PNM
2401 Aztec NE, MS Z100
Albuquerque, NM 87107
www.pnm.com

November 26, 2025

VIA Email

Paul Chamberlain
State Cleanup Program Team Leader
New Mexico Environment Department
Ground Water Quality Bureau
Harold Runnels Building
1190 S. Saint Francis Drive
Santa Fe, NM 87505

RE: Submission of Public Service Company of New Mexico's Stage 1 Abatement Plan, San Juan Generating Station, 6800 N County Road, Waterflow, NM

Dear Mr. Chamberlain,
Public Service Company of New Mexico (PNM) respectfully submits this Stage 1 Abatement Plan (S1AP) for the former San Juan Generating Station located at 6800 North County Road, Waterflow, San Juan County, New Mexico. This S1AP is submitted in response to the New Mexico Environment Department (NMED) letter dated July 29, 2025, entitled "Stage 1 Abatement Plan Required, San Juan Generating Station, 6800 N County Road, Waterflow, NM." The S1AP has been developed in accordance with the requirements of the New Mexico Administrative Code (NMAC) 20.6.2.4103 and details a plan to characterize and evaluate what is currently known and not known about the nature, extent, and magnitude of potential environmental impacts associated with historical operations at the SJGS site.
This S1AP has been prepared to fulfill NMED's requirements and to provide a technically defensible framework for assessing and mitigating environmental impacts at and downgradient of the SJGS site. The S1AP reviews previous studies and outlines an approach for refining the conceptual site model and collecting data to fill gaps, such as background and baseline conditions for soil and groundwater. The results of the S1AP investigations will form the technical basis for a subsequent Stage 2 Abatement Plan pursuant to 20.6.2.4107 NMAC.
This S1AP demonstrates PNM's commitment to a scientifically rigorous and transparent approach to environmental characterization and abatement. If you have any questions or concerns, please contact Claudette Horn at 505-241-2019.

Sincerely,



Claudette Horn
Director, Environment and Land Use Permitting

Stage 1 Abatement Plan

San Juan Generating Station

6800 N. County Road, Waterflow, San Juan County, New Mexico

Prepared for:



Public Service Company of New Mexico
414 Silver Avenue SW
Albuquerque, New Mexico 87102

Prepared by:



INTERA Incorporated
2440 Louisiana Boulevard NE, Suite 700
Albuquerque, New Mexico 87110

NOVEMBER 26, 2025

Executive Summary

On behalf of the Public Service Company of New Mexico (PNM), INTERA Incorporated (INTERA) has prepared this Stage 1 Abatement Plan (S1AP) proposal for the former San Juan Generating Station (SJGS) in response to the New Mexico Environment Department (NMED) letter dated July 29, 2025, entitled "Stage 1 Abatement Plan Required, San Juan Generating Station, 6800 N County Road, Waterflow, NM." This S1AP has been developed in accordance with the requirements of the New Mexico Administrative Code (NMAC) 20.6.2.4103 and is intended to characterize and evaluate what is currently known and not known about the nature, extent, and magnitude of potential environmental impacts associated with historical operations at the SJGS site.

The SJGS was a 1,850-megawatt coal-fired power generation facility located in San Juan County, New Mexico, that commenced operations in 1973 and ceased operations in 2022. The facility is currently undergoing demolition, with completion anticipated in 2026. Historically, coal was supplied from the adjacent San Juan Mine (SJM), and coal combustion residuals (CCRs)—including fly ash, bottom ash, and flue gas desulfurization (FGD) material—were managed primarily through return to the mine for backfill. Site operations, water management infrastructure, and materials handling practices over nearly five decades have resulted in localized impacts to shallow groundwater and near-surface soils.

This S1AP has been prepared to fulfill NMED's requirements and to provide a technically defensible framework for assessing and mitigating environmental impacts at and downgradient of the SJGS site. The plan considers available information from previous and ongoing investigations conducted under the facility's active discharge permits (DP-306, DP-1327, and DP-1843) and relevant studies performed by Metric Corporation, Daniel B. Stephens & Associates, Jacobs Engineering Group Inc., and others.

Review of available groundwater data indicates that, within the former SJGS area, impacts are limited to the groundwater system in Quaternary sediments (alluvium and eolian deposits) and the Fruitland Formation bedrock, with no evidence of vertical migration into the deeper Pictured Cliffs Sandstone. To address impacts to groundwater, two shallow groundwater recovery systems—the Memorial Recovery System (beginning in 2008) and the Shumway Recovery System (beginning in 2018)—currently operate to control the downgradient migration of impacted shallow groundwater within the Quaternary alluvium and eolian deposits of the Westwater and Shumway Arroyos.

Recent soil and sediment characterization conducted by a third party in 2024 and by NMED (with split sampling by PNM) in 2025 identified detections of metals and metalloids, volatile and semi-volatile organic compounds, and petroleum hydrocarbons below NMED industrial and construction worker Soil Screening Levels (SSLs). Limited exceedances of the twenty-times dilution-attenuation factor (DAF-20) SSL for arsenic, cobalt, and iron were observed in discrete samples; however, these exceedances are not considered indicative of significant soil-to-groundwater mobility given the site's semi-arid conditions and the sorptive behavior of these constituents. Additional investigation is warranted to evaluate potential presence of per- and polyfluoroalkyl substances (PFAS) and to further delineate organic and inorganic constituents of potential concern (COPCs).

The S1AP outlines an adaptive approach for data collection, evaluation, and refinement of the conceptual site model (CSM). Iterative evaluation of results will guide subsequent field efforts and abatement strategies under NMED oversight. Key components include:

- **Desktop and Data Review**: Integration of historical records, operational timelines, and prior environmental datasets to refine the CSM and identify data gaps.

- **Field Investigations**: Targeted sampling of soil, sediment, and groundwater to define the extent of COPCs and assess contaminant fate and transport mechanisms.
- **Quality Assurance Project Plan (QAPP)**: Implementation of standardized quality assurance and quality control procedures to ensure data quality and regulatory defensibility.

The results of the S1AP investigations will form the technical basis for a subsequent Stage 2 Abatement Plan pursuant to 20.6.2.4107 NMAC. The Stage 2 Plan will identify and evaluate potential remedial alternatives to achieve abatement of groundwater and soil impacts attributable to historical SJGS operations.

This S1AP demonstrates PNM's commitment to a scientifically rigorous and transparent approach to environmental characterization and abatement. The work proposed herein will ensure that subsequent assessment and remediation activities are both technically sound and protective of human health and the environment.

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Acronyms and Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
6:2 FTS	1H,1H,2H,2H-Perfluorooctane sulfonic acid
ACM	asbestos containing material
AST	aboveground storage tank
Beacon	Beacon Environmental
bgs	below ground surface
BOR	Bureau of Reclamation
CCB	coal combustion byproduct
CCR	coal combustion residuals
cm/s	centimeters per second
COC	chain of custody
COPC	constituent of potential concern
CPRB	Coal Pile Runoff Basin
CSM	conceptual site model
DBS&A	Daniel B. Stephens & Associates, Inc.
DP	discharge permit
DPT	direct push technology
DQO	data quality objective
DRO	diesel range organics
EB	equipment blank
EMNRD	New Mexico Energy, Minerals and Natural Resources Department
EPRI	Electric Power Research Institute
ESP	electrostatic precipitator
FD	field duplicate
FGD	flue gas desulfurization
ft/ft	foot/feet
GRO	gasoline range organics
HDPE	high-density polyethylene
HSA	hollow stem auger
IC	ion chromatography
ICP-MS	inductively coupled plasma-mass spectrometry
ICP-OES	inductively coupled plasma-optical emission spectrometry
ID	identification
IDW	investigation-derived waste
INTERA	INTERA Incorporated
ISO	International Organization for Standardization
Jacobs	Jacobs Engineering Group Inc.
Kch	Cliff House Sandstone

Kf	Fruitland Formation
Kh	horizontal hydraulic conductivity
Kkf	Kirtland/Fruitland Formation
Kks	Kirtland Shale
Kls	Lewis Shale
Kpc	Pictured Cliffs Sandstone
Kv	vertical hydraulic conductivity
m	meter(s)
Metric	Metric Corporation
mg/L	milligrams per liter
MRO	motor oil range organics
MSGP	Multi-Sector General Permit
Mya	million years ago
MW	megawatt
NELAP	National Environmental Laboratory Accreditation Program
NEP	North Evaporation Ponds
NIST	National Institute of Standards and Technology
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
OSHA	United States Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbon
PCA	principal component analysis
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PFAS	per- and polyfluoroalkyl substances
PFBA	perfluorobutanoic acid
PFBS	perfluorobutanesulfonic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PID	photoionization detector
PNM	Public Service Company of New Mexico
PPE	personal protective equipment
PSV	passive soil vapor
QA	quality assurance
QAPP	Quality Assurance Project Plan

Qal	Quaternary alluvium
Qal/Qnt	shallow alluvial aquifer
QAPP	Quality Assurance Project Plan
QC	quality control
Qcrmsa	Quaternary covered reclaimed mine spoil and/or ash
Qnt	Quaternary Naha and Segi deposits
RBPP	Runoff Basin Pre Pond
RCRA	Resource Conservation and Recovery Act
RFAI	Request for Additional Information
RWR	Raw Water Reservoir
S1AP	Stage 1 Abatement Plan
SAP	Sampling and Analysis Plan
SCR	selective catalytic reduction
SDRS	sulfur dioxide removal system
SEP	South Evaporation Ponds
Shumway Recovery System	Shumway Arroyo Groundwater Recovery System
SJGS	San Juan Generating Station
SJM	San Juan Mine
SNCR	selective non-catalytic reduction
SOP	standard operating procedure
SO_x	sulfur oxides
SPLP	Synthetic Precipitation Leaching Procedure
SSHASP	Site-Specific Health and Safety Plan
SSL	Soil Screening Level
SVOC	semi-volatile organic compound
SWDP	Solid Waste Disposal Pit
TB	trip blank
TDS	total dissolved solids
TKa	Animas Formation
TKoa	Ojo Alamo Sandstone
Tn	Nacimiento Formation
TPH	total petroleum hydrocarbon
TSCA	Toxic Substances Control Act
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	underground storage tank
VISL	Vapor Intrusion Screening Level
VOC	volatile organic compound
WIS	Western Interior Seaway
yr	year

1.0 Introduction

1.1 Purpose and Objectives

On behalf of the Public Service Company of New Mexico (PNM), INTERA Incorporated (INTERA) has prepared this Stage 1 Abatement Plan (S1AP) proposal in response to a letter from the New Mexico Environment Department (NMED) dated July 29, 2025, titled "Stage 1 Abatement Plan Required, San Juan Generating Station, 6800 N County Road, Waterflow, NM." The S1AP was developed in accordance with provisions of the New Mexico Administrative Code (NMAC) 20.6.2.4103. PNM's former San Juan Generating Station (SJGS), located in San Juan County, New Mexico, was an 1,828-megawatt (MW) coal-fired generating station that began operating in 1973 and ceased operations in 2022. The SJGS is currently undergoing demolition, so references to the SJGS at present refer to the SJGS site. The subbituminous coal used at the SJGS was sourced from the San Juan Mine (SJM) located directly to the east of the SJGS (**Figure 1.1**). The SJM is currently owned by Westmoreland Mining, LLC and is a former coal mine that began surface mining operations in 1973 and shifted to underground operations in 2002 (DBS&A, 2025). The SJM also ceased operations in 2022. The coal combustion residuals (CCR) produced at the SJGS consisted of fly ash, bottom ash, and flue gas desulfurization (FGD) material. CCR material was temporarily handled at the SJGS, but it was ultimately removed and backfilled in surface mine pits at the SJM.

Historical operations at both the SJM and the SJGS have impacted shallow groundwater in the region (Stewart, 2018). As a result, two shallow groundwater recovery systems have been installed at locations approximately 1 mile and 1.5 miles downgradient of the SJGS. The term "Site" in this S1AP refers to the SJGS, the Raw Water Reservoir (RWR) located approximately 1 mile southwest of the SJGS that served as source water for SJGS operations, the western portion of the SJM, and the two shallow, downgradient groundwater recovery systems (**Figure 1.1**). While historical activities from both the SJM and the SJGS have likely impacted soils and groundwater, this S1AP focuses specifically on potential impacts associated with the SJGS. This S1AP describes what is currently known about the magnitude and extent of potential contamination at the Site and proposes further work to better understand the magnitude and extent of potential contamination from SJGS operations.

Demolition of the SJGS began in 2023 and is expected to be complete in 2026. The future use of PNM-owned property (**Figure 1.1**) is anticipated to remain as industrial and energy-related land.

1.2 Regulatory Framework

The regulatory drivers and authorities considered in this S1AP apply to soil and water resources. Water resources at the Site have been regulated by the United States Environmental Protection Agency (USEPA) through National Pollutant Discharge Elimination System (NPDES) permits and by the New Mexico Environment Department (NMED) through discharge permits (DPs). The Site is currently regulated through three DPs and one NPDES permit. Brief descriptions of the current permits are provided below.

The SJM is regulated by the New Mexico Energy, Minerals and Natural Resources Department (EMNRD); therefore, its closure and reclamation activities fall under EMNRD's jurisdiction and are not included in this S1AP.

1.2.1 DP-1327

DP-1327 was originally issued July 31, 2002, and was most recently renewed April 14, 2021 (NMED, 2021). DP-1327 represents a consolidation of the original eight discharge permits approved for the SJGS by the Environment Improvement Division of New Mexico (NMED, 2025), the predecessor of the NMED, and most recently the consolidation of DP-143, DP-239, and DP-287 (NMED, 2002). DP-1327 originally authorized the SJGS to discharge up to 2,557,000 gallons per day of process waters to eight evaporation cells and seven process ponds (**Figure 1.2**). Stormwater runoff basins were originally part of DP-157 and DP-176 but were joined with DP-1327 in 2002. Wastewater was eventually discharged to 15 evaporation cells, process ponds, and runoff basins, each of which is briefly described below.

The North Evaporation Ponds (NEP) consist of three evaporation cells and the South Evaporation Ponds (SEP) consist of five evaporation cells (**Figure 1.2**). The NEP and SEP were lined with high-density polyethylene (HDPE) material. Leak detection for the NEP was facilitated by groundwater monitoring wells (NEP1 through NEP7) and for the SEP by a French drain leak detection system. Wells NEP1, NEP2, and NEP5 are no longer active because they were regularly dry. The NEP and SEP received brine concentrator wastes, clarifier blow down, thickener blow down, process pond water, plant upset water, pond cleanings, boiler cleanings, sump cleanings, and sulfur dioxide removal system (SDRS) blow down. The NEP was permanently closed and capped in 2017, and efforts to close the SEP began in 2024.

The process ponds were built to allow water from any process pond to be transferred to any other process pond. Ponds 1A and 1B (**Figure 1.2**) were lined with soil and cement and potential impacts have been monitored by alluvial well MW-1. Ponds 2A and 2B (**Figure 1.2**) were lined with HDPE material and potential impacts have been monitored by alluvial wells MW-2 and QAL4. Ponds 3A, 3B, and 3C (**Figure 1.2**) were also lined with HDPE material and potential impacts have been monitored by alluvial well QAL3. Monitoring wells M3.1, M3.2, and M3.3 (also referred to as MP3.1, MP3.2, and MP3.3, respectively) are also located hydrologically downgradient of Pond 3 and are screened in mine spoil material. As wells MW-1 and MW-2 were consistently dry, these wells were plugged and abandoned in 2021 and 2022, respectively. The process ponds received cooling tower blow down, wash down water, floor drain water, plant overflows and upset water, coal pile runoff basin water, storm water flows, neutralizer regeneration waste, and treated domestic effluent.

Coal Pile Runoff Basin 1 & 2 (CPRB-1-2) is a single basin that captured stormwater runoff from Coal Piles 1 and 2. CPRB-1-2 was originally part of DP-157 (NMED, 2003a). The basin was lined with HDPE material and, in addition to stormwater runoff, received secondary crusher washdown and reclaim sump water. Monitoring well QAL1 has been used to monitor potential impacts from CPRB-1-2. Coal Pile Runoff Basin 3 & 4 (CPRB-3-4) is a single basin that captured stormwater runoff from Coal Piles 3 and 4. CPRB-3-4 was originally part of DP-176 (NMED, 2003b). The basin was lined with clay and received stormwater runoff, secondary crusher washdown water, reclaim sump water, Unit 3 and 4 ash system washdown water and upsets, Cooling Tower 3 and 4 overflows, emergency overflows from Process Pond 3, and miscellaneous surface flows from Units 3 and 4. Monitoring wells CB-1 and CB-2 have been used to monitor potential impacts from CPRB-3-4. The Runoff Basin Pre Pond (RBPP), which is also sometimes referred to as the Units 3 & 4 Pre Pond, was lined with HDPE material. The RBPP captured effluent from secondary crusher washdown water, reclaim sump water, stormwater ash system washdown water, and miscellaneous process upset surface flows. Potential impacts from the RBPP have been monitored by alluvial well QAL2R, which replaced QAL2.

Monitoring and reporting for DP-1327 has consisted of the following:

- Quarterly water quality measurements for groundwater monitoring wells
- Monthly wastewater volumes discharged to evaporation ponds, process ponds, and runoff basins
- Inspections of the SEP French drain leak detection system
- Semi-annual water quality measured in the SEP, process ponds, and runoff basins

As part of the renewal process for DP-1327, Metric Corporation (Metric) conducted a groundwater resource investigation at the Site and identified likely impacts to groundwater from the SJGS (Metric, 2007). Metric (2007) recommended the installation of a groundwater recovery trench downgradient of the SJGS to capture impacted groundwater. This shallow groundwater recovery system, referred to as the Memorial Recovery System, was built between September 2007 and March 2008 (Metric, 2010). The Memorial Recovery System is a 250-foot-long trench across the shallow aquifer that is backfilled with gravel and hosts a pumping well. The pumped groundwater is piped to either the SEP or Process Pond 2B. In addition to the pumping well (RTW), other wells (RTWE1, RTWE2, RTWS1, RTWW1, RTWW2, and RTWW3) were installed upgradient and downgradient of the system to monitor groundwater levels and groundwater quality. Discharge monitoring reports for DP-1327 now include this information.

1.2.2 DP-306

DP-306 was originally issued December 20, 1983, and was most recently renewed February 15, 2021. DP-306 authorizes PNM SJGS to dispose of 2,290 cubic yards per year of non-hazardous solid waste (≥60% solid materials) to a disposal pit lined with HDPE material. The disposal pit is referred to as the Solid Waste Disposal Pit (SWDP), which has received sand blasting grit, desiccant material, and demineralizer resins. Potential impacts from the SWDP have been monitored by alluvial well SWDP1.

Monitoring for DP-306 has consisted of quarterly reports on groundwater quality as measured from SWDP1, which is dry. In addition, PNM has been required to maintain a log of all materials disposed of in the SWDP. The DP stipulates that prior to closure, grab samples of the SWDP contents will be sampled for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). A representative grab sample of solid waste from the SWDP was analyzed for VOCs and SVOCs, and all measured results were below the NMED Soil Screening Level (SSL) for industrial/occupational activities (NMED, 2022). These results were reported to NMED on January 21, 2025 (PNM, 2025a).

1.2.3 DP-1843

DP-1843 was originally issued March 14, 2018 (NMED, 2018). An application for renewal was submitted June 6, 2023, but the renewal has not yet been granted. DP-1843 authorizes PNM to operate the Shumway Arroyo Groundwater Recovery System (Shumway Recovery System). The Shumway Recovery System is designed to collect alluvial groundwater downgradient of the historical confluence of the Westwater and Shumway Arroyos (**Figure 1.2**). The system is designed to capture groundwater by a trench and barrier wall system that is approximately 720 feet (ft) wide and runs roughly perpendicular to the historical Shumway Arroyo channel, which existed before the Shumway Diversion was put in place in the early 1980s (Stewart, 2018). Construction of the Shumway Recovery System took place from 2017 to 2020 (RJH Consultants, 2020) and began operating in 2018. DP-1843 allows for up to 200,000 gallons per day of alluvial groundwater to be pumped to catchments operated under DP-1327. Groundwater was initially pumped to the SEP or Process Pond

1, and then also pumped to Process Pond 2A starting in the third quarter of 2024 (PNM, 2024). This groundwater is now pumped to the SEP. The design of the Recovery System is meant to allow for surface water flow through the arroyo channel while effectively dewatering the alluvium in this reach of the Shumway Arroyo.

Monitoring for DP-1843 has consisted of the following:

- Monthly groundwater volumes pumped and discharged to evaporation ponds or process ponds
- Quarterly water quality for groundwater collected at the Wet Well
- Quarterly depth to water measurements from three piezometers upgradient (BA-301, BA-302, and BA-303) and three piezometers downgradient (BA-304, BA-305, and BA-306) of the recovery system

1.2.4 NPDES Permit No. NMR053228

NPDES Permit No. NMR053228 was originally issued on October 10, 2015, and was most recently renewed July 18, 2021 (USEPA, 2025). NPDES Permit No. NMR053228 authorizes PNM to discharge stormwater associated with industrial activities under Sector O – Steam Electric Generating Facilities of the Multi-Sector General Permit (MSGP) (USEPA, 2021). NPDES Permit No. NMR053228 is currently undergoing revisions that reflect the discontinuation of wastewater production and other operational changes at the SJGS that coincide with demolition.

Historically, industrial stormwater covered by this permit originated from interior roadways, material laydown areas, and the support service complex. Discharges occurred through designated outfalls that drained into the Westwater Arroyo (PNM, 2017a, 2021). In the revised permit, Outfall 2C will be the sampling point representing dirt areas and Outfall 5 will be the sampling point representing impervious areas.

Monitoring for NPDES Permit No. NMR053228 consists of the following:

- Quarterly routine inspections of outfalls and drainage areas
- Quarterly visual assessments of stormwater characteristics
- Semiannual benchmark monitoring, if applicable to subsector activities
- Annual reporting via NPDES eReporting Tool; Multi-Sector General Permit (NeT-MSGP)

PNM plans to convert the MSGP NPDES to a Construction General Permit in early 2026 to reflect the closure of operational structures. Pond closures began in 2024 and consisted of removing and sampling sediment, removing liners, and sampling exposed soil. The SJGS site does not discharge to an impaired or Tier 2/3 waterbody and will remain in compliance through regular inspection, documentation, and implementation of a Stormwater Pollution Prevention Plan (SWPPP). In addition, the SJGS site will continue to be monitored and maintained as required by DP-1327.

1.3 Limitations

This S1AP is preliminary in nature and serves as an effort to establish the environmental assessment and mitigation process for the Site. In creating the S1AP, INTERA has relied upon documents and data made available at the time of preparation and reserves the right to revise statements and plans herein in response to new information. The S1AP adopts an iterative and adaptive approach, recognizing that initial findings may lead to refinement in investigation methods, sampling locations,

or abatement strategies as additional information becomes available. This S1AP proposes desktop studies and field investigations that will be adaptively implemented to fulfill the project objectives. As the desktop studies and field programs progress, the data collected will be evaluated to confirm they are useful in satisfying project objectives and resolving data gaps. The results of these ongoing evaluations will inform progression of remaining S1AP elements. Data collection efforts that are not found to be informative may be modified or truncated to expedite completion of data collection and evaluation of abatement strategies pending approval by NMED. The adaptive implementation framework outlined in this plan allows for flexibility in response to investigation results, regulatory input, and site conditions, ensuring that subsequent stages of assessment and abatement are appropriately tailored to effectively address identified risks.

Certain impacts, such as those related to the SJM operations and reclamation activities, are being addressed by other responsible parties under separate authority and are therefore outside the scope of this S1AP.

1.4 Abatement Plan Organization

This S1AP addresses the elements specified in 20.6.2.4106(C) NMAC and is organized into the following sections to provide a comprehensive outline for evaluating and addressing environmental conditions at the Site:

- Section 1.0: Introduction – Presents the purpose, objectives, regulatory framework (including relevant permits), and limitations of the project.
- Section 2.0: Site History – Provides a detailed timeline of operations, permits, and known releases, along with anticipated future conditions and a summary of previous work.
- Section 3.0: Site Description – Describes the physical, geological, and hydrogeological setting of the Site and summarizes the extent of known impacts.
- Section 4.0: Site Investigation Work Plan – Details the investigation strategy including desktop studies, soil, sediment, groundwater, and surface water assessments, as well as the monitoring program.
- Section 5.0: Quality Assurance Project Plan (QAPP) – Outlines quality objectives, training requirements, sample management, analytical programs, and quality control procedures to ensure data integrity.
- Section 6.0: Stage 1 Abatement Plan Schedule – Provides a timeline for implementation of the S1AP activities.
- Section 7.0: References – Lists sources and supporting documentation used throughout the plan.

A Site-Specific Health and Safety Plan (SSHASP) for implementing this S1AP is provided in **Appendix A**.

2.0 Site History

Understanding the historical operations, releases, and regulatory milestones at the Site is essential to effectively evaluate potential environmental impacts and guide investigation efforts. This section presents a detailed timeline of the SJGS's operational history, permit authorizations, known releases,

and reclamation activities. The information compiled here provides critical context for the development of the conceptual site model (CSM) and subsequent abatement planning.

2.1 Timeline of SJGS Operations and Relationship to Potential Contaminants

The SJGS was a 1,850 MW coal-fired generating station that began operating in 1973 and ceased operations in 2022. The structures that were part of the SJGS operations are shown in **Figure 2.1**. The SJGS had four units, each including a boiler, cooling tower, and associated process equipment: the 370 MW Unit 2 operated from 1973 until 2017, the 370 MW Unit 1 operated from 1976 until 2022, the 544 MW Unit 3 operated from 1979 until 2017, and the 544 MW Unit 4 operated from 1982 until 2022. The Unit 2 boiler suffered a major explosion[1] in 1977 and had to be rebuilt from 1977 to 1978. The units shared facilities for supply and handling of raw materials such as coal and water and for management of CCRs (also known as coal combustion byproducts or CCBs), solid waste, process water, and wastewater. The SJGS is currently undergoing demolition. The half-century-long period of operation spans many changes in environmental regulations and technological advancements that affected the handling of materials and gaseous, solid, and liquid waste streams and associated constituents of potential concern (COPCs). Some significant events in the operational history of SJGS are summarized in this section and in **Table 2.1**. General process descriptions are provided where relevant to the potential presence of contaminants.

Construction of the first units predated regulatory bans or limits on certain hazardous materials, for example, the 1976 Toxic Substances Control Act (TSCA) which banned transformer oils containing polychlorinated biphenyls (PCBs) in 1979. TSCA imposed detailed management and recordkeeping requirements on appropriate disposition of PCB-containing transformers and capacitors but did not preclude continued use for many years to come of equipment already in service. PNM tested oils contained within “in service” and “out of service” transformers for the presence of PCBs at various times (i.e., 1998, 2000, 2017, and 2022) throughout the operation of the SJGS in response to requirements of the TSCA; results from the sampling and analysis revealed that oils from ten of the 25 transformers sampled contained PCBs in the oils ranging from 2.3 milligrams per kilogram (mg/kg) to 65 mg/kg (PNM, personal communication). The PCB type was listed as Arochlor — a trade name for a chemical mixture containing PCBs — 1260, 1254, and 1242 (PNM, personal communication). No releases of PCBs have been documented at the SJGS, and as discussed below in Section 3.4, no PCBs were detected in soil samples collected and analyzed for PCBs conducted as part of a third-party study in 2024.

Similar evolution of regulations on construction materials such as lead-based paint and asbestos containing material (ACM) would indicate that at least the oldest facilities at SJGS and solid waste disposal areas that received construction debris may contain such materials. This S1AP does not include an evaluation of SJGS records with respect to potential contaminants in construction debris, and it assumes that plans for demolition activities address appropriate disposal of materials from remaining structures. The S1AP does not address the potential contamination of soil from lead-based paint, PCBs, and ACM due to demolition actions.

[1] Records reviewed for the preliminary S1AP were unclear whether the explosion was a steam explosion or other explosion and whether a fire response was necessary. If firefighting foam was deployed, then the Unit 2 vicinity may be an area of interest for PFAS characterization.

The primary operation of a coal-fired generating station such as SJGS is electricity generation by combustion of coal in the boiler's furnace to produce heat, transferring the heat to water in the boiler to produce steam, and operating turbines to convert energy carried by the steam into electrical energy, with a condenser used to condense steam exiting the turbine into water and recycle it to the boiler feedwater (USEPA, 1997). The subbituminous coal used at the SJGS was sourced from the SJM, which began surface mining operations in 1973 and shifted to underground mining circa the early 2000s before ceasing operations in 2022. A large coal pile at the edge of the SJM lease near SJGS was used to stockpile mined coal to meet contracts for supply to SJGS, and a coal handling area west of the coal pile transferred coal to the power block facilities. According to USEPA (1997), some generating stations applied antifreeze chemicals to coal piles in winter or water, oil, or calcium chloride for dust suppression, although a preliminary records review was inconclusive as to whether or not this was a practice at SJGS. Coal pile runoff basins managed stormwater runoff from stockpiles. Water was supplied from the San Juan River via diversion to the Raw Water Reservoir (RWR), which was constructed in 1973.

Cooling towers recirculated water to recover heat and condense steam in the working fluid cycle, with water extensively recycled through a system of process ponds and treatment units to minimize discharge of water, contaminants, or thermal pollution. To prevent buildup of solids in the process water, some water must exit the recycle loop. This water was disposed of from brine concentrators and elsewhere in the process water system to evaporation ponds. The majority of the water supplied to SJGS evaporated at other points in the operation, e.g. from the cooling towers. USEPA (1997) reports that the power generation industry historically used a variety of possible additives in cooling water to prevent scaling, inhibit corrosion, and control fouling or biological growth, for instance, hexavalent chromium was a particularly toxic scale inhibitor in some older applications, though it would typically be a greater environmental concern for a once-through cooling water system rather than the recirculating systems at SJGS. Further records review is necessary to determine any additives used at SJGS and whether they changed over time.

Combustion is a chemical reaction in which oxygen from the air reacts with carbon and hydrogen to form carbon dioxide and water vapor. Impurities in coal such as sulfur and nitrogen are oxidized by side reactions during combustion to produce sulfur oxides (SO_x) and nitrogen oxides (NO_x) as minor components of the flue gases. Metals that can become volatile at high temperatures, notably mercury and selenium, may also be carried in flue gases. Incomplete combustion may produce other undesirable byproducts in flue gases or solid residues including carbon monoxide, particulate matter, and polycyclic aromatic hydrocarbons (PAHs). If chlorine reacts with incomplete combustion products, highly toxic substances such as PCBs, dioxins, and furans may be produced in trace quantities.

Air emissions control systems varied over time but shared the general function of removing contaminants from flue gases or stack gases to reduce air pollution, with the consequence that byproduct or waste streams were generated that transferred contaminants into solid or liquid phases requiring further management to avoid contamination of soils, surface water, or groundwater. Materials not removed by emission control systems may have incidentally deposited on the ground surface.

Solid phase streams are known as coal combustion byproducts (CCBs) or coal combustion residuals (CCRs) and include fly ash, bottom ash, and FGD material. Most of the mass of CCR produced at the SJGS was removed from the SJGS and returned to SJM for use as backfill. Bottom ash is removed from boilers by sluicing with water and then dewatering before returning the ash to the mine. Fly

ash was initially removed using electrostatic precipitators (ESPs) and later baghouses. Full-scale baghouses were added to each unit from 2007 to 2009, during which time an activated carbon injection system was used to enhance recovery of mercury. FGD systems were changed over time with attendant changes in the process water train. A Wellman-Lord scrubber process was used until 1999, and limestone scrubbers were used thereafter, eliminating the clarifier and reverse osmosis unit operations while continuing to employ filters, brine concentrators, and demineralizers. The Wellman-Lord scrubbers used a regenerative process to remove sulfur dioxide from flue gas by reaction with sodium sulfite and makeup sodium carbonate and produced either sulfur or sulfuric acid with sodium bisulfite as an intermediate. In limestone scrubbers, limestone reacts with sulfur dioxide to precipitate insoluble calcium sulfite which can be oxidized to obtain gypsum. Chelating agents and phosphates may be added to control buildup of scale. Dibasic acid was added to the limestone FGD process from 2007 to 2022 to improve efficiency.

NO_x emissions controls at SJGS for most of the operational history included low-NO_x burners at 3 of the 4 units and over-fired air ports at all units. Circa 2015, the USEPA proposed requiring installation of selective catalytic reduction (SCR) at SJGS. PNM and the State of New Mexico instead agreed to retire Units 2 and 3 and to install selective non-catalytic reduction (SNCR) on Units 1 and 4.

Summarized below are useful descriptions and data for coal ash from generating stations like SJGS provided by the Electric Power Research Institute (EPRI, 2009). Unburned mineral matter present as impurities in the coal (e.g., quartz, feldspars, clays, and metal oxides) and some unburned carbon is left as ash, where the lightweight particles that travel with the flue gas are known as fly ash and the heavier particles that accumulate in the bottom of the boiler is known as bottom ash, in some cases boiler slag. Fly ash particles are composed mainly of amorphous or glassy aluminosilicates in silt-sized spheres, ranging from 1 to 100 micrometers in diameter, which also contain some crystalline compounds (e.g., quartz and mullite [Mattigod et al., 1990]) and adsorb elements that become volatile at high temperatures such as boron, arsenic, and selenium as the flue gas cools. Like fly ash, bottom ash is composed primarily of amorphous or glassy aluminosilicate materials derived from the melted mineral phases, but bottom ash is coarser than fly ash, with a sandy texture and particles ranging from about 0.1 millimeters (mm) to 50 mm in diameter. The chemical composition of typical coal ash is >90% oxides of silicon, aluminum, iron, and calcium in concentrations similar to those of the Earth's crust, about 8% magnesium, potassium, sodium, titanium, and sulfur, and <1% trace constituents including arsenic, boron, cadmium, lead, mercury, nickel, selenium, strontium, vanadium, and zinc (see EPRI [2009] for comparison of statistical ranges of chemical compositions of fly ash, bottom ash, rocks, and soil; see Mattigod et al. [1990] and Eary et al. [1990] for solid phases of CCRs and leaching behavior of coal ash constituents; and site-specific data may also be available from SJGS and/or SJM).

FGD wastes are principally composed of sulfites, sulfates, carbonates, and hydroxides of calcium (Mattigod et al., 1990). Because selenium has an ionic radius such that it readily substitutes for sulfate in mineral phases, selenium may be elevated in FGD waste. Mercury may similarly be recovered incidentally from flue gases with FGD solids depending on the type and sequence of air emissions controls.

In addition to primary operations facilities, supporting operations included landfills, a solid waste pit, diesel fuel and oil storage and unloading areas, acid storage, hazardous waste storage, a laboratory, warehouse, a vehicle maintenance building with wash bays and diesel and gasoline storage tanks, and north and south sewage treatment plants. Sanitary sewage was disposed via the process pond system to the evaporation ponds. **Figure 2.1** shows the locations of these site features.

2.2 Timeline of SJGS Permits

NMED is currently overseeing the SJGS environmental monitoring and closure under three site-specific groundwater permits DP-1327, DP-306, and DP-1843. These permits represent a consolidation of eight previous discharge permits (NMED, 2025). The industrial stormwater discharge under NPDES Permit NMR053228 is currently overseen by the USEPA.

A timeline for permitting documentation (and related events) is provided in **Table 2.2**. This permit timeline was provided by PNM and has been modified based on review of historical documents and personal communication with PNM staff. In the past, the multiple discharge permits for the SJGS were in place to monitor various site features shown in **Figure 1.2**. NPDES permits allow the USEPA to control discharges into waters of the United States. SJGS held NPDES Permit NM0028606 from March 30, 1979 to September 21, 2015 (NMED, 2015). The permitting oversight at the SJGS has allowed for the monitoring of operational wastewater discharges, solid waste deposition, and recovered groundwater discharges.

2.3 Timeline of Known SJGS Releases

Throughout the lifetime of the SJGS, spills and leaks, referred to collectively as releases, of water and other fluids have occurred. **Table 2.3** provides a compilation of known releases based on review of historical documents and personal communication with PNM staff. The list of releases delineated in **Table 2.3**is preliminary and will be improved through the further review of historical documents proposed in the work plan (Section 4.1.1).

The release events listed in **Table 2.3**are grouped by the type of fluid released or the area in which the release occurred. When the area of the release is not identified, it is listed as “unknown”. A summary of each known group is provided below. Recent examples of water quality for various process water catchments (evaporation ponds, process ponds, and runoff basins) are provided in **Table 2.4**. Concentrations of the major dissolved constituents (sulfate, sodium) and TDS in these samples are shown in **Figures 2.2** and **2.3**.

2.3.1 Clean Water Releases

The releases identified as “Clean Water” in **Table 2.3** are the most common type of release and are documented to be potable water, water from hydrants, water in conveyances between the San Juan River and the RWR, or water in conveyances between the RWR and the SJGS or SJM. Clean Water releases are not expected to have contributed contaminants to groundwater. However, these releases could have leached constituents from soils, sediments, and bedrock that possibly impacted groundwater.

To provide context for a Clean Water release, the water quality of the RWR (as reported by Metric, 1982) is provided in **Table 2.4**. The historical water quality data for the RWR is compared to recent examples of various samples of SJGS operational water provided in **Table 2.4**. The total dissolved solids (TDS) concentration reflects the salinity of the solution and the value increases with increasing concentrations of dissolved constituents. In general, sulfate is the predominant anion and sodium is the predominant cation contributing to the TDS of SJGS operational water. Concentrations of these major constituents are shown for various samples of SJGS operational water, including the RWR, in **Figures 2.2** and **2.3**.

2.3.2 Power Plant Releases

Another release type is referred to as "Power Plant" as the release occurred within the plant itself. These releases are generally associated with boilers, steam turbines, condensers, cooling towers, ash handling systems, and air pollution control systems. The Power Plant releases consisted primarily of process water, which likely ranged in quality from mostly clean to highly saline. There are a few documented releases of chlorine bleach.

Relatively recent examples of water quality for Cooling Towers 1, 2, 3, and 4 (CT-1, CT-2, CT-3, and CT-4) which could represent a process water release are provided in **Table 2.4**. Concentrations of the major dissolved constituents (sulfate, sodium) and TDS for these samples are shown in **Figures 2.2** and **2.3**. Concentrations of sulfate, sodium, and TDS in the recent Cooling Tower samples are similar to or less than those for the RWR sample (**Figures 2.2** and **2.3**). TDS concentrations in Cooling Tower water were between 880 to 5,700 milligrams per liter (mg/L).

2.3.3 Pond Releases

The release type referred to as "Pond" is based on the association with different types of catchments located at the Site. These catchments consist of the evaporation cells (NEP and SEP), process ponds (Ponds 1A/1B, Ponds 2A/2B, and Ponds 3A/3B/3C), and runoff basins (CPRB-1-2, CPRB-3-4, and RBPP), which are described in Section 1.2.1. The Pond releases consisted primarily of processing water ranging from small quantities (e.g., 50 gallons) to large quantities (e.g., 12,000 gallons). Examples of Pond releases provided in **Table 2.3** are described below.

In May 1986, PNM reported a liner failure and release from the NEP. Days later, PNM reported additional breaks in the liner of NEP Cell 1 near the semi-solid disposal area. Following these releases from the NEP, groundwater was first observed in monitoring well NEP3 in November 1996 and in monitoring well NEP4 in November 1997. In January 2010, July 2018, and January 2019, water was released from Pond 2 during transfer to the SEP due to damaged piping. Additional releases from Pond 2 occurred in March 2016 and November 2017. In these instances, PNM repaired the issue and released water was either captured and removed to another catchment or absorbed by the soil. In January 2014, a release of saline process water from the SEP Cell 4 was discovered by the French drain leak detection system, and the cell was temporarily taken out of service for repairs.

Released process water likely varied in composition. For example, the average TDS concentration of Pond 2 discharge ranged between 4,402 to 9,850 mg/L from 1974 to 1981 (Metric, 1982). The TDS concentrations reported for process ponds during the 2010s ranged from 1,700 to 3,900 mg/L (PNM, 2010-2019). Process water that ultimately ended up in the NEP or SEP was too saline for continued use. The TDS concentrations reported for the SEP during the 2010s ranged from 9,000 to 300,000 mg/L (PNM, 2010-2019).

Recent examples of the concentrations of sulfate, sodium, and TDS in process water catchments provided in **Table 2.4** cover the full range of concentrations observed for SJGS operational waters. Evaporation ponds (SEP and NEP) show higher concentrations while some process ponds and the RBPP have lower concentrations (**Figures 2.2** and **2.3**). **Table 2.4** shows that, in addition to elevated sulfate, sodium, and TDS concentrations, SJGS operational water may have been elevated in other constituents, such as arsenic, boron, fluoride, selenium, and uranium.

2.3.4 Fuel and Oil Releases

Releases referred to as "Fuel/Oil" are comprised mostly of fuel oil and diesel, with a few instances of lube oil releases (**Table 2.3**). At least eight Fuel/Oil releases occurred at the Site between 2004 and 2023 ranging in volume from approximately 20 to 200 gallons. When possible, Fuel/Oil releases were remediated by applying an absorbent, contained within oil booms, or excavated to remove impacted soils and sediments. Possible contaminants associated with these Fuel/Oil releases include the following: VOCs, SVOCs, and total petroleum hydrocarbons (TPH) including gasoline range organics (GRO), diesel range organics (DRO), and motor oil range organics (MRO).

2.4 Anticipated Future Conditions

Coal-burning Units 1-4 were shut down between 2017 and 2022 and demolition of the SJGS infrastructure began in 2023 Demolition activities are anticipated to be complete in the first quarter of 2026. When demolition activities have been completed in a given part of the SJGS, certain areas will need to be regraded and seeded to ensure compliance with active permits at the Site. The goal is to collect soil and sediment samples within the SJGS area prior to regrading and seeding. As a result, the soil and sediment sample collection and analysis outlined in **Section 4.2** will be prioritized as one of the first tasks during the S1AP schedule (**Section 6.0**).

The RWR that was used for SJGS operations was sold to the Bureau of Reclamation (BOR) in 2023 for water supply to the Navajo Nation. The RWR has since been renamed the Frank Chee Willetto Reservoir. This S1AP retains the term "Raw Water Reservoir" or "RWR" to be consistent with references to this water body in historical documents.

2.5 Previous Studies and Work

The SJGS and the SJM have been the focus of many studies and lawsuits since operations began in the early 1970s. A list of previous studies and work is provided below. These reports and datasets do not represent an exhaustive list but instead represent crucial information for understanding the extent of possible impacts on the Site. Information in the reports and datasets listed below is integrated into the Site Description (**Section 3.0**) in more detail.

- Metric (1982): Hydrologic Conditions Along the Westwater and Shumway Drainages
- Phillips (1983): A Geochemical Investigation into the Origins of Groundwater Salinity Along Shumway and Westwater Arroyos
- Metric (2007): San Juan Generating Station Groundwater Resource Investigation
- Stewart (2018): Hydrologic Assessment and Numerical Simulation of Groundwater Flow, San Juan Mine, San Juan County, New Mexico, 2010-13
- Third-Party Study (2024): Data from a Site-wide characterization of soils and groundwater
- Daniel B. Stephens & Associates, Inc. (DBS&A; 2025): Site Investigation Report, San Juan Mine Remediation and Restoration Study
- Jacobs Engineering Group Inc. (Jacobs) (2025): San Juan Generating Station Data Gaps Analysis Report
- Jacobs (2025): Installation of new monitoring wells (NMED wells) and sampling of wells
- NMED (2025): San Juan Generating Station Remediation and Restoration Study
- PNM (2025b): Reporting of pond sediment and underliner samples to NMED

3.0 Site Description

This section provides an overview of the physical and environmental setting of the SJGS to establish the context for evaluating potential contaminant migration pathways and exposure mechanisms. The site description integrates available information on regional and site-specific conditions that may influence contaminant behavior and transport within the local environment.

The subsections that follow describe key environmental characteristics including regional and local climate, geology, hydrogeology and the extent of known contaminants. Together, these elements form the foundation of refining the CSM and guiding subsequent site investigation and modeling activities presented in **Section 4.0**.

3.1 Climate

The regional climate in northern New Mexico is characteristic of a mild semi-arid zone, with low annual precipitation, large diurnal and seasonal temperature swings, and relatively dry air. For example, data from nearby Shiprock indicate average high temperatures ranging from the low 40s degrees Fahrenheit (°F) in mid-winter to the mid-90s °F in midsummer, while average overnight lows range from the teens to twenties in winter and the 50s and 60s in summer (US Climate Data, 2025). Elevations in the area (between 5000 and 5500 ft) contribute to the significant temperature swings. Annual precipitation in the area averages between 7 and 8 inches, most of which occurs during the late summer monsoon (US Climate Data, 2025).

3.2 Geology

The San Juan Basin is a large structural depression located primarily within northwestern New Mexico and southwestern Colorado; the San Juan Basin also extends slightly into Arizona and Utah (Fassett and Hinds, 1971; Craigg, 2001; Stewart, 2018). The geologic units in the region are shown in **Figure 3.1**. This basin is known for its rich fossil fuel resources, including coal, oil, and natural gas (Parker et al., 1977), as well as uranium (Fassett and Hinds, 1971) and coal bed methane resources (Cullicott et al., 2002). The basin contains a thick stratigraphic sequence (**Figure 3.2**) ranging from Precambrian igneous basement rocks that were successively overlain by Triassic-, Jurassic-, Cretaceous- and Tertiary-age sedimentary rocks (Craigg, 2001).

Structurally, the San Juan Basin is an asymmetrical foreland basin, formed as a result of synclinal subsidence during the late Cretaceous (~70 million years ago [Mya]) to early Paleogene (~35 Mya) due to the Laramide Orogeny (~80 to 40 Mya) (Stewart, 2018). Structural features including platforms, monoclinal and anticlinal uplifts, and other subsidence features are present along the basin margins. Along the northern, eastern, and western edges, uplifted strata dip sharply inward towards the lower central points of the basin (Strobell et al., 1980), whereas in the south strata dip more gently towards the basin center (Kelly, 1957; Stone et al., 1983; Craigg, 2001). The strata form concentric outcrops with older formations at the basin margins and younger formations towards the basin center.

Of primary interest to this study is the central basin within the San Juan Basin, which is bounded along the western, northwestern, and northern margins by the Hogback monocline, crested by Late Cretaceous–age sandstone beds displaying increasing faulting with proximity to the monocline (Craigg, 2001). This central basin was located along one of several shorelines of the Late Cretaceous-

age Western Interior Seaway (WIS). During the subsidence, the WIS was subject to as many as four to five transgressive-regressive cycles (Molenaar, 1977; Laubach and Tremain, 1994). This combination of regressive seaway and widespread basin subsidence resulted in thick sequences of interbedded sandstones and marine shales with overlying continental fluvial sands and coals/shales deposited during the final regression (Ayers et al., 1994).

The stratigraphic interval of particular focus to this study begins with the Late Cretaceous-age Cliff House Sandstone (Kch), the topmost unit of the Mesaverde Group. The Kch has been described as a thick-bedded, fine- to very fine-grained coastal marine sandstone. Thickness ranges from 150 ft to 360 ft in the area near the SJGS and SJM, whereas elsewhere in the basin the Kch is described as ranging from 20 to 245 ft thick but up to 800 ft thick to the east of the study area (Stone et al., 1983; Craigg, 2001). The Kch is overlain conformably by the Cretaceous-age Lewis Shale (Kls) which interbeds with the Kch and is composed of a marine shale with interbedded sandstone and limestone lenses. The Kls is absent in the southwestern margin of the basin and thickens up to as much as 2400 ft in the northeast section of the basin (Fassett and Hinds, 1971; Ayers et al., 1994). Above the Kls is the Late Cretaceous Pictured Cliffs Sandstone (Kpc), representing the last regression of the WIS (Molenaar, 1977; Ayers et al., 1994). The Kpc is a marine coastal barrier deposit consisting of shoreface mudstones and sandstones in the lower third that grades to fine- to medium-grained massive sandstones in the upper portions of the Kpc. Total thickness varies across the central basin, but the average thickness close to the SJGS is 120 ft. The Kpc conformably overlies and intertongues with the Lewis Shale below.

Above the Pictured Cliffs Sandstone is the conformably overlying Cretaceous-age Fruitland Formation (Kf). The Kf is made up of interbedded non-marine sandstones, siltstones, claystones of siliciclastic and carbonaceous composition as well as coal seams of varying thicknesses. The Kf is overlain conformably by the Kirtland Shale (Kks), which itself is composed of a sandstone member sandwiched between two shale members. It should be noted that the Kks and Kf are lithologically similar with the exception that the Kirtland Shale does not contain coal beds. Where the Fruitland and Kirtland are not differentiated, they are grouped as the Kirtland/Fruitland Formation (Kkf). In the western edge of the study area around the SJGS the Kkf is not present, but it thickens to the east, reaching a maximum thickness of 2000 ft in the northeastern parts of the basin (Stone et al., 1983, Craigg, 2001). The SJM is situated at the outcrop/subcrop of the No. 8 Coal Seam in the lower Kf and was mined following the dip of the Kf, and the SJGS is situated just west of the SJM opposite the outcrop/subcrop. Outcropping/subcropping of the Kf and coal seams along the Quaternary sediments filling the channel along the margin between the SJM and SJGS sites would be expected to affect the natural background water quality in the arroyos, for example due to naturally occurring uranium in the Kf (Strobell et al., 1980). Coal seams are subject to natural oxidation reactions when exposed to oxygen, which are responsible for the presence of “clinker” deposits at the western boundary of the SJM near the SJGS, shown in the quadrangle map as “oxidized rock above burned coal bed” (Strobell et al., 1980).

Above these intervals (while present in the central basin but not located within the SJGS) are the Cretaceous-Tertiary Animas Formation and Ojo Alamo Sandstone and the Tertiary Nacimiento Formations. The Animas Formation (TKa) is composed of a tuffaceous sandstone interbedded with volcanic material and shales. Above this, the Ojo Alamo Sandstone (TKoa) is mainly lenses of sandstone, conglomeratic sandstone and shales. The Tertiary-aged Nacimiento Formation (Tn) is interbedded shales and sandstone lenses which locationally overlies the TKoa, and in some instances

grades into the TKoa. The TKa, TKoa and Tn are often undifferentiated and combined range in thickness from 70 to 200 ft (Stone et al., 1983; Kernodle, 1996).

The uppermost stratigraphic intervals include undifferentiated Quaternary Naha and Tsegi (Qnt) eolian dune-sand deposits, mapped in detail by Strobell et al., 1980. These units are also present as paleochannel fill that cut into the Kch, Kls, Kpc, and Kkf (Metric, 1982, 2007). These range in thickness from 20 to 30 ft. The Shumway Arroyo Quaternary alluvium (Qal) fill is mainly composed of reworked Qnt deposits combined with larger clasts stemming from these paleochannel cuts through the Cretaceous material and are usually less than 10 ft in thickness (Metric, 2007). Distinctions between Quaternary alluvium (Qal) and eolian deposits (Qnt) may not always be recognized accurately, so the two Quaternary sediment units are sometimes considered together. Surface deposits of covered and reclaimed mine spoils and/or ash (Qcrmsa) are also observed as a distinct Quaternary unit.

3.3 Hydrogeology

The hydrogeology of the SJGS and SJM area is characterized by limited groundwater resources that occur within shallow unconsolidated deposits and deeper Cretaceous bedrock aquifers. Groundwater occurrence and movement are controlled primarily by lithologic variability, structural confinement, and localized recharge from surface-water infiltration. Groundwater is monitored across the Site by the monitoring wells shown in **Figure 3.3**. In the shallow alluvial aquifer (Qal/Qnt), flow follows surface topography southward along Westwater Arroyo and Shumway Arroyo toward the San Juan River (Metric, 1982; Metric, 2007; Stewart, 2018; DBS&A, 2025). In the confined bedrock aquifers (Kh and Kpc), pre-mining flow was generally south-southeast parallel to regional dip, but long-term underground mining dewatering created a persistent cone of depression centered on the mine pits and a bedrock groundwater flow direction from west to east, with post-mining recovery projected to require 6,600–10,600 years (Metric, 1982; Metric, 2007; Stewart, 2018; DBS&A, 2025).

Shallow groundwater occurs within Qal and Qnt deposits along the Westwater and Shumway Arroyos. These deposits are generally less than 40 ft thick and exhibit saturated thicknesses ranging from approximately 3 to 24 ft (Metric, 1982). Metric (2007) describes the Qnt as forming a narrow, saturated zone (lower 10–30 ft) within a bedrock canyon along Westwater Arroyo, extending about 4 miles north to 3 miles south of SJGS, with an approximate width of 1,000 ft. Reported hydraulic properties include the following: (1) horizontal hydraulic conductivity, Kh, of 5.1×10^{-3} centimeters per second (cm/s); (2) vertical hydraulic conductivity, Kv, of 5.1×10^{-5} cm/s; (3) porosity of 0.35; (4) hydraulic gradient of 0.00059 ft/ft; (5) Darcy flux (reported as Darcy velocity) of 31 ft per year (ft/yr); and (6) seepage velocity (reported as particle velocity) of 90 ft/yr (Metric, 2007).

Shallow groundwater in the Qal/Qnt occurs under unconfined conditions and is recharged episodically through surface-water infiltration and localized runoff during storm events. Recent groundwater elevations measured for wells within the Qal/Qnt are shown in **Figure 3.4**. Most of the groundwater elevation data shown in **Figure 3.4** was collected in 2024 and 2025, except for RTW and SWDP-1, which are from 2022. **Figure 3.4** shows that flow directions generally follow the Westwater and Shumway Arroyos toward the San Juan River (**Figure 3.4**), which serves as the principal regional discharge area for both the shallow and deeper systems. Hydraulic gradients in the upper reach of Westwater Arroyo suggest potential for surface-water recharge, while the lower Shumway reach may experience limited groundwater discharge to surface flow (Metric, 1982).

Groundwater within alluvium and bedrock (Kpc) underlying the arroyo downstream of the RWR may flow into the alluvium in the Westwater Arroyo (RJH Consultants, 2014a). Seepage from the RWR has been documented previously (RJH Consultants, 2014a). Kh of the alluvium was estimated to be 1.2x10-3 cm/s (RJH Consultants, 2014a). Three Kpc subunits were identified near the RWR: Units 4B, 4A, and 3. Units 4B and 3 were determined to have low Kh with little groundwater flow. Unit 4A "ranged from slightly to intensely weathered and unfractured to intensely fractured" (RJH Consultants, 2014a) with an estimated Kh of 1.6x10-3 cm/s (RJH Consultants, 2014b). Flow in the alluvium immediately below the RWR is attributed to reservoir seepage while flow in the Kpc Unit 4A may come from the reservoir and from regional sources.

Two groundwater recovery systems currently operate to manage shallow groundwater impacted by historical plant operations: the Memorial Recovery System, located upgradient near the SJGS, and the Shumway Recovery System, located downstream of the historical Westwater–Shumway confluence (**Figure 1.1**). Both recovery systems target shallow groundwater in the Qal/Qnt units to limit downgradient migration of impacted water.

The principal bedrock aquifers in the area include the Cliff House Sandstone (Kch), Pictured Cliffs Sandstone (Kpc), and the No. 8 Coal Seam of the Kf. These units exhibit low to moderate transmissivities, typically ranging from 0.6 to 130 square feet per day (ft^2/day) (Stone et al., 1983), with groundwater generally occurring under confined to semi-confined conditions. The Kls forms a laterally extensive aquitard, separating the Kpc and Kh aquifers from shallower alluvial deposits.

Metric (2007) described the Kf as largely unsaturated at the SJGS, except within the pre-mining No. 8 Coal Seam, which is 10–20 ft thick and occurs approximately 10–20 ft above the formation base. Reported hydraulic parameters include Kh of 1.3×10^{-4} cm/s (assumed isotropic), porosity of 0.005, and a pre-mining gradient of 0.013 ft/ft, yielding an estimated Darcy flux of 0.17 ft/yr and seepage velocity of 35 ft/yr.

The Kpc, approximately 110–150 ft thick, is unsaturated beneath the SEP but becomes saturated eastward. Reported parameters include Kh = $3.9 \times 10^{-}5$ cm/s, Kv of 3.9×10^{-7} cm/s, porosity of 0.20, and gradient of 0.0067 ft/ft, corresponding to a Darcy flux of 0.07 ft/yr and seepage velocity of 0.36 ft/yr (Metric, 2007). Groundwater within the bedrock aquifers occurs under confined conditions, with locally enhanced transmissivity where fracturing increases permeability (Stewart, 2018).

The Kls acts as a regionally significant confining layer that limits vertical hydraulic connectivity between the shallow and deep groundwater systems, although localized connections may exist along structural features or former mine areas.

Stewart (2018) developed a MODFLOW-NWT numerical groundwater model to evaluate post-mining conditions at the SJM, focusing on groundwater recovery and flow from CCR material. The model indicated that historical mine dewatering created a broad cone of depression, with recovery to steady-state conditions projected to require approximately 6,600 to 10,600 years. Simulated flow paths trend westward, southward, and southeastward from the mine area. Most flow is directed toward the Westwater and Shumway Arroyo alluvium within about 1,300 years post-mining, ultimately discharging to the San Juan River alluvium approximately 1,500 to 2,400 years post-mining.

DBS&A (2025) identified three primary hydrologic units within the SJM area:

- Shallow alluvial groundwater in the Shumway and Westwater Arroyos;

- The Kf, with the most transmissive zones occurring within the No. 8 Coal Seam near the Kpc contact; and
- The Kpc aquifer, underlain by the Kls aquitard.

Groundwater monitoring across more than 30 wells indicates generally low yields, low hydraulic conductivity, and degraded water quality. Reclaimed mine-pit backfill remains largely unsaturated due to low-permeability fill materials, though limited hydraulic connectivity with adjacent units may occur locally. These hydrogeologic conditions collectively limit the extent and rate of contaminant migration, confining most impacts to the shallow alluvial system that ultimately discharges to the San Juan River (DBS&A, 2025; Stewart, 2018).

3.4 Extent of Known Impacts

3.4.1 Soil and Sediments

Various operations at the SJGS had the potential to impact surficial soils and sediments, surface water, and groundwater. Several recent studies were carried out to characterize soils and sediments in potentially impacted areas at the Site. A third-party study completed in 2024 was provided to INTERA by PNM in a redacted format. A summary of the results is provided here based on a review of the sample location map and laboratory reports. Soil and sediment bores were drilled throughout the SJGS area as shown in **Figure 3.5**. The bores were generally located near oil and fuel tanks, process ponds, the transformer area, and the SWDP. Solid samples from discrete depths were submitted for laboratory analysis of the eight metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) considered to be toxic and routinely sampled for activities under the Resource Conservation and Recovery Act (RCRA), VOCs, SVOCs, PCBs, and TPHs. Sample depths were generally within the upper 10 ft of soil and sediment. Select results from the 2024 third-party analysis of soil and sediment samples are given in **Table 3.3**, which shows only the constituents where at least one detected result was observed in at least one sample. Results were compared to NMED guidance on SSLs (NMED, 2022) for industrial/occupational activities, construction workers, and the twenty-times dilution-attenuation factor (DAF-20) value that helps screen for a possible soil to groundwater pathway. Although some detections were observed, none of the samples exceeded SSLs for industrial/occupational activities and construction workers. A few constituents exceeded the DAF-20 SSL value for the following constituents and boreholes: (1) arsenic in T-GSB-8 (9-10 ft), T-TanksSB-5 (2.5-5 ft), T-TanksSB-6 (3-5 ft), T-TanksSB-6 (8-10 ft), T-TanksSB-7 (3-5 ft), and WPB-2 (3-5 ft); (2) naphthalene in TrsB-3 (6-10 ft) and T-TanksSB-5 (2.5-5 ft); and (3) benzo[a]anthracene in TrsB-3 (6-10 ft).

A data gaps analysis conducted by Jacobs for NMED (Jacobs, 2025) noted the relative lack of data for organic constituents and for soils in onsite areas: “Historical spills or releases of organic contaminants, firefighting or fire training activities, and deposition of dust and particles generated during operation of the power generators may have impacted soil and groundwater in the process area. However, there are no soil data available to evaluate soil conditions in the process area and no groundwater data available to demonstrate that the site groundwater is not impacted by organic constituents, including per- and polyfluoroalkyl substances (PFAS).” The dataset provided by the 2024 third-party study fills some of the data gaps identified by Jacobs (2025).

The San Juan Generating Station Facility and Mine Remediation and Restoration Study Act was passed by the New Mexico Legislature and went into effect on July 1, 2023. This act, referred to as

House Bill 142 (HB-142), allocated funds for EMNRD and NMED to oversee an investigation of environmental impacts from the SJM and the SJGS, respectively. As part of NMED's HB-142 work, six monitoring wells (NMED-1, NMED-3, NMED-4A, NMED-4B, NMED-5A, and NMED-5B) were installed at locations north and south of the SJGS (**Figure 3.3**). During installation of these monitoring wells, NMED and PNM collected splits of solid samples at depths ranging from 10 to 31 ft below ground surface (bgs), within the Quaternary sediments. These sediment samples were submitted to the laboratory and characterized for various analytes, including metals and metalloids, radionuclides, VOCs, SVOCs, and PFAS. The results from this analysis are provided in **Table 3.4**. Results were compared to NMED guidance on SSLs (NMED, 2022) for industrial/occupational activities, construction workers, and the DAF-20 value. Sediment samples of NMED-3 and NMED-4A exceeded the DAF-20 SSL for cobalt. Samples of NMED-4A also exceeded the DAF-20 SSL for arsenic. All the sediment samples exceeded the DAF-20 SSL for iron. One sample from NMED-3 exceeded the DAF-20 SSL for cyanide, but this exceedance was not duplicated between split samples. Mobility of arsenic, cobalt, and iron from Quaternary sediments to groundwater is likely to be low given the low surface water infiltration rates for the region and the tendency of these metals/metalloids to remain stable in the solid phase and to sorb to solid surfaces from the dissolved phase.

PNM (2025b) notified NMED of samples taken from process pond sediments and underliner samples. Samples were analyzed for concentrations of major and trace inorganic constituents consisting of anions (sulfate, chloride, fluoride) and metals (aluminum, arsenic, barium, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, uranium, and zinc). The samples also underwent a Toxicity Characteristic Leaching Procedure (TCLP) to characterize the relative mobility of arsenic, copper, lead, mercury, selenium, and uranium. Data now exist for pond sediments and underliner samples for Process Pond 1, Process Pond 2, Process Pond 3, CPRB-1-2, and CPRB-3-4. PNM is preparing a technical memorandum about these results, to be submitted to the NMED at a later date. The results of this study will be incorporated into the desktop studies proposed as part of the S1AP work outlined in Section 4.1.

Sampling and analysis of pond sediments and cover materials associated with the NEP and SEP are assumed to be outside the scope of this S1AP as ongoing work for closure is already complete (NEP) or underway (SEP). Likewise, the SWDP in the south area of the SJGS is currently undergoing investigation activities for closure of DP-306. Information made available for the NEP, SEP, and SWDP will be considered in the desktop studies proposed as part of the S1AP work outlined in Section 4.1.

3.4.2 Surface Water

Surface water in Westwater and Shumway Arroyos generally reflects contributions from naturally saline groundwater; however, localized exceedances of boron, sulfate, and TDS have been measured at sites downstream of SJGS (e.g., SWM-4 and SWM-6) (DBS&A, 2025). Metric (1982, 2007) linked some of these elevated concentrations to historical discharges and pond seepage but noted that effective stormwater controls and recovery systems have reduced ongoing inputs. Although surface water quality can vary significantly, it remains better than that of groundwater and permitted NPDES outfalls are infrequently active (DBS&A, 2025).

3.4.3 Groundwater

Groundwater impacts at the SJGS and SJM primarily affect the Quaternary alluvium (Qal) and eolian deposits (Qnt) along the Westwater and Shumway Arroyos. For example, Metric (2007) identified

historical groundwater impacts associated with SJGS water management infrastructure, including seepage from the NEP due to liner breaches in the 1980s that were repaired during the 1990s. The groundwater in the Qal/Qnt units is unconfined, with total sediment thicknesses typically less than 40 ft and saturated thicknesses of 3 to 24 ft. Impacts within the Qal/Qnt units have been detected primarily downgradient of the SJGS, where flow follows the arroyo channels toward the San Juan River. Metric (2007) estimated that groundwater in the vicinity of the SJGS could have traveled 3,100 ft downgradient between 1973 and 2007.

As discussed previously, two shallow groundwater recovery systems have been installed downgradient of the SJGS and SJM to capture impacted water in the Qal/Qnt. The first, completed in 2008, was the Memorial Recovery System (Metric, 2010) and the second, completed in 2020, was the Shumway Recovery System (RJH Consultants, 2020). Groundwater quality in the Qal/Qnt at the Memorial Recovery System is monitored by the RTW series of wells (RTW, RTWE2, RTWS1, RTWW2), whereas groundwater quality at the Shumway Recovery System is monitored by the Wet Well (**Figure 1. 2**).

Recent water chemistry results for monitoring wells across the SJGS and SJM are provided in **Table 3.5**. The data in **Table 3.5** are from recent sampling events in 2024 and 2025, except for NEP3, which was from 2023. This table includes results for the NMED wells installed in June 2025. The NMED wells have been sampled only once since they were installed, so the water chemistry results for these wells could possibly change (increase or decrease in concentration) as the wells stabilize following installation. The water quality results for NMED wells in **Table 3.5** include split sample results between PNM and NMED. **Table 3.5** also includes results for a one-off sampling event at wells BA-304, BA-305, and BA-306 located immediately downgradient of the Shumway Recovery System. Wells BA-304, BA-305, and BA-306 are typically only monitored for water levels.

Predominant dissolved constituents in groundwater across the SJGS and SJM include TDS and sulfate. Concentrations of TDS in groundwater at the SJGS and SJM are shown in **Figure 3.6**, which was developed from the data in **Table 3.5**. In general, there is a wide range of TDS values in the northern portion of the SJGS (<5,000 to 25,000 mg/L). As groundwater in the Qal/Qnt moves downgradient to the southern portion of the SJGS TDS values decrease slightly (5,000 to 15,000 mg/L). The TDS concentrations decrease along the Qal/Qnt groundwater flow pathway within the SJGS, suggesting there is some dilution by unimpacted groundwater along the flow pathway. Further downgradient to the south of the SJGS at the Memorial Recovery System, TDS concentrations increase to higher values than those observed at the SJGS (15,000 to approximately 55,000 mg/L). Even further downgradient at the Shumway Recovery System, TDS concentrations remain relatively high.

Phillips (1983) describes a study using geochemical tracers (dissolved ions, stable isotopes of oxygen and hydrogen in water, and tritium or hydrogen-3 in water) to investigate the notable increase in TDS concentrations in Qal/Qnt groundwater downgradient of the SJGS. Phillips (1983) reported slightly increasing stable water isotope values in shallow groundwater moving downgradient, which is consistent with evaporation and concentration of dissolved groundwater constituents, resulting in increased TDS. Phillips (1983) also noted a change in the predominant groundwater constituents between locations upgradient and downgradient of the SJGS. Upgradient groundwater was enriched in sodium, chloride, bicarbonate, and sulfate, whereas downgradient groundwater was dominated by sodium and sulfate. Phillips (1983) posited that the increased sodium and sulfate in downgradient locations was primarily due to dissolution of sodium sulfate salts in oxidized coal outcrops.

The concentrations of TDS and sulfate in **Table 3.5** are plotted in **Figure 3.7**. The locations of monitoring wells in **Figure 3.7** are shown in map view in **Figure 3.3**. All monitoring wells in **Figure 3.7** exceed the sulfate (600 mg/L) and TDS (1,000 mg/L) New Mexico Water Quality Control Commission (NMWQCC) standards for groundwater. Other NMWQCC standards for groundwater, such as for boron (0.75 mg/L; **Figure 3.8**), are also exceeded by most monitoring wells across the SJGS and SJM.

Two monitoring wells are located north of the SJGS. MW Westwater is completed in the Kf and NMED-01 is completed in the Qal/Qnt. Groundwater in MW Westwater is not likely to be impacted by the SJM or the SJGS based on its location. Groundwater that has not been impacted by industrial activities is often referred to as "background" groundwater. MW Westwater likely represents background groundwater in the Kf unit. Potential impacts to groundwater at NMED-01 are uncertain. NMED-01 has been sampled only once, and the measured TDS was 10,000 mg/L. Historical piezometers installed within the Westwater Arroyo into Qal/Qnt north of the SJGS exhibited TDS values that were comparable to NMED-01, ranging from approximately 4,000 to 9,000 mg/L in 1982 (Metric, 1982). Given the location and timeframe for these historical measurements, this groundwater was not likely to be impacted by the SJGS, but possible impact from the SJM is uncertain. Groundwater that may or may not be impacted by industrial activities but is located upgradient of a certain industrial activity (in this case the SJGS), is often referred to as "baseline" groundwater. NMED-01 could represent baseline groundwater for the Qal/Qnt unit relative to the SJGS, but more data is needed from NMED-01 (and possibly new wells in this area) to make this determination. Regardless of whether NMED-01 represents baseline groundwater relative to the SJGS, concentrations of constituents in NMED-01 are relatively low compared to some Qal/Qnt wells within the SJGS (**Figures 3.7** and **3.8**). This suggests that groundwater impacts within the SJGS are likely.

