NORTHERN AREA GROUNDWATER PHASE 2 SUPPLEMENTAL RCRA FACILITY INVESTIGATION WORK PLAN

Fort Wingate Depot Activity
McKinley County, New Mexico

March 2024

Contract No. W912PP22D0014
Task Order No. W912PP23F0040

Prepared for:

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U.S. Army Corps of Engineers
Albuquerque District
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14. ABSTRACT
Groundwater contaminant plumes located in the northern area of the Fort Wingate Depot Activity (FWDA) have been under periodic monitoring from 2008 to current. Various contaminant plumes have been detected within the FWDA northern area including volatile organic compounds, nitrate, perchlorate, and explosives. These plumes are located within two areas of FWDA known as the Workshop Area and the Administration Area. A Phase 2 Supplemental RCRA Facility Investigation (RFI) for these known contaminant plumes is presented to fill data gaps from the 2023 Final Northern Area Groundwater RCRA Facility Investigation Report, Revision 3, and to give viable data to lead to corrective measures.

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Upon approval by the New Mexico Environment Department – Hazardous Waste Bureau of this Northern Area Groundwater Phase 2 Supplemental RCRA Facility Investigation Work Plan, a copy of the signed approval letter will be placed here.

DOCUMENT CERTIFICATION

Northern Area Groundwater Phase 2 Supplemental RCRA Facility Investigation Work Plan

Fort Wingate Depot Activity, McKinley County, NM

40 CFR 270.11

March 2024

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

George H. Cushman IV

Mr. George H. Cushman IV
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Northern Area Groundwater Phase 2 Supplemental RFI Work Plan

Fort Wingate Depot Activity
McKinley County, New Mexico

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ABBREVIATIONS & ACRONYMS

BIA = Bureau of Indian Affairs
BIA-NRO = Bureau of Indian Affairs – Navajo Regional Office
BRAC = U.S. Army Base Realignment and Closure Division
COR = Contracting Officer's Representative
EPA = U.S. Environmental Protection Agency
FWDA BEC = Fort Wingate Depot Activity Base Realignment and Closure Environmental Coordinator
NM = New Mexico
NMED HWB = New Mexico Environment Department, Hazardous Waste Bureau
NN = Navajo Nation
OH = Ohio
PDT = Project Delivery Team
USACE = U.S. Army Corps of Engineers

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LIST OF ABBREVIATIONS AND ACRONYMS

°F	degrees Fahrenheit
amsl	above mean sea level
AOC	area of concern
APP	Accident Prevention Plan
bgs	below ground surface
BR1	Bedrock Aquifer 1
BR2	Bedrock Aquifer 2
BRAC	Base Realignment and Closure
CoC	chain of custody
COPC	contaminant of potential concern
CSM	conceptual site model
DAF	dilution attenuation factor
DL	detection limit
DoD	U.S. Department of Defense
DOE	U.S. Department of Energy
DQO	data quality objective
DRO	diesel range organics
DTW	depth to water
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
ERM	ERM Program Management Company
FWDA	Fort Wingate Depot Activity
GPMR	Groundwater Periodic Monitoring Report
GRO	gasoline range organics
HDR	HDR Environmental, Operations and Construction, Inc.
HI	hazard index
HMX	octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
HSA	hollow-stem auger
HTWE	high-temperature water extraction (process)
IDW	investigation-derived waste
ILCR	incremental lifetime cancer risk
LOQ	limit of quantitation
LOD	limit of detection
M&E	Metcalf & Eddy, Inc.
µg/L	microgram(s) per liter
mg/kg	milligram(s) per kilogram
mg/L	milligram per liter
MS	matrix spike
MSD	matrix spike duplicate
NAVD	North American Vertical Datum
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NM WQCC	New Mexico Water Quality Control Commission

NTU	nephelometric turbidity unit
OSE	(New Mexico) Office of the State Engineer
PA	Programmatic Agreement
PAH	polycyclic aromatic hydrocarbon
Parsons	Parsons Government Services, Inc.
Phase 1 RFI	Northern Area Supplemental Groundwater RFI
PID	photoionization detector
PPE	personal protection equipment
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine
RFI	Resource Conservation and Recovery Act Facility Investigation
RSL	regional screening level
SRHI	Summary Report of Historical Information
SSHP	Site Safety and Health Plan
SSL	soil screening level
SVOC	semi-volatile organic compound
SWMU	solid waste management unit
TCL	target compound list
TCP	traditional cultural property
TEAD	Tooele Army Depot
TNT	2,4,6-trinitrotoluene
TPH	total petroleum hydrocarbons
TPL	TPL, Inc.
UCL	upper confidence limit
USACE	U.S. Army Corps of Engineers
USCS	Unified Soil Classification System
USGS	U.S. Geological Survey
VOC	volatile organic compound
VI	vapor intrusion

EXECUTIVE SUMMARY

ES.1 EXECUTIVE SUMMARY INTRODUCTION

This Final Northern Area Groundwater Phase 2 Supplemental Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Work Plan for the Fort Wingate Depot Activity (FWDA) was prepared by Parsons, Inc., for the U.S. Army Corps of Engineers (USACE)-Albuquerque District for submission to the New Mexico Environment Department (NMED) Hazardous Waste Bureau, as required by Section VII.H.1.a of the RCRA permit (NM 6213820974) effective December 1, 2005, and last revised February 2015 (NMED, 2015).

ES.2 PURPOSE AND SCOPE

The purpose and scope of this Phase 2 Supplemental RFI are to:

1. Address data gaps remaining from the Final Northern Area Groundwater RFI Report, Revision 3 (HDR, 2023) and additional data gaps identified in subsequent correspondence with NMED as summarized in Appendix A.
2. Further define the horizontal and vertical extent of groundwater contaminant plumes within the northern area of FWDA.
3. Further refine the bedrock groundwater flow characterization and investigate the bedrock aquifer under the Administration Area
4. Establish background levels for metals and major anions using existing and proposed well locations. Background evaluation will be reported under separate cover.
5. Assess potential risks to human health.
6. Provide sufficient information to conduct Corrective Measures Studies for each groundwater plume.

Probable sources consist of areas of concern (AOCs) and solid waste management units (SWMUs) located within the boundaries of the FWDA. This Phase 2 Supplemental RFI Work Plan contains investigative information for the following groundwater plumes and their probable contaminant sources and potential health risks:

- One perchlorate groundwater plume (in bedrock) (SWMUs 12, 27, and 70).
- One explosives and hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) groundwater plume (in alluvium) (SWMU 1 and AOCs 63 and 68).

ES.3 PROPOSED INVESTIGATIONS

Existing data have been evaluated to determine what additional field activities are required to complete characterization of the nature and extent of the two groundwater plumes that were deemed to have data gaps from the 2023 Final Northern Area Groundwater RFI Report, Revision 3. Section 4 and Section 5 evaluate existing information and present the proposed data collection activities for the individual groundwater plumes to develop recommendations for further action. Groundwater samples from newly installed monitoring wells will be collected and analyzed for the following:

- Volatile organic compounds (U.S. Environmental Protection Agency [EPA] Method 8260D)
- Semi-volatile organic compounds (EPA Method 8270E)
- Nitrate/nitrite and other major anions (bromide, chloride, fluoride, phosphate, and sulfate) (EPA Methods 9056A and 365.1)
- Perchlorate (EPA Method 6850)
- Explosives (EPA Method 8330B)
- Pesticides (EPA Method 8081B)
- Total petroleum hydrocarbons as diesel range organics (TPH-DRO) (EPA Method 8015D)
- TPH as gasoline range organics (TPH-GRO) (EPA Method 8015D)
- Total metals (including mercury) (EPA Methods 6020B and 7470A/7471B)
- Dissolved metals (including mercury) (EPA Methods 6020B and 7470A/7471B)

The analytical list is consistent with the sampling suite from the Final Interim Facility Wide Groundwater Monitoring Plan, Version 11, Revision 2 (Eco & Associates, Inc., 2021). Brief summaries of the recommended actions for the two groundwater plumes follow:

- Perchlorate groundwater plume in bedrock: Install additional bedrock groundwater monitoring wells and collect and analyze groundwater samples for the contaminants listed above to complete the horizontal delineation of the perchlorate groundwater plume within bedrock water-bearing zones.
- Explosives groundwater plume in alluvium: Install an additional alluvial groundwater monitoring well and collect and analyze groundwater samples for the contaminants listed above to define the extent of the explosives groundwater plume.

Section 3 summarizes the proposed investigation activities for the two groundwater plumes. Section 4 and Section 5 provide detailed evaluations of existing data and investigative methods, including proposed monitoring well numbers and locations for each groundwater plume. The Army will conduct the RFI activities in accordance with this Phase 2 Supplemental RFI Work Plan, once approved by the NMED, and the RCRA permit (NMED, 2015).

ES.4 RISK EVALUATION

The human health risk evaluation from the 2023 RFI Report will be updated for the FWDA Northern Area groundwater. The human health risk evaluation will assess potential health risks to residential receptors as required by Section 7.1 and Section 7.3 of Attachment 7 of the RCRA permit (NMED, 2015), and following the NMED Risk Assessment Guidance for Site Investigations and Remediation (NMED, 2022a). A commercial/industrial worker and construction worker are also addressed in the risk evaluation, consistent with the receptor types identified in the NMED risk guidance.

The conceptual site model indicates there are no known current receptors exposed to groundwater contamination. Potential future receptors include residential receptors, commercial/industrial workers, and construction workers. Potentially complete exposure pathways for residential receptors include tap water use and vapor intrusion (VI).

Potentially complete exposure pathways for the commercial/industrial receptors are limited to VI. There are no complete exposure pathways for the construction worker because they are assumed to work primarily on short-duration outdoor projects as described in NMED risk guidance (NMED, 2022a). They also are assumed to bring their own drinking water to construction sites and the depth to groundwater (15 feet to 115 feet below ground surface) precludes exposure.

The risk evaluation will consist of three parts: 1) a risk screening step to identify constituents of potential concern, 2) a metals background evaluation and 3) a cumulative risk evaluation that includes an initial evaluation using maximum detected concentrations. There will also be a refined evaluation that will incorporate one or more revisions as allowed by NMED risk guidance, and be completed in consultation with NMED where needed. Screening values will be selected using the hierarchy criteria as defined in Section 7.1 of Attachment 7 of the RCRA permit (NMED, 2015) and will include New Mexico Water Quality Control Commission standards, U.S. Environmental Protection Agency (EPA) Maximum Contaminant Levels, and EPA Regional Screening Levels for tap water. Screening levels that are current at the time the risk evaluation is performed will be used.

NMED risk guidance specifies two risk thresholds used to evaluate cancer risks and non-cancer hazards (NMED, 2022a). NMED indicates that adverse health impacts are unlikely when the incremental lifetime cancer risk (ILCR) is less than or equal to $1x10^{-5}$ for carcinogenic analytes, and when the hazard index (HI) is less than or equal to 1.0 for non-carcinogenic analytes. Consistent with NMED guidance, these are the cumulative risk thresholds that will be used in the human health risk evaluation of the FWDA northern area groundwater (NMED, 2022a).

Ecological risk will not be evaluated because there are no complete exposure pathways for ecological receptors. Groundwater does not discharge to any surface water bodies, and the depth to groundwater within the Study Area ranges from 15- feet to 115-feet below ground surface (bgs).

1.0 INTRODUCTION

This Northern Area Groundwater Phase 2 Supplemental Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Work Plan was prepared by Parsons Government Services, Inc. (Parsons) for the U.S. Army Corps of Engineers (USACE) for submission to the New Mexico Environment Department (NMED) Hazardous Waste Bureau as required by Section VII.H.1.a of the RCRA permit (NM 6213820974) effective December 1, 2005, and last revised February 2015 (NMED, 2015).

This Northern Area Groundwater Phase 2 Supplemental RFI Work Plan was prepared to supplement the 2023 Final Northern Area Groundwater RFI Report, Revision 3 (HDR Environmental, Operations and Construction, Inc. [HDR], 2023) and fill in remaining data gaps. This Northern Area Groundwater Phase 2 Supplemental RFI Work Plan was prepared to fulfill the requirements of the Performance Work Statement under contract number W912PP22D0014, delivery order number W912PP23F0040.

Fort Wingate Depot Activity (FWDA) is located 7 miles east of Gallup, in McKinley County, New Mexico. Access to FWDA is south of Interstate 40 at mile marker 31 (Figure 1-1). The Study Area (Figure 1-2) includes the FWDA Administration Area, which is comprised of buildings in the northern area of FWDA, and the Workshop Area, which includes buildings within gated access just south of the Administration Area.

1.1 PURPOSE AND SCOPE

The purpose and scope of this Phase 2 Supplemental RFI Work Plan are to:

1. Address data gaps remaining from the Final Northern Area Groundwater RFI Report, Revision 3 (HDR, 2023) and additional data gaps identified in subsequent correspondence with NMED as summarized in Appendix A.
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This Phase 2 Supplemental RFI Work Plan contains investigative information for the following groundwater plumes and their probable contaminant sources and potential health risks. Probable sources consist of areas of concern (AOCs) and solid waste management units (SWMUs) located within the boundaries of FWDA:

- One perchlorate groundwater plume (in bedrock) (SWMUs 12, 27, and 70).

- One explosives and hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) groundwater plume (in alluvium) (SWMU 1, AOCs 63 and 68)

1.2 DOCUMENT ORGANIZATION

The remainder of this Phase 2 Supplemental RFI Work Plan is organized into the following sections:

- Section 2 presents FWDA installation background information, and describes previous investigations, general site conditions, and cultural resources within the areas of the perchlorate and explosives groundwater plumes.
- Section 3 describes proposed investigation methods.
- Section 4 presents information for the perchlorate groundwater plumes in alluvium and bedrock including the site background, previous investigations, investigation methods, and field activities.
- Section 5 presents information for the explosives groundwater plume in alluvium including the site background, previous investigations, investigation methods, and field activities.
- Section 6 provides an assessment of the potential risks to human health from all northern area groundwater contamination plumes. This section includes information on the risk assessment approach, methodology, purpose, applicable guidance, and the associated deliverable.
- Section 7 discusses additional proposed monitoring well installations.
- Section 8 presents documents cited in this Phase 2 Supplemental RFI Work Plan.

2.0 INSTALLATION BACKGROUND

FWDA occupies approximately 15,277 acres and is located approximately 7 miles east of Gallup, in McKinley County, New Mexico. FWDA is almost entirely surrounded by federally owned or federally administered lands, including both national forest and tribal lands. FWDA has been divided into several sub-areas (parcels) based on location and historical land use (Figure 1-2). The major land use areas that overlay the constituents of potential concern (COPCs) groundwater plumes consist of the following:

- The Administration Area encompasses approximately 800 acres in the northern portion of FWDA and contains former office facilities, housing, equipment maintenance facilities, warehouse buildings, and utility support facilities.
- The Workshop Area encompasses approximately 700 acres south of the Administration Area and consists of an industrial area containing former ammunition maintenance and renovation facilities, the former trinitrotoluene (TNT) washout facility, and the TNT Leaching Beds area. Buildings and related structures in this area were demolished in 2010.

The Study Area includes the Administration Area and the Workshop Area as shown in Figure 1-2. The groundwater plumes discussed in this Phase 2 Supplemental RFI Work Plan are located within the Administration and Workshop areas, across Parcel 11, Parcel 21, and Parcel 22. Figure 2-1 shows the alluvial groundwater plumes and proposed well locations, and Figure 2-2 shows the bedrock groundwater plumes and proposed well locations. This Phase 2 Supplemental RFI Work Plan includes only information related to the perchlorate and explosives groundwater plumes within the FWDA Northern Area. Information related to other COPC groundwater plumes can be found in the Final Northern Area Groundwater RCRA Facility Investigation Report, Revision 3 (HDR, 2023).

FWDA was originally established by the U.S. Army in 1862 at the southern edge of the Navajo territory. In 1918, the FWDA mission changed from tribal relations to World War I-related activities. Beginning in 1940, the FWDA mission was primarily to receive, store, maintain, and ship explosives and military munitions, as well as to disassemble and dispose of unserviceable or obsolete explosives and military munitions. In 1975, FWDA came under the administrative command of Tooele Army Depot (TEAD), located near Salt Lake City, Utah.

In January 1993, the active mission of FWDA ceased and FWDA itself closed because of the Base Realignment and Closure Act of 1990 (BRAC). Beginning in 2002, the U.S. Army re-assigned many FWDA functions to the BRAC Division, including caretaker duties, property transfer, and performance of environmental compliance and restoration activities. TEAD retained command and control responsibilities until January 31, 2008, when these responsibilities were transferred to White Sands Missile Range.

FWDA is currently undergoing final environmental characterization and remediation activities before final property transfer and reuse. FWDA has been divided into reuse parcels as part of the planned property transfer to the U.S. Department of the Interior.

2.1 CULTURAL RESOURCES

Traditional cultural properties (TCPs) and other cultural resources have been documented within the FWDA boundaries. Based on a review of available mapping (University of New Mexico Office of Contract Archaeology, 1994), a limited number of identified TCP sites are located within the areas of the groundwater plumes.

The U.S. Army developed a Programmatic Agreement (PA) specifying the appropriate procedures during environmental characterization and remediation activities.

Maps showing the locations of TCPs relative to proposed investigation locations will not be included in this Work Plan because it will be a public document. Instead, the consultation process will include review by tribal cultural resource personnel to confirm the presence or absence of identified cultural resources within the proposed investigation locations. During the RFI Work Plan review period, the tribes may have their cultural staff visit the site and meet with U.S. Army representatives. Representatives of the tribes and U.S. Army can review figures showing proposed sample locations and inspect the area for cultural resources. Specific sampling locations will not be flagged, but the area in which all samples will be taken will be identified.

The U.S. Army will provide a letter to the Zuni Tribe, Navajo Nation, and the State Historic Preservation Officer seeking comments on field operating procedures pursuant to the PA before fieldwork begins.

2.2 SITE CONDITIONS

2.2.1 CLIMATE

Northwestern New Mexico is characterized by a semiarid continental climate. Most precipitation occurs from May through October. Most of the precipitation occurs as rain or hail in summer thunderstorms, and the remainder results from light winter snow accumulations (Metcalf & Eddy, Inc. [M&E], 1992). Spring and fall droughts characterize the area. Mean annual rainfall for the area ranges between 10 inches and 16 inches, while the recorded average annual precipitation for FWDA is 11 inches. Depending on local elevations, mean annual rainfall fluctuates between 8 inches and 20 inches.

The average seasonal temperatures for the area vary with elevation and topography. During winter, daily temperatures fluctuate as much as 50 degrees Fahrenheit (°F) to 70°F in a 24-hour period. In summer, daily high temperatures are between 85°F and 95°F (M&E, 1992). Average temperatures in winter are about 27°F and in summer 70°F, while extreme temperatures are as low as -30°F in winter and as high as 100°F in summer. There are 100 to 150 frost-free days during the year from the middle of May to the middle of October (M&E, 1992).

2.2.2 TOPOGRAPHY

The elevation of FWDA ranges from approximately 8,200 feet above mean sea level (amsl) in the south to 6,660 feet amsl in the north. Topographically, FWDA may be divided into three general areas: 1) the rugged north-to-south trending Nutria Monocline (also known as the Hogback) along the western and the southwestern boundaries, 2) the northern hill slopes of the Zuni Mountains in the southern portion, and 3) the alluvial plains marked by bedrock remnants in the northern portion of FWDA. Main drainages follow the topography, generally flow from south to north, and discharge to the South Fork of the Puerco River near the northern boundary of FWDA. However, many tributaries follow the regional trend, flowing from southwest to northeast. During rainfall and snowmelt events, streams transport sediment to low-lying areas in the northern part of FWDA, creating an extensive alluvial deposit among remnants of bedrock (Malcolm Pirnie, 2000).

The Study Area is relatively flat with higher elevations in the south. Surface runoff during rainfall/snowmelt events drains into arroyos that flow only during precipitation events or pool locally in low areas where it evaporates or infiltrates. No surface water bodies exist within the Study Area.

2.2.3 LAND USE

The current land use within the Study Area is commercial/industrial and it is expected to remain as such for the foreseeable future. However, given the Study Area's location and surrounding land use (i.e., tribal lands), future residential use in the FWDA northern area is feasible and will be evaluated as the primary, most protective exposure pathway in the human health risk evaluation.

2.2.4 VEGETATION/HABITAT

The vegetation cover for the Study Area consists of moderate grasslands, sagebrush, and piñon-juniper woodlands. The Study Area provides habitat for antelope, prairie dogs, rattlesnakes, badgers, field mice, the occasional mountain lion or bear, and various other insects and animals.

2.2.5 SOIL TYPES

Soil types found at the FWDA are similar to those in cool plateau and mountain regions of New Mexico. The FWDA soil types commonly found in arroyos are permeable sand and sandy loam clay (DOE, 1990); however, most soil is composed of low permeability clay. Soil types at the FWDA are primarily alluvial materials, with the exception of the Hogback along the western border and the northern hill slopes of the Zuni Mountain Range in the extreme southern portion. The alluvial materials, encompassing the area covered by this investigation, do not have distinct soil horizons as they are relatively shallow, and the parent bedrock is either at or near the surface within more than a quarter of the installation (DOE, 1990).

2.2.6 GEOLOGY

In 1997, geologic mapping of portions of FWDA and a fracture trace analysis were conducted by the U.S. Geological Survey (USGS) in Flagstaff, Arizona. Geologic units exposed at the ground surface throughout much of FWDA were identified. Results of this identification, combined with information from geologic literature and more recent subsurface investigations in the northern areas of FWDA, are presented below to provide a description of the geologic and stratigraphic setting of the portion of FWDA in which the groundwater plumes are located.

2.2.6.1 Structural Geology

FWDA lies within a small basin defined on the south and east boundaries by the Zuni Mountains (Zuni Uplift), on the west by the Nutria Monocline, and on the north by the South Fork of the Puerco River (USGS, 2009). The Laramide Orogeny, occurring approximately 75 million to 35 million years ago, contributed to the present basin configuration. Orogenic uplift tilted the bedrock that underlies most of FWDA to the northwest at an angle of approximately 5 degrees (USACE, 2011).

The Nutria Monocline west of FWDA is the dominant topographic and structural feature. The Nutria Monocline is a north-northwest to south-southeast trending monocline that dips steeply to the south-southwest and defines the west and southwest margin of the Zuni Uplift. The Nutria Monocline rises as much as 2,000 feet above the surrounding area, and dips commonly exceed 60 degrees (USACE, 2011).

The northern boundary of FWDA terminates in the strike valley of the South Fork of the Puerco River. The valley represents the transition between the Zuni Uplift to the south and the Chaco Slope to the north. The Chaco Slope is a gently north-dipping slope between the Zuni Uplift and the inner San Juan Basin (USACE, 2011).

Bedrock underlies most of the northern area of FWDA and dips to the northwest at an angle of approximately 5 to 6 degrees. The structural orientation of the bedrock and overlying alluvium substantially influences the movement of local groundwater near FWDA. The groundwater gradient in the uppermost bedrock units of the northern area is primarily to the northwest and west, generally following the structural dip of the geologic units (USACE, 2013).

2.2.6.2 Stratigraphy

FWDA is underlain primarily by the Triassic Chinle Group consisting of mudstone and sandstone that are tilted gently to the northwest. In the western and southern portions of FWDA; however, Jurassic and Cretaceous sandstone and claystone are exposed along the Nutria Monocline.

Within the Study Area, Quaternary alluvial and colluvial deposits unconformably overlie the Triassic-age bedrock in the lower elevation and northern portions of FWDA (Anderson et al., 2003).

The Triassic Petrified Forest Formation underlays the alluvial and colluvial deposits in the Study Area. The Petrified Forest Formation comprises more than 75% of the exposed bedrock throughout FWDA, and consists primarily of mudstone, claystone, and minor amounts of muddy sandstone. The Petrified Forest Formation consists of the Painted Desert Member (upper), the Sonsela Sandstone Member (middle), and the Blue Mesa Member (lower).

The upper Painted Desert Member and the lower Blue Mesa Member each consist of mudstone, siltstone, sandy mudstone, and lenticular sandstone layers. Sandstone lenses within the Painted Desert and Blue Mesa Members are generally less than 20 feet thick, laterally discontinuous, and contain high quantities of very fine, muddy matrix. Thus, the apparent permeability of these lenses, and of the Painted Desert and Blue Mesa members, is very low. The Painted Desert Member of the Petrified Forest Formation is exposed at the ground surface in areas of higher topographic elevations located along the southern reach of the Study Area.

The 2023 Final Northern Area Groundwater RCRA Facility Investigation Report, Revision 3 (HDR, 2023) developed geologic cross sections depicting the current conceptual site model (CSM) for the northern area subsurface lithology. The cross-sections are provided in Figures 2-3 through 2-8. The cross sections indicate that the surface of the Study Area is covered by either remnants of the Chinle Group or Quaternary alluvial and colluvial deposits. Most of the alluvial deposits are found in lowland areas between bedrock remnants. In the Study Area, alluvium thickness ranges between 0 feet and 70 feet. Alluvium consists of unconsolidated intermittent sands, silts, and lean clays.

The Permian Bluewater Creek Formation, Moenkopi Formation, the San Andres limestone, and the Glorieta sandstone underlie the Blue Mesa Member of the lower Petrified Forest Formation. The lower Petrified Forest Formation, Bluewater Creek, and the Moenkopi Formation comprise 250 feet to 300 feet of mudstones and sandstones with a relatively low apparent permeability. These units are underlain by approximately 100 feet of the San Andres limestone, which is underlain by approximately 120 feet of the Glorieta sandstone.

2.2.7 HYDROGEOLOGIC CONCEPTUAL SITE MODEL

The hydrogeologic CSM was developed using data collected during various investigations performed during the 25 years before the RCRA permit was issued for FWDA. Generally, the objective of previous investigations was to characterize the impacts to groundwater on a larger scale throughout the basin. This Phase 2 Supplemental RFI Work Plan focuses specifically on data gaps associated with potential impacts from discharges and releases from various locations within the Administration Area, the Workshop Area, and the area immediately south of the Workshop Area. The groundwater plumes are generally located within this broader Administration Area, the Workshop Area, and the area immediately north of the Workshop Area. The Study Area has Quaternary alluvial material as the overlying unconsolidated geologic unit and is unconformably underlain by Triassic-age geologic units. The previously prepared cross sections (Sundance, 2018) extrapolate the subsurface conditions beyond the lowest data point based on professional interpretations of surface geologic measurements, surface geologic observations, and soil boring logs generated during the installation of the existing monitoring wells and one of the Administration Area's historical production wells, Well 69, drilled to approximately 1,350 feet bgs. These fence diagrams and cross sections are the current working model for the subsurface lithology and define the current understanding of the hydrogeologic setting within the Study Area. Investigative activities outlined in this Phase 2 Supplemental RFI Work Plan will improve on the current working model and confirm areas where subsurface lithology and structure have been inferred, if deemed necessary to complete the objectives of this Work Plan. The model is summarized in the following subsections.

Water-bearing Zones within the Shallow Unconsolidated Alluvium

The Quaternary alluvial water-bearing zone in the northern area of FWDA includes deposits in the Puerco River Valley along the northern edge of FWDA. Thicknesses of the alluvial deposits in the Study Area vary from 0 to approximately 70 feet bgs. The alluvial deposits in the valleys within FWDA are composed of detrital rock clasts and mineral grains weathered from Triassic- and Jurassic-age strata exposed in adjacent outcrops. The rock outcrops of the Painted Desert Member in and around the Study Area provide evidence of previous erosion and the identity of the source formation from which the alluvium in the Administration and Workshop areas was derived. Given the predominance of mudstones in the Painted Desert Member, erosion of this member provides abundant fine-grained material (silts and clay minerals) to FWDA alluvium. Information from drill cuttings and cores describe the fine-grained nature of eroded siltstones and mudstones in the alluvial deposits (USGS, 2009).

The South Fork of the Puerco River is an ephemeral stream that flows west along the northern boundary of FWDA. As this stream flows west, it discharges to the alluvium. However, the principal recharge area for the extensive, well-developed alluvial groundwater system is located north of the South Fork of the Puerco River and the Study Area. The alluvial water-bearing zone is primarily recharged from surface runoff. Recharge occurs mainly during the wet seasons of the year, specifically with the snowmelt in the spring. In the southeastern portion of the Study Area, recharge occurs as focused hill-front recharge. This recharge is analogous to mountain-front recharge but at a smaller scale. In the southwestern portion of the Study Area, recharge consists of ephemeral runoff concentrated in topographic depressions and in the Fenced-up Horse Arroyo. To the north, recharge occurs primarily as hill-front recharge with some recharge from the South Fork of the Puerco River (USGS, 2009). Groundwater in the alluvium underlying the Study Area occurs at relatively shallow depths. During the October 2022 groundwater monitoring event, the depth to water (DTW) in the Study Area alluvium ranged from approximately 17 feet to 65 feet bgs, and the potentiometric surface generally followed the surface topography. Table 2-1 provides the well construction details for the 102 wells in the northern groundwater area, and Table 2-2 provides the gauging history of the wells through October 2022. Figures 2-9 and 2-10 show that the direction of general groundwater flow in the northern part of FWDA is to the south-southwest. However, in the southern part of the Study Area, groundwater generally flows north-northwest, while in the center of the Study Area, groundwater flow converges and creates a local westerly groundwater flow direction.

Unconsolidated sediments in the Study Area represent relatively low-energy alluvial deposition with interbedded sands, silts, and clays. The alluvium generally has low hydraulic conductivity because of its high clay content. Groundwater velocities overall are low due to the presence of discontinuous sand layers (USGS, 2009). The hydraulic conductivity of the alluvium in the Study Area was estimated using slug tests in 13 monitoring wells. The hydraulic conductivities ranged from 0.0009 foot per day to 0.8007 foot per day, with a mean hydraulic conductivity of 0.174 foot per day (TerranearPMC, 2006a).

The saturated thickness of the alluvium within the Study Area ranges from 0 to 30 feet. The relatively thin saturated zone within the alluvium and lack of a continuous impermeable layer that might divide zones indicate that the alluvium contains a single water-bearing zone within the Study Area.

Water-bearing Zones within Triassic Formations Beneath the FWDA Northern Area

The alluvium in the Study Area is underlain by the low-permeability Painted Desert Member of the Petrified Forest Formation. The Painted Desert Member in this area comprises mudstone and siltstone, with sandstone approximately 20 feet (±10 feet) thick and sandstone conglomerate intervals exhibiting low permeability in non-fractured locales. Previous investigations have indicated that the sandstone unit first encountered within the massive Painted Desert Member occurs at approximately 80 feet to 110 feet bgs in the central portion of the Workshop Area near well TMW02. The depth to sandstone within the Painted Desert Member is variable by location due to the lenticular bedding and the uneven weathered surface topography. The Painted Desert Member claystone above and below this sandstone unit is dry, indicating little vertical movement of groundwater between intervals within this sequence of claystone-rich interval. The vertical hydraulic conductivity of the claystone may range from $1\text{x}10^{-5}$ to $1\text{x}10^{-8}$ centimeters per second, or 0.028 foot to 0.000028 foot per day based on literature values (Todd, 1980). Despite being laterally discontinuous and not yielding sustainable water production, this interval is referred to as the "first bedrock water-bearing zone" (CH2M HILL, 2010) and identified as "BR1" in the RFI Report (HDR, 2023).

A second sandstone interval is present within the Painted Desert Member at depths that range from 0 (within Parcel 22) to nearly 200 feet bgs (within Parcel 11) (Figures 2-7 and 2-8). Based on the performance of wells completed in this sandstone, it yields more appreciable and consistent groundwater volumes than the shallower sandstone interval. This lower interval is referred to as the "second bedrock water-bearing zone" and identified as "BR2" in the RFI Report (HDR, 2023). However, the claystone intervals above and below the second bedrock water-bearing zone are dry, suggesting that little vertical movement of water occurs into and out of this sandstone (CH2M HILL, 2010).

The second bedrock water-bearing zone contained in the Painted Desert Member is exposed in an outcrop near the Building 528 Complex (SWMU 27) and Disassembly Plant and TPL QA Test Area (SWMU 70) on the southern end of the Study Area. The sandstone unit appears to be laterally and vertically continuous in the Study Area based on lithologic logs for borings in this unit. Groundwater flow within the sandstone unit appears to be controlled by geologic structure and the lithology of the Painted Desert Member.

Recharge to the second bedrock water-bearing zone occurs when precipitation infiltrates the soil and percolates to the bedrock outcrops located south of the Study Area. Percolated water moves through the sandstone down-dip to the north-northwest until the sandstone becomes saturated. Where the saturated sandstone is overlain by mudstone/claystone, groundwater becomes confined, and the potentiometric surface elevation in the bedrock is higher than the water table elevation of the overlying unconfined alluvial water-bearing zone.

Groundwater contamination observed in the bedrock monitoring wells is believed to be the result of contaminant releases from facilities located on the bedrock outcrop recharge zone. Locations near TMW30 at the southern end of the Study Area exhibit evidence of an absence of the mudstone/claystone confining layer. This area is believed to have mixing between the unconfined alluvial water-bearing zone and the second bedrock water-bearing zone.

3.0 INVESTIGATION METHODS

3.1 PREVIOUS INVESTIGATIONS

The environmental-remediation process at FWDA has been underway for approximately 25 years. In 1980, the Comprehensive Environmental Response, Compensation, and Liability Act guidelines began to direct the environmental-remediation activities with the EPA Region 6 designated as the lead regulatory agency. In 1993, the U.S. Department of Defense (DoD) declared FWDA inactive, and in 1996 NMED was granted lead regulatory authority under RCRA. Activities are currently performed under the RCRA permit (NM 6213820974) issued in 2005 and revised in February 2015 (NMED, 2015).

Each groundwater plume resides in several parcels as determined from previous soil and groundwater investigations. Summaries of previous environmental investigations pertinent to each groundwater plume are provided in the Final Groundwater Supplemental RFI Work Plan, Revision 4 (Sundance, 2018).

The RFI Report (HDR, 2023) was conducted in general accordance with the NMED-approved RFI Work Plan. The Study Area of the RFI included all or portions of thirteen parcels with five areas of concern (AOCs), and nine solid waste management units. The general purpose and scope of the RFI was to further define potentiometric surfaces and aquifer parameters (hydraulic conductivity), determine the presence of either a singular or multiple aquifers in the northern extent of the study area, further define the horizontal and vertical extent of groundwater contaminant plumes associated with historical FWDA related activities in the alluvial and bedrock aquifers, locate and identify source areas where groundwater contaminants were released into the environment, and to provide sufficient information to conduct Corrective Measures Studies for each groundwater plume.

Data gaps were identified based on the findings of the 2023 RFI Report, as well as additional data gaps identified from interim periodic monitoring and correspondence with NMED. Appendix A contains relevant correspondence as well as a summary table of comments related to data gaps identified in this Phase 2 Supplemental RFI Work Plan.

3.2 EVALUATION OF EXISTING DATA

Existing groundwater data will be compared to established EPA and NMED screening levels. The screening levels were determined as defined by the FWDA RCRA permit in Section 7.1 of Attachment 7 (NMED, 2015). A flow chart on the selection of screening values is provided as Figure 3-1.

Existing groundwater data will also be evaluated to determine the field activities needed to characterize the nature and extent of the groundwater plumes at FWDA, as summarized in the following sections.

3.2.1 Previous Sampling Data

The specific sampling data include semiannual results collected since 2008. The analytical groundwater suite includes analytes for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) (including polycyclic aromatic hydrocarbons [PAHs]), metals, pesticides, explosives, major anions (including nitrate, nitrite, bromide, chloride, fluoride, phosphate, and sulfate) and total petroleum hydrocarbons (TPHs). The data also include soil analytical results consisting of analytes specific to previous AOC and SWMU site investigations (Section 4.2 and Section 5.2). Specific sampling data available for individual groundwater plumes and soils are evaluated in Section 4 and Section 5 of this Phase 2 Supplemental RFI Work Plan.

3.2.2 Data Evaluation Criteria

As discussed in more detail in Section 3.3 and Section 3.4, two media are being sampled as described in this Phase 2 Supplemental RFI Work Plan: 1) soil and 2) groundwater. The data collected for each medium will be used for a specific purpose as summarized below:

1. Soil data collected during well installation will provide information for future investigative actions. Soil data collection methods are described in Section 3.4.1.

2. Groundwater data collected during the field investigation will help define the extent of existing groundwater plumes and will be used to evaluate cumulative cancer risk and non-cancer hazard, as outlined in Section 8. Groundwater data collection methods are described in Section 3.4.2.

The specific scope of sampling activities for each groundwater plume is described in detail in Section 4 and Section 5.

Laboratory analytical data for soil and groundwater samples will be generated by Eurofins, a DoD Environmental Laboratory Accreditation Program-certified laboratory using EPA test methods following the latest version of the DoD/U.S. Department of Energy (DOE) Quality Systems Manual (DoD/DOE, 2021).

For soil, the analytical results will be evaluated using groundwater protection soil screening levels (SSLs) based on a dilution attenuation factor (DAF) of 20 (Cw, DAF 20) published by NMED in Table A-1 of its risk assessment guidance (NMED, 2022a). If no NMED groundwater protection SSL is published, then the EPA risk-based SSL is used, using a DAF of 20 (USEPA, 2023). The EPA SSLs for carcinogenic analytes are based on a target risk of $1x10^{-6}$, so the EPA SSLs for carcinogenic analytes will be further adjusted to a target risk of $1x10^{-5}$ for consistency with NMED risk guidance by multiplying the published risk-based SSL by a factor of 10. The comparison of soil results to groundwater protection SSLs will be used to further delineate groundwater plumes and aid in the vertical fate and transport evaluation of surface source contamination migration to determine if further site investigations are needed. For analytes not listed in Table A-1, a surrogate compound was selected and the SSL for that compound will be used in the evaluation. Table 3-1 assigns surrogate screening levels for these specific analytes. Table 3-1 lists 17 surrogate compounds, all of which will be used in the evaluation. Table 3-1 lists groundwater screening levels and Table 3-2 lists soil screening levels.

For groundwater, the analytical results will be used in the risk evaluation. Groundwater results will be evaluated using the hierarchy criteria as defined by the FWDA RCRA permit in Section 7.1 of Attachment 7 (NMED, 2015). The approach to conducting the risk evaluation is presented in Section 6.

3.3 DATA QUALITY OBJECTIVES

The data quality objectives (DQOs) were established based on Guidance on Systematic Planning Using the Data Quality Objectives Process, EPA QA/G4 (EPA, 2006). The DQOs were developed through a seven-step process, each step of which derives valuable criteria that are used to establish the final data collection design. These steps are the basis for the design of the data collection plan and, as such, these DQOs specify the type, quality, and quantity of data to be collected and how the data are to be used to make the appropriate decisions for the project. The DQOs are presented below for each groundwater contaminant plume.

3.3.1 PERCHLORATE GROUNDWATER PLUMES

1. **State the problem.** The nature of the perchlorate bedrock groundwater plume is undefined. The extent of the perchlorate groundwater plumes' boundaries in the bedrock water-bearing zone have not been adequately defined. The soil source area is adequately characterized.

2. **Identify the decisions.** Determine perchlorate groundwater concentrations in the source area(s). Delineate the extent of perchlorate contamination in groundwater exceeding the screening criteria determined by the RCRA permit.

3. **Identify inputs to the decisions.** Analytical results from groundwater samples will help delineate the perchlorate groundwater plumes. Groundwater screening levels are based on the RCRA permit, Attachment 7 (Section 7.1) (NMED, 2015) hierarchy.

   Detects, non-detects, and qualified analytical data will be evaluated before performing any evaluation. Detected and "J-"qualified data will be used as reported from the laboratory. Non-detects will be reported as less than the applicable limit of quantitation (LOQ). Data that are rejected during validation and assigned an "R" qualifier will be excluded from the evaluations.

   Sufficient historical soil analytical data have been collected as listed in Step 4, below. Soil samples will be collected from monitoring well borings to satisfy the NMED requirement that soil samples be collected from borings during all well installation activities.

   Other data inputs include groundwater gradient and soil lithologic data from historical site maps, groundwater elevation maps, and soil boring logs.

4. **Define the boundaries of the study.** The perchlorate groundwater plume areas are shown on Figure 2-2 with the screening level of 14 micrograms per liter (µg/L) defining the plume

contour. The bedrock perchlorate groundwater plume is undefined on the north and east. Groundwater investigations are planned in the Workshop Area to delineate the extent of the perchlorate groundwater plumes. Soil source area investigations have been completed at the TNT Leaching Beds (SWMU 1) and the Building 528 Complex (SWMU 27) and are considered sufficient to define the extent of perchlorate in soil (NMED, 2022a).

5. **Develop a decision rule.** Bedrock monitoring wells will be installed to define the plume boundaries to the north and east of existing bedrock monitoring well TMW64 (Figure 2-2). The proposed monitoring well locations are presented in Section 4. Data from these wells is intended to define the extent of the plume (i.e., concentrations are below screening levels). If the extent is not defined by these data, additional monitoring wells may be needed.

6. **Specify tolerable limits on decision errors.** LOQs, limits of detection (LODs), and detection limits (DLs) will be less than regulatory screening objectives when possible using a DoD Environmental Laboratory Accreditation Program-certified laboratory using standard EPA test methods. When the NMED screening level is below the LOQ, LOQ will be used as the project screening level. Analytical methods will be performed in accordance with the Army's LOQ Phase 3 Study as described in the Army's letter to NMED dated April 24, 2023 (Appendix A). Table 3.3 identifies the analytes for which the LOQ is greater than the project screening level. Non-detected results will be reported at the LOQ. Limits for accuracy and precision have been based on requirements of the latest version of the Quality Systems Manual (DoD/DOE, 2021). Groundwater analytical data will be considered suitable for final decision-making.

7. **Optimize the design for obtaining data.** Soil logs will be used to revise the CSM including potential contaminant sources, updated lithology, and potential exposure pathways. Perchlorate analytical data in groundwater will be used to achieve the project objective of defining the boundaries of the bedrock water-bearing zone plume. Project efforts may use a phased approach, as needed, to delineate perchlorate source(s) to bedrock groundwater. Optimization for this effort will be focused on evaluating the groundwater data to determine the extent of contamination in the plumes as well as to determine if suspected sources are contributing perchlorate to groundwater exceeding regulatory screening levels. Additional soil samples and monitoring wells may be required as part of any path forward.

3.3.2 EXPLOSIVES GROUNDWATER PLUMES

1. **State the problem.** RDX is the primary compound in the explosives groundwater plume. NMED has indicated that the existing monitoring well network is not sufficient to assess the extent of the RDX plume. The distance from well TMW62 to wells TMW21 and MW27 located west of the plume exceeds 500 feet (NMED, 2022b).

2. **Identify the decisions.** Delineate the extent of RDX contamination in alluvial groundwater exceeding regulatory screening levels by installing a well between TMW62 and Wells TMW21/MW27.

3. **Identify inputs to the decisions.** Analytical results from groundwater samples will help delineate the explosives groundwater plume. Groundwater screening levels are based on the RCRA permit, Attachment 7 (Section 7.1) (NMED, 2015) hierarchy.

   Detects, non-detects, and qualified analytical data are evaluated before performing any evaluation. Detected and "J-" qualified data will be used as reported from the laboratory. Non-detects will be reported as less than the applicable limit of quantitation (LOQ). Data that are rejected following the validation and usability assessment will be assigned an "R" qualifier and will be excluded from the evaluations.

   Sufficient historical soil analytical data have been collected as listed in Step 4, below. Soil samples will be collected from monitoring well borings to satisfy the NMED requirement that soil samples be collected from borings during all well installation activities.

   Other data input includes groundwater gradient and soil lithologic data from historical site maps, groundwater elevation maps, and soil boring logs.

4. **Define the boundaries of the study.** The explosives groundwater plume area is shown in Figure 2-1 with the screening level of 9.7 µg/L defining the plume contour. The current alluvial explosives groundwater plume is not bounded horizontally to the west of TMW62. Groundwater investigations will focus on bounding the alluvial plume in the west. Soil source area investigations have been completed at the TNT Leaching Beds (SWMU 1) and are considered sufficient to define the extent of explosives in soils and compare to SSLs for the soil-to-groundwater pathway (NMED, 2022a).

5. **Develop a decision rule.** A monitoring well is planned in the downgradient western boundary of the explosives groundwater plume. Data from this well is intended to define the extent of the plume (i.e., concentrations are below screening levels). If the extent is not defined by these data, additional monitoring wells may be needed.

6. **Specify tolerable limits on decision errors.** LOQs, LODs, and DLs will be less than regulatory screening objectives when possible, using a DoD Environmental Laboratory Accreditation Program-certified laboratory using standard EPA test methods. When the NMED screening level is below the LOQ, LOQ will be used as the project screening level. Analytical methods will be performed in accordance with the Army's LOQ Phase 3 Study as described in the Army's letter to NMED dated April 24, 2023 (Appendix A). Table 3.3 identifies the analytes for which the LOQ is greater than the project screening level. Non-detected results will be reported at the LOQ. Limits for accuracy and precision have been based on requirements of the latest version of the Quality Systems Manual (DoD/DOE, 2021). Soil and groundwater analytical data will be considered suitable for final decision-making.

7. **Optimize the design for obtaining data.** Soil log data will be used to revise the CSM including potential contaminant sources, updated lithology, and potential exposure pathways. Explosives groundwater analytical data will be used to achieve the project objective of defining the boundaries of the alluvial explosives plume. Optimization for this effort will be focused on evaluating data to determine the variables needed to meet the final objectives bounding the explosives plume in the alluvial water-bearing zone.

3.4 SAMPLING METHODS

This Phase 2 Supplemental RFI Work Plan describes field activities to be conducted within the Study Area to further delineate the nature and extent of environmental releases. Table 3-4 summarizes the sampling activities to be performed for this Phase 2 Supplemental RFI Work Plan, including anticipated well construction details. The following sections describe the specific methods and procedures for sampling, managing investigation-derived waste (IDW), equipment decontamination, and maintaining site health and safety.

3.4.1 SOIL AND CORE SAMPLING

Soil sampling methods are described in this section, with specific rationale and sampling locations described in the individual groundwater plume sections. Soil sampling will be conducted to satisfy the NMED requirement that soil samples be collected during all well installation activities and to delineate the nature and extent of COPCs around potential sources in the Study Area. The specific method, intervals, and depths of the soils to be sampled within the Study Area will depend on the nature and extent of COPCs at that site. Sample handling procedures will follow the RCRA permit (NMED, 2015) and quality control (QC) procedures (see Section 3.5 for quality assurance [QA]/ QC procedures).

For bedrock cores, a TSi 150T truck-mounted sonic drill rig (or equivalent) will be used to continuously core the boring and advance surface casing. Casing will be advanced through the alluvium to the confining bedrock layer, sealing off the alluvial water-bearing zone from the bedrock water-bearing zone. Core samples will be extruded into plastic sleeves before being placed into wooden core boxes.

For alluvial borings, a CME 750 (or equivalent) hollow-stem auger (HSA) drill rig will be used to collect discrete soil samples and advance surface casing.

Soil samples will be collected every 10 feet until groundwater is encountered. An additional soil sample will be collected from each boring at 1 foot above the soil-groundwater interface. These soil samples will be representative of the media and site conditions being investigated.

For the boring for well MW41, soil samples will be collected every five feet until 1 foot above the soil-groundwater interface.

Appropriate QA/QC samples will be collected in accordance with QC procedures (Section 3.5). QC samples, including field duplicates, equipment blanks, trip blanks, matrix spike (MS) samples, and matrix spike duplicate (MSD) samples will be collected to validate analytical data and ensure it is of sufficient quality to meet the DQOs. VOC soil sampling and headspace determination will only be conducted during HSA drilling because the VOC groundwater plume is only expected in the alluvial water-bearing zone based upon previous investigations (HDR, 2023).

To provide a preliminary indication of VOCs in the soil boring, a photoionization detector (PID) will be used to monitor for the presence of organic vapors in drill cuttings collected from the boring at 5-foot intervals. This field screening method will consist of filling a resealable plastic bag to about one-third capacity with soil and sealing the container. PID readings will be taken immediately at the end of the planned equilibration period of about 15 minutes to minimize VOC loss to the atmosphere. The rate of diffusion is strongly dependent on temperature. After allowing a maximum of 15 minutes for the soil vapor to equilibrate with the container's headspace, the bag will be pierced to allow insertion of the PID probe tip. The concentrations of organic vapors detected by the PID will be recorded on the boring log. The PID and other monitoring instruments will be calibrated each day to the manufacturer's standard.

During discrete-depth soil and/or core sampling, field personnel will collect soil and bedrock samples from each boring for logging, field screening, and analytical testing. A lithologic core will be collected from the sonic drill rig core barrel and placed in a wooden core box for storage. The field geologist will collect soil samples from this core and use the remainder of the soil or core sample for logging. Table 3-5 lists the sample containers, preservation, and holding time details for all proposed soil sampling.

Field personnel will visually inspect samples obtained from exploratory borings and classify the soil or rock type in accordance with Unified Soil Classification System (USCS) D2487 and USCS D2488 for soil and rock classification. A qualified geologist will complete detailed logs of each boring in the field. Additional information, such as the presence of water-bearing zones and any unusual or noticeable conditions encountered during drilling, will be recorded on the logs.

3.4.2 MONITORING WELL INSTALLATION AND GROUNDWATER SAMPLING

Monitoring well installation and groundwater sampling methods are described in this section, with sampling locations specifically described in the individual groundwater plume sections. Monitoring well installation and groundwater sampling will be performed in accordance with New Mexico Office of the State Engineer (OSE) regulations (OSE, 2016), the RCRA permit (NMED, 2015), and the New Mexico Administrative Code (NMAC) 19.27.4.29 and 20.6.2 (issued by OSE); (NMAC, 2001 and 2017).

For monitoring wells in the bedrock, a TSi 150T (or equivalent) truck-mounted sonic drill rig will be used to continuously core the boring and advance surface casing. Casing will be advanced through the alluvium to the confining bedrock layer, sealing off the alluvial water-bearing zone from the bedrock water-bearing zone.

For alluvial wells, a CME 750 (or equivalent) HSA drill rig will be used to advance surface casing. When the water table is encountered, field personnel will install the top of screen above the water table.

Field personnel will install 2-inch-diameter Schedule 40 polyvinyl chloride (PVC) groundwater monitoring wells with a 2-inch annulus and 20 feet of 2-inch Schedule 40 PVC, and 0.010-inch machine-slotted screen and bottom endcap. Alluvial monitoring wells will have a minimum of 5 feet of screen placed above the water table. Wells will have centralizers placed at the top and bottom of the screen when appropriate. The filter pack will be silica sand and will extend from the bottom of the borehole to 2 feet above the screened interval. A bentonite chip or pellet seal approximately 3-feet thick will be installed over the filter pack and hydrated with potable water at every 1-foot increment to provide a competent seal. The bentonite chips or pellets will be installed by gravity fall if the distance to the top of the filter pack is less than 20 feet bgs or by a tremie pipe if the distance is greater than 20 feet bgs. Above the bentonite seal, a neat cement grout will be installed from the top of the bentonite seal to 3 feet bgs by gravity fall or a tremie pipe using the same distance criteria used for the bentonite chip seal.

The surface completion for each well will consist of an 8-inch-diameter by 6-foot-long protective steel monument that will be installed 3 feet above a concrete pad and 3 feet into the ground. The concrete pad will be 4 feet square by 4 inches thick. Field personnel will install 4-inch-diameter by 3-foot-tall steel bollards around the well on the outside of the concrete pad. An approximate well monument stick-up height of 3 feet is required to accommodate a potential dedicated pump system. The well will be equipped with a security lock and will be tagged with corrosion-resistant identification. The well monument will be coated with protective orange paint as required by FWDA.

Completed wells will be developed at least 24 hours after well installation. Field personnel will develop wells by surge blocking, bailing, and/or pumping until the turbidity of the extracted water is less than 100 nephelometric turbidity units (NTUs). To provide adequate time to equilibrate, newly constructed wells will not be purged or sampled for a minimum of 7 days following development. Field personnel will purge wells before sampling using low-flow purging equipment or bailers until three consecutive readings are recorded for the following:

- ±10% of temperature, conductivity, and oxidation-reduction potential
- ± 10% OR < 1.0 NTU for turbidity
- ± 10% OR < 1.0 milligram per liter (mg/L) for dissolved oxygen
- ± 5% for potential hydrogen

Following well purging, field personnel will collect groundwater samples and submit the samples for analysis. Groundwater samples from newly installed monitoring wells will be collected and analyzed for the following, referred to as the full-suite of groundwater analyses for this site:

- VOCs (EPA method 8260D)
- SVOCs (EPA method 8270E)
- Major anions (EPA methods 9056A and 365.1)
- Perchlorate (EPA method 6850)
- Explosives (EPA method 8330B)

- Pesticides (EPA method 8081B)
- TPH diesel range organics (DRO) (EPA method 8015D)
- TPH gasoline range organics (GRO) (EPA method 8015D)
- Total metals including mercury (EPA methods 6020B and 7470A/7471B)
- Dissolved metals including mercury (EPA methods 6020B and 7470A/7471B)

The analytical list is consistent with the sampling suite from the Final Interim Facility-Wide Groundwater Monitoring Plan, Version 11, Revision 2 (Eco, 2021). Table 3-4 provides the sampling rationale and matrix for the proposed groundwater monitoring wells. The contracted analytical laboratory will analyze samples in accordance with the project quality objectives and requirements of the latest version of the Quality Systems Manual (DoD/DOE, 2021; Section 3.5).

Low-flow sampling techniques are preferred for purging and sampling. Due to low yields historically experienced at select locations within the Study Area, static water level is sometimes difficult to maintain while performing low-flow sampling. Hand bailing low-producing wells is an alternative to purging and collecting groundwater samples within the Study Area. Table 3-5 lists the sample containers, preservation, and holding time details for all proposed groundwater sampling.

3.4.3 SURVEYING

Following the field-sampling program, the groundwater monitoring well locations will be surveyed by a New Mexico-licensed professional surveyor to the nearest tenth of a foot (horizontal). The surveyor will measure elevations for the new monitoring wells at ground surface, top of the surface monument, and top of well casing (PVC) at points on the north side of the well to the nearest one-hundredth of a foot (vertical).

The surveyor will reference horizontal coordinates for all sample locations to the North American Vertical Datum (NAVD) of 1983, State Plane New Mexico West Grid represented in units of feet. They will also reference vertical coordinates for monitoring well elevations to the NAVD of 1988, or NAVD 88.

3.4.4 SAMPLE IDENTIFICATION, CHAIN OF CUSTODY, PACKAGING, AND SHIPPING PROCEDURES

3.4.4.1 Sample Identification

The sample identification will consist of a combination of the parcel number, additional site identifier, source of sample, increment or boring number, type of sample, and depth of sample collection in accordance with the latest version of the Environmental Information Management Plan (USACE, 2009). Additional descriptions of the proposed sample nomenclature system follow:

- Well Parcel: Parcel number (i.e., 21)

- Groundwater Plume: Explosives (E), perchlorate (P)
- Water-bearing Zone: First bedrock (BR1), second bedrock (BR2), alluvium (AL)
- Boring or Well Number: TMW50
- Source of Sample: SB (soil boring), GW (groundwater), WW (wastewater), SL (sludge), TB (trip blank), EB (equipment blank)
- Type of Sample: D (discrete)
- Sample Depth:0001 (0 to 1 foot bgs), 1011 (10 feet to 11 feet bgs), etc., as appropriate depending on the COPC at an individual site
- Matrix of Sample: Soil (SO), water (AQ)

Using this nomenclature, a groundwater sample taken from a new well numbered TMW50 from Parcel 21 in the first bedrock water-bearing zone related to the perchlorate groundwater plume with the water table at 46 feet bgs would be identified as:

21PBR1-TMW50GW-D4647AQ

QA/QC samples will carry the same sample nomenclature as the parent sample with a unique suffix and numeral (if required) to distinguish individual samples. Duplicate samples will simply be described as Dup 1, Dup 2, etc., so that the laboratory will not be able to relate it to the original field sample. Equipment rinsate blanks, trip blanks, and field blanks will carry the sample location identifier with an additional designation of RBXX, TBXX, or FBXX (where XX represents the sequence number of the sample). Each blank will have a unique tracking number.

3.4.4.2 Chain of Custody

The chain of custody (CoC) records sample collection and shipment to the laboratory and maintains the custodial integrity of the samples. Field personnel will complete the CoC to accompany all sampling coolers and document each sample sent to the lab.

Field personnel will retain a copy of the CoC at the field office. CoC forms will be signed and dated by the responsible sampling team personnel. The “relinquished by” box will be signed by the responsible sampling team personnel, and the date, time, and air bill number will be noted on the CoC form. The laboratory will return the signed copy of the CoC with the hardcopy report.

The shipping coolers containing the samples will be sealed with a custody seal any time the coolers are not in an individual’s possession or view before shipping. Custody seals will be signed and dated by the responsible sampling team personnel.

At a minimum, the CoC must contain the following.

- Site name
- Project manager and project chemist names, telephone numbers, and fax numbers

- Unique sample identification number
- Date and time of sample collection
- Source of sample (including name, location, sample type, and matrix)
- Number of containers
- Designation of MS/MSD
- Preservative used
- Analyses required
- Name of sampler
- Custody transfer signatures and dates and times of sample transfer from the field to transporters and to the laboratories
- Bill of lading or transporter tracking number (if applicable)
- Turnaround time
- Laboratory name, address, and contact information
- Any special instructions.

Erroneous entries on CoC records will be corrected by drawing a single line through the error and entering the corrected information. The person performing the correction will date and initial each change made on the CoC form.

3.4.4.3 Packaging and Shipping Procedures

Field personnel will ship samples by overnight air freight to the laboratory. Unless otherwise indicated, field personnel will ship in heavy-duty coolers, pack in materials to prevent breakage, and preserve the samples with ice in sealed plastic bags. Each shipment will consist of the appropriate field QC samples (such as trip blanks, duplicates, field blanks, and rinsate blanks). Field personnel will place corresponding CoC forms in waterproof bags and tape the bags to the inside of the cooler lids. Each cooler shipped to the laboratory containing aqueous sample bottles for VOC analyses will contain a trip blank. The trip blank will stay with the cooler until the cooler is received by the analytical laboratory.

3.4.5 FIELD DOCUMENTATION

Field personnel will maintain appropriate field documentation for all activities as part of the formal project documentation. Field sampling documentation and data reporting will provide sufficient information to verify report conclusions and demonstrate that QC procedures were followed during implementation of the field activities.

3.4.6 DECONTAMINATION

Field personnel will perform decontamination of reusable sampling equipment to ensure chemical analyses reflect actual concentrations at sampling locations by maintaining the quality of samples and preventing cross contamination. Field personnel will use the standard equipment decontamination procedures while completing soil sampling activities, drilling activities, and between drilling locations. Decontamination procedures are as follows:

- Drillers will decontaminate drilling rigs (sonic, auger, and direct-push technology) before entering the site. This will consist of spray washing or steam cleaning dirt and debris from rig exterior and components and fully inspecting for any oil, hydraulic fluid, fuel, or operational fluid leaks. If any leaks are detected, USACE will not permit the deficient rig to enter FWDA until the deficiency is corrected.
- Drillers will decontaminate drilling rigs and equipment between soil boring locations, also consisting of spray washing or steam cleaning dirt and debris from rig exterior and components.
- Field personnel will decontaminate split spoons before and after each use utilizing the method described below.
- Field personnel will decontaminate core barrels before and after each use.
- Field personnel will construct a simple decontamination wash pad using plastic sheeting rolled up at the ends (typically with lumber) to contain water. The pad will be large enough to hold multiple 5-gallon buckets and sampling rods that require decontamination and to provide ample working area within the pad (roughly 8 feet by 8 feet).
- Field personnel will perform decontamination on the plastic sheeting of the temporary decontamination pad using a three-stage wash/rinse consisting of a wash bucket containing Liquinox™ and deionized water, a deionized water rinse, and a secondary deionized water rinse. Field personnel will containerize accumulated wash and rinse water and combine with IDW water for appropriate characterization and disposal.
- Drillers will wash direct push samplers and drill rods using a bristle brush using a three-stage wash/rinse consisting of a wash bucket containing Liquinox™ and deionized water, a deionized water rinse, and a secondary deionized water rinse. All items will then be thoroughly rinsed with potable water and allowed to air dry.
- Field personnel will dispose of the plastic sheeting and associated pad materials at an approved on-site dumpster.
- After field cleaning, personnel will don clean gloves before handling equipment to prevent recontamination. Personnel will move the equipment away from the cleaning area to prevent recontamination. If the equipment is not to be immediately reused, personnel will cover the equipment with plastic sheeting or wrap in aluminum foil to prevent

recontamination. The area where the equipment is stored must be free of contaminants before reuse.

3.4.7 INVESTIGATION-DERIVED WASTE

IDW will be managed in accordance with the Investigation-Derived Waste Management Plan for FWDA. IDW generated during the Phase 2 Supplemental RFI activities will consist of residual soil volume, soil and rock cuttings, water produced from drilling activities, decontamination fluids, disposable sampling equipment, and personal protective equipment (PPE). These IDW categories will be managed as follows:

- Soil that remains after required samples have been collected will be emptied from sampling sleeves and placed in lidded steel 55-gallon drums for appropriate characterization and disposal.
- Soil and rock cuttings will be placed into lidded steel 55-gallon drums for appropriate characterization and disposal.
- Large liquid volumes from drilling activities within bedrock water-bearing zones are anticipated. Field personnel will use portable water tanks to collect, manage, and characterize groundwater and drilling fluids during drilling. The collected water will be stored for appropriate characterization and disposal.
- Small volumes of decontamination fluids are anticipated. Decontamination fluids will be contained within the temporary decontamination pad areas during active sampling and decontamination activities at a site. Accumulated wash and rinse water will then be containerized in lidded steel 55-gallon drums and combined with fluids produced during drilling activities.
- Used, disposable sampling equipment and PPE are anticipated. Field personnel will place these items in polyethylene trash bags and treat them as general refuse. Field personnel will place refuse in suitable on-site covered trash receptacles daily.

3.5 EVALUATION OF EXISTING DATA

QC requirements relating to field activities, laboratory analytical processes, and data validation are provided in this section. CoC procedures applicable for field activities were summarized in Section 3.4.

3.5.1 LABORATORY SAMPLE CUSTODY

After samples are received by the laboratory, the laboratory sample custodian will verify package seals, open the coolers, check temperature blanks and record temperatures, verify sample integrity, and inspect contents against the enclosed CoC. The laboratory project manager will be contacted to resolve any discrepancies between sample containers and CoC. The cooler temperature and sample preservation will be verified and documented. If the cooler temperature is outside of the criterion (≤ 6 degrees Celsius) upon receipt or any other discrepancies are identified, the laboratory will contact the project chemist, who will determine the proper course of action.

3.5.2 SAMPLE HANDLING

Samples will be collected and placed in laboratory-provided containers with preservation and holding time specified by the analytical method (Table 3-5). Trip blanks and equipment rinsate samples will be collected using laboratory-provided ASTM International Type II deionized water. The QA/QC samples will be associated with primary samples and documented for the project chemist to properly validate analytical results.

3.5.3 ANALYTICAL METHOD REQUIREMENTS

Samples will be analyzed in accordance with the Quality Systems Manual Version 5.4 (DoD/DOE, 2021), and the specified EPA method. Table 3-3 specifies the target constituent's laboratory-specific DL, LOD, and LOQ by method and matrix. Seventeen of the SVOCs are PAHs, and these will be analyzed using EPA Method 8270 in selected ion mode to achieve laboratory limits that are less than screening levels. Uncertainty associated with laboratory limits that are greater than screening levels will be addressed in the uncertainty discussion of the risk evaluation.

3.5.4 QUALITY CONTROL SAMPLES

Field QC Samples

Field QC samples will be collected along with standard samples to allow the laboratory and the project chemist to assess the quality of field sampling procedures and allow the project chemist to assess the quality and accuracy of the laboratory results. The following field QC samples are planned for this investigation consistent with the previous Groundwater Supplemental RCRA Facility Investigation Work Plan, Revision 4 (Sundance, 2018).

Sample Type	Collection Frequency	Analyses
Equipment blank	One per borehole One per week for groundwater sampling	All constituents analyzed for in the standard samples, except for metals and anions
Field duplicate	10%	All constituents analyzed for in the standard samples
Trip blank	When sampling for VOCs	VOCs
Source water blank	One per source water used for final equipment blank collection	All applicable methods

Equipment blanks will be collected to monitor the effectiveness of the decontamination procedures. Contamination from the sampling equipment can bias analytical results high or lead to false-positive results. Equipment blanks will be prepared by filling sample containers with laboratory-grade, contaminant-free water that has passed through a decontaminated or a new and unused disposable sampling device. Equipment blanks will be collected at a minimum frequency of one per borehole for drilling equipment, and one per week for non-dedicated groundwater sampling equipment. Samples associated with equipment blanks that have detected analytes will be assessed. The usability of the associated analytical data will be documented and affected data will be appropriately qualified as described in Sections 3.2 and 3.3.

Field duplicates are collected in the field from a single aliquot of the sample to determine the precision of the field team's sampling procedures by determining the relative percent difference (RPD) between the original and duplicate samples. Acceptable RPD percentages are 20% for metals, VOCs and SVOCs, and 30% for all other analytes in accordance with the QC acceptance limits specified in the Quality Systems Manual Version 5.4 (DoD/DOE, 2021). Field duplicates will be collected and analyzed at a frequency of 10% of primary samples collected.

Trip blanks are used to monitor for contamination during sample shipping and handling, and for cross contamination through volatile component migration among the collected samples. They are prepared in the laboratory by pouring organic-free water into a volatile component sample container. The trip blanks are then sealed, transported to the field, stay sealed while volatile component samples are taken, and transported back to the laboratory in the same cooler as the volatile component samples. One trip blank should accompany each volatile component sample cooler.

Source water blanks will be collected if decontamination water is not provided by the analytical laboratory. Source water blanks are used to monitor potential contamination of the water used to complete equipment blank collection. Contamination from the source water can bias the analytical results high or lead to false-positive results being reported. Source water analysis will be completed once on each source of water used. One source is anticipated for this project effort. Should more than one be used, additional source water blanks will be taken.

Laboratory QC Samples

MS and MSD samples will be provided by the field team for the laboratory to spike. The laboratory will spike MS and MSD samples with known masses and concentrations of all target analytes. The MS/MSD is used to document potential matrix effects associated with a site and will not be used to control the analytical process. The performance of the MSs and MSDs will be evaluated against the QC acceptance limits specified in the Quality Systems Manual Version 5.4 (DoD/DOE, 2021). If either the MS or the MSD is outside the QC acceptance limits, the data will be evaluated to determine whether there is a matrix effect or analytical error, and the analytes in the parent sample and associated field duplicate (if applicable) will be qualified per the data flagging criteria in Section 3.5.5. If the sample concentration exceeds the spike concentration by a factor of four or more, the data will be reported unflagged. The laboratory should communicate potential matrix difficulties to the project chemist so an evaluation can be made with respect to the project-specific DQOs.

Analytical methods and validation criteria require laboratory QC sampling and include the following:

- Method blanks used to monitor each preparation or analytical batch for interference and/or contamination from glassware, reagents, and other potential sources within the laboratory.
- Laboratory control sample used with each analytical batch to determine whether the method is in control.
- Laboratory methods will have all requisite QC per the method (DoD/DOE, 2021).

3.5.5 DATA VALIDATION AND ASSESSMENT

The project chemist will be responsible for overseeing data verification, review, and validation. Data verification and review will be carried out when the data packages are received from the laboratory on an analytical-batch basis using the summary results. All the data packages (100%) will undergo data verification and data review using automated data review based on a Stage 2 data deliverable. The data verification and data review will be completed in accordance with the DoD Data Validation Guidelines and will include the following:

- Review the dataset narrative to identify any issues that the laboratory reported in the data deliverable.
- Check sample integrity (sample collection, preservation, and holding times).
- Evaluate basic QC measurements used to assess the accuracy, precision and representativeness of data, including QC blanks; laboratory control samples; MS/MSD and surrogate recovery when applicable; and field or laboratory duplicate results.
- Review sample results, target compound lists (TCL), and DLs to verify that project analytical requirements are met.
- Initiate corrective actions, as necessary, based on the data review findings.
- Qualify the data using appropriate qualifier flags, as necessary, to reflect data usability limitations based on the data usability assessment.

In addition, 10% of all data (over the course of the entire project) will undergo an EPA Stage 4 data review based on a Stage 4 data deliverable.

Qualifier flags, if required, will be applied to the electronic sample results. Any significant data quality problems will be brought to the attention of the project chemist. The results of the data validation will be discussed in a data quality evaluation. Data that are rejected following the validation and usability assessment will be assigned an “R” qualifier and will be excluded. The data quality evaluation will be included in the Phase 2 Supplemental RFI report.

4.0 PERCHLORATE GROUNDWATER PLUMES

4.1 SITE BACKGROUND

The source areas for the perchlorate-impacted alluvial and bedrock plumes are within Parcel 21 and Parcel 22, respectively, as shown on Figure 4-1 and Figure 4-2. The perchlorate groundwater plumes were identified in previous investigations, while the current definitions of the perchlorate groundwater plumes are based on the interim periodic monitoring groundwater sampling event conducted in October 2022 (Eco, 2023). Table 4-1 tabulates perchlorate analytical results from the four sampling events conducted from April 2021 through October 2022.

4.1.1 SURFACE CONDITIONS

Section 2.2 discusses surface conditions around the perchlorate groundwater plumes.

4.1.2 SUBSURFACE CONDITIONS

Section 2.2.6 discusses the subsurface lithology around the perchlorate groundwater plumes.

4.2 PREVIOUS INVESTIGATIONS

The buildings and areas listed below have been determined to be source areas for the perchlorate groundwater plumes based on perchlorate detections in surface and subsurface soils. Each area identified is discussed in terms of the processes and activities involving perchlorate that were conducted at the potential sources, the concentrations and locations of perchlorate soil detections, and the remediation activities, if any, that ceased, removed, or isolated the primary sources as contributors to the perchlorate groundwater plumes.

4.2.1 BUILDING 536, AMMUNITION RENOVATION DEPOT (SWMU 12, PARCEL 22)

Historical Uses

SWMU 12 is Building 536, Inspectors Workshop and Ammunition Renovation Depot. Building 536 (originally known as Building 39) was constructed in 1943 and contained areas for inspecting and testing various munitions. Facilities within Building 536 included an ammunition storage room, an inspection room, a gauge room, a test fixture for rocket motors, a pull-apart machine and barricade, and a repair room. More recent FWDA building lists identify Building 536 as an ammunition renovation building. The date that FWDA operations in Building 536 ceased, before installation closure in January 1993, is not known. According to historical FWDA drawings, Building 536 discharged, at various times during its operation, to a cesspool (with an outfall to the arroyo), a septic tank and leach field, and a connection to the FWDA sanitary sewer system (USACE, 2011).

TPL, Inc. (TPL) operations in Building 536 began circa 1996 and included demilitarization of munitions and propellant processing into smokeless powder for commercial resale. Detailed information or records regarding exact operations and disposition of various removed/recovered components were not found. TPL also covered the driveway/parking area around Building 536 with asphalt pavement. Before paving, the area was predominantly earth and gravel (USACE, 2011).

Remediation Activities

Building 535 and Building 536, including their foundations, were demolished in 2010 (USACE, 2011).

Groundwater Contamination Related to Perchlorate Groundwater Plumes

No groundwater investigations have been completed at SWMU 12.

4.2.2 BUILDING 517, STRUCTURE 518, BUILDING 519, AND STRUCTURES 520, 521, AND 547 (SWMU 70, PARCEL 22)

Historical Uses

The Disassembly Plant and TPL QA Test Area (SWMU 70) was constructed in the middle to late 1940s and consists of an equipment storage building (Building 517), a remote-control shelter Structure 518), a motor generator building (Building 519), a work mount pier (Structure 520), a timber-riveted barricade (Structure 521), and an earthen barricade (Structure 547) (USACE, 2011). The Disassembly Plant and TPL QA Test Area was used to safely disassemble munitions that could not be completed in other FWDA operations. Disassembled components were then returned to other operations at FWDA for further demilitarization or storage (USACE, 2011). The date that FWDA operations at the Disassembly Plant and TPL QA Test Area ceased is not known. The Disassembly Plant and TPL QA Test Area was not identified as a potential AOC in the 1980 Installation Assessment, and is, therefore, presumed to have been inactive for some time before 1980 (USACE, 2011).

Activities before 2002 are not well documented, but historical documents show that the area was used for the following operations:

- Ballistic testing of smokeless powder products
- Small-scale explosive testing supporting various research programs
- QA testing of blasting gel products
- Testing (explosive and burning) of safety shielding proposed or designed for use in TPL demilitarization operations
- Detonation/treatment of unsafe items
- Testing of military munitions (e.g., photo flash cartridges) to determine explosive force and evaluate resale opportunities
- Thermal treatment of dismantled process equipment (e.g., use of file destroyers to decontaminate photoflash process equipment
- Thermal treatment of fuse components and other metal parts

- Cleaning and separating (thermal treatment) of metal fuse components before recycling
- Safety training for TPL personnel
- Burning of recovered propellant, fuses, and other materials, reportedly after normal working hours (USACE, 2011)

Remediation Activities

All buildings and structures in SWMU 70, along with their foundations, were demolished in 2010 (USACE, 2011).

Groundwater Contamination Related to Perchlorate Groundwater Plumes

Bedrock groundwater monitoring well TMW05 was installed in 1998 approximately 1,000 feet north-northeast of the Building 528 Complex as part of an investigation to delineate the extent of releases from the TNT Leaching Beds (USACE, 2011). This well was intended to serve as a background well upgradient of groundwater impacted by SWMU 1 discharges. Groundwater samples were collected from all northern FWDA wells, including TMW05, for two consecutive sampling events. A perchlorate characterization study was conducted in 2002 and was documented in a letter report entitled Draft Perchlorate Characterization Letter Report for the Workshop Area, Fort Wingate Depot Activity (PCM Environmental, 2003). During two groundwater sampling events, perchlorate was detected in monitoring wells northwest of the Building 528 Complex (SWMU 27). TMW05 was incorporated into the USACE facility-wide groundwater monitoring plan and sampled in 2008.

In 2009, the water table dropped below the bottom of the screened interval, and TMW05 remained dry into 2011. TMW05 was abandoned and replaced by TMW30 in the 2010 well installation activities conducted by USGS personnel (USACE, 2011).

4.2.3 BUILDING 528 COMPLEX (SWMU 27, PARCEL 22)

The Building 528 Complex (SWMU 27) contains six structures: Building 527, Building 528A, Building 528B, Building 550, Building 551, and Building 529 (TerranearPMC, 2008b).

Before FWDA closure in January 1993, the complex was used for receiving and unpacking, disassembly, de-fusing (fuse removal), cleaning/de-rusting, painting, reassembly, container repair and painting, storing, and abrasive blasting. The exact date that operations ceased before FWDA closure is not known.

TPL began using the Building 528 Complex in 1994 to demilitarize munitions. Detailed information or records regarding operations and disposition of various removed/recovered components was not found, but enough information was available to generally describe TPL operations in the Building 528 Complex (TerranearPMC, 2008b).

Building 528 was used to disassemble munitions including removing smokeless and black powder. Recovered components were re-containerized within the building (the overhead vacuum recovery system discharging in Building 550 was not used by TPL) and either moved to another location for storage (awaiting disposal or reuse) or, in the case of recovered propellant, incorporated in other operations in Building 528 to produce blasting gel or other products.

