NEW MEXICO ENVIRONMENT DEPARTMENT
VOLUNTARY REMEDIATION AGREEMENT

I. Introduction

This Voluntary Remediation Agreement ("Agreement") is entered into voluntarily by **M-I LLC,** represented by **Lee Conn**, **President**, who is duly authorized and appointed ("Participant") and the secretary of the New Mexico Environment Department ("Department"), or his or her designee, pursuant to the Voluntary Remediation Act, Sections 74-4G-1 et seq. NMSA 1978, and the New Mexico Voluntary Remediation Regulations (20.6.3 NMAC). The purpose of this Agreement is to detail the obligations and functions of each party relevant to the remediation to be conducted at the **Former M-I SWACO Facility** ("Site"), located at 3601 Bloomfield Highway in Farmington, under the Voluntary Remediation Program **(VRP Site No. 53211003)**. This Voluntary Remediation Agreement is issued pursuant to Section 20.6.3.300 NMAC and the Delegation Order dated May 24, 2021, through which the Cabinet Secretary has delegated signatory authority to the Chief of the Ground Water Quality Bureau.

The activities conducted by the Participant under this Agreement are subject to approval by the Department. The activities conducted by the Participant shall be consistent with this Agreement, all applicable laws and regulations, and any pertinent guidance documents. The Participant shall employ sound scientific, engineering, and construction practices in the voluntary remediation activities at this Site.

II. Statement of Eligibility

The secretary or his designee has determined that the application, submitted by the Participant to the Department on September 16, 2021, is complete, and that the Participant is eligible to enter into this Agreement in accordance with Section 74-4G-5 NMSA 1978 and 20.6.3.200.A NMAC.

III. Parties Bound

This Agreement shall apply to and be binding upon the Participant, its officers, managing agents, directors, principals, partners, employees, receivers, trustees, agents, parents, subsidiaries and affiliates, and upon the Department, its employees, and agents. The Participant has submitted with the application a signed Declaration of Ability and Intent as set forth in 20.6.3.200.B(2) NMAC. No change in ownership, corporate, or partnership status shall in any way alter the Participant's status or responsibilities under this Agreement unless the Participant or Department terminates this Agreement in accordance with 20.6.3.300.H NMAC.

The Participant shall provide a copy of this Agreement to any subsequent owners or successors before ownership rights are transferred. The Participant shall provide a copy of this Agreement to all contractors, subcontractors, laboratories, and consultants or other parties, which are retained by the Participant, to conduct any work under this Agreement, within 14 days after the effective date of this Agreement or within 14 days of the date of retaining their services.

IV. Designated Project Manager

On or before the effective date of this Agreement, the Department shall designate a project manager. The Primary Applicant specified on the Voluntary Remediation Program Application

will function as the project manager for the Participant. Each project manager shall be responsible for overseeing the implementation of this Agreement. The Department project manager will be the Department-designated representative at the site. To the maximum extent possible, communications between the Participant and Department and all documents (including reports, approvals, and other correspondence) concerning the activities performed pursuant to the terms and conditions of this Agreement shall be directed through the project managers. During implementation of this Agreement, the project managers shall, whenever possible, operate by consensus and shall attempt in good faith to resolve disputes informally through discussion of the issues. Each party has the right to change its respective project manager by notifying the other party in writing at least five days prior to the change.

V. Definitions

"Site" means the area described in the Voluntary Remediation Application. This description is attached and incorporated herein as Exhibit 1. All other terms used are defined in Section 74-4G-3 NMSA 1978 and 20.6.3.7 NMAC.

VI. Addresses for All Correspondence

Documents, including reports, approvals, notifications, disapprovals, and other correspondence to be submitted under this Agreement, may be sent by certified mail, first class mail, hand delivery, overnight mail, or by courier service to the following addresses or to such addresses as the Participant or Department designates in writing.

Documents to be submitted to the Department should be sent to:

Mailing Address:
Jennifer Muus
Ground Water Quality Bureau
New Mexico Environment Department
P.O. Box 5469
Santa Fe, NM 87502
E-mail: Jennifer.Muus@state.nm.us
Phone number: (505) 670-2496
Fax number: (505) 827-2965

Physical Address:
Jennifer Muus
Ground Water Quality Bureau
New Mexico Environment Department
1190 St. Francis Drive
Santa Fe, NM 87505

Documents to be submitted to the Participant should be sent to:

Mailing Address:
Lee Conn, M-I LLC
5950 North Course Drive
Houston, TX 77072
lconn@miswaco.slb.com

Physical Address:
Same as Mailing Address

VII. Compliance with Applicable Laws

All work undertaken by the Participant pursuant to this Agreement shall be performed in

compliance with all applicable federal, state and local laws, ordinances and regulations, including, but not limited to all Occupational Safety and Health Administration, Department of Transportation, Resource Conservation and Recovery Act, New Mexico Water Quality Control Commission, and New Mexico Environmental Improvement Board Petroleum Storage Tank regulations. In the event of a conflict between federal, state, or local laws, ordinances, or regulations, the Participant shall comply with the most stringent of such laws, ordinances, or regulations, unless provided otherwise in writing by the Department or other appropriate regulatory personnel with jurisdiction over such laws, ordinances, and regulations. Where it is determined that a permit is required under federal, state or local laws, ordinances, or regulations, the Participant shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals. The Participant shall be responsible for obtaining all permits that are necessary for the performance of the work hereunder, and for all ongoing or proposed Site activities, and for all ongoing or proposed facility operations.

VIII. Performance Standards and Associated Requirements

The Participant has submitted with their application to the Department a preliminary work plan describing the proposed voluntary remediation activities as they are currently envisioned as being submitted in a final voluntary remediation work plan, which includes a description of the known and suspected contaminants to be addressed by the proposed voluntary remediation activities. This preliminary work plan was prepared pursuant to 20.6.3.200.B NMAC. A copy of the preliminary work plan is attached and incorporated herein as Exhibit 2.

The contaminants covered by this Agreement are described as follows:
Resource Conservation and Recovery Act (RCRA) metals, including hexavalent chromium in soil, and Total Petroleum Hydrocarbons (TPH), in particular gasoline and diesel range organics in soil.

Voluntary remediation activities undertaken pursuant to this Agreement shall achieve the following standards or risk-based levels:

- *New Mexico Environment Department Risk Assessment Guidance for Site Investigations and Remediation, November 2021*

It is understood that the parties may wish to modify the list of contaminants and the media in which the contaminants are located, as covered by this Agreement, as additional information about the Site is developed. The Department may approve such changes through approval of work plans and other submittals provided by the Participant during the course of undertaking voluntary remediation activities.

IX. Access

To the extent that the Site or other areas where work is to be performed hereunder are presently owned or controlled by parties other than those bound by this Agreement, the Participant shall obtain or shall use its best efforts to obtain access agreements from the present owners. Best efforts shall include, at a minimum, certified letters from Participant to the present owners of such properties requesting access agreements to permit the Participant, Department, and their authorized representatives' access to such property. Such agreements shall provide access for the Department

and authorized representatives of the Department, as specified below. In the event that such access agreements are not obtained, the Participant shall so notify the Department, which may then, at its discretion, assist the Participant in gaining access.

The Participant shall provide authorized representatives of the Department access to the Site and other areas where work is to be performed at all reasonable times. Such access shall be related solely to the work being performed on the Site pursuant to this Agreement and may include, but is not limited to: inspecting and copying of Site and facility records; reviewing the progress of the Participant in carrying out the terms of this Agreement; conducting such tests, inspections, and sampling as the Department may deem necessary; using a camera, sound recording, or other documentary type equipment for field activities; and verifying the data submitted to the Department by the Participant hereunder**.** Prior to conducting remediation activities, the Participant shall provide a minimum of 72 hours' notice to the Department to allow observation of Site activities and to allow the Department's authorized representatives to collect split samples, at the Department's discretion**.** The Participant shall permit the Department's authorized representatives to inspect and copy all records, files, photographs, documents, and other writings, including all sampling and monitoring data, which pertain to this Agreement and over which the Participant exercises authority.

X. Deliverables and Submittal Schedule

A. Final Voluntary Remediation Work Plan

In accordance with 20.6.3.400 NMAC, the Participant shall submit to the Department a proposed final voluntary remediation work plan, detailing investigation and remediation activities to be undertaken to achieve the performance standards described in Section VIII of this Agreement. At a minimum, the final work plan must include the elements listed in 20.6.3.400.B NMAC.

Submittal Schedule:
The proposed final work plan shall be submitted by the Participant no later than 60 days after this Agreement has been signed.

If the work plan is to be prepared in phases, the work plan for the first phase shall be submitted no later than 60 days after this Agreement has been signed. Following completion, to the Department's satisfaction, of the work which is the subject of the final work plan for the first phase, the Department may require submission of one or more proposed final work plans for subsequent phases.