NMED-05A was installed in Qal/Qnt and NMED-05B was installed in Kpc at a location downgradient of both the SJGS and SJM, and the two shallow groundwater recovery systems. **Table 3.5** and **Figures 3.7** and **3.8** show that concentrations of dissolved constituents in NMED-05A/B are relatively high compared to results for other monitoring wells, including the Wet Well located approximately 1,200 ft upgradient of NMED-05A/B. Relatively poor water quality in NMED-05A/B suggests that impacts from the SJGS and SJM, and possibly natural sources, are migrating beyond the Memorial Recovery System and Shumway Recovery System.

DBS&A (2025) reported that groundwater in the deeper Cretaceous bedrock aquifers (Kf and Kpc) exhibits naturally poor quality and low yield, making it difficult to distinguish any mining-related impacts. Elevated salinity, sulfate, and methane are characteristic of these formations throughout the region. Model simulations (Stewart, 2018) indicate very low hydraulic conductivities and long travel times (on the order of 2,000 years or more) from the SJM area to the San Juan River, suggesting minimal potential for near-term groundwater migration through bedrock pathways.

In 2017, PNM submitted a report to NMED about elevated nitrate concentrations in monitoring well Qnt (PNM, 2017b). The results of this report are summarized here. Monitoring well Qnt is installed in the Qnt unit and is located approximately 600 ft east of North Evaporation Pond 3 (**Figure 1.2**). In October of 2017, the concentration of nitrate in Qnt was 161 mg/L, which is well above the NMWQCC groundwater standard of 10 mg/L. The suspected source of the elevated nitrate in Qnt was the NEP, so in response to this issue, PNM collected water samples from NEP, NEP3, NEP4, and Qnt (**Figure 1.2**) for analysis of pharmaceuticals, which were expected to be present in the NEP due to historical discharges from the SJGS sanitary wastewater system. Pharmaceuticals are a useful indicator of industrial impacts because they are not expected to be present in background

groundwater. Pharmaceuticals were detected in all water samples, which suggested that seepage from the NEP was the most likely source of pharmaceuticals and nitrate in Qnt. At the time of PNM's 2017 report to NMED, PNM had permanently closed and capped the NEP, so the source was not expected to be ongoing. The results for combined nitrate and nitrite concentrations in Qnt have continued to remain high (159 mg/L), as shown by the May 2025 sampling event provided in **Table 3.5**. Nitrate concentrations in Qnt began to increase in 2010 and have been relatively stable since 2018. Another possible source of nitrate in Qnt is from upgradient industrial or agricultural activities.

Organic compounds were not identified as primary constituents of concern in previous investigations of groundwater (e.g., Metric, 1982, 2007; DBS&A, 2025). NMED and Jacobs have identified a data gap concerning organic compounds and conducted groundwater sampling for VOCs, SVOCs, PAHs, and PFAS in addition to general water chemistry, and inorganic constituents (NMED, 2025; Jacobs, 2025). PNM's split samples of groundwater from the NMED wells installed in June 2025 included analysis of organic compounds, including PFAS. The PFAS results from these samples are shown in **Table 3.6**. Most PFAS measurements were below detection, but some detections were observed for the following:

- Perfluorobutanoic acid (PFBA) in NMED-03, NMED-04A, NMED-05A, and NMED-05B
- Perfluoropentanoic acid (PFPeA) in NMED-03
- Perfluorohexanoic acid (PFHxA) in NMED-05B
- Perfluorooctanoic acid (PFOA) in NMED-01 and NMED-03 at levels below the USEPA Maximum Contaminant Level (MCL) of 4 nanograms per liter (ng/L) (USEPA, 2024)
- Perfluorobutanesulfonic acid (PFBS) in NMED-03, NMED-04A, NMED-04B, NMED-05A, and NMED-05B
- 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) in NMED-05B

Other PFAS with USEPA-MCL values (Perfluorononanoic acid [PFNA], Perfluorohexanesulfonic acid [PFHxS], and Perfluorooctanesulfonic acid [PFOS]) were below detection in all samples. Other organic compounds were analyzed but were below detection in all NMED wells.

4.0 Site Investigation Work Plan

This section defines the approach and methods for evaluating current environmental conditions at the Site. These proposed Site investigation activities are intended to refine the existing Site understanding, further characterize Site media, and generate the data necessary to inform and support the assessment of human health and ecological risk and ultimately the development of the Stage 2 Abatement Plan, which will define the design and implementation of abatement and remediation measures. The S1AP outlines an adaptive approach for data collection, evaluation, and refinement of the CSM. Iterative evaluation of results will guide subsequent field efforts and abatement strategies under NMED oversight. The work is anticipated to be carried out in phases, where subsequent phases are informed by previous phases.

This investigation will consist of both desktop studies and field-based sampling programs. Desktop studies will focus on refining the operational and environmental history of the Site, updating the CSM for geology, hydrogeology, and geochemistry at the Site, developing a geologic framework model, and creating a Site-specific groundwater flow model to incorporate newly available data.

These activities will provide a more comprehensive understanding of Site conditions and support the design and interpretation of field investigations.

Field investigations will be conducted to assess potential impacts to soil, soil vapor, sediment, and groundwater. Each of these media-specific subsections below provides the rationale and a broad sampling approach designed to identify potential releases associated with historical Site operations, including fuel storage and handling areas, CCR handling areas, and other potential sources identified through known Site history or the desktop review.

The overall objectives of this investigation are to:

- Identify and quantify concentrations of COPCs in environmental media that may be related to releases caused by historical Site activities.
- Evaluate whether detected concentrations exceed background, baseline, screening, or regulatory levels applicable to current and future exposure pathways.
- Refine the conceptual models by characterizing contaminant source areas, extent of impacted media, migration routes, and potential receptors.
- Support decisions regarding the need for additional characterization, risk evaluation, or remedial action.

4.1 Desktop Studies

The following subsections describe the desktop studies that will be conducted to compile and evaluate existing information relevant to Site conditions and historical operations. Data sources may include previous environmental investigations, aerial imagery, operational records, regulatory files, geologic and hydrogeologic reports, and available monitoring data. The results of these various desktop studies will provide the framework for planning future field investigations, interpreting sampling data, and guiding subsequent abatement and remedial efforts.

4.1.1 Refine Timeline of Events

The SJGS operated for nearly five decades, during which numerous facility modifications, waste management practices, and regulatory programs were implemented, resulting in a substantial body of historical documentation. As part of the S1AP, INTERA is reviewing these records to refine a comprehensive timeline of Site activities and environmental events. Given the long and complex operational history of the SJGS and the volume of available information, development of the timeline is an iterative process. A preliminary version has been drafted based on currently available records (**Section 2.0**); however, additional review is ongoing as PNM continues to provide additional documents. An updated and more comprehensive timeline will be developed as part of this task to serve as a resource that enhances understanding and aids in navigating the Site's complex history.

4.1.2 Refine Conceptual Site Model

The CSM will be updated and refined based on further review of historical information for the Site, as well as newly available information and data. Refinement of the CSM will include the following: (1) a three-dimensional geological model, representing geological and hydrogeological units at the Site; (2) a complete description of groundwater processes occurring at the Site that is updated with newly available climate data, surface water discharge, groundwater levels, and estimates of Darcy

fluxes and constituent transport pathways; and (3) a statistical evaluation of historical and recent geochemistry data.

4.1.2.1 Conceptual Geological Model

The geological model will be represented by a three-dimensional geological block model developed using Leapfrog Geo (Seequent, 2025) (Leapfrog model). The Leapfrog model will support the CSM and will be utilized to progress workstreams associated with the SJGS and evaluation of interim measures.

The first step in development of the Leapfrog model will be to compile existing files and data to inform the Leapfrog model, which may include relevant geological information from the following investigations:

- Preliminary geologic map of the Waterflow quadrangle, San Juan County, New Mexico (Strobell et al., 1980)
- Hydrogeology and water resources of San Juan Basin, New Mexico (Stone et al., 1983)
- Geologic framework of the San Juan structural basin of New Mexico, Colorado, Arizona, and Utah, with emphasis on Triassic through Tertiary rocks (Craigg, 2001)
- San Juan Generating Station Groundwater Resource Investigation Final Report (Metric, 2007)
- Geotechnical Data Report, PNM Raw Water Reservoir, San Juan County, New Mexico (RJH Consultants, 2014a)
- Concept Design Summary Report, PNM Raw Water Reservoir, San Juan County, New Mexico (RJH Consultants, 2014b)
- Geotechnical Data Report Addendum, Shumway Arroyo Recovery System, San Juan County, New Mexico (RJH Consultants, 2016)
- Hydrologic Assessment and Numerical Simulation of Groundwater Flow, San Juan Mine, San Juan County, New Mexico, 2010-2013 (Stewart, 2018)
- Site Investigation Report, San Juan Mine, Remediation and Restoration Study (DBS&A, 2025)

These datasets will be digitized and/or transposed into input for Leapfrog with particular focus on:

- Well/borehole coordinates
- Borehole lithology (as available)
- Well screens (if available)
- Cone penetration testing data
- Water levels
- Topography data
- Geographic information systems data

The Leapfrog model will be informed by existing Site data identified in **Section 3** and new data obtained from field investigations proposed as part of this S1AP.

4.1.2.2 Conceptual Hydrogeological Model

The conceptual hydrogeological model represents a comprehensive understanding of processes and hydraulic parameters that exert control over groundwater flow and constituent transport at the Site. The hydrogeological units at the Site will be represented in the Leapfrog model. Surface water at the

Site will be included in the conceptual model as it represents sources of recharge to limited areas and during limited times. The hydrogeological conceptual model will consist of identification and characterization of the following:

- Climate
- Hydrogeological units
- Water levels and patterns of groundwater flow
- Sources of groundwater inflow to the Site (inputs)
- Areas of groundwater discharge from the Site (outputs)
- Hydraulic parameters controlling the behavior of groundwater flow, including hydraulic conductivity, specific yield, and specific storage
- Anthropogenic impacts to groundwater, including pumping and produced water management practices (e.g., storage ponds and pond discharges)

The hydrogeological conceptual model will be informed by existing Site data identified in **Section 3**, and new data obtained from field investigations proposed as part of this S1AP.

4.1.2.3 Conceptual Geochemical Model

The conceptual geochemical model will build on the conceptual geological and hydrogeological models and account for the possible sources of natural and anthropogenic constituents in groundwater. Geochemical data exist for soils, sediments, bedrock, and groundwater dating back to the late 1970s in some cases. A statistical evaluation of this available data could provide insights on sources and possibly help to define the pre-mining and pre-power-generating conditions at the Site. Planned statistical evaluations include the following:

- Timeseries plots of groundwater constituents and water levels
- Other graphical methods (e.g., Piper and Stiff diagrams, bivariate plots)
- Multivariate statistical analyses (such as principal component analysis [PCA]) of representative datasets for different time periods of operation
- Delineation of plumes for various groundwater constituents over time

4.1.3 Numerical Groundwater Modeling

Development of a numerical model to estimate groundwater flow near the SJGS facilitates estimation of a water balance and allows for delineation of groundwater pathways. A numerical groundwater model was developed by the United States Geological Survey (USGS) for evaluating groundwater flow near the San Juan Mine (Stewart, 2018). The SJGS is adjacent to the SJM and is included within the model's domain. Updates to the model will include: (1) modifications to boundary conditions that occurred since the model was developed; (2) implementation of refinements made to the hydrogeological conceptual model; (3) compilation of additional hydrogeological data and water level data; and (4) updates to model calibration with newly collected data.

The USGS model grid consists of uniform grid spacing of 500 meters (m) in both the horizontal directions. Vertically, the grid is divided into six layers, each representing a hydrogeological unit. The model grid is adequate for evaluating groundwater flow at a regional scale. However, the coarseness of the grid precludes accurate evaluation of groundwater flow at local scales that would inform

water balance estimates within smaller subunits such as the Shumway Arroyo alluvium or the Memorial Arroyo alluvium. A local-scale model with a refined grid would more accurately represent the dynamics of groundwater flow in the areas where constituent transport is taking place and would provide more accurate assessment of remediation alternatives used at the Site.

A local-scale model would be represented by an inset model that includes the Westwater and Shumway Arroyos, the SJGS area, and the area near the RWR. The grid would be refined both horizontally and vertically to provide accurate flow and transport calculations. Lateral model boundary conditions would be informed by the USGS model and the hydrogeology would be based on the USGS model, the Leapfrog model, and other available information from various Site reports.

4.2 Soil, Sediment, and Soil Vapor Impacts

The purpose of soil, sediment, and soil vapor sampling activities is to evaluate the potential for chemical impacts to surface soils and sediments resulting from historical operations at the Site. Structures associated with SJGS operations are shown in **Figure 2.1**. Materials handled during routine operations included coal, water, fly ash, bottom ash, limestone, FGD material, brine concentrate, fuel oils, lubricants, acids and other process chemicals, and electrical transmission and storage components (transformers, capacitors, etc.). Historical releases from these operations may have potentially resulted in the accumulation of a variety of inorganic and organic COPCs in on-site soil and in sediments within drainage features that received surface runoff from plant areas.

The soil, sediment, and soil vapor investigation is designed to characterize the nature and extent of potential impacts in surface and shallow subsurface media. Sampling will focus on areas where past activities are most likely to have contributed to releases, including former ash handling areas, coal usage and storage areas, fuel unloading and storage areas, maintenance shops/hazardous waste storage/laboratory, the closed landfill, and drainage pathways leading from process and storage areas to off-site surface water features. The switchyard and substations on the western side of the SJGS (**Figure 2.1**) historically housed transformers and related electrical equipment that contained PCB-based dielectric fluids. Following the ban on PCBs in 1979, some of the PCB-containing fluids were replaced. Although releases of PCB-containing fluids are not documented at the SJGS, such releases could have occurred through equipment leaks, overflows, or historical maintenance activities. A soil investigation in these areas could be warranted, but the continued electrification of these areas presents safety risks to field personnel. As a result, soil sampling in these areas is not proposed in this S1AP.

As explained in Section 3.4.1, sampling activities are already underway to characterize sediments and underliner samples at the process ponds and runoff basins; therefore, the S1AP will consider results of such sampling as part of the desktop study rather than propose additional sampling at the process ponds and runoff basins at this time. Likewise, sampling and analysis of materials associated with the NEP and SEP are assumed to be outside the scope of this S1AP as ongoing work for closure is already complete (NEP) or underway (SEP). Similarly, the SWDP in the south area of the SJGS is subject to investigation activities for closure of DP-306. Information made available for the NEP, SEP, and SWDP will be considered in the desktop studies proposed as part of the S1AP work outlined in Section 4.1.

Information generated from the desktop study phase may result in additional investigation areas of concern or additional COPCs for known areas of concern. For example, the sampling and analysis plan may change if additional releases are identified or if records such as PCBs or hazardous waste

disposal documentation, general housekeeping procedures, fire suppression plans, or health, safety, and environment plans indicating types and locations of hazardous substances handled onsite. It is assumed that plans independently developed by demolition and decommissioning contractors address the prevention of spills and releases during their activities; however, in the event that other contractors identify the occurrence of any releases not fully addressed in the course of decommissioning, then characterization of any resulting impacts could also be addressed in iterative updates to abatement plans.

Table 4.1 provides a summary of the proposed soil sampling details, including the specific investigation area, sampling method, and analytes. Soil and soil vapor samples will be collected either by deploying passive soil vapor (PSV) samplers, using DPT (e.g., Geoprobe) or hollow stem auger (HSA) drill methodologies, using a hand auger, trowel or disposable scoops. PSV sampling is a cost-effective method for screening large areas where volatile contaminants may have impacted soils or groundwater in order to identify targeted areas where follow-up characterization may be appropriate. Coring or saw-cutting will be necessary in some locations where concrete or asphalt remain and PSV or soil sampling are planned, and those locations will be patched with like material after sampling. Surface and subsurface samples will be conducted as follows:

- Samples will be collected and drilling activities performed in accordance with INTERA Standard Operating Procedures (SOPs).
- New Mexico One-Call will be called for a utility locate before any drilling is conducted.
- Drilling and boring will be performed by a New Mexico Licensed Driller.
- HSA borings will be sampled every 5 ft using split spoon samplers.
- DPT borings will be continuously sampled in core barrels lined with an acetate sleeve.
- Samples will be described using the Unified Soil Classification System and borings will be logged by an INTERA scientist and will be field screened, where applicable, using a Photoionization Detector (PID) and the heated headspace method.
- Non-disposable drilling and sampling equipment will be decontaminated prior to use and between samples using Liquinox and fresh tap water rinse.
- Sample handling, labeling, preservation, and chain-of-custody procedures will follow the requirements outlined in Section 5.0 (Quality Assurance Project Plan).
- Field notes will document boring locations, sampling intervals, recovery, field observations (e.g., odor, staining), and any deviations from the planned methods.
- Field activities will be conducted under an approved Site-Specific Health and Safety Plan (**Appendix A**).

The following subsections highlight the Site investigation areas targeted for soil and sediment sampling during the S1AP based on potential subsurface impacts.

4.2.1 Former Ash Handling Areas

CCR material was temporarily handled at the SJGS, but it was ultimately removed and buried in surface mine pits at the SJM. Two areas where fly ash and bottom ash were received from Units 1-4 are shown to the east of the Units in **Figure 4.1**. Two additional areas where CCR materials were temporarily managed were the CCR Staging Pad and Gypsum Stackout (**Figure 4.1**). Both of these areas were constructed with liners to minimize potential environmental releases.

Despite these engineering controls, historical operations involving handling and staging of CCR materials present a potential for residual impacts to surface soils in these areas. Consequently, surface soil sampling is proposed at both the CCR Staging Pad and Gypsum Stackout to characterize the nature and extent of any remaining CCR related constituents in surface and near surface media (**Figure 4.1**). Surface soil sampling is also proposed within the two ash handling areas east of the Units (**Figure 4.1**).

A Site visit will need to be conducted to confirm appropriate sampling methodology based on remaining Site infrastructure (e.g., concrete pads) and to identify specific sampling locations. It is anticipated that a soil auger or disposable hand scoop will be used to collect surface soil samples where there are no concrete pads. Where concrete pads remain, DPT or HSA methods will be used to drill through the concrete and into the surface soils. Sampling will focus on the upper 0 to 6 inches bgs of the surface soil to evaluate residual contamination potentially resulting from fugitive dust, material handling, or past spills. Sample locations will be selected based on visual Site conditions, with the main objective of providing representative coverage of these former operational footprints.

Surface soil samples will be analyzed for the following constituents:

- Total metals via acid digestion (USEPA Method 3050B) followed by inductively coupled plasma-optical emission spectrometry (ICP-OES; USEPA Method 6010) or inductively coupled plasma-mass spectrometry (ICP-MS; USEPA Method 6020)
  - Analytes will include the following: aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, copper, iron, lead, lithium, magnesium, manganese, molybdenum, nickel, potassium, selenium, silicon, sodium, strontium, sulfur, thallium, titanium, uranium, vanadium, and zinc
- Radium-226 and radium-228 via USEPA Method EMSL-19
- Mercury via USEPA Method 7471B
- Sulfate, chloride, and fluoride via a simple leach (ASTM D3987-85) followed by ion chromatography (IC; USEPA Method 300)
- Polycyclic Aromatic Hydrocarbons (PAHs) via USEPA Method 8270D

Results for surface soil sampling will be compared to the appropriate SSLs. Possible exceedances may warrant additional sampling in a given area or additional analytical techniques on soil samples.

4.2.2 Coal Storage and Usage Areas

During SJGS operations, coal was stored temporarily before use in three locations shown in **Figure 4.1**. The eastern side of Units 1-4 is where coal was fed to each coal-burning Unit and ash was removed from each Unit (**Figure 4.1**). These areas of coal storage and usage were subject to routine plant operations involving coal handling and potential deposition of ash and/or CCR. The eastern side of Units 1-4, in particular, represents an area that may have experienced incidental deposition of coal and ash. Over time, these activities could have contributed to the accumulation of heavy metals and other coal-related constituents in surface soils. As a result, surface soil samples are proposed to be collected within the former coal storage and incidental coal/ash deposition areas highlighted in **Figure 4.1**.

Surface soils will be collected with a soil auger, trowel or disposable hand scoop where there are no concrete pads. Where concrete pads remain, DPT or HSA methods will be used to drill through the concrete and into the surface soils. Surface soil samples will be collected from a depth of 0 to 6

inches bgs. Sample locations will be distributed across each target area to provide representative coverage. Each sample location will be photographed and described in the field logbook. Samples from within subsections may be composited prior to laboratory analysis.

Surface soil samples from within the area of incidental coal/ash deposition will be analyzed for the following:

- Total metals via acid digestion (USEPA Method 3050B) followed by ICP-OES (USEPA Method 6010) or ICP-MS (USEPA Method 6020) for the same analytes as those listed for the ash handling areas
- Radium-226 and radium-228 via USEPA Method EMSL-19
- Mercury via USEPA Method 7471B
- Sulfate, chloride, and fluoride via a simple leach (ASTM D3987-85) followed by ion chromatography (IC; USEPA Method 300)
- PAHs via USEPA Method 8270D
- PCBs by USEPA Method 8082
- Dioxins and Furans by USEPA Method 1613B or 8290A
- PFAS by USEPA Method 1633

Surface soil samples from the former coal storage areas will be analyzed for the following:

- Total metals via acid digestion (USEPA Method 3050B) followed by ICP-OES (USEPA Method 6010) or ICP-MS (USEPA Method 6020) for the same analytes as those listed for the ash handling areas
- Radium-226 and radium-228 via USEPA Method EMSL-19
- Mercury via USEPA Method 7471B
- Sulfate, chloride, and fluoride via a simple leach (ASTM D3987-85) followed by IC (USEPA Method 300)

Results for surface soil sampling will be compared to the appropriate SSLs. Possible exceedances may warrant additional sampling in a given area or additional analytical techniques on soil samples.

4.2.3 VOC Areas of Concern

The Site contains multiple areas where VOCs may have volatized from past fuel or chemical handling activities. These areas may have experienced releases of petroleum products or solvents commonly associated with fuel transfer operations and equipment maintenance. These areas consist of the following: (1) areas where VOCs were known to be released or were detected previously (**Figure 4.2**); (2) an area containing the former vehicle maintenance and wash bay, the former laboratory, a diesel fuel and gasoline UST, and previously detected low levels of tetrachloroethene (PCE) in the 2024 third-party study (**Figure 4.3**); (3) a bulk used oil area (**Figure 4.4**); (4) an area formerly containing hazardous waste storage and a southern fuel unloading area and a diesel fuel aboveground storage tank (AST) (**Figure 4.5**); and (5) a northern fuel unloading area and diesel fuel AST (**Figure 4.6**). Note that two soil samples collected for the 2024 third-party study (**Figure 3.5** detected low levels of PCE in areas not necessarily anticipated to have experienced release of solvents (samples T-MW-8 in the area indicated on **Figure 4.3** and T-GSB-7 in the area of previous VOCs detections indicated on **Figure 4.2**). Targeted PSV sampling near previous detections could determine the extent of potential undocumented releases. The previous VOC detection area east of

Unit 1 in **Figure 4.1** represents a reported release of diesel from the Units 1 and 2 supply line that occurred in August 2022. This diesel release was investigated and approximately 1,400 cubic yards of impacted soil was removed (PNM, 2023).

The areas listed above are proposed for PSV sampling surveys. **156141**Each survey area will include the installation of PSV samplers within the footprint of each area of interest, placed in a grid pattern with approximately 25- to 50-ft spacing. Prior to the start of field activities, INTERA will conduct a Site visit to evaluate the areas of interest, confirm whether concrete slabs remain in place or if drilling will occur in native material, and mark proposed drilling locations with white paint to facilitate a utility locate. Prior to field activities, PSV samplers will be obtained from Beacon Environmental (Beacon) of Bel Air, Maryland. Once utilities have been marked and field work begins, an approximately 1.5-inch-diameter hole will be cored at each sampler location to a depth of about 1 ft bgs. The boring will then be advanced to approximately 3 ft bgs using a 0.5-inch-diameter drill bit. A PSV sampler will be installed in the upper portion of each boring, then covered and capped and will remain in place for a minimum of 14 days.

After this 14-day period, each PSV sampler will be removed from the boring and packaged for shipment to Beacon for analysis. The PSV samplers will be packaged in a Beacon-provided "B-Sure" Kit and shipped overnight to Beacon for analysis of VOCs and SVOCs via USEPA Method TO-17 (which will include targeted petroleum hydrocarbons and PAHs). Each soil boring will be backfilled with bentonite and restored to its original surface condition using soil or concrete patch, as appropriate.

Beacon will generate a soil vapor "heat" map that illustrates the location and relative concentrations of VOCs detected in the PSV samples for the compounds of interest. The results of the PSV sampling survey will be compared to the applicable NMED Industrial Vapor Intrusion Screening Levels (VISLs). These data will be used to inform future investigation work if NMED VISLs are exceeded.

If the PSV survey indicates any VOC "hot spots" or if field surveys reveal observations of interest, such as oily staining of the surface soil, then soil samples targeted to that area would be collected most likely as DPT or HSA borings to approximately 10 ft and a PID would be used to determine if multiple samples should be collected from each boring. Soil samples would be collected in methanol extraction kits and analyzed for VOCs by USEPA Method 8260 and for TPH including the GRO, DRO, and MRO ranges by USEPA Method 8015. Areas where fuel oils were stored or used would also be sampled for PAHs using USEPA Method 8270D. In areas where both PSV samples and borehole samples reveal the presence of VOCs, SVOCs, or TPH, a groundwater monitoring well may be proposed in the future.

Aside from potential indications of petroleum hydrocarbons and/or VOCs warranting follow up, the bermed areas around two large diesel ASTs (**Figures 4.5** and **4.6)** may be relatively likely to encounter PFAS if in fact PFAS-containing firefighting foam was used at SJGS. If follow up VOC/SVOC sampling is necessary for this area, surface soil samples could also be collected for analysis of PFAS by USEPA Method 1633. If shallow groundwater is encountered, then additional samples for PFAS analysis should be collected from just above the water table at these DPT/HSA borings.

4.2.4 Landfill Area

Figure 2.1 shows a laydown yard and closed construction debris landfill in the northwest area of the SJGS. Following a Site reconnaissance to confirm ground stability and map any areas deemed inaccessible, a PSV sampling survey of the closed landfill area will be conducted using a grid at 100-ft to 200-ft spacing to identify potential VOCs generation within the landfill. An estimated 20 to 30 PSV

locations would cover the survey area (**Figure 4.7**). Drilling in the landfill area is not proposed in this S1AP, and generally the potential presence of nonvolatile contaminants within the closed landfill is not considered a concern for abatement unless contaminants are mobilized beyond the landfill footprint by leachate generation. Surface soils in the laydown areas will be observed during the Site reconnaissance to identify low-lying areas and any evidence of staining, stressed vegetation, or other indications of potential releases. Up to 10 surface (0 to 6 inches bgs) soil samples may be collected with hand tools for analysis of metals, PCBs, and/or TPH, including the GRO, DRO, and MRO ranges (using the same methods as those listed above), depending on staining and other indications. If no visible evidence of releases is observed, then a smaller number of randomly located samples will be collected to screen the laydown area. Results for surface soil sampling will be compared to the appropriate SSLs. Possible exceedances may warrant additional sampling in this area or additional analytical techniques on soil samples.

4.2.5 Drainage Pathways

Based on findings from DBS&A (2025), elevated concentrations of several constituents have been observed in surface water monitoring locations SWM #4 and SWM #6, situated downgradient of the former coal stockpile area within the Westwater Arroyo. These results suggest the potential for sediment-associated contamination and for constituent mobilization during stormwater runoff events. To further evaluate this potential, sediment sampling is proposed at various locations within the Westwater Arroyo.

3.3 Sample locations may be restricted to PNM-owned property and PNM right of ways and selected based on field reconnaissance observations of sediment accumulation, with the goal of targeting areas most likely to retain impacted sediments. Three general areas will be targeted for sediment sampling. These areas are: (1) the Westwater Arroyo north of NMED-01 (**Figure 3.3**); (2) the Westwater Arroyo near the Memorial Recovery System (**Figures 1.2** and **3.3**); and (3) the historical confluence of Westwater and Shumway Arroyos, near the Shumway Recovery System (**Figures 1.2** and **3.3**).

Up to 20 sediment samples will be collected from the areas listed above following a preliminary Site visit to confirm access and identify suitable locations. Each sample will represent the upper 0 to 6 inches bgs and will be collected using a disposable scoop or a decontaminated stainless-steel trowel in accordance with INTERA SOPs. Sediment samples will be analyzed for the following:

- Total metals via acid digestion (USEPA Method 3050B) followed by ICP-OES (USEPA Method 6010) or ICP-MS (USEPA Method 6020) for the same analytes as those listed for the ash handling areas
- Radium-226 and radium-228 via USEPA Method EMSL-19
- Mercury via USEPA Method 7471B
- Sulfate, chloride, and fluoride via a simple leach (ASTM D3987-85) followed by IC (USEPA Method 300)
- Synthetic Precipitation Leaching Procedure (SPLP; USEPA Method 1312) followed by analysis of leached metals (USEPA Methods 6010 and 6020) including: antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, copper, iron, lead, lithium, magnesium, manganese, molybdenum, nickel, potassium, selenium, silver, sodium, thallium, uranium, and zinc

The SPLP analysis simulates the contact of rainfall with soil or sediment to estimate the portion of metals that may leach into the subsurface or groundwater. By comparing total and leachable concentrations, the data will help assess whether constituents are primarily bound within the sediment matrix or have potential for remobilization under natural weathering and runoff conditions.

Results for sediment sampling will be compared to the appropriate SSLs. Possible exceedances may warrant additional sampling in a given area or additional analytical techniques on sediment samples.

4.3 Groundwater Impacts

Impacts on groundwater quality from the SJGS will continue to be evaluated. Water levels and groundwater quality from ongoing sampling of groundwater at DP wells and NMED wells will continue to be monitored. In addition to existing wells, three areas have been identified for installation of additional monitoring wells. These areas are the Shumway Recovery System, upgradient of the SJGS in the Westwater Arroyo, and the arroyo downgradient of the RWR, which is a tributary to the Westwater Arroyo. **Table 4.1** provides a summary of the proposed groundwater sampling details, including the specific investigation areas and analytes. Section 4.5 details the recommendations for routine, ongoing monitoring of groundwater.

The monitoring wells proposed near the Shumway Recovery System are in response to a Request for Additional Information (RFAI) from the NMED sent to PNM on April 18, 2025. The RFAI regards the Ground Water Discharge Permit renewal application for DP-1843. In response, PNM proposes installing six monitoring wells near the Shumway Recovery System. NMED originally requested seven monitoring wells, but later stated in a meeting with PNM on August 7, 2025, that the requested "deep well downgradient and along the eastern side of the [Shumway Recovery System]" was no longer necessary, given the nearby installation of NMED-05B installed in the Kpc.

The locations of proposed monitoring wells near the Shumway Recovery System are shown in **Figure 4.8**. Details about the proposed wells are provided in **Table 4.2**. One shallow well (SHW-1) and one nearby deeper well (SHW-1D) are to be installed as a well pair upgradient of the historical Westwater-Shumway confluence. SHW-1 will be installed in Qal/Qnt and SHW-1D will be installed in the Kpc. Well pair SHW-1/SHW-1D are to be located on BLM property (**Figure 4.8**) and will need to go through the appropriate BLM approval process. Proposed wells SHW-2, SHW-3, SHW-4, and SHW-5 are to be installed near the Shumway Recovery System on private land (**Figure 4.8**). Wells SHW-2, SHW-3, SHW-4, and SHW-5 will be completed in Qal/Qnt. SHW-2 and SHW-3 will be placed to the northeast and northwest, respectively, of the Shumway Recovery System. Both locations are presumed to be upgradient of the Shumway Recovery System. SHW-4 will be placed near the southwest side and SHW-5 will be placed near the southeast side of the Shumway Recovery System. Wells SHW-4 and SHW-5 are presumed to be downgradient of the Shumway Recovery System. If saturated conditions are not encountered at proposed wells downgradient of the Shumway Recovery System, locations further downgradient (but upgradient of NMED-5A/5B) may be more representative of shallow groundwater. Water quality results for the newly installed NMED wells may also have implications for the ultimate placement of PNM's proposed wells near the Shumway Recovery System.

A well pair is proposed upgradient of the SJGS and upgradient of well NMED-1 on BLM land within the Westwater Arroyo. The proposed names for these Westwater upgradient wells are WWU-1 and WWU-1D (**Figure 4.8**, **Table 4.2**). One well will be completed in Qal or Qnt (WWU-1) and the other

will be completed in Kpc (WWU-1D). The purpose of these wells is to establish baseline water quality of groundwater flowing across the northern boundary of the Site. The proposed wells are to be located on BLM property (**Figure 4.8**) and will need to go through the appropriate BLM approval process.

Two new wells, RA-01 and RA-02, are proposed for the alluvium below the sheet pile wall (described by RJH Consultants, 2014a) located below the RWR (**Figure 4.8**, **Table 4.2**). These two wells will provide water levels and saturated thicknesses in the alluvium that will support estimates of groundwater flow in the alluvium downgradient of the RWR groundwater recovery system (NMOSE, 2017). The proposed wells are to be located on BOR property and will need to go through the appropriate BOR approval process. In addition to the proposed new wells, previously installed monitoring wells (RJH Consultants, 2014a) and an extraction well (NMOSE, 2017) are located near the sheet pile wall below the RWR. Water levels and pumping rates from these wells are important for fully understanding the groundwater conditions in the area and this data will be requested from BOR.

New wells are not proposed for the SJGS area due to the priority for soil sampling and planned regrading activities. Additional wells for the SJGS area may be proposed at a later time following soil sampling and further analysis of data from existing and other proposed wells at the Site.

In addition to the proposed new wells, samples of surface water and groundwater will also be surveyed for hydrologic (i.e., environmental) tracers. Hydrologic tracers can provide information on groundwater sources and flow pathways. This information may help develop the CSM by providing evidence or lack thereof for hydrologic connections between surface water and groundwater or between groundwater found in different hydrogeologic units. Samples for hydrologic tracers will be collected from a subset of existing monitoring locations in the near-term, and eventually from new wells installed at the Site. Approximately 30 to 50 sample locations will be chosen from groundwater monitoring locations and surface water locations (if available) following additional review of historical data and development of the conceptual geochemical model outlined in Section 4.1.2. Ideally, samples would be collected from wells owned by PNM, NMED, and Westmoreland Coal Company (SJM wells), though access agreements will be required to sample NMED and SJM wells.

The hydrologic tracers recommended for sampling and analysis at the Site consist of the following:

- Constituent ratios and/or PCA of routine water quality results
- Stable oxygen and hydrogen isotopes of water
- Sulfur and oxygen isotopes of dissolved sulfate
- Nitrogen and oxygen isotopes of dissolved nitrate

The tracers listed above can provide information on sources of groundwater constituents and water-related processes (such as mixing and evapotranspiration) that may occur at the Site. Although there are many types of hydrologic tracers, those proposed here tend to be easier to implement due to relatively straightforward sampling procedures and data analysis. These tracers are also relatively low-cost, and measurements can be made by more than just a few specialized laboratories. An additional benefit of using constituent ratios or PCA as a tracer is that data derive from routine monitoring, so there is no cost for added laboratory analysis. One limitation to hydrologic tracers is that the results can be ambiguous when the dataset variance is low.

4.4 Surface Water Impacts

Surface water discharges at the Site occur within the Westwater and Shumway Arroyo watershed systems (Steward, 2018). These arroyos experience ephemeral flows, and consequently, surface water sampling opportunities are limited at the 13 automated sampler locations due to infrequent discharges (DBS&A, 2025). Given the limited occurrence of surface discharges, the existing surface water monitoring network, and the fact that surface water quality is generally better than groundwater quality, installation of additional monitoring locations or implementation of further surface water sampling is not currently recommended.

4.5 Monitoring Program

The Monitoring Program will include one-off sampling events to characterize current environmental conditions in targeted areas across the Site and proposed ongoing groundwater monitoring activities. The one-off sampling events consist of the soil and sediment sample collection and analysis outlined in **Section 4.2** and the hydrologic tracer study outlined in **Section 4.3**. Sample collection and analysis outlined in **Section 4.2** summarizes the initial screening and characterization activities focused on assessing potential impacts to surface soils and nearby sediments in key areas such as former ash handling areas, coal usage and storage zones, switchyards and electrical substations, fuel storage and maintenance areas, and drainage pathways. Sample collection and analysis outlined in the hydrologic tracer study in **Section 4.3** will provide information on sources of groundwater constituents and water-related processes (such as mixing and evapotranspiration) that may occur at the Site.

The following details the routine monitoring programs already in place, and those proposed for routine, ongoing implementation. Routine monitoring programs already in place apply to the wells, evaporation ponds, process ponds, and runoff basins specified within DP-306, DP-1327, and DP-1843 (**Figure 1.2**). Monitoring well SWDP1 for DP-306 usually does not have groundwater to sample. For DP-1327 and DP-1843, monitoring wells and ponds/basins are sampled for field parameters (pH, conductivity, temperature, and depth to water [if applicable]) and dissolved constituents of the following: alkalinity (bicarbonate, carbonate, total), arsenic, boron, cadmium, calcium, chloride, chromium, cobalt, copper, fluoride, iron, lead, magnesium, manganese, molybdenum, nickel, nitrate/nitrite, potassium, selenium, sodium, sulfate, TDS, and uranium. Discharge volumes to the SEP, Process Pond 1, and/or Process Pond 2 are also reported quarterly for DP-1327 and DP-1843. For DP-1327, monitoring wells are sampled quarterly (with the exception of RTW, which is sampled semi-annually), and ponds/basins are sampled semi-annually. For DP-1843, Wet Well is sampled quarterly for water quality and BA-301, BA-302, BA-303, BA-304, BA-305, and BA-306 are sampled quarterly for water levels.

Additional routine monitoring is proposed for the NMED wells and new wells proposed in this S1AP. Quarterly monitoring is proposed for at least eight quarters, at which point sampling frequency will be reevaluated based on the available datasets. If the wells do not appear to have stabilized after eight quarters, quarterly monitoring is recommended to continue. In addition to the water quality constituents listed above for the DPs, the following additional constituents are proposed for routine monitoring for at least eight quarters:

- Select metals and metalloids (antimony, barium, beryllium, silver, and thallium) by ICP-OES (USEPA Method 6010) or ICP-MS (USEPA Method 6020)

- Mercury via USEPA Method 1631
- Radium-226 and radium-228 via USEPA Method EMSL-19
- Total cyanide via Standard Method 4500-CN or USEPA Method 335.4

If any non-DP constituents are below detection during eight consecutive quarters, then continued monitoring for these constituents is not recommended. Sampling for organic constituents is not recommended at this time considering that most organic constituents in NMED wells were below detection.

5.0 Quality Assurance Project Plan

The primary goal of a QAPP is to ensure that all environmental data collected during an investigation are scientifically valid, defensible, and suitable for their intended use. This QAPP establishes the quality assurance and quality control (QA/QC) procedures necessary to produce data of known and documented quality, consistent with USEPA guidance (USEPA 2002, 2006) and applicable New Mexico regulations. The QAPP defines standardized methods for sampling, analysis, data management, and reporting to ensure consistency and comparability of results. It also identifies project roles and responsibilities, links data collection activities to the project's data quality objectives (DQOs) and provides mechanisms for identifying and correcting deficiencies. Overall, this section provides a framework to support sound decision-making and regulatory compliance throughout the project.

5.1 Quality Objective and Criteria

DQOs are qualitative and quantitative statements developed through the USEPA's seven-step DQO process used to develop a scientific and resource-effective design for data collection (USEPA, 2006). DQOs clarify the study objectives, define the most appropriate data to collect and the conditions under which to collect the data, and specify tolerable limits on decision errors that will be used as the basis for establishing the quantity and quality of data needed to support decision making. The DQOs are used to develop a scientific and resource-effective design for data collection. The seven steps of the DQO process for the investigations proposed in this S1AP will be provided in a task-specific sampling and analysis plan (SAP) for NMED review prior to the given task.

5.2 Training Requirements

All field personnel shall comply with Occupational Safety and Health Administration (OSHA) standards. Before work begins at a specific site, field personnel are required to undergo site-specific training that thoroughly covers the following areas:

- Organization and lines of communication and authority including the names of personnel and alternates responsible for health and safety at the Project Site
- Overview of the S1AP, including Project objectives; sample collection, handling, labeling, and chain-of-custody requirements; SOPs; and QA/QC and documentation requirements
- Potential health and safety hazards present on-site and identification of proper work practices to minimize risks from hazards
- Selection of the appropriate personal protection levels and correct use of personal protective equipment (PPE)

- Safe use of engineering controls and/or equipment on-site
- Medical surveillance requirements, including recognition of symptoms and signs that might indicate overexposure to hazardous substances
- Contents of the SSHASP

All field personnel are required to complete and document site-specific health and safety training prior to initiating field activities. Completion of this training shall be verified by signing the appropriate acknowledgment forms before field implementation. During Project activities, field team members will review general health and safety requirements and the daily work scope each day and document this review using a daily tailgate meeting form (see SSHASP, **Appendix A**).

The COPCs for worker health and safety during field activities and appropriate measures to prevent exposure are identified in the SSHASP. All site personnel performing work at hazardous waste sites must comply with OSHA training requirements specified in 29 CFR 1910.120(e). These requirements include: (1) completion of 40 hours of formal off-site instruction; (2) a minimum of three days of supervised on-site field experience under a qualified field supervisor; and (3) completion of eight hours of annual refresher training. Field supervisors responsible for directing personnel engaged in hazardous waste operations must also complete at least eight additional hours of specialized supervisor training covering health and safety program requirements, training requirements, PPE, spill containment procedures, and health-hazard monitoring techniques.

Participating laboratories are required to train personnel in analysis performance commensurate with USEPA and International Organization for Standardization (ISO) 17025 requirements. Laboratories must be certified through the National Environmental Laboratory Accreditation Program (NELAP), except in the case of specialized analytes, such as hydrologic tracers.

Individual laboratory analysts must have documented training for each analytical procedure performed (i.e., demonstration of the ability to generate acceptable accuracy and precision). This demonstration of capability must be performed prior to analyzing samples for this project and must be repeated annually. Laboratory employee training records will be kept in personnel files and will be available during audits.

5.3 Documentation and Records

Field personnel will maintain permanently bound field logbooks with sequentially numbered pages to document all field activities. Each logbook will identify the contract name and number, project number, site name, and the names of subcontractors and the client. At a minimum, the following information will be recorded:

- Names and affiliations of all on-site personnel and visitors
- Weather conditions during field activities
- Summary of daily activities and significant events
- Notes of conversations with coordinating officials
- References to other logbooks or field forms containing specific data
- Descriptions of problems encountered and their resolutions
- Documentation of deviations from project-governing documents
- Descriptions of photographs taken by INTERA personnel

Field staff will also complete field forms, as applicable, to document specific sampling or monitoring activities.

All field screening and monitoring activities will be recorded in the field logbook and/or corresponding field forms. Documentation will include details of instrument calibration, calibration standards, and traceability information sufficient to provide a reproducible reference point.

Proper sample handling, storage, and transport will be documented using standardized chain-of-custody (COC) forms. These forms record the transfer of samples from collection through laboratory receipt and final disposition and list each sample's intended analyses and any field preservation requirements. The COC forms must accompany all samples at all times. Completed COC records will be retained as permanent documentation of sample collection, transfer, shipment, and receipt by the analytical laboratory. Additional details regarding sample documentation and COC procedures are provided in **Section 5.4.4 and 5.4.5,** respectively**.**

5.4 Sample Management

The following subsections describe analytical sample handling procedures including sample identification and labeling, sample documentation and COC, sample storage and shipment, and investigation-derived waste (IDW) management.

5.4.1 Sample Containers

All sample containers used to collect project samples for off-site laboratory analysis will be supplied by the designated analytical laboratory and certified as new. The specific container types, required sample volumes, preservation methods, and holding times for each analysis will be summarized in a task-specific SAP prior to the sampling event**.**

5.4.2 Sample Identification

Each sample collected will be assigned a unique sample identification (ID). The sample ID serves as the primary cross-reference linking the sample description recorded in the bound field logbook to corresponding entries on field data sheets, COC forms, and laboratory analytical reports.

5.4.3 Sample Labels

A sample label will be affixed to each sample container and completed using indelible ink. Each label will include the following information:

- Project name and location
- Sample ID
- Date and time of sample collection
- Sampler's initials
- Requested analysis

After labeling, each sample will be prepared for storage and shipment in accordance with the preservation and holding time requirements specified for the analytical method outlined in the task-specific SAP.

5.4.4 Sample Documentation

Accurate documentation during sampling is essential to ensure proper sample identification. INTERA personnel will follow these general guidelines for maintaining field records:

- All documentation will be completed in permanent black or blue ink.
- Entries must be legible.
- Errors will be corrected by striking through the entry with a single line and then dating and initialing the correction.
- Unused portions of pages will be crossed out, and each page will be signed and dated.

5.4.5 Chain of Custody

INTERA will implement standard sample COC procedures to maintain and document sample integrity throughout collection, transport, storage, and analysis. A sample is considered to be in custody if it meets any of the following conditions:

- It is in a person's physical possession or view.
- It is stored in a secure area with restricted access.
- It is placed in a container sealed with an official seal, such that access requires breaking the seal.

COC procedures provide a complete written record tracing each sample from field collection to laboratory acceptance. COC forms will be completed in the field and accompany all samples to the laboratory. This form will document all samples collected and the analyses requested. Field personnel will record the following information on the form:

- Project name and number
- Sampling location
- Name and signature of sampler
- Destination laboratory
- Sample ID
- Date and time of collection
- Number and type of containers
- Analyses requested (including notes on dissolved constituents, if applicable)
- Preservatives used (if applicable)
- Filtering for dissolved constituent analysis (if applicable)
- Signatures of all individuals involved in custody transfer, with date and time
- Air bill or courier information (if applicable)
- Project contact and phone number

Unused lines on the form will be crossed out, initialed, and dated. When samples are shipped, field personnel will sign the COC form, record the air bill number, and place the form in a waterproof bag taped to the inside of the shipping container. Copies of the COC forms and shipping documentation will be retained by field personnel prior to shipment.

Upon receipt, the laboratory sample custodian will sign the accompanying COC forms and retain copies as permanent records. The custodian will document relevant information, including the individual delivering the samples, date and time received, sample condition (e.g., sealed, unsealed, broken, temperature), sample IDs, and any unique laboratory identification numbers. The custodian is responsible for maintaining internal logbooks, tracking records, and other documentation to ensure continuous custody throughout sample preparation and analysis.

The laboratory will provide a secure storage area for all samples, accessible only to authorized personnel. The custodian will ensure that samples requiring special handling, such as heat- or light-sensitive, radioactive, or otherwise unusual samples, are properly stored and maintained until analysis.

5.4.6 Sample Packing, Storage and Shipment

Upon collection and labeling, samples will be packaged for delivery to the designated laboratory. Until shipment/delivery, sample integrity will be maintained in the field by INTERA personnel through appropriate handling and preservation procedures. Collected samples will be preserved as required (e.g., chemical preservation, storage in ice-filled coolers), packaged to prevent breakage or cross-contamination, and remain under the control of the Field Sampling Team (within sight or in locked storage) until custody is transferred to the delivery service. If samples are held overnight, additional ice will be added as needed to maintain a preservation temperature of 4 degrees Celsius (°C) ± 2°C, and coolers will be stored in a locked, secure location.

All samples collected for laboratory analysis will be transported from the Site to an accredited analytical laboratory. When transporting samples by vehicle, the following procedures will be followed:

- Select a sturdy cooler in good condition and secure the drain plug with duct tape both inside and outside.
- Ensure all sample bottle caps are tightly sealed and verify that labels and COC forms are completed correctly.
- Place bottles in appropriately sized plastic zip-top bags; up to three VOC vials may be packed in one bag, while soil samples will be double-bagged. Bottles may also be wrapped in bubble wrap. Glass bottles and jars should be placed vertically in the cooler to reduce the risk of breakage.
- Place ice and sample containers inside a large garbage bag, seal it with tape, and double-bag as needed.
- Place the completed COC form in a plastic zip-top bag, tape it to the inside of the cooler lid, and close the cooler.

Upon receipt, laboratory personnel will open the shipping container, sign the COC form, and document the transfer of custody.

5.5 Analytical Program

It is anticipated that one or more qualified laboratories will be utilized under this S1AP to provide analytical services for the proposed groundwater, soil, and sediment samples. All laboratories will be accredited under NELAP or an equivalent certification program. Analytical services for the passive soil vapor samples will be provided by Beacon.

5.6 Quality Control

5.6.1 Field Quality Control

The following QC samples are anticipated to be collected during implementation of one or more of the proposed field activities: field duplicates (FDs), equipment blanks (EBs), and trip blanks (TBs).

5.6.1.1 Field Duplicates

FDs will be collected as part of the sample design during collection of both solid media and groundwater samples for the purposes of contamination assessment only. All FDs collected will be submitted to the laboratory with the primary sample and will be analyzed for the same parameters as the primary sample. The association of the FD with the primary sample will be recorded in the field notes and shall be documented by the Sample ID. Identification of a FD should NOT be documented on the COC form submitted to the laboratory.

Throughout the duration of this Project, FDs will be collected at a frequency of 10% per matrix encountered (i.e., one in every 10 samples), or one per sampling event if the total number of samples for a specific matrix is less than 10.

5.6.1.2 Equipment Blanks

EBs will be collected during any sampling event that uses non-dedicated, non-disposable sampling equipment. As such, the collection of EBs is only pertinent during project phases incorporating the drilling, installation, and sampling of monitoring wells and collection of groundwater samples for field and fixed-laboratory analysis of COPCs. One EB will be collected from a piece of reusable equipment (groundwater sampling pump or water level indicator) per event. On collection, each EB will be submitted for the analyses that correspond to the task. Collection of the EB will be recorded on the sample form and in the field notes and shall be documented by the Sample ID and on the COC form.

5.6.1.3 Trip Blanks

The TB is a clean sample of a matrix that is transported with the sample containers from the laboratory to the sampling site and back to the laboratory. A TB will be required for the storage and transport of samples for certain analytes and will be specified in the task-specific SAP. One TB will be provided by the appointed laboratory per every 10 sample containers supplied, or per each required container (e.g., cooler).

5.6.2 Laboratory QA/QC

To ensure quality of laboratory analysis, the analytical laboratory will be required to prepare and analyze project-required laboratory QA/QC samples (method blanks, matrix spikes, control samples, and respective duplicates) as specified by the analytical methods and/or the measurement quality objectives established for the project.

Additional QC samples (such as surrogates, internal standards, continuing calibration samples, and interference check samples) may also be analyzed in the laboratory per method specifications. Application of these QC samples, the appropriate acceptance criteria, and corrective actions are method specific and shall be detailed in the laboratory final report, as required.

5.7 Instrument Testing, Inspection, and Maintenance

All equipment used during field activities will be properly tested, inspected, maintained, and calibrated. The following subsections detail calibration, decontamination, and required inspections.

5.7.1 Instrument Calibration

A variety of commercially available instruments can be used to collect environmental data, and often multiple makes, models, or types are approved for a given measurement. While this S1AP identifies specific instruments anticipated for use during the project, equivalent alternative instruments may be selected if deemed appropriate. Regardless of the instrument chosen, setup and operation should follow a standardized approach to ensure consistency in use. All instruments must be properly maintained, calibrated, and operated according to the manufacturer's instructions. Calibration fluids must be traceable to the appropriate institution (e.g., National Institute of Standards and Technology [NIST]), and sufficient volume should be available to perform one or more daily calibrations during the sampling event, in accordance with the manufacturer's specifications.

5.7.1.1 Field Equipment

All field instrumentation must be calibrated at least once daily before its first use. Additional recalibrations or field checks should be performed throughout the day to verify proper operation, with the frequency of these checks following the manufacturer's instructions.

Calibration results and procedures must be documented in the field logbook and/or on a calibration log sheet accompanying the instrument. At a minimum, the following information shall be recorded:

- Date and time of calibration
- Type and identification number of the equipment
- Reference standard(s) used
- Name or initials of the person performing the calibration

The field lead or a qualified designee is responsible for ensuring that all field equipment undergoes routine quality checks and that the results are properly documented.

5.7.1.2 Laboratory Equipment

For laboratory equipment, the laboratory QA plan and written operating procedures describing specific testing, inspection, maintenance, and calibration procedures for equipment will be followed. If required, maintenance procedures and schedules will be performed and documented.

5.7.2 Equipment Decontamination

Equipment decontamination will be performed within a designated work area in the Contamination Reduction Zone. For this project, equipment requiring decontamination includes drilling equipment and non-disposable sampling tools. All reusable equipment will be decontaminated prior to initial use and between discrete sampling events in accordance with INTERA SOPs.

5.7.3 Inspection and Acceptance Requirements for Supplies/Consumables

INTERA Project Managers are responsible for identifying the types and quantities of supplies and consumables required for a project, as well as establishing acceptance criteria for these items.

Supplies may be received at an INTERA office or directly at the work site. When received at an office, the Project Manager or field lead will sort items by vendor, verify packing slips against purchase orders, and inspect the condition of all supplies before acceptance. Items that do not meet acceptance criteria will be documented on the packing slip and purchase order and returned to the vendor for replacement or repair.

Field receipt procedures are similar. The field lead will inspect all supplies against the established acceptance criteria, document any deficiencies in the field logbook, and arrange for immediate replacement of nonconforming items.

Analytical laboratories are required to provide certified clean containers for all analyses. These containers must comply with USEPA standards described in *Specifications and Guidance for Contaminant-Free Sampling Containers* (USEPA, 1992).

5.8 Data Management

The Project Manager, or a designated representative, will oversee the collection of environmental data and ensure that appropriate assessment and audit activities are conducted. Any issues identified during field or laboratory assessments will be addressed through documented corrective actions to ensure that data quality objectives are met. Corrective actions will be developed and reviewed by a Technical Lead in coordination with relevant subcontractors or vendors, as applicable.

Effective data management depends on timely review of all project activities and clear communication among all participants. The Project Manager will facilitate coordination and resolution of project-specific quality concerns through regular verbal and electronic communication.

6.0 Stage 1 Abatement Plan Schedule

Following submission of this S1AP, the NMED has 60 days to approve the plan or provide comment on any deficiencies. Approval or comment from NMED on the S1AP is anticipated by late January 2026. PNM and INTERA anticipate beginning work on the S1AP approximately two weeks after approval by NMED when all necessary contracts are in place. A preliminary schedule of all S1AP activities is provided in **Figure 6.1**. This preliminary schedule allows for possible iterations of the S1AP between NMED and PNM during February 2026. Approval of the S1AP by NMED is estimated to occur at the beginning of March 2026. The proposed desktop and field activities are estimated to commence in mid-March 2026. The duration of proposed desktop and field activities presented in the preliminary schedule (**Figure 6.1**) represents INTERA's best estimate at the time of preparation but the durations may change slightly as the work is underway. Changes to schedule and activities will be reported in Quarterly Reports (described below). The proposed timing of desktop and field activities may be shifted in time if the S1AP is approved earlier or later than is estimated.

The preliminary S1AP schedule is summarized with five major tasks, which are described briefly below.

- **Task 1 Desktop Studies**. The proposed desktop studies (Section 4.1) consist of refining the timeline of events at the Site, refining the geological, hydrogeological, and geochemical CSMs for the Site, and developing a Site-specific numerical groundwater model. The anticipated duration of the desktop studies is 34 weeks. Any findings from desktop studies that may have implications for proposed field activities will be reported in Quarterly Reports (Task 5 described below). Otherwise, findings will be reported in the Final S1AP Report (Task 5 described below).
- **Task 2 Soil Sampling and Analysis**. The proposed investigation into possible soil impacts (Section 4.2) consists of sampling and analyzing surface soil (0 to 6 inches) in April 2026, soil vapor in May 2026, and deeper soil (0 to 10 ft) in June 2026. Prior to the sampling event, a task-specific SAP will be submitted to NMED for review. Sampling events are anticipated to last one or two weeks and laboratory analysis is estimated to last four weeks. Sampling events will be preceded by Site visits to confirm sampling locations and conditions. Prior to the sampling event, a task-specific SAP will be submitted to NMED for review. An interim field investigation report will be prepared and submitted to NMED approximately four weeks after all soil sampling and analysis is completed. Findings will also be reported in the Final S1AP Report (Task 5 described below).
- **Task 3 Water Sampling and Analysis**. The proposed investigation into possible groundwater impacts (Section 4.3) consists of two activities.
    - The first is sampling surface water (if available) and groundwater for hydrologic tracers. Prior to the sampling event, a task-specific SAP will be submitted to NMED for review. An interim field investigation report will be prepared and submitted to NMED approximately four weeks after all hydrologic tracer sampling and analysis is completed. Findings will also be reported in the Final S1AP Report (Task 5 described below).
    - The second proposed groundwater investigation activity is sampling NMED and proposed wells for a slightly larger analytical suite than is currently required for DP-1327 or DP-1843, for at least eight consecutive quarters. If any non-DP constituents are below detection during these eight consecutive quarters, then continued monitoring for these constituents is not recommended. Sampling the NMED wells for both DP and non-DP constituents can begin as early as the first quarter of 2026. Sampling the proposed wells for both DP and non-DP constituents can begin after the wells have been installed and developed. Considering that a majority of the proposed wells are on federal land and require access agreements, collection of eight quarters of monitoring data from these wells will likely extend beyond the timeframe for the rest of the S1AP activities. Sampling results for NMED and proposed wells is recommended to be included in the quarterly Discharge Monitoring Reports for either DP-1327 or DP-1843. Quarterly reporting for the NMED and proposed wells is anticipated to continue beyond submission of the Final S1AP Report (Task 5 described below).
- **Task 4 Well Installation**. The proposed investigation into possible groundwater impacts includes installation of eight wells in Quaternary sediments and two wells in bedrock (Section 4.3). INTERA anticipates two separate mobilizations for well installation, one for wells on private land and another for wells on federal land. Well installation on private land

is expected to begin soon after all soil sampling activities are complete and to last approximately one week. Well installation on federal land will be formally requested approximately two weeks after S1AP approval (March 2026) and is estimated to begin six months after the formal request is made (September 2026). Updates on the timing of well installation will be included in Quarterly Reports (Task 5 described below).

- **Task 5 S1AP Reporting**. The NMAC 20.6.2.4106.C stipulates submission of summary quarterly progress reports and a detailed final site investigation report. Most S1AP activities are anticipated to be complete by the end of 2026. Sampling NMED and proposed wells for eight quarters is expected to extend into 2027, and possibly 2028. If sampling of NMED wells begins in the first quarter of 2026, then at least four quarters of results would be available by the beginning of 2027. The proposed time for submission of the Final S1AP Report is therefore the end of February 2027. The proposed time for submission of Quarterly Reports is June 2026, September 2026, and December 2026.

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FIGURES

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4,000 2,000 0 4,000

Feet

Legend

- PNM Property
- San Juan Mine lease and permit boundary
- Underground Mine Workings
- Area of Interest (Site)

Land Ownership

- Bureau of Land Management
- Tribal Lands
- Private Lands
- Bureau of Reclamation
- State Owned Lands

Westwater Arroyo

Westwater Diversion

Shumway Diversion

Shumway Arroyo

Hutch Canyon Arroyo

Hutch Canyon Diversion

Memorial Recovery System

Raw Water Reservoir

Shumway Arroyo Backwater Reach

Shumway Recovery System

Shumway Arroyo

San Juan River

Farmington

64

64

Figure 1.1

Site Location

San Juan Generating Station

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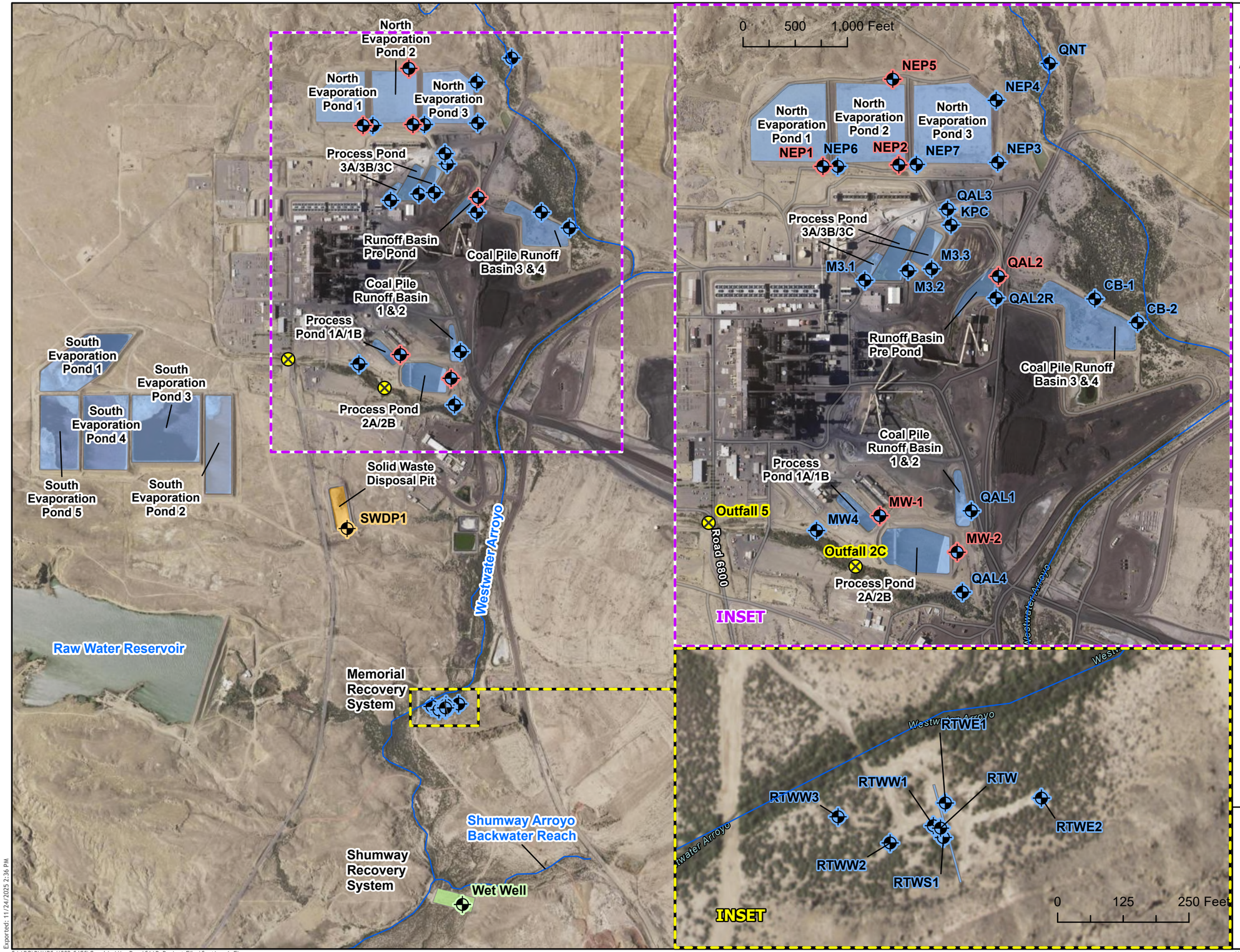
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Map: Map

Layout: Figure 1.1 Site Location1

INTERA



Source: Aerial-NAIP Imagery

Figure 1.2
Active Discharge Permits
San Juan Generating Station

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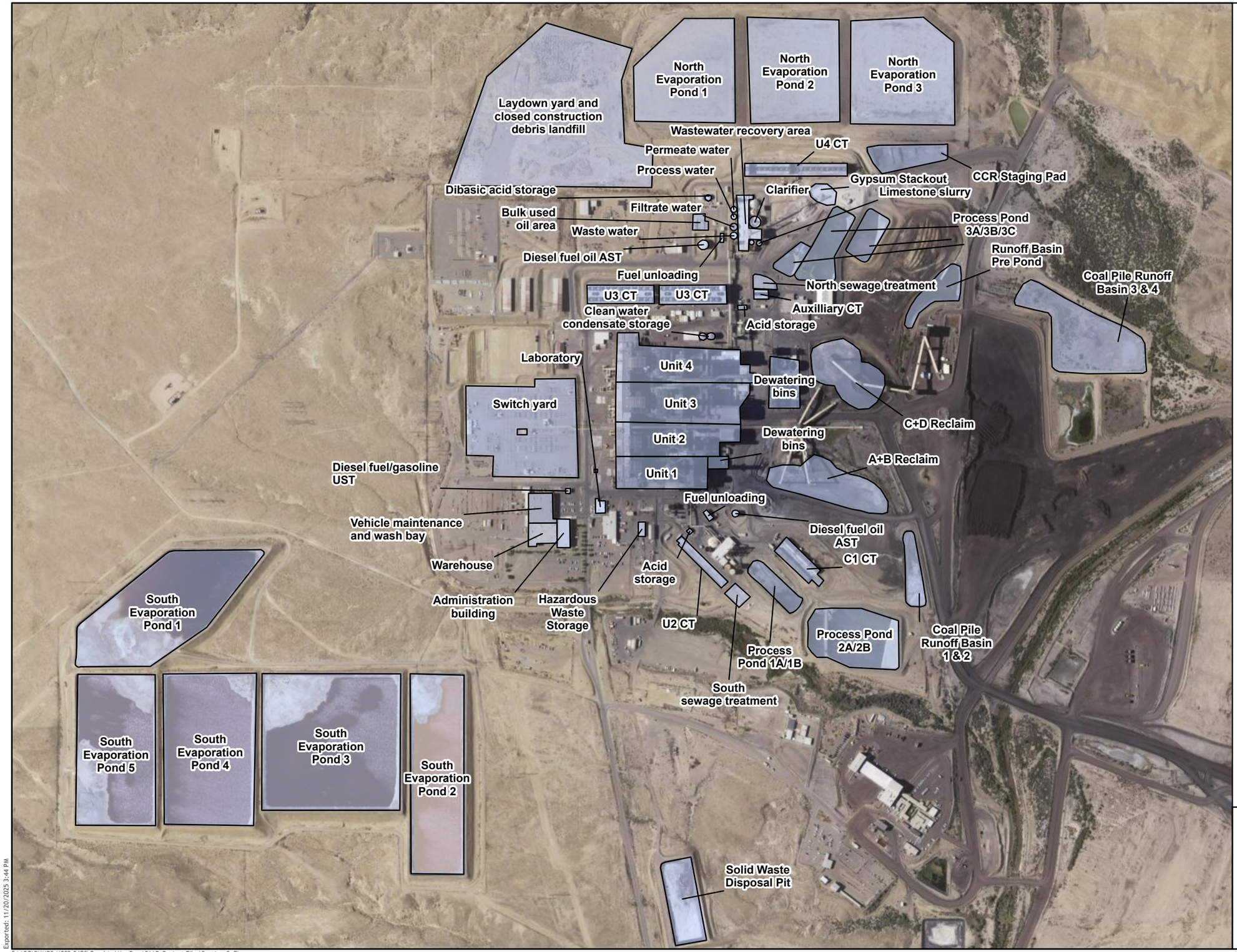
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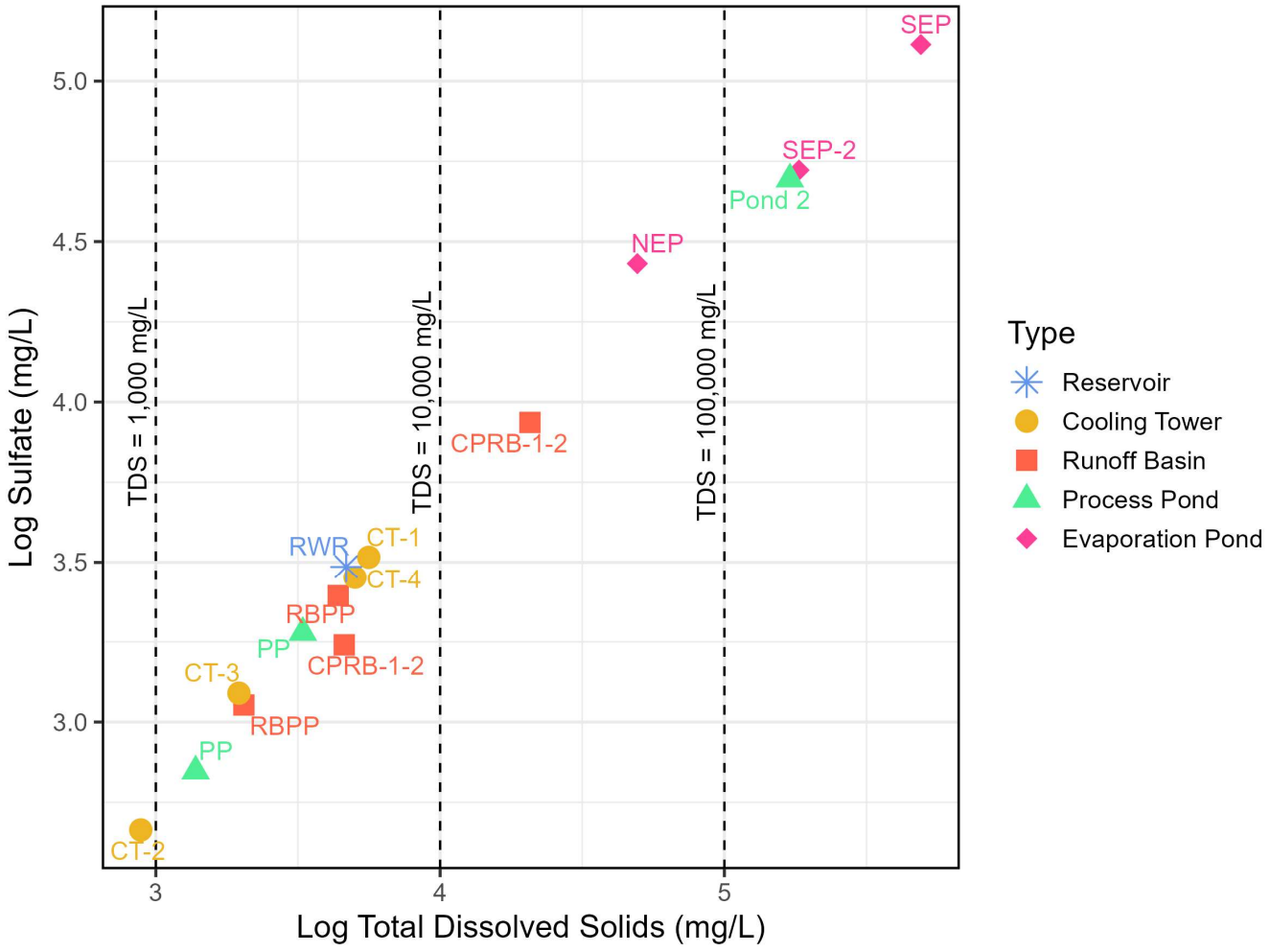
Layout: Figure 1.2 Alt Discharge Permits

INTERA



Source: Aerial-NAIP Imagery

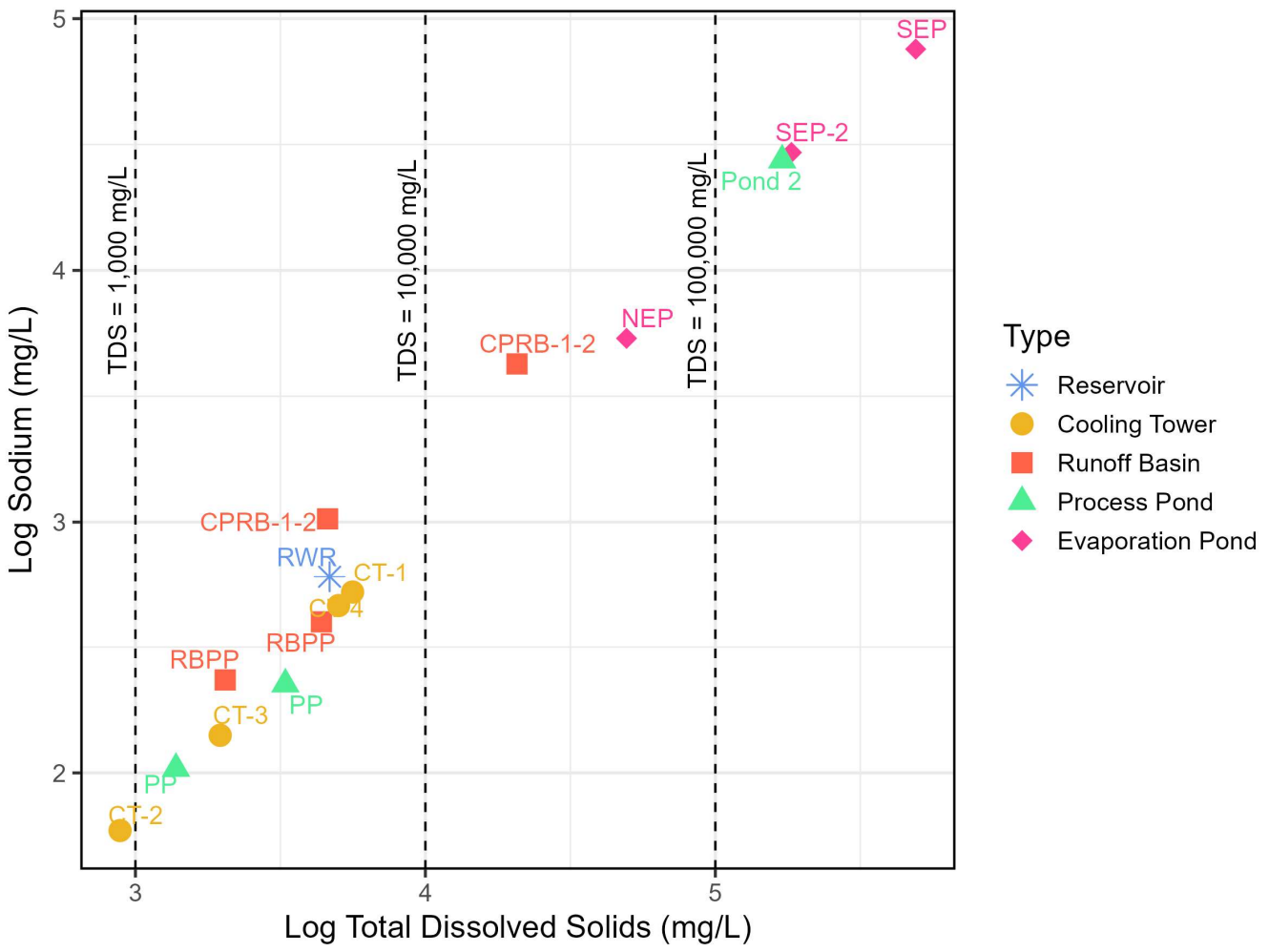
Figure 2.1
SJGS Structures
San Juan Generating Station



Logged concentrations of sulfate and total dissolved solids in samples of SJGS operational water. Acronyms are the following: CT = Cooling Tower; PP = Process Pond; RBPP = Runoff Basin Pre Pond; RWR = Raw Water Reservoir; CPRB-1-2 = Coal Pile Runoff Basin 1 & 2; NEP = North Evaporation Pond; SEP = South Evaporation Pond.

