of Environmental Quality (UDEQ). The Utah Division of Water Quality (UDWQ), within UDEQ, completed a strategic monitoring and research plan to determine the baseline for pollutants within GSL. According to this plan, the north arm of GSL, where the Project is located, has become much more saline rich than the south arm. The salinity level varies within the lake is affected by lake levels, freshwater inputs, dikes and causeways that divide the lake, but it ranges from 1 to 27 percent in the North Arm. The lake water is alkaline with an average pH of 8.6 (UDWQ, 2014).

Historical Brine Extraction

The Proposed Action is the first of its kind for a non-evaporative lithium extraction process from the GSL. The historical process for extracting lithium from brine resources dates back to the mid-1960s and has involved pumping brine from subsurface deposits into large evaporation ponds. The large ponds allow for solar irradiation and dry winds to gradually evaporate the water and leave behind solid salt tailings and a concentrated solution that can be processed into lithium chemicals. The downsides of historical evaporative pond projects include the use of large footprints of land and associated impacts to the environment, weather dependency, impurity handling, long development timelines, and low recoveries (Snydacker, Bouzalaqs, & Indranada, 2024).(Snydacker, Bouzalaqs, & Indranada, 2024).

Another technology historically used to recover lithium from brines is alumina adsorbents (AA). This technology was first used in 1998 by Livent in Argentina in an attempt to improve the extraction performance of evaporative ponds. The AA material is typically a composite with a polymer matrix and an active aluminum-based hydroxide, which adsorbs lithium chloride from the brine. However, in order to extract the lithium chloride, large volumes of freshwater are used as a stripping agent. This is an example of direct lithium extraction (DLE) technology but has not been applied to raw brine and only used in commercial operation with pre-concentrate brine from evaporation ponds. Existing AA technology faces similar challenges as historic evaporative ponds including freshwater consumption, weather dependency, poor lithium recovery, and impurity handling. Other challenges with this technology include preheating the brine, creating greenhouse gas (GHG) emissions and increasing energy consumption, and poor dilution tolerance, causing a struggle to achieve sustained high recoveries on low-grade brines (Snydacker, Bouzalaqs, & Indranada, 2024).

The Proposed Action includes a non-evaporative lithium extraction process, as described in Section 1.3, where once the lithium is extracted, brine would be returned to the GSL. In addition, Waterleaf's proposed technology would result in significantly less freshwater use through the use of reverse osmosis for on-site water treatment of process water. Specifically, the use of acid greatly reduced the amount of freshwater typically used in lithium extraction, as freshwater is not used as a stripping agent. The primary use of freshwater in the Waterleaf's non-evaporative process is to dilute the acid and a few other instances, like rinsing the beads between loading and unloading steps. Most of the freshwater used is never mixed with brine and can be recovered and recycled multiple times. The total freshwater use would be 10% of the maximum volume of brine brought in from GSL as shown in **Table 3-2**:

Table 3-2: Brine Water Intake and Associated Fresh Water Needs

Stage	**Maximum Raw Brine Intake**	**Maximum Fresh Water Need**
Pilot Plant	15,800 gallons / day (gpd)	1,580 gpd
Phase 1 Commercial Development	15,000,000 gpd	1,500,000 gpd

3.3.2 Environmental Consequences

Basis of Significance. A significant adverse effect on water resources and quality would result if water quality were substantially degraded, a public water supply was contaminated, ground water resources were substantially degraded or depleted, interference occurred with ground water recharge, or special status species or humans were exposed to substantial pollutant concentrations.

No Action. Under the No Action Alternative, the Pilot Facility would be decommissioned and removed from the property, which would be returned to cattle grazing use. Surface and groundwater resources in the Project area would continue to be subject to existing land and water uses.

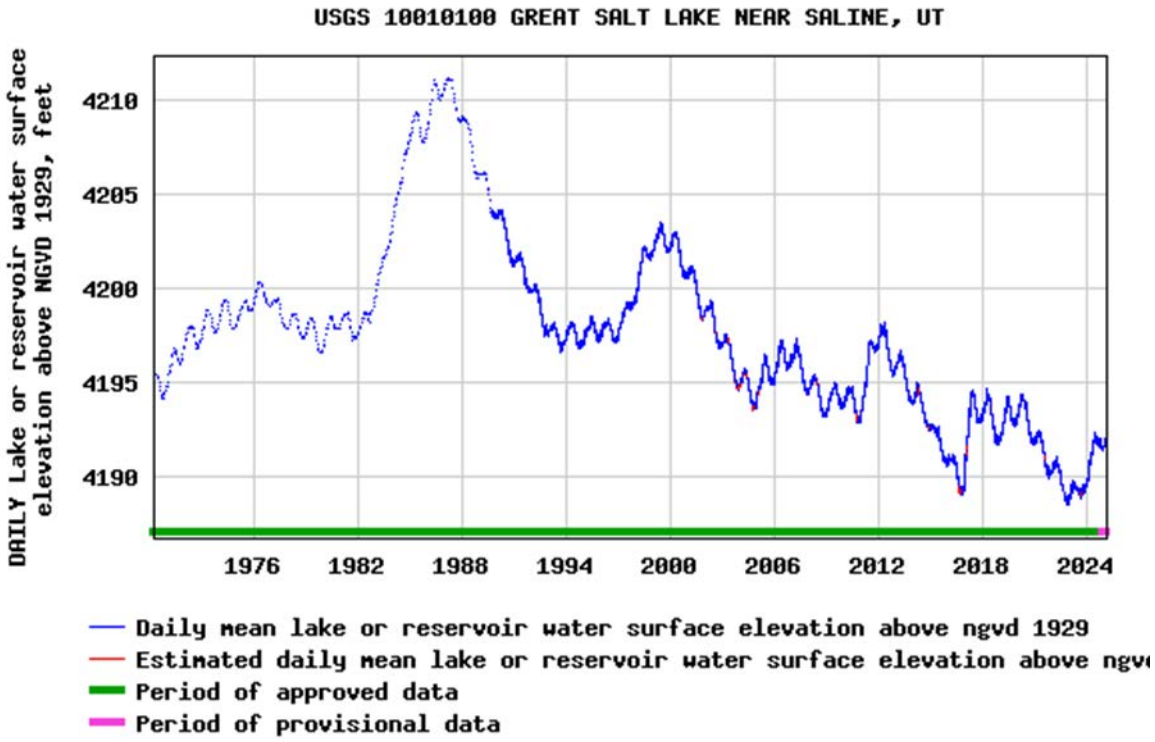
Proposed Action Alternative.

Under the Proposed Action alternative, the construction and operation of the Phase 1 Commercial Facility would not impact a WOUS or water of the state as there are none directly in the footprint of the proposed Facility. Grading needed for the construction of the Project to allow for construction and placement of equipment could have potential impacts on stormwater flow and runoff, and water quality in the Project area. However, grading operations would include considerations for stormwater, such as berms, ponds, swales, or check dams, and other Best Management Practices (BMPs) as needed. Potential run-off to the surrounding area from the Project area would be minimal due to BMPs in place during construction and operation of the Project. There would also be no impact on recreational uses of GSL due to the location being away from piers and walking trails. The closest dedicated recreational area is the Spiral Jetty which is approximately 2 miles southeast of the Project.

The extraction of brine and non-evaporative techniques used by Waterleaf for the Project could result in a net benefit to the GSL. By returning the delithiated water, as well as recycled and

treated process water, back to GSL, the project would not impact the lake water elevation. GSL has been experiencing a steady decrease in water elevation over time as shown in **Figure 5**. Waterleaf's new non-evaporative technology would not contribute to dropping water levels within the lake (Ganser, 2025).

Figure 5. Water Surface Elevation of Great Salt Lake since 1970 (United States Geological Survey, 2025).



Operation of the Phase 1 Commercial Facility would take 15 million gallons per day (mgd) of brine from the GSL per year/day/month for lithium extraction. With the addition of fresh water, there would be an average 0.5-1 percent net increase in the volume of delithiated and treated brine back to the GSL; 15.75 mgd. The removal of brine and return of the delithiated brine to the GSL would not affect the overall water levels of the GSL.

As shown in **Table 3-2**, at peak operations of the Phase 1 commercial facility, Waterleaf would use 1.5 mgd of freshwater sourced from a private ground water well, for the lithium extraction process at the Phase 1 Commercial Facility. This process water would be treated via the RO system and would be recycled and reused as many times as possible in the process before eventually being released into the GSL with the delithiated brine. The process water may be used until the water treatment filter system needs to be flushed/cleaned, where the treated flushed water is then returned to the lake together with the depleted brine.

Prior to returning the delithiated brine to the lake, the pH of the brine would be neutralized using ion exchange (IX) and acid (Snydacker, Bouzalaqs, & Indranada, 2024). **Table 3-3** below shows cation concentrations before and after the lithium extraction process at the Phase 1 Commercial

Facility from the Kachi Demo Project (Ganser, 2025).

Table 3-3 – Cation concentrations at the Kachi Demo Project with Lilac IX

Process Stream	Cation Concentrations (mg/L)						pH
	[Li]	[Na]	[Mg]	[Ca]	[K]	[B]	
Raw Brine	269	101,000	1,070	389	5,514	334	7
Lithium-depleted Brine	54	101,600	1,059	364	5,506	334	7

As can be seen from the table above, the process of lithium extraction with this technology allows the cation concentrations of multiple chemicals to remain similar to the raw brine and be neutralized before returning the delithiated brine to GSL (Ganser, 2025).

In Waterleaf's DLE process, once the lithium has been removed from the brine, this stream is typically reinjected into the reservoir, maintaining reservoir pressure while eliminating disposal ponds. The lithium deleted brine also goes through a neutralization step by adding calcium hydroxide. This can tailor the lithium deleted brine to be very close in chemical composition to the natural brine, without the lithium, and within the pH levels determined by the permitting authorities (Ganser, 2025). In accordance with Utah DWQ permit #UT0026280, issued February 4, 2025, to Waterleaf, the pH will be between 6.5 and 9 when discharging into GSL.

Waterleaf's proposed use of IX works effectively with low-grade, complex brines (such as available in the GSL), with minimal land needed, minimal freshwater use, and higher lithium production rates. The Proposed Action would not have impacts to water resources in the Project area as there would not be a loss of GSL water levels, and the freshwater use proposed for the Project would be minimal. Waterleaf has designed the Phase 1 Commercial Facility to minimize impacts to water resources in the Project area and Waterleaf would obtain coverage under the Utah Pollutant Discharge Elimination System (UPDES) for construction and operation of the Facility. This would include the design and installation of appropriate BMPs during construction and operation to protect water quality, minimize stormwater runoff to WOUS or waters of the state, and reduce erosion and sediment leaving the proposed site.

Waterleaf has secured approval for 5 acre-ft of private North Arm brine water rights for the Pilot project. During Phase 1, 30,000 acre-ft of water rights would be necessary to facilitate 5,000 tons of lithium.

3.4 Vegetation and Wildlife, including State and Federal Special Status Species

3.4.1 Affected Environment

The Project area is situated near the northeastern shoreline of GSL on the west side of the Promontory Mountains. The areas adjacent to the Project area are largely undeveloped grazing areas, with the exception of several roads. The Project footprint is entirely located on private land.

The Project area is predominantly within the Great Basin and Intermountain Introduced Annual Grassland and Inter-Mountain Basins Semi-Desert Shrub-Steppe. Flora within the area is typically salt tolerant. Grasses include poverty brome (*Bromus sterilis*), Indian ricegrass (*Achnatherum hymenoides*), and squirreltail (*Elymus elymoides*). Shrub species within the area typically include yellow rabbitbrush (*Chrysothamnus viscidiflorus*) and greasewood (*Sarcobatus*

vermiculatus) (SWCA, 2024b).

The landcover within the Project area is dominated by invasive forbs and grasses, primarily prickle Russian thistle (*Salsola tragus*) and cheatgrass (*Bromus tectorum*). Other species present within the survey area include saltover (*Halogeton glomeratus*), greasewood (*Sarcobatus vermiculatus*), redstem storksbill (*Erodium cicutarium*), rubber rabbitbrush (*Ericameria nauseosa*), broom snakeweed (*Gutierresia sarathrae*), and shadscale saltbush (*Striplex confertifolia*). The existing disturbance to the vegetation and soil is from recent heavy grazing from cattle noted in the area (SWCA, 2024b).

Four special-status species have a potential to occur in the Project area. These include monarch butterfly (*Danaus plexippus*), kit fox (*Vulpes macrotis*), burrowing owl (*Athene cunicularia*), and American bittern (*Botaurus lentiginosus*). The monarch butterfly is proposed for federal listing as threatened under the Endangered Species Act. The kit fox, burrowing owl, and American bittern are state-designated species of greatest conservation need (SWCA, 2024b). Additional information on these special-status species is provided in the following sections.

Monarch Butterfly. The monarch butterfly occurs through North America, and during breeding season it lays its eggs on its obligate milkweed host plant, primarily *Asclepias* species. The monarch butterfly has a moderate potential to occur in the Project area where milkweed species may occur (SWCA, 2024b).

Kit Fox. The kit fox primary habitat is the open desert, shrubby or shrub-grass habitat in shadscale (*Atriplex confertifolia*), greasewood (*Sarcobatus vermiculatus*), and sagebrush (*Artemisia spp.*) communities. Several dens may be used in the summer and there are suitable burrows in the Project area (SWCA, 2024b).

Burrowing Owl. The burrowing owl habitat includes open grasslands, especially prairie, plains, and savanna, and sometimes other open areas such as vacant lots near human habitation or airports. There are also suitable burrows within the Project area with no sign of current or past occupancy (SWCA, 2024b).

American Bittern. The American bittern does not have potential to occur in the Project area because the shoreline of GSL is outside of the area. There is also little to no wetland vegetation along the shoreline of GSL nearby and this species is primarily found in freshwater (SWCA, 2024b).

3.4.2 Environmental Consequences

Basis of Significance. An alternative would be considered to have a significant effect on vegetation and wildlife if it would cause the substantial loss, degradation, or fragmentation of any natural communities or wildlife habitat, effects on a sensitive natural community, and reduce the quality or quantity of important habitat, or access to such habitat for wildlife species. Substantial adverse effects on native wood habitats and adverse effects on State and Federally protected waters of the United States through direct removal, filling, or hydrological interruption would also be considered.

No Action. Under the No Action Alternative, Waterleaf would not construct the proposed Phase 1 Commercial Facility and would decommission the Pilot Facility. The Project area would return

to its original use, cattle grazing which would continue to have an impact on the vegetation and groundcover in the Project area. There would be no impact, adverse or otherwise, on vegetation, wildlife, or listed species in the Project area.

Proposed Action Alternative. Under the Proposed Action alternative, the Phase 1 Commercial Facility would be constructed and vegetative cover currently present at the site would be disturbed through the grading and preparation of the site for construction and operation of the Project. The Pilot Facility and 2.5 access road have already disturbed approximately 1.25 acres and 12 acres, respectively. The construction of the Phase 1 Commercial Facility would disturb an additional 20 acres (inclusive of the 1.25 acres for the Pilot Facility). Waterleaf would obtain coverage under the UPDES program for construction and operation of the facility which would protect the site from discharging into WOUS or waters of the state and would inform the revegetation requirements for areas not needed for long-term operation of the Facility.

SWCA performed habitat surveys of the 50-acre analysis area in December 2023. SWCA conducted habitat assessments within the survey area for special-status species that were identified in the pre-field analysis as well as migratory bird nesting habitat. Habitat assessments were conducted by walking meandering transects within the survey area and visually scanning the area for suitable habitats, burrows, and nests. Binoculars were used to visually inspect the areas between transects and adjust for changes in sight distance based on topography and vegetation height and density. The field survey SWCA conducted consisted of the Project area (50-acre analysis area) with a 1-mile buffer for bald eagle nests, a 0.5-mile buffer for other raptor nest surveys, and a 0.25-mile buffer for kit fox and burrowing owl surveys. The proposed Phase 1 Commercial Facility would be constructed within potential habitats of the monarch butterfly, kit fox, and burrowing owl. Potential habitats are areas that satisfy the broad criteria of the species' habitat description.

For the American bittern, there would be no effect on the species from this Project as the American bittern is primarily found in freshwater marshes and lakes full of reeds. This species breeds and winters in freshwater marshes, large, shallow wetlands with tall marsh vegetation and open shallow water. This species is also known to winter in brackish coastal marshes. The shoreline of GSL within the survey area does not meet the criteria for this species.

For the monarch butterfly, there would be little to no impact on the species from the construction or operation of the Phase 1 Commercial Facility. This species occurs throughout North America and lays its eggs on its obligate milkweed host plant, primarily *Asclepias* species. There was no milkweed species observed during the habitat assessment survey within the Project area, though it should be noted that the survey was conducted during the winter when they are less likely to grow. The *Asclepias* species may still occur in the survey area (SWCA, 2024b). The impact of the Proposed Action to the monarch butterflies would still be minimal if they are seen in the area. The limited effect of the Project on the butterfly would be the potential loss of habitat.

A total of approximately 365 acres were assessed for suitable habitat for kit fox and burrowing owl within the survey area (Project area plus 0.25-mile buffer), including 28 acres that were surveyed only with visual aids. Kit fox and burrowing owls could be moderately impacted by the Proposed Action. Burrowing owl habitat includes open grasslands and sometimes open areas such as vacant lots near human habitation or airports. Suitable burrows were documented in the

area during the survey. However, there was no sign of current or past occupancy. The kit fox habitat includes open desert and shrubby communities. Suitable burrows for the kit fix were also documented during the survey but they did not have any sign of current or past occupancy (SWCA, 2024b). The Proposed action could affect these species through the as a potential loss of habitat if any of these burrows would be removed due to the Project.

Waterleaf will conduct a clearance survey if construction takes place during kit fox breeding season (December to February) or burrowing owl nesting season (March 1 to August 31). Waterleaf would coordinate with the Utah Division of Wildlife Resources (UDWR) to determine if camera surveys are necessary in the area. Surveys would be conducted in accordance with UDWR and/or U.S. Fish and Wildlife Service (USFWS) species-specific protocols. If occupied habitat is identified, Waterleaf would contact UDWR and/or USFWS to determine the appropriate steps to avoid impacts to the species, such as delaying construction until the kit fox pups emerge from the den and/or burrowing owls fledge the nest. Compliance with these protective measures would avoid adverse impacts to these species.

As adverse impacts on federally listed species are not anticipated, formal consultation with the USFWS is not required or needed.

3.5 Geology, Soils, and Seismology

3.5.1 Affected Environment

The Project area is generally undeveloped, with the exception of a gravel access road traversing the lease property. The Project is located along the historic shoreline of the GSL. Lake water fluctuates seasonally and the dry lakebed surface within the Project area consists of silt and sand mixtures with abundant evaporite mineralization. The site slopes moderately upward to the north and is sparsely vegetated, as discussed in Section 3.4.

The Project area is within the Basin and Range Province, which is characterized by approximately north-trending valleys and mountain ranges which have been formed by extensional tectonics and displacement along normal faults (Hunt, 1967). GSL is a remnant of the prehistoric Pleistocene-ages Lake Bonneville. GSL is an endorheic saline lake which receives inflow of water from several rivers in the region (Kleinfelder, 2024).

The subsurface conditions of the Project area consist of loose to very dense sand, very stiff sandy silt, fat clay, and sand with varying amounts of silt. The clay soils generally exhibit high plasticity, and the silt and sand mixtures contain approximately 25 to 70 percent non-plastic fines. The generalized soil stratigraphy is in **Table 3-4** below (Kleinfelder, 2024).

Table 3-4 –Generalized Soil Stratigraphy

Stratigraphic Unit	Approximate Depth to Bottom of Unit (feet below ground surface)
Loose to very dense sand and very stiff sandy silt	7 to 15
Fat clay, medium stiff to hard, high plasticity	13 to 20
Sand with varying amounts of silt, medium dense to very dense	26.5

Groundwater levels are dependent on a number of factors, including seasonal precipitation, nearby bodies of water, land use, and runoff conditions. It is possible that groundwater levels

may fluctuate during drying and wetter seasons of the year. Regional and historical groundwater well data indicates the static groundwater level in the Project area may be as deep as 100 feet below ground surface (bgs) (Kleinfelder, 2024).

The Project area is located within the Intermountain Seismic Belt – a seismically-active region that extends from Arizona to Montana. Active faults in the region are potential sources for seismic loading hazards for the Project area. Active earthquake faults are typically considered faults that have moved during the past 10,000 years. A trace of the active Great Salt Lake Fault Zone is about 1.8 miles to the southwest of the Project area, and approximately 0.6 miles from the southwestern most point of the 6,200-foot-long access road easement (Kleinfelder, 2024).

Liquefaction is a phenomenon whereby loose, saturated, granular soil deposits lose a significant portion of their shear strength due to excess pore water pressure build up resulting from dynamic loading, such as that caused by an earthquake. Horizontally continuous liquefied layers may also have a potential to spread laterally where sufficient slope or free-face conditions exist. However, based on the soil conditions at the site, the potential for liquefaction at this site is low and does not warrant further consideration.

3.5.2 Environmental Consequences

Basis of Significance. An alternative would be considered to have a significant effect on the geology, soils, and seismology if it would result in the destruction, directly or indirectly, of a unique paleontological resource or geologic feature. Alternatives would also be considered to have a significant effect if they would expose people or structures to substantial effects involving the rupture of a known earthquake fault, strong seismic shaking, seismic relation ground failure, liquefaction, landslides, substantial soil erosion, or permanent loss of topsoil. The Project should also not be located on an unstable geologic unit, geologic unit that would become unstable because of the project or located on expansive soil.

No Action. Under the No Action Alternative, the Phase 1 Commercial Facility would not be constructed, and the Pilot Facility would be decommissioned. As a result, any erosion that could potentially occur would not be controlled in the area. The No Action Alternative would not have additional effects on the geology, soils, or seismology at the site.

Proposed Action Alternative. Under the Proposed Action, grading, removal and moving of soils, would occur on approximately 20 acres to allow for the construction of the Phase 1 Commercial Facility. The site would need to be flattened and graded with all soil left on site or reused, if suitable, as fill materials. The site would occupy approximately 20 acres of land, privately leased, and would have a 2.5-mile-ling, two-lane gravel road across the private land to access the facility (approximately 12 acres of land has been disturbed for the construction of the road to the Pilot Facility).

Due to soil conditions at the site having a low probability for liquefaction, the grading would not increase the potential for liquefaction or landslides. Substantial soil erosion and permanent loss of topsoil would be limited as Waterleaf would obtain a permit through UPDES that would include installation and maintenance of BMPs. The Proposed Action would not increase the potential for seismic activity within the area, as the nearest fault line is 1.8 miles southwest from the Project, and no activities are proposed that could induce seismic events. Finally, groundwater also is not likely to be affected by the Proposed Action as groundwater is located

100 feet below ground surface (Kleinfelder, 2024).

3.6 Cultural Resources

3.6.1 Affected Environment

The area in which cultural resources are identified and in which potential effects on historic properties (those cultural resources determine to be eligible for listing on the National Register of Historic Places [NRHP]) are analyzed is called the Area of Potential Effects (APE). The APE for the Waterleaf Project consists of 63.77 acres of private property, which was surveyed at a Class III level (i.e., pedestrian surveys by qualified archaeologists). The 63.77 acres surveyed includes the 50-acre Project analysis area that contains the footprint of the approximately 20-acre Phase 1 Commercial Facility, and a 100-foot buffer. As per Title 36 of the Code of Federal Regulations (CFR) (Parks, Forests, and Public Property), all archaeological resources sites over 50 years old must be evaluated for NRHP eligibility under four criteria and with consideration of seven elements of integrity (SWCA 2024).

In December 2023, a literature review was conducted using the Utah Division of State History's Sego database to identify previously conducted archaeological resources projects and previously recorded archeological sites within 0.5 miles of the survey area. No previous sites or projects were located within this buffer. Additionally, geographic information system (GIS) layers and General Land Office (GLO) plat maps were examined for possible archaeological resources in and near the survey area which showed four roads identified by U.S. Geologic Survey (USGS) between 1954 and 1968 within the survey area (SWCA 2024).

A Class III archaeological resources survey was conducted of the APE in December 2023 to identify and record any archaeological resources on the ground surface. Ground visibility generally ranged from good to excellent during the survey. Survey transects were spaced 15 meters apart and the entire survey area was surveyed at an intensive level.

One new archaeological site (42BO2960) and two isolated finds (IF-01 and IF-02) were recorded within the survey area. Site 42BO2960 is an artifact scatter of historic glass bottles and cans with an associated concentration of lumber, assumed to be from about 1920 to 1930. One of the isolated finds (IF-01) was a 1936-dated Owens-Illinois Glass Co. green bottle base fragment, located with the marine debris at the high tide mark of GSL. The second isolated find (IF-02) is a two-track road, which first appears on a 1952 USGS topographic map (SWCA 2024).