Department Review:
The secretary or his designee shall review and approve, approve with conditions, or disapprove a proposed final work plan within 45 days of receipt. Written notice shall be made of any conditions or deficiencies. If the secretary or his designee disapproves a final work plan, the Participant may be granted an opportunity to submit a revised version, as determined by the secretary or his designee.

Modification of Voluntary Remediation Work Plan:
The approved final voluntary remediation work plan may be modified at the request of the Participant and/or the Department, with both parties' approval, in accordance with 20.6.3.400.D NMAC.

B. Periodic Status Reports

The Participant shall submit periodic status reports, which detail activities completed for the reporting period and those planned for the upcoming reporting period, to the Department for the duration of this Agreement. The status report shall identify any proposed variances to the approved work plan and describe interim progress on implementation of the work plan, including analytical results of any sampling, water level measurements, Site maps or photos, as appropriate.

Submittal Schedule:
Periodic status reports are not required.

C. Voluntary Remediation Completion Report

In accordance with 20.6.3.500.B NMAC, following the completion of Site voluntary remediation activities, the Participant shall demonstrate to the Department that Site conditions meet the applicable standards specified in Section VIII of this Agreement by submitting to the Department a voluntary remediation completion report. The content of the completion report is detailed in 20.6.3.500.B NMAC. The report shall be submitted to the Department with the legal description of the affected property, and with an Affidavit of Completion of Voluntary Remediation signed by the Participant that indicates that remediation is complete, in accordance with this Agreement and applicable regulations and guidance.

Submittal Schedule:
The voluntary remediation completion report shall be submitted to the Department within 90 days following completion of voluntary remediation activities.

Department Review:
The Department shall review and determine the sufficiency of a completion report within 45 days of receipt. If the secretary or his designee does not approve the completion report, the secretary or his designee shall either issue a finding that the Participant is not in compliance with the Agreement and terminate the Agreement, or advise the Participant in writing of data gaps in the report. The Participant shall correct any identified data gaps and resubmit the completion report within 30 days of receipt of notice of data gaps.

XI. Certificate of Completion

If the secretary or his designee approves the voluntary remediation completion report, the secretary or his designee will issue either a Certificate of Completion or a Conditional Certificate of Completion, as appropriate, pursuant to Section 74-4G-7 NMSA 1978 and 20.6.3.500.B NMAC. If a Conditional Certificate of Completion is issued, the Department shall conduct audits to ensure that all engineering controls, remediation systems, post-closure care, and affirmations of future

non-residential land use are being maintained appropriately. These audits shall be performed at least every other year for the first 10 years following the issuance of the Conditional Certificate of Completion, and every five years thereafter. If, during the course of such an audit, the Department finds that any of the monitoring requirements, engineering controls, remediation systems, post-closure care, or affirmations of future non-residential land use are not being properly maintained such that the performance standards described in Section VIII of this Agreement are no longer being met, the Department may revoke the Conditional Certificate of Completion and initiate an enforcement action.

No Certificate of Completion or Conditional Certificate of Completion shall be issued to a Participant who has not paid invoiced oversight costs in full to the Department.

XII. Covenant Not to Sue

Pursuant to Section 74-4G-8 NMSA 1978 and 20.6.3.600 NMAC, after the secretary or his designee issues the Certificate of Completion or Conditional Certificate of Completion, the secretary or his designee shall provide a covenant not to sue to a purchaser or prospective purchaser of the Site that did not contribute to the Site contamination, for any direct liability, including future liability, for claims based upon the contamination covered by the Agreement and over which the Department has authority. Except as may be provided under federal law or as may be agreed to by a federal government entity, the covenant not to sue shall not release or otherwise apply to claims by the federal government for claims based on federal law. Except as may be agreed to by another department or agency of the state, the covenant not to sue shall not release or otherwise apply to claims of any other office, department, or agency of the state. Except as may be agreed to by a third party, the covenant not to sue shall not release or otherwise affect a person's liability to third parties.

XIII. Dispute Resolution

This section shall apply to any dispute arising under any section of this Agreement, unless specifically excepted. Dispute resolution shall be conducted in accordance with 20.6.3.300.I NMAC).

XIV. Reservation of Rights

The Department and Participant reserve all rights and defenses they may have pursuant to any available legal authority unless expressly waived herein. The Department expressly reserves the right to take any action, including any enforcement action, to address any release not covered by this Agreement, including any release that occurs after issuance of the Certificate of Completion or any release of a contaminant not covered by the voluntary remediation agreement. The secretary's covenant not to sue shall not apply to any such release.

Nothing herein is intended to release, discharge, or in any way affect any claims, causes of action or demands in law or equity which the parties may have against any person, firm, partnership or corporation not a party to this Agreement for any liability it may have arising out of, or relating in any way to the generation, storage, treatment, handling, transportation, release or disposal of any materials, hazardous substances, hazardous waste, contaminants or pollutants at, to, or from the Site. The parties to this Agreement expressly reserve all rights, claims, demands, and causes of

action they have against any and all other persons and entities who are not parties to this Agreement, and as to each other for matters not covered hereby.

The Participant reserves the right to seek contribution, indemnity, or any other available remedy against any person other than the Department found to be responsible or liable for contribution, indemnity or otherwise for any amounts which have been or will be expended by the Participant in connection with the Site.

XV. Enforcement Shield

Pursuant to the provisions of 20.6.3.300.A NMAC, the secretary will not initiate any enforcement action, including an administrative or judicial action, against a Participant for the contamination or release thereof, or for the activity that results in the contamination or release thereof, if the contamination is the subject of an Agreement pursuant to 20.6.3 NMAC. However, this Section shall not be a bar to any enforcement action if the Agreement is not finalized, if the Agreement is terminated or rescinded, or if the Participant does not successfully initiate or implement the Agreement within a reasonable time under the schedules set forth in this Agreement and approved work plans.

XVI. Oversight Costs

The Participant agrees to reimburse the Department for all of its costs associated with oversight and implementation of this Agreement in accordance with 20.6.3.300.J NMAC. These costs shall include those described in 20.6.3.300.J NMAC, as well as long-term oversight performed by the Department, as described in 20.6.3.500.B(5) NMAC, if a Conditional Certificate of Completion is issued.

Oversight will be invoiced based on actual hours of staff oversight, at a variable rate beginning at $90.00 per hour. The hourly rate is calculated and updated on November 1 of each year, following a 30 calendar day public comment period. Travel and per diem costs will be invoiced at state-designated rates. Sampling and analysis costs will be invoiced at actual cost plus indirect overhead rate.

The Department will track all costs to the Department for review and oversight activities related to the Site and provide quarterly (or more often at the discretion of the Department) invoices per this Agreement for said costs. The Participant shall pay these invoiced costs to the Department within 30 calendar days after the date that the Participant receives notice that these costs are due and owed. If payment is not made within 30 days, the Department may terminate this Agreement and bring an action to collect the amount owed and the costs of bringing the collection action. If the Department prevails in such collection action, the Participant shall pay the Department's reasonable attorneys' fees and costs incurred in the collection action.

In the event that this Agreement is terminated for any reason, the Participant agrees to reimburse the Department for all costs incurred or obligated by the Department before the date of notice of termination of the Agreement.

XVII. Notice of Bankruptcy

As soon as Participant has knowledge of its intention to file bankruptcy, or no later than seven days prior to the actual filing of a voluntary bankruptcy petition, Participant shall notify the Department of its intention to file a bankruptcy petition. In the case of an involuntary bankruptcy petition, Participant shall give notice to the Department as soon as it acquires knowledge of such petition.

XVIII. Indemnification

The Participant shall defend, indemnify, and hold harmless the Department and the State of New Mexico from all actions, proceedings, claims, demands, costs, damages, attorneys' fees, and all other liabilities and expenses of any kind from any source which may arise out of the performance of this Agreement, caused by the negligent act or failure to act of the Participant, its officers, employees, servants, subcontractors or agents, or if caused by the actions of any client of the Participant resulting in injury or damage to persons or property during the time when the Participant or any officer, agent, employee, servant or subcontractor thereof has or is performing services pursuant to this Agreement.

XIX. Effective Date and Subsequent Modification

The Agreement shall become final and effective upon being signed by both the secretary or his designee and the Participant. The effective date of the Agreement shall be the later date of signature by either the secretary or his designee or the Participant. This Agreement may be amended only by mutual agreement of the Department and the Participant. Amendments shall be in writing and shall be effective upon being signed by both the secretary or his designee and the Participant.

XX. Termination

As provided for in 20.6.3.300.H NMAC, if an Agreement is not reached between an applicant and the secretary or his designee on or before the 30th calendar day after the secretary or his designee determines an applicant to be eligible pursuant 20.6.3.200 and 20.6.3.300 NMAC, the applicant or the secretary or his designee may withdraw from the negotiations. The Participant may terminate the voluntary remediation Agreement upon 60 calendar days' written notice via certified mail, return receipt requested to the Department. The secretary or his designee may terminate this Agreement upon finding that the Participant is not in compliance with this Agreement. Notice of termination will be made to the Participant via certified mail, return receipt requested, and facts supporting the rationale for termination shall be set forth in the notification. The Department's costs incurred or obligated before the date the notice of termination is received are recoverable by the Department under the Agreement if the Agreement is terminated.