Figure 2.2
SJGS Operational Water Sulfate and TDS
San Juan Generating Station

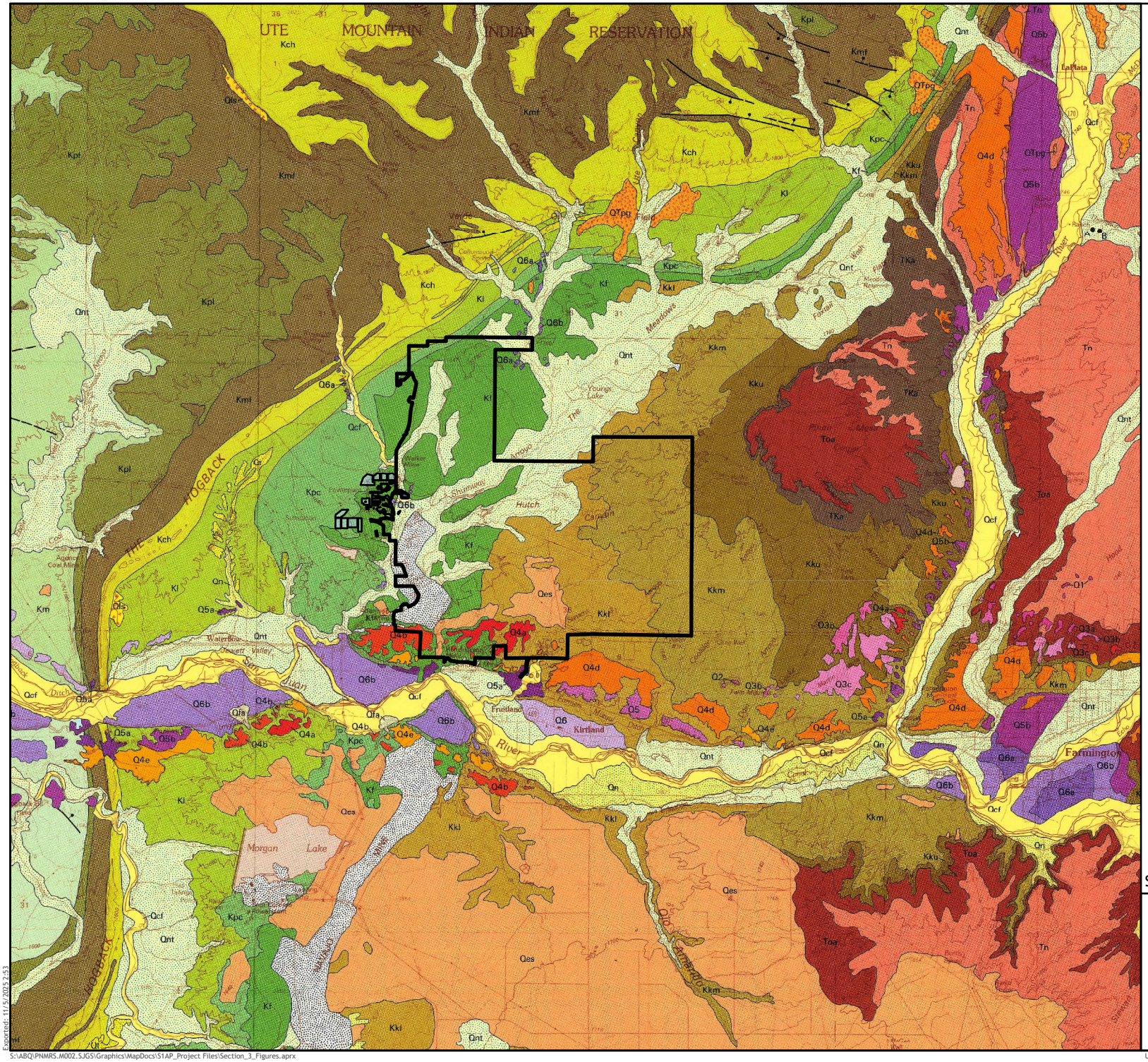
INTERA



Logged concentrations of sodium and total dissolved solids in samples of SJGS operational water. Acronyms are the following: CT = Cooling Tower; PP = Process Pond; RBPP = Runoff Basin Pre Pond; RWR = Raw Water Reservoir; CPRB-1-2 = Coal Pile Runoff Basin 1 & 2; NEP = North Evaporation Pond; SEP = South Evaporation Pond.

INTERA

Figure 2.3
SJGS Operational Water Sodium and TDS
San Juan Generating Station



6000 0 6000 12000
Feet

SJGS Structures

San Juan Mine lease and permit boundary

Geologic Units

- **Qcf** Channel Alluvium
- **Qfa** Fan Alluvium
- **Qn** Naha Alluvium
- **Qt** Tsegi Alluvium
- **Qnt** Naha/Tsegi
- **Qes** Eolian Sand
- **Tn** Nacimiento Fm
- **Toa** Ojo Alamo Ss
- **Kku** Kirtland Shale (u)
- **Kkm** Farmington Ss
- **Kkl** lower shale mbr
- **Kf** Fruitland Fm
- **Kpc** Pictured Cliffs Ss
- **Kl** Lewis Shale
- **Kch** Cliff House Ss
- **Kmf** Menefee Fm

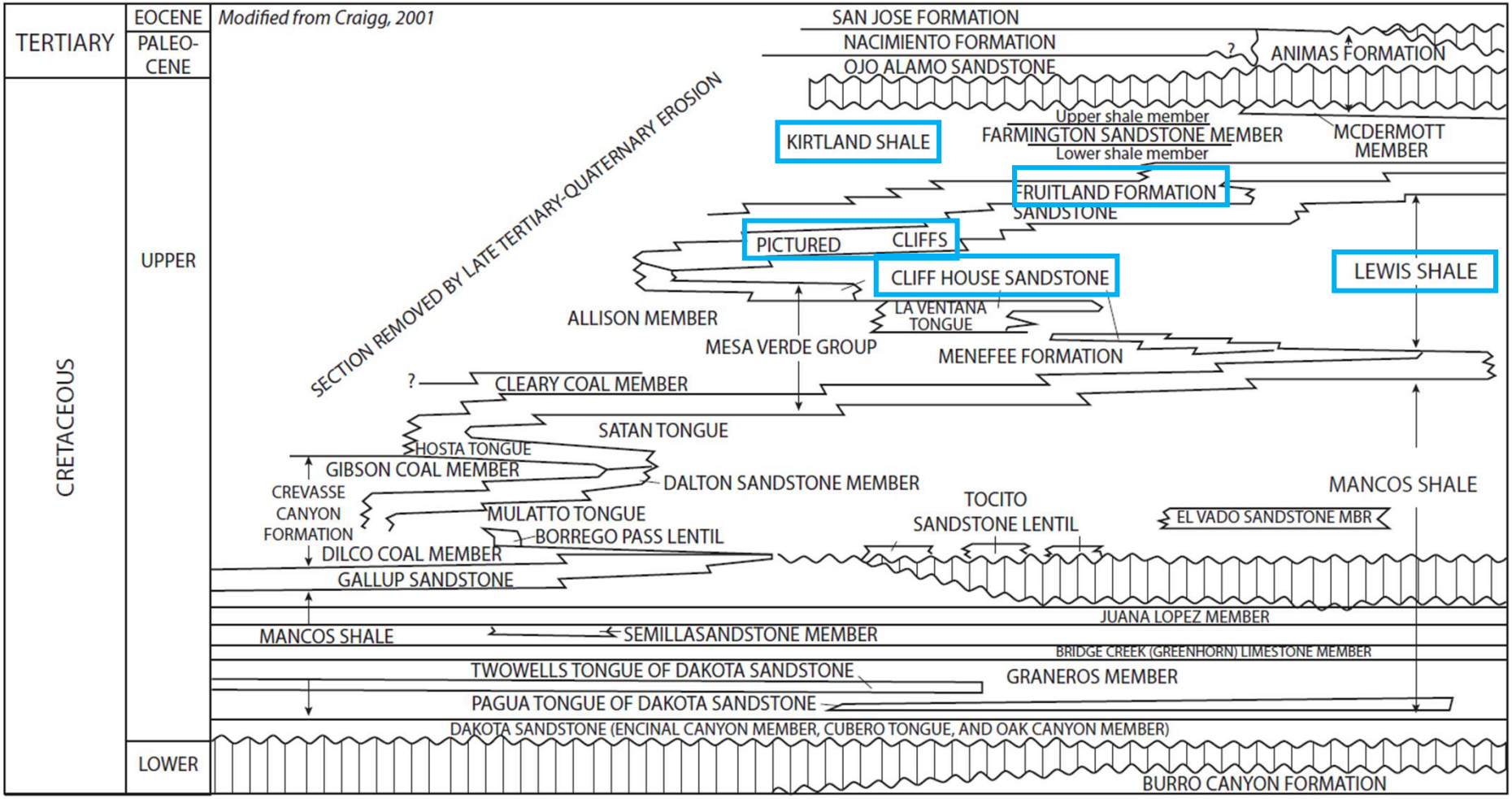
Source: Surface Geology (Ward, 1990)

Figure 3.1

Site Geology

San Juan Generating Station

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Layout: Geologic Map 3.1
INTERA



Bedrock units of interest in the vicinity of SJGS

INTERA

DRAFT

Figure 3.2
Regional Stratigraphy
San Juan Generating Station

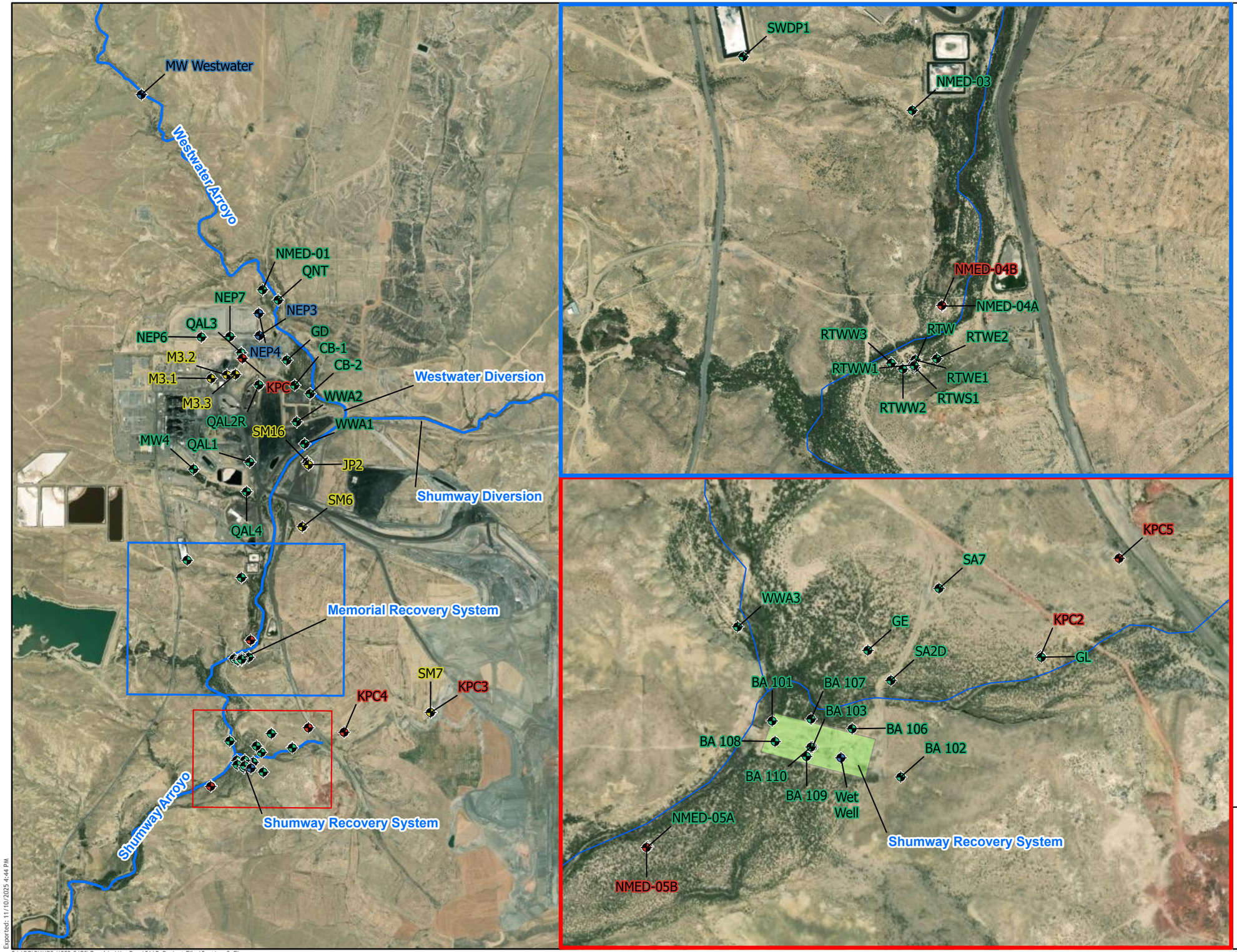
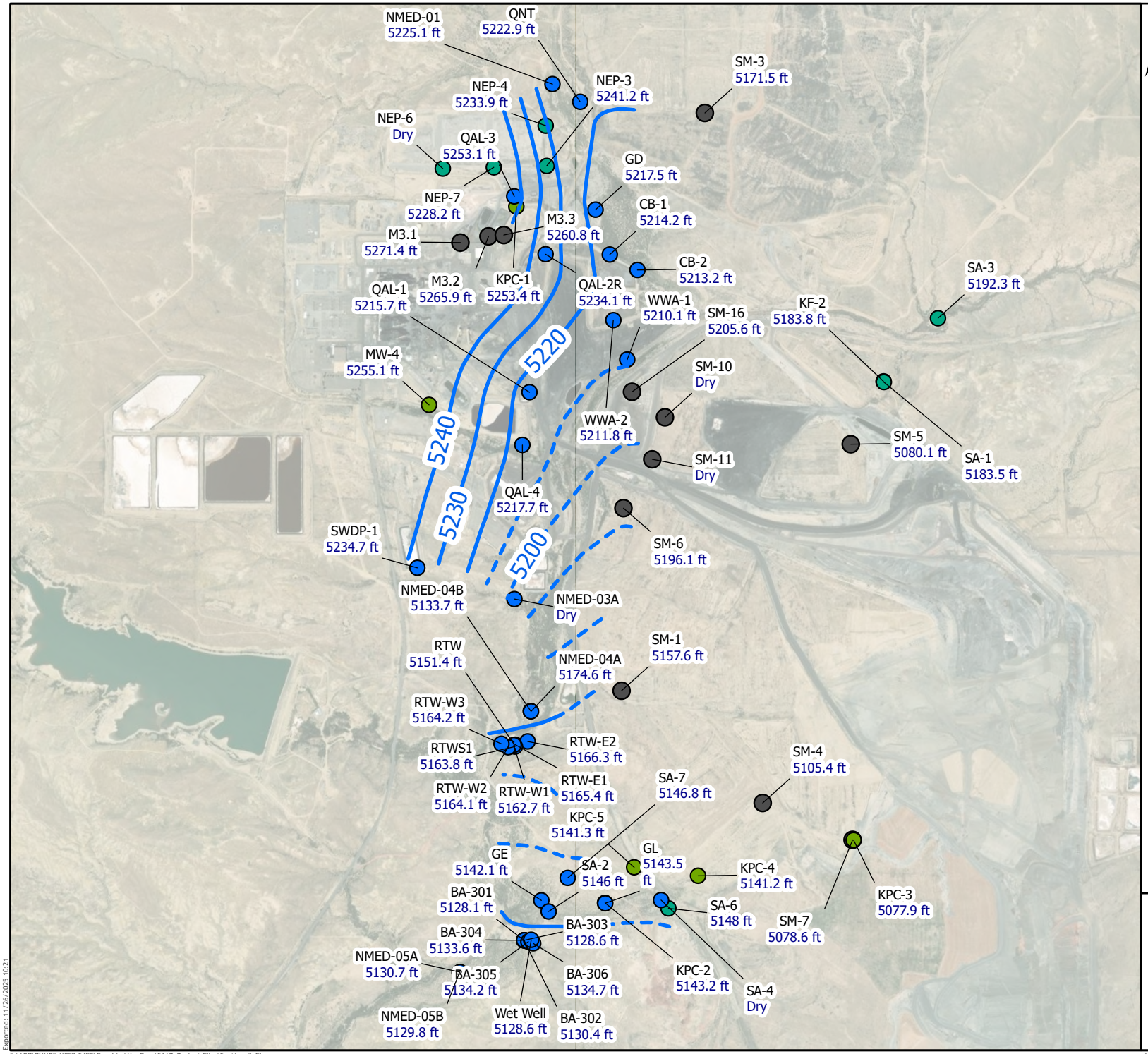


Figure 3.3
Existing Wells by Geologic Unit
San Juan Generating Station

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Map: Map111
Layout: 03_03_ExistingWells_Geologicunit
INTERA



Notes:
Data were collected in 2024 and 2025, except for RTW and SWDP-1, which were collected in 2022.
*Only Qal/Qnt wells were used for contouring.

Figure 3.4

Qal/Qnt Groundwater Surface Elevations

San Juan Generating Station

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User: towen
Map: Map
Layout: 03_04 groundwater elevations
INTERA



Legend

- Existing PNM Well-Not Sampled
- Existing PNM Well-Sampled
- LSI Monitoring Well
- Soil Boring-General Area
- Soil Boring-Tank Area
- Soil Boring-Transformer Area
- Soil Boring-Waste Pit Area

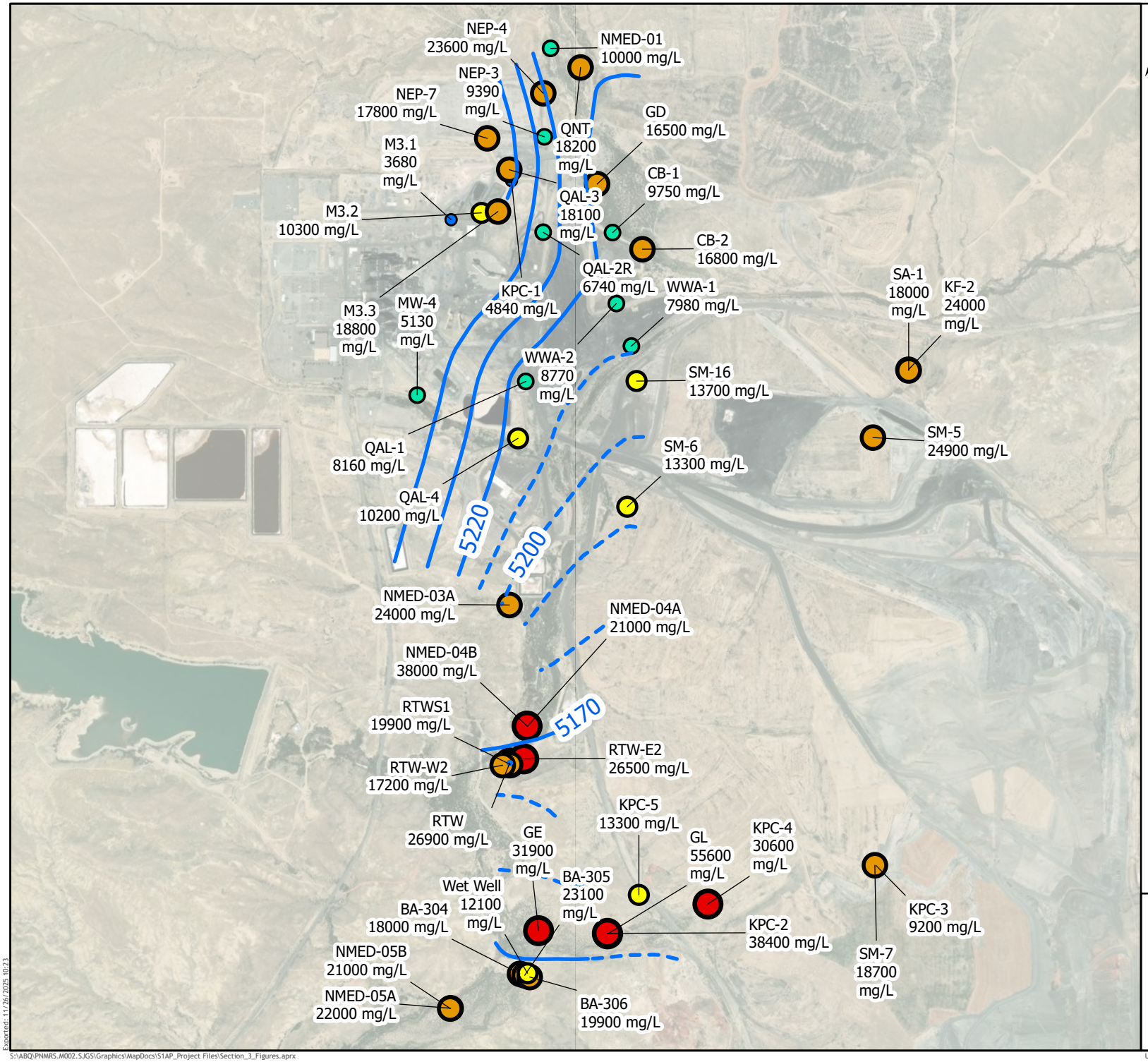
N

0 500 1,000

Feet

Figure 3.5
Sample Locations in 2024 Third-Party Study
San Juan Generating Station

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User: towen
Map: Guestimate Locations2
Layout: 03_05_SampleLoc_2024_ThirdPartyStudy
INTERA



N 875 0 875 1750

Feet

Legend

Total Dissolved Solids (milligrams per Liter)

- < 5,000 mg/L
- 5,000 - 10,000 mg/L
- 10,000 - 15,000 mg/L
- 15,000 - 25,000 mg/L
- 25,000 - 55,600 mg/L
- Inferred Groundwater Elevation Contour (10ft)
- Groundwater Elevation Contour (10ft)

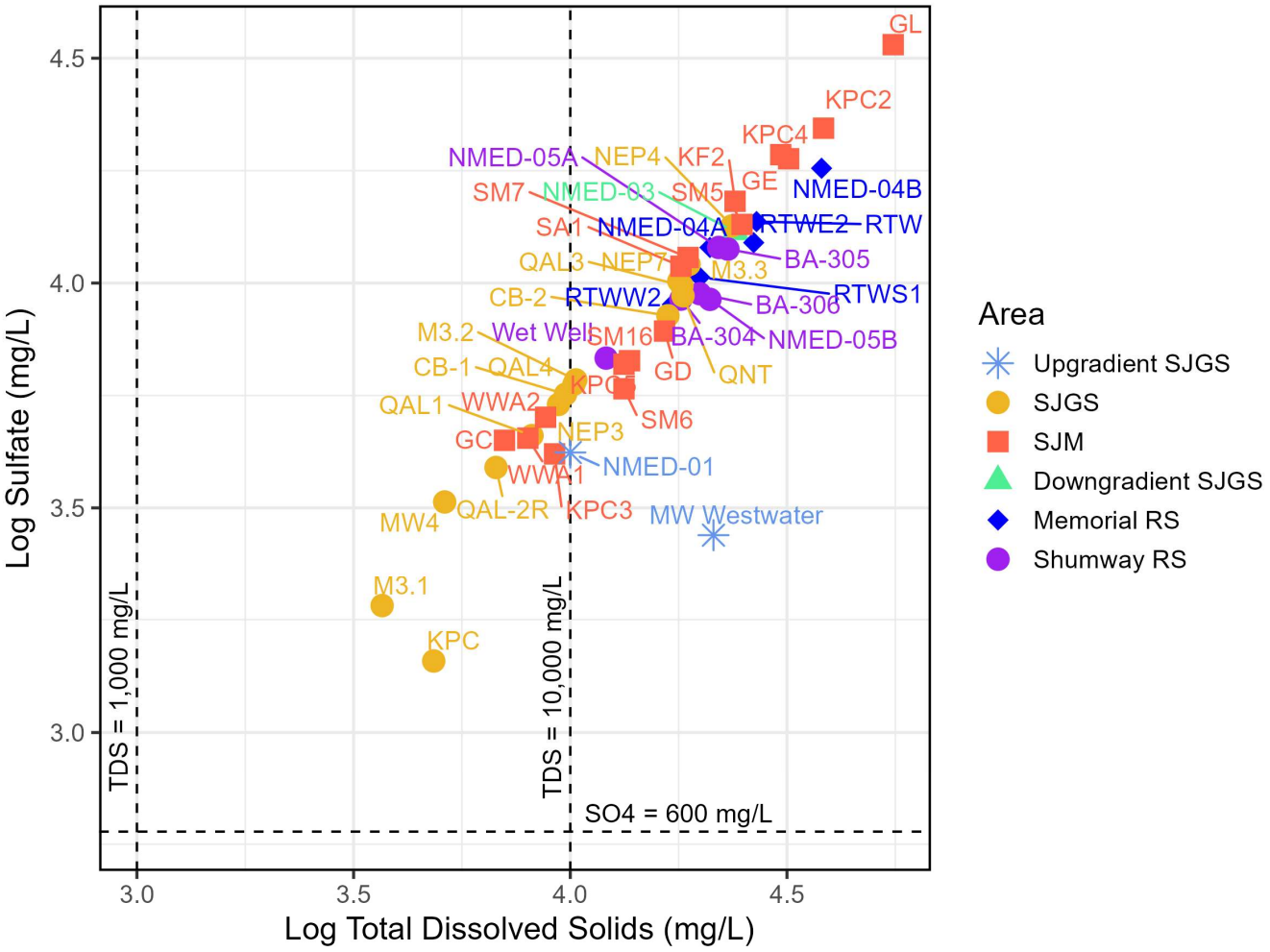
Notes:
Data were collected in 2024 and 2025, except for NEP-3, which were collected in 2023.
*Only Qal/Qnt wells were used for contouring.

Figure 3.6

Site Total Dissolved Solids Concentrations

San Juan Generating Station

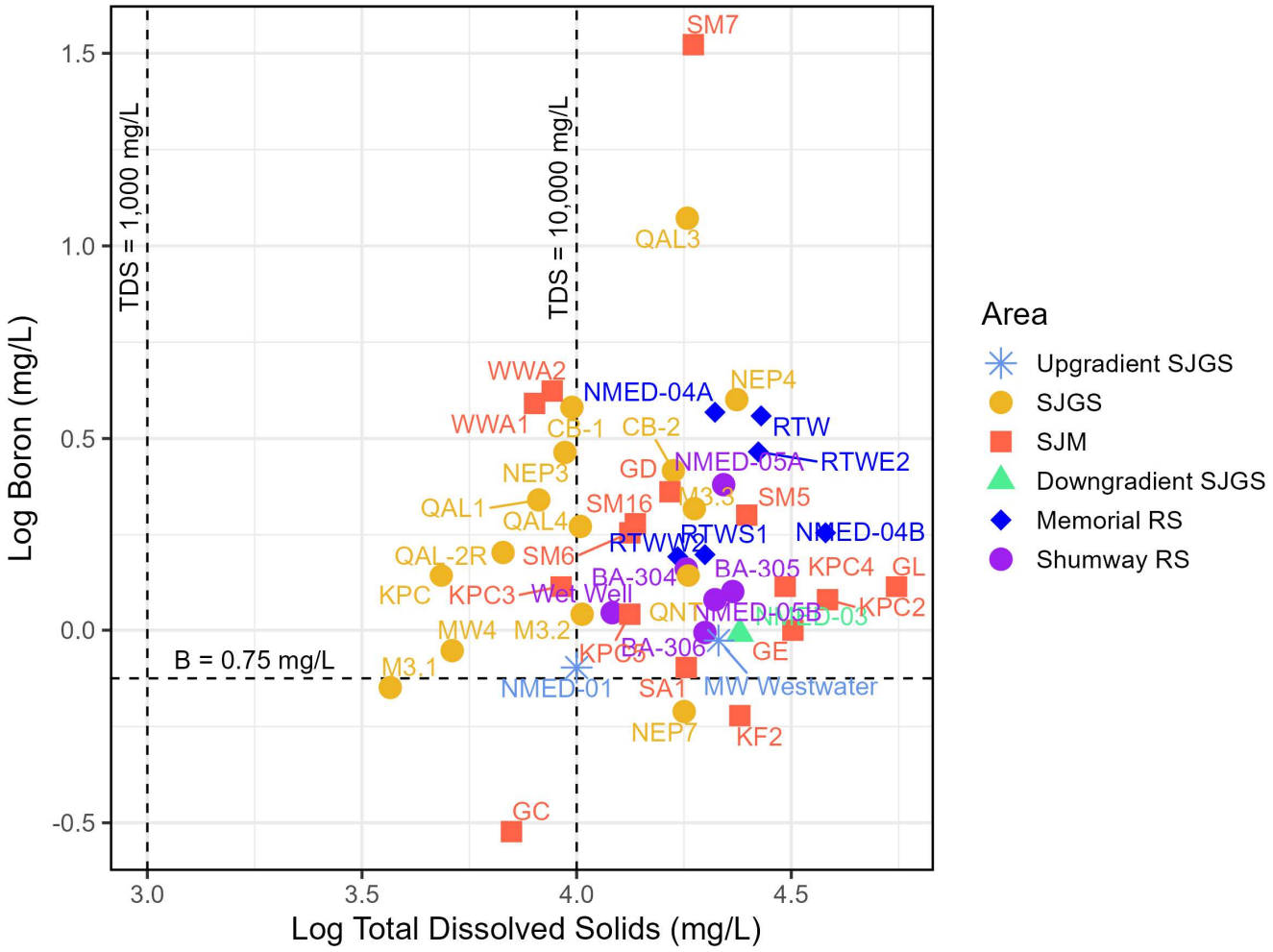
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INTERA



Logged concentrations of sulfate and total dissolved solids in recent samples of monitoring wells across the San Juan Generating Station and San Juan Mine. The New Mexico Water Quality Control Commission (NMWQCC) groundwater standards for sulfate (SO4) and total dissolved solids (TDS) are 600 milligrams per liter (mg/L) and 1,000 mg/L, respectively.

INTERA

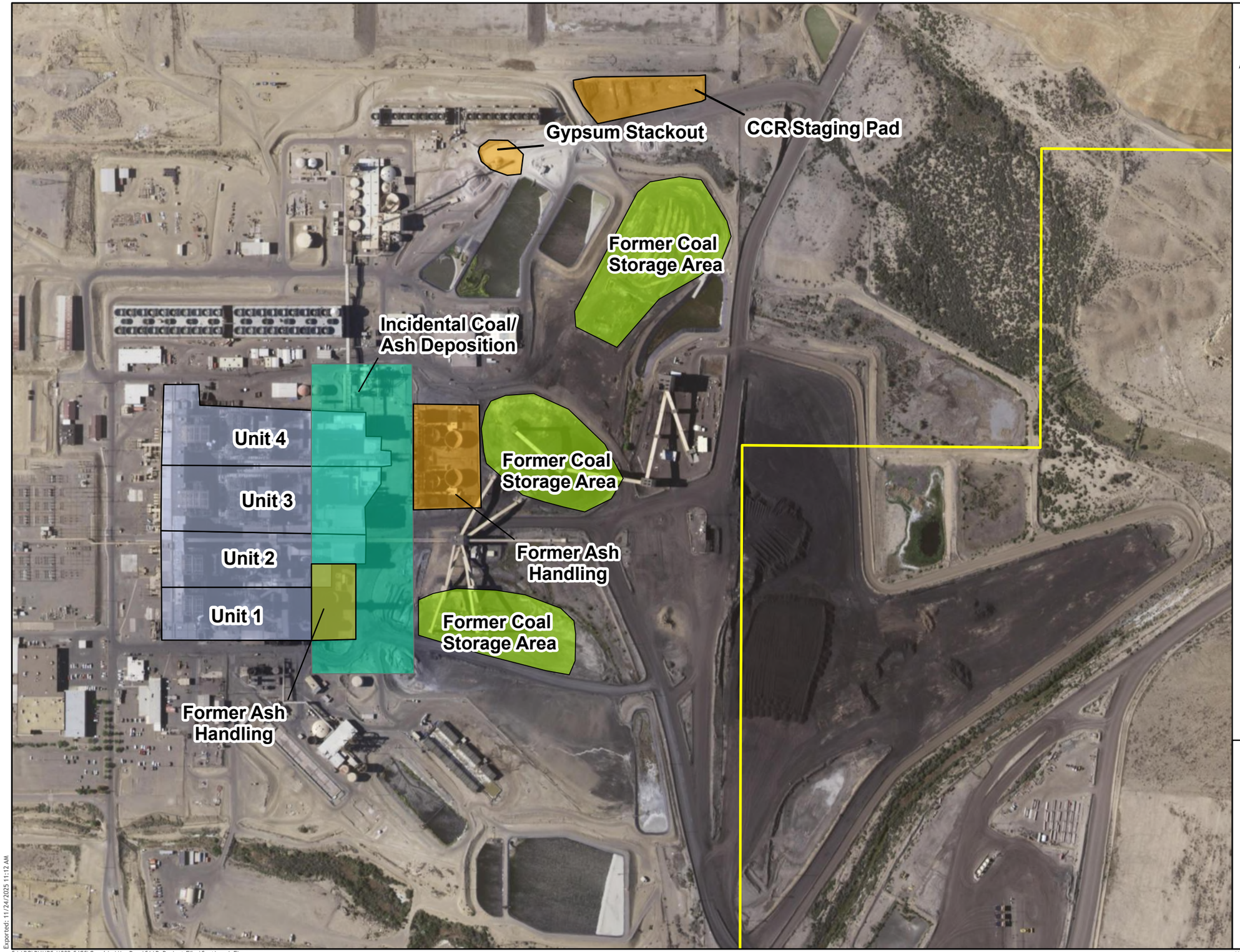
Figure 3.7
Site Groundwater Sulfate and TDS
San Juan Generating Station



Logged concentrations of boron and total dissolved solids in recent samples of monitoring wells across the San Juan Generating Station and San Juan Mine. The New Mexico Water Quality Control Commission (NMWQCC) groundwater standards for boron (B) and total dissolved solids (TDS) are 0.75 milligrams per liter (mg/L) and 1,000 mg/L, respectively.

INTERA

Figure 3.8
Site Groundwater Boron and TDS
San Juan Generating Station



N

500 250 0 500

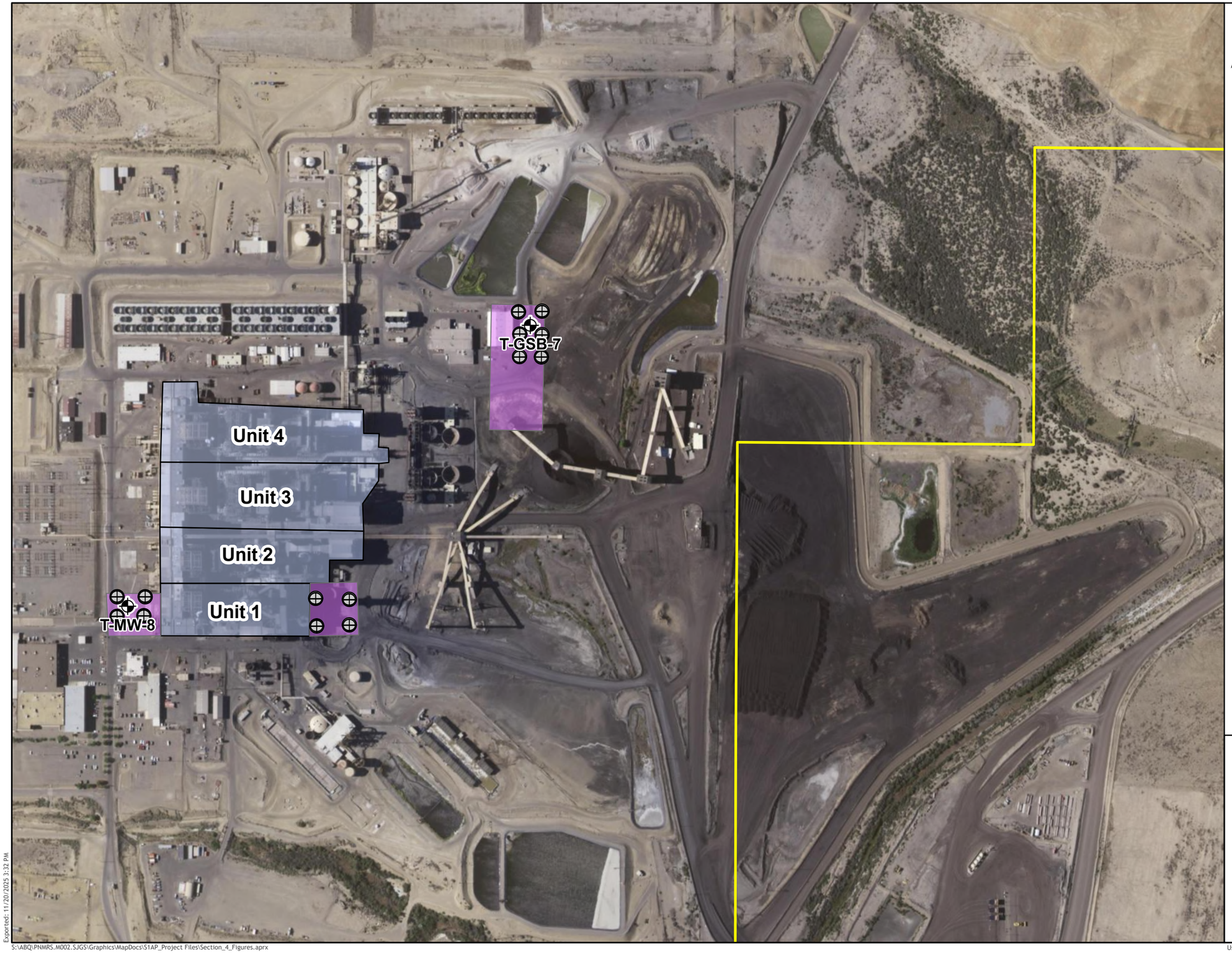
Feet

Legend

- SJGS Structures
- Proposed Soil Sampling Area - Former Ash Handling
- Proposed Soil Sampling Area - Coal Storage
- Proposed Sampling Area - Coal Use
- PNM Property

Source: Aerial-NAIP Imagery

Figure 4.1
Proposed Sampling Areas - Former Ash Handling and Coal Use/Storage Areas
San Juan Generating Station



N

500 250 0 500

Feet

Legend

- SJGS Structures
- Previous VOCs Detection Area
- PNM Property
- Monitoring Well
- Proposed PSV Sample Location

Note(s): PSV = Passive Soil Vapor
VOCs = Volatile Organic Compounds

Source: Aerial-NAIP Imagery

Figure 4.2
Proposed Sampling Areas - Previous VOC Detection Areas

San Juan Generating Station

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User: towen

Map: Map93

Layout: 04_02_ProposedSoilSamplingArea_PreviousVOCs

INTERA

N

100 50 0 100

Feet

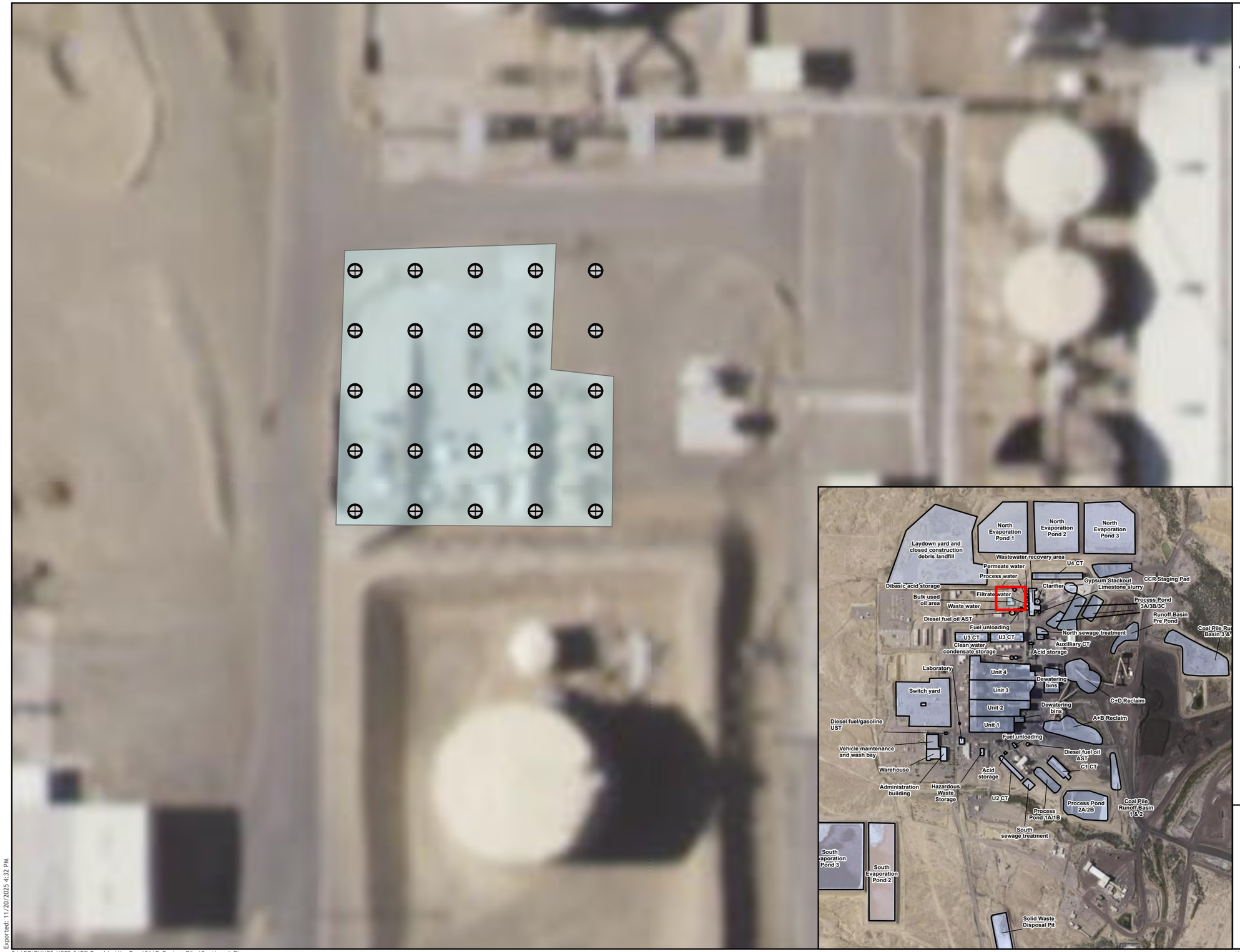
Legend

- SJGS Structures
- Diesel fuel/gasoline UST
- Vehicle maintenance and wash bay
- Laboratory
- Previous PCE Detection Area
- Proposed PSV Sample Location

Note(s): PSV = Passive Soil Vapor
UST = Underground Storage Tank
PCE = Tetrachloroethene

Source: Aerial-NAIP Imagery

Figure 4.3
Proposed Sample Locations: Vehicle Maintenance and Wash Bay, Southwest Diesel Fuel/Gasoline UST, and Laboratory
San Juan Generating Station



N

50 25 0 50

Feet

Legend

- SJGS Structures
- Bulk Used Oil Area
- Proposed PSV Sample Location

Note(s): PSV = Passive Soil Vapor

Source: Aerial-NAIP Imagery

Figure 4.4
Proposed Sample Locations: North Bulk Used Oil Area

San Juan Generating Station

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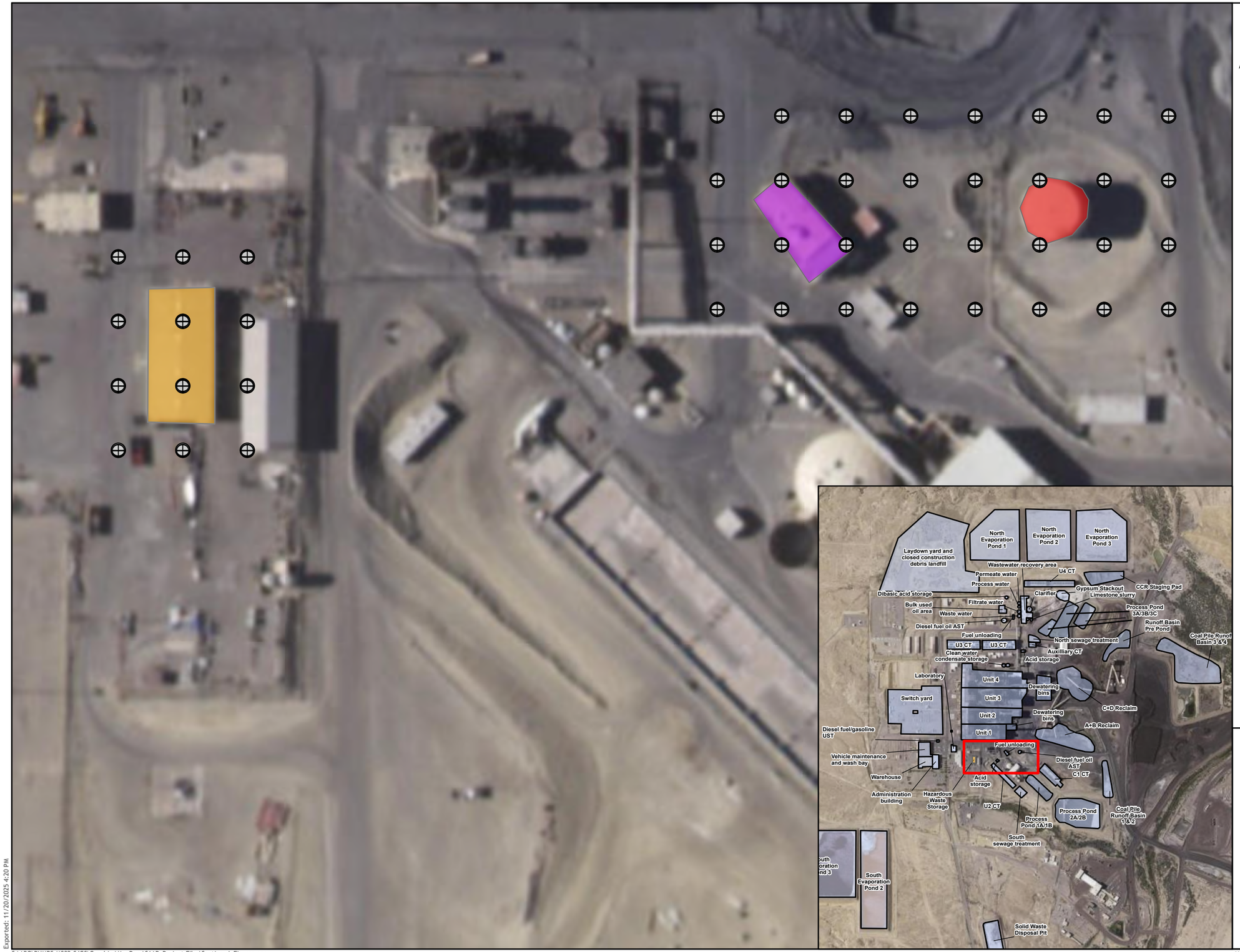
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User: towen

Map: Map98

Layout: 04_04_PSV_NorthBulkUsedOilArea

INTERA



Note(s): PSV = Passive Soil Vapor
AST = Aboveground Storage Tank

Source: Aerial-NAIP Imagery

Figure 4.5
Proposed Sample Locations: South Fuel Unloading and Diesel Fuel Oil AST and Hazardous Waste Storage Area

San Juan Generating Station

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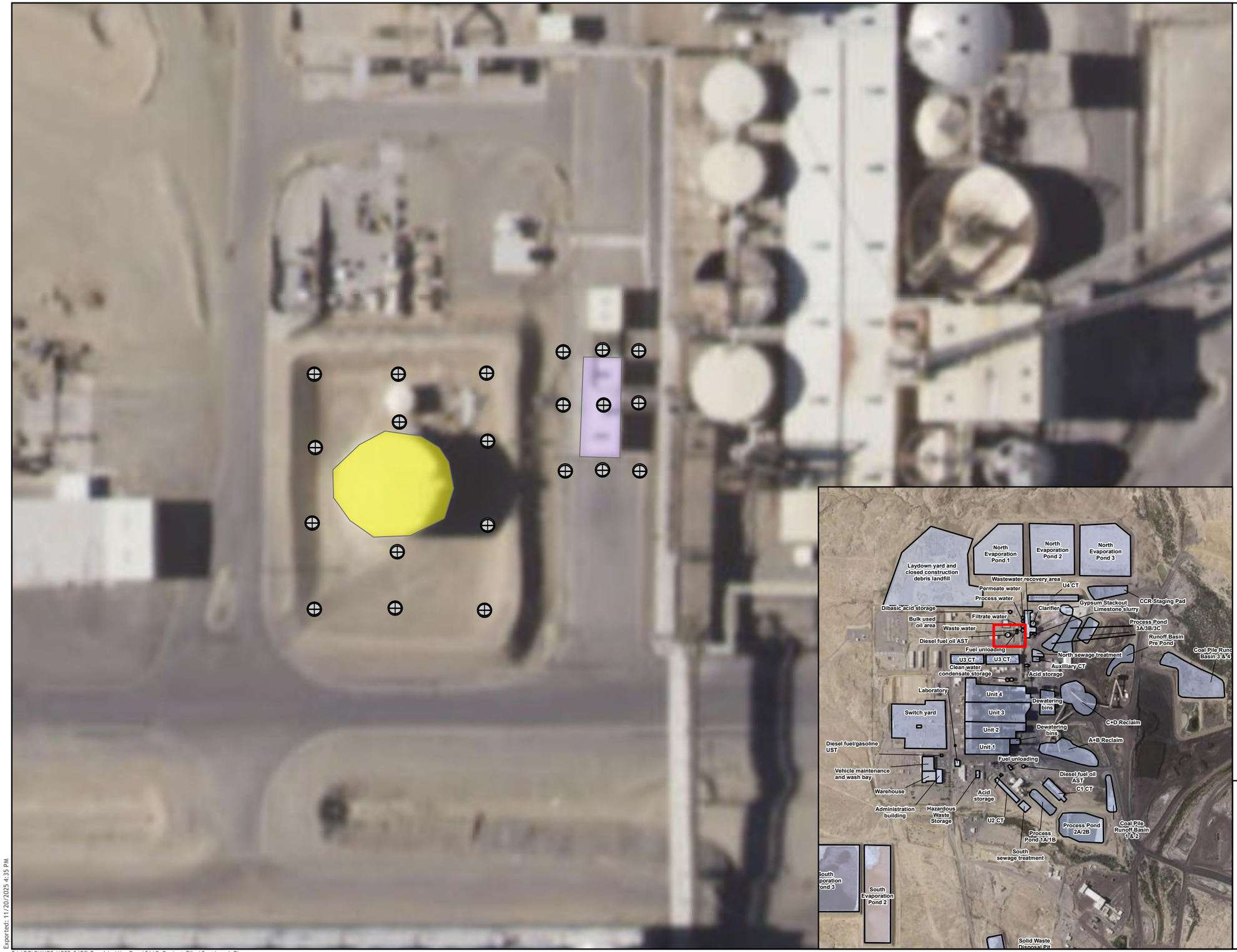
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User: towen

Map: Map94

Layout: 04_05_PSV_SouthFuelUnloading_DieselFuelOilAST

INTERA



N

50 25 0 50

Feet

Legend

- SJGS Structures
- Diesel Fuel Oil AST
- Fuel Unloading
- Proposed PSV Sample Location

Note(s): PSV = Passive Soil Vapor

Source: Aerial-NAIP Imagery

Figure 4.6
Proposed Sample Locations: North Fuel Unloading and Diesel Fuel Oil AST

San Juan Generating Station

Exported: 11/20/2025 4:35 PM

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User: towen

Map: Map97

Layout: 04_06_PSV_NorthFuelUnloading_DieselFuelOilAST

INTERA

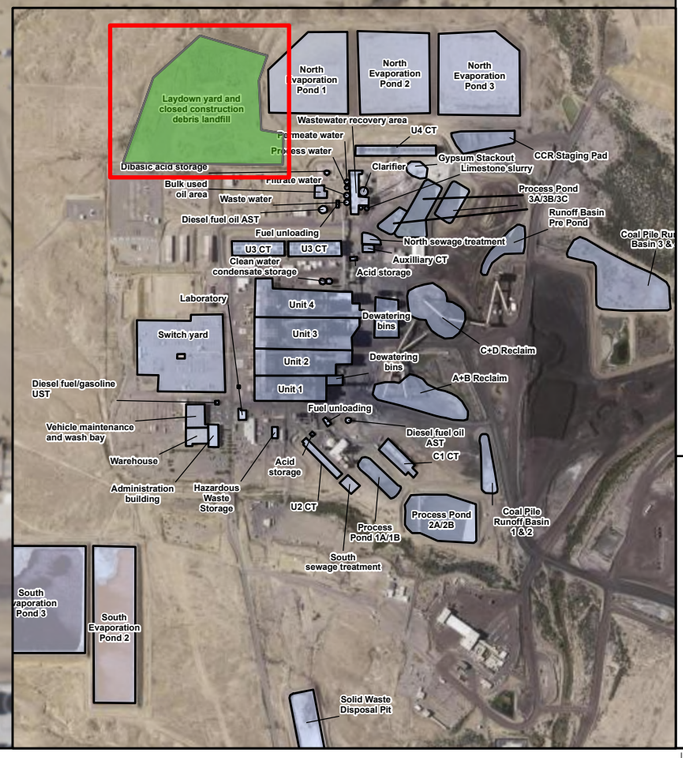
N

200 100 0 200

Feet

Legend

- SJGS Structures
- Laydown Yard and Closed Construction Debris Landfill
- Proposed PSV Sample Location



Note(s): PSV = Passive Soil Vapor

Source: Aerial-NAIP Imagery

Figure 4.7
Proposed Sample Locations: Former Construction Debris Landfill

San Juan Generating Station

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User: towen

Map: Map98

Layout: 04_07_FormerConstructionDebrisLandfill

INTERA

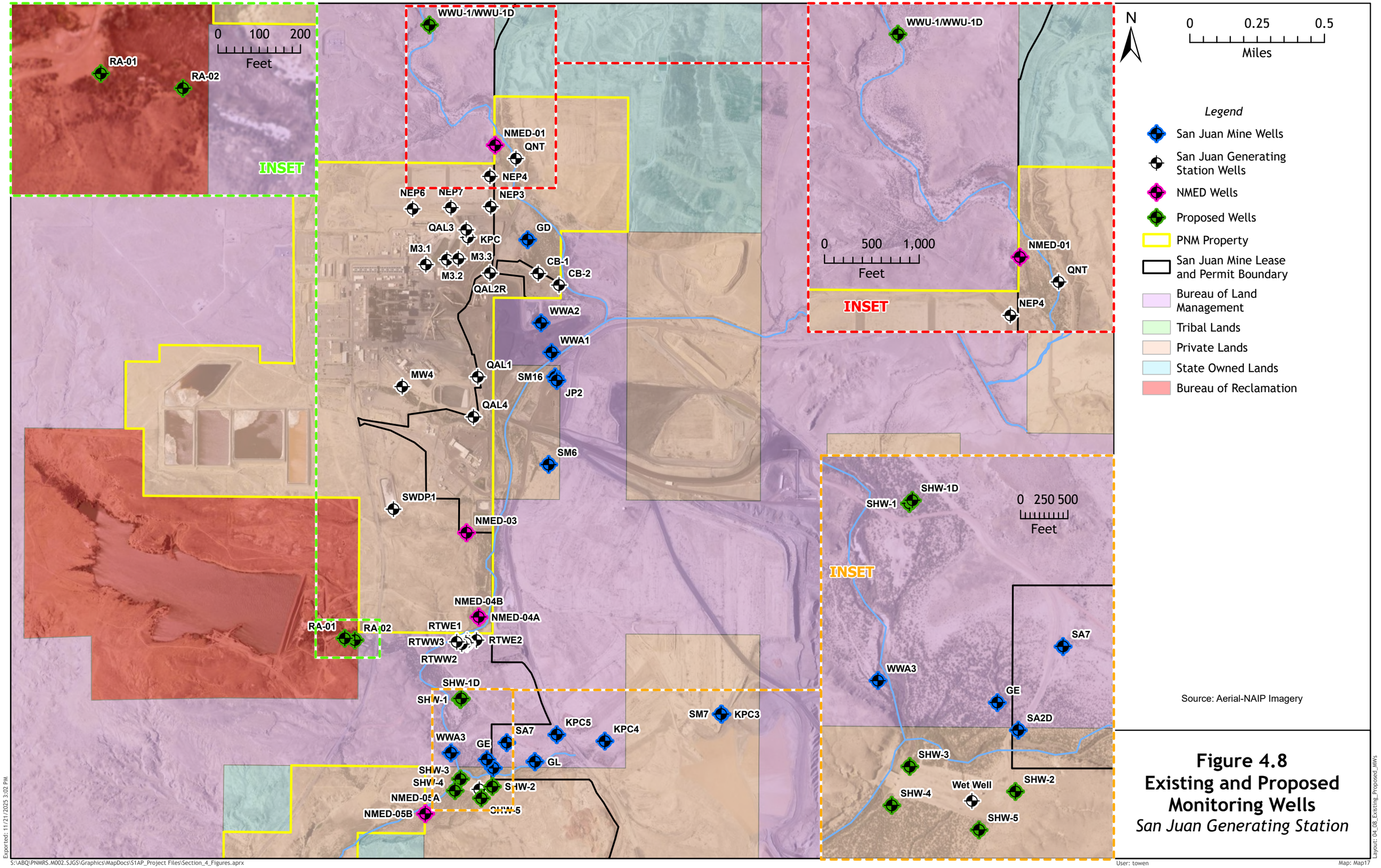
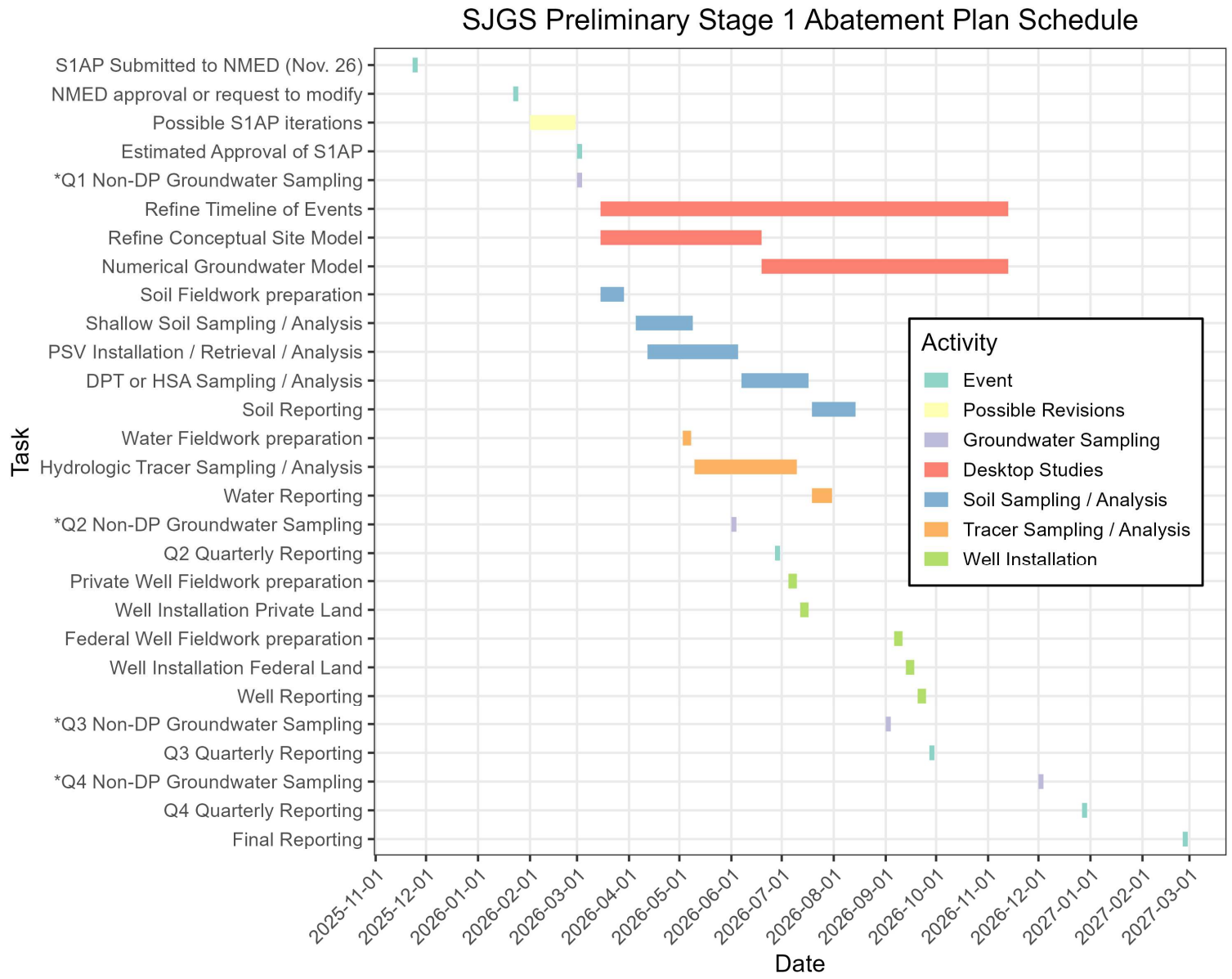


Figure 4.8
Existing and Proposed Monitoring Wells
San Juan Generating Station



*Sampling may occur any time during quarter

INTERA

Figure 6.1
Preliminary Stage 1 Abatement Plan Schedule
San Juan Generating Station

TABLES

Table 2.1 Timeline of SJGS Operations

Year	Month	Event
1958-1960		Public Service Company of New Mexico (PNM) begins prospecting for coal.
1960-1961		Predecessor to Westmoreland Mining, LLC acquires coal leases on Federal land in San Juan County.
1963-1964		Additional coal leases acquired (2,669.35 acres).
1968		San Juan Generating Station (SJGS) contracts to obtain San Juan River water from the U.S. Bureau of Reclamation for operations.
1972	March	Process Pond 1 constructed.
1973		Mining begins at San Juan Mine (SJM) following approval of the first Environmental Impact Assessment by the U.S. Office of Surface Mining Reclamation and Enforcement.
1973		SJGS construction begins.
1973	November	Unit 2 (370 megawatts [MW]) operational; installed with electrostatic precipitators (ESP) to control particulate matter in air emissions; wastewater control efforts begin.
1973		PNM begins ground and surface water monitoring.
1974	Summer	Pumps installed in alluvials wells; brine concentrator installed.
1975		Construction permit granted for Unit 3 and Unit 4.
1975-1978		Reverse osmosis system installed ("Never performed as designed").
1976	December	Unit 1 (370 MW) operational; installed with ESP to control particulate matter in air emissions; SO2 scrubber installed.
1976	June	Pond 2 constructed.
1977	July	Explosion in Unit 2 boiler followed by extensive rebuilding work into 1978.
1977		SJGS discharging to arroyo.
1978	June	Outfall 004 and 005 discharges begin.
1978-1979		Water recovery system for Units 3 & 4 online.
1979	January	Production of polychlorinated biphenyl (PCB) compounds banned in the United States; industry phases out PCB transformers and capacitors over the coming years and must document disposition; functioning equipment could hypothetically remain in service for many years.
1979	March	New Mexico Energy and Minerals Department approves monitoring program for groundwater and surface water; including standard operating procedures for sampling.
1979	December	Unit 3 (544 MW) operational; installed with ESP to control particulate matter in air emissions; Pond 3 put into service.
1980	May	New Mexico Environmental Improvement Division compliance inspection; Multiple non-permitted discharges into Westwater arroyo.
1980	November	Tranformer explosion in switchyard - Temporary relocation of outfall 001. High flow volume due to blacked out station.
1981	April	North Evaporation Ponds (NEP) put into service.
1981	May	Pond 1 cleaning.
1981	June	SJGS given permission to continue discharge until March 5, 1982.