3.6.2 Environmental Consequences

Basis of Significance. An alternative would be considered to have a significant impact on cultural resources if there are any adverse effects on resources that are listed or eligible for listing in the NRHP. Effects are considered to be adverse if they alter, directly or indirectly, any characteristics of a cultural resource that qualify for NRHP so that the integrity of the location, design, setting, materials, workmanship, feeling or association is diminished. It would also be considered adversely affected if anything would cause a substantial change in the significance of a historic property through the physical demolition, destruction, relocations, or alteration of the historic property so that it would be materially impaired.

No Action. Under the No Action Alternative, the Phase 1 Commercial Facility would not be

constructed and there would be no impact to cultural resources at the Project location.

Proposed Action Alternative. Under the Proposed Action alternative, there would be no impact to cultural resources at the Project location. Site 42BO2960 located within the APE is recommended not eligible for the NRHP and the two isolated finds (IF-01 and IF-02) are also not eligible for the NRHP. SWCA recommended a finding of "no effect" for the project and no further study, mitigation, or Section 106 analysis (SWCA 2024). The Class III report and findings were submitted to the Utah State Historic Preservation Officer (SHPO) on February 26, 2024. The Utah SHPO responded with their conclusion "*that a determination of "No Historic Properties*" is appropriate for the undertaking as the area of potential effect does not contain historic properties" on March 28, 2024 (see **Attachment A**).

3.7 Visual and Aesthetic Resources

3.7.1 Affected Environment

The proposed Project is located on the east end of the north arm of the GSL and consists of the approximately 1.25-acre Pilot facility (constructed in 2024) and the proposed 20-acre Phase 1 Commercial Facility (to be constructed in 2026). The proposed Pilot and Phase 1 Commercial Facility are all located on private surface that supports cattle grazing, and there is little to no existing infrastructure within the immediate vicinity of the site. The proposed Phase 1 Commercial Facility would consist of GSL brine storage ponds and surface-laid intake and outfall pipelines to the GSL, chemical processing facilities, process containers, chemical laboratory, control rooms/office building(s), waste storage area, generators, product bagging building, and a truck loading facility. The entire Phase 1 Commercial Facility would be fenced with chain-link security fence. The tallest of these facilities would be the Lilac IX building, which would be approximately 60 feet tall.

The proposed Project is located approximately 2 miles north of the Spiral Jetty, a work of land art constructed in April 1970 on the north arm of the GSL. The Spiral Jetty is made entirely of mud, salt crystals, and basalt rocks, and it forms a 1,500-foot-long, 15-foot-wide counterclockwise coil jutting from the shore of the lake. Due to the drying of the lake, as of 2022, a mile of lakebed separates the Spiral Jetty from the shore. Depending upon the water level of the Great Salt Lake, the sculpture is sometimes visible and sometimes submerged. The Spiral Jetty is a tourist attraction that has a small parking lot that allows visitors to visit and walk out to the middle of the Spiral Jetty.

3.7.2 Environmental Consequences

Basis of Significance. A significant adverse effect on visual and aesthetic resources would result if the proposed Project would substantially obstruct, interrupt, or detract from a valued focal and/or panoramic vista from a recreational/area.

No Action. Under the No Action Alternative, the Phase 1 Commercial facility would not be constructed, and the Pilot facility would be decommissioned and removed. There would be no long-term visual impacts to the Project area.

Proposed Action Alternative. Waterleaf did a line-of-sight review from the Spiral Jetty, and also had professional visual simulations prepared for the proposed Project (**Attachment B**) to determine the potential impacts the construction and operation of the Phase 1 Commercial

facility would have on the existing visual landscape of the Project area. For the line-of-sight review, Waterleaf placed a ballon at the proposed building corner closest to the Spiral Jetty location and elevated it to 58 feet above the existing grade; a second balloon was placed near the middle of the building side facing the Spiral Jetty and raised to 70 feet above the existing grade. A drone was flown to the Spiral Jetty observation point and turned back to face the proposed facility location. With the two different locations and elevations the balloons were not visible from the Spiral Jetty at either location or from either elevation. The views from the Spiral Jetty included shore side observation; looking away from the Jetty towards the Project site in which the balloons were not visible by naked eye and not visible with the use of field glasses. Additional views from the lake side on the Jetty looking westward towards the Project site, also revealed that balloons were not visible at either height. Based on this evaluation, a line-of-sight obstruction while at the Spiral Jetty is not anticipated.

To support the line-of-sight review, Waterleaf had Kleinfelder prepare professional visual simulations of the proposed Phase 1 Commercial Facility, specifically showing the Lilac IX building (the tallest proposed structure). Kleinfelder 3D Design and Visualization team utilized publicly available Light Detection and Ranging (LiDAR) data to develop a 3D terrain CAD file of the existing site and surrounding area. The team then verified the LiDAR accuracy using Global Positioning System (GPS) spot checks from multiple locations and multiple sources. After the 3D terrain file was completed, Kleinfelder developed 3D models of the proposed tallest structures and placed the models on the 3D terrain at the proposed locations. The 3D team then analyzed each photo file and camera data and recreated the camera and its position within the 3D file. The team then rendered the proposed design and used image editing software to combine the renderings with the original photos to produce the final photo simulations (**Attachment B**). Using these simulations, Waterleaf worked with Kleinfelder to rotate the Lilac IX building to have the longest side of the proposed building be visible to illustrate the worst-case scenario visual impact. While the proposed Lilac IX building is visible in the photo renderings, taken from the vantage point of the Spiral Jetty, it is not a significant visual obtrusion and the buildings would be painted a color that blends into the natural landscape so they are further situated in the slight rise in elevations of the natural landscape, lessening the visual impacts. This combined with the distance of the proposed facility from the Spiral Jetty keeps visibility of the proposed Project buildings to be minimal.

3.8 Socioeconomics

3.8.1 Affected Environment

The U.S. Census Bureau provides three types of data which have been used in the socioeconomic evaluation: decennial census data, American Community Survey (ACS) 1-year data, and ACS 5-year data. ACS 1-year data is an ongoing survey that provides data every year. This data provides a broad range of topics about social, economic, demographic, and housing characteristics of the U.S. population. The ACS 5-year estimates are from a “period” that represent data collected over a period of time. The primary advantage of using multiyear estimates is the increased statistical reliability of the data for less populated areas and small population subgroups.

The data used for the majority of the socioeconomic evaluation are the 2020 decennial census, the 2019-2023 ACS 5-Year Estimates which are based on data collected between 2019 and

2023, and represents average population, employment, and housing characteristics during that period. Finally, the third data set used in this evaluation is ACS 1-year population estimate for 2023 for the states, counties, and communities in the Project area.

The following socioeconomic analysis focuses on the state of Utah and Box Elder County, in which the proposed Project is located, and the nearby communities of Thatcher (approximately 29 miles northeast of the Project), Tremonton (approximately 31 miles northeast of the Project), and Bear River City (approximately 30 miles northeast of the Project).

Table 3-5 – Population Characteristics in the Project Area

State, County, Community	2020 Decennial Population[a]	Population Density (Persons/Square Mile)[b]	2023 Estimated Population[c]
State of Utah	3,271,616	39.7	3,417,734
Box Elder County	57,666	10.0	62,684
Thatcher	807	67.3	1,094
Tremonton	9,894	1,236.8	10,886
Bear River City	877	487.2	863

[a] U.S. Census Bureau, Table S0101 Age and Sex, 2015-2019 ACS Survey 5-Year Estimates
[b] Population density calculated based on U.S. Census Bureau provided population and geographic square mileage.
[c] U.S. Census Bureau, 2019-2023 American Community Survey 5-Year Estimates

The population for the State of Utah in 2020 was 3,271,616 and was estimated at 3,417,734 in 2023, indicating a 4.5 percent growth over 3 years. The population for Box Elder County was 57,666 in 2020 and was estimated at 62,684 in 2023, indicating an 8.7 percent growth over 3 years. The population in two of the three nearby communities (Thatcher and Tremonton) also had increases in their population in line with the growth shown for the County, and the State of Utah. Bear River City had a slight estimated decrease in population between the 2020 decennial and the 2023 ACS estimated population.

The population density per square mile for Box Elder County is significantly lower than the population density of the State of Utah. The three nearby communities to the Project location are significantly more densely populated than both the State of Utah and Box Elder County. These communities represent the more populated areas of the County. (For a comparison marker, the population density inside a large U.S. city is about 1,600 people per square mile.)

Current economic and employment conditions in the Project area and State of Utah are presented in **Table 3-6.**

Table 3-6 – Socioeconomic Conditions in the Project Area

State, County, Community	Average Per Capita Income (U.S. Dollars) 2019-2023[a]	Total Civilian Labor Force (Persons) 2019-2023[b]	Unemployment Rate (percent) 2019-2023[b]	Major Employment by Industry (Percent) 2019-2023[c]
State of Utah	$40,096	2,600,950	3.3	Educational services, health care, and social assistance (23.4)
Box Elder County	$31,738	43,462	3.2	Educational services, health care, and social assistance (18.7)
Thatcher	$46,689	787	1.9	Manufacturing (25.0)
Tremonton	$30,907	7,652	5.1	Manufacturing (24.8)
Bear River City	$36,075	678	2.4	Manufacturing (20.8)

[a] U.S. Census Bureau, Table S1902 Mean Income in the Past 12 Months, 2019-2023 5-Year ACS Survey Estimates

[b] U.S. Census Bureau, Table S2301 Employment Status, 2019-2023 5-Year ACS Survey Estimates
[c] U.S Census Bureau, Table DP03 Selected Economic Characteristics, 2019-2023 5-Year ACS Survey Estimates

The 2019-2023 estimated per capita mean income for Box Elder County and the nearby communities of Tremonton and Bear River City are lower than the estimated per capita mean income for the State of Utah. Notably, the 2019-2023 estimated per capita income for the nearby community of Thatcher, UT is higher than both the County and State of Utah. Employment in the Project area is predominantly in manufacturing, while the major employment industry for Box Elder County and the State of Utah is educational services, health care, and social assistance. Unemployment rates in the nearby communities of Thatcher and Bear River City are both below the unemployment rate for Box Elder County and the State of Utah while the unemployment rate in Tremonton is higher than both the County and the State.

Table 3-7 shows the housing characteristics of the County in which the Project is located, as well as the nearby communities that could potentially be affected by the Project. The table includes the total number of housing units, occupied housing units, vacant housing units, and vacancy rates for those areas.

Table 3-7 – Existing Housing Conditions in the Project Area

State, County, Community	Total Housing Units 2019-2023[a]	Occupied Housing Units 2019-2023[a]	Vacant Housing Units 2019-2023[a]	Average Homeowner Vacancy Rate (percent) 2019-2023[a]	Rental Vacancy Rate (percent) 2019-2023[a]
State of Utah	1,258,529	1,167,591	90,938	0.4	5.5
Box Elder County	20,280	19,150	1,130	0.2	6.1
Thatcher	358	358	0	0.0	0.0
Tremonton	3,745	3,577	168	0.0	1.5
Bear River City	289	283	6	0.0	0.0

[a] U.S. Census Bureau, Table DP04 Selected Housing Characteristics, 2019-2023 5-Year ACS Survey Estimates

Overall, housing availability in the nearby communities of Thatcher, Tremonton, and Bear River City is low, including low rental vacancy rates for construction or temporary workers. Additionally, the vacant housing units in these communities are relatively low compared to the County and State. There are larger communities, such as Ogden Utah, which is approximately 30 miles southeast of the Project location that contains additional vacant housing and higher rental vacancy rates.

In general, public services are available near the Project area including the Thatcher Penrose Fire Department, Tremonton Police Department, and the Intermountain Health Bear River Valley Hospital in Tremonton.

The Project location is in a relatively remote area of the north arm of the GSL, and as such transportation to and from the proposed Project location would be via an approximately 2.5-mile private gravel road that connects to Rozel Flats Rd.

3.8.2 Environmental Consequences

Basis of Significance. A significant adverse effect to socioeconomics of the Project area would happen if the current demographic or economic conditions in the Project area would be changed in a way that would be notable and harmful for surrounding communities and residents.

No Action. Under the No Action Alternative, the Phase 1 Commercial Facility would not be constructed, and the Pilot would close after its Pilot test phase. The infrastructure built for the Pilot facility would be decommissioned, and the land would return to its original use. By not realizing Phase 1 Commercial production of LCE (up to 5,000 tpa of LCE for Phase 1), the U.S. would continue to rely on international sources of LCE for production of lithium batteries and would not have as large of a source of domestically produced lithium in the market. The State of Utah, Box Elder County, and the nearby communities of Thatcher, Tremonton, and Bear River City would not benefit from the employment and tax/revenue opportunities the proposed Project would have.

Proposed Action Alternative. Under the Proposed Action alternative, the Phase 1 Commercial Facility would be constructed and would operate for the life of the Project (estimated to be 10-20 years). The construction of the Phase 1 Commercial Facility would last approximately 12 months and could create up to 100 temporary construction jobs for that timeframe. Project construction personnel would come from the local work force, as available. This would result in some beneficial outcomes, such as temporarily lowering the County and nearby community's unemployment rates and, depending upon the rate at which skilled and experienced local staff are available and the positions to which these personnel are assigned, may increase the average per capita income in the areas.

Additionally, Waterleaf estimates that up to 60 full-time employees would need to be hired to operate the Phase 1 Commercial Facility, and these jobs could come from the local workforce as opposed to bringing in outside employees to relocate to the area. The communities nearby the Project all predominantly have manufacturing as the major employment by industry, which would suggest that these communities have the type of skilled workforce needed for such a facility as the Waterleaf Phase 1 Commercial Facility. There could be an impact on both temporary and permanent housing in the communities near the Project location depending on the number of local workers hired for construction versus bringing in outside construction workforces. Temporary housing, or utilization of motel/hotels in the proximity of the Project, could help to alleviate housing needs for a small, non-local workforce. If the workforce for construction can be primarily drawn from local workforces, then impacts to housing, school districts, or local emergency services would not be felt from the implementation of the Proposed Action.

Construction and operation of the Phase 1 Commercial Facility is anticipated to have beneficial impacts on local sales tax revenue. An unspecified amount of sales tax revenue would be generated by the temporary influx of workers who would purchase local goods and services. Additionally, Waterleaf and the contractors would make local materials purchases, and would pay sales tax for the lease and/or rental of various office spaces and construction equipment. The sales tax is paid to the state, county, and city where the material is purchased. In addition, local businesses would benefit from demands for goods and services generated by the temporary construction workforce. Benefits would apply to many establishments adjacent to the Project area where local purchases for some of the materials necessary for the Project would be made. Waterleaf estimates that local purchases made by personnel associated with the construction of the Project would primarily include consumables, fuel, and miscellaneous construction-related materials.

Payroll taxes would be collected from both the local and non-local workers employed on the Project. This would temporarily increase tax revenue for the state of Utah, as well as for Box Elder County. However, on a state-wide basis, the increase is anticipated to be minimal.

During operation of the Project, Waterleaf would pay property taxes to Box Elder County for the land on which the Project facilities are located. Local governments typically use tax revenues for infrastructure improvements such as roads, schools, and health facilities, and to meet other needs of the community, which would have beneficial impacts on the nearby communities and Box Elder County.

The U.S. has a high net import reliance for lithium, meaning it imports more lithium than it produces domestically. The current U.S. production of lithium is less than 6,000 tpa. The construction and operation of the Phase 1 facility alone would double the domestic supply of lithium available which would be a substantial beneficial impact to the U.S. economy to support battery production for electric vehicles (EVs) and utility-scale storage.

3.9 Hazardous and Toxic Wastes

3.9.1 Affected Environment

A Phase 1 Environmental Site Assessment (Phase 1 ESA) was conducted for the Project area in 2023. The Phase 1 ESA included a visual inspection of the Project area for the Proposed Action, a review of environmental databases and regulatory agency records, and a review of historical data sources. The Phase 1 ESA revealed no evidence of Recognized Environmental Conditions (RECs) in connection with the Project area. Also, no controlled RECs (CRECs) or historical RECs (HRECs) were identified in the Project area (Western Geologic & Environmental LLC, 2023).

3.9.2 Environmental Consequences

Basis of Significance. A significant adverse effect from hazardous and toxic wastes includes contamination of soil, water and air, which leads to detrimental effects on wildlife, plant life, and human populations through exposure pathways like ingestion, inhalation, and dermal contact.

No Action. Under the No Action Alternative, construction of the Phase 1 Commercial Facility would not occur and therefore there would be no potential for hazardous spills due to construction or operational activities. The Pilot Facility would be decommissioned, and all materials would be properly disposed of according to State and local regulations, and the site would return to its cattle grazing use.

Proposed Action Alternative. Under the Proposed Action alternative, there would be a potential for spills of hazardous chemicals in the raw storage, the processing, and waste storage of materials used or generated by the lithium extraction process. A hazardous materials spill/release occurs when a process fluid experiences a loss of containment. The spill can be either in containment or outside of containment. The chemicals used in the Proposed Action process include lithium chloride (LiCl), lithium sulfate (Li_2SO_4), hydrochloride (HCl), and hydrosulfide (H_2SO_4). LiCl and Li_2SO_4 are highly pure intermediate products of the eluate stream. Eluate is used to neutralize and further refine the product to prepare for conversion to battery grade. HCl and H_2SO_4 are used as a diluted acid and placed in the reactor to displace Li+ ions. Waterleaf has engineering controls, administrative controls, and the use of personal

protective equipment (PPE) in place at the site to prevent any spills of these hazardous chemicals. The engineering controls include isolating designated storage for raw and waste materials. The administrative controls include making certain connections are not acceptable when in operation, and the required PPE for general accessibility to the site is hard hats, safety glasses, and a hi-visibility vest. When other tasks are being performed, the required PPE would change appropriately to protect the worker performing the task.

Chlorine gas could also be generated in the reactor, where the beads are washed with acid, recharged, and then washed with base. An upset of chlorine gas could potentially occur if acid and base were introduced at the same time. However, the potential for this type of upset condition is and would continue to be prevented using engineering controls including valves; carefully scheduled timing of the process; beads being washed between acid and base activities; and monitoring of HMIS screens and cameras to ensure that no people are present at the reactor during this process. In the event of an upset, there is negative pressure around the reactor, and the reactor flows would shut down and the enclosure would begin to exchange the air and exhaust through the scrubber.

Bagging is managed by a licensed dust collector and bag house that uses appropriate duct work to vent. All team members working in the bagging area have Personal Protective Equipment (PPE), including hardhats, safety boots, eye protection, face masks, and shields used as needed.

The potential for spills on site is minimal however, a spill of acid, base, LiCl, Li_2SO_4, HCl, and H_2SO_4 could occur. It is unlikely any chemicals would reach bare earth or seep into groundwater because, during the current Pilot phase, all chemicals are within containers. During Phase 1 operations, the facilities would be on a concrete pad with appropriate containment, preventing any spills from reaching groundwater.

In the event of a spill of on-site chemicals, Waterleaf's Emergency Action Plan (EAP) would be activated. The site-specific EAP discusses the response procedures for the Pilot and Phase 1 Commercial Facilities. The immediate response begins with the first person that is aware of the spill to notify site personnel and call emergency services if someone has become injured. Non-essential personnel would evacuate the area near the spill and the emergency response team would begin identifying the source, character, amount, and extent of any released materials. Based on the identification of the spill, the emergency coordinator would evacuate the area, building, or site. The emergency coordinator would then develop a plan to appropriately respond to the spill, including what was spilled, how and who would clean it, decontamination, and the process for safely returning to work. The source of the release would then be corrected, and the clean-up of the release would continue as needed. Waterleaf's Safety and Health officer would notify the appropriate federal and/or state agencies and state offices depending on if the spill is a major hazardous release. Finally, Waterleaf's emergency coordinator would initiate a first incident notification in KPA, the incident reporting software utilized by Waterleaf, per the Lilac Solutions Corrective and Preventative Action Program with information on how to prevent spills of hazardous chemicals in the future. Any other agencies would be notified, and the emergency response team would verify that all equipment is cleaned and fit for their intended use prior to operations resuming.

Solid wastes are produced on site during brine filtration, eluate filtration, and delithiated brine

treatment. Currently, solid wastes are tested for any hazardous or toxic chemicals and brought to a permitted landfill that is able to accept such waste. Other options for disposal or recycling are being investigated for where the waste streams can be used in other industries. The freshwater used for wash water is also tested for any hazardous or toxic chemicals and then recycled in the process or pumped to GSL when it is no longer usable. Waterleaf follows State of Utah disposal requirements for all solid waste generated at the site.

Impacts to the soil or groundwater from hazardous or toxic wastes are minimized under the Proposed Action through the use of engineering and administrative controls, and the site-specific EAP that would be utilized during operations at the Phase 1 Commercial Facility. Impacts to human health from toxic or hazardous wastes are minimized through the same engineering and administrative controls present through the processes, but also through the requirement of PPE at the Project site. Waterleaf would implement and follow Occupational Safety and Health Administration (OSHA) requirements and best practices for industrial facilities at the Phase 1 Commercial Facility.

3.10 Land Use

3.10.1 Affected Environment

The Project area is in unincorporated Box Elder County, Township 9 North, Range 7 West, SLM, Utah and is currently owned by Mango-Spiral Jetty, LLC. A lease agreement has been executed for Parcel 03-008-0049 Section 31 and Section 32 and a portion of Section 30 to Waterleaf. Mango-Spiral Jetty, LLC has agreed to the Project area being transitioned from vacant rangeland to a large commercial industrial facility. The Project area consists of vacant rangeland that is part of a larger tract used for intermittent cattle grazing. The unpaved road that crosses through the Project has existed in its current alignment since at least 1949. Cattle trails and a nearby stock-watering pond are the only visible indications of current and past surface use on the Project and near vicinity. The shoreline of GSL is about a half mile from the Project boundary (Western Geologic & Environmental LLC, 2023).

During the Phase 1 ESA completed in 2023, six weathered wooden pilings were observed along the shoreline, near where a branch of the dirt road extends to the lake shoreline. However, there was no evidence of development, and no structures were observed at this location. In addition to livestock grazing, oil and gas exploration occurred in the Rozel Hills area. No evidence of exploratory wells was identified within the Project area or approximately 3 miles further to the south and east (Western Geologic & Environmental LLC, 2023).

3.10.2 Environmental Consequences

Basis of Significance. A significant adverse effect from changes to land use would be considered if it was detrimental to surrounding areas, the current owner or tenant, or would increase the environmental risk to the area. It would also need to comply with current zoning regulations or be able to be rezoned by the state or county.

No Action. Under the No Action Alternative, the Phase 1 Commercial Facility would not be constructed, and the Pilot Facility would be decommissioned. The Project area would be returned to vacant rangeland.

Proposed Action Alternative.

The Box Elder County Planning Commission provided a Letter of Decision as approval for a Temporary Use Permit, which allows the area to be used for commercial development rather than rangeland. The Permit was approved with the conditions of compliance with Article 5, Regulations of General Applicability, of the Box Elder County Land Use Management & Development Code; compliance with Section 2-2-160, Temporary Use Permit, of Box Elder County Land Use Management & Development Code; and compliance with all applicable County, State, and Federal laws regulating the proposed use, including all current licenses and permits.

Article 5, Regulations of General Applicability, of the Box Elder County Land Use Management & Development Code applies to general actions to be taken regarding paving, parking, signage, flood damage prevention, outdoor lighting standards, etc. Section 2-2-160, Temporary Use Permit, of the Box Elder County Land Use Management & Development Code applies to the process for obtaining and applicability of the Temporary Use Permit and why this permit may be revoked. Waterleaf would follow all applicable rules and regulations from the above Codes as well as all applicable county, state, and federal laws during construction and operation. If any changes are to be made to the facility, the applicable codes would be reviewed prior to changes being made to the land use.

The surrounding area would continue to be rangeland and would be utilized for cattle grazing. The facility would be fenced to keep livestock out. Due to the fencing and chemical management procedures which follow industry best practices, there should be no adverse impacts to cattle in the surrounding area.

3.11 Traffic

3.11.1 Affected Environment

The Pilot and proposed Phase 1 Commercial Facility are located on the North Arm of the GSL in an area that is currently used for cattle grazing. The Facility would be reached via a constructed 2.5-mile gravel road that connects to N. Rozel Flats Rd. in Box Elder County, Utah. Rozel Flats Rd. is also a gravel road that is used to access this remote area used for cattle grazing and connects tourists to the Spiral Jetty Road. These County Roads do not have posted speed limits, but according to the State of Utah rules, if a county road is a non-posted speed, then the acceptable speed limit is 55 miles per hour (mph).