XXI. Complete Agreement

This Agreement contains the entire Agreement of the parties.

XXII. Applicable Law

This Agreement shall be governed by and construed in accordance with the laws of the State of New Mexico.

The provisions of this Agreement shall be satisfied when the Department gives the Participant written notice in the form of a Certificate of Completion that the Participant has demonstrated to the secretary's satisfaction that the terms of this Agreement have been completed, including the selection and implementation of a remedial action, when appropriate.

Nothing in this Agreement shall restrict the State of New Mexico from seeking other appropriate relief to protect human health or the environment from contamination at or from this Site if not remediated in accordance with this Agreement.

Signatures

Participant(s):

By: _____ Name: _____
(Signature of authorized representative) (Print or type)

Date: _____

New Mexico Environment Department:

By: _____ Name: _____
(Secretary or designee) (Print or type)

Date: _____

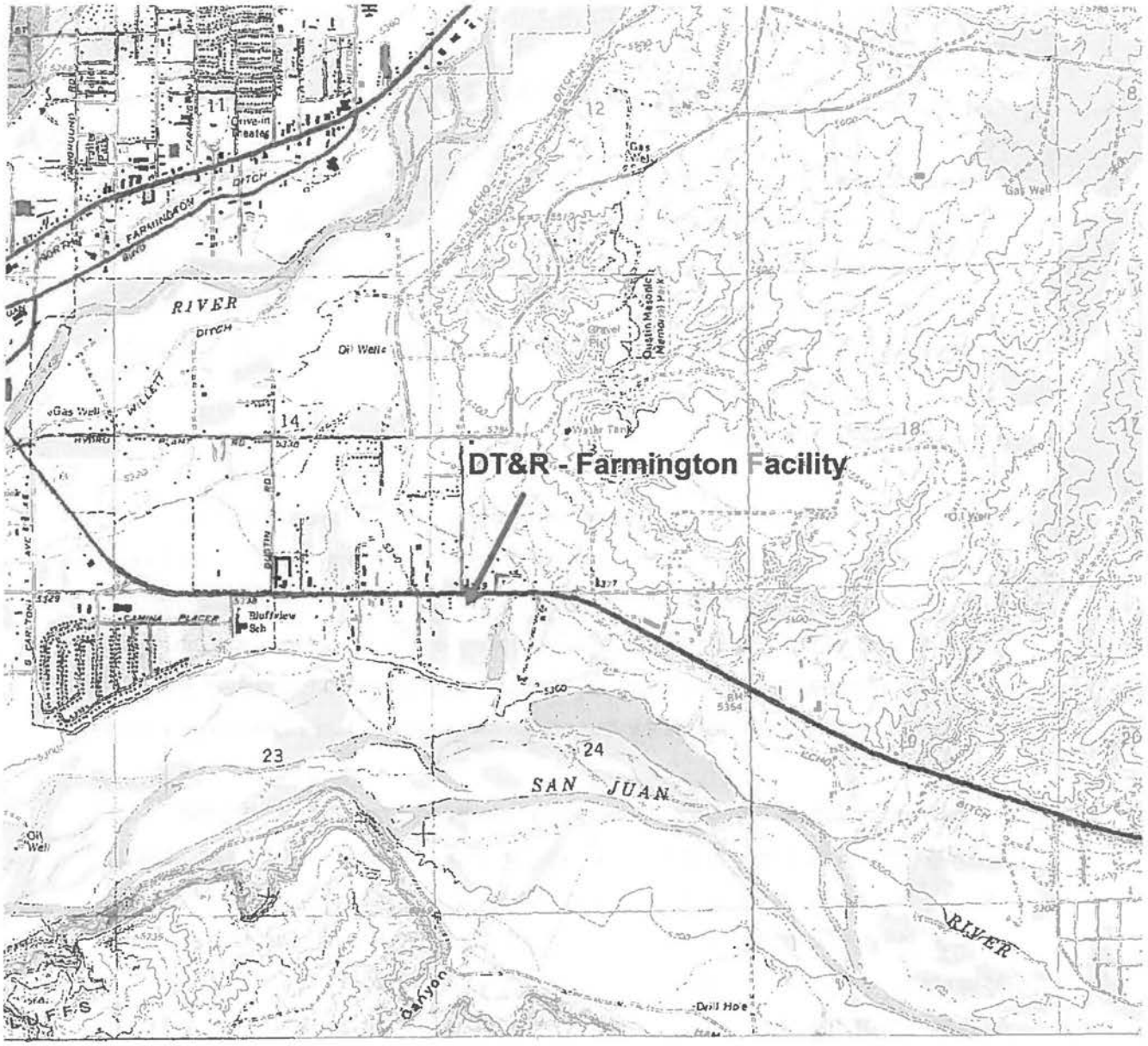
Enclosures: Exhibit 1: Legal Description of Property
Exhibit 2: Preliminary Work Plan

NEW MEXICO ENVIRONMENT DEPARTMENT
VOLUNTARY REMEDIATION AGREEMENT

EXHIBIT 1
Legal Description of Property

Former MI-SWACO Facility
VRP Site No. 53211003

The site is a 1.38-acre parcel located at 3601 Bloomfield Highway in Farmington, more particularly described as parcel number 2073170478510, BEG 396 FT E OF NW COR 242913 S 340 FT, E 200 FT, N 340 FT, W 200 FT, EXCEPT HWY B.1283 P.677. A location map is included on the following page.



Contour Interval is 20 Feet

Source: United States Geological Survey, Farmington South, NM Quadrangle 1978 (Photorevised 1995)

3-D

3-D
ENVIRONMENTAL, INC.

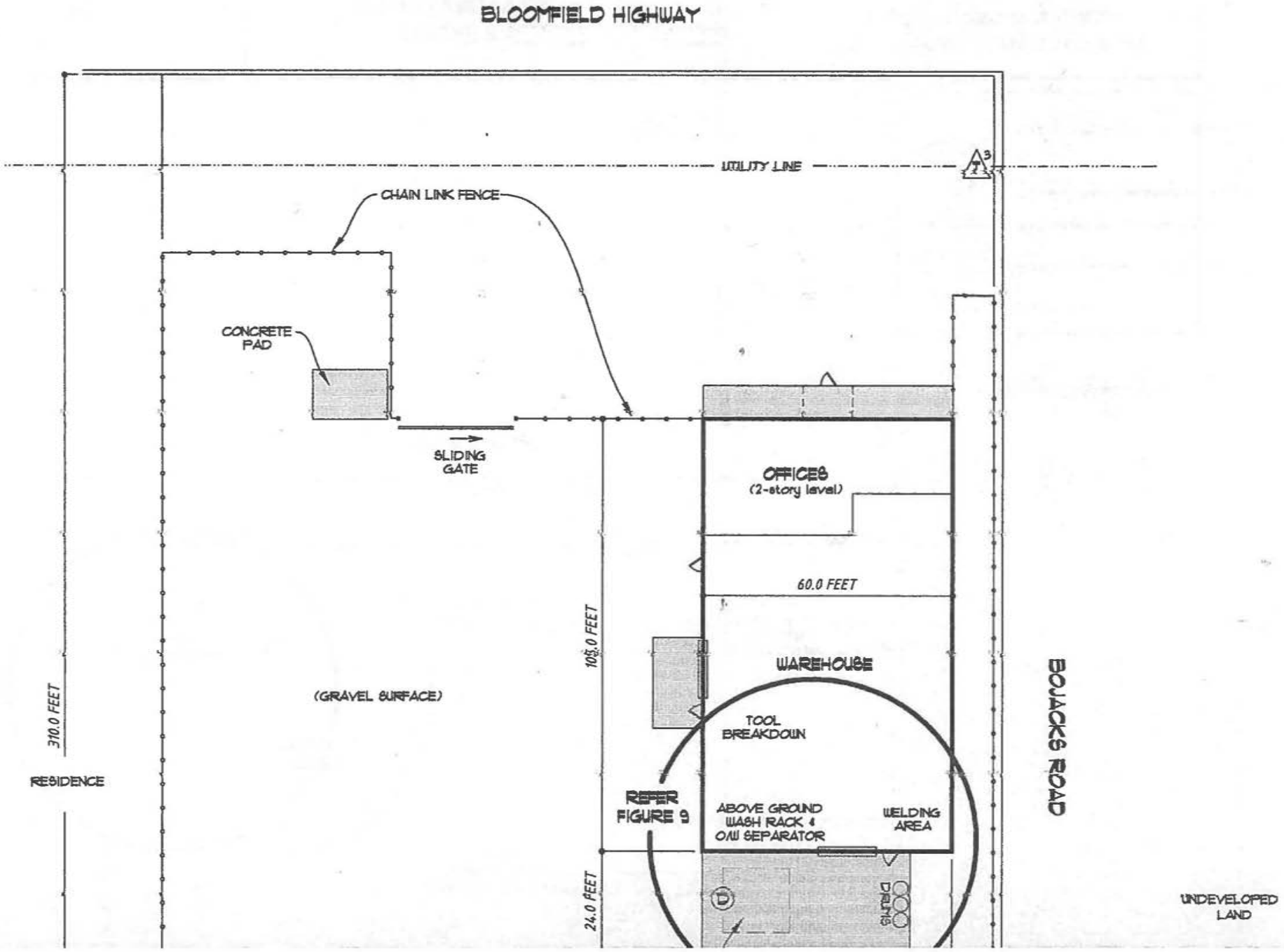
4314 East 107th Street
Tulsa, Oklahoma 74137