Table 2.1 Timeline of SJGS Operations

Year	Month	Event
1981		First Pond 3 discharge.
1982	August	NEP liners complete and in service.
1982	November	Unit 4 (544 MW) operational; installed with ESP to control particulate matter in air emissions.
1983		SJGS ceases discharging into arroyo.
1983	April	South Evaporation Ponds (SEP) put into service.
1983	December	Disposal of non-hazardous solid wastes to synthetically lined solid waste disposal pit under DP-306.
1986	May	Leaks/liner failure reported in NEP Cells 1 and 2.
1988	July	Liner repairs complete.
1990		Proposed Expansion of SJGS Power Plant.
1999		Change from Wellman-Lord scrubbers to limestone scrubbers.
2001	November	Tower 3 failure due to vent line freezing.
2002	July	Wastewater management consolidated into DP-1327; wastewater discharged to several cells, ponds, or basins for reuse and evaporation; process pond water can be transferred from any pond to any other.
2002	October	SJM converted from surface mine to underground mine.
2006	April	Unit 3 and Unit 4 water lines repaired/relined (420 out of 4800 feet at Unit 3, 240 out of 4800 feet at Unit 4).
2007	September	Memorial Recovery System construction begins.
2007		Mercury removal and particulate controls (full-sized baghouse, activated carbon injection system) were planned to be installed in each unit during maintenance outages during Fall 2007 through Spring 2009; also planned addition of dibasic acid to limestone scrubbing process for FGD to improve efficiency and upgrades to low-NOx burners with advanced over-fired air.
2008	March	Memorial Recovery System construction complete; recovered groundwater discharged under DP-1327 to the SEP or Process Pond 2B.
2011	September	SJM operations halted due to an underground fire.
2012	June	SJM operations resume.
2013	February	NEP Cell 1 is closed and capped.
2013	August	Runoff Basin Pre Pond constructed.
2014	January	Unit 1 cooling tower overflow of approximately 660,000 gallons due to a failed pump discharge valve that was being repaired; ponding in low areas was vaccumed and disposed of in the process ponds.
2015		United States Environmental Protection Agency orders installation of selective catalytic reduction; PNM and State of New Mexico propose alternative emissions control including retirement of Units 2 and 3 and installation of selective non-catalytic reduction on Units 1 and 4.
2016	February	Westmoreland Coal Company (Westmoreland) became the owner and operator of San Juan Mine.
2017	December	Units 2 and 3 shut down.
2017		NEPs permanently closed and capped.

Table 2.1 Timeline of SJGS Operations

Year	Month	Event
2017		Shumway Recovery System construction begins.
2020		Shumway Recovery System construction completed; recovered groundwater discharged under DP-1843 to SEP, Process Pond 1, or Process Pond 2A or 2B.
2022	June	Unit 1 shut down.
2022	September	Unit 4 shut down.
2023	July	SJGS demolition begins.
2023		Raw water reservoir sold to Bureau of Reclamation, renamed Frank Chee Willetto Reservoir.
2024		SEP closure begins.

Notes

ESP = electrostatic precipitator

MW = megawatt

NEP = North Evaporation Ponds

PCB = polychlorinated biphenyl

PNM = Public Service Company of New Mexico

SEP = South Evaporation Ponds

SJGS = San Juan Generating Station

SJM = San Juan Mine

Table 2.2 Timeline of SJGS Permits

Year	Date Initiated	Date Terminated	Permit No.	Action/Event	Permit Coverage	Additional Details
1976	12/1/1976	--	*General*	**Affidavit of Discontinuance:** Public Service Company of New Mexico **(**PNM) swears to no discharges after 1/15/77.	--	--
1978	8/25/1978	--	*General*	PNM to New Mexico Environmental Improvement Division (NMEID) - Notice of Intent to discharge for San Juan Generating Station (SGJS; in general).	--	--
1979	1/4/1979	9/21/2015	**NM0028606**	**National Pollutant Discharge Elimination System (NPDES) Permit NM0028606 Approved** Submission Date: 5/16/1978 2006 - NPDES permit is authorized "No" discharge from PNM 2007 - 4-year groundwater investigation completed 2015 - NPDES Termination granted by United States Environmental Protection Agency (EPA; PNM requested 3/14/2014) Expiration: 9/21/2015 (INACTIVE)	*Outfalls 001, 01A, 01B, 01C, 01D, 01E, 01F, 002, 003, 03A, 004*	Amended November 1979 and September 1980 to include outfalls 003, 03A, 004.
	2/22/1979	--	*General*	NMEID to PNM - Discharge Permit (DP) is required for all new ponds & any new discharges at SJGS. PNM is required by the New Mexico Water Quality Control Commission (WQCC) to submit a plan for Pond #3.	--	--
1980	9/30/1980	--	*General*	**Requirement:** (NMEID to PNM) - DP required for outfall 001 (to ponds 1 and 2); discharges into the ponds.	--	--
1981	4/10/1981	3/19/1982	**DP-173**	**DP-173 Submission; Temporary Grant** PNM submitted DP-173 for approval; NMEID grants approval to continue discharging from Units 1 & 2 (DP-173) until 3/19/1982	*Pond 1 & 2, Outfall 001*	--
	4/24/1981	7/31/2002	**DP-143**	**DP-143 Approved** Discharge plan for North Evaporation Ponds (NEPs) approved by NMEID. Amended/terminated by incorporation through DP-1327 (approved 7/31/2002) Submission: Date unknown Renewed 10/25/1991, 7/20/1998 Termination/Expiration: 7/31/2002 (INACTIVE)	*Regulates flow into NEPs.*	--

Table 2.2 Timeline of SJGS Permits

Year	Date Initiated	Date Terminated	Permit No.	Action/Event	Permit Coverage	Additional Details
	5/7/1981	11/1/2006	**DP-157**	**DP-157 Approved** Discharge plan for flows to Coal Pile Runoff Basins 1 and 2 (CPRB 1 & 2). Terminated by incorporation through DP-1327 amendment (approved 11/1/2006) Submission: 1/9/1981 Termination/Expiration: 11/1/2006 (INACTIVE)	*Discharges to CPRB 1 & 2, including the secondary crusher wash down, reclaim sump water, and stormwater runoff from Units 1 & 2.*	(Renewed 4/18/1986, 10/25/1991, 6/11/1997, 6/5/2003)
1982	7/28/1982	Amended / Renewed	**DP-121**	**DP-121 Approved** NMEID approves discharge plan DP-121 for flows into Pond #3. Submission: 3/5/1980 Termination/Expiration: Unknown (INACTIVE)	*Regulates the flow into Pond #3.* *(Prior to August 1982 amendment: DP-121 Regulates the flow into, and overflows from, Pond #3)*	Amended 8/5/1982.
	8/5/1982	Unknown		DP-121 Amendment Pond 3 discharges separated into 2 discharge permits: DP-121, discharge into pond 3, and DP-243, discharge from pond 3 that exits PNM property.	--	Expiration unclear; PNM's request for extension denied due to violation.
	5/2/1983	Not Initiated	**DP-173**	**DP-173 Disapproved** DP-173 was disapproved by NMEID because the technical information submitted did not meet WQCC requirements. PNM SJGS must cease all further discharges from Outfall 001.	--	Discrepancies in reported monitoring data.
	5/2/1983	Not Initiated	**DP-243**	**DP-243 Disapproved** NMEID disapproves application DP-243 - overflows from Pond 3: Technical information submitted did not meet WQCC requirements and did not include the existence of flows that exit the property. PNM instructed to cease all further discharges from Outfall 001.	*Regulates flows out of Pond 3.*	Submitted with DP-121 amendment (8/5/1982)

Table 2.2 Timeline of SJGS Permits

Year	Date Initiated	Date Terminated	Permit No.	Action/Event	Permit Coverage	Additional Details
1983	6/23/1983	11/1/2006	**DP-176**	**DP-176 Approved** Discharge plan for flows to Coal Pile Runoff Basin 3 & 4 (CPRB 3 & 4). Renewal/modifications on 12/8/1987, 6/28/1988, 6/28/1993, 9/23/1997, 6/5/2003; amendment approved 5/26/1995. Terminated by incorporation through DP-1327 amendment (approved 11/1/2006). Submission: 5/6/1981 Termination/Expiration: 11/1/2006 (INACTIVE)	*Discharges to the CPRB 3 & 4, including stormwater runoff from Units 3 & 4, Secondary Crusher washdown water, Reclaim Sump water, Unit 3 & 4 ash system washdown water and upsets, Cooling Tower 3 & 4 overflows, emergency overflows from Process Pond #3, and misc surface flows from Units 3 & 4.*	PNM request to combine DP-176 and DP-242 4/8/1988 - Unclear if denied by NMEID.
	6/23/1983	7/31/2002	**DP-239**	**DP-239 Approved** Discharge plan for Pond #2, or South Evaporation Ponds (SEPs), per Oct 1995 amendment; terminated when DP-1327 was approved (incorporated in 2002) Submission: 9/30/1980 (one of the 8 discharge plans per WPCC requests) Renewed 9/8/1989, 6/28/1993, and 11/16/1999 Amendment 10/5/1995 (corrected flow values) Termination/Expiration: 7/31/2002 (INACTIVE)	*SEPs; Process Pond 2*	
1983	6/23/1983	Unknown	**DP-242**	**DP-242 Approved** Discharge plan for unlined channel between Pond 3 and CPRB 3 & 4 Submission: 9/30/1980 (one of the 8 discharge plans per regulatory request) Termination/Expiration: Unknown (INACTIVE)	*Pond #3 overflows; unlined channel between between Pond #3 and CPRB 3 & 4*	
	10/27/1983	7/31/2002	**DP-287**	**DP-287 Approved** Discharge plan for SEPs, renewed 9/1/1993; terminated by inclusion in DP-1327. Termination/Expiration: 7/31/2002 (INACTIVE)	*SEPs; Process Ponds 1, and 3*	

Table 2.2 Timeline of SJGS Permits

Year	Date Initiated	Date Terminated	Permit No.	Action/Event	Permit Coverage	Additional Details
	12/20/1983	Unknown	**DP-306 (ACTIVE)**	**DP-306 Approved** Discharge Permit DP-306 authorizes the disposal of up to 2,290 cubic yards per year of non-hazardous solid waste into a synthetically lined Solid Waste Disposal Pit (SWDP). Modified 1/11/1990 Renewed 3/12/1985, 5/2/1990, 7/31/1995, 7/19/2002, 6/5/2013, 2021 Termination/Expiration: Unknown* (ACTIVE)	*SWDP*	Closure plan initiated 5/11/2020. *Documentation contains 2021 dates, no record of expiration date.
2002	7/31/2002	Amended / Renewed	**DP-1327 (ACTIVE)**	**DP-1327 Approved** Discharge permit DP-1327 serves as the primary site-wide groundwater permit; includes previously separately permitted discharges under DP-143, DP-239, and DP-287. Submission Date - 8/14/2000 Termination/Expiration: 4/14/2026 (**ACTIVE**)	*Regulates the discharge of up to 1.3 million gallons per day (gpd) of industrial Wastewater (Wastewater, process water, storm water, and recovery trench water to ponds and basins) into a system of 15 lined and unlined surface impoundments (NEPs 1-3, SEPs 1-5, Process Ponds 1-3, Runoff Basin, and CPRBs) along with the Memorial Trench Groundwater Recovery System.*	Marks the end of individual permits DP-143, DP-239, DP-287 (consolidated into DP-1327). (Amended 2006, 2013, 2021)
2006	11/1/2006	Amended / Renewed	**DP-1327 (ACTIVE)**	DP-1327 Amendment: Consolidation of Discharge Permits DP-1327, DP-157, and DP-176.		Marks the end of individual permits DP-157 and DP-176.
2015	10/10/2015	2/28/2026	**NMR053228 (ACTIVE)**	**NPDES (MSGP) issued** for stormwater discharges associated with industrial activity; renewed 7/18/2021.	*NPDES General Permits for Storm Water Discharges (associated with industrial activity or from construction sites)*	
2017	12/27/2017	--	*General*	Raw Water Reservoir Recovery System put into service 12-27-2017	--	--

Table 2.2 Timeline of SJGS Permits

Year	Date Initiated	Date Terminated	Permit No.	Action/Event	Permit Coverage	Additional Details
2018	3/14/2018	3/13/2025*	**DP-1843 (ACTIVE)**	**DP-1843 Approved** Discharge plan for the handling of the water from the Shumway Recovery System issued by New Mexico Environment Department; up to 200,000 gpd of groundwater required to be recovered from the subsurface, water-bearing alluvium of the Shumway Arroyo and pumped via a pipeline to either the SJGS SEP for disposal by evaporation or to Process Pond #1 for reuse within the generating station. Submission: 3/3/2016 Termination/Expiration: Expires 3/13/2025, *or five years after discharge commences (whichever occurs first) (ACTIVE)	*Shumway Arroyo Groundwater Recovery System*	
2021	4/14/2021	4/14/2026	**DP-1327 (ACTIVE)**	DP-1327 Amendment: Inclusion of a discharge of up to 200,000 gpd of water from the Shumway Arroyo Groundwater Recovery System (regulated under DP-1843) into the SEPs and Process Pond 2A.		NEP is permanently closed and capped.

Notes

CPRB 1 & 2 = Coal Pile Runoff Basin 1 & 2

CPRB 3 & 4 = Coal Pile Runoff Basin 3 & 4

DP = discharge permit

EPA = United States Environmental Protection Agency

gpd = gallons per day

NEPs = North Evaporation Ponds

NMEID = New Mexico Environmental Improvement Division

Table 2.3. Timeline of Known Releases at SJGS

Year	Month	Timeline Event	Release Type or Area	Associated Feature(s)
1977	7-Jul	Major explosion of Unit 2 boiler	Power Plant	Unit 2
1977	28-Dec	New Mexico Environmental Improvement Division (NMEID) inspection: Pond 2 discharging into Shumway. Seepage from storm surface drainage pond into arroyo.	Ponds	Pond 2
1978	1-May	Flooding in arroyo; dams were bulldozed according to Wheeler	Unknown	Arroyo
1979	7-Jun	NMEID observed tank truck pumping waste sludge from pond and discharging to area by ditch	Ponds	
1979	15-Nov	NMEID tour of San Juan Generating Station (SJGS); two non-permitted discharges (004 & 005) discovered	Unknown	Outflow 004, 005
1982	April	Coal Pile Runoff Basin 3 & 4 (CPRB 3 & 4) observed in use and overflowing in violation	Ponds	CPRB 3 & 4
1985	1-Apr	Upset Discharge occurred at San Juan Generating Station. Public Service Company of New Mexico (PNM) agreed to contribute $5000 to the Lower Valley Water Users Cooperative Association in full settlement for the upset. United States of America v. Public Service Company of New Mexico, US district court No. CIV 83-1635.	Unknown	
1986	2-May	North Evaporation Pond (NEP) liner failure reported to NMEID	Ponds	NEP
1986	21-May	Possible discharge from NEPs due to a liner failure reported to NMEID	Ponds	NEP
1986	23-May	PNM to NMEID (phone conversation): additional breaks in liner at NEP Cell 1 discovered near the semi-solid disposal area	Ponds	NEP Cell 1
1996	19-Nov	Water first observed in monitor well NEP-3	Ponds	NEP
1997	29-Nov	Water first observed in monitor well NEP-4	Ponds	NEP
1998	7-Oct	Limestone warehouse area hydrant leaking	Clean Water	Limestone area
1998	4-Nov	Vacuum breaker of Unit 4 condenser leaking on B side	Power Plant	Unit 4 condenser
1998	9-Nov	Unit 3 flyash area hydrant leaking	Clean Water	Unit 3 flyash area
1998	2-Dec	Vacuum breaker of Unit 4 condenser leaking on A side; repaired 1/12/1999	Power Plant	Unit 4 condenser
1998	2-Dec	Tower 3 dry section leaking; repaired 1/19/1999	Power Plant	Tower 3
1999	18-Jan	Limestone area hydrant leaking	Clean Water	Limestone area
1999	25-May	Unit 4 flyash area hydrant leaking	Clean Water	Unit 4 flyash area
1999	10-Jul	Unit 1 tower hydrant leaking	Clean Water	Unit 1 Tower
1999	October	Unit outage tower circulation line and basin inspection and repair	Power Plant	
1999	7-Dec	Tower 3 dry section northeast leaking tubes; repaired 3/15/2000	Power Plant	Tower 3
1999	9-Dec	Unit 4 tower blowdown to Pond 3 leak underground; repaired 12/15/99	Power Plant	Unit 4 to Pond 3
2000	4-Feb	Potable water line leak near old weld shop area	Clean Water	Weld Shop area
2000	9-Mar	Tower 3 north side dry section tubes leaking	Power Plant	Tower 3
2000	10-Apr	Tower 4 leak at pump packing; Tower 4 leak at southeast wall of basin repaired	Power Plant	Tower 4

Table 2.3. Timeline of Known Releases at SJGS

Year	Month	Timeline Event	Release Type or Area	Associated Feature(s)
2000	29-Apr	Potable water leak by 1 and 2 acid pump house	Clean Water	Acid Pump House 1&2
2000	2-May	Tower 3 dry tubes leaking	Power Plant	Tower 3
2000	25-May	Potable water leak by San Juan Mine (SJM) entrance	Clean Water	SJM Entrance
2000	1-Jun	Unit 3 tower leak at 2-inch flange	Power Plant	Unit 3
2000	26-Jul	Leak in hot return line Tower 4, required outage; repaired 11/11/2001	Power Plant	Tower 4
2000	29-Jul	Line from lake to plant	Clean Water	
2000	1-Nov	Tower 3 major tubes leaking dry section; repaired 2/15/2001	Power Plant	Tower 3
2000	8-Nov	Leaking hydrant by Administration Building	Clean Water	Admin Building
2001	4-Jan	Potable water leak by SJM entrance	Clean Water	BHP Entrance
2001	4-Mar	Potable water leak under haul road south of Unit 1	Clean Water	Haul Road south of Unit 1
2001	20-Mar	Potable leak under haul road D coal pile	Clean Water	
2001	21-Jul	Potable water line leak at lower flyash Unit 1	Clean Water	Unit 1
2001	2-Sep	Unit outage repairs in circulation line; water crack repair inside tower basin; repaired 10/25/2001	Power Plant	
2001	18-Sep	Potable water line leak old "neut" building; fixed 9/20/2001	Clean Water	
2001	16-Oct	Potable water leak by meter for mine	Clean Water	
2001	19-Oct	Potable water leak under road east of lab	Clean Water	
2001	20-Nov	Chemical plant hydrant leaking	Clean Water	Chemical plant
2001	27-Nov	Tower 3 massive failure due to vent line freezing; approximately 7000 tubes leaking; contractor cost of $750,000 over 4 month period; repaired March 2002	Power Plant	Tower 3
2001	3-Dec	Surge arrestor leaking at Unit 3 condensor	Power Plant	Unit 3 Condensor
2001	19-Dec	Limestone area system control valve leaking	Power Plant	Limestone area
2001	20-Dec	Unit 3 tower hydrant leaking	Clean Water	Unit 3 Tower
2002	27-Jan	Line from river to lake vacuum breaker	Clean Water	
2002	22-Feb	Tower 4 leaking due to wind damage	Power Plant	Tower 4
2002	6-Mar	Inlet vacuum breaker leaking at condenser	Power Plant	
2002	9-Apr	Tower 3 east end dry tubes leaking	Power Plant	Tower 3
2002	15-Apr	Secondary crusher building hydrant leaking	Clean Water	Secondary crusher building
2002	14-May	In plant leak; 26 inches raw water under road	Clean Water	
2002	18-May	Fireline leak between Units 3 and 4	Power Plant	Units 3 & 4
2002	24-Jun	Line from river to lake vacuum breaker	Clean Water	
2002	22-Jul	Tower 4 leaking due to missing splash boards	Power Plant	Tower 4
2002	12-Aug	Tower 3 Cells B, E, H, and J leaking	Power Plant	Tower 3
2002	26-Aug	Limestone area line leak	Power Plant	Limestone area
2002	4-Sep	Raw water leak Units 1 & 2 transmitter line	Clean Water	Unit 1, Unit 2
2002	17-Sep	Tower 3 leak in lower pan cells F and H	Power Plant	Tower 3
2002	26-Sep	Unit 1 southeast corner line leak	Power Plant	Unit 1

Table 2.3. Timeline of Known Releases at SJGS

Year	Month	Timeline Event	Release Type or Area	Associated Feature(s)
2002	September	Tower 3 leak in circulation line; needed outage to repair leaks when unit offline and cooling condenser; repaired March 2004	Power Plant	Tower 3
2002	10-Oct	West end of weld shop hydrant leaking	Clean Water	Weld Shop area
2003	10-Feb	Main line to lake country road #6700	Clean Water	
2004	January	Diesel leak at south side unloading facility	Fuel/Oil	South Side Unloading Facility
2006	27-Feb	Line leak of 12% chlorine bleach solution in line trench to cooling tower; approximately 60 gallons recovered and pumped to the tower	Power Plant	Cooling Tower
2007	15-May	Dibasic acid leak to Pond 3	Ponds	Pond 3
2007	7-Jun	Unit 4 B PA fan lube oil leak; 200 gallons cleaned up with an absorbent	Fuel/Oil	Unit 4
2008	14-Jul	Chorine bleach solution leak into drain to Pond 1	Power Plant	Pond 1
2008	3-Nov	Lube oil leak at Unit 3 & Unit 4 compressor bay; approximately 60 gallons; contained and cleaned up with absorbent	Fuel/Oil	Unit 3, Unit 4 Compressor Bay
2009	3-Sep	Fuel oil drain valve leaking by on fuel oil return line at the back side of Unit 4 bottom ash area; 40 to 50 gallons contained on concrete area cleaned up with absorbent	Fuel/Oil	Unit 4
2010	4-Jan	Process Pond 2 water being transferred to South Evaporation Ponds (SEP) Cell 3 pipe leak; Approximately 2000 to 3000 gallons; water froze as it spilled out onto the ground north of Cell 3; cleaned up with a front end loader and placed in Cell 1	Ponds	Pond 2, SEP Cell 3, SEP Cell 1
2010	16-Mar	Fuel oil from start up being removed from boiler through bottom ash system; overflowed when sump pump failed to start; unknown quantity contained to process pond drains and captured with oil booms	Fuel/Oil	
2012	4-Mar	Diesel #2 spill occurred at Unit 3 & 4 bulk fuel unloading station; approximately 100 gallons cleaned up by Envirotech, who removed impacted soil to their landfarm	Fuel/Oil	Unit 3, Unit 4, Unloading Station
2014	8-Jan	Leak of saline waste water from SEP Cell 4 at a rate of less than one gallon per hour; the leak was found by the French drain leak detection system; the pond was taken out of service and drained to another cell until flow stopped; several small tears were detected in the liner side wall; the tears were repaired	Ponds	SEP Cell 4
2014	29-Jan	Unit 1 cooling tower overflow of approximately 660,000 gallons due to a failed pump discharge valve that was being repaired; water was diverted to onsite ponds and no water left plant site; ponding in low areas was vaccumed and disposed of in the process ponds	Power Plant	Unit 1 Cooling Tower
2015	20-Oct	Unit 1 & 2 process water leak of unknown quantity; leak was discovered inside the Unit 1 & 2 fuel oil tank berm; water was controlled on-site by containment within the low point of the Unit 1 & 2 fuel tank berm and pumped to the process ponds	Power Plant	Units 1 & 2

Table 2.3. Timeline of Known Releases at SJGS

Year	Month	Timeline Event	Release Type or Area	Associated Feature(s)
2015	7-Dec	Leak of raw water from the lake to the SJM of approximately 20,000 gallons; SJM personnel took care of the spill and pipe repair, and contacted Greg Huey (NMED) who said no report was needed	Clean Water	
2016	23-Mar	Water from Pond 2B of unknown quantity; SJGS personnel discovered wet soil on the northeast side Pond 2B, indicating a possible leak; the pond level was lowered, the liner was inspected and then repaired	Ponds	Process Pond 2B
2016	1-Sep	CPRB Pre-Pond leak of process water of approximately 750 gallons; pinhole leaks in the transfer line from the Pre-Pond to Pond 3A were discovered; leaked water flowed back into the Pre-Pond and no water left site	Ponds	CPRB Pre-Pond
2016	1-Sep	CPRB Pre-Pond leak of process water of unknown quanitity; a tear in the high-density polyethylene (HDPE) liner on the south (inlet) end of the Pre-Pond was discovered when a contractor was already on-site performing other work; the tear was repaired soon after discovery, but it was in the path of the inlet flow to the pond; some water flowed under the liner and caused underliner channeling; further inspection of the liner showed another tear in the HDPE liner where it transitions into the concrete liner; this tear was also repaired soon after discovery	Ponds	CPRB Pre-Pond
2016	6-Sep	Leak of Unit 3 cooling tower water from the circulation line of approximately 15,000 gallons; vacuum trucks captured leaking water and disposed of it in the process ponds	Power Plant	Unit 3 Cooling Tower
2016	17-Nov	Leak of Pond 2 process water (approximately 12,000 gallons) due to a split in the transfer line; a majority of the water flowed into Pond 1B; vacuum trucks collected any standing water and disposed of it in the SEP; a small portion of the released water ran into a stormwater catchment area and was collected with either vacuum trucks or pumped out by an existing storm water pumpback system	Ponds	Pond 2
2017	2-Oct	A leak of CPRB Pre-Pond process water of unknown quantity was detected by an increase in groundwater levels at QAL-2R; the Pre-Pond level was lowered and crews discovered bulging in the liner; repairs consisted of peeling back the liner, removing saturated soil, regrading and compaction to original specifications, then fixing the liner	Ponds	CPRB Pre-Pond
2017	7-Dec	A reportable spill of process water of unknown quantity was discovered in the Unit 1 & 2 fuel tank berm during transfer from Pond 3 to Pond 2; the leak was low-volume (<10 gpm) and due to a misaligned pipe connection encased in concrete; the piping was re-aligned and a heavy duty mechanical joint coupling was installed	Power Plant	Unit 1 & 2 fuel tank berm

Table 2.3. Timeline of Known Releases at SJGS

Year	Month	Timeline Event	Release Type or Area	Associated Feature(s)
2017	14-Dec	A reportable spill of diesel (approximately 129 gallons) from a generator east of the lab; the spill occurred while loading a generator onto a trailer and the bottom drain valve was broken off; the impacted soil was excavated and staged on a concrete slab and covered in plastic; a three-point composite sample was collected from the excavated area and analyzed for diesel range organics, which were below reporting limits; the excavated area was then backfilled with clean fill and the diesel impacted soil (30 yards) was transported to the Envirotech landfarm	Fuel/Oil	Laboratory
2018	1-Jul	A reportable spill of process water (approximately 50 gallons) during transfer from Pond 2 to SEP due to pinhole leaks in the transfer line; leaked water was absorbed by the soil	Ponds	line between Pond 2 - SEP
2019	7-Jan	A leak of process water (approximately 500 gallons) from the 8-inch carbon steel transfer line between Pond 2B and SEP was discovered and immediately stopped by draining back into Pond 2B; process water spilled to the ground surface flowed back into Pond 2B within the piping trench; the leak was due to a hairline split in the piping near the shop; SJGS personnel cut out the damaged pipe and new pipe was installed and welded	Ponds	line between Pond 2 - SEP
2019	16-Feb	A leak of process water (approximately 100 gallons) from a 4-inch stainless steel transfer line between a water storage tank and SEP Cell 2; the leak was discovered at the flanged joint of the transfer line; upon discovery the transfer was stopped and the line was drained back to Pond 2B; vacuum trucks were used to collect process water pooled on the ground surface; piping repairs consisted of replacing four gaskets on the flanged joints	Ponds	line between Pond 2 - SEP
2022	4-Aug	Diesel spill occurred in the supply line to Units 1 and 2 east of Unit 1 and north of the Unit 1 haul road; Envirotech conducted a spill delineation study and approximately 1,400 cubic yards of soil was removed	Fuel/Oil	Unit 1 haul road
2023	11-Aug	Diesel spill occurred at pipe rack at southwest corner of Unit 4 cooling tower; the spill was approximately 20 gallons; the spill occurred when residual oil in a low section of pipe was cut	Fuel/Oil	Unit 4 cooling tower

Notes

CPRB 3 & 4 = Coal Pile Runoff Basin 3 & 4

HDPE = high-density polyethylene

NEP = North Evaporation Pond

NMEID = New Mexico Environmental Improvement Division

PNM = Public Service Company of New Mexico

SEP = South Evaporation Ponds

SJGS = San Juan Generating Station

SJM = San Juan Mine

Table 2.4 Water Chemistry of SJGS Operations

Sample Name		SEP-2	SEP	Pond 2	PP	PP	CPRB-1-2	CPRB-1-2	RBPP	RBPP	NEP	NEP	CT-4	CT-1	CT-2	CT-3	RWR
Sample Date		2/18/2025	7/10/2024	2/18/2025	2/27/2023	7/26/2022	7/10/2024	7/12/2023	7/11/2023	2/27/2023	4/2/2013	2/7/2013	7/26/2022	2/23/2022	7/12/2017	7/12/2017	12/22/1981
Parameter	Units																
Temperature (Field)	°C	6.94	35.2	8	13.8	35.9	29.7	30	25	10.7			41.1	45	41.7	49.4	
pH (Field)	s.u.	6.78	4.52	6.87	7.03	7.76	8.65	8.4	7.77	7.31	*7.34	*7.38	8.18	8.05	7.9	7.85	7.2
Alkalinity, Bicarbonate as CaCO3	mg/L	1280	5300	1510	50	126	79	134	176	77	330	403	134	192	86	65	265
Alkalinity, Carbonate as CaCO3	mg/L	1180	3800	860	<10	<10	26	60	<10	<10	760	<10	38	12	<10	12	
Alkalinity, Total as CaCO3	mg/L	2460	9100	2370	50	126	105	194	176	77	1090	403	172	204	86	77	265
Arsenic	mg/L	0.545	3.66	0.491	0.0027	0.0545	<0.03	0.0272	<0.005	0.0026	0.311	0.138	0.14	0.0248	0.0056	0.006	<0.01
Boron	mg/L	2580	7710	2300	1.53	5.06	21.7	22.9	2.48	1.16	1080	440	1.7	1.12	<0.085	<0.426	0.5
Cadmium	mg/L	0.112	0.0946	0.0971	<0.0010	<0.0025	<0.015	<0.0250	<0.005	<0.0025	0.392	0.0922	<0.0025	<0.0025	<0.0001	<0.0005	
Calcium	mg/L	534	108	525	205	592	375	745	631	249	700	564	701	794	143	332	406
Chloride	mg/L	45400	114000	40400	56.9	83.5	1130	4910	169	133	24000	7000	179	228	20.7	51.9	88
Chromium	mg/L	1.8	8.33	1.65	<0.0020	<0.005	<0.06	<0.125	<0.01	<0.005	<0.1	<0.05	<0.005	<0.005	0.0011	<0.005	
Cobalt	mg/L	5.95	15.2	5.45	0.0007	0.0011	0.0048	<0.005	0.0014	0.0007	0.309	0.1	0.0017	0.0015	0.0002	0.0006	
Copper	mg/L	3.6	7.23	3.23	0.0105	0.0099	0.0771	0.0638	0.0158	0.0101	0.762	0.322	0.0495	0.0493	0.009	0.0271	
Fluoride	mg/L	30.1	96.1	27.2	2.15	2.41	1.93	9.44	4.23	1.62	152	106	3.77	3.72	0.794	1.61	0.3
Iron	mg/L	8.12	102	7.13	<0.1	<0.25	<1.5	<2.50	<0.5	<0.250	<2.5	<1.0	0.664	<0.25	<0.05	<0.250	
Lead	mg/L	<0.05	<0.1	<0.05	<0.001	<0.0025	<0.015	<0.0250	<0.005	<0.0025		<0.025	<0.0025	<0.0025	<0.0005	<0.0025	
Magnesium	mg/L	9840	28600	8990	29.5	71.7	73.6	485	125	55.2	13900	4800	130	152	23.8	53.2	290
Manganese	mg/L	83.1	182	76.3	0.0486	0.13	0.109	0.301	0.119	0.015	78.9	38.3	0.271	0.0252	<0.0005	0.0071	
Molybdenum	mg/L	1.54	6.52	1.35	0.0104	0.0173	0.0909	0.308	0.0111	0.0071	1.24	0.402	0.0169	0.0164	0.0038	0.0089	
Nickel	mg/L	10.2	37.6	9.35	0.016	0.0216	0.0312	0.0751	0.029	0.0195		0.767	0.0247	0.0303	0.005	0.0145	
Nitrate/Nitrate as N	mg/L	6.44	375	6.79	5.2	2.07	<0.02	<0.02	<0.02	4.44	90	28	6.06	6.89	0.602	1.84	6.9
Potassium	mg/L	1570	5850	1420	4.9	14	<30	<50	14.3	5.84	954	284	29.4	33.5	6.24	14.6	11
Selenium	mg/L	2.39	14.7	2.18	0.0085	0.12	0.0409	<0.05	<0.01	0.0098		0.693	0.352	0.008	0.0016	<0.005	<0.01
Sodium	mg/L	29400	75700	27400	104	225	1030	4250	398	234		5370	462	523	59	141	604
Sulfate	mg/L	52800	130000	49500	703	1900	1740	8640	2480	1130		27000	2830	3280	461	1230	3060
Total Dissolved Solids	mg/L	183000	491000	170000	1380	3290	4600	20700	4380	2040	141000	49400	5020	5610	885	1960	4673
Uranium	mg/L	0.544	1.41	0.5	0.0072	0.0108	<0.015	0.0531	0.0088	0.0045	0.227	0.214	0.022	0.0233	0.003	0.0054	

Notes

SEP = South Evaporation Pond

PP = Process Pond (1, 2, or 3)

CPRB-1-2 = Coal Pile Runoff Basin 1 & 2

RBPP = Runoff Basin Pre Pond

NEP = North Evaporation Pond

CT = Cooling Tower

RWR = Raw Water Reservoir

°C = degrees Celsius

s.u. = standard units

mg/L = milligrams per liter

*pH values for NEP samples were measured in the laboratory

Data for the RWR was obtained from Metric (1982)

Recent data for all other locations was obtained from DP-1327 Discharge Monitoring Reports

Table 3.2 Site Groundwater Monitoring Wells

Well Name	Monitoring Area or Type	Geologic Unit	Latitude	Longitude
BA-101	Shumway Recovery System	Qal/Qnt	36.77725	-108.4334167
BA-102	Shumway Recovery System	Qal/Qnt	36.77641667	-108.4310278
BA-103	Shumway Recovery System	Qal/Qnt	36.77686111	-108.4326667
BA-104	Shumway Recovery System	Qal/Qnt	36.77680556	-108.4319722
BA-105	Shumway Recovery System	Qal/Qnt	36.77663889	-108.4314444
BA-106	Shumway Recovery System	Qal/Qnt	36.77752778	-108.4330833
BA-107	Shumway Recovery System	Qal/Qnt	36.77727778	-108.4326944
BA-108	Shumway Recovery System	Qal/Qnt	36.77694444	-108.4333611
BA-109	Shumway Recovery System	Qal/Qnt	36.77672222	-108.4327778
BA-110	Shumway Recovery System	Qal/Qnt	36.77686111	-108.4326944
BA-201	Shumway Recovery System	Qal/Qnt	36.77666667	-108.4319444
BA-202	Shumway Recovery System	Qal/Qnt	36.78319444	-108.4331944
BA-203	Shumway Recovery System	Qal/Qnt	36.77708333	-108.4336944
BA-301	Shumway Recovery System	Qal/Qnt	36.77678717	-108.432626
BA-302	Shumway Recovery System	Qal/Qnt	36.7767065	-108.4323348
BA-303	Shumway Recovery System	Qal/Qnt	36.77664135	-108.4320741
BA-304	Shumway Recovery System	Qal/Qnt	36.77667989	-108.4324924
BA-305	Shumway Recovery System	Qal/Qnt	36.77662549	-108.4322779
BA-306	Shumway Recovery System	Qal/Qnt	36.77656105	-108.4320366
CB-1	Active DP-1327	Qal/Qnt	36.80451389	-108.4283917
CB-2	Active DP-1327	Qal/Qnt	36.80389444	-108.4269917
G26	San Juan Mine	Kf	36.75490278	-108.4048639
G3	San Juan Mine	Kf	36.82601944	-108.4072472
GA	San Juan Mine	Kpc	36.82163611	-108.3959806
GC	San Juan Mine	Qal/Qnt	36.80686389	-108.39635
GD	San Juan Mine	Qal/Qnt	36.80632778	-108.429125
GE	San Juan Mine	Qal/Qnt	36.77830278	-108.4316389
GL	San Juan Mine	Qal/Qnt	36.7782	-108.4284167
KF1	San Juan Mine	Kf	36.82624722	-108.4105278
KF2	San Juan Mine	Kf	36.79943611	-108.4145472
KPC1	Active DP-1327	Kpc	36.80643611	-108.4331194
KPC2	San Juan Mine	Kpc	36.77821944	-108.4284306
KPC3	San Juan Mine	Kpc	36.78083056	-108.4159167
KPC4	San Juan Mine	Kpc	36.77934167	-108.4237472
KPC5	San Juan Mine	Kpc	36.77966944	-108.4269722
M3.1	Active DP-1327	Qcrmsa	36.80495833	-108.4359278
M3.2	Active DP-1327	Qcrmsa	36.80521944	-108.4345139
M3.3	Active DP-1327	Qcrmsa	36.805275	-108.4337417
MW 1	Inactive PNM	Qal/Qnt	36.77727778	-108.4338889
MW 2	Inactive PNM	Qal/Qnt	36.77672222	-108.4324722
MW Westwater	Active DP-1327	Kf	36.82553333	-108.4423889
MW4	Active DP-1327	Qal/Qnt	36.79836944	-108.4374583
NEP1	Inactive PNM	Kf	36.80795	-108.437325

Table 3.2 Site Groundwater Monitoring Wells

Well Name	Monitoring Area or Type	Geologic Unit	Latitude	Longitude
NEP2	Inactive PNM	Kf	36.80800833	-108.4348389
NEP3	Active DP-1327	Kf	36.80808889	-108.4316
NEP4	Active DP-1327	Kf	36.80972222	-108.4316639
NEP5	Inactive PNM	Kf	36.81026111	-108.4350556
NEP6	Active DP-1327	Kf	36.80795556	-108.4368389
NEP7	Active DP-1327	Kf	36.80801944	-108.4342667
NMED-01	NMED HR142	Qal/Qnt	36.81141116	-108.4313352
NMED-03A	NMED HR142	Qal/Qnt	36.79051529	-108.4330905
NMED-04A	NMED HR142	Qal/Qnt	36.78596552	-108.4322207
NMED-04B	NMED HR142	Kpc	36.78597869	-108.4322327
NMED-05A	NMED HR142	Qal/Qnt	36.77537273	-108.4357148
NMED-05B	NMED HR142	Kpc	36.77536192	-108.4357398
QAL1	Active DP-1327	Qal/Qnt	36.79890833	-108.4323972
QAL2	Inactive PNM	Qal/Qnt	36.80508889	-108.4315528
QAL2R	Active DP-1327	Qal/Qnt	36.80451111	-108.4316278
QAL3	Active DP-1327	Qal/Qnt	36.80684722	-108.4332278
QAL4	Active DP-1327	Qal/Qnt	36.79676944	-108.4327389
QNT	Active DP-1327	Qal/Qnt	36.8107	-108.4299306
RTW	Active DP-1327	Qal/Qnt	36.78458889	-108.4330306
RTWE1	Active DP-1327	Qal/Qnt	36.78461067	-108.4330033
RTWE2	Active DP-1327	Qal/Qnt	36.78474621	-108.4323791
RTWS1	Active DP-1327	Qal/Qnt	36.78453501	-108.433015
RTWW1	Active DP-1327	Qal/Qnt	36.78459751	-108.4330806
RTWW2	Active DP-1327	Qal/Qnt	36.78450554	-108.4333608
RTWW3	Active DP-1327	Qal/Qnt	36.78464167	-108.4337
SA1	San Juan Mine	Kf	36.79940833	-108.4145333
SA2	San Juan Mine	Qal/Qnt	36.77785278	-108.4312667
SA3	San Juan Mine	Kf	36.80201111	-108.4118222
SA6	San Juan Mine	Kf	36.77801111	-108.4252306
SA7	San Juan Mine	Qal/Qnt	36.77922222	-108.4303167
SM1	San Juan Mine	Qcrmsa	36.786825	-108.4276611
SM10	San Juan Mine	Qcrmsa	36.797925	-108.4255583
SM11	San Juan Mine	Qcrmsa	36.79621944	-108.4261861
SM16	San Juan Mine	Qcrmsa	36.79895	-108.4272278
SM3	San Juan Mine	Qcrmsa	36.81027778	-108.4236417
SM4	San Juan Mine	Qcrmsa	36.78230833	-108.4205111
SM5	San Juan Mine	Qcrmsa	36.79688056	-108.4161806
SM6	San Juan Mine	Qcrmsa	36.79423056	-108.427625
SM7	San Juan Mine	Qcrmsa	36.78083611	-108.4159694
STA1	San Juan Mine	Qal/Qnt	36.76468611	-108.3724639
SWDP1	Active DP-306	Qal/Qnt	36.79176111	-108.4379944
Wet Well	Active DP-1843	Qal/Qnt	36.77670278	-108.4321389
WWA1	San Juan Mine	Qal/Qnt	36.80026111	-108.4274778

Table 3.2 Site Groundwater Monitoring Wells

Well Name	Monitoring Area or Type	Geologic Unit	Latitude	Longitude
WWA2	San Juan Mine	Qal/Qnt	36.80185278	-108.4281917
WWA3	San Juan Mine	Qal/Qnt	36.77865	-108.4340556

Notes

Kf = Cretaceous Fruitland Formation

Qal = Quaternary Alluvium

Qnt = Quaternary Naha and Tsegi eolian deposits (undifferentiated)

Kpc = Cretaceous Pictured Cliffs Sandstone

Qcrmsa = Quaternary covered and reclaimed mine spoils and/or ash

Table 3.3 Results for Soil/Sediment from 2024 Third-Party Study

Borehole Name	Depth Interval		Arsenic	Barium	Chromium	Lead	Mercury	Selenium	Silver	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	4-Isopropyltoluene	Benzene	Ethyl-benzene	m+p - Xylene	Napthalene	n-Butylbenzene	n-Propylbenzene	o-Xylene	p-Isopropyltoluene	sec-Butylbenzene	Tetrachloroethene (PCE)	Toluene	Total Xylenes
		Method	1	1	1	1	2	1	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	ft bgs	Replicate	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Indust./Occ., Cancer			35.9		505								87.2	368		108						1650		
Indust./Occ., Noncancer			208	255000	314000		389	6490	6490				729	29000	3730	843			3940			629	61300	4280
Construction, Cancer			216		468								423	1770		633						7910		
Construction, Noncancer			41.2	4390	134		77.1	1750	1770				142	5800	696	159			736			120	14000	798
Cw, DAF 20			5.83	2700	205000	270	5.13	10.2	13.8				0.0418	12.3	2.97	0.0583			2.98			0.321	12.1	154
T-GSB-10	0-4	1	<10.0	19.2	11.4	<10.0	<0.0219	<20.0	<1.00	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050
T-GSB-11	0-2	1	<10.0	17.2	<5.0	<10.0	<0.0211	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
T-GSB-6	5-7	1	<10.0	9.97	<5.0	<10.0	<0.0217	<2.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050
T-GSB-6	4-5	1	<10.0	128	6.6	<10.0	<0.0225	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050
T-GSB-6	5-7	2	2.9	19	8.9	7.4	<0.068	<2.0	<2.0	<0.046	<0.046	<0.046	<0.023	<0.046	NA	<0.093	<0.14	<0.046	NA	NA	<0.046	<0.046	<0.046	<0.093
T-GSB-6	4-5	2	<9.9	150	12	9.8	<0.073	2.7	<9.9	<0.048	<0.048	<0.048	<0.024	<0.048	NA	<0.097	<0.15	<0.048	NA	NA	<0.048	<0.048	<0.048	<0.097
T-GSB-7	4-5	1	<10.0	270	6.13	10.7	0.0407	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050
T-GSB-7	7-10	1	<10.0	162	5.34	<10	<0.0223	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.099
T-GSB-7	7-10	2	3.5	210	11	8.8	<0.074	1.6	<0.96	<0.050	<0.050	<0.050	<0.025	<0.025	<0.050	<0.099	<0.15	<0.050	NA	NA	<0.050	<0.050	<0.050	<0.099
T-GSB-7	4-5	2	5.1	320	9	15	<0.075	1.4	<0.99	<4.9	<4.9	0.0085	<0.025	<0.050	NA	<0.099	<0.15	<0.050	NA	NA	<0.050	0.014 J	<0.050	0.017 J
T-GSB-8	9-10	2	<5.77	126	4.81	2.58	0.008	<10.5	<0.437	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050
T-GSB-8	9-10	1	<10.0	126	<5.0	<10.0	<0.0226	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050
T-GSB-8	4-5	2	<5.77	182	6.23	6.76	0.0267	<10.5	1.06	<0.025	<0.025	NA	<0.025	<0.025	<0.050	0.026	<0.025	<0.025	<0.025	0.037	<0.025	<0.025	<0.025	<0.050
T-GSB-8	4-5	1	<10.0	182	6.23	<10.0	0.0267	<20.0	1.06	<0.025	<0.025	NA	<0.025	<0.025	<0.050	0.026	<0.025	<0.025	<0.025	0.037	<0.025	<0.025	<0.025	<0.050
T-GSB-8	9-10	3	**8.5 J**	220	<20	13	<0.071	<9.8	<9.8	<0.046	<0.046	<0.046	<0.023	<0.046	NA	<0.093	<0.14	<0.046	NA	NA	<0.046	<0.046	<0.046	<0.093
T-GSB-8	4-5	3	4.4	190	7.2	7.7	<0.072	2.8	<2.0	0.039 J	0.017 J	0.12	0.010 J	0.023 J	NA	0.038 J	<0.14	<0.046	NA	NA	<0.046	<0.046	0.1	0.11
T-GSB-9	8-10	2	<5.77	199	4.13	3.61	0.0171	<10.5	1.22	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050
T-GSB-9	8-10	1	<10.0	199	<5.00	<10.0	<0.0216	<20.0	1.22	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050
T-GSB-9	3-5	2	<5.77	180	9.27	9.8	0.022	<10.5	<0.437	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050
T-GSB-9	3-5	1	<10.0	180	9.27	<10.0	<0.0222	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050
T-GSB-9	3-5	3	3.6	280	9.27	11	<0.067	2.5	<0.97	<0.046	<0.046	<0.046	<0.023	<0.046	NA	<0.092	<0.14	<0.046	NA	NA	<0.046	<0.046	<0.046	<0.092
T-GSB-9	8-10	3	5.3 J	240	<20	5.7 J	<0.071	<9.9	<9.9	<0.049	<0.049	<0.049	<0.024	<0.049	NA	<0.098	<0.15	<0.049	NA	NA	<0.049	<0.049	<0.049	<0.098
T-MW-1	0-4	1	<10.0	301	7.44	<10.0	<0.0232	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
T-MW-10	0-2	1	<10.0	114	6.51	<10.0	0.0244	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
T-MW-11	0-3	1	<10.0	35.8	8.67	<10.0	<0.0231	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
T-MW-12	26	1	*ND	92.9	18	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-MW-12	0-5	1	*ND	267	6.14	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-MW-13	23	1	*ND	140	20.9	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-MW-13	0-5	1	*ND	85.9	6.36	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-MW-2	0-4	1	<10.0	138	7.01	<10.0	<0.0233	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
T-MW-3	2-4	1	<10.0	95.5	5.29	<10.0	0.0325	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.044	<0.025
T-MW-4	0-4	1	<10.0	143	<5.00	<10.0	<0.0219	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
T-MW-4	20-22	1	<10.0	119	5.41	<10.0	<0.0228	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
T-MW-5	0-2	1	<10.0	147	5.4	<10.0	<0.0217	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
T-MW-6	0-2	1	<10.0	172	8.12	45.5	0.032	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
T-MW-7	0-4	1	<10.0	129	5.98	<10.0	<0.0223	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
T-MW-8	0-1	1	<10.0	138	<5.00	<10.0	<0.0218	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.076	<0.025	<0.025
T-MW-9	20.5-22	1	*ND	49.2	10.3	10.9	0.0325	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-MW-9	25-26	1	*ND	173	13.1	17	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
Trs B-1	3-5	1	<10.0	136	5.52	<10.0	<0.0220	<20	<1	<0.025	<0.025	NA	<0.025	<0.025	<0.05	<0.025	<0.025	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.05
Trs B-1	7-7.5	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trs B-2	3-4.5	1	<10.0	91.3	5.76	<10.0	<0.0222	<20	<1	<0.025	<0.025	NA	<0.025	<0.025	<0.05	<0.025	<0.025	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.05
Trs B-3	6-10	1	<10.0	92.7	<5.00	<10.0	<0.0215	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	0.062	**1.05**	<0.025	<0.025	0.031	<0.025	<0.025	<0.025	<0.025	0.093
Trs B-3	3-5	1	<10.0	152	7.37	<10.0	<0.0223	<20	<1	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050
Trs B-4	2-4	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T-TanksSB-1	8-10	1	NA	NA	NA	NA	NA	NA	NA	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
T-TanksSB-2	0-3	1	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-TanksSB-2	7-10	1	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-TanksSB-3	0-3.5	1	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-TanksSB-3	7-10	1	NA	NA	NA	NA	NA	NA	NA	<0.046	<0.046	<0.046	<0.023	<0.046	NA	<0.092	<0.14	<0.046	NA	NA	<0.046	<0.046	<0.046	<0.092
T-TanksSB-4	0-2.5	1	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-TanksSB-4	8-10	1	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-TanksSB-5	7-10	2	<5.77	17.7	11.4	15.5	0.0204	<10.5	<0.437	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050
T-TanksSB-5	2.5-5	2	<5.77	316	6.95	81.3	0.0302	<10.5	<0.437	0.011 J	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	0.026	<0.025	<0.025	<0.025	<0.050
T-TanksSB-5	2.5-5	1	<10.0	316	6.95	81.3	0.0302	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	0.026	<0.025	<0.025	<0.025	<0.050
T-TanksSB-5	7-10	1	<10.0	17.7	11.4	15.5	<0.0228	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050
T-TanksSB-5	7-10	3	5.0 J	440	<19	29	<0.071	<9.7	<9.7	<0.047	<0.047	<0.047	<0.023	<0.047	NA	<0.093	<0.14	<0.047	NA	NA	<0.047	<0.047	<0.047	<0.093
T-TanksSB-5	2.5-5	3	**12**	35	13	18	<0.068	3.4	<0.98	0.011 J	<0.048	0.011 J	<0.024	<0.048	NA	**0.072 J**	<0.15	0.010 J	NA	NA	0.021 J	<0.048	<0.048	<0.097
T-TanksSB-6	3-5	2	**9.55**	135	7.42	18.9	0.0943	<10.5	<0.437	<0.040	<0.040	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050
T-TanksSB-6	3-5	1	<10.0	135	7.42	18.9	0.0943	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050
T-TanksSB-6	8-10	2	**6.15**	19.3	8.75	9.24	0.037	<10.5	<0.437	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050
T-TanksSB-6	8-10	1	<10.0	19.3	8.75	<10.0	0.037	<20.0	<10.0	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050
T-TanksSB-6	8-10	3	**10**	31	11	17	<0.071	3.1	<1.0	<0.048	<0.048	<0.048	<0.024	<0.048	NA	<0.095	<0.14	<0.048	NA	NA	<0.048	<0.048	<0.048	<0.096
T-TanksSB-6	3-5	3	**13**	210	9.9	17	0.0943	2.5	<2.0	<0.048	<0.048	<0.048	<0.024	<0.048	NA	<0.095	<0.14	<0.048	NA	NA	<0.048	<0.048	<0.048	<0.095
T-TanksSB-7	6.5-7	1	NA	NA	NA	NA	NA	NA	NA	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050
T-TanksSB-7	6.5-7	2	NA	NA	NA	NA	NA	NA	NA	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050

Borehole Name	Depth Interval		1-Methylnapthalene	2-Methylnapthalene	Acenaphthene	Anthracene	Benzo[a]anthracene	Benzo[a]pyrene	Benzo[b]flouranthene	Benzo[g,h,i]perylene	Benzo[k]flouranthene	bis(2-Ethylhexyl)phthalate	Carbazole	Chrysene	Dibenz[a,h]anthracene	Dibenzofuran	Di-n-butylphthalate	Fluoranthrene	Fluorene	Indeno[1,2,3-cd]pyrene	Napthalene	Phenanthrene	Pyrene	DRO (C10-C28)	EXT DRO (C28-C36)	GRO (C6-C10)
		Method	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5
	ft bgs	Replicate	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Indust./Occ., Cancer			813				32.3	23.6	32.3		323	1830		3230	3.23					32.3	108					
Indust./Occ., Noncancer			58900	3370	50500	253000		251				18300					91600	33700	33700		843	27500				
Construction, Cancer			6060				240	173	240		2310	13400		23100	24					240	633					
Construction, Noncancer			17600	1000	15100	75300		15				5380					26900	10000	10000		159	8070				
Cw, DAF 20			0.893	2.76	82.5	851	0.637	4.42	6.17		60.5	200		186	1.97		33.8	1340	80	20.1	0.0583	85.9				
T-GSB-10	0-4	1	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-GSB-11	0-2	1	<0.025	<0.025	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-GSB-6	5-7	1	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-GSB-6	4-5	1	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-GSB-6	5-7	2	<0.24	<0.24	<0.19	<0.19	<0.24	<0.24	<0.24	<0.24	<0.28	<0.47	<0.24	<0.24	<0.24	<0.24	<0.95	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<9.2	<46	<4.6
T-GSB-6	4-5	2	<0.24	<0.24	<0.20	<0.20	<0.24	<0.24	<0.24	<0.24	<0.29	<0.49	<0.24	<0.24	<0.24	<0.24	<0.98	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<8.7	<43	<4.8
T-GSB-7	4-5	1	0.042	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	0.047	<0.040	<0.040	<0.040	0.085	<0.040	<0.040	<0.040	0.085	0.081	20.2	44.8	<10.0
T-GSB-7	7-10	1	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	0.042	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-GSB-7	7-10	2	<0.20	<0.20	<0.19	<0.19	<0.23	<0.23	<0.23	<0.23	<0.28	<0.47	<0.23	<0.23	<0.23	<0.23	<0.94	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<8.7	<44	<5.0
T-GSB-7	4-5	2	0.025 J	<0.020	<3.9	<3.9	<4.9	<4.9	<4.9	<4.9	<5.9	<9.9	<4.9	<4.9	<4.9	<4.9	<20	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	180	350	<5.0
T-GSB-8	9-10	2	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-GSB-8	9-10	1	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-GSB-8	4-5	2	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	19.9	35.6	<10
T-GSB-8	4-5	1	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	19.9	35.6	<10
T-GSB-8	9-10	3	<1.9	<1.9	<2.0	<2.0	<2.4	<2.4	<2.4	<2.4	<2.9	<4.9	<2.4	<2.4	<2.4	<2.4	<9.8	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	70	120	<4.6
T-GSB-8	4-5	3	0.11 J	0.11 J	<3.8	<3.8	<4.8	<4.8	<4.8	<4.8	<5.8	<9.6	<4.8	<4.8	<4.8	<4.8	<19	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8	400	700	2.2 J
T-GSB-9	8-10	2	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-GSB-9	8-10	1	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-GSB-9	3-5	2	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-GSB-9	3-5	1	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-GSB-9	3-5	3	<0.25	<0.25	<0.20	<0.20	<0.25	<0.25	<0.25	<0.25	<0.30	<0.50	<0.25	<0.25	<0.25	<0.25	<0.99	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-GSB-9	8-10	3	<0.25	<0.25	<0.20	<0.20	<0.25	<0.25	<0.25	<0.25	<0.29	<0.49	<0.25	<0.25	<0.25	<0.25	<0.98	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	< 9.4	<47	<4.9
T-MW-1	0-4	1	<0.025	<0.025	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-MW-10	0-2	1	<0.025	<0.025	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-MW-11	0-3	1	<0.025	<0.025	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	0.244	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-MW-12	26	1	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-MW-12	0-5	1	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-MW-13	23	1	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	0.206	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-MW-13	0-5	1	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-MW-2	0-4	1	<0.025	<0.025	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-MW-3	2-4	1	<0.025	<0.025	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-MW-4	0-4	1	<0.025	<0.025	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-MW-4	20-22	1	<0.025	<0.025	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-MW-5	0-2	1	<0.025	<0.025	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	0.243	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-MW-6	0-2	1	<0.025	<0.025	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-MW-7	0-4	1	<0.025	<0.025	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	0.246	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-MW-8	0-1	1	<0.025	<0.025	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-MW-9	20.5-22	1	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-MW-9	25-26	1	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
Trs B-1	3-5	1	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.204	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
Trs B-1	7-7.5	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trs B-2	3-4.5	1	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
Trs B-3	6-10	1	0.21	0.238	0.684	1.93	**3.67**	2.54	3.02	1.12	1.22	<0.200	1.17	3.37	0.235	0.468	<0.200	11.7	0.743	1.21	**0.564**	7.18	10.2	105	<10	<10
Trs B-3	3-5	1	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
Trs B-4	2-4	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T-TanksSB-1	8-10	1	<0.025	<0.025	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.242	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-TanksSB-2	0-3	1	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-TanksSB-2	7-10	1	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-TanksSB-3	0-3.5	1	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-TanksSB-3	7-10	1	<0.25	<0.25	<0.20	<0.20	<0.25	<0.25	<0.25	<0.25	<0.30	<0.50	<0.25	<0.25	<0.25	<0.25	<0.99	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<9.5	<47	<4.6
T-TanksSB-4	0-2.5	1	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-TanksSB-4	8-10	1	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND	*ND
T-TanksSB-5	7-10	2	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-TanksSB-5	2.5-5	2	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	17.6	31.8	<10
T-TanksSB-5	2.5-5	1	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	17.6	31.8	<10
T-TanksSB-5	7-10	1	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-TanksSB-5	7-10	3	<0.19	<0.19	<0.20	<0.20	<0.24	<0.24	<0.24	<0.24	<0.29	<0.49	<0.24	<0.24	<0.24	<0.24	<0.98	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	71	<47	<4.7
T-TanksSB-5	2.5-5	3	0.34	0.4	<0.20	<0.20	<0.25	<0.25	<0.25	<0.25	<0.30	<0.50	<0.25	<0.25	<0.25	<0.25	<1.0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	210	110	1.7 J
T-TanksSB-6	3-5	2	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	0.222	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-TanksSB-6	3-5	1	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	0.222	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-TanksSB-6	8-10	2	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-TanksSB-6	8-10	1	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-TanksSB-6	8-10	3	<0.19	<0.19	<0.19	<0.19	<0.24	<0.24	<0.24	<0.24	<0.28	<0.47	<0.24	<0.24	<0.24	<0.24	<0.94	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	27	<45	<4.8
T-TanksSB-6	3-5	3	<0.24	<0.24	<0.19	<0.19	<0.24	<0.24	<0.24	<0.24	<0.29	<0.48	<0.24	<0.24	<0.24	<0.24	<0.96	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	36	<43	<4.8
T-TanksSB-7	6.5-7	1	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	0.204	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-TanksSB-7	6.5-7	2	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	0.204	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10

Table 3.3 Results for Soil/Sediment from 2024 Third-Party Study

Borehole Name	Depth Interval		Arsenic	Barium	Chromium	Lead	Mercury	Selenium	Silver	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	4-Isopropyltoluene	Benzene	Ethyl-benzene	m+p - Xylene	Napthalene	n-Butylbenzene	n-Propylbenzene	o-Xylene	p-Isopropyltoluene	sec-Butylbenzene	Tetrachloroethene (PCE)	Toluene	Total Xylenes	1-Methylnapthalene	2-Methylnapthalene	Acenaphthene	Anthracene	Benzo[a]anthracene	Benzo[a]pyrene	Benzo[b]flouranthene	Benzo[g,h,i]perylene	Benzo[k]flouranthene	bis(2-Ethylhexyl)phthalate	Carbazole	Chrysene	Dibenz[a,h]anthracene	Dibenzofuran	Di-n-butylphthalate	Fluoranthrene	Fluorene	Indeno[1,2,3-cd]pyrene	Napthalene	Phenanthrene	Pyrene	DRO (C10-C28)	EXT DRO (C28-C36)	GRO (C6-C10)
		Method	1	1	1	1	2	1	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5
	ft bgs	Replicate	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Indust./Occ., Cancer			35.9		505								87.2	368		108						1650			813				32.3	23.6	32.3		323	1830		3230	3.23					32.3	108					
Indust./Occ., Noncancer			208	255000	314000		389	6490	6490				729	29000	3730	843			3940			629	61300	4280	58900	3370	50500	253000		251				18300						91600	33700	33700		843	27500				
Construction, Cancer			216		468								423	1770		633						7910			6060				240	173	240		2310	13400		23100	24					240	633					
Construction, Noncancer			41.2	4390	134		77.1	1750	1770				142	5800	696	159			736			120	14000	798	17600	1000	15100	75300		15				5380						26900	10000	10000		159	8070				
Cw, DAF 20			5.83	2700	205000	270	5.13	10.2	13.8				0.0418	12.3	2.97	0.0583			2.98			0.321	12.1	154	0.893	2.76	82.5	851	0.637	4.42	6.17		60.5	200		186	1.97		33.8	1340	80	20.1	0.0583	85.9				
T-TanksSB-7	3-5	2	53.5	154	17.3	130	<10.5	<10.5	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-TanksSB-7	3-5	1	53.5	154	17.3	130	0.0421	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-TanksSB-7	3-5	3	29	190	16	74	<0.073	7.7	<4.9	<0.049	<0.049	<0.049	<0.025	<0.049	NA	<0.24	<0.15	<0.049	NA	NA	<0.049	<0.049	<0.049	<0.049	<0.24	<0.24	<0.19	<0.19	<0.24	<0.24	<0.24	<0.24	<0.29	<0.49	<0.24	<0.24	<0.24	<0.24	<0.97	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	19	30 J	<4.9
T-TanksSB-7	6.5-7	3	NA	NA	NA	NA	NA	NA	NA	<0.049	<0.049	<0.049	<0.025	<0.049	NA	<0.098	<0.15	<0.049	NA	NA	<0.049	<0.049	<0.049	<0.049	<0.20	<0.20	<0.20	<0.20	<0.25	<0.25	<0.25	<0.25	<0.30	<0.49	<0.25	<0.25	<0.25	<0.25	0.40 J	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	14 J	<74	<5.0
T-TanksSB-8	0-2	1	NA	NA	NA	NA	NA	NA	NA	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-TanksSB-8	4.5-5	1	2.5	63	4.8	4.8	<0.067	1.3	<0.96	<0.049	<0.049	<0.049	<0.025	<0.049	NA	<0.098	<0.15	<0.049	NA	NA	<0.049	<0.049	<0.049	<0.049	<0.20	<0.20	<0.20	<0.20	<0.25	<0.25	<0.25	<0.25	<0.30	<0.49	<0.25	<0.25	<0.25	<0.25	0.212	<0.24	<0.24	<0.24	<0.24	<0.24	<8.4	<42	<4.9
T-UWSB-1	0-1	1	<10.0	119	5.47	<10.0	<0.0213	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
T-UWSB-2	0-3	1	<10.0	77.7	8.07	<10.0	<0.0242	<20.0	<1.00	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
WPB-1	8-10	1	<10	121	12.8	13.3	0.018	<20	<1	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	0.063	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
WPB-1	3-5	1	14.7	35.2	<5	<10	0.0438	<20	<1	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10
WPB-2	3-5	1	<10	33.7	9.74	<10	0.0311	<20	<1	<0.025	<0.025	NA	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.050	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.200	<0.040	<0.040	<0.040	<0.040	<0.040	<10	<10	<10

Notes

Method 1 = RCRA 8 Metals

Method 2 = EPA 245.6/1631 (Modified)

Method 3 = VOCs (8260B)

Method 4 = SVOCs (8270C)

Method 5 = TPH (8015B)

Method 6 = PCBs

ft bgs = feet below ground surface

J = Result is less than the reporting limit but greater than or equal to the minimum detection level and the concentration is an approximate value

mg/kg = milligrams per kilogram

NA = not analyzed

*ND = Documents indicate analysis performed, but no data provided

INTERA

Table 3.4 Results for Soil/Sediment from NMED Well Installation

					Industrial / Occupational	Industrial / Occupational	Construction Worker	Construction Worker	Cw, DAF 20	NMED-01		NMED-03	
					Soil	Soil	Soil	Soil	Soil	30 - 31 (ft bgs)		15 - 16 (ft bgs)	
Parameter	Chemical Group	Analysis Method	Units	MDL	Cancer	Noncancer	Cancer	Noncancer		NMED	PNM	NMED	PNM
Bicarbonate Alkalinity as CaCO3	Alkalinity	2320B-2011	mg/L	2.6						**302**	**30**	**595**	**130**
Carbonate Alkalinity as CaCO3	Alkalinity	2320B-2011	mg/L	2.6						**175**	ND	ND	ND
Total Alkalinity as CaCO3 to pH 4.5	Alkalinity	2320B-2011	mg/L	2.6						NA	**30**	NA	**130 F1**
Alkalinity	Alkalinity	2320B-2011	mg/kg							**476**	NA	**595**	NA
Bromide	Anions	300	mg/kg	1.5						NA	ND	NA	ND
Chloride	Anions	300	mg/kg	7.5		58400000		15900000		**73.7**	**240**	**458**	**400**
Fluoride	Anions	300	mg/kg	1.5		77800		18100	12000	**1.35**	**1.5**	**2.24 J F1**	ND **F1**
Nitrate	Anions	300	mg/kg	1.5						NA	ND	NA	**2.3**
Nitrite	Anions	300	mg/kg	1.5		130000		35400	26.6	NA	ND	NA	ND
Sulfate	Anions	300	mg/kg	7.5						**221**	**560**	**3480**	**4600**
Cyanide, Total	Cyanide	9012B	mg/kg	0.18		63.3		12.1	0.713	ND	ND	**37.0 J F1**	ND
Aluminum	Metals/Metalloids	6010B	mg/kg	300		1290000		41400	597000	**5840**	**9000**	**17000 B**	**20000**
Beryllium	Metals/Metalloids	6010B	mg/kg	0.097	313000	2580	2710	148	196	**0.345**	**0.55**	**1.31**	**1.2**
Boron	Metals/Metalloids	6010B	mg/kg	0.88		259000		51400	251	ND	**1.9 J**	**9.95 F1**	**4.9**
Calcium	Metals/Metalloids	6010B	mg/kg	500		32400000		8850000		**16800**	**13000**	**11200**	**11000**
Cobalt	Metals/Metalloids	6010B	mg/kg	0.6	83400	388	722	36.7	5.4	**4.3**	**4.1**	**19.5 F1**	**7.6**
Iron	Metals/Metalloids	6010B	mg/kg	1000		908000		248000	6960	**14000**	**16000**	**18100**	**18000**
Magnesium	Metals/Metalloids	6010B	mg/kg	100		5680000		1550000		**7500**	**7100**	**11500**	**8600**
Manganese	Metals/Metalloids	6010B	mg/kg	0.4		160000		464	2630	ND	**350**	ND	**140**
Molybdenum	Metals/Metalloids	6010B	mg/kg	1		6490		1620	39.8	**0.244**	ND	**0.86 J**	ND
Nickel	Metals/Metalloids	6010B	mg/kg	1	2890000	25700	25000	753	485	ND	**7**	ND	**11**
Potassium	Metals/Metalloids	6010B	mg/kg	100		76200000		20800000		**1000**	**1900**	**3190 B**	**3900**
Sodium	Metals/Metalloids	6010B	mg/kg	51		37300000		10200000		**352**	**590**	**2230**	**1800**
Strontium	Metals/Metalloids	6010B	mg/kg	0.01		779000		212000	8330	**19.8**	**19**	**38.3**	**37**
Vanadium	Metals/Metalloids	6010B	mg/kg	0.3		6530		614	1260	**16.3**	**22**	**31.3 F1**	**34**
Zinc	Metals/Metalloids	6010B	mg/kg	6.4		389000		106000	7410	**30.0**	**29**	**106**	ND
Antimony	Metals/Metalloids	6020A	mg/kg	0.5		519		142	6.56	**0.364 J**	ND	ND	ND F1
Arsenic	Metals/Metalloids	6020A	mg/kg	0.5	35.9	208	216	41.2	5.83	**4.04**	**4.8**	**3.94**	**5.2**
Barium	Metals/Metalloids	6020A	mg/kg	2.5		255000		4390	2700	**144**	**130**	**35.7 F1**	**38**
Cadmium	Metals/Metalloids	6020A	mg/kg	0.5	417000	1110	3610	72.1	9.39	ND	ND	**0.472 J**	ND
Chromium (Total)	Metals/Metalloids	6020A	mg/kg	1.5	505	314000	468	134	205000	**7.21**	**11**	**17.0 F1**	**18**
Copper	Metals/Metalloids	6020A	mg/kg	1.6		51900		14200	915	**3.35**	**4.2**	**46.2**	**36**
Lead	Metals/Metalloids	6020A	mg/kg	0.5					270	**6.8**	**7.7**	**34.4 F1**	**26**
Selenium	Metals/Metalloids	6020A	mg/kg	1		6490		1750	10.2	**1.92**	ND	**3.54**	**1.5**
Silver	Metals/Metalloids	6020A	mg/kg	0.5		6490		1770	13.8	NA	ND	NA	ND
Uranium (total)	Metals/Metalloids	6020A	mg/kg	0.5		3880		277	533	ND	**0.67 J**	ND	**1.1**
Mercury	Metals/Metalloids	7471B	mg/kg	0.033		389		77.1	5.13	ND	ND	**0.0133 J**	**0.07**
Nitrogen, Total Kjeldahl	Nutrients	SM 4500 NH3 C	mg/kg	26						**129 F1**	**130**	**97.1 F1 F2**	**350 F1 F2**
Nitrate as N	Nutrients		mg/kg			2080000		566000	425	ND	NA	**1.44**	NA
Kepone	Pecticide		mg/kg							ND	NA	ND	NA
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	PFAS	1633	mg/kg	0.26						NA	ND	NA	ND
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	PFAS	1633	mg/kg	0.42						NA	ND	NA	ND
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	PFAS	1633	mg/kg	0.32						NA	ND	NA	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	PFAS	1633	mg/kg	0.42						ND	ND	ND	ND
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	PFAS	1633	mg/kg	1.3						NA	ND	NA	ND
3-Perfluoropentylpropanoic acid (5:3 FTCA)	PFAS	1633	mg/kg	1.6						NA	ND	NA	ND
3-Perfluoropropylpropanoic acid (3:3 FTCA)	PFAS	1633	mg/kg	0.65						NA	ND	NA	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	PFAS	1633	mg/kg	0.19						NA	ND	NA	ND
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	PFAS	1633	mg/kg	0.29						NA	ND	NA	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	PFAS	1633	mg/kg	0.35						NA	ND	NA	ND
N-ethylperfluorooctane sulfonamide (NEtFOSA)	PFAS	1633	mg/kg	0.32						NA	ND	NA	ND
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	PFAS	1633	mg/kg	0.97						NA	ND	NA	ND