Current traffic during the operation of the Pilot facility has been limited to trucks and heavy equipment required to transport and install the largely modular buildings and the surface-laid intake/outfall pipelines. Employee traffic is limited to approximately 4 personal vehicles traversing the 2.5-mile, private access road, 7 days per week. The small quantities of lithium product produced for select customers for testing and technological validation is being transported to those customers via approximately 6 truck trips per the operations.

3.11.2 Environmental Consequences

Basis of Significance. A significant adverse effect to transportation would occur if a project would have a substantial effect on movement of people or goods, due to high traffic volume, critical infrastructure, or major disruptions to the transportation network.

No Action. Under the No Action Alternative, the Phase 1 Commercial Facility would not be constructed, and the Pilot would be decommissioned. The 2.5-mile gravel access road that has been constructed for the Pilot would be used for the life of the Pilot facility. Traffic on the current gravel access road would continue through the life of the Pilot facility, and once the Pilot is completed and decommissioned the road will only be removed at the request of the landowner. Should the landowner request the road be left in its entirety or sections, Waterleaf will respond accordingly. Waterleaf will also enter into a UDOGM Bond for removal and reclamation of the facility, as per the forthcoming permit from UDOGM.

Proposed Action Alternative. Under the Proposed Action alternative, traffic would increase during both the construction and production phases of the Project. During construction, vehicle equipment trips to and from the project area would include approximately 10 to 15 trucks per day on average. During the grading and civil activities at the site, these truck counts would be slightly higher, but later in construction these truck counts would be slightly lower. Routine deliveries/trucks would include water and septic services, which involves approximately 2 trucks per week and fuel delivery twice a week. Construction and installation of Phase 1 Commercial Facility infrastructure and associated construction traffic would last approximately 12 months. Employee traffic would also increase to approximately 32 personal vehicles, including site managers lead operators, maintenance and safety managers, operators, and lab technicians, traversing the 2.5-mile long, private access road, 5 days per week, with the option to increase to 6 days per week to accelerate the construction schedule. During operation of the Phase 1 Commercial Facility, transport of commercial volumes of lithium product would require an engineered truck load out area. Transport of commercial lithium product would involve up to 12 truckloads per day, 5 days per week. Additional trucks are expected to be approximately 1 fuel truck per day, 4 re-agent trucks per day, and 4 waste removal trucks per day.

During construction and operation of Phase 1, Waterleaf would maintain the 2.5-mile access road with routine grading and maintenance activities. This would include a minimum grading and compaction twice a year, and yearly inspections to add fill or gravel, if needed to keep the road accessible for trucks and cars. Waterleaf would have a posted speed limit of 45 mph on the road to reduce dust and provide safety for the large trucks and personnel vehicles. Waterleaf would treat the road with mag chloride to further control dust along the road.

3.12 Air Quality

3.12.1 Affected Environment

Air quality in an area is generally influenced by the pollutants released within and upwind of the area. It can be highly dependent upon the pollutants' chemical and physical properties. Topography, weather, and land use in an area affect how pollutants are transported and dispersed as well as the resulting ambient air pollutant concentrations. Air quality rules and source-specific permits regulate and limit the pollutants that may be emitted from air emissions sources.

National Ambient Air Quality Standards (NAAQS) have been set by the U.S. Environmental Protection Agency (EPA) to protect human health and welfare with an adequate margin of safety. The criteria pollutants for which standards have been established are ozone (O3), sulfur dioxide (SO2), nitrogen dioxide (NO2), carbon monoxide (CO), lead (Pb), and particulate matter

(PM), including PM less than 10 microns in diameter (PM10) and PM less than 2.5 microns in diameter (PM2.5).

Ground-level O3 is a secondary pollutant formed by a chemical reaction between nitrogen oxides (NOx) and volatile organic compounds (VOCs) in the presence of heat and sunlight. Airborne PM consists of tiny coarse-mode (PM10) or fine-mode (PM2.5) particles or aerosols combined with dust, dirt, smoke, and liquid droplets. PM2.5 is derived primarily from the incomplete combustion of fuel sources and secondarily formed aerosols, whereas PM10 is derived primarily from the crushing, grinding, or abrasion of surfaces. Hazardous air pollutants (HAPs) are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects due to adverse environmental impacts. EPA has classified 187 air pollutants as HAPs.

To determine NAAQS attainment status, federal regulations require each state to establish an ambient air monitoring network (refer to 40 CFR Part 58, Appendix D) to measure pollutant concentrations. While portions of Box Elder County are classified as non-attainment with respect to the PM2.5 NAAQS, the GSL lithium extraction project area is within an area of the county classified as attainment for all criteria pollutants (i.e., not within a non-attainment area).

The nearest air monitoring stations to the GSL Project are located east of the project area in Brigham City (EPA Station ID # 49-003-0005) and Harrisville, Utah (EPA Station ID # 49-057-1003).

3.12.2 Environmental Consequences

Basis of Significance. A significant adverse effect on air quality would occur if a project would have unmitigated or unpermitted impacts to air quality.

No Action. Under the No Action Alternative, Project emissions would be limited to temporary emissions associated with the pilot facility. The Phase 1 Commercial Facility would not be constructed, and no new sources of mobile or stationary emissions would be constructed under the Project, and the Project area would be returned to vacant rangeland.

Proposed Action Alternative. Under the Proposed Action, Project emissions would primarily occur during two primary phases: the construction phase of the Phase 1 Commercial facility and the operations phase.

Project Construction Air Emissions:

During the construction phase, fugitive dust would be generated by grading and clearing, vehicular traffic, and wind erosion on disturbed soil. In addition, other pollutants, including CO, VOCs, and NO_x, would be generated as the result of fuel combustion (gasoline, diesel, and/or natural gas) in construction vehicles and equipment. Best Management Practices (BMPs) to reduce fugitive dust emissions from Project construction would include water applications, reduced vehicle speeds, and the use of cleaner equipment, including combustion equipment that meets EPA Tier IV emissions standards for diesel generator engines, where possible. Construction-related emissions would be temporary, and BMPs would minimize the overall impact on air quality.

Project Operation Air Emissions:

During operation of the Phase 1 Commercial Facility, criteria pollutants including NO_x, CO, VOCs, PM, and SO_2, as well as HAPs would be emitted from stationary combustion sources, process vents, storage tank vents, and unpaved roads. HAPs would be emitted from the combustion sources. As described in the following section, this EA will be updated with a quantitative Emissions Inventory and determination of UDAQ permitting requirements once completed.

Air Permitting:

Waterleaf is working with a professional air quality consultant to conduct a robust Emission Inventory to quantify operational emissions and determine the appropriate air quality permit requirements. The UDAQ has jurisdictional authority to issue and enforce air quality permits in the State of Utah. On June 23, 2025, Waterleaf participated in a pre-application meeting with UDAQ to discuss the project, anticipated emissions, and permitting requirements. At the time of this Draft EA and based on a preliminary evaluation of the Project's Potential to Emit (PTE), Waterleaf and UDAQ anticipate that the Project will require a synthetic minor source permit for construction, and a Title V Operating Permit for operations. Notably, Waterleaf has 12 months from operations startup to apply for an Operating Permit with the UDAQ.

As Waterleaf refines the engineering design for the Commercial Facility, the PTE Emission Inventory will be refined and revised to capture all stationary sources. Waterleaf will continue to work with the UDAQ to identify methods to reduce emissions and to properly permit the Project. This section of the EA will be revised as needed once the Construction Permit is submitted and approved by the UDAQ.

4.0 REGULATORY SETTING

4.1 Federal Laws

- Federal laws applicable to the Proposed Action include the following:
- Archaeological and Historic Preservation Act of 1974, as amended (54 U.S.C. 312501 et seq.)
- Archaeological Resources Protection Act of 1979, as amended (16 U.S.C. 470 et seq.)
- Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. 668 et seq.)
- Clean Air Act of 1972, as amended, (42 U.S.C. 7401 et seq.)
- Clean Water Act (33 U.S.C. 1344 et seq.)
- Endangered Species Act of 1973, as amended, (16 U.S.C. 1531 et seq.)
- Fish and Wildlife Coordination act of 1958, as amended, (16 U.S.C. 661 et seq.)
- Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. 703 *et seq*.)
- National Environmental Policy Act of 1969, as amended, (42 U.S.C. 4321 *et seq*.)
- National Historic Preservation Act of 1966, as amended (54 U.S.C. 300101 *et seq*.)
- Native American Graves and Repatriation Act of 1990 (25 U.S.C. 3001 *et seq*.)
- Noise Control Act of 1972, as amended (42 U.S.C. 4901 *et seq*.)
- Rivers and Harbors Appropriation Act of 1899 (22 U.S.C. 403 *et seq*.)
- Wild and Scenic Rivers Act of 1968 (16 U.S.C. 1273 *et seq*.)

4.2 Executive Orders (E.O.)

Presidential Executive Orders applicable to the Proposed Action include the following:

- E.O. 11988, Floodplain Management
- E.O. 11990, Protection of Wetlands
- E.O. 13007, Indian Sacred Sites
- E.O. 13112, Invasive Species
    - Amended by E.O.13751, Safeguarding the Nation from the Impacts of Invasive Species
- E.O. 13175, Consultation with Indian Tribes, Alaska Natives, and Native Hawaiians
- E.O. 13751, Safeguarding the Nation from the Impacts of Invasive Species

4.3 PERSONS, GROUPS, AND AGENCIES CONSULTED

The following agencies, groups, governments, and companies were consulted about the actions covered in this EA:

- **Federal Agencies and Groups**
    - Department of Energy
    - District Representatives
    - Multiple Senators
    - ACOE Nationwide/NEPA
    - United States Geological Society

- **State Agencies and Groups**
    - FFSL
    - Utah State Historic Preservation Office
    - Utah Division of Water Quality
    - GSL Commissioner
    - Utah Department of Oil and Gas and Mining
    - Utah Department of Natural Resources
    - Utah State Government Officials
    - Box Elder County Commissioner
    - Utah Department of Environmental Quality
    - Brigham City Government
    - Corinne City Government
    - Tremonton City Government
    - Howell City Government
    - Garland City Government
    - Utah Office of Energy Development
    - Utah State Parks
    - Inland Port Authority
    - Utah Governor’s Office
    - Utah Office of Tourism
    - Utah Geologic Society
    - County Governments

- **Independent and Non-Governmental Groups and Agencies**
    - Utah Mining Association
    - 9 Native American Tribes
    - Utah Manufacturers Association
    - Utah Sierra Club
    - Brigham Young University
    - Utah State University
    - Stewardship Utah
    - Save Our Great Salt Lake
    - Utah Clean Energy
    - Friends of the Great Salt Lake
    - Utah Tourism Industry Association
    - Breathe Utah
    - University of Utah
    - 3 Farmers/Farm Bureaus
    - Society of Mining and Metal

  - Engineers – Utah Section
  - Westminster
  - The Nature Conservancy
  - Great Salt Lake Audubon
  - Technical committee of the Great Salt Lake
  - 47G
  - 2 Advisory Councils

- **Companies**
  - Bear River Canal Company
  - Salt Lake Tribune
  - Great Salt Lake Collaborative
  - Salt Lake Chamber
  - Salt Pointe
  - 9 Media Corporations/Groups
  - Economic Development Corporation of Utah
  - World Trade Center Utah
  - Visit Salt Lake
  - Black Rifle Coffee Company

4.4 Permits

Waterleaf has obtained or will obtain the following permits.

Permits Obtained for Pilot	Permits Needed for Phase 1
State of Utah; Department of Natural Resources; Division of Forestry, Fire & State Lands; Right of Entry Permit	State of Utah; Department of Natural Resources; Division of Forestry, Fire & State Lands; Right of Entry Permit
State of Utah; Department of Environmental Quality; Division of Water Quality; UPDES Permit	State of Utah; Department of Environmental Quality; Division of Water Quality; UPDES Permit
State of Utah; Department of Natural Resources; Division of Water Rights; Temporary Change Application; 5 acre-ft diversion	State of Utah; Department of Natural Resources; Division of Water Rights; Application; 40,000 acre-ft diversion
State of Utah; Department of Environmental Quality; Division of Air Quality; Small Source Registration	State of Utah; Department of Environmental Quality; Division of Air Quality; Synthetic Minor Construction Permit and Title V Operating Permit
State of Utah; Department of Natural Resources; Division of Oil, Gas and Mining; Tentative Approval of the Notice of Intention Exploration (NOI)– Waterleaf Pilot Project	State of Utah; Department of Natural Resources; Division of Oil, Gas and Mining; Approval of NOI – Waterleaf Phase 1 Project
EPA ID for Short-Term Small Quantity Generator (SQG)	EPA ID for Permanent Large Quantity Generator (LQG)
State of Utah; Utah Department of Environmental Quality; Division of Water Quality; Low Erosivity Waiver Certification for Construction Activity	State of Utah; Utah Department of Environmental Quality; Division of Water Quality; Low Erosivity Waiver Certification for Construction Activity
Box Elder County; Planning Commission; Temporary Use Permit	Box Elder County; Planning Commission; Temporary Use Permit
	ACOE Letter of Permission

5.0 LIST OF PREPARERS

Table 5-1 lists those staff responsible for the preparation of this EA.

Table 5-1 – EA Preparers and Reviewers

Lilac Solutions		
Steve Morrey	Sr. Project Director, Brine	Technical input on project
Ryan Clerico	Subject Matter Expert	Technical input on project
Ola Onasile	Project Specialist	Technical input on project
Kleinfelder, Inc.		
Name	**Title/Responsibilities**	**Responsible for the Following Sections in this Document**
Dawn Martin	NEPA Project Manager	Technical Review; QA/QC
Sophie Hinnen	NEPA Planner	Author
Amal Hijazi	Air Quality Specialist	Author
Andrea Huggins	Air Quality Specialist	Technical Review
Annie Daniel	NEPA Planner/Socioeconomics	Author
Crosby Edwards	Environmental Planner	Technical Research
Alex Leonard	GIS Specialist	GIS Mapping and Calculations

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F.4 Avian Habitat Survey and Impact Analysis

PURPOSE

This appendix provides supporting documentation for Waterleaf's determination that the GSL Phase 1 commercial facility will not result in measurable disruption to avian populations within or adjacent to the project area, addressing a specific FFSL deficiency comment requesting evidence beyond applicant self-certification.

CONTENTS SUMMARY

The assessment identifies two special-status avian species with potential to occur in the project area – the burrowing owl and the American bittern – and evaluates project impacts on each. It summarizes findings from habitat surveys conducted by SWCA Environmental Consultants in December 2023 and a pre-construction clearance survey conducted in May 2024, both of which confirmed the absence of active nests or occupied burrows. The document further describes operational mitigation measures – including dark-sky-compliant lighting, motion-activated sensors, and wildlife-resistant waste containment – to minimize indirect impacts during facility operations. The response was reviewed by Dr. Maureen G. Frank, Associate Professor of Conservation Biology at Sul Ross State University.

REFERENCED IN MAIN APPLICATION

- Section 1.3
- Section 3.1
- Section 12.2

DOCUMENT DETAILS

- Response to Avian No Impact (3 pages, February 2026)

F.4 begins on next page

Response to Avian No Impact

FFSL Comment:

1) Applicant self-certifies that no avian populations were disrupted yet provides no evidence or supporting documentation.

Original Application response:

Pursuant to UAC R652-21-200(42) and in compliance with the Unsworn Declaration Act (Section 78B-18a-101), Waterleaf hereby affirms that the information contained within this Operations Application is true, complete, and accurate to the best of its knowledge and belief.

Waterleaf previously self-certified that its Feasibility Assessment Pilot Project would not result in a Negative Impact, as that term is defined in UAC R652-21-200(30), on the biota or chemistry of the Great Salt Lake (GSL). That pilot plant project was conducted under a limited-term feasibility permit issued by the Division of Forestry, Fire and State Lands (FFSL) to demonstrate the performance of Waterleaf's non-evaporative, closed-loop direct lithium extraction (DLE) process. See Appendix A Feasibility Application Approval.

Comprehensive monitoring during and after the Feasibility Assessment demonstrated that:

• No adverse changes were detected in surface or subsurface water chemistry parameters, including salinity, pH, trace metals, or major ion concentrations.

• No measurable disruption occurred to microbial, invertebrate, or avian populations within or adjacent to the project area.

Response to Avian No Impact:

There are two special-status avian species with the potential to occur in the project area – the burrowing owl (*Athene cunicularia*) and the American bittern (*Botaurus lentiginosus*). Both species are designated as avian species of greatest conservation need by the State of Utah's Department of Natural Resources, Division of Wildlife Resources, in that agency's Wildlife Action Plan1.

In addition to special-status species, many other avian species local to the project area

[1] Available at https://wildlife.utah.gov/pdf/WAP/Utah_WAP.pdf

receive protection under the Migratory Bird Treaty Act of 1918, as amended (U.S.C. 703 et seq.).

In order to consider potential project disruption to avian individuals or populations, qualified biologists from environmental consulting firm SWCA conducted general and focused habitat surveys of Waterleaf's 50-acre private land lease area in December 2023, as well as targeted habitat types on adjacent/neighboring properties, which results are detailed in SWCA 2024[2].

The proposed commercial facility would be constructed within potential habitat of the burrowing owl, which includes open grasslands, particularly prairie, plains and savannah, and occasionally other open areas such as vacant lots near human habitation. Habitat assessments were conducted by walking meandering transects within the survey area and visually scanning the area for suitable habitat, burrows, and nests. Binoculars were used to visually inspect the areas between transects and adjust for changes in sight distance based on topography and vegetation height and density. The field survey SWCA conducted consisted of Waterleaf's 50-acre private land lease area, plus a 0.25-mile buffer for burrowing owl surveys. A 1-mile buffer for bald eagle nests and a 0.5-mile buffer for other raptor nests were also surveyed. Key habitat structures in buffer areas were primarily inspected visually with the use of binoculars to avoid unauthorized trespassing. During the December 2023 survey, SWCA biologists observed suitable burrows, although there was no evidence of current or recent past occupancy by burrowing owls (SWCA 2024).

For the American bittern, there would be no effect on the species from this project, as the American bittern is primarily found in freshwater marshes and lakes full of reeds. This species breeds in Utah, but uses freshwater marshes, large, shallow wetlands with tall marsh vegetation, and open shallow water, which are absent in the project area. American bitterns do not winter in Utah.

The general habitat within the 50-acre private land lease area includes various native grasses, forbs and shrubs, as well as some low rock outcrops and barren sand/soil substrate. These habitat types are suitable for nesting by various migratory bird species. As such, and as an additional measure to avoid direct impacts to both burrowing owls and migratory birds, a qualified biologist from Waterleaf conducted a pre-construction clearance survey of the pilot plant disturbance area and access road improvement area on May 18, 2024. During that clearance survey, the biologist walked linear transects spaced approximately 30 feet on center within the disturbance areas and confirmed the results of the prior SWCA survey,

[2] SWCA Environmental Consultants. 2024. *Technical Memorandum, Waterleaf Resources GSL Lithium Project Habitat Assessment and Resource Surveys / SWCA Project No. 85064 – CONFIDENTIAL*.

finding several unused/abandoned burrows but no active burrows. Furthermore, although several avian individuals were observed flying and perching in the area, no nests were observed.

As an additional measure to minimize potential impacts to migratory birds, Waterleaf will incorporate dark-sky–compliant lighting throughout the commercial facility. Outdoor lighting will be designed to minimize light spill and skyglow. Buildings will be constructed to the minimum height necessary for operations, and due to the nature of activities conducted indoors, no large exterior windows will be included that could increase the risk of bird collisions. Site lighting will also utilize motion- or proximity-activated sensors to ensure illumination is provided only when needed for personnel safety. Lighting levels will be reduced during periods when areas are not actively in use, further limiting unnecessary nighttime disturbance to wildlife.

During facility operations, Waterleaf recognizes that increased human presence can result in indirect wildlife interactions, particularly related to food waste. To mitigate this potential impact, all waste collection containers will be equipped with lockable lids and will be kept securely closed when not in use, thereby minimizing attraction of wildlife to the site.

Acknowledgment for review by:

Maureen G. Frank, Ph.D.

James A. “Buddy” Davidson Charitable Foundation Endowed Chair

and Associate Professor of Conservation Biology

Borderlands Research Institute | Sul Ross State University

F.5 Aquatic Resources Desktop Review for the Waterleaf Resources GSL Lithium

PURPOSE

The purpose of this appendix is to document a desktop-level evaluation of potential aquatic resources within and adjacent to the Project area. The information supports environmental review and permitting considerations related to waters of the United States and waters of the State of Utah.

CONTENTS SUMMARY

This appendix includes an aquatic resources desktop review prepared by SWCA Environmental Consultants for approximately 50 acres of private land associated with the Project in Box Elder County, Utah. The review summarizes regulatory context, assessment methods, and results based on analysis of available geospatial datasets, including the National Wetlands Inventory, National Hydrography Dataset, soil surveys, land use data, and vegetation mapping. The findings indicate that no wetlands or other aquatic resources were identified within the assessment area based on desktop analysis. Figures, tables, and supporting documentation are provided to summarize mapped features and inform potential future permitting or delineation requirements.

REFERENCED IN MAIN APPLICATION

- Section 1.3

DOCUMENT DETAILS

- Issued by: SWCA
- Date: February 2024
- Page Count: 45 pages

F.5 begins on next page

Aquatic Resources Desktop Review for the Waterleaf Resources GSL Lithium Project, Box Elder County, Utah

FEBRUARY 2024

PREPARED FOR

Waterleaf Resources

PREPARED BY

SWCA Environmental Consultants

AQUATIC RESOURCES DESKTOP REVIEW FOR THE WATERLEAF RESOURCES GSL LITHIUM PROJECT, BOX ELDER COUNTY, UTAH

Prepared for

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February 2024

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INTRODUCTION

Background

This report describes the potential extent and location of aquatic resources in relation to the proposed Waterleaf Resources GSL Lithium Project (project), in Box Elder County, Utah. To ensure that the project complies with local, state, and federal regulations, project proponent Waterleaf Resources contracted SWCA Environmental Consultants (SWCA) to conduct a desktop review to support aquatic resources avoidance and project permitting, if necessary. Aquatic resources are potential waters of the United States (WOTUS) and State of Utah, including wetlands.

On December 12, 2023, SWCA conducted a desktop review of aquatic resources data for the assessment area to determine the potential presence of wetland and non-wetland aquatic resources and to determine their possible jurisdiction under Section 404 of the Clean Water Act (CWA), whether they are regulated by the State of Utah, or whether they fall under any other agency's or jurisdiction's regulatory authority.

Assessment Area Description

The assessment area covers approximately 50.73 acres of private land in Box Elder County, Utah, approximately 30 miles west of Brigham City (Figure 1). The assessment area is in Section 31, Township 9 North, and Range 7 West, and is shown on the Rozel Point U.S. Geological Survey 7.5-minute quadrangle (see Figure 1).

The assessment area is in a largely rural and undeveloped area on the northeastern shores of Great Salt Lakes. Topographically, it is relatively flat, with small hills, and ranges in elevation from 4,215 to 4,294 feet. LANDFIRE vegetation mapping indicates the assessment area is predominantly Great Basin and Intermountain Introduced Annual Grassland and Inter-Mountain Basins Semi-Desert Shrub-Steppe (LANDFIRE 2022). Flora within the assessment area are typically salt tolerant. Grasses there include poverty brome (*Bromus sterilis*), Indian ricegrass (*Achnatherum hymenoides*), and squirreltail (*Elymus elymoides*). Shrub species typically include yellow rabbitbrush (*Chrysothamnus viscidiflorus*) and greasewood (*Sarcobatus vermiculatus*).

Landscape Setting

The topography of the area surrounding the assessment area is also relatively flat, except for small hills to the northwest and southeast ranging from 4,670 feet to 4,638 feet in elevation.