Building 551 was initially used by TPL to disassemble photoflash cartridges under Contract DAAA09-94-C-00386. The items disassembled were M112 and M112A1 photoflash cartridges. From the Army Munition Items Disposition Action System database, the photoflash charge in these cartridges (7 ounces of charge per cartridge) was, by weight, 40% aluminum, 30% potassium perchlorate, and 30% barium nitrate, with trace amounts of iron, zinc, and silicon. A curbed concrete pad, approximately 40 feet wide by 75 feet long, was constructed to support photoflash processing equipment, including high-temperature water extraction (HTWE) process equipment and tanks. HTWE processing solubilized and separated barium nitrate and potassium perchlorate from recyclable metals. The date disassembly operations began is unknown; a TPL letter dated March 18, 1996, notes that Building 551 was to be used to house photoflash disassembly, so it is presumed that operations began sometime after that date. No process design information (e.g., process flow diagrams, piping and instrumentation drawings, design volumes/capacities) was found during preparation of this document. The wet separation steps were discontinued in 1997. Characterization, removal, and disposal of residual materials including liquids, solids, tanks, and other process equipment took place from 1997 until sometime in 2002. These activities were not well documented.

Raw materials used in TPL operations were stored in and around Building 551. An ammonium nitrate feed hopper and a storage shed used to store blasting gel ingredients were located approximately 60 feet north-northwest of Building 551.

Following the end of photoflash cartridge disassembly operations, Building 551 was used as a less-than-90-day storage area for non-explosive hazardous wastes. Drums and containers were stored in the building and under an exterior open-sided storage area. TPL used Building 529 to store flammables and other materials and used Building 550 to store ethylene glycol antifreeze. The historical documents indicated that the processes performed at the Building 528 Complex involved handling, storing, using, demilitarizing, and releasing materials containing nitrates, perchlorates, and explosives.

Groundwater Contamination Related to Perchlorate Groundwater Plumes

As reported in the October 2022 semiannual groundwater monitoring event, 12 wells installed downgradient of the Building 528 Complex had perchlorate detections exceeding the groundwater screening level of 14 µg/L. Sample concentrations above the screening level ranged from 14 µg/L to 680 µg/L within the alluvial water-bearing zone and 24 µg/L to 790 µg/L within the second bedrock water-bearing zone. Table 4-1 contains analytical data from the four sampling events conducted from April 2021 through October 2022.

4.2.4 EVALUATION OF GROUNDWATER DATA FROM MOST RECENT ANALYSIS

As reported in October 2022 (Table 4-1), perchlorate has been detected above screening levels in three alluvial wells and nine bedrock wells. The alluvial plume is in the same vicinity as the bedrock plume (Figure 4-1 and Figure 4-2). The perchlorate contamination has a high probability of originating from the southern part of the Workshop Area where the bedrock water-bearing unit is exposed at the surface.

4.3 CONCEPTUAL SITE MODEL

This section summarizes the nature and extent of impacts to groundwater, the fate and transport, and the data gaps associated with the perchlorate plume. Aspects of the RFI related to exposure routes, receptors, and complete and incomplete exposure pathways (i.e., the CSM) are addressed in Section 6.

4.3.1 NATURE AND EXTENT OF CONTAMINATION

Based on review of historical interim groundwater periodic monitoring, the extent of groundwater perchlorate contamination is limited to Parcel 21 and Parcel 22 as shown on Figure 4-1 and Figure 4-2 (Eco, 2023). Perchlorate releases to the environment have been documented at the Building 528 Complex. Perchlorate contamination of groundwater is present in both the alluvial and bedrock water-bearing zones in the Workshop Area.

The perchlorate groundwater plumes are bound to the south by exposed bedrock. The extent of the bedrock perchlorate groundwater plume has not been defined to the north and east of well TMW64.

4.3.2 AFFECTED WATER-BEARING ZONES

Alluvial Water-bearing Zone

Perchlorate concentrations measured during recent semiannual groundwater monitoring events are lower in samples from the alluvial water-bearing zone than in samples from the bedrock water-bearing zones. Based on historical potentiometric surface data and the sandstone outcrops observed, the alluvium and the second bedrock water-bearing zone are predicted to be in direct contact of the recharge area in the southern portion of the Study Area. This suggests that the alluvial and bedrock perchlorate groundwater plumes share a common source originating from the Building 528 Complex.

The saturated thickness of the alluvium in the vicinity of the perchlorate groundwater plume ranges from 0 to 20 feet with no continuous confining layer present below the alluvium.

Second Bedrock Water-bearing Zone

Perchlorate concentrations have been recorded for groundwater samples collected during interim groundwater monitoring events. The highest concentrations are reported in the second bedrock water-bearing zone strongly suggesting that the source is upgradient from the recharge zone of this bedrock zone. The Building 528 complex, which is upgradient from the recharge zone, used Chilean nitrates that have a high concentration of perchlorate and had historically documented releases. This evidence, along with groundwater flow directions in the second bedrock water-bearing zone, shows a potential source originating from the Building 528 Complex.

The thickness of this sandstone unit is approximately 20 to 30 feet. It is confined on the top and the bottom by claystone; however, the top confining layer has shown to be discontinuous in the southern portions of the Study Area.

4.3.3 FATE AND TRANSPORT

Perchlorate is highly soluble in water and has low reactivity with surrounding media. Due to these characteristics, dilute concentrations of perchlorate introduced into oxidizing, organic-poor aquifers will generally be transported at approximately the average velocity of groundwater (Sundance/CH2M HILL, 2013). Perchlorates in the alluvial water-bearing zone and the bedrock water-bearing zones would also migrate consistent with the respective zone's flow direction.

Perchlorate introduced to soil will migrate downward into the vadose zone along with infiltrating water. If the organic content of the vadose zone is low and oxidizing conditions predominate, much of the released perchlorate would reach the water table, even if the vadose zone is relatively thick and the infiltration rate is low (Sundance/CH2M HILL, 2013).

4.3.4 DATA GAPS

These are the data gaps for the bedrock perchlorate plume.

- The northern and eastern boundaries of the second bedrock water-bearing zone plume have not been delineated near existing bedrock well TMW64.

4.4 SCOPE OF ACTIVITIES AND SAMPLING METHODS

Planned field activities will provide information to address the identified data gaps for the bedrock water-bearing zones.

The following field activities will be conducted during the Phase 2 Supplemental RFI at the bedrock perchlorate groundwater plume area:

- Install bedrock groundwater monitoring wells TMW67 and TMW68 depicted in Figure 4-2.
- Collect, describe lithology, and analyze subsurface soil samples for perchlorate.
- Collect and analyze groundwater samples for full-suite analysis.
- Survey new monitoring wells by a licensed New Mexico surveyor.

4.4.1 GROUNDWATER MONITORING WELL INSTALLATION

Activities will include installing and sampling bedrock groundwater monitoring wells in the bedrock perchlorate plume in accordance with Section 3 of this Phase 2 Supplemental RFI Work Plan.

Monitoring well locations were determined using the rationale provided in Table 3-1. Additional groundwater monitoring wells associated with other plumes within this Phase 2 Supplemental RFI

Work Plan will be installed as supplementary well locations to delineate the alluvial and bedrock perchlorate plumes (Figures 2-1 and 2-2).

4.4.2 GROUNDWATER SAMPLING

Field personnel will collect a groundwater sample after completing well installation and development at each location. Field personnel will follow the steps in Section 3.4.2 for groundwater sample collection.

5.0 EXPLOSIVES GROUNDWATER PLUME

5.1 SITE BACKGROUND

The explosives groundwater plume is in the alluvial water-bearing zone in the TNT Leaching Bed area (Figure 5-1). The current explosives-contaminated groundwater plume definition is dominated by one contaminant: RDX.

The plume analysis is based on the interim groundwater monitoring conducted in October 2022 (Eco, 2023). Table 5-1 details analytical result detections of explosives during the four sampling events conducted from April 2021 through October 2022.

5.1.1 SURFACE CONDITIONS

The explosives (RDX) groundwater plume aboveground surface area is generally flat with mostly grass and sagebrush. Section 2.2 of this Phase 2 Supplemental RFI Work Plan provides further details.

5.1.2 SUBSURFACE CONDITIONS

Section 2.2.6 discusses the subsurface lithology in the explosives-contaminated groundwater plume.

5.2 PREVIOUS INVESTIGATIONS

The buildings and areas described in this section have been determined to be source areas for the explosives-contaminated groundwater plume, based on RDX detections in surface and subsurface soils. Each area identified in this section is discussed in terms of the source area processes and activities involving explosives, the levels and locations of explosive soil detections, and, if completed, the remediation activities that terminated, removed, or isolated the primary sources as contributors to the explosives groundwater plume.

RDX was detected in soil samples collected from locations in and around Building 503, Building 509, and Building 514 in Parcel 21. The former TNT Leaching Beds and washout facilities contain most RDX detections that exceed current SSLs.

5.2.1 TNT LEACHING BEDS AND BUILDING 503 (SWMU 1, PARCEL 21)

Historical Uses

SWMU 1 includes the TNT Leaching Beds and Building 503 (TNT Washout Building). Building 503 was built in 1948 on a concrete dock that was the former location of two bundle-ammunition packing buildings. The building was approximately 387 feet long by 32 feet wide, with a second story at the east end that was approximately 23 feet long by 32 feet wide (TerranearPMC, 2008a).

Munitions components (e.g., artillery projectiles) from other Workshop Area operations were transported to Building 503 where steam washout operations removed explosive filler from the munition casings. The steam for this process was supplied by the Building 501, Workshop Area and Boiler House (SWMU 19) via aboveground insulated piping. Various processes (e.g., gravity settling, pelletizing, drying, and flaking depending on the type and properties of the explosives being recovered) were employed within the building to recover the washed-out explosives. Recovered explosives were boxed and removed from the building for storage at other locations (e.g., storage barricades or magazines/igloos). The water from the explosives washout process was drained via a metal gutter inside Building 503 and a concrete trough outside Building 503, into two concrete settling basins located on the north side of Building 503. Before 1962, overflow from the settling basins drained into a leaching bed on the northwestern side of Building 503. This pre-1962 leaching bed was triangular-shaped, approximately 100 feet by 150 feet by 150 feet. In 1962, two rectangular-shaped leaching beds, each approximately 250 square feet with a depth of 3 feet, were constructed across Arterial Road No. 4, north of Building 503. These post-1962 leaching beds were connected to the settling basins by a metal trough that transported the overflow (TerranearPMC, 2008a).

Remediation Activities

Approximately 9,000 liters (2,400 gallons) of overflow per day from the explosives washout process in the settling basins were disposed of in the pre- and post-1962 leaching beds. The soils from the bottom of the leaching beds were occasionally removed and burned in the Old Burning Ground. When operations were shut down in 1967, the bottom soil from the leaching beds was removed and burned in the Old Burning Ground (U.S. Army Toxic and Hazardous Materials Agency, 1980). Building 503 and related structures were demolished in 1998.

Explosives-contaminated soil excavation and disposal was conducted for the TNT Leaching Beds (SWMU 1) and was described in the Interim Measures Completion Report (Zapata Incorporated, 2021). Approximately 82,000 tons of excavated soil was removed from the site and disposed as solid waste. Once confirmation results indicated that excavations were complete, the areas were backfilled, graded, and seeded. While not considered a final remedy for the Parcel 21, SWMU 1 TNT Leaching Beds, interim remedial objectives to remove soil with contaminant concentrations presenting direct contact risks were achieved. In addition, the interim measures removed the majority of source material minimizing future leaching of explosives to groundwater.

Groundwater Contamination Related to Explosives Groundwater Plume

Monitoring wells TMW01 through TMW04 were installed around the former TNT Leaching Beds from August through October 1996 (ERM, 1997). Monitoring wells TMW21, TMW22, TMW23, TMW24, TMW25, TMW26, TMW27, TMW28, and TMW29 were installed and sampled in 2002 (TerranearPMC, 2006a). In 2011 and 2012, monitoring wells TMW38, TMW39S, TMW39D, TMW40S, TMW40D, TMW41, TMW42, TMW43, TMW44, TMW45, TMW46, TMW47, TMW48, and TMW49 were installed. Table 5-1 presents groundwater monitoring results from these wells from the four sampling events from April 2021 through October 2022.

5.2.2 BUILDING 509 (AOC 63, PARCEL 21)

Historical Uses

AOC 63 is Building 509, Primary Collector Barricade, built in 1948 to support Workshop Area operations conducted in AOC 60 (Building 522, formerly designated as Building 500, Ammunition Receiving Building). This one-story building was approximately 7 feet long by 15 feet wide. As described in historical standard operating procedures, this building was used to collect propellant (e.g., smokeless powder) from munition disassembly operations in Building 522/500. The propellant was then conveyed to Building 509 via an overhead vacuum line running between the two buildings. Containers were placed in Building 509 to collect the recovered propellant. When containers were filled, the containers were closed and moved to Building 507, Smokeless Powder Magazine (AOC 61, Parcel 6) and Building 508, also called Smokeless Powder Magazine (AOC 62, Parcel 21) for transport to either long-term storage or the OB/OD Area for incineration (TerranearPMC, 2008a).

Remediation Activities

All visible propellant grains have been removed from the site and placed in the storage magazine being maintained by the U.S. Army as a conditionally exempt storage area. The propellant was disposed of in accordance with the RCRA permit under the Hazardous Waste Management Unit closure activities.

Utilities to Parcel 21 were terminated and buildings were demolished in 2010, including Buildings 509 and 510 and all related facilities (such as the overhead vacuum lines to Building 522).

Groundwater Contamination Related to RDX Groundwater Plume

No groundwater sampling and analysis has been conducted at this site.

5.2.3 BUILDING 514, DEBOOSTERING BARRICADE (AOC 68, PARCEL 21)

Historical Uses

AOC 68 is Building 514, the Deboostering Barricade, and the surrounding earthen barricade (Structure 545). Building 514 was a one-story building, approximately 6 feet long by 8 feet wide, constructed in 1948. The earthen barricade was 10 feet high and was approximately 150 feet long when constructed, sometime between 1948 and 1952. The Deboostering Barricade was used when a booster assembly could not be safely removed from the munitions during typical disassembly operations in Building 522. The munition still containing the booster was carried on a cart to the Deboostering Barricade, where it was secured and connected to a pneumatic wrench. The wrench was remotely operated to remove the booster. The booster and the remaining parts of the munitions were returned to Building 522. The purpose of the earthen barricade (Structure 545) was to protect personnel and facilities in the surrounding areas in the event of an explosion (TerranearPMC, 2012).

Remediation Activities

Utilities to Parcel 21 were terminated and buildings were demolished in 2010, including Building 514 and Building 522. As buildings in Parcel 21 were demolished, building corners were surveyed for future reference (TerranearPMC, 2012).

Groundwater Contamination Related to RDX Groundwater Plume

No groundwater sampling and analysis has been conducted at this site.

5.3 CONCEPTUAL SITE MODEL

This section summarizes the nature and extent of impacts to groundwater, the fate and transport, and the data gaps associated with the explosives groundwater plume. Aspects of the RFI related to exposure routes, receptors, and complete and incomplete exposure pathways (i.e., the CSM) are addressed in Section 6.

5.3.1 NATURE AND EXTENT OF CONTAMINATION

Based on review of historical GPMRs, the extent of explosives contamination appears to be concentrated in Parcel 21 as depicted in Figure 5-1.

5.3.2 AFFECTED WATER-BEARING ZONES

Alluvial Water-bearing Zone

The October 2022 groundwater analysis for the explosives groundwater plume shows that RDX concentrations were an order of magnitude higher than groundwater screening levels in several samples from alluvial monitoring wells (Table 5-1).

The explosives groundwater plume in the alluvial water-bearing zone appears to originate from the TNT Leaching Beds in the Workshop Area.

The saturated thickness of the alluvium in the explosives groundwater plume ranges from 20 feet to 30 feet with no continuous confining layer present between the alluvium and the first bedrock sandstone.

First Bedrock Water-bearing Zone

The first bedrock water-bearing zone (BR1) is believed to be a discontinuous and isolated water-bearing unit. Previous drilling logs indicate this unit is approximately 15 feet thick at the location of well TMW02. This first bedrock water-bearing zone is not believed to hydraulically communicate with other bedrock water-bearing zones because it has a different potentiometric surface and different COPCs detected within groundwater from this zone than that of neighboring bedrock wells. TMW02 also has detections of contaminants consistent with adjacent alluvial wells. The potentiometric surface elevation of TMW02 is consistent with the alluvial wells within the same area, which is believed to be in hydraulic communication with the alluvium.

5.3.3 Fate and Transport

RDX is the most predominant constituent within the explosives groundwater plume. RDX is more mobile than TNT (USACE, 1997) and is more readily transported from soil to groundwater. As of the October 2022 sampling event, RDX had four exceedances of the groundwater screening level of 9.7 µg/L in alluvial wells and no exceedances in bedrock wells.

5.3.4 Data Gaps

These are the data gaps for the alluvial explosives plume:

- The western boundaries of the plume have a distance greater than 500 feet between wells TMW62 and MW27/TMW21, indicating western boundaries of the alluvial plume have not been delineated beyond existing well TMW62 (Appendix A).

5.4 Scope of Activities and Sampling Methods

Data gaps will be closed by collecting and analyzing groundwater samples from newly installed monitoring wells. In addition, soil samples will be collected from the monitoring well borings in accordance with NMED requirements that soil samples are collected during all well installation activities. The following field activities will be performed at the explosives-contaminated groundwater plume area:

- Install alluvial groundwater monitoring well TMW65 presented in Figure 5-1.
- Collect, describe lithology, and analyze subsurface soil samples for full-suite analysis.
- Collect and analyze groundwater samples for full-suite analysis.
- Survey monitoring wells by a licensed New Mexico surveyor.

5.4.1 Groundwater Monitoring Well Installation

Activities will include installing an alluvial groundwater monitoring well within the explosives-contaminated groundwater plume in accordance with Section 3.4.2 of this RFI Work Plan. Monitoring well locations will be determined by the rationale provided in Table 3-1. Additional groundwater monitoring wells associated with other plumes within this Phase 2 Supplemental RFI Work Plan will be installed as supplementary well locations for the delineation of the alluvial explosives plume (Figure 2-1 and Figure 2-2).

5.4.2 Groundwater Sampling

Following monitoring well installation and development, groundwater samples will be collected following the steps outlined in Section 3.4.2.

6.0 RISK ASSESSMENT

6.1 HUMAN HEALTH RISK EVALUATION

6.1.1 INTRODUCTION

The human health risk evaluation from the 2023 RFI Report will be updated for the FWDA Northern Area groundwater as described in this section. The human health risk evaluation will assess potential health risks to residential receptors as required by Section 7.1 and Section 7.3 of Attachment 7 of the RCRA permit (NMED, 2015), and following the NMED Risk Assessment Guidance for Site Investigations and Remediation (NMED, 2022a). A commercial/industrial worker and construction worker are also addressed in the risk evaluation, consistent with the receptor types identified in the NMED risk guidance.

6.1.2 CONCEPTUAL SITE MODEL

Site investigations are conducted within the context of a human health CSM. The purpose of the CSM is to describe complete exposure pathways through which receptors may be exposed to site-related contamination. The NMED risk assessment guidance (NMED, 2022a) identifies five elements that must be present for an exposure pathway to be complete: 1) a source, 2) a mechanism of contaminant release, 3) a receiving or contact medium, 4) a potential receptor population, and 5) an exposure route. All five elements must be present for the exposure pathway to be considered complete.

A CSM illustrating potential exposure pathways for current and future receptors was presented in the 2023 RFI Report and is provided in Figure 6-1 herein. Potential sources of contamination include a VOC plume, nitrate plumes, perchlorate plumes, and explosives plumes as described in Section 1.1. The CSM illustrates potential future pathways for direct and indirect exposure to contaminants in groundwater. As outlined in NMED risk assessment guidance (NMED, 2022a), the CSM includes exposure scenarios for a residential receptor (adult and child), a construction worker, and a commercial/industrial worker. There are no known current receptors being exposed to groundwater, because groundwater is not being used as a tap water source, nor are any buildings currently occupied in the area where vapor intrusion (VI) would be a concern. The CSM conservatively identifies the potential for future receptors to be exposed to contaminants in groundwater, but as described in Section 2.2.7, the physical characteristics of the water-bearing zones present in the FWDA northern area suggest that actual use of groundwater for consumption is unlikely.

As stated above, future residents (adults and children) are conservatively included in the risk evaluation, because it is possible they could be exposed via tap water ingestion and household use, if domestic wells were installed in the future, or from VI inside buildings, if the site were redeveloped for residential use. The existing buildings are not currently occupied, but if the buildings were reoccupied or the site were redeveloped, future commercial/industrial workers may also be exposed through VI.

Future commercial/industrial workers are not evaluated for tap water use, consistent with NMED guidance that does not indicate that groundwater exposure is a concern for this receptor (NMED, 2022a, Section 1.2.1 and Section 2.3.1). Evaluating residential tap water use is conservatively health protective of worker exposure to tap water. In addition, the physical characteristics of the water-bearing zones described above support that it is unlikely for future commercial/industrial workers to be exposed to groundwater because there is not a sufficient volume of water available in any of the zones to support a population of workers from a well installed within the Study Area.

Construction workers are not exposed to groundwater, because the DTW prevents direct contact during trenching. Tap water use is not expected, because of the water-bearing zone characteristics and because this receptor would typically bring their own water to a construction site. Construction workers are not exposed through VI because they are assumed to work primarily on short-duration outdoor projects as described in NMED risk assessment guidance (NMED, 2022a).

6.1.3 RISK THRESHOLDS

NMED risk assessment guidance (NMED, 2022a, Section 1.2.3) specifies risk thresholds that are used to evaluate cancer risks and non-cancer hazards. NMED indicates that adverse health impacts are unlikely when the incremental lifetime cancer risk (ILCR) is less than or equal to $1x10^{-5}$ for carcinogenic analytes, and when the HI is less than or equal to 1.0 for noncarcinogenic analytes. Consistent with NMED guidance, these are the risk thresholds that will be used in the human health risk evaluation of the FWDA Study Area groundwater.

6.1.4 SELECTION OF SCREENING VALUES

The screening values to be used to evaluate the groundwater results is taken from Section 7.1 of Attachment 7 of the RCRA permit (NMED, 2015), which references three sources of criteria from which a value is selected for the evaluation using the following hierarchy:

1. For all contaminants listed in 20.6.2.7.VV and 3103 NMAC the Permittee shall attain the New Mexico Water Quality Control Commission (NM WQCC) standards of 20.6.2.4103.A and B NMAC.

2. For all contaminants for which EPA has adopted a drinking water maximum contaminant level (MCL) under 40 CFR Parts 141 and 143, the Permittee shall attain the MCL.

3. If both a WQCC standard and an EPA MCL have been established for a contaminant, then the Permittee shall attain the lower of the two.

4. If no WQCC standard or EPA MCL has been established for a carcinogenic hazardous waste or hazardous constituent, then the Permittee shall use the most recent version of the EPA Regional Screening Levels (RSLs) for tap water and a target excess cancer risk level of 10^{-5} to develop a proposed cleanup level for NMED approval, and

5. If no WQCC standard or EPA MCL has been established for a noncarcinogenic hazardous waste or hazardous constituent, then the Permittee shall use the most recent version of the EPA RSLs for tap water and a hazard index (HI) of one (1.0) to develop a proposed cleanup level for NMED approval.

6. There currently is no WQCC groundwater standard or MCL for perchlorate; however, the Permittee shall determine the nature and extent of the perchlorate contamination at the Facility and, if necessary, down gradient of the Facility. If either the WQCC adopts a groundwater standard for perchlorate, or EPA or the EIB adopts an MCL for perchlorate, such standard shall be followed in accordance with this Attachment (7). Currently EPA's Office of Solid Waste and Emergency Response recommends that where no federal or state applicable or relevant and appropriate (ARAR) requirements exist under federal or state laws, the Interim Drinking Water Health Advisory of 15 µg/L (or 15 ppb) (OSWER, 2009) is recommended as the PRG for perchlorate when making CERCLA site-specific cleanup decisions where there is an actual or potential drinking water exposure pathway.

6.1.5 HUMAN HEALTH RISK EVALUATION APPROACH

The potential for unacceptable health risks from exposure to FWDA-related contamination in FWDA Study Area groundwater will be evaluated using the potentially complete exposure pathways as defined by the CSM. The risk evaluation consists of three parts. The first part is a risk screening step to identify COPCs that will be carried forward into the second and third parts of the risk evaluation. The second part is an evaluation of metal and anion background concentrations in groundwater. The third part is a cumulative cancer risk evaluation and non-cancer hazard evaluation to assess the potential health risks from simultaneous exposure to multiple analytes in groundwater. The details for each part of the risk evaluation are presented below.

6.1.5.1 Historical Data and COPC Screen: Part 1

Groundwater data have been collected semiannually since 2008, resulting in an extensive data set. This Phase 2 Supplemental RFI Work Plan proposes adding new groundwater well locations to supplement the existing data set.

The screening step for groundwater will compare the concentrations of detected analytes from the four most recent sampling events at each monitoring well to their respective screening values as defined from the hierarchy of standards in Section 7.1 of Attachment 7 of the RCRA permit (NMED, 2015) and described in Section 6.1.4 above. Individual results from each well will be compared to the Final Selected Screening Level presented in Table 3-1. Chemicals for which the individual sample concentrations are greater than the screening values at one or more monitoring wells in any sampling event will be retained as COPCs and will progress forward in the risk evaluation. Chemicals for which the individual sample concentrations are less than the screening values in all monitoring wells in all sampling events will not be evaluated further because they do not contribute significantly to potential health risks. The exception is for volatile analytes, which are addressed further below.

6.1.5.2 Background Evaluation: Part 2

As allowed by NMED risk assessment guidance (NMED, 2022a), the risk evaluation process may incorporate a comparison to background concentrations before evaluating cumulative risks. This is consistent with Section 7.6 of Attachment 7 of the RCRA permit (NMED, 2015), which indicates that the cleanup level for naturally occurring (i.e., background) constituents can be set at the background level after having obtained a written background determination from NMED.

Analytical data from wells at which COPCs are not detected above laboratory reporting values will be used to establish site-specific background levels for metals and anions in groundwater at FWDA.

If NMED approves site-specific background levels in groundwater for metals and anions, metals and anions identified as COPCs in the risk screening step (Part 1) background data will be evaluated to determine if the concentrations are consistent with naturally occurring conditions. The background evaluation will follow the steps outlined Section 2.8.3.2 of the NMED risk assessment guidance. In the first step, the maximum concentration of each analyte identified as a COPC will be compared to its corresponding background level. The maximum concentration will be selected from the most recent four sampling events from all wells included in this RFI (i.e., one concentration will be selected for each analyte for comparison to background). Analytes with maximum concentrations in groundwater that are less than the site-specific background level will not be evaluated further. Analytes with maximum concentrations in groundwater that are greater than the site-specific background level progress to the second step in evaluation of background levels, which is further statistical analysis of the results using a two-sample hypothesis test (if sufficient data are available), or a point-by-point comparison (if sufficient data are not available). NMED guidance also allows using graphical displays to provide additional justification for identifying if a particular analyte is consistent with background levels. The third step in the background evaluation is to present any additional lines of evidence that support excluding an analyte as a COPC.

Lines of evidence could include but will not be limited to lack of historical use, high percentage of non-detect results, or other site-specific factors that demonstrate why an analyte should not be considered a COPC. Analyte concentrations in groundwater found to be consistent with background levels and/or determined not to be site-related will not be evaluated further. Analytes whose concentrations in groundwater are found above background levels will be carried forward into the cumulative risk evaluation (Part 3). In the event the background evaluation is not completed and accepted by NMED at the time the risk evaluation is performed, then the background evaluation will be omitted, and the risk evaluation will proceed to Part 3.

6.1.5.3 Cumulative Risk Evaluation: Part 3

The cumulative risk evaluation assesses if there are potential health risks from simultaneous exposure to multiple analytes in groundwater. The initial cumulative cancer risk/non-cancer hazard evaluation (Step 1) incorporates the results of the metals background evaluation and proceeds to evaluate potential health risks based on the maximum detected concentrations of each analyte from all sample data. Subsequent refinements may be incorporated into the cumulative risk evaluation if an unacceptable ILCR or non-cancer hazard is identified in the initial evaluation. The cumulative risk evaluation includes two steps to evaluate potential health risks, as described below.

Step 1: Initial Cumulative Risk Evaluation

The initial cumulative risk evaluation provides a conservative assessment of potential health risks from exposure to COPCs in groundwater by using the maximum reported concentration for each analyte, and follows the process described in Section 5.0 of the NMED risk assessment guidance (NMED, 2022a). Cumulative ILCRs and non-cancer hazards will be calculated for the residential receptor using groundwater data to evaluate tap water and household usage following these steps:

1. Select the maximum concentration for each COPC, excluding analytes determined to be present at naturally occurring levels.
2. Divide the maximum concentration of each COPC by the corresponding screening values, based on the human health CSM, to calculate the ILCR or non-cancer hazard for each analyte.
3. Sum the ILCRs and non-cancer hazards for all analytes and all pathways, except lead, using Equation 59 and Equation 60 (NMED, 2022a), respectively. Lead is evaluated separately because it has not been correlated with the typical carcinogenic or non-carcinogenic toxicity values that characterize other chemicals. Compare the maximum concentration of lead to the selected screening value.
4. Compare the sum of ILCRs and HIs to the NMED risk thresholds of 1×10^{-5} for carcinogenic analytes and 1.0 for non-carcinogenic analytes.

If the initial cumulative ILCR and HI are equal to or less than NMED risk thresholds, and the maximum concentration of lead is less than the selected screening value, then the predicted health risks will be considered acceptable, and the cumulative risk evaluation will be complete. Initial cumulative ILCR or HI exceeding the risk thresholds or the maximum concentration of lead exceeding its screening level will require a Step 2 evaluation.

Step 2: Refined Cumulative Risk Evaluation

If the initial cumulative ILCRs or non-cancer hazards estimated using maximum concentrations exceed the NMED risk thresholds, then a refined cumulative risk evaluation will be conducted using one or more of the following refinements in the evaluation:

1. Calculation of a 95% upper confidence limit (UCL) using EPA ProUCL statistical software (most current version) that will be used in place of the maximum concentration; this is predicated on sufficient data being available to support a UCL calculation, as described in Section 2.8.4 of the NMED risk assessment guidance (NMED, 2022a). If ProUCL recommends multiple UCLs, professional judgment may be used to select the most appropriate UCL, with the maximum UCL selected in most cases. Any criteria used to select the appropriate UCL and justification for the choices made to select the UCL will be documented in the risk evaluation report. Other factors contributing to exposure may be considered in developing a 95% UCL. These include: 1) the area over which exposure could occur (such as a building footprint or a drinking water well capture zone) to determine what portion of the groundwater data set should be used in estimating the exposure point concentration (EPC), 2) water-bearing zone characteristics, 3) well design

assumptions, or 4) building construction. The U.S. Army will provide the rationale in the risk evaluation report for selecting specific values to represent each factor incorporated into estimation of the EPC.

2. Segregation of groundwater results by water-bearing zone and plume position (i.e., plume core vs. downgradient of the plume core) to further evaluate which portion of the groundwater plume is contributing to unacceptable risk levels.
3. Segregation of petroleum hydrocarbon indicator chemicals listed in Table 6-3 of Section 6 of the NMED risk assessment guidance (NMED, 2022a) to determine if these analytes are collectively contributing to unacceptable risks or hazards.
4. Segregation of screening-level non-cancer hazards by target organ to determine if cumulative hazards exceed the target HI of 1.0 for a particular organ. This refinement will include assessment of the primary and secondary toxic endpoints.
5. Qualitative discussion of additional lines of evidence relevant to the analyte and/or exposure pathway to describe why a potentially unacceptable level of ILCR or non-cancer hazard may not be significant. Examples of lines of evidence could include a review of the subsurface conditions, the physical and chemical properties of an analyte, frequency of detection, magnitude of exceedances, visual evidence of contamination, concentration trends, statements about historical use or sources of an analyte at FWDA, and additional discussion of the likelihood that an exposure pathway is complete.

The cumulative ILCRs and HIs will be recalculated, and lead will be re-evaluated using its refined EPC. If the refined sums are less than target risk thresholds, and the refined EPC for lead is less than its screening criterion, then the cumulative risk evaluation is considered complete, and no further investigation or evaluation is required. If the refined cumulative risk evaluation still indicates unacceptable health risks, the conclusions of the risk evaluation will identify which analytes contribute to unacceptable risks for which exposure pathways and which receptors.

The U.S. Army will contact NMED to discuss any site-specific data and methodologies to be used if refinements to the risk evaluation are necessary.

The results of the risk evaluation will be provided in the Phase 2 Supplemental RFI Report, which will include a discussion of the following topics:

- Applicable regulatory framework and guidance documents
- Compilation and selection of screening criteria
- Selection and use of groundwater results
- Current and future land use
- Exposure pathway analysis (i.e., CSM)
- Risk evaluation methods and assumptions

- The results of the screening level risk evaluation
- Summary and conclusions.

6.1.6 UNCERTAINTY DISCUSSION

An uncertainty discussion will be prepared to address the uncertainty associated with the specific data set and risk evaluation. The uncertainty discussion considers the effects of qualifiers added during data validation, of reporting limits that may be greater than the screening levels, and of analytes that do not have published screening levels. Uncertainty associated with exposure assumptions and toxicity value will also be discussed. The uncertainty discussion will provide an assessment of whether the uncertainty contributes to an overestimation of risk, an underestimation of risk, or has a neutral impact on estimated risks.

6.2 SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT

Ecological risk will not be evaluated because there are no complete exposure pathways for ecological receptors. Groundwater does not discharge into any surface water bodies, and the depth to groundwater within the Study Area ranges from 15 feet to 115 feet bgs.

7.0 ADDITIONAL PROPOSED MONITORING WELL INSTALLATIONS

7.1 DRY MONITORING WELL TMW54

Alluvial groundwater monitoring well TMW66 will be installed adjacent to monitoring well TMW54 (Figure 7-1) to determine COPC concentrations in alluvial groundwater at this location. TMW54 has a total depth of 41 feet bgs and has been dry in recent groundwater monitoring events. The proposed alluvial groundwater monitoring well TMW66 will be installed in alluvium with an estimated total depth of approximately 60 feet bgs or until bedrock is encountered. Well installation will follow the methods listed in Section 3 and will be sampled as listed in Table 3-1.

7.2 ADDITIONAL BEDROCK MONITORING WELLS

Three bedrock groundwater monitoring wells are proposed in the Administration Area (MW40, MW41, and MW42). MW40 will be installed to assess potential contamination associated with the aluminum release in the bedrock aquifer beneath the Administration Area at AOC 47. MW41 and MW42 will be installed in the northwestern and southeastern portions of the Administration Area, respectively (Figure 7-1), to assess potential groundwater contamination in the bedrock aquifer beneath the Administration Area. Well installation will follow the methods listed in Section 3 and will be sampled as listed in Table 3-1.

Four bedrock groundwater monitoring wells are proposed in the Workshop Area (TMW69, TMW70, TMW71, and TMW72). TMW69 will be installed west of well TMW58, TMW70 will be installed northwest of well TMW58, TMW71 will be installed between wells TMW53 and TMW52, and TMW72 will be installed north of well TMW63 (Figure 7-1) to further characterize groundwater flow direction in the bedrock aquifer beneath the Workshop Area per NMED request (NMED, 2022b). Well installation will follow the methods listed in Section 3 and will be sampled as listed in Table 3-1.

7.3 BACKGROUND MONITORING WELL INSTALLATION

A groundwater background evaluation will be conducted for alluvial and bedrock groundwater and submitted under separate cover. A technical memorandum was previously prepared; however, bedrock wells located upgradient of known sources were not available. To address the data gap, two background groundwater monitoring wells are proposed to provide data points sufficient to evaluate background concentrations of metals and anions within the alluvial and bedrock water-bearing zones. Alluvial well BGMW14 and bedrock well BGMW15 will be installed (Figure 7-1) and sampled in accordance with Section 3 of this Work Plan. Table 3-1 provides the sampling rationale and matrix for these proposed alluvial background wells.

7.4 BEDROCK BR1 AND BR2 DELINEATION STUDY

The differences between BR1 and BR2 bedrock aquifer zones will be evaluated. Differences in soil lithology, potentiometric surface elevations, and groundwater parameters will be compared to determine if extent and gradient can be refined for the bedrock aquifer. Potential wells to be evaluated include but are not limited to TMW51, TMW52, and TMW53.

7.5 SILICA GEL WASH STUDY

To determine if naturally occurring organics are interfering with detections of TPH-DRO, five wells with previous detections (MW18D, MW25, MW36S, TMW33, and TMW34) will be sampled with and without a silica gel cleanup for two consecutive events to compare the results. Comparison of results will be used to further understand the potential site-specific proportions of hydrocarbons and other organics present at FWDA, and to determine if silica gel cleanup will be useful in future monitoring efforts. Table 7-1 tabulates TPH-GRO and TPH-DRO analytical results from the four sampling events conducted from April 2021 through October 2022.

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FIGURES

Environmental Excellence

Eco & Associates, Inc.
18231 Irvine Boulevard, Ste 204
Tustin, CA 92780

Phone: 714.289.0995 Fax: 714.289.0965

SITE LOCATION MAP

Northern Area Groundwater RCRA Facility Investigation Phase 2 Work Plan

Fort Wingate Depot Activity
McKinley County, New Mexico

FIGURE

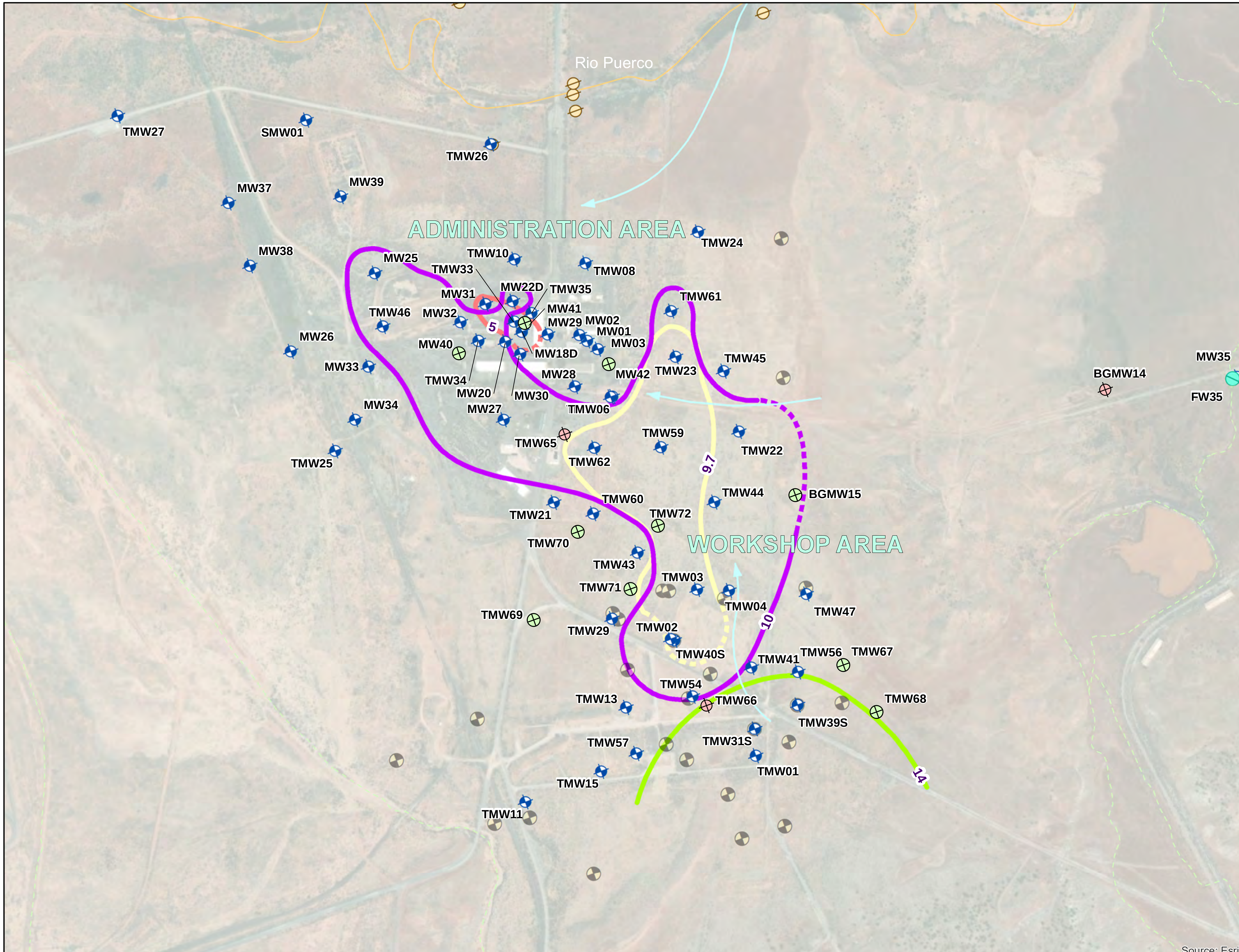
1-1

Updated on: 11/30/2023

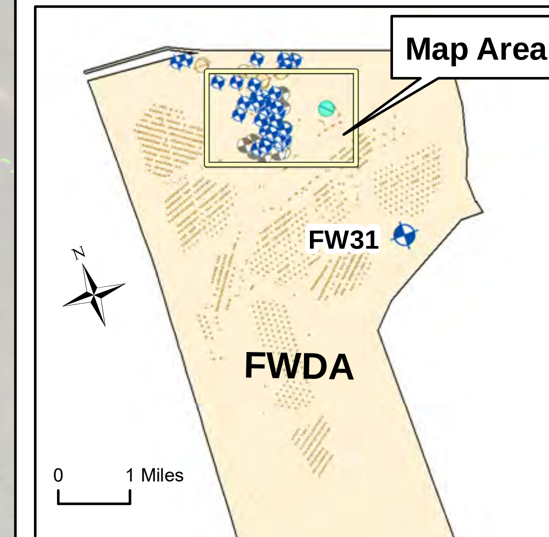
Project No.: Eco-23-809

Updated on: 1/11/2024

Project No.: Eco-23-809



FWDA INSTALLATION



Legend

- Alluvial
- Dry
- Proposed Alluvial
- Proposed Bedrock
- Bedrock
- Piezometer
- Rio Puerco
- Arroyo
- GW Flow
- Site Boundary
- Perchlorate (14 µg/L)
- RDX (9.7 µg/L): *Actual*, *Inferred*
- Nitrate (10 mg/L): *Actual*, *Inferred*
- VOCs (5 µg/L): *Actual*, *Inferred*

0 400 800 Feet

N

Coordinate System: NAD 1983 StatePlane New Mexico West FIPS 3003

NOTES & ABBREVIATIONS

1. µg/L = micrograms per liter
2. Map reflects data collected in October 2022.

Alluvial Contaminant Plumes
and Proposed Monitoring Well Locations

RCRA Facility Investigation Phase 2 Work Plan
Fort Wingate Depot Activity
McKinley County, New Mexico

Eco & Associates, Inc.
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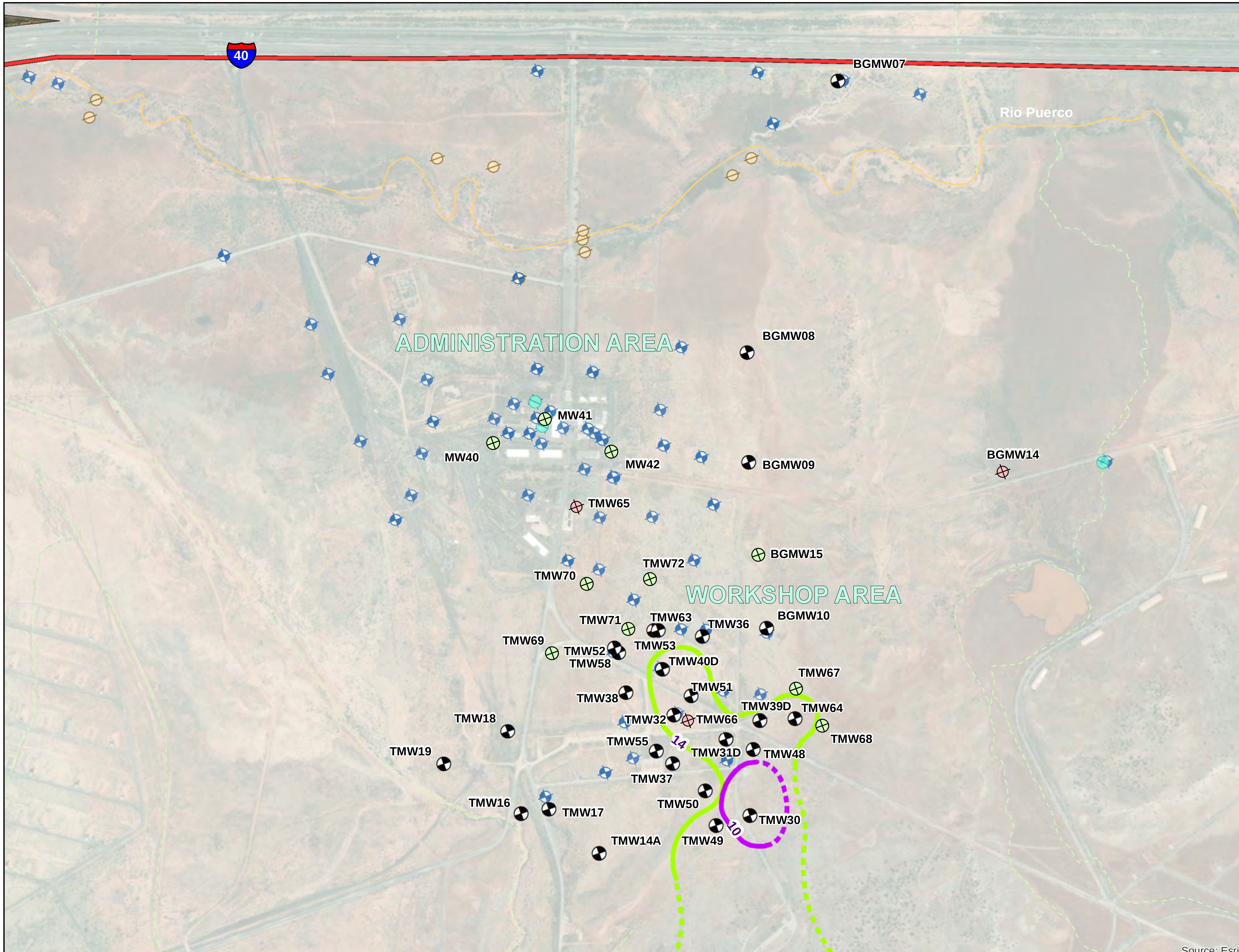
Tustin, CA 92780

FIGURE

2-1

Updated on: 2/23/2024

Project No.: Eco-23-809



Legend

- Bedrock Well
- Proposed Alluvial Well
- Proposed Bedrock Well
- Alluvial Well
- Dry Well
- Arroyo
- Rio Puerco
- US Interstate
- Site Boundary

Nitrate (10 mg/L):

- *Actual*
- *Inferred*

Perchlorate (14 µg/L):

- *Actual*
- *Inferred*

N

0 500 1,000 Feet

Coordinate System: NAD 1983 StatePlane New Mexico West FIPS 3003

NOTES & ABBREVIATIONS

1. µg/L = micrograms per liter
2. Map reflects data collected in October 2022.

Bedrock Contaminant Plumes
and Proposed Monitoring Well Locations

RCRA Facility Investigation Phase 2 Work Plan
Fort Wingate Depot Activity
McKinley County, New Mexico

Eco & Associates, Inc.
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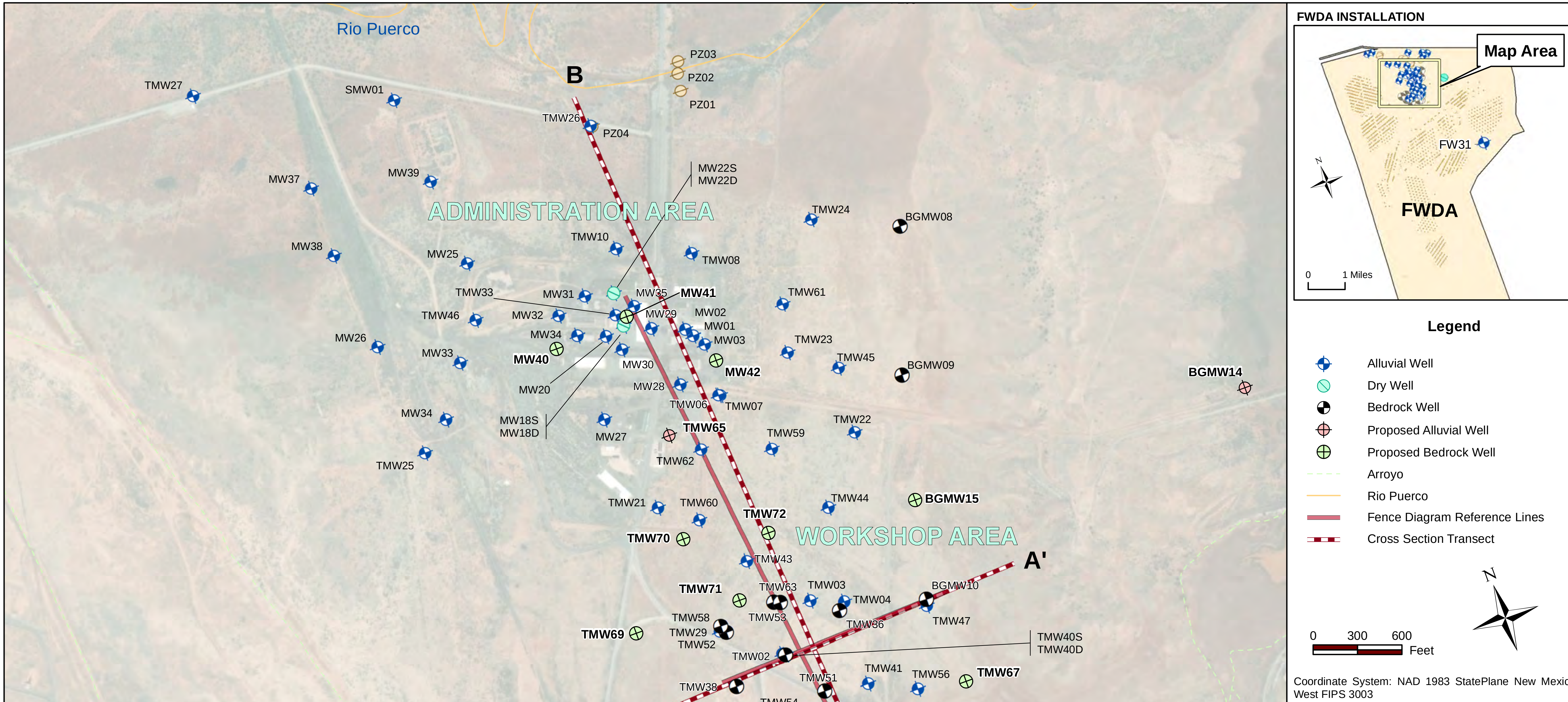
FIGURE
2-2

Updated on: 2/23/2024

Project No.: Eco-23-809



Fence Diagram
and
Geological Cross Section Transect Location

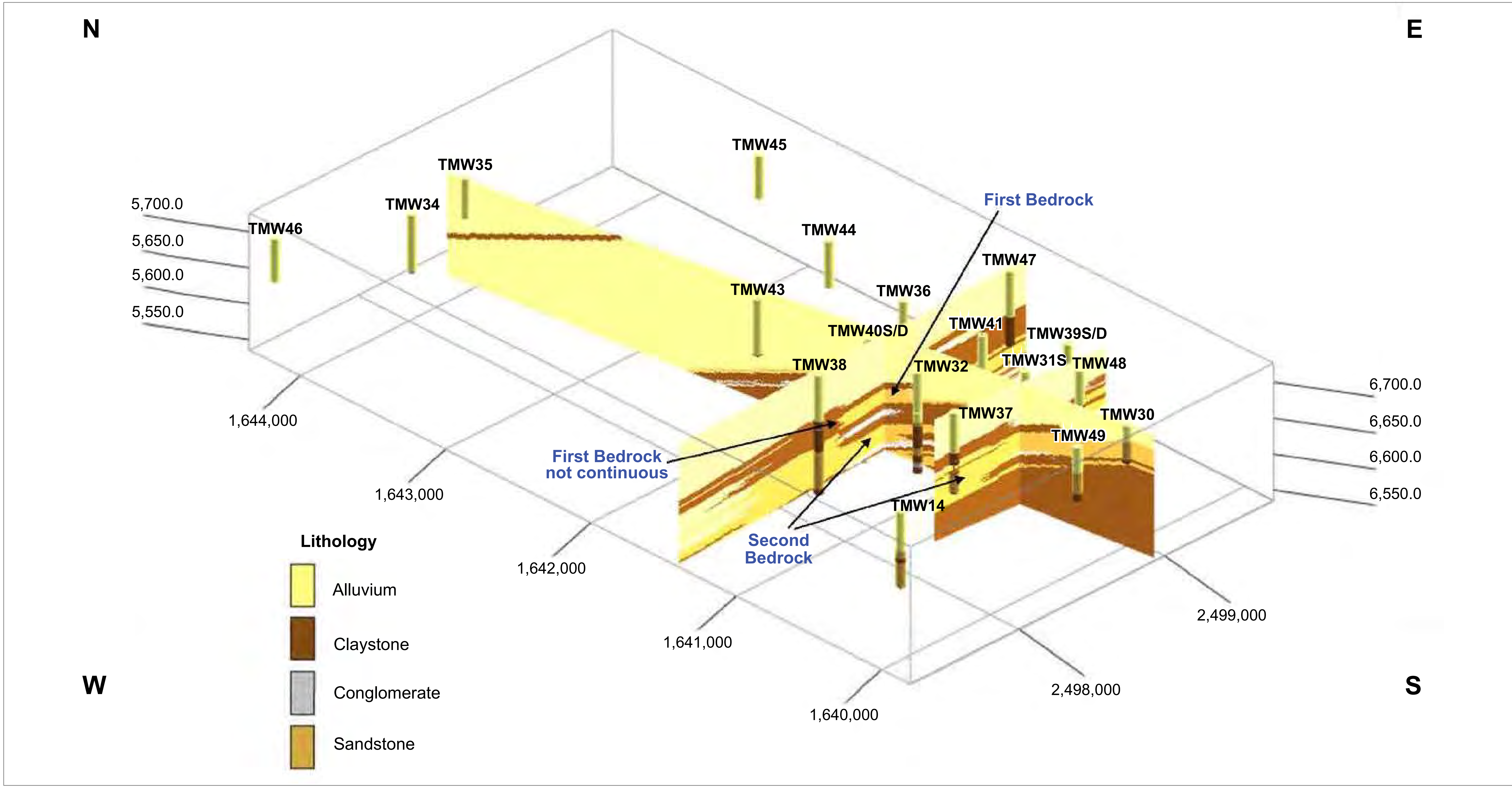
RCRA Facility Investigation Phase 2 Work Plan
Fort Wingate Depot Activity
McKinley County, New Mexico

Eco & Associates, Inc.
18231 Irvine Boulevard, Ste 204
Tustin, CA 92780

FIGURE
2-3

Updated on: 2/23/2024

Project No.: Eco-23-809



Notes:

FWDA = Fort Wingate Depot Activity
RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facility Investigation
Lithology interpreted from well soil logs of monitoring wells shown utilized Rockworks™ 2016 software

* Claystone lithology is consolidated (Claystone consists of siltstone, claystone, and mudstone.)

View is from the southwest looking northeast

Updated on: 7/5/2017

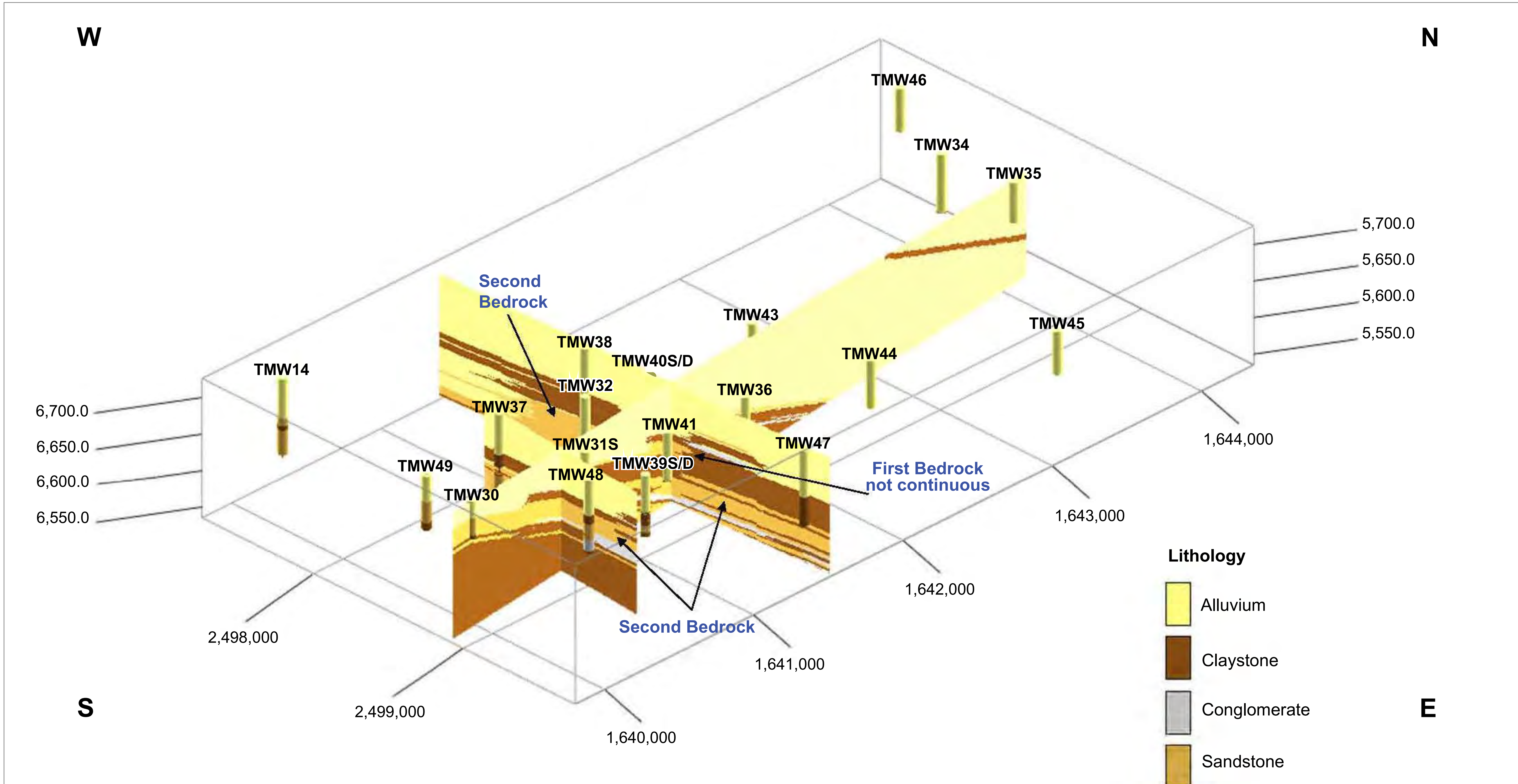
Sundance Consulting Inc.

Figure 2-4

Fence Diagram View from Southwest

Groundwater Supplemental RFI Work Plan

Fort Wingate Depot Activity
McKinley County, New Mexico



Notes:

FWDA = Fort Wingate Depot Activity
RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facility Investigation
Lithology interpreted from well soil logs of monitoring wells shown utilized Rockworks™ 2016 software

* Claystone lithology is consolidated (Claystone consists of siltstone, claystone, and mudstone.)

View is from the southeast looking northwest

Updated on: 7/05/2017

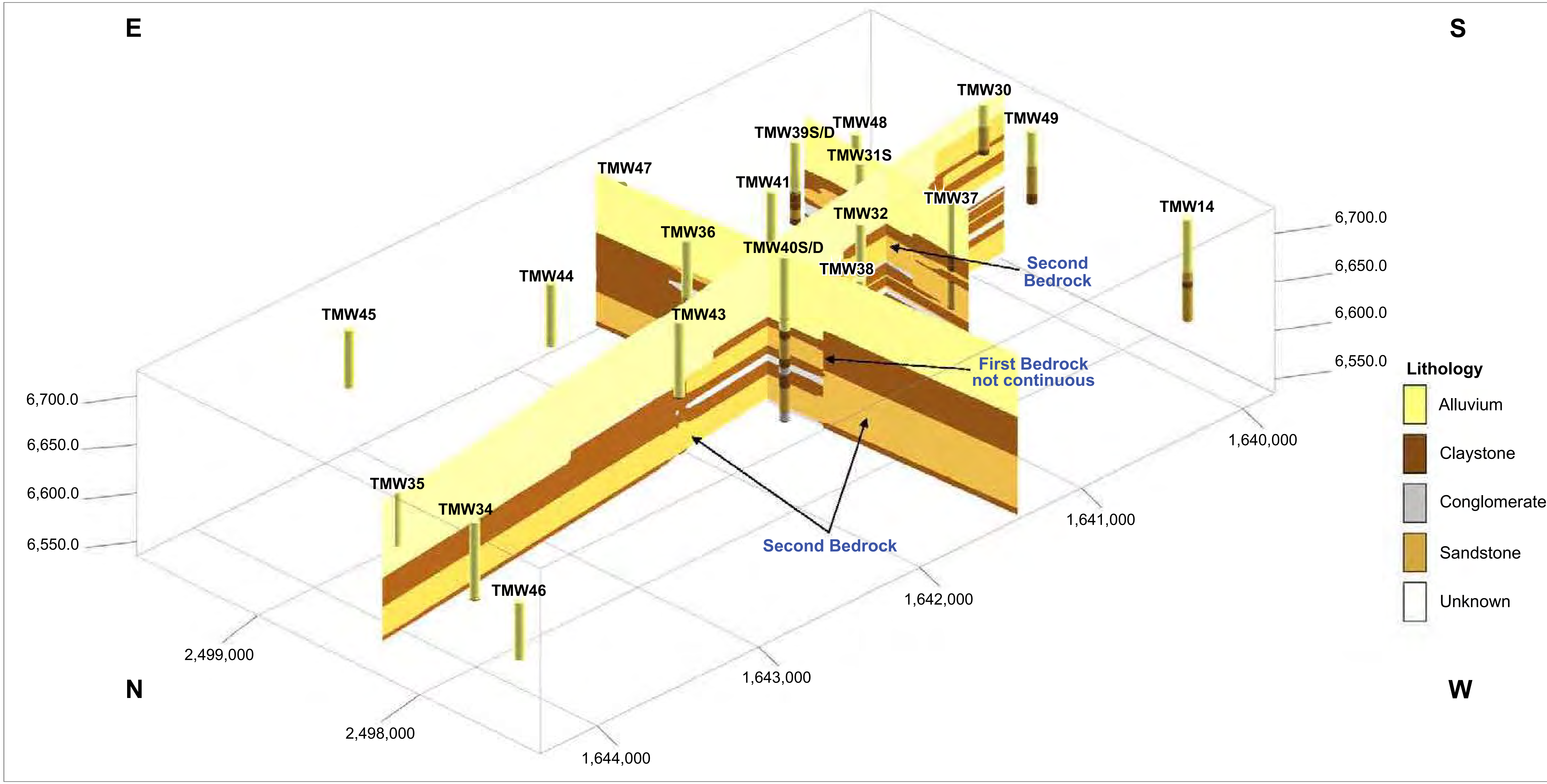
Sundance Consulting Inc.

Figure 2-5

Fence Diagram View from Southeast

Groundwater Supplemental RFI Work Plan

Fort Wingate Depot Activity McKinley County, New Mexico



Notes

FWDA = Fort Wingate Depot Activity
RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facility Investigation
Lithology interpreted from well soil logs of monitoring wells shown utilized Rockworks™ 2016 software

* Claystone lithology is consolidated (Claystone consists of siltstone, claystone, and mudstone.)

View is from the northwest looking southeast

Updated on: 7/5/2017

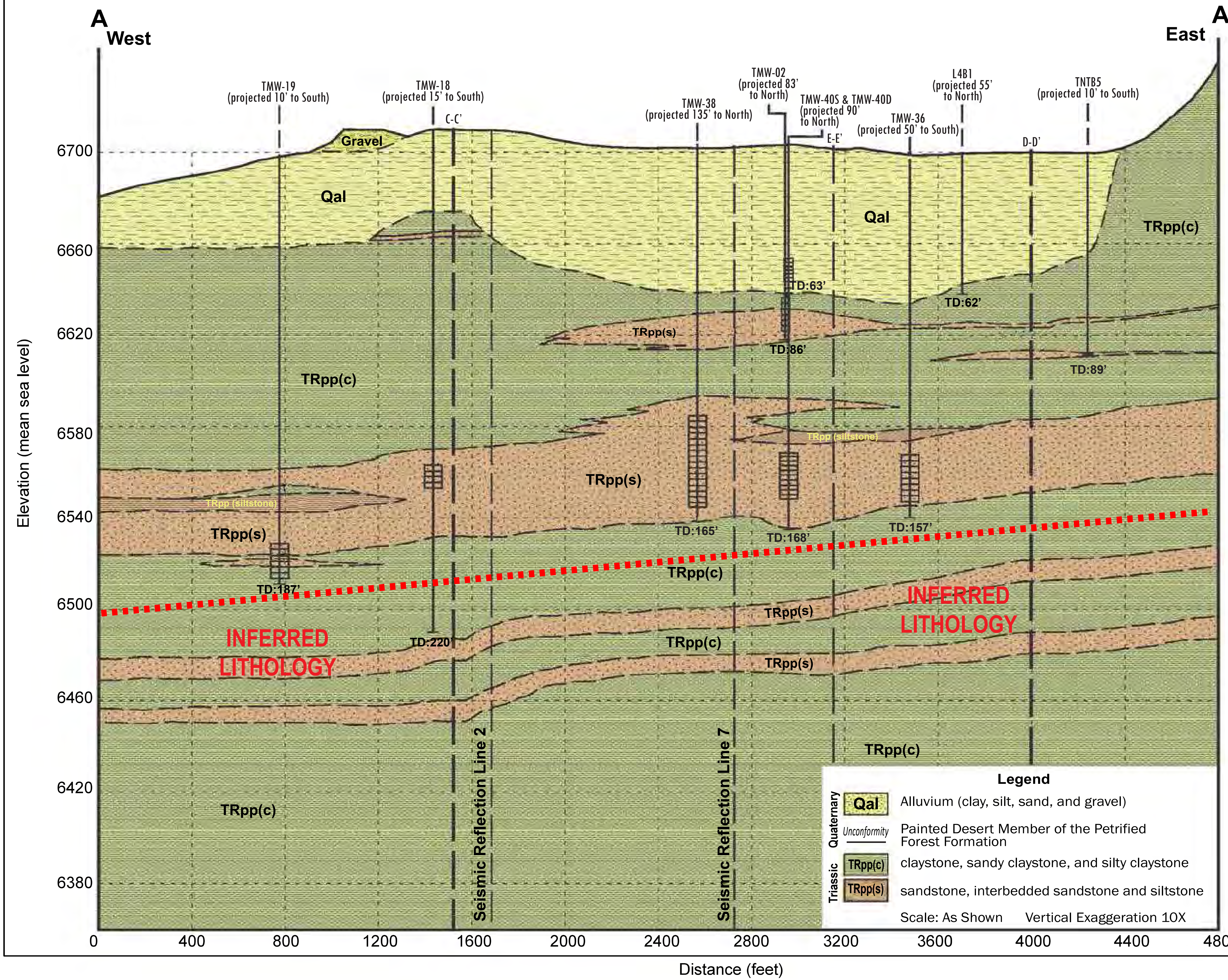
Sundance Consulting Inc.

Figure 2-6

Fence Diagram
View from Northwest

Groundwater Supplemental RFI Work Plan

Fort Wingate Depot Activity
McKinley County, New Mexico



Updated:
8/21/2017 12:58:02 PM

Sundance
Consulting Inc.

Notes:

FWDA = Fort Wingate Depot Activity
RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facility Investigation

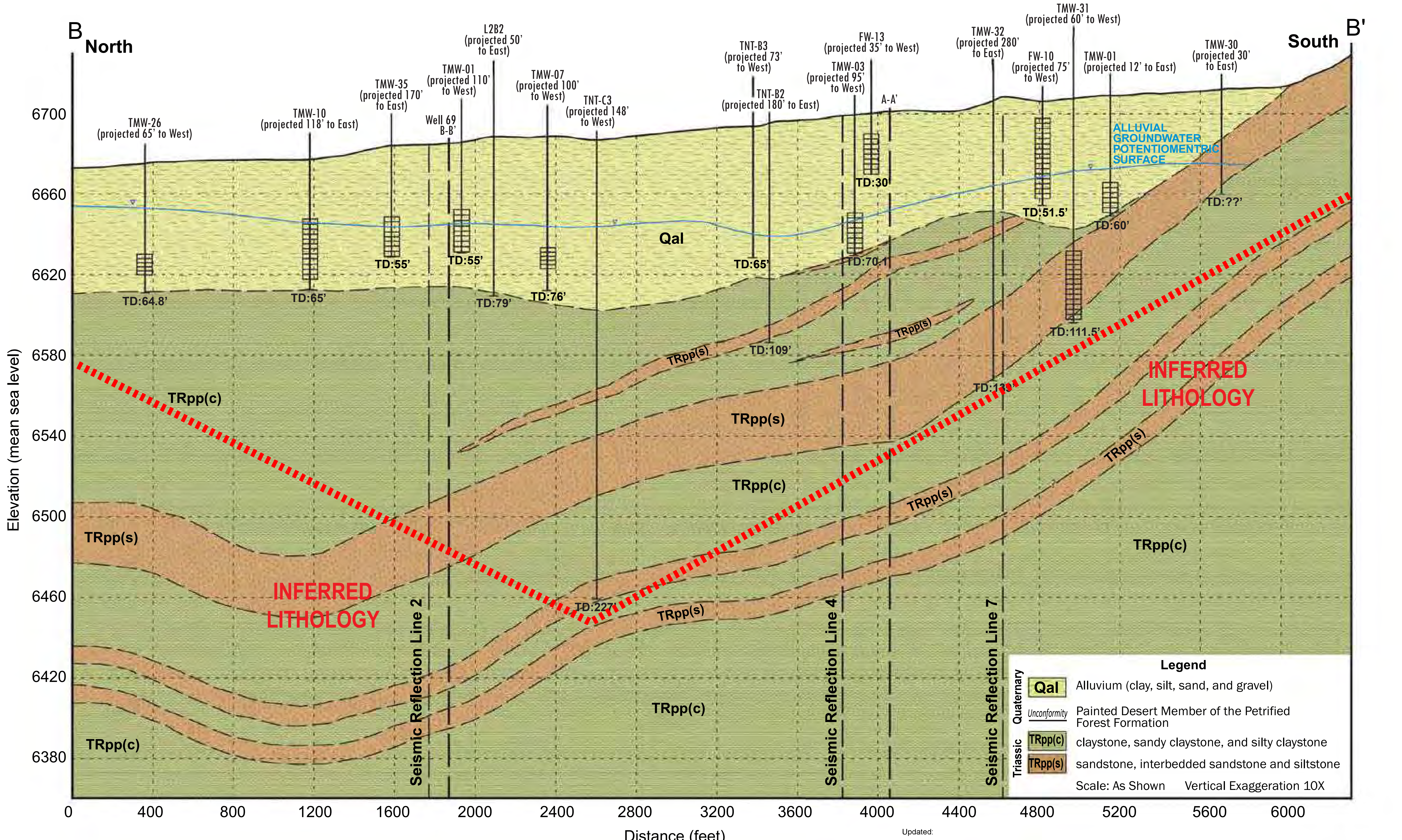
Data generated by:
AMEC Environment & Infrastructure, Inc.

Figure 2-7

SITE-SPECIFIC GEOLOGIC CROSS-SECTION A-A'

GROUNDWATER SUPPLEMENTAL RFI WORK PLAN

FORT WINGATE DEPOT ACTIVITY MCKINLEY COUNTY, NEW MEXICO



Notes:

FWDA = Fort Wingate Depot Activity
RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facility Investigation

Data generated by:
AMEC Environment & Infrastructure, Inc.

Updated:
2/24/2016 12:58:02 PM

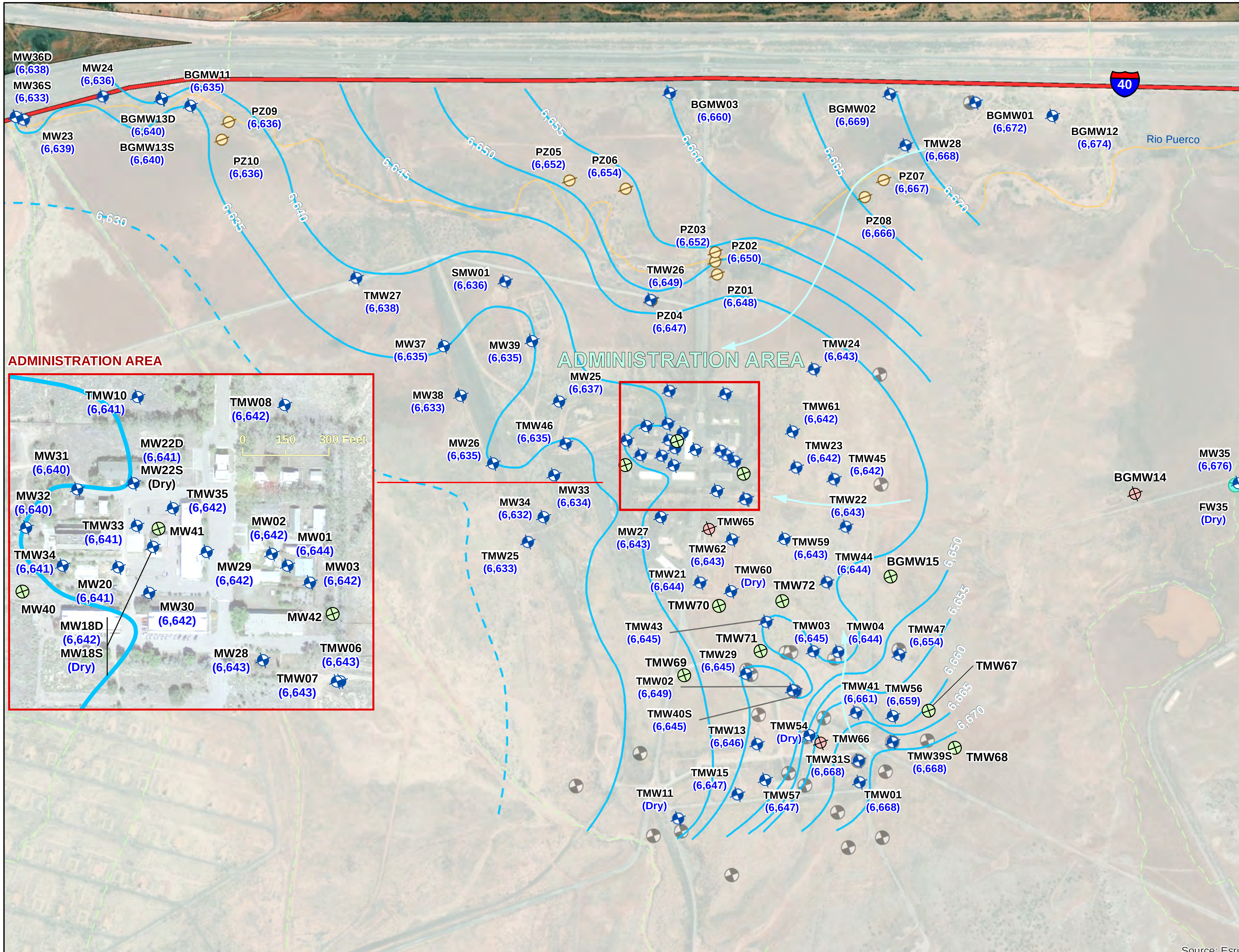
Sundance Consulting Inc.