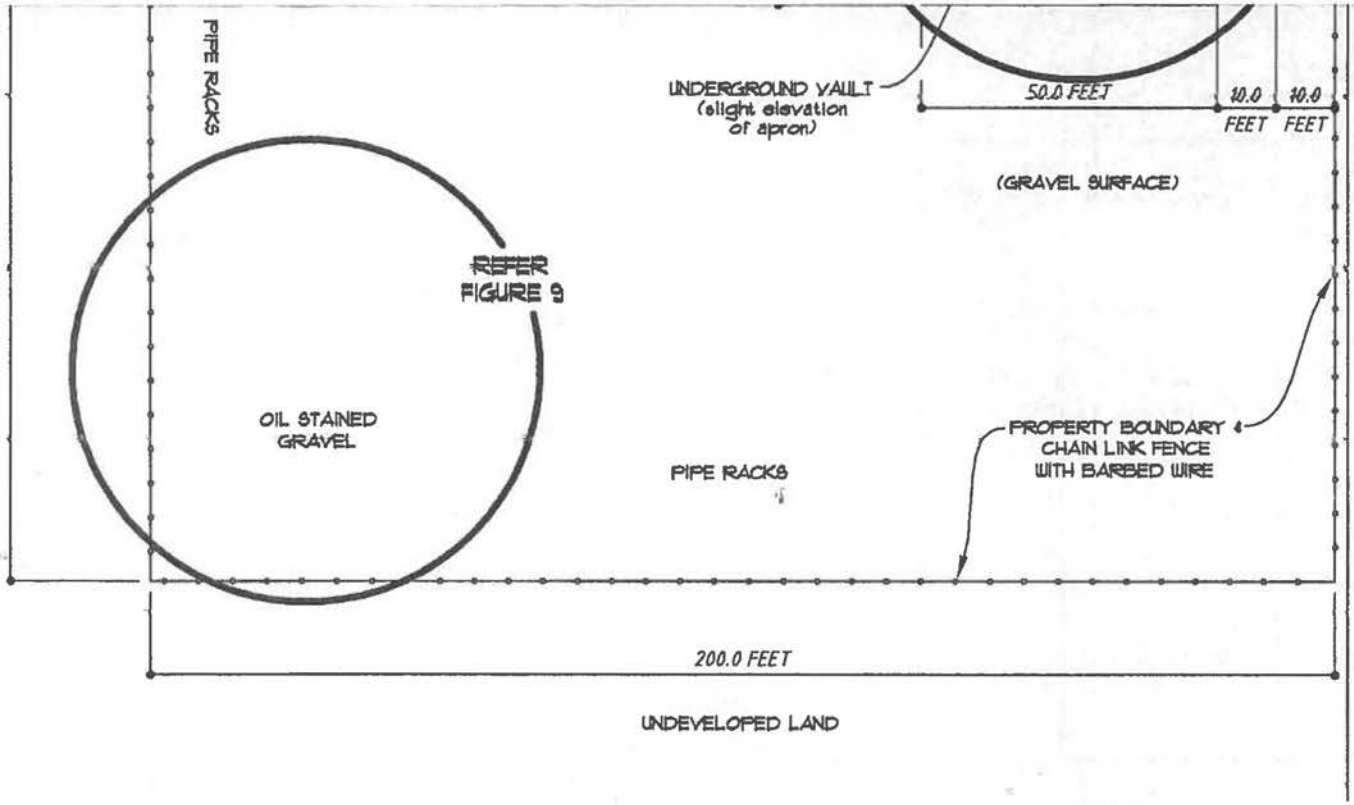
N

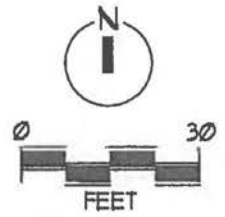
FIGURE 1
SITE LOCATION MAP

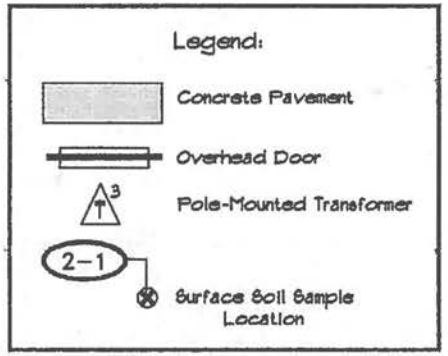
DT&R - Farmington Facility
3601 Bloomfield Highway
Farmington, New Mexico

3-D Project 081009


BLOOMFIELD HIGHWAY
UTILITY LINE
CHAIN LINK FENCE
CONCRETE PAD
SLIDING GATE
OFFICES
(2-story level)
60.0 FEET
105.0 FEET
WAREHOUSE
TOOL BREAKDOWN
(GRAVEL SURFACE)
310.0 FEET
RESIDENCE
REFER FIGURE 9
ABOVE GROUND WASH RACK & O/W SEPARATOR
WELDING AREA
24.0 FEET
DRUMS
BOJACKS ROAD
UNDEVELOPED LAND



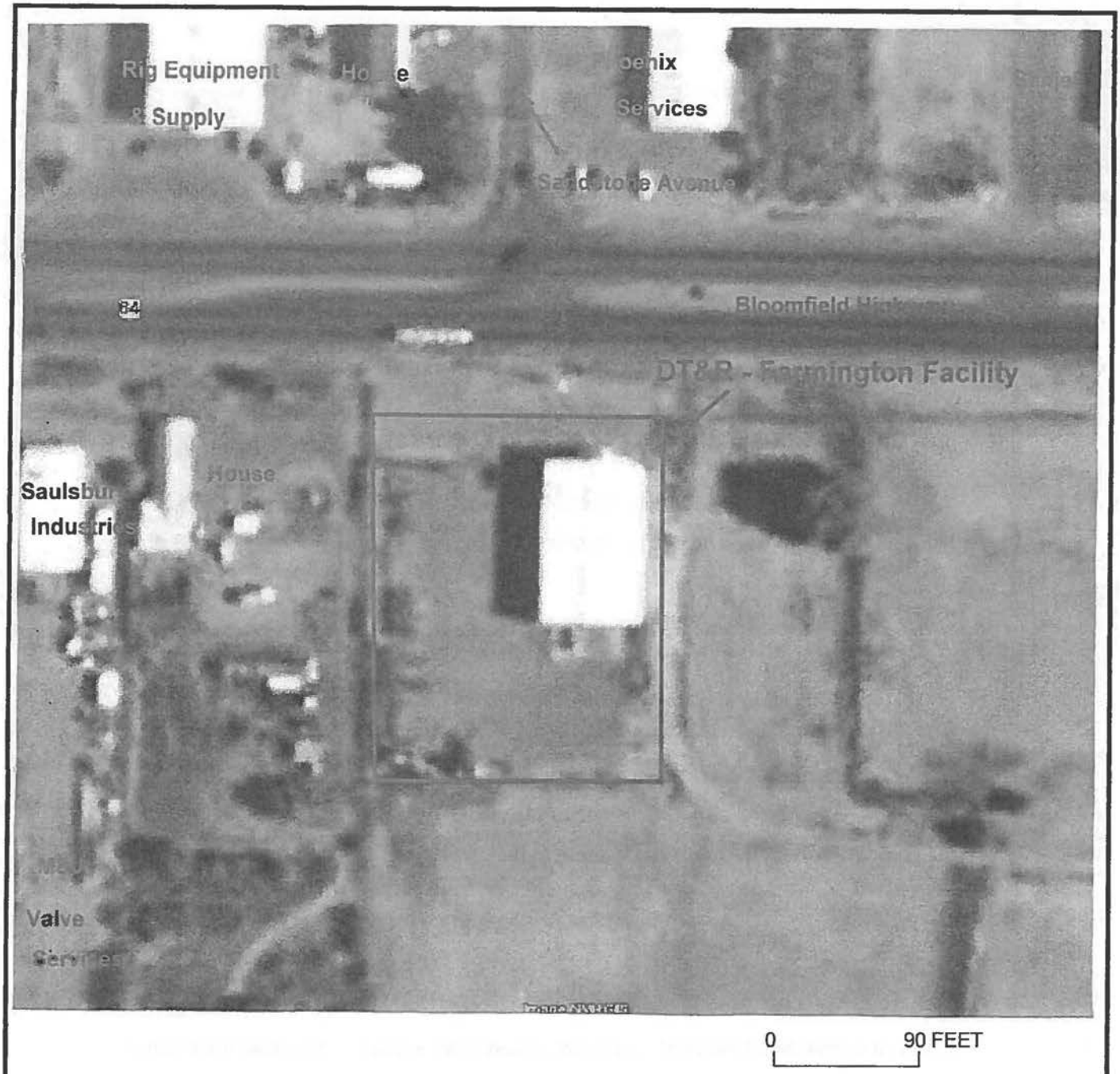




3-D

FIGURE 2
SITE FACILITY PLAN

DT&R - Bloomfield Highway Facility
3601 Bloomfield Highway
Farmington, New Mexico
3-D Project: 081009



Source: GoogleEarth, June30, 2005

3-D

3-D
ENVIRONMENTAL, INC.