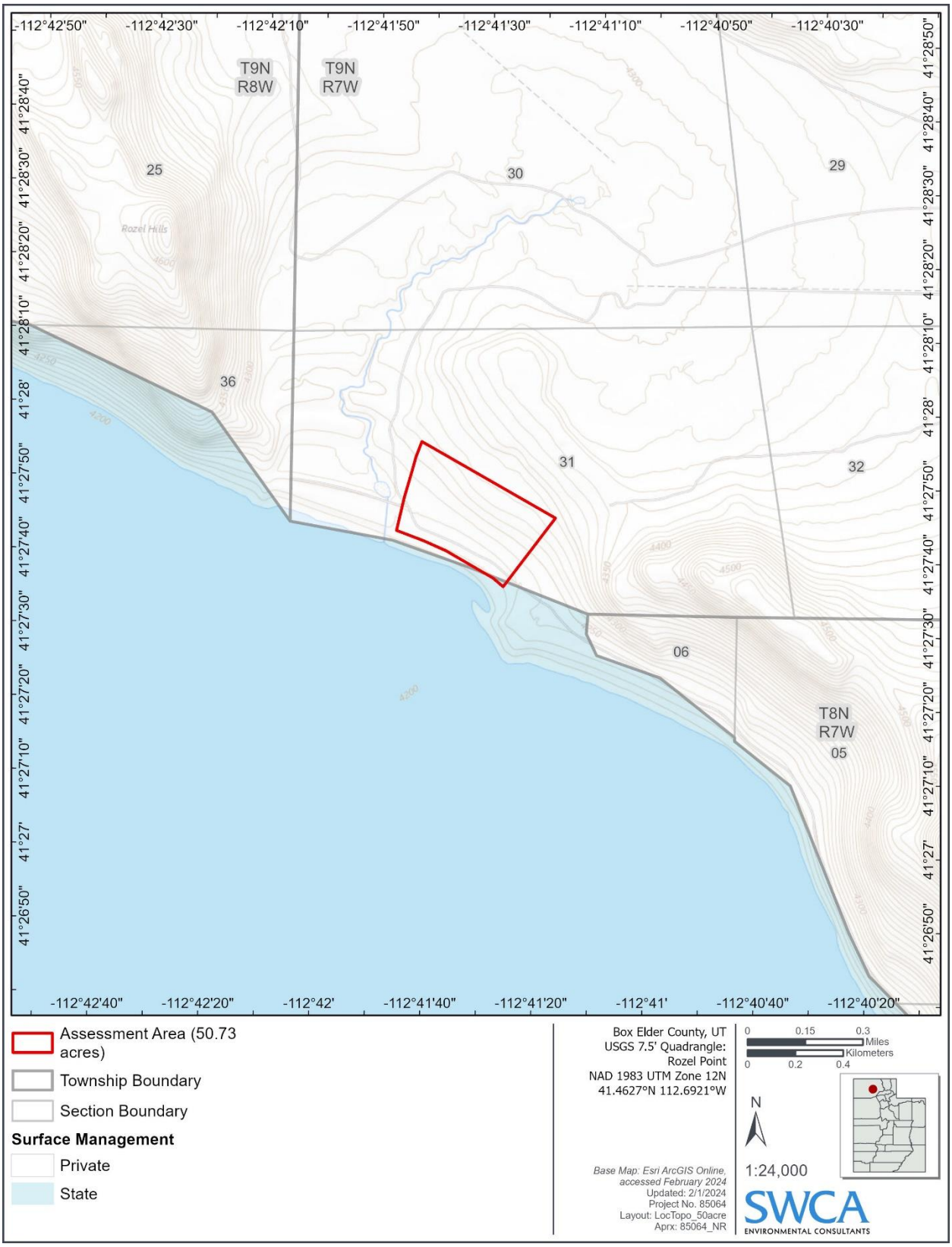


Figure 1. Assessment area location.

The assessment area is within the Rozel Hills in the larger Great Basin physiographic region of the western United States. Areas directly surrounding the assessment area are also largely dominated by Great Basin and Intermountain Introduced Annual Grassland, Inter-Mountain Basins Semi-Desert Shrub-Steppe, and Inter-Mountain Basins Playa from the receding waters of Great Salt Lake (LANDFIRE 2022), which is a remnant of prehistoric Lake Bonneville. Great Salt Lake has three main tributaries—the Jordan, Weber, and Bear Rivers—and no outlets. According to publicly available National Hydrography Dataset (NHD) data, various small streams and underground water pipelines are present in the landscape adjacent to but not overlapping the assessment area (Utah Automated Geographic Reference Center and U.S. Geological Survey 2023).

Approximately 2 miles to the southeast of the assessment area are two tourist attractions: the Spiral Jetty earthwork sculpture and the natural crude oil seeps of Rozel Point oil field. This part of Great Salt Lake is known as Gunnison Bay and is relatively undisturbed compared to areas south of the railroad causeway, which splits the lake from the western shoreline at Lakeside to the peninsula of Promontory Point and the eastern shorelines of Ogden Bay.

Regulatory Setting

Waters of the United States

On May 25, 2023, the Supreme Court of the United States issued the Sackett v. U.S. Environmental Protection Agency (EPA) decision, which narrows the interpretation of federal WOTUS (Supreme Court of the United States 2023). The decision determines that the CWA jurisdiction extends to only those wetlands with a continuous surface connection to bodies that are WOTUS "in their own right" so that they are "indistinguishable" from those waters. In addition, the decision abandons the existing significant nexus test for adjacent wetlands moving forward. The Sackett v. EPA decision also emphasizes statutory language in the CWA that protects the primary responsibilities and rights of states to reduce water pollution and to manage land and water resources.

In light of this decision, the EPA and U.S. Department of the Army will interpret WOTUS consistent with the Sackett v. EPA decision and as defined by the EPA and U.S. Department of the Army under 33 Code of Federal Regulations (CFR) 328.3. Eight exclusions from the WOTUS definition are codified at 40 CFR 120 and 33 CFR 328.3 paragraph (b), and key terms are defined at paragraph (c).

Wetlands are a subset of jurisdictional WOTUS and are jointly defined by the U.S. Army Corps of Engineers (USACE) and the EPA as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (Environmental Laboratory 1987).

Regulated Activities

Under Section 404 of the CWA, dredged and fill material may not be discharged into jurisdictional WOTUS, including wetlands, without a permit.

Regulated activities include

- fill for development,
- utility line projects (such as pipelines), and

- infrastructure development (such as roads).

Waters of the State

Section 73-3-29 of the Utah Code requires any person, governmental agency, or other organization wishing to alter the bed or banks of a natural stream to obtain written authorization from the State Engineer, Utah Division of Water Rights before beginning work. Section 73-3-29 is intended to protect the natural resource values of Utah's streams, with special consideration of water rights and recreational opportunities. The State of Utah asserts jurisdiction over natural streams, which are defined in Rule R655-13-4 of the Utah Administrative Code as "any waterway, along with its fluvial system, that receives sufficient water to sustain an ecosystem (typically identified by changes in vegetation) that distinguishes it from the surrounding upland environment." Canals, ditches, and other human-made channels are not regulated under Rule R655-13-4. Authorization from the State Engineer is required 1) if an activity will fall within two times the width of the active channel up to a maximum of 30 feet from the water's edge, 2) if the activity will take place within continuous riparian areas adjacent to the stream, or 3) if the activity will take place in areas of the floodplain that have been observed conducting or storing water during high-flow events or that show physical evidence of conducting or storing water during high flows.

METHODS

SWCA reviewed the following data sources as they pertain to the assessment area:

- Historical aerial photographs and topographic maps to identify potential aquatic resources in the assessment area
- National Wetlands Inventory (NWI) data (U.S. Fish and Wildlife Service 2023) and NHD data (Utah Automated Geographic Reference Center and U.S. Geological Survey 2023) to identify potential aquatic resources in the assessment area
- Natural Resources Conservation Service (NRCS) Soil Survey Geographic Database (SSURGO) soil data to identify potential hydric soils in the assessment area (NRCS 2023)
- Utah Division of Water Resources Water Related Land Use data to identify potential land uses in the assessment area (Utah Automated Geographic Reference Center and Utah Division of Water Resources 2023)
- LANDFIRE data to identify potential vegetation types in the assessment area (LANDFIRE 2022)

RESULTS

Desktop Analysis

NWI and NHD data for the assessment area indicate that no aquatic resources intersect the assessment area. Figures 2 through 5 and Tables 1 through 3 present the results of the desktop analysis. Appendix A contains descriptions of the soil series mapped within the assessment area.

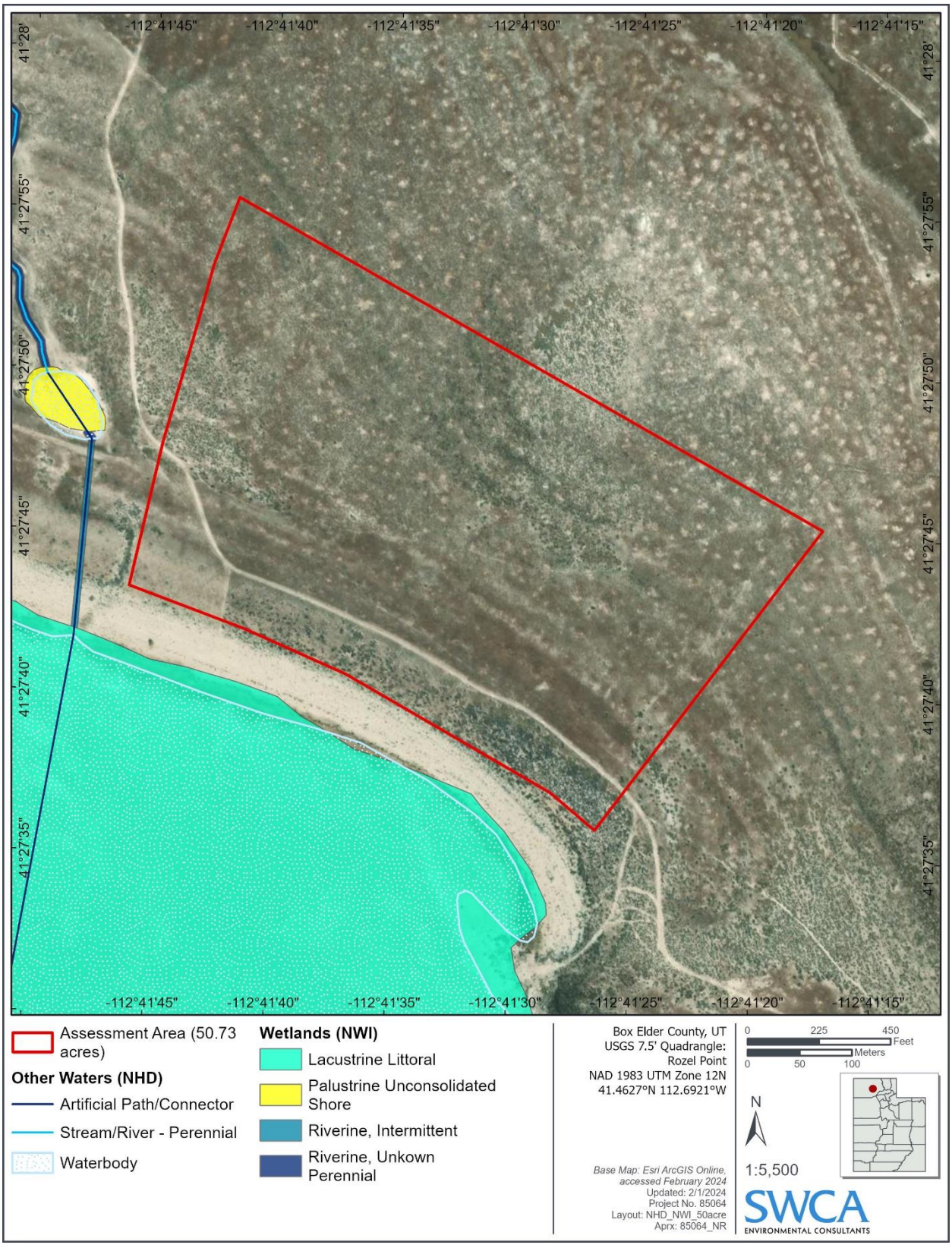


Figure 2. National Wetlands Inventory–mapped and National Hydrography Dataset–mapped features within the assessment area.

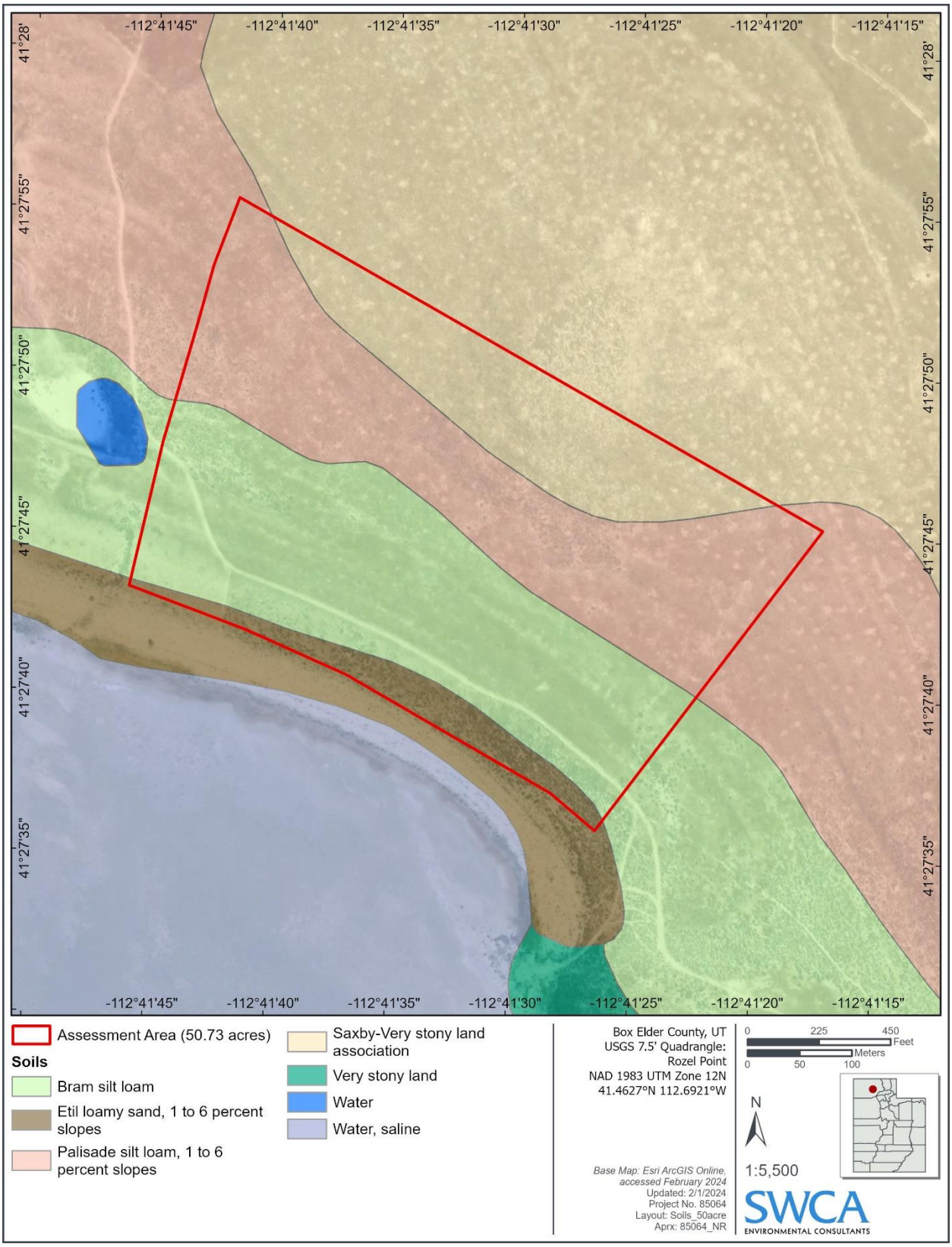


Figure 3. Natural Resources Conservation Service soil map units mapped within the assessment area.

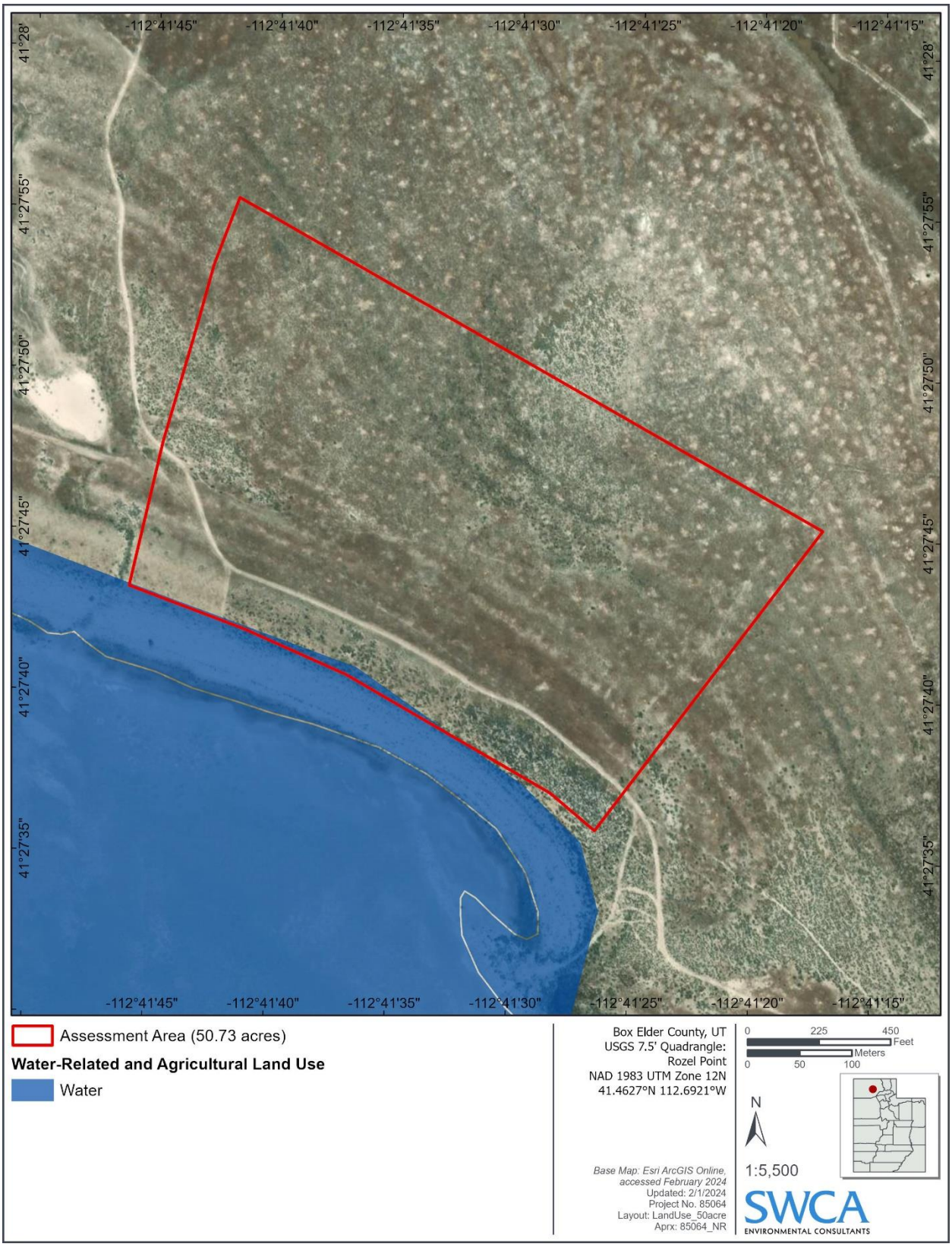


Figure 4. Utah Division of Water Resources water related land use identified for the assessment area.

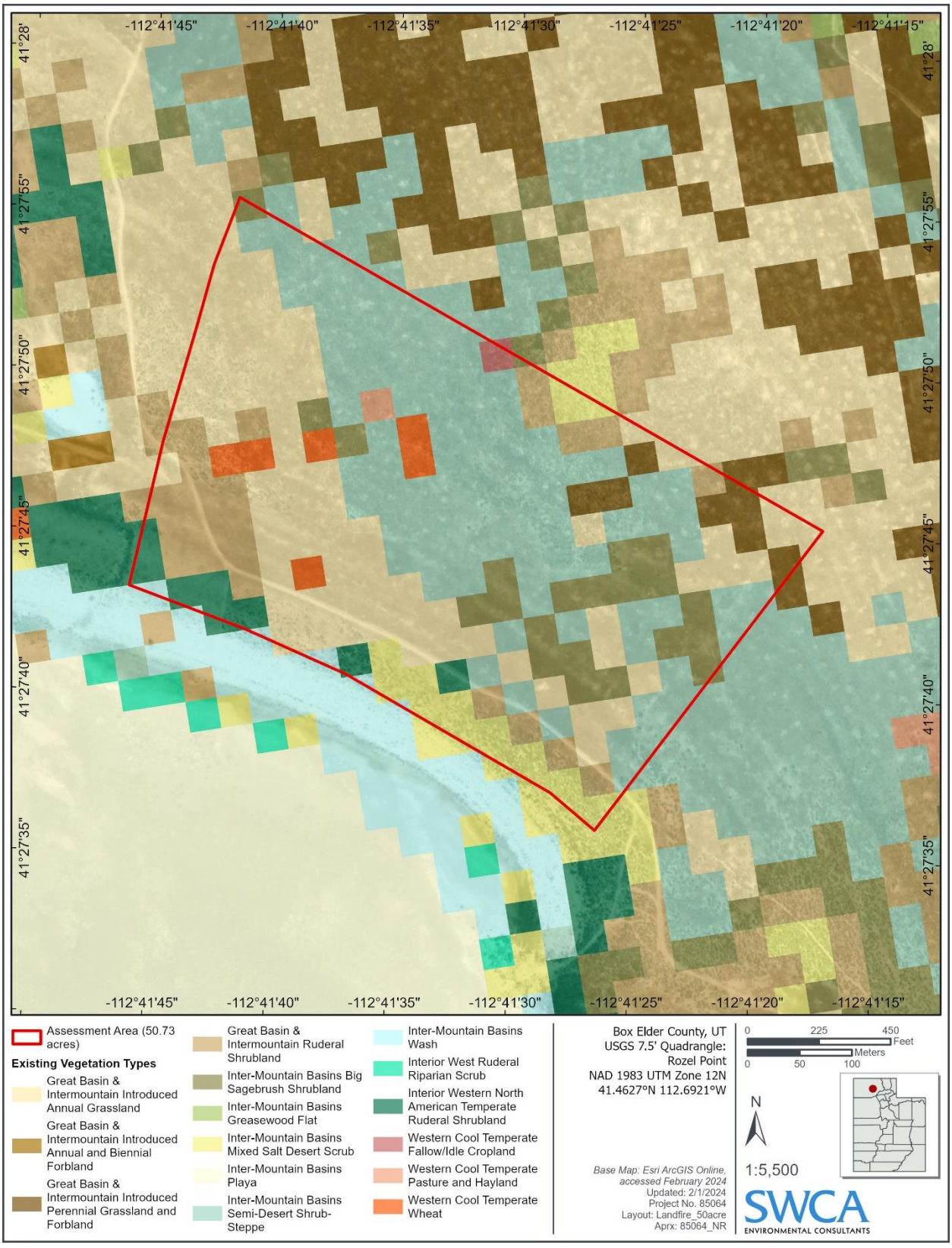


Figure 5. LANDFIRE existing vegetation types mapped within the assessment area.

Table 1. Natural Resources Conservation Service State Soil Geographic Data for the Assessment Area

Soil Unit Name	Hydric? (yes or no)	Area (acres)
Etil loamy sand, 1 to 6 percent slopes	No	2.88
Bram silt loam	No	20.14
Palisade silt loam, 1 to 6 percent slopes	No	18.48
Saxby-Very stony land association	No	9.23
Total	**–**	**50.73**

Source: NRCS (2023).

Table 2. Water Related Land Use for the Assessment Area

Land Use Type	Area (acres)
Water	0.43
Total	**0.43**

Source: Utah Automated Geographic Reference Center and Utah Division of Water Resources (2023).

Table 3. LANDFIRE Vegetation Data for the Assessment Area

Vegetation Type	Area (acres)
Inter-Mountain Basins Semi-Desert Shrub-Steppe	18.84
Great Basin and Intermountain Introduced Annual Grassland	14.54
Great Basin and Intermountain Ruderal Shrubland	4.97
Inter-Mountain Basins Big Sagebrush Shrubland	4.55
Inter-Mountain Basins Mixed Salt Desert Scrub	2.65
Great Basin and Intermountain Introduced Perennial Grassland and Forbland	1.59
Interior Western North American Temperate Ruderal Shrubland	1.54
Western Cool Temperate Wheat	1.33
Inter-Mountain Basins Wash	0.31
Western Cool Temperate Pasture and Hayland	0.22
Western Cool Temperate Fallow/Idle Cropland	0.18
Total	**50.72**

Source: LANDFIRE (2022).