Figure 2-8

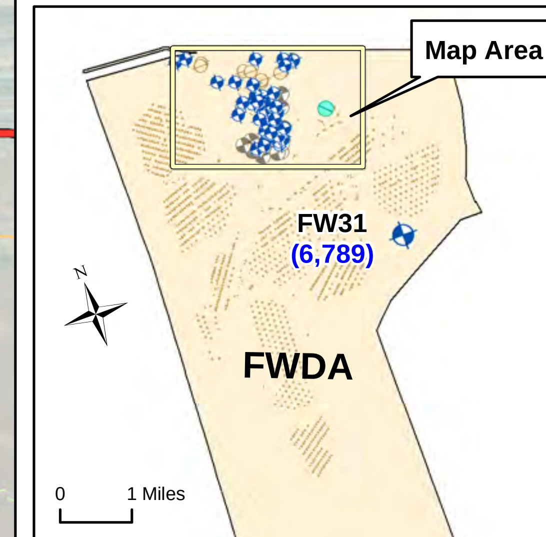
SITE-SPECIFIC GEOLOGIC CROSS-SECTION B-B'

GROUNDWATER SUPPLEMENTAL RFI WORK PLAN

FORT WINGATE DEPOT ACTIVITY
MCKINLEY COUNTY, NEW MEXICO



FWDA INSTALLATION



Legend

- Alluvial Well
- Dry Well
- Bedrock Well
- Piezometer Well
- Proposed Alluvial
- Proposed Bedrock
- Arroyo
- Rio Puerco
- Site
- GW Flow

GWE (ft msl):

- *Actual*
- *Inferred*

0 8,000 16,000 Feet

Coordinate System: NAD 1983 StatePlane New Mexico West FIPS 3003

NOTES & ABBREVIATIONS

1. µg/L = mirograms per liter
2. Elevation data are given in feet mean sea level (ft msl),
3. Wells MW18S and MW18D share the same monument, as do wells MW22S and MW22D, MW36S and MW36D, BGMW13S and BGMW13D.
4. Map reflects water level measurements collected in October 2022.

Alluvial Groundwater Flow Directions

RCRA Facility Investigation Phase 2 Work Plan
Fort Wingate Depot Activity
McKinley County, New Mexico

Eco & Associates, Inc.
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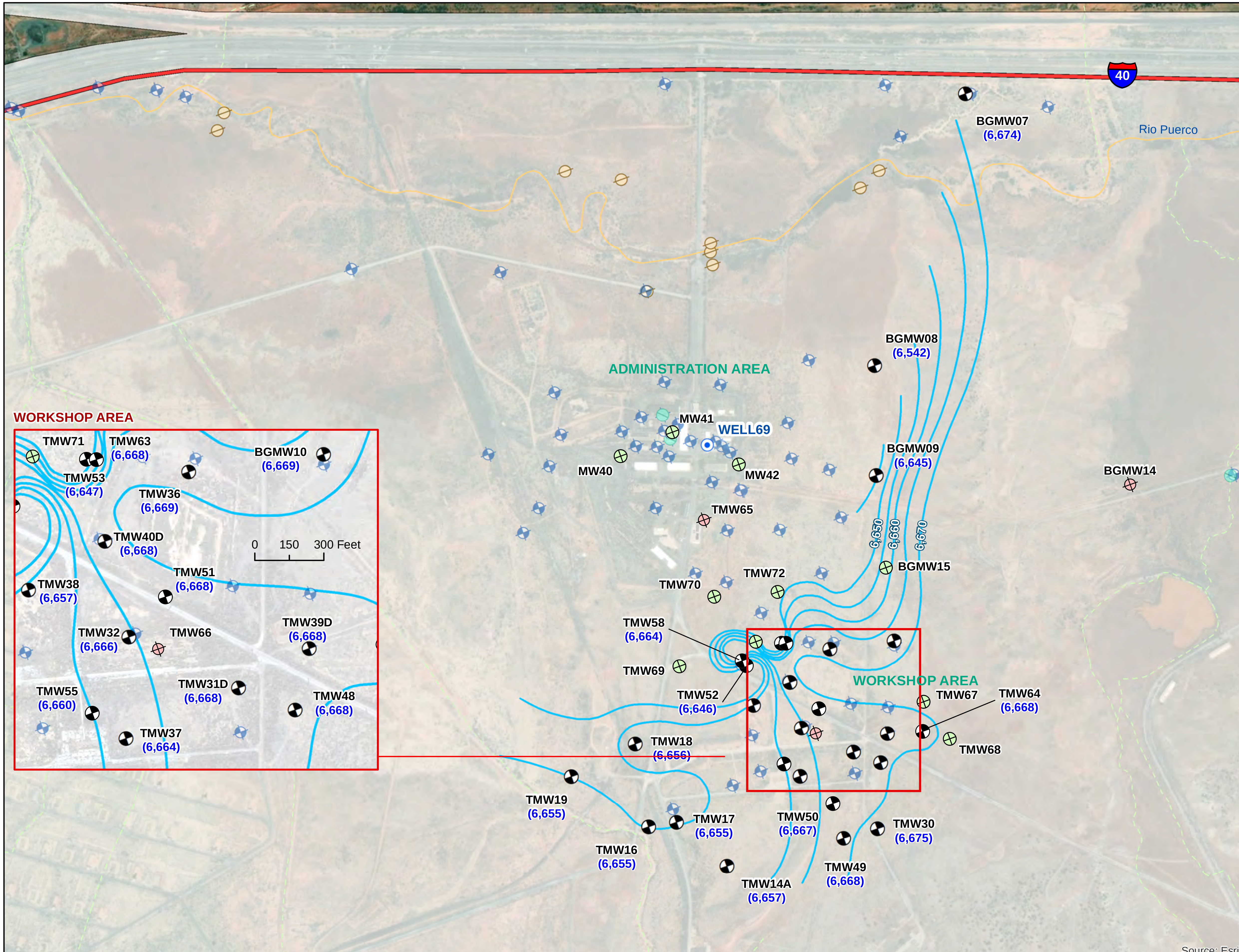
FIGURE **2-9**

Updated on: 2/23/2024

Project No.: Eco-23-809



Legend

- Bedrock Well
- Proposed Bedrock Well
- Proposed Alluvial Well
- Supply Well
- Alluvial Well
- Dry Alluvial Well
- Piezometer Wells
- GW Elevation (ft msl)
- Arroyo
- Rio Puerco
- Site Boundary

0 500 1,000 Feet

N

Coordinate System: NAD 1983 StatePlane New Mexico West FIPS 3003

NOTES & ABBREVIATIONS

1. µg/L = mirograms per liter
2. Elevation data are given in feet mean sea level (ft msl),
3. Map reflects water level measurements collected in October 2022.

Bedrock Groundwater Flow Directions

RCRA Facility Investigation Phase 2 Work Plan
Fort Wingate Depot Activity
McKinley County, New Mexico

Eco & Associates, Inc.
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Tustin, CA 92780

FIGURE
2-10

Updated on: 2/23/2024

Project No.: Eco-23-809

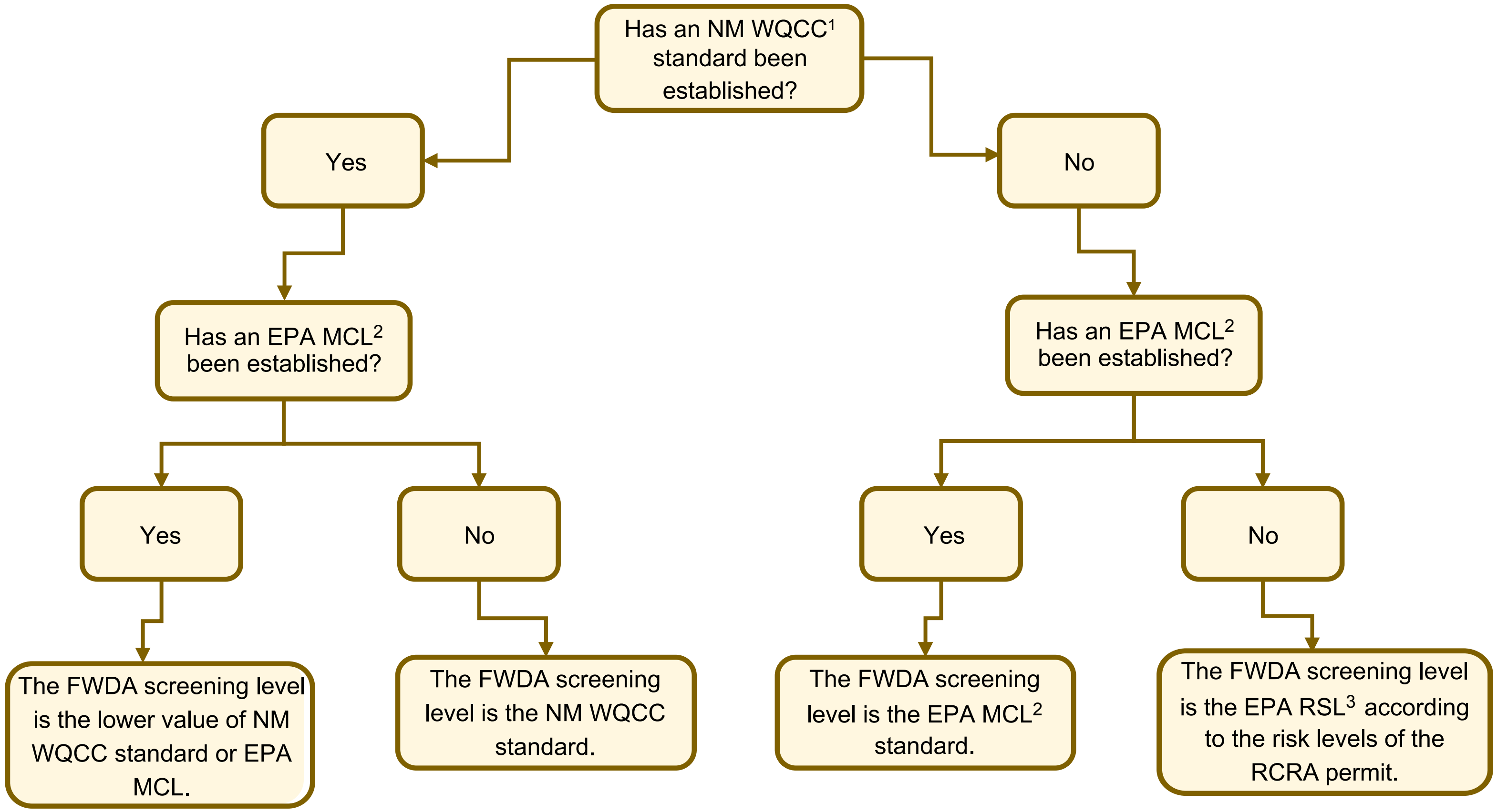


FIGURE 3-1
PROJECT SCREENING VALUE FLOW CHART

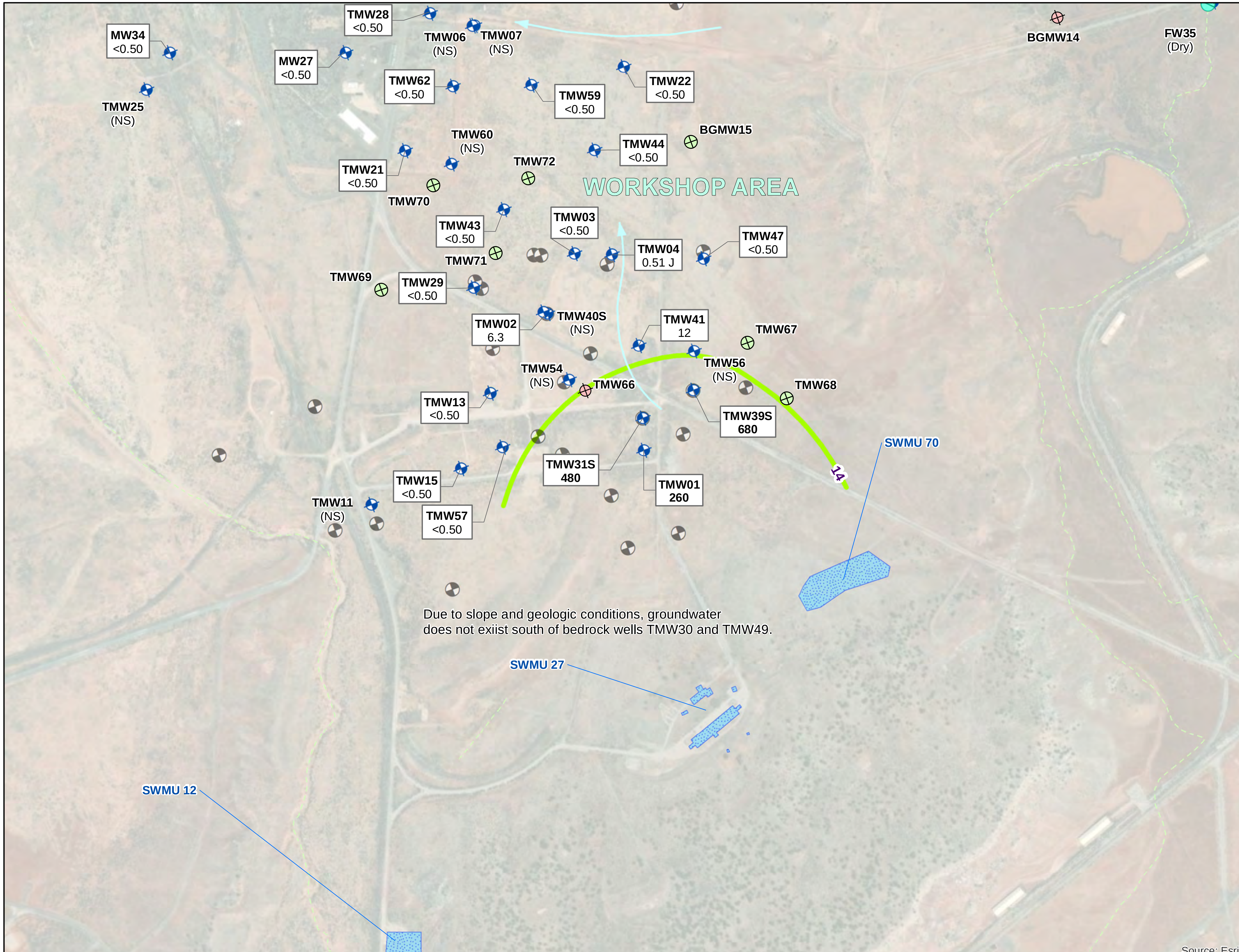
Interim Northern Area Groundwater Monitoring Plan
Fort Wingate Depot Activity, McKinley County, New Mexico

NOTES:

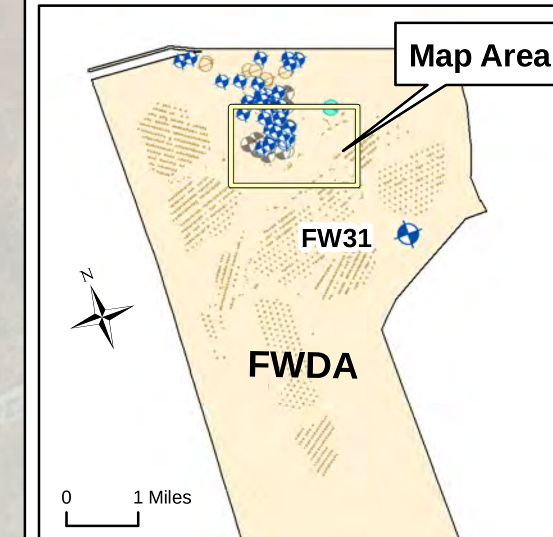
[1] New Mexico Water Quality Control Commission (NM WQCC) standards in New Mexico Administrative Code 20.6.2.4103.

[2] U.S. Environmental Protection Agency (EPA) drinking water maximum contaminant level (MCL) under 40 Code of Federal Regulations Parts 141 and 143.

[3] Pending the development and approval of cleanup criteria, the EPA regional screening levels (based on a cancer risk of 10^{-5} and a non-cancer hazard index of 1.0) are used as temporary screening criteria in accordance with the risk criteria of the RCRA permit. The lower of the cancer and non-cancer screening levels will be used. Perchlorate screening levels are selected from the EPA MCL.



FWDA INSTALLATION



Legend

- Alluvial
- Dry
- Proposed Alluvial
- Proposed Bedrock
- Bedrock
- Arroyo
- GW Flow
- Perchlorate (14 µg/L)
- Site Boundary
- AOC / SWMU

AOC/SWMU	Soil Release	GW Release
SWMU 12	Yes	No
SWMU 27	Yes	Yes
SWMU 70	No	No

N

0 400 800 Feet

Coordinate System: NAD 1983 StatePlane New Mexico West FIPS 3003

NOTES & ABBREVIATIONS

1. µg/L = micrograms per liter
2. AOC = Area of Concern
3. SWMU = Solid Waste Management Unit
4. All results are given in µg/L.
5. Map reflects data collected in October 2022.

October 2022 Perchlorate Alluvial GW Plume and Proposed Monitoring Well Locations

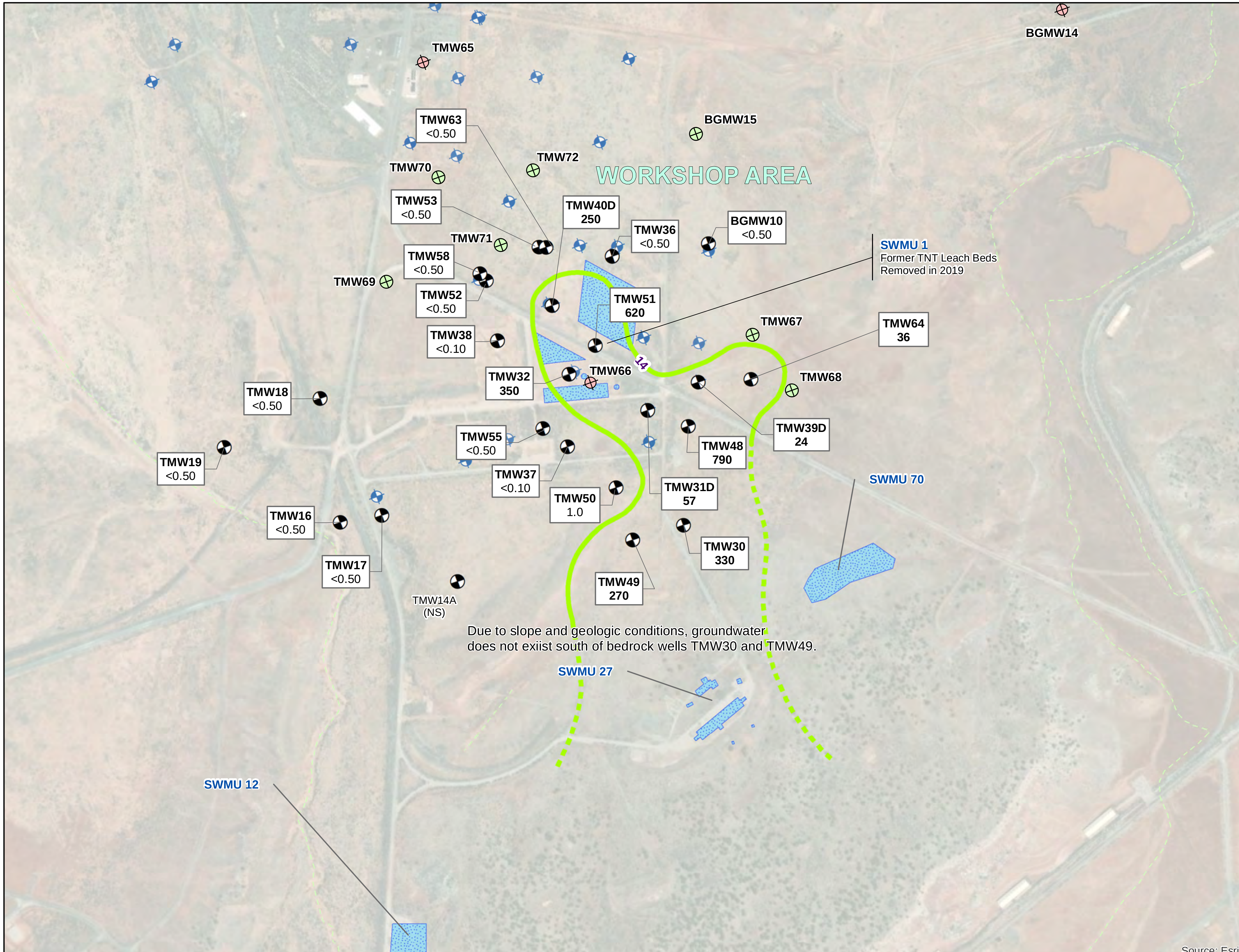
RCRA Facility Investigation Phase 2 Work Plan
Fort Wingate Depot Activity
McKinley County, New Mexico

Eco & Associates, Inc.
18231 Irvine Boulevard, Ste 204
Tustin, CA 92780

FIGURE
4-1

Updated on: 2/23/2024

Project No.: Eco-23-809



Legend

- Bedrock Well
- Proposed Bedrock Well
- Proposed Alluvial Well
- Alluvial Well
- Dry Well
- Site Boundary
- Arroyo
- Rio Puerco

Perchlorate (14 µg/L):

- *Actual*
- *Inferred*
- AOC / SWMU

AOC/SWMU	Soil Release	GW Release
SWMU 12	Yes	No
SWMU 27	Yes	Yes
SWMU 70	No	No

0 400 800 Feet

N

Coordinate System: NAD 1983 StatePlane New Mexico West FIPS 3003

NOTES & ABBREVIATIONS

1. µg/L = micrograms per liter
2. AOC = Area of Concern
3. SWMU = Solid Waste Management Unit
4. All results are given in µg/L.
5. Map reflects data collected in October 2022.

October 2022 Perchlorate Bedrock GW Plume and Proposed Monitoring Well Locations

RCRA Facility Investigation Phase 2 Work Plan
Fort Wingate Depot Activity
McKinley County, New Mexico

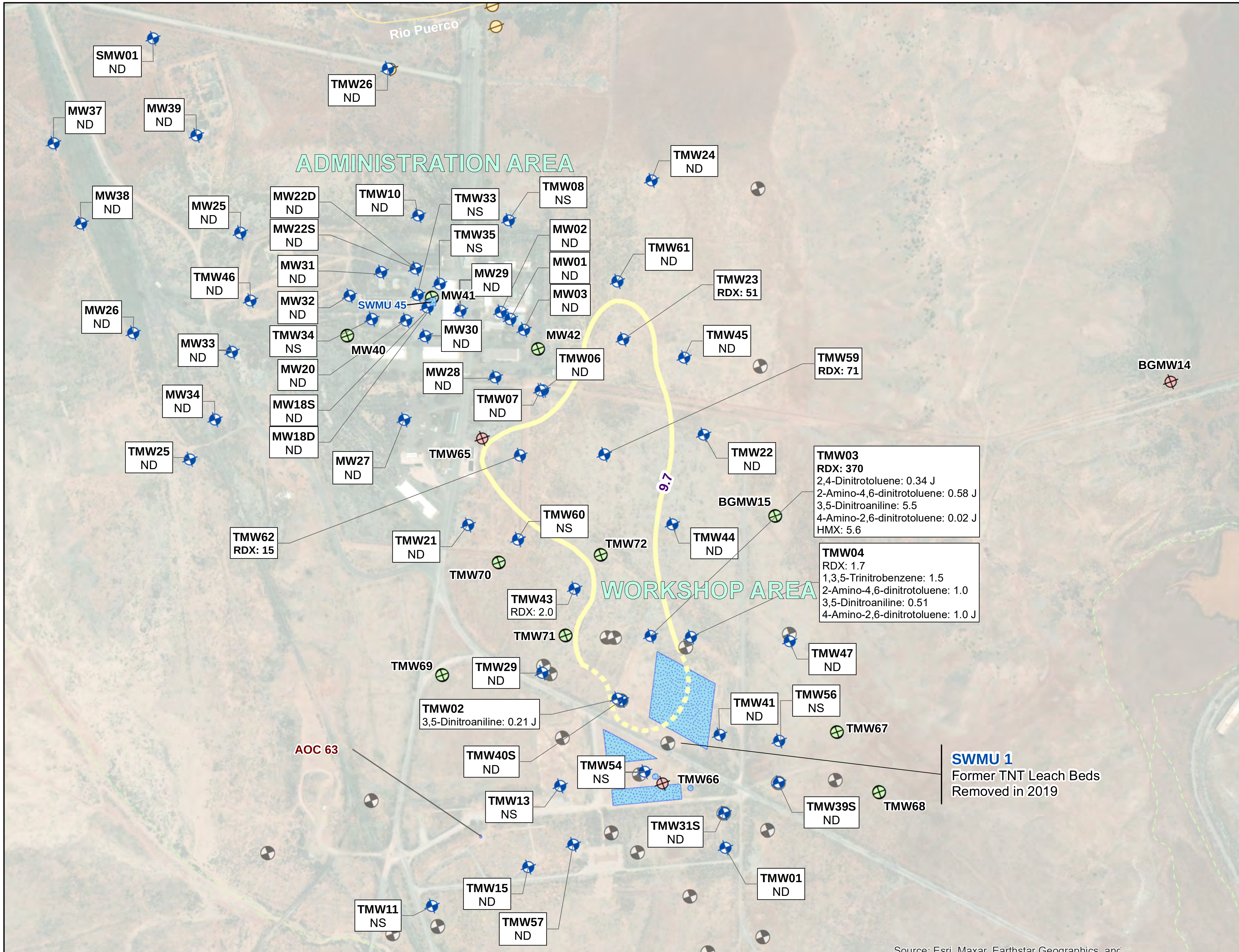
Eco & Associates, Inc.
18231 Irvine Boulevard, Ste 204
Tustin, CA 92780

FIGURE

4-2

Updated on: 2/23/2024

Project No.: Eco-23-809



AOC/SWMU	Soil Release	GW Release
AOC 63	Yes	No
SWMU 1	Yes	Yes
SWMU 45	Yes	Yes

NOTES & ABBREVIATIONS

1. *µg/L = mirograms per liter*
2. *AOC = Area of Concern*
3. *SWMU = Solid Waste Management Unit*
4. *All results are given in µg/L.*
5. *Map reflects data collected in October 2022.*

October 2022 Explosives Alluvial GW Plume and Proposed Monitoring Well Locations

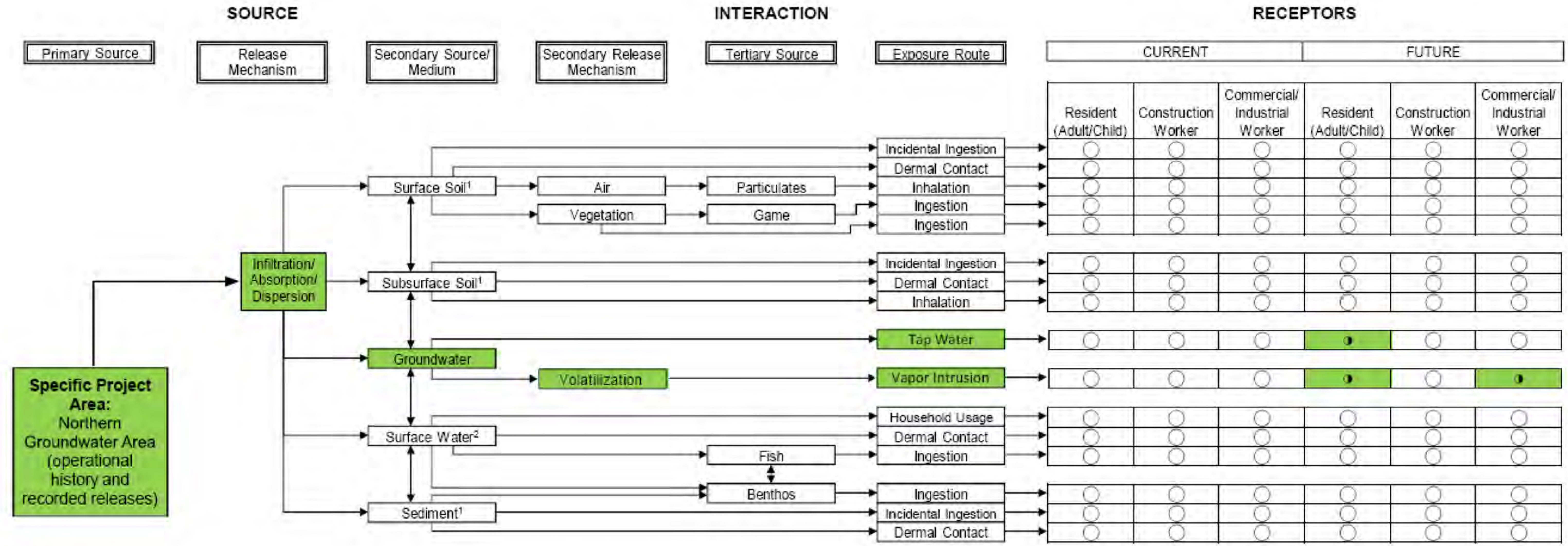
RCRA Facility Investigation Phase 2 Work Plan
Fort Wingate Depot Activity
McKinley County, New Mexico

Eco & Associates, Inc.
18231 Irvine Boulevard, Ste 204
Tustin, CA 92780

FIGURE 5-1

Updated on: 2/23/2024

Project No.: Eco-23-809



NOTES:

1. CSM takes in account contaminants are already in groundwater. Surface and subsurface soils are being addressed in other works.
2. No surface water exists on site. Only ephemeral surface flow occurs after high-energy events.

ACRONYMS:

CSM = conceptual site model

EM = Engineer Manual

LEGEND

- ● Complete Pathway
- ◑ Potentially-Complete Pathway (in green)
- ○ Incomplete Pathway (no expected exposure)

Source: U.S. Army Corps of Engineers (USACE). 2012. *Conceptual Site Models*. EM 200-1-12.

Conceptual Site Model for Exposure of Human Receptors to Groundwater

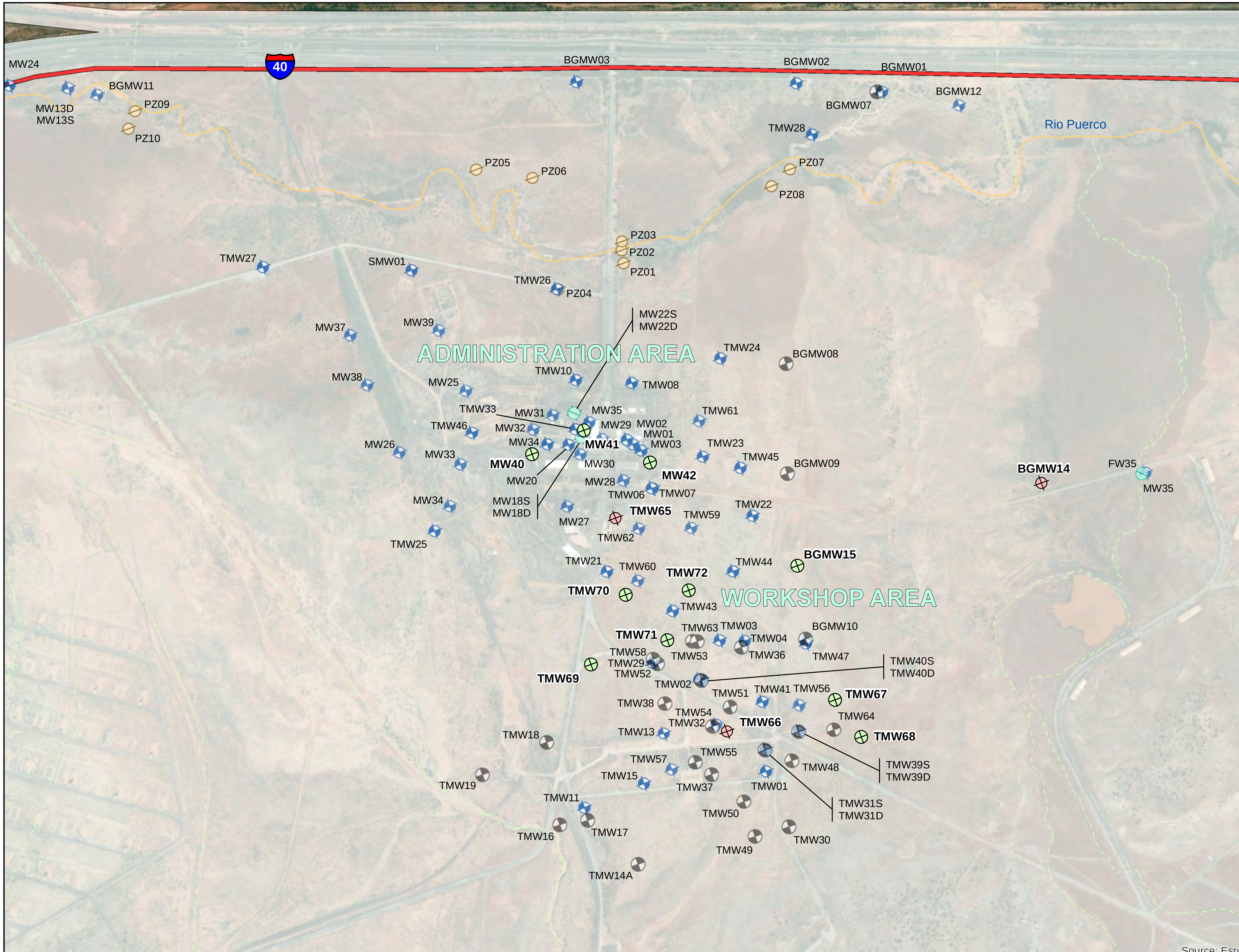
RCRA Facility Investigation Phase 2 Work Plan
Fort Wingate Depot Activity
McKinley County, New Mexico

Eco & Associates, Inc.
18231 Irvine Boulevard, Ste 204
Tustin, CA 92870

FIGURE

6-1

From *Final Northern Area Groundwater RCRA Facility Investigation Report, Revision 3* (HDR Environmental, Operations and Construction, Inc., 2023)



Legend

- Alluvial Well
- Dry Well
- Bedrock Well
- Proposed Alluvial Well
- Proposed Bedrock Well
- US Interstate
- Arroyo
- Rio Puerco
- Site Boundary

N

0 500 1,000 Feet

Coordinate System: NAD 1983 StatePlane New Mexico West FIPS 3003

Proposed Monitoring Wells

RCRA Facility Investigation Phase 2 Work Plan
Fort Wingate Depot Activity
McKinley County, New Mexico

Eco & Associates, Inc.
18231 Irvine Boulevard, Ste 204
Tustin, CA 92780

FIGURE

7-1

Updated on: 2/23/2024

Project No.: Eco-23-809

TABLES

TABLE 2-1: NORTHERN AREA GROUNDWATER WELL CONSTRUCTION DETAILS

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	FWDA Parcel	Date Installed	Drilling Method	PREVIOUS SURVEY DATA (OLD)				OCT. 2019 SURVEY DATA (NEW)				Well Depth (ft bgs)	Boring Diameter (in)	Casing Diameter (in)	Casing/ Screen Type	Screen Length (ft)	Screened Interval (ft bgs)	Screened Interval (ft amsl)	Status	Screened Formation	Description
				NORTHING[a]	EASTING[a]	GROUND ELEVATION (ft amsl)[b]	POINT ELEVATION (ft amsl)[b]	NORTHING[a]	EASTING[a]	GROUND ELEVATION (ft amsl)[b]	POINT ELEVATION (ft amsl)[b]										
BGMW01	14	02/06/2012	HSA	1,645,977.85	2,501,983.61	6,690.28	6,692.68	1,645,977.80	2,501,983.54	6,690.82	6,693.23	33	8	2.5	PVC	20.0	12.5 – 32.5	6,678.32 – 6,658.32	Active	Alluvium	Sandy Silt
BGMW02	14	02/09/2012	HSA	1,646,314.67	2,501,276.54	6,689.20	6,691.99	1,646,314.79	2,501,276.51	6,689.73	6,692.57	34	8	2.5	PVC	20.0	13.5 – 33.5	6,676.23 – 6,656.23	Active	Alluvium	Silt/Sand/Clay
BGMW03	12	02/05/2012	HSA	1,647,012.12	2,499,392.83	6,677.79	6,680.57	1,647,015.35	2,499,394.46	6,676.63	6,679.39	29	8	2.5	PVC	20.0	8.5 – 28.5	6,668.13 – 6,648.13	Active	Alluvium	Clay
BGMW07	14	03/22/2018	Sonic	1,645,991.80	2,501,943.17	6,691.63	6,691.63	1,645,985.40	2,501,940.79	6,689.77	6,692.03	300	8	2	PVC	40.0	215 – 255	6,474.77 – 6,434.77	Active	Bedrock	Silt/Sand/Clay
BGMW08	11	03/23/2018	Sonic	1,643,942.73	2,500,318.10	6,685.02	6,685.02	1,643,937.41	2,500,318.25	6,681.72	6,683.42	275	8	2	PVC	20.0	165 – 185	6,516.72 – 6,496.72	Active	Bedrock	Silt/Sand/Clay
BGMW09	11	03/24/2018	Sonic	1,642,995.48	2,499,987.66	6,692.27	6,692.27	1,642,989.21	2,499,987.69	6,689.83	6,692.01	220	8	2	PVC	30.0	106 – 136	6,583.83 – 6,553.83	Active	Bedrock	Silt/Sand/Clay
BGMW10	13	03/25/2018	Sonic	1,641,517.67	2,499,626.14	6,701.49	6,701.49	1,641,512.13	2,499,625.34	6,699.50	6,701.83	150	8	2	PVC	30.0	106 – 136	6,593.50 – 6,563.50	Active	Bedrock	Silt/Sand/Clay
BGMW11	10	07/23/2019	Sonic	–	–	–	–	1,648,394.59	2,495,240.70	6,653.27	6,655.56	40	6	2	PVC	20.0	20 – 40	6,633.27 – 6,613.27	Active	Alluvium	Silt/Sand/Clay
BGMW12	10	07/23/2019	Sonic	–	–	–	–	1,645,620.83	2,502,603.45	6,692.40	6,695.21	32	6	2	PVC	20.0	12 – 32	6,680.40 – 6,660.40	Active	Alluvium	Silt/Sand/Clay
BGMW13S	10	09/14/2019	HSA	–	–	–	–	1,648,541.90	2,495,015.20	6,659.05	6,661.97	69	8	2	PVC	20.0	49 – 69	6,610.05 – 6,590.05	Active	Alluvium	Silt/Sand/Clay
BGMW13D	10	09/12/2019	Sonic	–	–	–	–	1,648,543.12	2,495,010.21	6,659.08	6,661.83	104	6	2	PVC	20.0	84 – 104	6,575.08 – 6,555.08	Active	Alluvium	Sand/Clay/Gravelly Sand
EMW01	18	07/14/2004	HSA	1,643,655.61	2,502,045.53	6,716.06	6,718.38	–	–	–	–	120.7	7.8	2	PVC	15.0	105 – 120	6,611.06 – 6,596.06	**Abandoned**	Abandoned	Siltstone/Claystone
EMW02	18	07/19/2004	HSA/AR	1,643,391.22	2,502,476.99	6,699.94	6,702.49	–	–	–	–	120	6	2	PVC	15.0	93 – 108	6,606.94 – 6,591.94	**Abandoned**	Abandoned	Siltstone/Claystone
EMW03	18	07/21/2004	HSA/AR	1,643,687.88	2,502,800.30	6,698.63	6,701.09	–	–	–	–	100	6	2	PVC	15.0	78 – 93	6,620.63 – 6,605.63	**Abandoned**	Abandoned	Siltstone
EMW04	18	07/23/2004	HSA/AR	1,643,815.18	2,502,419.30	6,705.68	6,708.30	–	–	–	–	120	6	2	PVC	15.0	100 – 115	6,605.68 – 6,590.68	**Abandoned**	Abandoned	Claystone
FW07	21	11/22/1980	HSA	1,640,839.18	2,498,075.06	6,713.00	6,714.90	–	–	–	–	30.5	8	4	PVC	20.5	10 – 31	6,703.00 – 6,682.50	**Abandoned**	Alluvium	Silty Sand
FW08	21	11/21/1980	HSA/AR	1,640,572.50	2,498,132.47	6,713.00	6,714.90	–	–	–	–	51	8	4	PVC	40.0	9 – 49	6,704.00 – 6,664.00	**Abandoned**	Alluvium	Silty Sand/Sand/Clay
FW10	21	11/20/1980	HSA	1,640,848.95	2,498,936.89	6,706.76	6,708.38	–	–	–	–	51.5	10	4	PVC	40.0	9 – 49	6,697.76 – 6,657.76	**Abandoned**	Alluvium	Silty Sand/Silty Clay
FW11	21	11/21/1980	HSA	1,641,334.02	2,499,124.16	6,701.20	6,703.50	–	–	–	–	28	8	4	PVC	20.0	8 – 28	6,693.20 – 6,673.20	**Abandoned**	Alluvium	Clayey Sand
FW12	21	11/22/1980	HSA	1,641,609.82	2,499,038.13	6,700.00	6,702.00	–	–	–	–	29	8	4	PVC	20.0	9 – 29	6,691.00 – 6,671.00	**Abandoned**	Alluvium	Clayey Sand
FW13	21	11/22/1980	HSA	1,641,688.39	2,498,830.01	6,701.20	6,702.30	–	–	–	–	30.5	8	4	PVC	20.0	10.5 – 30.5	6,690.70 – 6,670.70	**Abandoned**	Alluvium	Clay
FW26	7	11/19/1980	HSA	1,643,853.34	2,497,067.39	6,672.20	6,674.40	–	–	–	–	31	8	4	PVC	20.0	11 – 31	6,661.20 – 6,641.20	**Abandoned**	Alluvium	Silt/Sand/Clay
FW27	9	11/17/1980	HSA	1,646,461.42	2,494,395.93	6,657.75	6,656.49	–	–	–	–	32	8	4	PVC	20.0	10 – 30	6,647.75 – 6,627.75	**Abandoned**	Alluvium	Silty Sand/Silty Clay/Clay
FW28	9	11/18/1980	HSA	1,646,584.14	2,493,050.57	6,656.53	6,657.50	–	–	–	–	33	8	4	PVC	23.0	10 – 33	6,646.53 – 6,623.53	**Abandoned**	Alluvium	Silt/Clay
FW29	11	11/16/1980	HSA	1,645,804.02	2,497,681.98	6,669.17	6,670.96	–	–	–	–	32	8	4	PVC	20.0	10 – 30	6,659.17 – 6,639.17	**Abandoned**	Alluvium	Gravel/Clay
FW31	19	11/19/1980	HSA	1,631,192.98	2,505,201.31	6,830.72	6,832.49	1,631,192.71	2,505,201.84	6,830.96	6,832.70	50	8	4	PVC	40.0	10 – 50	6,820.96 – 6,780.96	Active	Alluvium	Clay
FW35	13	11/15/1980	HSA	1,641,888.44	2,503,025.94	6,709.17	6,711.11	1,641,888.76	2,503,025.75	6,709.13	6,711.31	30	8	4	PVC	20.0	10 – 30	6,699.13 – 6,679.13	Active	Alluvium	Clay
MW01	11	11/22/1996	HSA	1,643,726.78	2,498,748.62	6,686.03	6,685.94	1,643,726.81	2,498,748.48	6,686.98	6,686.79	55	10.5	2	PVC	20.0	33.6 – 53.6	6,653.38 – 6,633.38	Active	Alluvium	Sand/Silty Clay
MW02	11	11/25/1996	HSA	1,643,783.35	2,498,712.23	6,685.78	6,685.22	1,643,783.24	2,498,712.23	6,685.60	6,685.13	48	10.5	2	PVC	10.0	37 – 47	6,648.60 – 6,638.60	Active	Alluvium	Clayey Sand/Clay
MW03	11	11/26/1996	HSA	1,643,644.43	2,498,801.96	6,687.50	6,689.53	1,643,644.51	2,498,801.86	6,687.81	6,690.26	53	10.5	2	PVC	10.0	43 – 53	6,644.81 – 6,634.81	Active	Alluvium	Silty Sand/Clay
MW18S	11	11/01/1994	HSA	1,643,948.08	2,498,331.62	6,684.67	6,686.61	1,643,948.10	2,498,331.51	6,685.30	6,687.26	39	8	2	PVC	10.0	27 – 37	6,658.30 – 6,648.30	Active	Alluvium	NA
MW18D	11	11/01/1994	HSA	1,643,947.99	2,498,331.32	6,684.94	6,686.32	1,643,947.87	2,498,331.42	6,685.30	6,687.11	59.9	8	2	PVC	10.0	47 – 57	6,638.30 – 6,628.30	Active	Alluvium	NA
MW20	11	11/01/1994	HSA	1,643,922.12	2,498,193.80	6,685.34	6,687.67	1,643,922.23	2,498,193.78	6,685.84	6,688.35	59.4	8	2	PVC	10.0	47 – 57	6,638.84 – 6,628.84	Active	Alluvium	NA
MW22S	11	11/01/1994	HSA	1,644,178.59	2,498,343.06	6,682.69	6,684.69	1,644,178.49	2,498,343.07	6,683.28	6,685.33	43.5	8	2	PVC	10.0	31 – 41	6,652.28 – 6,642.28	Active	Alluvium	NA
MW22D	11	11/01/1994	HSA	1,644,178.39	2,498,343.15	6,682.69	6,684.55	1,644,178.41	2,498,343.14	6,683.28	6,685.34	58.6	8	2	PVC	10.0	47 – 57	6,636.28 – 6,626.28	Active	Alluvium	NA
MW23	25	06/30/2011	HSA	1,648,792.02	2,493,767.75	6,652.46	6,654.50	1,648,790.51	2,493,766.00	6,652.99	6,655.09	134	8	2.5	PVC	70.0	63.5 – 133.5	6,589.49 – 6,519.49	Active	Alluvium	Sand/Clay
MW24	25	07/02/2011	HSA	1,648,746.52	2,494,518.24	6,655.09	6,657.08	1,648,745.01	2,494,516.22	6,655.72	6,657.57	66.5	8	2.5	PVC	50.0	16 – 66	6,639.72 – 6,589.72	Active	Alluvium	Sand/Clay
MW25	11	09/10/2019	HSA	–	–	–	–	1,644,706.19	2,497,481.54	6,676.18	6,679.05	65.5	8	2	PVC	20.0	45.5 – 65.5	6,630.68 – 6,610.68	Active	Alluvium	Silty Sand/Clayey Sand
MW26	7	09/11/2019	HSA	–	–	–	–	1,644,381.65	2,496,720.38	6,670.96	6,673.93	60	8	2	PVC	20.0	40 – 60	6,630.96 – 6,610.96	Active	Alluvium	Silty Clay/Clay
MW27	6	07/15/2019	Sonic	–	–	–	–	1,643,397.69	2,497,991.57	6,690.94	6,693.40	63	6	2	PVC	20.0	43 – 63	6,647.94 – 6,627.94	Active	Alluvium	Silt/Sand/Clay
MW28	11	07/14/2019	Sonc	–	–	–	–	1,643,447.37	2,498,556.11	6,689.51	6,692.17	60	6	2	PVC	20.0	40 – 60	6,649.51 – 6,629.51	Active	Alluvium	Silt/Sand/Clay
MW29	11	07/08/2019	Sonic	–	–	–	–	1,643,867.32	2,498,500.48	6,684.49	6,687.14	57	6	2	PVC	20.0	37 – 57	6,647.49 – 6,627.49	Active	Alluvium	Silt/Sand/Clay
MW30	11	07/11/2019	Sonic	–	–	–	–	1,643,801.66	2,498,264.94	6,686.83	6,689.57	60	6	2	PVC	20.0	40 – 60	6,646.83 – 6,626.83	Active	Alluvium	Silt/Sand/Clay
MW31	11	07/12/2019	Sonic	–	–	–	–	1,644,225.28	2,498,152.69	6,681.76	6,684.45	56	6	2	PVC	20.0	36 – 56	6,645.76 – 6,625.76	Active	Alluvium	Silt/Sand/Clay

TABLE 2-1: NORTHERN AREA GROUNDWATER WELL CONSTRUCTION DETAILS
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	FWDA Parcel	Date Installed	Drilling Method	PREVIOUS SURVEY DATA (OLD)				OCT. 2019 SURVEY DATA (NEW)				Well Depth (ft bgs)	Boring Diameter (in)	Casing Diameter (in)	Casing/ Screen Type	Screen Length (ft)	Screened Interval (ft bgs)	Screened Interval (ft amsl)	Status	Screened Formation	Description
				NORTHING[a]	EASTING[a]	GROUND ELEVATION (ft amsl)[b]	POINT ELEVATION (ft amsl)[b]	NORTHING[a]	EASTING[a]	GROUND ELEVATION (ft amsl)[b]	POINT ELEVATION (ft amsl)[b]										
MW32	11	07/13/2019	Sonic	–	–	–	–	1,644,161.49	2,497,939.74	6,684.84	6,687.37	60	6	2	PVC	20.0	40 – 60	6,644.84 – 6,624.84	Active	Alluvium	Silt/Sand/Clay
MW33	7	09/12/2019	HSA	–	–	–	–	1,644,089.19	2,497,207.31	6,675.98	6,679.00	57	8	2	PVC	20.0	37 – 57	6,638.98 – 6,618.98	Active	Alluvium	Clay
MW34	7	09/13/2019	HSA	–	–	–	–	1,643,763.23	2,496,986.41	6,672.91	6,675.80	60	8	2	PVC	20.0	40 – 60	6,632.91 – 6,612.91	Active	Alluvium	Silt/Sand/Clay
MW35	13	07/16/2019	Sonic	–	–	–	–	1,641,887.83	2,503,055.82	6,708.96	6,711.38	61	6	2	PVC	20.0	41 – 61	6,667.96 – 6,647.96	Active	Alluvium	Clay/Silty Clay
MW36S	10	09/18/2019	Sonic	–	–	–	–	1,648,841.60	2,493,708.06	6,653.54	6,656.31	50	6	2	PVC	20.0	30 – 50	6,623.54 – 6,603.54	Active	Alluvium	Clay/Sandy Clay
MW36D	10	09/16/2019	Sonic	–	–	–	–	1,648,842.22	2,493,703.47	6,653.48	6,656.23	75	6	2	PVC	20.0	55 – 75	6,598.48 – 6,578.48	Active	Alluvium	Silt/Sand/Clay
MW37	7	08/18/2020	HSA	1,645,540.92	2,496,663.06	6,663.34	6,666.02	1,645,540.92	2,496,663.06	6,663.34	6,666.02	45	10	2	PVC	20.0	25 – 45	6638.34-6618.34	Active	Alluvium	Silty Clay/Sandy Clay
MW38	7	08/18/2020	HSA	1,645,062.25	2,496,653.35	6,665.48	6,667.91	1,645,062.25	2,496,653.35	6,665.48	6,667.91	50	10	2	PVC	20.0	30 – 50	6635.48-6615.48	Active	Alluvium	Silty Clay/Sandy Clay
MW39	7	08/20/2020	HSA	1,645,308.17	2,497,437.13	6,670.64	6,673.24	1,645,308.17	2,497,437.13	6,670.64	6,673.24	50	10	2	PVC	20.0	30 – 50	6640.64-6620.64	Active	Alluvium	Silty Clay/Sandy Clay
SMW01	11	07/29/1996	HSA	1,645,908.54	2,497,392.99	6,668.41	6,669.94	1,645,906.77	2,497,393.13	6,668.68	6,670.05	50.2	8	2	PVC	20.0	29.9 – 49.9	6,638.78 – 6,618.78	Active	Alluvium	Silty Sand/Sandy Clay
TMW01	21	07/31/1996	HSA	1,640,504.34	2,498,872.04	6,709.79	6,711.84	1,640,504.25	2,498,872.00	6,710.79	6,712.50	60	8	2	PVC	15.0	44 – 59	6,666.79 – 6,651.79	Active	Alluvium	Clay with Sand Layer
TMW02	21	07/31/1996	HSA	1,641,503.03	2,498,583.97	6,703.34	6,705.35	1,641,503.17	2,498,584.02	6,704.51	6,706.03	85	8	2	PVC	14.0	67.9 – 81.9	6,636.61 – 6,622.61	Active	Alluvium	Sandstone
TMW03	21	07/25/1996	HSA	1,641,773.65	2,498,883.04	6,700.37	6,702.43	1,641,773.76	2,498,883.05	6,701.35	6,703.22	70.1	8	2	PVC	20.0	49.8 – 69.8	6,651.55 – 6,631.55	Active	Alluvium	Silty Clay/Clayey Sand
TMW04	21	07/26/1996	HSA	1,641,690.11	2,499,095.25	6,699.00	6,700.86	1,641,690.08	2,499,095.21	6,699.85	6,701.65	70.5	8	2	PVC	20.0	50 – 70	6,649.85 – 6,629.85	Active	Alluvium	Upper Sand/Lower Clay
TMW05	22	07/23/1998	HSA/AR	1,639,949.83	2,498,884.78	6,712.64	6,714.67	–	–	–	–	37.4	5.5	2	PVC	10.0	25 – 35	6,687.64 – 6,677.64	**Abandoned**	Bedrock	Sandstone/Siltstone
TMW06	11	08/27/1998	HSA	1,643,285.82	2,498,783.81	6,689.08	6,690.63	1,643,285.93	2,498,783.92	6,689.87	6,691.34	57	8.8	2	PVC	10.0	45 – 55	6,644.87 – 6,634.87	Active	Alluvium	Sandy Silt
TMW07	11	07/24/1998	HSA/AR	1,643,289.14	2,498,772.33	6,689.08	6,690.47	1,643,289.29	2,498,772.27	6,689.84	6,691.23	76	5.5	2	PVC	10.0	65 – 75	6,624.84 – 6,614.84	Active	Alluvium	Sandy Silt
TMW08	11	08/29/1998	HSA	1,644,255.04	2,498,930.01	6,678.55	6,680.31	1,644,254.96	2,498,930.01	6,679.56	6,681.05	62	8.8	2	PVC	30.0	30 – 60	6,649.56 – 6,619.56	Active	Alluvium	Silty Sand/Clay
TMW10	11	08/20/1998	HSA	1,644,455.63	2,498,459.83	6,677.74	6,680.04	1,644,455.54	2,498,459.70	6,678.85	6,680.76	65	8.8	2	PVC	30.0	28 – 58	6,650.85 – 6,620.85	Active	Alluvium	Silty Sand/Clay
TMW11	6	09/09/1998	HSA	1,640,758.33	2,497,201.28	6,716.16	6,718.28	1,640,758.59	2,497,201.10	6,717.32	6,719.13	82	8.8	2	PVC	25.0	55 – 80	6,662.32 – 6,637.32	Active	Alluvium	Silty Gravel/Sand
TMW13	21	08/11/1998	HSA	1,641,150.12	2,498,112.40	6,705.42	6,707.49	1,641,150.09	2,498,112.43	6,706.75	6,708.21	72.5	8.8	2	PVC	10.0	60.7 – 70.7	6,646.05 – 6,636.05	Active	Alluvium	Sandy Clay/Silt
TMW14A	21	01/25/2001	AR	1,640,105.58	2,497,489.30	6,721.08	6,723.54	1,640,105.73	2,497,489.60	6,722.53	6,724.73	110	6	2	PVC	15.0	94.25 – 109.25	6,628.28 – 6,613.28	Active	Bedrock	Sandstone
TMW15	21	12/09/2001	AR	1,640,779.84	2,497,787.12	6,710.80	6,713.89	1,640,779.81	2,497,787.09	6,711.71	6,714.68	82	6	2	PVC	15.0	56 – 71	6,655.71 – 6,640.71	Active	Alluvium	Silty Gravel/Sand
TMW16	6	12/05/2001	AR	1,640,687.46	2,496,941.08	6,711.65	6,714.15	1,640,687.43	2,496,941.03	6,712.72	6,715.21	142	6	2	PVC	15.0	123 – 138	6,589.72 – 6,574.72	Active	Bedrock	Sandstone
TMW17	6	12/13/2001	AR	1,640,639.74	2,497,193.66	6,717.40	6,719.89	1,640,640.08	2,497,193.61	6,718.53	6,721.07	152	6	2	PVC	15.0	112 – 127	6,606.53 – 6,591.53	Active	Bedrock	Sandstone
TMW18	6	12/14/2001	AR	1,641,437.52	2,497,083.23	6,710.14	6,713.49	1,641,437.58	2,497,083.17	6,711.48	6,714.56	220	6	2	PVC	10.0	150 – 160	6,561.48 – 6,551.48	Active	Bedrock	Sandstone
TMW19	6	12/03/2001	AR	1,641,357.45	2,496,433.25	6,697.57	6,700.52	1,641,357.52	2,496,433.25	6,698.93	6,701.67	187	6	2	PVC	15.0	169 – 184	6,529.93 – 6,514.93	Active	Bedrock	Sandstone
TMW21	21	08/09/2002	HSA	1,642,714.59	2,498,128.03	6,692.75	6,695.14	1,642,714.81	2,498,128.03	6,693.75	6,695.86	72	8	2	PVC	10.0	48 – 58	6,645.75 – 6,635.75	Active	Alluvium	Sand/Silt/Clay
TMW22	21	08/08/2002	HSA	1,642,741.03	2,499,552.37	6,689.80	6,691.74	1,642,741.06	2,499,552.33	6,690.90	6,692.51	77	8	2	PVC	10.0	52 – 62	6,638.90 – 6,628.90	Active	Alluvium	Sand/Silt/Clay
TMW23	11	08/06/2002	HSA	1,643,402.27	2,499,309.65	6,685.37	6,687.66	1,643,402.25	2,499,309.78	6,686.50	6,688.61	72	8	2	PVC	10.0	46 – 56	6,640.50 – 6,630.50	Active	Alluvium	Clay/Sand
TMW24	11	08/03/2003	HSA	1,644,192.07	2,499,766.39	6,678.52	6,680.42	1,644,192.20	2,499,766.31	6,679.40	6,681.14	75	8	2	PVC	10.0	44 – 54	6,635.40 – 6,625.40	Active	Alluvium	Silty Sand/Silt/Sand
TMW25	7	08/01/2002	HSA	1,643,599.42	2,496,775.99	6,671.09	6,672.88	1,643,598.33	2,496,776.40	6,671.61	6,673.17	74	8	2	PVC	10.0	42.5 – 52.5	6,629.11 – 6,619.11	Active	Alluvium	Silty Sand/Clay
TMW26	11	07/30/2002	HSA	1,645,294.52	2,498,581.83	6,674.88	6,677.71	1,645,294.87	2,498,581.76	6,675.79	6,678.43	64.8	8	2	PVC	10.0	45 – 55	6,630.79 – 6,620.79	Active	Alluvium	Silt/Sand/Clay
TMW27	9	07/26/2002	HSA	1,646,400.43	2,496,126.29	6,665.45	6,668.13	1,646,399.49	2,496,126.68	6,666.40	6,668.51	102.2	8	2	PVC	10.0	60 – 70	6,606.40 – 6,596.40	Active	Alluvium	Sandy Clay/Silt
TMW28	14	07/24/2002	HSA	1,645,827.16	2,501,250.48	6,686.77	6,689.17	1,645,827.17	2,501,250.56	6,688.08	6,690.35	72.5	8	2	PVC	10.0	37 – 47	6,651.08 – 6,641.08	Active	Alluvium	Silty Sand/Sand/Clay
TMW29	21	08/19/2002	HSA	1,641,786.37	2,498,235.92	6,700.31	6,702.88	1,641,786.16	2,498,235.65	6,701.36	6,703.84	69	8	2	PVC	10.0	49 – 59	6,652.36 – 6,642.36	Active	Alluvium	Sand/Sandy Clay
TMW30	21	11/15/2009	HSA/AR	1,639,957.87	2,498,898.99	6,712.35	6,714.59	1,639,957.89	2,498,900.63	6,713.42	6,715.66	51.5	6	2	PVC	10.0	35 – 45	6,678.42 – 6,668.42	Active	Bedrock	Sandstone
TMW31S	21	11/17/2009	HSA/AR	1,640,689.53	2,498,931.95	6,708.53	6,710.20	1,640,688.54	2,498,932.87	6,710.19	6,711.45	61	6	2	PVC	10.0	50 – 60	6,660.19 – 6,650.19	Active	Alluvium	Silty Sand/Sand/Clay
TMW31D	21	11/16/2009	HSA/AR	1,640,689.53	2,498,931.95	6,708.53	6,710.44	1,640,688.10	2,498,933.07	6,710.19	6,711.99	111.5	6	2	PVC	30.0	77 – 107	6,633.19 – 6,603.19	Active	Bedrock	Sandstone
TMW32	21	11/18/2009	HSA	1,641,059.71	2,498,559.18	6,707.09	6,709.31	1,641,045.04	2,498,554.46	6,709.03	6,710.88	139.1	6	2	PVC	20.0	117 – 137	6,592.03 – 6,572.03	Active	Bedrock	Sandstone
TMW33	11	11/19/2009	HSA	1,644,035.48	2,498,303.75	6,684.09	6,686.60	1,644,034.09	2,498,303.21	6,685.07	6,687.45	60.4	6	2	PVC	20.0	37 – 57	6,648.07 – 6,628.07	Active	Alluvium	Silty Sand/Sand/Clay
TMW34	11	11/20/2009	HSA	1,643,993.95	2,498,014.09	6,684.32	6,687.29	1,643,994.55	2,498,012.96	6,685.75	6,688.36	57.3	6	2	PVC	20.0	37 – 57	6,648.75 – 6,628.75	Active	Alluvium	Silty Sand/Sand/Clay
TMW35	11	11/21/2009	HSA/AR	1,644,050.75	2,498,442.31	6,684.14	6,686.52	1,644,049.13	2,498,442.01	6,685.52	6,687.82	55	6	2	PVC	20.0	35 – 55	6,650.52 – 6,630.52	Active	Alluvium	Silty Sand/Sand/Clay
TMW36	21	11/22/2009	HSA/AR	1,641,645.74	2,499,049.17	6,697.33	6,699.04	1,641,645.67	2,499,049.25	6,700.57	6,702.23	157	6	2	PVC	20.0	132 – 152	6,568.57 – 6,548.57	Active	Bedrock	Sandstone

TABLE 2-1: NORTHERN AREA GROUNDWATER WELL CONSTRUCTION DETAILS
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	FWDA Parcel	Date Installed	Drilling Method	PREVIOUS SURVEY DATA (OLD) NORTHING[a]	PREVIOUS SURVEY DATA (OLD) EASTING[a]	PREVIOUS SURVEY DATA (OLD) GROUND ELEVATION (ft amsl)[b]	PREVIOUS SURVEY DATA (OLD) POINT ELEVATION (ft amsl)[b]	OCT. 2019 SURVEY DATA (NEW) NORTHING[a]	OCT. 2019 SURVEY DATA (NEW) EASTING[a]	OCT. 2019 SURVEY DATA (NEW) GROUND ELEVATION (ft amsl)[b]	OCT. 2019 SURVEY DATA (NEW) POINT ELEVATION (ft amsl)[b]	Well Depth (ft bgs)	Boring Diameter (in)	Casing Diameter (in)	Casing/ Screen Type	Screen Length (ft)	Screened Interval (ft bgs)	Screened Interval (ft amsl)	Status	Screened Formation	Description
TMW37	21	11/23/2009	HSA/AR	1,640,648.14	2,498,397.74	6,710.51	6,713.09	1,640,648.29	2,498,396.27	6,712.15	6,714.25	111	6	2	PVC	20.0	88 – 108	6,624.15 – 6,604.15	Active	Bedrock	Sandstone
TMW38	21	09/03/2011	HSA	1,641,400.80	2,498,219.52	6,704.41	6,706.79	1,641,400.93	2,498,218.35	6,705.03	6,707.62	159.5	8	2.5	PVC	40.0	118.9 – 158.9	6,586.13 – 6,546.13	Active	Bedrock	Sandstone
TMW39S	13	07/05/2011	HSA	1,640,745.21	2,499,279.83	6,706.53	6,708.61	1,640,735.44	2,499,229.52	6,706.69	6,708.25	53	8	2.5	PVC	20.0	32.5 – 52.5	6,674.19 – 6,654.19	Active	Alluvium	Clay
TMW39D	13	09/07/2011	HSA	1,640,745.21	2,499,279.83	6,706.53	6,708.61	1,640,745.35	2,499,280.77	6,707.08	6,709.14	100.5	8	2.5	PVC	30.0	70 – 100	6,637.08 – 6,607.08	Active	Bedrock	Sandstone
TMW40S	21	09/20/2011	HSA	1,641,487.06	2,498,603.50	6,703.81	6,706.40	1,641,486.33	2,498,604.51	6,704.37	6,706.98	60.5	8	2.5	PVC	10.0	50 – 60	6,654.37 – 6,644.37	Active	Alluvium	Silt/Sand/Clay
TMW40D	21	09/20/2011	HSA	1,641,487.06	2,498,603.50	6,703.81	6,706.15	1,641,486.04	2,498,604.16	6,704.37	6,706.74	155.5	8	2.5	PVC	20.0	135 – 155	6,569.37 – 6,549.37	Active	Bedrock	Sandstone
TMW41	21	07/01/2011	HSA	1,641,113.86	2,499,058.48	6,703.48	6,705.21	1,641,113.91	2,499,058.49	6,704.15	6,705.74	66	8	2.5	PVC	10.0	55.5 – 65.5	6,648.65 – 6,638.65	Active	Alluvium	Clay with Gravel
TMW43	21	02/03/2012	HSA	1,642,171.46	2,498,570.92	6,695.63	6,698.63	1,642,171.39	2,498,570.91	6,696.21	6,699.32	78.5	8	2.5	PVC	20.0	58 – 78	6,638.21 – 6,618.21	Active	Alluvium	Sand with Gravel
TMW44	21	02/04/2012	HSA	1,642,323.41	2,499,212.51	6,694.81	6,697.31	1,642,323.34	2,499,212.40	6,695.49	6,697.99	64	8	2.5	PVC	20.0	43.5 – 63.5	6,651.99 – 6,631.99	Active	Alluvium	Silty Clay/Sand
TMW45	11	02/08/2012	HSA	1,643,187.53	2,499,597.72	6,686.50	6,689.00	1,643,187.60	2,499,597.65	6,687.14	6,689.60	59	8	2.5	PVC	20.0	38.5 – 58.5	6,648.64 – 6,628.64	Active	Alluvium	Sand/Clay
TMW46	11	02/05/2012	HSA	1,644,326.04	2,497,404.70	6,678.69	6,680.98	1,644,326.20	2,497,404.60	6,679.41	6,681.34	59	8	2.5	PVC	20.0	38.5 – 58.5	6,640.91 – 6,620.91	Active	Alluvium	Sandy Clay with Gravel
TMW47	13	02/01/2012	HSA	1,641,475.95	2,499,610.93	6,699.32	6,701.88	1,641,475.91	2,499,610.79	6,699.87	6,702.47	103	8	2.5	PVC	20.0	82.5 – 102.5	6,617.37 – 6,597.37	Active	Alluvium	Clay/Silt
TMW48	13	09/15/2011	HSA	1,640,515.53	2,499,131.31	6,707.80	6,709.80	1,640,515.51	2,499,132.59	6,708.29	6,710.37	91.5	8	2.5	PVC	20.0	71 – 91	6,637.29 – 6,617.29	Active	Bedrock	Sand
TMW49	21	09/09/2011	HSA	1,639,979.77	2,498,578.38	6,712.20	6,714.70	1,639,979.26	2,498,578.96	6,716.30	6,718.72	60	8	2.5	PVC	20.0	40 – 60	6,676.30 – 6,656.30	Active	Bedrock	Sand
TMW50	21	09/25/2019	Sonic	–	–	–	–	1,640,313.62	2,498,591.97	6,712.47	6,715.02	75	6	2	PVC	20.0	55 – 75	6,657.47 – 6,637.47	Active	Bedrock	Clay/Silt/Sandstone
TMW51	21	09/09/2019	Sonic	–	–	–	–	1,641,169.36	2,498,768.34	6,704.11	6,706.70	125	6	2	PVC	20.0	105 – 125	6,599.11 – 6,579.11	Active	Bedrock	Sandstone
TMW52	21	08/20/2019	Sonic	–	–	–	–	1,641,766.56	2,498,279.77	6,701.71	6,704.36	115	6	2	PVC	20.0	95 – 115	6,606.71 – 6,586.71	Active	Bedrock	Sandstone/Claystone/ Mudstone
TMW53	21	08/13/2019	Sonic	–	–	–	–	1,641,849.46	2,498,650.53	6,699.77	6,702.34	117	6	2	PVC	10.0	107 – 117	6,592.77 – 6,582.77	Active	Bedrock	Sandstone/Claystone/ Mudstone
TMW54	21	09/10/2019	Sonic	–	–	–	–	1,641,063.23	2,498,589.12	6,708.77	6,711.23	41.4	6	2	PVC	20.0	21.4 – 41.4	6,687.37 – 6,666.37	Active	Alluvium	Clay/Clayey Sand
TMW55	21	07/29/2019	Sonic	–	–	–	–	1,640,803.10	2,498,296.35	6,711.13	6,713.82	121	6	2	PVC	20.0	101 – 121	6,610.13 – 6,590.13	Active	Bedrock	Silt/Sand/Clay/Sandstone
TMW56	13	07/24/2019	Sonic	–	–	–	–	1,640,967.41	2,499,363.34	6,705.44	6,708.32	50	6	2	PVC	20.0	30 – 50	6,675.44 – 6,655.44	Active	Alluvium	Silt/Sand/Clay
TMW57	21	07/25/2019	Sonic	–	–	–	–	1,640,814.83	2,498,070.01	6,710.76	6,713.19	70	6	2	PVC	10.0	60 – 70	6,650.76 – 6,640.76	Active	Alluvium	Silt/Sand/Clay
TMW58	21	08/22/2019	Sonic	–	–	–	–	1,641,819.82	2,498,257.71	6,700.79	6,703.54	185	6	2	PVC	40.0	145 – 185	6,555.79 – 6,515.79	Active	Bedrock	Sandstone/Claystone
TMW59	21	07/30/2019	Sonic	–	–	–	–	1,642,827.23	2,498,987.06	6,690.38	6,692.90	62	6	2	PVC	20.0	42 – 62	6,648.38 – 6,628.38	Active	Alluvium	Silt/Sand/Clay
TMW60	21	09/11/2019	Sonic	–	–	–	–	1,642,542.05	2,498,365.51	6,694.17	6,696.66	66	6	2	PVC	20.0	46 – 66	6,648.17 – 6,628.17	Active	Alluvium	Silt/Sand/Clay
TMW61	11	07/29/2019	Sonic	–	–	–	–	1,643,720.94	2,499,390.24	6,684.51	6,687.07	61	6	2	PVC	20.0	41 – 61	6,643.51 – 6,623.51	Active	Alluvium	Silt/Sand/Clay
TMW62	21	08/07/2019	Sonic	–	–	–	–	1,642,984.23	2,498,536.37	6,691.39	6,693.95	60	6	2	PVC	20.0	40 – 60	6,651.39 – 6,631.39	Active	Alluvium	Silt/Sand/Clay
TMW63	21	08/08/2019	Sonic	–	–	–	–	1,641,833.31	2,498,690.15	6,699.83	6,702.58	180	6	2	PVC	40.0	140 – 180	6,559.83 – 6,519.83	Active	Bedrock	Sandstone/Claystone/ Mudstone/Siltstone
TMW64	13	09/25/2019	Sonic	–	–	–	–	1,640,652.26	2,499,587.26	6,705.50	6,708.20	100	6	2	PVC	20.0	80 – 100	6,625.50 – 6,605.50	Active	Bedrock	Sandstone
PZ01[c]	12	Fall 2012	HSA	1,645,310.72	2,499,236.22	6,674.71	6,677.29	1,645,310.79	2,499,235.92	6,675.61	6,678.18	45.7	NA	1	PVC	20.0	25.7 – 45.7	6,649.91 – 6,629.91	Active	Alluvium	Undifferentiated CL/S/ML
PZ02[c]	12	Fall 2012	HSA	1,645,426.78	2,499,258.64	6,672.50	6,674.95	1,645,426.52	2,499,258.36	6,673.57	6,675.99	52.7	NA	1	PVC	20.0	32.7 – 53.7	6,640.87 – 6,619.87	Active	Alluvium	Undifferentiated CL/S/ML
PZ03[c]	12	Fall 2012	HSA	1,645,502.88	2,499,288.54	6,676.86	6,679.44	1,645,502.60	2,499,288.48	6,677.91	6,680.45	49.3	NA	1	PVC	20.0	29.3 – 49.3	6,648.61 – 6,628.61	Active	Alluvium	Undifferentiated CL/S/ML
PZ04[c]	12	Fall 2012	HSA	1,645,288.26	2,498,592.56	6,674.17	6,676.68	1,645,288.57	2,498,592.28	6,675.26	6,677.80	49.3	NA	1	PVC	20.0	29.3 – 49.3	6,645.96 – 6,625.96	Active	Alluvium	Undifferentiated CL/S/ML
PZ05[c]	12	Fall 2012	HSA	1,646,574.66	2,498,263.13	6,671.53	6,674.15	1,646,574.61	2,498,262.94	6,672.50	6,675.17	48.7	NA	1	PVC	20.0	28.7 – 48.7	6,643.80 – 6,623.80	Active	Alluvium	Undifferentiated CL/S/ML
PZ06[c]	12	Fall 2012	HSA	1,646,327.75	2,498,718.95	6,673.29	6,676.04	1,646,328.10	2,498,719.31	6,674.47	6,677.19	49.2	NA	1	PVC	20.0	29.2 – 49.2	6,645.27 – 6,625.27	Active	Alluvium	Undifferentiated CL/S/ML
PZ07[c]	12	Fall 2012	HSA	1,645,600.75	2,500,958.18	6,682.38	6,684.53	1,645,600.90	2,500,958.04	6,683.24	6,685.70	32.8	NA	1	PVC	20.0	12.8 – 32.8	6,670.44 – 6,650.44	Active	Alluvium	Undifferentiated CL/S/ML
PZ08[c]	12	Fall 2012	HSA	1,645,511.30	2,500,744.34	6,684.11	6,686.81	1,645,511.40	2,500,744.21	6,685.03	6,687.93	49	NA	1	PVC	20.0	29 – 49	6,656.03 – 6,636.03	Active	Alluvium	Undifferentiated CL/S/ML
PZ09[c]	12	Fall 2012	HSA	1,648,138.17	2,495,520.51	6,651.12	6,653.61	1,648,137.97	2,495,520.26	6,652.37	6,654.66	35.6	NA	1	PVC	15.0	20.6 – 35.6	6,631.77 – 6,616.77	Active	Alluvium	Undifferentiated CL/S/ML
PZ10[c]	12	Fall 2012	HSA	1,648,008.28	2,495,406.66	6,654.83	6,657.27	1,648,008.64	2,495,406.20	6,655.92	6,658.31	48.5	NA	1	PVC	15.0	33.5 – 48.5	6,622.42 – 6,607.42	Active	Alluvium	Undifferentiated CL/S/ML

TABLE 2-1: NORTHERN AREA GROUNDWATER WELL CONSTRUCTION DETAILS
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	FWDA Parcel	Date Installed	Drilling Method	PREVIOUS SURVEY DATA (OLD)				OCT. 2019 SURVEY DATA (NEW)				Well Depth (ft bgs)	Boring Diameter (in)	Casing Diameter (in)	Casing/ Screen Type	Screen Length (ft)	Screened Interval (ft bgs)	Screened Interval (ft amsl)	Status	Screened Formation	Description
				NORTHING[a]	EASTING[a]	GROUND ELEVATION (ft amsl)[b]	POINT ELEVATION (ft amsl)[b]	NORTHING[a]	EASTING[a]	GROUND ELEVATION (ft amsl)[b]	POINT ELEVATION (ft amsl)[b]										
Wingate 89	10B	01/01/1963	–	1,647,927.73	2,496,972.14	6,663.20	6,663.70	–	–	–	–	NA	NA	8	PVC	NA	NA	NA	**Abandoned**	Alluvium	–
Wingate 90	10B	01/02/1963	–	1,648,335.14	2,495,646.34	6,655.30	6,656.50	–	–	–	–	102	NA	8	PVC	NA	NA	NA	**Abandoned**	Alluvium	–
Wingate 91	10B	01/03/1963	–	1,648,705.22	2,494,863.70	6,658.80	6,659.70	–	–	–	–	NA	NA	8	PVC	NA	NA	NA	**Abandoned**	Alluvium	–

ABBREVIATIONS and ACRONYMS:

amsl = above mean sea level
AR = air rotary drilling method
bgs = below ground surface
CL = lean clay
ft = feet
FWDA = Fort Wingate Depot Activity
HSA = hollow stem auger drilling method
in = inches
ML = silt
NA = not available
NAD83 = North American Datum of 1983
NAVD88 = North American Vertical Datum of 1988
NM = New Mexico
PVC = polyvinyl chloride

NOTES:

[a] Horizontal Coordinate System: NM NAD83 State Plane Central.
[b] Vertical Coordinate System: NAVD88.
[c] Indicates the well is used for water level measurements only and is not sampled.