Table 3.4 Results for Soil/Sediment from NMED Well Installation

					Industrial / Occupational	Industrial / Occupational	Construction Worker	Construction Worker	Cw, DAF 20	NMED-01		NMED-03	
					Soil	Soil	Soil	Soil	Soil	30 - 31 (ft bgs)		15 - 16 (ft bgs)	
Parameter	Chemical Group	Analysis Method	Units	MDL	Cancer	Noncancer	Cancer	Noncancer		NMED	PNM	NMED	PNM
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	PFAS	1633	mg/kg	0.35						NA	ND	NA	ND
N-methylperfluorooctane sulfonamide (NMeFOSA)	PFAS	1633	mg/kg	0.29						NA	ND	NA	ND
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	PFAS	1633	mg/kg	0.97						NA	ND	NA	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	PFAS	1633	mg/kg	0.26						NA	ND	NA	ND
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	PFAS	1633	mg/kg	0.23						NA	ND	NA	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	PFAS	1633	mg/kg	0.16						NA	ND	NA	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	PFAS	1633	mg/kg	0.23						NA	ND	NA	ND
Perfluoro-4-methoxybutanoic acid (PFMBA)	PFAS	1633	mg/kg	0.16						NA	ND	NA	ND
Perfluorobutanesulfonic acid (PFBS)	PFAS	1633	mg/kg	0.23		374		80.7	0.0209	ND	ND	ND	ND
Perfluorobutanoic acid (PFBA)	PFAS	1633	mg/kg	0.42						ND	ND	ND	ND
Perfluorodecanesulfonic acid (PFDS)	PFAS	1633	mg/kg	0.16						NA	ND	NA	ND
Perfluorodecanoic acid (PFDA)	PFAS	1633	mg/kg	0.16						NA	ND	NA	ND
Perfluorododecanesulfonic acid (PFDoS)	PFAS	1633	mg/kg	0.19						NA	ND	NA	ND
Perfluorododecanoic acid (PFDoA)	PFAS	1633	mg/kg	0.16						NA	ND	NA	ND
Perfluoroheptanesulfonic acid (PFHpS)	PFAS	1633	mg/kg	0.23						NA	ND	NA	ND
Perfluoroheptanoic acid (PFHpA)	PFAS	1633	mg/kg	0.23						NA	ND	NA	ND
Perfluorohexanesulfonic acid (PFHxS)	PFAS	1633	mg/kg	0.16		24.9		5.38	0.00139	ND	ND	ND	ND
Perfluorohexanoic acid (PFHxA)	PFAS	1633	mg/kg	0.19						NA	ND	NA	ND
Perfluorononanesulfonic acid (PFNS)	PFAS	1633	mg/kg	0.23						NA	ND	NA	ND
Perfluorononanoic acid (PFNA)	PFAS	1633	mg/kg	0.19		3.74		0.807	0.00502	NA	ND	NA	ND
Perfluorooctanesulfonamide (PFOSA)	PFAS	1633	mg/kg	0.29						NA	ND	NA	ND
Perfluorooctanesulfonic acid (PFOS)	PFAS	1633	mg/kg	0.35		3.74		0.807	0.000209	ND	ND	ND	ND
Perfluorooctanoic acid (PFOA)	PFAS	1633	mg/kg	0.19		3.74		0.807	0.0183	NA	ND	NA	ND
Perfluoropentanesulfonic acid (PFPeS)	PFAS	1633	mg/kg	0.19						NA	ND	NA	ND
Perfluoropentanoic acid (PFPeA)	PFAS	1633	mg/kg	0.16						NA	ND	NA	ND
Perfluorotetradecanoic acid (PFTeDA)	PFAS	1633	mg/kg	0.23						NA	ND	NA	ND
Perfluorotridecanoic acid (PFTrDA)	PFAS	1633	mg/kg	0.23						NA	ND	NA	ND
Perfluoroundecanoic acid (PFUnA)	PFAS	1633	mg/kg	0.16						NA	ND	NA	ND
Phenols, Total	Phenols	420.4	mg/L	0.01						**0.23**	ND	ND	ND
Radium-226	Radionuclides	903	pCi/g	0.15						ND	**0.626**	ND	**1.13**
Radium-228	Radionuclides	904	pCi/g	0.887						ND	**0.366 U**	ND	**1.39**
Total Radium	Radionuclides		pCi/kg							ND	NA	ND	NA
1,2,4,5-Tetrachlorobenzene	SVOCs	8270E	mg/kg	16		275		80.7	0.117	NA	ND	NA	ND
1,2,4-Trichlorobenzene	SVOCs	8270E	mg/kg	16	1250	423	8540	79.1	3.1	NA	ND	NA	ND
1,2-Dichlorobenzene	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND
1,3,5-Trinitrobenzene	SVOCs	8270E	mg/kg	260						NA	ND	NA	ND
1,3-Dichlorobenzene	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND
1,4-Dichlorobenzene	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND
1,4-Naphthoquinone	SVOCs	8270E	mg/kg	330						NA	ND	NA	ND *1
1-Methylnaphthalene	SVOCs	8270E	mg/kg	0.05	813	58900	6060	17600	0.893	ND	ND	ND	ND
1-Naphthylamine	SVOCs	8270E	mg/kg	160						NA	ND	NA	ND *1
2,2'-oxybis[1-chloropropane]	SVOCs	8270E	mg/kg	20						NA	ND	NA	ND
2,3,4,6-Tetrachlorophenol	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND
2,4,5-Trichlorophenol	SVOCs	8270E	mg/kg	16		91600		26900	66.2	NA	ND	NA	ND
2,4,6-Trichlorophenol	SVOCs	8270E	mg/kg	16	2330	916	17000	269	0.674	NA	ND	NA	ND
2,4-Dichlorophenol	SVOCs	8270E	mg/kg	20		2750		807	0.825	NA	ND	NA	ND
2,4-Dimethylphenol	SVOCs	8270E	mg/kg	16		18300		5380	6.45	NA	ND	NA	ND
2,4-Dinitrophenol	SVOCs	8270E	mg/kg	410		1830		538	0.669	NA	ND	NA	ND
2,4-Dinitrotoluene	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND
2,6-Dichlorophenol	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND
2,6-Dinitrotoluene	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND
2-Acetylaminofluorene	SVOCs	8270E	mg/kg	99						NA	ND	NA	ND

Table 3.4 Results for Soil/Sediment from NMED Well Installation

					Industrial / Occupational	Industrial / Occupational	Construction Worker	Construction Worker	Cw, DAF 20	NMED-01		NMED-03	
					Soil	Soil	Soil	Soil	Soil	30 - 31 (ft bgs)		15 - 16 (ft bgs)	
Parameter	Chemical Group	Analysis Method	Units	MDL	Cancer	Noncancer	Cancer	Noncancer		NMED	PNM	NMED	PNM
2-Chloronaphthalene	SVOCs	8270E	mg/kg	13						NA	ND	NA	ND
2-Chlorophenol	SVOCs	8270E	mg/kg	16		6490		1770	1.15	NA	ND	NA	ND
2-Methylnaphthalene	SVOCs	8270E	mg/kg	0.074		3370		1000	2.76	ND	ND	ND	ND
2-Methylphenol	SVOCs	8270E	mg/kg	20						NA	ND	NA	ND
2-Naphthylamine	SVOCs	8270E	mg/kg	160						NA	ND	NA	ND *1
2-Nitroaniline	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND
2-Nitrophenol	SVOCs	8270E	mg/kg	20						NA	ND	NA	ND
2-Picoline	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND
2-Toluidine	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND *1
3,3'-Dichlorobenzidine	SVOCs	8270E	mg/kg	160						NA	ND	NA	ND
3,3'-Dimethylbenzidine	SVOCs	8270E	mg/kg	200						ND	ND	ND	ND
3-Methylcholanthrene	SVOCs	8270E	mg/kg	49						NA	ND	NA	ND
3-Nitroaniline	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND
4,6-Dinitro-2-methylphenol	SVOCs	8270E	mg/kg	160						NA	ND	NA	ND
4-Aminobiphenyl	SVOCs	8270E	mg/kg	160						NA	ND	NA	ND
4-Bromophenyl phenyl ether	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND
4-Chloro-3-methylphenol	SVOCs	8270E	mg/kg	20						NA	ND	NA	ND
4-Chloroaniline	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND
4-Chlorophenyl phenyl ether	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND
4-Nitroaniline	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND
4-Nitrophenol	SVOCs	8270E	mg/kg	160						NA	ND	NA	ND
4-Nitroquinoline-1-oxide	SVOCs	8270E	mg/kg	390						NA	ND	NA	ND
7,12-Dimethylbenz(a)anthracene	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND
Acenaphthene	SVOCs	8270E	mg/kg	3.3		50500		15100	82.5	NA	ND	NA	ND
Acenaphthylene	SVOCs	8270E	mg/kg	3.9						NA	ND	NA	ND
Acetophenone	SVOCs	8270E	mg/kg	16		130000		35400	9.64	NA	ND	NA	ND
Aniline	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND
Anthracene	SVOCs	8270E	mg/kg	3.3		253000		75300	851	NA	ND	NA	ND
Benzo[a]anthracene	SVOCs	8270E	mg/kg	3.3						NA	ND	NA	**0.0046** J
Benzo[a]pyrene	SVOCs	8270E	mg/kg	3.3						NA	ND	NA	**0.0100** J
Benzo[b]fluoranthene	SVOCs	8270E	mg/kg	3.3						NA	ND	NA	**0.0460**
Benzo[g,h,i]perylene	SVOCs	8270E	mg/kg	3.3						NA	**0.0035** J	NA	**0.0640**
Benzo[k]fluoranthene	SVOCs	8270E	mg/kg	3.3						NA	ND	NA	**0.0130** J
Benzyl alcohol	SVOCs	8270E	mg/kg	160						NA	ND	NA	ND
Bis(2-chloroethoxy)methane	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND
Bis(2-chloroethyl)ether	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND
Bis(2-ethylhexyl) phthalate	SVOCs	8270E	mg/kg	66						**2.49E-05**	ND	**1.24E-05**	ND
Butyl benzyl phthalate	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND
Chlorobenzilate	SVOCs	8270E	mg/kg	33						**2.55E-04**	ND	**7.25E-06** JI	ND
Chrysene	SVOCs	8270E	mg/kg	3.3	3230		23100		186	NA	ND	NA	**26**
Diallate	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND
Dibenz(a,h)anthracene	SVOCs	8270E	mg/kg	6.6	3.23		24		1.97	NA	ND	NA	ND
Dibenzofuran	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND
Diethyl phthalate	SVOCs	8270E	mg/kg	66						ND	ND	ND	ND
Dimethoate	SVOCs	8270E	mg/kg	160						NA	ND	NA	ND
Dimethyl phthalate	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND
Di-n-butyl phthalate	SVOCs	8270E	mg/kg	66						**1.35E-03** J	ND	**2.15E-04**	ND
Di-n-octyl phthalate	SVOCs	8270E	mg/kg	66						ND	ND	ND	ND
Ethyl methanesulfonate	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND
Fluoranthene	SVOCs	8270E	mg/kg	3.3		33700		10000	1340	NA	ND	NA	**6.10E-03** J
Fluorene	SVOCs	8270E	mg/kg	3.3		33700		10000	80	NA	ND	NA	ND
Hexachlorobenzene	SVOCs	8270E	mg/kg	16	16	733	117	215	0.189	NA	ND	NA	ND

Table 3.4 Results for Soil/Sediment from NMED Well Installation

					Industrial / Occupational	Industrial / Occupational	Construction Worker	Construction Worker	Cw, DAF 20	NMED-01		NMED-03	
					Soil	Soil	Soil	Soil	Soil	30 - 31 (ft bgs)		15 - 16 (ft bgs)	
Parameter	Chemical Group	Analysis Method	Units	MDL	Cancer	Noncancer	Cancer	Noncancer		NMED	PNM	NMED	PNM
Hexachlorobutadiene	SVOCs	8270E	mg/kg	20						NA	ND	NA	ND
Hexachlorocyclopentadiene	SVOCs	8270E	mg/kg	160		5490		867	2.4	NA	ND	NA	ND
Hexachloroethane	SVOCs	8270E	mg/kg	33	641	641	4670	188	0.032	NA	ND	NA	ND
Hexachloropropene	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND
Indeno[1,2,3-cd]pyrene	SVOCs	8270E	mg/kg	3.9						NA	ND	NA	**0.025**
Isodrin	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND
Isophorone	SVOCs	8270E	mg/kg	16	27000	183000	198000	53700	4.23	NA	ND	NA	ND
Isosafrole	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND
Methapyrilene	SVOCs	8270E	mg/kg	1600						NA	ND	NA	ND
Methyl methanesulfonate	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND
Naphthalene	SVOCs	8270E	mg/kg	6.6	108	843	633	159	0.0583	NA	ND	NA	ND
Nitrobenzene	SVOCs	8270E	mg/kg	16	293	1540	1350	353	0.0144	NA	ND	NA	ND
N-Nitro-o-toluidine	SVOCs	8270E	mg/kg	160						NA	ND	NA	ND
N-Nitrosodiethylamine	SVOCs	8270E	mg/kg	16	0.171		1.25		0.00000994	NA	ND	NA	ND
N-Nitrosodimethylamine	SVOCs	8270E	mg/kg	33	0.503	7.33	3.66	2.14	0.0000204	NA	ND	NA	ND
N-Nitrosodi-n-butylamine	SVOCs	8270E	mg/kg	66	3.77		24.6		0.000842	NA	ND	NA	ND
N-Nitrosodi-n-propylamine	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND
N-Nitrosodiphenylamine	SVOCs	8270E	mg/kg	16	5240		37900		10	NA	ND	NA	ND
N-Nitrosomethylethylamine	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND
N-Nitrosomorpholine	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND
N-Nitrosopiperidine	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND
N-Nitrosopyrrolidine	SVOCs	8270E	mg/kg	33	12.2		88.9		0.0023	NA	ND	NA	ND
o,o',o''-Triethylphosphorothioate	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND
p-Dimethylamino azobenzene	SVOCs	8270E	mg/kg	66						ND	ND	**9.30E-06 JI**	ND
Pentachlorobenzene	SVOCs	8270E	mg/kg	20		733		215	0.352	NA	ND	NA	ND
Pentachloronitrobenzene	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND
Pentachlorophenol	SVOCs	8270E	mg/kg	66						ND	ND	ND	ND
Phenacetin	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND
Phenanthrene	SVOCs	8270E	mg/kg	3.9		27500		8070	85.9	NA	ND	NA	ND
Phenol	SVOCs	8270E	mg/kg	16		275000		77400	52.3	ND	ND	ND	ND
p-Phenylene diamine	SVOCs	8270E	mg/kg	12000						NA	ND	NA	ND
Pronamide	SVOCs	8270E	mg/kg	66						ND	ND	**4.17E-06 JI**	ND
Pyrene	SVOCs	8270E	mg/kg	3.3		25300		7530	192	NA	ND	NA	**6.5 J**
Pyridine	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND
Safrole, Total	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND
Sulfotepp	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND
Thionazin	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND
1,1,1,2-Tetrachloroethane	VOCs	8260B	mg/kg	0.0099	137	38900	659	10600	0.036	NA	ND	NA	ND
1,1,1-Trichloroethane	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND
1,1,2,2-Tetrachloroethane	VOCs	8260B	mg/kg	0.02	39.4	26000	197	7080	0.00481	NA	ND	NA	ND
1,1,2-Trichloroethane	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND
1,1-Dichloroethane	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND
1,1-Dichloroethene	VOCs	8260B	mg/kg	0.03						NA	ND	NA	ND
1,1-Dichloropropene	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND
1,2,3-Trichlorobenzene	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND
1,2,3-Trichloropropane	VOCs	8260B	mg/kg	0.0099	1.21	34	8.26	6.31	0.0000582	NA	ND	NA	ND
1,2,4-Trichlorobenzene	VOCs	8260B	mg/kg	0.02	1250	423	8540	79.1	3.1	NA	ND	NA	ND
1,2,4-Trimethylbenzene	VOCs	8260B	mg/kg	0.025						NA	ND	NA	ND
1,2-Dibromo-3-Chloropropane	VOCs	8260B	mg/kg	0.03	1.18	41.1	5.53	8.29	0.00139	NA	ND	NA	ND
1,2-Dibromoethane (EDB)	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND
1,2-Dichlorobenzene	VOCs	8260B	mg/kg	0.015						NA	ND	NA	ND
1,2-Dichloroethane (EDC)	VOCs	8260B	mg/kg	0.015						NA	ND	NA	ND

Table 3.4 Results for Soil/Sediment from NMED Well Installation

					Industrial / Occupational	Industrial / Occupational	Construction Worker	Construction Worker	Cw, DAF 20	NMED-01		NMED-03	
					Soil	Soil	Soil	Soil	Soil	30 - 31 (ft bgs)		15 - 16 (ft bgs)	
Parameter	Chemical Group	Analysis Method	Units	MDL	Cancer	Noncancer	Cancer	Noncancer		NMED	PNM	NMED	PNM
1,2-Dichloropropane	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND
1,3,5-Trimethylbenzene	VOCs	8260B	mg/kg	0.015						NA	ND	NA	ND
1,3-Dichlorobenzene	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND
1,3-Dichloropropane	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND
1,4-Dichlorobenzene	VOCs	8260B	mg/kg	0.015						NA	ND	NA	ND
1-Methylnaphthalene	VOCs	8260B	mg/kg	0.05	813	58900	6060	17600	0.893	NA	ND	NA	ND
2-Butanone	VOCs	8260B	mg/kg	0.3						NA	ND	NA	ND
2-Methylnaphthalene	VOCs	8260B	mg/kg	4.9		3370		1000	2.76	NA	ND	NA	ND
4-Chlorotoluene	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND
4-Isopropyltoluene	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND
4-Methyl-2-pentanone	VOCs	8260B	mg/kg	0.074						NA	ND	NA	ND
Acetonitrile	VOCs	8260B	mg/kg	1.2						NA	ND	NA	ND
Acrolein	VOCs	8260B	mg/kg	0.5		2.16		0.401	0.000146	NA	ND	NA	ND
Acrylonitrile	VOCs	8260B	mg/kg	0.5	24.6	190	129	35.2	0.00195	NA	ND	NA	ND
Allyl chloride	VOCs	8260B	mg/kg	0.5						NA	ND	NA	ND
Benzene	VOCs	8260B	mg/kg	0.0099	87.2	729	423	142	0.0418	NA	ND	NA	ND
Bromobenzene	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND
Bromochloromethane	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND
Bromodichloromethane	VOCs	8260B	mg/kg	0.02	30.2	26000	143	7080	0.00621	NA	ND	NA	ND
Bromoform	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND
Bromomethane	VOCs	8260B	mg/kg	0.74		94.5		17.9	0.0343	NA	ND	NA	ND
Chlorobenzene	VOCs	8260B	mg/kg	0.04						NA	ND	NA	ND
Chloroethane	VOCs	8260B	mg/kg	0.05						NA	ND	NA	ND
Chloroform	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND
Chloromethane	VOCs	8260B	mg/kg	0.5	201	1260	956	235	0.0952	NA	ND	NA	ND
cis-1,2-Dichloroethene	VOCs	8260B	mg/kg	0.03						NA	ND	NA	ND
cis-1,3-Dichloropropene	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND
Dibromochloromethane	VOCs	8260B	mg/kg	0.0099	67.4	18300	340	5380	0.00755	NA	ND	NA	ND
Dibromomethane	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND
Dichlorodifluoromethane	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND
Ethyl methacrylate	VOCs	8260B	mg/kg	0.5		17800		3480	1.83	NA	ND	NA	ND
Ethylbenzene	VOCs	8260B	mg/kg	0.0099	368	29000	1770	5800	12.3	NA	ND	NA	ND
Hexachlorobutadiene	VOCs	8260B	mg/kg	0.099						NA	ND	NA	ND
Iodomethane	VOCs	8260B	mg/kg	2.5						NA	ND	NA	ND
Isopropylbenzene	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND
m&p-Xylene	VOCs	8260B	mg/kg	0.03						ND	ND	ND	ND
Methacrylonitrile	VOCs	8260B	mg/kg	0.5		123		32.8	0.00743	NA	ND	NA	ND
Methyl acetate	VOCs	8260B	mg/kg	0.5		1300000		354000	71.1	NA	ND	NA	ND
Methyl methacrylate	VOCs	8260B	mg/kg	0.5		56500		10600	5.22	NA	ND	NA	ND
Methylcyclohexane	VOCs	8260B	mg/kg	0.5		25900		4820	316	NA	ND	NA	ND
Methylene Chloride	VOCs	8260B	mg/kg	0.15						NA	ND	NA	ND
Methyl-tert-butyl Ether (MTBE)	VOCs	8260B	mg/kg	0.03						NA	ND	NA	ND
Naphthalene	VOCs	8260B	mg/kg	0.04	108	843	633	159	0.0583	NA	ND	NA	ND
n-Butylbenzene	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND
n-Hexane	VOCs	8260B	mg/kg	0.5		3200		603	55.7	NA	ND	NA	ND
N-Propylbenzene	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND
o-Xylene	VOCs	8260B	mg/kg	0.0099		3940		736	2.98	NA	ND	NA	ND
Propionitrile	VOCs	8260B	mg/kg	0.5						NA	ND	NA	ND
sec-Butylbenzene	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND
Styrene	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND
Tetrachloroethene (PCE)	VOCs	8260B	mg/kg	0.015						NA	ND	NA	ND
Toluene	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND

Table 3.4 Results for Soil/Sediment from NMED Well Installation

					Industrial / Occupational	Industrial / Occupational	Construction Worker	Construction Worker	Cw, DAF 20	NMED-01		NMED-03	
					Soil	Soil	Soil	Soil	Soil	30 - 31 (ft bgs)		15 - 16 (ft bgs)	
Parameter	Chemical Group	Analysis Method	Units	MDL	Cancer	Noncancer	Cancer	Noncancer		NMED	PNM	NMED	PNM
trans-1,2-Dichloroethene	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND
trans-1,3-Dichloropropene	VOCs	8260B	mg/kg	0.015						NA	ND	NA	ND
trans-1,4-Dichloro-2-butene	VOCs	8260B	mg/kg	0.5						NA	ND	NA	ND
Trichloroethene (TCE)	VOCs	8260B	mg/kg	0.03						NA	ND	NA	ND
Trichlorofluoromethane	VOCs	8260B	mg/kg	0.015						NA	ND	NA	ND
Vinyl acetate	VOCs	8260B	mg/kg	0.5		12400		2300	1.5	NA	ND	NA	ND
Vinyl chloride	VOCs	8260B	mg/kg	0.03						NA	ND	NA	ND
Xylenes, Total	VOCs	8260B	mg/kg	0.0099						ND	ND	ND	ND
Acetone	VOCs		mg/kg			960000		242000	49.8	NA	NA	NA	NA

Notes

B = Analyte detected in the associated Method Blank

F1 = Matrix Spike (MS) and/or matrix spike duplicate (MSD) recovery exceeds control limits

F2 = MS/MSD relative percent difference exceeds control limits

ft bgs = feet below ground surface

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

I = Value is estimated maximum possible concentration

mg/kg = milligrams per kilogram

NA = Not analyzed

ND = Not Detected at the reporting limit (or MDL or EDL if shown)

PFAS = per- and polyfluoroalkyl substances

SVOCS = semi-volatile organic compounds

VOCs = volatile organic compounds

Table 3.4 Results for Soil/Sediment from NMED Well Installation

Parameter	Chemical Group	Analysis Method	Units	MDL	Industrial / Occupational Soil Cancer	Industrial / Occupational Soil Noncancer	Construction Worker Soil Cancer	Construction Worker Soil Noncancer	Cw, DAF 20 Soil	NMED-4A 10 - 11 (ft bgs) NMED	NMED-4A 10 - 11 (ft bgs) PNM	NMED-4A Duplicate 10 - 11 (ft bgs) NMED	NMED-4A Duplicate 10 - 11 (ft bgs) PNM	NMED-5A 23 - 24 (ft bgs) NMED	NMED-5A 23 - 24 (ft bgs) PNM
Bicarbonate Alkalinity as CaCO3	Alkalinity	2320B-2011	mg/L	2.6						**455**	**21**	**342**	**24**	**374**	**27 B**
Carbonate Alkalinity as CaCO3	Alkalinity	2320B-2011	mg/L	2.6						ND	**2.6 J**	**154**	**4.6 J**	**114**	ND
Total Alkalinity as CaCO3 to pH 4.5	Alkalinity	2320B-2011	mg/L	2.6						NA	**24**	NA	**28**	NA	**27 B**
Alkalinity	Alkalinity	2320B-2011	mg/kg							**663**	NA	**496**	NA	**488**	NA
Bromide	Anions	300	mg/kg	1.5						NA	ND	NA	ND	NA	ND
Chloride	Anions	300	mg/kg	7.5		58400000		15900000		**189**	**240**	**118**	**460**	**17.4**	**95**
Fluoride	Anions	300	mg/kg	1.5		77800		18100	12000	ND	ND	**1.51 J**	ND	**2.05 J**	**2.5**
Nitrate	Anions	300	mg/kg	1.5						NA	**2.6**	NA	**5.0**	NA	ND
Nitrite	Anions	300	mg/kg	1.5		130000		35400	26.6	NA	ND	NA	ND	NA	ND
Sulfate	Anions	300	mg/kg	7.5						**448**	**190**	**1820**	**88**	**666**	**2100**
Cyanide, Total	Cyanide	9012B	mg/kg	0.18		63.3		12.1	0.713	ND	ND	ND	ND	ND	ND
Aluminum	Metals/Metalloids	6010B	mg/kg	300		1290000		41400	597000	**4330**	**3500**	**4500**	**4300**	**6690**	**7000**
Beryllium	Metals/Metalloids	6010B	mg/kg	0.097	313000	2580	2710	148	196	**0.483**	**0.46**	**0.437**	**0.44**	**0.337**	**0.44**
Boron	Metals/Metalloids	6010B	mg/kg	0.88		259000		51400	251	ND	ND	ND	ND	ND	**2.4 J**
Calcium	Metals/Metalloids	6010B	mg/kg	500		32400000		8850000		**31700**	**15000**	ND	**21000**	**12200**	**7600**
Cobalt	Metals/Metalloids	6010B	mg/kg	0.6	83400	388	722	36.7	5.4	**8.63**	**4.6**	**7.06**	**5.1**	**4.4**	**4.0**
Iron	Metals/Metalloids	6010B	mg/kg	1000		908000		248000	6960	**33100**	**24000**	**30800**	**26000**	**14200**	**13000**
Magnesium	Metals/Metalloids	6010B	mg/kg	100		5680000		1550000		**3120**	**1900**	**3010**	**2200**	**2980**	**3000**
Manganese	Metals/Metalloids	6010B	mg/kg	0.4		160000		464	2630	**717**	**430**	ND	**450**	**287**	**210**
Molybdenum	Metals/Metalloids	6010B	mg/kg	1		6490		1620	39.8	**0.971**	ND	**0.862**	ND	**0.542**	ND
Nickel	Metals/Metalloids	6010B	mg/kg	1	2890000	25700	25000	753	485	**9.07**	**6.0**	ND	**6.5**	**5.26**	**5.2**
Potassium	Metals/Metalloids	6010B	mg/kg	100		76200000		20800000		**650**	**650**	**593**	**730**	**1050**	**1200**
Sodium	Metals/Metalloids	6010B	mg/kg	51		37300000		10200000		**249**	**320**	**236**	**270**	**465**	**840**
Strontium	Metals/Metalloids	6010B	mg/kg	0.01		779000		212000	8330	**90.8**	**62**	**72**	**83**	**48.6**	**47**
Vanadium	Metals/Metalloids	6010B	mg/kg	0.3		6530		614	1260	**27.1**	**20**	**26.5**	**20**	**18.9**	**19**
Zinc	Metals/Metalloids	6010B	mg/kg	6.4		389000		106000	7410	**56.3**	**35**	**52.2**	**34**	**28.4**	**26**
Antimony	Metals/Metalloids	6020A	mg/kg	0.5		519		142	6.56	**0.724**	ND	**0.629**	ND	**0.269 J**	ND
Arsenic	Metals/Metalloids	6020A	mg/kg	0.5	35.9	208	216	41.2	5.83	**7.99**	**6.3**	**7.08**	**7.2**	**3.57**	**3.3**
Barium	Metals/Metalloids	6020A	mg/kg	2.5		255000		4390	2700	**179**	**260**	**123**	**280**	**166**	**240**
Cadmium	Metals/Metalloids	6020A	mg/kg	0.5	417000	1110	3610	72.1	9.39	**0.196 J**	ND	**0.181 J**	ND	**0.0775 J**	ND
Chromium (Total)	Metals/Metalloids	6020A	mg/kg	1.5	505	314000	468	134	205000	**7.45**	**6.0**	ND	**6.8**	**6.18**	**6.6**
Copper	Metals/Metalloids	6020A	mg/kg	1.6		51900		14200	915	**10**	**7.7**	**9.48**	**8.5**	**7.12**	**32**
Lead	Metals/Metalloids	6020A	mg/kg	0.5					270	**15.9**	**12.0**	**15.6**	**13**	**9.88**	**7.3**
Selenium	Metals/Metalloids	6020A	mg/kg	1		6490		1750	10.2	**2.93**	ND	**2.48**	ND	**1.9**	ND
Silver	Metals/Metalloids	6020A	mg/kg	0.5		6490		1770	13.8	NA	ND	NA	ND	NA	ND
Uranium (total)	Metals/Metalloids	6020A	mg/kg	0.5		3880		277	533	ND	**0.57 J**	ND	**0.68 J**	ND	**0.60 J**
Mercury	Metals/Metalloids	7471B	mg/kg	0.033		389		77.1	5.13	ND	ND	ND	ND	ND	ND
Nitrogen, Total Kjeldahl	Nutrients	SM 4500 NH3 C	mg/kg	26						**117**	**67**	**262**	**100**	ND	**73**
Nitrate as N	Nutrients		mg/kg			2080000		566000	425	**2.49**	NA	ND	NA	ND	NA
Kepone	Pecticide		mg/kg							ND	NA	ND	NA	NA	NA
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	PFAS	1633	mg/kg	0.26						NA	ND	NA	ND	NA	ND
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	PFAS	1633	mg/kg	0.42						NA	ND	NA	ND	NA	ND
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	PFAS	1633	mg/kg	0.32						NA	ND	NA	ND	NA	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	PFAS	1633	mg/kg	0.42						ND	ND	ND	ND	ND	ND
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	PFAS	1633	mg/kg	1.3						NA	ND	NA	ND	NA	ND
3-Perfluoropentylpropanoic acid (5:3 FTCA)	PFAS	1633	mg/kg	1.6						NA	ND	NA	ND	NA	ND
3-Perfluoropropylpropanoic acid (3:3 FTCA)	PFAS	1633	mg/kg	0.65						NA	ND	NA	ND	NA	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	PFAS	1633	mg/kg	0.19						NA	ND	NA	ND	NA	ND
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	PFAS	1633	mg/kg	0.29						NA	ND *-	NA	ND *-	NA	ND *-
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	PFAS	1633	mg/kg	0.35						NA	ND	NA	ND	NA	ND
N-ethylperfluorooctane sulfonamide (NEtFOSA)	PFAS	1633	mg/kg	0.32						NA	ND	NA	ND	NA	ND
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	PFAS	1633	mg/kg	0.97						NA	ND	NA	ND	NA	ND

Table 3.4 Results for Soil/Sediment from NMED Well Installation

					Industrial / Occupational	Industrial / Occupational	Construction Worker	Construction Worker	Cw, DAF 20	NMED-4A		NMED-4A Duplicate		NMED-5A	
					Soil	Soil	Soil	Soil	Soil	10 - 11 (ft bgs)		10 - 11 (ft bgs)		23 - 24 (ft bgs)	
Parameter	Chemical Group	Analysis Method	Units	MDL	Cancer	Noncancer	Cancer	Noncancer		NMED	PNM	NMED	PNM	NMED	PNM
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	PFAS	1633	mg/kg	0.35						NA	ND	NA	ND	NA	ND
N-methylperfluorooctane sulfonamide (NMeFOSA)	PFAS	1633	mg/kg	0.29						NA	ND	NA	ND	NA	ND
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	PFAS	1633	mg/kg	0.97						NA	ND	NA	ND	NA	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	PFAS	1633	mg/kg	0.26						NA	ND	NA	ND	NA	ND
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	PFAS	1633	mg/kg	0.23						NA	ND	NA	ND	NA	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	PFAS	1633	mg/kg	0.16						NA	ND	NA	ND	NA	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	PFAS	1633	mg/kg	0.23						NA	ND	NA	ND	NA	ND
Perfluoro-4-methoxybutanoic acid (PFMBA)	PFAS	1633	mg/kg	0.16						NA	ND	NA	ND	NA	ND
Perfluorobutanesulfonic acid (PFBS)	PFAS	1633	mg/kg	0.23		374		80.7	0.0209	ND	ND	ND	ND	ND	ND
Perfluorobutanoic acid (PFBA)	PFAS	1633	mg/kg	0.42						ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonic acid (PFDS)	PFAS	1633	mg/kg	0.16						NA	ND	NA	ND	NA	ND
Perfluorodecanoic acid (PFDA)	PFAS	1633	mg/kg	0.16						NA	ND	NA	ND	NA	ND
Perfluorododecanesulfonic acid (PFDoS)	PFAS	1633	mg/kg	0.19						NA	ND	NA	ND	NA	ND
Perfluorododecanoic acid (PFDoA)	PFAS	1633	mg/kg	0.16						NA	ND	NA	ND	NA	ND
Perfluoroheptanesulfonic acid (PFHpS)	PFAS	1633	mg/kg	0.23						NA	ND	NA	ND	NA	ND
Perfluoroheptanoic acid (PFHpA)	PFAS	1633	mg/kg	0.23						NA	ND	NA	ND	NA	ND
Perfluorohexanesulfonic acid (PFHxS)	PFAS	1633	mg/kg	0.16		24.9		5.38	0.00139	ND	ND	ND	ND	ND	ND
Perfluorohexanoic acid (PFHxA)	PFAS	1633	mg/kg	0.19						NA	ND	NA	ND	NA	ND
Perfluorononanesulfonic acid (PFNS)	PFAS	1633	mg/kg	0.23						NA	ND	NA	ND	NA	ND
Perfluorononanoic acid (PFNA)	PFAS	1633	mg/kg	0.19		3.74		0.807	0.00502	NA	ND	NA	ND	NA	ND
Perfluorooctanesulfonamide (PFOSA)	PFAS	1633	mg/kg	0.29						NA	ND	NA	ND	NA	ND
Perfluorooctanesulfonic acid (PFOS)	PFAS	1633	mg/kg	0.35		3.74		0.807	0.000209	ND	ND	ND	ND	ND	ND
Perfluorooctanoic acid (PFOA)	PFAS	1633	mg/kg	0.19		3.74		0.807	0.0183	NA	ND	NA	ND	NA	ND
Perfluoropentanesulfonic acid (PFPeS)	PFAS	1633	mg/kg	0.19						NA	ND	NA	ND	NA	ND
Perfluoropentanoic acid (PFPeA)	PFAS	1633	mg/kg	0.16						NA	ND	NA	ND	NA	ND
Perfluorotetradecanoic acid (PFTeDA)	PFAS	1633	mg/kg	0.23						NA	ND	NA	ND	NA	ND
Perfluorotridecanoic acid (PFTrDA)	PFAS	1633	mg/kg	0.23						NA	ND	NA	ND	NA	ND
Perfluoroundecanoic acid (PFUnA)	PFAS	1633	mg/kg	0.16						NA	ND	NA	ND	NA	ND
Phenols, Total	Phenols	420.4	mg/L	0.01						**0.09911 J**	ND	ND	ND	ND	ND
Radium-226	Radionuclides	903	pCi/g	0.15						ND	**0.617**	ND	**0.63**	ND	**0.562**
Radium-228	Radionuclides	904	pCi/g	0.887						ND	**1.25**	ND	**0.373 U**	ND	**1.18**
Total Radium	Radionuclides		pCi/kg							ND	NA	ND	NA	ND	NA
1,2,4,5-Tetrachlorobenzene	SVOCs	8270E	mg/kg	16		275		80.7	0.117	NA	ND	NA	ND	NA	ND
1,2,4-Trichlorobenzene	SVOCs	8270E	mg/kg	16	1250	423	8540	79.1	3.1	NA	ND	NA	ND	NA	ND
1,2-Dichlorobenzene	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND	NA	ND
1,3,5-Trinitrobenzene	SVOCs	8270E	mg/kg	260						NA	ND	NA	ND	NA	ND
1,3-Dichlorobenzene	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND	NA	ND
1,4-Dichlorobenzene	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND	NA	ND
1,4-Naphthoquinone	SVOCs	8270E	mg/kg	330						NA	ND	NA	ND	NA	ND
1-Methylnaphthalene	SVOCs	8270E	mg/kg	0.05	813	58900	6060	17600	0.893	ND	ND	ND	ND	ND	ND
1-Naphthylamine	SVOCs	8270E	mg/kg	160						NA	ND	NA	ND	NA	ND
2,2'-oxybis[1-chloropropane]	SVOCs	8270E	mg/kg	20						NA	ND	NA	ND	NA	ND
2,3,4,6-Tetrachlorophenol	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND	NA	ND
2,4,5-Trichlorophenol	SVOCs	8270E	mg/kg	16		91600		26900	66.2	NA	ND	NA	ND	NA	ND
2,4,6-Trichlorophenol	SVOCs	8270E	mg/kg	16	2330	916	17000	269	0.674	NA	ND	NA	ND	NA	ND
2,4-Dichlorophenol	SVOCs	8270E	mg/kg	20		2750		807	0.825	NA	ND	NA	ND	NA	ND
2,4-Dimethylphenol	SVOCs	8270E	mg/kg	16		18300		5380	6.45	NA	ND	NA	ND	NA	ND
2,4-Dinitrophenol	SVOCs	8270E	mg/kg	410		1830		538	0.669	NA	ND	NA	ND	NA	ND
2,4-Dinitrotoluene	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND	NA	ND
2,6-Dichlorophenol	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND	NA	ND
2,6-Dinitrotoluene	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND	NA	ND
2-Acetylaminofluorene	SVOCs	8270E	mg/kg	99						NA	ND	NA	ND	NA	ND

Table 3.4 Results for Soil/Sediment from NMED Well Installation

					Industrial / Occupational	Industrial / Occupational	Construction Worker	Construction Worker	Cw, DAF 20	NMED-4A		NMED-4A Duplicate		NMED-5A	
					Soil	Soil	Soil	Soil	Soil	10 - 11 (ft bgs)		10 - 11 (ft bgs)		23 - 24 (ft bgs)	
Parameter	Chemical Group	Analysis Method	Units	MDL	Cancer	Noncancer	Cancer	Noncancer		NMED	PNM	NMED	PNM	NMED	PNM
2-Chloronaphthalene	SVOCs	8270E	mg/kg	13						NA	ND	NA	ND	NA	ND
2-Chlorophenol	SVOCs	8270E	mg/kg	16		6490		1770	1.15	NA	ND	NA	ND	NA	ND
2-Methylnaphthalene	SVOCs	8270E	mg/kg	0.074		3370		1000	2.76	ND	ND	ND	ND	ND	ND
2-Methylphenol	SVOCs	8270E	mg/kg	20						NA	ND	NA	ND	NA	ND
2-Naphthylamine	SVOCs	8270E	mg/kg	160						NA	ND	NA	ND	NA	ND
2-Nitroaniline	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND	NA	ND
2-Nitrophenol	SVOCs	8270E	mg/kg	20						NA	ND	NA	ND	NA	ND
2-Picoline	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND	NA	ND
2-Toluidine	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND	NA	ND
3,3'-Dichlorobenzidine	SVOCs	8270E	mg/kg	160						NA	ND	NA	ND	NA	ND
3,3'-Dimethylbenzidine	SVOCs	8270E	mg/kg	200						ND	ND	ND	ND	ND	ND
3-Methylcholanthrene	SVOCs	8270E	mg/kg	49						NA	ND	NA	ND	NA	ND
3-Nitroaniline	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND	NA	ND
4,6-Dinitro-2-methylphenol	SVOCs	8270E	mg/kg	160						NA	ND	NA	ND	NA	ND
4-Aminobiphenyl	SVOCs	8270E	mg/kg	160						NA	ND	NA	ND	NA	ND
4-Bromophenyl phenyl ether	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND	NA	ND
4-Chloro-3-methylphenol	SVOCs	8270E	mg/kg	20						NA	ND	NA	ND	NA	ND
4-Chloroaniline	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND	NA	ND
4-Chlorophenyl phenyl ether	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND	NA	ND
4-Nitroaniline	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND	NA	ND
4-Nitrophenol	SVOCs	8270E	mg/kg	160						NA	ND	NA	ND	NA	ND
4-Nitroquinoline-1-oxide	SVOCs	8270E	mg/kg	390						NA	ND	NA	ND	NA	ND
7,12-Dimethylbenz(a)anthracene	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND	NA	ND
Acenaphthene	SVOCs	8270E	mg/kg	3.3		50500		15100	82.5	NA	ND	NA	ND	NA	ND
Acenaphthylene	SVOCs	8270E	mg/kg	3.9						NA	ND	NA	ND	NA	ND
Acetophenone	SVOCs	8270E	mg/kg	16		130000		35400	9.64	NA	ND	NA	ND	NA	ND
Aniline	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND	NA	ND
Anthracene	SVOCs	8270E	mg/kg	3.3		253000		75300	851	NA	ND	NA	ND	NA	ND
Benzo[a]anthracene	SVOCs	8270E	mg/kg	3.3						NA	ND	NA	ND	NA	ND
Benzo[a]pyrene	SVOCs	8270E	mg/kg	3.3						NA	ND	NA	ND	NA	ND
Benzo[b]fluoranthene	SVOCs	8270E	mg/kg	3.3						NA	ND	NA	ND	NA	ND
Benzo[g,h,i]perylene	SVOCs	8270E	mg/kg	3.3						NA	ND	NA	ND	NA	ND
Benzo[k]fluoranthene	SVOCs	8270E	mg/kg	3.3						NA	ND	NA	ND	NA	ND
Benzyl alcohol	SVOCs	8270E	mg/kg	160						NA	ND	NA	ND	NA	ND
Bis(2-chloroethoxy)methane	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND	NA	ND
Bis(2-chloroethyl)ether	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND	NA	ND
Bis(2-ethylhexyl) phthalate	SVOCs	8270E	mg/kg	66						**4.00E-05**	ND	**2.31E-04 F1**	ND	**4.40E-04**	ND
Butyl benzyl phthalate	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND	NA	ND
Chlorobenzilate	SVOCs	8270E	mg/kg	33						ND	ND	ND	ND	ND	ND
Chrysene	SVOCs	8270E	mg/kg	3.3	3230		23100		186	NA	ND	NA	ND	NA	ND
Diallate	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND	NA	ND
Dibenz(a,h)anthracene	SVOCs	8270E	mg/kg	6.6	3.23		24		1.97	NA	ND	NA	ND	NA	ND
Dibenzofuran	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND	NA	ND
Diethyl phthalate	SVOCs	8270E	mg/kg	66						ND	**170**	ND	ND	ND	ND
Dimethoate	SVOCs	8270E	mg/kg	160						NA	ND	NA	ND	NA	ND
Dimethyl phthalate	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND	NA	ND
Di-n-butyl phthalate	SVOCs	8270E	mg/kg	66						**5.04E-04**	ND	ND	ND	ND	ND
Di-n-octyl phthalate	SVOCs	8270E	mg/kg	66						ND	ND	ND	ND	ND	ND
Ethyl methanesulfonate	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND	NA	ND
Fluoranthene	SVOCs	8270E	mg/kg	3.3		33700		10000	1340	NA	ND	NA	ND	NA	ND
Fluorene	SVOCs	8270E	mg/kg	3.3		33700		10000	80	NA	ND	NA	ND	NA	ND
Hexachlorobenzene	SVOCs	8270E	mg/kg	16	16	733	117	215	0.189	NA	ND	NA	ND	NA	ND

Table 3.4 Results for Soil/Sediment from NMED Well Installation

					Industrial / Occupational	Industrial / Occupational	Construction Worker	Construction Worker	Cw, DAF 20	NMED-4A		NMED-4A Duplicate		NMED-5A	
					Soil	Soil	Soil	Soil	Soil	10 - 11 (ft bgs)		10 - 11 (ft bgs)		23 - 24 (ft bgs)	
Parameter	Chemical Group	Analysis Method	Units	MDL	Cancer	Noncancer	Cancer	Noncancer		NMED	PNM	NMED	PNM	NMED	PNM
Hexachlorobutadiene	SVOCs	8270E	mg/kg	20						NA	ND	NA	ND	NA	ND
Hexachlorocyclopentadiene	SVOCs	8270E	mg/kg	160		5490		867	2.4	NA	ND	NA	ND	NA	ND
Hexachloroethane	SVOCs	8270E	mg/kg	33	641	641	4670	188	0.032	NA	ND	NA	ND	NA	ND
Hexachloropropene	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND	NA	ND
Indeno[1,2,3-cd]pyrene	SVOCs	8270E	mg/kg	3.9						NA	ND	NA	ND	NA	ND
Isodrin	SVOCs	8270E	mg/kg	16						NA	ND	NA	ND	NA	ND
Isophorone	SVOCs	8270E	mg/kg	16	27000	183000	198000	53700	4.23	NA	ND	NA	ND	NA	ND
Isosafrole	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND	NA	ND
Methapyrilene	SVOCs	8270E	mg/kg	1600						NA	ND	NA	ND	NA	ND
Methyl methanesulfonate	SVOCs	8270E	mg/kg	66						NA	ND *-	NA	ND *-	NA	ND
Naphthalene	SVOCs	8270E	mg/kg	6.6	108	843	633	159	0.0583	NA	ND	NA	ND	NA	ND
Nitrobenzene	SVOCs	8270E	mg/kg	16	293	1540	1350	353	0.0144	NA	ND	NA	ND	NA	ND
N-Nitro-o-toluidine	SVOCs	8270E	mg/kg	160						NA	ND	NA	ND	NA	ND
N-Nitrosodiethylamine	SVOCs	8270E	mg/kg	16	0.171		1.25		0.00000994	NA	ND	NA	ND	NA	ND
N-Nitrosodimethylamine	SVOCs	8270E	mg/kg	33	0.503	7.33	3.66	2.14	0.0000204	NA	ND	NA	ND	NA	ND
N-Nitrosodi-n-butylamine	SVOCs	8270E	mg/kg	66	3.77		24.6		0.000842	NA	ND	NA	ND	NA	ND
N-Nitrosodi-n-propylamine	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND	NA	ND
N-Nitrosodiphenylamine	SVOCs	8270E	mg/kg	16	5240		37900		10	NA	ND	NA	ND	NA	ND
N-Nitrosomethylethylamine	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND	NA	ND
N-Nitrosomorpholine	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND	NA	ND
N-Nitrosopiperidine	SVOCs	8270E	mg/kg	33						NA	ND	NA	ND	NA	ND
N-Nitrosopyrrolidine	SVOCs	8270E	mg/kg	33	12.2		88.9		0.0023	NA	ND	NA	ND	NA	ND
o,o',o''-Triethylphosphorothioate	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND	NA	ND
p-Dimethylamino azobenzene	SVOCs	8270E	mg/kg	66						ND	ND	ND	ND	ND	ND
Pentachlorobenzene	SVOCs	8270E	mg/kg	20		733		215	0.352	NA	ND	NA	ND	NA	ND
Pentachloronitrobenzene	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND	NA	ND
Pentachlorophenol	SVOCs	8270E	mg/kg	66						ND	ND	ND	ND	ND	ND
Phenacetin	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND	NA	ND
Phenanthrene	SVOCs	8270E	mg/kg	3.9		27500		8070	85.9	NA	ND	NA	ND	NA	ND
Phenol	SVOCs	8270E	mg/kg	16		275000		77400	52.3	ND	ND	ND	ND	ND	ND
p-Phenylene diamine	SVOCs	8270E	mg/kg	12000						NA	ND *1	NA	ND *1	NA	ND
Pronamide	SVOCs	8270E	mg/kg	66						ND	ND	ND	ND	ND	ND
Pyrene	SVOCs	8270E	mg/kg	3.3		25300		7530	192	NA	ND	NA	ND	NA	ND
Pyridine	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND	NA	ND
Safrole, Total	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND	NA	ND
Sulfotepp	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND	NA	ND
Thionazin	SVOCs	8270E	mg/kg	66						NA	ND	NA	ND	NA	ND
1,1,1,2-Tetrachloroethane	VOCs	8260B	mg/kg	0.0099	137	38900	659	10600	0.036	NA	ND	NA	ND	NA	ND
1,1,1-Trichloroethane	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND	NA	ND
1,1,2,2-Tetrachloroethane	VOCs	8260B	mg/kg	0.02	39.4	26000	197	7080	0.00481	NA	ND	NA	ND	NA	ND
1,1,2-Trichloroethane	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND	NA	ND
1,1-Dichloroethane	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND	NA	ND
1,1-Dichloroethene	VOCs	8260B	mg/kg	0.03						NA	ND	NA	ND	NA	ND
1,1-Dichloropropene	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND	NA	ND
1,2,3-Trichlorobenzene	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND	NA	ND
1,2,3-Trichloropropane	VOCs	8260B	mg/kg	0.0099	1.21	34	8.26	6.31	0.0000582	NA	ND	NA	ND	NA	ND
1,2,4-Trichlorobenzene	VOCs	8260B	mg/kg	0.02	1250	423	8540	79.1	3.1	NA	ND	NA	ND	NA	ND
1,2,4-Trimethylbenzene	VOCs	8260B	mg/kg	0.025						NA	ND	NA	ND	NA	ND
1,2-Dibromo-3-Chloropropane	VOCs	8260B	mg/kg	0.03	1.18	41.1	5.53	8.29	0.00139	NA	ND	NA	ND	NA	ND
1,2-Dibromoethane (EDB)	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND	NA	ND
1,2-Dichlorobenzene	VOCs	8260B	mg/kg	0.015						NA	ND	NA	ND	NA	ND
1,2-Dichloroethane (EDC)	VOCs	8260B	mg/kg	0.015						NA	ND	NA	ND	NA	ND

Table 3.4 Results for Soil/Sediment from NMED Well Installation

					Industrial / Occupational	Industrial / Occupational	Construction Worker	Construction Worker	Cw, DAF 20	NMED-4A		NMED-4A Duplicate		NMED-5A	
					Soil	Soil	Soil	Soil	Soil	10 - 11 (ft bgs)		10 - 11 (ft bgs)		23 - 24 (ft bgs)	
Parameter	Chemical Group	Analysis Method	Units	MDL	Cancer	Noncancer	Cancer	Noncancer		NMED	PNM	NMED	PNM	NMED	PNM
1,2-Dichloropropane	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND	NA	ND
1,3,5-Trimethylbenzene	VOCs	8260B	mg/kg	0.015						NA	ND	NA	ND	NA	ND
1,3-Dichlorobenzene	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND	NA	ND
1,3-Dichloropropane	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND	NA	ND
1,4-Dichlorobenzene	VOCs	8260B	mg/kg	0.015						NA	ND	NA	ND	NA	ND
1-Methylnaphthalene	VOCs	8260B	mg/kg	0.05	813	58900	6060	17600	0.893	NA	ND	NA	ND	NA	ND
2-Butanone	VOCs	8260B	mg/kg	0.3						NA	**0.29 J**	NA	**0.24 J**	NA	ND
2-Methylnaphthalene	VOCs	8260B	mg/kg	4.9		3370		1000	2.76	NA	ND	NA	ND	NA	ND
4-Chlorotoluene	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND	NA	ND
4-Isopropyltoluene	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND	NA	ND
4-Methyl-2-pentanone	VOCs	8260B	mg/kg	0.074						NA	ND	NA	ND	NA	ND
Acetonitrile	VOCs	8260B	mg/kg	1.2						NA	ND	NA	ND	NA	ND
Acrolein	VOCs	8260B	mg/kg	0.5		2.16		0.401	0.000146	NA	ND	NA	ND	NA	ND
Acrylonitrile	VOCs	8260B	mg/kg	0.5	24.6	190	129	35.2	0.00195	NA	ND	NA	ND	NA	ND
Allyl chloride	VOCs	8260B	mg/kg	0.5						NA	ND	NA	ND	NA	ND
Benzene	VOCs	8260B	mg/kg	0.0099	87.2	729	423	142	0.0418	NA	ND	NA	ND	NA	ND
Bromobenzene	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND	NA	ND
Bromochloromethane	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND	NA	ND
Bromodichloromethane	VOCs	8260B	mg/kg	0.02	30.2	26000	143	7080	0.00621	NA	ND	NA	ND	NA	ND
Bromoform	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND	NA	ND
Bromomethane	VOCs	8260B	mg/kg	0.74		94.5		17.9	0.0343	NA	ND	NA	ND	NA	ND
Chlorobenzene	VOCs	8260B	mg/kg	0.04						NA	ND	NA	ND	NA	ND
Chloroethane	VOCs	8260B	mg/kg	0.05						NA	ND	NA	ND	NA	ND
Chloroform	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND	NA	ND
Chloromethane	VOCs	8260B	mg/kg	0.5	201	1260	956	235	0.0952	NA	ND	NA	ND	NA	ND
cis-1,2-Dichloroethene	VOCs	8260B	mg/kg	0.03						NA	ND	NA	ND	NA	ND
cis-1,3-Dichloropropene	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND	NA	ND
Dibromochloromethane	VOCs	8260B	mg/kg	0.0099	67.4	18300	340	5380	0.00755	NA	ND	NA	ND	NA	ND
Dibromomethane	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND	NA	ND
Dichlorodifluoromethane	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND	NA	ND
Ethyl methacrylate	VOCs	8260B	mg/kg	0.5		17800		3480	1.83	NA	ND	NA	ND	NA	ND
Ethylbenzene	VOCs	8260B	mg/kg	0.0099	368	29000	1770	5800	12.3	NA	ND	NA	ND	NA	ND
Hexachlorobutadiene	VOCs	8260B	mg/kg	0.099						NA	ND	NA	ND	NA	ND
Iodomethane	VOCs	8260B	mg/kg	2.5						NA	ND	NA	ND	NA	ND
Isopropylbenzene	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND	NA	ND
m&p-Xylene	VOCs	8260B	mg/kg	0.03						ND	ND	**0.000185 J**	ND	ND	ND
Methacrylonitrile	VOCs	8260B	mg/kg	0.5		123		32.8	0.00743	NA	ND	NA	ND	NA	ND
Methyl acetate	VOCs	8260B	mg/kg	0.5		1300000		354000	71.1	NA	ND	NA	ND	NA	ND
Methyl methacrylate	VOCs	8260B	mg/kg	0.5		56500		10600	5.22	NA	ND	NA	ND	NA	ND
Methylcyclohexane	VOCs	8260B	mg/kg	0.5		25900		4820	316	NA	ND	NA	ND	NA	ND
Methylene Chloride	VOCs	8260B	mg/kg	0.15						NA	ND	NA	ND	NA	ND
Methyl-tert-butyl Ether (MTBE)	VOCs	8260B	mg/kg	0.03						NA	ND	NA	ND	NA	ND
Naphthalene	VOCs	8260B	mg/kg	0.04	108	843	633	159	0.0583	NA	ND	NA	ND	NA	ND
n-Butylbenzene	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND	NA	ND
n-Hexane	VOCs	8260B	mg/kg	0.5		3200		603	55.7	NA	ND	NA	ND	NA	ND
N-Propylbenzene	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND	NA	ND
o-Xylene	VOCs	8260B	mg/kg	0.0099		3940		736	2.98	NA	ND	NA	ND	NA	ND
Propionitrile	VOCs	8260B	mg/kg	0.5						NA	ND	NA	ND	NA	ND
sec-Butylbenzene	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND	NA	ND
Styrene	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND	NA	ND
Tetrachloroethene (PCE)	VOCs	8260B	mg/kg	0.015						NA	ND	NA	ND	NA	ND
Toluene	VOCs	8260B	mg/kg	0.0099						NA	ND	NA	ND	NA	ND

Table 3.4 Results for Soil/Sediment from NMED Well Installation

					Industrial / Occupational	Industrial / Occupational	Construction Worker	Construction Worker	Cw, DAF 20	NMED-4A		NMED-4A Duplicate		NMED-5A	
					Soil	Soil	Soil	Soil	Soil	10 - 11 (ft bgs)		10 - 11 (ft bgs)		23 - 24 (ft bgs)	
Parameter	Chemical Group	Analysis Method	Units	MDL	Cancer	Noncancer	Cancer	Noncancer		NMED	PNM	NMED	PNM	NMED	PNM
trans-1,2-Dichloroethene	VOCs	8260B	mg/kg	0.02						NA	ND	NA	ND	NA	ND
trans-1,3-Dichloropropene	VOCs	8260B	mg/kg	0.015						NA	ND	NA	ND	NA	ND
trans-1,4-Dichloro-2-butene	VOCs	8260B	mg/kg	0.5						NA	ND	NA	ND	NA	ND
Trichloroethene (TCE)	VOCs	8260B	mg/kg	0.03						NA	ND	NA	ND	NA	ND
Trichlorofluoromethane	VOCs	8260B	mg/kg	0.015						NA	ND	NA	ND	NA	ND
Vinyl acetate	VOCs	8260B	mg/kg	0.5		12400		2300	1.5	NA	ND	NA	ND	NA	ND
Vinyl chloride	VOCs	8260B	mg/kg	0.03						NA	ND	NA	ND	NA	ND
Xylenes, Total	VOCs	8260B	mg/kg	0.0099						ND	ND	**0.000185 J**	ND	ND	ND
Acetone	VOCs		mg/kg			960000		242000	49.8	NA	NA	NA	NA	NA	NA

Notes

B = Analyte detected in the associated Method Blank

F1 = Matrix Spike (MS) and/or matrix spike duplicate (MSD) recovery exceeds control limits

F2 = MS/MSD relative percent difference exceeds control limits

ft bgs = feet below ground surface

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

I = Value is estimated maximum possible concentration

mg/kg = milligrams per kilogram

NA = Not analyzed

ND = Not Detected at the reporting limit (or MDL or EDL if shown)

PFAS = per- and polyfluoroalkyl substances

SVOCS = semi-volatile organic compounds

VOCs = volatile organic compounds

Table 3.5 Water Chemistry Results for Monitoring Wells

		Parameter		Alkalinity, Total as CaCO3	Arsenic	Boron	Cadmium	Calcium	Chloride	Chromium	Cobalt	Copper	Fluoride	Iron	Lead	Magnesium	Manganese	Molybdenum	Nickel	Nitrate/Nitrite as N	Potassium	Selenium	Sodium	Sulfate	Total Dissolved Solids	Uranium
		Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Site	Area	Geologic Unit	Sample Date																							
MW Westwater	Upgradient SJGS	Kf	5/5/2025	243	<0.0300	<1.88	<0.0150	264	10500	<0.0600	<0.0030	0.298	0.556	<1.75	<0.0150	110	0.207	<0.0150	0.0274	3.18	<35.0	0.0882	7100	2750	21400	<0.0150
NMED-1-PNM	Upgradient SJGS	Qal/Qnt	6/10/2025	620	0.00061	0.8	<0.0017	440	2200	<0.0030	<0.0033	0.0024	<0.46	0.26	<0.00034	290	1.7	<0.0063	0.012		15	0.0014	2600	4200	10000	0.01
NMED-1-NMED	Upgradient SJGS	Qal/Qnt	6/10/2025	589	<0.004	0.726	<0.002	372	2080	<0.004	0.00503	0.00225	<5	0.0561	<0.002	250	1.34	0.0116	0.0179	<1.0	13.5	<0.002	2470	4190	10300	0.0593
NEP4	SJGS	Kf	5/5/2025	1180	<0.0200	3.99	<0.0100	551	1010	<0.0400	0.0048	0.176	0.17	<1.00	<0.0100	1560	0.0152	<0.0100	0.178	225	41	0.0876	4520	13400	23600	0.0738
NEP3	SJGS	Kf	11/7/2023	265	<0.0075	2.91	<0.0075	396	385	<0.0150	0.011	0.0321	0.308	<0.750	<0.0075	377	0.0193	<0.0075	0.0856	52.7	<15	0.199	1870	5370	9390	0.0166
NEP7	SJGS	Kf	2/28/2024	495	<0.02	<1.23	<0.01	341	497	<0.04	0.0024	0.135	0.395	<1.0	<0.01	563	0.016	<0.01	0.0487	1980	<20	0.236	4120	10100	17800	0.0232
KPC	SJGS	Kpc	5/5/2025	2060	<0.0050	1.39	<0.0025	34.1	356	<0.0100	0.0009	0.0702	0.199	<0.350	<0.0025	22.5	0.0451	<0.0025	0.0039	0.181	8.19	0.0079	1730	1440	4840	<0.0025
MW4	SJGS	Kpc	5/5/2025	325	<0.0050	0.885	<0.0025	494	95.3	<0.0100	0.0084	0.018	0.405	<0.250	<0.0025	409	2.48	<0.0025	0.0817	1.58	16.2	0.0075	468	3260	5130	0.0085
CB-1	SJGS	Qal/Qnt	5/5/2025	575	<0.0100	3.81	<0.0050	359	612	<0.0200	0.0056	0.0859	1.34	<0.500	<0.0050	392	0.0191	<0.0050	0.0988	31.7	<10.0	0.0467	2190	5660	9750	0.0494
CB-2	SJGS	Qal/Qnt	5/5/2025	930	<0.0200	2.61	<0.0100	232	2040	<0.0400	<0.0020	0.207	2.8	<1.00	<0.0100	344	<0.0100	<0.0100	0.0904	51.3	<20.0	0.03	5250	8460	16800	0.0977
QAL1	SJGS	Qal/Qnt	5/5/2025	355	<0.0100	2.19	<0.0050	492	528	<0.0200	0.0023	0.0656	2.75	<0.500	<0.0050	302	0.142	0.0107	0.075	16.8	12.8	0.126	1610	4580	8160	0.0293
QAL-2R	SJGS	Qal/Qnt	5/5/2025	590	<0.0050	1.6	<0.0025	452	201	<0.0100	0.0054	0.039	0.997	<0.350	<0.0025	373	0.512	0.0072	0.0809	7.97	7.72	0.0117	964	3890	6740	0.0411
QAL3	SJGS	Qal/Qnt	5/5/2025	1050	0.0194	11.8	<0.0075	455	646	<0.0300	0.0369	0.156	1.33	<1.00	<0.0075	929	<0.0075	<0.0075	0.402	1.08	<20.0	0.252	3730	9870	18100	0.117
QAL4	SJGS	Qal/Qnt	5/5/2025	545	<0.0100	1.87	<0.0050	404	281	<0.0200	0.0121	0.0536	0.86	<0.500	<0.0050	733	<0.0050	<0.0050	0.132	11.4	12.8	0.0418	1280	5960	10200	0.0254
QNT	SJGS	Qal/Qnt	5/5/2025	760	<0.0100	1.39	<0.0050	314	1470	<0.0200	0.0017	0.183	3.43	<1.00	<0.0050	624	0.168	0.0082	0.0774	159	<20.0	0.0583	4210	9370	18200	0.0761
M3.2	SJGS	Qcrmsa	5/5/2025	490	<0.0100	1.1	<0.0050	420	260	<0.0200	0.0121	0.0515	5.52	<0.500	<0.0050	842	3.67	0.0147	0.15	0.026	<10.0	0.016	1280	6090	10300	0.0678
M3.1	SJGS	Qcrmsa	11/13/2024	236	0.003	0.71	<0.001	307	166	<0.004	0.0034	0.0204	1.01	<0.1	<0.001	240	0.0027	0.0033	0.0299	3.48	7.59	0.0359	417	1910	3680	0.0136
M3.3	SJGS	Qcrmsa	11/13/2024	740	<0.009	2.08	<0.0045	460	655	<0.0180	0.0038	0.233	2.38	<0.450	<0.0045	550	0.0087	<0.0045	0.121	0.673	12.8	0.0535	4340	11000	18800	0.0827
G3	SJM	Kf	12/19/2024	1600	<0.005	1.3	<0.001	2	350	<0.001	<0.01	<0.01	2.4	<0.03	0.0001	1	<0.01	<0.005		0.07	3	<0.001	1100	278	2650	<0.001
KF2	SJM	Kf	12/17/2024	630	<0.005	0.6	<0.001	368	767	<0.005	<0.01	<0.01	1	<0.06	0.0004	600	0.33	0.005		32	18	0.002	6560	15200	24000	0.08
SA1	SJM	Kf	12/17/2024	620	<0.005	0.8	<0.001	277	1140	<0.005	<0.01	<0.01	0.5	<0.1	<2e-04	192	0.98	<0.005		0.04	17	<0.005	5480	10900	18000	0.022
GA	SJM	Kpc	12/18/2024	2600	<0.005	1.3	<0.001	2	754	<0.001	<0.01	<0.01	2.8	<0.03	<1e-04	1	<0.01	<0.005		0.15	4	0.066	1710	61	4100	<0.001
KPC2	SJM	Kpc	9/17/2024	400	<0.005	1.2	<0.001	387	3320	<0.001	<0.01	0.27	1	<0.03	<1e-04	597	0.5	0.005		0.03	23	<0.001	10000	22100	38400	0.003
KPC3	SJM	Kpc	12/19/2024	360	<0.005	1.3	<0.001	29	1620	<0.002	<0.01	<0.01	1.9	<0.06	0.0003	14	0.04	<0.005		<0.01	7	0.002	3270	4170	9200	<0.001
KPC4	SJM	Kpc	12/18/2024	620	<0.005	1.3	<0.001	337	3540	<0.01	<0.01	<0.01	0.6	<0.2	0.001	500	0.54	<0.005		0.06	17	0.046	10200	19300	30600	0.001
KPC5	SJM	Kpc	12/18/2024	430	<0.005	1.1	<0.001	27	1790	<0.002	<0.01	<0.01	2.2	<0.06	0.0004	16	0.05	<0.005		0.16	8	0.003	4580	6600	13300	<0.001
GC	SJM	Qal/Qnt	12/16/2024	530	<0.005	0.3	<0.001	472	27	<0.002	<0.01	<0.01	0.4	<0.06	0.0011	130	<0.01	<0.005		0.57	10	<0.005	1660	4470	7050	0.016
GD	SJM	Qal/Qnt	12/17/2024	710	<0.005	2.3	<0.001	371	2800	<0.002	<0.01	<0.01	1.1	<0.06	0.0007	353	0.95	<0.005		26.6	9	0.011	4690	7820	16500	0.043
GE	SJM	Qal/Qnt	12/19/2024	660	<0.005	1	<0.001	443	3320	<0.01	<0.01	<0.01	1.3	<0.2	0.002	1170	<0.01	<0.005		0.95	16	<0.005	8260	18900	31900	0.1
GL	SJM	Qal/Qnt	12/19/2024	970	<0.005	1.3	<0.001	456	5110	<0.01	<0.01	<0.01	2.2	<0.2	0.001	1370	0.28	0.011		1.23	16	<0.005	16300	33900	55600	0.241
WWA1	SJM	Qal/Qnt	12/17/2024	480	<0.005	3.9	<0.001	493	582	<0.001	<0.01	<0.01	1	<0.03	<1e-04	325	0.06	<0.005		12.4	4	<0.005	1680	4520	7980	0.04
WWA2	SJM	Qal/Qnt	12/17/2024	520	<0.005	4.2	<0.001	519	560	<0.001	<0.01	<0.01	0.7	<0.03	0.0008	367	0.09	<0.005		26	7	0.016	1760	5030	8770	0.041
SM16	SJM	Qcrmsa	12/16/2024	990	<0.005	1.9	<0.001	140	1890	<0.002	<0.01	<0.01	2.3	<0.06	0.001	161	0.05	0.007		7.43	2	<0.005	4370	6720	13700	0.056
SM5	SJM	Qcrmsa	12/16/2024	1200	<0.005	2	<0.001	236	2280	<0.005	<0.01	<0.01	0.6	1.9	<5e-04	186	0.62	0.008		0.02	28	<0.001	7620	13500	24900	0.002
SM6	SJM	Qcrmsa	12/16/2024	710	<0.005	1.8	<0.001	283	2650	<0.002	<0.01	<0.01	1.8	<0.06	0.001	190	0.19	0.006		13.7	3	0.001	4170	5820	13300	0.043