DISCUSSION

No hydric soils were identified in the assessment area, and the predominant soil units are Bram silt loam and Palisade silt loam, 1 to 6 percent slopes, with smaller inclusions of Saxby-Very stony land associations and Etil loamy sand, 1 to 6 percent slopes. According to the Utah Division of Water

Resources, areas to the west and south of the assessment area, such as wet flats, are predominantly used for surface waters. Inter-Mountain Basins Semi-Desert Shrub-Steppe and Great Basin and Intermountain Introduced Annual Grassland make up the largest portions of vegetation landcover for the assessment area. Smaller inclusions of Great Basin and Intermountain Ruderal Shrubland and Inter-Mountain Basins Big Sagebrush Shrubland are dispersed throughout the assessment area (LANDFIRE 2022).

SWCA did not identify any wetland or non-wetland waters within the assessment area based on topographic maps and aerial imagery; however, two aquatic resources have been mapped approximately 140 feet from the southwestern boundary of the assessment area (Utah Automated Geographic Reference Center and U.S. Geological Survey 2023). A perennial stream meanders south approximately 1.33 miles from a 0.27-acre intermittent pond approximately 0.75 mile northeast of the assessment area. It then reaches a 0.80-acre intermittent pond within 200 feet of the southwestern boundary of the assessment area before an artificial connector extends 0.17 mile before reaching the boundaries of Great Salt Lake (Utah Automated Geographic Reference Center and U.S. Geological Survey 2023). According to NWI data, this stream is classified as a riverine perennial system connecting to a palustrine unconsolidated shore (U.S. Fish and Wildlife Service 2023). The location of these aquatic resources indicates that they likely have some type of hydrologic connection to Great Salt Lake, a traditional navigable water. Whether the hydraulic connection is relatively permanent (and thus would meet the criteria for WOTUS) cannot be determined at this time. It should be noted that a review of current and past aerial imagery shows that these non-wetland waters are likely not perennial features but instead may be intermittent and/or ephemeral, depending on the sources of hydrology and whether groundwater influences the hydrologic regime of the resources. If the resources are determined to be ephemeral or intermittent, the USACE may consider them non-jurisdictional under the CWA. It is ultimately up to the USACE to deem a feature a WOTUS.

The project is proposed for construction on private land, and the results of the desktop assessment indicate that the assessment area does not appear to contain any WOTUS or waters of the state. Therefore, if the project does not impact WOTUS, no federal or state zoning or jurisdiction is expected, and the project will avoid CWA Section 404 permitting; however, to determine the extent to which WOTUS or waters of the state are within the assessment area, an aquatic resources delineation would be required.

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APPENDIX A

Soil Series Descriptions

The text in this appendix comes directly from the NRCS website at https://soilseries.sc.egov.usda.gov/osdname.aspx (NRCS 2022) and has not been edited

LOCATION ETIL UT
Established Series
Rev. RSC-RLT-JVC
09/2005

ETIL SERIES

The Etil series consists of very deep, moderately well drained soils that formed in beach sand and eolian sands derived mainly from oolites. Etil soils are on slightly elevated beach ridges. Slope are 1 to 6 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 50 degrees F.

TAXONOMIC CLASS: Carbonatic, mesic Oxyaquic Torripsamments

TYPICAL PEDON: Etil loamy sand--on a 4 percent convex east-facing slope--rangeland. (Colors are for dry soil unless otherwise noted).

A--0 to 5 inches; light brownish gray (10YR 6/2) loamy sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; common fine roots; 3 to 5 percent fine gravel; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary. (5 to 7 inches thick)

C1--5 to 11 inches; light brownish gray (10YR 6/2) sand, grayish brown (10YR 5/2) moist; single grain; loose, nonsticky and nonplastic; common fine roots; 3 to 5 percent fine gravel; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary. (6 to 9 inches thick)

C2--11 to 20 inches; light gray (10YR 7/2) sand, light brownish gray (10YR 6/2) moist; single grain; loose, nonsticky and nonplastic; few fine roots; 15 percent fine gravel; violently effervescent; strongly alkaline (pH 8.6); gradual smooth boundary. (9 to 24 inches thick)

C3--20 to 32 inches; light gray (10YR 7/2) sand, light brownish gray (10YR 6/2) moist; single grain; loose, nonsticky and nonplastic; few fine roots; violently effervescent; very strongly alkaline (pH 9.2); diffuse wavy boundary. (8 to 20 inches thick)

C4--32 to 60 inches; light gray (10YR 7/2) coarse sand, light brownish gray (10YR 6/2) moist; single grain; loose, nonsticky and nonplastic; few fine roots; violently effervescent; very strongly alkaline (pH 9.2).

TYPE LOCATION: Box Elder County, Utah; about 12 miles south-southwest of Promontory; approximately 1,050 feet south and 600 feet east of the northwest corner of section 9, T. 8 N., R. 6 W.; USGS Messix Peak 7.5 minute topographic quadrangle; 41 degrees 26 minutes 33 seconds north latitude and 112 degrees 32 minutes 29 seconds west longitude, NAD27; UTM zone 12N 371158E, 4589034N, NAD83.

RANGE IN CHARACTERISTICS:

Soil moisture - These soils are usually moist in winter and spring, dry in summer and fall; dry in all parts between depths of 12 and 35 inches for more than 60 consecutive days in summer; Aridic (torric) moisture regime that borders on xeric.

Mean annual soil temperature - 49 to 54 degrees F.

Mean summer soil temperature - 74 to 76 degrees F.

Calcium carbonate equivalent - 40 to 90 percent.

Other features - Cemented oolitic aggregates, 0.25 to 1.5 inches in diameter, may be in any horizon and range from 1 to 15 percent by volume.

A horizon - Value: 4 or 5 moist.
Chroma: 2 or 3, dry or moist.
Reaction: Moderately alkaline or strongly alkaline.

C horizons - Value: 6 through 8 dry, 5 through 7 moist.
Chroma: 2 or 3, dry or moist.
Texture: Sand or coarse sand.
Reaction: Moderately alkaline through very strongly alkaline (up to pH 9.6).
Salinity (EC): 2 to 8 mmhos/cm.

COMPETING SERIES: There are currently no other series in this family.

GEOGRAPHIC SETTING: Etil soils are on slightly elevated beach ridges along the shoreline of the Great Salt Lake. They formed in beach sand and eolian sands derived mainly from oolites (ooliths). Oolites are small, rounded, sand-sized accretionary bodies formed of concentric layers of calcium carbonate around a sand-sized nucleus of mineral or organic origin and formed in wave-agitated waters. Mineral grains derived from metamorphic and sedimentary rocks are also a component of the soil parent material. Slopes are 1 to 6 percent. Elevations range from 4,200 to 4,300 feet. The climate is semiarid with cool, moist winters and warm, dry summers. The mean annual precipitation is 8 to 10 inches, the annual temperature is 47 to 52 degrees F., and the frost-free period is 100 to 140 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Palisade and Saltair soils as well as the miscellaneous area playas. Palisade soils are coarse-loamy and have calcic horizons. Saltair soils have salic horizons and a seasonal high water table at or near the surface. These soils generally occur on slightly lower topographic positions than the Etil soil. Playas are barren lakebeds between open saline water and vegetated beach ridges.

DRAINAGE AND PERMEABILITY: Moderately well drained; very low surface runoff; rapid permeability (high or very high saturated hydraulic conductivity). Endosaturation is present with an apparent seasonal high water table between 2.5 and 5.0 feet (moderately deep or deep free

water occurrence classes) between April and August. Cumulative annual duration class is Common. Depth to the water table depends on nearness to and elevation of areas above the salt playas.

USE AND VEGETATION: Etil soils are used for rangeland. The present vegetation is Indian ricegrass, black greasewood, alkali sacaton, rabbitbrush, shadscale, cheatgrass, spiny hopsage, and Wyoming big sagebrush.

DISTRIBUTION AND EXTENT: Northern Utah along the Great Salt Lake. These soils are not extensive with about 2,200 acres of the series mapped to date. MLRA 28A.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Phoenix, Arizona.

SERIES ESTABLISHED: Box Elder County, Utah, Eastern Part, 1969.

REMARKS: This revision of September 2005 updates the taxonomic class from Carbonatic, mesic Typic Xeropsamments based on a mean annual precipitation of 8 to 10 inches, correlation to a semidesert range site, and endosaturation within 150 centimeters of the soil surface.

Diagnostic horizons and features recognized in this pedon are:

Ochric epipedon - The zone from the soil surface to 5 inches (A horizon).

Endosaturation feature - The condition of ground water with an upper boundary between 30 and 60 inches at certain times during normal years (parts of the C3 and C4 horizons).

National Cooperative Soil Survey
U.S.A.

LOCATION BRAM ID+UT
Established Series
Rev. TWP/CT/GHL
12/2006

BRAM SERIES

The Bram series consists of very deep, somewhat poorly drained soils on low terraces, alluvial fans, and lacustrine plains. They formed in mixed alluvial or lacustrine sediments. Permeability is moderately slow. Slopes range from 0 to 3 percent. The average annual precipitation is about 9 inches, and the average annual air temperature is about 50 degrees F.

TAXONOMIC CLASS: Coarse-silty, mixed, superactive, mesic Xeric Haplocalcids

TYPICAL PEDON: Bram silt loam - pasture. (Colors are for dry soil unless otherwise noted.)

A--0 to 8 inches; pale brown (10YR 6/3) silt loam, dark grayish brown (10YR 4/2) moist; moderate thin platy structure parting to weak fine and very fine granular; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine, common medium and coarse roots; common very fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.4); clear smooth boundary. (3 to 9 inches thick)

Bw--8 to 17 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine, common medium and coarse roots; common very fine and few fine tubular pores; few nodules or insect krotovinas; strongly effervescent; strongly alkaline (pH 8.9); clear wavy boundary. (6 to 16 inches thick)

Bk1--17 to 24 inches; light gray (10YR 7/2) loam, brown (10YR 5/3) moist; massive; matrix slightly hard, very friable, slightly sticky and slightly plastic; few fine, medium and coarse roots; many very fine tubular pores; common 0.5 to 0.8 inch firm nodules or insect krotovinas; violently effervescent and little segregated lime; strongly alkaline (pH 8.7); clear wavy boundary. (0 to 10 inches thick)

Bk2--24 to 32 inches; similar to Bk1 horizon, except moderately alkaline (pH 8.3) and lacks nodules. (6 to 15 inches thick)

Bk3--32 to 42 inches; very pale brown (10YR 7/3) light silt loam, brown (10YR 4/3) moist; massive; matrix slightly hard, very friable; few fine and medium roots; many very fine tubular pores; few 0.5 to 0.8 inch firm nodules or insect krotovinas; strongly effervescent and few veins of lime; moderately alkaline (pH 8.3); abrupt smooth boundary. (0 to 15 inches thick)

Bk4--42 to 52 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; few fine faint dark brown (10YR 3/3) moist mottles; weak medium platy structure; matrix hard, friable, slightly sticky and slightly plastic; few fine and medium roots; many very fine and few fine tubular pores; common 0.5 to 0.8 inch firm nodules or insect krotovinas; strongly effervescent and common veins of lime; moderately alkaline (pH 8.3); abrupt smooth boundary. (0 to 15 inches thick)

2C--52 to 65 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable; few fine roots; common very fine tubular pores; slightly effervescent; moderately alkaline (pH 8.3).

TYPE LOCATION: Canyon County, Idaho; about 2 miles southeast of Caldwell near Indian Creek at an elevation of 2,415 feet; 2,450 feet west and 300 feet north of the southeast corner of section 36, T. 4 N., R. 3 W.

RANGE IN CHARACTERISTICS:
Average annual soil temperature - 47 to 54 degrees F
Depth to water table - 36 to 60 inches; April through November
Percent carbonates - 15 to 25 in the calcic horizon
Percent clay in the control section - 12 to 18
Texture - SIL, L, VFSL
Reaction - moderately to very strongly alkaline

A horizon
Hue- 10YR or 2.5Y
Value- 5 through 7 dry, 4 or 5 moist
Chroma- 2 or 3

Bw horizon
Hue- 10YR or 2.5Y
Value- 6 or 7 dry, 4 through 6 moist
Chroma- 3 or 4
Texture - SIL or VFSL

Bk1 and Bk2 horizons
Hue- 5Y through 10YR
Value- 6 or 7 dry, 4 through 6 moist
Chroma- 3 or 4

Other features - one or more subhorizons are slightly to strongly saline or saline-alkali.

COMPETING SERIES: These are the Bahem, Barrymore, Idahome, Nyssaton, and Portino series. Bahem, Idahome, and Nyssaton soils are usually dry to a depth of 40 inches, lack saturation with water, and are well drained. Barrymore and Portino soils have a lithic contact at depths of less than 40 inches.

GEOGRAPHIC SETTING: Bram soils are on low terraces, alluvial fans, and some lacustrine plains. Slopes are 0 to 3 percent. Elevations range from 2,000 to 4,800 feet. The soils formed in mixed alluvium or lacustrine sediments. Loess has been deposited in some areas. The semiarid or arid climate has a frost-free period of 100 to 160 days. Average annual precipitation is 8 to 11 inches, including light snowfall and dry summers. Average annual temperature is 45 to 52 degrees F.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Baldock, Buko, Garbutt, Letha, Mellor, Palisade, Paniogue, and Thiokol soils. Baldock soils are poorly drained and fine-loamy. Buko and Paniogue soils are sandy or sandy-skeletal in the lower part of the control sections. Garbutt soils are well drained and lack B horizons. Letha soils have a moderately coarse textured control section. Mellor soils have natric horizons. Palisade and Thiokol soils have coarse-loamy and fine-silty control sections respectively. Palisade, Paniogue and Thiokol soils are on higher terraces. Mellor soils are on similar landscape positions.

DRAINAGE AND PERMEABILITY: Somewhat poorly drained; slow or medium runoff; moderately slow permeability. The fluctuating water table is at depths of 3 to 6 feet for a few months or longer.

USE AND VEGETATION: Mostly irrigated and used for production of hay, pasture, sugar beets, corn, and small grains. Some areas are used for rangeland. Vegetation in the potential natural plant community is mainly big sagebrush, giant wildrye, and saltgrass.

DISTRIBUTION AND EXTENT: Southern Idaho and northern Utah. This series is moderately extensive.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Portland, Oregon

SERIES ESTABLISHED: Canyon County, Idaho, 1969.

REMARKS: Diagnostic horizons and other features recognized in this pedon are:
Ochric epipedon - the zone from 0 to 8 inches (A horizon).
Calcic horizon - the zone from 17 to 32 inches (Bk1 and Bk2 horizons).
Particle-size control section - the zone from 10 to 40 inches.
Soil moisture regime - aridic bordering xeric

National Cooperative Soil Survey
U.S.A.

LOCATION PALISADE UT
Established Series
Rev. TBH-JMW-MJD-JVC
05/2005

PALISADE SERIES

The Palisade series consists of very deep, well drained soils that formed in lacustrine deposits derived from limestone and sandstone. Palisade soils are on lake terraces. Slopes are 1 to 10 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 48 degrees F.

TAXONOMIC CLASS: Coarse-loamy, mixed, active, mesic Sodic Xeric Haplocalcids

TYPICAL PEDON: Palisade silt loam--rangeland. (Colors are for dry soil unless otherwise noted).

A--0 to 6 inches; pale brown (10YR 6/3) silt loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many fine and medium pores; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary. (3 to 7 inches thick.)

Bw--6 to 12 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine vesicular pores; strongly effervescent; strongly alkaline (pH 8.5); clear smooth boundary. (6 to 9 inches thick.)

Bk--12 to 19 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; weak medium and coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine vesicular pores; violently effervescent; secondary carbonates are disseminated in the matrix; strongly alkaline (pH 8.7); gradual wavy boundary. (5 to 8 inches thick.)

Bkn--19 to 30 inches; light gray (10YR 7/2) loam, brown (10YR 5/3) moist; weak medium and coarse subangular blocky structure; very hard, friable, nonsticky and nonplastic; few very fine roots; many very fine vesicular pores; violently effervescent; secondary carbonates are disseminated in the matrix; very strongly alkaline (pH 9.4); gradual smooth boundary. (10 to 16 inches thick.)

Cn1--30 to 43 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 5/3) moist; massive; soft, friable, nonsticky and nonplastic; violently effervescent; very strongly alkaline (pH 9.1); gradual wavy boundary.

Cn2--43 to 60 inches; pale brown (10YR6/3) very fine sandy loam, brown (10YR 4/3) moist; massive; soft, friable, nonsticky and nonplastic; violently effervescent; very strongly alkaline (pH 9.2).

TYPE LOCATION: Box Elder County, Utah; about 7 miles southwest of Promontory on Rozel Flat; approximately 400 feet north and 700 feet east of the southwest corner of section 12, T. 9 N., R. 7 W.; USGS Golden Spike Monument 7.5 minute topographic quadrangle; 41 degrees 31 minutes 0 seconds north latitude and 112 degrees 35 minutes 53 seconds west longitude, NAD27; UTM zone 12N 366584E, 4597333N, NAD83.

RANGE IN CHARACTERISTICS:

Soil moisture - Usually moist in winter and early spring, dry in late spring through fall; Aridic moisture regime that borders on xeric.

Mean annual soil temperature - 48 to 54 degrees F.

Particle-size control section - Clay content: 8 to 18 percent.

Other features - In some pedons the lower one-third of the control section contains up to 50 percent gravel and cobbles.

A horizon - Value: 5 through 7 dry, 4 or 5 moist.
Chroma: 2 through 4, dry or moist.
Calcium carbonate equivalent: 8 to 15 percent.

Bw horizon - Hue: 7.5YR or 10YR.
Value: 5 through 7 dry, 4 through 6 moist.
Chroma: 2 through 4, dry or moist.
Texture: Silt loam or loam.
Calcium carbonate equivalent: 10 to 15 percent.

Bk horizon - Hue: 7.5YR through 5Y.
Value: 5 through 8 dry, 4 through 6 moist.
Chroma: 2 through 4, dry or moist.
Texture: Silt loam or loam.
Reaction: Moderately alkaline or strongly alkaline.
Calcium carbonate equivalent: 15 to 30 percent.
Sodicity (SAR): 0 to 10.

Bkn and Cn horizons - Hue: 7.5YR through 5Y.
Value: 5 through 8 dry, 4 through 6 moist.
Chroma: 2 through 4, dry or moist.
Texture: Very fine sandy loam or loam.
Reaction: Moderately alkaline through very strongly alkaline (up to pH 9.6).
Calcium carbonate equivalent: 15 to 30 percent in the Bkn and Cn1 horizons, 10 to 20 percent in

the Cn2 horizon.
Sodicity (SAR): 15 to 40.

COMPETING SERIES: There are currently no other series in this family.

GEOGRAPHIC SETTING: Palisade soils are on lake terraces. These soils formed in lacustrine deposits derived from limestone and sandstone. Slopes are 1 to 10 percent. The mean annual precipitation is 8 to 12 inches, the mean annual temperature is 46 to 52 degrees F., and the freeze-free period is 90 to 130 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Bram and Sanpete soils. Bram soils are moderately well drained. Sanpete soils average more than 50 percent rock fragments in the particle-size control section.

DRAINAGE AND PERMEABILITY: Well drained; medium surface runoff; moderate permeability (moderately high saturated hydraulic conductivity).

USE AND VEGETATION: Palisade soils are used for irrigated cropland and rangeland. Common crops are alfalfa, small grains, and corn for silage. The present vegetation on rangeland is mainly Wyoming big sagebrush, Indian ricegrass, and rabbitbrush.

DISTRIBUTION AND EXTENT: Northwestern Utah. These soils are moderately extensive. MLRA 28A.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Phoenix, Arizona.

SERIES ESTABLISHED: East Millard Soil Survey Area, Utah, 1959.

REMARKS: Diagnostic horizons and features recognized in this pedon are:

Ochric epipedon - The zone from the soil surface to 7 inches (A horizon and part of the Bw horizon).

Cambic horizon - The zone from 6 to 12 inches (Bw horizon).

Calcic horizon - The zone from 12 to 30 inches (Bk and Bkn horizons).

Sodic feature - The zone from 19 to 43 inches (Bkn and Cn1 horizons).

Particle-size control section - The zone from 10 to 40 inches (Bk and Bkn horizons and parts of the Bw and Cn1 horizons).

The Palisade series was last reviewed in the field in 1965. The type location was moved from Millard County to Box Elder County with the update of the series in 1998. The revision of April 2005 updates the taxonomic class from Coarse-loamy, mixed, superactive, mesic Xeric

Haplocalcids based on estimated soil properties for cation exchange capacity and sodium adsorption ratio in the NASIS database.

National Cooperative Soil Survey
U.S.A.

LOCATION SAXBY UT+ID
Established Series
Rev. RSJ/GHL/MJD/JBF
03/2010

SAXBY SERIES

The Saxby series consists of shallow, well drained on low and intermediate lake terraces, foothills, and mountainsides. They formed in colluvium, residuum and alluvium derived from basalt mixed with alluvium from lacustrine sediments with some areas having loess influence. Slopes are 1 to 60 percent. The average annual precipitation is about 250 mm and the average annual temperature is about 8.5 degrees C.

TAXONOMIC CLASS: Loamy-skeletal, mixed, superactive, mesic Lithic Xeric Haplocalcids

TYPICAL PEDON: Saxby very stony silt loam - rangeland. (Colors are for dry soil unless otherwise noted.)

A--0 to 10 cm; light brownish gray (10YR 6/2) very stony silt loam, dark grayish brown (10YR 4/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; few fine roots; common very fine pores; 40 percent basalt stones on the surface and in the horizon; strongly effervescent; strongly alkaline (pH 9.0); gradual smooth boundary. (8 to 15 cm thick)

Bw--10 to 30 cm; very pale brown (10YR 7/3) extremely cobbly silt loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and medium roots; common very fine pores; strongly effervescent; 60 percent coarse fragments; strongly alkaline (pH 8.8); gradual irregular boundary. (18 to 25 cm thick)

Bk--30 to 45 cm; very pale brown (10YR 7/3) extremely cobbly silt loam, brown (10YR 4/3) moist; massive; very hard, friable, moderately sticky and slightly plastic; few very fine roots; violently effervescent; 60 percent coarse fragments; very strongly alkaline (pH 9.2); abrupt irregular boundary. (10 to 20 cm thick)

R--45 cm; fractured basalt with weakly cemented lime accumulations in voids and cracks.

TYPE LOCATION: Box Elder County, Utah; about 13 miles southwest of Golden Spike National Monument; 1,550 feet west and 1,400 north from the center of section 25, T.9N., R.8W.; SLBM ; USGS Rozel Point NW 7.5 minute quadrangle; latitude 41 degrees 29 minutes 3.33 seconds N and longitude 112 degrees 42 minutes 59.5 seconds W; UTM Zone 12 356695e 4593939n, NAD 83.

RANGE IN CHARACTERISTICS:
Soil moisture: Usually dry; moist in winter and spring and for brief periods in late summer due to convection storms; aridic bordering on xeric soil moisture regime.

Mean annual soil temperature: 8.5 to 10.5 degrees C.
Mean summer soil temperature: 20 to 23.5 degrees C.
Depth to lithic contact: 35 to 50 cm.
Depth to calcic horizon: 25 to 38 cm.

Particle-size control section - Clay content: 15 to 26 percent.
Rock fragments: 40 to 80 percent, mainly gravel and cobbles. Lithology of the fragments is mostly basalt.

A horizon
Value: 5 or 7 dry, 3 or 4 moist.
Chroma: 2 or 3, dry or moist.
Rock fragments: 20 to 70 percent.
Reaction: Slightly alkaline through strongly alkaline.

Bw horizon
Value: 5 or 7 dry, 4 or 5 moist.
Chroma: 3 or 4, dry or moist.
Texture: Silt loam or loam.
Rock fragments: 35 to 70 percent, mainly gravel and cobbles.
Reaction: Moderately alkaline or strongly alkaline.

Bk horizon
Value: 6 to 8 dry, 4 to 7 moist.
Chroma: 2 to 4, dry or moist.
Texture: Silt loam or loam.
Rock fragments: Average 40 to 80 percent, mainly gravel and cobbles.
Reaction: Strongly alkaline or very strongly alkaline.

COMPETING SERIES: These are the Kinghorn, Murphill, Samor and Soma series.

Kinghorn soils have dominant hue of 5YR and are underlain by conglomerate. Murphill soils have less than 18 percent clay in the particle-size control section and are formed in residuum from vitric tuffs, with lime and silica cementing the crack fractures. Samor soils have a thin lime pan above the bedrock and lack Bw horizons. Soma soils lack a cambic horizon and are underlain by sandstone, limestone, or quartzite.