TABLE 2-2: NORTHERN AREA GROUNDWATER ELEVATIONS

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	GW Zone	Casing Stick Up Length (feet)	Screened Interval (feet bgs)	Total Well Depth (feet bgs)	Well Ground Elevation (NAVD 88)	Well TOC Elevation (NAVD 88)	Water Level Measurement Date	Depth to Water (feet bgs)	Depth to Water (feet btoc)	Groundwater Elevation (NAVD 88)
Alluvial Wells										
BGMW01	Alluvial	2.41	12.5-32.5	33.0	6,690.82	6,693.23	Sep-22	18.78	21.19	6,672.04
BGMW02	Alluvial	2.84	13.5-33.5	34.0	6,689.73	6,692.57	Sep-22	21.02	23.86	6,668.71
BGMW03	Alluvial	2.77	8.5-28.5	29.0	6,676.63	6,679.39	Sep-22	16.23	19.00	6,660.39
BGMW11	Alluvial	2.29	20-40	40.0	6,653.27	6,655.56	Sep-22	17.92	20.21	6,635.35
BGMW12	Alluvial	2.81	12-32	32.0	6,692.40	6,695.21	Sep-22	18.63	21.44	6,673.77
BGMW13S	Alluvial	2.92	49-69	69.0	6,659.05	6,661.97	Sep-22	19.48	22.40	6,639.57
BGMW13D	Alluvial	2.75	84-104	104.0	6,659.08	6,661.83	Sep-22	18.70	21.45	6,640.38
FW31	Alluvial	1.74	10-50	50.0	6,830.96	6,832.70	Sep-22	42.15	43.89	6,788.81
FW35	Alluvial	2.18	10-30	30.0	6,709.13	6,711.31	Sep-22	Dry	Dry	Dry
MW01	Alluvial	-0.19	33.6-53.6	55.0	6,686.98	6,686.79	Sep-22	43.20	43.01	6,643.78
MW02	Alluvial	-0.46	37-47	48.0	6,685.60	6,685.13	Sep-22	43.22	42.76	6,642.37
MW03	Alluvial	2.45	43-53	53.0	6,687.81	6,690.26	Sep-22	45.32	47.77	6,642.49
MW18D	Alluvial	1.81	47-57	59.9	6,685.30	6,687.11	Sep-22	43.60	45.41	6,641.70
MW18S	Alluvial	1.96	27-37	39.0	6,685.30	6,687.26	Sep-22	Dry	Dry	Dry
MW20	Alluvial	2.51	47-57	59.4	6,685.84	6,688.35	Sep-22	44.71	47.22	6,641.13
MW22D	Alluvial	2.06	47-57	58.6	6,683.28	6,685.34	Sep-22	42.50	44.56	6,640.78
MW22S	Alluvial	2.05	31-41	43.5	6,683.28	6,685.33	Sep-22	Dry	Dry	Dry
MW23	Alluvial	2.10	63.5-133.5	134.0	6,652.99	6,655.09	Sep-22	14.14	16.24	6,638.85
MW24	Alluvial	1.85	16-66	66.5	6,655.72	6,657.57	Sep-22	19.85	21.70	6,635.87
MW25	Alluvial	2.87	45.5-65.5	65.5	6,676.18	6,679.05	Sep-22	39.32	42.19	6,636.86
MW26	Alluvial	2.97	40-60	60.0	6,670.96	6,673.93	Sep-22	36.02	38.99	6,634.94
MW27	Alluvial	2.46	43-63	63.0	6,690.94	6,693.40	Sep-22	48.51	50.97	6,642.43
MW28	Alluvial	2.66	40-60	60.0	6,689.51	6,692.17	Sep-22	46.78	49.44	6,642.73
MW29	Alluvial	2.65	37-57	57.0	6,684.49	6,687.14	Sep-22	42.32	44.97	6,642.17
MW30	Alluvial	2.75	40-60	60.0	6,686.83	6,689.57	Sep-22	44.42	47.17	6,642.40
MW31	Alluvial	2.68	36-56	56.0	6,681.76	6,684.45	Sep-22	41.30	43.98	6,640.47
MW32	Alluvial	2.54	40-60	60.0	6,684.84	6,687.37	Sep-22	44.49	47.03	6,640.34
MW33	Alluvial	3.01	37-57	57.0	6,675.98	6,679.00	Sep-22	42.50	45.51	6,633.49
MW34	Alluvial	2.88	40-60	60.0	6,672.91	6,675.80	Sep-22	40.99	43.87	6,631.93
MW35	Alluvial	2.42	41-61	61.0	6,708.96	6,711.38	Sep-22	33.21	35.63	6,675.75

TABLE 2-2: NORTHERN AREA GROUNDWATER ELEVATIONS
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	GW Zone	Casing Stick Up Length (feet)	Screened Interval (feet bgs)	Total Well Depth (feet bgs)	Well Ground Elevation (NAVD 88)	Well TOC Elevation (NAVD 88)	Water Level Measurement Date	Depth to Water (feet bgs)	Depth to Water (feet btoc)	Groundwater Elevation (NAVD 88)
MW36S	Alluvial	2.77	30-50	50.0	6,653.54	6,656.31	Sep-22	20.18	22.95	6,633.36
MW36D	Alluvial	2.75	55-75	75.0	6,653.48	6,656.23	Sep-22	14.65	17.40	6,638.83
MW37	Alluvial	2.68	25-45	45.0	6,663.34	6,666.02	Sep-22	28.17	30.85	6,635.17
MW38	Alluvial	2.43	30-50	50.0	6,665.48	6,667.91	Sep-22	32.53	34.96	6,632.95
MW39	Alluvial	2.60	30-50	50.0	6,670.64	6,673.24	Sep-22	35.92	38.52	6,634.72
SMW01	Alluvial	1.37	29.9-49.9	50.2	6,668.68	6,670.05	Sep-22	32.71	34.08	6,635.97
TMW01	Alluvial	1.72	44-59	60.0	6,710.79	6,712.50	Sep-22	43.03	44.75	6,667.75
TMW02	Alluvial	1.53	67.9-81.9	85.0	6,704.51	6,706.03	Sep-22	55.62	57.15	6,648.88
TMW03	Alluvial	1.87	49.8-69.8	70.1	6,701.35	6,703.22	Sep-22	56.47	58.34	6,644.88
TMW04	Alluvial	1.80	50-70	70.5	6,699.85	6,701.65	Sep-22	55.66	57.46	6,644.19
TMW06	Alluvial	1.47	45-55	57.0	6,689.87	6,691.34	Sep-22	47.07	48.54	6,642.80
TMW07	Alluvial	1.38	65-75	76.0	6,689.84	6,691.23	Sep-22	46.43	47.81	6,643.42
TMW08	Alluvial	1.49	30-60	62.0	6,679.56	6,681.05	Sep-22	37.52	39.01	6,642.04
TMW10	Alluvial	1.91	28-58	65.0	6,678.85	6,680.76	Sep-22	38.21	40.12	6,640.64
TMW11	Alluvial	1.80	55-80	82.0	6,717.32	6,719.13	Sep-22	Dry	Dry	Dry
TMW13	Alluvial	1.46	60.7-70.7	72.5	6,706.75	6,708.21	Sep-22	61.09	62.55	6,645.66
TMW15	Alluvial	2.97	56-71	82.0	6,711.71	6,714.68	Sep-22	64.98	67.95	6,646.73
TMW21	Alluvial	2.11	48-58	72.0	6,693.75	6,695.86	Sep-22	50.19	52.30	6,643.56
TMW22	Alluvial	1.61	52-62	77.0	6,690.90	6,692.51	Sep-22	47.80	49.41	6,643.10
TMW23	Alluvial	2.11	46-56	72.0	6,686.50	6,688.61	Sep-22	44.15	46.26	6,642.35
TMW24	Alluvial	1.74	44-54	75.0	6,679.40	6,681.14	Sep-22	36.77	38.51	6,642.63
TMW25	Alluvial	1.56	42.5-52.5	74.0	6,671.61	6,673.17	Sep-22	38.77	40.33	6,632.84
TMW26	Alluvial	2.64	45-55	64.8	6,675.79	6,678.43	Sep-22	27.03	29.67	6,648.76
TMW27	Alluvial	2.11	60-70	102.2	6,666.40	6,668.51	Sep-22	28.89	31.00	6,637.51
TMW28	Alluvial	2.27	37-47	72.5	6,688.08	6,690.35	Sep-22	19.79	22.06	6,668.29
TMW29	Alluvial	2.48	49-59	69.0	6,701.36	6,703.84	Sep-22	56.57	59.05	6,644.79
TMW31S	Alluvial	1.26	50-60	61.0	6,710.19	6,711.45	Sep-22	42.52	43.78	6,667.67
TMW33	Alluvial	2.37	37-57	60.4	6,685.07	6,687.45	Sep-22	43.86	46.23	6,641.22
TMW34	Alluvial	2.61	37-57	57.3	6,685.75	6,688.36	Sep-22	44.77	47.38	6,640.98
TMW35	Alluvial	2.30	35-55	55.0	6,685.52	6,687.82	Sep-22	43.92	46.22	6,641.60
TMW39S	Alluvial	1.56	32.5-52.5	53.0	6,706.69	6,708.25	Sep-22	39.19	40.75	6,667.50
TMW40S	Alluvial	2.61	50-60	60.5	6,704.37	6,706.98	Sep-22	59.47	62.08	6,644.90

TABLE 2-2: NORTHERN AREA GROUNDWATER ELEVATIONS

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan

Fort Wingate Depot Activity, New Mexico

Well ID	GW Zone	Casing Stick Up Length (feet)	Screened Interval (feet bgs)	Total Well Depth (feet bgs)	Well Ground Elevation (NAVD 88)	Well TOC Elevation (NAVD 88)	Water Level Measurement Date	Depth to Water (feet bgs)	Depth to Water (feet btoc)	Groundwater Elevation (NAVD 88)
TMW41	Alluvial	1.59	55.5-65.5	66.0	6,704.15	6,705.74	Sep-22	42.98	44.57	6,661.17
TMW43	Alluvial	3.11	58-78	78.5	6,696.21	6,699.32	Sep-22	51.70	54.81	6,644.51
TMW44	Alluvial	2.50	43.5-63.5	64.0	6,695.49	6,697.99	Sep-22	51.45	53.95	6,644.04
TMW45	Alluvial	2.46	38.5-58.5	59.0	6,687.14	6,689.60	Sep-22	45.04	47.50	6,642.10
TMW46	Alluvial	1.94	38.5-58.5	59.0	6,679.41	6,681.34	Sep-22	44.14	46.08	6,635.26
TMW47	Alluvial	2.60	82.5-102.5	103.0	6,699.87	6,702.47	Sep-22	45.65	48.25	6,654.22
TMW54	Alluvial	2.46	21.4-41.4	41.4	6,708.77	6,711.23	Sep-22	Dry	Dry	Dry
TMW56	Alluvial	2.88	30-50	50.0	6,705.44	6,708.32	Sep-22	46.30	49.18	6,659.14
TMW57	Alluvial	2.43	60-70	70.0	6,710.76	6,713.19	Sep-22	64.57	67.00	6,646.19
TMW59	Alluvial	2.53	42-62	62.0	6,690.38	6,692.90	Sep-22	47.08	49.61	6,643.29
TMW60	Alluvial	2.50	46-66	66.0	6,694.17	6,696.66	Sep-22	Dry	Dry	Dry
TMW61	Alluvial	2.55	41-61	61.0	6,684.51	6,687.07	Sep-22	42.36	44.91	6,642.16
TMW62	Alluvial	2.56	40-60	60.0	6,691.39	6,693.95	Sep-22	48.18	50.74	6,643.21
PZ01	Alluvial	2.57	23.1-43.1	43.1	6,675.61	6,678.18	Sep-22	27.24	29.81	6,648.37
PZ02	Alluvial	2.41	30.3-50.3	50.7	6,673.57	6,675.99	Sep-22	23.96	26.37	6,649.62
PZ03	Alluvial	2.54	26.7-46.7	46.9	6,677.91	6,680.45	Sep-22	25.61	28.15	6,652.30
PZ04	Alluvial	2.54	26.8-46.8	47.0	6,675.26	6,677.80	Sep-22	28.36	30.90	6,646.90
PZ05	Alluvial	2.67	26-46	46.3	6,672.50	6,675.17	Sep-22	20.70	23.37	6,651.80
PZ06	Alluvial	2.73	26.5-46.5	46.7	6,674.47	6,677.19	Sep-22	20.04	22.77	6,654.42
PZ07	Alluvial	2.46	10.6-30.6	30.5	6,683.24	6,685.70	Sep-22	16.39	18.85	6,666.85
PZ08	Alluvial	2.91	26.3-46.3	46.6	6,685.03	6,687.93	Sep-22	19.50	22.41	6,665.52
PZ09	Alluvial	2.30	18.1-33.1	33.5	6,652.37	6,654.66	Sep-22	16.20	18.50	6,636.16
PZ10	Alluvial	2.39	31-46	46.3	6,655.92	6,658.31	Sep-22	19.92	22.31	6,636.00
Bedrock Wells										
BGMW07	Bedrock	2.25	215-255	256.0	6,689.77	6,692.03	Sep-22	15.61	17.86	6,674.17
BGMW08	Bedrock	1.71	165-185	186.0	6,681.72	6,683.42	Sep-22	140.10	141.81	6,541.61
BGMW09	Bedrock	2.18	106-136	173.0	6,689.83	6,692.01	Sep-22	45.21	47.39	6,644.62
BGMW10	Bedrock	2.33	106-136	147.0	6,699.50	6,701.83	Sep-22	31.39	33.72	6,668.11
TMW14A	Bedrock	2.20	94.3-109.3	110.0	6,722.53	6,724.73	Sep-22	65.86	68.06	6,656.67
TMW16	Bedrock	2.48	123-138	142.0	6,712.72	6,715.21	Sep-22	57.50	59.98	6,655.23
TMW17	Bedrock	2.55	112-127	152.0	6,718.53	6,721.07	Sep-22	63.19	65.74	6,655.33
TMW18	Bedrock	3.08	150-160	220.0	6,711.48	6,714.56	Sep-22	55.77	58.85	6,655.71

TABLE 2-2: NORTHERN AREA GROUNDWATER ELEVATIONS

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan

Fort Wingate Depot Activity, New Mexico

Well ID	GW Zone	Casing Stick Up Length (feet)	Screened Interval (feet bgs)	Total Well Depth (feet bgs)	Well Ground Elevation (NAVD 88)	Well TOC Elevation (NAVD 88)	Water Level Measurement Date	Depth to Water (feet bgs)	Depth to Water (feet btoc)	Groundwater Elevation (NAVD 88)
TMW19	Bedrock	2.74	169-184	187.0	6,698.93	6,701.67	Sep-22	43.77	46.51	6,655.16
TMW30	Bedrock	2.24	35-45	51.5	6,713.42	6,715.66	Sep-22	38.62	40.86	6,674.80
TMW31D	Bedrock	1.80	77-107	111.5	6,710.19	6,711.99	Sep-22	42.33	44.13	6,667.86
TMW32	Bedrock	1.85	117-137	139.1	6,709.03	6,710.88	Sep-22	43.60	45.45	6,665.43
TMW36	Bedrock	1.66	132-152	157.0	6,700.57	6,702.23	Sep-22	32.40	34.06	6,668.17
TMW37	Bedrock	2.09	88-108	111.0	6,712.15	6,714.25	Sep-22	48.82	50.91	6,663.34
TMW38	Bedrock	2.59	118.9-158.9	159.5	6,705.03	6,707.62	Sep-22	48.20	50.79	6,656.83
TMW39D	Bedrock	2.06	70-100	100.5	6,707.08	6,709.14	Sep-22	39.35	41.41	6,667.73
TMW40D	Bedrock	2.37	135-155	155.5	6,704.37	6,706.74	Sep-22	36.70	39.07	6,667.67
TMW48	Bedrock	2.08	71-91	91.5	6,708.29	6,710.37	Sep-22	40.55	42.63	6,667.74
TMW49	Bedrock	2.42	40-60	60.5	6,716.30	6,718.72	Sep-22	48.04	50.46	6,668.26
TMW50	Bedrock	2.55	55-75	75.0	6,712.47	6,715.02	Sep-22	45.33	47.88	6,667.14
TMW51	Bedrock	2.59	105-125	125.0	6,704.11	6,706.70	Sep-22	36.48	39.07	6,667.63
TMW52	Bedrock	2.66	95-115	115.0	6,701.71	6,704.36	Sep-22	56.09	58.75	6,645.61
TMW53	Bedrock	2.57	107-117	117.0	6,699.77	6,702.34	Sep-22	52.64	55.21	6,647.13
TMW55	Bedrock	2.70	101-121	121.0	6,711.13	6,713.82	Sep-22	51.25	53.95	6,659.87
TMW58	Bedrock	2.75	145-185	185.0	6,700.79	6,703.54	Sep-22	37.22	39.97	6,663.57
TMW63	Bedrock	2.75	140-180	180.0	6,699.83	6,702.58	Sep-22	31.99	34.74	6,667.84
TMW64	Bedrock	2.70	80-100	100.0	6,705.50	6,708.20	Sep-22	37.76	40.46	6,667.74

ABBREVIATIONS & ACRONYMS:

bgs= below ground surface   btoc= below top of casing   ID= identification   TOC= top of casing

NOTES: Elevations are recorded in U.S. feet above North America Vertical Datum of 1988 (NAVD88).

Groundwater measurements from the *Final Groundwater Periodic Monitoring Report, July through December 2022* (Eco, 2023).

TABLE 3-1: GROUNDWATER LABORATORY ANALYSIS AND RISK EVALUATION CRITERIA
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

METHOD	ANALYTE	CAS	UNITS	EPA MCL [1]	20.6.2 NMAC NM WQCC [2]	Nov. 2023 EPA RSL CANCER TAP WATER (target excess cancer risk level of 10^{-6})	Nov. 2023 EPA RSL CANCER TAP WATER (target excess cancer risk level of 10^{-5})	Nov. 2023 EPA RSL NONCANCER TAP WATER (target hazard quotient of 1)	FINAL SELECTED SL [3]	FINAL SELECTED SL REFERENCE	RISK ENDPOINT c/nc	NOTES
6020B	Aluminum	7429-90-5	µg/L		5,000			20,000	5,000	WQCC		
6020B	Calcium[5]	7440-70-2	µg/L						NA			
6020B	Iron	7439-89-6	µg/L		1,000			14,000	1,000	WQCC		
6020B	Magnesium[5]	7439-95-4	µg/L						NA			
6020B	Potassium[5]	7440-09-7	µg/L						NA			
6020B	Sodium[5]	7440-23-5	µg/L						NA			
6020B	Antimony	7440-36-0	µg/L	6	6			7.8	6	WQCC		
6020B	Arsenic	7440-38-2	µg/L	10	10	0.052	0.52	6	10	WQCC		
6020B	Barium	7440-39-3	µg/L	2,000	2,000			3,800	2,000	WQCC		
6020B	Beryllium	7440-41-7	µg/L	4	4			25	4	WQCC		
6020B	Cadmium	7440-43-9	µg/L	5	5			1.8	5	WQCC		
6020B	Chromium	7440-47-3	µg/L	100	50				50	WQCC		
6020B	Cobalt	7440-48-4	µg/L		50			6	50	WQCC		
6020B	Copper	7440-50-8	µg/L	1,300	1,000			800	1,000	WQCC		
6020B	Lead	7439-92-1	µg/L	15	15			15	15	WQCC		
6020B	Manganese	7439-96-5	µg/L		200			430	200	WQCC		
6020B	Nickel	7440-02-0	µg/L		200			390	200	WQCC		
6020B	Selenium	7782-49-2	µg/L	50	50			100	50	WQCC		
6020B	Silver	7440-22-4	µg/L		50			94	50	WQCC		
6020B	Thallium	7440-28-0	µg/L	2	2			0.2	2	WQCC		
6020B	Vanadium	7440-62-2	µg/L					86	86	RSL	nc	
6020B	Zinc	7440-66-6	µg/L		10,000			6,000	10,000	WQCC		
6850	Perchlorate	14797-73-0	µg/L	15				14	15	RSL	nc	
7470A/ 7471B	Mercury	7439-97-6	µg/L	2	2			0.63	2	WQCC		
8015D	Diesel Range Organics (DRO) [C10 C28]	68334-30-5	µg/L						16.7	NMED RAG[4]		
8015D	Gasoline Range Organics (GRO) [C6 C10]	8006-61-9	µg/L						10.1	NMED RAG[4]		
8260D	1,1,1,2-Tetrachloroethane	630-20-6	µg/L			0.57	5.7	480	5.7	RSL	c	
8260D	1,1,1-Trichloroethane	71-55-6	µg/L	200	200			8,000	200	WQCC		
8260D	1,1,2,2-Tetrachloroethane	79-34-5	µg/L		10	0.076	0.76	360	10	WQCC		

TABLE 3-1: GROUNDWATER LABORATORY ANALYSIS AND RISK EVALUATION CRITERIA
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

METHOD	ANALYTE	CAS	UNITS	EPA MCL [1]	20.6.2 NMAC NM WQCC [2]	Nov. 2023 EPA RSL CANCER TAP WATER (target excess cancer risk level of 10^{-6})	Nov. 2023 EPA RSL CANCER TAP WATER (target excess cancer risk level of 10^{-5})	Nov. 2023 EPA RSL NONCANCER TAP WATER (target hazard quotient of 1)	FINAL SELECTED SL [3]	FINAL SELECTED SL REFERENCE	RISK ENDPOINT c/nc	NOTES
8260D	1,1,2-Trichloroethane	79-00-5	µg/L	5	5	0.28	2.8	0.41	5	WQCC		
8260D	1,1-Dichloroethane	75-34-3	µg/L		25	2.8	28	3,800	25	WQCC		
8260D	1,1-Dichloroethene	75-35-4	µg/L	7	7			280	7	WQCC		
8260D	1,1-Dichloropropene *(surrogate Dichloropropene, 1,3)*	563-58-6	µg/L			0.47	4.7	39	4.7	RSL	c	
8260D	1,2,3-Trichlorobenzene	87-61-6	µg/L					7	7	RSL	nc	
8260D	1,2,3-Trichloropropane	96-18-4	µg/L			0.00075	0.0075	0.62	0.0075	RSL	c	
8260D	1,2,4-Trichlorobenzene	120-82-1	µg/L	70	70	1.2	12	4	70	WQCC		
8260D	1,2,4-Trimethylbenzene	95-63-6	µg/L					56	56	RSL	nc	
8260D	1,2-Dibromo-3-Chloropropane	96-12-8	µg/L	0.2		0.00033	0.0033	0.37	0.2	MCL		
8260D	1,2-Dibromoethane	106-93-4	µg/L	0.05		0.0075	0.075	17	0.05	MCL		
8260D	1,2-Dichlorobenzene	95-50-1	µg/L	600	600			300	600	WQCC		
8260D	1,2-Dichloroethane	107-06-2	µg/L	5	5	0.17	1.7	13	5	WQCC		
8260D	1,3,5-Trimethylbenzene	108-67-8	µg/L					60	60	RSL	nc	
8260D	1,3-Dichlorobenzene *(Surrogate Dichlorobenzene, 1,4)*	541-73-1	µg/L	75	75	0.48	4.8	570	75	MCL		
8260D	1,3-Dichloropropane	142-28-9	µg/L					370	370	RSL	nc	
8260D	1,4-Dichlorobenzene	106-46-7	µg/L	75	75	0.48	4.8	570	75	WQCC		
8260D	2,2-Dichloropropane *(Surrogate dichloropropane, 1,2)*	594-20-7	µg/L	5		0.85	8.5	8.2	5	MCL		
8260D	2-Butanone (MEK)	78-93-3	µg/L					5,600	5,600	RSL	nc	
8260D	2-Chlorotoluene	95-49-8	µg/L					240	240	RSL	nc	
8260D	2-Hexanone	591-78-6	µg/L					38	38	RSL	nc	
8260D	4-Chlorotoluene	106-43-4	µg/L					250	250	RSL	nc	
8260D	4-Methyl-2-pentanone (MIBK)	108-10-1	µg/L					6,300	6,300	RSL	nc	methyl isobutyl ketone
8260D	Acetone	67-64-1	µg/L					18,000	18,000	RSL	nc	
8260D	Benzene	71-43-2	µg/L	5	5	0.46	4.6	33	5	WQCC		
8260D	Bromobenzene	108-86-1	µg/L					62	62	RSL	nc	
8260D	Bromochloromethane	74-97-5	µg/L					83	83	RSL	nc	
8260D	Bromodichloromethane	75-27-4	µg/L	80		0.13	1.3	150	80	MCL		
8260D	Bromoform	75-25-2	µg/L	80		3.3	33	380	80	MCL		
8260D	Bromomethane	74-83-9	µg/L					7.5	7.5	RSL	nc	
8260D	Carbon disulfide	75-15-0	µg/L					810	810	RSL	nc	
8260D	Carbon tetrachloride	56-23-5	µg/L	5	5	0.46	4.6	49	5	WQCC		
8260D	Chlorobenzene	108-90-7	µg/L	100				78	100	MCL		
8260D	Chloroethane	75-00-3	µg/L					8,300	8,300	RSL	nc	
8260D	Chloroform	67-66-3	µg/L	80	100	0.22	2.2	97	80	MCL		

TABLE 3-1: GROUNDWATER LABORATORY ANALYSIS AND RISK EVALUATION CRITERIA
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

METHOD	ANALYTE	CAS	UNITS	EPA MCL [1]	20.6.2 NMAC NM WQCC [2]	Nov. 2023 EPA RSL CANCER TAP WATER (target excess cancer risk level of 10^{-6})	Nov. 2023 EPA RSL CANCER TAP WATER (target excess cancer risk level of 10^{-5})	Nov. 2023 EPA RSL NONCANCER TAP WATER (target hazard quotient of 1)	FINAL SELECTED SL [3]	FINAL SELECTED SL REFERENCE	RISK ENDPOINT c/nc	NOTES
8260D	Chloromethane	74-87-3	µg/L					190	190	RSL	nc	
8260D	cis-1,2-Dichloroethene	156-59-2	µg/L	70	70			25	70	WQCC		
8260D	cis-1,3-Dichloropropene *(surrogate Dichloropropene, 1,3)*	10061-01-5	µg/L			0.47	4.7	39	4.7	RSL	c	
8260D	Dibromochloromethane	124-48-1	µg/L	80		0.87	8.7	380	80	MCL		
8260D	Dibromomethane	74-95-3	µg/L					8.3	8.3	RSL	nc	
8260D	Dichlorodifluoromethane	75-71-8	µg/L					200	200	RSL	nc	
8260D	Ethylbenzene	100-41-4	µg/L	700	700	1.5	15	500	700	WQCC		
8260D	Hexachlorobutadiene	87-68-3	µg/L			0.14	1.4	6.5	1.4	RSL	c	8260 and 8270
8260D	Isopropylbenzene	98-82-8	µg/L					450	450	RSL	nc	
8260D	Methyl acetate	79-20-9	µg/L					20,000	20,000	RSL	nc	
8260D	Methyl tert butyl ether	1634-04-4	µg/L		100	14	140	6,300	100	WQCC	c	
8260D	Methylene Chloride	75-09-2	µg/L	5	5	11	110	110	5	MCL		
8260D	m-Xylene & p Xylene	179601-23-1	µg/L					190	190	RSL	nc	
8260D	Naphthalene	91-20-3	µg/L		30	0.12	1.2	6.1	30	WQCC		
8260D	n-Butylbenzene	104-51-8	µg/L					1000	1000	RSL	nc	
8260D	N-Propylbenzene	103-65-1	µg/L					660	660	RSL	nc	
8260D	o-Xylene	95-47-6	µg/L					190	190	RSL	nc	
8260D	sec-Butylbenzene	135-98-8	µg/L					2,000	2,000	RSL	nc	
8260D	Styrene	100-42-5	µg/L	100	100			1,200	100	WQCC		
8260D	tert-Butylbenzene	98-06-6	µg/L					690	690	RSL	nc	
8260D	Toluene	108-88-3	µg/L	1,000	1,000			1,100	1,000	WQCC		
8260D	trans-1,2-Dichloroethene	156-60-5	µg/L	100	100			68	100	WQCC		
8260D	trans-1,3-Dichloropropene *(surrogate Dichloropropene, 1,3)*	10061-02-6	µg/L			0.47	4.7	39	4.7	RSL	c	
8260D	Trichloroethene	79-01-6	µg/L	5	5	0.49	4.9	2.8	5	WQCC		
8260D	Trichlorofluoromethane	75-69-4	µg/L					5,200	5,200	RSL	nc	
8260D	Vinyl chloride	75-01-4	µg/L	2	2	0.019	0.19	44	2	WQCC		
8270E	1,2,4-Trichlorobenzene	120-82-1	µg/L	70	70	1.2	12	4	70	WQCC		
8270E	1,2-Dichlorobenzene	95-50-1	µg/L	600	600			300	600	WQCC		
8270E	1,3-Dichlorobenzene *(Surrogate dichlorobenzene, 1,4)*	541-73-1	µg/L	75	75	0.48	4.8	570	75	WQCC		
8270E	1,4-Dichlorobenzene	106-46-7	µg/L	75	75	0.48	4.8	570	75	WQCC		
8270E	2,2-Oxybis(1-chloropropane)	108-60-1	µg/L					710	710	RSL	nc	bis-(2-chloroisopropyl) ether
8270E	2,4,5-Trichlorophenol	95-95-4	µg/L					1,200	1,200	RSL	nc	

TABLE 3-1: GROUNDWATER LABORATORY ANALYSIS AND RISK EVALUATION CRITERIA
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

METHOD	ANALYTE	CAS	UNITS	EPA MCL [1]	20.6.2 NMAC NM WQCC [2]	Nov. 2023 EPA RSL CANCER TAP WATER (target excess cancer risk level of 10^{-6})	Nov. 2023 EPA RSL CANCER TAP WATER (target excess cancer risk level of 10^{-5})	Nov. 2023 EPA RSL NONCANCER TAP WATER (target hazard quotient of 1)	FINAL SELECTED SL [3]	FINAL SELECTED SL REFERENCE	RISK ENDPOINT c/nc	NOTES
8270E	2,4,6-Trichlorophenol	88-06-2	µg/L			4.1	41	12	12	RSL	nc	
8270E	2,4-Dichlorophenol	120-83-2	µg/L					46	46	RSL	nc	
8270E	2,4-Dimethylphenol	105-67-9	µg/L					360	360	RSL	nc	
8270E	2,4-Dinitrophenol	51-28-5	µg/L					39	39	RSL	nc	
8270E	2,4-Dinitrotoluene	121-14-2	µg/L			0.24	2.4	38	2.4	RSL	c	
8270E	2,6-Dinitrotoluene	606-20-2	µg/L			0.049	0.49	5.7	0.49	RSL	c	8270 and 8330
8270E	2-Chloronaphthalene	91-58-7	µg/L					750	750	RSL	nc	
8270E	2-Chlorophenol	95-57-8	µg/L					91	91	RSL	nc	
8270E	2-Methylnaphthalene	91-57-6	µg/L		30			36	30	WQCC		
8270E	2-Methylphenol	95-48-7	µg/L					930	930	RSL	nc	
8270E	2-Nitroaniline	88-74-4	µg/L					190	190	RSL	nc	
8270E	2-Nitrophenol	88-75-5	µg/L						NS			
8270E	4-Methylphenol	106-44-5	µg/L					370	370	RSL	nc	4-methylphenol (**)
8270E	3,3-Dichlorobenzidine	91-94-1	µg/L			0.13	1.3		1.3	RSL	c	
8270E	3-Nitroaniline *(Surrogate 4-nitroaniline)*	99-09-2	µg/L			3.8	38	78	38	RSL	c	
8270E	4,6-Dinitro-2-methylphenol	534-52-1	µg/L					1.5	1.5	RSL	nc	
8270E	4-Bromophenyl phenyl ether	101-55-3	µg/L						NS			
8270E	4-Chloro-3-methylphenol	59-50-7	µg/L					1,400	1,400	RSL	nc	
8270E	4-Chloroaniline	106-47-8	µg/L			0.37	3.7	9.5	3.7	RSL	c	
8270E	4-Chlorophenyl phenyl ether	7005-72-3	µg/L						NS			
8270E	4-Nitroaniline	100-01-6	µg/L			3.8	38	78	38	RSL	c	
8270E	4-Nitrophenol *(Surrogate 2-chlorophenol)*	100-02-7	µg/L					91	91	RSL	nc	
8270E	Acenaphthene	83-32-9	µg/L					530	530	RSL	nc	
8270E	Acenaphthylene *(surrogate Pyrene)*	208-96-8	µg/L					120	120	RSL	nc	
8270E	Anthracene	120-12-7	µg/L					1,800	1,800	RSL	nc	
8270E	Benzaldehyde	100-52-7	µg/L			19	190	1,900	190	RSL	c	
8270E	Benzo[a]anthracene	56-55-3	µg/L			0.03	0.3		0.3	RSL	c	
8270E	Benzo[a]pyrene	50-32-8	µg/L	0.2	0.2	0.025	0.25	6	0.2	WQCC		
8270E	Benzo[b]fluoranthene	205-99-2	µg/L			0.25	2.5		2.5	RSL	c	
8270E	Benzo[g,h,i]perylene *(surrogate Pyrene)*	191-24-2	µg/L					120	120	RSL	nc	
8270E	Benzo[k]fluoranthene	207-08-9	µg/L			2.5	25		25	RSL	c	
8270E	bis-(2-Chloroethoxy)methane	111-91-1	µg/L					59	59	RSL	nc	
8270E	bis-(2-Chloroethyl)ether	111-44-4	µg/L			0.014	0.14		0.14	RSL	c	

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Fort Wingate Depot Activity, New Mexico

METHOD	ANALYTE	CAS	UNITS	EPA MCL [1]	20.6.2 NMAC NM WQCC [2]	Nov. 2023 EPA RSL CANCER TAP WATER (target excess cancer risk level of 10^{-6})	Nov. 2023 EPA RSL CANCER TAP WATER (target excess cancer risk level of 10^{-5})	Nov. 2023 EPA RSL NONCANCER TAP WATER (target hazard quotient of 1)	FINAL SELECTED SL [3]	FINAL SELECTED SL REFERENCE	RISK ENDPOINT c/nc	NOTES
8270E	bis-(2-Ethylhexyl)phthalate	117-81-7	µg/L	6		5.6	56	400	6	MCL		
8270E	Butyl benzyl phthalate	85-68-7	µg/L			16	160	1,700	160	RSL	c	
8270E	Caprolactam	105-60-2	µg/L					9,900	9,900	RSL	nc	
8270E	Carbazole *(Surrogate fluorene)*	86-74-8	µg/L					290	290	RSL	nc	
8270E	Chrysene	218-01-9	µg/L			25	250		250	RSL	c	
8270E	Dibenz(a,h)anthracene	53-70-3	µg/L			0.025	0.25		0.25	RSL	c	
8270E	Dibenzofuran	132-64-9	µg/L					7.9	7.9	RSL	nc	
8270E	Diethyl phthalate	84-66-2	µg/L					15,000	15,000	RSL	nc	
8270E	Dimethyl phthalate	131-11-3	µg/L						NS			
8270E	Di-n-butyl phthalate	84-74-2	µg/L					900	900	RSL	nc	
8270E	Di-n-octyl phthalate	117-84-0	µg/L					200	200	RSL	nc	
8270E	Fluoranthene	206-44-0	µg/L					800	800	RSL	nc	
8270E	Fluorene	86-73-7	µg/L					290	290	RSL	nc	
8270E	Hexachlorobenzene	118-74-1	µg/L	1		0.0098	0.098	0.2	1	MCL		
8270E	Hexachlorobutadiene	87-68-3	µg/L			0.14	1.4	6.5	1.4	RSL	c	8260 and 8270
8270E	Hexachlorocyclopentadiene	77-47-4	µg/L	50				0.41	50	MCL		
8270E	Hexachloroethane	67-72-1	µg/L			0.33	3.3	6.2	3.3	RSL	c	
8270E	Indeno(1,2,3-cd)pyrene	193-39-5	µg/L			0.25	2.5		2.5	RSL	c	
8270E	Isophorone	78-59-1	µg/L			78	780	3,800	780	RSL	c	
8270E	Naphthalene	91-20-3	µg/L		30	0.12	1.2	6.1	30	WQCC		
8270E	Nitrobenzene	98-95-3	µg/L			0.14	1.4	13	1.4	RSL	c	
8270E	N-Nitrosodimethylamine	62-75-9	µg/L			0.00011	0.0011	0.055	0.0011	RSL	c	
8270E	N-Nitrosodi-n-propylamine	621-64-7	µg/L			0.011	0.11		0.11	RSL	c	
8270E	N-Nitrosodiphenylamine	86-30-6	µg/L			12	120		120	RSL	c	
8270E	Pentachlorophenol	87-86-5	µg/L	1	1	0.041	0.41	23	1	WQCC		
8270E	Phenanthrene	85-01-8	µg/L						170	NMED RAG[4]		
8270E	Phenol	108-95-2	µg/L		5			5,800	5	WQCC		
8270E	Pyrene	129-00-0	µg/L					120	120	RSL	nc	
8270SIM	2-Methylnaphthalene	91-57-6	µg/L		30			36	30	WQCC		
8270SIM	Acenaphthene	83-32-9	µg/L					530	530	RSL	nc	
8270SIM	Acenaphthylene *(surrogate Pyrene)*	208-96-8	µg/L					120	120	RSL	nc	
8270SIM	Anthracene	120-12-7	µg/L					1,800	1,800	RSL	nc	
8270SIM	Benzo[a]anthracene	56-55-3	µg/L			0.03	0.3		0.3	RSL	c	
8270SIM	Benzo[a]pyrene	50-32-8	µg/L	0.2	0.2	0.025	0.25	6	0.2	WQCC		

TABLE 3-1: GROUNDWATER LABORATORY ANALYSIS AND RISK EVALUATION CRITERIA
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

METHOD	ANALYTE	CAS	UNITS	EPA MCL [1]	20.6.2 NMAC NM WQCC [2]	Nov. 2023 EPA RSL CANCER TAP WATER (target excess cancer risk level of 10^{-6})	Nov. 2023 EPA RSL CANCER TAP WATER (target excess cancer risk level of 10^{-5})	Nov. 2023 EPA RSL NONCANCER TAP WATER (target hazard quotient of 1)	FINAL SELECTED SL [3]	FINAL SELECTED SL REFERENCE	RISK ENDPOINT c/nc	NOTES
8270SIM	Benzo[b]fluoranthene	205-99-2	µg/L			0.25	2.5		2.5	RSL	c	
8270SIM	Benzo[g,h,i]perylene *(surrogate Pyrene)*	191-24-2	µg/L					120	120	RSL	nc	
8270SIM	Benzo[k]fluoranthene	207-08-9	µg/L			2.5	25		25	RSL	c	
8270SIM	Chrysene	218-01-9	µg/L			25	250		250	RSL	c	
8270SIM	Dibenz(a,h)anthracene	53-70-3	µg/L			0.025	0.25		0.25	RSL	c	
8270SIM	Fluoranthene	206-44-0	µg/L					800	800	RSL	nc	
8270SIM	Fluorene	86-73-7	µg/L					290	290	RSL	nc	
8270SIM	Indeno(1,2,3-cd)pyrene	193-39-5	µg/L			0.25	2.5		2.5	RSL	c	
8270SIM	Naphthalene	91-20-3	µg/L		30	0.12	1.2	6.1	30	WQCC		
8270SIM	Phenanthrene	85-01-8	µg/L						170	NMED RAG[4]		
8270SIM	Pyrene	129-00-0	µg/L					120	120	RSL	nc	
8330B	1,3,5-Trinitrobenzene	99-35-4	µg/L					590	590	RSL	nc	1,3,5-TNB
8330B	1,3-Dinitrobenzene	99-65-0	µg/L					2	2	RSL	nc	1,3-DNB
8330B	2,4,6-Trinitrotoluene	118-96-7	µg/L			2.5	25	9.8	9.8	RSL	nc	
8330B	2,4-Dinitrotoluene	121-14-2	µg/L			0.24	2.4	38	2.4	RSL	c	2,4-DNT
8330B	2,6-Dinitrotoluene	606-20-2	µg/L			0.049	0.49	5.7	0.49	RSL	c	8270 and 8330, 2,6-DNT
8330B	2-Amino-4,6-dinitrotoluene	35572-78-2	µg/L					1.9	1.9	RSL	nc	2-AM-4,6-DNT
8330B	4-Amino-2,6-dinitrotoluene	19406-51-0	µg/L					1.9	1.9	RSL	nc	4-AM-2,6-DNT
8330B	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	2691-41-0	µg/L					1,000	1,000	RSL	nc	
8330B	m-Nitrotoluene	99-08-01	µg/L					1.7	1.7	RSL	nc	3-nitrotoluene
8330B	Nitrobenzene	98-95-3	µg/L			0.14	1.4	13	1.4	RSL	c	
8330B	Nitroglycerin	55-63-0	µg/L			4.5	45	2	2	RSL	nc	
8330B	o-Nitrotoluene	88-72-2	µg/L			0.31	3.1	16	3.1	RSL	c	2-nitrotoluene
8330B	Pentaerythritol tetranitrate (PETN)	78-11-5	µg/L			17	170	170	170	RSL	nc	
8330B	p-Nitrotoluene	99-99-0	µg/L			4.3	43	71	43	RSL	c	4-nitrotoluene
8330B	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	µg/L			0.97	9.7	80	9.7	RSL	c	
8330B	Trinitrophenylmethylnitramine (Tetryl)	479-45-8	µg/L					39	39	RSL	nc	
9056A	Nitrate as N	14797-55-8	mg/L	10	10			32	10	WQCC		
9056A	Nitrite as N	14797-65-0	mg/L	1	1			2	1	MCL		
9056A	Fluoride	16984-48-8	mg/L	4	1.6			800	1.6	WQCC		
9056A	Chloride	16887-00-6	mg/L		250				250	WQCC		

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9056A	Sulfate	14808-79-8	mg/L		600				600	WQCC		
365.1	Phosphate	14265-44-2	mg/L									
9056A	Bromide	24959-67-9	mg/L									
8081B	4,4-DDD	72-54-8	µg/L			0.032	0.32	1.1	0.32	RSL	c	
8081B	4,4-DDE	72-55-9	µg/L			0.046	0.46	10	0.46	RSL	c	
8081B	4,4-DDT	50-29-3	µg/L			0.23	2.3	10	2.3	RSL	c	
8081B	Aldrin	309-00-2	µg/L			0.00092	0.0092	0.6	0.0092	RSL	c	
8081B	alpha-BHC	319-84-6	µg/L			0.0072	0.072		0.072	RSL	c	
8081B	alpha-Chlordane	5103-71-9	µg/L	2				3.6	2	MCL		
8081B	beta-BHC	319-85-7	µg/L			0.025	0.25		0.25	RSL	c	
8081B	delta-BHC *(surrogate beta-BHC)*	319-86-8	µg/L			0.025	0.25		0.25	RSL	c	
8081B	Dieldrin	60-57-1	µg/L			0.0018	0.018	0.38	0.018	RSL	c	
8081B	Endosulfan I (surrogate endosulfan)	959-98-8	µg/L					100	100	RSL	nc	
8081B	Endosulfan II (surrogate endosulfan)	33213-65-9	µg/L					100	100	RSL	nc	
8081B	Endosulfan sulfate (surrogate endosulfan)	1031-07-8	µg/L					110	110	RSL	nc	
8081B	Endrin	72-20-8	µg/L	2				2.3	2	MCL		
8081B	Endrin aldehyde *(surrogate Endrin)*	7421-93-4	µg/L	2				2.3	2	MCL		
8081B	Endrin ketone *(surrogate Endrin)*	53494-70-5	µg/L	2				2.3	2	MCL		
8081B	gamma-BHC (Lindane)	58-89-9	µg/L	0.2		0.042	0.42	3.6	0.2	MCL		
8081B	gamma-Chlordane	5103-74-2	µg/L	2				10	2	MCL		
8081B	Heptachlor	76-44-8	µg/L	0.4		0.0014	0.014	0.26	0.4	MCL		
8081B	Heptachlor epoxide	1024-57-3	µg/L	0.2		0.0014	0.014	0.12	0.2	MCL		
8081B	Methoxychlor	72-43-5	µg/L	40				37	40	MCL		
8081B	Toxaphene	8001-35-2	µg/L	3		0.071	0.71	1.8	3	MCL		
8082A	PCBs, Total	1336-36-3	µg/L	0.5	0.5				0.5	WQCC		
8082A	PCB-1016	12674-11-2	µg/L			0.22	2.2	1.4	1.4	RSL	nc	
8082A	PCB-1221	11104-28-2	µg/L			0.0047	0.047		0.047	RSL	c	
8082A	PCB-1232	11141-16-5	µg/L			0.0047	0.047		0.047	RSL	c	
8082A	PCB-1242	53469-21-9	µg/L			0.0078	0.078		0.078	RSL	c	
8082A	PCB-1248	12672-29-6	µg/L			0.0078	0.078		0.078	RSL	c	
8082A	PCB-1254	11097-69-1	µg/L			0.0078	0.078	0.4	0.078	RSL	c	
8082A	PCB-1260	11096-82-5	µg/L			0.0078	0.078		0.078	RSL	c	

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8321B	2,4-D	94-75-7	µg/L	70				170	70	MCL		
8321B	2,4-DB	94-82-6	µg/L						NS			
8321B	2,4,5-T	93-76-5	µg/L					160	160	RSL	nc	
8321B	2,4,5-TP (Silvex)	93-72-1	µg/L	50				110	50	MCL		
8321B	Dalapon	75-99-0	µg/L	200				600	200	MCL		
8321B	Dicamba	1918-00-9	µg/L					570	570	RSL	nc	
8321B	Dichloroprop	120-36-5	µg/L						NS			
8321B	Dinoseb	88-85-7	µg/L	7				15	7	MCL		
8321B	MCPA	94-74-6	µg/L					7.5	7.5	RSL	nc	

NOTES:

1 Fort Wingate Depot Activity (FWDA) Cleanup Standard by U.S. Environmental Protection Agency (EPA), Drinking Water Primary Maximum Contaminant Level (MCL) per 40 Code of Federal Regulations Sections 141 and 143.

2 FWDA Cleanup Standard by New Mexico Water Quality Control Commission (NM WQCC) standards per 20 New Mexico Administrative Code § 6.2.4103.

3 Final selected screening level was based on the lowest of the NM WQCC and the EPA MCL. If none, then EPA Tap Water RSL was selected. If the analyte does not have a published NM WQCC or MCL but has RSLs listed for both carcinogenic risks and non-carcinogenic hazards, the lower value between the adjusted carcinogenic RSL (target excess cancer risk level of 1 x 10-5) and the non-carcinogenic RSL (with a target hazard index of 1.0) is selected.

4 Screening level based on New Mexico Environment Department (NMED) Risk Assessment Guidance for Site Investigations and Remediation, Vol 1, November 2022.

5 Analyte is considered an essential nutrient and risk is not evaluated.

ABBREVIATIONS & ACRONYMS:

µg/L = micrograms per liter
c = carcinogenic risk endpoint
CAS = Chemical Abstract Service registry number
GW = Groundwater
MCL = U.S. Environmental Protection Agency
mg/L = milligrams per liter
NA = not applicable
nc = non-carcinogenic risk endpoint
NS = no standard
RSL = U.S. Environmental Protection Agency Regional Screening Level - Tap water screening level with cancer risk adjusted to $1x10^{-5}$
SL = Screening Level
WQCC = New Mexico Water Quality Control Commission standard

TABLE 3-2: SOIL LABORATORY ANALYSIS AND RISK EVALUATION CRITERIA

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

METHOD[1]	ANALYTE	CAS	UNITS	NMED Table A-1 and Table 6-2 Human Health Screening Levels Direct Contact (2)						Lowest Human Health Screening Level Direct Contact (4)	Lowest Human Health Screening Level Direct Contact Source (4)	Human Health Screening Levels - Groundwater Protection			Lowest Human Health Screening Level for Risk Screening Evaluation (6, 7)	Lowest Human Health Screening Level for Risk Screening Evaluation Source
				Residential		Industrial/ Occupational		Construction Worker				NMED Table A-3 and Table 6-4 Risk-based SSL (5)	NMED Table A-3 NMGW/MCL based SSL (5)	EPA-RSL Calculator Risk-based SSL (6)		
				cancer	noncancer	cancer	noncancer	cancer	noncancer			DAF = 20	DAF = 20	adjusted to DAF = 20		
6020B	Aluminum	7429-90-5	mg/kg	NS	78,000	NS	1,290,000	NS	41,400	41,400	NMED SSL	597,000	NS		41,400	HH SL
6020B	Calcium	7440-70-2	mg/kg	NS	13,000,000	NS	32,400,000	NS	8,850,000	8,850,000	NMED SSL	NS	NS	NS	8,850,000	HH SL
6020B	Iron	7439-89-6	mg/kg	NS	54,800	NS	908,000	NS	248,000	54,800	NMED SSL	6,960	NS	-	22,660	Background
6020B	Magnesium	7439-95-4	mg/kg	NS	15,600,000	NS	5,680,000	NS	1,550,000	1,550,000	NMED SSL	NS	NS	NS	1,550,000	HH SL
6020B	Potassium	7440-09-7	mg/kg	NS	15,600,000	NS	76,200,000	NS	20,800,000	15,600,000	NMED SSL	NS	NS	NS	15,600,000	HH SL
6020B	Sodium	7440-23-5	mg/kg	NS	7,820,000	NS	37,300,000	NS	10,200,000	7,820,000	NMED SSL	NS	NS	NS	7,820,000	HH SL
6020B	Antimony	7440-36-0	mg/kg	NS	31.3	NS	519	NS	142	31.3	NMED SSL	6.56	5.42	-	6.56	Soil to GW SL
6020B	Arsenic	7440-38-2	mg/kg	7.07	13	35.9	208	216	41.2	7.07	NMED SSL	0.499	5.83	-	5.6	Background
6020B	Barium	7440-39-3	mg/kg	NS	15,600	NS	255,000	NS	4,390	4390	NMED SSL	2,700	1,650	-	2,700	Soil to GW SL
6020B	Beryllium	7440-41-7	mg/kg	64,400	156	313,000	2,580	2,710	148	148	NMED SSL	196	63.2	-	148	HH SL
6020B	Cadmium	7440-43-9	mg/kg	85,900	70.5	417,000	1,110	3,610	72.1	70.5	NMED SSL	9.39	7.52	-	9.39	Soil to GW SL
6020B	Chromium	7440-47-3	mg/kg	96.6	45,200	505	314,000	468	134	96.6	NMED SSL	205,000	3,600	-	96.6	HH SL
6020B	Cobalt	7440-48-4	mg/kg	17,200	23.4	83,400	388	722	36.7	23.4	NMED SSL	5.4	NS	-	6.82	Background
6020B	Copper	7440-50-8	mg/kg	NS	3,130	NS	51,900	NS	14,200	3,130	NMED SSL	556	915	-	915	Soil to GW SL
6020B	Lead	7439-92-1	mg/kg	NS	NS	NS	NS	NS	NS	200	EPA RSL	NS	270	-	200	HH SL
6020B	Manganese	7439-96-5	mg/kg	NS	10,500	NS	160,000	NS	464	464	NMED SSL	2,630	NS	-	1,058	Background
6020B	Nickel	7440-02-0	mg/kg	595,000	1,560	2,890,000	25,700	25,000	753	753	NMED SSL	485	NS	-	485	Soil to GW SL
6020B	Selenium	7782-49-2	mg/kg	NS	391	NS	6,490	NS	1,750	391	NMED SSL	10.2	5.17	-	10.2	Soil to GW SL
6020B	Silver	7440-22-4	mg/kg	NS	391	NS	6,490	NS	1,770	391	NMED SSL	13.8	NS	-	13.8	Soil to GW SL
6020B	Thallium	7440-28-0	mg/kg	NS	0.782	NS	13	NS	3.54	0.782	NMED SSL	0.281	2.85	-	0.782	HH SL
6020B	Vanadium	7440-62-2	mg/kg	NS	394	NS	6,530	NS	614	394	NMED SSL	1,260	NS	-	394	HH SL
6020B	Zinc	7440-66-6	mg/kg	NS	23,500	NS	389,000	NS	106,000	23,500	NMED SSL	7,410	NS	-	7,410	Soil to GW SL
6850	Perchlorate	14797-73-0	mg/kg	NS	54.8	NS	908	NS	248	54.8	NMED SSL	0.117	0.0127	-	0.117	Soil to GW SL
7470A/ 7471B	Mercury	7439-97-6	mg/kg	NS	23.8	NS	112	NS	20.7	20.7	NMED SSL	0.654	2.09	-	2.09	Soil to GW SL
8015D	Diesel Range Organics (DRO) [C10 C28]	68334-30-5	mg/kg	NS	1,000	NS	3,000	NS	3,000	1000	NMED SSL	13.2	NS	-	13.2	Soil to GW SL
8015D	Gasoline Range Organics (GRO) [C6 C10]	8006-61-9	mg/kg	NS	100	NS	500	NS	500	100	NMED SSL	4.94	NS	-	4.94	Soil to GW SL
8260D	1,1,1,2-Tetrachloroethane	630-20-6	mg/kg	28.1	2,350	137	38,900	659	10,600	28.1	NMED SSL	0.036	NS	-	0.036	Soil to GW SL
8260D	1,1,1-Trichloroethane	71-55-6	mg/kg	NS	14,400	NS	72,500	NS	13,600	13,600	NMED SSL	51.1	1.28	-	51.1	Soil to GW SL
8260D	1,1,2,2-Tetrachloroethane	79-34-5	mg/kg	7.98	1,560	39.4	26,000	197	7,080	7.98	NMED SSL	0.00481	NS	-	0.00481	Soil to GW SL
8260D	1,1,2-Trichloroethane	79-00-5	mg/kg	18.8	2.61	92.1	12.4	4,300	2.3	2.3	NMED SSL	0.00223	0.0268	-	0.0268	Soil to GW SL
8260D	1,1-Dichloroethane	75-34-3	mg/kg	78.6	15,600	383	260,000	1,820	70,800	78.6	NMED SSL	0.136	NS	-	0.136	Soil to GW SL
8260D	1,1-Dichloroethene	75-35-4	mg/kg	NS	440	NS	2260	NS	424	424	NMED SSL	1.95	0.0479	-	1.95	Soil to GW SL
8260D	1,1-Dichloropropene *(surrogate Dichloropropene, 1,3)*	563-58-6	mg/kg	29.3	141	146	695	781	130	29.3	NMED SSL	0.0281	NS	-	0.0281	Soil to GW SL

TABLE 3-2: SOIL LABORATORY ANALYSIS AND RISK EVALUATION CRITERIA

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

METHOD[1]	ANALYTE	CAS	UNITS	NMED Table A-1 and Table 6-2 Human Health Screening Levels Direct Contact (2)						Lowest Human Health Screening Level Direct Contact (4)	Lowest Human Health Screening Level Direct Contact Source (4)	Human Health Screening Levels - Groundwater Protection			Lowest Human Health Screening Level for Risk Screening Evaluation (6, 7)	Lowest Human Health Screening Level for Risk Screening Evaluation Source
				Residential		Industrial/ Occupational		Construction Worker				NMED Table A-3 and Table 6-4 Risk-based SSL (5)	NMED Table A-3 NMGW/MCL based SSL (5)	EPA-RSL Calculator Risk-based SSL (6)		
				cancer	noncancer	cancer	noncancer	cancer	noncancer			DAF = 20	DAF = 20	adjusted to DAF = 20		
8260D	1,2,3-Trichlorobenzene	87-61-6	mg/kg	NS	NS	NS	NS	NS	NS	63	EPA RSL	NS	NS	0.418	0.418	Soil to GW SL
8260D	1,2,3-Trichloropropane	96-18-4	mg/kg	0.051	7.09	1.21	34	8.26	6.31	0.051	NMED SSL	0.0000582	NS	-	0.0000582	Soil to GW SL
8260D	1,2,4-Trichlorobenzene	120-82-1	mg/kg	240	82.9	1,250	423	8,540	79.1	79.1	NMED SSL	0.176	3.1	-	3.1	Soil to GW SL
8260D	1,2,4-Trimethylbenzene	95-63-6	mg/kg	NS	NS	NS	NS	NS	NS	300	EPA RSL	NS	NS	1.62	1.62	Soil to GW SL
8260D	1,2-Dibromo-3-Chloropropane	96-12-8	mg/kg	0.0858	5.88	1.18	41.1	5.53	8.29	0.0858	NMED SSL	0.0000233	0.00139	-	0.00139	Soil to GW SL
8260D	1,2-Dibromoethane	106-93-4	mg/kg	0.672	135	3.31	738	16.3	140	0.672	NMED SSL	0.000352	0.000236	-	0.000352	Soil to GW SL
8260D	1,2-Dichlorobenzene	95-50-1	mg/kg	NS	2,150	NS	13,000	NS	2,500	2,150	NMED SSL	4.58	9.08	-	9.08	Soil to GW SL
8260D	1,2-Dichloroethane	107-06-2	mg/kg	8.32	55.6	40.7	286	195	53.8	8.32	NMED SSL	0.00814	0.0238	-	0.0238	Soil to GW SL
8260D	1,3,5-Trimethylbenzene	108-67-8	mg/kg	NS	NS	NS	NS	NS	NS	270	EPA RSL	NS	NS	1.73	1.73	Soil to GW SL
8260D	1,3-Dichlorobenzene *(Surrogate Dichlorobenzene, 1,4)*	541-73-1	mg/kg	1,290	5,480	6,730	90,800	45,900	24,800	1,290	NMED SSL	0.072	1.12	-	1.12	Soil to GW SL
8260D	1,3-Dichloropropane	142-28-9	mg/kg	NS	NS	NS	NS	NS	NS	1,600	EPA RSL	NS	NS	2.57	0.0277	Soil to GW SL
8260D	1,4-Dichlorobenzene	106-46-7	mg/kg	1,290	5,480	6,730	90,800	45,900	24,800	1,290	NMED SSL	0.072	1.12	-	1.12	Soil to GW SL
8260D	2,2-Dichloropropane *(Surrogate dichloropropane, 1,2)*	594-20-7	mg/kg	17.8	29	86.8	137	415	25.4	17.8	NMED SSL	0.0243	0.0277	-	0.0277	Soil to GW SL
8260D	2-Butanone (MEK)	78-93-3	mg/kg	NS	37,400	NS	411,000	NS	91,700	37,400	NMED SSL	20.1	NS	-	20.1	Soil to GW SL
8260D	2-Chlorotoluene	95-49-8	mg/kg	NS	1,560	NS	26,000	NS	7,080	1,560	NMED SSL	3.56	NS	-	3.56	Soil to GW SL
8260D	2-Hexanone	591-78-6	mg/kg	NS	NS	NS	NS	NS	NS	200	EPA RSL	NS	NS	0.175	0.175	Soil to GW SL
8260D	4-Chlorotoluene	106-43-4	mg/kg	NS	NS	NS	NS	NS	NS	1,600	EPA RSL	NS	NS	4.83	4.83	Soil to GW SL
8260D	4-Methyl-2-pentanone (MIBK)	108-10-1	mg/kg	NS	5,810	NS	81,600	NS	20,200	5,810	NMED SSL	4.8	NS	-	4.8	Soil to GW SL
8260D	Acetone	67-64-1	mg/kg	NS	66,300	NS	960,000	NS	242,000	66,300	NMED SSL	49.8	NS	-	49.8	Soil to GW SL
8260D	Benzene	71-43-2	mg/kg	17.8	114	87.2	729	423	142	17.8	NMED SSL	0.038	0.0418	-	0.0418	Soil to GW SL
8260D	Bromobenzene	108-86-1	mg/kg	NS	NS	NS	NS	NS	NS	290	EPA RSL	NS	NS	0.842	0.842	Soil to GW SL
8260D	Bromochloromethane	74-97-5	mg/kg	NS	NS	NS	NS	NS	NS	150	EPA RSL	NS	NS	0.415	0.415	Soil to GW SL
8260D	Bromodichloromethane	75-27-4	mg/kg	6.19	1,560	30.2	26,000	143	7,080	6.19	NMED SSL	0.00621	NS	-	0.00621	Soil to GW SL
8260D	Bromoform	75-25-2	mg/kg	674	1,230	1,760	18,300	23,700	5,380	674	NMED SSL	0.147	NS	-	0.147	Soil to GW SL
8260D	Bromomethane	74-83-9	mg/kg	NS	17.7	NS	94.5	NS	17.9	17.7	NMED SSL	0.0343	NS	-	0.0343	Soil to GW SL
8260D	Carbon disulfide	75-15-0	mg/kg	NS	1,550	NS	8,540	NS	1,620	1,550	NMED SSL	4.42	NS	-	4.42	Soil to GW SL
8260D	Carbon tetrachloride	56-23-5	mg/kg	10.7	144	52.5	1,020	252	202	10.7	NMED SSL	0.0334	0.0367	-	0.0367	Soil to GW SL
8260D	Chlorobenzene	108-90-7	mg/kg	NS	378	NS	2,160	NS	412	378	NMED SSL	0.836	1.08	-	1.08	Soil to GW SL
8260D	Chloroethane	75-00-3	mg/kg	NS	19,000	NS	89,500	NS	16,600	16,600	NMED SSL	107	NS	-	107	Soil to GW SL
8260D	Chloroform	67-66-3	mg/kg	5.9	306	28.7	2,000	134	391	5.9	NMED SSL	0.0109	NS	-	0.0109	Soil to GW SL
8260D	Chloromethane	74-87-3	mg/kg	41.1	268	201	1,260	956	235	41.1	NMED SSL	0.0952	NS	-	0.0952	Soil to GW SL
8260D	cis-1,2-Dichloroethene	156-59-2	mg/kg	NS	156	NS	2,600	NS	708	156	NMED SSL	0.184	0.352	-	0.352	Soil to GW SL
8260D	cis-1,3-Dichloropropene *(surrogate Dichloropropene, 1,3)*	10061-01-5	mg/kg	29.3	141	146	695	781	130	29.3	NMED SSL	0.0281	NS	-	0.0281	Soil to GW SL
8260D	Dibromochloromethane	124-48-1	mg/kg	13.9	1,230	67.4	18,300	340	5,380	13.9	NMED SSL	0.00755	NS	-	0.00755	Soil to GW SL
8260D	Dibromomethane	74-95-3	mg/kg	NS	57.9	NS	288	NS	53.9	53.9	NMED SSL	0.0335	NS	-	0.0335	Soil to GW SL
8260D	Dichlorodifluoromethane	75-71-8	mg/kg	NS	182	NS	865	NS	161	161	NMED SSL	7.23	NS	-	7.23	Soil to GW SL
8260D	Ethylbenzene	100-41-4	mg/kg	75.1	3,930	368	29,000	1770	5,800	75.1	NMED SSL	0.264	12.3	-	12.3	Soil to GW SL
8260D	Hexachlorobutadiene	87-68-3	mg/kg	68.3	61.6	52.1	916	2400	269	52.1	NMED SSL	0.0413	NS	-	0.0413	Soil to GW SL
8260D	Isopropylbenzene	98-82-8	mg/kg	NS	2,360	NS	14,200	NS	2,740	2,360	NMED SSL	11.4	NS	-	11.4	Soil to GW SL

TABLE 3-2: SOIL LABORATORY ANALYSIS AND RISK EVALUATION CRITERIA
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

METHOD[1]	ANALYTE	CAS	UNITS	NMED Table A-1 and Table 6-2 Human Health Screening Levels Direct Contact (2)						Lowest Human Health Screening Level Direct Contact (4)	Lowest Human Health Screening Level Direct Contact Source (4)	Human Health Screening Levels - Groundwater Protection			Lowest Human Health Screening Level for Risk Screening Evaluation (6, 7)	Lowest Human Health Screening Level for Risk Screening Evaluation Source
				Residential		Industrial/ Occupational		Construction Worker				NMED Table A-3 and Table 6-4 Risk-based SSL (5)	NMED Table A-3 NMGW/MCL based SSL (5)	EPA-RSL Calculator Risk-based SSL (6)		
				cancer	noncancer	cancer	noncancer	cancer	noncancer			DAF = 20	DAF = 20	adjusted to DAF = 20		
8260D	Methyl tert butyl ether	1634-04-4	mg/kg	975	37,800	4,820	178,000	24,200	33100	975	NMED SSL	0.553	NS	-	0.553	Soil to GW SL
8260D	Methylene Chloride	75-09-2	mg/kg	766	409	14400	5130	89,600	1210	409	NMED SSL	0.471	0.0221	-	0.471	Soil to GW SL
8260D	m-Xylene & p Xylene	179601-23-1	mg/kg	NS	871	NS	4,280	NS	798	798	EPA RSL	2.98	154	-	154	Soil to GW SL
8260D	Naphthalene	91-20-3	mg/kg	22.6	162	108	843	633	159	22.6	NMED SSL	0.0583	NS	-	0.0583	Soil to GW SL
8260D	n-Butylbenzene	104-51-8	mg/kg	NS	NS	NS	NS	NS	NS	3,900	EPA RSL	NS	NS	64.6	64.6	Soil to GW SL
8260D	N-Propylbenzene	103-65-1	mg/kg	NS	NS	NS	NS	NS	NS	3,800	EPA RSL	NS	NS	24.5	24.5	Soil to GW SL
8260D	o-Xylene	95-47-6	mg/kg	NS	805	NS	3940	NS	736	736	NMED SSL	2.98	NS	-	2.98	Soil to GW SL
8260D	sec-Butylbenzene	135-98-8	mg/kg	NS	NS	NS	NS	NS	NS	7,800	EPA RSL	NS	NS	117	117	Soil to GW SL
8260D	Styrene	100-42-5	mg/kg	NS	7,260	NS	51,300	NS	10,200	7,260	NMED SSL	20.6	1.71	-	20.6	Soil to GW SL
8260D	tert-Butylbenzene	98-06-6	mg/kg	NS	NS	NS	NS	NS	NS	7,800	EPA RSL	NS	NS	31.1	31.1	Soil to GW SL
8260D	Toluene	108-88-3	mg/kg	NS	5,230	NS	61,300	NS	14,000	5,230	NMED SSL	12.1	11.1	-	12.1	Soil to GW SL
8260D	trans-1,2-Dichloroethene	156-60-5	mg/kg	NS	210	NS	1,100	NS	206	206	NMED SSL	0.342	0.503	-	0.503	Soil to GW SL
8260D	trans-1,3-Dichloropropene *(surrogate Dichloropropene, 1,3)*	10061-02-6	mg/kg	29.3	141	146	695	781	130	29.3	NMED SSL	0.0281	NS	-	0.0281	Soil to GW SL
8260D	Trichloroethene	79-01-6	mg/kg	15.5	6.77	112	36.5	5370	6.9	6.77	NMED SSL	0.0161	0.031	-	0.031	Soil to GW SL
8260D	Trichlorofluoromethane	75-69-4	mg/kg	NS	1,230	NS	6,030	NS	1,130	1,130	NMED SSL	15.7	NS	-	15.7	Soil to GW SL
8260D	Vinyl chloride	75-01-4	mg/kg	0.742	113	28.4	816	161	162	0.742	NMED SSL	0.00217	0.0134	-	0.0134	Soil to GW SL
8270E	1,2,4-Trichlorobenzene	120-82-1	mg/kg	240	82.9	1,250	423	8540	79.1	79.1	NMED SSL	0.176	3.1	-	3.1	Soil to GW SL
8270E	1,2-Dichlorobenzene	95-50-1	mg/kg	NS	2,150	NS	13,000	NS	2,500	2,150	NMED SSL	4.58	9.08	-	9.08	Soil to GW SL
8270E	1,4-Dichlorobenzene	106-46-7	mg/kg	1,290	5,480	6,730	90,800	45,900	24,800	1,290	NMED SSL	0.072	1.12	-	1.12	Soil to GW SL
8270E	2,4,5-Trichlorophenol	95-95-4	mg/kg	NS	6,160	NS	91,600	NS	26,900	6,160	NMED SSL	66.2	NS	-	66.2	Soil to GW SL
8270E	2,4,6-Trichlorophenol	88-06-2	mg/kg	484	61.6	2,330	916	17,000	269	61.6	NMED SSL	0.674	NS	-	0.674	Soil to GW SL
8270E	2,4-Dichlorophenol	120-83-2	mg/kg	NS	185	NS	2,750	NS	807	185	NMED SSL	0.825	NS	-	0.825	Soil to GW SL
8270E	2,4-Dimethylphenol	105-67-9	mg/kg	NS	1,230	NS	18,300	NS	5,380	1,230	NMED SSL	6.45	NS	-	6.45	Soil to GW SL
8270E	2,4-Dinitrophenol	51-28-5	mg/kg	NS	123	NS	1,830	NS	538	123	NMED SSL	0.669	NS	-	0.669	Soil to GW SL
8270E	2,4-Dinitrotoluene	121-14-2	mg/kg	17.1	123	82.3	1,820	600	536	17.1	NMED SSL	0.0492	NS	-	0.0492	Soil to GW SL
8270E	2,6-Dinitrotoluene	606-20-2	mg/kg	3.56	18.5	17.2	276	165	80.9	3.56	NMED SSL	0.0102	NS	-	0.0102	Soil to GW SL
8270E	2-Chloronaphthalene	91-58-7	mg/kg	NS	6,260	NS	104,000	NS	28,300	6,260	NMED SSL	57	NS	-	57	Soil to GW SL
8270E	2-Chlorophenol	95-57-8	mg/kg	NS	391	NS	6,490	NS	1,770	391	NMED SSL	1.15	NS	-	1.15	Soil to GW SL
8270E	2-Methylnaphthalene	91-57-6	mg/kg	NS	232	NS	3,370	NS	1,000	232	NMED SSL	2.76	NS	-	2.76	Soil to GW SL
8270E	2-Methylphenol	95-48-7	mg/kg	NS	NS	NS	NS	NS	NS	3,200	EPA RSL	NS	NS	15.1	15.1	Soil to GW SL
8270E	2-Nitroaniline	88-74-4	mg/kg	NS	NS	NS	NS	NS	NS	630	EPA RSL	NS	NS	1.6	1.6	Soil to GW SL
8270E	2-Nitrophenol	88-75-5	mg/kg	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS	NS	
8270E	4-Methylphenol	106-44-5	mg/kg	NS	NS	NS	NS	NS	NS	1300	EPA RSL	NS	NS	5.94	5.94	Soil to GW SL
8270E	3,3-Dichlorobenzidine	91-94-1	mg/kg	11.8	NS	57	NS	410	NS	11.8	NMED SSL	0.124	NS	-	0.124	Soil to GW SL
8270E	3-Nitroaniline *(Surrogate 4-nitroaniline)*	99-09-2	mg/kg	NS	NS	NS	NS	NS	NS	250	EPA RSL	NS	NS	0.316	0.316	Soil to GW SL
8270E	4,6-Dinitro-2-methylphenol	534-52-1	mg/kg	NS	4.93	NS	73.3	NS	21.5	4.93	NMED SSL	0.0398	NS	-	0.0398	Soil to GW SL
8270E	4-Bromophenyl phenyl ether	101-55-3	mg/kg	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS	NS	
8270E	4-Chloro-3-methylphenol	59-50-7	mg/kg	NS	NS	NS	NS	NS	NS	6,300	EPA RSL	NS	NS	34.3	34.3	Soil to GW SL
8270E	4-Chloroaniline	106-47-8	mg/kg	NS	NS	NS	NS	NS	NS	27	EPA RSL	NS	NS	0.0311	0.0311	Soil to GW SL

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Northern Area Groundwater Phase 2 Supplemental RFI Work Plan