4314 East 107th Street
Tulsa, Oklahoma 74137

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2005 AERIAL PHOTOGRAPH

DT&R - Farmington Facility
3601 Bloomfield Highway
Farmington, New Mexico

3-D Project 081009

NEW MEXICO ENVIRONMENT DEPARTMENT
VOLUNTARY REMEDIATION AGREEMENT

EXHIBIT 2
Preliminary Voluntary Remediation Work Plan

Former M-I SWACO Facility
VRP Site No. 53211003

Voluntary Remediation Program Preliminary Work Plan

Former M-I SWACO Facility
3601 Bloomfield Highway, Farmington, New Mexico

Prepared for

Smith International Inc.

August 2021

Prepared by

CH2M HILL Engineers, Inc.

Contents

Appendixes

Tables

Figures

Acronyms and Abbreviations

bgs	below ground surface
COC	chemical of concern
DAF	dilution attenuation factor
DT&R	drilling tools and remedial
ELCR	excess lifetime cancer risk
ESA	Environmental Site Assessment
facility	Former M-I SWACO Facility
HHRA	human health risk assessment
HI	hazard index
K_d	soil-water portioning coefficient
mg/kg	milligram(s) per kilogram
NMAC	*New Mexico Administrative Code*
NMED	New Mexico Environment Department
NMWQCC	New Mexico Water Quality Control Commission
PCSEM	preliminary conceptual site exposure model
RBSL	risk-based screening level
RCRA	Resource Conservation and Recovery Act
SPLP	synthetic precipitation leaching procedure
SSL	soil screening level
SVOC	semivolatile organic compound
TPH	total petroleum hydrocarbons
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound
VRP	Voluntary Remediation Program
WP	work plan

SECTION 1

Introduction

This preliminary work plan (WP) prepared for the Former M-I SWACO Facility (facility) located at 3601 Bloomfield Highway in Farmington, New Mexico (Figure 1-1), owned by Smith International Inc., presents results of environmental investigation activities, an ecological scoping assessment, and a human health risk screening assessment. Analytical results collected during environmental investigation activities meet the associated performance standards and a No Further Action designation, which includes a residential deed restriction requested for the facility.

The facility is a 1.3-acre plot located on Bloomfield Highway, between Browning Parkway and Bloomfield Boulevard, operated as an oilfield services facility from the early 1980s through the late 2000s. The facility was farmland prior to construction of the current facility and has been unoccupied since the late 2000s. A warehouse with attached offices is constructed on the facility and the ground surface consists of either cement or a 1- to 8-inch-thick gravel surface. While the facility was in operation, downhole oil tools and drilling pipes were rented and serviced.

Environmental activities completed at the facility to date include a Modified Phase I Environmental Site Assessment (ESA) (3-D Environmental, Inc. 2010), a baseline exit Limited Phase II ESA (ENERCON 2016), and a follow-up site investigation (presented in this WP) to confirm results from the Phase I and Phase II site assessments.

M-I SWACO is seeking a No Further Action designation and conditional certificate of completion by inclusion in the New Mexico Environment Department (NMED) Voluntary Remediation Program (VRP). The WP presents analytical results indicating that the facility currently meets applicable environmental quality standards and, with a deed restriction and engineering controls, no further action is warranted at the facility.

SECTION 2

Background Information

This section summarizes the facility location and background information; soil, geologic, and hydrogeologic information for the Farmington area; previous site investigations; the ecological scoping assessment; and suspected or known site chemicals of concern (COCs).

2.1 Location and Site Description

The facility consists of approximately 1.3 acres and is located at 3601 Bloomfield Highway in Farmington, New Mexico (Figure 1-1). The facility property is approximately 5,345 feet above mean sea level with an overall topographic gradient expected to be to the south-southwest. Other than small drainage channels, the nearest water body is the San Juan River, located approximately 3,000 feet south of the facility (3-D Environmental, Inc. 2010).

The facility consists of a single high-bay metal-clad warehouse and office building, concrete pads, and a gravel-surfaced storage yard (Figure 2-1), with gravel up to 8 inches thick across the entirety of the facility property. A 6-foot-high chain-link perimeter fence topped with barbed wire surrounds the storage yard (3-D Environmental, Inc. 2010).

2.2 Site History and Land Use

The facility was operated as a M-I SWACO drilling tools and remedial (DT&R) facility on land formerly used for oilfield services from the early 1980s to the late 2000s. Prior to the construction of the facility in the early 1980s, the property was reportedly farmland. The facility was used to store and service rented downhole oil tools and drilling pipe and housed minor oilfield pipe work, which consisted of thread inspections that may have taken place within the facility storage yard (3-D Environmental, Inc. 2010).

As stated in the Phase I and Phase II ESAs (3-D Environmental, Inc. 2010; ENERCON 2016), the nearby eastern and southern properties have been farmland (orchards). The adjacent properties on the west have historically been residential with recent commercial development. Since the 1970s, the northern properties have been commercial and light industrial businesses; prior to the 1970s, the properties were residential or farmland.

2.3 Soil, Geologic, and Hydrogeologic Conditions

The descriptions of the regional soil, geologic, and hydrogeologic conditions of the facility were obtained directly from the Phase II ESA (ENERCON 2016) with supplemental information from a follow-on site investigation conducted in 2021 (results discussed in this WP).

2.3.1 Soil

Surficial soils consist of mixed fine to coarse sand and medium to coarse gravel. Impenetrable gravel, consisting of angular and rounded medium to coarse gravel ranging from 1 to 8 inches in thickness, covers the surface of the site. Fine to medium-fine sand with occasional silty to loamy layers (particularly near the surface at 6 to 12 inches below ground surface [bgs]) were encountered across the facility ranging from 12 inches bgs to 10.5 feet to 14 feet bgs. Cobbles mixed with coarse sand were encountered at depths ranging from 10.5 feet to 14 feet bgs (ENERCON 2016).

2.3.2 Geology and Hydrogeology

The facility is constructed over Quaternary-age alluvium of the San Juan River. The alluvium consists of coarse cobbles, gravels, sand, silt, and clay. Beneath the alluvium are the eroded strata of the Paleocene-age Ojo Alamo Formation, a sandstone formation. Below the Ojo Alamo Formation are the older, Cretaceous-age Kirtland and Fruitland Formations (ENERCON 2016). The Farmington area is positioned over the western portion of the shallow Uinta-Animas aquifer of the San Juan Basin. The potentiometric surface of the aquifer is directed toward the San Juan River. Alluvial deposits along the San Juan River, when water saturated, are classified as a surficial aquifer and may be hydraulically connected with the Uinta-Animas aquifer. The surficial and Uinta-Animas aquifers are recharged by the infiltration of precipitation that falls directly on the aquifer. Contaminant releases at or below the ground surface at the facility or adjacent sites could directly affect these primary groundwater resources. Depth to shallow groundwater is estimated at approximately 30 feet (ENERCON 2016).

An irrigation water well (SJ-01087) is located adjacent to and to the southwest of the facility; groundwater is at approximately 30 feet bgs at the irrigation well. The City of Farmington provides potable water to the property (3-D Environmental, Inc. 2010).

2.4 Summary of Previous Assessments

2.4.1 *Report of Modified Phase I Environmental Site Assessment, DT&R Facility, 3601 Bloomfield Highway, Farmington, New Mexico* (3-D Environmental, Inc. 2010)

In 2010, a Modified Phase I ESA (3-D Environmental, Inc. 2010) was completed for the property to evaluate potential environmental concerns associated with historical activities at the facility at the time M-I SWACO began leasing the property. The 2010 ESA identified potential areas of impact within the facility and completed an exit baseline surface soil assessment. The areas of impact included used oil drums and a tool rack, a waste management dumpster unit, and an oil-stained gravel area, and a second 5-foot-wide by 10-foot-long oil-stained gravel area. The Modified Phase I ESA is included in Appendix A, and a brief summary is provided below.

Five surface soil samples were collected within the facility boundary. Samples were collected at a depth of 0.5 foot and were analyzed for semivolatile organic compounds (SVOCs), volatile organic compounds (VOCs), Resource Conservation and Recovery Act (RCRA) 8 metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver), total petroleum hydrocarbons (TPH), and synthetic precipitation leaching procedure (SPLP) for lead.