GEOGRAPHIC SETTING: Saxby soils are on lake terraces, foothills, hillslopes and mountainsides at elevations of 1,295 to 2,044 meters. The soils formed in colluvium, residuum and alluvium derived from basalt overwashed with lacustrine sediments. Some areas are influenced by loess. Slopes are dominantly 10 to 30 percent but range from 1 to 60 percent. The climate is semiarid with hot, dry summers and cool, moist winters. Average annual precipitation is 200 to 300 mm, average annual air temperature is 7 to 10.5 degrees C, and the frost-free period is 90 to 140 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Bram, Etil, Palisade, and Sanpete series. All of these soils lack bedrock above 50 cm. Bram, Etil, and Palisade soils lack coarse fragments in the textural control section. Sanpete soils formed in alluvium from limestone and have a carbonatic mineralogy. Bram soils are on low terraces and alluvial fans. Etil soils are on low areas near salt playas and beach areas of the Great Salt Lake. Palisade and Sanpete soils are on alluvial fans.

DRAINAGE AND PERMEABILITY: Well drained; slow to high runoff; moderate permeability; moderately high saturated hydraulic conductivity.

USE AND VEGETATION: Used for livestock grazing. Potential natural vegetation is big sagebrush, low sagebrush, bluebunch wheatgrass, and Sandburg bluegrass. This series is correlated with Semidesert ecological sites in Utah.

DISTRIBUTION AND EXTENT: Northern Utah and southcentral Idaho. The series is moderately extensive. MLRA 25 and 28A.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Phoenix, Arizona

SERIES ESTABLISHED: Box Elder County (East Box Elder Area), Utah, 1969.

REMARKS: Diagnostic horizons and other features recognized in this pedon are:
Ochric epipedon - The zone from 0 to 25 cm (A horizon).
Cambic horizon - The zone from 10 to 30 cm (Bw horizon).
Calcic horizon - The zone from 30 to 45 cm (Bk horizon).
Lithic contact - The zone at approximately 45 cm (R layer).
Particle-size control section - The zone from 10 to 18 cm (part of the Bw horizon and the Bk horizon).

The series concept needs to be redefined. There appears to be a difference in the use of the soil in the ID708-UT601-UT602 areas and the use of the soil in UT608, UT634 and UT626. Clay contents in the control section are lower in the northern surveys than in the southern areas.

This soil was reclassified from Lithic Xerollic Calciorthids to Lithic Xeric Haplocalcids on 9/94.

National Cooperative Soil Survey
U.S.A.

F.6 Waterleaf Resources GSL Lithium Project Habitat Assessment and Resource Surveys

PURPOSE

The purpose of this appendix is to document the results of biological resources desktop review and habitat assessment surveys conducted within and adjacent to the Project area. The information provided supports evaluation of potential biological resource constraints, special-status species considerations, and compliance with applicable state and federal wildlife protection requirements.

CONTENTS SUMMARY

This appendix includes a biological resources desktop review and habitat assessment memorandum prepared by SWCA Environmental Consultants for approximately 50 acres of private land associated with the Project in Box Elder County, Utah. The assessment summarizes review of agency databases and available biological records, followed by field-based habitat surveys conducted to evaluate vegetation communities, land use conditions, and habitat suitability for special-status species. The memorandum documents survey methods, findings, and conclusions, indicating that no active nests, burrows, or occupied habitats were identified within the Project area at the time of the assessment. Avoidance and minimization considerations consistent with applicable wildlife protection requirements are also described.

REFERENCED IN MAIN APPLICATION

- Section 1.3

DOCUMENT DETAILS

- Issued by: SWCA
- Date: February 7, 2024
- Page Count: 25 pages

F.6 begins on next page

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TECHNICAL MEMORANDUM

To: Waterleaf Resources
c/o Lilac Solutions
9350 South 150 East, Suite 710
Sandy, Utah 84070

From: Erin Root, Project Manager

Date: February 7, 2024

Re: **Waterleaf Resources GSL Lithium Project Habitat Assessment and Resource Surveys / SWCA Project No. 85064 - CONFIDENTIAL**

INTRODUCTION

SWCA Environmental Consultants (SWCA) was contracted to assist with environmental support for the Waterleaf Resources GSL Lithium Project (project), including archaeological surveys, an aquatic resources desktop review, and a biological resources desktop review and habitat assessment. This technical memorandum describes methods and results of the biological resources desktop review and habitat assessment surveys at the proposed 50-acre project area. All work was conducted in accordance with the Utah Division of Oil, Gas and Mining guidelines for minerals permits.

PROJECT LOCATION AND SETTING

The project area is situated near the northeastern shoreline of Great Salt Lake in Box Elder County, Utah, approximately 35 miles west of Brigham City, Utah, on the west side of the Promontory Mountains. The areas adjacent to the project area are largely undeveloped grazing areas, with the exception of several roads. Table 1 summarizes the geology, soils, and vegetation in the project area. The project area is located on private land in Section 31, Township 9 North, Range 7 West (Figure 1).

Table 1. Project Setting

Project area	The project area is defined as the area of potential physical disturbance to be used to complete the project. This consists of approximately 50 acres located on private land on the northeastern edge of Great Salt Lake (see Figure 1).
Survey areas	The survey area (Figure 2) is the project area defined above plus the following resource-specific survey buffers: • Project area for monarch butterfly (*Danaus plexippus*) and migratory bird nesting habitat • 0.25 mile for kit fox (*Vulpes macrotis*) and burrowing owl (*Athene cunicularia*) surveys • 0.5 mile for nesting raptor surveys • 1 mile for bald eagle (*Haliaeetus leucocephalus*) nest surveys
Underlying geology*	Surficial mud and salt flat deposits
Elevation range above mean sea level	4,215–4,294 feet
Topography	Gently rolling hills topped with small rock outcrops leading down to the shoreline of Great Salt Lake
Slope steepness range	0%–10%
Soil types present (SSURGO)†	Bram silt loam, Etil loamy sand (1 to 6 percent slopes), Palisade silt loam (1 to 6 percent slopes), Saxby-Very stony land association
Soil textures present	Loamy fine sand, fine sand, loam, gravelly clay loam, loamy sand, and gravelly loam
Vegetation description	Invasive forbland and invasive grassland with desert shrub component
Vegetation communities present (SWReGAP)‡	Inter-Mountain Basins Greasewood Flat, Inter-Mountain Basins Playa, Invasive Annual and Biennial Forbland

Note: SSURGO = Soil Survey Geographic Database; SWReGAP = Southwest Regional Gap Analysis Project.

* Data from Hintze et al. (2000).

† Data from Natural Resources Conservation Service (2023).

‡ Data from U.S. Geological Survey (2004).

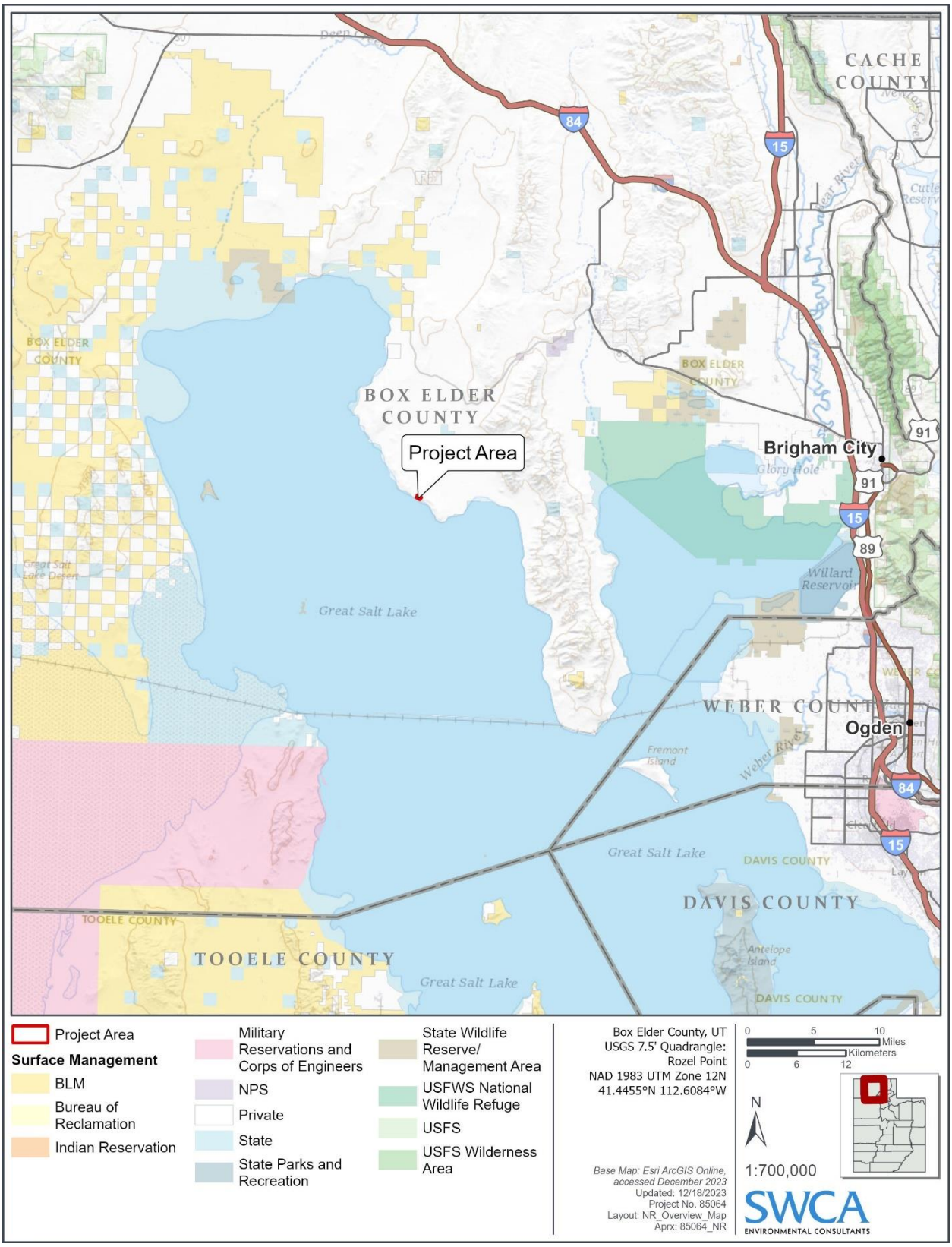


Figure 1. Project area location overview.

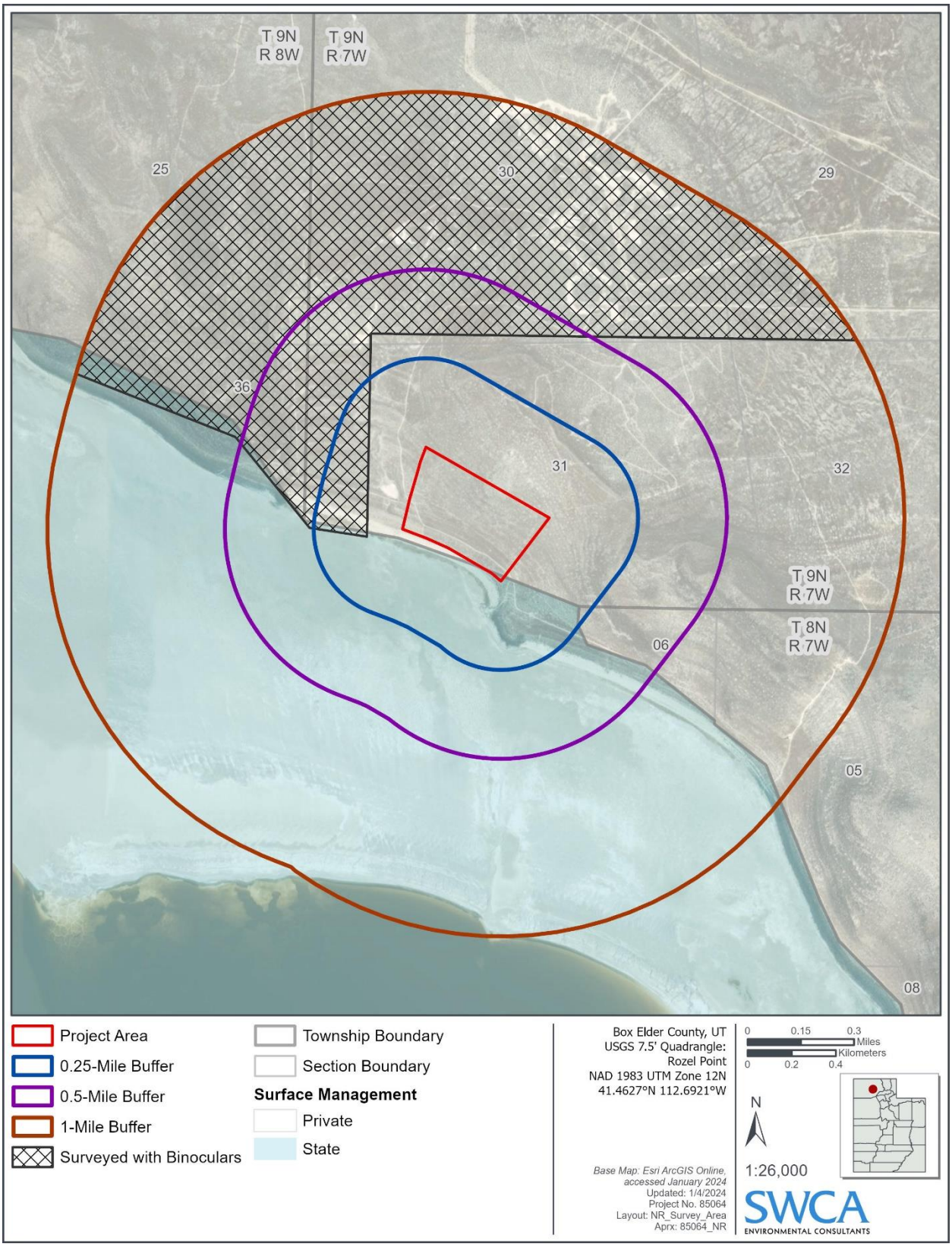


Figure 2. Survey area overview.

METHODS

Desktop Review

Prior to the field survey, SWCA reviewed existing records, available literature, aerial imagery, and topographic maps to identify potential habitat types in the project area and survey area. SWCA obtained a resource list from the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) website (USFWS 2023) (Appendix A). This resource list identifies any federally listed species and any federally designated or proposed critical habitat with potential to occur in or near the project area. An additional list of state species of greatest conservation need was obtained from the Utah Natural Heritage Program data request website associated with the Utah Division of Wildlife Resources (UDWR) (2023) (Appendix B).

During the pre-field desktop review, the project area and survey area were evaluated for the presence of any potential habitat for special-status species. Potential habitats are areas that satisfy the broad criteria of the species' habitat description; they are usually determined by pre-survey desktop assessment. Suitable habitats are areas that exhibit the specific habitat features necessary for species persistence (as determined by field inspection or surveys, or both) but that may or may not contain the species.

Field Surveys

Before the habitat assessments were conducted, a shapefile of the survey area was created in ArcGIS 10. The shapefile was uploaded to Samsung tablet units running the ArcGIS Field Maps application. A Juniper Systems Geode antenna was then used to capture data with submeter accuracy. During the habitat assessment, dominant plant species and noxious and invasive plant species were also noted, and photographs were taken of the survey area.

The survey area consists of the project area plus a 1-mile buffer for bald eagle (*Haliaeetus leucocephalus*) nest surveys, a 0.5-mile buffer for other raptor nest surveys (such as for golden eagle [*Aquila chrysaetos*] and ferruginous hawk [*Buteo regalis*]), and a 0.25-mile buffer for kit fox (*Vulpes macrotis*) and burrowing owl (*Athene cunicularia*) burrow surveys. A portion of the survey area was only surveyed visually with binoculars from public roads and property boundaries due to limited access; see Figure 2 for details.

SWCA conducted habitat assessments within the survey area for special-status species that were identified in the pre-field analysis as well as migratory bird nesting habitat. Habitat assessments were conducted by walking meandering transects within the survey area and visually scanning the area for suitable habitats, burrows, and nests. Binoculars were used to visually inspect the areas between transects and adjust for changes in sight distance based on topography and vegetation height and density. If burrows were observed, the burrow activity status (active or inactive), dimensions of the burrow entrance, and evidence suggestive of activity (e.g., tracks, fresh diggings, scat, prey remains, whitewash, owl pellets) were recorded and photographs taken. Noted burrows were mapped with submeter accuracy using ArcGIS Field Maps and a Juniper Systems Geode antenna.

SWCA also conducted visual ground surveys for raptor nesting substrate on foot with the aid of binoculars and spotting scopes. Surveys were performed by scanning the survey area using ocular aids for signs of nests and recording the geographic location of observed suitable nesting substrate. If nests were observed, the activity status, nest substrate and height were recorded, and photographs were taken.

RESULTS

Desktop Review

Four special-status species were identified by the pre-field analysis as having potential to occur in the survey area; one candidate species for federal listing under the Endangered Species Act (monarch butterfly [*Danaus plexippus*]) and three state-designated species of greatest conservation need (kit fox, burrowing owl, and American bittern [*Botaurus lentiginosus*]). Target species were chosen based on information provided by the USFWS IPaC tool (USFWS 2023) and UDWR Utah Natural Heritage Program Online Species Search Report (UDWR 2023). Table 2 provides habitat descriptions and occurrence potential for each special-status species. These four species were evaluated for their potential to occur in the survey area based on their habitat requirements.

Table 2. Special-Status Wildlife Species with Potential to Occur in the Survey Area

Common Name (Scientific name)	Status	Habitat Description	Potential to Occur in the Survey Area*
Insects			
Monarch butterfly (*Danaus plexippus*)	Candidate	This species occurs throughout North America, and during breeding season it lays its eggs on its obligate milkweed host plant, primarily *Asclepias* species.	Moderate. Milkweed species were not noted during habitat assessment surveys, but individuals were most likely senesced for the winter season while surveys were conducted. *Asclepias* species may still occur in the survey area.
Birds			
Burrowing owl (*Athene cunicularia*)	State species of greatest conservation need	Burrowing owl habitat includes open grasslands, especially prairie, plains, and savanna, and sometimes other open areas such as vacant lots near human habitation or airports. They nest in abandoned burrows dug by prairie dogs (*Cynomys* sp.), ground squirrels (*Urocitellus* sp.), and foxes (*Vulpes* sp.).	Moderate. Suitable burrows were documented during surveys; however, no sign of current or past occupancy (e.g., whitewash, feathers, or pellets) were observed.
American bittern (*Botaurus lentiginosus*)	State species of greatest conservation need	American bittern are found primarily in freshwater marshes and lakes full of reeds. This species breeds and winters in freshwater marshes and large, shallow wetlands with tall marsh vegetation and open shallow water. This species is also known to winter in brackish coastal marshes.	None. The shoreline of Great Salt Lake is outside of the survey area in this location. Little to no wetland vegetation exists along the shoreline of Great Salt Lake nearby, and this species is primarily found in freshwater habitats.
Mammals			
Kit fox (*Vulpes macrotis*)	State species of greatest conservation need	Kit fox primarily inhabit open desert, shrubby or shrub-grass habitat in shadscale (*Atriplex confertifolia*), greasewood (*Sarcobatus vermiculatus*), and sagebrush (*Artemisia* spp.) communities. Several dens may be used, especially in summer.	Moderate. Suitable burrows were documented during surveys; however, no sign of current or past occupancy (e.g., scat, tracks, or fresh digging) were observed.

Sources: Audubon (2023); NatureServe (2023).

* None = very unlikely to occur; moderate = potentially occurs.

Field Surveys

Wildlife habitat surveys were conducted between December 11 and 12, 2023. A portion of the survey area was only surveyed visually due to limited access (see Figure 2 for details). The survey area showed evidence of vegetation and soil disturbance from recent heavy grazing, and cattle were noted nearby. Landcover within the survey area was dominated by invasive forbs and grasses, primarily prickly Russian thistle (*Salsola tragus*) and cheatgrass (*Bromus tectorum*) (Figure 3). Other species present within the survey area include saltlover (*Halogeton glomeratus*), greasewood (*Sarcobatus vermiculatus*), redstem storksbill (*Erodium cicutarium*), rubber rabbitbrush (*Ericameria nauseosa*), broom snakeweed (*Gutierrezia sarothrae*), and shadscale saltbush (*Atriplex confertifolia*).



Figure 3. Overview of vegetation within the survey area.

A total of approximately 365 acres was assessed for suitable habitat for kit fox and burrowing owl within the survey area (project area plus 0.25-mile buffer), including 28 acres that was surveyed only with visual aids. Suitable habitat for kit fox and burrowing owl was observed during the habitat assessment surveys within the survey area (Figure 4). Four burrows were found within the survey area, one of which was located within the project area (B04) (see Figure 4). No burrows were found to be active at the time of surveys, and no sign was present to indicate current activity for either kit fox or burrowing owl (Figure 5).

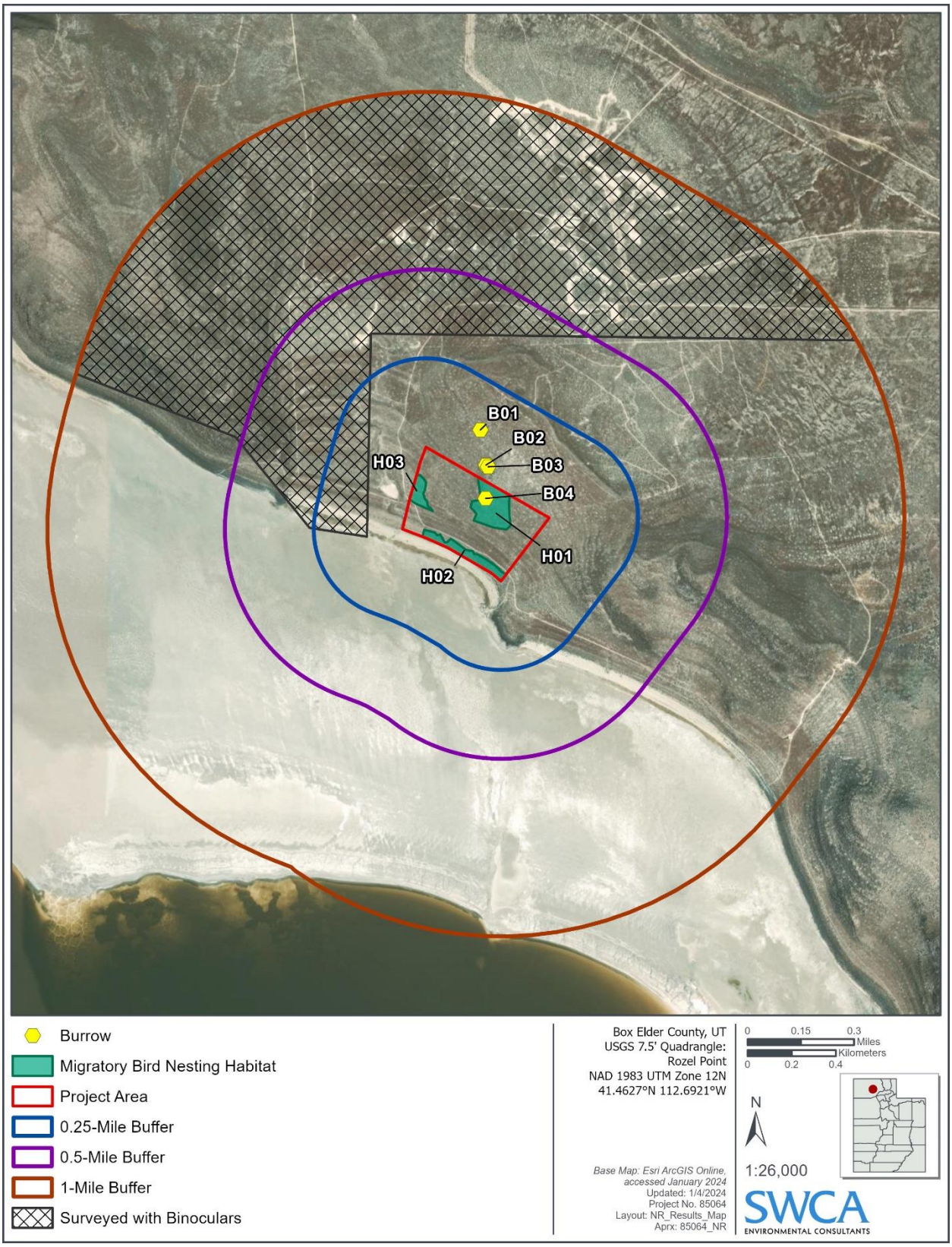


Figure 4. Habitat assessment survey results.