Fort Wingate Depot Activity, New Mexico

METHOD[1]	ANALYTE	CAS	UNITS	NMED Table A-1 and Table 6-2 Human Health Screening Levels Direct Contact (2)						Lowest Human Health Screening Level Direct Contact (4)	Lowest Human Health Screening Level Direct Contact Source (4)	Human Health Screening Levels - Groundwater Protection			Lowest Human Health Screening Level for Risk Screening Evaluation (6, 7)	Lowest Human Health Screening Level for Risk Screening Evaluation Source
				Residential		Industrial/ Occupational		Construction Worker				NMED Table A-3 and Table 6-4 Risk-based SSL (5)	NMED Table A-3 NMGW/MCL based SSL (5)	EPA-RSL Calculator Risk-based SSL (6)		
				cancer	noncancer	cancer	noncancer	cancer	noncancer			DAF = 20	DAF = 20	adjusted to DAF = 20		
8270E	4-Chlorophenyl phenyl ether	7005-72-3	mg/kg	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS	NS	
8270E	4-Nitroaniline	100-01-6	mg/kg	NS	NS	NS	NS	NS	NS	250	EPA RSL	NS	NS	0.316	0.316	Soil to GW SL
8270E	4-Nitrophenol *(Surrogate 2-chlorophenol)*	100-02-7	mg/kg	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS	NS	
8270E	Acenaphthene	83-32-9	mg/kg	NS	3,480	NS	50,500	NS	15,100	3,480	NMED SSL	82.5	0.0309	-	82.5	Soil to GW SL
8270E	Acenaphthylene *(surrogate Pyrene)*	208-96-8	mg/kg	NS	1,740	NS	25300	NS	7,530	1,740	NMED SSL	192	NS	-	192	Soil to GW SL
8270E	Anthracene	120-12-7	mg/kg	NS	17,400	NS	253,000	NS	75,300	17,400	NMED SSL	851	NS	-	851	Soil to GW SL
8270E	Benzo[a]anthracene	56-55-3	mg/kg	1.53	NS	32.3	NS	240	NS	1.53	NMED SSL	0.637	NS	-	0.637	Soil to GW SL
8270E	Benzo[a]pyrene	50-32-8	mg/kg	1.12	17.4	23.6	251	173	15	1.12	NMED SSL	4.42	3.53	-	1.12	HH SL
8270E	Benzo[b]fluoranthene	205-99-2	mg/kg	1.53	NS	32.3	NS	240	NS	1.53	NMED SSL	6.17	NS	-	1.53	HH SL
8270E	Benzo[g,h,i]perylene *(surrogate Pyrene)*	191-24-2	mg/kg	NS	1,740	NS	25,300	NS	7,530	1,740	NMED SSL	192	NS	-	192	Soil to GW SL
8270E	Benzo[k]fluoranthene	207-08-9	mg/kg	15.3	NS	323	NS	2310	NS	15.3	NMED SSL	60.5	NS	-	15.3	HH SL
8270E	bis-(2-Chloroethoxy)methane	111-91-1	mg/kg	NS	NS	NS	NS	NS	NS	190	EPA RSL	NS	NS	0.27	0.27	Soil to GW SL
8270E	bis-(2-Chloroethyl)ether	111-44-4	mg/kg	3.11	NS	15.7	NS	1.95	NS	1.95	NMED SSL	0.000605	NS	-	0.000605	Soil to GW SL
8270E	bis-(2-Ethylhexyl)phthalate	117-81-7	mg/kg	380	1,230	1,830	18,300	13,400	5,380	380	NMED SSL	200	21.5	-	200	Soil to GW SL
8270E	Butyl benzyl phthalate	85-68-7	mg/kg	NS	NS	NS	NS	NS	NS	2,900	EPA RSL	NS	NS	47.3	47.3	Soil to GW SL
8270E	Carbazole *(Surrogate fluorene)*	86-74-8	mg/kg	NS	2,320	NS	33,700	NS	10,000	2,320	NMED SSL	80	NS	-	80	Soil to GW SL
8270E	Chrysene	218-01-9	mg/kg	153	NS	3230	NS	23100	NS	153	NMED SSL	186	NS	-	153	HH SL
8270E	Dibenz(a,h)anthracene	53-70-3	mg/kg	0.153	NS	3.23	NS	24	NS	0.153	NMED SSL	1.97	NS	-	0.153	HH SL
8270E	Dibenzofuran	132-64-9	mg/kg	NS	NS	NS	NS	NS	NS	78	EPA RSL	NS	NS	2.91	97.9	Soil to GW SL
8270E	Diethyl phthalate	84-66-2	mg/kg	NS	49,300	NS	733,000	NS	215,000	49,300	NMED SSL	97.9	NS	-	NS	
8270E	Dimethyl phthalate	131-11-3	mg/kg	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS	NS	
8270E	Di-n-butyl phthalate	84-74-2	mg/kg	NS	6,160	NS	91,600	NS	26,900	6,160	NMED SSL	33.8	NS	-	33.8	Soil to GW SL
8270E	Di-n-octyl phthalate	117-84-0	mg/kg	NS	NS	NS	NS	NS	NS	630	EPA RSL	NS	NS	1130	630	HH SL
8270E	Fluoranthene	206-44-0	mg/kg	NS	2,320	NS	33,700	NS	10,000	2,320	NMED SSL	1340	NS	-	1,340	Soil to GW SL
8270E	Fluorene	86-73-7	mg/kg	NS	2,320	NS	33,700	NS	10,000	2,320	NMED SSL	80	NS	-	80	Soil to GW SL
8270E	Hexachlorobenzene	118-74-1	mg/kg	3.33	49.3	16	733	117	215	3.33	NMED SSL	0.0185	0.189	-	0.189	Soil to GW SL
8270E	Hexachlorobutadiene	87-68-3	mg/kg	68.3	61.6	52.1	916	2,400	269	52.1	NMED SSL	0.0413	NS	-	0.0413	Soil to GW SL
8270E	Hexachloroethane	67-72-1	mg/kg	133	43.1	641	641	4,670	188	43.1	NMED SSL	0.032	NS	-	0.032	Soil to GW SL
8270E	Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	1.53	NS	32.3	NS	240	NS	1.53	NMED SSL	20.1	NS	-	1.53	HH SL
8270E	Isophorone	78-59-1	mg/kg	5,610	12,300	27,000	183,000	198,000	53,700	5,610	NMED SSL	4.23	NS	-	4.23	Soil to GW SL
8270E	Naphthalene	91-20-3	mg/kg	22.6	162	108	843	633	159	22.6	NMED SSL	0.0583	NS	-	0.0583	Soil to GW SL
8270E	Nitrobenzene	98-95-3	mg/kg	60.4	131	293	1,540	1,350	353	60.4	NMED SSL	0.0144	NS	-	0.0144	Soil to GW SL
8270E	N-Nitrosodi-n-propylamine	621-64-7	mg/kg	NS	NS	NS	NS	NS	NS	0.78	EPA RSL	NS	NS	0.00162	0.00162	Soil to GW SL
8270E	N-Nitrosodiphenylamine	86-30-6	mg/kg	1,090	NS	5,240	NS	37,900	NS	1,090	NMED SSL	10	NS	-	10	Soil to GW SL
8270E	Pentachlorophenol	87-86-5	mg/kg	9.85	234	44.5	3,180	346	989	9.85	NMED SSL	0.0629	0.152	-	0.152	Soil to GW SL
8270E	Phenanthrene	85-01-8	mg/kg	NS	1,850	NS	27,500	NS	8,070	1,850	NMED SSL	85.9	NS	-	85.9	Soil to GW SL
8270E	Phenol	108-95-2	mg/kg	NS	18,500	NS	275,000	NS	77,400	18,500	NMED SSL	52.3	NS	-	52.3	Soil to GW SL
8270E	Pyrene	129-00-0	mg/kg	NS	1,740	NS	25,300	NS	7,530	1,740	NMED SSL	192	NS	-	192	Soil to GW SL

TABLE 3-2: SOIL LABORATORY ANALYSIS AND RISK EVALUATION CRITERIA

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

METHOD[1]	ANALYTE	CAS	UNITS	NMED Table A-1 and Table 6-2 Human Health Screening Levels Direct Contact [(2)] – Residential – cancer	Residential – noncancer	Industrial/ Occupational – cancer	Industrial/ Occupational – noncancer	Construction Worker – cancer	Construction Worker – noncancer	Lowest Human Health Screening Level Direct Contact [(4)]	Lowest Human Health Screening Level Direct Contact Source [(4)]	Human Health Screening Levels - Groundwater Protection – NMED Table A-3 and Table 6-4 Risk-based SSL [(5)] DAF = 20	NMED Table A-3 NMGW/MCL based SSL [(5)] DAF = 20	EPA-RSL Calculator Risk-based SSL [(6)] adjusted to DAF = 20	Lowest Human Health Screening Level for Risk Screening Evaluation [(6, 7)]	Lowest Human Health Screening Level for Risk Screening Evaluation Source
8270SIM	2-Methylnaphthalene	91-57-6	mg/kg	NS	232	NS	3,370	NS	1,000	232	NMED SSL	2.76	NS	-	2.76	Soil to GW SL
8270SIM	Acenaphthene	83-32-9	mg/kg	NS	3,480	NS	50,500	NS	15,100	3,480	NMED SSL	82.5	0.0309	-	82.5	Soil to GW SL
8270SIM	Acenaphthylene *(surrogate Pyrene)*	208-96-8	mg/kg	NS	1,740	NS	25,300	NS	7,530	1,740	NMED SSL	192	NS	-	192	Soil to GW SL
8270SIM	Anthracene	120-12-7	mg/kg	NS	17,400	NS	253,000	NS	75,300	17,400	NMED SSL	851	NS	-	851	Soil to GW SL
8270SIM	Benzo[a]anthracene	56-55-3	mg/kg	1.53	NS	32.3	NS	240	NS	1.53	NMED SSL	0.637	NS	-	0.637	Soil to GW SL
8270SIM	Benzo[a]pyrene	50-32-8	mg/kg	1.12	17.4	23.6	251	173	15	1.12	NMED SSL	4.42	3.53	-	1.12	HH SL
8270SIM	Benzo[b]fluoranthene	205-99-2	mg/kg	1.53	NS	32.3	NS	240	NS	1.53	NMED SSL	6.17	NS	-	1.53	HH SL
8270SIM	Benzo[g,h,i]perylene *(surrogate Pyrene)*	191-24-2	mg/kg	NS	1,740	NS	25,300	NS	7,530	1,740	NMED SSL	192	NS	-	192	Soil to GW SL
8270SIM	Benzo[k]fluoranthene	207-08-9	mg/kg	15.3	NS	323	NS	2,310	NS	15.3	NMED SSL	60.5	NS	-	15.3	HH SL
8270SIM	Chrysene	218-01-9	mg/kg	153	NS	3,230	NS	23,100	NS	153	NMED SSL	186	NS	-	153	HH SL
8270SIM	Dibenz(a,h)anthracene	53-70-3	mg/kg	0.153	NS	3.23	NS	24	NS	0.153	NMED SSL	1.97	NS	-	0.153	HH SL
8270SIM	Fluoranthene	206-44-0	mg/kg	NS	2,320	NS	33,700	NS	10,000	2,320	NMED SSL	1340	NS	-	1340	Soil to GW SL
8270SIM	Fluorene	86-73-7	mg/kg	NS	2,320	NS	33,700	NS	10,000	2,320	NMED SSL	80	NS	-	80	Soil to GW SL
8270SIM	Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	1.53	NS	32.3	NS	240	NS	1.53	NMED SSL	20.1	NS	-	1.53	HH SL
8270SIM	Naphthalene	91-20-3	mg/kg	22.6	162	108	843	633	159	22.6	NMED SSL	0.0583	NS	-	0.0583	Soil to GW SL
8270SIM	Phenanthrene	85-01-8	mg/kg	NS	1,850	NS	27,500	NS	8,070	1,850	NMED SSL	85.9	NS	-	85.9	Soil to GW SL
8270SIM	Pyrene	129-00-0	mg/kg	NS	1,740	NS	25,300	NS	7,530	1,740	NMED SSL	192	NS	-	192	Soil to GW SL
8330B	1,3,5-Trinitrobenzene	99-35-4	mg/kg	NS	NS	NS	NS	NS	NS	2,200	EPA RSL	NS	NS	42.4	42.4	Soil to GW SL
8330B	1,3-Dinitrobenzene	99-65-0	mg/kg	NS	NS	NS	NS	NS	NS	6.3	EPA RSL	NS	NS	0.0353	0.0353	Soil to GW SL
8330B	2,4,6-Trinitrotoluene	118-96-7	mg/kg	211	36	1,070	573	7,500	161	36	NMED SSL	0.861	NS	-	0.861	Soil to GW SL
8330B	2,4-Dinitrotoluene	121-14-2	mg/kg	17.1	123	82.3	1,820	600	536	17.1	NMED SSL	0.0492	NS	-	0.0492	Soil to GW SL
8330B	2,6-Dinitrotoluene	606-20-2	mg/kg	3.56	18.5	17.2	276	165	80.9	3.56	NMED SSL	0.0102	NS	-	0.0102	Soil to GW SL
8330B	2-Amino-4,6-dinitrotoluene	35572-78-2	mg/kg	NS	7.7	NS	127	NS	17.3	7.7	NMED SSL	0.023	NS	-	0.861	Soil to GW SL
8330B	4-Amino-2,6-dinitrotoluene	19406-51-0	mg/kg	NS	7.64	NS	125	NS	17.3	7.64	NMED SSL	0.023	NS	-	0.023	Soil to GW SL
8330B	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	2691-41-0	mg/kg	NS	3,850	NS	63,300	NS	17,400	3,850	NMED SSL	19.4	NS	-	19.4	Soil to GW SL
8330B	Nitrobenzene	98-95-3	mg/kg	60.4	131	293	1,540	1,350	353	60.4	NMED SSL	0.0144	NS	-	0.0144	Soil to GW SL
8330B	Nitroglycerin	55-63-0	mg/kg	313	6.16	1,510	91.6	11,100	26.9	6.16	NMED SSL	0.0136	NS	-	0.0136	Soil to GW SL
8330B	Pentaerythritol tetranitrate (PETN)	78-11-5	mg/kg	NS	NS	NS	NS	NS	NS	570	EPA RSL	NS	NS	5.18	5.18	Soil to GW SL
8330B	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	mg/kg	83.1	301	428	4,890	2,960	1,350	83.1	NMED SSL	0.0593	NS	-	0.0593	Soil to GW SL
8330B	Trinitrophenylmethylnitramine (Tetryl)	479-45-8	mg/kg	NS	156	NS	2,590	NS	706	156	NMED SSL	5.59	NS	-	5.59	Soil to GW SL
8081B	4,4-DDD	72-54-8	mg/kg	22.2	NS	107	NS	778	NS	22.2	NMED SSL	1.12	NS	-	1.12	Soil to GW SL
8081B	4,4-DDE	72-55-9	mg/kg	15.7	NS	75.5	NS	549	NS	15.7	NMED SSL	1.63	NS	-	1.63	Soil to GW SL
8081B	4,4-DDT	50-29-3	mg/kg	18.7	36.2	95	577	659	162	18.7	NMED SSL	11.6	NS	-	11.6	Soil to GW SL
8081B	Aldrin	309-00-2	mg/kg	0.311	1.85	1.5	27.5	10.9	8.07	0.311	NMED SSL	0.00488	NS	-	0.00488	Soil to GW SL
8081B	alpha-BHC	319-84-6	mg/kg	0.845	493	4.07	7,330	29.7	2,150	0.845	NMED SSL	0.00608	NS	-	0.00608	Soil to GW SL

TABLE 3-2: SOIL LABORATORY ANALYSIS AND RISK EVALUATION CRITERIA

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan

Fort Wingate Depot Activity, New Mexico

METHOD[1]	ANALYTE	CAS	UNITS	NMED Table A-1 and Table 6-2 Human Health Screening Levels Direct Contact (2)						Lowest Human Health Screening Level Direct Contact (4)	Lowest Human Health Screening Level Direct Contact Source (4)	Human Health Screening Levels - Groundwater Protection			Lowest Human Health Screening Level for Risk Screening Evaluation (6, 7)	Lowest Human Health Screening Level for Risk Screening Evaluation Source
				Residential		Industrial/ Occupational		Construction Worker				NMED Table A-3 and Table 6-4 Risk-based SSL (5)	NMED Table A-3 NMGW/MCL based SSL (5)	EPA-RSL Calculator Risk-based SSL (6)		
				cancer	noncancer	cancer	noncancer	cancer	noncancer			DAF = 20	DAF = 20	adjusted to DAF = 20		
8081B	alpha-Chlordane	5103-71-9	mg/kg	17.7	35.3	89	556	623	153	17.7	NMED SSL	0.456	2.03	-	2.03	Soil to GW SL
8081B	beta-BHC	319-85-7	mg/kg	2.96	NS	14.3	NS	104	NS	2.96	NMED SSL	0.0213	NS	-	0.0213	Soil to GW SL
8081B	delta-BHC *(surrogate beta-BHC)*	319-86-8	mg/kg	2.96	NS	14.3	NS	104	NS	2.96	NMED SSL	0.0213	NS	-	0.0213	Soil to GW SL
8081B	Dieldrin	60-57-1	mg/kg	0.333	3.08	1.6	45.8	11.7	13.5	0.333	NMED SSL	0.0106	NS	-	0.0106	Soil to GW SL
8081B	Endosulfan I (surrogate endosulfan)	959-98-8	mg/kg	NS	370	NS	5,500	NS	1,610	370	NMED SSL	20.4	NS	-	20.4	Soil to GW SL
8081B	Endosulfan II (surrogate endosulfan)	33213-65-9	mg/kg	NS	370	NS	5,500	NS	1,610	370	NMED SSL	20.4	NS	-	20.4	Soil to GW SL
8081B	Endosulfan sulfate (surrogate endosulfan)	1031-07-8	mg/kg	NS	370	NS	5,500	NS	1,610	370	NMED SSL	20.4	NS	-	20.4	Soil to GW SL
8081B	Endrin	72-20-8	mg/kg	NS	18.5	NS	275	NS	80.7	18.5	NMED SSL	1.35	1.21	-	1.35	Soil to GW SL
8081B	Endrin aldehyde *(surrogate Endrin)*	7421-93-4	mg/kg	NS	18.5	NS	275	NS	80.7	18.5	NMED SSL	1.35	1.21	-	1.35	Soil to GW SL
8081B	gamma-BHC (Lindane)	58-89-9	mg/kg	5.63	21.2	28.3	334	198	94.3	5.63	NMED SSL	0.0364	NS	-	0.0364	Soil to GW SL
8081B	gamma-Chlordane	5103-74-2	mg/kg	17.7	35.3	89	556	623	153	17.7	NMED SSL	0.456	2.03	-	2.03	Soil to GW SL
8081B	Heptachlor	76-44-8	mg/kg	1.18	30.8	5.7	458	41.5	135	1.18	NMED SSL	0.0275	0.497	-	0.497	Soil to GW SL
8081B	Heptachlor epoxide	1024-57-3	mg/kg	NS	NS	NS	NS	NS	NS	0.7	EPA RSL	NS	NS	0.00567	0.00567	Soil to GW SL
8081B	Methoxychlor	72-43-5	mg/kg	NS	NS	NS	NS	NS	NS	320	EPA RSL	NS	NS	40	40	Soil to GW SL
8082A	PCB-1016	12674-11-2	mg/kg	69.6	3.98	304	57.4	2,440	17.2	3.98	NMED SSL	2.01	0.717	-	2.01	Soil to GW SL
8082A	PCB-1221	11104-28-2	mg/kg	1.81	NS	8.57	NS	55.3	NS	1.81	NMED SSL	0.0143	NS	-	0.0143	Soil to GW SL
8082A	PCB-1232	11141-16-5	mg/kg	1.86	NS	8.82	NS	57.6	NS	1.86	NMED SSL	0.0143	NS	-	0.0143	Soil to GW SL
8082A	PCB-1242	53469-21-9	mg/kg	2.43	NS	10.9	NS	85.3	NS	2.43	NMED SSL	0.184	NS	-	0.184	Soil to GW SL
8082A	PCB-1248	12672-29-6	mg/kg	2.43	NS	10.7	NS	85.3	NS	2.43	NMED SSL	0.181	NS	-	0.181	Soil to GW SL
8082A	PCB-1254	11097-69-1	mg/kg	2.43	1.14	11	16.4	85.3	4.91	1.14	NMED SSL	0.308	NS	-	0.308	Soil to GW SL
8082A	PCB-1260	11096-82-5	mg/kg	2.43	NS	11.1	NS	85.3	NS	2.43	NMED SSL	0.825	NS	-	0.825	Soil to GW SL
8321B	2,4-D	94-75-7	mg/kg	NS	NS	NS	NS	NS	NS	700	EPA RSL	NS	NS	0.906	0.906	Soil to GW SL
8321B	2,4-DB	94-82-6	mg/kg	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS	NS	
8321B	2,4,5-T	93-76-5	mg/kg	NS	NS	NS	NS	NS	NS	630	EPA RSL	NS	NS	1.35	1.35	Soil to GW SL
8321B	2,4,5-TP (Silvex)	93-72-1	mg/kg	NS	NS	NS	NS	NS	NS	510	EPA RSL	NS	NS	1.22	1.22	Soil to GW SL
8321B	Dicamba	1918-00-9	mg/kg	NS	NS	NS	NS	NS	NS	1,900	EPA RSL	NS	NS	2.93	2.93	Soil to GW SL
8321B	Dichloroprop	120-36-5	mg/kg	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS	NS	
8321B	Dinoseb	88-85-7	mg/kg	NS	NS	NS	NS	NS	NS	63	EPA RSL	NS	NS	2.57	2.57	Soil to GW SL
8321B	MCPA	94-74-6	mg/kg	NS	NS	NS	NS	NS	NS	32	EPA RSL	NS	NS	0.0391	0.0391	Soil to GW SL

Notes:

1. Analytical Method - EPA Test Methods for Evaluating Solid Waste latest edition (the most current version of each method the laboratory is accredited to will be used).
2. NMED Risk Assessment Guidance for Site Investigations and Remediation, November 2022 Revised (Appendix A, Table A-1, residential, commercial/industrial, construction worker).
3. USEPA RSL Summary Table (TR=1E-06, HQ=1), November 2023 (resident soil and industrial soil). The RSLs for carcinogenic analytes are adjusted to a TR=1E-05. Provided for analytes without a NMED SSL.
   Residential RSL for lead was changed to 200 mg/kg following USEPA's January 17, 2024, memorandum Updated Residential Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities (USEPA, 2024).
4. The lesser of the NMED screening levels for residents, industrial/occupational workers, and construction workers (or EPA RSL (target excess cancer risk level of 1 x 10-5) if there is no NMED screening level.
5. NMED Risk Assessment Guidance for Site Investigations and Remediation, November 2022 Revised (Appendix A, Table A-3, risk-based SSL and NMGW/MCL-based SSL, and Table 6-4 for petroleum hydrocarbon mixtures; DAF=20).
6. USEPA RSL Calculator (TR=1E-05, HQ=1), November 2023 (protection of groundwater risk-based SSL). All analytes are adjusted to a DAF of 20.
7. The most recent screening levels published by NMED and USEPA at the time the risk evaluation is conducted will be used in the risk evaluation.

Acronyms and Abbreviations:

mg/kg = Milligram per kilogram
CAS = Chemical Abstract Service registry number
DAF = Dilution attenuation factor
DRO = Diesel-range organics
EPA = United States Environmental Protection Agency
GRO = Gasoline-range organics
MCL = Maximum contaminant level
N/A = Not applicable
NMED = New Mexico Environment Department
NS = No standard
RSL = Regional screening level
SL-SSL = soil leachate-based SSL
SSL = Soil screening level

TABLE 3-3: SOIL AND GROUNDWATER DETECTION LEVELS
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

METHOD	ANALYTE	CAS	GROUNDWATER					SOIL				NOTES
			UNITS	SL	LOQ	LOD	DL	UNITS	LOQ	LOD	DL	
6020B	Aluminum	7429-90-5	µg/L	5,000	200	30.0	8.25	mg/kg	0.011	0.01	0.00377	
6020B	Calcium	7440-70-2	µg/L	NA	200	100	32.3	mg/kg	0.05	0.025	0.0089	
6020B	Iron	7439-89-6	µg/L	1,000	200	40.0	8.67	mg/kg	0.015	0.014	0.00394	
6020B	Magnesium	7439-95-4	µg/L	NA	200	15.0	4.16	mg/kg	0.05	0.01	0.0025	
6020B	Potassium	7440-09-7	µg/L	NA	1000	76.0	52.0	mg/kg	0.025	0.019	0.00529	
6020B	Sodium	7440-23-5	µg/L	NA	1000	150	73.3	mg/kg	0.04	0.036	0.00904	
6020B	Antimony	7440-36-0	µg/L	6	2.00	1.00	0.400	mg/kg	0.0002	0.00012	0.0000376	
6020B	Arsenic	7440-38-2	µg/L	10	5.00	2.00	0.500	mg/kg	0.0006	0.0002	0.0000506	
6020B	Barium	7440-39-3	µg/L	2,000	3.00	0.950	0.380	mg/kg	0.0004	0.0002	0.0000723	
6020B	Beryllium	7440-41-7	µg/L	4	1.00	0.600	0.303	mg/kg	0.0001	0.00008	0.0000225	
6020B	Cadmium	7440-43-9	µg/L	5	1.00	0.750	0.190	mg/kg	0.0001	0.00006	0.0000203	
6020B	Chromium	7440-47-3	µg/L	50	3.00	1.80	0.500	mg/kg	0.0006	0.0002	0.0000964	
6020B	Cobalt	7440-48-4	µg/L	50	1.00	0.900	0.330	mg/kg	0.0001	0.000025	0.00000663	
6020B	Copper	7440-50-8	µg/L	1,000	2.00	1.80	0.710	mg/kg	0.0006	0.00045	0.0002	
6020B	Lead	7439-92-1	µg/L	15	1.00	0.700	0.230	mg/kg	0.0004	0.00012	0.0000385	
6020B	Manganese	7439-96-5	µg/L	200	3.00	1.80	0.510	mg/kg	0.0005	0.0003	0.0000961	
6020B	Nickel	7440-02-0	µg/L	200	3.00	1.90	0.830	mg/kg	0.0006	0.00035	0.000169	
6020B	Selenium	7782-49-2	µg/L	50	5.00	4.00	1.00	mg/kg	0.0005	0.00012	0.0000347	
6020B	Silver	7440-22-4	µg/L	50	1.00	0.150	0.0450	mg/kg	0.0001	0.00002	0.00000539	
6020B	Thallium	7440-28-0	µg/L	2	1.00	0.750	0.210	mg/kg	0.0001	0.00006	0.0000177	
6020B	Vanadium	7440-62-2	µg/L	86	5.00	3.00	1.12	mg/kg	0.0005	0.0003	0.000104	
6020B	Zinc	7440-66-6	µg/L	10,000	10.0	8.00	2.00	mg/kg	0.002	0.0014	0.000688	
6850	Perchlorate	14797-73-0	µg/L	15	0.200	0.100	0.0130	mg/kg	0.800	0.400	0.0880	
7470A/ 7471B	Mercury	7439-97-6	µg/L	2	0.200	0.0800	0.0610	mg/kg	0.000017	0.0000133	0.00000553	
8015D	Diesel Range Organics (DRO) [C10 C28]	68334-30-5	µg/L	16.7	0.250	0.120	0.0326	mg/kg	8	7	3.64	
8015D	Gasoline Range Organics (GRO) [C6 C10]	8006-61-9	µg/L	10.1	25.0	20.0	10.0	mg/kg	2	1.5	0.759	
8260D	1,1,1,2-Tetrachloroethane	630-20-6	µg/L	5.7	1.00	0.800	0.577	mg/kg	0.005	0.004	0.00222	
8260D	1,1,1-Trichloroethane	71-55-6	µg/L	200	1.00	0.500	0.390	mg/kg	0.005	0.004	0.00198	
8260D	1,1,2,2-Tetrachloroethane	79-34-5	µg/L	10	1.00	0.800	0.210	mg/kg	0.005	0.0008	0.000285	
8260D	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	µg/L		3.00	1.80	0.729					
8260D	1,1,2-Trichloroethane	79-00-5	µg/L	5	1.00	0.800	0.270	mg/kg	0.005	0.0032	0.00088	
8260D	1,1-Dichloroethane	75-34-3	µg/L	25	1.00	0.800	0.220	mg/kg	0.005	0.0008	0.00021	
8260D	1,1-Dichloroethene	75-35-4	µg/L	7	1.00	0.800	0.230	mg/kg	0.005	0.0016	0.00059	
8260D	1,1-Dichloropropene	563-58-6	µg/L	4.7	1.00	0.800	0.416	mg/kg	0.005	0.0004	0.000164	
8260D	1,2,3-Trichlorobenzene	87-61-6	µg/L	7	2.00	0.800	0.704	mg/kg	0.005	0.0032	0.00081	
8260D	1,2,3-Trichloropropane	96-18-4	µg/L	0.0075	2.50	1.80	0.858	mg/kg	0.005	0.0008	0.000218	
8260D	1,2,4-Trichlorobenzene	120-82-1	µg/L	70	1.00	0.800	0.584	mg/kg	0.005	0.0016	0.00073	
8260D	1,2,4-Trimethylbenzene	95-63-6	µg/L	56	1.00	0.400	0.150	mg/kg	0.005	0.004	0.00231	
8260D	1,2-Dibromo-3-Chloropropane	96-12-8	µg/L	0.2	5.00	4.00	1.76	mg/kg	0.01	0.009	0.00366	
8260D	1,2-Dibromoethane	106-93-4	µg/L	0.05	1.00	0.800	0.404	mg/kg	0.005	0.0016	0.00052	
8260D	1,2-Dichlorobenzene	95-50-1	µg/L	600	1.00	0.500	0.372	mg/kg	0.005	0.004	0.00187	

TABLE 3-3: SOIL AND GROUNDWATER DETECTION LEVELS
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

METHOD	ANALYTE	CAS	GROUNDWATER					SOIL				NOTES
			UNITS	SL	LOQ	LOD	DL	UNITS	LOQ	LOD	DL	
8260D	1,2-Dichloroethane	107-06-2	µg/L	5	1.00	0.800	0.541	mg/kg	0.005	0.0016	0.0007	
8260D	1,2-Dichloroethene, Total	540-59-0	µg/L		1.00	0.400	0.321	mg/kg	0.005	0.0016	0.00039	
8260D	1,2-Dichloropropane	78-87-5	µg/L		1.00	0.800	0.515	mg/kg	0.005	0.0016	0.00055	
8260D	1,3,5-Trimethylbenzene	108-67-8	µg/L	60	1.00	0.500	0.368	mg/kg	0.005	0.004	0.00242	
8260D	1,3-Dichlorobenzene	541-73-1	µg/L	75	1.00	0.400	0.334	mg/kg	0.005	0.0016	0.00048	
8260D	1,3-Dichloropropane	142-28-9	µg/L	370	1.00	0.800	0.379	mg/kg	0.005	0.0004	0.000173	
8260D	1,3-Dichloropropene, Total	542-75-6	µg/L		2.00	0.800	0.626	mg/kg	0.005	0.0004	0.000173	
8260D	1,4-Dichlorobenzene	106-46-7	µg/L	75	1.00	0.500	0.389	mg/kg	0.005	0.0008	0.000245	
8260D	2,2-Dichloropropane	594-20-7	µg/L	5	1.00	0.800	0.380	mg/kg	0.005	0.0016	0.00044	
8260D	2-Butanone (MEK)	78-93-3	µg/L	5,600	15.0	12.0	5.95	mg/kg	0.02	0.0128	0.00389	
8260D	2-Chlorotoluene	95-49-8	µg/L	240	1.00	0.400	0.341	mg/kg	0.005	0.0016	0.00051	
8260D	2-Hexanone	591-78-6	µg/L	38	5.00	4.00	1.70	mg/kg	0.02	0.0128	0.00489	
8260D	3-Chloro-1-propene	107-05-1	µg/L		2.00	4.00	1.70	mg/kg	0.01	0.0016	0.00066	
8260D	4-Chlorotoluene	106-43-4	µg/L	250	1.00	0.800	0.210	mg/kg	0.005	0.0008	0.000361	
8260D	4-Methyl-2-pentanone (MIBK)	108-10-1	µg/L	6,300	5.00	3.20	0.980	mg/kg	0.02	0.0128	0.00436	
8260D	Acetone	67-64-1	µg/L	18,000	15.0	8.00	6.60	mg/kg	0.072	0.07	0.0356	
8260D	Acrylonitrile	107-13-1	µg/L		20.0	8.00	4.47	mg/kg	0.1	0.032	0.01	
8260D	Benzene	71-43-2	µg/L	5	1.00	0.800	0.308	mg/kg	0.005	0.0004	0.000151	
8260D	Bromobenzene	108-86-1	µg/L	62	1.00	0.500	0.397	mg/kg	0.005	0.0016	0.00049	
8260D	Bromochloromethane	74-97-5	µg/L	83	1.00	0.800	0.403	mg/kg	0.005	0.004	0.00246	
8260D	Bromodichloromethane	75-27-4	µg/L	80	1.00	0.500	0.386	mg/kg	0.005	0.004	0.00213	
8260D	Bromoform	75-25-2	µg/L	80	2.00	1.80	1.21	mg/kg	0.0051	0.005	0.00255	
8260D	Bromomethane	74-83-9	µg/L	7.5	5.00	4.00	2.36	mg/kg	0.01	0.0032	0.00135	
8260D	Carbon disulfide	75-15-0	µg/L	810	2.00	0.800	0.631	mg/kg	0.005	0.004	0.00166	
8260D	Carbon tetrachloride	56-23-5	µg/L	5	1.00	0.800	0.566	mg/kg	0.005	0.004	0.00201	
8260D	Chlorobenzene	108-90-7	µg/L	100	1.00	0.800	0.422	mg/kg	0.005	0.004	0.00206	
8260D	Chloroethane	75-00-3	µg/L	8,300	4.00	1.60	1.37	mg/kg	0.01	0.0064	0.00199	
8260D	Chloroform	67-66-3	µg/L	80	1.00	0.800	0.358	mg/kg	0.01	0.0008	0.00029	
8260D	Chloromethane	74-87-3	µg/L	190	2.00	1.00	0.753	mg/kg	0.01	0.0016	0.00077	
8260D	cis-1,2-Dichloroethene	156-59-2	µg/L	70	1.00	0.400	0.321	mg/kg	0.005	0.0008	0.000201	
8260D	cis-1,3-Dichloropropene	10061-01-5	µg/L	4.7	2.00	1.80	0.626	mg/kg	0.005	0.0004	0.0001	
8260D	Cyclohexane	110-82-7	µg/L		1.00	0.800	0.440	mg/kg	0.01	0.0016	0.00077	
8260D	Dibromochloromethane	124-48-1	µg/L	80	2.00	1.80	0.618	mg/kg	0.005	0.004	0.00227	
8260D	Dibromomethane	74-95-3	µg/L	8.3	1.00	0.400	0.343	mg/kg	0.005	0.0008	0.000317	
8260D	Dichlorodifluoromethane	75-71-8	µg/L	200	3.00	2.50	0.962	mg/kg	0.01	0.0064	0.00274	
8260D	Ethyl ether	60-29-7	µg/L		2.00	0.800	0.354	mg/kg	0.01	0.0064	0.00187	
8260D	Ethyl methacrylate	97-63-2	µg/L		3.00	2.00	0.860	mg/kg	0.005	0.0016	0.00006	
8260D	Ethylbenzene	100-41-4	µg/L	700	1.00	0.400	0.303	mg/kg	0.005	0.0008	0.000305	
8260D	Hexachlorobutadiene	87-68-3	µg/L	1.4	2.00	1.80	1.17	mg/kg	0.005	0.004	0.00217	
8260D	Hexane	110-54-3	µg/L		2.00	0.800	0.163	mg/kg	0.005	0.00004	0.000136	
8260D	Iodomethane	74-88-4	µg/L		5.00	4.00	2.58	mg/kg	0.005	0.00004	0.00166	
8260D	Isopropylbenzene	98-82-8	µg/L	450	1.00	0.500	0.363	mg/kg	0.005	0.004	0.00241	
8260D	Methyl acetate	79-20-9	µg/L	20,000	5.00	4.00	1.64	mg/kg	0.0085	0.008	0.00275	
8260D	Methyl tert butyl ether	1634-04-4	µg/L	100	5.00	0.800	0.250	mg/kg	0.02	0.0064	0.00211	
8260D	Methylcyclohexane	108-87-2	µg/L		1.00	0.400	0.314	mg/kg	0.005	0.0016	0.000042	
8260D	Methylene Chloride	75-09-2	µg/L	5	2.00	1.80	0.938	mg/kg	0.005	0.0032	0.0016	
8260D	m-Xylene & p Xylene	179601-23-1	µg/L	190	2.00	0.800	0.356	mg/kg	0.0032	0.003	0.00104	

TABLE 3-3: SOIL AND GROUNDWATER DETECTION LEVELS
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

METHOD	ANALYTE	CAS	GROUNDWATER					SOIL				NOTES
			UNITS	SL	LOQ	LOD	DL	UNITS	LOQ	LOD	DL	
8260D	Naphthalene	91-20-3	µg/L	30	2.00	0.800	0.634	mg/kg	0.0067	0.005	0.00331	
8260D	n-Butylbenzene	104-51-8	µg/L	1000	1.00	0.800	0.475	mg/kg	0.005	0.0016	0.00056	
8260D	N-Propylbenzene	103-65-1	µg/L	660	1.00	0.800	0.531	mg/kg	0.005	0.0016	0.00058	
8260D	o-Xylene	95-47-6	µg/L	190	1.00	0.400	0.331	mg/kg	0.005	0.0008	0.000266	
8260D	p-Isopropyltoluene	99-87-6	µg/L		1.00	0.800	0.428	mg/kg	0.005	0.0032	0.00114	
8260D	sec-Butylbenzene	135-98-8	µg/L	2,000	1.00	0.800	0.447	mg/kg	0.005	0.0016	0.00077	
8260D	Styrene	100-42-5	µg/L	100	1.00	0.800	0.356	mg/kg	0.005	0.0008	0.00028	
8260D	tert-Butylbenzene	98-06-6	µg/L	690	1.00	0.800	0.421	mg/kg	0.005	0.0016	0.0005	
8260D	Tetrachloroethene	127-18-4	µg/L		1.00	0.800	0.403	mg/kg	0.005	0.004	0.00191	
8260D	Tetrahydrofuran	109-99-9	µg/L		7.00	6.40	2.03	mg/kg	0.02	0.0064	0.003.19	
8260D	Toluene	108-88-3	µg/L	1,000	1.00	0.400	0.322	mg/kg	0.005	0.0008	0.000227	
8260D	trans-1,2-Dichloroethene	156-60-5	µg/L	100	1.00	0.500	0.368	mg/kg	0.005	0.0008	0.00039	
8260D	trans-1,3-Dichloropropene	10061-02-6	µg/L	4.7	2.00	1.80	0.646	mg/kg	0.005	0.0002	0.000083	
8260D	trans-1,4-Dichloro-2-butene	110-57-6	µg/L		3.00	1.60	1.38	mg/kg	0.005	0.004	0.0021	
8260D	Trichloroethene	79-01-6	µg/L	5	1.00	0.400	0.300	mg/kg	0.005	0.004	0.00191	
8260D	Trichlorofluoromethane	75-69-4	µg/L	5,200	2.00	0.800	0.566	mg/kg	0.01	0.009	0.0032	
8260D	Vinyl acetate	108-05-4	µg/L		3.00	2.00	0.940	mg/kg	0.01	0.0016	0.00534	
8260D	Vinyl chloride	75-01-4	µg/L	2	2.00	1.00	0.505	mg/kg	0.005	0.0032	0.00134	
8260D	Xylenes, Total	1330-20-7	µg/L		1.00	0.800	0.331	NA	NA	NA	NA	
8270E	1,2,4-Trichlorobenzene	120-82-1	µg/L	70	10.0	8.00	5.84	mg/kg	0.005	0.0016	0.00073	
8270E	1,2-Dichlorobenzene	95-50-1	µg/L	600	10.0	5.00	3.72	mg/kg	0.005	0.004	0.00187	
8270E	1,3-Dichlorobenzene	541-73-1	µg/L	75	10.0	4.00	3.340	mg/kg	0.005	0.0016	0.00048	
8270E	1,4-Dichlorobenzene	106-46-7	µg/L	75	10.0	5.00	3.89	mg/kg	0.005	0.0008	0.000245	
8270E	2,2-Oxybis(1-chloropropane)	108-60-1	µg/L	710	10.0	8.00	1.31	mg/kg	0.33	0.067	0.023	
8270E	2,4,5-Trichlorophenol	95-95-4	µg/L	1,200	10.0	8.00	0.900	mg/kg	0.33	0.033	0.01	
8270E	2,4,6-Trichlorophenol	88-06-2	µg/L	12	10.0	8.00	0.710	mg/kg	0.33	0.033	0.01	
8270E	2,4-Dichlorophenol	120-83-2	µg/L	46	10.0	8.00	0.640	mg/kg	0.33	0.033	0.01	
8270E	2,4-Dimethylphenol	105-67-9	µg/L	360	10.0	8.00	1.36	mg/kg	0.33	0.133	0.066	
8270E	2,4-Dinitrophenol	51-28-5	µg/L	39	30.0	20.0	12.8	mg/kg	1.6	1	0.333	
8270E	2,4-Dinitrotoluene	121-14-2	µg/L	2.4	10.0	8.00	1.43	mg/kg	0.0001	0.00004	0.0000147	
8270E	2,6-Dinitrotoluene	606-20-2	µg/L	0.49	10.0	8.00	1.42	mg/kg	0.0001	0.00004	0.0000191	
8270E	2-Chloronaphthalene	91-58-7	µg/L	750	4.00	3.20	1.27	mg/kg	0.33	0.033	0.01	
8270E	2-Chlorophenol	95-57-8	µg/L	91	10.0	8.00	0.680	mg/kg	0.33	0.067	0.021	
8270E	2-Methylnaphthalene	91-57-6	µg/L	30	4.00	3.20	1.22	mg/kg	0.33	0.067	0.019	
8270E	2-Methylphenol	95-48-7	µg/L	930	10.0	8.00	0.770	mg/kg	0.33	0.033	0.013	
8270E	2-Nitroaniline	88-74-4	µg/L	190	10.0	3.20	2.61	mg/kg	1.6	0.133	0.05	
8270E	2-Nitrophenol	88-75-5	µg/L	NS	10.0	8.00	3.48	mg/kg	0.33	0.033	0.01	
8270E	4-Methylphenol	106-44-5	µg/L	370	10.0	8.00	0.800	mg/kg	330	67	33	
8270E	3,3-Dichlorobenzidine	91-94-1	µg/L	1.3	50.0	30.0	3.38	mg/kg	1.6	0.267	0.09	
8270E	3-Nitroaniline	99-09-2	µg/L	38	10.0	8.00	3.34	mg/kg	1.6	0.267	0.073	
8270E	4,6-Dinitro-2-methylphenol	534-52-1	µg/L	1.5	50.0	30.0	4.03	mg/kg	1.6	1	0.33	
8270E	4-Bromophenyl phenyl ether	101-55-3	µg/L	NS	10.0	8.00	1.01	mg/kg	0.33	0.067	0.019	
8270E	4-Chloro-3-methylphenol	59-50-7	µg/L	1,400	10.0	8.00	0.690	mg/kg	0.33	0.067	0.0248	
8270E	4-Chloroaniline	106-47-8	µg/L	3.7	20.0	12.8	6.28	mg/kg	0.33	0.267	0.0819	
8270E	4-Chlorophenyl phenyl ether	7005-72-3	µg/L	NS	10.0	8.00	1.24	mg/kg	0.33	0.067	0.021	

TABLE 3-3: SOIL AND GROUNDWATER DETECTION LEVELS
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

METHOD	ANALYTE	CAS	GROUNDWATER					SOIL				NOTES
			UNITS	SL	LOQ	LOD	DL	UNITS	LOQ	LOD	DL	
8270E	4-Nitroaniline	100-01-6	µg/L	38	10.0	8.00	2.61	mg/kg	1.6	0.267	0.0725	
8270E	4-Nitrophenol	100-02-7	µg/L	91	25.0	12.8	9.05	mg/kg	1.6	0.267	0.097	
8270E	Acenaphthene	83-32-9	µg/L	530	4.00	3.20	0.960	mg/kg	0.33	0.033	0.0103	
8270E	Acenaphthylene	208-96-8	µg/L	120	4.00	3.20	0.746	mg/kg	0.33	0.267	0.0821	
8270E	Acetophenone	98-86-2	µg/L		10.0	8.00	0.680	mg/kg	0.33	0.067	0.02	
8270E	Anthracene	120-12-7	µg/L	1,800	4.00	3.20	0.580	mg/kg	0.33	0.067	0.017	
8270E	Atrazine	1912-24-9	µg/L		10.0	3.20	0.650	mg/kg	0.33	0.013	0.037	
8270E	Benzaldehyde	100-52-7	µg/L	190	5.00	3.20	1.16	mg/kg	0.33	0.0167	0.067	
8270E	Benzo[a]anthracene	56-55-3	µg/L	0.3	4.00	3.20	0.390	mg/kg	0.33	0.067	0.02	
8270E	Benzo[a]pyrene	50-32-8	µg/L	0.2	4.00	3.20	0.500	mg/kg	0.33	0.067	0.02	
8270E	Benzo[b]fluoranthene	205-99-2	µg/L	2.5	4.00	3.20	1.19	mg/kg	0.33	0.067	0.0262	
8270E	Benzo[g,h,i]perylene	191-24-2	µg/L	120	4.00	3.20	0.510	mg/kg	0.33	0.033	0.016	
8270E	Benzo[k]fluoranthene	207-08-9	µg/L	25	4.00	3.20	0.400	mg/kg	0.33	0.133	0.04	
8270E	bis-(2-Chloroethoxy)methane	111-91-1	µg/L	59	10.0	8.00	0.810	mg/kg	0.33	0.067	0.023	
8270E	bis-(2-Chloroethyl)ether	111-44-4	µg/L	0.14	10.0	8.00	2.02	mg/kg	0.33	0.033	0.0166	
8270E	bis-(2-Ethylhexyl)phthalate	117-81-7	µg/L	6	10.0	8.00	3.32	mg/kg	0.33	0.133	0.046	
8270E	Butyl benzyl phthalate	85-68-7	µg/L	160	4.00	3.20	1.53	mg/kg	0.33	0.133	0.043	
8270E	Caprolactam	105-60-2	µg/L	9,900	15.0	10.0	5.51	mg/kg	1.6	0.267	0.0106	
8270E	Carbazole	86-74-8	µg/L	290	4.00	3.20	0.500	mg/kg	0.33	0.133	0.036	
8270E	Chrysene	218-01-9	µg/L	250	4.00	3.20	1.99	mg/kg	0.33	0.067	0.027	
8270E	Dibenz(a,h)anthracene	53-70-3	µg/L	0.25	10.0	8.00	0.580	mg/kg	0.33	0.067	0.019	
8270E	Dibenzofuran	132-64-9	µg/L	7.9	4.00	3.20	0.950	mg/kg	0.33	0.067	0.02	
8270E	Diethyl phthalate	84-66-2	µg/L	15,000	4.00	3.20	0.589	mg/kg	0.66	0.067	0.026	
8270E	Dimethyl phthalate	131-11-3	µg/L	NS	4.00	3.20	0.750	mg/kg	0.33	0.067	0.023	
8270E	Di-n-butyl phthalate	84-74-2	µg/L	900	4.00	3.20	0.450	mg/kg	0.33	0.067	0.029	
8270E	Di-n-octyl phthalate	117-84-0	µg/L	200	10.0	8.00	3.60	mg/kg	0.33	0.133	0.0405	
8270E	Fluoranthene	206-44-0	µg/L	800	4.00	3.20	0.500	mg/kg	0.33	0.133	0.036	
8270E	Fluorene	86-73-7	µg/L	290	4.00	3.20	0.784	mg/kg	0.33	0.067	0.018	
8270E	Hexachlorobenzene	118-74-1	µg/L	1	10.0	8.00	0.860	mg/kg	0.33	0.067	0.029	
8270E	Hexachlorobutadiene	87-68-3	µg/L	1.4	10.0	8.00	2.86	mg/kg	0.005	0.004	0.00217	
8270E	Hexachlorocyclopentadiene	77-47-4	µg/L	50	50.0	48.0	16.0	mg/kg	1.7	0.33	0.111	
8270E	Hexachloroethane	67-72-1	µg/L	3.3	10.0	8.00	4.46	mg/kg	0.33	0.067	0.0213	
8270E	Indeno(1,2,3-cd)pyrene	193-39-5	µg/L	2.5	10.0	8.00	1.34	mg/kg	0.33	0.067	0.022	
8270E	Isophorone	78-59-1	µg/L	780	10.0	8.00	1.98	mg/kg	0.33	0.067	0.017	
8270E	Naphthalene	91-20-3	µg/L	30	4.00	3.20	1.51	mg/kg	0.0067	0.005	0.00331	
8270E	Nitrobenzene	98-95-3	µg/L	1.4	10.0	8.00	1.25	mg/kg	0.0003	0.0002	0.000085	
8270E	N-Nitrosodi-n-propylamine	621-64-7	µg/L	0.11	10.0	8.00	1.91	mg/kg	0.33	0.167	0.068	
8270E	N-Nitrosodiphenylamine	86-30-6	µg/L	120	10.0	8.00	0.770	mg/kg	0.33	0.067	0.021	
8270E	Pentachlorophenol	87-86-5	µg/L	1	50.0	48.0	20.0	mg/kg	1.6	1	0.33	
8270E	Phenanthrene	85-01-8	µg/L	170	4.00	3.20	1.58	mg/kg	0.33	0.067	0.017	
8270E	Phenol	108-95-2	µg/L	5	10.0	8.00	0.920	mg/kg	0.33	0.067	0.018	
8270E	Pyrene	129-00-0	µg/L	120	10.0	8.00	0.530	mg/kg	0.4	0.033	0.0121	
8270SIM	2-Methylnaphthalene	91-57-6	µg/L	30	0.10	0.08	0.0214	mg/kg	0.33	0.067	0.019	
8270SIM	Acenaphthene	83-32-9	µg/L	530	0.10	0.08	0.0042	mg/kg	0.33	0.033	0.0103	
8270SIM	Acenaphthylene	208-96-8	µg/L	120	0.10	0.08	0.0051	mg/kg	0.33	0.267	0.0821	

TABLE 3-3: SOIL AND GROUNDWATER DETECTION LEVELS
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

METHOD	ANALYTE	CAS	GROUNDWATER					SOIL				NOTES
			UNITS	SL	LOQ	LOD	DL	UNITS	LOQ	LOD	DL	
8270SIM	Anthracene	120-12-7	µg/L	1,800	0.10	0.08	0.0307	mg/kg	0.33	0.067	0.017	
8270SIM	Benzo[a]anthracene	56-55-3	µg/L	0.3	0.10	0.08	0.0283	mg/kg	0.33	0.067	0.02	
8270SIM	Benzo[a]pyrene	50-32-8	µg/L	0.2	0.10	0.08	0.0248	mg/kg	0.33	0.067	0.02	
8270SIM	Benzo[b]fluoranthene	205-99-2	µg/L	2.5	0.10	0.08	0.0396	mg/kg	0.33	0.067	0.0262	
8270SIM	Benzo[g,h,i]perylene	191-24-2	µg/L	120	0.10	0.08	0.0372	mg/kg	0.33	0.033	0.016	
8270SIM	Benzo[k]fluoranthene	207-08-9	µg/L	25	0.10	0.08	0.0229	mg/kg	0.33	0.133	0.04	
8270SIM	Chrysene	218-01-9	µg/L	250	0.10	0.08	0.0331	mg/kg	0.33	0.067	0.027	
8270SIM	Dibenz(a,h)anthracene	53-70-3	µg/L	0.25	0.10	0.08	0.0277	mg/kg	0.33	0.067	0.019	
8270SIM	Fluoranthene	206-44-0	µg/L	800	0.10	0.08	0.0486	mg/kg	0.33	0.133	0.036	
8270SIM	Fluorene	86-73-7	µg/L	290	0.10	0.08	0.0192	mg/kg	0.33	0.067	0.018	
8270SIM	Indeno(1,2,3-cd)pyrene	193-39-5	µg/L	2.5	0.10	0.08	0.0392	mg/kg	0.33	0.067	0.022	
8270SIM	Naphthalene	91-20-3	µg/L	30	0.10	0.08	0.0230	mg/kg	0.0067	0.005	0.00331	
8270SIM	Phenanthrene	85-01-8	µg/L	170	0.10	0.08	0.0494	mg/kg	0.33	0.067	0.017	
8270SIM	Pyrene	129-00-0	µg/L	120	0.10	0.08	0.0451	mg/kg	0.4	0.033	0.0121	
8330B	1,3,5-Trinitrobenzene	99-35-4	µg/L	590	0.210	0.200	0.0841	mg/kg	0.0001	0.00004	0.0000138	1,3,5-TNB
8330B	1,3-Dinitrobenzene	99-65-0	µg/L	2	0.110	0.100	0.0369	mg/kg	0.0001	0.00004	0.0000166	1,3-DNB
8330B	2,4,6-Trinitrotoluene	118-96-7	µg/L	9.8	0.110	0.100	0.045	mg/kg	0.0001	0.00007	0.0000307	
8330B	2,4-Dinitrotoluene	121-14-2	µg/L	2.4	0.100	0.080	0.0274	mg/kg	0.0001	0.00004	0.0000147	2,4-DNT
8330B	2,6-Dinitrotoluene	606-20-2	µg/L	0.49	0.100	0.080	0.0401	mg/kg	0.0001	0.00004	0.0000191	8270 and 8330, 2,6-DNT
8330B	2-Amino-4,6-dinitrotoluene	35572-78-2	µg/L	1.9	0.110	0.100	0.0507	mg/kg	0.0001	0.00007	0.0000329	2-AM-4,6-DNT
8330B	4-Amino-2,6-dinitrotoluene	19406-51-0	µg/L	1.9	0.150	0.120	0.0577	mg/kg	0.0001	0.00007	0.0000299	4-AM-2,6-DNT
8330B	Octahydrô-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	2691-41-0	µg/L	1,000	0.210	0.200	0.0876	mg/kg	0.0001	0.00007	0.0000227	
8330B	m-Nitrotoluene	99-08-01	µg/L	1.7	0.400	0.350	0.195	mg/kg	0.0002	0.00015	0.000064	3-nitrotoluene
8330B	Nitrobenzene	98-95-3	µg/L	1.4	0.210	0.200	0.091	mg/kg	0.0003	0.0002	0.000085	
8330B	Nitroglycerin	55-63-0	µg/L	2	2.100	2.000	0.921	mg/kg	0.002	0.0007	0.000215	
8330B	o-Nitrotoluene	88-72-2	µg/L	3.1	0.210	0.200	0.0855	mg/kg	0.0002	0.0001	0.0000472	2-nitrotoluene
8330B	Pentaerythritol tetranitrate (PETN)	78-11-5	µg/L	170	1.100	1.000	0.447	mg/kg	0.002	0.001	0.000493	
8330B	p-Nitrotoluene	99-99-0	µg/L	43	0.410	0.400	0.1	mg/kg	0.0002	0.0001	0.0000365	4-nitrotoluene
8330B	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	µg/L	9.7	0.210	0.200	0.0515	mg/kg	0.0002	0.0001	0.000043	
8330B	Trinitrophenylmethylnitramine (Tetryl)	479-45-8	µg/L	39	0.110	0.100	0.0318	mg/kg	0.0002	0.0001	0.0000439	
9056A	Nitrate as N	14797-55-8	mg/L	10	0.500	0.200	0.0901	mg/kg	0.005	0.00461	0.000842	
9056A	Nitrite as N	14797-65-0	mg/L	1	0.500	0.100	0.0490	mg/kg	0.005	0.00461	0.000842	
9056A	Fluoride	16984-48-8	mg/L	1.6	1.00	0.500	0.165	mg/kg	0.002	0.002	0.00128	
9056A	Chloride	16887-00-6	mg/L	250	3.00	2.50	1.02	mg/kg	0.03	0.03	0.0115	
9056A	Sulfate	14808-79-8	mg/L	600	5.00	2.50	1.03	mg/kg	0.05	0.025	0.0915	
365.1	Phosphate	14265-44-2	mg/L		0.0500	0.0400	0.0182	NA	NA	NA	NA	
9056A	Bromide	24959-67-9	mg/L		0.500	0.500	0.233	mg/kg	0.002	0.002	0.00128	
8081B	4,4-DDD	72-54-8	µg/L	0.32	0.0500	0.0500	0.00420	mg/kg	0.0034	0.00267	0.00109	
8081B	4,4-DDE	72-55-9	µg/L	0.46	0.0500	0.0220	0.00420	mg/kg	0.0034	0.00133	0.000476	
8081B	4,4-DDT	50-29-3	µg/L	2.3	0.0500	0.0500	0.0240	mg/kg	0.004	0.00267	0.00118	
8081B	Aldrin	309-00-2	µg/L	0.0092	0.0500	0.0210	0.00620	mg/kg	0.0034	0.00133	0.000502	

TABLE 3-3: SOIL AND GROUNDWATER DETECTION LEVELS
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

METHOD	ANALYTE	CAS	GROUNDWATER					SOIL				NOTES
			UNITS	SL	LOQ	LOD	DL	UNITS	LOQ	LOD	DL	
8081B	alpha-BHC	319-84-6	µg/L	0.072	0.0500	0.0290	0.00965	mg/kg	0.0034	0.00133	0.000428	
8081B	alpha-Chlordane	5103-71-9	µg/L	2	0.0500	0.0290	0.00880	mg/kg	0.0034	0.00133	0.000646	
8081B	beta-BHC	319-85-7	µg/L	0.25	0.0500	0.0400	0.00910	mg/kg	0.004	0.00267	0.00133	
8081B	delta-BHC	319-86-8	µg/L	0.25	0.0500	0.0240	0.00780	mg/kg	0.0034	0.00267	0.000802	
8081B	Dieldrin	60-57-1	µg/L	0.018	0.0500	0.0160	0.00460	mg/kg	0.0034	0.00133	0.00042	
8081B	Endosulfan I	959-98-8	µg/L	100	0.0500	0.0220	0.00584	mg/kg	0.0034	0.001	0.000352	
8081B	Endosulfan II	33213-65-9	µg/L	100	0.0500	0.0400	0.00660	mg/kg	0.0034	0.00133	0.000574	
8081B	Endosulfan sulfate	1031-07-8	µg/L	110	0.0500	0.0180	0.00490	mg/kg	0.0034	0.00133	0.000552	
8081B	Endrin	72-20-8	µg/L	2	0.0500	0.0240	0.00860	mg/kg	0.0034	0.00133	0.000612	
8081B	Endrin aldehyde	7421-93-4	µg/L	2	0.0500	0.0240	0.00865	mg/kg	0.0034	0.00133	0.000342	
8081B	gamma-BHC (Lindane)	58-89-9	µg/L	0.2	0.0500	0.0310	0.0103	mg/kg	0.0034	0.00133	0.000393	
8081B	gamma-Chlordane	5103-74-2	µg/L	2	0.0500	0.0300	0.00715	mg/kg	0.0034	0.00133	0.000532	
8081B	Heptachlor	76-44-8	µg/L	0.4	0.0500	0.0500	0.0100	mg/kg	0.0034	0.00133	0.000418	
8081B	Heptachlor epoxide	1024-57-3	µg/L	0.2	0.0500	0.0360	0.00320	mg/kg	0.0034	0.00267	0.000852	
8081B	Methoxychlor	72-43-5	µg/L	40	0.100	0.0360	0.0140	mg/kg	0.0066	0.00267	0.0009	
8082A	PCB-1016	12674-11-2	µg/L	1.4	1.00	0.600	0.170	mg/kg	0.066	0.03	0.0206	
8082A	PCB-1221	11104-28-2	µg/L	0.047	1.00	0.256	0.180	mg/kg	0.094	0.06	0.0312	
8082A	PCB-1232	11141-16-5	µg/L	0.047	1.00	0.304	0.130	mg/kg	0.066	0.0213	0.0102	
8082A	PCB-1242	53469-21-9	µg/L	0.078	1.00	0.304	0.104	mg/kg	0.066	0.06	0.0182	
8082A	PCB-1248	12672-29-6	µg/L	0.078	1.00	0.600	0.170	mg/kg	0.066	0.03	0.016	
8082A	PCB-1254	11097-69-1	µg/L	0.078	1.00	0.256	0.140	mg/kg	0.066	0.03	0.011	
8082A	PCB-1260	11096-82-5	µg/L	0.078	1.00	0.304	0.0890	mg/kg	0.066	0.03	0.0169	
8321B	2,4-D	94-75-7	µg/L	70	5.00	4.00	1.58	mg/kg	0.005	0.002	0.00107	
8321B	2,4-DB	94-82-6	µg/L	NS	6.00	4.00	2.99	mg/kg	0.012	0.008	0.00406	
8321B	2,4,5-T	93-76-5	µg/L	160	5.00	4.00	1.45	mg/kg	0.005	0.002	0.00118	
8321B	2,4,5-TP (Silvex)	93-72-1	µg/L	50	5.00	2.00	0.970	mg/kg	0.005	0.002	0.000905	
8321B	Dicamba	1918-00-9	µg/L	570	5.00	4.00	0.849	mg/kg	0.006	0.002	0.00125	
8321B	Dichloroprop	120-36-5	µg/L	NS	5.00	4.00	1.64	mg/kg	0.005	0.002	0.000788	
8321B	Dinoseb	88-85-7	µg/L	7	5.00	1.00	0.225	mg/kg	0.009	0.002	0.000889	
8321B	MCPA	94-74-6	µg/L	7.5	5.00	4.00	0.642	mg/kg	0.005	0.002	0.00112	

ABBREVIATIONS & ACRONYMS:

µg/L = micrograms per liter
CAS = Chemical Abstract Service registry number
DL = Detection Limit
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/L = milligrams per liter
NA = not applicable
NS = no standard
SL = screening level (see Table 3-4 for screening level selection)

FOOTNOTES:

Yellow highlighted cell indicates that the LOQ > SL for the listed analyte.

TABLE 3-4: NEW GROUNDWATER MONITORING WELL RATIONALE AND SAMPLING MATRIX

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

WELL ID	TYPE/PLUME	ANTICIPATED WELL CONSTRUCTION DETAILS								PURPOSE/RATIONALE	SAMPLES	ANALYTES
		NORTHING	EASTING	GROUND ELEVATION (ft amsl)	DRILLING METHOD	BORING DIAMETER (inches)	CASING DIAMETER (inches)	TOTAL DEPTH (ft bgs)	SCREEN INTERVAL (ft bgs)			
TMW65	Alluvial / RDX	1,643,146.20	2,498,368.84	6,691	HSA	8.00	2.00	60.00	40 - 60	Northwest of TMW62, to refine the RDX plume	Water	Full-suite groundwater analytical
											Soil [a]	Explosives
											Soil (above saturated zone)	
TMW66	Alluvial	1,640,965.96	2,498,661.06	6,709	HSA	8.00	2.00	60.00	40 - 60	Replace dry well TMW54	Water	Full-suite groundwater analytical
											Soil [a]	Explosives, Perchlorate
											Soil (above saturated zone)	
MW40	Bedrock / Metals	1,643,957.63	2,497,852.02	6,686	Sonic	8.00	2.00	60.00	40 - 60	Investigate potential aluminum in bedrock beneath AOC47	Water	Metals (aluminum only)
											Soil [b]	
											Soil (above saturated zone)	
MW41	Bedrock	1,644,001.52	2,498,371.44	6,687	Sonic	8.00	2.00	190.00	170 - 190	SWMU 45 in central portion of Admin Area, bedrock data	Water	Full-suite groundwater analytical
											Soil [c]	TPH-GRO, TPH-DRO, VOCs
											Soil (above saturated zone)	
MW42	Bedrock	1,643,516.91	2,498,839.67	6,688	Sonic	8.00	2.00	190.00	170 - 190	Southeast portion of Admin Area, bedrock data	Water	Full-suite groundwater analytical
											Soil [a]	TPH-GRO, TPH-DRO, VOCs
											Soil (above saturated zone)	
TMW67	Bedrock / Perchlorate	1,640,905.22	2,499,687.02	6,706	Sonic	8.00	2.00	100.00	80 - 100	North of TMW64, refine the perchlorate plume	Water	Full-suite groundwater analytical
											Soil [a]	Perchlorate
											Soil (above saturated zone)	
TMW68	Bedrock / Perchlorate	1,640,505.27	2,499,796.37	6,707	Sonic	8.00	2.00	100.00	80 - 100	East of TMW64, refine the perchlorate plume	Water	Full-suite groundwater analytical
											Soil [a]	Perchlorate
											Soil (above saturated zone)	
TMW69	Bedrock	1,641,969.82	2,497,702.34	6,701	Sonic	8.00	2.00	60.00	40 - 60	Refine bedrock groundwater gradient west of well TMW58	Water	Full-suite groundwater analytical
											Soil [a]	Explosives
											Soil (above saturated zone)	
TMW70	Bedrock	1,642,458.02	2,498,218.05	6,701	Sonic	8.00	2.00	160.00	140 - 160	Refine bedrock groundwater gradient northwest of well TMW58	Water	Full-suite groundwater analytical
											Soil [a]	Explosives
											Soil (above saturated zone)	
TMW71	Bedrock	1,641,941.57	2,498,433.79	6,701	Sonic	8.00	2.00	160.00	140 - 160	Refine bedrock groundwater gradient between wells TMW53 and TMW52	Water	Full-suite groundwater analytical
											Soil [a]	Explosives
											Soil (above saturated zone)	
TMW72	Bedrock	1,642,302.32	2,498,774.32	6,696	Sonic	8.00	2.00	160.00	140 - 160	Refine bedrock groundwater gradient north of well TMW63	Water	Full-suite groundwater analytical
											Soil [a]	Explosives
											Soil (above saturated zone)	
BGMW14	Alluvial	1,642,121.88	2,502,134.42	6,711	HSA	8.00	2.00	140.00	120 - 140	Background data, upgradient of COC plumes	Water	Full-suite groundwater analytical
											Soil [a]	VOCs, Explosives, Perchlorate, Metals, Anions
											Soil (above saturated zone)	
BGMW15	Bedrock	1,642,173.23	2,499,780.82	6,695	Sonic	8.00	2.00	140.00	120 - 140	Background data, upgradient of COC plumes	Water	Full-suite groundwater analytical
											Soil [a]	VOCs, Explosives, Perchlorate, Metals, Anions
											Soil (above saturated zone)	

ABBREVIATIONS & ACRONYMS:

a = Soil samples will be collected every 10 feet until groundwater is encountered.

b = Soil samples will be collected from the MW40 boring at depths of 2, 5, and 15 feet.

c = Soil samples will be collected from the MW41 boring every 5 feet until groundwater is encountered.

NOTES:

Full-suite groundwater analytical consists of VOCs, SVOCs, TPH-GRO, TPH-DRO, Pesticides, PCBs, Herbicides, Explosives, Perchlorate, Total Metals, Dissolved Metals, and Major Anions as detailed in Table 3-2.