Sample concentrations were compared with the NMED soil screening levels (SSLs; dilution attenuation factor [DAF] of 20), NMED direct-contact residential and industrial SSLs, NMED TPH SSLs, and SPLP for lead. Arsenic concentrations exceeded the direct-contact residential SSL. However, none of the metal concentrations exceeded the direct-contact industrial SSLs. None of the detected SVOC concentrations exceeded NMED SSLs. The analytical results showed the presence of elevated lead (up to 159 milligrams per kilogram [mg/kg]) in the soil samples on the west side of the warehouse. Leachate testing for lead determined that the NMED SSL for the soil-to-groundwater pathway was incomplete. No residential or industrial NMED SSLs were exceeded. TPH constituents were identified in the oil-stained gravel and underlying soil at the southwest corner of the storage yard. The TPH fractionation analysis and the detected SVOCs at this location identify the hydrocarbon in the soil as a hydraulic oil. Although TPH concentrations exceed the direct-contact residential soil screening, the TPH concentrations do not exceed direct-contact SSLs in an industrial setting. The depth of TPH impact was not determined during the Modified Phase I ESA.

2.4.2 *Baseline Exit Limited Phase II Environmental Site Assessment, M-I SWACO Former Farmington, NM Facility, 3601 Bloomfield Highway, Farmington, New Mexico* (ENERCON 2016)

A Limited Phase II ESA (ENERCON 2016) was completed for the property to determine the potential for site impacts from recent operations at the subject property. The Limited Phase II ESA evaluated whether releases of COCs identified during the Phase I ESA occurred. The Limited Phase II ESA is included in Appendix A, and a brief summary is provided below.

Eight soil samples were collected at locations potentially impacted by past facility operations. Soil samples were analyzed for RCRA 8 metals and TPH (diesel and gasoline range organics). Soil samples for metals analysis were collected at the base of the gravel surface (typically 7 to 10 inches bgs). Soil samples for TPH analysis were collected at the sand matrix and cobble interface (10.5 feet to 14 feet bgs).

With the exception of arsenic, soil concentrations of TPH and RCRA 8 metal constituents were below the detection limits, below TPH SSLs, or below the U.S. Environmental Protection Agency (USEPA) 2015 industrial soil risk-based screening levels (RBSLs), if available. Industrial soil RBSLs were not available for total chromium; chromium concentrations (which ranged from 2.5 mg/kg to 7.01 mg/kg) were compared with the USGS range of background concentrations. Arsenic concentrations ranged from 1.02 mg/kg to 19.4 mg/kg and exceeded the USEPA 2016 industrial soil RBSL of 3 mg/kg in five samples.

2.4.3 2021 Site Investigation

CH2M HILL Engineers, Inc. performed a soil investigation on March 10, 2021, to further evaluate areas identified during the Phase I and Phase II ESAs for the potential presence of COCs. These investigations were planned based on historical knowledge of facility operations and the results of the 2010 3-D Environmental, Inc. baseline surface soil assessment and the 2016 ENERCON subsurface soil assessment. The objectives of the 2021 investigation were to characterize the nature and extent of impacted soils and evaluate the potential risk to human health and ecological receptors as required by NMED regulations (NMED 2017, 2019). The approach and results of the investigation are summarized below.

A total of 15 soil samples were collected from 5 soil boring locations (Figure 2-1) at depths of 0 to 1 foot bgs, 3 to 5 feet bgs, and 8 to 10 feet bgs. The soil boring logs are presented in Appendix B. Two field duplicates, a matrix spike/matrix spike duplicate, and an equipment blank were also collected to assess quality control and quality assurance. Soil samples were sent to Eurofins Xenco in Houston, Texas, and analyzed for RCRA 8 metals by USEPA Method SW6020 and 7471A. Soil samples collected from five soil borings were analyzed for hexavalent chromium by USEPA SW-846 Method 7196A. Final laboratory reports from the initial investigation are presented in Appendix B. An evaluation of the data quality is included in Appendix B.

The analytical results from the investigation are presented in Table 2-1, which also includes the historical data collected during the Phase I and Phase II ESAs, and are compared with the most recent NMED SSLS (NMED 2019). Eight metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) were detected in at least one sample. Of these metals, arsenic and lead were detected at concentrations greater than the SSL DAF 20. Hexavalent chromium was not detected in soil samples.

During the sampling effort, additional soil was collected from each sample interval for the purpose of evaluating potential impacts to groundwater caused by leaching from soil if a particular COC (for example, lead) detected in a soil sample exceeded the SSL DAF 20. Based on the results of the soil screening, SPLP analyses were completed on one sample containing the highest detected concentrations of arsenic and lead that also exceeded the applicable SSL DAF 20. However, this sample was a surface

soil sample from 0 to 1 foot bgs, approximately 30 feet above the groundwater table. The results of the SPLP evaluation are provided below.

SPLP Evaluation

One sample (SB-009; 0 to 1 foot bgs) containing the highest concentrations of arsenic and lead in soil collected from the facility was analyzed using SPLP to evaluate potential risk to groundwater by leaching from soil. Results were compared with the New Mexico Water Quality Control Commission (NMWQCC) screening standards (20.6.2 *New Mexico Administrative Code* [NMAC]) (Table 2-2).

While the SPLP results from the highest soil concentrations of arsenic and lead exceed the NMWQCC screening standards, the results are from a surface soil sample approximately 30 feet above the water table. Therefore, potential risk to groundwater by leaching from soil was further evaluated by using results from the SPLP analyses of lead and arsenic to estimate site-specific soil-water portioning coefficients (K_d) that in turn were used to aid prediction of potential leachate concentrations from the samples collected at the deepest interval (8 to 10 feet bgs) in each of the five soil borings.

Results from the evaluation suggested that concentrations of arsenic in native soil that could pose a possible risk were isolated within the upper 5 feet of the soil column; those for lead were limited to 0 to 1 foot bgs. In all instances, detected concentrations of arsenic and lead in the deepest soil sample intervals (8 to 10 feet bgs) at each boring did not pose a potential risk from leaching (Table 2-2). This supports the conclusion that the exposure pathway for leaching to groundwater is not complete based on low-level detections that appear to be protective of groundwater in the deeper soil intervals.

Furthermore, average annual precipitation in the Farmington area is 8.04 inches, with the majority of rainfall occurring in July and August, which is also when evaporation rates are the highest (O'Neill et al. 2018). With low average precipitation and high evaporation rates, infiltration at the facility is likely limited, further limiting the potential for arsenic and lead leaching from the surface soils to the groundwater.

2.4.4 Ecological Scoping Assessment

An ecological scoping assessment, including a preliminary conceptual site exposure model (PCSEM), was conducted for the facility in Appendix C and is summarized below. The primary purpose of the ecological scoping assessment was to determine whether further ecological evaluation is warranted (NMED 2017). As part of the scoping process, a March 10, 2021, site visit and NMED Site Assessment Checklist were completed.

The facility is located in a primarily industrial area along Bloomfield Highway. The facility is covered by a thick non-natural cover with no vegetative communities present within the fence line of the facility. No ecological habitat or potentially suitable habitat for the federally threatened or endangered species is present. No surface water bodies, waterways, or wetlands are located within the site or immediately adjacent to the site. No sensitive environments are present in the vicinity of the facility. No natural habitat is present on adjacent light industrial and agricultural properties (Figure 2-1).

The thick gravel or concrete that covers the property eliminates viable habitat, forage material, and subsequently, other food sources. No complete terrestrial exposure pathways exist to lower-trophic-level terrestrial receptor communities (plants, soil invertebrates, amphibians, and reptiles) from direct contact with surface or subsurface soil or to upper-trophic-level terrestrial receptor populations (birds, mammals, amphibians, and reptiles) from incidental ingestion of surface soils or exposure via terrestrial food webs. A transport pathway from the site vadose zone to groundwater, through two aquifers, and subsequent discharge to the offsite San Juan River is unlikely. This pathway is insignificant/incomplete for the facility because of site size, low levels of detections in soil (Table 2-1), and dilution and attenuation through two aquifers prior to reaching the river. SPLP results (described in Section 2.4.3),

which indicate that the leaching potential from soil to groundwater is incomplete, provide additional evidence that this pathway is incomplete. Therefore, no complete ecological pathways exist at the facility.

The ecological scoping assessment and PCSEM concluded with the first Technical Decision Point of the NMED tiered ecological screening process. The resulting information, presented in Appendix C, concludes that adequate information is available to determine that no ecological risks exist because of past site activities. The subject property does not include a viable ecological habitat for wildlife communities and populations, the property is not consistently used by potential receptor populations (current or future), no threatened or endangered species or habitats are present, and no significant complete pathways exist because of property conditions. No further consideration for ecology and environment is recommended.