Table 3.5 Water Chemistry Results for Monitoring Wells

		Parameter		Alkalinity, Total as CaCO3	Arsenic	Boron	Cadmium	Calcium	Chloride	Chromium	Cobalt	Copper	Fluoride	Iron	Lead	Magnesium	Manganese	Molybdenum	Nickel	Nitrate/Nitrite as N	Potassium	Selenium	Sodium	Sulfate	Total Dissolved Solids	Uranium
		Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Site	Area	Geologic Unit	Sample Date																							
SM7	SJM	Qcrmsa	9/19/2024	320	0.005	33.3	<0.001	429	872	<0.001	0.02	<0.01	0.8	0.05	<1e-04	60	1.8	0.104		0.64	33	<0.001	5520	11400	18700	0.017
NMED-3-PNM	Downgradient SJGS	Qal/Qnt	6/11/2025	900	<0.0041	0.98	<0.0087	460	2700	<0.015	<0.017	<0.0030	<4.6	0.36	<0.0034	1100	0.46	<0.031	0.02	93	22	0.025	5900	13000	24000	0.072
NMED-3-NMED	Downgradient SJGS	Qal/Qnt	6/11/2025	836	<0.004	0.804	<0.002	446	2520	<0.004	0.00314	0.00141	<10	0.0645	<0.02	1130	0.779	0.00768	0.0196	82.2	22	0.0198	5680	13700	18900	0.118
NMED-4A-PNM	Memorial RS	Qal/Qnt	6/8/2025	1100	0.00096	3.7	<0.017	440	2600	<0.030	<0.033	0.0023	<0.46	0.14	<0.00034	700	0.88	<0.063	0.16	11	4.9	0.0031	5500	12000	21000	0.11
NMED-4A-NMED	Memorial RS	Qal/Qnt	6/8/2025	946	<0.004	3.1	<0.002	386	2430	0.000703	0.00494	0.00234	<50	0.0303	<0.02	608	0.799	0.00626	0.123	<10	4.42	0.00142	5870	12400	15100	0.165
NMED-4B-PNM	Memorial RS	Kpc	6/5/2025	700	0.0014	1.8	<0.017	490	7000	<0.030	<0.033	0.0014	<0.46	1.1	<0.00034	810	2.4	<0.063	0.081	<1.1	24	0.003	12000	18000	38000	0.074
NMED-4B-FD-PNM	Memorial RS	Kpc	6/5/2025	700	0.0024	2	<0.017	520	7100	<0.030	<0.033	0.00077	<0.46	1.7	<0.00034	840	2.3	<0.063	0.09	<1.1	22	0.0045	12000	18000	37000	0.1
NMED-4B-NMED	Memorial RS	Kpc	6/5/2025	662	<0.004	1.7	<0.002	381	7220	<0.004	0.00555	<0.004	<25	0.0467	<0.02	671	2.09	0.0264	0.0657	<5	19.1	0.00177	14100	18800	39600	0.216
RTWE2	Memorial RS	Qal/Qnt	5/5/2025	1040	<0.0300	2.92	<0.0150	390	3130	<0.0600	0.0041	0.299	1.22	<1.50	<0.0150	756	0.0249	<0.0150	0.172	9.44	<30.0	0.0523	7150	12300	26500	0.156
RTWS1	Memorial RS	Qal/Qnt	5/5/2025	740	<0.0200	1.58	<0.0100	384	2520	<0.0400	0.0028	0.208	0.984	<1.25	<0.0100	607	0.085	<0.0100	0.106	1.96	<25.0	0.0341	5020	10300	19900	0.0995
RTWW2	Memorial RS	Qal/Qnt	5/5/2025	640	<0.0200	1.56	<0.0100	364	1860	<0.0400	<0.0020	0.18	1.19	<1.00	<0.0100	503	0.2	<0.0100	0.0812	1.69	<20.0	0.0288	4410	8960	17200	0.0806
RTW	Memorial RS	Qal/Qnt	2/19/2025	1070	<0.0250	3.62	<0.0125	373	3660	<0.05	0.0036	0.275	1.22	<0.750	<0.0125	692	0.251	<0.0125	0.144	6.42	<15	0.0324	6620	13700	26900	0.149
NMED-5A-PNM	Shumway RS	Qal/Qnt	6/7/2025	900	0.0011	2.4	<0.0017	450	1800	<0.0030	<0.0033	0.0061	0.93	<0.0093	<0.00034	930	0.79	<0.0063	0.073	<0.20	11	0.003	5000	12000	22000	0.077
NMED-5A-NMED	Shumway RS	Qal/Qnt	6/7/2025	821	<0.004	2.14	<0.002	385	1710	0.000867	0.00289	0.00585	<50	0.0147	<0.002	790	0.894	0.00808	0.0845	<10	10.5	0.000835	5100	12400	14000	0.120
NMED-5B-PNM	Shumway RS	Kpc	6/9/2025	790	0.0022	1.2	<0.0017	390	5300	<0.0030	0.0048	0.014	<0.46	2.6	0.001	490	4.7	0.021	0.025		24	0.0027	6100	9200	21000	0.027
NMED-5B-NMED	Shumway RS	Kpc	6/9/2025	799	0.000814	1.1	<0.002	332	4910	<0.004	0.0109	0.0118	<10	0.0135	<0.02	420	3.97	0.0307	0.0263	<2.0	20.7	0.000592	6140	4850	22500	0.059302
Wet Well	Shumway RS	Qal/Qnt	5/5/2025	610	<0.0100	1.11	<0.0050	326	887	<0.0200	0.0014	0.115	1.46	<0.750	<0.0050	474	<0.0050	<0.0050	0.0463	0.474	<15.0	0.0162	2710	6810	12100	0.0489
BA-304	Shumway RS	Qal/Qnt	6/12/2025	745	<0.0200	1.45	<0.0100	442	1340	<0.0400	0.003	0.14	1.47	<0.500	<0.0100	694	0.89	<0.0100	0.0856	<0.020	11.1	<0.0200	4560	9210	18000	0.0858
BA-305	Shumway RS	Qal/Qnt	6/13/2025	855	<0.0200	1.26	<0.0100	406	2060	<0.0400	0.0036	0.185	1.39	<0.500	<0.0100	692	2.91	0.0175	0.0832	<0.020	15.1	0.0213	5930	11900	23100	0.13
BA-306	Shumway RS	Qal/Qnt	6/14/2025	745	<0.0200	0.986	<0.0100	370	1670	<0.0400	0.0038	0.184	1.21	<0.500	<0.0100	687	0.718	0.0141	0.0811	0.095	11.7	0.0217	5520	9470	19900	0.135

Notes

CaCO3 = calcium carbonate

N = nitrogen

mg/L = milligrams per liter

FD = field duplicate

SJGS = San Juan Generating Station

SJM = San Juan Mine

RS = recovery system (groundwater)

Kf = Cretaceous Fruitland Formation

Qal = Quaternary Alluvium

Qnt = Quaternary Naha and Tsegi eolian deposits (undifferentiated)

Kpc = Cretaceous Pictured Cliffs Sandstone

Qcrmsa = Quaternary covered and reclaimed mine spoils and/or ash

Table 3.6 PFAS Results for NMED Wells

	Site	NMED-01	NMED-03	NMED-04A	NMED-04B	NMED-04B-FD	NMED-05A	NMED-05B
	Sample Date	6/13/2025	6/13/2025	6/12/2025	6/10/2025	6/10/2025	6/12/2025	6/13/2025
Parameter	**Units**							
Perfluorobutanoic acid (PFBA)	ng/L	<1	**9.1**	**7.5**	<0.99	<0.99	**2.2**	**1.3**
Perfluoropentanoic acid (PFPeA)	ng/L	<0.55	**1.9**	<0.53	<0.54	<0.54	<0.54	<0.54
Perfluorohexanoic acid (PFHxA)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	**1.1**
Perfluoroheptanoic acid (PFHpA)	ng/L	<0.73	<0.99	<0.71	<0.72	<0.72	<0.72	<0.72
Perfluorooctanoic acid (PFOA) (USEPA MCL = 4 ng/L)	ng/L	**1.9**	**1.7**	<0.79	<0.81	<0.81	<0.81	<1.1
Perfluorononanoic acid (PFNA) (USEPA MCL = 10 ng/L)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	<0.45
Perfluorodecanoic acid (PFDA)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	<0.45
Perfluoroundecanoic acid (PFUnA)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	<0.45
Perfluorododecanoic acid (PFDoA)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	<0.45
Perfluorotridecanoic acid (PFTrDA)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	<0.45
Perfluorotetradecanoic acid (PFTeDA)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	<0.45
Perfluorobutanesulfonic acid (PFBS)	ng/L	<0.46	**1.4**	**4.1**	<0.45	**0.55**	**2.8**	**1.9**
Perfluoropentanesulfonic acid (PFPeS)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	<1.3
Perfluorohexanesulfonic acid (PFHxS) (USEPA MCL = 10 ng/L)	ng/L	<0.73	<0.71	<0.71	<0.72	<0.72	<0.72	<0.97
Perfluoroheptanesulfonic acid (PFHpS)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	<0.45
Perfluorooctanesulfonic acid (PFOS) (USEPA MCL = 4 ng/L)	ng/L	<1.2	<1.1	<1.1	<1.2	<1.2	<1.2	<1.2
Perfluorononanesulfonic acid (PFNS)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	<0.45
Perfluorodecanesulfonic acid (PFDS)	ng/L	<0.44	<0.44	<0.43	<0.45	<0.45	<0.44	<0.45
Perfluorododecanesulfonic acid (PFDoS)	ng/L	<0.53	<0.53	<0.51	<0.54	<0.54	<0.52	<0.54
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ng/L	<0.92	<0.88	<0.88	<0.9	<0.9	<0.9	<0.9
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ng/L	<0.92	<0.88	<0.88	<0.9	<0.9	<0.9	**6.3**
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ng/L	<0.92	<0.88	<0.88	<0.9	<0.9	<0.9	<0.9
Perfluorooctanesulfonamide (PFOSA)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	<0.45
N-methylperfluorooctane sulfonamide (NMeFOSA)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	<0.45
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	<0.45
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	<0.45
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	<0.45
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ng/L	<2.3	<2.2	<2.2	<2.3	<2.3	<2.3	<2.2
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ng/L	<3.7	<3.5	<3.5	<3.6	<3.6	<3.6	<3.6

Table 3.6 PFAS Results for NMED Wells

	Site	NMED-01	NMED-03	NMED-04A	NMED-04B	NMED-04B-FD	NMED-05A	NMED-05B
	Sample Date	6/13/2025	6/13/2025	6/12/2025	6/10/2025	6/10/2025	6/12/2025	6/13/2025
Parameter	**Units**							
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ng/L	<1.3	<1.2	<1.2	<1.3	<1.3	<1.3	<1.3
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	<0.45
Perfluoro-3-methoxypropanoic acid (PFMPA)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	<0.45
Perfluoro-4-methoxybutanoic acid (PFMBA)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	<0.45
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	<0.45
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ng/L	<0.46	<0.44	<0.44	<0.44	<0.47	<0.45	<0.45
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ng/L	<0.44	<0.44	<0.43	<0.45	<0.45	<0.44	<0.45
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ng/L	<0.46	<0.44	<0.44	<0.45	<0.45	<0.45	<0.45
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ng/L	<0.92	<0.88	<0.88	<0.9	<0.9	<0.9	<0.9
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ng/L	<2.6	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ng/L	<2.3	<2.2	<2.2	<2.3	<2.3	<2.3	<2.2

Notes

FD = field duplicate

USEPA = United States Environmental Protection Agency

MCL = Maximum Contaminant Level

ng/L = nanograms per liter

Table 4.1 Proposed Sampling and Analysis of Soil and Water

Investigation Area (Section)	Figure	Sampling Method	Target Media	Potential Contaminant Category	Methods of Analysis
Ash Handling (4.2.1)	4.1	Hand auger / scoop (DPT/HSA if necessary)	Surface soil (0–6 in)	CCR	• Metals (3050B/6010/6020) • Radium-226/228 (EMSL-19) • Mercury (7471B) • Sulfate, chloride, fluoride (ASTM D3987-85/300) • PAHs (8270D)
Incidental Coal/Ash Deposition east of Units 1-4 (4.2.2)	4.1	Hand auger / scoop (DPT/HSA if necessary)	Surface soil (0–6 in)	Coal/CCR	• Metals (3050B/6010/6020) • Radium-226/228 (EMSL-19) • Mercury (7471B) • Sulfate, chloride, fluoride (ASTM D3987-85/300) • PAHs (8270D) • PCBs (8082) • Dioxins and furans (1613B or 8290A) • PFAS (1633)
Coal Storage Piles (4.2.2)	4.1	Hand auger / scoop (DPT/HSA if necessary)	Surface soil (0–6 in)	Coal	• Metals (3050B/6010/6020) • Radium-226/228 (EMSL-19) • Mercury (7471B) • Sulfate, chloride, fluoride (ASTM D3987-85/300)
Previous VOC Detection Areas (4.2.4)	4.2	PSV screening; DPT or HSA	Screening in Surface soil (0–1 ft); soil (0–10 ft)	VOCs	• Screening with TO-17 (includes targeted VOCs and SVOCs) • If necessary, VOCs (8260) • If necessary, TPH (8015)
Vehicle Maintenance and Wash Bay (4.2.4)	4.3	PSV screening; DPT or HSA	Screening in Surface soil	VOCs / SVOCs	• Screening with TO-17 (includes targeted VOCs and SVOCs)

Investigation Area (Section)	Figure	Sampling Method	Target Media	Potential Contaminant Category	Methods of Analysis
			(0–1 ft); soil (0–10 ft)		• If necessary, VOCs (8260) • If necessary, TPH (8015) • If necessary, PAHs (8270D)
Laboratory (4.2.4)	4.3	PSV screening; DPT or HSA	Screening in Surface soil (0–1 ft); soil (0–10 ft)	VOCs	• Screening with TO-17 (includes targeted VOCs and SVOCs) • If necessary, VOCs (8260) • If necessary, TPH (8015)
Diesel Fuel/Gas UST & Previous PCE Detection Area (4.2.4)	4.3	PSV screening; DPT or HSA	Screening in Surface soil (0–1 ft); soil (0–10 ft)	VOCs / SVOCs	• Screening with TO-17 (includes targeted VOCs and SVOCs) • If necessary, VOCs (8260) • If necessary, TPH (8015) • If necessary, PAHs (8270D)
Bulk Used Oil Area (4.2.4)	4.4	PSV screening; DPT or HSA	Screening in Surface soil (0–1 ft); soil (0–10 ft)	VOCs / SVOCs	• Screening with TO-17 (includes targeted VOCs and SVOCs) • If necessary, VOCs (8260) • If necessary, TPH (8015) • If necessary, PAHs (8270D)
Hazardous Waste Storage (4.2.4)	4.5	PSV screening; DPT or HSA	Screening in Surface soil (0–1 ft); soil (0–10 ft)	VOCs	• Screening with TO-17 (includes targeted VOCs and SVOCs) • If necessary, VOCs (8260) • If necessary, TPH (8015)

Investigation Area (Section)	Figure	Sampling Method	Target Media	Potential Contaminant Category	Methods of Analysis
South Fuel Unloading and Diesel Fuel AST (4.2.4)	4.5	PSV screening; DPT or HSA	Screening in Surface soil (0–1 ft); soil (0–10 ft)	VOCs / SVOCs	• Screening with TO-17 (includes targeted VOCs and SVOCs) • If necessary, VOCs (8260) • If necessary, TPH (8015) • If necessary, PAHs (8270D)
North Fuel Unloading and Diesel Fuel AST (4.2.4)	4.6	PSV screening; DPT or HSA	Screening in Surface soil (0–1 ft); soil (0–10 ft)	VOCs / SVOCs	• Screening with TO-17 (includes targeted VOCs and SVOCs) • If necessary, VOCs (8260) • If necessary, TPH (8015) • If necessary, PAHs (8270D)
Construction Debris Landfill (4.2.5)	4.7	PSV screening	Screening in Surface soil (0–1 ft)	VOCs	• Screening with TO-17 (includes targeted VOCs and SVOCs)
Laydown Area (4.2.5)	4.7	Hand auger / scoop	Surface soil (0–6 in)	Mixed	• Metals (3050B/6010/6020) • Mercury (7471B) • PCBs (8082) • TPH (8015)
Arroyo Sediments upgradient of SJGS, near Memorial Recovery System, and near Shumway Recovery System (4.2.6)	1.2, 3.3	Hand auger / scoop	Surface soil (0–6 in)	Coal/CCR	• Metals (3050B/6010/6020) • Radium-226/228 (EMSL-19) • Mercury (7471B) • Sulfate, chloride, fluoride (ASTM D3987-85/300) • SPLP (1312/6010/6020)
Groundwater and Surface Water (4.3, 4.5)	1.2, 3.3, 4.8	Pumps or bailers (groundwater) / Grab	Groundwater / surface water	Coal/CCR	• Hydrologic tracers (stable oxygen and hydrogen isotopes of water; sulfur and oxygen isotopes of dissolved sulfate;

Investigation Area (Section)	Figure	Sampling Method	Target Media	Potential Contaminant Category	Methods of Analysis
		samples (surface)			nitrogen and oxygen isotopes of dissolved nitrate) • Routine DP analytes
Groundwater (NMED and proposed wells) (4.3, 4.5)	3.3, 4.8	Pumps or bailers	Groundwater	Coal/CCR	• Non-DP constituents (antimony, barium, beryllium, silver, thallium) (6010/6020) • Mercury (1631) • Radium-226/228 (EMSL-19) • Cyanide (335.4)

Notes
AST = aboveground storage tank
CCR = coal combustion residuals
DP = discharge permit
DPT = direct push technology
ft = feet
HAS = hollow stem auger
in = inches
NMED = New Mexico Environment Department
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
PCE = tetrachloroethene
PFAS = per- and polyfluoroalkyl substances
PSV = passive soil vapor
SJGS = San Juan Generating Station
SPLP = Synthetic Precipitation Leaching Procedure
SVOC = semi-volatile organic compound
TPH = total petroleum hydrocarbon
UST = underground storage tank
VOC = volatile organic compound

INTERA

Table 4.2 Proposed Monitoring Well Details

Well Name	Description	Geologic Unit	Latitude	Longitude	Estimated Total Depth	Planned Screen	Planned Drilling Method
Units			NAD 83 Decimal Degrees	NAD 83 Decimal Degrees	ft bgs	ft	
SHW-1	upgradient of Westwater-Shumway confluence	Qal/Qnt	36.781534	-108.433444	40	10 - 20	Hollow Stem Auger or Sonic
SHW-1D	upgradient of Westwater-Shumway confluence	Kpc	36.781585	-108.433383	90	10 - 20	Air Rotary or Sonic
SHW-2	upgradient of Recovery System eastern side	Qal/Qnt	36.776859	-108.431262	40	10 - 20	Hollow Stem Auger or Sonic
SHW-3	upgradient of Recovery System western side	Qal/Qnt	36.777255	-108.433403	40	10 - 20	Hollow Stem Auger or Sonic
SHW-4	downgradient of Shumway Recovery System western side	Qal/Qnt	36.776621	-108.433762	40	10 - 20	Hollow Stem Auger or Sonic
SHW-5	downgradient of Shumway Recovery System eastern side	Qal/Qnt	36.776229	-108.431993	40	10 - 20	Hollow Stem Auger or Sonic
WWU-1	Westwater Arroyo north of Site	Qal/Qnt	36.817867	-108.4358000	34	10 - 20	Hollow Stem Auger or Sonic
WWU-1D	Westwater Arroyo north of Site	Kpc	36.817867	-108.4358000	50	10 - 20	Air Rotary or Sonic
RA-1	downgradient of Raw Water Reservoir	Qal/Qnt	36.784797	-108.441211	20	10 - 20	Hollow Stem Auger or Sonic
RA-2	downgradient of Raw Water Reservoir	Qal/Qnt	36.7847	-108.440531	20	10 - 20	Hollow Stem Auger or Sonic

Notes

ft bgs = feet below ground surface

ft = feet

Qal = Quaternary alluvium

Qnt = Quaternary Naha and Tsegi eolian deposits (undifferentiated)

Kpc = Cretaceous Pictured Cliffs Sandstone

*Ultimate screen length will depend upon the conditions observed during drilling

APPENDIX A

Site-Specific Health and Safety Plan

Site-Specific Health and Safety Plan

San Juan Generating Station

Stage 1 Abatement Plan

San Juan County, New Mexico

Prepared for:



Public Service Company of New Mexico
414 Silver Ave. SW
Albuquerque, NM 87102

Prepared by:



INTERA Incorporated
2440 Louisiana Blvd. NE, Suite 700
Albuquerque, NM 87110

NOVEMBER 2025

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Attachment F Venomous Snake Safety Information
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Acronyms and Abbreviations

ANSI	American National Standards Institute
BBS	Behavior-Based Safety
CCR	coal combustion residuals
CFR	Code of Federal Regulations
CHSO	Chief Health and Safety Officer
CHSP	Corporate Health and Safety Program
COC	contaminant of concern
COVID-19	coronavirus infection
CPR	cardiopulmonary resuscitation
DOT	Department of Transportation
FGD	flue gas desulfurization
FSP	Field Safety Plan
ft	foot/feet
H_2S	hydrogen sulfide
HazCom	Hazard Communication
HAZWOPER	Hazardous Waste Operations and Emergency Response
HCL	Hazardous Chemical List
IDLH	Immediately Dangerous to Life or Health
INTERA	INTERA Incorporated
JSA	Job Safety Analysis
LO/TO	lockout/tagout
NIOSH	National Institute for Occupational Safety and Health
NMED	New Mexico Environment Department
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
PFAS	per- and polyfluoroalkyl substances
PID	photoionization detector
PM	Project Manager
PNM	Public Service Company of New Mexico
PPE	Personal Protective Equipment
ppm	parts per million
S1AP	Stage 1 Abatement Plan
SAP	Sampling and Analysis Plan
SCBA	Self-Contained Breathing Apparatus
SDS	Safety Data Sheet
Site	San Juan Generating Station
SJGS	San Juan Generating Station
SJM	San Juan Mine
SO_2	sulfur dioxide
SOP	Standard Operating Procedure
SOW	scope of work
SSHASP	Site-Specific Health and Safety Plan
SSL	Soil Screening Level
SSO	Site Safety Officer

TPH	total petroleum hydrocarbons
VOC	volatile organic compound

SAN JUAN GENERATING STATION STAGE 1 ABATEMENT PLAN

SITE-SPECIFIC HEALTH AND SAFETY PLAN

INTERA Incorporated (INTERA)'s Site-Specific Health and Safety Plan (SSHASP) is a dynamic document that is subject to change during the performance of the INTERA scope of work (SOW) designed for the San Juan Generating Station (Site) located in San Juan County, New Mexico (**Figure 1.1**). Details regarding INTERA's SOW are provided below in **Section 1.2**. INTERA is providing these services to Public Service Company of New Mexico (PNM).

The purpose of this SSHASP is to protect personnel involved in ongoing activities at the Site. All INTERA personnel involved in activities at the Site must review this SSHASP and sign the Personnel Acknowledgment Form (**Form 1**) prior to beginning work at the Site. INTERA subcontractor personnel must also review this SSHASP and sign the Personnel Acknowledgment Form (**Form 1**) prior to beginning work at the Site, as applicable. Applicable INTERA subcontractors are listed below in the following table.

Project management personnel are identified in the following table along with contact information.

Table 1-1 Project Contact Information

INTERA CONTACT INFORMATION		
Program Manager	Name – INTERA – TBD	Phone Number
Project Manager	Name – INTERA – TBD	Phone Number
Site Safety Officer	Name – INTERA – TBD	Phone Number
Alternate Site Safety Officer	Name – INTERA – TBD	Phone Number
Field Team Leader	Name – INTERA – TBD	Phone Number
INTERA Chief Health and Safety Officer	Noreen Baker – INTERA	(512) 425-2023 (512) 663-8319 (cell)
INTERA Director of Health and Safety	Carla Jean "CJ" Wilkinson – INTERA	(979) 575-8078 (cell)
Albuquerque Branch Health and Safety Coordinator	Brian Archuleta – INTERA	(505) 553-2156 (cell)
CLIENT CONTACT INFORMATION		
Client Company Name	Contact Name – Client Project Manager	Phone Number
Client Company Name	Contact Name – Client Field Supervisor	Phone Number
INTERA SUBCONTRACTOR CONTACT INFORMATION		
Subcontractor Company Name	Contact Name – Title	Phone Number
OTHER CONTACT INFORMATION		
Company Name	Contact Name – Title	Phone Number

COMMUNITY OUTREACH CONTACT NUMBERS:		
Name	**Title**	**Contact Number**
TBD	INTERA Project Manager	Phone Number
TBD	Client Project Manager	Phone Number

REVISION HISTORY			
Revision #	**Revision Date**	**Prepared by/Reviewed by**	**Revision Summary**
0	11/21/2025	B. Archuleta/K. Flores & B. Kimball	Initial release. Since this is generated in conjunction with a draft S1AP, there are still some details to work out and are listed as "to be determined" (TBD). This SSHASP will be revised once those details are known.
NOTE: SSHASP has been prepared in accordance with applicable provisions of the Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) 1910.120.			
INTERA Project No.: PNMRS.M002.SJGS			

1.0 Site Location and Description

Site Address/Location:

The **San Juan Generating Station** is a decommissioned coal-fired electric power plant located by its coal source, the San Juan Mine, near Waterflow, New Mexico, between Farmington and Shiprock in San Juan County, New Mexico (**Figure 1.1**).

The Site is located approximately 3 miles north of Waterflow, NM and US-64 by way of local road 6800 which can be seen in the Site Plan.

Approximate Site coordinates: 36°47'53.79"N 108°26'22.98"W

Site Description:

PNM's San Juan Generating Station (SJGS), located in San Juan County, New Mexico, was an 1,828-megawatt coal-fired generating station that began operating in 1973 and ceased operations in 2022. The SJGS is currently undergoing demolition. The subbituminous coal used at the SJGS was sourced from the San Juan Mine (SJM) located directly to the east of the SJGS (**Figure 1.1**). The SJM is a former coal mine that began surface mining operations in 1973 and shifted to underground operations in 2002 (Daniel B. Stephens & Associates, 2025). The SJM also ceased operations in 2022. The coal combustion residuals (CCR) produced at the SJGS consisted of fly ash, bottom ash, and flue gas desulfurization (FGD) material. CCR material was removed from the SJGS and buried in surface mine pits at the SJM.

Historical operations at both the SJM and the SJGS have impacted shallow groundwater in the region (Stewart, 2018). As a result, two shallow groundwater recovery systems have been installed at locations approximately 1 mile and 1.5 miles downgradient of the SJGS. The term "Site" in this Stage 1 Abatement Plan (S1AP) refers to the SJGS, the Raw Water Reservoir located approximately 1 mile southwest of the SJGS, the western portion of the SJM, and the two shallow, downgradient groundwater recovery systems (**Figure 1.1**). While historical activities from both the SJM and the SJGS have likely impacted soils and groundwater, this S1AP focuses specifically on potential impacts associated with the SJGS. This S1AP describes what is currently known about the magnitude and extent of potential contamination at the Site and proposes further work to better understand the magnitude and extent of potential contamination from SJGS operations.

In the event of an emergency that requires evacuation of the Site, the evacuation assembly point is designated as **main Site entrance** as described in **Section 8.0, Site Emergency Response Plan**. Additional information regarding emergency response protocols is provided in **Section 6.0, Emergency Contacts List** and **Section 7.0, Hospital Route Map**. Field personnel should become familiar with the information in these sections prior to the start of field work so that personnel are prepared to act quickly and efficiently in the event of an emergency.

1.1 Site History

The SJGS was a 1,828-megawatt coal-fired power generation facility located in San Juan County, New Mexico, that commenced operations in 1973 and ceased operations in 2022. The facility is currently undergoing demolition, with completion anticipated in 2026. Historically, coal was supplied from the adjacent SJM, and CCRs—including fly ash, bottom ash, and FGD material—were managed primarily through return to the mine for backfill. Site operations, water management infrastructure, and materials handling practices over nearly five decades have resulted in localized impacts to shallow groundwater and near-surface soils.

Review of available groundwater data indicates that, within the SJGS area, impacts are limited to the groundwater system in Quaternary sediments (alluvium and eolian deposits) and the Fruitland Formation bedrock, with no evidence of vertical migration into the deeper Pictured Cliffs Sandstone. To address impacts to groundwater, two shallow groundwater recovery systems—the Memorial Recovery System (installed 2008) and the Shumway Recovery System (installed 2020)—currently operate to control the downgradient migration of impacted shallow groundwater within the Quaternary alluvium and eolian deposits of the Westwater and Shumway Arroyos.

Recent soil and sediment characterization conducted by a third party in 2024 and by the New Mexico Environment Department (NMED) (with split sampling by PNM) in 2025 identified detections of metals and metalloids, volatile and semi-volatile organic compounds, and petroleum hydrocarbons below NMED industrial and construction worker Soil Screening Levels (SSLs). Limited exceedances of the twenty-times dilution-attenuation factor SSL for arsenic, cobalt, and iron were observed in discrete samples; however, these exceedances are not considered indicative of significant soil-to-groundwater mobility given the site's semi-arid conditions and the sorptive behavior of these constituents. Additional investigation is warranted to evaluate potential presence of per- and polyfluoroalkyl substances (PFAS) and to further delineate organic and inorganic constituents of potential concern.

1.2 Tasks To Be Performed Under This SSHASP

The following provides a summary of INTERA's tasks associated with this project. Specific project objectives and detailed task information are provided in the following project document(s): **Stage 1 Abatement Plan San Juan Generating Station**. Additional information on the conduct of specific tasks is provided in the appropriate INTERA Standard Operating Procedures (SOPs). Refer to **Section 5.12** for additional information on applicable SOPs. All tasks performed by INTERA are covered by this SSHASP. If applicable, INTERA subcontractor tasks covered under this SSHASP are also included in the task list below. Additional tasks may be handwritten into this list as they are added to the project scope. These tasks include:

- Shallow soil (0 to 6 inches) sample collection by scoop or hand auger
- Soil (0 to 10 feet [ft]) sample collection by direct push technology or hollow stem auger
- Installation and collection of passive soil vapor samplers
- Soil sampling for:
    - metals (including mercury)
    - radium-226 & radium-228
    - leachable sulfate, chloride, and fluoride
    - polycyclic aromatic hydrocarbons
    - polychlorinated biphenyls (PCBs)
    - dioxins and furans
    - per- and polyfluoroalkyl substances (PFAS)
    - volatile organic compounds (VOCs) and semi-volatile organic compounds
    - total petroleum hydrocarbons (TPH) including gasoline range organics, diesel range organics, and motor oil range organics; this sampling will include field use of a photoionization detector (PID)
- Installation of new groundwater monitoring wells into shallow (~0 to 50 ft) Quaternary sediments and deeper (~50 to 150 ft) bedrock of sandstone or shale
- Groundwater sampling for:
    - Routine water quality including field parameters and major and trace elements (metals included)
    - Total mercury
    - Radium-226 and radium-228
    - Stable isotopes of oxygen and hydrogen in water
    - Sulfur and oxygen isotopes of sulfate in dissolved sulfate
    - Nitrogen and oxygen isotopes of dissolved nitrate

1.3 Site-Specific Hazards and Chemicals of Concern

Site-specific physical, chemical, and biological hazards are discussed below. Additional details are provided below in **Section 4.0** and in task-specific job safety analyses.

Physical

- Site Status: active closure mode
- Facility decommissioning activities
- Heavy mobile equipment operations

- Simultaneous operations
- Drilling operations
- Potential buried and overhead utilities

Chemical

Known or suspected contaminants of concern (COCs) at the site are as follows:

- VOCs
- Heavy metals
- TPH
- PCBs
- PFAS

Potential activities that are likely to involve direct contact with wastes or COCs include:

- Handling investigation derived waste,
- Decontaminating equipment,
- Collecting soil, soil gas, sediment, surface water, and/or groundwater samples, and
- Preparing soil, soil-gas, sediment, surface water, and/or groundwater samples for shipment.

Chemicals that are currently in use at the Site or will be brought to the Site by either INTERA, INTERA subcontractors, or other subcontractors during conduct of the SOW to which site personnel could be exposed are discussed in **Section 5.8** as part of the Hazard Communication Program.

Biological

Coronavirus infection (COVID-19) remains a potential biological hazard. The spread of COVID-19 can be mitigated by following established general hygiene protocols including hand washing and monitoring your health for signs of illness. **DO NOT COME TO WORK SICK.** If you begin to feel sick at work, maintain a social distance of six (6) feet between you and your coworkers and notify your Site Safety Officer (SSO) and/or Project Manager (PM) immediately to determine the plan for moving forward. If you test positive for COVID-19 and require medical attention, please notify the Chief Health and Safety Officer (CHSO).

Other biological hazards may include insects and rattlesnakes.

2.0 Roles and Responsibilities

The responsibilities of the INTERA Project Management team are outlined below. Personnel have the authority **and responsibility** to stop an activity if it is being performed in a hazardous manner. If an employee believes that he or she is being asked to perform work in an unsafe environment, that employee is authorized to decline the request and alert the PM, SSO, Branch Office Health and Safety Coordinator, or the CHSO to the details surrounding the unsafe environment.

Program Manager (if applicable) – Responsible for the overall execution of the project and project budget.

Project Manager (PM) – Responsible for any changes to the SOW and oversight of general operations of the project on a day-to-day basis. PM responsibilities include the following:

- Assign a Site Safety Officer for the Site.
- Ensure that a Job Safety Analysis (JSA) has been completed for each task prior to beginning work on that task.
- Work with the Site Safety Officer and/or INTERA CHSO to develop and revise this SSHASP, as necessary.
- Review the completed SSHASP or designate a qualified individual to conduct the review, as appropriate.
- Review revisions to this SSHASP or designate a qualified individual to conduct the review, as appropriate.
- Supervise the implementation of the approved SSHASP with assistance from the INTERA CHSO, Site Safety Officer, and/or a Branch Health and Safety Coordinator.
- Assign personnel to the Site and verify that assigned personnel are properly trained and are current with respect to OSHA 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training and annual 8-hour refresher training in accordance with OSHA regulation 29 CFR 1910.120 for general site workers.
- Verify that assigned personnel have current First Aid, cardiopulmonary resuscitation (CPR), and Bloodborne Pathogens training.
- Verify that personnel assigned to the Site are current and comply with necessary respirator training, fit-testing requirements, and medical monitoring, as appropriate for job requirements.
- Assist the Site Safety Officer in assessing and providing proper personal protective equipment (PPE) and other health and safety equipment for the project.
- Confirm that the project is performed in a manner consistent with this SSHASP.
- Monitor conduct/behavior of INTERA personnel (and subcontractor personnel, as appropriate) for compliance with this SSHASP.
- Report incidents, including property or environmental damage, and near misses to the INTERA CHSO.

Deputy Project Manager (if applicable) – Serves as the Project Manger when the main Project Manager is absent and performs any of the above responsibilities, as necessary.

Site Safety Officer (SSO) – Responsible for on-site health and safety as well as the safety of work operations and procedures. The SSO is responsible for reporting safety and health concerns to the Project Manager and the INTERA CHSO. SSO responsibilities include the following:

- Coordinate with Project Manager as required in matters of health and safety.
- Develop this SSHASP in coordination with the Project Manager.
- Work with the Project Manager and other field personnel to complete a JSA for each field task.
- Implement this SSHASP in coordination with the Project Manager, INTERA CHSO and/or a Branch Office Health and Safety Coordinator.
- Work with the Project Manager and other field personnel to modify this SSHASP prior to conducting new field tasks not currently covered under this SSHASP.

- In coordination with the Project Manager, determine appropriate PPE for the Site tasks to be performed and provide the appropriate PPE to field personnel. Also responsible for providing other health and safety equipment for the project, as appropriate, such as drinking water and sunshades.
- Direct health and safety activities on Site, including the implementation and maintenance of a site-specific Hazard Communication (HazCom) Program.
- Conduct a kick-off health and safety meeting to discuss the health and safety topics covered in this SSHASP. Solicit input from drilling subcontractor, as applicable, to cover health and safety topics related to drilling procedures (e.g., review of kill switch locations, when it is safe to approach the rig, procedures for geologic sample collection, etc.). Input from other subcontractors will also be solicited, as applicable. The kick-off safety meeting will be documented using **Form 2**.
- Conduct a health and safety meeting prior to the start of work each day, at the start of each shift change, and at the beginning of each new task. These meetings are often referred to as "daily safety meetings" or "tailgate safety meetings" and will include a review of relevant routine health and safety topics, JSA review, review of any items related to health and safety that occurred during the previous day or on the previous shift, a discussion of health and safety issues for the specific tasks at hand along with associated PPE, and will solicit any health and safety observations or input from field personnel and subcontractors. Daily/tailgate safety meetings will be documented using **Form 2**.
- Monitor INTERA employees and subcontractor personnel for compliance with the current and approved SSHASP.
- Maintain health and safety equipment on-site, as specified in this SSHASP.
- Maintain a log of Site visitors.
- Inform Site visitors as to on-site procedures, conditions, and hazards before allowing visitors to enter the Site.
- Implement emergency action and evacuation procedures, as necessary, in response to Site conditions and events.
- Make PPE exceptions for site personnel based on site-specific information such as air monitoring data, visual observations, and weather data/observations in coordination with PM and INTERA CHSO.
- Suspend work or otherwise limit exposure to personnel if the SSHASP appears to be unsuitable or inadequate.
- Direct personnel to change work practices or remove personnel from the project if their actions or condition endangers their health and safety or the health and safety of co-workers.
- Report incidents, including property or environmental damage, and near misses to the Project Manager and the INTERA CHSO.

Alternate SSO (if applicable) – Serves as the SSO when the main SSO is absent and performs any of the above responsibilities, as necessary.

INTERA Chief Health and Safety Officer (CHSO) – Responsible for developing, implementing, maintaining, and evaluating the INTERA Corporate Health and Safety Program (CHSP). Responsibilities include serving as the plan/program administrator for the various plans and programs in the CHSP, assisting Project Managers in assessing site hazards, supporting the development and evaluation of SSHASPs, and assisting employees in obtaining and maintaining the training necessary to perform their tasks.

Branch Office Health and Safety Coordinator – Responsible for representing the INTERA CHSO at the local level, assisting project managers in assessing hazardous sites, supporting the development and evaluation of SSHASPs, and assisting employees in obtaining and maintaining the training necessary to perform their tasks.

3.0 Comprehensive Plan for Site Safety

INTERA considers the prevention of illness, injury, and accidents in the workplace to have greater importance than any other facet of the work. Safety shall always take precedence over expediency or shortcuts, and every attempt shall be made to reduce the possibility of injury, illness, or accident occurrence. Site activities shall be conducted in accordance with the established safety regulations of the OSHA and other applicable Federal, State, County, and City regulations. The requirements and actions summarized in the following sections will be completed by INTERA and INTERA subcontracted personnel (as necessary). Personnel must sign the Site Personnel Acknowledgment Form included as **Form 1** indicating that they have read and understood this SSHASP. This SSHASP does not cover any activities that the client, or personnel subcontracted to the client, may perform at the Site without INTERA involvement.

INTERA subcontractors are responsible for having their own Health and Safety Plan/Program. Subcontractors working in the field are required to provide a copy of their Health and Safety Plan to the INTERA PM as part of INTERA's Subcontractor Management Plan. Subcontractors will also be provided with a copy of this SSHASP, and subcontractor personnel in the field are required to sign **Form 1**. Subcontractors are also responsible for complying with applicable OSHA regulations, and subcontractors will be monitored for compliance with applicable OSHA regulations as well as for compliance with applicable INTERA SSHASP requirements.

The training and medical surveillance requirements described in the following sections apply to INTERA employees and INTERA subcontractor employees.

3.1 Health and Safety Training Requirements

Site personnel must have completed the 40-hour OSHA 1910.120 HAZWOPER training and must be current on their 8-hour HAZWOPER refresher training. This training includes general training for hazard recognition, use of site monitoring instruments, and use of PPE. Equivalent training may be acceptable but must be approved by the Project Manager and INTERA CHSO. Site personnel are also required to have completed a minimum of three days of field work under the direct supervision of a trained, experienced supervisor before they will be allowed to engage in hazardous substance removal or other activities that have the potential to expose workers to hazardous substances and health hazards.

Per OSHA, on-site project managers and site supervisors will have completed at least eight additional hours of specialized training at the time of job assignment on such topics as, but not limited to, the employer's safety and health program and the associated employee training program, PPE program, spill containment program, and health hazard monitoring procedure and techniques.

Site personnel will have current training in first aid, bloodborne pathogens, and CPR. Personnel entering or attending to a person entering a confined space must be trained in accordance with 29 CFR 1910.146. Site personnel must also have completed hydrogen sulfide (H_2S) awareness training for sites where H_2S is known or suspected to occur.

Personnel will not be allowed to work or supervise work at the Site until they have received the necessary project training for the level of their job responsibilities. Complete copies of certification documents recording that Site personnel have had the necessary training will be kept by the INTERA CHSO and Branch Office Health and Safety Coordinator, as applicable. Copies of these documents will be provided to the Client upon request.

Emergency response by Site personnel is limited to their extent of training. Medical emergencies beyond general first aid and fire emergencies will be handled by trained Emergency Medical or Fire Personnel.

3.2 Medical Surveillance

At a minimum, participation in INTERA's medical surveillance program is required for the following employees:

- All employees who are or may be exposed to hazardous substances or health hazards at or above the established permissible exposure limit, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year.
- All employees who wear a respirator for 30 days or more a year. Employees will be required to have completed medical surveillance within the last year before they will be allowed to complete a respirator fit test, and the respirator fit test must be completed before field work requiring the use of respirators can commence.
- All employees who are injured, become ill or develop signs or symptoms due to possible overexposure in the workplace involving hazardous substances or health hazards from an emergency response or hazardous waste operation.

Refer to the CHSP for additional activities that also require employee participation in INTERA's medical surveillance program. INTERA field personnel who do not meet the above requirements are also given the option of participating in INTERA's medical surveillance program at no cost to themselves.

Employees participating in the medical surveillance program will receive a medical examination by a physician at least once every 12 months. This examination must certify that the employee is fit to work around hazardous substances and is fit to use appropriate respiratory protection equipment required to perform job responsibilities.

3.3 Incident Prevention Program

An incident is any work-related accident, injury, illness, or fatality where an event or exposure in the work environment either caused or contributed to the condition or significantly aggravated a pre-existing condition. The term incident also includes any work-related property and environmental damage. INTERA's belief is that incidents can and should be prevented, and INTERA values and encourages employee involvement in the process of providing a safe and healthy working environment for our employees, subcontractors, and clients and in the effort to protect the public, Client assets and property, and the environment. INTERA's incident prevention program is detailed in the following sections.

3.3.1 Health and Safety Meetings

Site personnel (INTERA personnel, subcontractors, and site visitors) are required to participate in health and safety meetings as follows:

- Prior to the start of work at each new project/site. This meeting is referred to as the Kickoff Safety Meeting and will be documented using **Form 2**.
- Prior to the start of work each day.
- At the start of each shift change.
- Prior to conducting a new task that was not covered by a previous health and safety meeting.

The last three types of health and safety meetings are often referred to as either "tailgate safety meetings" or "daily safety meetings". The term Tailgate Safety Meeting will be used hereafter, and these meetings will also be documented using **Form 2**.

The Kickoff Safety Meeting should discuss the health and safety topics covered in this SSHASP including, but not limited to, known hazards at the Site, required PPE, and emergency procedures such as evacuation routes, communication procedures and contact numbers, and hospital locations. Input from the drilling subcontractor will be solicited, if applicable, to cover health and safety topics related to the drill rig. These topics may include a review of kill switch locations, when it is safe to approach the rig, procedures for geologic sample collection,

hearing protection, and communication techniques under loud conditions. Input from other subcontractors will also be solicited, as applicable. Personnel must sign **Form 2** at the conclusion of the Kickoff Safety Meeting.

Tailgate Safety Meetings are meant to review the relevant health and safety concerns specific to each day, shift, or new task. Topics to be reviewed include, but are not limited to, items related to health and safety that occurred during the previous day or on the previous shift, a discussion of health and safety issues for the specific tasks at hand along with associated PPE, special equipment to be used on-site for that day/shift (if any), any changes with regard to chemical or physical hazards, mobile phone availability, emergency procedures, and other topics as necessary. Health and safety observations or input from field personnel and subcontractors will also be solicited. Personnel must sign **Form 2** at the conclusion of the Tailgate Safety Meeting.

3.3.2 Hazard Recognition and Reporting

All INTERA personnel have the authority to stop an activity if it is being performed in a hazardous manner. If an employee believes that he or she is being asked to perform work in an unsafe environment, that employee is authorized to decline the request. Every employee has the right and responsibility to communicate their health and safety concerns to management and to implement changes to work procedures where needed to reduce injury and illness exposures in the workplace.

Each time a new task is started at the Site, a Job Safety Analysis (JSA) will be completed prior to commencement of the task. JSAs are completed using **Form 3 - Job Safety Analysis and Personal Protective Equipment Worksheet**. A new JSA will not need to be created each time the task is to be repeated (i.e., a JSA for groundwater sampling will be filled out prior to the first sampling event, and field personnel will review the JSA at the beginning of each subsequent sampling event but will not need to recreate the JSA).

Additional details on the job safety analysis process and on preparation of JSAs can be found in **Appendix 12 - Job Safety Analysis and Personal Protective Equipment Plan** of the **Corporate Health and Safety Program**. Completed JSAs, as well as blank forms, are provided under **List of Forms**. The following JSAs have been developed for the tasks covered by this SSHASP and will be reviewed and signed by field personnel prior to conduct of the associated task:

- This JSA list will be updated when the task-specific Sampling and Analysis Plan (SAP) is developed
- Example: Loading/Unloading-Travel-Site Visit
- Example: Drilling Oversight with Sampling
- Example: Groundwater/Soil Sampling
- Example: Passive Soil Vapor Sampling

3.3.3 Behavior-Based Safety Program

The Behavior-Based Safety (BBS) Program is a safety audit process that helps personnel identify and choose a safe behavior over an unsafe one. This process is designed to open communication lines between personnel to reinforce safe behaviors and correct unsafe behaviors to eliminate incidents, including accidents and illnesses. BBS Audits can be performed by any field personnel who are observing other field personnel (i.e., if there is a team of two personnel doing groundwater sampling, one person may do an audit by watching the other person perform the sampling). Safety in the workplace is based on the following components:

- A specific person's physical capabilities, experience, and training.
- The environment the specific person works in including engineering controls, equipment available for the task, and the job task itself.
- The specific person's behavior while performing the task.

The BBS Program is based on behavioral observations by someone not involved in the task, a review of the observations (both safe and unsafe behaviors), positive reinforcement on the safe behaviors, non-threatening feedback on the unsafe behaviors, and improvement goals. These observations provide direct, measurable information on safe work practices.

Specific instructions on how to perform a BBS Encounter can be found in **Appendix 13 - Behavior-Based Safety Program** of the **Corporate Health and Safety Program.** BBS Encounter Forms for use in the field are available as **Form 4**. Completed BBS Encounter Forms will be kept in this SSHASP and reviewed occasionally by the INTERA CHSO to confirm that safe behaviors are being continued. A BBS Encounter should be performed for each task a minimum of once a year. Complicated tasks or tasks performed on a regular basis should have more frequent BBS Encounters.

3.3.4 Incident Investigation

An incident is any work-related injury, illness, or fatality where an event or exposure in the work environment either caused or contributed to the condition or significantly aggravated a pre-existing condition. The term incident also includes any work-related property and environmental damage. A near miss is any work-related action or event that did not result in injury, illness, or damage, but given a slight shift in time or position, illness, injury, or damage could have occurred. Near misses often precede loss-producing incidents but may be overlooked because there was no harm. Near misses should be considered red flag warnings of what could have happened. Recognizing and reporting near misses provides an opportunity to identify and control hazards, reduce risk, and prevent future incidents. Reporting of near misses is not designed to single out workers for wrongdoing and may be reported anonymously, if desired.

All incidents, including property and environmental damage, and near misses must be reported IMMEDIATELY (after ensuring that all personnel are safe and receiving necessary medical care) by the affected employee(s) to the Project Manager or Site Safety Officer. If it is a fatality, or the affected employee is incapacitated, another employee will report the incident as a substitute for the affected employee. Employees who fail to report incidents may be subject to disciplinary action as described in **Appendix 8** of the INTERA CHSP.

All incidents and near misses must be reported to the INTERA CHSO by management personnel as follows:

- IMMEDIATELY (after ensuring that all personnel are safe and receiving necessary medical care) for any OSHA **reportable** incident or any OSHA **recordable** incident.
- BY THE END OF THE WORK SHIFT for any property or environmental damage.
- WITHIN 48 HOURS for all incidents that are neither recordable or reportable, and
- WITHIN 48 HOURS for a near miss.

The **Incident Investigation Report Form** (**Form 5a**) will be used to report incidents and to guide the investigation into the root cause and contributing factors of the event. Further information about incident reporting can be found in **Appendix 3** of the CHSP. In addition, near misses will be reported using INTERA's **Near-Miss Report Form** (**Form 5b**).

Section 1 of **Form 5a** or **Form 5b** should be completed by employees who were either involved in the incident or near miss or who witnessed the event along with the relevant Supervisor or Project Manager. Information from **Section 1** will then be used by the incident investigator to guide the investigation into the root cause and contributing factors of the incident or near miss, and the results of the investigation will be recorded in **Section 2**.

The first section of **Form 5a** or **Form 5b** will be filled out according to the following schedule:

- WITHIN 24 HOURS of any recordable incident; and
- WITHIN 48 HOURS for a near miss or property or environmental damage.

Section 2 of **Form 5a** and **Form 5b** will be completed within 5 days of implementation of corrective actions.

Incidents that occur at a client-owned site will be reported to the client by the Project Manager or the CHSO. The client may have a different incident reporting form, and in most cases, both INTERA's form and the client's form may need to be filled out. A copy of INTERA's completed **Incident Investigation Report Form** will be provided to the client after it is finalized, as appropriate.

3.4 Site Control

Site control might be controlled by fencing and gates. Gates are to remain closed and/or locked unless otherwise specified. A guard shack (or similar) may be present at the start of activities. If so, it is likely that all personnel will have to enter and/or check in with the guard upon arrival/departure. The Site is currently undergoing decommissioning activities so the Site layout, facilities, and infrastructure will likely be changing during the duration of the tasks outlined in the SSHASP. This SSHASP shall be revised to adequately document any of these changes as needed and communicated with Site personnel.

Visits to project sites by personnel not directly involved in tasks identified in the project work plan are discouraged. Persons designated as "Site visitors" will sign in on the Site Visitor Log (included as **Form 6**) and will be briefed by the SSO as to Site procedures, conditions, and hazards before entering the Site. Site visitors shall provide their own PPE as required for the area that they are visiting and shall be expected to follow applicable procedures and protocols. Site visitors will be asked to remain in the Clean Zone unless accompanied by INTERA personnel.

3.5 Transportation of Site Materials

Known or potentially contaminated materials and/or hazardous materials generated during implementation of the activities described herein shall be managed by field personnel according to the procedures specified in the site-specific Work Plan/SAP/Field Safety Plan (FSP). Contaminated materials and/or free product generated during site activities shall be disposed of properly via a subcontractor using the proper chain of custody protocols as required by regulations for disposal of hazardous or non-hazardous waste.

Off-site transportation of any contaminated or potentially contaminated Site materials in company or rental vehicles is **NOT** allowed other than as environmental samples collected for characterization purposes and contained in appropriate sample containers. To prevent risks to the health and safety of laboratory personnel, laboratory directors or contacts shall be informed of contaminant levels in collected samples that require special handling procedures upon transfer of sample custody.

Shipping of hazardous materials will only be done if absolutely necessary, will be done in strict compliance with Department of Transportation (DOT) shipping regulations, and will **ONLY** be done by employees with current DOT shipping training in accordance with 49 CFR 172.704. Refer to **INTERA SOP 24, Shipment of Hazardous Materials** for additional instructions regarding shipment of hazardous materials.

3.6 Good Housekeeping

Typical good housekeeping procedures that should be followed at all field sites include the following:

- Keep the site clean and neat by picking up tools, trash, and equipment.
- Keep trip hazards out of work zone such as coolers or other unused sampling equipment.
- Avoid bringing unnecessary tools and equipment into the work zone.

Site litter may be transported offsite by INTERA as part of good housekeeping procedures.

4.0 Site Hazards

4.1 Physical Hazards

Numerous physical hazards may be present at any site; proper attention to site-specific details is crucial for developing a realistic and representative list of potential physical hazards. All personnel have the authority and responsibility to stop an activity if it is being performed in a hazardous manner. If an employee believes that he or she is being asked to perform work in an unsafe environment, that employee is authorized to decline the request. Field personnel shall follow the **Site Emergency Response Plan** as detailed in **Section 8.0** and shall report any new hazards to the SSO and/or to the INTERA CHSO, so steps can be taken to mitigate the hazard.

A list of potential physical health and safety hazards associated with the activities at the Site are provided in **Table 4-1**.

Table 4-1 Potential Physical Hazards

Potential Hazard	Source of Potential Hazard	Hazard Mitigation Control
Heat or cold stress	• Adverse weather conditions can occur any time of the year • PPE such as respirators, gloves, and protective clothing can exacerbate heat stress	• For heat stress, drink plenty of fluids and be aware of potential heat stress conditions. Notify SSO or PM of any adverse physical conditions before and during the task. • For heat stress, observe a work/rest schedule and take breaks when necessary. • For cold stress, wear sufficient cold weather clothing. • Use the buddy system and say something if someone around you looks like they are suffering from heat or cold stress. • See **Attachment A - Heat and Cold Stress Casualty Prevention Plan** for more information.
Slip, trip, and fall hazards	• Construction zone conditions, debris, uneven ground and/or wet ground. • Unstable slopes, unprotected excavations/holes	• Be aware of surroundings while working and do not leave equipment on the ground in work areas. • Step carefully and do not rush.
Straining and pinching hazards	• Working around machinery and equipment (including drill rigs) • Rushing too quickly to finish a task	• Make sure that you have the proper training for the job. • Be aware of your surroundings and know the hazards of the machinery or equipment you are using. • See **Attachment B - Health and Safety Requirements for Drilling Operations.** • See **Attachment C - Health and Safety Requirements for Heavy and Light Equipment**. • Slow down and take the time necessary to do the job safely. • Make sure that vehicles are in proper working order.

Table 4-1 Potential Physical Hazards

Potential Hazard	Source of Potential Hazard	Hazard Mitigation Control
Ultraviolet radiation	• Sun • Welding flame	• Wear sunscreen, long sleeves, long pants, and field hats to minimize sun exposure. • Do not look at a welding flame unless wearing welding glasses.
Automobile and pedestrian accidents	• Traveling on paved roads to get to the Site • Traveling on dirt roads to get to a work location • Working around heavy equipment • Excessive speed • Driver distraction	• Be aware of your surroundings and designate standing and working areas that are away from driving areas. • See **Attachment C - Health and Safety Requirements for Heavy and Light Equipment**. • Complete **Form 7 - Personal Vehicle Safety Inspection Checklist**, when using personal vehicle on field projects. • Ensure that vehicles are in proper working order. • When at job sites, remember the largest vehicle has the right-of-way. • **DO NOT** text or send emails on cell phones while driving. Pull over to a safe location before using a cell phone. • Talking on a cell phone is discouraged. Urgent calls may be taken if it is legal, and the phone and vehicle are connected by Bluetooth so that the call can be completed handsfree. • Follow the guidelines established in **Attachment 6 of the CHSP**.
Head injuries	• Overhead hazards • Heavy equipment	• Wear a hard hat when working around overhead hazards. • Always be aware of overhead hazards.
Falling from heights	• Working at heights	• Field personnel will be harnessed and anchored when working at heights above 6 feet or where there is a danger of falling.
Noise hazards	• Operation of heavy equipment (including drill rigs) • Traffic • Operation of equipment (generators, blowers, pumps, compressors, etc.)	• Wear appropriate hearing protection for the job. • Hearing protection must be worn when the 8-hour time-weighted average noise level reaches or exceeds 85 decibels. • Various decibel measuring apps are available for use on cell phones and will be used to measure noise at the job site. • In general, if you must raise your voice for someone to hear you at arm's length, you should be wearing hearing protection.

Table 4-1 Potential Physical Hazards

Potential Hazard	Source of Potential Hazard	Hazard Mitigation Control
Electric shock	• Heavy equipment, including drill rig malfunction or incorrect use • Remediation system equipment malfunction or incorrect use • Buildup of static electricity • Drilling near overhead or buried electric lines while still energized	• Inspect equipment prior to use. • Follow correct procedures for discharging energy prior to repair or maintenance as described in the Lockout/Tagout Program in **Section 5.9**. • Consider all electric lines to be energized unless the power company is on-site to verify shutoff with lockout/tagout procedures. Drilling or raising the mast within 20 feet of overhead power lines is not allowed. • See **Attachment B - Health and Safety Requirements for Drilling Operations**.
Fire	• Steel cutting, brazing, welding, and other activities that generate heat, sparks, or open flames • Vehicles parked in dry grass • Presence of flammable chemicals	• Performing activities that generate heat, sparks, or open flames in windy conditions or near ignitable materials is **NOT** allowed. • Subcontractors shall notify INTERA if activities that could generate fire shall be performed. • A Hot Work Permit (**Form 8**) shall be requested from INTERA prior to performing these tasks, and the established procedures described in **Section 5.10** shall be followed.
Whipping Hoses and fluid burns	• Release of pressurized hydraulic or pneumatic lines	• Inspect hoses regularly for exposed reinforcement wires, leaks, damaged or corroded fittings, excessive dirt or grease buildup, and missing guards, shields, and clamps.
Lightning strikes	• Working during thunderstorms	• If lightning is heard, the "30-30" rule should be employed – if the time between the lightning and thunder is 30 seconds or less, work should **STOP**, and shelter should be found. This rule corresponds to a distance of approximately 6 miles. Work should not resume until 30 minutes or more has passed from hearing the last thunder. • If the lightning cannot be seen but thunder is heard, then it is likely that lightning is within striking range. • Various weather apps on cell phones can also be used to track distance of the nearest lightning strike. • The nearest acceptable shelter is usually inside a vehicle. If moving to a vehicle is not immediately practical, the "lightning crouch" should be employed. This involves squatting on the ground with feet together and head tucked while covering one's ears.
Trench or excavation collapse	• Unsafe trenching or excavation side slopes	• INTERA will follow OSHA guidelines regarding sloping and benching in open excavations (Section 1926.650, Subpart P, Appendix B, Sloping and Benching). A copy of the OSHA guidelines regarding sloping and benching is included in **Attachment D**.

Table 4-1 Potential Physical Hazards		
Potential Hazard	**Source of Potential Hazard**	**Hazard Mitigation Control**
Engulfment and falling	• Ground subsidence into old mine workings	• Be aware of your surroundings. • Don't wander into unfamiliar areas. • Avoid driving off designated roads.
Fatigue	• Working long hours	• Take rest breaks when needed. • Do not drive while fatigued. • Do not exceed a 12-hour workday including driving to/from Site.
Space below is provided for hazards identified during conduct of field work.		
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	•	•

4.2 Chemical Hazards

Personnel and Site visitors may be exposed to chemical hazards through four routes of exposure: inhalation, ingestion, skin contact, and eye contact. Ingestion of chemical hazards shall be controlled by prohibiting eating, drinking, or smoking in the immediate vicinity of the work area and any known hazardous chemicals, and by requiring all field personnel to wash hands (and face, if necessary) before eating, drinking, or smoking.

Contact with chemical hazards through the four exposure routes can cause serious burns, rashes, irritations, or bodily harm. Field personnel shall follow the **Site Emergency Response Plan** as detailed in **Section 8.0** and shall report any skin, eye contact, or other exposure symptoms to the SSO or the Project Manager, so steps can be taken to provide medical care and eliminate the potential for similar exposures events. Project management will report exposure incidents to the INTERA CHSO as detailed in **Section 3.3.4**.

The best assurance of protection against hazardous chemicals is avoidance. Whenever possible, Site personnel shall avoid direct contact with contaminated (or potentially contaminated) surfaces. Workers shall not kneel or place equipment on potentially contaminated ground. If contact is unavoidable in order to perform a required task, potential hazards are minimized by using appropriate PPE to protect against exposure to toxic materials.

A list of potential chemical hazards associated with the activities at this Site is provided below in **Table 4-2**. Chemicals that are brought on Site by INTERA or INTERA subcontractors are part of the HazCom Program. INTERA will confirm that subcontractors have Safety Data Sheets (SDSs) for all chemicals that they bring to and use onsite. The HazCom Program can be found in **Appendix 7** of the **Corporate Health and Safety Program**, and the Hazardous Chemicals List, Safety Data Sheets, and/or National Institute for Occupational Safety and Health (NIOSH) Guide to Chemical Hazards Sheets are provided in **Attachment E**.

Table 4-2 Potential Chemical Hazards

Potential Hazard	Source of Potential Hazard	Hazard Mitigation Control
Chemical burns	• Spills or other contact with preservatives in groundwater sampling bottles	• Wear appropriate PPE (nitrile gloves, eye protection). • Avoid skin contact with preservatives. • Wash hands before eating, drinking, or applying cosmetics/sunscreen. • Avoid tipping over preservative bottles before they are filled with sample water.
Release of fuels (gasoline, diesel, oil) or other chemicals	• Spills that occur during fueling or when lubricating equipment and vehicles • Spills from equipment malfunction or on-site accidents	• Fuel or lubricate equipment in a designated area where appropriate spill preventions are in place. • Be prepared to clean up contamination resulting from accidental spills. This includes having proper absorbent material available for use. • Wear appropriate PPE if involved in spill cleanup (nitrile gloves at a minimum).

Table 4-2 Potential Chemical Hazards		
Potential Hazard	**Source of Potential Hazard**	**Hazard Mitigation Control**
Contaminated soils, sediments, or other similar media	• Potential known or unknown contaminated soils within the work area • Dusty working conditions	• Wear appropriate PPE (nitrile gloves, dust mask, etc.). • Limit exposure to known contaminated areas. • Discontinue work if extremely dusty conditions persist. • Be aware of unusual odors and ground color while excavating. • Wash hands before eating, drinking, or applying cosmetics/sunscreen.
Contaminated groundwater, surface water, or other similar media	• Exposure to heavy metals or other contaminants in groundwater • Ingestion or skin contact with groundwater	• Wear appropriate PPE (nitrile gloves, eye protection). • Avoid skin contact with groundwater. • Wash hands before eating, drinking, or applying cosmetics/sunscreen. • Avoid spilling filled sample bottles. • Be aware of purge water location.
Hydrogen Sulfide (H_2S) gas	• H_2S is a possible hazard based on the location and the depth of the planned drilling project. • The work area is in an area of oil and gas production where H_2S is known to exist and poses a health hazard.	• H_2S is a colorless denser than air gas with a strong odor of rotten eggs. Sense of smell will become rapidly fatigued and is **NOT** a reliable warning for the presence of dangerous levels of H_2S. • Personnel should be aware of the potential presence of H_2S in their field area during ALL site activities. • A properly calibrated direct read H_2S monitor worn in the breathing zone is required during all site activities. • Air monitoring shall provide the information necessary to determine the appropriate level of PPE. • Refer to **Section 5.4** for additional details on the air monitoring protocol. • The SDS for H_2S is located is **Attachment E**. Refer to special warning and procedures in the following paragraphs below.
Drilling Mud and/or Additives	• Drilling fluids • Drilling operations • Decontamination or maintenance activities	• Avoid skin contact with drilling fluids. • Wash hands before eating, drinking, or applying cosmetics/sunscreen. • Have water on-hand to flush affected area if exposure occurs. • SDSs for drilling mud/additives are included in **Attachment E**.
Space below is provided for hazards identified during conduct of field work.		
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Table 4-2 Potential Chemical Hazards		
Potential Hazard	**Source of Potential Hazard**	**Hazard Mitigation Control**
	•	•

Special Warning and Procedure - Hydrogen Sulfide

H_2S is a colorless, flammable, extremely hazardous gas with a "rotten egg" smell. The odor is only detectable at low concentrations; however, continuous exposure to low concentrations of the gas or exposure to high concentrations of the gas will cause loss of ability to detect the smell of H_2S. Therefore, the odor cannot be used as a warning sign for H_2S. Effects of exposure to H_2S are discussed below in the bullet list. For reference, the OSHA Permissible Exposure Limit–Time-Weighted Average concentration is 20 parts per million (ppm), the American Conference of Governmental Industrial Hygienists short-term exposure limit is 15 ppm, and the Immediately Dangerous to Life or Health (IDLH) concentration is 100 ppm.

- Exposure to low concentrations of H_2S can result in irritation to the eyes, nose, and throat or respiratory system. Effects can be delayed.
- Exposure to moderate concentrations of H_2S can result in more severe eye and respiratory effects, headache, dizziness, nausea, and vomiting, coughing and breathing difficulty.
- Exposure to high concentrations of H_2S can result in shock, convulsions, coma, inability to breath and death. Effects can be extremely rapid (within a few breaths).

H_2S is heavier than air; therefore, it will collect in low areas such as ditches and drainage systems. Hydrogen sulfide is readily dispersed by air currents and when possible, work should be performed from an upwind direction. H_2S is flammable and explosive. The Lower Explosive Limit for H_2S is 4% which corresponds to 40,000 ppm. Fire resistant or fire-retardant clothing is required for site work when H_2S is detected on any H_2S monitor on Site at a concentration of 10 ppm or greater. Combustion of H_2S produces the toxic gas sulfur dioxide (SO_2) another colorless gas with a foul odor.

H_2S is also known as:

- Sour Gas
- Rotten Egg Gas
- Sulfurated Hydrogen.

If the high H_2S monitor alarm sounds (**10 ppm or higher**), INTERA will observe the following procedure:

- Hold breath.
- Check wind direction using windsock or other wind indicator (e.g., flags, survey tape tied to truck antennae, etc.).
- Move upwind or crosswind and gather at the evacuation assembly area.
- Check status of other personnel (buddy system).
- Call 911, INTERA PM and INTERA CHSO.
- Perform First Aid and CPR on personnel in evacuation assembly area, as required.
- Notify SSO and/or PM.
- Remain at evacuation assembly area until otherwise instructed by safety personnel.

NOTE: INTERA personnel are **NOT** authorized or trained to perform rescue operations or any other work that requires use of a respirator of any kind regarding elevated H_2S.

Special Warning and Procedure – Petroleum Products

Fuel oils are generally low in toxicity, have low volatility, and are not readily absorbed through the skin; however, they may cause skin irritation, or "dermatitis", upon contact. Waste oils may contain certain cancer-causing components such as heavy metals and oil derivatives which can be absorbed through the skin.

Gasoline is considered more toxic than oils; it has relatively high volatility, and certain components are readily absorbed through the skin. Gasoline contains certain components, such as benzene, which are classified as potential carcinogens.