TABLE 3-5: SAMPLE CONTAINERS, PRESERVATION, AND HOLDING TIMES
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Matrix	Analytical Group	Analytical Method	Containers Size and Type	Preservation Requirements	Holding Time
Groundwater	VOCs	8260D	3 x 40-mL Glass Vial	pH<2, HCl, 6^{o}C	14 days
Groundwater	SVOCs	8270E	2 x 250-ml Amber Glass	Cool, ≤ 6^{o}C	7 days / 40 days
Groundwater	SVOCs using SIM	8270E	2 x 1-L Amber Glass	Cool, ≤ 6^{o}C	7 days / 40 days
Groundwater	TPH-GRO	8015D	3 x 40-mL Vial	HCl, 6^{o}C	14 days
Groundwater	TPH-DRO	8015D	2 x 1-L Amber Glass	Cool, ≤ 6^{o}C	7 days / 40 days
Groundwater	Pesticides - Organophosphorus	8141B	2 x 1-L Amber Glass	Cool, ≤ 6^{o}C	7 days / 40 days
Groundwater	Pesticides - Organochlorine	8081B	2 x 1-L Amber Glass or 2 x 250-ml Amber Glass	Cool, ≤ 6^{o}C	7 days / 40 days
Groundwater	PCBs	8082A	2 x 1-L Amber Glass or 2 x 250-ml Amber Glass	Cool, ≤ 6^{o}C	7 days/ 40 days
Groundwater	Herbicides	8321B	2 x 40-mL Glass Vial	Cool, ≤ 6^{o}C	7 days
Groundwater	Explosives	8330B	2 x 500-mL Amber Glass	Cool, ≤ 6^{o}C	7 days / 40 days
Groundwater	Perchlorate	6850	1 x 125-mL HDPE	Cool, ≤ 6^{o}C	28 days
Groundwater	Metals, total	6020A	1 x 250-mL HDPE	HNO3 to pH<2	180 days
Groundwater	Mercury, total	7470A	1 x 250-mL HDPE	HNO3 to pH<2	28 days
Groundwater	Metals, dissolved	6020A	1 x 250-mL HDPE	Filtered, Cool, ≤ 6^{o}C	180 days
Groundwater	Mercury, dissolved	7470A	1 x 250-mL HDPE	Filtered, Cool, ≤ 6^{o}C	28 days
Groundwater	Major Anions	9056A	1 x 50-mL HDPE	Cool, ≤ 6^{o}C	48 hours / 28 days
Soil	VOCs (high-level)	8260D	1 x 40-mL Vial Extrude 5 grams of sample directly into vial containing 5-mL methanol w/ Teflon-lined septa screw cap.	1 mL methanol for every gram soil/sediment; add methanol before or at time of sampling; Cool to ≤ 6ºC but not frozen; protect from light	14 days
Soil	VOCs (low-level)	8260D	2 x 40-mL Vial Extrude 5 grams of sample directly into vials containing 5-mL of sodium bisulfate solution and a Teflon-coated magnetic stir bar.	Cool to ≤ 6ºC in field and deliver to laboratory for freezing (< -7ºC) or analysis, both within 48 hours of sample collection.	14 days
Soil	SVOCs	8270E	1 x 4-oz or 8-oz Glass Jar	Cool, ≤ 6^{o}C	14 days / 40 days
Soil	TPH-GRO	8015D modified	3 x Terra core 40-mL Vial (5 grams)	5-mL methanol; Cool, ≤ 6^{o}C	14 days
Soil	TPH-DRO	8015D modified	1 x 4-oz Glass Jar	Cool, ≤ 6^{o}C	14 days / 40 days
Soil	Pesticides - Organophosphorus	8141B	1 x 4-oz Glass Jar	Cool, ≤ 6^{o}C	7 days / 40 days
Soil	Pesticides - Organochlorine	8081B	1 x 4-oz Glass Jar	Cool, ≤ 6^{o}C	7 days / 40 days
Soil	PCBs	8082A	1 x 4-oz Glass Jar	Cool, ≤ 6^{o}C	1 year / 40 days
Soil	Herbicides	8321B	1 x 4-oz Glass Jar	Cool, ≤ 6^{o}C	14 days
Soil	Explosives	8330B	1 x 4-oz Glass or HDPE Jar	Cool, ≤ 6^{o}C	14 days / 40 days
Soil	Perchlorate	6850	1 x 4-oz Glass Jar	Cool, ≤ 6^{o}C	28 days
Soil	Metals, total	6020B	1 x 4-oz Glass Jar	Cool, ≤ 6^{o}C	180 days
Soil	Mercury, total	7471B	1 x 4-oz Glass Jar	Cool, ≤ 6^{o}C	28 days
Soil	Major Anions	9056A	1 x 4-oz Glass Jar	Cool, ≤ 6^{o}C	48 hours / 28 days

ABBREVIATIONS & ACRONYMS:

°C = degrees Celsius
HCl = hydrogen chloride
HDPE = high density polyethylene
HNO3 = nitric acid
SIM = Selective Ion Monitoring
mL = milliliter
PCB = polychlorinated biphenyl
pH = negative logarithm of hydrogen
SVOC = semi-volatile organic compound
TPH = total petroleum hydrocarbons (GRO - gasoline range, DRO - diesel range)
VOC = volatile organic compound

TABLE 4-1: GROUNDWATER ANALYTICAL RESULTS – PERCHLORATE, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	Perchlorate µg/L
SL			14
Alluvial Wells			
BGMW01	BGMW01102022	10/5/2022	0.82 J
	BGMW01042022	04/13/2022	0.62
	BGMW01102021	10/05/2021	0.38
	BGMW01042021	04/14/2021	0.30 J
BGMW02	BGMW02102022	10/5/2022	0.62 J
	BGMW02042022	4/13/2022	0.66
	BGMW02102021	10/5/2021	0.58
	BGMW02042021	4/14/2021	0.66 J
BGMW03	BGMW03102022	10/3/2022	<0.50
	BGMW03102022DUP	10/3/2022	<0.50
	BGMW03042022	04/11/2022	<0.10
	BGMW03102021	10/04/2021	<0.10
	BGMW03042021	04/12/2021	<0.10
BGMW11	BGMW11102022	10/13/2022	<0.50
	BGMW11042022	04/15/2022	<0.10
	BGMW11102021	10/11/2021	<0.10
	BGMW11042021	04/20/2021	<0.10
BGMW12	BGMW12102022	10/3/2022	<0.50
	BGMW12042022	04/11/2022	<0.10
	BGMW12102021	10/07/2021	<0.10
	BGMW12042021	04/13/2021	<0.10
BGMW13D	BGMW13D102022	10/12/2022	<0.50
	BGMW13D042022	04/21/2022	<0.10
	BGMW13D042022DUP	04/21/2022	<0.10
	BGMW13D102021	10/14/2021	<0.10
	BGMW13D042021	04/23/2021	<0.10
	BGMW13D042021DUP	04/23/2021	<0.10
BGMW13S	BGMW13S102022	10/12/2022	<0.50
	BGMW13S102022DUP	10/12/2022	<0.50
	BGMW13S042022	04/21/2022	<0.10
	BGMW13S102021	10/11/2021	<0.10
	BGMW13S042021	04/23/2021	<0.50
MW01	MW01102022	10/4/2022	<0.50
	MW01042022	04/12/2022	<0.10
	MW01102021	10/05/2021	<0.10
	MW01042021	04/13/2021	<0.10

TABLE 4-1: GROUNDWATER ANALYTICAL RESULTS – PERCHLORATE, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	Perchlorate µg/L
SL			14
MW02	MW02102022	10/4/2022	<0.50
	MW02042022	04/12/2022	<0.10
	MW02102021	10/05/2021	<0.50
	MW02042021	04/13/2021	<0.10
MW03	MW03102022	10/6/2022	<0.50
	MW03102022DUP	10/6/2022	<0.50
	MW03042022	04/14/2022	<0.10
	MW03042022DUP	04/14/2022	<0.10
	MW03102021	10/11/2021	<0.10
	MW03042021	04/15/2021	<0.50
	MW03042021DUP	04/15/2021	<0.50
MW18D	MW18D102022	10/12/2022	<1.0
	MW18D042022	04/20/2022	<0.10
	MW18D102021	10/13/2021	<0.10
	MW18D042021	04/21/2021	<0.10
MW20	MW20102022	10/12/2022	<0.50
	MW20042022	04/20/2022	0.113 J
	MW20102021	10/06/2021	0.42
	MW20042021	04/21/2021	0.39
MW22D	MW22D102022	10/13/2022	0.72 J
	MW22D042022	04/21/2022	0.947
	MW22D102021	10/14/2021	0.98
	MW22D042021	04/22/2021	1.1
MW23	MW23102022	10/3/2022	<0.50
	MW23042022	04/11/2022	<0.10
	MW23102021	10/11/2021	<0.20
	MW23102021DUP	10/11/2021	<0.20
	MW23042021	04/13/2021	<0.10
MW24	MW24102022	10/13/2022	<0.50
	MW24042022	04/12/2022	<0.10
	MW24042022DUP	04/12/2022	<0.10
	MW24102021	10/11/2021	<0.10
	MW24102021DUP	10/11/2021	<0.10
	MW24042021	04/15/2021	<1.0
MW25	MW25102022	10/11/2022	<0.50
	MW25042022	04/13/2022	0.161 J
	MW25102021	10/12/2021	<0.10
	MW25042021	04/21/2021	0.11 J

TABLE 4-1: GROUNDWATER ANALYTICAL RESULTS – PERCHLORATE, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	Perchlorate µg/L
SL			14
MW26	MW26102022	10/10/2022	<0.50
	MW26042022	04/18/2022	<0.10
	MW26102021	10/11/2021	<0.10
	MW26042021	04/20/2021	<0.10
MW27	MW27102022	10/7/2022	<0.50
	MW27042022	04/20/2022	0.067 J
	MW27102021	10/08/2021	<0.10
	MW27042021	04/23/2021	<0.10
MW28	MW28102022	10/4/2022	<0.50
	MW28042022	04/13/2022	0.182 J
	MW28102021	10/05/2021	<0.10
	MW28042021	04/16/2021	<0.10
MW29	MW29102022	10/5/2022	<0.50
	MW29042022	04/14/2022	0.736
	MW29102021	10/05/2021	0.35
	MW29042021	04/16/2021	0.40 J
MW30	MW30102022	10/7/2022	<0.50
	MW30042022	04/20/2022	<0.10
	MW30102021	10/08/2021	<0.10
	MW30042021	04/21/2021	<0.10
MW31	MW31102022	10/7/2022	<0.50
	MW31042022	04/21/2022	0.074 J
	MW31102021	10/13/2021	<0.10
	MW31042021	04/21/2021	<0.10
MW32	MW32102022	10/3/2022	<0.50
	MW32042022	04/11/2022	0.251
	MW32102021	10/04/2021	0.21
	MW32042021	04/13/2021	0.20 J
MW33	MW33102022	10/10/2022	<0.50
	MW33042022	04/18/2022	<0.10
	MW33102021	10/11/2021	<0.10
	MW33042021	04/19/2021	<0.10
MW34	MW34102022	10/10/2022	<0.50
	MW34042022	04/18/2022	<0.10
	MW34102021	10/11/2021	<0.10
	MW34042021	04/19/2021	<0.10
	MW34042021DUP	04/19/2021	<0.10

TABLE 4-1: GROUNDWATER ANALYTICAL RESULTS – PERCHLORATE, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	Perchlorate µg/L
SL			14
MW35	MW35102022	10/11/2022	<0.10
	MW35102022DUP	10/11/2022	<0.10
	MW35042022	04/20/2022	<0.10
	MW35042022DUP	04/20/2022	<0.10
	MW35102021	10/13/2021	<0.10
	MW35102021DUP	10/13/2021	<0.10
	MW35042021	04/21/2021	<0.10
MW36D	MW36D102022	10/14/2022	<0.50
	MW36D042022	04/18/2022	<0.10
	MW36D042022DUP	04/18/2022	<0.10
	MW36D102021	10/11/2021	<0.20
	MW36D042021	04/19/2021	<0.10
MW36S	MW36S102022	10/14/2022	<0.10
	MW36S042022	04/18/2022	<0.10
	MW36S102021	10/11/2021	<0.10
	MW36S042021	04/19/2021	<0.10
MW37	MW37102022	10/10/2022	<0.50
	MW37102022DUP	10/10/2022	<0.50
	MW37042022	04/20/2022	<0.10
	MW37102021	10/13/2021	<0.10
	MW37042021	04/21/2021	<0.10
MW38	MW38102022	10/10/2022	<0.50
	MW38042022	04/22/2022	<0.10
	MW38102021	10/14/2021	<0.10
	MW38042021	04/23/2021	<0.10
MW39	MW39102022	10/13/2022	<0.10
	MW39042022	04/22/2022	<0.10
	MW39102021	10/14/2021	<0.10
	MW39042021	04/23/2021	<0.10
SMW01	SMW01102022	10/4/2022	<0.50
	SMW01042022	04/12/2022	<0.10
	SMW01102021	10/08/2021	<0.10
	SMW01042021	04/13/2021	<0.10
	SMW01042021DUP	04/13/2021	<0.10
TMW01	TMW01102022	10/6/2022	**260**
	TMW01042022	04/15/2022	**253 J**
	TMW01102021	10/08/2021	**280**
	TMW01042021	04/15/2021	**270**

TABLE 4-1: GROUNDWATER ANALYTICAL RESULTS – PERCHLORATE, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	Perchlorate µg/L
SL			14
TMW02	TMW02102022	10/7/2022	6.3
	TMW02102022DUP	10/7/2022	6.3
	TMW02042022	4/15/2022	7.2
	TMW02042022DUP	4/15/2022	6.5
	TMW02102021	10/8/2021	6.4
	TMW02102021DUP	10/8/2021	6.1
	TMW02042021	4/16/2021	5.3
	TMW02042021DUP	4/16/2021	5.4
TMW03	TMW03102022	10/10/2022	<0.50
	TMW03042022	4/19/2022	0.85
	TMW03102021	10/14/2021	0.52
	TMW03042021	4/23/2021	0.66
TMW04	TMW04102022	10/7/2022	0.51 J
	TMW04042022	4/15/2022	0.35
	TMW04102021	10/11/2021	3.0
	TMW04042021	4/16/2021	0.34
TMW08	TMW08102022	10/5/2022	<0.10
	TMW08042022	04/14/2022	<0.10
	TMW08102021	10/07/2021	<0.10
	TMW08042021	04/14/2021	<0.10
TMW10	TMW10102022	10/6/2022	<0.50
	TMW10042022	04/14/2022	<0.10
	TMW10102021	10/07/2021	<0.10
	TMW10042021	04/15/2021	<0.10
TMW13	TMW13102022	10/11/2022	<0.50
	TMW13102022DUP	10/11/2022	<0.50
	TMW13042022	04/20/2022	0.059 J
	TMW13042022DUP	04/20/2022	0.062 J
	TMW13102021	10/13/2021	<0.10
	TMW13042021	04/21/2021	<0.10
	TMW13042021DUP	04/21/2021	<0.50
TMW15	TMW15102022	10/11/2022	<0.50
	TMW15042022	04/20/2022	<0.10
	TMW15102021	10/07/2021	<0.10
	TMW15042021	04/21/2021	<0.10

TABLE 4-1: GROUNDWATER ANALYTICAL RESULTS – PERCHLORATE, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	Perchlorate µg/L
SL			14
TMW21	TMW21102022	10/14/2022	<0.50
	TMW21042022	04/21/2022	<0.10
	TMW21102021	10/13/2021	<0.10
	TMW21042021	04/22/2021	<0.10
TMW22	TMW22102022	10/6/2022	<0.50
	TMW22042022	04/15/2022	<0.10
	TMW22102021	10/08/2021	<0.10
	TMW22042021	04/21/2021	<0.10
TMW23	TMW23102022	10/7/2022	<0.50
	TMW23042022	04/15/2022	<0.10
	TMW23102021	10/08/2021	<0.10
	TMW23042021	04/16/2021	<0.10
TMW24	TMW24102022	10/13/2022	<0.50
	TMW24042022	04/19/2022	<0.10
	TMW24102021	10/14/2021	<0.10
	TMW24042021	04/19/2021	<0.10
TMW26	TMW26102022	10/4/2022	<0.50
	TMW26042022	04/13/2022	<0.10
	TMW26102021	10/04/2021	<0.10
	TMW26042021	04/13/2021	<0.10
TMW27	TMW27102022	10/4/2022	<0.50
	TMW27042022	04/12/2022	<0.10
	TMW27102021	10/10/2021	<0.20
	TMW27042021	04/18/2021	<1.0
	TMW27042021DUP	04/18/2021	<1.0
TMW29	TMW29102022	10/6/2022	<0.50
	TMW29042022	04/15/2022	0.082 J
	TMW29102021	10/08/2021	<0.10
	TMW29042021	04/21/2021	<0.50
TMW31S	TMW31S102022	10/6/2022	**480**
	TMW31S042022	04/14/2022	**619**
	TMW31S102021	10/07/2021	**590**
	TMW31S042021	04/26/2021	**520**

TABLE 4-1: GROUNDWATER ANALYTICAL RESULTS – PERCHLORATE, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	Perchlorate µg/L
SL			14
TMW34	TMW34102022	10/11/2022	<0.50
	TMW34102022DUP	10/11/2022	<0.50
	TMW34042022	4/19/2022	0.31
	TMW34042022DUP	4/19/2022	0.31
	TMW34102021	10/13/2021	0.19 J
	TMW34102021DUP	10/13/2021	0.16 J
	TMW34042021	4/20/2021	0.27
TMW35	TMW35102022	10/11/2022	<0.50
	TMW35042022	04/20/2022	0.051 J
	TMW35102021	10/06/2021	<0.10
	TMW35042021	04/26/2021	<0.50
TMW39S	TMW39S102022	10/7/2022	**680**
	TMW39S042022	04/13/2022	**790**
	TMW39S102021	10/08/2021	**720**
	TMW39S042021	04/26/2021	**700**
TMW41	TMW41102022	10/7/2022	12
	TMW41042022	4/15/2022	**14**
	TMW41102021	10/8/2021	12
	TMW41042021	4/16/2021	11
TMW43	TMW43102022	10/11/2022	<0.50
	TMW43042022	04/19/2022	<0.10
	TMW43102021	10/12/2021	<0.10
	TMW43042021	04/16/2021	<0.50
TMW44	TMW44102022	10/4/2022	<0.50
	TMW44042022	04/12/2022	<0.10
	TMW44102021	10/05/2021	0.24
	TMW44042021	04/12/2021	<0.10
TMW45	TMW45102022	10/12/2022	<0.50
	TMW45042022	04/19/2022	<0.10
	TMW45102021	10/12/2021	<0.10
	TMW45102021DUP	10/12/2021	<0.10
	TMW45042021	04/20/2021	<0.10
TMW46	TMW46102022	10/4/2022	<0.50
	TMW46102022DUP	10/4/2022	<0.50
	TMW46042022	04/12/2022	0.147 J
	TMW46102021	10/05/2021	0.095 J
	TMW46042021	04/13/2021	0.12 J

TABLE 4-1: GROUNDWATER ANALYTICAL RESULTS – PERCHLORATE, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	Perchlorate µg/L
SL			14
TMW47	TMW47102022	10/13/2022	<0.50
	TMW47042022	04/21/2022	<0.10
	TMW47102021	10/14/2021	<0.10
	TMW47042021	04/23/2021	<0.10
TMW57	TMW57102022	10/10/2022	<0.50
	TMW57042022	04/18/2022	0.051 J
	TMW57102021	10/11/2021	<0.10
	TMW57042021	04/19/2021	<0.10
TMW59	TMW59102022	10/10/2022	<0.50
	TMW59042022	04/18/2022	0.091 J
	TMW59102021	10/11/2021	<0.10
	TMW59042021	04/23/2021	0.087 J
TMW61	TMW61102022	10/10/2022	<0.50
	TMW61042022	04/18/2022	<0.10
	TMW61102021	10/13/2021	<0.10
	TMW61042021	04/26/2021	<0.10
TMW62	TMW62102022	10/7/2022	<0.50
	TMW62042022	04/15/2022	<0.10
	TMW62102021	10/08/2021	<0.10
	TMW62042021	04/21/2021	<0.10
Bedrock Wells			
BGMW07	BGMW07102022	10/3/2022	<0.10
	BGMW07042022	04/11/2022	<0.10
	BGMW07102021	10/04/2021	<0.10
	BGMW07042021	04/12/2021	<0.10
BGMW08	BGMW08102022	10/3/2022	<0.10
	BGMW08042022	04/11/2022	<0.10
	BGMW08102021	10/04/2021	<0.10
	BGMW08042021	04/13/2021	<0.10
BGMW09	BGMW09102022	10/12/2022	<0.10
	BGMW09042022	04/12/2022	<0.10
	BGMW09042022DUP	04/12/2022	<0.10
	BGMW09102021	10/06/2021	0.056 J
	BGMW09042021	04/23/2021	<0.10
BGMW10	BGMW10102022	10/4/2022	<0.50
	BGMW10042022	04/12/2022	<0.10
	BGMW10102021	10/07/2021	<0.10
	BGMW10102021DUP	10/07/2021	<0.10
	BGMW10042021	04/16/2021	<0.10

TABLE 4-1: GROUNDWATER ANALYTICAL RESULTS – PERCHLORATE, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	Perchlorate µg/L
SL			14
TMW16	TMW16102022	10/3/2022	<0.50
	TMW16042022	04/11/2022	<0.10
	TMW16102021	10/04/2021	<0.10
	TMW16102021DUP	10/04/2021	<0.10
	TMW16042021	04/12/2021	<0.10
	TMW16042021DUP	04/12/2021	<0.10
TMW17	TMW17102022	10/10/2022	<0.50
	TMW17042022	04/18/2022	<0.10
	TMW17102021	10/13/2021	<0.10
	TMW17042021	04/19/2021	<0.10
	TMW17042021DUP	04/19/2021	<0.10
TMW18	TMW18102022	10/3/2022	<0.50
	TMW18042022	04/11/2022	<0.10
	TMW18102021	10/05/2021	<0.10
	TMW18042021	04/12/2021	<0.10
TMW19	TMW19102022	10/3/2022	<0.50
	TMW19042022	04/11/2022	<0.10
	TMW19102021	10/04/2021	<0.10
	TMW19042021	04/12/2021	<0.10
TMW30	TMW30102022	10/5/2022	**330**
	TMW30042022	4/13/2022	**454**
	TMW30102021	10/6/2021	**400**
	TMW30042021	4/14/2021	**510**
TMW31D	TMW31D102022	10/11/2022	**57**
	TMW31D042022	4/19/2022	**874**
	TMW31D102021	10/12/2021	**860**
	TMW31D042021	4/20/2021	**890**
TMW32	TMW32102022	10/13/2022	**350**
	TMW32042022	4/21/2022	**405**
	TMW32102021	10/14/2021	**410**
	TMW32042021	4/22/2021	**400**
TMW36	TMW36102022	10/3/2022	<0.50
	TMW36042022	04/11/2022	<0.10
	TMW36102021	10/13/2021	<0.10
	TMW36042021	04/12/2021	<0.10

TABLE 4-1: GROUNDWATER ANALYTICAL RESULTS – PERCHLORATE, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	Perchlorate µg/L
SL			**14**
TMW37	TMW37102022	10/4/2022	<0.10
	TMW37042022	04/12/2022	<0.10
	TMW37102021	10/06/2021	<0.10
	TMW37042021	04/13/2021	<0.10
TMW38	TMW38102022	10/12/2022	<0.10
	TMW38042022	04/21/2022	<0.10
	TMW38102021	10/13/2021	<0.10
	TMW38042021	04/22/2021	<0.10
TMW39D	TMW39D102022	10/14/2022	**24**
	TMW39D042022	04/22/2022	0.072 J
	TMW39D102021	10/13/2021	0.25
	TMW39D042021	04/23/2021	7.5
TMW40D	TMW40D102022	10/14/2022	**250**
	TMW40D042022	4/22/2022	**262**
	TMW40D102021	10/15/2021	**230**
	TMW40D042021	4/23/2021	**230**
TMW48	TMW48102022	10/14/2022	**790**
	TMW48042022	4/22/2022	**752**
	TMW48102021	10/15/2021	**800**
	TMW48042021	4/23/2021	**850**
TMW49	TMW49102022	10/13/2022	**270**
	TMW49042022	4/22/2022	**114**
	TMW49102021	10/15/2021	**230**
	TMW49042021	4/23/2021	**320**
TMW50	TMW50102022	10/5/2022	1.0
	TMW50042022	4/13/2022	2.2
	TMW50042022DUP	4/13/2022	2.3
	TMW50102021	10/6/2021	1.4
	TMW50042021	4/14/2021	1.2
TMW51	TMW51102022	10/5/2022	**620**
	TMW51102022DUP	10/5/2022	**620**
	TMW51042022	4/14/2022	**715**
	TMW51102021	10/4/2021	**520**
	TMW51042021	4/14/2021	**670**

TABLE 4-1: GROUNDWATER ANALYTICAL RESULTS – PERCHLORATE, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	Perchlorate µg/L
SL			14
TMW52	TMW52102022	10/10/2022	<0.50
	TMW52042022	04/18/2022	0.051 J
	TMW52102021	10/11/2021	<0.10
	TMW52042021	04/19/2021	<0.10
TMW53	TMW53102022	10/10/2022	<0.50
	TMW53042022	04/18/2022	<0.10
	TMW53102021	10/11/2021	<0.10
	TMW53042021	04/19/2021	<0.10
TMW55	TMW55102022	10/7/2022	<0.50
	TMW55042022	04/15/2022	<0.10
	TMW55102021	10/08/2021	0.11 J
	TMW55042021	04/16/2021	<0.10
TMW58	TMW58102022	10/4/2022	<0.50
	TMW58042022	04/12/2022	<0.10
	TMW58102021	10/05/2021	<0.10
	TMW58042021	04/13/2021	<0.10
TMW63	TMW63102022	10/5/2022	<0.50
	TMW63042022	04/13/2022	<0.10
	TMW63102021	10/06/2021	<0.10
	TMW63042021	04/14/2021	<0.10
TMW64	TMW64102022	10/7/2022	**36**
	TMW64042022	4/19/2022	**56**
	TMW64102021	10/12/2021	**54**
	TMW64042021	4/20/2021	**50**

NOTES & ABBREVIATIONS:

Data from the *Final Groundwater Periodic Monitoring Report, July through December 2022* (Eco, 2023).

µg/L	micrograms per liter
<	less than cited Detection Limit
NA	not analyzed
J	estimated value
–	not established or not applicable
SL	screening level
Number	result exceeds cited (lowest) SL

TABLE 5-1: GROUNDWATER ANALYTICAL RESULTS – EXPLOSIVES, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan

Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4,6-Trinitrotoluene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Am-DNT	2-Nitrotoluene	3,5-Dinitroaniline	3-Nitrotoluene	4-Am-DNT	4-Nitrotoluene	HMX	Nitrobenzene	Nitroglycerin	PETN	RDX	Tetryl
			µg/L																
SL			590	2	9.8	2.4	0.49	1.9	3.1	7.7	1.7	1.9	43	1,000	1.4	2	170	9.7	39
Alluvial Wells																			
BGMW01	BGMW01102022	10/5/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW01042022	04/13/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	BGMW01102021	10/05/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW01042021	04/14/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
BGMW02	BGMW02102022	10/5/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW02042022	04/13/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	BGMW02102021	10/05/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW02042021	04/14/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
BGMW03	BGMW03102022	10/3/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW03102022DUP	10/3/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW03042022	04/11/2022	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.82	<3.0	<0.80	<0.80	<1.5	<0.80	<0.80	<1.66	<1.0	<0.80	<0.80
	BGMW03102021	10/04/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW03042021	04/12/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
BGMW11	BGMW11102022	10/13/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW11042022	04/15/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	**23**	<0.32
	BGMW11102021	10/11/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW11042021	04/20/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
BGMW12	BGMW12102022	10/3/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW12042022	04/11/2022	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.82	<3.0	<0.80	<0.80	<1.5	<0.80	<0.80	<1.66	<1.0	<0.80	<0.80
	BGMW12102021	10/07/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW12042021	04/13/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
BGMW13D	BGMW13D102022	10/12/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW13D042022	04/21/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	BGMW13D042022DUP	04/21/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	BGMW13D102021	10/14/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW13D042021	04/23/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW13D042021DUP	04/23/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20

TABLE 5-1: GROUNDWATER ANALYTICAL RESULTS – EXPLOSIVES, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan

Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4,6-Trinitrotoluene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Am-DNT	2-Nitrotoluene	3,5-Dinitroaniline	3-Nitrotoluene	4-Am-DNT	4-Nitrotoluene	HMX	Nitrobenzene	Nitroglycerin	PETN	RDX	Tetryl
			µg/L																
SL			590	2	9.8	2.4	0.49	1.9	3.1	7.7	1.7	1.9	43	1,000	1.4	2	170	9.7	39
BGMW13S	BGMW13S102022	10/12/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW13S102022DUP	10/12/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW13S042022	04/21/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	BGMW13S102021	10/11/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW13S042021	04/23/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
FW31	FW31102022	10/10/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	FW31042022	04/18/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	FW31102021	10/12/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	FW31042021	04/19/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW01	MW01102022	10/4/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW01042022	04/12/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW01102021	10/05/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW01042021	04/13/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW02	MW02102022	10/4/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW02042022	04/12/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW02102021	10/05/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW02042021	04/13/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW03	MW03102022	10/6/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW03102022DUP	10/6/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW03042022	04/14/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW03042022DUP	04/14/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW03102021	10/11/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW03042021	04/15/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW03042021DUP	04/15/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW18D	MW18D102022	10/12/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW18D042022	04/20/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW18D102021	10/13/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW18D042021	04/21/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20

TABLE 5-1: GROUNDWATER ANALYTICAL RESULTS – EXPLOSIVES, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan

Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4,6-Trinitrotoluene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Am-DNT	2-Nitrotoluene	3,5-Dinitroaniline	3-Nitrotoluene	4-Am-DNT	4-Nitrotoluene	HMX	Nitrobenzene	Nitroglycerin	PETN	RDX	Tetryl
			μg/L																
SL			590	2	9.8	2.4	0.49	1.9	3.1	7.7	1.7	1.9	43	1,000	1.4	2	170	9.7	39
MW20	MW20102022	10/12/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW20042022	04/20/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW20102021	10/06/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW20042021	04/21/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW22D	MW22D102022	10/13/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW22D042022	04/21/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW22D102021	10/14/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW22D042021	04/22/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW23	MW23102022	10/3/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW23042022	04/11/2022	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.82	<3.0	<0.80	<0.80	<1.5	<0.80	<0.80	<1.66	<1.0	<0.80	<0.80
	MW23102021	10/11/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW23102021DUP	10/11/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW23042021	04/13/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW24	MW24102022	10/13/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW24042022	04/12/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW24042022DUP	04/12/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW24102021	10/11/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW24102021DUP	10/11/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW24042021	04/15/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW25	MW25102022	10/11/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW25042022	04/13/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW25102021	10/12/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW25042021	04/21/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW26	MW26102022	10/10/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW26042022	04/18/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW26102021	10/11/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW26042021	04/20/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20

TABLE 5-1: GROUNDWATER ANALYTICAL RESULTS – EXPLOSIVES, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan

Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4,6-Trinitrotoluene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Am-DNT	2-Nitrotoluene	3,5-Dinitroaniline	3-Nitrotoluene	4-Am-DNT	4-Nitrotoluene	HMX	Nitrobenzene	Nitroglycerin	PETN	RDX	Tetryl
			µg/L																
SL			590	2	9.8	2.4	0.49	1.9	3.1	7.7	1.7	1.9	43	1,000	1.4	2	170	9.7	39
MW27	MW27102022	10/7/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW27042022	04/20/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW27102021	10/08/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW27042021	04/23/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW28	MW28102022	10/4/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW28042022	04/13/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW28102021	10/05/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW28042021	04/16/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW29	MW29102022	10/5/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW29042022	04/14/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW29102021	10/05/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW29042021	04/16/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW30	MW30102022	10/7/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW30042022	04/20/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW30102021	10/08/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW30042021	04/21/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW31	MW31102022	10/7/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW31042022	04/21/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW31102021	10/13/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW31042021	04/21/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW32	MW32102022	10/3/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW32042022	04/11/2022	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.82	<3.0	<0.80	<0.80	<1.5	<0.80	<0.80	<1.66	<1.0	<0.80	<0.80
	MW32102021	10/04/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW32042021	04/13/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW33	MW33102022	10/10/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW33042022	04/18/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW33102021	10/11/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW33042021	04/19/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20

TABLE 5-1: GROUNDWATER ANALYTICAL RESULTS – EXPLOSIVES, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4,6-Trinitrotoluene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Am-DNT	2-Nitrotoluene	3,5-Dinitroaniline	3-Nitrotoluene	4-Am-DNT	4-Nitrotoluene	HMX	Nitrobenzene	Nitroglycerin	PETN	RDX	Tetryl
			µg/L																
SL			590	2	9.8	2.4	0.49	1.9	3.1	7.7	1.7	1.9	43	1,000	1.4	2	170	9.7	39
MW34	MW34102022	10/10/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW34042022	04/18/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW34102021	10/11/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW34042021	04/19/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW34042021DUP	04/19/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW35	MW35102022	10/11/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW35102022DUP	10/11/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW35042022	04/20/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW35042022DUP	04/20/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW35102021	10/13/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW35102021DUP	10/13/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW35042021	04/21/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW36D	MW36D102022	10/14/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW36D042022	04/18/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW36D042022DUP	04/18/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW36D102021	10/11/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW36D042021	04/19/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW36S	MW36S102022	10/14/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW36S042022	04/18/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW36S102021	10/11/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW36S042021	04/19/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW37	MW37102022	10/10/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW37102022DUP	10/10/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW37042022	04/20/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW37102021	10/13/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW37042021	04/21/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20

TABLE 5-1: GROUNDWATER ANALYTICAL RESULTS – EXPLOSIVES, THROUGH OCTOBER 2022
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4,6-Trinitrotoluene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Am-DNT	2-Nitrotoluene	3,5-Dinitroaniline	3-Nitrotoluene	4-Am-DNT	4-Nitrotoluene	HMX	Nitrobenzene	Nitroglycerin	PETN	RDX	Tetryl
			µg/L																
SL			590	2	9.8	2.4	0.49	1.9	3.1	7.7	1.7	1.9	43	1,000	1.4	2	170	9.7	39
MW38	MW38102022	10/10/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW38042022	04/22/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW38102021	10/14/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW38042021	04/23/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
MW39	MW39102022	10/13/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW39042022	04/22/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	MW39102021	10/14/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	MW39042021	04/23/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
SMW01	SMW01102022	10/4/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	SMW01042022	04/12/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	SMW01102021	10/08/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	SMW01042021	04/13/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	SMW01042021DUP	04/13/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW01	TMW01102022	10/6/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW01042022	04/15/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW01102021	10/08/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW01042021	04/15/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW02	TMW02102022	10/7/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.21 J	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW02102022DUP	10/7/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.19 J	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW02042022	04/15/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW02042022DUP	04/15/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW02102021	10/08/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.31 J	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW02102021DUP	10/08/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20 J	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW02042021	04/16/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW02042021DUP	04/16/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20

TABLE 5-1: GROUNDWATER ANALYTICAL RESULTS – EXPLOSIVES, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan

Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4,6-Trinitrotoluene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Am-DNT	2-Nitrotoluene	3,5-Dinitroaniline	3-Nitrotoluene	4-Am-DNT	4-Nitrotoluene	HMX	Nitrobenzene	Nitroglycerin	PETN	RDX	Tetryl
			µg/L																
SL			590	2	9.8	2.4	0.49	1.9	3.1	7.7	1.7	1.9	43	1,000	1.4	2	170	9.7	39
TMW03	TMW03102022	10/10/2022	<0.20	<0.20	<0.20	0.34 J	<0.20	0.58 J	<0.20	5.5	<0.20	0.92 J	<0.20	5.6	<0.20	<62	<62	**370**	<0.20
	TMW03042022	04/19/2022	0.70	<0.32	<0.32	0.30 J	<0.32	0.46 J	<0.32	5.4	<0.32	0.55	<0.60	5.3	<0.32	<0.66	<0.40	**304**	<0.32
	TMW03102021	10/14/2021	0.74 J	<0.20	<0.20	0.79 J	<0.20	0.65 J	<0.20	7.0	<0.20	1.1	<0.20	6.2	<0.20	<62	<62	**430**	<0.20
	TMW03042021	04/23/2021	<0.20	<0.20	<0.20	<0.20	<0.20	0.65 J	<0.20	<0.20	<0.20	1.0	<0.20	6.1	<0.20	<62	<62	**590**	<0.20
TMW04	TMW04102022	10/7/2022	1.5	<0.20	<0.20	<0.20	<0.20	1.0	<0.20	0.51	<0.20	1.0 J	<0.20	<0.20	<0.20	<62	<62	1.7	<0.20
	TMW04042022	04/15/2022	2.1	<0.32	<0.32	<0.32	<0.32	0.80	0.18 J	0.85 J	<0.32	0.95	<0.60	<0.32	<0.32	<0.66	<0.40	1.7	<0.32
	TMW04102021	10/11/2021	1.0	<0.20	<0.20	<0.20	<0.20	0.93 J	1.0	0.82	<0.20	1.1	<0.20	<0.20	<0.20	<62	<62	1.2	<0.20
	TMW04042021	04/16/2021	<0.20	<0.20	<0.20	<0.20	<0.20	0.86 J	0.45 J	0.66	<0.20	0.96 J	<0.20	<0.20	<0.20	<62	<62	1.5	<0.20
TMW06	TMW06102022	10/12/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW06042022	04/20/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW06102021	10/14/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW06102021DUP	10/14/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW06042021	04/21/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW07	TMW07102022	10/5/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW07042022	04/15/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW07102021	10/08/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW07042021	04/16/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW10	TMW10102022	10/6/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW10042022	04/14/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW10102021	10/07/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW10042021	04/15/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW15	TMW15102022	10/11/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW15042022	04/20/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW15102021	10/07/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW15042021	04/21/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20

TABLE 5-1: GROUNDWATER ANALYTICAL RESULTS – EXPLOSIVES, THROUGH OCTOBER 2022
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4,6-Trinitrotoluene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Am-DNT	2-Nitrotoluene	3,5-Dinitroaniline	3-Nitrotoluene	4-Am-DNT	4-Nitrotoluene	HMX	Nitrobenzene	Nitroglycerin	PETN	RDX	Tetryl
			µg/L																
SL			590	2	9.8	2.4	0.49	1.9	3.1	7.7	1.7	1.9	43	1,000	1.4	2	170	9.7	39
TMW21	TMW21102022	10/14/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW21042022	04/21/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW21102021	10/13/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.46 J	<62	<62	<0.20	<0.20
	TMW21042021	04/22/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW22	TMW22102022	10/6/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW22042022	04/15/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW22102021	10/08/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW22042021	04/21/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW23	TMW23102022	10/7/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	**51**	<0.20
	TMW23042022	04/15/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	**60**	<0.32
	TMW23102021	10/08/2021	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<31	<31	**53**	<0.10
	TMW23042021	04/16/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	**59**	<0.20
TMW24	TMW24102022	10/13/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW24042022	04/19/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW24102021	10/14/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW24042021	04/19/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW25	TMW25102022	10/12/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW25042022	04/21/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW25102021	10/13/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW25042021	04/22/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW25042021DUP	04/22/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW26	TMW26102022	10/4/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW26042022	04/13/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW26102021	10/04/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW26042021	04/13/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20

TABLE 5-1: GROUNDWATER ANALYTICAL RESULTS – EXPLOSIVES, THROUGH OCTOBER 2022
Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4,6-Trinitrotoluene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Am-DNT	2-Nitrotoluene	3,5-Dinitroaniline	3-Nitrotoluene	4-Am-DNT	4-Nitrotoluene	HMX	Nitrobenzene	Nitroglycerin	PETN	RDX	Tetryl
			µg/L																
SL			**590**	**2**	**9.8**	**2.4**	**0.49**	**1.9**	**3.1**	**7.7**	**1.7**	**1.9**	**43**	**1,000**	**1.4**	**2**	**170**	**9.7**	**39**
TMW29	**TMW29102022**	**10/6/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW29042022	**04/15/2022**	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW29102021	**10/08/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW29042021	**04/21/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW31S	**TMW31S102022**	**10/6/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW31S042022	**04/14/2022**	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW31S102021	**10/07/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW31S042021	**04/26/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW39S	**TMW39S102022**	**10/7/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW39SO42022	**04/13/2022**	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW39S102021	**10/08/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW39S042021	**04/26/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW41	**TMW41102022**	**10/7/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW41042022	**04/15/2022**	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW41102021	**10/08/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW41042021	**04/16/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW43	**TMW43102022**	**10/11/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	2.0	<0.20
	TMW43042022	**04/19/2022**	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	2.0	<0.32
	TMW43102021	**10/12/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	2.1	<0.20
	TMW43042021	**04/16/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	2.2	<0.20
TMW44	**TMW44102022**	**10/4/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW44042022	**04/12/2022**	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW44102021	**10/05/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW44042021	**04/12/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20

TABLE 5-1: GROUNDWATER ANALYTICAL RESULTS – EXPLOSIVES, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan

Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4,6-Trinitrotoluene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Am-DNT	2-Nitrotoluene	3,5-Dinitroaniline	3-Nitrotoluene	4-Am-DNT	4-Nitrotoluene	HMX	Nitrobenzene	Nitroglycerin	PETN	RDX	Tetryl
			µg/L																
SL			**590**	**2**	**9.8**	**2.4**	**0.49**	**1.9**	**3.1**	**7.7**	**1.7**	**1.9**	**43**	**1,000**	**1.4**	**2**	**170**	**9.7**	**39**
TMW45	**TMW45102022**	**10/12/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW45042022	**04/19/2022**	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW45102021	**10/12/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW45102021DUP	**10/12/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW45042021	**04/20/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW46	**TMW46102022**	**10/4/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW46102022DUP	**10/4/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW46042022	**04/12/2022**	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW46102021	**10/05/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW46042021	**04/13/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW47	**TMW47102022**	**10/13/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW47042022	**04/21/2022**	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW47102021	**10/14/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.52 J	<62	<62	<0.20	<0.20
	TMW47042021	**04/23/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.74 J	<62	<62	<0.20	<0.20
TMW57	**TMW57102022**	**10/10/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW57042022	**04/18/2022**	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW57102021	**10/11/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW57042021	**04/19/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW59	**TMW59102022**	**10/10/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	**71**	<0.20
	TMW59042022	**04/18/2022**	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	**80**	<0.32
	TMW59102021	**10/11/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	**76**	<0.20
	TMW59042021	**04/23/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	**88**	<0.20
TMW61	**TMW61102022**	**10/10/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW61042022	**04/18/2022**	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW61102021	**10/13/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW61042021	**04/26/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20

TABLE 5-1: GROUNDWATER ANALYTICAL RESULTS – EXPLOSIVES, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan

Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4,6-Trinitrotoluene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Am-DNT	2-Nitrotoluene	3,5-Dinitroaniline	3-Nitrotoluene	4-Am-DNT	4-Nitrotoluene	HMX	Nitrobenzene	Nitroglycerin	PETN	RDX	Tetryl
			µg/L																
SL			590	2	9.8	2.4	0.49	1.9	3.1	7.7	1.7	1.9	43	1,000	1.4	2	170	9.7	39
TMW62	TMW62102022	10/7/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	**15**	<0.20
	TMW62042022	04/15/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW62102021	10/08/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	**16**	<0.20
	TMW62042021	04/21/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	**15**	<0.20
Bedrock Wells																			
BGMW07	BGMW07102022	10/3/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW07042022	04/11/2022	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.82	<3.0	<0.80	<0.80	<1.5	<0.80	<0.80	<1.66	<1.0	<0.80	<0.80
	BGMW07102021	10/04/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW07042021	04/12/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
BGMW08	BGMW08102022	10/3/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW08042022	04/11/2022	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.82	<3.0	<0.80	<0.80	<1.5	<0.80	<0.80	<1.66	<1.0	<0.80	<0.80
	BGMW08102021	10/04/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW08042021	04/13/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
BGMW09	BGMW09102022	10/12/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW09042022	04/12/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	BGMW09042022DUP	04/12/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	BGMW09102021	10/06/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW09042021	04/23/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
BGMW10	BGMW10102022	10/4/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW10042022	04/12/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	BGMW10102021	10/07/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW10102021DUP	10/07/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	BGMW10042021	04/16/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW14A	TMW14A102022	10/10/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW14A042022	04/18/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW14A102021	10/12/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW14A102021DUP	10/12/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW14A042021	04/19/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20

TABLE 5-1: GROUNDWATER ANALYTICAL RESULTS – EXPLOSIVES, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4,6-Trinitrotoluene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Am-DNT	2-Nitrotoluene	3,5-Dinitroaniline	3-Nitrotoluene	4-Am-DNT	4-Nitrotoluene	HMX	Nitrobenzene	Nitroglycerin	PETN	RDX	Tetryl
			µg/L																
SL			590	2	9.8	2.4	0.49	1.9	3.1	7.7	1.7	1.9	43	1,000	1.4	2	170	9.7	39
TMW16	TMW16102022	10/3/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW16042022	04/11/2022	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.82	<3.0	<0.80	<0.80	<1.5	<0.80	<0.80	<1.66	<1.0	<0.80	<0.80
	TMW16102021	10/04/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW16102021DUP	10/04/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW16042021	04/12/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW16042021DUP	04/12/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW18	TMW18102022	10/3/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW18042022	04/11/2022	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.82	<3.0	<0.80	<0.80	<1.5	<0.80	<0.80	<1.66	<1.0	<0.80	<0.80
	TMW18102021	10/05/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW18042021	04/12/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW19	TMW19102022	10/3/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW19042022	04/11/2022	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.82	<3.0	<0.80	<0.80	<1.5	<0.80	<0.80	<1.66	<1.0	<0.80	<0.80
	TMW19102021	10/04/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW19042021	04/12/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW30	TMW30102022	10/5/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW30042022	04/13/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW30102021	10/06/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW30042021	04/14/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	0.68 J
TMW31D	TMW31D102022	10/11/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW31D042022	04/19/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW31D102021	10/12/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW31D042021	04/20/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW32	TMW32102022	10/13/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW32042022	04/21/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW32102021	10/14/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW32042021	04/22/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20

TABLE 5-1: GROUNDWATER ANALYTICAL RESULTS – EXPLOSIVES, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4,6-Trinitrotoluene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Am-DNT	2-Nitrotoluene	3,5-Dinitroaniline	3-Nitrotoluene	4-Am-DNT	4-Nitrotoluene	HMX	Nitrobenzene	Nitroglycerin	PETN	RDX	Tetryl
			µg/L																
SL			**590**	**2**	**9.8**	**2.4**	**0.49**	**1.9**	**3.1**	**7.7**	**1.7**	**1.9**	**43**	**1,000**	**1.4**	**2**	**170**	**9.7**	**39**
TMW36	**TMW36102022**	**10/3/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW36042022	**04/11/2022**	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.82	<3.0	<0.80	<0.80	<1.5	<0.80	<0.80	<1.66	<1.0	<0.80	<0.80
	TMW36102021	**10/13/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW36042021	**04/12/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW37	**TMW37102022**	**10/4/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW37042022	**04/12/2022**	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW37102021	**10/06/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW37042021	**04/13/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW38	**TMW38102022**	**10/12/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW38042022	**04/21/2022**	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW38102021	**10/13/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.52 J	<62	<62	<0.20	<0.20
	TMW38042021	**04/22/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	**1.4**	<62	<62	<0.20	<0.20
TMW39D	**TMW39D102022**	**10/14/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW39D042022	**04/22/2022**	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW39D102021	**10/13/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW39D042021	**04/23/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW40D	**TMW40D102022**	**10/14/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW40D042022	**04/22/2022**	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW40D102021	**10/15/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW40D042021	**04/23/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW48	**TMW48102022**	**10/14/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW48042022	**04/22/2022**	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW48102021	**10/15/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW48042021	**04/23/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW49	**TMW49102022**	**10/13/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW49042022	**04/22/2022**	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW49102021	**10/15/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.68 J	<62	<62	<0.20	<0.20
	TMW49042021	**04/23/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.43 J	<62	<62	<0.20	<0.20

TABLE 5-1: GROUNDWATER ANALYTICAL RESULTS – EXPLOSIVES, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan

Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4,6-Trinitrotoluene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Am-DNT	2-Nitrotoluene	3,5-Dinitroaniline	3-Nitrotoluene	4-Am-DNT	4-Nitrotoluene	HMX	Nitrobenzene	Nitroglycerin	PETN	RDX	Tetryl
			µg/L																
SL			590	2	9.8	2.4	0.49	1.9	3.1	7.7	1.7	1.9	43	1,000	1.4	2	170	9.7	39
TMW50	TMW50102022	10/5/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW50042022	04/13/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW50042022DUP	04/13/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW50102021	10/06/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW50042021	04/14/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW51	TMW51102022	10/5/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW51102022DUP	10/5/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW51042022	04/14/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW51102021	10/04/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW51042021	04/14/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW52	TMW52102022	10/10/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW52042022	04/18/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW52102021	10/11/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW52042021	04/19/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW53	TMW53102022	10/10/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW53042022	04/18/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW53102021	10/11/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW53042021	04/19/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW55	TMW55102022	10/7/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW55042022	04/15/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW55102021	10/08/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW55042021	04/16/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW58	TMW58102022	10/4/2022	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW58042022	04/12/2022	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW58102021	10/05/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW58042021	04/13/2021	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20

TABLE 5-1: GROUNDWATER ANALYTICAL RESULTS – EXPLOSIVES, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4,6-Trinitrotoluene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Am-DNT	2-Nitrotoluene	3,5-Dinitroaniline	3-Nitrotoluene	4-Am-DNT	4-Nitrotoluene	HMX	Nitrobenzene	Nitroglycerin	PETN	RDX	Tetryl
			μg/L																
SL			**590**	**2**	**9.8**	**2.4**	**0.49**	**1.9**	**3.1**	**7.7**	**1.7**	**1.9**	**43**	**1,000**	**1.4**	**2**	**170**	**9.7**	**39**
TMW63	**TMW63102022**	**10/5/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW63042022	**04/13/2022**	1.9 J	1.8 J	1.5 J	1.6 J	**1.7 J**	1.7 J	1.6 J	1.6 J	1.5 J	1.7 J	1.5 J	1.7 J	**1.6 J**	**2.2 J**	1.8 J	1.7 J	0.53 J
	TMW63102021	**10/06/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW63042021	**04/14/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
TMW64	**TMW64102022**	**10/7/2022**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW64042022	**04/19/2022**	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<1.2	<0.32	<0.32	<0.60	<0.32	<0.32	<0.66	<0.40	<0.32	<0.32
	TMW64102021	**10/12/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20
	TMW64042021	**04/20/2021**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<62	<62	<0.20	<0.20

NOTES & ABBREVIATIONS:

Data from the *Final Groundwater Periodic Monitoring Report, July through December 2022* (Eco, 2023).

μg/L	micrograms per liter
PETN	pentaerythritol tetranitrate
<	less than cited Detection Limit
RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine
NA	not analyzed
Tetryl	methyl-2,4,6-trinitrophenylnitramine
J	estimated value
–	not established or not applicable
SL	screening level
Number	result exceeds cited (lowest) SL
2-Am-DNT	2-amino-4,6-dinitrotoluene
4-Am-DNT	4-amino-2,6-dinitrotoluene
HMX	octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine

TABLE 7-1: GROUNDWATER ANALYTICAL RESULTS – TPH-GRO AND TPH-DRO, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	TPH GRO	TPH DRO
			µg/L	
SL			10.1	16.7
Alluvial Wells				
BGMW01	BGMW01102022	10/5/2022	NA	NA
	BGMW01042022	04/13/2022	NA	NA
	BGMW01102021	10/05/2021	NA	NA
	BGMW01042021	04/14/2021	NA	NA
BGMW02	BGMW02102022	10/5/2022	NA	NA
	BGMW02042022	04/13/2022	NA	NA
	BGMW02102021	10/05/2021	NA	NA
	BGMW02042021	04/14/2021	NA	NA
BGMW03	BGMW03102022	10/3/2022	NA	NA
	BGMW03102022DUP	10/3/2022	NA	NA
	BGMW03042022	04/11/2022	NA	NA
	BGMW03102021	10/04/2021	NA	NA
	BGMW03042021	04/12/2021	NA	NA
BGMW11	BGMW11102022	10/13/2022	<20	<100
	BGMW11042022	04/15/2022	<20	<100
	BGMW11102021	10/11/2021	<20	<110
	BGMW11042021	04/20/2021	<20	<100
BGMW12	BGMW12102022	10/3/2022	<20	<96
	BGMW12042022	04/11/2022	<20	<100
	BGMW12102021	10/07/2021	<20	<100
	BGMW12042021	04/13/2021	<20	<120
BGMW13D	BGMW13D102022	10/12/2022	<20	<100
	BGMW13D042022	04/21/2022	<20	<95
	BGMW13D042022DUP	04/21/2022	<20	**120 J**
	BGMW13D102021	10/14/2021	<20	<100
	BGMW13D042021	04/23/2021	<20	<110
	BGMW13D042021DUP	04/23/2021	<20	<120
BGMW13S	BGMW13S102022	10/12/2022	<20	<110
	BGMW13S102022DUP	10/12/2022	<20	<110
	BGMW13S042022	04/21/2022	<20	**78 J**
	BGMW13S102021	10/11/2021	<20	**78 J**
	BGMW13S042021	04/23/2021	<20	<100
FW31	FW31102022	10/10/2022	NA	NA
	FW31042022	04/18/2022	NA	NA
	FW31102021	10/12/2021	NA	NA
	FW31042021	04/19/2021	NA	NA
MW01	MW01102022	10/4/2022	<20	<110
	MW01042022	04/12/2022	<20	**54 J**
	MW01102021	10/05/2021	<20	<120
	MW01042021	04/13/2021	<20	**89 J**

TABLE 7-1: GROUNDWATER ANALYTICAL RESULTS – TPH-GRO AND TPH-DRO, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	TPH GRO	TPH DRO
			µg/L	
SL			10.1	16.7
MW02	MW02102022	10/4/2022	<20	<100
	MW02042022	04/12/2022	<20	**290 J**
	MW02102021	10/05/2021	<20	<100
	MW02042021	04/13/2021	<20	<100
MW03	MW03102022	10/6/2022	<20	<100
	MW03102022DUP	10/6/2022	<20	<110
	MW03042022	04/14/2022	<20	<110
	MW03042022DUP	04/14/2022	<20	<100
	MW03102021	10/11/2021	<20	<110
	MW03042021	04/15/2021	<20	<110
	MW03042021DUP	04/15/2021	<20	<110
MW18D	MW18D102022	10/12/2022	**52 J**	<100
	MW18D042022	04/20/2022	**31 J**	<100
	MW18D102021	10/13/2021	**28 J**	<100
	MW18D042021	04/21/2021	<20	**74 J**
MW20	MW20102022	10/12/2022	<20	<97
	MW20042022	04/20/2022	<20	**130 J**
	MW20102021	10/06/2021	<20	**170 J**
	MW20042021	04/21/2021	<20	**270 J**
MW22D	MW22D102022	10/13/2022	<20	<110
	MW22D042022	04/21/2022	<20	<110
	MW22D102021	10/14/2021	<20	<110
	MW22D042021	04/22/2021	<20	**86 J**
MW23	MW23102022	10/3/2022	NA	NA
	MW23042022	04/11/2022	NA	NA
	MW23102021	10/11/2021	NA	NA
	MW23102021DUP	10/11/2021	NA	NA
	MW23042021	04/13/2021	NA	NA
MW24	MW24102022	10/13/2022	NA	NA
	MW24042022	04/12/2022	NA	NA
	MW24042022DUP	04/12/2022	NA	NA
	MW24102021	10/11/2021	NA	NA
	MW24102021DUP	10/11/2021	NA	NA
	MW24042021	04/15/2021	NA	NA
MW25	MW25102022	10/11/2022	<20	**100 J**
	MW25042022	04/13/2022	<20	<98
	MW25102021	10/12/2021	<20	<95
	MW25042021	04/21/2021	<20	**150 J**
MW26	MW26102022	10/10/2022	<20	<110
	MW26042022	04/18/2022	<20	<110
	MW26102021	10/11/2021	<20	**110 J**
	MW26042021	04/20/2021	<20	<100

TABLE 7-1: GROUNDWATER ANALYTICAL RESULTS – TPH-GRO AND TPH-DRO, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	TPH GRO	TPH DRO
			µg/L	
SL			10.1	16.7
MW27	MW27102022	10/7/2022	<20	<100
	MW27042022	04/20/2022	<20	<110
	MW27102021	10/08/2021	<20	<100
	MW27042021	04/23/2021	<20	**88 J**
MW28	MW28102022	10/4/2022	<20	<110
	MW28042022	04/13/2022	<20	<98
	MW28102021	10/05/2021	<20	<100
	MW28042021	04/16/2021	<20	<110
MW29	MW29102022	10/5/2022	<20	<100
	MW29042022	04/14/2022	<20	<150
	MW29102021	10/05/2021	<20	<110
	MW29042021	04/16/2021	<20	**74 J**
MW30	MW30102022	10/7/2022	<20	<100
	MW30042022	04/20/2022	<20	<110
	MW30102021	10/08/2021	<20	<100
	MW30042021	04/21/2021	<20	<100
MW31	MW31102022	10/7/2022	<20	**65 J**
	MW31042022	04/21/2022	<20	<98
	MW31102021	10/13/2021	<20	<100
	MW31042021	04/21/2021	<20	**180 J**
MW32	MW32102022	10/3/2022	<20	**60 J**
	MW32042022	04/11/2022	<20	**73 J**
	MW32102021	10/04/2021	<20	<100
	MW32042021	04/13/2021	<20	**120 J**
MW33	MW33102022	10/10/2022	<20	<95
	MW33042022	04/18/2022	<20	<100
	MW33102021	10/11/2021	<20	<100
	MW33042021	04/19/2021	<20	**110 J**
MW34	MW34102022	10/10/2022	<20	<120
	MW34042022	04/18/2022	<20	<110
	MW34102021	10/11/2021	<20	<120
	MW34042021	04/19/2021	<20	**110 J**
	MW34042021DUP	04/19/2021	<20	<110
MW35	MW35102022	10/11/2022	<20	<97
	MW35102022DUP	10/11/2022	<20	<110
	MW35042022	04/20/2022	<20	<110
	MW35042022DUP	04/20/2022	<20	<110
	MW35102021	10/13/2021	<20	<100
	MW35102021DUP	10/13/2021	<20	<95
	MW35042021	04/21/2021	<20	<110

TABLE 7-1: GROUNDWATER ANALYTICAL RESULTS – TPH-GRO AND TPH-DRO, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	TPH GRO	TPH DRO
			µg/L	
SL			10.1	16.7
MW36D	MW36D102022	10/14/2022	<20	<110
	MW36D042022	04/18/2022	<20	<98
	MW36D042022DUP	04/18/2022	<20	<110
	MW36D102021	10/11/2021	<20	<120
	MW36D042021	04/19/2021	<20	**77 J**
MW36S	MW36S102022	10/14/2022	<20	**76 J**
	MW36S042022	04/18/2022	<20	<120
	MW36S102021	10/11/2021	<20	**82 J**
	MW36S042021	04/19/2021	<20	**120 J**
MW37	MW37102022	10/10/2022	<20	<100
	MW37102022DUP	10/10/2022	<20	**64 J**
	MW37042022	04/20/2022	<20	<100
	MW37102021	10/13/2021	<20	<100
	MW37042021	04/21/2021	<20	<120
MW38	MW38102022	10/10/2022	<20	**66 J**
	MW38042022	04/22/2022	<20	<100
	MW38102021	10/14/2021	<20	**53 J**
	MW38042021	04/23/2021	<20	<100
MW39	MW39102022	10/13/2022	<20	<110
	MW39042022	04/22/2022	<20	<110
	MW39102021	10/14/2021	<20	<98
	MW39042021	04/23/2021	<20	<110
SMW01	SMW01102022	10/4/2022	NA	NA
	SMW01042022	04/12/2022	NA	NA
	SMW01102021	10/08/2021	NA	NA
	SMW01042021	04/13/2021	NA	NA
	SMW01042021DUP	04/13/2021	NA	NA
TMW03	TMW03102022	10/10/2022	NA	NA
	TMW03042022	04/19/2022	NA	NA
	TMW03102021	10/14/2021	NA	NA
	TMW03042021	04/23/2021	NA	NA
TMW04	TMW04102022	10/7/2022	NA	NA
	TMW04042022	04/15/2022	NA	NA
	TMW04102021	10/11/2021	NA	NA
	TMW04042021	04/16/2021	NA	NA
TMW06	TMW06102022	10/12/2022	<20	<100
	TMW06042022	04/20/2022	<20	<110
	TMW06102021	10/14/2021	<20	<100
	TMW06102021DUP	10/14/2021	<20	<95
	TMW06042021	04/21/2021	<20	<110

TABLE 7-1: GROUNDWATER ANALYTICAL RESULTS – TPH-GRO AND TPH-DRO, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	TPH GRO	TPH DRO
			µg/L	
SL			10.1	16.7
TMW07	TMW07102022	10/5/2022	<20	<99
	TMW07042022	04/15/2022	<20	**120 J**
	TMW07102021	10/08/2021	<20	<100
	TMW07042021	04/16/2021	<20	<110
TMW08	TMW08102022	10/5/2022	<20	**54 J**
	TMW08042022	04/14/2022	<20	<100
	TMW08102021	10/07/2021	<20	**70 J**
	TMW08042021	04/14/2021	<20	**200 J**
TMW10	TMW10102022	10/6/2022	<20	<100
	TMW10042022	04/14/2022	<20	<100
	TMW10102021	10/07/2021	<20	<100
	TMW10042021	04/15/2021	<20	<100
TMW15	TMW15102022	10/11/2022	NA	NA
	TMW15042022	04/20/2022	NA	NA
	TMW15102021	10/07/2021	NA	NA
	TMW15042021	04/21/2021	NA	NA
TMW21	TMW21102022	10/14/2022	<20	<100
	TMW21042022	04/21/2022	<20	**230 J**
	TMW21102021	10/13/2021	<20	<100
	TMW21042021	04/22/2021	<20	<100
TMW22	TMW22102022	10/6/2022	NA	NA
	TMW22042022	04/15/2022	NA	NA
	TMW22102021	10/08/2021	NA	NA
	TMW22042021	04/21/2021	NA	NA
TMW31S	TMW31S102022	10/6/2022	NA	NA
	TMW31S042022	04/14/2022	NA	NA
	TMW31S102021	10/07/2021	NA	NA
	TMW31S042021	04/26/2021	NA	NA
TMW33	TMW33102022	10/7/2022	**16 J**	**320 J**
	TMW33042022	04/15/2022	**23 J**	<100
	TMW33102021	10/08/2021	**24 J**	<98
	TMW33042021	04/16/2021	<20	**200 J**
TMW34	TMW34102022	10/11/2022	<20	**110 J**
	TMW34102022DUP	10/11/2022	<20	**71 J**
	TMW34042022	04/19/2022	<20	<120
	TMW34042022DUP	04/19/2022	<20	**89 J**
	TMW34102021	10/13/2021	<20	<100
	TMW34102021DUP	10/13/2021	<20	<100
	TMW34042021	04/20/2021	<20	**100 J**

TABLE 7-1: GROUNDWATER ANALYTICAL RESULTS – TPH-GRO AND TPH-DRO, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	TPH GRO	TPH DRO
			µg/L	
SL			10.1	16.7
TMW35	TMW35102022	10/11/2022	<20	<120
	TMW35042022	04/20/2022	<20	<110
	TMW35102021	10/06/2021	<20	<100
	TMW35042021	04/26/2021	NA	<110
TMW39S	TMW39S102022	10/7/2022	NA	NA
	TMW39S042022	04/13/2022	NA	NA
	TMW39S102021	10/08/2021	NA	NA
	TMW39S042021	04/26/2021	NA	NA
TMW41	TMW41102022	10/7/2022	NA	NA
	TMW41042022	04/15/2022	NA	NA
	TMW41102021	10/08/2021	NA	NA
	TMW41042021	04/16/2021	NA	NA
TMW43	TMW43102022	10/11/2022	NA	NA
	TMW43042022	04/19/2022	NA	NA
	TMW43102021	10/12/2021	NA	NA
	TMW43042021	04/16/2021	NA	NA
TMW44	TMW44102022	10/4/2022	NA	NA
	TMW44042022	04/12/2022	NA	NA
	TMW44102021	10/05/2021	NA	NA
	TMW44042021	04/12/2021	NA	NA
TMW45	TMW45102022	10/12/2022	NA	NA
	TMW45042022	04/19/2022	NA	NA
	TMW45102021	10/12/2021	NA	NA
	TMW45102021DUP	10/12/2021	NA	NA
	TMW45042021	04/20/2021	NA	NA
TMW46	TMW46102022	10/4/2022	<20	<99
	TMW46102022DUP	10/4/2022	<20	<100
	TMW46042022	04/12/2022	<20	<100
	TMW46102021	10/05/2021	<20	<100
	TMW46042021	04/13/2021	<20	**150 J**
TMW47	TMW47102022	10/13/2022	NA	NA
	TMW47042022	04/21/2022	NA	NA
	TMW47102021	10/14/2021	NA	NA
	TMW47042021	04/23/2021	NA	NA
TMW57	TMW57102022	10/10/2022	<20	<110
	TMW57042022	04/18/2022	<20	<110
	TMW57102021	10/11/2021	<20	<100
	TMW57042021	04/19/2021	<20	<100
TMW59	TMW59102022	10/10/2022	<20	**75 J**
	TMW59042022	04/18/2022	<20	<110
	TMW59102021	10/11/2021	<20	**97 J**
	TMW59042021	04/23/2021	<20	<110

TABLE 7-1: GROUNDWATER ANALYTICAL RESULTS – TPH-GRO AND TPH-DRO, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	TPH GRO	TPH DRO
			µg/L	
SL			10.1	16.7
TMW61	TMW61102022	10/10/2022	<20	<110
	TMW61042022	04/18/2022	<20	<110
	TMW61102021	10/13/2021	<20	<98
	TMW61042021	04/26/2021	<20	**74 J**
TMW62	TMW62102022	10/7/2022	<20	<99
	TMW62042022	04/15/2022	<20	<95
	TMW62102021	10/08/2021	<20	<100
	TMW62042021	04/21/2021	<20	<100
Bedrock Wells				
BGMW07	BGMW07102022	10/3/2022	NA	NA
	BGMW07042022	04/11/2022	NA	NA
	BGMW07102021	10/04/2021	NA	NA
	BGMW07042021	04/12/2021	NA	NA
BGMW08	BGMW08102022	10/3/2022	NA	NA
	BGMW08042022	04/11/2022	NA	NA
	BGMW08102021	10/04/2021	NA	NA
	BGMW08042021	04/13/2021	NA	NA
BGMW09	BGMW09102022	10/12/2022	NA	NA
	BGMW09042022	04/12/2022	NA	NA
	BGMW09042022DUP	04/12/2022	NA	NA
	BGMW09102021	10/06/2021	NA	NA
	BGMW09042021	04/23/2021	NA	NA
BGMW10	BGMW10102022	10/4/2022	NA	NA
	BGMW10042022	04/12/2022	NA	NA
	BGMW10102021	10/07/2021	NA	NA
	BGMW10102021DUP	10/07/2021	NA	NA
	BGMW10042021	04/16/2021	NA	NA
TMW14A	TMW14A102022	10/10/2022	NA	NA
	TMW14A042022	04/18/2022	NA	NA
	TMW14A102021	10/12/2021	NA	NA
	TMW14A102021DUP	10/12/2021	NA	NA
	TMW14A042021	04/19/2021	NA	NA
TMW16	TMW16102022	10/3/2022	NA	NA
	TMW16042022	04/11/2022	NA	NA
	TMW16102021	10/04/2021	NA	NA
	TMW16102021DUP	10/04/2021	NA	NA
	TMW16042021	04/12/2021	NA	NA
	TMW16042021DUP	04/12/2021	NA	NA
TMW18	TMW18102022	10/3/2022	NA	NA
	TMW18042022	04/11/2022	NA	NA
	TMW18102021	10/05/2021	NA	NA
	TMW18042021	04/12/2021	NA	NA

TABLE 7-1: GROUNDWATER ANALYTICAL RESULTS – TPH-GRO AND TPH-DRO, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	TPH GRO	TPH DRO
			µg/L	
SL			10.1	16.7
TMW19	TMW19102022	10/3/2022	NA	NA
	TMW19042022	04/11/2022	NA	NA
	TMW19102021	10/04/2021	NA	NA
	TMW19042021	04/12/2021	NA	NA
TMW30	TMW30102022	10/5/2022	NA	NA
	TMW30042022	04/13/2022	NA	NA
	TMW30102021	10/06/2021	NA	NA
	TMW30042021	04/14/2021	NA	NA
TMW31D	TMW31D102022	10/11/2022	NA	NA
	TMW31D042022	04/19/2022	NA	NA
	TMW31D102021	10/12/2021	NA	NA
	TMW31D042021	04/20/2021	NA	NA
TMW32	TMW32102022	10/13/2022	NA	NA
	TMW32042022	04/21/2022	NA	NA
	TMW32102021	10/14/2021	NA	NA
	TMW32042021	04/22/2021	NA	NA
TMW36	TMW36102022	10/3/2022	NA	NA
	TMW36042022	04/11/2022	NA	NA
	TMW36102021	10/13/2021	NA	NA
	TMW36042021	04/12/2021	NA	NA
TMW37	TMW37102022	10/4/2022	NA	NA
	TMW37042022	04/12/2022	NA	NA
	TMW37102021	10/06/2021	NA	NA
	TMW37042021	04/13/2021	NA	NA
TMW38	TMW38102022	10/12/2022	NA	NA
	TMW38042022	04/21/2022	NA	NA
	TMW38102021	10/13/2021	NA	NA
	TMW38042021	04/22/2021	NA	NA
TMW39D	TMW39D102022	10/14/2022	NA	NA
	TMW39D042022	04/22/2022	NA	NA
	TMW39D102021	10/13/2021	NA	NA
	TMW39D042021	04/23/2021	NA	NA
TMW40D	TMW40D102022	10/14/2022	NA	NA
	TMW40D042022	04/22/2022	NA	NA
	TMW40D102021	10/15/2021	NA	NA
	TMW40D042021	04/23/2021	NA	NA
TMW48	TMW48102022	10/14/2022	NA	NA
	TMW48042022	04/22/2022	NA	NA
	TMW48102021	10/15/2021	NA	NA
	TMW48042021	04/23/2021	NA	NA

TABLE 7-1: GROUNDWATER ANALYTICAL RESULTS – TPH-GRO AND TPH-DRO, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	TPH GRO	TPH DRO
			µg/L	
SL			**10.1**	**16.7**
TMW49	**TMW49102022**	**10/13/2022**	NA	NA
	TMW49042022	**04/22/2022**	NA	NA
	TMW49102021	**10/15/2021**	NA	NA
	TMW49042021	**04/23/2021**	NA	NA
TMW50	**TMW50102022**	**10/5/2022**	<20	<99
	TMW50042022	**04/13/2022**	<20	<100
	TMW50042022DUP	**04/13/2022**	<20	**260 J**
	TMW50102021	**10/06/2021**	**12 J**	<110
	TMW50042021	**04/14/2021**	<20	**51 J**
TMW51	**TMW51102022**	**10/5/2022**	<20	<98
	TMW51102022DUP	**10/5/2022**	<20	<100
	TMW51042022	**04/14/2022**	<20	<98
	TMW51102021	**10/04/2021**	<20	<110
	TMW51042021	**04/14/2021**	<20	<110
TMW52	**TMW52102022**	**10/10/2022**	<20	<100
	TMW52042022	**04/18/2022**	<20	<110
	TMW52102021	**10/11/2021**	<20	**87 J**
	TMW52042021	**04/19/2021**	<20	<100
TMW53	**TMW53102022**	**10/10/2022**	<20	**52 J**
	TMW53042022	**04/18/2022**	<20	**72 J**
	TMW53102021	**10/11/2021**	<20	**120 J**
	TMW53042021	**04/19/2021**	<20	**150 J**
TMW55	**TMW55102022**	**10/7/2022**	<20	<98
	TMW55042022	**04/15/2022**	<20	<100
	TMW55102021	**10/08/2021**	<20	<98
	TMW55042021	**04/16/2021**	<20	<100
TMW58	**TMW58102022**	**10/4/2022**	<20	<100
	TMW58042022	**04/12/2022**	<20	<98
	TMW58102021	**10/05/2021**	<20	**65 J**
	TMW58042021	**04/13/2021**	<20	**58 J**

TABLE 7-1: GROUNDWATER ANALYTICAL RESULTS – TPH-GRO AND TPH-DRO, THROUGH OCTOBER 2022

Northern Area Groundwater Phase 2 Supplemental RFI Work Plan
Fort Wingate Depot Activity, New Mexico

Well ID	Sample ID	Date	TPH GRO	TPH DRO
			µg/L	
SL			10.1	16.7
TMW63	TMW63102022	10/5/2022	<20	<100
	TMW63042022	04/13/2022	<20	<100
	TMW63102021	10/06/2021	<20	<100
	TMW63042021	04/14/2021	<20	<94
TMW64	TMW64102022	10/7/2022	<20	<110
	TMW64042022	04/19/2022	<20	<110
	TMW64102021	10/12/2021	<20	<100
	TMW64042021	04/20/2021	<20	<120

NOTES & ABBREVIATIONS:

Data from the *Final Groundwater Periodic Monitoring Report, July through December 2022* (Eco, 2023).

µg/L micrograms per liter
< less than cited detection limit
NA not analyzed
J estimated value
SL screening level
Number result exceeds cited (lowest) SL

APPENDIX A

NMED Correspondence List

Comment Response Summary Table

Army Response Letter, dated December 19, 2022

Army Response Letter, dated June 28, 2023

Army Response Letter, dated December 6, 2023

Army Response Letter, dated April 24, 2023

COMMENT RESPONSE SUMMARY TABLE

Appendix A

Comment Response Summary Table

Source Document	Comment Number	Summary of NMED Comment	Summary of Army Response	Work Plan Section
2022-12-19 Army's response to New Mexico Environment Department (NMED) Notice of Disapproval (NOD) dated July 25, 2022, reference number HWB-FWDA-21-004, Final Northern Area Groundwater RCRA Facility Investigation Report, Revision 1.	1	Conduct TPH-DRO/GRO, VOC, and SVOCs analyses with and without use of silica gel cleanup for at least two consecutive sampling events. Although the use of silica gel cleanup has not been evaluated or approved at this time, a comparison of the TPH-DRO/GRO, VOC, and SVOC analytical results with and without use of silica gel cleanup may allow NMED to evaluate whether the use of silica gel cleanup is permissible.	The Army acknowledges that the presence of organic matter being reported as TPH is unproven. However, non-petroleum materials (organic contaminants, or metabolic products of petroleum biodegradation) are known to interfere with the TPH analysis. At FWDA, the Army believes interference of organic matter is a reasonable assumption given available data, and will propose to implement in the Phase 2 GW RFI Workplan.	7.5
	7	Submit a work plan to investigate the presence of potential groundwater contamination in the bedrock aquifer beneath the Administration Area.	The Army remains concerned regarding the potential for cross contamination between the alluvial and bedrock aquifers that may occur during drilling or after installation of a groundwater monitoring well through the alluvial aquifer to the bedrock aquifer. However, the Army will include assessment for the presence of potential groundwater contamination in the Administration Area in the Phase 2 Groundwater RFI Work Plan.	7.2
	12	Multiple fuel constituents were detected from the soil samples collected from borings MW29, MW30, and MW31 at depths above the water table. These borings were advanced in the vicinity of SWMU 45; therefore, it is possible that the soil hydrocarbon contamination extends to the water table at the location of SWMU 45. Since Comment 7 above requires submission of a work plan to investigate the presence of potential groundwater contamination in the bedrock aquifer beneath the Administration Area, one of the bedrock wells to be advanced in the Administration Area must be proposed within the boundary of SWMU 45 so that the soil samples collected from the boring can be used to assess the vertical extent of contamination within SWMU 45.	The Army will include this provision in the Phase 2 Groundwater RFI Work Plan to assess the vertical extent of hydrocarbon contamination in the boundary of SWMU 45.	7.2

Appendix A
Comment Response Summary Table

Source Document	Comment Number	Summary of NMED Comment	Summary of Army Response	Work Plan Section
2023-06-28 Army's response to NMED Third NOD dated March 27, 2023, reference number HWB-FWDA-21-004, Final Northern Area Groundwater RCRA Facility Investigation Report, Revision 2, dated December 19, 2022.	4	Aluminum may have been released in the Administration Area at AOC 47 as part of a documented spill of photoflash compound. Due to the number of monitoring wells in this area, no additional investigative activities are recommended for metals." NMED Comment: Since Comment 13 in the NMED's January 25, 2022, Disapproval requires an investigation for the presence of potential groundwater contamination in the bedrock aquifer beneath the Administration Area, propose to investigate potential contamination associated with the aluminum release in the bedrock aquifer beneath the Administration Area in the relevant work plan submittal	Concur.	7.2
	12	In order to identify potential releases that were not historically recorded, it is imperative to collect soil samples from every boring for laboratory analysis, as directed in the NMED's January 22, 2020, Approval with Modifications Final Northern Area Background Well Installation and Completion Report. However, since this direction was provided after the wells were already installed, the Permittee is no longer required to submit a work plan for collection and analysis of soil samples. The Permittee may disregard the direction required by NMED's Second Disapproval Comment 13. However, the Permittee must acknowledge that there are still data gaps because soil samples were not collected at the time of well installation. The Permittee is required to collect soil samples from all future well installations unless NMED provides specific direction otherwise.	The Army will collect soil samples at regular intervals for additional wells installed.	3.4.1
	16	The distances from well TMW62 to wells TMW21 and MW27 exceeds 500 feet; therefore, the RDX plume boundary west of well TMW62 is not well defined. Submit a work plan to install an additional well to delineate the western boundary of the RDX plume.	Concur.	3.3.2, 5.0
	17	Submit a work plan to augment well TMW54 with an adjacent well that is constructed with a more appropriate screened interval or at an alternative nearby location.	Concur.	7.1

Appendix A

Comment Response Summary Table

Source Document	Comment Number	Summary of NMED Comment	Summary of Army Response	Work Plan Section
2023-12-06 Army's response to NOD letter from NMED dated May 23, 2023, for the Groundwater Periodic Monitoring Report January through June 2021, reference number HWB-FWDA-22-002 and the Groundwater Periodic Monitoring Report July through December 2021, reference number HWB-FWDA-23-001.	6	The groundwater flow direction is not fully understood in the bedrock aquifer beneath the Workshop Area. The groundwater flow direction beneath the Workshop Area significantly varies between the wells. The increment of contour lines was refined from ten-feet to five-feet to better assess groundwater flow directions, and new wells were installed in 2019 to better characterize the bedrock aquifer. Despite the efforts, groundwater flow direction in the bedrock aquifer beneath the Workshop Area has not been characterized. Evaluate whether additional bedrock wells are necessary to characterize groundwater flow direction(s) in the bedrock aquifer beneath the Workshop Area. Additional wells in the areas a) west of well TMW58; b) northwest of well TMW58; c) between wells TMW53 and TMW52; and d) north of well TMW63 may be sufficient to characterize groundwater flow direction in the bedrock aquifer beneath the Workshop Area.	Acknowledge that the groundwater flow direction beneath the Workshop Area significantly varies between the wells. The Army proposes to further characterize groundwater flow gradients beneath the Workshop Area, as necessary to determine the nature and extent of groundwater contamination, through the Groundwater RFI process.	7.2

ARMY RESPONSE LETTER,
DATED DECEMBER 19, 2022

DEPARTMENT OF THE ARMY
OFFICE OF THE DEPUTY CHIEF OF STAFF, G-9
600 ARMY PENTAGON
WASHINGTON, DC 20310-0600

December 19, 2022

Base Realignment and Closure Operations Branch

Mr. Rick Shean
Chief, Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

RE: Final Northern Area Groundwater RCRA Facility Investigation Report, Revision 2, Response to Notice of Disapproval, July 25, 2022, HWB-FWDA-21-004, Fort Wingate Depot Activity, McKinley County, New Mexico, EPA# NM6213820974

Dear Mr. Shean:

This letter is in reply to the New Mexico Environment Department (NMED) Letter of Disapproval dated July 25, 2022, reference number HWB-FWDA-21-004, Final Northern Area Groundwater RCRA Facility Investigation Report, Revision 1. The following are Army's responses to NMED comments, detailing where each comment was addressed and cross referencing the numbered NMED comments.

Comments:

1. **Permittee's Response to NMED's Disapproval Comments 6, 47 and 48, dated January 25, 2022.**

   Permittee Statements: "The naturally occurring organic compounds are likely due to plant matter originating in the geologic formations, both alluvial and bedrock, where the wells are screened." and, "Similar to the detection in Parcels 10A/10B, this TPH-DRO detection [in Parcel 21] is not associated with a distinct source of diesel fuel, and the chromatogram for this detection lacks a distinctive diesel pattern as observed in the diesel standard (Appendix F3)." and, "Based upon the Army's review of the chromatograms, the majority of the laboratory reported DRO and GRO detections do not appear to be related to petroleum hydrocarbons. The analysis and basis for this opinion is presented in section 5.3.5.1. For future groundwater analyses of TPH, organic matter can be removed from analytical reporting via use of silica gel cleanup performed by the laboratory. This procedure is recommended in section 6.3.5 so that future misinterpretations of DRO and GRO data can be minimized."

   NMED Comment: Appendix F3 (GRO and DRO Chromatograms) provides 24 chromatograms of the groundwater samples to compare peaks with those of diesel and gasoline standards, and the Permittee intends to demonstrate that the sample peak patterns are not comparable to those of diesel and gasoline standards. However, multiple analytes that may be considered as potential contaminants of concern (COCs) or fuel constituents were detected in the groundwater samples collected from the same wells (see the table below). These analytes may potentially represent peaks identified in the sample chromatograms. The cause of the total petroleum hydrocarbon (TPH) gasoline range organics (GRO) and diesel range organics (DRO) detections remains unknown; therefore, it is premature to conclude that naturally occurring organic compounds are the sole source of the detections.

For example, the concentrations of TPH GRO and DRO in the groundwater sample collected from well BGMW13S are reported as 21 J and 43 J µg/L, respectively, the sample chromatograms were compared to the standards, and the peak patterns were observed to be different from those of diesel and gasoline standards. However, according to Table 4-3.3 (Groundwater Analytical Detections-VOCs) and Table 4-7.2 (Groundwater Analytical Detections - Other Constituents), toluene, 1,4-dioxane, and 2-methylnaphthalene were also detected in the groundwater sample collected from well BGMW13S. These constituents are site related COCs. Since TPH is analyzed by EPA Method 8015C, which utilizes a flame ionization detector, organic compounds that can be volatilized in the capillary column are not selectively detected as peaks shown on the chromatograms; the peaks may represent site related COCs rather than naturally occurring organic compounds. The following table summarizes the detection of analytes potentially considered as site related COCs that were found in the soil and groundwater samples and may potentially represent TPH GRO and/or DRO peaks on the chromatograms.