2.5 Suspected or Known Chemicals of Concern

COCs for the facility were based on the results of soil sampling conducted at the facility as part of the Phase I and Phase II ESAs (3-D Environmental, Inc. 2010; ENERCON 2016) included in Appendix A. Based on the soil samples collected, the identified COCs are arsenic and lead.

SECTION 3

Proposed Performance Standard

Per the requirements in 20.6.3.10 NMAC, the proposed performance standard for the facility is Method 2, a comparison of site concentrations to applicable water quality standards and soil guidelines.

3.1 Human Health Risk Assessment Screening

A human health risk assessment (HHRA) screening was conducted for the facility. The HHRA screening is provided in Appendix D and is summarized below.

The HHRA used the NMED *Risk Assessment Guidance for Investigations and Remediation, Volume I* (NMED 2019). Volume 1, Table A-1 SSLs were compared with maximum and representative detected chemical concentrations in site soil to calculate ratios to determine whether cumulative potential human risks and hazards were within NMED's thresholds of an excess lifetime cancer risk (ELCR) of 1×10^{-5} and a hazard index (HI) of 1.

Appendix D, Figure D-1 presents the conceptual site model used to identify the potentially complete exposure pathways to soil for receptors. Complete pathways quantitatively assessed for industrial/occupational workers and construction workers include direct contact with soil (incidental ingestion, dermal and inhalation). Because the depth to groundwater is approximately 30 feet bgs and groundwater is not used as a potable source onsite (the City of Farmington provides potable water to the property), groundwater exposure pathways are incomplete.

A quantitative assessment of detected chemicals in soil at the facility using the direct-contact NMED SSLs for industrial/occupational workers and construction workers demonstrates cumulative risks are less than 1×10^{-5} and the cumulative HI is less than 1.

With the exceptions of lead and arsenic, all maximum detected concentrations are less than the SSL DAF 20. However, as noted in Section 2.4.3, based on more site-specific leachate modeling estimates, arsenic and lead concentrations in soil leachate are not expected to exceed NMWQCC screening standards and therefore are not a concern.

Based on the lack of VOC detections, the lack of a site source for VOCs, the lack of available inhalation toxicity data for pyrene, and the reported benzo(a)anthracene concentrations below typical SVOC detection limits, the future vapor intrusion pathway is not expected to be a concern.

SECTION 4

Summary of Proposed Activities

A review of previous Phase I and Phase II ESAs, the 2021 Site Investigation, and associated analytical data was completed to determine the current status of the environmental condition for the facility. As described in Sections 2 and 3, historical and recent analytical data collected from the facility were compared with the appropriate standards, and both ecological and human health assessments were completed based on those data.

The ecological scoping assessment concluded that the site is not considered ecologically viable and has no natural terrestrial or aquatic habitat. Upper-trophic-level receptors would have limited exposure to chemicals because the site is heavily covered by gravel and concrete. No complete exposure pathways exist to lower-trophic-level terrestrial receptor communities (plants, soil invertebrates, amphibians, and reptiles) from direct contact with soil. SPLP estimates indicate that the leaching potential from soil to groundwater is incomplete, coupled with dilution and attenuation through two aquifers, providing additional evidence that the groundwater pathway is insignificant.

Analytical results obtained for soil collected at the facility indicate that cumulative risks are less than 1×10^{-5} and cumulative HI is less than 1 for industrial/occupational workers and construction workers. Although maximum detected concentrations of arsenic and lead exceed SSLs DAF 20, site-specific leachate modeling estimates indicate that arsenic and lead concentrations in soil leachate are not expected to exceed NMWQCC screening standards and therefore are not a concern.

No additional activities are proposed at the facility; the Method 2 performance standards (20.6.3.10 NMAC) have been met.

SECTION 5

How Proposed Activities Will Meet the VRP Performance Standard

Analysis of soil data collected at the facility indicates that cumulative risks and hazards for future industrial receptors meet NMED's thresholds of an ELCR of 1×10^{-5} or less and an HI of 1 or less. Ecological exposure pathways at the facility are incomplete. Site-specific leachate modeling estimates indicate that metal concentrations in soil leachate are not expected to exceed NMWQCC screening standards and therefore are not a concern. Therefore, M-I SWACO is seeking a No Further Action designation and conditional certificate of completion by inclusion in the NMED VRP. Future sale of the property will include a deed restriction limiting use to commercial or industrial only, and non-natural (that is, the current gravel and concrete) ground cover will be maintained. No further action is warranted at the facility.

SECTION 6

References

3-D Environmental, Inc. 2010. *Report of Modified Phase I Environmental Site Assessment, DT&R Facility, 3601 Bloomfield Highway, Farmington, New Mexico*. November.

ENERCON. 2016. *Baseline Exit Limited Phase II Environmental Site Assessment, M-I SWACO Former Farmington, NM Facility, 3601 Bloomfield Highway, Farmington, New Mexico*. July.

New Mexico Environment Department (NMED). 2017. *Risk Assessment Guidance for Site Investigations and Remediation, Volume II, Soil Screening Guidance for Ecological Risk Assessments*. March. https://www.env.nm.gov/wp-content/uploads/sites/12/2016/11/NMED_SSG_VOL-II_March_2017_revised.pdf.

New Mexico Environment Department (NMED). 2019. *Risk Assessment Guidance for Site Investigations and Remediation, Volume I, Soil Screening Guidance for Human Health Risk Assessments*. February. (Revision 2, 6/19/19).

O'Neill, M. K, D. Smeal, M. M. West, S. C. Allen, and K. Djaman. 2018. *Forty-eight Years (1969-2016) of Climatological Data: NMSU Agricultural Science Center at Farmington, New Mexico.* Agricultural Experiment Station Bulletin 809. New Mexico State University, Las Cruces, New Mexico. June. https://aces.nmsu.edu/pubs/research/weather_climate/BL809/welcome.html.

Tables

Table 2-1. Summary of Soil Analytical Results

VRP Preliminary Work Plan

3601 Bloomfield Highway, Farmington, New Mexico

			Analyte	Arsenic	Barium	Benzo(a)anthracene	Bis (2-ethylhexyl) phthalate	Cadmium	Chromium	Chromium, Hexavalent (Cr6+)	Diesel Range Organics
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
			2019 NMED Construction Workers - Cancer	216	--	240	13400	3610	468	66.9	--
			2019 NMED Construction Workers - Non-Cancer	41.2	4390	--	5380	72.1	134	498	3000
			2019 NMED Industrial/Occupational Workers - Cancer	35.9	--	32.3	1830	417000	505	72.1	--
			2019 NMED Industrial/Occupational Workers - Non-Cancer	208	255000	--	18300	1110	314000	3890	3000
			2019 SL-SSL DAF 20	5.83	2700	0.637	200	9.39	205000	0.192	--
			2019 NMWQCC Standard	--	--	--	--	--	--	--	--
Location	Sample Date	Start depth (ft bgs)	End depth (ft bgs)								
1-1	09/01/2010	0.5	0.5	3.81	287	< 0.0203	< 0.0507	0.355	8.08	--	< 7.08
1-2	09/01/2010	0.5	0.5	3.91	338	< 0.0203	0.108	0.238	8.14	--	< 6.78
1-3	09/01/2010	0.5	0.5	3.98	328	< 0.0206	< 0.0514	0.130	6.83	--	< 7.28
1-4	09/01/2010	0.5	0.5	4.17	299	0.0205	0.116	1.08	20.4	--	< 7.25
2-1	09/01/2010	0.5	0.5	4.54	356	0.0205	1.73	0.320	6.63	--	884
SB-001	05/16/2016	0.5	0.5	18.8	146	--	--	1.96	6.35	--	--
SB-001	05/16/2016	13.2	13.2	--	--	--	--	--	--	--	< 40
SB-002	05/16/2016	0.5	0.5	19.4	125	--	--	1.5	7.01	--	--
SB-002	05/16/2016	10.5	10.5	--	--	--	--	--	--	--	< 40
SB-003	05/16/2016	0.5	0.5	1.57	55.9	--	--	< 0.994	2.86	--	--
SB-003	05/16/2016	10.5	10.5	--	--	--	--	--	--	--	< 40
SB-004	05/16/2016	0.5	0.5	1.02	56.3	--	--	< 1	2.65	--	--
SB-004	05/16/2016	14.5	14.5	--	--	--	--	--	--	--	116
SB-005	05/16/2016	0.5	0.5	3.29	112	--	--	< 0.994	2.5	--	--
SB-005	05/16/2016	13	13	--	--	--	--	--	--	--	< 40
SB-006	05/16/2016	0.5	0.5	2.62	133	--	--	< 1	3.65	--	--
SB-006	05/16/2016	13.8	13.8	--	--	--	--	--	--	--	< 40
SB-007	05/16/2016	0.5	0.5	13.3	184	--	--	< 0.998	5.66	--	--
SB-007	05/16/2016	11	11	--	--	--	--	--	--	--	< 40
SB-008	05/16/2016	0.5	0.5	13.5	119	--	--	< 1.01	4.72	--	< 40
SB-009	03/10/2021	0	1	27.1	187	--	--	2.15	12.5	< 0.14	--
SB-009	03/10/2021	3	5	2.68 J	94.4	--	--	< 0.12	4.95	< 0.131	--
SB-009	03/10/2021	8	10	2.23 J	65.9	--	--	< 0.12	4.32	< 0.138	--
SB-010	03/10/2021	0	1	2.67 J	47	--	--	< 0.102	18.9	< 0.131	--
SB-010	03/10/2021	3	5	17.3	106 J	--	--	0.119 J	5.92	< 0.136	--
SB-010	03/10/2021	8	10	2.2 J	53.4	--	--	< 0.123	3.8 J	< 0.136	--
SB-011	03/10/2021	0	1	25.6	167	--	--	1.13 J	9.07	< 0.136	--
SB-011	03/10/2021	3	5	2.34 J	79.9	--	--	< 0.113	4.66	< 0.131	--
SB-011	03/10/2021	8	10	2.13 J	77.1	--	--	0.133 J	5.01	< 0.13	--
SB-012	03/10/2021	0	1	8.29	119	--	--	0.337 J	5.88	< 0.138	--
SB-012	03/10/2021	3	5	5.83	86.5	--	--	0.11 J	5.96	< 0.13	--
SB-012	03/10/2021	8	10	2.9 J	135	--	--	0.136 J	5.97	< 0.136	--
SB-013	03/10/2021	0	1	11.8	280	--	--	0.269 J	6.26	< 0.136	--
SB-013	03/10/2021	3	5	8.46	72.2	--	--	< 0.102	3.47 J	< 0.129 J	--
SB-013	03/10/2021	8	10	3.51 J	117	--	--	0.118 J	5.88	< 0.134	--