The symptoms of inhalation over-exposure to petroleum products include dizziness, loss of coordination, general malaise, headaches, and nausea. If any of these symptoms occur, the project manager and the nearest hospital should be contacted. The dangers associated with over-exposure to petroleum products should be acknowledged and taken seriously.

4.3 Biological Hazards

Numerous types of pests and organisms may be present at the Site. A list of potential biological health and safety hazards associated with the activities at the Site is provided in **Table 4-3**.

Table 4-3 Potential Biological Hazards

Potential Hazard	Source of Potential Hazard	Hazard Mitigation Control
Poisoning or allergic reaction	• Stinging or biting insects (bees, wasps, spiders) • Venomous snakes • Poisonous plants	• Avoid exposing hands or other body parts to cool, dark areas where these pests are known to dwell. • Use caution opening equipment or well vaults and other cool, dark enclosures, especially anything that has been sitting unopened for extended periods of time. • Do not intentionally approach snakes or insects. Move away slowly to avoid agitating the biological hazard, if possible. Inform appropriate parties to have hazard removed, if necessary. • Use insect repellant, as appropriate if mosquitos, ticks, chiggers, or other biting insects are present. • Know how to recognize and avoid poisonous plants such as poison ivy. Wear gloves and wash exposed flesh with soap and water as soon as possible if exposure is suspected. • Rattlesnakes may be present at the site – additional information on venomous snakes is provided in **Attachment F.**
Bite lacerations	• Feral or domestic animals and livestock • Rodents • Reptiles	• Avoid exposing hands or other body parts to cool, dark areas where animals such as snakes and rodents are known to dwell. • Use caution when walking in rocky terrain where reptiles could be hiding. • Avoid contact with feral or domestic animals and livestock. • Contact authorities if an unrestrained animal is exhibiting aggressive behavior toward Site personnel.

Table 4-3 Potential Biological Hazards		
Potential Hazard	**Source of Potential Hazard**	**Hazard Mitigation Control**
Exposure to Hanta Virus or Plague	• Contact with rodents or rodent excrement • Agitating dried rodent urine or droppings greatly increases the potential for exposure	• Areas with visible evidence of rodent activity and excrement should be avoided. • If avoidance is not possible, it is important to **NOT** stir up dust - do not sweep or vacuum up droppings, urine, or nesting materials. While wearing a dust mask and latex or nitrile gloves, spray with a mixture of 1-part bleach to 10-parts water. Use paper towels to collect the excrement and place in a trash bag.
Exposure to unknown biological pathogens	• Medical waste in landfill • Blood-borne pathogen exposure from an injury	• Avoid direct contact with known landfill waste whenever possible. If contact is unavoidable while performing a required task, minimize potential hazards by using appropriate PPE to protect against exposure. • Site personnel will be up to date on first aid and blood-borne pathogen training.
COVID-19	• From surfaces and persons.	• Sanitize equipment and hands. • Monitor health; do not report to work if sick.
Space below is provided for hazards identified during conduct of field work.		
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5.0 Site Health & Safety Procedures

Field personnel should have reviewed this SSHASP prior to arrival at the Site. Upon arrival at the Site and prior to start of work, the SSO or other supervisory personnel will lead a Kickoff Safety Meeting. The following topics should be covered during the Kickoff Meeting:

- Discussion of the Site's history.
- Discussion and identification of Site work zones and control measures such as high traffic areas, PPE, and location of emergency equipment.
- Emergency evacuation procedures and location of evacuation assembly area. Note wind direction if that may affect the location of the evacuation assembly area.
- Identification of "shut-off" switches located on any equipment to be used and familiarization with their use.
- Discussion of the location and use of the nearest phone(s).
- Review of emergency procedures and the location of the nearest hospital. **The Hospital Route Map(s)** are included in **Section 7.0**.
- Personnel must sign the Site Personnel Acknowledgment Form included as **Form 1** indicating that they have read and understood this SSHASP.
- Personnel must also sign **Form 2** indicating attendance and participation in the Kickoff Safety Meeting.

General good housekeeping practices to be followed at the Site are as follows:

- If necessary, ONE CALL Notification should be completed at least two days prior to beginning Site work. Location of power, gas, phone, and cable lines will be verified with the individual utility departments.
- A Tailgate Safety Meeting shall be conducted prior to the start of work each day, at the start of a new shift and at the beginning of each new task. Field personnel (INTERA and any associated subcontractors) will attend this health and safety meeting to review the safety concerns at the Site. Topics to be reviewed include, but are not limited to, items related to health and safety that occurred during the previous day or on the previous shift, a discussion of health and safety issues for the specific tasks at hand along with associated PPE, special equipment to be used on-site for that day/shift (if any), any changes with regard to chemical or physical hazards, mobile phone availability, emergency procedures, and other topics as necessary. Health and safety observations or input from field personnel and subcontractors will also be solicited. Personnel will sign **Form 2** at the conclusion of Tailgate meeting.
- Proper PPE shall be selected for the work to be performed (see **Section 5.1**).
- Bottled water and eye-wash solution shall always be available on-site for use as an eye wash and for use when administering first aid. Personnel are responsible for bringing drinking water to the Site to prevent dehydration (wash hands and/or face before drinking). Electrolyte drinks or tablets are encouraged for field personnel who will be exposed to extreme heat for extended periods of time.
- A first aid kit will be in the field vehicle for use during work activities, and any injuries shall be reported to the SSO, Project Manager, and INTERA CHSO IMMEDIATELY once site is secure and threat of immediate danger is over, and personnel are safe and/or receiving medical care, as appropriate.
- A telephone (cell phone is acceptable) for emergency situations must be easily accessible and in working order when performing any type of fieldwork. All site workers shall be made aware of the location of a telephone each day before work activities begin. If cell phone service at the Site is limited, workers must be aware of the nearest location where cell service is known to work.

5.1 Safety Equipment

To provide a better understanding about how to properly protect the head, eyes, skin, feet, and respiratory system, this subsection discusses general safety equipment and PPE. The SSO has the authority to make PPE

exceptions for Site personnel if he/she deems it is in the best interest of the field personnel's wellbeing. Such a PPE exception (i.e., modification to the guidance laid out in this SSHASP) shall be based on Site-specific information such as air monitoring data, visual observations, and weather data/observations. An example of such a modification to the SSHASP is a decrease in the use of hard hats, or poorly breathable clothing if heat stress is a primary concern during Site activities and the use of the PPE was intended for a low-risk precaution. The SSO shall not make a PPE exception/modification if personnel shall be without the protection needed to be safe or to properly protect their health. If it appears that proposed and readily available PPE is inadequate, Site work shall be suspended until new PPE or planning allows personnel to work safely.

5.1.1 OSHA PPE Levels

Personal protective equipment to protect the body against contact with known or anticipated physical or chemical hazards has been divided into four categories by OSHA (i.e., Levels A, B, C, and D) according to the degree of protection afforded (1910.120 Appendix B). For reference, these PPE categories are described below in **Table 5-1**.

Table 5-1 PPE Guidelines for OSHA Protection Levels

Protection Level	Basic PPE	Optional PPE
Level D	• Coveralls • Chemical resistance steel-toe and shank boots/shoes	• Gloves • Chemical resistance outer boots (disposable) • Safety glasses or chemical splash goggles • Hard hat • Escape mask • Face shield
Level C ***Not approved for use at the site***	• Full-face or half-mask air purifying respirators (NIOSH approved) • Hooded chemical-resistant clothing • Chemical-resistant outer gloves • Chemical-resistant inner gloves	• Coveralls • Chemical resistance steel-toe and shank boots (outer) • Chemical resistance boot-covers (outer, disposable) • Hard hat • Escape mask • Face shield
Level B ***Not approved for use at the site***	• Positive pressure, full-face self-contained breathing apparatus (SCBA), or positive pressure supplied air respirator with escape SCBA (NIOSH approved) • Hooded chemical-resistant clothing • Chemical-resistant outer gloves • Chemical-resistant inner gloves • Chemical-resistant steel-toe and shank boots (outer)	• Coveralls • Chemical resistance boot-covers (outer, disposable) • Hard hat • Face shield

Table 5-1 PPE Guidelines for OSHA Protection Levels		
Protection Level	**Basic PPE**	**Optional PPE**
Level A ***Not approved for use at the site***	• Positive pressure, full-face SCBA, or positive pressure supplied air respirator with escape SCBA (NIOSH approved) • Totally encapsulating chemical protective suit • Chemical-resistant outer gloves • Chemical-resistant inner gloves • Chemical-resistant steel-toe and shank boots • Disposable protective suit, gloves and boots (depending on suit construction, may be worn over totally encapsulating suit)	• Coveralls • Long underwear • Chemical resistance boot-covers (outer, disposable) • Hard hat (under suit)

NOTE: *If Site conditions require the use of Level A, Level B or Level C PPE, work will **STOP** and the INTERA CHSO will be notified immediately to verify that proper training and procedures are in place prior to conduct of fieldwork. Revisions to this SSHASP will also be necessary.*

Personnel are NOT authorized to work in IDLH conditions.

5.1.2 PPE Levels approved for the Site

The levels of protection selected for activities specified in this SSHASP are:

- Level D
- Modified Level D

Level D: This level of PPE will be required during basic Site maintenance activities. This includes steel-toe boots (chemical resistance, shank not required), long pants, and long-sleeve shirts (short-sleeve shirts will be allowed in hot weather and as activities permit).

Modified Level D: This level of PPE will be required while working near an operational drill rig, when working near roadways, and anytime overhead hazards are present. Modified level D includes hard hats, impact-resistant safety glasses, work gloves, and high-visibility safety vests. Hearing protection is required when working around heavy equipment or any other time high noise levels are anticipated.

If contaminated soil, groundwater, or any other kind of hazardous waste is encountered, chemical-resistant gloves and chemical splash goggles may be required. Work at the site will stop until the proper PPE can be determined using **Table 5-1** as guidance.

Level C / Modified Level C: *It is recommended that Site personnel be prepared for this contingency level of protection as necessary based on site-specific conditions.* This level of PPE will be required when personnel will be working in conditions where concentrations of contaminants in air have the potential to be above the action levels shown in the Air Quality Action Levels Section of this SSHASP (**Section 5.4.1**), and oxygen levels are measured to be above 19.5% but below 23.5%. Oxygen levels above 23.5% are explosive and no work shall be done. This level includes the requirements of Level D or modified Level D, with a full-face respirator and the proper cartridges, as determined by the situation. To fulfill this requirement, medical surveillance and respirator training shall have been completed by personnel before work commences. Each employee shall have his/her own respirator fit-tested to confirm proper fit. Proof of respirator training and fit testing must be submitted to the Project Manager before work commences. A copy of the INTERA respirator selection and maintenance procedures are available in **Appendix 25** of the CHSP.

NOTE: CHSO must be notified prior to conduct of work requiring Level C PPE.

5.1.3 General PPE Requirements

Any PPE provided must meet NIOSH or American National Standards Institute (ANSI) specifications.

- **General Work Clothing:** REQUIRED for Site personnel and visitors. Clothing must be close fitting and comfortable, but without loose ends, straps, drawstrings, belts, or otherwise unfastened parts that might catch on rotating or moving components of equipment. Long pants and long-sleeve shirts are always required (short-sleeve shirts will be allowed in hot weather and as activities permit).
- **Chemical Protective Clothing:** AS NEEDED for Site personnel and visitors. Tyvek coveralls may be worn, if appropriate, when additional skin protection is necessary.
- **Safety Headgear:** REQUIRED for Site personnel and visitors. Head protection shall be nonconductive to prevent limited electrical shock and shall meet the requirements of ANSI Standard Z89.1. Required when working near roadways, while heavy equipment (including drill rigs) is operational, and when there are other overhead hazards.
- **Safety-toe Boots:** REQUIRED for Site personnel and visitors. Foot protection shall meet the minimum requirements of ANSI Standard Z41.1. As determined by the SSO, safety boots may be required to meet the Class 75 standards (steel-toe boots, steel shank, chemical resistant, 6- to 8-inch tops, etc.).
- **High Visibility Safety Vests or Clothing:** REQUIRED for Site personnel and visitors during drilling operations or when working in areas where there is traffic or moving vehicles. Must be fluorescent orange, yellow, or green. High-visibility clothing for night shift personnel will also have reflective tape.
- **Safety Glasses:** REQUIRED for Site personnel and visitors. All eye protection shall meet the ANSI Z87.1 standard. Prescription glasses shall be an approved safety type or safety glasses that fit over the prescription glasses must be used. Eye protection will always be worn, and splash goggles should be worn when splashes present a significant hazard to eyes.
- **Gloves:** REQUIRED for Site personnel and visitors. Specific gloves should be selected based on the activities being performed. Puncture-resistant work gloves (i.e., leather) shall be worn for protection against cuts and abrasions that could occur while handling tools or other sharp objects or when working around drill rigs. Chemical-resistant gloves (i.e., nitrile) shall be worn during activities that could result in contact with hazardous chemicals, groundwater, or other contamination.
- **Hearing Protection:** REQUIRED for Site personnel and visitors when noise levels are at or above 85 decibels. Ear plugs or other hearing protection will be available to site personnel as necessary. Hearing protection may be required when working around heavy equipment or any other time high noise levels occur or are anticipated, such as during drilling activities or working near generators.
- **Respiratory Protection:** AS NEEDED for Site personnel and visitors. Respirators may be worn when concentrations of contaminants in air have the potential to be above the action levels shown in Air Quality Action Levels Section of this SSHASP (**Section 5.4.1**), and oxygen levels are measured to be above 19.5% but below 23.5%. Oxygen levels above 23.5% are explosive and no work shall be done. Personnel who are not part of the medical surveillance program, or who do not have the proper training will not be allowed to wear respirators.
- **Fall Protection:** NOT REQUIRED. Tasks to be performed as outlined in **Section 1.2** do not warrant working from heights, and INTERA personnel WILL NOT perform work above 6 feet without the approval of the PM and the CHSO. Full body harnesses with shock absorbing lanyards or other applicable fall protection measures will be required when working above 6 feet or when there is a danger of falling.

5.2 Work Zones

To minimize the movement of contaminants from work sites to uncontaminated areas, three work zone areas will be established as needed at project sites where contact with contamination or hazardous chemicals occurs. The work zone areas may be revised as contaminant data is collected at the Site. The three work zones include the following:

- Zone 1: Exclusion Zone

- Zone 2: Contamination Reduction Zone
- Zone 3: Clean Zone

Exclusion Zone: The Exclusion Zone is the zone where contamination does or could occur. Persons entering this zone shall wear the level of protection deemed necessary in the Safety Equipment section (**Section 5.1**). Smoking, eating, drinking, and applying cosmetics/sunscreen are not allowed in this zone.

Contamination Reduction Zone: Between the Exclusion Zone and the Clean Zone is the Contamination Reduction Zone, which provides a transition zone between the contaminated and clean areas of the Site. This zone shall be located directly outside the Exclusion Zone. Personnel shall decontaminate in the Contamination Reduction Zone when leaving the Exclusion Zone. Decontamination procedures shall be followed as detailed in **Section 5.3**. Smoking, eating, drinking, and applying cosmetics/sunscreen are not allowed in this zone.

Clean Zone: The Clean Zone shall be an uncontaminated area from which operations shall be directed. It is essential that contamination from the work area be kept out of this area.

5.3 Decontamination Procedures

The following are general decontamination procedures for Site activities:

- Remove gross contamination from tools, respirator (if used), monitoring equipment, etc., prior to leaving the Site using either de-ionized water or an Alconox/water solution.
- Either completely decontaminate soiled equipment at the work site using detergent and water (if possible) or wrap equipment in a plastic bag for transport until complete decontamination is possible. Decontamination of excavation equipment may not be necessary unless municipal waste and/or stained soil with odor is encountered during digging or drilling.
- Dispose of contaminated gloves, Tyvek suits, used respirator cartridges, paper towels, etc. by placing in a plastic bag and discarding in a designated waste container for the Site (non-hazardous waste).
- Wash hands (and face, if necessary) thoroughly with soap and water before lunch or coffee breaks and after finishing work for the day.

Refer to site-specific Work Plan/SAP/FSP and SOPs for additional information and details on decontamination procedures.

5.4 Air Quality Monitoring

Air quality hazards are not expected at this Site; therefore, air quality monitoring is not planned as part of site activities. ***Should conditions change, work will STOP, and this SSHASP will be revised to include the appropriate air quality monitoring.***

5.5 Respiratory Protection Program

INTERA's corporate policy is that respirators are to be used only where engineering control of respiratory hazards is not feasible, while engineering controls are being installed, or in emergency situations. No respirator can prevent all airborne contaminants from entering the wearer's breathing zone. Properly selected and used respirators help protect against certain airborne contaminants by reducing airborne contaminant concentrations in the breathing zone to below recommended exposure levels. Misuse of respirators may result in overexposure to the contaminant and cause sickness or death. For this reason, proper respirator selection, training, use, and maintenance are mandatory for the wearer to be properly protected. Additional information on INTERA's Respiratory Protection Program can be found in **Appendix 25** of the CHSP. **Personnel are NOT authorized to work in IDLH conditions.**

Respirators are not currently anticipated to be necessary for this Site. If it is determined, through change of scope or air monitoring results that respiratory protection is necessary, work must be stopped and this SSHASP

must be revised to include a Respiratory Protection Program as specified in Appendix 25 of the Corporate Health and Safety Program.

5.6 Fatigue Management

Fatigue management at this Site includes the following work schedule:

- Typical workdays are scheduled to be completed in 12 hours or less including commute time to and from work site.
- If planned work cannot be completed in 12 hours, work may be extended up to 14 hours, but approval must be obtained from the PM and CHSO. Controls for managing the increased risk of fatigue must be discussed with field personnel, documented in the field notebook, and documented in an email to the CHSO.
- Work beyond 14 hours is not allowed.
- For each consecutive 10 days of work, there must be at least two rest days off (travel days are not considered rest days).

5.7 Confined Spaces

No one shall enter a confined space without the proper training and documentation needed to perform confined space work activities. The following are definitions associated with a confined space and the procedures that will be used if a confined space is encountered.

A **confined space** is an enclosed or partially enclosed space that:

1. Has been identified as such in a risk assessment.
2. Is not intended or designed primarily as a place of work.
3. May have restricted entry and exit.
4. May:
    a. Have an atmosphere which contains potentially harmful levels of contaminant.
    b. Not have a safe level of oxygen, e.g., following a nitrogen purge.
    c. Cause entrapment or engulfment.

Confined spaces may include, but are not limited to:

1. Storage tanks, process vessels, boilers, pressure vessels, tank-like compartments that have only a manhole for entry, and ceiling and floor spaces.
2. Open-topped pits, grease traps, or excavations more than 1.5 meters deep.
3. Pipes, pumps, sewers, shafts, ducts, drains, tunnels, cellars, basements, or similar.
4. Abandoned mine workings and adits.

Contaminant: Any dust, fume, mist, vapor, gas, or other substance in liquid or solid form, the presence of which may be harmful to health and safety.

Entry to confined space: This occurs when any portion of a person's body breaks the plane of entry into the confined space. Evaluation of air quality should be done by insertion of a tube from the measuring device into the confined space from outside of the confined space without any portion of the person's body breaking the place of the confined space.

Identification: Confined spaces must be identified, and signs erected at the entry points denoting that a permit is required prior to entry. Where signage is impractical, for example with adits, other means of highlighting the dangers need to be used.

Permit-Required Confined Space: A confined space that requires a permit before the space can be entered because it has, or has the potential for, one or more of the following characteristics:

- An atmosphere that can become IDLH due to toxic, flammable, or asphyxiating characteristics.
- The potential for engulfment.
- A size or shape that can trap or asphyxiate.
- Any other recognized serious hazard.

Confined spaces are not known and are not anticipated to occur on the Site. Therefore, confined space entry is not authorized during execution of the SOW as defined for this SSHASP.

If a confined space is encountered, a sign stating that entry is prohibited shall be posted immediately, and the Project Manager and CHSO shall be notified. Personnel shall not enter the confined space for any reason at any time under this SSHASP. ***If it is determined that a confined space must be entered during this project, work must STOP while this SSHASP is revised to include a Confined Spaces Program as specified in Appendix 26 - Confined Spaces Program of the Corporate Health and Safety Program.***

5.8 Hazard Communication (HazCom) Program

The HazCom Program designates the personnel responsible for the implementation and maintenance of hazardous chemical labeling and provides information for employee training on HazCom requirements. INTERA's written Hazard Communication Program can be found in **Appendix 7** of the **Corporate Health and Safety Program**. The site-specific **Hazardous Chemical List** (HCL) and **Safety Data Sheets** (SDSs) are provided in **Attachment E**. For field projects, the SSO is responsible for implementation of the HazCom Program and will ensure that the HCL and SDSs are up-to-date and are available at the Site at all times. The SSO is also responsible for ensuring that all containers of hazardous or toxic chemicals entering the workplace are properly labeled. Unlabeled containers are not acceptable and will not be used. Original labels shall not be defaced or removed. All labels will be legible, in English, and prominently displayed on the container. If the hazardous chemical is to be transferred to a separate container, the new container shall be properly labeled in accordance with the original label.

The Hazardous Chemical List should include all chemicals brought to the Site by INTERA, INTERA subcontractors, or other contractors to which field personnel may be exposed. **Subcontractors will be asked to provide their own SDSs which will be verified by the INTERA SSO**. SDSs provide detailed information on specific chemicals, including potential hazardous effects, physical and chemical characteristics, and recommendations for appropriate protective measures.

5.9 Lockout/Tagout Program

Lockout/tagout (LO/TO) procedures must be followed for any Site activity that involves hazardous energy. Hazardous energy includes energy derived from electrical, pneumatic, hydraulic, stored (springs, batteries), potential (by virtue of position), or heat (hot water, steam) sources.

Minimum requirements for the LO/TO of energy isolating devices must be followed whenever maintenance or service is performed on machines or equipment. LO/TO procedures shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources, and locked out/tagged out before employees perform any service or maintenance where the unexpected energization or start-up of the machine or equipment or the release of stored energy could cause injury.

The need for LO/TO procedures are not anticipated during tasks to be performed under this SSHASP. However, LO/TO should be reviewed during tailgate safety meetings, and subcontractors, such as drill rig operators or other equipment operators, should identify when LO/TO procedures may be used in their work scope for maintenance or other tasks performed during drilling activities or other site activities, as applicable. ***If it is determined through change in scope, that LO/TO procedures become necessary, work must STOP and this SSHASP must be revised to include site-specific LO/TO procedures. Appendix 18 of the CHSP will also be included as an Appendix to this SSHASP.***

5.10 Hot Work Program

All temporary operations involving open flames or purposefully producing heat and/or spark shall be performed with the proper safety controls and equipment in place to eliminate the risk associated with igniting combustible materials.

A Hot Work Program shall be followed when performing any brazing, cutting, grinding, soldering, welding, or other activity that results in the production of heat and a Hot Work Permit (**Form 8**). **Subcontractors may use their own Hot Work Permits with approval from the INTERA SSO.**

Properly designed and operated "intrinsically safe" equipment is excluded from the Hot Work Program. The site-specific Hot Work Program includes the following procedures:

- Establish permissible areas for hot work.
- Ensure that only approved apparatuses, such as torches, manifolds, regulators, and pressure reducing valves, are used.
- Ensure that all individuals involved in the hot work operations are familiar with Hot Work Program requirements.
- Ensure that all individuals involved in the hot work operations are trained in the safe operation of their equipment and the safe use of the process. These individuals must have an awareness of the risks involved and understand the emergency procedures in the event of a fire.
- Determine Site-specific flammable materials, hazardous processes, or other potential fire hazards present or are likely to be present in the work location.
- Ensure combustibles are protected from ignition by the following means:
  - Move the work to a location free from combustibles or flammable gases.
  - If the work cannot be moved, ensure the combustibles are moved to a safe distance or have the combustibles properly shielded against ignition, and ventilate the area and continuously monitor for flammable gases.
  - Ensure hot work is scheduled such that operations that could expose flammables or combustibles to ignition do not occur during hot work operations.
  - If any of these conditions cannot be met, then hot work must not be performed.
- Determine that fire protection and extinguishing equipment are properly located and readily available.
- Ensure sufficient local exhaust ventilation is provided to prevent accumulation of any smoke and fumes.
- Ensure that an individual is posted to watch for fire (fire watch) when hot work is performed in a location where a fire might develop, or where the following conditions exist:
  - Combustible materials in building construction or contents are closer than 35 feet to the point of hot work.
  - Combustible materials are more than 35 feet away but are easily ignited by sparks.
  - Wall or floor openings are within 35 feet and expose combustible materials in adjacent areas. This includes combustible materials concealed in walls or floors.
  - Combustible materials are adjacent to the opposite side of partitions, walls, ceilings, or roofs, and are likely to be ignited.
- Where a fire watch is not required, a final inspection shall be conducted 1/2-hour after the completion of hot work operations to detect and extinguish possible smoldering fires.

An operator must cease hot work operations if unsafe conditions develop or are suspected.

5.11 Lone Worker Protocols

A lone worker is defined as any employee working in the field who is expected to perform their job in isolation without direct supervision and/or in circumstances where assistance is not readily available when needed. A person is considered "alone" in the field when they are working by themselves and cannot be seen or heard by another co-worker or colleague.

Work covered by this SSHASP may occasionally be performed by a **Lone Worker**; therefore, lone worker protocols have been established and are as follows:

- The **Contact Person** designated for this project is: [**TBD]** who can be reached at [phone number]**.**
- Prior to the start of field work, the **Lone Worker** shall inform the **Contact Person** of the following in writing (email is acceptable):
    - Destination/accommodations, as applicable.
    - Estimated time of arrival.
    - Return time or date.
    - Contact information.
    - Mode of travel to/from site and while on-site.
    - Alternate plans in the event of bad weather, traffic problems, etc.
- Notifications from the **Lone Worker** to their **Contact Person** must occur according to the check-in schedule as follows:
    - Upon arrival at the site and departure from Site
    - The Contact Worker and Lone Worker will check-in every 2 hours with each other unless otherwise specified.
    - Upon arrival at overnight accommodations or upon return home, as applicable.

      NOTE: At each check-in, the **Lone Worker** shall provide their approximate location to their **Contact Person** in the event emergency personnel need to be dispatched.
    - If the field work takes longer than anticipated, the **Lone Worker** must notify their **Contact Person** at the anticipated completion time and confirm that all is well and that the work is taking longer than expected. They should agree on the next check-in interval not to exceed two hours.
- If the **Lone Worker** fails to check in, the **Contact Person** shall call, text, or otherwise attempt to contact the **Lone Worker** giving them 20 minutes to respond. If a response is not forthcoming, the emergency rescue plan will be enacted as detailed below.

Emergency Rescue Procedures:

If the **Lone Worker** misses a check-in and cannot be reached after 20 minutes:

- Call other contacts or project personnel that might be able to quickly and effectively help identify the **Lone Worker's** location and status. Positive contact must be made after this point and a discussion should be held on why the primary communication requirements aren't being met, and a solution must be put in place prior to continuing Lone Work activities.
- II no contact is made, Call 911 and request a wellness check by the nearest law enforcement personnel.
    - Be prepared to provide the 911 operator and/or law enforcement personnel with the Lone Worker name, last known location, and vehicle description.
    - Notify PM (if PM is not the Contact Person) and the CHSO that **Lone Worker** has not checked in and emergency procedures have been implemented.

5.12 Standard Operating Procedures

INTERA SOPs applicable to the tasks covered under this SSHASP will be included in the task-specific SAPs developed prior to field work. These SOPs are as follows:

- [SOP list will be updated when the task-specific SAPs are developed]

6.0 Emergency Contacts List

Table 6-1 Emergency Contacts List	
AMBULANCE:	911
FIRE:	911
POLICE:	911 (non-emergency 311)
POISON CONTROL:	1-800-222-1222
SITE ADDRESS:	Located near Waterflow, New Mexico
HOSPITAL: **Address:** **Hospital Phone Number:**	**San Juan Regional Medical Center** 801 W. Maple Street Farmington, NM 87401 (505) 609-2000 (non-emergency)
LOCATION OF NEAREST HOSPITAL:	Map to hospital is included in **Section 7.0**
LOCATION OF NEAREST SHELTER-IN-PLACE LOCATION:	TBD
LOCATION OF NEAREST PHONE:	Cell phones or TBD

7.0 Hospital Route Map and Directions



Estimated distance and travel time from San Juan Generating Station to San Juan Regional Medical Center in Farmington, NM is approximately **17.2 miles and 25 minutes** via US-64 E.

APNM San Juan Generating St

1. Head **south** on **Rd 6800**

   3.2 mi

2. Turn **left** onto **US-64 E**

   12.6 mi

3. Turn **right** onto **US-64/W Murray Dr**

   1.0 mi

4. Turn **left** onto **W Pinon St**

   0.4 mi

5. Turn **left**

   69 ft

6. Turn **left**

   233 ft

BSan Juan Reg'l Medical Ctr

8.0 Site Emergency Response Plan

EMERGENCY COMMUNICATION PROTOCOLS:

1) In case of an emergency, ***CALL 911***.
   - Talk in a controlled and steady manner.
   - Pass on as much information as possible (name, location, nature of emergency, injuries, number of people injured, assistance required, and any other important details as requested by the 911 operator).
   - Verify that the emergency communication has been heard and understood.
   - Notify the Site Safety Office if they are not already aware of the emergency.
2) The SSO will inform the Project Manager of the emergency IMMEDIATELY once the Site is secure, the threat of immediate danger is over, and personnel are safe and/or receiving medical care, as appropriate. The PM will then report to the CHSO per protocols detailed above in **Section 3.3.4.**
3) Other site personnel should stop work and be prepared/available in case they are called upon to assist in the emergency response.

PERSONAL INJURY: Check the accident scene to determine if you or anyone else is in danger. FOLLOW EMERGENCY COMMUNICATION PROTOCOLS as detailed above. Keep all non-essential personnel out of the area. Remove personnel from immediate danger if there is no suspicion of neck or back injury. If there is a question about whether it is safe to move the victim, **DO NOT** move the victim; instead, make him or her as comfortable as possible while waiting for emergency assistance. Administer appropriate first aid only within your competency and training and wait for emergency personnel to provide additional assistance.

CHEMICAL EXPOSURE: For signs of inhalation exposure, retreat to fresh air for recovery. If symptoms are serious, such as nausea or fainting, FOLLOW EMERGENCY COMMUNICATION PROTOCOLS and discontinue work at that location. In the case of skin or eye irritation due to chemical contact, FOLLOW EMERGENCY COMMUNICATION PROTOCOLS, wash affected skin with soap and water, or flush eyes with generous amounts of water while waiting for emergency response.

FIRE: If fire occurs, FOLLOW EMERGENCY COMMUNICATION PROTOCOLS. After the alarm has been raised, if the fire is small and can be easily contained and extinguished, an employee may do so with a portable fire extinguisher **BUT ONLY** if the employee has received hands-on fire extinguisher training and is comfortable attempting to put out the fire. If the fire cannot be contained and extinguished with a portable fire extinguisher, or if an explosion risk is present, all personnel **MUST** evacuate immediately to the muster point. No building or equipment that is more valuable than a person. It is preferable that the fire creates damage rather than injury. All unnecessary personnel must be kept back from the fire and out of harm's way.

INCLEMENT WEATHER: If there are signs or alerts of inclement weather near the site, the employee should seek shelter in their vehicle and prepare to evacuate the site. In the event of an evacuation, the employee should travel to the nearest public structure (public library, grocery store, gas station, school, church, etc.) and seek shelter inside the structure away from outside walls and in a small room with no windows, if possible. Traveling away or perpendicular to weather patterns is recommended, especially in the event of damaging hail, tornadoes, or other sever weather storms. Returning to site is only recommended if the storm has passed and site conditions allow for work to continue.

SITE EVACUATION: If an emergency Site evacuation becomes necessary for any reason, the SSO shall alert all personnel to leave the Site and notify the Project Manager of the situation. Personnel shall not return to the Site until an all-clear notification has been received from the SSO.

The current Site Assembly Point is identified as the **main entrance to the Site** unless otherwise specified. This SSHASP shall be revised as the Site undergoes changes to the layout and facilities. Muster points should be discussed prior to starting work and during safety meetings.

EMERGENCY SITUATIONS INVOLVING AN ACTIVE SHOOTER:

In an urban environment or other setting with the potential for an active shooter event, personnel should take the following steps to prepare in advance: remain vigilant, identify potential escape routes, and be aware of nearby buildings or structures that could provide shelter. In the event of an active shooter situation in the vicinity of the work site, evacuate the area immediately, if safe to do so, by moving away from the threat using available cover, avoiding open areas, and seeking shelter in a secure location. Call 911. If evacuation is not possible, find cover behind solid objects, stay low, and remain out of sight. Silence phones and avoid drawing attention to your location. As a last resort, if confronted directly, take necessary measures to protect yourself.

EMERGENCY SITUATIONS INVOLVING THE SURROUNDING COMMUNITY: In the highly unlikely event that a Site emergency has the potential to affect the community surrounding the Site, FOLLOW EMERGENCY COMMUNICATION PROTOCOLS. No communication is to be made to community or media groups, if calls come in from either of these groups, contact details such as names and numbers are to be collected and passed onto the Project Manager (and then to the Client) to formulate a response.

SPILL RESPONSE: Where chemicals are unknown, or the hazard is great, FOLLOW EMERGENCY COMMUNICATION PROTOCOLS, evacuate site personnel to the muster point/evacuation assembly area, and establish an exclusion zone as quickly as possible. This exclusion zone must be maintained until the scene has been handed over to emergency personnel. cleanup has been completed or the area determined safe.

For known low-hazard spills, a Spill Kit may be available at the Site. Small spills may be cleaned up with a shovel and a bucket or other appropriate tools/equipment as recommended by the appropriate SDS. Appropriate PPE must be worn as per the SDS for cleanup and response to a chemical spill. An external resource may need to be engaged for larger spills.

Any amount of any material in such quantity as may with reasonable probability injure or be detrimental to human health, animal or plant life, or property or may unreasonably interfere with the public welfare or the use of property, must be reported to the appropriate regulatory agency such as the New Mexico Environment Department (505-827-9329) or the Texas Commission on Environmental Quality (1-800-832-8224). This includes chemical, biohazardous, petroleum-product, and sewage spills/releases.

New Mexico has not established reportable quantities.

In addition to recent spills, the discovery of evidence of previous unauthorized discharges, such as contaminated soil or groundwater, also must be reported. Verbal notification must be provided as soon as possible after learning of a discharge, but no more than twenty-four (24) hours after discovery.

INCIDENT REPORTING: All incidents, including property or environmental damage, and near misses must be reported IMMEDIATELY (once site is secure, threat of immediate danger is over, and personnel are safe and/or receiving medical care, as appropriate) by the affected employee(s) to the Project Manager or Site Safety Officer, who will then report it to the CHSO as detailed in above in **Section 3.3.4**.

9.0 References

Daniel B. Stephens & Associates, Inc. 2025. Site Investigation Report, San Juan Mine Remediation and Restoration Study. Prepared for New Mexico Energy, Minerals and Natural Resources Department, Mining and Minerals Division. June 30, 2025.

Stewart, A.M. 2018. Hydrologic assessment and numerical simulation of groundwater flow, San Juan Mine, San Juan County, New Mexico, 2010–13: U.S. Geological Survey Scientific Investigations Report 2017–5155, 94 p., https://doi.org/10.3133/sir20175155.

United States Department of Labor. Occupational Safety and Health Administration (OSHA). 29 Code of Federal Regulations (CFR) § 1910.120 (1974). Hazardous waste operations and emergency response.

_____. 29 CFR § 1910.120 (1974). Appendix B. General description and discussion of the levels of protection and protective gear.

_____. 29 CFR § 1910.146 (1974). Permit-required confined spaces.

_____. 29 CFR § 1926 (1989). Subpart P, Appendix B. Sloping and benching.

United States Department of Transportation (DOT). Pipeline and Hazardous Materials Safety Administration. 49 CFR § 172.704 (1976). Training requirements.

Figures

Figure 1.1 Site Location Map

Figure 2 Site Plan

N

4,000 2,000 0 4,000

Feet

Legend

- PNM Property
- San Juan Mine lease and permit boundary
- Underground Mine Workings
- Area of Interest (Site)

Land Ownership

- Bureau of Land Management
- Tribal Lands
- Private Lands
- Bureau of Reclamation
- State Owned Lands

Westwater Arroyo

Westwater Diversion

Shumway Diversion

Shumway Arroyo

Hutch Canyon Arroyo

Hutch Canyon Diversion

Memorial Recovery System

Raw Water Reservoir

Shumway Arroyo Backwater Reach

Shumway Recovery System

Shumway Arroyo

San Juan River

Farmington

64

64

Figure 1.1

Site Location

San Juan Generating Station

Exported: 11/17/2025 11:38 AM

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User: towen

Map: Map

Layout: Figure 1.1 Site Location1

INTERA



N

1,000 500 0 1,000

Feet

Legend

Emergency Evacuation Assembly Point: Main Entrance Gate

Source: Aerial-NAIP Imagery

Figure 2
Site Plan
San Juan Generating Station

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User: towen

Map: Map931

Layout: 02_SitePlan_HASP

INTERA

Forms

Form 1	Site Personnel Acknowledgment Form
Form 2	Kickoff/Tailgate Safety Meeting Form
Form 3	Job Safety Analysis and Personal Protective Equipment Worksheet
Form 4	Behavior-Based Safety Encounter Form
Form 5a	Incident Investigation Report Form
Form 5b	Near Miss Report Form
Form 6	Site Visitor Log
Form 7	Personal Vehicle Safety Inspection Checklist
Form 8	Hot Work Permit
Form 9	Air Monitoring Log

SITE PERSONNEL ACKNOWLEDGMENT FORM

Project Name: _____

SSHASP Date: _____ Project Number: _____

By signing the following I acknowledge that I have reviewed, understood, and agree to comply with the INTERA Site Specific Health and Safety Plan (SSHASP) and have been briefed on the nature of the contaminants (if any) and site hazards and the level and degree of exposure likely as a result of participation in this project.

Subcontractors: This site-specific HASP does not replace the requirement or liability for your company to have its own safety program and site-specific HASP. I also acknowledge that this plan is specific for this INTERA site and may not address unforeseen hazards not included in the SSHASP or for the specific contracted task.

Printed Name	Signature	Company/Organization	Date

KICKOFF/TAILGATE SAFETY MEETING FORM

Date &Time: _____ **PROJECT NO**.:_____

PROJECT Name and Activity: _____

Weather Outlook: _____

Emergency Procedures (e.g., facility alarms; E-Stops; evacuation routes procedures; muster points; first aid kits, fire extinguishers; emergency numbers):_____

_____

_____

Communication Method(s): _____

Nearest Hospital: _____

List Short Service Employees:_____

Planned Tasks:

List JSAs Reviewed: (JSAs should be available. If not, STOP and fill out a blank JSA template.)

NOTE: provide copies of signed JSAs to CHSO.

HAZCOM TOPICS PRESENTED

List Hazardous Chemicals/Substances being used for task(s) and Site Chemicals of Concern:

Confirm that **Safety Data Sheets** are available for listed hazardous chemicals/substances.

Yes □ **No** □ **N/A** □ (If **No**, take steps to obtain SDS or stop work, as appropriate.)

ADDITIONAL SAFETY TOPICS PRESENTED

Discuss physical, biological and/or other hazards, as applicable; lessons learned; safety shares:

REQUIRED PPE FOR PROTECTION AGAINST SITE HAZARDS:

PPE Category	Required for Daily Tasks	Specify as needed	PPE Category	Required for Daily Tasks	Specify as needed
Hearing	□		High Visibility Clothing	□	
Respiratory Protection	□		Safety Shoes	□	
Safety Glasses	□		Hard Hats	□	
Goggles/Face Shield	□		Other (Suits, etc)	□	
Gloves	□		Other (Suits, etc)	□	

NOTE: Verification through observation has occurred for each employee listed on this form with regard to proper fit and use of PPE including confirmation of their knowledge on how to properly don, doff, adjust and wear PPE as indicated on this form.

Confirm that field employees have current HAZWOPER or other applicable training certifications as necessary for site tasks. **Yes** □ **N/A** □

Subcontractor Confirmation (Initial&Date):_____

Confirm that subcontractors have completed safety checks on drilling equipment or other heavy equipment. **Yes** □ **N/A** □

Subcontractor Confirmation (Initial&Date):_____

Confirm that electrical equipment has been checked per manufacturer recommendations.
Yes □ **N/A** □

Confirm that a Ladder Safety Checklist has been completed, as applicable, for planned work tasks.
Yes □ **N/A** □

Confirm that hand and power tools have been checked per manufacturer recommendations.
Yes □ **N/A** □

Confirm that scaffolds and scaffold components have been checked by a competent person for visible defects. **Yes** □ **N/A** □

Confirm that Asbestos, Lead, H_2S, and Benzene safety issues have been covered, as applicable, for planned work tasks. **Yes** □ **N/A** □

Confirm that Confined Spaces issues have been covered, as applicable, for planned work tasks.
Yes □ **N/A** □

Confirm that Working at Height issues have been covered, as applicable, for planned work tasks.
Yes □ **N/A** □

Other: _____

ATTENDEES

Print Name:	Signature	Company/Organization

Meeting Conducted by:

_____ _____

Name Printed Signature

_____

Date

Note: use additional pages as necessary to discuss topics and list attendees.

Job Safety Analysis (JSA) and Personal Protective Equipment (PPE) Worksheet

Project Task:	Project Site:
Project Number:	JSA Preparation Date:
JSA Prepared by (Name/Title):	General PPE:

Job Steps List key job steps	**Hazards** Identify hazards associated with performing each job step (Be specific)	**Mitigations/Controls** Determine effective mitigations/controls for each hazard listed in the previous column	**PPE** Task specific	**Hazard Classification (HC)***
1.	•	•		
2.	•	•		
3.	•	•		
4.	•	•		

NOTE: Use with other JSAs as necessary for additional tasks to be performed.

*Hazard classification is assessed assuming specified mitigations/controls are in place. Use the risk ranking matrix at the bottom of this JSA form during this step. List the HC by its alpha-numeric code (name) (e.g., use D3 (Moderate) for risk based on an Unlikely probability and a Serious consequence).

I have read and reviewed this JSA and understand the hazards and controls associated with this task:

Name	Signature	Date		Name	Signature	Date

Hazard Identification Memory Jogger and Risk Ranking Matrix: Use these tools when identifying hazards. Rank hazards by overall Hazard Classification. Prior to performing a job step, ensure that the assigned controls and mitigations are effective and appropriate for each identified hazard.



Overall Hazard Classification		Consequence				
		1 Minor	2 Medium	3 Serious	4 Major	5 Catastrophic
Probability	A - Almost Certain	Moderate	High	Critical	Critical	Critical
	B - Likely	Moderate	High	High	Critical	Critical
	C - Possible	Low	Moderate	High	Critical	Critical
	D - Unlikely	Low	Low	Moderate	High	Critical
	E - Rare	Low	Low	Moderate	High	High

Hierarchy of Controls: Listed from most effective to least effective: Use this tool when determining controls, mitigations, and PPE.



Job Safety Analysis (JSA) and Personal Protective Equipment (PPE) Worksheet

Project Task: **Add JSA Task Name**	Project Site: Add Site Name
Project Number: Add Project Number	JSA Preparation Date: Add Date
JSA Prepared by (Name/Title): Add Name/Title	General PPE: Modified Level D (see below for additional PPE needs)

Note to User: replace highlighted text with task-specific information, remove highlights, and delete this sentence when JSA is complete.

Job Steps List key job steps	**Hazards** Identify hazards associated with performing each job step (Be specific)	**Mitigations/Controls** Determine effective mitigations/controls for each hazard listed in the previous column	**PPE** Task specific	**Hazard Classification (HC)***
1. List 1st Job Step	• Identify 1st hazard for job step • Identify 2nd hazard for job step • Continue with hazards as necessary	• Identify 1st specific control for hazards listed • Identify 2nd specific control for hazards listed • Continue with controls as necessary	Insert specific PPE	Add HC
2. List 2nd Job Step	• Identify 1st hazard for 2nd job step • Identify 2nd hazard for job step • Continue with hazards as necessary	• Identify 1st specific control for hazards listed • Identify 2nd specific control for hazards listed • Continue with controls as necessary	Insert specific PPE	Add HC
3. List 3rd Job Step	• Identify 1st hazard for 3rd job step • Identify 2nd hazard for job step • Continue with hazards as necessary	• Identify 1st specific control for hazards listed • Identify 2nd specific control for hazards listed • Continue with controls as necessary	Insert specific PPE	Add HC
4. Continue with job steps as necessary	• Identify 1st hazard for additional job steps • Continue with hazards as necessary	• Identify 1st specific control for hazards listed • Continue with controls as necessary	Insert specific PPE	Add HC

NOTE: Use with other JSAs as necessary for additional tasks to be performed.

*Hazard classification is assessed assuming specified mitigations/controls are in place. Use the risk ranking matrix at the bottom of this JSA form during this step. List the HC by its alpha-numeric code (name) (e.g., use D3 (Moderate) for risk based on an Unlikely probability and a Serious consequence).

I have read and reviewed this JSA and understand the hazards and controls associated with this task:

Name	Signature	Date		Name	Signature	Date

Hazard Identification Memory Jogger and Risk Ranking Matrix: Use these tools when identifying hazards. Rank hazards by overall Hazard Classification. Prior to performing a job step, ensure that the assigned controls and mitigations are effective and appropriate for each identified hazard.



Overall Hazard Classification						
		Consequence				
		1 Minor	2 Medium	3 Serious	4 Major	5 Catastrophic
Probability	A - Almost Certain	Moderate	High	Critical	Critical	Critical
	B - Likely	Moderate	High	High	Critical	Critical
	C - Possible	Low	Moderate	High	Critical	Critical
	D - Unlikely	Low	Low	Moderate	High	Critical
	E - Rare	Low	Low	Moderate	High	High

Hierarchy of Controls: Listed from most effective to least effective: Use this tool when determining controls, mitigations, and PPE.



BEHAVIOR-BASED SAFETY ENCOUNTER FORM

Work Site Observed:		
Interaction Date:	**Interaction Start Time:**	**Interaction End Time:**
Observer's Name:		
Who was observed?		
Task Observed:		
Was a JSA (pre-task hazard assessment) completed, reviewed, signed-off, and adequate for the task being performed? Yes or No (circle one) **If No, expand on issues below.**		
Were SOPs available and followed? Yes or No (circle one)		
Was Kickoff/Tailgate Safety Meeting held and documented? Yes or No (circle one)		
Observed Safe Behaviors:	**Observed Unsafe Behaviors:**	
Was immediate constructive feedback provided to observed party?: Yes or No (circle one)		

BEHAVIOR-BASED SAFETY ENCOUNTER FORM (continued)

Select all Interaction Categories below that apply and indicate a desired (✓) and/or undesired (✗) behaviour for each. Leave blank if not observed or not applicable.		
Condition of Work Area		
☐ Work area Clean & Orderly	☐ Slips, Trips Fall Hazards	☐ Adequate lighting
☐ Work area barrier in place	☐ Air Quality	☐ Visibility to heavy equipment
Body Position and Ergonomics		
☐ Movements & positions - lifting / carrying	☐ Movements & positions - repetitive acts / movements	☐ Movements & positions - avoiding pinch points
☐ Movements & positions - overexertion / strain	☐ Movements & positions - bending / twisting	
Body Protection and PPE		
☐ Protecting hearing	☐ Protecting respiratory system	☐ Protecting the body
☐ Protecting the head	☐ Protecting the eyes/face	☐ Protecting the feet
☐ Protecting the hands/arms	☐ Other (describe):	
Equipment and Tools		
☐ Tool/equipment selection - correct for job and proper use	☐ Tool/equipment - good condition/proper storage	☐ Pre-op equipment inspection
Practices and Housekeeping		
☐ Controls implemented for identified hazards	☐ Hazardous materials - use and storage requirements followed	☐ Communicating with others about hazards / risks
☐ Work was not rushed / distracted	☐ Walking and working surfaces/platforms (clear and clean)	☐ Proper workplace housekeeping maintained
Procedures / Permits		
☐ Proper procedures followed	☐ Management of change	☐ Run-off is controlled
☐ Work at heights (protecting from fall hazards)	☐ Lifting (following safe work practices)	☐ Isolation (proper use of lock-out/tag-out)
☐ Confined spaces (following safe work practices)	☐ Hot work (following safe work practices)	☐ Dust control procedures followed (minimizing dust)
☐ Hazardous materials - proper segregation & disposal	☐ Hydrocarbon pollution prevention measures taken	☐ Excavation (following safe work practices)
Vehicles / Mobile Equipment and Driving		
☐ Eyes on direction of travel	☐ Pre-shift inspection	☐ Securing parked vehicles
☐ Vehicle speed (driving to conditions / speed limits)	☐ Wearing seatbelt	☐ Operating Safely (interaction between people & equipment)
Weather		
☐ Protecting from cold stress	☐ Protecting from heat stress	☐ Protecting from lightning
☐ Protecting from rain	☐ Protecting from (UV exposure)	

BEHAVIOR-BASED SAFETY ENCOUNTER FORM (continued)

Action Item(s) Resulting from BBS Review:	Date Completed:

INCIDENT INVESTIGATION REPORT FORM

Attach additional pages as necessary, if more than one employee was injured, each employee must fill out their own form. This form should also be used to report property or environmental damage.

Circle or Highlight One of the Following: Reportable / Recordable / Non-Recordable /Property Damage / Environmental Damage	**Case Number from OSHA 300 Log:**
Site:	**Project Number:**

SECTION 1: INCIDENT REPORT

SECTION 1

Employee Injured, Ill, or Deceased (Skip this box for property or environmental damage.)
Name:
Address:
Date of Birth:
Company Name and Date Hired:
Circle One or Highlight: Male / Female

Names and Project Roles of Other Affected Personnel
(List witnesses of incident and/or personnel involved in property or environmental damage.)

Site Project Manager:

Event Date:	**Event Time:**	**Time Personnel Began Work:**

Exact Location of Event: (Provide description or address, if available.)

Event Resulted in: (Circle or Highlight One) **Fatality / Injury / Illness / Property Damage / Environmental Damage**

If fatality, date of death: ___ / ___ / ___

Nature of the Event: (Brief summary including body parts affected and/or property that was damaged.)

Object or substance that directly harmed the employee or property: (Leave blank if not applicable.)

Task Being Performed Just Prior to the Incident: (Describe the work objective, the specific activity being carried out, and any tools or equipment being used.)

Circle or Highlight One of the Following: Reportable / Recordable / Non-Recordable /Property Damage / Environmental Damage	**Case Number from OSHA 300 Log:**
Site:	**Project Number:**

Did the incident involve a vehicle? (Include full description of vehicle and rental agency information if appropriate.)

Full Description of Incident: (Include task being performed, how the event occurred, equipment being used at the time, materials involved, workplace condition, and any other impacts.)

Was First Aid Given? (Circle One) **Yes or No** (If No, skip next 2 boxes.)

- **Name of First Aid Attendant(s):**
- **List First Aid Given:**

Was Medical Treatment Beyond First Aid Necessary? (Circle or Highlight One) **Yes or No** (If No, skip to end of Section 1.)

- **Was Employee Treated in an Emergency Room?** (Circle or Highlight One) **Yes or No**
- **Was Employee Hospitalized overnight as an in-patient?** (Circle or Highlight One) **Yes or No**
- **Type of Emergency Transportation:** (i.e., ambulance, rental car)
- **Location of Medical Treatment Facility:**
  Name:
  Address:
  Phone number:
- **Name of Doctor Providing Medical Treatment:**
- **Expected Length of Medical Leave Resulting from Incident:**
- **Medical Diagnosis:**

SECTION 1

Section 1 Completed by:	**Title:**
Phone:	**Date:**

Circle or Highlight One of the Following: Reportable / Recordable / Non-Recordable /Property Damage / Environmental Damage	**Case Number from OSHA 300 Log:**
Site:	**Project Number:**

SECTION 2: INVESTIGATION REPORT (to be filled out by Incident Investigator)

Witness statements: (Attach sheets as necessary, or NA if no witnesses.)

Evidence collected:

Factors in Incident: (check all that apply)

☐ Mental stress factor	☐ Fatigue	☐ Remote site health
☐ Alcohol/drugs	☐ Exposure to sound/noise	☐ Exposure to particulates
☐ Biological exposure	☐ Mechanical vibration	☐ Cold Stress
☐ Chemical exposure	☐ Travel health	☐ Heat Stress
☐ Exposure to ionizing radiation	☐ Exposure to non-ionizing radiation	☐ Pre-existing medical condition
☐ Exposure to gas or vapor	☐ Repetitive movements	☐ Working at height
☐ Other muscular stress	☐ Other health/exposure	☐ Workplace design
☐ Non-compliance	☐ Equipment/property design	☐ Lifting/Hoisting
☐ Electrical	☐ Equipment/property fire	☐ Equipment/property damage
☐ Equipment failure	☐ Housekeeping	☐ Not otherwise specified

Details: (From Factors in previous section.)

SECTION 2

Circle or Highlight One of the Following: Reportable / Recordable / Non-Recordable /Property Damage / Environmental Damage	**Case Number from OSHA 300 Log:**
Site:	**Project Number:**

Actual Consequence Level (1 to 5):

Potential Risk Classification Table: (This table is used for any incident, or property or environmental damage to determine if the Actual Consequence Level was a reasonably expected outcome or if the outcome could have been even worse. If the Maximum Reasonable Outcome was High or Critical, Corrective Actions must be put in place to lower future Reasonable Outcomes.)

Probability	Consequence: 1 Minor	2 Medium	3 Serious	4 Major	5 Catastrophic
A – Almost Certain	Moderate	High	Critical	Critical	Critical
B – Likely	Moderate	High	High	Critical	Critical
C – Possible	Low	Moderate	High	Critical	Critical
D – Unlikely	Low	Low	Moderate	High	Critical
E – Rare	Low	Low	Moderate	High	High

		Max Reasonable Outcome:
Max Reasonable Consequence (1 to 5):		☐ Critical ☐ High ☐ Moderate ☐ Low
Max Reasonable Probability (A to E):		

Summary of Investigation Findings:

SECTION 2

Circle or Highlight One of the Following: Reportable / Recordable / Non-Recordable /Property Damage / Environmental Damage	**Case Number from OSHA 300 Log:**
Site:	**Project Number:**

Corrective Actions Taken to Prevent Recurrence of Event:

Date Corrective Actions Implemented: ___ / ___ / ___

Risk Analysis: (does the corrective action generate a new risk?)

SECTION 2

Section 2 Completed by:	**Title:**
Phone:	**Date:**

List of Necessary Contacts for Notification of Incident:

- INTERA Chief Health and Safety Officer
- INTERA Chief Operating Officer
- INTERA Branch Office Health and Safety Coordinator
- INTERA Project Manager
- INTERA Human Resources Manager, as applicable
- Client Project Manager, as applicable
- OSHA, as applicable.

Extra Space for Notes Regarding Form A3-1:

NEAR-MISS REPORT FORM

(Attach additional pages as necessary)

Project Name:	**Project Number:**

SECTION 1: EVENT REPORT

Event Date:

Names and/or Project Roles of Affected Personnel: (or write "anonymous")

Description of Event Location: (location within the site or office)

Object or Substance that COULD have Caused Harm:

Task Being Performed Just Prior to the Event: (Describe the work objective, the specific activity being carried out, and any tools or equipment being used)

Full Description of Event: (include task being performed, how the event occurred, equipment being used at the time, materials involved, workplace condition, and any other impacts)

SECTION 1

Project Name:	**Project Number:**

SECTION 2: HAZARD MITIGATION

Factors in Event: (check all that apply)

☐ Mental stress factor	☐ Fatigue	☐ Remote site health
☐ Alcohol/drugs	☐ Exposure to sound/noise	☐ Exposure to particulates
☐ Biological exposure	☐ Mechanical vibration	☐ Cold Stress
☐ Chemical exposure	☐ Travel health	☐ Heat Stress
☐ Exposure to ionizing radiation	☐ Exposure to non-ionizing radiation	☐ Pre-existing medical condition
☐ Exposure to gas or vapour	☐ Repetitive movements	☐ Working at height
☐ Other muscular stress	☐ Other health/exposure	☐ Workplace design
☐ Non-compliance	☐ Equipment/property design	☐ Lifting/Hoisting
☐ Electrical	☐ Equipment/property fire	☐ Equipment/property damage
☐ Equipment failure	☐ Housekeeping	☐ Not otherwise specified

Actual Consequence Level (1 to 5):	

Potential Risk Classification Table: (This table is used to determine if the Actual Consequence Level was a reasonably expected outcome or if the outcome could have been even worse. If the maximum reasonable outcome was high or critical, corrective actions must be put in place to lower future reasonable outcomes.)

Probability	Consequence: 1 Minor	2 Medium	3 Serious	4 Major	5 Catastrophic
A – Almost Certain	Moderate	High	Critical	Critical	Critical
B – Likely	Moderate	High	High	Critical	Critical
C – Possible	Low	Moderate	High	Critical	Critical
D – Unlikely	Low	Low	Moderate	High	Critical
E – Rare	Low	Low	Moderate	High	High

	Max Reasonable Consequence (1 to 5):		**Max Reasonable Outcome:** ☐ Critical ☐ High ☐ Moderate ☐ Low
	Max Reasonable Probability (A to E):		

What can be done to prevent this from happening in the future? Include specific action items and dates completed.

SECTION 2

SITE VISITOR LOG

Project Name: _____

Project Number: _____

Date	Name/Signature	Company/Organization	Purpose of Visit	Arrival Time	Departure Time

Safety Inspector:_____Site/Project:_____Date:_____

License Plate:_____Make/Model/Color: _____

Insert a check mark ✓ if ok, or an ✗ if there is an item deficiency.

Date						
Mileage: note current mileage						
Tires: Tread in good repair? No cracks or cuts? Properly inflated? **Indicate date of purchase and/or last rotation.**						
Brakes						
Parking brake						
Engine fluids level/pressure: No indicator lights or visible leaks?						
Provide date of last oil change						
Steering						
Windshield/Windows: not cracked or scratched to a degree that blocks vision?						
Windshield Wipers: Present and in good repair?						
Heater / Defroster						
Hazard Lights						
Head / tail lights						
Turn indicators						
Seatbelts Adequate for the number of passengers? In good repair?						
Mirrors: not cracked or scratched to a degree that blocks vision?						
Instrument gauges: All gauges work and no warning lights are illuminated?						
General Housekeeping: Cab not cluttered? Loads properly secured?						
Horn						
Initials of Inspector						

Description of Deficiencies and Corrective Actions:

_____

NOTE: if self inspecting, photographs of all four sides of vehicle and dashboard clear of warning lights must be attached to this checklist for each date driven.

HOT WORK PERMIT

All temporary operations that involve open flames or produce heat and/or sparks require a Hot Work Permit. This includes, but is not limited to: Brazing, Cutting, Grinding, Soldering, Thawing, and Welding.

INSTRUCTIONS FOR SAFETY SUPERVISOR

1. **Verify precautions listed at right (or do not proceed with the work).**
2. **Complete page 1 and retain for job files.**
3. **Post page 2 in vicinity of hot work.**

Date	**Job No.**

Location (Be Specific)

Description of Work Being Performed

Name of Person/Contractor Doing Hot Work

The above location has been examined, the precautions checked on the Hot Work Checklist have been taken to prevent fire, and permission is authorized for this work.

Signed: _____
(Permit Authorizing Individual)

Signed: _____
(Person doing Hot Work)

Signed: _____
(Fire Watch)

Time Started:

Date:_____ Time: _____ AM/PM

Date:_____ Time: _____ AM/PM

FIRE WATCH SIGNOFF

Work area and all adjacent areas to which sparks and h might have spread were inspected during the fire wa period and were found fire safe.

Signed: _____

FINAL CHECKUP (minimum 30 minutes after Hot Work)

Work area was monitored for_____hour(s) following Hot Work and found fire safe.

Signed: _____

HOT WORK CHECKLIST

OK NA

☐ ☐ Hot Work Equipment in good condition (e.g., power source, welding leads, torches, etc.).

☐ ☐ Multi-purpose fire extinguisher and/or water pump can.

REQUIREMENTS WITHIN 35 FEET OF WORK

☐ ☐ Debris, flammable Liquids, dry weeds, flammable solids, and oily deposits removed.

☐ ☐ Explosive atmosphere in area checked for and eliminated.

☐ ☐ Combustible surfaces wet down and covered with damp sand or fire blankets.

☐ ☐ Remove flammable and combustible material where possible. Otherwise protect with fire blankets, guards, or metal shields.

WORK IN CONFINED SPACES

☐ ☐ Confined space cleaned of all combustibles (example: grease, oil, flammable vapors).

☐ ☐ Containers purged of flammable liquids/vapors.

☐ ☐ Follow confined space guidelines.

FIRE WATCH/HOT WORK AREA MONITORING

☐ ☐ Fire watch will be provided during and for 30 minutes after work, including any coffee or lunch breaks.

☐ ☐ Fire watch is supplied with an extinguisher, and/or water pump can, also making use of other extinguishers located throughout work area.

☐ ☐ Fire watch is trained in use of this equipment and familiar with fire notification procedures.

☐ ☐ Fire watch may be required for opposite side of vent shafts, plates, scrap metal, etc.

☐ ☐ Post warning sign when others are working in the vicinity

OTHER PRECAUTIONS TAKEN (LIST)

_____

_____

_____

WARNING!

HOT WORK IN PROGRESS
WATCH FOR FIRE!

IN CASE OF AN EMERGENCY:

CALL: FIRE DEPARTMENT

AT: 911

WARNING!

AIR MONITORING LOG

Project Name:	**Project Number:**
Date:	**Sampler(s):**
Instrument(s) Make/Model:	
Calibration Date(s)/Time(s):	
Monitoring Location(s):	

Time	Constituents:									Notes
	O_2 (%)	CO (ppm)	H_2S (ppm)	CH_4 (%LEL)	PID (ppm)	*	*	*	*	
	Action Level**:									
	<19.5% >23.5%	35	10	10						

*Add/Edit constituents and units as needed.

**Determine project specific action levels. Add/revise as needed.

Attachment A

Heat and Cold Stress Casualty Prevention Program

HEAT & COLD STRESS

CASUALTY PREVENTION PLAN

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1.0 HEAT STRESS CASUALTY PREVENTION PLAN

The increase in ambient air temperature and decreased body ventilation caused by protective outerwear creates an increase in the potential for injury, specifically, heat stress. Site personnel will be instructed in the identification of heat stress, the first-aid treatment procedures for the worker, and the prevention of heat stress casualties.

1.1 Sources of Heat Stress

Any process or job site that is likely to raise the workers deep core temperature (often listed as higher than 100.4 degrees F (38°C)) raises the risk of heat stress. Operations involving high air temperatures, radiant heat sources, high humidity, direct physical contact with hot objects, or strenuous physical activities have a high potential for inducing heat stress in employees. Outdoor operations conducted in hot weather especially those that require workers to wear semi-permeable or impermeable protective clothing, are also likely to cause heat stress among exposed workers.

Age, weight, degree of physical fitness, degree of acclimatization, metabolism, dehydration, use of alcohol or drugs, and a variety of medical conditions such as hypertension all affect a person's sensitivity to heat. However, even the type of clothing worn must be considered. Prior heat injury predisposes an individual to additional injury. Individual susceptibility varies. In addition, environmental factors include more than the ambient air temperature. Radiant heat, air movement, conduction, and relative humidity all affect an individual's response to heat.

1.2 Identification and Treatment of Heat Stress

Heat stress disorders include heat stroke (which can result in death), heat exhaustion (which can result in loss of consciousness, but responds well to treatment), heat cramps, heat rashes, and heat fatigue. The following sections list specifics on each condition, and how to treat the condition.

1.2.1 Heat Stroke

Heat Stroke is the most serious heat related disorder and occurs when the body's temperature regulation fails and body temperature rises to critical levels. The condition is caused by a combination of highly variable factors, and its occurrence is difficult to predict. Heat stroke is a medical emergency that may result in death.

Symptoms: The primary signs and symptoms of heat stroke are confusion; irrational behavior; loss of consciousness; convulsions; a lack of sweating (usually); hot, dry skin; and an abnormally high body temperature (between 107ºF and 110ºF). Unconsciousness follows quickly and death is imminent if exposure continues. The attack will usually occur suddenly.

First Aid: If a worker shows signs of possible heat stroke, professional medical treatment should be obtained immediately. The worker should be placed in a shady, cool area and the outer clothing should be removed. The worker's skin should be wetted and air movement around the worker should be increased to improve evaporative cooling until professional methods of cooling are initiated and the seriousness of the condition can be assessed. Fluids should be replaced as soon as possible. The medical outcome of an episode of heat stroke depends on the worker's physical fitness and the timing and effectiveness of first aid treatment.

Regardless of the worker's protests, no employee suspected of being ill from heat stroke should be sent home or left unattended unless a physician has specifically approved such an order.

1.2.2 Heat Exhaustion

Heat exhaustion can be a precursor to heat stroke. However, unlike heat stroke, heat exhaustion responds readily to prompt treatment.

Symptoms: Usually begins with headache, nausea, vertigo, muscle weakness, thirst, and giddiness. Vomiting is common and the bowels may move involuntarily. The worker is very pale, his skin is clammy, and he may perspire profusely. The pulse is weak and fast, and breathing is shallow. Heat collapse may occur unless he lies down. This may pass, but sometimes it remains and death could occur.

First Aid: Immediately remove the worker to in a shady or cool area with good air circulation (in Zone 2, the Contamination Reduction Zone, if at a contaminated site). Remove all protective outer wear. Treat the worker for shock (make him lie down, raise his feet 6-12 inches and keep him warm, but loosen all clothing). If the worker is conscious, it may be helpful to give him sips of a salt-water solution (one teaspoon of salt to one glass of water). If the worker does not respond quickly to first aid, obtain professional medical assistance.

1.2.3 Heat Collapse

Heat collapse is often associated with heat exhaustion. In heat collapse, the brain does not receive enough oxygen because blood pools in the extremities. As a result, the exposed individual may lose consciousness. This reaction is similar to that of heat exhaustion and does not affect the body's heat balance. However, the onset of heat collapse is rapid and unpredictable and can be dangerous especially if workers are operating machinery or controlling an operation that should not be left unattended. The worker may also be injured when he or she faints.

Symptoms: Rapid loss of consciousness, other symptoms are similar to heat exhaustion or heat stroke.

First Aid: Check to see if the worker is breathing. If he or she is breathing, position the person on his or her back. Raise the worker's legs at least 12 inches above the ground.
Remove all protective outer wear as gently as possible. Loosen any restrictive clothing or belts. If the worker does not regain consciousness within one minute, call 911. Check the person's airway to make sure it is not obstructed. Check again to see if the person is breathing, coughing, or moving. These are signs of positive circulation. If these signs are absent, start CPR until emergency personnel arrive. If the worker regains consciousness, follow first aid guidance under heat exhaustion.

1.2.4 Heat Cramps

Heat Cramps are usually caused by performing hard physical labor in a hot environment. These cramps have been attributed to an electrolyte imbalance caused by sweating. Cramps appear to be caused by the lack of water replenishment. Because sweat is a hypotonic solution (±0.3% NaCl), excess salt can build up in the body if the water lost through sweating is not replaced. Thirst cannot be relied on as a guide to the need for water; instead, water must be taken every 15 to 20 minutes in hot environments. Under extreme conditions, such as working for 6 to 8 hours in heavy protective gear, a loss of sodium may occur.

Symptoms: Muscle cramps, often in the legs, but could occur in any portion of the body.

First Aid: Recent studies have shown that drinking commercially available carbohydrate-electrolyte replacement liquids is effective in minimizing physiological disturbances during recovery.

1.2.5 Heat Rashes

Heat Rashes are the most common problem in hot work environments where the skin is persistently wetted by unevaporated sweat.

Symptoms: Prickly heat is manifested as red papules and usually appears in areas where the clothing is restrictive. As sweating increases, these papules give rise to a prickling sensation. Heat rash papules may become infected if they are not treated.

First Aid: In most cases, heat rashes will disappear when the affected individual returns to a cool environment.

1.3 Prevention of Heat Stress

Acclimatize workers by exposing them to work in a hot environment for progressively longer periods. NIOSH (1986) suggests that workers who have had previous experience in jobs where heat levels are high enough to produce heat stress may acclimatize with a regimen of 50% exposure on day one, 60% on day two, 80% on day three, and 100% on day four. For new workers who will be similarly exposed, the regimen should be 20% on day one, with a 20% increase in exposure each additional day.

Replace Fluids by providing cool (50°-60°F) water or any cool liquid (except alcoholic beverages) to workers and encourage them to drink small amounts frequently, e.g., one cup every 20 minutes. Ample supplies of liquids should be placed close to the work area. Although some commercial replacement drinks contain salt, this is not necessary for acclimatized individuals because most people add enough salt to their summer diets.

Reduce the physical demands by reducing physical exertion such as excessive lifting, climbing, or digging with heavy objects. Spread the work over more individuals, use relief workers or assign extra workers. Provide external pacing to minimize overexertion.

Provide recovery areas such as air-conditioned enclosures, rooms, or work trucks and provide intermittent rest periods with water breaks.