Well ID	TPH-GRO (µg/L)	TPH-DRO (µg/L)	Detected Analytes in GW Samples	Detected Analytes in Soil Samples
BGMW13S	21 J	43 J	toluene, 1,4-dioxane, 2-methylnaphthalene	Samples not retained for chemical analysis
BGMW13D	Not Detected	39 J	2-methylnaphthalene, naphthalene, pyrene	Samples not retained for chemical analysis
MW25	Not Detected	36 J	1,2-dichloroethane	Samples not retained for chemical analysis
MW27	Not Detected	59 J	naphthalene	Samples not retained for chemical analysis
MW28	18 J	51 J	1,4-dioxane	Samples not retained for chemical analysis
MW29	Not Detected	55 J	1,2-dichloroethane, di-n-octyl phthalate	1,2,4-trimethylbenzene, benzene, ethylbenzene, tetrachloroethene, toluene, xylenes
MW30	12 J	33 J	1-methylnaphthalene, 2-methylnaphthalene, benzo[a]pyrene, benzo[g,h,I]perylene, dibenz(a,h)anthracene	benzene, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, ethylbenzene, xylenes
MW31	Not Detected	77 J	1,2-dichloroethane, 1,4-dioxane	1,2,4-trimethylbenzene, benzene, ethylbenzene, toluene, xylenes, 1,2-dichloroethane
MW33	Not Detected	90 J	2-Butanone, 2-hexanone, chloromethane, 1,4-dioxane, 2-methylnaphthalene, naphthalene	Samples not retained for chemical analysis
MW34	Not Detected	32 J	Not Detected	Samples not retained for chemical analysis
MW36S	Not Detected	86 J	phenanthrene	Samples not retained for chemical analysis
MW37	Not Detected	37 J	benzo[b]fluoranthene, 1,4-dioxane, benzo[k]fluoranthene	1,2,3-trichlorobenzene, 1,2,4-trimethylbenzene, 1,4-dichlorobenzene, benzene, carbon disulfide, chloromethane, ethylbenzene, hexachlorobutadiene, xylenes, methylene chloride, naphthalene, toluene
MW39	Not Detected	180 J	p-isopropyltoluene, 4-methyl-2-pentanone, benzene, toluene, 2-hexanone, 1,4-dioxane, pyrene, phenanthrene, naphthalene, fluoranthene, chrysene, bis(2-ethylhexyl) phthalate, benzo[g,h,I]perylene	benzene, toluene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, Indeno(1,2,3-cd)pyrene, phenanthrene, pyrene, methylene chloride
TMW50	Not Detected	420	benzene, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene	Samples not retained for chemical analysis
TMW51	Not Detected	44 J	benzene, styrene, toluene	Samples not retained for chemical analysis
TMW52	Not Detected	580	benzene, toluene, carbon disulfide, 1,4-dioxane	Samples not retained for chemical analysis
TMW53	Not Detected	45 J	toluene, carbon disulfide	Samples not retained for chemical analysis
TMW55	Not Detected	46 J	2-hexanone, di-n-octyl phthalate	Samples not retained for chemical analysis
TMW58	Not Detected	67 J	2-butanone, toluene	Samples not retained for chemical analysis
TMW59	Not Detected	94 J	RDX, naphthalene, bis(2-ethylhexyl) phthalate, caprolactam	Samples not retained for chemical analysis
TMW64	Not Detected	71 J	chloromethane	Samples not retained for chemical analysis

In order to evaluate the assertions in the Report, the Permittee must (a) define what analytes constitute naturally occurring organic compounds and (b) collect groundwater samples from the new wells where TPH-DRO/GRO were detected and (c) conduct TPH- DRO/GRO, VOC, and SVOCs analyses with and without use of silica gel cleanup for at least two consecutive sampling events. The results of analyses must be reported and discussed in the corresponding periodic groundwater monitoring reports. Note that although the use of silica gel cleanup has not been evaluated or approved at this time, a comparison of the TPH-DRO/GRO, VOC, and SVOC analytical results with and without use of silica gel cleanup may allow NMED to evaluate whether the use of silica gel cleanup is permissible. The use of silica gel cleanup must exclusively remove naturally occurring organic compounds without affecting detections of potential COCs. Once the results are evaluated, NMED may approve or disapprove further use of silica gel cleanup for TPH-DRO/GRO analysis. Revise the Report to remove unproven assertions and propose the required analysis detailed above should the Permittee wish to pursue the use of analytical laboratory silica gel cleanup of samples prior to analysis.

Army Response: Concur with document revision and assessment of silica gel cleanup. The Army acknowledges that the presence of organic matter being reported as TPH is unproven. However, non-petroleum materials (organic contaminants, or metabolic products of petroleum biodegradation) are known to interfere with the TPH analysis. At FWDA, the Army believes interference of organic matter is a reasonable assumption given available data. This interpretation forms the basis for the recommendation for the use of the silica gel cleanup. Use of this USEPA-approved analytical method in the future could confirm the interpretation of the interference of organic matter.

The Army will propose to implement parts (a)-(c) of NMED’s comment in a Phase 2 Groundwater RFI Work Plan, with a proposed submittal date of October 30, 2023 (please see response to comment #7 below).

Section 5.3.5.1 was revised to incorporate the assumption that the TPH detections are due to interference from organics, see page 5-11, lines 4 and 26.

2. Permittee's Response to NMED's Disapproval Comment 7a, dated January 25, 2022

Permittee's Statement: "Section ES-2.3 - Other Constituents, has been revised to state that metals are constituents of concern."

NMED Comment: Section ES-2.3 (Groundwater Contaminant Plumes), lines 21-22, page ES- 4 states, "[m]etals are naturally occurring constituents of concern and are expected to be reported in both total and dissolved samples." Although the text in Section ES-2.3 was revised, it does not clearly state that metals have previously been released at FWDA as a result of the facility operations. The statement is therefore still misleading and must be corrected for accuracy in the revised Report.

Army Response: Concur.

The Army acknowledges that aluminum may have been released in the Administration Area at AOC 47 as part of a spill of a photoflash compound. No other releases of metals are known to have occurred within the Study Area. The text in Section ES-2.3 has been revised as-follows.

Metals - *Metals were detected at concentrations exceeding screening levels from across the Study Area in both alluvial and bedrock wells. Metals are naturally occurring constituents of concern and are expected to be reported in both total and dissolved samples. In addition,* *highly turbid samples may have contributed to the high metals concentrations. However, aluminum may have been released in the Administration Area at AOC 47 as part of a documented spill of photoflash compound. Total metals analytical results are influenced by the presence of high turbidity. Dissolved samples are not influenced by high turbidity as these samples are filtered prior to collection in the laboratory container.*

3. Permittee's Response to NMED's Disapproval Comment 7b, dated January 25, 2022

Permittee Statement: "Total metals analytical results are influenced by the presence of high turbidity. Dissolved samples are not influenced by high turbidity as these samples are filtered prior to collection in the laboratory container."

NMED Comment: Although the Permittee's response is appropriate, the relevant text in Section ES-2.3 was not revised to reflect the Permittee's response. Therefore, NMED's previous Disapproval Comment 7 has not been addressed in the Report. Correct the relevant text in Section ES-2.3 in the revised Report.

Army Response: Concur.
The text in Section ES-2.3 has been revised as follows:

"*Total metals analytical results are influenced by the presence of high turbidity. Dissolved samples are not influenced by high turbidity as these samples are filtered prior to collection in the laboratory container*."

4. Permittee's Response to NMED's Disapproval Comment 7c, dated January 25, 2022

Permittee Statement: "Section 5.3.5 provides an in-depth discussion of groundwater analytical results for metals. Section 6.3.5 provides recommendations for further investigation of metals."

NMED Comment: Sections 5.3.5 and 6.3.5 provide discussions regarding total petroleum hydrocarbon plumes rather than metals. The referenced sections are not accurate. Reference the appropriate sections of the Report and address NMED's previous Disapproval Comment 7 in the revised Report

Army Response: Concur.

The incorrect references have been corrected.

The text in the following sections has been revised for clarification:
Section **5.3.6.1**: "*No other releases of metals are known to have occurred to the alluvial aquifer within the Study Area*."

And

"*No other releases of metals are known to have occurred to the bedrock aquifer within the Study Area*."
Section **6.3.6**

However, aluminum may have been released in the Administration Area at AOC 47 as part of a documented spill of photoflash compound. Due to the number of monitoring wells in this area, no additional investigative activities are recommended for metals.

5. Permittee's Response to NMED's Disapproval Comment 9b, dated January 25, 2022

Permittee Statement: "Section 3.4.1 has been revised to reflect that Bedrock Aquifer 1 is defined by thickness and is a laterally discontinuous water bearing zone without sustainable water production."

NMED Comment: According to Table 4-2.1 (Monitoring Well Construction Details), only wells BGMW08, TMW51, TMW52, TMW53 and TMW64 were screened in the Bedrock Aquifer 1 (BR1) and all other wells screened in the sandstone formation were designated as the Bedrock Aquifer 2 (BR2) wells. However, Section 3.4.1 (Drilling) does not provide information regarding the thickness of the aquifer or water production capacity where these wells are distinguished as BR1 or BR2 wells. Section 2.3.7.2 (Bedrock Aquifer) defines that the sandstone thickness of the BR1 interval is 20 feet(± 10 feet). According to Appendix E1 (Boring Logs), the sandstone formation was continuously observed at the termination depths at wells TMW51 and TMW64; therefore, the thickness of the sandstone formation remains unknown at the wells. The sandstone formation appears to be thicker than 30 feet at well TMW52 and thinner than 10 feet at well TMW53. The distinction between BR1 and BR2 is still unclear. Provide clear information that defines the distinction between BR1 and BR2 in the revised Report. In addition, a lower water production rate does not necessarily indicate that the water bearing zone is laterally discontinuous unless additional supporting data is provided. Clarify the statements in all applicable sections with additional supporting data in the revised Report.

Army Response: Concur. The Army made the following corrections and corresponding updates to the Report:

a. TMW51. The boring log for TMW51 was reviewed and found to be in error. The field log for TMW51 reports the bottom 10 feet of the boring as claystone. The boring log for TMW51 presented in Appendix B has been revised. Therefore, the thickness of sandstone formation at TMW51 is known.

b. TMW64. TMW64 was incorrectly designated as being completed in BR1. Review of the boring log shows that the boring passed through 25 feet of claystone (20 – 45 feet bgs) prior to encountering sandstone to the total depth of 101 feet. This claystone is the distinctive lithologic unit between BR1 and BR2. Adjacent wells (TMW30, TMW31D, TMW39D, TMW48, TMW49, TMW50) are also each designated as being completed in BR2.

c. Tables 4-2.1 and 4-2.2, 4-2.3, 4-2.4, 4-3.4, 4-5.1, 4-7.1, 4-7.3, 4-7.4, have been revised to designate TMW64 as being completed in BR2.

d. Figures 2-3.5a and 2-3.5b have been revised to identify BR1 and BR2. Figures 4-2.2, 4-2.3, 4-3.4, have been revised to designate TMW64 as being completed in BR2.

e. Text revisions:

Section 2.3.7.2 presents a description of BR1 and BR2 based upon prior investigations. Reference to Figure 2.3.5a and Figure 2-3.5b have been added as these figures graphically display the BR1 and BR2 sandstone units.

Section 3.4.1. The description of BR1 and BR2 has been removed from this paragraph as this section presents investigative methods.

Section 4.2.2. This section was revised as follows:
Eight bedrock wells (*three* upper BR1 wells and *five* lower BR2 wells) were drilled and installed in the Study Area. BR1 (upper bedrock unit) *maximum* well depths ranged from *115* feet bgs at *TMW52* located *west* of the TNT Leaching Beds to 125 feet bgs at TMW51 located between the TNT Leaching Beds. BR2 (lower bedrock unit) *maximum* well depths ranged from *75* feet bgs at TMW50 in the southern portion of the Study Area, south of the TNT Leaching Beds to 185 feet bgs at TMW58 located northwest of the TNT Leaching Beds. Construction details of the bedrock wells are *presented* in Table 4-2.1.

Section 4.4.2.2. This section was revised as follows:
The average *and range of bedrock* water quality parameters based upon final measurements during groundwater sampling activities in wells associated with the nitrate plume (*TMW50*, TMW51, TMW52 [insufficient water], TMW53, and *TMW58*) are summarized from Table 4-2.4 and presented in Table 4-2.5.

Section 4.2.6. This section was revised as follows:
Vertical hydraulic gradients were evaluated between two alluvial aquifer well pairs, *two* alluvial aquifer and upper bedrock unit (*BR1*) aquifer well pairs, and *three alluvial aquifer* and lower bedrock unit (*BR2*) well pairs. Groundwater elevations were used to determine the potential for vertical migration (downward or upward movement of water) between adjacent zones. Well pairs used to calculate vertical gradients are within 300 feet of each other, but are screened in different horizons and at different depths. A downward flow component is indicated if the gradient is negative, meaning the hydraulic head is less at depth. Conversely, an upward flow component is indicated if the gradient is positive, meaning the hydraulic head is greater at depth. The magnitude of the gradient indicates its significance.
The vertical gradient values between the well pairs are listed in Table 4-2.3 and illustrated on Figure 4-2.3. Both alluvial well pair units show an upward gradient. *One* well pair in the alluvial to BR1 units shows an upward gradient and one pair shows a downward gradient. *The three alluvial to BR2 unit wells show an upward gradient.*

Section 5.1.3. Bedrock Groundwater. This section has been updated with a description of BR1 and BR2 per the findings of the RFI as follows:
In fall 2019, groundwater levels were measured in wells across the Study Area to provide better delineation of potentiometric surfaces. Groundwater elevations were calculated, and these elevations and elevation contours are shown on Figure 4-2.2. The bedrock aquifer in the Study Area consists of two water-bearing sandstone layers within the Painted Desert Member of the Petrified Forest Formation *- BR1 and BR2. These two units are separated by claystone. Three* new wells were installed in the upper sandstone layer *(BR1)* and *five* new wells were installed in the lower sandstone layer *(BR2).* Groundwater elevations between three wells (TMW51, TMW52 *and* TMW53) in the BR1 were inconsistent and varied by as much as 31.3 feet between wells TMW52 and TMW62 (*which are approximately 1,250 feet apart*), and 9.1 feet between wells TMW52 and TMW53 (which are located approximately 300 feet apart). Although the findings indicate the presence of water in BR1, it is unlikely to be an extensive water bearing zone. The extent and gradient of the first water bearing zone could not be completely and reliably assessed. *A review of groundwater elevation data shows no distinct difference in bedrock groundwater elevations between groundwater wells completed in BR1 compared to BR2; therefore, these two units are considered hydraulically connected.*

6. **Permittee's Response to NMED's Disapproval Comment 9c, dated January 25, 2022**

Permittee Statement: "The hypothesis regarding contaminant communication between the bedrock and alluvial aquifers has been noted. The Army does not have any evidence to support the NMED hypothesis, therefore the text was not updated."

NMED Comment: NMED's previous Disapproval Comment 9 states, "hydraulic communication between the alluvial and bedrock aquifers is evident because contaminants have already migrated vertically across the aquifers in the Study Area; however, interaction between the first and second bedrock aquifers had not been determined because the presence/absence of separate aquifers among the bedrock aquifer has not been clearly demonstrated. Therefore, the former statement can be misleading." The presence of communication between the bedrock and alluvial aquifers is not a hypothesis since contaminants are present in both the alluvial and bedrock aquifers. Revise the Report to address NMED's previous Disapproval Comment 9.

Army Response: Comment Noted. As described in the response to comment 5, units BR1 and BR2 are considered hydraulically connected, and comprise the shallow bedrock aquifer in the Study Area. Persistent vertical gradients measured between the shallow bedrock aquifer and the alluvial aquifer are evidence of a confining unit that inhibits communication between these water bearing units. Furthermore, known releases have occurred at the surface in areas with exposed bedrock. The pattern of contaminants in the bedrock aquifer is consistent with surface releases that migrated directly to bedrock (in areas where the alluvial aquifer and confining units are absent). Therefore, the Army's interpretation is that contamination was released directly to both the bedrock aquifer and the alluvial aquifer, rather than contamination migrating from one aquifer to the other.

The following change was made to the Report to reflect the hydraulic connection between the two units that comprise the shallow bedrock aquifer (BR1 and BR2):

Section 5.1.3. Bedrock Groundwater.

A review of groundwater elevation data shows no distinct difference in bedrock groundwater elevations between groundwater wells completed in BR1 compared to BR2, therefore these two units are considered hydraulically connected.

7. **Permittee's Response to NMED's Disapproval Comment 13b, dated January 25, 2022**

Permittee Statement: "[T]he Army agrees that the bedrock aquifer in the Administration Area has not been investigated. The Army believes for the reasons stated above that groundwater contamination in this area is unlikely and is reluctant to install deep wells in this area due to the potential for cross contamination from the alluvial aquifer to the bedrock aquifer."

NMED Comment: The Permittee's June 28, 2022 supplemental correspondence does not address the Disapproval Comment 13b. Since the alluvial aquifer is already contaminated and the primary COC at the Administration Area is a chlorinated solvent (i.e., 1,2-dichloroethane) whose specific gravity is greater than one (1) and therefore will sink in water, it is possible that the underlying bedrock aquifer may also be contaminated. In addition, if deep wells are installed using appropriate methods, potential cross contamination between aquifers should not occur. NMED's previous Disapproval Comment 13 states, "submit a work plan to investigate the presence of potential groundwater contamination in the bedrock aquifer beneath the Administration Area no later than **June 30, 2022**." Although this comment remains valid, the Permittee's June 28, 2022 supplemental correspondence proposes to submit a work plan by July 30, 2023 due to the Permittee's contracting schedule. Since the Permittee has already had time to initiate the contracting process, an additional year to award a contract is excessive. Accordingly, the Permittee must submit a work plan to investigate the presence of potential groundwater contamination in the bedrock aquifer beneath the Administration Area no later than **February 20, 2023** rather than June 30, 2022.

Army Response: Concur on additional bedrock groundwater investigation.

The Army remains concerned regarding the potential for cross contamination between the alluvial and bedrock aquifers that may occur during drilling or after installation of a groundwater monitoring well through the alluvial aquifer to the bedrock aquifer. However, the Army will include assessment for the presence of potential groundwater contamination in the Administration Area in the Phase 2 Groundwater RFI Work Plan. The Army is pursuing a comprehensive approach to contracting for upcoming related requirements at FWDA that is requiring additional time to develop. The Army is therefore respectfully requesting to revise the proposed submittal date for the Phase 2 Groundwater RFI Work Plan to October 30, 2023.

No changes were made to the Report.

8. Permittee's Response to NMED's Disapproval Comment 14, dated January 25, 2022

Permittee Statements: "The Army removed contamination in the TNT leaching bed area, significantly reducing the amount of contaminant leaching from soil to groundwater."

NMED Comment: The RDX concentrations exceeding the soil leachate-based screening level (SL-SSL) of 0.06 mg/kg were detected in multiple confirmation samples at the TNT leaching bed area; therefore, leaching potential of the contaminants still remains. The text is misleading without stating the fact that the concentrations of multiple contaminants remain above respective SL-SSLs at the TNT leaching bed area. Revise appropriate sections of the Report accordingly.

Army Response: Comment Noted.

The text at sections **Section 2.4.2.2.7**, lines 33-35, page 2-14, and lines 6-8, page 2-15, and **Section 2.4.4.2.1**, lines 27-29, page 2-21, and lines 13-14, page 2-22 have been revised to state the "…*with residual nitrate and explosives contamination below an approximate depth of 35 feet*."

9. Permittee's Response to NMED's Disapproval Comment 15, dated January 25, 2022

Permittee Statements: "The Army believes that the bedrock nitrate contamination originated from releases to the exposed bedrock at the building 528 Complex."

NMED Comment: NMED does not agree with the Permittee's assertion. The Permittee's assertion may be appropriate to describe the origin of perchlorate plumes; however, since the nitrate contamination is more elevated and expanded in the alluvial aquifer than in the bedrock aquifer, the nitrate contamination in the bedrock aquifer likely originated from the overlying alluvial aquifer. Revise the appropriate sections of the Report or provide additional data to support the assertion in the revised Report.

Army Response: Comment Noted

The Army is providing the following additional data to support the assertion in the revised report that the bedrock nitrate plume originated in the bedrock aquifer, as follows:

- Figure 4-4.1 shows the Alluvial Nitrate Plume as a significantly larger downgradient plume in the alluvial aquifer.
- Figure 4-4.2 show a smaller Bedrock Nitrate Plume originating from the Building 528 complex which is hydraulically upgradient of the alluvial plume.
- Both of these figures show a northerly groundwater flow direction and the Bedrock Nitrate Plume upgradient of the Alluvial Nitrate Plume.
- Figure 4-2.3 illustrates a slightly higher potentiometric surface in the second bedrock unit (semi-confined conditions) which graphically documents a vertical hydraulic gradient from the bedrock aquifer to the alluvial aquifer. Section 5.1.3 discusses the semi-confined conditions and upward gradient from the bedrock aquifer to the alluvial aquifer.

Based upon the data as expressed in these figures, the bedrock nitrate plume is significantly smaller and hydraulically upgradient and is only incrementally intersecting the significantly larger downgradient alluvial plume. The hydraulically upgradient orientation of the bedrock plume reduces the potential for migration from the alluvial aquifer to an upgradient location. Furthermore, the vertically upward hydraulic gradient reduces the potential for downward contaminant migration from the alluvial aquifer to the bedrock aquifer. Based upon these conditions (bedrock plume hydraulically upgradient of alluvial plume, smaller bedrock plume that does not underlie the alluvial plume, and vertical upward hydraulic gradient), the Army believes that the bedrock nitrate contamination originated from releases to the exposed bedrock at the Building 528 Complex. The Army has revised section 5.3.2.1 accordingly.

Section 5.3.2.1 revised as follows:

"*As shown on Figure 5-3.1, the configuration of the nitrate plumes (the significantly smaller and hydraulically upgradient bedrock plume incrementally intersecting the significantly larger downgradient alluvial plume) does not support downward contaminant migration from the alluvial aquifer to the bedrock aquifer (Figures 4-4.1 and 4-4.2 provide supporting detail for the individual configuration of the alluvial and bedrock nitrate plumes). Figure 4-2.3 graphically presents data supporting a vertical hydraulic gradient from the bedrock aquifer to the alluvial aquifer. The upward vertical gradient from the bedrock aquifer to the alluvial aquifer reduces the potential for downward migration of contaminants. Due to the geometric plume configuration and upward vertical hydraulic gradients, the Army believes that the bedrock nitrate contamination originated from releases to the exposed bedrock at the Building 528 Complex.*"

10. Permittee's Response to NMED's Disapproval Comment 16, dated January 25, 2022

Permittee Statement: "No remediation activities have been performed and the perchlorate remains in soil at this location [the Building 528 Complex]."

NMED Comment: In order to prevent further contamination of groundwater by perchlorate, the Permittee must submit a separate work plan to remediate soils where perchlorate concentrations exceeded applicable SL-SSL no later than **July 30, 2023**.

Army Response: Concur.

The Army will prepare a work plan to remediate soils where perchlorate concentrations exceeded applicable SL-SSLs at the Building 528 Complex. Given the location of the perchlorate spills and the exposed bedrock in the area, the Army proposes to consider addressing the perchlorate contamination through in-situ treatment of the ground and underlying groundwater. The Army proposes a Pilot Study to determine if in-situ remedies are effective for perchlorate and other explosive compounds present at depth and in groundwater that are not amenable to removal action. The Pilot Study will support the upcoming Northern Area Groundwater Corrective Measures Study. The Army is pursuing a comprehensive approach to contracting for upcoming related requirements at FWDA that is requiring additional time to develop. The Army is therefore respectfully requesting to revise the proposed submittal date for the Pilot Study Work Plan to November 30, 2023.

No changes were made to the Report.

11. Permittee's Response to NMED's Disapproval Comment 17, dated January 25, 2022

Permittee Statements: "The statement in Section 2.4.3.3 was revised as follows: "The extent of groundwater perchlorate contamination from previous investigation was determined to be limited to Parcel 21 and Parcel 22."

Well, TMW39D was installed as part of the RFI and the presence of perchlorate at this location is [reported in] Result (Section 4, see Figure 4-5.2) and Finding (Section 5)."

NMED Comment: Since the perchlorate concentrations in the groundwater samples collected from well TMW39D have exceeded the applicable screening level, it is appropriate to state that the extent of the plume is expanding from Parcels 21 and 22 to Parcel 13. In addition, such discussion is not provided in Sections 4 and 5. Reference appropriate sections of the Report if the discussion is provided; otherwise, include the discussion in the revised Report.

Army Response: Concur.

Section 5.3.3.1 has been revised to state that the alluvial and bedrock perchlorate plumes are "*in Parcels 13, 21 and 22"*:

Please note that TMW39D is a new well in a location that was not previously sampled, and documents that the perchlorate plume is also in Parcel 13 at this location. The plume is not necessarily expanding but is now known to be present in Parcel 13. TMW39D documents the perchlorate plume configuration, which was previously incomplete.

12. Permittee's Response to NMED's Disapproval Comment 19, dated January 25, 2022

Permittee Statement: "The Army concurs that the depth of soil hydrocarbon contamination extends to the water table; however, not at the location of SWMU 45. The upgradient soil gas and groundwater results suggest an upgradient hydrocarbon source. Furthermore, soil analytical results from the cited report document the depth of TPH in soil at this location."

NMED Comment: According to Table 4-3.2 (Soil Analytical Detections – Chemical), multiple fuel constituents were detected from the soil samples collected from borings MW29, MW30, and MW31at depths above the water table (10-12 feet below ground surface (bgs). These borings were advanced in the vicinity of SWMU 45; therefore, it is possible that the soil hydrocarbon contamination extends to the water table at the location of SWMU 45.

Since Comment 7 above requires submission of a work plan to investigate the presence of potential groundwater contamination in the bedrock aquifer beneath the Administration Area, one of the bedrock wells to be advanced in the Administration Area must be proposed within the boundary of SWMU 45 so that the soil samples collected from the boring can be used to assess the vertical extent of contamination within SWMU 45. Include this provision in the work plan required by Comment 7 above.

Army Response: Concur.

The Army will include this provision in the Phase 2 Groundwater RFI Work Plan to assess the vertical extent of hydrocarbon contamination in the boundary of SWMU 45.

No changes were made to the Report.

13. Permittee's Response to NMED's Disapproval Comment 22, dated January 25, 2022

Permittee Statement: "The Army believes that collection and analysis of these soil samples would not change the findings or recommendations presented in this report regarding the extents of the groundwater contamination plumes."

NMED Comment: NMED's previous Disapproval Comment 22 lists potential data gaps associated with lack of soil sample collection and analyses and requires the Permittee to "provide justification for not collecting appropriate samples and not having the appropriate analyses conducted in the revised Report. In addition, propose to submit a work plan for collection and analyses of soil samples to fill the data gaps listed above no later than **June 30, 2022**." Address each data gap listed in NMED's previous Disapproval Comment 22 and explain why the Permittee believes that collection and analysis of these soil samples would not change the findings or recommendations regarding the extents of the groundwater contamination plumes in the revised Report. Submit a work plan for collection and analyses of soil samples to fill the data gaps no later than **February 20, 2023** rather than June 30, 2022

Army Response: Do Not Concur

The Army respectfully disagrees with this NMED comment regarding data gaps. The purpose of the wells listed in NMED Comments 22(a)-(j) is to identify the extent of contamination in groundwater, and the collection of groundwater samples from these wells satisfies this purpose. The Army does not believe that collecting soil samples at these well locations would change the findings or recommendations regarding the extents of the groundwater contamination plumes. None of the wells in question were installed in contaminant source areas where elevated contaminant concentrations would be expected. The Army has not identified data gaps with respect to soil contamination in these areas.

The Army acknowledges the following direction from NMED in its January 22, 2020 *Approval with Modifications Final Northern Area Background Well Installation and Completion Report*, with regard to installation of future borings: "*In the future, NMED requires the collection of soil samples from every boring for laboratory analysis*."

No changes were made to the Report.

14. Permittee's Response to NMED's Disapproval Comment 24, dated January 25, 2022

Permittee Statement: "The NMED-approved May 2019 Work Plan addresses the additional sample analyses described in this comment. Work was performed in accordance with the 2018 Work Plan and the 2019 Work Plan with no additional variations to report."

NMED Comment: NMED has no record for receiving a relevant RFI work plan in May 2019. NMED received a revised 2017 interim facility wide groundwater monitoring plan; however, the relevant wells were installed after 2017. Provide a clarification for the cited reference in the revised Report

Army Response: Comment Noted.

The subject work plan is titled: "*Letter work Plan, Downgradient Alluvial Aquifer Investigation & Installation of One Additional Well*." It is referenced in Section ES-1, line 15 (USACE, 2019). The NMED approval is dated January 22, 2020.

No changes were made to the Report.

15. Permittee's Response to NMED's Disapproval Comment 25b, dated January 25, 2022

Permittee Statement: "Henry's Law is a screening tool and as such can be inaccurate, subject to interference and has its limitations including non-ideal conditions. However, it can quickly provide valuable information that can be used to select sample locations for laboratory analysis. The purpose of the groundwater monitoring well was to delineate the downgradient extent of the groundwater [1,2-dichloroethane (1,2-DCA)] plume. The model was not used for any other purpose. The soil vapor assessment was a screening tool to locate a groundwater monitoring well."

NMED Comment: Although NMED agrees that Henry's Law is a screening tool and as such can be inaccurate, the Permittee established the soil vapor screening criterion based on the selected Henry's Law Constant, which guided the extent of the investigation; therefore, it is important to use an accurate Henry's Law Constant. The Permittee calculated the soil vapor screening level (60 parts per billion by volume (ppbv)) using the New Mexico Water Quality Control Commission (NM WQCC) standard for groundwater protectiveness (5 µg/L) and Henry's Law Constant for 1,2-DCA (0.048). According to the formula provided in Section 3.7.1(Soil Vapor Screening Criteria), the Henry's Law Constant (0.048) is based on a temperature of 298.15 Kelvin (25 degrees Celsius (°C)). If the soil vapor temperature was lower, the Henry's Law Constant would be lower and, proportionally, the soil vapor screening level would be lower, which would result in a larger plume boundary. According to Figure 4-1.1 (1,2-DCA Soil Vapor Plume), elevated 1,2-DCA concentrations were detected in the soil gas samples collected from multiple boring locations outside of the 60 ppbv plume boundary (e.g., SG36, SG47, SG70, SG75, SG83). These locations may potentially be included in the plume boundary if a lower Henry's Law Constant is used. Subsequently, the conclusions and recommendations regarding delineation of the downgradient extent of the groundwater 1,2-DCA plume may change. The soil vapor plume may be larger if the calculated soil vapor screening level is lower. Provide justification for the soil vapor screening level of 60 ppbv or revise the Report to include an empirical value for the Henry's Law Constant.

Army Response: Concur.

The Army concurs that soil conditions at depth may not represent ideal conditions of standard temperature (25°C) and pressure (1 atm) and that the soil temperature may be lower than 25°C, which may result in a larger soil vapor plume at depth.

Based upon the possibility of non-standard conditions at depth, the Report has been revised as follows:
Figure 4-1.1 and Figure 5-2.1 presenting the soil vapor plume contour have been revised as "*estimated.*"

Sections 5.2.1 and 5.2.2 have been revised to incorporate "*estimated*" when describing the soil vapor plume.

Section 5.2.3 has been revised as follows:
Soil vapor temperatures at depth may not represent ideal conditions of standard temperature and pressure and the soil temperature may be lower than 25^{0}C, which may result in a larger soil vapor plume at depth. Based upon the possibility of non-standard conditions at depth, the soil vapor plume contours are estimated.

Section 6.2 has been revised to add soil vapor plume delineation to the west of Building B005. As part of future soil vapor plume delineation (see comment #25), additional data will be collected to assess subsurface conditions or sample analytical methods will be modified to better assess the lateral extent of the soil vapor plume. The Report has been revised as follows: To design a remedy for the soil vapor plume, it is recommended that the horizontal limits of the plume be defined by collection and analysis of additional soil vapor samples to the north, south, *west* and east of Building B005.

16. Permittee's Response to NMED's Disapproval Comment 25c, dated January 25, 2022

Permittee Statement: "The soil vapor data was not used for a vapor intrusion assessment as suggested by this comment. The intent of the data collection was consistent with the 2018 Work Plan and consistent with NMED Directive in its letter dated July 3, 2019, comment #3: "The Permittee may utilize the HAPSITE GC/MS for soil gas screening purposes. The Permittee is reminded that data collected by field instruments may only be used for screening purposes unless a high correlation with duplicate analytical laboratory data is demonstrated. Field instrument screening data may not be used for confirmation or compliance purposes."

Also note that the soil vapor samples were collected at a depth of approximately 30 feet below ground surface to assess potential presence of groundwater contamination and are not representative of near surface soil vapor conditions which would be used for vapor intrusion purposes.

As intended and directed, none of the data was used for vapor intrusion assessment purposes. Instead, the groundwater sample results from wells MW25 and MW31 provide the empirical data for this investigation, as opposed to the soil vapor data. For these reasons, the units for soil vapor data have not been converted to µg/m^3."

NMED Comment: The Permittee's explanation for not converting the unit for soil vapor data is not relevant. NMED's previous Disapproval Comment 25 states, "[s]tandard units for soil vapor concentrations and NMED's vapor intrusion screening levels are µg/m^3. For all discussion or presentation of soil vapor or air quality data, the Permittee must use µg/m^3 for concentration units." Failure to follow NMED direction constitutes noncompliance and may result in an enforcement action. Resolve the issue in the revised Report.

Army Response: Concur.

The soil vapor units were converted from ppbv to µg/m^3.

The following Report sections were changed accordingly:

- Acronyms and Abbreviations
- Table 3.8.1
- Table 4-1.1
- Figure 4-1.1
- Figure 5-2.1
- Section 3.3.2
- Section 3.7.1
- Section 4.1.2
- Section 5.2.2

17. Permittee's Response to NMED's Disapproval Comment 27, dated January 25, 2022

Permittee Statement: "The Army proposes to address potential soil contamination associated with Building B005 as part of a separate work plan to further investigate data gaps in the Administration Area. Furthermore, B005 is not occupied and is not suitable for occupancy due to the dilapidated interior. Signage will be posted at each entrance indicating that the building is not suitable for occupancy. Therefore, due to the lack of potential for indoor air exposure, the Army does not consider there to be a vapor intrusion hazard at B005."

NMED Comment: It is possible that Building B005 may be used for occupancy in the future. Posting signage alone does not ensure safety for future occupants. Submit a separate work plan to investigate risks associated with vapor intrusion within Building B005, as required by NMED's previous Disapproval Comment 27 no later than **July 30, 2023.**

Army Response: Concur.

The Army will include investigation of vapor intrusion within Building B005 in the work plan to further investigate data gaps in the Administration Area. The Army is pursuing a comprehensive approach to contracting for upcoming related requirements at FWDA that is requiring additional time to develop. The Army is therefore respectfully requesting to revise the proposed submittal date for the work plan to November 30, 2023. Building B005 is vacant and is not suitable for occupancy. In the future the Army intends to demolish this building.

No changes were made to the Report.

18. Permittee's Response to NMED's Disapproval Comment 29, dated January 25, 2022

NMED Comment: Based on the Permittee's response, it is not clear which future periodic monitoring report(s) will address NMED's previous Disapproval Comment 29 to evaluate the presence/absence of separate units within the alluvial/bedrock aquifers (e.g., by comparing the groundwater quality and chemical composition of groundwater in the two zones). Provide a clarification in the revised Report.

Army Response: Concur.

The 2023 Groundwater Periodic Monitoring Work Plan includes information to assess the presence/absence of separate units within the alluvial/bedrock aquifers where suitable well pairs exist.

No changes were made to the Report because NMED's previous Comment 29 said no revision is required.

19. Permittee's Response to NMED's Disapproval Comment 31, dated January 25, 2022

NMED Comment: Although total porosity analysis was conducted for geotechnical samples, effective porosity analysis was not conducted for any geotechnical samples. Effective porosity can often be an important parameter for various remediation technologies. When geotechnical analyses are conducted at the areas where groundwater remediation may potentially be required in the future, include a provision to conduct both total and effective porosity analyses. No revision is required to the Report.

Army Response: Concur.

Total and effective porosity analyses will be considered for geotechnical samples in the future.

No changes were made to the Report.

20. Permittee's Response to NMED's Disapproval Comment 33, dated January 25, 2022

NMED Comment: The chromium concentration in the soil sample collected from boring TMW57 at 55- 57 feet bgs is reported as 5.3 mg/kg in Table 4-3.2 (Soil Analytical Detections- Chemical). Although the reported concentration does not exceed the SL-SSL for total chromium (205,000 mg/kg), it exceeds the SL-SSL for hexavalent chromium (0.192 mg/kg). Submit a work plan to advance a soil boring to collect a soil sample at the nearest accessible location from well TMW57 for hexavalent chromium analysis no later than **July 30, 2023** or provide an explanation why hexavalent chromium analysis is not required in the revised Report.

Army Response: Concur.

The Army provided an explanation why hexavalent chromium analysis is not required in the revised Report.

Section 4.8.1.2 has been revised as follows:

Collection and analysis of soil samples for hexavalent chromium was not identified at the locations of the wells installed as part of the Northern Area Groundwater RFI, as there are no contaminating activities identified that would result in the presence of hexavalent chromium. The relatively low concentration of trivalent chromium as compared to the screening levels is suggestive of the low potential presence of hexavalent chromium. Analysis of hexavalent chromium would not change the findings or recommendations regarding the extents of the groundwater contamination for the Northern Area Groundwater RFI.

21. Permittee's Response to NMED's Disapproval Comment 34, dated January 25, 2022

Permittee Statement: "The following discussions were added to: Section 4.7.2.1: "Nitrite- There were three nitrite exceedances." Section 4.7.2.2: "Nitrite - no screening level exceedances."

NMED Comment: The referenced Sections 4.7.2.1and 4.7.2.2 are not relevant to the discussion regarding the exceedance of nitrite. Reference the relevant sections of the Report where the discussion is provided or include the required discussion in the revised Report.

Army Response: Concur.

The Army's response mis-stated the sections presenting the revised text. The revised text regarding nitrite data is presented in the following sections:

Section 4.8.2.1:
Nitrite – There were three nitrite exceedances.

Section 4.8.2.2:
Nitrite - no screening level exceedances.

No changes were made to the Report.

22. Permittee's Response to NMED's Disapproval Comment 34, dated January 25, 2022

Permittee Statement: "Based upon the isolated nitrite exceedances and the lack of nitrite exceedances during the 2018 groundwater monitoring year, there does not appear to be a nitrite plume. While similar groundwater purging and sampling methods were used during the RFI and the semi-annual monitoring events, different laboratories were used which may explain the differing groundwater analytical results."

NMED Comment: The nitrite concentrations in groundwater samples collected from wells MW27, MW35, and MW59 [sic TMW59] must be evaluated to determine whether the exceedances were false detections, and the discussion must be provided in the future periodic groundwater monitoring reports. Propose to split the nitrite samples collected from the wells and direct the two laboratories to conduct nitrite analysis to evaluate for potential analytical errors in the revised Report.

Army Response: Concur.

The requested analyses will be performed as part of the periodic groundwater monitoring program and reported therein.

No changes were made to the Report.

23. Permittee's Response to NMED's Disapproval Comment 36, dated January 25, 2022

Permittee Statements: "The shape of the dissolved RDX plume is influenced by the groundwater mound that may be impacted by wells 68 and/or 69. These wells are planned for decommissioning in 2022. Once these wells are decommissioned, the Army will assess the configuration of the RDX plume and the need for further delineation of the RDX plume using the existing monitoring well network."

NMED Comment: NMED does not believe that the existing monitoring well network is sufficient to assess the configuration of the RDX plume. The distance from well TMW62 to wells TMW21 and MW27 exceeds 500 feet; therefore, the RDX plume boundary west of well TMW62 is not well defined. Submit a work plan to install an additional well to delineate the western boundary of the RDX plume no later than **February 20, 2023.**

Army Response: Do Not Concur.

The Army believes it has sufficiently determined the extent of RDX in the alluvial aquifer to proceed with remedy evaluation and selection. Similar to other groundwater contaminant plumes at FWDA, the Northern Area Groundwater RFI presents groundwater contaminant plume maps using interpolation of groundwater concentrations between the various groundwater monitoring wells. The Army believes that the existing groundwater monitoring well network is sufficient to define the extents of groundwater contamination, including the extent of RDX in the alluvial aquifer, and that additional alluvial groundwater monitoring wells will not provide incremental benefit to groundwater plume delineation.

Installation of additional wells may be necessary as part of groundwater corrective measures. The Army requests that consideration of additional wells be deferred until that time to better address the long-term goals of site remediation.

No changes were made to the Report.

24. Permittee's Response to NMED's Disapproval Comment 36, dated January 25, 2022

Permittee Statement: "At the location of TMW54, the alluvial sediments are shallower than at other nearby locations and are unsaturated. This does not mean that the screen interval for TMW54 was not appropriate, only that the alluvial sediments in this location are sometimes dry. The subsurface conditions at FWDA are variable. The Army does not believe additional investigation is needed at TMW54. TMW54 is being monitored as part of the 2022 semi-annual groundwater monitoring events and if groundwater is present, a sample will be collected."

NMED Comment: Although NMED agrees that the subsurface conditions at FWDA are variable, it does not agree that additional investigation is unnecessary at well TMW54. Although the Permittee proposes to monitor TMW54 as part of future periodic groundwater monitoring events, groundwater is unlikely to be present in well TMW54 due to the shallow depth of the screened interval. Submit a work plan to augment well TMW54 with an adjacent well that is constructed with a more appropriate screened interval or at an alternative nearby location no later than **February 20, 2023.**

Army Response: Comment Noted.

The Army respectfully disagrees with NMED comment. Our rationale is provided below: TMW54 is appropriately constructed in the alluvial sediments and is monitoring groundwater conditions representative of this location. TMW54 was installed correctly to assess groundwater in the alluvial aquifer and is screened from the top of bedrock and through the alluvium. The shallow screen interval is due to the shallow thickness of the alluvial sediments at this location. A deeper screened well will be representative of bedrock conditions. There are several adjacent wells from which groundwater samples are collected and additional alluvial groundwater monitoring wells will not provide incremental benefit to delineation of any of the groundwater contaminant plumes at this location. The Army believes that the current alluvial groundwater monitoring network in this area is sufficient for groundwater contaminant plume monitoring purposes.

No changes were made to the Report.

25. Permittee's Response to NMED's Disapproval Comment 42, dated January 25, 2022

Permittee Statement: "The Army plans to submit a separate work plan to assess the extent of the soil vapor plume as part of a separate effort to further investigate data gaps in the Administration Area. The Army respectfully requests that this effort be treated independently from the Northern Area Groundwater RFI that is the subject of this report."

NMED Comment: NMED concurs to treat the work plan to investigate the extent of the soil vapor plume, including the potential for vapor intrusion, in the vicinity of Building B006 independently from the Northern Area Groundwater RFI. The work plan must be submitted to NMED no later than **July 30, 2023.** No revision is required to the Report.

Army Response: Concur.

The Army will propose to investigate the extent of the soil vapor plume, including the potential for vapor intrusion, in the vicinity of Building B006, as work plan to further investigate data gaps in the Administration Area. The Army is pursuing a comprehensive approach to contracting for upcoming related requirements at FWDA that is requiring additional time to develop. The Army is therefore respectfully requesting to revise the proposed submittal date for the work plan to November 30, 2023.

No changes were made to the Report.

26. Permittee's Response to NMED's Disapproval Comment 44, dated January 25, 2022

Permittee Statement: "There are no inconsistencies regarding groundwater flow directions and groundwater contaminant plume configurations. As reported, the groundwater at FWDA is variable, hence groundwater contaminant plume configurations are variable as well."

NMED Comment: According to Figure 4-2.1 (Groundwater Elevation Contours -Alluvial), groundwater flows toward the west in the vicinity of the former TNT Leaching Beds. However, according to Figure 4-4.1(Alluvial Groundwater Plume - Nitrate), the nitrate plume expands north rather than west. There is an inconsistency regarding groundwater flow directions and groundwater contaminant plume configurations. Provide more detailed explanation regarding variability of the groundwater flow direction to support the assertion in the revised Report.

Army Response: Comment Noted.

Section 5.3.2.2 was modified as follows:

"*Also note that the hydraulic conditions at FWDA have changed over time due do the former use and then cessation of the use of the TNT leaching beds. The TNT leaching beds likely induced alluvial aquifer groundwater mounding which would have influenced groundwater flow directions. Evidence of the mounding is no longer observed from the potentiometric maps (Figure 4-2.1). The influence of the mounding could explain the nitrate plume* *configuration which is not currently perpendicular to the alluvial groundwater contours*."

27. Permittee's Response to NMED's Disapproval Comment 51, dated January 25, 2022

Permittee Statement: "The Army plans to submit a separate work plan to assess the locations and integrity of the sewer lines, and the potential of the sewer lines as a source nitrate contamination to groundwater. The work plan will be submitted as part of an additional work plan to further investigate data gaps in the Administration Area."

NMED Comment: The work plan must be submitted to NMED no later than **July 30, 2023.** No revision is required to the Report.

Army Response: Concur.

The Army is pursuing a comprehensive approach to contracting for upcoming related requirements at FWDA that is requiring additional time to develop. The Army is therefore respectfully requesting to revise the proposed submittal date for the work plan to November 30, 2023.

No changes were made to the Report.

28. Permittee's Response to NMED's Disapproval Comment 53, dated January 25, 2022

Permittee Statements: "Additional sample and analyses for herbicides is considered investigative. Sampling and analysis for pesticides which were detected at less than screening levels is not required for investigative purposes and can be addressed as needed in the groundwater monitoring program, Groundwater monitoring program recommendations are not provided in the RFI report, and no changes were made."

NMED Comment:

28a. The Permittee must propose to (a) analyze potential COCs and (b) modify the groundwater monitoring program, as necessary, in the RFI reports, based on findings from the investigations. The Permittee recommended to conduct additional groundwater sampling and analysis of herbicides for wells MW36S, BGMW13D and BGMW07. Accordingly, it is appropriate to propose the modifications to the groundwater monitoring program in the upcoming Interim Northern Area Groundwater Monitoring Plan. Revise the Report accordingly.

28b. In addition, pesticides were detected below their respective screening levels in the groundwater samples collected from well TMW52. While the presence of these lower-level detections may be addressed in the uncertainty section, the Permittee has not provided such discussion in the Report.

28c. For the initial screening assessment, all potential site related analytes with at least one detection must be evaluated. Propose to conduct pesticide analysis for the groundwater samples collected from wells TMW40S and TMW52 for a minimum of two consecutive groundwater sampling events in the revised Report and update the sampling requirement in the upcoming Interim Northern Area Groundwater Monitoring Plan, as required by NMED's previous Disapproval Comment 53. This comment also applies to the Permittee's response to NMED's previous Disapproval Comment 54.

Army Response: Concur.

28a. Section 6 Recommendations, has been revised as follows:
"This section presents investigative *and additional monitoring recommendations for potential COCs* to address data gaps identified during this RFI. *The additional monitoring will be performed as part of the semi-annual periodic groundwater monitoring events to assess if detections are repeated*."

28b Section 6.3.6 Herbicides, Pesticides and PCBs has been revised to incorporate analysis of pesticides from wells TMW40S and TMW52 where pesticides were reported at concentrations below screening levels in the groundwater. These analyses will be performed for a minimum of two consecutive groundwater sampling events. This section is revised as follows:

"Additional groundwater sampling and analysis of herbicides is recommended from monitoring wells MW36S, BGMW13D, BGMW07, *TMW40S and TMW52* to determine if the reported estimated herbicide *and/or concentrations below screening levels* detections are repeatable and present. *These analyses will be performed for a minimum of two consecutive groundwater sampling events*."

28c The Army will modify the *Interim Northern Area Groundwater Monitoring Plan* to incorporate analysis of pesticides for monitoring wells MW36S, BGMW13D, BGMW07, TMW40S and TMW52 for a minimum of two consecutive groundwater sampling events.

Section 4.9.2.1 Uncertainty Discussion has been revised to incorporate discussion of two pesticides (endosulfan I and 1,4-dioxane) detected in groundwater below their respective USEPA Tapwater RSL values at well TMW52.
This section is revised as follows:

"*Groundwater samples from TMW52 had detections of two pesticides (endosulfan I and 1,4-dioxane) in groundwater below their respective USEPA Tapwater RSL values. Endosulfan I was qualified as estimated. No qualification for 1,4-dioxane was required, No bias is present for these two analytes at TMW52. To confirm these single detections below screening levels, recommendations for supplemental analysis are presented in Section 6.3.6*."

Final Comment: The Permittee must submit a revised Report that addresses all comments contained in this letter. Two hard copies and an electronic version of the revised Report must be submitted to the NMED. The Permittee must also include a redline-strikeout version in electronic format showing where all revisions to the Report have been made. The revised Report must be accompanied with a response letter that details where all revisions have been made, cross- referencing NMED's numbered comments. The revised Report must be submitted to NMED no later than **December 31, 2022.** In addition, the work plan required by Comments 7, 13, 23 and 24 must be submitted no later than **February 20, 2023.** The work plan required by 17, 25 and 27 must be submitted no later than **July 30, 2023,** as requested by the Permittee's June 28, 2022 supplemental correspondence. Furthermore, the work plan required by Comments 10 and 20 must also be submitted no later than **July 30, 2023.** Each investigation required by the comments may independently be submitted as a letter work plan, if the Permittee chooses to do so.

If you have questions or require further information, please contact me at George.h.cushman.civ@army.mil, 703-455-3234 (Temporary Home Office, preferred) or 703-608-2245 (Mobile).

Sincerely,

George H. Cushman IV
BRAC Environmental Coordinator
Fort Wingate Depot Activity
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ARMY RESPONSE LETTER,
DATED JUNE 28, 2023

DEPARTMENT OF THE ARMY
OFFICE OF THE DEPUTY CHIEF OF STAFF, G-9
600 ARMY PENTAGON
WASHINGTON, DC 20310-0600

June 28, 2023

Army Environmental Division – BRAC Ops Branch

Mr. Ricardo Maestas
Chief, Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

RE: Final Northern Area Groundwater RCRA Facility Investigation Report, Revision 2, Fort Wingate Depot Activity, McKinley County, New Mexico
Army's Response to the New Mexico Environment Department Third Letter of Disapproval dated March 27, 2023, EPA# NM6213820974, HWB-FWDA-21-004

Dear Mr. Maestas:

This letter is in reply to the New Mexico Environment Department (NMED) Third Letter of Disapproval dated March 27, 2023, reference number HWB-FWDA-21-004, Final Northern Area Groundwater RCRA Facility Investigation Report, Revision 2, dated December 19, 2022. The following are Army's responses to NMED comments, detailing where each comment was addressed and cross referencing the numbered NMED comments. In addition to the comment responses provided in this letter, two (2) hard copies and two (2) electronic (CD) copies of the Final Northern Area Groundwater RFI Report, Revision 3, including a redline strikeout version, are enclosed for your review and consideration.

Comments:

1. **Permittee's Response to NMED's Second Disapproval Comment 1, dated July 25, 2022**

   Permittee Statement: "The Army will propose to implement parts (a)-(c) of NMED's comment in Phase 2 Groundwater RFI Work Plan, with a proposed submittal date of October 30, 2023."

   NMED Comment: The Permittee proposes to (a) define what analytes constitute naturally occurring organic compounds; (b) collect groundwater samples from the new wells where total petroleum hydrocarbon (TPH) gasoline range organics (GRO) and diesel range organics (ORO) were detected; and (c) conduct TPH-DRO/GRO, volatile organic compound (VOC), and semi-volatile organic compound (SVOC) analyses with and without use of silica gel cleanup for at least two consecutive sampling events in the Phase 2 Groundwater RFI Work Plan that is planned to be submitted in October 30, 2023, as stated. However, TPH detected in the new wells may be considered contaminants of concern (COCs) or fuel constituents unless proven otherwise. Accordingly, the Permittee must continue to collect groundwater samples from the new wells where TPH-DRO/GRO were detected for TPH-DRO/GRO, VOC, and SVOC analyses, as well as specific analyses required for each well during the upcoming groundwater periodic monitoring events. Regarding the proposed submittal date of this investigative work plan (i.e., October 30, 2023), NMED finds it acceptable. The Permittee must submit the proposed work plan for NMED review no later than **October 30, 2023**, as stated. Revise the Report to include this provision.

Army Response: Concur. As proposed in the Army's April 24, 2023, letter to NMED regarding outstanding documents, the Army plans to submit a Phase 2 Groundwater RFI Work Pan by March 15, 2024.

2. Permittee's Response to NMED's Second Disapproval Comment 1, dated July 25, 2022

Permittee's Statement: "Section 5.3.5.1 was revised to incorporate the assumption that the TPH detections are due to interference from organics, see page 5-11, lines 4 and 26."

NMED Comment: Section 5.3.5.1 asserts that the TPH detections were assumed to be caused by the presence of organic matter rather than hydrocarbon constituents or potential COCs; however, the statement is not supported and does not address the NMED's July 22, 2022 Second Disapproval Comment 1 that states, "it is premature to conclude that naturally occurring organic compounds are the sole source of the detections," and "revise the Report to remove unproven assertions and propose the required analysis detailed above." The assertions are not proven unless they are demonstrated to be true. The revision to Section 5.3.5.1 remains misleading. NMED's Second Disapproval Comment 1 must be addressed in the revised Report. Failure to follow NMED direction constitutes noncompliance and may result in an enforcement action.

Army Response: Concur. Section ES-2.3, page ES-4, lines 17-18 and Section 5.3.5.1, page 5-11, were revised to remove statements that the detections were not due to diesel fuel contamination. Per the recommendation in Section 6.3.5, and consistent with the Army's response to NMED comment #1 above, the Army will propose to analyze samples with and without the use of silica gel cleanup for at least two consecutive sampling events in the Phase 2 Groundwater RFI Work Plan.

3. Permittee's Response to NMED's Second Disapproval Comment 2, dated July 25, 2033

Permittee Statement: "The Army acknowledges that aluminum may have been released in the Administration Area at AOC 47 as part of a spill of a photoflash compound. No other releases of metals are known to have occurred within the Study Area."

NMED Comment: The statement does not appear to be accurate. Metals other than aluminum have previously been released at the facility. For example, lead was released from the paint used to prevent corrosion at the igloo swales and was identified in soils adjacent to buildings in the Administration Area. Revise all relevant sections of the Report for accuracy. In addition, some explosives handled at the facility may potentially have been formulated with metals (e.g., barium, aluminum). In this case, since explosive compounds have been released at the facility, metals formulated for some explosives may have also been released to the environment. The concentrations of some explosive compounds in soil or groundwater samples may correlate with those of the metals. Evaluate whether such correlation is present and provide a discussion in the revised Report. In addition, the Permittee can attain records of the explosives handed at the facility, provide the information in the revised Report.

Army Response: Concur. “No other releases of metals are known to have occurred within the Study Area” has been removed from two locations in Section 5.3.6.1, page 5-13, lines 1-2 and lines 17-18. As proposed in the Army’s April 24, 2023, letter to NMED regarding outstanding documents, the Army plans to submit a Phase 2 Groundwater RFI Work Pan by March 15, 2024, to address remaining data gaps with respect to Northern Area groundwater.

4. Permittee's Response to NMED's Second Disapproval Comment 4, dated July 25, 2022

Permittee Statement: "Aluminum may have been released in the Administration Area at AOC 47 as part of a documented spill of photoflash compound. Due to the number of monitoring wells in this area, no additional investigative activities are recommended for metals."

NMED Comment: Since Comment 13 in the NMED's January 25, 2022, Disapproval requires an investigation for the presence of potential groundwater contamination in the bedrock aquifer beneath the Administration Area, propose to investigate potential contamination associated with the aluminum release in the bedrock aquifer beneath the Administration Area in the relevant work plan submittal. No revision is required to the Report.

Army Response: Concur. As proposed in the Army’s April 24, 2023, letter to NMED regarding outstanding documents, the Army plans to submit a Phase 2 Groundwater RFI Work Pan by March 15, 2024.

5. Permittee's Response to NMED's Second Disapproval Comment 5a, dated July 25, 2022

Permittee Statement: "The boring log for TMW51 was reviewed and found to be in error. The field log for TMW51reports the bottom 10 feet of the boring as claystone. The boring log for TMW51 presented in Appendix B has been revised."

NMED Comment: Appendix B (Field Forms), does not contain the field log for TMW51 or any field record associated with observation of the soil borings. Include the relevant field logs in the revised Report. In addition, a hardcopy of the Report indicates that Appendix E2 contains the wellhead photographs in the compact disks; however, the electronic files titled as "E-2" in the compact disks contain cross section diagrams rather than wellhead Photographs. Include the missing information in the revised Report.

Army Response: Concur. The Army response to NMED comment 5a, dated December 19, 2022, regarding the boring log for TMW51 being presented in Appendix B, was in error. Please note that the boring log for TMW51 is presented in Appendix E. No changes to the report were made as this typographical error was only in the comment response letter dated December 19, 2022.

6. Permittee's Response to NMED's Second Disapproval Comment 5b, dated July 25, 2022

Permittee Statement: "TMW64 was incorrectly designated as being completed in BR1. Review of the boring log shows that the boring passed through 25 feet of claystone (20 - 45 feet bgs) prior to encountering sandstone to the total depth of 101 feet. This claystone is the distinctive lithologic unit between BR1 and BR2."

NMED Comment: According to Table 4-2.1 (Monitoring Well Construction Details), wells TMW51, TMW52, and TMW53 are designated as BR1 wells. The boring logs for wells TMW51, TMW52, and TMW53 included in Appendix E1 indicate that a layer(s) of claystone lies on top of sandstone, which is similar to that of TMW64. Explain why wells TMW51, TMW52, and TMW53 remain as BR1 wells while well TMW64 was changed to be a BR2 well in the revised Report.

Army Response: Concur. The designation of TMW64 is correctly identified as a BR2 well. The BR1 and BR2 zones were determined during previous PMR reports and the NMED-approved Work Plan and are used as convention in this RFI. The following explanation for the designation of TMW64 was added to Section 4.2.2, page 4-2, lines 12-14:

“TMW64 is located in the southern portion of the Study Area where the BR1 unit does not exist due to the steeply dipping beds. At this location, the screened interval is in the lower portion of the BR2 unit.”

7. Permittee's Response to NMED's Second Disapproval Comment 5c, dated July 25, 2022

Permittee Statement: "Tables 4-2.1 and 4-2.2, 4-2.3, 4-2.4, 4-3.4, 4-5.1, 4-7.1, 4-7.3, 4-7.4, have been revised to designate TMW64 as being completed in BR2."

NMED Comment: Table 4-3.4 (Groundwater Analytical Detections - VOCs) and Table 4-7.3 {Groundwater Analytical Detections - Metals) designates well TMW64 as being completed in BR1. Correct the typographical errors in the revised Report. In addition, the typographical error in Table 4-7.3 was found on page 46 of 53, row 42 in the electronic file titled as "Sec _4_Tables-October_2022". However, since a hardcopy of the Report does not provide page numbers in the Tables, the errors cannot be referenced to the specific page number. Provide page numbers in all tables in the revised Report, as previously directed by NMED and as required for all submittals. Numbering pages is standard practice for document production. The Permittee must review documents produced by its contractors prior to submittal.

Army Response: Concur. Table 4-3.4 designates TMW64 as being completed in BR2, though Table 4-7.3 was revised to change designation of TMW64 from BR1 to BR2.

8. Permittee's Response to NMED's Second Disapproval Comment 5d, dated July, 25, 2022

Permittee Statement: "Figures 2-3.5a and 2-3. 5b have been revised to identify BR1 and BR2. Figures 4-2.2, 4-2.3, 4-3.4, have been revised to designate TMW64 as being completed in BR2."

NMED Comment: Figures 2-3.5a and 2.3.5b present the cross sections at the site intended to identify BR1 and BR2; however, the number of data points (i.e., borings) that estimates the extent and thickness of separate sandstone layers are inadequate. In addition, NMED previously commented that both lithology of the bedrock formation and groundwater flow direction have not been fully characterized in the bedrock aquifer{s) beneath the Workshop Area. Unless adequate data is collected, interpretation provided in the cross sections remains speculative. Either remove the figures from the revised Report or provide adequate data to support the interpretation in the revised Report.

Army Response: Comment Noted. The Cross-Sections referenced in Figure 2-3.5a and 2-3.5b have been removed from the Report.

9. Permittee's Response to NMED's Second Disapproval Comment 7, dated July 25, 2022

Permittee Statement: "The Army remains concerned regarding the potential for cross contamination between the alluvial and bedrock aquifers that may occur during drilling or after installation of a groundwater monitoring well through the alluvial aquifer to the bedrock aquifer. However, the Army will include assessment for the presence of potential groundwater contamination in the Administration Area in the Phase 2 Groundwater RFI Work Plan. The Army is pursuing a comprehensive approach to contracting for upcoming related requirements at FWDA that is requiring additional time to develop. The Army is therefore respectfully requesting to revise the proposed submittal date for the Phase 2 Groundwater RFI Work Plan to October 30, 2023."

NMED Comment: NMED's Second Disapproval Comment 7 states, "if deep wells are installed using appropriate methods, potential cross contamination between aquifers should not occur." It is not clear why the Permittee remains concerned about the cross-contamination potential since methods exist to prevent the occurrence. Although the Permittee remains concerned, it concurs with installation of a deep well in the Administration Area. Although multiple bedrock wells were already installed in the Workshop Area, cross contamination has not occurred. Explain the basis for the concern in the revised Report. In addition, the Permittee requests that the submittal date of the work plan be extended from February 20, 2023, to October 30, 2023. NMED's Second Disapproval Comment 7 states, "although this comment remains valid, the Permittee's June 28, 2022 supplemental correspondence proposes to submit a work plan by July 30, 2023 due to the Permittee's contracting schedule. Since the Permittee has already had time to initiate the contracting process, an additional year to award a contract is excessive. Accordingly, the Permittee must submit a work plan to investigate the presence of potential groundwater contamination in the bedrock aquifer beneath the Administration Area no later than February 20, 2023 rather than June 30, 2022."

The Permittee now requests another extension until October 30, 2023. Submit a separate letter work plan for this investigation rather than requesting another extension. Regardless, the original due date of February 20, 2023, has already passed; therefore, the Permittee is out of compliance and may be subject to an enforcement action. The Permittee must submit the required and past due work plan.

Army Response: Concur. As proposed in the Army's April 24, 2023, letter to NMED regarding outstanding documents, the Army plans to submit a Phase 2 Groundwater RFI Work Pan by March 15, 2024.

10. Permittee's Response to NMED's Second Disapproval Comment 8, dated July 25, 2022

Permittee Statement: "The text at sections Section 2.4.2.2.7, lines 33-35, page 2-14, and lines 6-8, page 2-15, and Section 2.4.4.2.1, lines 27-29, page 2-21, and lines 13-14, page 2-22 have been revised to state'...with residual nitrate and explosives contamination below an approximate depth of 35 feet.'"

NMED Comment: The full revised text in the section's states, "the excavated area was then backfilled and compacted with clean soil and regraded with residual nitrate and explosives contamination below an approximate depth of 35 feet." The revision neither makes sense nor addresses NMED's Second Disapproval Comment 8. NMED's Second Disapproval Comment 8 states, "[t]he RDX concentrations exceeding the soil leachate-based screening level (SL-SSL) of 0.06 mg/kg were detected in multiple confirmation samples at the TNT leaching bed area; therefore, leaching potential of the contaminants still remains. The text is misleading without stating the fact that the concentrations of multiple contaminants remain above respective SL-SSLs at the TNT leaching bed area. Revise appropriate sections of the Report accordingly." Address this comment in the revised Report. Failure to follow NMED direction constitutes noncompliance and may result in an enforcement action.

Army Response: Concur. Section 2.4.2.2.7, page 2-14, lines 33-35 and Section 2.4.4.2.1, page 2-21, lines 27-29 have been revised to state to state the following: "Residual nitrate and explosives contamination are still present exceeding the soil leachate-based screening level (SL-SSL) of 0.06 mg/kg below an approximate depth of 35 feet".

11. Permittee's Response to NMED's Second Disapproval Comment 10, dated July 25, 2022

Permittee Statement: "The Army will prepare a work plan to remediate soils where perchlorate concentrations exceeded applicable SL-SSLs at the Building 528 Complex. Given the location of the perchlorate spills and the exposed bedrock in the area, the Army proposes to consider addressing the perchlorate contamination through in-situ treatment of the ground and underlying groundwater. The Army proposes a Pilot Study to determine if in-situ remedies are effective for perchlorate and other explosive compounds present at depth and in groundwater that are not amenable to removal action. The Pilot Study will support the upcoming Northern Area Groundwater Corrective Measures Study. The Army is pursuing a comprehensive approach to contracting for upcoming related requirements at FWDA that is requiring additional time to develop. The Army is therefore respectfully requesting to revise the proposed submittal date for the Pilot Study Work Plan to November 30, 2023."

NMED Comment: Clarify whether the extent of the contamination where perchlorate concentrations exceeded applicable SL-SSLs has been defined for the building 528 Complex in the revised Report. Determination of the extent of the contamination where the soils can physically be removed must be the first step of the remedial plan. If SL-SSL exceedances are found to be present at depths where physical soil removal is impracticable, in-situ treatment of the soil and underlying groundwater will be required, and a separate bench scale treatability study and/or field pilot study must be proposed as second step of the remediation plan. Incorporate this provision in the relevant work plan. The Second Disapproval Comment 10 directed the Permittee to submit a separate work plan to remediate soils where perchlorate concentrations exceeded the applicable SL-SSL no later than **July 30, 2023**. Since the Pilot Study Work Plan is not required at this time, the direction in Second Disapproval Comment 10 remains valid and the Permittee must submit the work plan no later than **July 30, 2023**.

Army Response: Concur. The extent of perchlorate contamination has not been fully defined for building 528 Complex. As proposed in the Army's April 24, 2023, letter to NMED regarding outstanding documents, the Army plans to submit a Work Plan to complete the RFI process for Parcel 22, including the investigation of perchlorate in soils, by 15 March 2024. Based on the results of the Parcel 22 RFI, the Army will proceed with the other studies noted in the comment above regarding perchlorate remediation.

12. Permittee's Response to NMED's Second Disapproval Comment 13, dated July 25, 2022

Permittee Statement: "The Army does not believe that collecting soil samples at these well locations would change the findings or recommendations regarding the extents of the groundwater contamination plumes. None of the wells in question were installed in contaminant source areas where elevated contaminant concentrations would be expected. The Army has not identified data gaps with respect to soil contamination in these areas."

NMED Comment: The site history is not complete, nor definitive, regarding the location and timing of all contaminant releases. For example, the Permittee's response to NMED's Second Disapproval Comment 9 states that "the Army believes that the bedrock nitrate contamination originated from releases to the exposed bedrock at the building 528 Complex." The Permittee adequately demonstrated that the bedrock nitrate contamination originated from releases to the exposed bedrock; however, such nitrate releases were not historically recorded at the building 528 Complex. In order to identify potential releases that were not historically recorded, it is imperative to collect soil samples from every boring for laboratory analysis, as directed in the NMED's January 22, 2020, Approval with Modifications Final Northern Area Background Well Installation and Completion Report. However, since this direction was provided after the wells were already installed, the Permittee is no longer required to submit a work plan for collection and analysis of soil samples. The Permittee may disregard the direction required by NMED's Second Disapproval Comment 13. However, the Permittee must acknowledge that there are still data gaps because soil samples were not collected at the time of well installation. The Permittee is required to collect soil samples from all future well installations unless NMED provides specific direction otherwise. No revision is required to the Report.

Army Response: Comment Noted and Concur. The Army will collect soil samples at regular intervals for additional wells installed.

13. Permittee's Response to NMED's Second Disapproval Comment 17, dated July 25, 2022

Permittee Statement: "The Army is therefore respectfully requesting to revise the proposed submittal date for the work plan to November 30, 2023. building B005 is vacant and is not suitable for occupancy. In the future the Army intends to demolish this building."

NMED Comment: Since the Permittee intends to demolish the building B005 in the future, potential risks to future occupants will be eliminated by demolition of the building; therefore, the work plan to investigate vapor intrusion risk at the building B005 is not necessary at this time. State that the building will never be occupied and will be demolished in the revised Report.

Army Response: Concur. A statement was added to Section 5.2.1, page 5-3, line 15, noting that building B005 is not occupied and will be demolished.

14. **Permittee's Response to NMED's Second Disapproval Comment 20, dated July 25, 2022**

Permittee Statement: "Collection and analysis of soil samples for hexavalent chromium was not identified at the locations of the wells installed as part of the Northern Area Groundwater RFI, as there are no contaminating activities identified that would result in the presence of hexavalent chromium. The relatively low concentration of trivalent chromium as compared to the screening levels is suggestive of the low potential presence of hexavalent chromium. Analysis of hexavalent chromium would not change the findings or recommendations regarding the extents of the groundwater contamination for the Northern Area Groundwater RFI."

NMED Comment: The Permittee's explanation for why hexavalent chromium analysis was not performed is inadequate. Hexavalent chromium can be associated with open burning of military propellants, live firing, explosives wash-out wastewater facilities, the TNT leaching beds and production, thermal treatment of small arms munitions, and open burning/open detonation of explosives. All of those activities are relevant to the presence of hexavalent chromium and are activities that occurred in the Study Area; therefore, hexavalent chromium contamination may potentially be identified. NMED's Second Disapproval Comment 20 states, "submit a work plan to advance a soil boring to collect a soil sample at the nearest accessible location from well TMW57 for hexavalent chromium analysis no later than **July 30, 2023**" and this comment remains valid. Submit the required work plan no later than **July 30, 2023**. Failure to follow NMED direction constitutes noncompliance and may result in an enforcement action.

Army Response: Concur. As proposed in the Army's April 24, 2023, letter to NMED regarding outstanding documents, the Army plans to submit a Phase 2 Groundwater RFI Work Pan by March 15, 2024.

15. **Permittee's Response to NMED's Second Disapproval Comment 22, dated July 25, 2022**

Permittee Statement: "The requested analysis will be performed as part of the periodic groundwater monitoring program and reported therein."

NMED Comment: Identify which periodic groundwater monitoring report will present the results of the nitrite analyses for wells MW27, MW35, and TMW59 conducted by two independent analytical laboratories in the response letter.

Army Response: Concur. Results will be presented in the January-June 2023 Periodic Monitoring Report.

16. **Permittee's Response to NMED's Second Disapproval Comment 23, dated July 25, 2022**

Permittee Statement: "The Army believes it has sufficiently determined the extent of RDX in the alluvial aquifer to proceed with remedy evaluation and selection."

and,

"The Army requests that consideration of additional wells be deferred until that time to better address the long-term goals of site remediation."

NMED Comment: The Permittee's statement was not responsive to NMED's Second Disapproval Comment 23, which states, "the distances from well TMW62 to wells TMW21 and MW27 exceeds 500 feet; therefore, the RDX plume boundary west of well TMW62 is not well defined. Submit a work plan to install an additional well to delineate the western boundary of the RDX plume no later than **February 20, 2023**." The distances from well TMW62 to wells TMW21 and MW27 exceed 500 feet; the plume cannot be adequately defined between the wells. The extent of the RDX plume must be adequately delineated before proceeding with remedy evaluation and selection; failure to properly delineate the plume will likely result inadequate remedial actions. The required date for submittal of the work plan of February 20, 2023, has already passed; therefore, the Permittee is out of compliance and may be subject to an enforcement action. The Permittee must submit the work plan as required.

Army Response: Concur. As proposed in the Army's April 24, 2023, letter to NMED regarding outstanding documents, the Army plans to submit a Phase 2 Groundwater RFI Work Pan by March 15, 2024.

17. Permittee's Response to NMED's Second Disapproval Comment 24, dated July 25, 2022

Permittee Statement: "TMW54 is appropriately constructed in the alluvial sediments and is monitoring groundwater conditions representative of this location. TMW54 was installed correctly to assess groundwater in the alluvial aquifer and is screened from the top of bedrock and through the alluvium. The shallow screen interval is due to the shallow thickness of the alluvial sediments at this location. A deeper screened well will be representative of bedrock conditions. There are several adjacent wells from which groundwater samples are collected and additional alluvial groundwater monitoring wells will not provide incremental benefit to delineation of any of the groundwater contaminant plumes at this location. The Army believes that the current alluvial groundwater monitoring network in this area is sufficient for groundwater contaminant plume monitoring purposes."

NMED Comment: Table 4-2.1(Monitoring Well Construction Details) indicates that the screened interval of well TMW54 was set from 21 to 41 feet below ground surface (bgs). The neighboring alluvial wells that produce water are consistently screened deeper. For example, well TMW57 located approximately 500 feet southwest of well TMW54 was screened from 60 to 70 feet bgs. Well TMW13 located approximately 500 feet west of well TMW54 was screened from 61 to 71 feet bgs. Well TMW41 located approximately 500 feet east of well TMW54 was screened from 56 to 66 feet bgs. Well TMW31S located approximately 500 feet south east of well TMW54 was screened from 50 to 60 feet bgs. Well TMW40S located approximately 500 feet north of well TMW54 was screened from 50 to 60 feet bgs. The boring log for well TMW54 included in Appendix E also indicates that the soils collected from the screened interval of well TMW54 were dry except when water was added for drilling and bedrock conditions (i.e., sandstone) at the location were not encountered to the termination depth of 90 feet bgs. Most importantly, well TMW54 was installed directly south of the Pre-1962 Leaching Bed and the groundwater data collected from well TMW54 will be useful to assess groundwater contamination associated with the Leaching Bed. NMED's Second Disapproval Comment 24 states, "submit a work plan to augment well TMW54 with an adjacent well that is constructed with a more appropriate screened interval or at an alternative nearby location no later than **February 20, 2023.**" The required date for submittal of the work plan of February 20, 2023, has already passed; therefore, the Permittee is out of compliance and may be subject to an enforcement action. The Permittee must submit the work plan as required.

Army Response: Concur. As proposed in the Army's April 24, 2023, letter to NMED regarding outstanding documents, the Army plans to submit a Phase 2 Groundwater RFI Work Pan by March 15, 2024.

18. Permittee's Response to NMED's Second Disapproval Comment 25, dated July 25, 2022

Permittee Statement: "The Army will propose to investigate the extent of the soil vapor plume, including the potential for vapor intrusion, in the vicinity of Building B006, as [a] work plan to further investigate data gaps in the Administration Area. The Army is pursuing a comprehensive approach to contracting for upcoming related requirements at FWDA that is requiring additional time to develop. The Army is therefore respectfully requesting to revise the proposed submittal date for the work plan to November 30, 2023."

NMED Comment: The work plan is required to be submitted by **July 30, 2023**. Submit a separate letter work plan for this investigation no later than **July 30, 2023**. Extension requests are not appropriate in a Disapproval response. If an extension is required and the Permittee can show good cause, the extension request must be submitted in a separate letter and in accordance with Permit Section I.M.

Army Response: As proposed in the Army's April 24, 2023, letter to NMED regarding outstanding documents, the Army plans to submit a Phase 2 Groundwater RFI Work Pan by March 15, 2024, to address this requirement.

19. Permittee's Response to NMED's Second Disapproval Comment 27, dated July 25, 2022

Permittee Statement: "The Army is pursuing a comprehensive approach to contracting for upcoming related requirements at FWDA that is requiring additional time to develop. The Army is therefore respectfully requesting to revise the proposed submittal date for the work plan to November 30, 2023."

NMED Comment: The work plan to assess the locations and integrity of the sewer lines is required to be submitted by **July 30, 2023**. Submit a separate letter work plan for this investigation no later than **July 30, 2023**. Extension requests are not appropriate in a Disapproval response. If an extension is required and the Permittee can show good cause, the extension request must be submitted in a separate letter and in accordance with Permit Section I.M.

Army Response: Concur. As proposed in the Army's April 24, 2023, letter to NMED regarding outstanding documents, the Army plans to submit a Phase 2 Groundwater RFI Work Pan by March 15, 2024, to address this requirement.

If you have questions or require further information, please contact me at George.h.cushman.civ@army.mil, 703-455-3234 (Temporary Home Office, preferred) or 703-608-2245 (Mobile).

Sincerely,

George H. Cushman IV

George H. Cushman IV
BRAC Environmental Coordinator
Fort Wingate Depot Activity
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cc:

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Alan Soicher, USACE
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Kylie Fahmer, USACE
Admin Record, NM
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**ARMY RESPONSE LETTER,
DATED DECEMBER 6, 2023**

DEPARTMENT OF THE ARMY
OFFICE OF THE DEPUTY CHIEF OF STAFF, G-9
600 ARMY PENTAGON
WASHINGTON, DC 20310-0600

December 6, 2023

Army Environmental Division- BRAC Operations Branch

Mr. Ricardo Maestas
Acting Chief, Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

RE: Groundwater Periodic Monitoring Reports, January through June 2021 and July through December 2021, Fort Wingate Depot Activity, McKinley County, New Mexico. EPA# NM6213820974

Dear Mr. Maestas:

This letter provides responses to the comments issued in the Notice of Disapproval (NOD) letter from the New Mexico Environment Department (NMED) dated May 23, 2023, for the Groundwater Periodic Monitoring Report January through June 2021, reference number HWB-FWDA-22-002 and the Groundwater Periodic Monitoring Report July through December 2021, reference number HWB-FWDA-23-001. In addition to the comment responses provided in this letter, two (2) hard copies and two (2) electronic (CD) copies of each of the above-mentioned documents are enclosed for your review and consideration. The electronic transmittal includes a redline-strikeout version of each of the above-mentioned reports showing where all revisions were made.