Figure 5. Inactive burrow within the survey area lacking signs of current or past activity for burrowing owl or kit fox.

A total of approximately 2,814 acres was assessed for raptor and eagle nests and potential nesting substrates within the survey area (project area plus 0.5-mile raptor buffer and project area plus 1-mile eagle buffer), including 831 acres that was surveyed only with visual aids. Small rocky ridges extend across hilltops to the northwest and southeast of the project area; these were not delineated as suitable raptor nesting substrate due to their small stature and ease of access for potential predators (Figure 6). No suitable raptor nesting substrates were delineated in the project area during the surveys, and no nests were observed in the project area or the survey area during the field surveys.



Figure 6. Rock outcroppings found within the survey area.

A total of 12.52 acres of suitable migratory bird nesting habitat was delineated within the project area (H01–H03) (see Figure 4). Suitable migratory bird nesting habitat included areas of shrubland dominated by greasewood with an understory of invasive forbs and grasses, including saltlover, prickly Russian thistle, and cheatgrass (Figure 7). It should be noted that migratory bird habitat extends beyond the extent of the project area and may need further consideration if project area boundaries change.



Figure 7. Overview of migratory bird habitat.

RECOMMENDATIONS

If ground disturbance will occur within the project area, the following measures should be used to minimize impacts to special-status species:

- Suitable kit fox burrows have been documented within the project area and 0.25 mile of the project area. If ground-disturbing activities occur during the kit fox denning season (December 15–April 14), clearance surveys are recommended prior to ground-disturbing activities to verify the presence or absence of kit fox. Coordination with UDWR will also be useful in determining if camera surveys are necessary in this area.
- Suitable burrowing owl burrows have been documented within the project area and 0.25 mile of the project area. If ground-disturbing activities occur during the burrowing owl nesting season (March 1–August 31), clearance surveys are recommended approximately 7 days before ground-disturbing activities to verify the presence or absence of nesting burrowing owls for compliance with the Migratory Bird Treaty Act.
- Active migratory bird nests are afforded protection under the Migratory Bird Treaty Act. If ground-disturbing activities or vegetation clearing take place during the nesting season (April 1–July 31), clearance surveys for migratory birds are required to be conducted no more than 7 days prior to the start of ground-disturbing activities or vegetation clearing.

LITERATURE CITED

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APPENDIX A

Information for Planning and Consultation Report

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

NOT FOR CONSULTATION

Location

Box Elder County, Utah



Local office

Utah Ecological Services Field Office

(801) 975-3330
(801) 975-3331

2369 West Orton Circle, Suite 50
West Valley City, UT 84119-7603

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

NOT FOR CONSULTATION

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

NOT FOR CONSULTATION

Bald & Golden Eagles

There are no documented cases of eagles being present at this location. However, if you believe eagles may be using your site, please reach out to the local Fish and Wildlife Service office.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

NOT FOR CONSULTATION

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.

2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The data in this location indicates there are no migratory birds of conservation concern expected to occur in this area.

There may be migratory birds in your project area, but we don���t have any survey data available to provide further direction. For additional information, please refer to the links above for recommendations to minimize impacts to migratory birds or contact your local FWS office.

NOT FOR CONSULTATION

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

NOT FOR CONSULTATION

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

NOT FOR CONSULTATION

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

NOT FOR CONSULTATION

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

APPENDIX B

Utah Natural Heritage Program Report

Utah Division of Wildlife Resources
Utah Natural Heritage Program
1594 W. North Temple
PO Box 146301
Salt Lake City, UT 84116

Report Number: 15156
February 5, 2024

Utah Natural Heritage Program Online Species Search Report

Project Information

Project Name
Lilac Solutions Mango Project

Project Description
Small confidential proposed mining project that needs some cultural resources and bio surveys.

Location Description
Box Elder County, UT



Animals within a ½ mile radius

Common Name	Scientific Name	State Status	U.S. ESA Status	Last Observation Year
American Bittern	Botaurus lentiginosus	SGCN		1929
Kit Fox	Vulpes macrotis	SGCN		1982

Plants within a ½ mile radius

Common Name	Scientific Name	State Status	U.S. ESA Status	Last Observation Year
No Species Found				

Animals within a 2 mile radius

Common Name	Scientific Name	State Status	U.S. ESA Status	Last Observation Year
American Bittern	Botaurus lentiginosus	SGCN		1929
Kit Fox	Vulpes macrotis	SGCN		1982

Plants within a 2 mile radius

Common Name	Scientific Name	State Status	U.S. ESA Status	Last Observation Year
No Species Found				

Definitions

State Status

SGCN	Species of greatest conservation need listed in the Utah Wildlife Action Plan

U.S. Endangered Species Act

LE	A taxon that is listed by the U.S. Fish and Wildlife Service as "endangered" with the probability of worldwide extinction
LT	A taxon that is listed by the U.S. Fish and Wildlife Service as "threatened" with becoming endangered
LE;XN	An "endangered" taxon that is considered by the U.S. Fish and Wildlife Service to be "experimental and nonessential" in its designated use areas in Utah
C	A taxon for which the U.S. Fish and Wildlife Service has on file sufficient information on biological vulnerability and threats to justify it being a "candidate" for listing as endangered or threatened
PT/PE	A taxon "proposed" to be listed as "endangered" or "threatened" by the U.S. Fish and Wildlife Service

Disclaimer

The information provided in this report is based on data existing in the Utah Division of Wildlife Resources' central database at the time of the request. It should not be regarded as a final statement on the occurrence of any species on or near the designated site, nor should it be considered a substitute for on-the-ground biological surveys. Moreover, because the Utah Division of Wildlife Resources' central database is continually updated, any given response is only appropriate for its respective request.

The UDWR provides no warranty, nor accepts any liability, occurring from any incorrect, incomplete, or misleading data, or from any incorrect, incomplete, or misleading use of these data.

The results are a query of species tracked by the Utah Natural Heritage Program, which includes all species listed under the U.S. Endangered Species Act and species on the Utah Wildlife Action Plan. Other significant wildlife values might also be present on the designated site. Please contact UDWR's regional habitat manager if you have any questions.

For additional information about species listed under the Endangered Species Act and their Critical Habitats that may be affected by activities in this area or for information about Section 7 consultation under the Endangered Species Act, please visit https://ecos.fws.gov/ipac/ or contact the U.S. Fish and Wildlife Service Utah Ecological Services Field Office at (801) 975-3330 or utahfieldoffice_esa@fws.gov.

Please contact our office at (801) 538-4759 or habitat@utah.gov if you require further assistance.

Your project is located in the following UDWR region(s): Northern region

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Report generated for:
Gabby Blanchette
SWCA
257 E 200 S Ste 200
Salt Lake City, UT 84111
(801) 322-4307
gabby.blanchette@swca.com

UTAH DNR WILDLIFE RESOURCES

F.7 Archaeological Resources Survey for Waterleaf Resources GSL Lithium

PURPOSE

The purpose of this appendix is to document completion of an archaeological resources survey conducted to support regulatory compliance for the Project. The information supports evaluation of potential cultural resource constraints within the Project area.

CONTENTS SUMMARY

This appendix includes an archaeological resources survey report prepared by SWCA Environmental Consultants for the Waterleaf Resources GSL 50-Acre Lithium Project in Box Elder County, Utah. The report documents an intensive-level Class III survey covering approximately 63.8 acres, including the Project area and a buffer zone, conducted in accordance with SHPO standards. Survey results identified one archaeological site and two isolated finds, all of which were determined to be not eligible for listing on the National Register of Historic Places. The report concludes with a recommendation of no effect and no further cultural resource investigation or mitigation.

REFERENCED IN MAIN APPLICATION

- Section 1.3

DOCUMENT DETAILS

- Issued by: SWCA
- Date: February 2024
- Page Count: 26 pages

F.7 begins on next page

COVER PAGE
Must Accompany All Project Reports
Submitted to the Utah SHPO

SHPO Project Number: U24ST0076

Report Title: *Archaeological Resources Survey for the Waterleaf Resources GSL 50-Acre Lithium Project, Box Elder County, Utah*

Report Date: February 8, 2024

Org. Project Number: 85064

Report Author(s): Freeman Stevenson

County(ies): Box Elder

Record Search Date(s): December 1, 2023

Principal Investigators: Suzanne Eskenazi, Kelly Beck

Intensive Acres Surveyed (<15m intervals): 63.77 acres

Field Supervisor(s): Freeman Stevenson

USGS 7.5' Series Map Reference(s): Rozel Point, Utah

Recon/Intuitive Acres Surveyed (>15m intervals): 0 acres

Sites Reported	Count	Smithsonian Trinomials
Revisits (no updated site forms)	0	
Updates (updated site forms provided)	0	
New recordings (site forms provided)	1	42BO2960
Total Count of Archaeological Sites in APE	1	42BO2960
Historic Structures (structures forms provided)	0	
Total National Register Eligible Sites	0	

*Please list all site numbers per category. Number strings are acceptable (e.g. "42TO1-13; 42TO15"). Cells should expand to accommodate extensive lists. Sites where a UASF is provided but site was not relocated can be listed in *italics*.

Checklist of Required Items for Submittal to SHPO

- ☒ "Born Digital" Report in a PDF/A format
  - ☒ SHPO Cover Sheet
  - ☒ File Name is the SHPO Project Number with no hyphens or landowner suffixes
- ☒ "Born Digital" Site forms in PDF/A format
  - ☒ UASF with embedded maps and photos
  - ☒ File name is Smithsonian Trinomial without leading zeros (e.g. 42TO13 not 42TO00013)
  - ☒ Photo requirements (including size and quality)
- ☒ Archaeological Site Tabular Data
  - ☒ Single spreadsheet for each project
  - ☒ Follows UTSHPO template (info here: https://goo.gl/7SLMqj)
- ☒ GIS data
  - ☒ Zipped polygon shapefile or geodatabase of survey (if different from APE) or other activity area with required field names and variable intensity denoted
  - ☒ Zipped polygon shapefile or geodatabase of site boundaries with the required field name

Archaeological Resources Survey for the Waterleaf Resources GSL 50-Acre Lithium Project, Box Elder County, Utah – Confidential

FEBRUARY 2024

PREPARED FOR

Waterleaf Resources

PREPARED BY

SWCA Environmental Consultants

ARCHAEOLOGICAL RESOURCES SURVEY FOR THE WATERLEAF RESOURCES GSL 50-ACRE LITHIUM PROJECT, BOX ELDER COUNTY, UTAH – CONFIDENTIAL

Prepared for

Waterleaf Resources
c/o Lilac Solutions
9350 South 150 East, Suite 710
Sandy, Utah 84070

Prepared by

Freeman Stevenson, B.S.

Principal Investigators

Kelly Beck, Ph. D., RPA, and Suzanne Eskenazi, M.A., RPA

SWCA Environmental Consultants
257 East 200 South, Suite 200
Salt Lake City, Utah 84111
www.swca.com

Utah State Antiquities Project No. U24ST0076
Public Lands Policy Coordination Office Permit Nos. 18 and 318

SWCA Project No. 85064
SWCA Cultural Resources Report No. 24-102

February 2024

ABSTRACT

Report Title. *Archaeological Resources Survey for the Waterleaf Resources GSL 50-Acre Lithium Project, Box Elder County, Utah*

Report Date. February 8, 2024

Lead Agency Name. Utah Division of Oil, Gas and Mining

Permit and Project Numbers. Utah State Antiquities Project No. U24ST0076; Public Lands Policy Coordination Office Permit No. 318 (issued to Suzanne Eskenazi) and No. 18 (issued to Kelly Beck); SWCA Environmental Consultants (SWCA) Project No. 85064; SWCA Archaeological Resources Report No. 24-102

Landownership Status. Private

Project Description. In 2023, Waterleaf Resources requested that SWCA conduct an archaeological resources survey to support regulatory compliance for a 50-acre industrial development. SWCA surveyed the proposed development area and a 100-foot buffer (survey area) for a total of 63.77 acres.

Project Location. The archaeological resources survey area is on Rozel Flat, which is found along the western margin of Promontory Point, a peninsula extending into Great Salt Lake, in Box Elder County, Utah, Section 31, Township 9 North, Range 7 West, Salt Lake Principal Meridian on the Rozel Point, Utah, U.S. Geological Survey 7.5-minute quadrangle.

Number of Acres Inventoried. 63.77 acres

National Register of Historic Places (NRHP)–Ineligible Sites. One site: 42BO2960

Summary Recommendations. One new archaeological site (42BO2960) and two isolated finds were documented within the survey area. The isolates are not eligible for the NRHP, and the site is recommended not eligible for the NRHP. Because no historic properties are present within the survey area, SWCA recommends a finding of no effect for this project. SWCA recommends no further study or mitigation.

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INTRODUCTION

In 2023, Waterleaf Resources requested that SWCA Environmental Consultants (SWCA) conduct an archaeological resources survey to support regulatory compliance for a proposed 50-acre industrial development. SWCA surveyed the proposed development area and a 100-foot buffer (survey area) for a total of 63.77 surveyed acres.

Fieldwork was conducted by Freeman Stevenson, who is permitted as a field director and crew chief on SWCA's Bureau of Land Management (BLM) Cultural Resource Use Permit (No. 23UT55126). Project Manager Erin Root and Principal Investigators Suzanne Eskenazi (Public Lands Policy Coordinating Office [PLPCO] Permit No. 318) and Kelly Beck (PLPCO Permit No. 18) were involved in survey communications and data management to ensure agency standards were met. All photographs, field notes, and geographic information system (GIS) data are archived at the SWCA office in Salt Lake City, Utah, under Project No. 85064.

SURVEY AREA

The survey area is on Rozel Flat, which is found along the western margin of Promontory Point, a peninsula extending into Great Salt Lake, in Box Elder County, Utah, Section 31, Township 9 North, Range 7 West, Salt Lake Principal Meridian on the Rozel Point, Utah, U.S. Geological Survey (USGS) 7.5-minute quadrangle (Figure 1). The survey area consisted of 63.77 acres of private property, all of which were surveyed at a Class III level.

Environment

The survey area is located in the eastern Great Basin, on Rozel Flat, along the western margin of Promontory Point, a peninsula extending into Great Salt Lake. Rozel Flat is a broad plain at the base of the Promontory Mountains, which lie immediately east. The survey area is on the mapped shoreline of Great Salt Lake, approximately 13 miles southwest of Golden Spike National Historic Park, and approximately 2 miles northwest of the Spiral Jetty. Vegetation consists of Russian thistle, sagebrush, rabbitbrush, greasewood, shadscale, and bunch grasses (Figures 2 and 3).

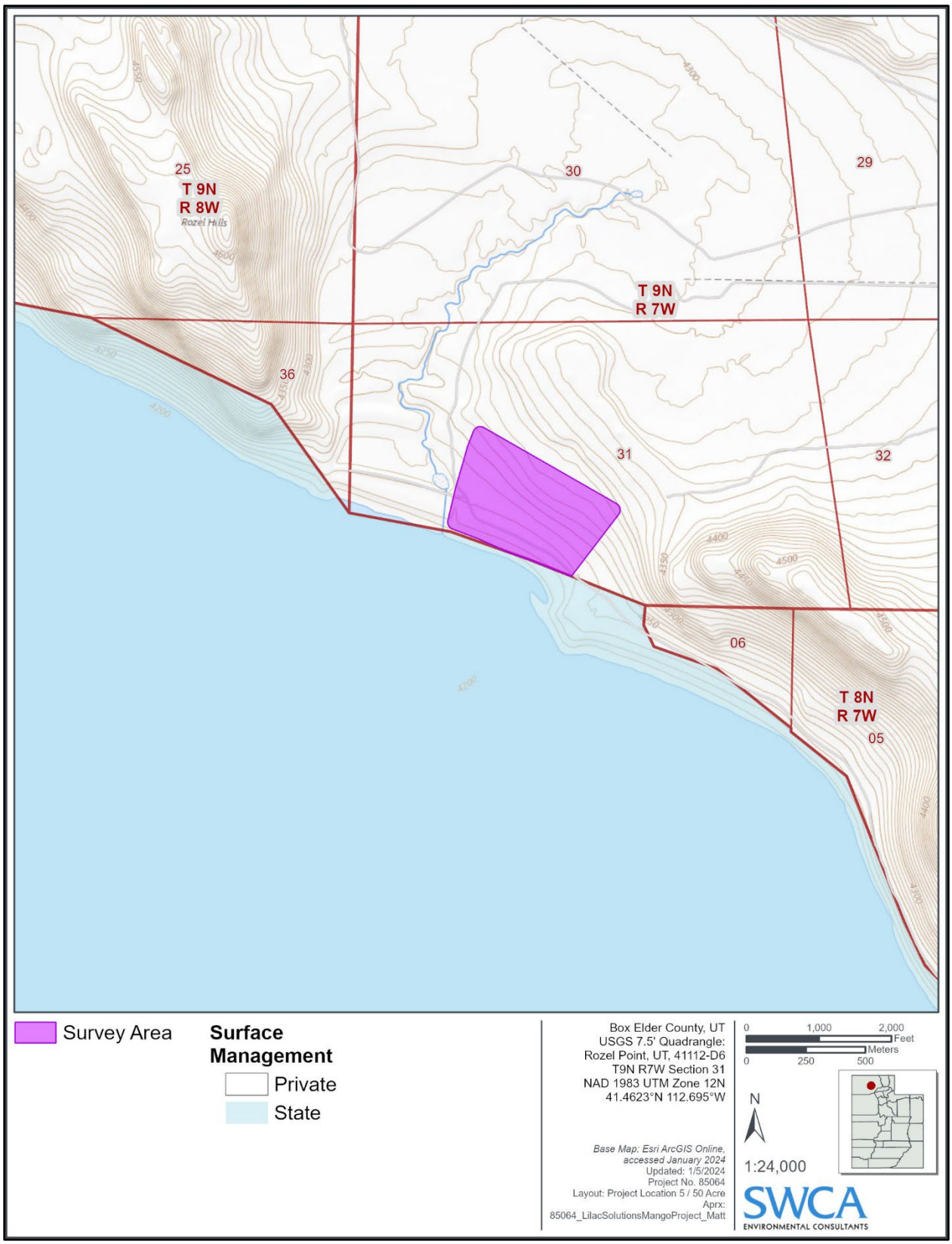


Figure 1. Survey area location map.



Figure 2. Survey area overview, taken from northwest corner of survey area, facing southeast toward the Spiral Jetty.



Figure 3. Survey area overview, taken from southeast corner of survey parcel, facing northwest toward Spring Bay.

CULTURAL CONTEXT

To assess the periods of significance for the cultural properties that may be found within the survey area, it is crucial to understand specific themes, individuals, and events influential in the region's past. To this end, a prehistoric and historic overview of the survey area is presented here. This overview is intended to provide a general framework for the discussion of expected resource types and to allow any cultural resources to be associated with periods of historical significance. This culture history is not intended to be comprehensive. For a more in-depth discussion of the prehistory and history of the region, the reader is referred to the intensive-level (Class I) survey for the BLM Salt Lake Field Office (Mullins et al. 2018) and the references highlighted in the sections below.

Prehistoric Period

For the purposes of this discussion, important sources for this summary include discussions of the eastern Great Basin prehistory provided by Aikens and Madsen (1986), Grayson (2011), Jennings (1986), and Simms (2008). The four broad Prehistoric periods described here (Table 1) are those employed by Simms (2008). The area has been continuously occupied by humans since the terminal Pleistocene, and over time there has been significant variation in land use and lifeways (Grayson 2011; Simms 2008). The Late Prehistoric period ended when Euro-American explorers and settlers arrived in the region.

Table 1. Prehistoric Archaeological Chronology for the Eastern Great Basin

Period	Dates	Generalized Lifeways	Diagnostic Artifacts
Paleoarchaic	> 11,000–8,000 RCYBP	Small, highly mobile groups using a broad-spectrum subsistence pattern, including the occupation of valley bottoms for lacustrine and wetland resources in addition to the use of uplands for hunting large game; important food resources include small mammals, waterfowl, and wetland plants.	Fluted and stemmed projectile points (e.g., Clovis, Folsom, Lake Mojave, and Great Basin Stemmed) in addition to the atlatl
Archaic	ca. 8,000–2,500 RCYBP	Increased diet breadth with increased use of higher elevation settings, increased use of grinding tools, and consumption of insects; introduction of ceramics and domesticated crops, and the beginnings of sedentism occur during the Terminal Archaic.	Elko Corner-notched, Pinto, Northern Side-notched, Humboldt, and Gatecliff Contracting Stem projectile points and coiled basketry
Fremont	150 B.C.–A.D. 1450	Increased sedentism and cultivation of domesticated plants, although adaptive diversity was very high and the use of wild plants and animals was still persistent; increased social complexity and extended trade networks; local variants of ceramics, architecture, and subsistence.	Rose Spring Corner-notched, Parowan Basal-notched, Eastgate Expanding Stem, Uinta Side-notched, Nawthis Side-notched, Bull Creek, and Cottonwood Triangular projectile points; thin-walled gray ware–type ceramics; clay figurines; moccasins; and basketry
Late Prehistoric	A.D. 1450–1847	Small groups of highly mobile hunter-gatherers using a range of habitats but most often riparian or lakeside wetland habitats.	Small triangular projectile points, including Desert Side-notched and Cottonwood Triangular; utilitarian and brown ware ceramics; basketry

Note: RCYBP = radiocarbon years before present.

Of interest for the survey area is the Promontory Culture, a thirteenth-century culture group materially distinct from the contemporary Fremont Culture and succeeding Numic-speaking populations (Steward 2009:82–87). The material assemblage best reflects that of a sub-artic, Athabaskan-speaking, large-mammal hunting culture that inhabited the Promontory Point area for approximately two generations before moving further south (Ives et al. 2014:616).

Historic Period

By the time of Euro-American contact in the late 1700s, the eastern Great Basin was used primarily as resource gathering grounds for the Ute, Paiute, and Shoshone tribes, and archaeological evidence suggests these Numic-speaking populations were somewhat new to the region (Miller 1986).

Euro-American interaction with the northern shores of Great Salt Lake in what is now Box Elder County began in the 1820s, when fur trapping expeditions began to make inroads into the surrounding area, and Jim Bridger made his storied trek to Great Salt Lake in 1824, mistaking it for the Pacific Ocean due to the salt content of the water (Bancroft 1964:19–20). In 1824 and 1825, Jedidiah Smith led an expedition exploring the northern shores of Great Salt Lake (Huchel 1999:45–46).

The first major transcontinental-style travel in the area occurred in 1841 with the Bidwell-Bartleson Party crossing along the northern shore of Great Salt Lake on their way to California (Bigler 1994:33). In the context of the current survey area, the most significant historic event in this area was the completion of the transcontinental railroad at Promontory Point, with the golden spike being driven in on May 10, 1869, approximately 13 miles northeast of the survey area.

After the completion of the transcontinental railroad, the subsequent growth of commerce on both local and national scales encouraged immigration to the area and accelerated the industrial revolution (Raymond and Fike 1994:22). Before 1860, Utah had become a livestock region of note, but ranching was engaged in on a small scale. After 1860, larger-scale ranching activities became more prominent once the railroads expanded markets (Peterson 1994). This ranching activity in the area of the survey area still continues to this day; the survey area was being actively grazed by cattle while SWCA conducted the survey.

The remains of the Rozel Point oilfield are approximately 2 miles southeast of the survey area. This was likely the first oil field to produce oil in Utah, with production attempts beginning in 1904. An estimated 10,000 barrels of oil from 30 to 50 wells were produced before the wells were capped and abandoned in the 1980s (Gwynn 2002). The remains of the oilfield are still present along the receded shoreline, just south of the Spiral Jetty, an example of landscape art constructed in 1970 by Robert Smithson (Dia Art Foundation 2019). The Spiral Jetty is the primary reason for modern visitation to the shoreline near the survey area, but the existing roads do not connect to the survey area and, therefore, do not likely constitute a disturbance.

PREVIOUS RESEARCH

On December 1, 2023, using the Utah Division of State History's Sego database, SWCA conducted a literature review to identify previously conducted archaeological resources projects and previously recorded archaeological sites within 0.5 mile of the survey area. No previous sites or projects were located within this buffer.

GIS layers and General Land Office plat maps were also examined for possible archaeological resources in and near the survey area (Table 2). The GIS layers, available from state and federal agencies, include

properties listed in the National Register of Historic Places (NRHP), historic trails, historic districts, historical topographic maps, and other historical aerial imagery.