Reschedule hot jobs for the cooler part of the day, and routine maintenance and repair work in hot areas should be scheduled for the cooler seasons of the year.

A work/rest guideline will be implemented for personnel required to wear Level C protection. The maximum wearing time guidelines are as follows:

Ambient Temperatures	Maximum Wearing Time
Above 90º F	½ hour
80º - 90º F	1 hour
70º - 80º F	2 hours
60º - 70º F	3 hours
50º - 60º F	4 hours
40º - 50º F	5 hours
30º - 40º F	6 hours
Below 30º F	8 hours

A sufficient period will be allowed for personnel to “cool down.” This may require shifts of workers during operations.

1.3.1 Personal Protective Equipment to Minimize Heat Stress

Reflective clothing, which can vary from vests and jackets to suits that completely enclose the worker from neck to feet, can reduce the radiant heat reaching the worker. However, since most reflective clothing does not allow air exchange through the garment, the reduction of radiant heat must more than offset the corresponding loss in evaporative cooling. For this reason, reflective clothing should be worn as loosely as possible. In situations where radiant heat is high, auxiliary cooling systems can be used under the reflective clothing.

Auxiliary body cooling ice vests, though heavy, may accommodate as many as 72 ice packets, which are usually filled with water. Carbon dioxide (dry ice) can also be used as a coolant. The cooling offered by ice packets lasts only 2 to 4 hours at moderate to heavy heat loads, and frequent replacement is necessary. However, ice vests do not tether the worker and thus permit maximum mobility. Cooling with ice is also relatively inexpensive.

Wetted clothing such as terry cloth coveralls or two-piece, whole-body cotton suits are another simple and inexpensive personal cooling technique. It is effective when reflective or other impermeable protective clothing is worn. This approach to auxiliary cooling can be quite effective under conditions of high temperature, good air flow, and low humidity.

1.4 Heat Stress Monitoring

Monitor workers who are at risk of heat stress, such as those wearing semi-permeable or impermeable clothing when the temperature exceeds 70°F, while working at high metabolic loads (greater than 500 kcal/hour). Personal monitoring can be done by checking the heart rate, recovery heart rate, oral temperature, or extent of body water loss.

Heart rate (HR) should be measured by the radial pulse for 30 seconds as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats per minute. If the HR is higher, the next work period should be shortened by or 33%, while the length of the rest period stays the same. If the pulse rate is 100 beats per minute at the beginning of the next rest period, the following work cycle should be shortened by 33%.

The recovery heart rate can be checked by comparing the pulse rate taken at 30 seconds (P1) with the pulse rate taken at 2.5 minutes (P3) after the rest break starts. The two pulse rates can be interpreted using the following criteria.

Heart rate recovery pattern	P3	Difference between P1 and P3
Satisfactory recovery	<90	--
High recovery (Conditions may require further study)	90	10
No recovery (May indicate too much stress)	90	<10

Body temperature should be measured orally with a clinical thermometer as early as possible in the resting period, and before the worker drinks water. Oral temperature (TO) at the beginning of the rest period should not exceed 99^{o} F. If it does, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest period stays the same. However, if the TO exceeds 99.7^{o} F at the beginning of the next period, the following work cycle should be further shortened by 33%. TO should be measured again at the end of the rest period to make sure it has dropped below 99^{o} F.

1.5 Heat Stress Training

Workers should be properly trained on the above Heat Stress program, and should be aware of the following:

- Knowledge of the hazards of heat stress;
- Recognition of predisposing factors, danger signs, and symptoms;
- Awareness of first-aid procedures for, and the potential health effects of, heat stroke;
- Employee responsibilities in avoiding heat stress;
- Dangers of using drugs, including therapeutic ones, and alcohol in hot work environments;
- Use of protective clothing and equipment; and
- Purpose and coverage of environmental and medical surveillance programs and the advantages of worker participation in such programs.

1.6 Heat Stress References

https://www.osha.gov/SLTC/emergencypreparedness/guides/heat.html

2.0 COLD STRESS CASUALTY PREVENTION PLAN

Anyone working in a cold environment may be at risk of cold stress. Some workers may be required to work outdoors in cold environments and for extended periods, which creates an increase in the potential for cold stress injury. Site personnel will be instructed in the identification of cold stress, the first-aid treatment procedures for the worker, and the prevention of cold stress casualties.

2.1 Sources of Cold Stress

What constitutes extreme cold and its effects can vary across different areas of the country. In regions that are not used to winter weather, near freezing temperatures are considered "extreme cold." A cold environment forces the body to work harder to maintain its temperature. Whenever temperatures drop below normal and wind speed increases, heat can leave your body more rapidly. Wind chill is the temperature your body feels when air temperature and wind speed are combined. For example, when the air temperature is 40°F, and the wind speed is 35 mph, the effect on the exposed skin is as if the air temperature was 28°F. Cold stress occurs by driving down the skin temperature and eventually the internal body temperature (core temperature). This may lead to serious health problems, and may cause tissue damage, and possibly death.

Risk factors that contribute to cold stress include wetness/dampness, dressing improperly, and exhaustion, predisposing health conditions such as hypertension, hypothyroidism, and diabetes, and poor physical conditioning.

2.1 Identification and Treatment of Cold Stress

In a cold environment, most of the body's energy is used to keep the internal core temperature warm. Over time, the body will begin to shift blood flow from the extremities (hands, feet, arms, and legs) and outer skin to the core (chest and abdomen). This shift allows the exposed skin and the extremities to cool rapidly and increases the risk of frostbite and hypothermia. Combine this scenario with exposure to a wet environment, and trench foot may also be a problem.

As a general rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increases to 10 mph. Additionally, water conducts heat 240 times faster than air. Thus, the body cools suddenly when chemical-protective equipment is removed if the clothing underneath is soaked in perspiration. Special protection of the hands is required to maintain manual dexterity for the prevention of accidents. Additional caution shall be exercised when workers are exposed to vibration, since blood circulation in extremities may already be impaired. Eye protection shall be worn by workers employed out of doors in a snow and/or ice terrain.

Trauma sustained in freezing or sub-zero conditions requires special attention because an injured worker is predisposed to secondary cold injury. Provisions must be made to prevent hypothermia and secondary freezing of damaged tissues, in addition to providing for first aid treatment.

2.1.1 Hypothermia

Hypothermia occurs when body heat is lost faster than it can be replaced and the normal body temperature (98.6°F) drops to less than 95°F. Hypothermia is most likely at very cold temperatures, but it can occur even at cool temperatures (above 40°F), if a person becomes chilled from rain, sweat, or submersion in cold water.

Symptoms: In the mild symptoms of hypothermia, the exposed worker is still alert, but he or she may begin to shiver and stomp the feet in order to generate heat. As the body temperature continues to fall, symptoms will worsen and shivering will stop. The worker may lose coordination and fumble with items in

the hand, become confused and disoriented, he or she may be unable to walk or stand, pupils become dilated, pulse and breathing become slowed, and loss of consciousness can occur. A person could die if help is not received immediately.

First Aid: Call 911 immediately in an emergency; otherwise seek medical assistance as soon as possible. Move the person to a warm, dry area. Remove wet clothes and replace with dry clothes, cover the body (including the head and neck) with layers of blankets; and with a vapor barrier (e.g. tarp, garbage bag). Do not cover the face.

If medical help is more than 30 minutes away, give warm sweetened drinks if alert (no alcohol), to help increase the body temperature. Never try to give a drink to an unconscious person. Place warm bottles or hot packs in armpits, sides of chest, and groin. Call 911 for additional rewarming instructions.

If a person is not breathing or has no pulse, call 911 for emergency medical assistance immediately. Treat the worker as per instructions for hypothermia, but be very careful and do not try to give an unconscious person fluids. Check him/her for signs of breathing and for a pulse. Check for 60 seconds. If after 60 seconds the affected worker is not breathing and does not have a pulse, trained workers may start rescue breaths for 3 minutes. Recheck for breathing and pulse, check for 60 seconds. If the worker is still not breathing and has no pulse, continue rescue breathing. Only start chest compressions per the direction of the 911 operator or emergency medical services. Reassess patient's physical status periodically.

2.1.2 Frostbite

Frostbite is an injury to the body that is caused by freezing of the skin and underlying tissues. The lower the temperature, the more quickly frostbite will occur. Frostbite typically affects the extremities, particularly the feet and hands. Amputation may be required in severe cases.

Symptoms: Reddened skin develops gray/white patches. Numbness in the affected body part, and the body part feels firm or hard. In severe cases, blisters may occur in the affected part.

First Aid: Follow the recommendations described above for hypothermia. Do not rub the affected area to warm it because this action can cause more damage. Do not apply snow/water. Do not break blisters. Loosely cover and protect the area from contact. Do not try to rewarm the frostbitten area before getting medical help; for example, do not place in warm water. If a frostbitten area is rewarmed and gets frozen again, more tissue damage will occur. It is safer for the frostbitten area to be rewarmed by medical professionals. Give warm sweetened drinks, if the person is alert. Avoid drinks with alcohol.

2.1.3 Trench Foot

Trench Foot or immersion foot is caused by prolonged exposure to wet and cold temperatures. It can occur at temperatures as high as 60°F if the feet are constantly wet. Non-freezing injury occurs because wet feet lose heat 25-times faster than dry feet. To prevent heat loss, the body constricts the blood vessels to shut down circulation in the feet. The skin tissue begins to die because of a lack of oxygen and nutrients and due to the buildup of toxic products.

Symptoms: Redness of the skin, swelling, numbness, blisters

First Aid: Call 911 immediately in an emergency; otherwise seek medical assistance as soon as possible. Remove the shoes, or boots, and wet socks. Dry the feet.

2.2 Prevention of Cold Stress

Engineering controls can be used to warm the work area. For example, radiant heaters may be used to warm workers in outdoor stations. If possible, shield work areas from drafts or wind to reduce wind chill.

Safe work practices should be used to help prevent cold stress. For example, it is easy to become dehydrated in cold weather. Workers should be provided with plenty of warm sweetened liquids (avoid alcoholic drinks). If possible, heavy work should be scheduled during the warmer part of the day. Workers should be assigned to tasks in pairs (buddy system), so that they can monitor each other for signs of cold stress. Workers should be allowed to interrupt their work, if they are extremely uncomfortable. Workers should be allowed frequent breaks in warm areas (including inside a heated truck). Acclimatize new workers and those returning after time away from work, by gradually increasing their workload, and allowing more frequent breaks in warm areas, as they build up a tolerance for working in the cold environment.

Dressing properly is extremely important to preventing cold stress. The type of fabric worn also makes a difference. Cotton loses its insulation value when it becomes wet. Wool, silk and most synthetics, on the other hand, retain their insulation even when wet. The following are recommendations for working in cold environments:

Wear at least three layers of loose fitting clothing. Layering provides better insulation. Do not wear tight fitting clothing. An inner layer of wool, silk or synthetic helps keep moisture away from the body. A middle layer of wool or synthetic helps provide insulation even when wet. An outer wind and rain protection layer helps allows some ventilation to prevent overheating. Wear a hat or hood to help keep your whole body warmer. Hats reduce the amount of body heat that escapes from your head. Use a knit mask to cover the face and mouth (if needed). Use insulated gloves to protect the hands (water resistant if necessary). Wear insulated and waterproof boots (or other footwear).

2.3 Cold Stress Training

Workers should be properly trained on the above Heat Stress program, and should be aware of the following:

- Knowledge of the hazards and symptoms of cold stress.
- Monitor your physical condition and that of your coworkers.
- Dress properly for the cold.
- Stay dry in the cold because moisture or dampness (e.g. from sweating) can increase the rate of heat loss from the body.
- Keep extra clothing (including underwear) handy in case you get wet and need to change.
- Drink warm sweetened fluids (no alcohol).
- Use proper engineering controls, safe work practices, and personal protective equipment (PPE) provided by your employer.

2.4 Cold Stress References

https://www.osha.gov/SLTC/emergencypreparedness/guides/cold.html
http://www.cdc.gov/niosh/topics/coldstress/

Attachment B

Health and Safety Requirements for Drilling Operations

HEALTH AND SAFETY REQUIREMENTS FOR DRILLING OPERATIONS

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HEALTH AND SAFETY REQUIREMENTS FOR DRILLING OPERATIONS

1.0 INTRODUCTION & POLICY

INTERA Inc. (INTERA) considers the prevention of illness, injury, and accidents in the work place to have greater importance than any other facet of the work. Safety will always take precedence over expediency or shortcuts, and every attempt will be made to reduce the possibility of injury, illness, or accident occurrence in the performance of drilling operations.

All personnel, including INTERA subcontractors, lower tier subcontractors, consultants, and service personnel, who perform any task in relation to the drilling efforts or are visitors to the drilling site(s) must adhere to the provisions of these requirements

As personnel safety is of the highest priority in performance of the work at this site, INTERA personnel will suspend drilling operations when an unsafe practice or condition is observed. Drilling will not proceed until the unsafe practice or condition is corrected. The subcontractor shall not be compensated for efforts required to correct any unsafe practice or condition created by his/her actions.

All applicable Federal, State, County and City safety regulations and practices shall be strictly adhered to at all times. These regulations and practices shall include, but are not solely limited to, the wearing of approved safety hats, shoes, glasses, hearing protection, and etc. No unauthorized personnel, private vehicles, cameras, firearms, personal pets, illicit drugs, or alcoholic beverages will be allowed on the designated project area.

The contractor shall be responsible for monitoring of subcontractor personnel required by OSHA, e.g. silica and heavy metals. All subcontractor personnel shall adhere to the INTERA operational health and safety regulations. **The "Statement of understanding" contained in the back of the INTERA Health and Safety Regulations for Drilling Operations must be signed by all Subcontractor personnel (including any lower tier) prior to working on this project.**

2.0 RESPONSIBILITIES AND AUTHORITIES

2.1 GENERAL

All personnel, including subcontractors, and site visitors shall receive **daily** safety instruction and information regarding potential safety hazards at the site. Daily on-site safety briefings shall be conducted by the Site Health and Safety Officer. Such daily training will be documented in the project records. All visitors will be escorted by a representative during their presence at the drilling site(s).

All personnel, including INTERA and lower-tier subcontractors, (including replacement and/or additional personnel) working on the drilling project must have met the minimum training requirements and have proof of their training as set forth in the site-specific health and safety plan developed for the project. Each individual's training must be documented prior to that person performing any work on the project. The following responsibilities and authorities are assigned with respect to compliance and implementation of these minimum requirements:

2.2 PERSONNEL

- The **Project Manager** shall be responsible for assigning a qualified field supervisor to the project who is cognizant of the required tasks and knowledgeable of drilling techniques and drilling safety procedures. The Project Manager is also responsible for providing adequate logistical support to ensure maximum safety during the drilling operations.

- The **Site Manager** shall be responsible for the day-to-day field operations and compliance with these requirements. The Site Manager shall fully coordinate the field drilling activities with the on-site Health and Safety technician and other responsible field personnel to assure that all drilling tasks are performed in the safest manner possible. Any violation of the provisions of these requirements will be reported immediately to the INTERA Corporate Health and Safety Officer and to the Project Manager. Should any variance from standard drilling procedures be required in completion of the designated drilling tasks, the Site Manager shall obtain concurrence from the Project Manager and the INTERA Health and Safety Officer prior to implementation.

- The **Site Health and Safety Officer** is responsible for the on-site monitoring of industrial and environmental safety, monitoring for compliance with the health and safety requirements, and any site-specific health and safety plan(s). The Site Health and Safety Officer shall take immediate corrective action when a safety violation is observed or reported.

- It shall be the responsibility of all **Field Personnel** working on a drilling project to promote safety at all times in the performance of their assigned tasks. All field personnel shall be aware of suspected site-specific hazards and shall be adequately trained to respond to such hazards in a safe and timely manner. In addition, it is the responsibility of all field personnel to report any real or suspected unsafe situation, act, or questionable practice immediately to the Site Health and Safety Officer or Field Supervisor.

A INTERA representative shall be on site at all times when drilling operations are in progress.

2.3 SUBCONTRACTOR AND SUBCONTRACTOR PERSONNEL:

The subcontractor is responsible for the safety of his/her operations as well as those operations of his/her subcontractor(s), who are also subject to all provisions of these minimum requirements. Any injury/illness that occurs as a direct result of work being performed under a subcontract or purchase order requires the subcontractor to notify INTERA **immediately** as well as submitting an accident report covering the incident. The accident report is to be submitted to the INTERA Corporate Health and Safety Officer within 24 hours of the accident. The subcontractor is required to participate in any INTERA internal investigation of such accident(s). The subcontractor is responsible to notify OSHA in accordance with 29CFR1904, as applicable.

The subcontractor must have a written and functional safety program to protect site workers, the general public, and the environment. The scope of the subcontractor program will be determined by the size and complexity of the project and the recognizable hazards of the work to be performed. Before work commences, this safety management program and implementation plan must be reviewed and approved, in writing, by the INTERA Health and Safety Officer.

2.3.1 The Drill Rig (Driller) Operator:

- The subcontractor shall designate, in writing, the on-site person who is in full charge of subcontractor's operations. The drill rig operator shall:
- consider safety as the primary importance and have and exercise the required authority to enforce safety at all times.
- be the leader in using proper personal safety gear and set an example in adhering to the rules and regulations that are set forth for the project.
- enforce the use of proper personal protective safety equipment (PPE) and take appropriate corrective action when proper PPE equipment is not being used or being used improperly by other subcontractor personnel.
- understand that proper maintenance of tools and equipment and general "housekeeping" on and around the drill rig will provide an appropriate environment to promote and enforce safety.
- visually inspect the rig and ancillary equipment **daily,** and preferably at the start of each drilling shift, to insure that the required safety devices, e.g., emergency engine shut-down switches and back-up alarms, are installed and are functional.
- inspect the rig to insure that applicable safety placards are installed at potential safety hazard locations as recommended by the manufacturer.
- inspect the drill rig at least daily for structural damage, excessive wire rope and rigging wear, improper wire rope spooling, loose bolts and nuts, proper tension in chain drives, loose or missing guards or protective covers, fluid leaks, and damaged or non-functioning pressure gauges and pressure relief valves. Any discrepancy will be corrected prior to operation of the rig.
- document all inspections, including daily, weekly, or periodic on the daily drilling report form at the time of inspection.
- have had adequate training on that rig type and is thoroughly familiar with the rig's controls, capabilities, limitations, and operating parameters.
- assure that all crew members are aware of the location and are capable of operating all emergency shut-down devices.
- monitor all gauges and warning lights and that control levers are functioning properly while the rig is operating.
- assure that all new drill rig workers are informed of safe operating practices on and around the drill rig.
- assure that each new employee understands the safety requirements and practices and shall document the new employee's acceptance of the requirements.
- observe the mental, emotional, and physical capability of each worker to perform the assigned work in a proper and safe manner. No person who is obviously impaired to a point of being detrimental to safety or task performance will be allowed to work on the rig or remain on the immediate drill site.
- assure that there is a fully stocked first-aid kit and two 10-lb U.L.-listed, Class ABC rated, fire extinguishers (that meets DOT standards) on the rig at all times.
- be trained to proficiency and capable of using first-aid kits, fire extinguishers and all other safety devices and equipment. At least one member of the drill crew shall possess a valid certificate of First Aid/CPR training from the U.S. Bureau of Mines, American Red Cross, or equivalent training. Training shall be documented.
- maintain a current, posted list of addresses and telephone numbers of emergency assistance units (ambulance services, police, hospitals, etc.) and shall inform other members of the drill crew of the existence, location and proper use of the list.

3.0 Individual Protective Equipment

- Any personal protective equipment (PPE) provided must meet NIOSH/ANSI specifications
- Clothing must be close fitting and comfortable, but without loose ends, straps, draw strings or belts or otherwise unfastened parts that might catch on rotating or moving component of the drill.
- Safety Head Gear. Approved safety hats (hard hats) will be worn properly at all times by everyone working or visiting within the posted perimeter of the drill site. Head protection shall be non-conductive to prevent from limited electrical shock and shall meet requirements of ANSI Standard Z89.1. It is recommended that safety hats be worn anytime when within 100 feet of an active rig.
- Safety Shoes or Boots. Safety shoes or boots shall be worn by all drilling personnel and all visitors to the drill site that observe drilling operations within close (within posted perimeter of drill site) proximity of the drill rig. Foot protection shall meet the requirements of ANSI Standard Z41.1, Class 75.
- Safety Glasses. All drilling personnel and visitors to the drill site are required to wear approved safety glasses with side shields or goggles while the drill rig is in operation or other drilling functions are being performed. Prescription glasses shall be an approved safety type or goggles must be used. Additional eye protection is required for work more hazardous to eyes, e.g. welding, cutting, grinding, or handling of chemicals. All eye protection shall meet ANSI Z87.1 standards.
- Gloves. All drilling personnel shall wear gloves for protection against cuts and abrasion which could occur while handling wire rope or cable and from contact with sharp edges and burrs on drill rods, drill pipe and other drilling or sampling tools.
- Hearing Protection. All drill crew personnel, site workers, and drill site visitors shall wear noise reducing ear protection when appropriate. In accordance with USDOE Order 5480.4, hearing protection is mandatory on DOE sites when the time-weighted-average (TWA) noise level reaches or exceeds 85 dBA.
- Other Protective Equipment. For some drilling operations, the prevailing environment or regulations may dictate that other protective equipment be used. When drilling is performed in chemically- or radiologically-contaminated areas, special protective equipment and clothing will be used as required by the site-specific Health and Safety Plan for each given task.

4.0 Housekeeping On and Around the Drill Rig

- Suitable storage facilities shall be provided so that tools, materials and supplies can be conveniently and safely handled without creating a safety hazard for personnel on the drill site or in the adjacent area.
- Storing or transporting tools, materials, or supplies within or on the mast (derrick) of the drill rig is prohibited within the project site or area.
- Drill pipe, drill rods, casing, augers and similar drilling tools shall be properly stacked and secured on racks or sills to prevent spreading, rolling, or sliding.
- Penetration or other driving hammers shall be placed at a safe location on the ground or secured on the rig to prevent movement when not in use.
- Work areas, platforms, walkways, scaffolding and other access ways shall be kept free of materials, debris, obstructions, and substances such as ice, grease, or oil that could cause a surface to become slick or otherwise hazardous.
- All hand controls, control linkages, warning and operation lights and lenses shall be kept

free of excess oil, grease, ice, or other foreign material that may interfere with safe operation.

- Gasoline or other motor fuels or flammable liquids will not be stored in any container that does not meet current regulations for storage of the specific fuel or flammable liquid. Fueling of engines shall be done only from U.L.-approved safety cans or other approved bulk fueling system(s). Any engine to be refueled shall be shut off and sufficiently cooled before and during the refueling operation.
- All gasoline engines, when operated in fire danger areas or other areas as specified in the project SOW, will be equipped with exhaust spark arresters.
- All tanks, including fuel, water (potable and non-potable), hydraulic oil, etc., shall be labeled and placarded as to tank contents.
- All wiping clothes, oily rags, and other such materials used for maintenance shall be stored in an approved fire-resistant metal container until properly disposed of.

5.0 Maintenance Safety

- Shut down the drill rig and/or auxiliary equipment engine(s) to make repairs or adjustments or to lubricate fittings (except repairs or adjustments that can only be made with the engine(s) running. In such cases, a qualified operator shall remain at the shut-down control station during the maintenance). Take precautions to prevent accidental starting of an engine during maintenance by removing, locking, and tagging out the ignition key or ignition control(s).
- Block the rig carrier wheels and/or lower the leveling jacks or both and set parking brakes before working under a drill rig.
- When possible and appropriate, release all pressure on the hydraulic systems, the drilling fluid circulation system and the air pressure systems of the drill rig prior to performing maintenance or repairs. Use lockout/tagout controls.
- Welding or cutting on or near a fuel tank or other flammable material is prohibited. If fuel tank repairs, requiring cutting or welding, are required, the tank(s) shall be removed from the project before repairs are attempted.
- Do not use gasoline or other volatile or flammable liquids as a cleaning agent on or around a drill rig.
- Replace all caps, filler plugs, protective guards or panels, high pressure hose clamps and safety chains or cables that have been removed for maintenance before returning the drill rig to service.
- Personnel shall remain clear of all rotating equipment.
- All exposed drive shafts, drive chains and sprockets, drive belts, and similar power transmitting components shall have guards installed, as per OSHA and equipment manufacturer standards, during drilling operations.
- All exposed exhaust pipe(s) and/or systems shall be guarded or insulated adequately to protect personnel from burns and prevent fire hazards.
- All air and fluid circulation hose connections shall be secured with safety chains or clamped to prevent whipping in the event of a break or failure.
- Each crew member shall promptly report any worn, defective, or unsafe items which are observed to the driller or on-site subcontractor supervisor.
- Pipelines, tanks, and other storage facilities (for fuel, oil, gas, mud, foamers, etc.) shall be inspected frequently and kept from leaking. Any spills or leaks will be cleaned up immediately.
- A spill-containment plan shall be addressed in the subcontractor's written safety program for

the project.

6.0 Safe Use of Hand Tools

- When a hand tool becomes damaged, the tool shall either be repaired before further usage or removed and tagged out of service.
- Hand tools shall be used only for the express purpose for which they were designed.
- Keep all tools cleaned and stored in an orderly, safe manner when not in use.
- Never use pipe wrenches as substitute for a rod holding device.
- Replace pipe wrench hook and heel jaws when they become visibly worn.
- When breaking tool joints manually on a hard surface or on a drilling platform, position hands so that fingers will not be injured between the wrench handle and the hard surface or the platform, should the wrench slip or the joint suddenly release.

7.0 Clearing the Work Area

- Prior to drilling, adequate site clearing and leveling shall be performed to accommodate the drill rig, ancillary equipment, and supplies and provide a safe working area. Drilling shall not be commenced when tree limbs, dry vegetation, unstable ground or site obstructions may cause unsafe tool handling or potential fire hazards.

8.0 Start Up

- All drill rig personnel and visitors shall be instructed to stand clear of the drill rig or auxiliary equipment immediately prior to and during starting of an engine.
- Make sure all gear boxes are in neutral, all drawworks clutches and hoist levers are disengaged or in the neutral position, all hydraulic levers are in the correct non-actuating positions,and the cathead rope is not on the cathead spool before starting a drill rig engine or engaging the power train.

9.0 Safety During Drilling Operations

- No personnel, other than the assigned rig crew, shall be allowed on or under an operating rig deck for any reason. No personnel shall attempt to make any type of inspection of the subcontractor's equipment unless a subcontractor representative is present during the inspection.
- The drill rig shall not be moved from hole to hole with the mast (derrick) in the raised position.
- Before raising the mast (derrick), always check for overhead wires and obstructions. An observer shall be posted at a strategic location to ensure adequate clearance is maintained (see section 2.3.9).
- The mast shall not be raised or lowered during wind speeds that exceed the rig manufacturer's maximum wind load design or when visibility is restricted.
- Before raising or lowering the mast (derrick), the area shall be inspected for potential safety hazards. All unnecessary drill rig personnel and visitors shall be cleared from the areas immediately to the rear, front and the sides of the mast. Once the mast is raised into position, the mast or derrick locks will be secured. The rig shall not be operated unless mast locks are functional and are locked. Prior to lowering, mast hydraulic system(s) will be

checked for proper operation.

- Before the mast (derrick) of a drill rig is raised and drilling is commenced, the drill rig must be first leveled and stabilized with leveling jacks and/or solid cribbing. The drill rig shall be releveled immediately if settling occurs after the initial set-up.
- The operator of a drill rig shall operate a drill rig only from the driller's control station. **The operator shall remain at the control station at all times when the rig is in operation.**
- Throwing or intentional dropping of tools shall not be permitted.
- If it is necessary to drill within an enclosed area, make certain that exhaust gases are conducted out of the area and sufficient ventilation is provided.
- All unattended boreholes must be adequately covered or otherwise protected to prevent drill rig personnel, site visitors, or animals from stepping or falling into the hole. All open boreholes shall be covered, protected or backfilled adequately and according to local or state regulations on completion of the drilling project.
- When using a mast or derrick ladder, face the ladder and grasp either the side rails or the rungs with both hands while ascending or descending. The three-point system of 2 hands and 1 foot or two feet and 1 hand being in contact while climbing is mandatory. Always ensure that shoe soles are clean and dry before attempting climbing or descending the mast.
- When climbing to a mast or derrick platform that is higher than 20 feet (6 m), an approved safety climbing device shall be used. Anyone working on a derrick board, platform, or mast shall wear an approved safety belt or harness securely fastened by an approved safety lanyard.
- When working on a mast or derrick platform, do not guide drill rods or pipe into racks or other supports by taking hold of a moving hoisting line, traveling block, or other moving hoisting equipment. Rack only one pipe stand at a time. Always stay clear of moving hoisting line, traveling block, elevators, or hoisting plugs.
- Loose tools and similar items shall not be left on the derrick platform or on structural members of the derrick.
- Any working platform over 4 feet (1.2 m) above ground surface shall have 4-inch toe boards, a mid railing, and top safety railing 42 inches high installed that will withstand 200 lbs. lateral force.
- Before manually lifting any object, personnel shall ensure sure that the load is within their personal lifting capacity.
- Personnel shall not ride the hoisting line, catline, traveling block, the traveling block hook, the elevators, or any suspended equipment as a means of ascending or descending to or from the derrick.
- Assure that equipment furnished for use on the site is maintained in safe operating condition and operated only by qualified personnel. Cranes, pressure vessels, and large earth moving equipment shall have valid certificates and logs of inspection and maintenance.
- The location of the nearest phone or radio to contact emergency services shall be prominently posted. Site-specific emergency preparedness actions will be recognized and communicated to rig personnel by the subcontractor supervisor.
- **Daily** safety meetings shall be held to inform employees and other subcontractors of progress of work, changes, hazards anticipated and inspection deficiencies or good examples of employee protection. A daily "toolbox meeting" will be used to assure that good communications are maintained. A record must be kept of the subject(s) discussed and any suggestions made. Attendance will be recorded of those participants at the meeting.
- Horseplay, practical jokes, and scuffling are strictly forbidden on the drill site at all times.
- All rig steps, ladders, stairways, platforms, and walkways shall be keep free of mud, snow, ice, tools, and other materials that may cause slipping.

10.0 Overhead and Buried Utilities

- Overhead and buried utilities shall be located, noted, and emphasized on all boring location plans and boring assignment sheets. **INTERA uses a "double barrier" system for surveying underground utilities. No borehole will be drilled until the exact location to be drilled is surveyed by an independent utility locator service and their findings verified by a INTERA Utility Line Locator.**
- When overhead electrical power lines exist at or near a drilling site or project, personnel shall consider all wires to be energized and dangerous.
- Visually inspect the drill site for sagging power lines before entering the site. Do not lift power lines to gain entrance or exit. Call the responsible utility and ask them to lift or raise the lines or de-energize (turn off) the power.
- An observer or "spotter" shall be posted at a sufficient distance from the rig to adequately monitor for safe clearance (minimum of 20 feet) during the raising and lowing of the rig mast when operating in the vicinity of overhead power lines or other overhead obstructions.
- Before raising the drill rig mast (derrick) in the vicinity of power lines, walk completely around the drill rig. Determine what the minimum distance from any point on the drill rig to the nearest power line will be when the mast is raised and/or lowered. Do not raise the mast or operate the drill rig if this distance is less than 20 feet (6 m). INTERA policy for operating boomed or drilling equipment with mast, tower, or derrick in proximity of overhead power lines requires that a minimum clearance of 20 feet be maintained. The INTERA 20-foot minimum clearance requirement may only be reduced to the OSHA minimum powerline clearance requirement with approval of the INTERA technical monitor or designee. Any such approval will be granted only after a thorough inspection, which must determine that no safety hazard will be created or will exist by the application of the OSHA requirement. **UNDER NO CIRCUMSTANCES WILL MINIMUM OSHA POWERLINE CLEARANCE REQUIREMENTS BE VIOLATED UNLESS THE LINES ARE DE-ENERGIZED, GROUNDED, AND TAGGED OUT BY THE RESPONSIBLE UTILITY COMPANY OR THEIR DESIGNEE.** Any such variance will be fully documented by the grantor. In addition, a INTERA SAFE WORK PERMIT must be issued before any work is performed under the variance.

11.0 Safe Use of Electricity

- All wiring shall be installed in accordance with the National Electrical Code using high quality connections, fixtures and wire, insulated and protected with consideration of the drilling environment. Makeshift wiring and equipment shall not be permitted.
- All portable electrical equipment used by personnel shall have GFCI (ground fault circuit interrupt) protection.
- **Only qualified electricians will attempt repairs on electrical lines or installation of complex electrical devices.**
- All lights positioned above working areas shall be enclosed in cages or similar enclosures to prevent loose or detached lamps or vapor-tight enclosures from falling on workers. All light bulbs shall be heavy-duty, outdoor type, and shatterproof type.
- Electrical cables shall be guarded and located so as to prevent damage by drilling operations or by the movement of personnel, tools or supplies.
- All plug receptacles shall be the three-prong, U-blade, grounded type and have adequate current carrying capacity for the electrical tools that may be used and shall be GFCI

protected.
- All electric tools shall have three-prong, U-blade, ground wire plugs and cords.
- Do not use electrical tools with lock-on devices.
- All electrical welders, generators, control panels and similar devices will be adequately grounded.
- Electrical control panels, fuse boxes, transformers and similar equipment shall have a secure, protective enclosure. Only weatherproof boxes and fittings shall be used for exterior application. Panels, fuses, and breakers shall be labeled to indicate their function.
- Poles used to hold wiring and lights shall not be used for any other purpose.
- Power shall be turned off and locked out before changing fuses or light bulbs.

12.0 Safe Use of Wire Line Hoists, Wire Rope and Hoisting Hardware

- Any required hoisting operations which are not performed with the drill rig equipment, e.g., crane operations, shall be conducted in accordance with applicable OSHA requirements.
- All wire ropes and fittings shall be visually inspected in accordance with the manufacturer's recommendations and applicable OSHA requirements during use and thoroughly inspected at least once a week for: abrasion, broken wires, wear, reduction in rope diameter, reduction in wire diameter, fatigue, corrosion, damage from heat, improper reeving, jamming, crushing, bird caging, kinking, core protrusion, or damage to lifting hardware. Any discrepancies shall be corrected before operations continue.
- All manufactured cable-end fittings and connections shall be installed according to the manufacturer's instructions and loaded according to the manufacturer's specifications. This includes cable clamps and thimbles. All cable ends shall be wired or taped down.
- If a ball-bearing type hoisting plug is used to hoist drill rods, drill pipe, or casing, the bearings shall be inspected and lubricated daily to assure that the hoisting plug rotates freely under load.
- Wire rope size shall be properly matched to sheave groove size. Non-rotating wire rope is suggested for light rig application.
- Minimize shock and side loading of wire rope. Apply loads smoothly and steadily.
- Avoid sudden loading in cold weather.
- Never use frozen catline ropes. Keep ropes protected from adverse weather.
- Protect wire rope from sharp corners or edges. Avoid *pile-up* or uneven spooling of wire rope.
- Replace faulty guides and rollers.
- Replace worn sheaves and sheave bearings with parts equal to or exceeding original manufacturer specification(s).
- Replace damaged safety latches on safety hooks before using.
- Know the safe load capacity of the hoisting equipment being used. Never exceed this limit.
- Know and do not exceed the rated capacity of hooks, rings, links, swivels, hoisting plugs, elevators, shackles and other lifting aids. Never exceed the manufacturer's rated load capacity for any reason.
- Do not guide wire rope on hoist drums with hands or feet.
- Keep hands and other extremities away from hoists, wire rope, hoisting hooks, sheaves and pinch points as slack is being taken up and when the load is being hoisted.
- Following the installation of new wire rope, lift a light load first to allow the wire rope to adjust.

- Never leave a load suspended when the hoist is unattended.
- Never hoist the load over the head, body, or feet of any personnel.
- Inspect daily, or at the start of each shift, all rotating cable attachments, e.g. safety hooks, deadman anchors, and hoisting apparatus, for freedom of movement.

13.0 Safe Use of Catheads and Rope Hoists

- Keep the cathead spool clean and free of rust and oil and grease.
- Check the cathead periodically, with the engine not running, for rope wear grooves.
- Never wrap the rope from the cathead (or any other rope, wire rope or cable on the drill rig) around a hand, wrist, arm, foot, ankle, leg, or any other part of the body.
- Do not use a rope that is any longer than necessary. A rope that is too long can form a ground loop or otherwise become entangled with the operator's legs.
- Do not use more rope wraps than are required to hoist a load, or than can be safely released.
- Do not leave a cathead unattended with the rope wrapped on the cathead spool when cathead power is engaged.
- Position all other hoist lines to prevent contact with the operating cathead rope.
- The cathead operator must be able to operate the cathead standing on a level surface with firm footing and without distraction or disturbance.

14.0 Safe Use of Augers

The following general procedures shall be used when starting a boring with continuous flight or hollow-stem augers:

- Prepare to start an auger boring with the drill rig level, the clutch or hydraulic rotation control disengaged, the transmission in low gear, and the engine running at low RPM.
- Apply an adequate amount of downward pressure prior to rotation to seat the auger head below the ground surface.
- Observe the auger head while slowly engaging the clutch or rotation control. Stay clear of the auger.
- Slowly rotate the auger and auger head while continuing to apply down pressure. Keep one hand on the clutch or the rotation control at all times until the auger has penetrated one foot or more below ground surface.
- If the auger head slides out of alignment, disengage the clutch or hydraulic rotation control and repeat the hole starting process.
- An auger guide can facilitate the starting of a straight hole through hard ground or pavement.
- Use only the manufacturer's recommended method of securing the auger to the power coupling. Do not touch the coupling or the auger with hands, feet, wrenches or any tools during rotation.
- Whenever possible, use tool hoists to handle auger sections.
- Never place hands or fingers under the bottom of an auger section when hoisting the auger over the top of an auger section in the ground or other hard surfaces such as the drill rig platform.
- Never place feet under the auger section that is being hoisted.
- When rotating augers, stay clear of the auger and other rotating components of the drill rig. **Never reach behind or around a rotating auger for any reason whatever. A minimum of 18 inches clearance shall be maintained between personnel, clothing, footwear and**

other personal apparel and the rotating augers, kellys, heads, drillrod or other rotating components of the drill rig.

- Use a long-handled shovel to move auger cuttings away from the auger, ensuring that the shovel blade does not come in contact with the rotating auger. Never use hands or feet to move cuttings away from the auger.
- Never attempt to remove cuttings from rotating augers. Augers should be cleaned only when the auger drive is in neutral and rotation of the augers has ceased.
- Auger speed shall be only that speed necessary for penetration and cuttings removal. High-speed auger rotation shall not be used for penetration or cuttings removal unless approved by the on-site INTERA field supervisor. In such cases, all unnecessary personnel will be removed from the rig operating area.
- Free-standing auger(s) shall be secured to prevent accidental falling.

15.0 Safety During Rotary and Core Drilling Operations

- Water swivels, Chiksan joints, and hoisting plugs shall be lubricated and checked for *frozen* bearings before use. A swivel guide cable and anchor chain shall be used to prevent swivel hose whip in case of swivel failure.
- Pressure relief valves shall be installed and operable on all circulation systems. Protective covers shall be installed on shear-type relief valves.
- Direct-reading pressure gauges shall be installed on all air and drilling fluid delivery lines. Gauges shall be operable at all times and must represent the true pressure of the medium being transported in the line(s). This shall include all ancillary equipment, e.g., grout mixers, auxiliary circulation pumps, and other such equipment.
- Drill rod chuck jaws shall be checked periodically and replaced when necessary.
- Drill rod movement shall not be braked or retarded by using the drill rod chuck jaws.
- Drill rods or drill pipe shall not be held or lowered into the hole with pipe wrenches. Use slips, clamps, spiders, or other suitable holding devices.
- In the event of a plugged bit or other circulation (fluid or air) blockage, the pressure in the piping and hose(s) between the pump, or air compressor, and the obstruction shall be relieved or bled down before breaking the first tool joint. Line pressure shall be relieved prior to breaking any tool joint connection.
- When drill rods or drill pipe are hoisted from the borehole, they shall be cleaned for safe handling with a rubber pipe wiper or other suitable apparatus. Do not use hands to clean or strip drilling fluids from downhole tools as they are being hoisted.
- If work must progress over a portable drilling mud pit, do not attempt to stand on narrow sides or cross members. The mud pit shall be equipped with rough surfaced, fitted cover panels of adequate strength to support the combined weight of drill rig personnel.
- Drill rods and drill pipe shall not be lifted and leaned unsecured against the mast. A suitable method shall be provided for securing the upper ends of the drill rod or drill pipe sections for safe vertical storage or the tools must be laid down.
- Only personnel necessary to perform hoisting or tripping operations shall be on the rig during these operations.
- Remain well clear of moving rotary tables, kellys, quillrods, pull-down chains, drive lines, drive chains, and other rotating components at all times.
- When air rotary or air coring operations are in progress, all discharges, e.g., dust, cuttings, and fluids shall be contained. All shrouds, curtains, diverter head(s), cyclone separator(s), blooie line(s), and other necessary containment equipment will be used at all times. Any variance from these requirements must be approved in writing by INTERA before any such

variance is implemented.
- All rig air-delivery systems used in environmental drilling applications will be equipped with oil-separating, 10 micron in-line filter(s) to remove oil that might be discharged into the air stream by the compressor(s). These filters shall be inspected daily and serviced as applicable.

16.0 Off-Road Movement of Drilling Equipment and/or Components

- Before off-road movement of a drill rig, visually survey the route of travel, inspecting the proposed route for unstable road bed(s) and bridges, depressions, stumps, gullies, ruts, and similar obstacles which might impede safe movement of the equipment.
- The braking system of the drill rig carrier shall always be tested for adequate operation before movement.
- Inspect the complete drive-train, including drive shafts, U-joints, carrier bearings, flanges, etc. of the rig truck or carrier at least weekly.
- Use caution when traversing slopes. Conservatively evaluate side hill capability of drill rigs, as the arbitrary addition of drilling tools may raise the center of gravity. When possible, travel directly uphill or downhill. Increase tire pressures before traveling in hilly terrain (however, do not exceed rated tire pressure).
- Properly secure all drilling equipment and tools, including drill rod, drill pipe, casing, and other tubular material before transport.
- Use only those routes that have been designated for rig travel and movement.

17.0 Hazardous Materials and Waste

- The subcontractor shall provide material safety data sheets (MSDS) for all hazardous materials used in the drilling operation(s) as per 29CFR1910.1200. Personnel must be trained in accordance with 29 CFR 1910.120 for handling any such hazardous materials as well as any site-specific requirements pertinent to the particular task being undertaken.
- Chemicals, corrosives, and etc. shall be properly labeled, placarded, and stored.
- Any waste generated by drilling operations shall be handled as per site-specific project requirements.
- All cuttings, dust, fluids, and other waste generated by drilling activities must be contained and disposed of as per site-specific project requirements. In no case where drilling is being performed in a posted radiological and hazardous waste area shall dust, cuttings, fluids, or other subsurface waste be discharged to the atmosphere, unless engineering controls are used to separate particulate matter from the discharged air. Engineering controls may include, but are not solely limited to, the use of cyclone separator(s), HEPA (high efficiency particulate air) filters, or other suitable, approved controls.
- All spills and leaks, including but not solely limited to, oils, fuels, grease, motor coolants, drilling additives, or other potentially hazardous wastes, will be cleaned up immediately and properly disposed of. The cause of such spills or leaks shall be determined and appropriate corrective action taken before drilling is resumed. Such events will be reported by the subcontractor to INTERA as per direction of the applicable Health and Safety Plan and/or Statement of Work governing the project tasks.
- A subcontractor shall not perform any work identified in the site-specific project Health and Safety Plan or Project Statement of Work (SOW) requiring a SAFE WORK PERMIT (SWP) or RADIATION WORK PERMIT (RWP), until such permit is issued by INTERA. This

includes, but is not solely limited to, such tasks as welding, working in a confined space area, cutting, grinding, or other related activities where heat, open flame, and/or sparks may be generated. All provisions of the issued permit(s) shall be adhered to while working on the project.

18.0 Statement of Understanding

All personnel, including INTERA and subcontractor, are required to read and fully understand the provisions of these minimum requirements. The INTERA field supervisor shall document that all INTERA personnel working on the drilling project have read and understand the requirements. The subcontractor and each subcontractor employee working on the project shall sign the attached STATEMENT OF UNDERSTANDING before commencing any work on the project.

ATTACHMENT A
STATEMENT OF UNDERSTANDING
DRILLING HEALTH AND SAFETY REQUIREMENTS
FOR DRILLING OPERATIONS

I, the undersigned, as an employee of the Subcontractor doing business as _____, have received and have read the INTERA Health and Safety Requirements for Drilling Operations. Further, I understand all provisions of these requirements.

	Name (please print)	Signature	Date	Position
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				

ATTACHMENT B
EQUIPMENT SAFETY INSPECTION CHECKLIST
FOR SMALL AUGER, ROTARY, AND CORE RIGS

Contractor:_____Rig Type:_____Rig no._____Date:__/__/__
Safety Inspector:_____Project:_____

I. Rig Carrier
( ) Overall Appearance
( ) Oil Leaks
( ) Fuel Leaks
( ) Fire Extinguisher
( ) Back-up Alarm
( ) Exhaust System
( ) Wheel Chocks
( ) Outrigger Jacks
( ) Fuel Tank Placard(s)
( ) Portable fuel containers
( ) Other:_____

II. Mast
( ) Crown Block
( ) Hinge Pins
( ) Lock Pins/Devices
( ) Lights/Wiring
( ) Safety Climbing Device
( ) Safety Belts/Harness
( ) Racking Board
( ) Ladders
( ) Deadman Anchors
( ) Standpipe
( ) Swivel Hose
( ) Safety Chains/Clamps
( ) Mast Rams/Cylinders
( ) Other:_____
( ) Other:_____

III. Rig Engine(s)
( ) Fuel Tank(s)
( ) Exhaust System
( ) Electrical System
( ) Belt/Drive Line Guards
( ) Emergency Shut-down System(s)
( ) Heat Shields
( ) Fluid Leaks
( ) Gauges
( ) Clutches
( ) Other:_____
( ) Other:_____

IV. Power Train/Drill Unit
( ) Chain/belt Guards
( ) Fluid Leaks
( ) Driveline Guards
( ) Hydraulic Hoses
( ) Safety Chains/lanyards
( ) Gauges
( ) Loose Bolts
( ) Rotary Table
( ) Drive Head
( ) Auger Drive
( ) Other:_____
( ) Other:_____

V. Pump(s)/Compressor(s)
( ) Sheaf Relief Valve Cover(s)
( ) Pressure Relief Valve(s)
( ) Flowline Safety Clamps/chains
( ) Belt/Chain Guards
( ) Vibrator Line Anchor
( ) Other:_____
( ) Other:_____

VI. Hoists/Catheads
( ) Chain Guard(s)
( ) Spool/Drum wear-cracks
( ) Safety Devices\Spool Divider
( ) Clutch(es)
( ) Brake(s)
( ) Hydraulics
( ) Wireline Drum-coring
( ) Drive Hammer(s)
( ) Other:_____
( ) Other:_____

VII. Wireline/Catline
( ) Wear/broken strands
( ) Spooling
( ) Cable Clamps and Thimbles
( ) Cable Ends
( ) Catline Rope Condition
( ) Other:_____

VIII. Hoisting Equipment
( ) Hoisting Plug(s)
( ) Lifting Iron(s)
( ) Elevators
( ) Weight Indicator
( ) Safety Hook(s)
( ) Spider(s)
( ) Slips
( ) Foot Clamps
( ) Other:_____
( ) Other:_____

IX. Downhole Equipment
( ) Drillpipe
( ) Drillcollars
( ) Core Rod
( ) Core Barrel(s)
( ) Augers
( ) Samplers
( ) Other:_____
( ) Other:_____

X. Safety Equipment
( ) Placards/Warning Signs
( ) Applicable OSHA Postings
( ) First Aid Kit(s)
( ) Applicable Regulation Posting
( ) Emergency Medical Posting(s)
( ) Emergency Procedures
( ) Other:_____
( ) Other:_____

XI. Personal Protective Equipment
( ) Hard Hats
( ) Safety Glasses
( ) Safety boots/shoes
( ) Other:_____
( ) Other:_____

XII. Other Items
( ) _____
( ) _____

COMMENTS:_____

Attachment C

Health and Safety Requirements for Heavy and Light Equipment and Copy of INTERA Automobile Insurance Certificate

HEALTH AND SAFETY REQUIREMENTS
FOR HEAVY AND LIGHT EQUIPMENT

General

1. Ensure operators have demonstrated skills and/or have attended training on the safe operation of heavy/light equipment.
2. Operate equipment according to Department of Transportation (DOT) regulations.
3. Meet manufacturer's minimum requirements for safe operation of equipment.
4. Daily inspect heavy/light equipment before use. Identify defective equipment, remove it from service, and do not use it until repaired.
5. Before operating heavy/light equipment, inspect work areas, and provide safeguards for identified hazards.
6. Ensure operator's manual is accessible for all heavy/light equipment.
7. Before operating heavy/light equipment greater than 20 horsepower with an operator's seat (excluding trucks), ensure it is equipped with approved roll over protection safety (ROPS), if required.
8. Ensure heavy/light equipment with an operator's seat and equipped with roll over protection safety (ROPS) is equipped with a seat belt.
9. When operating heavy/light equipment, wear a seat belt where provided.
10. Before exiting operator's seat from all heavy/light equipment, lower attachments to the ground and apply parking brake.
11. When riding on heavy/light equipment, ride only on designated positions.
12. Do not use heavy/light equipment as a lifting device unless the equipment and rigging have been load-tested.
13. Ensure all equipment operated during poor visibility or inclement weather is equipped with proper lighting and appropriate safety devices (e.g., windshield wipers, defroster).
14. If it created a hazard to persons in the immediate work area, do not operate equipment.
15. Operate all heavy/light equipment within manufacturer's recommended operating parameters.
16. When digging, drilling, driving objects, or trenching close to energized circuits, locate underground utilities (e.g., electrical lines, telephone, water, natural gas, and other piping systems) and take measures to prevent damage.
17. Be careful when using ladders, handrails, steps, etc., to climb on or off heavy/light equipment.
18. Chock all vehicles with dual wheels. Chock medium-and heavy-duty vehicles (one ton or greater) and, on extremely hilly and mountainous terrain, chock smaller vehicles (1/2 ton pickups and ¾ ton service vehicles).
19. Wear footwear appropriate for the environment and for the equipment being used.

Operation of Light Equipment (Mowers, Tractors, chain Saws, Tamps, Etc.)

1. For manual opening of tailgates on dump trucks, install and use handgrips.
2. Ensure farm tractors used with bush hogs are equipped with heavy-metal mesh guards for personal protection.
3. When engaged in a winching operation with light equipment, be positioned safely (e.g., behind the door).
4. When working in the bucket of an aerial lift, wear a fall protection harness.
5. When operating a chain saw, wear eye and face protection and, except when working from a bucket truck or wood pole, wear chaps.
6. When operating a weedeater with a blade (brushsaw), wear leggings or chaps and eye and face protection.
7. When operating a tamp (except for pole tamps), wear foot protection including toe and metatarsal guards.
8. Use the following required personal protective equipment:
    a. Hard hats
    b. Hearing protection
    c. Safety glasses
    d. Work gloves

Operation of Heavy Equipment (Bulldozers, Motor Graders, Packers, Core Drills, Etc.)

1. When engaged in a winching operation, use heavy equipment equipped with heavy-metal mesh guards for protection.
2. Ensure all heavy equipment is equipped with back-up alarms and warning devices.
3. Ensure all heavy equipment is equipped with a fire extinguisher.
4. When clearing wooded areas, use heavy equipment equipped with closed clearing cab.
5. Safety glasses and heard hat are not required in the enclosed cab of bulldozers.
6. Use the following required personal protective equipment:
    a. Hard hats
    b. Hearing protection
    c. Safety glasses

ATTACHMENT A
EQUIPMENT SAFETY INSPECTION CHECKLIST
FOR LIGHT EQUIPMENT

Safety Inspector: _____ Site/Project: _____ Date: __/__/__
License Plate: _____ Make/Model/Color: _____

Insert a check mark ✓ if ok, or an ✗ if there is an item deficiency.

Date							
Tire inflation							
Lug nuts							
Exhaust System							
Brakes							
Parking brake							
Engine lubricants							
Engine Coolants							
Steering							
Windshield							
Windshield Wipers							
Heater / Defroster							
Head / tail lights							
Turn indicators							
Instrument gauges							
Initials of Operator							

DESCRIPTION OF DEFICIENCIES: _____

_____

REMEDY FOR DEFICIENCIES: _____

_____

COMMENTS: _____

_____

ATTACHMENT B
EQUIPMENT SAFETY INSPECTION CHECKLIST
FOR HEAVY EQUIPMENT

Safety Inspector: _____ Site/Project: _____ Date: __/__/__
Equipment Type: _____ Equipment Number: _____

Insert a check mark ✓ if ok, an × if there is an item deficiency, or "NA" if the item does not apply.

FROM THE GROUND

Bucket or Blade	Excessive Wear or Damage, Cracks	
Bucket or Blade Cylinder & Linkage	Excessive Wear, Damage, Leaks, Lubricate	
Stick, Cylinder	Wear, Damage, Leaks, Lubricate	
Boom, Cylinders	Wear, Damage, Leaks, Lubricate	
Underneath Machine	Final Drive Leaks, Swing Drive Leaks, Damage	
Track Sag	Tightness, Wear	
Pivot Shafts	Oil Leaks	
Carbody	Cracks, Damage	
Undercarriage	Wear, Damage, Tension	
Steps and Handholds	Condition and Cleanliness	
Batteries & Hold Downs	Cleanliness, Loose Bolts & Nuts	
Windshield Wipers & Washers	Wear, Damage, Fluid Level	
Fire Extinguisher	Charge, Damage	
Engine Coolant	Fluid Level	
Primary/Secondary Fuel Filters	Leaks, Drain Water Separator	
Air Filter	Restriction Indicator	
Hydraulic Oil Tank	Fluid Level, Damage, Leaks	
Hydraulic Oil	Filter Leaks	
Radiator	Fin Blockage, Leaks	
Hydraulic Oil Cooler	Fin Blockage, Leaks	
AC Condenser	Fin Blockage, Leaks	
Lights and Mirrors	Damage	
Engine Oil Filter	Filter Leaks	
Hydraulic Oil Filter	Filter Leaks	
Overall Machine	Loose/Missing Nuts, Bolts, Guards, Cleanliness	

ENGINE COMPARTMENT

Engine Oil	Fluid Level	
Gear Oil	Fluid Level, Leaks	
Fuel Tank	Fuel Level, Damage, Leaks	
All Hoses	Cracks, Wear Spots, Leaks	
All Belts	Tightness, Wear, Cracks	
Overall Engine Compartment	Trash or Dirt Buildup, Leaks	

INSIDE THE CAB

Seat	Adjustment	
Seat belt & Mounting	Damage, Wear, Adjustment, Age	
Horn, Travel Alarm, Lights	Proper Function	
Indicators	Proper Function	
Monitor Panel	Proper Function	
Switches	Proper Function	
Travel Controls	Correct Operation	
Mirrors Adjustment	Adjustment, Cracks/Broken	
Heating and Cooling System	Proper Function	
Overall Cab Interior	Overall Cab Interior Cleanliness	

COMMENTS: _____

Client#: 914933 INTERINC22

ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 6/03/2025

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer any rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Danelle Touchstone	
USI Southwest 7600-C N. Capital of TX Hwy #200 Austin, TX 78731 512 451-7555	PHONE (A/C, No, Ext): 210-524-2094	FAX (A/C, No): 610-537-1904
	E-MAIL ADDRESS: danelle.touchstone@usi.com	

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Lloyd's of London	SURPLU
INSURER B : Hartford - WC Multiple Issuing Cos	00914
INSURER C : Sentinel Insurance Company Ltd.	11000
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
INTERA Incorporated
9600 Great Hills Trl
Suite 300W
Austin, TX 78759

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE / X OCCUR X GL Ded: $10,000 X Poll Ded: $25,000 GEN'L AGGREGATE LIMIT APPLIES PER: POLICY / X PRO-JECT / X LOC OTHER:			ENVP000025425	06/01/2025	06/01/2026	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG Poll Liab	$1,000,000 $300,000 $25,000 $1,000,000 $2,000,000 $2,000,000 $1,000,000
C	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY / SCHEDULED AUTOS X HIRED AUTOS ONLY / X NON-OWNED AUTOS ONLY			65UECZR3402	06/01/2025	06/01/2026	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$1,000,000 $ $ $
A	UMBRELLA LIAB / X OCCUR X EXCESS LIAB / CLAIMS-MADE DED / RETENTION $			ENVX000020625	06/01/2025	06/01/2026	EACH OCCURRENCE AGGREGATE	$6,000,000 $6,000,000
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N: N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		65WBOL6H7Y	06/01/2025	06/01/2026	X PER STATUTE / OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$1,000,000 $1,000,000 $1,000,000
A	Professional Llab			ENVP000025425 Retroactive Date	06/01/2025 01/10/2002	06/01/2026	$2,000,000 Aggregate $1,000,000 Per Claim $100,000 Deductible	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

The Excess Policy sits over the General Liability, Pollution Liability, Automobile Liability and Professional Liability limits. Professional Liability is on a claims made basis.

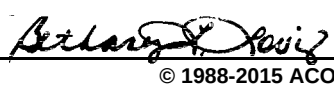
CERTIFICATE HOLDER

SAMPLE CERTIFICATE

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE



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Attachment D

OSHA Sloping and Benching Regulations [RESERVED]

Attachment E

Hazardous Chemical List and Safety Data Sheets

(Subcontractors will keep their own copies of their SDSs)

HAZARDOUS CHEMICAL LIST

Project Name & Task: PNM San Juan Generating Station Stage 1 Abatement Plan

SSHASP Date: November 2025 Project Number: PNMRS.M002.SJGS

Chemical Name	Manufacturer Name	Location

Attachment F

Venomous Snake Safety Information

Venomous Snake Safety Information

Texas is home to over 105 different species and subspecies of snakes. Only 15 of those are potentially dangerous to humans. Those are the snakes that we feature here. For more general information on all the snakes of Texas, please visit our Snake pages [http://tpwd.texas.gov/education/resources/texas-junior-naturalists/snakes-alive/venomous-texas-snakes] .

CONTENTS

1. Pit Vipers [http://tpwd.texas.gov/education/resources/texas-junior-naturalists/be-nature-safe/venomous-snake-safety#section-0]
    1. Copperheads [http://tpwd.texas.gov/education/resources/texas-junior-naturalists/be-nature-safe/venomous-snake-safety#section-1]
    2. Cottonmouths [http://tpwd.texas.gov/education/resources/texas-junior-naturalists/be-nature-safe/venomous-snake-safety#section-2]
    3. Rattlesnakes [http://tpwd.texas.gov/education/resources/texas-junior-naturalists/be-nature-safe/venomous-snake-safety#section-3]
2. North American Cobras [http://tpwd.texas.gov/education/resources/texas-junior-naturalists/be-nature-safe/venomous-snake-safety#section-4]
    1. Coral Snakes [http://tpwd.texas.gov/education/resources/texas-

Pit Vipers

Pit vipers are venomous snakes that have an opening on each side of the head between the eye and the nostril. In Texas, we have 3 groups of these snakes: Copperheads, Cottonmouths, and Rattlesnakes.

Copperheads

Agkistrodon contortrix

Copperheads have chestnut or reddish-brown crossbands on a lighter colored body. These snakes are found in rocky areas and wooded bottomlands and are rare in dry areas. In the spring they can be found along streams and rivers, as well as in weed-covered vacant lots. There are three subspecies of Copperheads in Texas; Southern copperhead (A.c. contortrix), 20-30 inches long and found in the eastern one-third of the state; Broadbanded copperhead (A.c. laticinctus), about two feet long, widely scattered in central and western Texas; and the Trans-Pecos copperhead (A.c. pictigaster), 20-30 inches in length and found near springs in the southern part of the Trans-Pecos.

Cottonmouths

Agkistrodon piscivorous

The Latin name piscivorous means 'fish eating,' indicating its dietary characteristics. Also known as 'water moccasins', only one recognized supspecies is found in Texas; Western cottonmouth (A.p. leucostoma). Cottonmouths can be dark brown, olive-brown, olive green or almost solid black. They are marked with wide, dark bands, which are more distinct in some individuals than in others. Juvenile snakes are more brilliantly marked. The cottonmouth gets its name from the white tissue inside its mouth, which it displays when threatened. This heavy-

bodied snake, which averages about 3-1/2 feet in length, is found over the eastern half of the state in swamps and sluggish waterways, coastal marshes, rivers, ponds and streams.

Rattlesnakes

There are two groups of rattlesnakes: the more primitive forms belong to the genus *Sistrurus*. Texas has two:

Western massasauga (*Sistrurus catenatus tergeminus*), light gray, with brown oval blotches along the middle of the back and smaller blotches along each side. They are two feet in length and found through the middle of the state in grasslands, marshy and swampy areas.
Desert massasauga (*S.c. edwardsii*), lighter in color than the western massasauga, smaller and more slender. Found in the Trans-Pecos, western Panhandle and the lower Rio Grande Valley.

The more advanced forms of rattlesnakes belong to the genus Crotalus and Texas is home to six:

Western diamondback (Crotalus atrox), Brown, diamond-shaped markings along the middle of the back and alternating black and white rings on the tail. Averages 3 1/2 to 4-1/2 feet in length, and can reach seven feet. This is the most common and widespread venomous snake in Texas, found in all but the easternmost part of the state.

Timber rattlesnake (Crotalus horridus) also known as Canebreak rattlesnake is a large, heavy-bodied snake averaging 4-1/2 feet. Brown or tan with wide, dark crossbands. Tail is entirely black. Found in the eastern third of the state in wooded areas in wet bottomlands.

Mottled Rock rattlesnake (Crotalus lepidus) is light bream or pink background with widely spaced, dark crossbands and mottled areas between the crossbands. Small and slender with an average length of about two feet. Found in the mountainous areas of West Texas.

Banded Rock rattlesnake (C.l. klauberi)Similar to the mottled rock rattlesnake, but darker greenish-gray in color. Found only in the extreme western tip of Texas.



Blacktail rattlesnake (Crotalus molossus) is gray to olive green with dark blotches along the back and a black tail. Averaging a length of 3-1/2 feet, it is found from Central Texas throughout most of West Texas in bushes and on rocky ledges.

junior-naturalists/be-nature-safe/venomous-snake-safety#section-5]
3. Precautions and Responses [http://tpwd.texas.gov/education/resources/texas-junior-naturalists/be-nature-safe/venomous-snake-safety#section-6]
    1. How to Avoid [http://tpwd.texas.gov/education/resources/texas-junior-naturalists/be-nature-safe/venomous-snake-safety#section-7]
    2. What to Do [http://tpwd.texas.gov/education/resources/texas-junior-naturalists/be-nature-safe/venomous-snake-safety#section-8]
    3. What NOT to Do [http://tpwd.texas.gov/education/resources/texas-junior-naturalists/be-nature-safe/venomous-snake-safety#section-9]

Mojave rattlesnake (Crotalus scutulatus) is similar to the western diamondback in markings, but smaller and more slender and found only in extreme West Texas.



Prairie rattlesnake (Crotalus viridis viridis) is a slender rattler that is greenish or grayish, with rounded blotches down the middle of its back. Average length is about three feet and its found in the grassy plains of the western third of the state



North American Cobras

Coral Snakes

Micrurus fulvius tener



The brightly colored Texas coral snake is the state's only member of the Elapidae family, which includes the cobras of Asia and Africa. The coral snake is slender with a small indistinctive head and round pupils, and is usually is 2-1/2 feet or shorter. Its distinctive pattern is a broad black ring, a narrow yellow ring and a broad red ring, with the red rings always bordered by the yellow rings. Several harmless snakes are similarly marked, but never with the red and yellow touching. 'Red on yellow, kill a fellow; red on black, venom lack,' is a handy way to distinguish the highly venomous coral snake from nonvenomous ringed species. Coral snakes are found in the southeastern half of Texas in woodlands, canyons and coastal plains.



Precautions and Responses

How to Avoid

Learn to recognize the snake species that are likely to be in the area. Please do not kill a snake - even a venomous one. Snakes serve a valuable function in the environment. The majority of bites result from people taking unnecessary or foolish risks with venomous snakes. Understanding what snakes look for in suitable habitat can help you know when to be wary. Understanding their behavior will help you know what to do if you encounter one. Snakes like tall grass.

- Keep the lawn around your home trimmed low.

- Remove any brush, wood, rock or debris piles from around the residence - they make great hiding places for snakes and their prey - rodents.
- Always wear shoes while outside and never put your hands where you cannot see them.
- Be careful when stepping over fallen logs and rock outcroppings.
- Take care along creek banks and underbrush.

Snakes do not prey on humans and they will not chase you, in fact they usually retreat or escape if given the opportunity. The danger comes when they are either surprised or cornered. Do not play around with a dead snake, they have been known to bite and envenomate. Get a good field guide and keep it handy especially in the field.

What to Do

If bitten,

1. Assume envenomation has occurred, especially if initial symptoms are present. Initial symptoms of pit viper bites include fang puncture marks; in addition, they almost always include immediate burning pain at the bite site, immediate and usually progressive local swelling within five minutes, as well as local discoloration of the skin. Initial symptoms of coral snake bites include tremors, slurred speech, blurred or double vision, drowsiness or euphoria and a marked increase in salivation within four hours; however, life-threatening effects from coral snake envenomation may not be evident for 24 hours or longer.
2. Identify the species of venomous snake that inflicted the bite, if possible, taking care to avoid another person being bitten. Identification is not necessary, but may be helpful.
3. Keep the victim as calm as possible. This helps reduce the spread of venom and the onset of shock.
4. Keep yourself and any other members of the group calm as well. This will help reassure the victim and ensure that the appropriate first-aid measures are followed, as well as preventing anyone else from becoming injured.
5. Know and be alert for the symptoms of shock, and institute the proper treatment should it ensue. Difficulty in breathing and/or kidney failure are frequent symptoms of envenomation.
6. Wash the bite area with a disinfectant if available.
7. Remove jewelry such as rings and watches, as well as tight-fitting clothes, before the onset of swelling.
8. Reduce or prevent movement of a bitten extremity, using a splint if possible; this helps decrease the spread of venom. For the same reason, position the extremity below the level of the heart.
9. Get the victim to a medical facility as soon as possible and begin treatment there with intravenous antivenom, crystalloid solutions and antibiotics. Antivenom treatment is generally most effective within the first four hours of envenomation, and is ineffective after 8-10 hours.

What NOT to Do

1. **Do not** make incisions over the bite marks. This can result in significant damage to already traumatized tissue, and can damage intact structures such as nerves and blood vessels, enhance bleeding caused by anticoagulant components of venom and

increase the rapid spread of venom throughout the body if the circulatory system is compromised. A suction device, such as the Sawyer Extractor™, may be used without making any incisions. This device may remove significant quantities of venom, although its efficacy has yet to be conclusively determined.

2. **Do not** use a tourniquet or other constricting ban except in extreme cases of envenomation, and then only if properly trained in the technique. Such devices are of no value if applied more than thirty minutes after the bite, and if improperly used they can restrict blood vital blood flow to the traumatized tissue and possibly result in the amputation of an extremity. Unbearable pain can also result, and the improper loosening of such devices can allow sudden systemic absorption of venom.
3. **Do not** use cryotherapy (including cold compresses, ice, dry ice, chemical ice packs, spray refrigerants, and freezing) for the same reasons that the tourniquets should be avoided, and also because it can increase the area necrosis.
4. **Do not** use electroshock therapy, a method popularized following publication of a letter from a missionary in South America reporting its effectiveness in treating bites from snakes of uncertain identity. Several controlled clinical trials and at least one on humans have failed to demonstrate any positive result; moreover, the potential negative results from the uncontrolled use of an electric charge are obvious.
5. **Do not** drink alcohol, as it dilates blood vessels and increases absorption from the circulatory system, and thus helps spread venom faster.
6. **Do not** use aspirin or related medications to relieve pain, because they increase bleeding. A pain reliever not containing aspirin, however, may be used.
7. **Do not** use the pressure/immobilization technique, which consists of firmly wrapping the entire limb with an elastic bandage and then splinting, especially for pit viper bites. The theory behind this treatment is to confine the venom to the area of the bite until reaching a medical facility, but studies have shown the technique to be ineffective or worse with venoms which produce local swelling and tissue damage.
8. **Do not** administer antivenom in the field unless properly trained in the procedure, unless evacuation to a medical facility will take many hours or days, or unless envenomation has been extreme. Intramuscular or subcutaneous application of antivenom has proven to be much less effective, and in some cases ineffective, than intravenous administration. Acute allergic reactions to antivenom can occur, and contemplated field administration of antivenom should include provision for a sufficient supply of epinephrine (adrenalin) to counteract any such potential effects.

Attachment G

INTERA Standard Operating Procedures [RESERVED]

Appendix A

MiniRAE PID User's Manual [RESERVED]

Appendix B

INTERA Policy and Procedures for Conducting Fieldwork during COVID-19 Pandemic [RESERVED]

Appendix C
Community Outreach Flyers [RESERVED]