GENERAL COMMENTS

1. Inaccuracies/Discrepancies

NMED Comment: Both Reports contain multiple inaccuracies and discrepancies. The Permittee has failed to provide NMED with accurate groundwater monitoring reports, as demonstrated by the 12 subsequent pages of inaccuracies and discrepancies, prior to the further ten pages of comments on the content. The quality of these documents is unacceptable and indicates an overall lack of quality assurance/ quality control. Examples are listed as follows:

<u>January through June 2021 Report</u>

1a) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map - January 2021:** The groundwater elevation in well MW23 is depicted as 6,639 feet in Figure 4-1, while it is reported as 6,637.83 (6,638) feet in Table 4-1, Northern Area Groundwater Elevations. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 4-1 was revised to correct the typographical error; the groundwater elevation in well MW23 is now depicted as 6,638 (6,637.83) feet above mean sea level (amsl).

1b) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map - January 2021:** The groundwater elevation in well MW37 is depicted as 6,636 feet in Figure 4-1, while it is reported as 6,625.84 (6,626) feet in Table 4-1. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Table 4-1 was revised to correct the calculation error; the groundwater elevation in well MW37 is now reported as 6,635.63 feet amsl.

1c) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map - January 2021:** The groundwater elevation in well MW38 is depicted as 6,633 feet in Figure 4-1, while it is reported as 6,621.71 (6,622) feet in Table 4-1. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Table 4-1 was revised to correct the calculation error; the groundwater elevation in well MW38 is now reported as 6,633.39 feet amsl.

1d) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map - January 2021:** The groundwater elevation in well MW39 is depicted as 6,635 feet in Figure 4-1, while it is reported as 6,618.17 (6,618) feet in Table 4-1. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Table 4-1 was revised to correct the calculation error; the groundwater elevation in well MW39 is now reported as 6,635.18 feet amsl.

1e) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map - January 2021:** The groundwater elevation in well TMW23 is depicted as 6,643 feet in Figure 4-1, while it is reported as 6,642.45 (6,642) feet in Table 4-1. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 4-1 was revised to correct the typographical error; the groundwater elevation in well TMW23 is now depicted as 6,642 (6,642.45) feet amsl.

1f) **Figure 4-2, Northern Area Alluvial Groundwater Contour Map - April 2021:** The groundwater elevation in well MW37 is depicted as 6,636 feet in Figure 4-2, while it is reported as 6,626.14 (6,626) feet in Table 4-1. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Table 4-1 was revised to correct the calculation error; the groundwater elevation in well MW37 is now reported as 6,635.93 feet amsl.

1g) **Figure 4-2, Northern Area Alluvial Groundwater Contour Map - April 2021:** The groundwater elevation in well MW38 is depicted as 6,634 feet in Figure 4-2, while it is reported as 6,622.00 (6,622) feet in Table 4-1. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Table 4-1 was revised to correct the calculation error; the groundwater elevation in well MW38 is now reported as 6,633.68 feet amsl.

1h) **Figure 4-2, Northern Area Alluvial Groundwater Contour Map - April 2021:** The groundwater elevation in well MW39 is depicted as 6,635 feet in Figure 4-2, while it is reported as 6,618.38 (6,618) feet in Table 4-1. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Table 4-1 was revised to correct the calculation error; the groundwater elevation in well MW39 is now reported as 6,635.39 feet amsl.

1i) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater – April 2021:** The nitrite concentration in the groundwater sample collected from well BGMW01 is depicted as <1.20 mg/L in the figure, while it is reported as <0.12 mg/L in Table 5-2, Summary of Nitrate-N and Nitrite-N Analytical Results. In addition, the limit of detection (LOD) value reported in Figure 5-1 (i.e., <1.20 mg/L) exceeds the applicable screening level of one (1) mg/L for nitrite. Nitrite is not listed as a data quality exception in Section 5.4, Data Quality Exceptions. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Table 5-2 was revised to correct the typographical error; the nitrite concentration in well BGMW01 is now reported as <1.20 mg/L. In addition, nitrite was listed as a data quality exception in text Section 5.4 of the text.

1j) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater – April 2021:** The nitrite concentration in the groundwater sample collected from well BGMW02 is depicted as <1.20 mg/L in the figure, while it is reported as <0.12 mg/L in Table 5-2. Resolve the discrepancy in the revised Report. (See item i above.)

Permittee Response: Concur. Table 5-2 was revised to correct the typographical error; the nitrite concentration in well BGMW02 is now reported as <1.20 mg/L. In addition, nitrite was listed as a data quality exception in Section 5.4 of the text.

1k) **Figure 5-5, Northern Area Perchlorate in Alluvial Groundwater - April 2021:** The perchlorate concentration in the groundwater sample collected from well BGMW02 is depicted as 0.66 µg/L in the figure, while it is reported as 0.66 J µg/L in Table 5-4, Summary of Perchlorate Analytical Results. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-5 was revised to correct the typographical error; the perchlorate concentration in well BGMW02 is now depicted as 0.66 J µg/L.

1l) **Figure 5-5, Northern Area Perchlorate in Alluvial Groundwater - April 2021:** The perchlorate concentration in the groundwater sample collected from well MW24 is depicted as <0.10 µg/L in the figure, while it is reported as <1.0 µg/L in Table 5-4. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-5 was revised to correct the typographical error; perchlorate concentration in well MW24 is now depicted as <1.0 µg/L.

1m) **Figure 5-5, Northern Area Perchlorate in Alluvial Groundwater - April 2021:** The perchlorate concentration in the groundwater sample collected from well TMW24 is depicted as <0.50 µg/L in the figure, while it is reported as <0.10 µg/L in Table 5-4. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Table 5-4 was revised to correct the typographical error; the perchlorate concentration in well TMW24 is now reported as <0.50 µg/L.

1n) **Figure 5-7, Northern Area VOCs Concentrations in Alluvial Groundwater - April 2021:** The volatile organic compounds (VOCs) concentrations in the groundwater sample collected from well MW33 is depicted as "not detected" (ND) in the figure, while it is reported as 0.51 J µg/L in Table 5-5, Summary of VOC Analytical Results. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-7 was revised to correct the typographical error; the chloromethane concentration in well MW33 is now depicted as 0.51 J µg/L.

1o) **Figure 5-8, Northern Area VOCs Concentrations in Alluvial Groundwater - April 2021:** The carbon disulfide concentration in the groundwater sample collected from well TMW53 is depicted as 0.4 J µg/L in the figure, while it is reported as 1.2 µg/L in Table 5-5. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-8 was revised to correct the typographical error; the carbon disulfide concentration in well TMW53 is now depicted as 1.2 µg/L.

1p) **Figure 5-9, Northern Area TPH-DRO in Alluvial Groundwater - April 2021:** The total petroleum hydrocarbon diesel range organics (TPH-DRO) concentration in the groundwater sample collected from well BGMW12 is depicted as <116 µg/L in the figure, while it is reported as <120 µg/L in Table 5-6, Summary of TPH and SVOC Analytical Results. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-9 was revised to correct the error; the TPH-DRO concentration in well BGMW12 is now depicted as <120 µg/L.

1q) **Figure 5-9, Northern Area TPH-DRO in Alluvial Groundwater - April 2021:** The TPH-DRO concentration in the groundwater sample collected from well BGMW13D is depicted as <112 µg/L in the figure, while it is reported as <110 µg/L in Table 5-6. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-9 was revised to correct the typographical error; the TPH-DRO concentration in well BGMW13D is now depicted as <110 µg/L.

1r) **Figure 5-9, Northern Area TPH-DRO in Alluvial Groundwater - April 2021:** The TPH-DRO concentration in the groundwater sample collected from well BGMW13S is depicted as <104 µg/L in the figure, while it is reported as <100 µg/L in Table 5-6. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-9 was revised to correct the typographical error; the TPH-DRO concentration in well BGMW13S is now depicted as <100 µg/L.

1s) **Figure 5-9, Northern Area TPH-DRO in Alluvial Groundwater - April 2021:** The TPH-DRO concentration in the groundwater sample collected from well BGMW13S is depicted as <104 µg/L in the figure, while it is reported as <100 µg/L in Table 5-6. Resolve the discrepancy in the revised Report.

Permittee Response: This appears to be a duplicate of comment 1r above.

January through June 2021 Report

1a) **Section 5.1, Water-Quality Parameters, line 14, page 5-1:** The text states, "[t]he bedrock wells ranged from 9.34 °C in TMW49 to 17.69 °C in BGMW07." According to Table 5-1, Stable Groundwater Parameters, the temperature reading for well BGMW07 is reported as 15.02 °C. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. The text was revised to state "…bedrock wells ranged from 9.34 ˚C in TMW49 to 17.34 ˚C in TMW51."

1b) **Section 5.1, Water-Quality Parameters, line 39, page 5-1:** The text states, "in the bedrock aquifer, the [dissolved oxygen (DO)] range was 0.00 in multiple wells to 6.94 mg/L in well TMW18." According to Table 5-1, the DO reading in well TMW19 is recorded as 6.99 mg/L and exceeds the highest referenced reading (i.e., 6.94 mg/L) among bedrock wells. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. The text was revised to state "…in the bedrock aquifer, the DO range was 0.00 in multiple wells to 6.99 mg/L in well TMW19."

1c) **Section 5.2.5, Other Organic Compound, line 28, page 5-4:** The text states, "TPH-DRO was detected in six alluvial wells." According to Figure 5-9, Northern Area TPH-DRO in Alluvial Groundwater-October 2021, the TPH-DRO concentrations exceeded screening levels in the groundwater samples collected from seven alluvial wells (MW20, MW26, MW36S, MW38, BGMW13S, TMW08, and TMW59). Resolve the discrepancy in the revised Report.

Permittee Response: Concur. The text was revised to state "TPH-DRO was detected in seven alluvial wells and three bedrock wells above the selected screening level."

1d) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map - July 2021:** The groundwater elevation in well MW37 is depicted as Not Gauged (NG) in Figure 4-1, while it is reported as 6,635.53 feet in Table 4-1. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 4-1 was revised to correct the typographical error; the groundwater elevation in well MW37 is now depicted as 6,636 feet amsl.

1e) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map - July 2021:** The groundwater elevation in well MW38 is depicted as Not Gauged (NG) in Figure 4-1, while it is reported as 6,633.20 feet in Table 4-1. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 4-1 was revised to correct the typographical error; the groundwater elevation in well MW38 is now depicted as 6,633 feet asml.

1f) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map - July 2021:** The groundwater elevation in well MW39 is depicted as Not Gauged (NG) in Figure 4-1, while it is reported as 6,634.97 feet in Table 4-1. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 4-1 was revised to correct the typographical error; the groundwater elevation in well MW39 is now depicted as 6,635 feet asml.

1g) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map - July 2021:** The groundwater elevation in well TMW21 is depicted as 6,643 feet in Figure 4-1, while it is reported as 6,643.76 (6,644) feet in Table 4-1. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 4-1 was revised to correct the typographical error; the groundwater elevation in well TMW21 is now depicted as 6,644 feet amsl.

1h) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map - July 2021:** The groundwater elevation in well TMW23 is depicted as 6,643 feet in Figure 4-1, while it is reported as 6,642.49 (6,642) feet in Table 4-1. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 4-1 was revised to correct the typographical error; the groundwater elevation in well TMW23 is now depicted as 6,642 feet asml.

1i) **Figure 4-2, Northern Area Alluvial Groundwater Contour Map - October 2021:** The groundwater elevation in well MW31 is depicted as 6,640 feet in Figure 4-2, while it is reported as 6,640.61 (6,641) feet in Table 4-1. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 4-2 was revised to correct the typographical error; the groundwater elevation in well MW31 is now depicted as 6,641 feet asml.

1j) **Figure 4-2, Northern Area Alluvial Groundwater Contour Map - October 2021:** The groundwater elevations in piezometer PZ10 and well BGMW11 are both recorded as 6,635 feet. However, these wells are not depicted on top of the 6,635 feet groundwater elevation contour line in Figure 4-2. Revise the figure for accuracy.

Permittee Response: Concur. The 6,635-foot contour was adjusted toward well BGMW11 and piezometer PZ10 in Figure 4-2.

1k) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater - October 2021:** The nitrate concentration in the groundwater sample collected from well TMW01 is depicted as 9.2 mg/L in the figure. According to Table 5-2, Summary of Inorganic Anions Analytical Results, two samples were separately collected on October 8 and 15, 2021; therefore, one must be identified as a duplicate sample. The nitrate concentrations were recorded as 9.2 and 9.5 mg/L in the table. The Permittee must always report the higher concentration (9.5 mg/L) of a duplicate pair in all figures, tables, or discussions. Revise the figure to report the higher nitrate concentration.

Permittee Response: Acknowledge and concur. The sample from well TMW01 collected on 10/8/2021 was analyzed outside of the holding time, therefore the well was resampled on 10/15/2021. The data from 10/8/2021 was removed from Table 5-2. Figure 5-1 was revised to show 9.5 mg/L for well TMW01.

1l) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater - October 2021:** The nitrite concentration in the groundwater sample collected from well TMW02 is depicted as <0.60 mg/L in the figure, while it is reported as <0.06 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-1 was revised to correct the typographical error; the nitrite concentration in well TMW02 is now depicted as <0.06 mg/L.

1m) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater- October 2021:** The nitrate concentration in the groundwater sample collected from well TMW07 is depicted as 0.13 mg/L in the figure, while it is reported as 0.11 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-1 was revised to correct the typographical error; the nitrate concentration in well TMW07 is now depicted as 0.11 mg/L.

1n) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater - October 2021:** The nitrite concentration in the groundwater sample collected from well TMW10 is depicted as <1.2 mg/L in the figure, while it is reported as <0.06 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-1 was revised to correct the typographical error; the nitrite concentration in well TMW10 is now depicted as <0.06 mg/L.

1o) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater- October 2021:** The nitrate concentration in the groundwater sample collected from well TMW22 is depicted as 13 mg/L in the figure, while it is reported as 11 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-1 was revised to correct the typographical error; the nitrate concentration in well TMW22 is now depicted as 11 mg/L.

1p) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater - October 2021:** The nitrate concentration in the groundwater sample collected from well TMW23 is depicted as 20 mg/L in the figure, while it is reported as 17 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-1 was revised to correct the typographical error; the nitrate concentration in well TMW23 is now depicted as 17 mg/L.

1q) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater - October 2021:** The nitrate concentration in the groundwater sample collected from well TMW41 is depicted as 5.0 mg/L in the figure, while it is reported as 4.9 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-1 was revised to correct the typographical error; the nitrate concentration in well TMW41 is now depicted as 4.9 mg/L.

1r) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater - October 2021:** The nitrate concentration in the groundwater sample collected from well TMW45 is depicted as 1.2 mg/L in the figure. According to Table 5-2, two samples were separately collected on October 12, 2021; therefore, one must be identified as a duplicate sample. The nitrate concentrations were recorded as 1.2 and 1.3 mg/L in the table. The Permittee must always report the higher concentration (1.3 mg/L) of a duplicate pair in all figures, tables, and discussions. Revise the figure to report the higher nitrate concentration.

Permittee Response: Concur. Figure 5-1 was revised to depict well TMW45 with a nitrate concentration of 1.3 mg/L, the higher concentration between the original and duplicate sample.

1s) **Figure 5-3, Northern Area Explosives in Alluvial Groundwater - October 2021:** The HMX concentration in the groundwater sample collected from well TMW43 is depicted as

0.37 J µg/L in the figure, while it is reported as <0.20 µg/L in Table 5-3, Summary of Explosives Analytical Results. Resolve the discrepancy in the revised Report. In addition, HMX is spelled as "NMX" in the figure. Correct the typographical error in the revised Report.

Permittee Response: Concur. Table 5-3 was revised to correct the typographical error; the HMX concentration in well TMW43 is now reported as 0.37 J µg/L.

Also, Figure 5-3 was revised to correct the typographical error; "NMX" was revised to "HMX".

1t) **Figure 5-3, Northern Area Explosives in Alluvial Groundwater - October 2021:** The nitrobenzene concentration in the groundwater sample collected from well TMW24 is depicted as 0.25 J µg/L in the figure, while it is reported as <0.20 µg/L in Table 5-3. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Table 5-3 was revised to correct the typographical error; the nitrobenzene concentration in well TMW24 is now reported as 0.25 J µg/L.

1u) **Figure 5-4, Northern Area Explosives in Bedrock Groundwater - October 2021:** The tetryl concentration in the groundwater sample collected from well TMW30 is depicted as 0.68 J µg/L in the figure, while it is reported as <0.20 µg/L in Table 5-3. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-4 was revised to correct the typographical error; well TMW30 is now depicted with "Explosives = ND" since tetryl was not detected.

1v) **Figure 5-5, Northern Area Perchlorate in Alluvial Groundwater - October 2021:** The perchlorate concentration in the groundwater sample collected from well MW24 is depicted as <0.20 µg/L in the figure, while it is reported as <0.10 µg/L in Table 5-4, Summary of Perchlorate Analytical Results. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-5 was revised to correct the typographical error; the perchlorate concentration in well MW24 is now depicted as <0.10 µg/L.

1w) **Figure 5-5, Northern Area Perchlorate in Alluvial Groundwater - October 2021:** The perchlorate concentration in the groundwater sample collected from well TMW02 is depicted as 6.1 µg/L in the figure. According to Table 5-4, two samples were separately collected on October 8, 2021; therefore, one must be identified as a duplicate sample. The perchlorate concentrations were reported as 6.4 and 6.1 µg/L in the table. The Permittee must always report the higher concentration (6.4 µg/L) of a duplicate pair in all figures, tables, and discussions. Revise the figure to report the higher perchlorate concentration.

Permittee Response: Concur. Figure 5-5 was revised to depict well TMW02 with a perchlorate concentration of 6.4 µg/L, the higher concentration between the original and duplicate sample.

1x) **Figure 5-5, Northern Area Perchlorate in Alluvial Groundwater- October 2021:** The perchlorate concentration in the groundwater sample collected from well TMW44 is depicted as <0.48 µg/L in the figure, while it is reported as 0.24 µg/L in Table 5-4. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-5 was revised to correct the typographical error; the perchlorate concentration in well TMW44 is now depicted as 0.24 µg/L.

1y) **Figure 5-7, Northern Area VOCs in Alluvial Groundwater - October 2021:** The chloromethane concentration in the groundwater sample collected from well MW31 is depicted as 0.30 J µg/L in the figure, while it is reported as <0.50 µg/L in Table 5-5, Summary of VOC Analytical Results. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Table 5-5 was revised to correct the typographic error; the chloromethane concentration in well MW31 is now reported as 0.30 J µg/L.

1z) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater - October 2021:** The bromide concentration in the groundwater sample collected from well MW23 is depicted as 0.54 mg/L in the figure. According to Table 5-2, two samples were separately collected on October 11, 2021; therefore, one must be identified as a duplicate sample. The bromide concentrations were reported as 0.57 and 0.54 mg/L in the table. The Permittee must always report the higher concentration (0.57 mg/L) of a duplicate pair in all figures, tables, and discussions. Revise the figure to report the higher bromide concentration.

Permittee Response: Concur. Figure 5-13 was revised to depict well MW23 with a bromide concentration of 0.57 mg/L, the higher concentration between the original and duplicate sample.

1aa) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater - October 2021:** The bromide concentration in the groundwater sample collected from well TMW02 is depicted as 1.2 mg/L in the figure, while it is reported as 0.49 J mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-13 was revised to correct the typographical error; the bromide concentration in well TMW02 is now depicted as 0.49 J mg/L.

1bb) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater - October 2021:** The chloride concentration in the groundwater sample collected from well TMW02 is depicted as 350 mg/L in the figure, while it is reported as 310 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-13 was revised to correct the typographical error; the chloride concentration in well TMW02 is now depicted as 310 mg/L.

1cc) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater - October 2021:** The chloride concentration in the groundwater sample collected from well TMW22 is depicted as 160 mg/L in the figure, while it is reported as 140 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-13 was revised to correct the typographical error; the chloride concentration in well TMW22 is now depicted as 140 mg/L.

1dd) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater - October 2021:** The bromide concentration in the groundwater sample collected from well TMW33 is depicted as 1.8 mg/L in the figure, while it is reported as 2.2 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-13 was revised to correct the typographical error; the bromide concentration in well TMW33 is now depicted as 2.2 mg/L.

1ee) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater - October**

2021: The chloride concentration in the groundwater sample collected from well TMW33 is depicted as 850 mg/L in the figure, while it is reported as 2,400 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-13 was revised to correct the typographical error; the chloride concentration in well TMW33 is now depicted as 2,400 mg/L.

1ff) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater - October 2021:** The bromide concentration in the groundwater sample collected from well TMW39S is depicted as 1.4 mg/L in the figure, while it is reported as 0.99 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-13 was revised to correct the typographical error; the bromide concentration in well TMW39S is now depicted as 0.99 mg/L.

1gg) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater - October 2021:** The chloride concentration in the groundwater sample collected from well TMW39S is depicted as 220 mg/L in the figure, while it is reported as 210 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-13 was revised to correct the typographical error; the chloride concentration in well TMW39S is now depicted as 210 mg/L.

1hh) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater - October 2021:** The bromide concentration in the groundwater sample collected from well TMW41 is depicted as 1.2 mg/L in the figure, while it is reported as 0.95 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-13 was revised to correct the typographical error; the bromide concentration in well TMW41 is now depicted as 0.95 mg/L.

1ii) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater - October 2021:** The chloride concentration in the groundwater sample collected from well TMW43 is depicted as 220 mg/L in the figure, while it is reported as 73 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-13 was revised to correct the typographical error; the chloride concentration in well TMW43 is now depicted as 73 mg/L.

1jj) **Figure 5-14, Northern Area Bromide and Chloride in Bedrock Groundwater - October 2021:** The chloride concentration in the groundwater sample collected from well TMW49 is depicted as 180 mg/L in the figure, while it is reported as 330 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-14 was revised to correct the typographical error; the chloride concentration in well TMW49 is now depicted as 330 mg/L. In addition, an applicable groundwater concentration contour was added around this well.

1kk) **Figure 5-15, Northern Area Sulfate in Alluvial Groundwater - October 2021:** The sulfate concentration in the groundwater sample collected from well MW23 is depicted as 3.9 mg/L in the figure. According to Table 5-2, two samples were separately collected on October 11, 2021; therefore, one must be identified as a duplicate sample. The sulfate concentrations were reported as 4.2 and 3.9 mg/L in the table. The Permittee must always report the higher concentration (4.2 mg/L) of a duplicate pair in all figures, tables, and discussions. Revise the figure to report the higher sulfate concentration.

Permittee Response: Concur. Figure 5-15 was revised to depict well MW23 with a sulfate concentration of 4.2 mg/L, the higher concentration between the original and duplicate sample.

1ll) **Figure 5-15, Northern Area Sulfate in Alluvial Groundwater - October 2021:** The sulfate concentration in the groundwater sample collected from well MW35 is depicted as 910 mg/L in the figure. According to Table 5-2, two samples were separately collected on October 13, 2021; therefore, one must be identified as a duplicate sample. The sulfate concentrations were reported as 990 and 910 mg/L in the table. The Permittee must always report the higher concentration (990 mg/L) of a duplicate pair in all figures, tables, and discussions. Revise the figure to report the higher sulfate concentration.

Permittee Response: Concur. Figure 5-15 was revised to depict well MW35 with a sulfate concentration of 990 mg/L, the higher concentration between the original and duplicate sample.

1mm) **Figure 5-15, Northern Area Sulfate in Alluvial Groundwater- October 2021:** The sulfate concentration in the groundwater sample collected from well SMW01 is depicted as 620 mg/L in the figure, while it is reported as 560 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-15 was revised to correct the typographical error; the sulfate concentration in well SMW01 is now depicted as 560 mg/L.

1nn) **Figure 5-15, Northern Area Sulfate in Alluvial Groundwater - October 2021:** The sulfate concentration in the groundwater sample collected from well TMW01 is depicted as 800 mg/L in the figure, while it is reported as 770 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Table 5-2 was revised to report the results of a duplicate sample collected for well TMW01 which includes a sulfate concentration of 800 mg/L. No change to Figure 5-15 as a result of this comment.

1oo) **Figure 5-15, Northern Area Sulfate in Alluvial Groundwater - October 2021:** The sulfate concentration in the groundwater sample collected from well TMW02 is depicted as 1,400 mg/L in the figure, while it is reported as 1,300 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-15 was revised to correct the typographical error; the sulfate concentration in well TMW02 is now depicted as 1,300 mg/L.

1pp) **Figure 5-15, Northern Area Sulfate in Alluvial Groundwater - October 2021:** The sulfate concentration in the groundwater sample collected from well TMW07 is depicted as 1,800 mg/L in the figure, while it is reported as 770 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-15 was revised to correct the typographical error; the sulfate concentration in well TMW07 is now depicted as 770 mg/L.

1qq) **Figure 5-15, Northern Area Sulfate in Alluvial Groundwater - October 2021:** The sulfate concentration in the groundwater sample collected from well TMW22 is depicted as 750 mg/L in the figure, while it is reported as 920 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-15 was revised to correct the typographical error; the sulfate concentration in well TMW22 is now depicted as 920 mg/L.

1rr) **Figure 5-15, Northern Area Sulfate in Alluvial Groundwater - October 2021:** The sulfate concentration in the groundwater sample collected from well TMW39S is depicted as 980 mg/L in the figure, while it is reported as 880 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-15 was revised to correct the typographical error; the sulfate concentration in well TMW39S is now depicted as 880 mg/L.

1ss) **Figure 5-15, Northern Area Sulfate in Alluvial Groundwater - October 2021:** The sulfate concentration in the groundwater sample collected from well TMW41 is depicted as 780 mg/L in the figure, while it is reported as 740 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-15 was revised to correct the typographical error; the sulfate concentration in well TMW41 is now depicted as 740 mg/L.

1tt) **Figure 5-16, Northern Area Sulfate in Bedrock Groundwater - October 2021:** The sulfate concentration in the groundwater sample collected from well TMW55 is depicted as 610 mg/L in the figure. According to Table 5-2, two samples were separately collected on October 8 and 15, 2021; therefore, one must be identified as a duplicate sample. The sulfate concentrations were reported as 730 and 610 mg/L in the table. The Permittee must always report the higher concentration (730 mg/L) of a duplicate pair in all figures, tables, and discussions. Revise the figure to report the higher sulfate concentration.

Permittee Response: Acknowledge and concur. The sample from well TMW55 collected on 10/8/2021 was analyzed outside of the holding time, therefore the well was resampled on 10/15/2021. The data from 10/8/2021 was removed from Table 5-2. No change to Figure 5-16 as a result of this comment.

1uu) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater - October 2021:** The fluoride concentration in the groundwater sample collected from well MW23 is depicted as 0.76 mg/L in the figure. According to Table 5-2, two samples were separately collected on October 11, 2021; therefore, one must be identified as a duplicate sample. The fluoride concentrations were reported as 0.76 and 0.78 mg/L in the table. The Permittee must always report the higher concentration (0.78 mg/L) of a duplicate pair in all figures, tables, and discussions. Revise the figure to report the higher fluoride concentration.

Permittee Response: Concur. Figure 5-17 was revised to depict well MW23 with a fluoride concentration of 0.78 mg/L, the higher concentration between the original and duplicate sample.

1vv) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater - October 2021:** The fluoride concentration in the groundwater sample collected from well MW24 is depicted as 0.97 mg/L in the figure. According to Table 5-2, two samples were separately collected on October 11, 2021; therefore, one must be identified as a duplicate sample. The fluoride concentrations were reported as 0.98 and 0.97 mg/L in the table. The Permittee must always report the higher concentration (0.98 mg/L) of a duplicate pair in all figures, tables, and discussions. Revise the figure to report the higher fluoride concentration.

Permittee Response: Concur. Figure 5-17 was revised to depict well MW24 with a fluoride concentration of 0.98 mg/L, the higher concentration between the original and duplicate sample.

1ww) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater - October 2021:** The fluoride concentration in the groundwater sample collected from well MW35 is depicted as 0.15 mg/L in the figure. According to Table 5-2, two samples were separately collected on October 13, 2021; therefore, one must be identified as a duplicate sample. The fluoride concentrations were reported as 0.15 and 0.16 mg/L in the table. The Permittee must always report the higher concentration (0.16 mg/L) of a duplicate pair in all figures, tables, and discussions. Revise the figure to report the higher fluoride concentration.

Permittee Response: Concur. Figure 5-17 was revised to depict well MW35 with a fluoride concentration of 0.16 mg/L, the higher concentration between the original and duplicate sample.

1xx) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater - October 2021:** The phosphate concentration in the groundwater sample collected from well MW39 is depicted as <0.1.2 mg/L in the figure. Correct the typographical error in the revised figure.

Permittee Response: Concur. Figure 5-17 was revised to correct the typographical error; the phosphate concentration in well MW39 is now depicted as <1.2 mg/L.

1yy) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater - October 2021:** The phosphate concentration in the groundwater sample collected from well SMW01 is depicted as <0.25 mg/L in the figure, while it is reported as <2.5 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-17 was revised to correct the typographical error; the phosphate concentration in well SMW01 is now depicted as <2.5 mg/L.

1zz) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater - October 2021:** The fluoride concentration in the groundwater sample collected from well TMW01 is depicted as 0.44 mg/L in the figure. According to Table 5-2, two samples were separately collected on October 8 and 15, 2021, and the fluoride concentrations were reported as 0.43 and 0.36 mg/L. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Table 5-2 was revised to report the results for a duplicate sample collected for well TMW01 which includes a fluoride concentration of 0.44 mg/L. No change to Figure 5-17 as a result of this comment. The results from 10/8/2021 were analyzed out of holding time and were removed from the table.

1aaa) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater - October 2021:** The phosphate concentration in the groundwater sample collected from well TMW02 is depicted as <2.5 mg/L in the figure, while it is reported as <0.25 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-17 was revised to correct the typographical error; the phosphate concentration in well TMW02 is now depicted as <0.25 mg/L.

1bbb) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater - October 2021:** The phosphate concentration in the groundwater sample collected from well TMW04 is depicted as <2.5 mg/L in the figure, while it is reported as <1.2 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Table 5-2 was revised to correct the typographical error; the phosphate concentration in well TMW04 is now reported as <2.5 mg/L.

1ccc) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater - October 2021:** The phosphate concentration in the groundwater sample collected from well TMW15 is depicted as <1.2 mg/L in the figure, while it is reported as <0.50 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-17 was revised to correct the typographical error; the phosphate concentration in well TMW15 is now depicted as <0.50 mg/L.

1ddd) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater - October 2021:** The fluoride concentration in the groundwater sample collected from well TMW15 is depicted as 1.7 mg/L in the figure, while it is reported as 1.6 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-17 was revised to correct the typographical error; the fluoride concentration in well TMW15 is now depicted as 1.6 mg/L.

1eee) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater - October 2021:** The phosphate concentration in the groundwater sample collected from well TMW21 is depicted as <0.50 mg/L in the figure, while it is reported as <1.2 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-17 was revised to correct the typographical error; the phosphate concentration in well TMW21 is now depicted as <1.2 mg/L.

1fff) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater - October 2021:** The phosphate concentration in the groundwater sample collected from well TMW29 is depicted as 0.62 mg/L in the figure, while it is reported as <1.2 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-17 was revised to correct the typographical error; the phosphate concentration in well TMW29 is now depicted as <1.2 mg/L.

1ggg) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater - October 2021:** The phosphate concentration in the groundwater sample collected from well TMW34 is depicted as <10 mg/L in the figure, while it is reported as 10 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Table 5-2 was revised to correct the typographical error; the phosphate concentration in well TMW34 is now reported as <10 mg/L.

1hhh) **Figure 5-18, Northern Area Fluoride and Phosphate in Bedrock Groundwater - October 2021:** The phosphate concentration in the groundwater sample collected from well TMW31D is depicted as <0.25 mg/L in the figure, while it is reported as <2.5 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

Permittee Response: Concur. Figure 5-18 was revised to correct the typographical error; the phosphate concentration in well TMW31D is now depicted as <2.5 mg/L.

2. **Recurrence of Previous Issues**

NMED Comment: The Reports contain multiple recurrences of the same issues that NMED identified during previous reviews. Most of these issues were resolved in the Permittee's previous responses; therefore, the issues should have been eliminated from the new Reports. For example, Section 5.1, Water-Quality Parameters, in the July through December 2021 Report states, "[g]roundwater-specific conductance values measured during the October 2021 sampling event in the alluvium aquifer ranged from 0.006 millisiemens per centimeter (mS/cm) in well MW01 to 15.9 mS/cm in well TMW08; and in the bedrock aquifer, the range was 1.24 mS/cm in well TMW17 to 31.5 mS/cm in well BGWM07. Specific conductance values correspond to USEPA or NMED secondary water quality standards for total dissolved solids (TDS) concentrations (40 CFR 143)." Comment 10 in the NMED's September 9, 2021 Disapproval stated, "[a]lthough the ranges of specific conductance values measured in October 2020 are discussed, it is not clear whether or not these values exceed the USEPA or NMED secondary water quality standards for TDS concentrations.

Include the discussion in the revised Report." This comment was addressed in the Permittee's January 12, 2022 response letter that stated, "[s]pecific conductance values can be converted to TDS by multiplying the conductivity by an empirically determined conversion factor. This conversion factor may vary from 0.55 to 0.9, depending on the soluble components of the water and on the temperature of measurement (American Public Health Association [APHA], 1992). Due to the range of the appropriate conversion factors at the site, some wells may exceed the USEPA secondary MCL for TDS of 500 mg/L (USEPA, 2021)." Section 5.1 must provide a comparable discussion in the revised Report.

Review and address NMED's previous comments, where applicable, in the revised Reports. Failure to follow NMED direction constitutes noncompliance and may result in an enforcement action.

Permittee Response: Concur. The Army attempted to address each of NMED’s previous comments in the revised reports. With respect to specific conductance, the following text was added to Section 5.1 of each PMR document: “Specific conductance values can be converted to TDS by multiplying the conductivity by an empirically determined conversion factor. This conversion factor may vary from 0.55 to 0.9, depending on the soluble components of the water and on the temperature of measurement (American Public Health Association [APHA], 1992). Due to the range of the appropriate conversion factors at the site, some wells may exceed the USEPA secondary MCL for TDS of 500 mg/L (USEPA, 2021).”

3. **Inclusion of Per- and Polyfluorinated Substances (PFAS) Analysis**

NMED Comment: NMED's October 2022 Risk Assessment Guidance for Investigations and Remediation (RAG) provides screening levels for per- and polyfluorinated substances (PFAS). PFAS may potentially be detected in groundwater samples collected from the wells located in the vicinity of the former fire training and sewage treatment facility areas. The Permittee must propose to conduct PFAS analysis for the groundwater samples collected from the selected wells in two consecutive sampling events using appropriate sampling and analytical methods in the upcoming Interim Northern Area Groundwater Monitoring Plan.

Permittee Response: Comment acknowledged. The Army is investigating the potential presence of PFAS at Fort Wingate Depot Activity under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). A Preliminary Assessment and Site

Inspection (PA/SI) are currently being conducted and will be made available upon completion.

No change to either PMR document as a result of this comment.

SPECIFIC COMMENTS

4. Section 1.0, Introduction, lines 24-25, page 1-1 in the January through June 2021 Report, and Section 1.0, Introduction, lines 25-27, page 1-1 in the July through December 2021 Report

Permittee Statement: "Starting in year 2021 for four consecutive events, the 35 new wells will be sampled and analyzed for the full suite of analytes as shown in Table 2-2."

NMED Comment: Table 2-2, Northern Area Groundwater Sampling Matrix, does not indicate that 1,4-dioxane analysis was conducted for the 35 new wells except for wells MW27 and MW37 through MW39 during the October 2021 sampling event; therefore, stating that all 35 new wells will be sampled and analyzed for the full suite of analytes is inaccurate.

Comment 2 of NMED's Approval with Modifications Revised Final 2022 Interim Northern Area Groundwater Monitoring Plan, dated March 8, 2021, stated, "the Permittee must conduct 1,4-dioxane analysis in addition to the analyses required for each (35) wells during the April 2021 sampling event." The Permittee's October 26, 2021 response letter stated, "[t]he Army is collecting additional samples to verify the presence and absence of 1,4-dioxane from all new wells." However, the Permittee did not conduct 1,4-dioxane analysis for the 32 new wells in 2021.

In addition, Comment 2 of NMED's Army's Responses to the Approval with Modifications, dated August 3, 2021, stated, "[t]he 1,4-dioxane data collected in 2020 for the 32 wells are not usable for any decision-making purpose." The Permittee's January 12, 2022 response letter stated, "[t]he 1,4-Dioxane data collected in 2020 for the 32 new wells will not be used for any decision-making purpose." Although the Permittee concurred that 1,4-dioxane analytical results collected in 2020 for the 32 wells were not usable for any decision-making purpose in the response letter, 1,4-dioxane analysis was not conducted for the 32 new wells during the 2021 sampling events. The Permittee must conduct 1,4-dioxane analysis for all wells as directed by NMED and agreed to by the Permittee, if the analyses have yet to be conducted.

Permittee Response: Comment acknowledged. The standard full suite of analytes at FWDA has not included 1,4-dioxane. However, the Army has sampled for 1,4-dioxane in the Northern Area Groundwater RFI and during Periodic Groundwater Monitoring, as described below.

As part of the Northern Area Groundwater RFI, the Army installed 35 wells and sampled these wells for 1,4-dioxane. As reported in Table 4-7.2 of the *Northern Area Groundwater RCRA Facility Investigation Report* (Revision 3, approved by NMED on October 19, 2023), 1,4-dioxane was detected in nine of the 35 wells. The minimum concentration detected was estimated at 0.028 µg/L (qualified “J”) and the maximum concentration was 0.0907 µg/L; all detections are below the SL of 4.59 µg/L. The approved Northern Area Groundwater RFI Report did not identify a data gap for 1,4-dioxane or recommend additional sampling.

For two rounds of periodic monitoring in 2020, the Army sampled for 1,4-dioxane in 93 wells, as documented in Tables 5-7 of the *Groundwater Periodic Monitoring Report January through June 2020 Revision 1* (dated September 29, 2021) and *Groundwater Periodic Monitoring Report July through December 2020 Revision 3* (dated September 30, 2022).

In the January through June 2020 report (September 29, 2021), all but one well reported 1,4-dioxane as non-detect (ND) (maximum LOQ = 0.62 µg/L). The one exception, MW-27 reported an estimated concentration of 1.2 µg/L (qualified "J"). This well was resampled for 1,4-dioxane in October 2020 and reported below the sample specific LOQ of 1.1 µg/L. In the July through December 2020 report *(*September 30, 2022), all sampled wells reported 1,4-dioxane as ND (maximum LOQ = 1.2 µg/L).

If necessary, the Army proposes to consider any additional investigative requirements for 1,4-dioxane in the upcoming Phase 2 Groundwater RFI.

5. Section 2.3, Data Management and Validation, lines 26-27, page 2-3 in the January through June 2021 Report, and Section 2.3, Data Management and Validation, lines 32-33, page 2-3 in the July through December 2021 Report

Permittee Statement: "The QC samples used the same ID number as the parent sample followed by 'D' for duplicate, as specified in the GWMP."

NMED Comment: The chemical composition of the quality control (QC) samples must not be biased by their sample designations. The QC samples on a chain of custody form must be designated accordingly to prevent potential bias by laboratory chemists. Include this provision in the upcoming Interim Northern Area Groundwater Monitoring Plan.

Permittee Response: Concur. Future GWMP will include alternate sample identifiers for duplicate samples, so that the samples are "blind" to the lab for QC purposes.

No change to either PMR document as a result of this comment.

6. Section 4.1.2, Northern Area Bedrock Groundwater System, lines 4-7, page 4-2, and Section 6.0, Summary, lines 18-20, page 6-1 in the January through June 2021 Report, and Section 4.1.2, Northern Area Bedrock Groundwater System, lines 4-7, page 4-2, and Section 6.0, Summary, lines 25-27, page 6-1 in the July and December 2021 Report

Permittee Statement: "The groundwater flow direction has not been fully characterized in the bedrock aquifer beneath the Workshop Area. Elevation data depicted in Figure 4-3 and Figure 4-4 show a decrease in a northern direction toward a path of least resistance."

And

"Groundwater flow direction in the bedrock aquifer beneath the Workshop Area has not been fully characterized but appears to flow generally to the west."

NMED Comment: These statements appear contradictory regarding the groundwater flow direction beneath the Workshop Area. Resolve the discrepancy in the revised Reports.

In addition, although NMED agrees that the groundwater flow direction is not fully understood in the bedrock aquifer beneath the Workshop Area, NMED does not agree that the elevation data and the contour lines depicted in Figures 4-3 and 4-4 demonstrate groundwater flow directions beneath the Workshop Area. For example, groundwater elevations in wells TMW52 and TMW58 are recorded as 6,646 and 6,664 feet, respectively, in Figure 4-3 of the July through December 2021 Report. Well TMW52 is closely located southeast of well TMW58; therefore, a steep gradient in the southeast direction is indicated at the location. Similarly, the groundwater elevations in wells TMW53 and TMW63 are reported as 6,647 and 6,669 feet, respectively. Well TMW53 is closely located west of well TMW63; therefore, a steep gradient in the west direction is indicated at the location. The groundwater flow direction beneath the

Workshop Area significantly varies between the wells.

The increment of contour lines was refined from ten-feet to five-feet to better assess groundwater flow directions, and new wells were installed in 2019 to better characterize the bedrock aquifer. Despite the efforts, groundwater flow direction in the bedrock aquifer beneath the Workshop Area has not been characterized. Evaluate whether additional bedrock wells are necessary to characterize groundwater flow direction(s) in the bedrock aquifer beneath the Workshop Area. Additional wells in the areas a) west of well TMW58; b) northwest of well TMW58; c) between wells TMW53 and TMW52; and d) north of well TMW63 may be sufficient to characterize groundwater flow direction in the bedrock aquifer beneath the Workshop Area. Propose to submit a work plan to determine the groundwater flow direction in the bedrock aquifer beneath the Workshop Area. Also, include a discussion regarding the strategies employed to characterize groundwater flow direction in the bedrock aquifer beneath the Workshop Area in the response letter.

Permittee Response: Comment acknowledged. Section 4.1.2 was revised to state that "groundwater flow direction beneath the Workshop Area significantly varies between the wells…" in each PMR document.

Regarding the second part of NMED's comment, the Army proposes to further characterize groundwater flow gradients beneath the Workshop Area, as necessary to determine the nature and extent of groundwater contamination, through the Groundwater RFI process. As indicated in earlier correspondence, the Army intends to submit the Northern Area Groundwater Phase 2 RFI Work Plan by March 15, 2024.

7. **Section 4.1.2, Northern Area Bedrock Groundwater System, lines 14-16, page 4-2 in the January through June 2021 Report, and Section 4.1.2, Northern Area Bedrock Groundwater System, lines 14-16, page 4-2 in the July and December 2021 Report**

Permittee Statement: "Additional characterization of bedrock groundwater flow conditions is proposed in the Final Groundwater Supplemental RCRA Facility Investigation Work Plan, Revision 4, Fort Wingate Depot Activity, McKinley County, New Mexico (Sundance, 2018a)."

NMED Comment: All of [the] new bedrock wells proposed in the referenced work plan were already installed prior to the 2021 monitoring events and the Final Northern Area Groundwater RCRA Facility Investigation Report was submitted to NMED in September 2021. If there is/was any additional effort to characterize the bedrock flow conditions that NMED is unaware of, provide a clarification in the response letter; otherwise, remove the statement from the revised Reports.

Permittee Response: Concur. The referenced statement was removed from Section 4.1.2 of each PMR document. Please see response to Comment 6 above for more information.

8. **Section 5.2.1, Nitrate and Nitrite, lines 9-11, page 5-2 in the January through June 2021 Report, Section 5.2.1, Anions, lines 11-14, page 5-2 in the July through December 2021 Report**

Permittee Statement: "In addition, nitrate was detected at a concentration of 11 mg/L in the groundwater sample collected from background alluvial monitoring well BGMW02 located on the FWDA boundary and upgradient of any SWMUs or AOCs."

and

"In addition, nitrate was detected at a concentration of 13 mg/L in the groundwater sample collected from background alluvial monitoring well BGMW02 located on the FWDA boundary and upgradient of any SWMUs or AOCs."

NMED Comment: There are three alluvial monitoring wells (BGMW01, BGMW03, and TMW28) in the vicinity of well BGMW02. The nitrate concentrations in these wells are reported as below the applicable screening level of 10 mg/L; 3.2 mg/L for BGMW01, 1.3 mg/L for BGMW03, and <0.06 mg/L for TMW28 in October 2021. The extent of nitrate contamination around well BGMW02 appears to be localized. Since the location of well BGMW02 is close to the Interstate Highway, rainwater runoff from the road may potentially be accumulating near well BGMW02 and seeping into the casing of well BGMW02. Conduct a survey to investigate a) whether there is any damage to the surface completion of well BGMW02 (e.g., cracks on concrete collar) and b) whether there is any sign of surface water accumulation (e.g., ponding, drainage ditch) near well BGMW02 during the upcoming groundwater monitoring event. Report the findings in the corresponding periodic groundwater monitoring report.

Permittee Response: Acknowledge and concur. The Army investigated the surface completion of well BGMW02 for competence and investigated the area surrounding the well for signs of potential surface water accumulation during the October 2023 groundwater monitoring event. The observations are being recorded in the July to December 2023 PMR.

No change to either PMR document as a result of this comment.

9. **Section 5.2.1, Anions, lines 25-33, page 5-2 in the July through December 2021 Report**

Permittee Statement: "In addition to nitrate and nitrite, the following anions were detected in groundwater samples collected from alluvial and bedrock monitoring wells during the October 2021 groundwater sampling event (the maximum detected concentrations are shown in parentheses below and bold values exceed the selected screening levels).

Bromide (6.2 J mg/L at bedrock monitoring well BMW07)

Chloride (9,800 mg/L at bedrock monitoring well B[G]MW07)

Fluoride (4.2 mg/L at alluvial monitoring well B[G]MW03)

Phosphate (10.0 mg/L at alluvial monitoring well TMW34)

Sulfate (6,100 mg/L at alluvial monitoring well TMW08)"

NMED Comment: The chloride concentration at bedrock monitoring well BGMW07 (9,800 mg/L) is not presented with bold font; correct the error in the revised Report. In addition, the figures (Figures 5-1, 5-2, and 5-13 through 5-16) that present all of the anion concentrations are included in the Report; however, a discussion regarding the findings for bromide, chloride, fluoride, phosphate, and sulfate was not provided. Provide the discussion in the revised Report.

Permittee Response: Concur. Bold text is no longer being used to show exceedances in this part of the document. Discussion of anion detections was added to Section 5.2.1 of the October 2021 PMR document.

10. **Section 5.2.3, Perchlorate, lines 30-33, page 5-3 in the January to June 2021 Report, and Section 5.2.3, Perchlorate, lines 34-36, page 5-3 in the July through December 2021 Report**

Permittee Statements: "Samples collected in three alluvial monitoring wells TMW01 (270 µg/L), TMW31S (520 µg/L), and TMW39S (700 µg/L), and eight bedrock monitoring wells TMW30 (510 µg/L), TMW31D (890 µg/L), TMW32 (400 µg/L), TMW40D (230 µg/L), TMW48 (850 µg/L), TMW49 (320 µg/L), TMW51 (670 µg/L), and TMW64 (SO µg/L), exceeded the EPA MCL."

and,

"[E]ight bedrock monitoring wells TMW30 (400 µg/L), TMW31D (860 µg/L), TMW32 (410 µg/L), TMW40D (230 µg/L), TMW48 (800 µg/L), TMW49 (230 µg/L), TMW51 (520 µg/L), and TMW64 (54 µg/L), exceeded the screening level."

NMED Comment: Well TMW64 was installed in 2019 to specifically delineate the eastern extent of the bedrock perchlorate plume. Since the perchlorate concentrations in the groundwater samples collected from TMW64 consistently exceed the screening level of 14 µg/L, the eastern extent of the bedrock perchlorate plume remains unknown. Propose to submit a work plan to delineate the eastern extent of the bedrock perchlorate plume in the revised Reports.

Permittee Response: Comment acknowledged. As proposed in the Army's April 24, 2023, letter to NMED regarding outstanding documents, the Army plans to submit a Work Plan to complete the RFI process for Parcel 22, including the investigation of perchlorate in soils, by 15 March 2024.

No change to either PMR document as a result of this comment.

11. **Section 5.2.5, Other Organic Compounds, lines 35-36, page 5-4 in the January through June 2021 Report, and Section 5.2.5, Other Organic Compounds, lines 28-30, page 5-4 in the July through December 2021 Report**

Permittee Statements: "Three bedrock wells also had detections of TPH DRO: TMW50 (51 J µg/L), TMW53 (150 J µg/L), and TMW58 (58 J µg/L)."

and,

"TPH-DRO was detected in six alluvial wells and three bedrock wells above the selected screening level. TPH-GRO was detected in two alluvial wells and one bedrock well above the selected screening level."

NMED Comment: TPH was detected in the groundwater samples collected from the new bedrock wells that were installed in 2019. TPH is considered a contaminant of concern (COC) unless proven otherwise. Accordingly, the Permittee must submit groundwater samples from the new wells where TPH-DRO/GRO were detected for TPH-DRO/GRO, VOC, and SVOC analyses, in addition to the other specific analyses required for each well, during the upcoming groundwater periodic monitoring events. No revision is necessary to the Reports.

Permittee Response: Concur. No change to either PMR document as a result of this comment.

12. **Section 5.2.5, Other Organic Compounds, line 37, page 5-4 in the January through June 2021 Report, and Section 5.2.5, Other Organic Compounds, line 36, page 5-4 in the July through December 2021 Report**

    Permittee Statement: "Detections of SVOCs are associated with historical releases of explosive compounds."

    NMED Comment: Some semi-volatile organic compounds (SVOCs) previously detected at the site (e.g., bis(2-ethylhexyl)phthalate, naphthalene) are not associated with releases of explosive compounds. Some SVOC detections are associated with other releases or causes (e.g., contamination caused by materials used for groundwater sampling). Clarify the statement or remove the statement from the revised Reports.

    Permittee Response: Concur. The referenced statement "detections of SVOCs are associated with historical releases of explosive compounds" was removed from each PMR document.

13. **Section 5.2.5, Other Organic Compounds, lines 40-42, page 5-4 in the January through June 2021 Report, and Section 5.2.5, Other Organic Compounds, lines 38-39, page 5-4 in the July through December 2021 Report**

    Permittee Statements: "1,4-Dioxane was analyzed using EPA Method 8270 SIM. There were no detections of 1,4-Dioxane during the April 2021 sampling event. The analytical results are presented in Table 5-7."

    and,

    "1,4-Dioxane was analyzed using EPA Method 8270 SIM. There were no detections of 1,4-Dioxane during the October 2021 sampling event. The analytical results are presented in Table 5-7."

    NMED Comment: According to Table 5-7, Summary of Dioxane-1,4 Analytical Results, only 4 wells (MW27 and MW37 through MW39) were sampled for 1,4-dioxane in April and October 2021. All 35 new wells should have been sampled and analyzed for 1,4-dioxane in addition to all other analytes specific to the wells in April and October 2021. Refer to Comment 4 above. Clearly state that the Permittee did not conduct 1,4-dioxane analysis for samples collected from the 32 new wells in 2021 and that the required 1,4-dioxane analysis will be conducted in the upcoming groundwater periodic monitoring events in the revised Reports.

    Permittee Response: Comment acknowledged. Please see response to Comment 4 above.

14. **Section 5.2.6, Metals, lines 15-18, page 5-5 in the January through June 2021 Report, and Section 5.2.6, Metals, lines 12-15, page 5-5 in the July through December 2021 Report**

    Permittee Statement: "Total metals including aluminum, arsenic, beryllium, iron, manganese, chromium, lead, nickel, and selenium were detected in multiple groundwater samples above screening levels. Dissolved arsenic, iron, manganese, and selenium were detected in multiple groundwater samples above groundwater screening levels."

NMED Comment: Some explosives handled at the facility may have been formulated with metals (e.g., barium, aluminum). In this case, since explosive compounds have been released at the facility, metals formulated for explosives may have also been released to the environment. The concentrations of explosive compounds in soil or groundwater samples may correlate with those of the metals. An evaluation of such correlation and discussion associated with the evaluation was previously required by NMED to be presented under a separate cover. This comment serves as a reminder only. No revision is required to the Reports.

Permittee Response: Comment acknowledged. No change to either PMR document as a result of this comment.

15. Section 5.3, Variances from the Work Plan, lines 23-25 and 27-28, page 5-5 in the January through June 2021 Report, and Section 5.3, Variances from the Work Plan, lines 20-22 and 24-25, page 5-5 in the July through December 2021 Report

Permittee Statements: "Monitoring well FW35 has been dry since October 2015, MW18S has been dry since installation in 1994, well MW22S has been dry since April 2016."

and,

"Water levels will be monitored at these locations to determine whether sampling can resume, or the wells should be abandoned."

NMED Comment: Well FW35 was screened from 10 to 30 feet below ground surface (bgs) according to Table 2-1, Northern Area Groundwater Well Construction Details. Depth to water (DTW) readings collected from well MW35, which was installed in 2019 to replace well FW35, consistently exceed 30 feet bgs according to Table 4-1. Similarly, well MW18S was screened from 27 to 37 feet bgs according to Table 2-1. DTW readings collected from well MW18D, which was installed adjacent to well MW18S, consistently exceed 37 feet bgs according to Table 4-1. Similarly, well MW22S was screened from 31 to 41 feet bgs according to Table 2-1. DTW readings collected from well MW22D, which was installed adjacent to well MW22S, consistently exceed 41 feet bgs according to Table 4-1.

Accordingly, wells FW35, MW18S and MW22S are unlikely to retain any groundwater in the future. Propose to submit a work plan to abandon wells FW35, MW18S and MW22S in the revised Reports.

Permittee Response: Concur. The Army will submit a work plan to include abandonment of wells FW35, MW18S, and MW22S.

No change to either PMR document as a result of this comment.

16. Section 5.4, Data Quality Exceptions, lines 36-37, page 5-5 in the January through June 2021 Report, and Section 5.4, Data Quality Exceptions, lines 29-30, page 5-5 in the July through December 2021 Report

Permittee Statement: " There are a total of 42 data quality exception compounds where the Limit of Detection (LOD), Limit of Quantitation (LOQ), or both, exceed the screening level as shown in Table 3-1."

NMED Comment: According to Table 3-1 (Groundwater Screening Levels, Detection Limits, and Control Limits) of the July through December 2021 Report, the LOQ and LOD for nitrite are 0.1 and 0.06 mg/L, respectively. LOQs and LODs are specific to each individual sample analysis; therefore, it is inappropriate and inaccurate to include these values in a table meant to provide information for all analyses. Multiple LOD values shown on Table 5-2 exceed the screening level of 1 mg/L. For example, the nitrite concentration in the groundwater sample collected from well BGMW11 is recorded as <6 mg/L in the July through December 2021 Report. Similarly, the nitrite concentration in the groundwater samples collected from well BGMW13D is recorded as <2.4 mg/L in the July through December 2021 Report. Nitrite must be included as a data quality exception compound in the revised Reports. Remove individual analysis-specific information from the table and revise all applicable sections (e.g., Sections 5.4 and 5.2.1) and tables of the Reports, accordingly.

Permittee Response: Concur. Table 3-1 was revised to remove LOQ, LOD, and DL data columns in each PMR document.

In addition, nitrite was added as a data quality exception in Section 5.4 of each PMR document.

17. Section 6.0, Summary, lines 29-31, page 6-1 in the January through June 2021 Report, and Section 6.0, Summary, lines 36-38, page 6-1 in the July through December 2021 Report

Permittee Statement: "The nitrate bedrock plume may have originated from the former TNT Leaching Beds (SWMU 1) while the collocated perchlorate plume may have originated from the Building 528 Complex (SWMU 27)."

NMED Comment: Section 5.2.1 states, "[t]he highest groundwater nitrate concentration in the bedrock groundwater unit was found south of the Workshop Area in monitoring well TMW30 (13.0 mg/L)." Well TMW30 is located hydraulically upgradient of the Workshop Area; therefore, the nitrate bedrock plume may not have originated from the former TNT Leaching Beds. The Permittee's December 19, 2022 Final Northern Area Groundwater RCRA Facility Investigation Report, Revision 2, Response to Notice of Disapproval states, "the bedrock nitrate plume is significantly smaller and hydraulically upgradient and is only incrementally intersecting the significantly larger downgradient alluvial plume. The hydraulically upgradient orientation of the bedrock plume reduces the potential for migration from the alluvial aquifer to an upgradient location." The bedrock nitrate contamination may have originated from unknown releases to the exposed bedrock at the building 528 Complex area. Revise the statement accordingly in the revised Reports.

Permittee Response: Concur. Section 6.0 in each PMR document was revised to state that the bedrock nitrate plume may have originated from unknown sources at the building 528 Complex (SWMU 27) rather than from the TNT Leaching Beds (SWMU 1).

18. Table 5-6, Summary of TPH and SVOC Analytical Results in the July through December 2021 Report

NMED Comment: Since the extent of the TPH-DRO plumes is solely evaluated by the reported analytical results, the appearance of the plumes appears to drastically change in each sampling period. For example, the extent of the plume in April 2021 is significantly larger than that of October 2021 according to Figures 5-9 in the Reports. Such presentation of the plume extent is not only inaccurate but also misleading. Non-detects (ND) due to a higher dilution rate causing to increase LOD for a particular analysis are acceptable; however, they should be called out as data quality exceptions in all figures, tables, and discussions. Unless analytical capability allows for better detection limits, the extent of the plumes must not be shown on the figures. Revise the Reports accordingly.

Permittee Response: Concur. Figure 5-9 was revised to remove the TPH-DRO concentration contour in each PMR document.

In addition, TPH-DRO is listed as a data quality exception in Section 5.4 in each PMR document.

19. Figures 5-3, Northern Area Explosives in Alluvial Groundwater - April and October 2021

NMED Comment: Although the RDX plume contours exceeding the concentration of 9.7 µg/L are presented in the figures, well TMW40S is depicted outside of the plumes because a groundwater sample has not been collected from the well since April 2020. However, the highest RDX concentrations have always been recorded in the groundwater samples collected from well TMW40S (e.g., 890 µg/L in April 2020). Accordingly, it is reasonable to assume that RDX concentrations in the vicinity of well TMW40S exceed the screening level of 9.7 µg/L and well TMW40S must be included within the boundary of the RDX plumes. Revise the figures accordingly in the revised Reports.

Permittee Response: Concur. Even though well TMW40S has not been sampled in recent sampling events because it has been dry since 2020, the Army agrees to extend the depicted RDX contour beyond this well based on the historical RDX concentrations. Figure 5-3 was revised to include a dashed (inferred) contour extending beyond well TMW40S in each PMR document.

20. Figure 5-9, Northern Area TPH-DRO in Alluvial Groundwater - April 2021

NMED Comment: The TPH-DRO concentration in the groundwater sample collected from MW34 is depicted as 110 J µg/L in the figure and exceeds the screening level of 16.7 µg/L. The western/southwestern extent of the TPH-DRO plume remains undefined because the groundwater sample collected from well TMW25 was not analyzed for TPH-DRO.

In addition, the TPH-DRO concentrations in the groundwater samples collected from wells TMW08 and TMW61 are depicted as 200 J and 74 J µg/L, respectively, in the figure and exceed the screening level of 16.7 µg/L. The northern/northeastern extent of the TPH-DRO plume remains undefined because the groundwater samples collected from wells TMW23 and TMW24 were not analyzed for TPH-DRO.

Furthermore, the TPH-DRO concentration in the groundwater samples collected from MW36D and MW36S are depicted as 77 J and 120 J µg/L, respectively, in the figure and exceed the screening level of 16.7 µg/L. The extent of the separate TPH-DRO plume remains undefined because the groundwater sample collected from well MW23 was not analyzed for TPH-DRO.

Propose to collect groundwater samples from wells MW23, TMW23, TMW24, and TMW2S for TPH-DRO analysis in the upcoming Interim Northern Area Groundwater Monitoring Plan.

Permittee Response: Concur. TPH-DRO will be added to the analytical program for wells MW23, TMW23, TMW24, and TMW25 in the forthcoming 2024 Groundwater Monitoring Work Plan.

No change to either PMR document as a result of this comment.

21. Figure 5-9, Northern Area TPH-DRO in Alluvial Groundwater - October 2021

NMED Comment: The TPH-DRO concentrations in the groundwater samples collected from wells MW36S and BGMW13S are depicted as 82 J and 78 J µg/L, respectively, in the figure and exceed the screening level of 16.7 µg/L. The TPH-DRO plume may be contiguous between wells MW36S and BGMW13S. However, since well MW24, located between the two wells, was not sampled for TPH-DRO, the extent of the separate plume remains unknown. Propose collecting groundwater sample from well MW24 for TPH-DRO analysis in the upcoming Interim Northern Area Groundwater Monitoring Plan.

Permittee Response: Concur. TPH-DRO will be added to the analytical program for well MW24 in the forthcoming 2024 Groundwater Monitoring Work Plan.

No change to either PMR document as a result of this comment.

If you have questions or require further information, please contact me at George.h.cushman.civ@army.mil, 703-455-3234 (Temporary Home Office, preferred) or 703-608-2245 (Mobile).

Sincerely,

George H. Cushman IV

George H. Cushman IV
BRAC Environmental Coordinator
Fort Wingate Depot Activity
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Enclosures

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ARMY RESPONSE LETTER, DATED APRIL 24, 2023

DEPARTMENT OF THE ARMY
OFFICE OF THE DEPUTY CHIEF OF STAFF, G-9
600 ARMY PENTAGON
WASHINGTON, DC 20310-0600

24 April 2023

Army Environmental Division - BRAC Operations Branch

Mr. Rick Shean
Acting Chief, Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

Dear Mr. Shean,

The Army is responding to the New Mexico Environment Department's (NMED) February 28, 2023, letter that requested an acceptable schedule for submitting outstanding documents at Fort Wingate Depot Activity (FWDA). A draft schedule is presented at the end of this letter. As noted in previous correspondence, since receiving Notices of Violation (NOV) in 2019, the Army has continued to implement remedial actions at FWDA, obligating an additional $15 million annually and over 500,000 hours of effort toward on the ground remediation.

The following proposals and updates form the basis for the draft schedule presented at the end of this letter:

1) NMED identified 19 outstanding documents and the Army is aware of an additional 12 documents, for a total of 31 documents that require action at FWDA. In preparing this response, the Army considered how to complete these documents in an accelerated manner within its limited resources. These documents are at various stages of development, review, and/or approval by NMED, some with data collected in recent years and some with correspondence and data from more than 10 years ago.

2) NMED stated that Army contracting issues are not an acceptable justification for delay at FWDA and the Army understands and appreciates NMED's position. However, federal anti-deficiency and contracting laws underpin the legal and fiscal requirements of firm-fixed-price contracting based on a defined scope of work. The previously agreed to schedule and over $120M in remediation contracts did not foresee the magnitude of modifications in scope of work required at FWDA, including those due to NMED comments on submitted documents.

3) To address these contracting and sequencing challenges, the Army proposes to implement the outstanding requirements at FWDA sequentially as follows:
   a. Complete Remedial Facility Investigation (RFI) Work Plans and Reports in the phases needed to complete the RFI process for each FWDA parcel.

b. Complete Remedial Actions (RA) identified in Final RFI Reports as required for each Area of Concern (AOC) and Solid Waste Management Unit (SWMU) and finalize documentation for completed RAs.

4) Some of the 31 outstanding documents are related to Permittee Initiated Interim Measures (PIIM). Except for Parcel 3, the Army requests approval to defer work on PIIM documents until the RFI Report for each of the parcels is complete. The RFI Reports will summarize field work completed in PIIM actions to date and will subsequently characterize contamination that may still remain.

5) For parcels in the Northern Area (Parcels 6, 7, 11, 13, 21, 22, 23), the Army proposes to complete outstanding RFIs that have been initiated but not completed. The Army's plan is to award one contract with capacity to complete the RFI Reports for the seven (7) Northern Area parcels. The contract is expected to include provisions to maximize the use of previously collected data, and to identify additional data that may be required to complete the RFI process. The Contractor will then revise and/or prepare any necessary additional work plans, complete additional field work, and submit documents for NMED approval. Through this process the Army will address previous direction from NMED from earlier reviews of the relevant 31 documents.

6) For parcels in the Northern Area, NMED has provided direction in recent letters to submit new work plans and perform additional field work and reporting. These include the February 2023 Notice of Disapproval (NOD) for the Groundwater RFI, which includes a requirement to submit a work plan for a new well, a work plan for a new soil boring for hexavalent chromium, and a work plan for investigation of perchlorate and removal of perchlorate contaminated unconsolidated material. Future work for perchlorate could include corrective measures and a pilot study for remaining bedrock and groundwater perchlorate contamination. The Army plans to address these requirements through the upcoming Document Completion contract, though the requirement for additional work plans as described above will be addressed through the RFI process for the parcel where the potential contamination occurs. The Army respectfully requests that existing NMED due dates for the various work plans be re-established at the appropriate RFI submittal date for the relevant parcel (as proposed in the draft schedule provided at the end of this letter).

7) Regarding laboratory analytical methods (Limits of Quantitation (LOQ)), the Army submitted the third and final phase of an NMED requested LOQ study on April 24, 2023. The study involved a survey of 65 Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP) certified laboratories, of which 45 responded. In Phases 1 and 2 of the study, the Army evaluated the reported analytical performance from the laboratories against NMED screening levels (SL) for groundwater, to determine the extent to which SLs could be met by the laboratories. In Phase 3, for those analytes where LOQ remained above the SL in Phases 1 and 2, the Army proceeded with a multiple Lines-of-Evidence (LOE) approach to assess whether the analyte(s) is/are unlikely to be found at FWDA. At the conclusion of the LOE steps, the Army identified twenty-seven (27) analytes that could be present at FWDA, where the laboratory LOQ is above the NMED Screening Level (SL). Based on the results of the LOQ survey, the Army proposes the following:

a. For analytes where 50% or more of the responding laboratories can achieve LOQ < SL, the Army will utilize DoD-ELAP certified laboratories that report as being able to achieve LOQ < SL for those analytes.
b. For analytes where less than 50% of the responding laboratories can achieve LOQ < SL, the Army will perform Fort Wingate specific baseline risk assessments to determine whether concentrations of those analytes at the LOQ present unacceptable risk at FWDA.
    i. If cumulative risk is unacceptable (i.e., incremental lifetime cancer risk greater than 1E-05 or the noncancer hazard index greater than 1.0), the Army will develop a work plan for NMED approval to perform a targeted study to address the remaining uncertainty for these 27 analytes.
    ii. If risk is acceptable (i.e., incremental lifetime cancer risk less than 1E-05 or the noncancer hazard index less than 1.0. target risk < 1E-05), the Army will use the LOQ for these outstanding analytes for decision making.

8) The Army will complete work on the current Parcel 3 contract addressing the HWMU Removal project to coincide with the contract end date in mid-2024.

9) The Army is pursuing a change in status for parcels in the Fort Wingate Launch Complex (Parcels 2, 9, 19, and 20) and Parcel 3, from Inactive non-military use to Active Status.

10) The Army anticipates it will not be able to transfer the Parcel 3 Open Burn/Open Detonation (OB/OD) area and will therefore secure the entire Parcel 3 perimeter and implement additional measures necessary to prevent and address potential MEC migration from the site.

11) For earth covered magazines (Igloos) in the Northern Area at FWDA (i.e., Parcels 6, 16, 22, and 24), the Army will prepare the Igloos for transfer by cleaning the Igloo interiors to a surface wipe occupational health screening criteria derived from Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PEL) for an industrial/commercial standard. The Army recently completed a case study on Igloo cleaning procedures and will provide results to NMED immediately as it is available.

12) The Army needs and desires NMED’s support to appropriately scope the proposed FWDA Northern Area Document Completion contract prior to award. The Army will also need to work with NMED to determine the extent to which various and previously collected data will be acceptable for use in completing the RFIs. Subsequent to this review, the Army anticipates working closely with NMED to develop a schedule for completing the RFIs and subsequent RAs. The Army considers the draft dates in the table below to be feasible based on experience to date at FWDA. These dates are subject to change based on collaboration with NMED.

The Army's Point of Contact for Fort Wingate is, George H. Cushman IV George.h.cushman.civ@army.mil 703-455-3232 (Temporary Home Office, preferred) or 703-608-2245 (Mobile).

Sincerely,

RAMSDELL.RICHARD.C.1161451408 Digitally signed by RAMSDELL.RICHARD.C.1161451408 Date: 2023.04.24 17:14:32 -04'00'

Richard Ramsdell
Army BRAC Branch Chief

Enclosure

cc:
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NMED Issued Notices of Violation (NOV), Outstanding Deadlines, and Proposed Resolution

Parcel	2/28/23 Letter Table Number	NOV #	Document	Proposed Approach	Submittal Date to NMED
3	**1**	**1**	Final Interim Measures Work Plan Areas of Concern and Solid Waste Management Units in the Kickout Area	Submit following completion of Parcel 3 RFI. See column 2 document #19.	Pending
3	**2**	**2**	Final Report Munitions and Explosives of Concern Removal and Surface Clearance Kickout Area	Parcel eligible for retention for active mission requirements.	N/A
6	**3**	**2**	Permittee-Initiated Interim Measures Report, Parcel 6, Areas of Concern 28, SWMU 8 - Former Building 537, SWMU 20 - Feature 4 (Areas A and B) and Locomotive	Submit following completion of Parcel 6 RFI. See column 2 document #22.	Pending
7	**4**	**2**	Final RCRA Facility Investigation Report	Submit Work Plan to fill remaining data gaps and complete RFI process for Parcel 7. See column 2 document #12.	3/15/2024
11	**5**	**2**	Final RCRA Facility Investigation Phase 2 Work Plan	Submit Work Plan to fill remaining data gaps and complete RFI process for Parcel 11.	3/15/2024
GW	**6**	**2**	Groundwater Monitoring Work Plan, Parcel 3	Submitted Parcel 3 Groundwater RFI Supplemental Sampling Work Plan to NMED for implementation after Parcel 3 replacement monitoring wells are installed.	4/19/2023
21	**7**	**3**	Final RCRA Facility Investigation, Phase 2 Report	Submit Work Plan to fill remaining data gaps and complete RFI process for Parcel 21.	3/15/2024
24	**8**	**3**	Final RCRA Facility Investigation Phase 2 Work Plan	Submit Work Plan to fill remaining data gaps and complete RFI process for Parcel 24.	12/1/2024
13	**9**	**3**	Final RCRA Facility Investigation Report	Submit Work Plan to fill remaining data gaps and complete RFI process for Parcel 13.	12/1/2024
21	**10**	**3**	Final Permittee-Initiated Interim Measures Report	Submit following completion of Parcel 21 RFI. See column 2 document #7.	Pending
22	**11**	**3**	Final RCRA Facility Investigation Report	Submit Work Plan to fill remaining data gaps and complete RFI process for Parcel 22.	3/15/2024
7	**12**	**3**	Final RCRA Facility Investigation Phase 2 Work Plan	Submit Work Plan to fill remaining data gaps and complete RFI process for Parcel 7.	12/1/2024

13	**13**	**3**	Final RCRA Facility Investigation Phase 2 Work Plan	Submit Work Plan to fill remaining data gaps and complete RFI process for Parcel 13.	12/1/2024
22	**14**	**NA**	Final RCRA Facility Investigation Phase 2 Work Plan	Submit Work Plan to fill remaining data gaps and complete RFI process for Parcel 22.	3/15/2024
19	**15**	**NA**	Final RCRA Facility Investigation Work Plan	Parcel retained for active missions and operational requirements.	N/A
9	**16**	**NA**	Final RCRA Facility Investigation Work Plan	Parcel retained for active missions and operational requirements.	N/A
2	**17**	**NA**	Final RCRA Facility Investigation Work Plan	Parcel retained for active missions and operational requirements.	N/A
9	**18**	**NA**	Final Investigation Report Igloo Block A Parcel 9	Parcel retained for active missions and operational requirements.	N/A
3	**19**	**NA**	Final RCRA Facility Investigation Work Plan	Submit Work Plan to fill remaining data gaps and complete RFI process for Parcel 3.	3/1/2025
3	**20**	**3**	HWMU Removal Report - Progress Report	Submit annual HWMU Removal status report summarizing work performed in 2022.	6/30/2023
6	**21**	**NA**	Final RCRA Facility Investigation Report	Submit Work Plan to fill remaining data gaps and complete RFI process for Parcel 6.	12/1/2024
6	**22**	**NA**	Phase 2 RCRA Facility Investigation Work Plan	Submit Work Plan to fill remaining data gaps and complete RFI process for Parcel 6.	12/1/2024
11	**23**	**NA**	Final Phase 2 RCRA Facility Investigation Report for Munitions and Explosives of Concern Parcel 11 Solid Waste Management Unit (SWMU) 40 and SWMU 10 MEC Removal Action	Submit Work Plan to fill remaining data gaps and complete RFI process for MEC in Parcel 11.	3/1/2025
20	**24**	**NA**	Final RCRA Facility Investigation Work Plan	Parcel retained for active missions and operational requirements.	N/A
21	**25**	**3**	Interim Measure Report Parcel 21 - SWMU 1 - TNT Leaching Beds	Interim Measures Completion Report approved 6/6/2022. [Submit Work Plan to fill remaining data gaps and complete RFI process for Parcel 21 on 3/1/2024.]	3/15/2024
22	**26**	**NA**	Final RCRA Facility Investigation Report for Munitions and Explosives of Concern (MEC Parcel 22 Solid Waste Management Units 12, 27, 70 and Areas of Concern 88A and 88B)	Submit Work Plan to fill remaining data gaps and complete RFI process for MEC in Parcel 22.	3/1/2025

23	**27**	**NA**	Final RCRA Facility Investigation Phase 2 Work Plan	Submit Work Plan to fill remaining data gaps and complete RFI process for Parcel 23.	12/1/2024
GW	**28**	**2**	Final Groundwater Supplemental RCRA Facility Investigation Report	Submit revised Groundwater Supplemental RFI Report (Revision 3). Submit Work Plan to fill remaining data gaps and complete RFI process for Northern Area Groundwater.	6/30/2023 3/15/2024
GW	**29**	**2**	Parcel 3 Groundwater Monitoring Report	Data will not be submitted for decision making. Will rely on data from document #6 column 2 above for decision making.	N/A
GW	**30**	**3**	Background Well Installation Completion Report	Army submitted Completion Report on 10/24/19. NMED issued Approval on 8/5/20.	N/A
GW	**31**	**NA**	Final Bench and Pilot Testing Work Plan to Support Future Corrective Measures Study	Submit following completion of Groundwater Supplemental RFI Report. See column 2 document #28.	Pending