Table 2. Historical Topographic and General Land Office Map Features Located within 0.5 Mile of the Survey Area

Year	Author	Map Location/Quadrangle Name	Map Type	Resource Type
1954	USGS	Brigham City	Topographic; 1:250,000 scale	Road
1958	USGS	Brigham City	Topographic; 1:250,000 scale	Road
1962	USGS	Brigham City	Topographic; 1:250,000 scale	Road
1968	USGS	Rozel Point	Topographic; 1:24,000 scale	Road

METHODS

SWCA archaeologist Freeman Stevenson conducted an intensive-level Class III archaeological resources survey from December 11 to 12, 2023, to identify and record any archaeological resources on the ground surface. Ground visibility within the survey area generally ranged from good to excellent. Survey transects were spaced 15 meters (m) apart, and the ground was visually inspected on both sides of the surveyor to an approximate distance of 7.5 m on each side. The entire survey area was surveyed at an intensive level. Terrain was south-facing and gently sloping toward the shoreline.

Geode external receiver global positioning system (GPS) units and Google Earth personal tablet computer (i.e., tablet) imagery were used to navigate the area. The field applications on the tablets contained the following data to help inform the surveyor: survey area boundary; historic features digitized from General Land Office plat maps, historical topographic maps, and historical aerial imagery; and land ownership. The data collected while connected to the Geode receivers were real-time corrected and submeter accurate under open sky conditions. All maps for this report were generated using Esri's ArcGIS Pro 2.9.9. No artifacts or samples were collected during this survey.

Archaeology Site and Isolate Definitions

SWCA employed Utah State Historic Preservation Office archaeological compliance guidelines (2022), which largely follow BLM site and isolate definitions that are outlined in the Archaeological Resource Fieldwork Guidelines and Standards, BLM Supplement H-8110 – Utah (BLM 2023:18–20). The minimum criteria for defining archaeological sites requiring use of the Utah Archaeology Site Form (UASF) site record are that sites should contain the remains of past human activity that are at least 50 years old and should consist of one or more of the following:

- At least 10 artifacts of a single class (e.g., 10 sherds) within a 10-m-diameter area, except when all pieces appear to originate from a single source (e.g., one ceramic pot, one glass bottle)
- At least 15 artifacts that include at least two classes of artifact types (e.g., 10 sherds and five glass fragments) within a 10-m-diameter area
- One or more archaeological features in temporal association with any number of artifacts
- Two or more temporally associated archaeological features without artifacts

- A building or structure, as defined by the NRHP, regardless of standing or collapsed disposition

SWCA evaluated linear archaeological resources per the Utah Professional Archaeological Council linear site guidelines (Utah Professional Archaeological Council 2008).

As with archaeological sites, isolated finds (IFs) are archaeological resources that contain the remains of past human activity that are at least 50 years old; however, IFs fall below the threshold for an archaeological site (BLM 2023:19) and consist of one of the following:

- A single artifact recorded based on professional judgment
- Fewer than 15 artifacts that include at least two classes of artifact types within a 10-m-diameter area
- One feature that was not associated with any artifacts

IFs with fewer than 10 nondiagnostic artifacts for a single class (lithic debitage, ceramics, glass, or cans) within a 10-m-diameter area were not recorded unless professional judgment was warranted (BLM 2023:19).

Site and Isolate Documentation

SWCA recorded a digital datum at the site; no physical datum was used. SWCA documented the archaeological site on a UASF. The site form provides at least two site overview photographs showing the site location; photographs and detailed information of all diagnostic artifacts and associated features; tallied documentation of all nondiagnostic artifacts; and mapping of the site boundary, digital datum, diagnostic artifacts, and feature locations.

IFs were documented on SWCA's IF forms. A summary of IFs is included in the results section below to help illuminate broad land use patterns over time. Overview photographs of the IFs were taken and all diagnostic isolates were photographed.

National Register of Historic Places Evaluation Methods

As per Title 36 of the Code of Federal Regulations (Parks, Forests, and Public Property), all archaeological resources sites over 50 years old must be evaluated for NRHP eligibility under four criteria and with consideration of seven elements of integrity (National Park Service [NPS] 1997). Isolated occurrences or IFs do not meet the criteria to be considered a site and, therefore, are not eligible for the NRHP. A site may be recommended eligible for the NRHP if it meets any one of the following criteria:

- Criterion A: The site is associated with events that have made a significant contribution to the broad patterns of our history.
- Criterion B: The site is associated with the lives of persons significant in our past.
- Criterion C: The site embodies the distinctive characteristics of a type, period, or method of construction; represents the work of a master; possesses high artistic values; or represents a significant and distinguishable entity whose components may lack individual distinction.
- Criterion D: The site has yielded, or may be likely to yield, information important in prehistory or history.

In addition to being significant, a property must also retain integrity to be eligible for the NRHP. As defined in National Register Bulletin No. 15, integrity "is the ability of a property to convey its

significance" (NPS 1997:44). Integrity is determined through seven aspects: location, design, setting, materials, workmanship, feeling, and association. Although a property need only be significant under one criterion, in general, it typically must retain integrity in most of these aspects to satisfy NRHP eligibility criteria. For archaeological site eligibility under Criterion D, the most important aspects of integrity are location, materials, and association. A property either retains integrity or it does not; integrity is binary rather than on a scale (NPS 1997:44). For temporary campsites, several aspects of integrity may be particularly relevant depending on the artifact assemblage, the feature assemblage, the location of the site, and the eligibility recommendation of the particular site. A short discussion of each aspect of integrity is provided below:

- *Location* "is the place where the historic property was constructed or the place where the historic event occurred" (NPS 1997:44). This means that resources should not have been moved from their locations during their periods of significance.
- *Design* "is the combination of elements that create the form, plan, space, structure, and style of a property" (NPS 1997:44). The design of a property is a result of all the decisions that go into its creation, including both how formal features are constructed and the overall planned layout of a given property.
- *Setting* "is the physical environment of a historic property" (NPS 1997:45). If a site has integrity of setting, the area around it remains largely the same as it was during the property's period of significance.
- *Materials* "are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property" (NPS 1997:45). Properties need to retain the original materials that defined them; in the case of a temporary campsite, the artifacts and features of the site must be present.
- *Workmanship* "is the physical evidence of the crafts of a particular culture or people during any given period in the history or prehistory" (NPS 1997:45).
- *Feeling* "is a property's expression of the aesthetic or historic sense of a particular period of time" (NPS 1997:45). Extensive modification to a property or its surroundings, or both from post-depositional processes and modern development is likely to have a detrimental effect on its integrity of feeling.
- *Association* "is the direct link between an important historic event or person and a historic property" (NPS 1997:45).

SURVEY RESULTS AND EVALUATIONS

During the course of the survey, one newly recorded site (a historic artifact scatter [42BO2960]), and two IFs (IF-01 and IF-02) were recorded for this project. Site 42BO2960 is recommended not eligible for the NRHP. The isolates are also not eligible for the NRHP. A survey results map is provided in Appendix A, and the UASF form for the site is provided in Appendix B. A table of IFs is provided in Appendix C.

Sites

One newly recorded historic site was identified during the survey. Site 42BO2960 is an artifact scatter of historic glass bottles and cans with an associated concentration of lumber. Based on the site assemblage, the site likely dates to 1920 to 1930.

Isolated Finds

In total, two historic IFs were identified during the survey. IF-01 is a 1936-dated Owens-Illinois Glass Co. green bottle base fragment located among the marine debris of the high tide mark of Great Salt Lake. IF-02 is a two-track road, which first appears on a 1952 USGS topographic map. Detailed descriptions of the isolates are located in Appendix C.

MANAGEMENT SUMMARY

One new archaeological site (42BO2960) and two IFs were documented within the survey area. The isolates are not eligible for the NRHP, and the site is recommended not eligible for the NRHP. Because no historic properties are present within the survey area, SWCA recommends a finding of no effect for the project. SWCA recommends no further study or mitigation.

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APPENDIX A

Survey Results Map

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APPENDIX B

Utah Archaeology Site Form (Detached)

APPENDIX C

Isolated Finds

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Appendix G Supporting Data Files

G.1 GSL Pilot - Flow Meter Analysis

G.2 GSL Pilot - Instantaneous Samples Analysis

G.3 GSL Pilot - Weighted Average Concentrations

G.4 GSL Pilot – Weekly Flow Totals

G.1 GSL Pilot - Flow Meter Analysis

PURPOSE

The file provides supporting data used by Waterleaf for analysis presented within the Operations Application. The file will be shared separately in native format.

CONTENTS SUMMARY

Online flow meters were used to measure flowrates of the intake and outfall streams. These were high-accuracy instruments designed to allow accurate recording of flowrates and total volumes of water pumped from the lake and returned to the lake during pilot plant operations.

This native file includes these data, comprising measurements collected at 5-10-minute intervals which were averaged into daily values. Statistical methods were used to calculate the mean and standard deviation, with the daily averages subsequently displayed as daily flow rate graphs with one standard deviation error bars.

REFERENCED IN MAIN APPLICATION

- Section 4.1

DOCUMENT DETAILS

- Issued by: Lilac
- Date: February 20, 2026
- Data collection period: January 24, 2025 – August 16, 2025

provided electronically

G.2 GSL Pilot - Instantaneous Samples Analysis

PURPOSE

The file provides supporting data used by Waterleaf for analysis presented within the Operations Application. The file will be shared separately in native format.

CONTENTS SUMMARY

Waterleaf collected daily grab samples of the intake and outfall streams at the pilot plant and analyzed them on-site using ICP-OES. Daily results were averaged to calculate weekly values.

Independent weekly samples were collected and analyzed by Chemtech-Ford. Both datasets were plotted together on individual graphs for the intake and outfall streams, covering lithium, magnesium, potassium, sulfate, sodium, calcium, and boron.

REFERENCED IN MAIN APPLICATION

- Section 4.1

DOCUMENT DETAILS

- Issued by: Lilac
- Date: February 20, 2026
- Data collection period: February 1, 2025 – August 12, 2025

provided electronically

G.3 GSL Pilot - Weighted Average Concentrations

PURPOSE

The file provides supporting data used by Waterleaf for analysis presented within the Operations Application. The file will be shared separately in native format.

CONTENTS SUMMARY

The HDR analyses were taken, along with the flow data, and weekly flow-weighted averages were calculated for the full duration of the pilot plant, for each constituent.

Seasonable averages were then calculated to show the constituent data between summer and winter. Separately, the flow-weighted averages for each constituent were calculated for the optimal period of week 16 to week 28.

REFERENCED IN MAIN APPLICATION

- Section 4.1

DOCUMENT DETAILS

- Issued by: Lilac
- Date: February 20, 2026
- Data collection period: February 6, 2025 – August 12, 2025

provided electronically

G.4 GSL Pilot – Weekly Flow Totals

PURPOSE

The file provides supporting data used by Waterleaf for analysis presented within the Operations Application. The file will be shared separately in native format.

CONTENTS SUMMARY

A table of the weekly flow totals for the full pilot duration.

REFERENCED IN MAIN APPLICATION

- Section 4.1

DOCUMENT DETAILS

- Issued by: Waterleaf
- Date: February 10, 2026
- Data collection period: January 4, 2025 - August 19, 2025

provided electronically

Appendix H Revision Log

PURPOSE

This appendix provides a comprehensive accounting of all changes, additions, and revisions made between the November 10, 2025 Operations Application submission and this resubmission dated February 22, 2026, to facilitate regulatory review of the revised application.

CONTENTS SUMMARY

The revision log is organized by section and appendix. Each entry identifies the type of change, describes the specific modifications made, references the FFSL deficiency item or items addressed where applicable, and notes the structural rationale. The log includes a key structural changes mapping table showing how the original application sections correspond to the revised structure, followed by a section-by-section and appendix-by-appendix change summary.

REFERENCED IN MAIN APPLICATION

- Not applicable

DOCUMENT DETAILS

- GSL Operations Application Revision Log (6 pages, February 2026)

Appendix H begins on next page

Summary of Changes from November 10, 2025 Submission

This appendix provides a comprehensive accounting of all changes, additions, and revisions made between the November 10, 2025 Operations Application submission and this resubmission dated February 20, 2026. Changes are organized by section and appendix to facilitate regulatory review. Each entry identifies the type of change, describes the specific modifications made, references the FFSL comments addressed (where applicable), and notes the structural rationale.

The revised application incorporates two additional sections (Section 4: Commercial Facility Basis; Section 5: Resource Sustainability and Environmental Compliance) that consolidate and substantially expand content previously distributed across the original document and its appendices. This restructuring directly responds to FFSL's comment that the original application relied too heavily on appendix references without providing sufficient narrative discussion in the body text (Attachment 1, Item N2). All subsequent original sections have been renumbered accordingly (original Sections 4–11 are now Sections 6–12, with the addition of Section 9 for Cooperative Agreement as a standalone section).

Key Structural Changes Mapping

The table below summarizes how the original application structure maps to the revised structure.

Original Structure (Nov 2025)	Revised Structure (Feb 2026)	Rationale
Section 1: Introduction	Section 1: Introduction	Expanded (Section 1.4 operator experience)
Section 2: Self-Certification	Section 2: Self-Certification	Enhanced certification language
Section 3: Project Description	Section 3: Project Scope	Expanded process descriptions; added monitoring detail
Not previously separated	**Section 4: Commercial Facility Basis (Additional)**	Consolidates pilot data, commercial design validation, scalability, seasonal operations
Not previously separated	**Section 5: Resource Sustainability & Environmental Compliance (Additional)**	Consolidates resource assessment, mass balance, waste management, environmental impact
Section 4: Ownership/Surface Use	Section 6: Ownership, Surface Use and Occupancy	Coordinate format updated
Section 5: Water Rights	Section 7: Water Rights	Expanded with application history
Section 6: Royalty/Commercial	Section 8: Royalty Arrangements and Commercial Viability	Expanded commercial viability description
Section 7: Cooperative Agreement	Section 9: Cooperative Agreement	Elevated to standalone section
Section 8: Bonding	Incorporated into Section 8.2.6 and Section 12.2	Integrated with related content
Section 9: Reclamation	Section 10: Reclamation and Closure Plan	Clarified FFSL/DOGM interface
Section 10: Timeline	Section 11: Anticipated Timeline and Schedule	Updated milestones
Section 11: Permits	Section 12: Permits, Agreements and Authorizations	Expanded with permit matrix and additional information
Appendices A–L	Appendix Volumes A–G, H	Reorganized; additional appendices added

Section-by-Section Change Summary

Section / Appendix	Change Type	Description of Changes	Rationale
FRONT MATTER & EXECUTIVE SUMMARY			
Table of Contents	Revised	Revised with validated page numbers matching final compiled document. Added hyperlinks to all sections and appendices.	Updated TOC page numbers to match document body, improving regulatory review.
Acronyms and Abbreviations	Revised	Expanded and updated abbreviation table; verified consistent use of units, abbreviations, and defined terms throughout document.	Supports consistent terminology and reduces ambiguity for reviewers.
Executive Summary	Revised / Expanded	Added Key Project Metrics table (Table 1), Environmental Assessment Findings summary table (Table 2), and Required Showings compliance matrix (Table 3). Expanded narrative to provide standalone summary of commercial viability and environmental compliance demonstrations.	Enhanced original executive summary to provide complete project overview for reviewers.
SECTION 1: INTRODUCTION			
Section 1.1 (Applicant Info)	No Change	No substantive changes from November 10, 2025 submission.	—
Section 1.2 (Purpose and Need)	No Change	No substantive changes from November 10, 2025 submission.	—
Section 1.3 (Required Showings)	Revised	Converted from bullet list to table format with regulatory citation column and detailed application location cross-references for each required showing per R652-21-704 and R652-21-705.	Provides clear navigation matrix linking regulatory requirements to application content.
Section 1.4 (Operator Experience)	Expanded	Added subsections: 1.4.1 Lilac Solutions Corporate Experience; 1.4.2 Commercial Processing Partnership ([redacted] scope, experience, performance guarantees); 1.4.3 Product Quality Assurance (battery-grade specs, QC/QA protocols, direct production experience). Added collection dates to all referenced test data.	Expanded to demonstrate comprehensive capability across DLE, downstream processing, and quality assurance.
Section 1.5 (Contractual Disputes)	Minor Revision	Added DWQ warning letter (DWQ-2025-010001) regarding feasibility pilot effluent exceedances, including explanation of resolution and no formal enforcement action.	Proactive disclosure enhances regulatory transparency.
Section 1.6 (Sampling Royalty)	No Change	No substantive changes; payment reconciliation table maintained.	—
SECTION 2: SELF-CERTIFICATION			
Section 2	Revised	Expanded self-certification to address both feasibility pilot results and commercial-scale projections. Added specific certification language referencing UAC R652-21-705(1) and commercial design containment and monitoring enhancements. Added certification that facility uses non-evaporative IX technology per Section 3.4.	Original certification relied primarily on feasibility results; revised to explicitly address commercial-scale operations.
SECTION 3: PROJECT SCOPE			
Section 3.1 (Project Overview)	Revised / Expanded	Renamed from “Project Description” to “Project Scope.” Expanded with detailed descriptions of all major infrastructure components, site layout figure, GIS data references, and comprehensive process overview organized into five stages. Added coordinates in decimal degrees. Added collection dates and appendix page references.	Enhanced and expanded to provide comprehensive standalone narrative.
Section 3.2 (Process Overview)	Revised / Expanded	Added detailed five-stage process narrative covering intake through discharge. Added process flow diagram references with stream number labels and quantitative parameters.	Enhanced process flow diagrams for clarity on streams and units.

Section / Appendix	Change Type	Description of Changes	Rationale
Sections 3.3–3.6 (Process Descriptions)	Revised / Expanded	Restructured subsections align with major process units. Expanded each process area subsection with detailed equipment descriptions, design parameters, material specifications, and appendix cross-references. Added solids management considerations (Section 3.3.4). Enhanced depleted brine conditioning and discharge system descriptions.	Updated and revised to present key technical content in body text.
Section 3.7 (Discharge and Monitoring)	Expanded	Expanded information for: depleted brine conditioning (3.7.1), discharge system with decimal-degree coordinates (3.7.2), and monitoring/reporting (3.7.3) including brine quality monitoring, flow metering per Utah Code § 73-33-203, discharge operations protocols, and startup/upset conditions management.	Expanded to provide discharge timing, volume, and monitoring detail.
Section 3.8 (Water, Reagents, Utilities)	Revised / Expanded	Added groundwater source description and chemistry data (3.8.1). Expanded reagent descriptions with quality assurance protocols (3.8.2). Added comprehensive utilities section (3.8.3) covering power generation, cooling, compressed air, fire protection, steam, fuel storage, and acid scrubber.	Updated to document groundwater quality and provide reagent quality assurance.
SECTION 4: COMMERCIAL FACILITY BASIS (ADDITIONAL)			
Section 4 (entire)	**Additional Section**	Additional section consolidating quantitative validation of commercial design. Contains: 4.1 Pilot Operations and Commercial Design Basis (pilot timeline, data analysis, commercial translation, mass/water balance, waste solids, groundwater composition, reagent contamination, non-target mineral balance); 4.2 Scalability; 4.3 Seasonal Operations and Mitigation.	Addresses FFSL's comment that commercial feasibility was not adequately demonstrated with data and analysis in the body text.
SECTION 5: RESOURCE SUSTAINABILITY & ENVIRONMENTAL COMPLIANCE (NEW)			
Section 5 (entire)	**Additional Section**	Additional section consolidating environmental assessment. Contains: 5.1 Resource Sustainability (resource assessment, depletion context, lake dynamics, hydrodynamic modeling, dispersion results, lithium mass balance); 5.2 Mineral Mass Balance and Lake Chemistry (scenario analysis, North/South Arm results, no negative impact demonstration); 5.3 Waste Management; 5.4–5.6 Heat, Noise, and Air Emissions.	Consolidates environmental analysis topics; provides comprehensive no-negative-impact demonstration with quantitative mass balance modeling.
SECTIONS 6–12 (Renumbered from original Sections 4–11)			
Section 6 (Ownership, Surface Use)	Revised	Converted all coordinates from UTM to decimal degrees (5 decimal places). Updated GIS references. (Formerly Section 4)	Coordinate format change per FFSL request.
Section 7 (Water Rights)	Revised	Expanded with comprehensive water rights application history, public hearing outcomes, DWRi correspondence, metering/monitoring requirements, and groundwater acquisition timeline. (Formerly Section 5)	Enhanced detail on water rights status and acquisition plan.
Section 8 (Royalty and Commercial Viability)	Expanded	Expanded commercial viability demonstration across all seven R652-21-200(8) criteria. Added: detailed opex breakdown table, lithium price history and forecasts, financial analysis under multiple price scenarios, ramp-up cost analysis, global cost curve positioning. (Formerly Section 6)	.Revised to present comprehensive economic analysis.
Section 9 (Cooperative Agreement)	Standalone	Elevated cooperative agreement discussion to standalone section. Updated with current status of FFSL-led coordination process. (Was part of original Section 7)	Provides clarity on cooperative agreement status per R652-21-704(5).
Section 10 (Reclamation and Closure)	Revised	Clarified FFSL/DOGM jurisdictional interface. Incorporated DOGM reclamation standards by reference. Added performance standards, monitoring/bond release criteria, and coordination provisions. (Formerly Section 9)	Revised and provide comprehensive framework for negotiation with FFSL.

Section / Appendix	Change Type	Description of Changes	Rationale
Section 11 (Timeline and Schedule)	Revised	Updated project milestones and commissioning timeline with brine extraction/return schedule. (Formerly Section 10)	Added operational timing detail per FFSL request.
Section 12 (Permits and Authorizations)	Expanded	Expanded to comprehensive permit matrix (Table 38) with current status, dates, and cross-references. Added third-party waste management agreements (12.1), bonding status (12.2), and surface use authorization status (12.3). (Formerly Section 11)	Enhanced to provide sufficient permit tracking detail.
APPENDICES			
Appendix A (Regulatory & Admin)	Expanded	Reorganized: A.1–A.10 covering all regulatory and administrative documentation. Added A.7 USACE NWP verification, A.8 DWQ 401 Response, A.9 DWQ Operator Certificate Application, A.10 Sampling Royalty Agreement. Added descriptive cover pages.	Improved organization and accessibility per FFSL request.
Appendix B (Project & Feasibility)	Expanded	Added pilot performance data: B.1 Final Monitoring Report, B.2 Log-Based Constituent Graphs (additional), B.3 Feasibility Optimal Period Graphs (additional). Added B.4 Commercial Plant Area and B.5 GIS Files.	Provides the internal pilot data and temporal resolution requested by FFSL.
Appendix C (Commercial & Market)	Expanded	Revised structure' and additional exhibits added: C.1 Operating Cost Estimate (additional), C.2 Offtake Agreement (additional), C.3 Product Specifications, C.4–C.5 Product Test Reports (additional), C.6 [redacted] References (additional), C.7 Design Confirmation (additional), C.8 Profitability Analysis (updated cashflow tables for all lithium carbonate price forecasts), C.9 IXM Supply Agreement (additional), C.10 Assignment Agreements (additional).	Provides expanded commercial documentation.
Appendix D (Process Design)	Expanded	Revised structure: D.1–D.2 Process Schematics (Pilot/Commercial), D.3–D.4 Mass Balances, D.5 Chemical Specifications, D.6 Non-Target Mineral Balances, D.7 Gen 5 IX White Paper, D.8 Technical Presentations (Mg), D.9 Solids Waste Characterization. *Note: Mn presentation no longer relevant, as Mn treatment is implemented for commercial facility.*	Addresses FFSL requests for non-target mineral analysis, manganese impact, and depleted brine waste data.
Appendix E (Hydrology & Water Quality)	Expanded	E.1 Montgomery & Associates Resource Report, E.2 SLR Groundwater Analysis (additional), E.3 HR Wallingford Hydrodynamic Model, E.4 GSL Mass Balance Impact Analysis (additional).	E.2 addresses groundwater source documentation. E.4 provides comprehensive lake and breach flow analysis.
Appendix F (Environmental & Biota)	Expanded	F.1 Hydrodynamic Exchange/Lithium Mass Balance (additional), F.2 Biota Study, F.3 Environmental Site Assessment, F.4 Avian Impact memo (additional), F.5 Aquatic Resources, F.6 Habitat Assessment, F.7 Archaeological Survey.	F.4 addresses avian population certification. F.1 provides long-term lithium sustainability analysis.
Appendix G (Operations & Performance)	Additional	G.1–G.4 digital files providing pilot flow meter analysis, instantaneous samples analysis, weighted average concentrations, and weekly flow totals.	Provides the tabulated, time-resolved pilot data requested by FFSL.
Appendix H (This Document)	Additional	Revision log documenting all changes from November 10, 2025 submission.	Facilitates regulatory review of revisions.

End of Operations Application

Waterleaf Phase 1, LLC
Great Salt Lake Operations Application
Submitted: February 20, 2026