Table 2-1. Summary of Soil Analytical Results

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			Analyte	Di-N-Butylphthalate	Fluoranthene	Gasoline Range Organics	Lead	Mercury	Moisture, percent	Motor Oil	Pyrene	Selenium	Silver	Total Petroleum Hydrocarbons
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
			2019 NMED Construction Workers - Cancer	--	--	--	--	--	--	--	--	--	--	--
			2019 NMED Construction Workers - Non-Cancer	26900	10000	500	800	20.7	--	3000	7530	1750	1770	--
			2019 NMED Industrial/Occupational Workers - Cancer	--	--	--	--	--	--	--	--	--	--	--
			2019 NMED Industrial/Occupational Workers - Non-Cancer	91600	33700	500	800	112	--	3000	25300	6490	6490	--
			2019 SL-SSL DAF 20	33.8	1340	--	270	2.09	--	--	192	10.2	13.8	--
			2019 NMWQCC Standard	--	--	--	--	--	--	--	--	--	--	--
Location	Sample Date	Start depth (ft bgs)	End depth (ft bgs)											
1-1	09/01/2010	0.5	0.5	< 0.101	< 0.0203	< 7.08	38.7	0.0181	--	< 7.08	< 0.0203	1.00	0.107	< 7.08
1-2	09/01/2010	0.5	0.5	< 0.101	< 0.0203	< 6.78	152	< 0.0155	--	< 6.78	< 0.0203	0.997	< 0.0983	< 6.78
1-3	09/01/2010	0.5	0.5	< 0.103	< 0.0206	< 7.28	64.2	< 0.0160	--	< 7.28	< 0.0206	0.893	< 0.102	< 7.28
1-4	09/01/2010	0.5	0.5	0.130	0.0205	< 7.25	158	< 0.0153	--	< 7.25	0.0205	0.837	< 0.0906	< 7.25
2-1	09/01/2010	0.5	0.5	0.198	0.0341	< 7.17	37.2	< 0.0152	--	1060	0.0410	0.917	0.122	1940
SB-001	05/16/2016	0.5	0.5	--	--	--	288	0.0516	--	--	--	< 2	< 1	--
SB-001	05/16/2016	13.2	13.2	--	--	< 2.5	--	--	--	--	--	--	--	--
SB-002	05/16/2016	0.5	0.5	--	--	--	219	0.0358	--	--	--	< 2.01	< 1	--
SB-002	05/16/2016	10.5	10.5	--	--	< 2.5	--	--	--	--	--	--	--	--
SB-003	05/16/2016	0.5	0.5	--	--	--	4.89	< 0.0198	--	--	--	< 1.99	< 0.994	--
SB-003	05/16/2016	10.5	10.5	--	--	< 2.5	--	--	--	--	--	--	--	--
SB-004	05/16/2016	0.5	0.5	--	--	--	2.07	< 0.0202	--	--	--	< 2	< 1	--
SB-004	05/16/2016	14.5	14.5	--	--	< 2.5	--	--	--	--	--	--	--	--
SB-005	05/16/2016	0.5	0.5	--	--	--	12.8	< 0.0198	--	--	--	< 1.99	< 0.994	--
SB-005	05/16/2016	13	13	--	--	< 2.5	--	--	--	--	--	--	--	--
SB-006	05/16/2016	0.5	0.5	--	--	--	5.87	< 0.0196	--	--	--	< 2	< 1	--
SB-006	05/16/2016	13.8	13.8	--	--	< 2.5	--	--	--	--	--	--	--	--
SB-007	05/16/2016	0.5	0.5	--	--	--	173	0.0368	--	--	--	< 2	< 0.998	--
SB-007	05/16/2016	11	11	--	--	< 2.5	--	--	--	--	--	--	--	--
SB-008	05/16/2016	0.5	0.5	--	--	< 2.5	150	0.0427	--	--	--	< 2.02	< 1.01	--
SB-009	03/10/2021	0	1	--	--	--	390	0.0521	11.4	--	--	1.02 J	1.42 J	--
SB-009	03/10/2021	3	5	--	--	--	5.06	< 0.00397	5.12	--	--	< 0.513	< 0.164	--
SB-009	03/10/2021	8	10	--	--	--	4.19	0.00472 J	10.2	--	--	< 0.512	< 0.164	--
SB-010	03/10/2021	0	1	--	--	--	2.99	0.00385 J	5.23	--	--	< 0.436	< 0.14	--
SB-010	03/10/2021	3	5	--	--	--	5.37	0.00553 J	9.57	--	--	0.568 J	< 0.146	--
SB-010	03/10/2021	8	10	--	--	--	3.3	0.0269	9.14	--	--	< 0.525	< 0.168	--
SB-011	03/10/2021	0	1	--	--	--	278	0.0367	9.86	--	--	0.802 J	0.917 J	--
SB-011	03/10/2021	3	5	--	--	--	4.09	0.00404 J	4.92	--	--	< 0.483	< 0.155	--
SB-011	03/10/2021	8	10	--	--	--	4.32	0.00372 J	4.21	--	--	< 0.518	< 0.166	--
SB-012	03/10/2021	0	1	--	--	--	77	0.0172 J	10.2	--	--	0.505 J	0.2 J	--
SB-012	03/10/2021	3	5	--	--	--	5.33	0.00463 J	5.85	--	--	0.498 J	< 0.145	--
SB-012	03/10/2021	8	10	--	--	--	5.99	0.00584 J	9.49	--	--	0.541 J	< 0.166	--
SB-013	03/10/2021	0	1	--	--	--	49	0.0158 J	9.22	--	--	0.543 J	0.179 J	--
SB-013	03/10/2021	3	5	--	--	--	3.47	< 0.00343	5.12	--	--	< 0.436	< 0.14	--
SB-013	03/10/2021	8	10	--	--	--	5.65	0.00505 J	8.7	--	--	0.529 J	< 0.153	--

Table 2-1. Summary of Soil Analytical Results

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Notes:

[a] SPLP result calculated using site specific portioning coefficient, as described in Section 2.4.3

-- = sample not collected for specific analyte

Detected results are shown in bold font.

Results exceeding standards are shown in bold font and shaded.

< = chemical not detected at a concentration above the instrument detection limit

DAF = dilution attenuation factor

J = chemical detected at a concentration above the instrument detection limit but below the method detection limit.

mg/kg = milligram(s) per kilogram

NMED = New Mexico Environment Department

NMWQCC = New Mexico Water Quality Control Commission

SL = soil leachate

SSL = soil screening level

VRP = Voluntary Remediation Program

Table 2-2. Summary of SPLP Analytical and Calculated Results

VRP Preliminary Work Plan

3601 Bloomfield Highway, Farmington, New Mexico

			Analyte	Arsenic	Lead
			Units	mg/L	mg/L
			2019 NMWQCC Standard	0.01	0.015
Location	Sample Date	Start depth (ft bgs)	End depth (ft bgs)		
SB-009	03/10/2021	0	1	**0.0335**	**0.0341**
SB-009	03/10/2021	8	10	0.0028[a]	0.0004[a]
SB-010	03/10/2021	8	10	0.003[a]	0.0003[a]
SB-011	03/10/2021	8	10	0.003[a]	0.0004[a]
SB-012	03/10/2021	8	10	0.004[a]	0.0005[a]
SB-013	03/10/2021	8	10	0.004[a]	0.0005[a]

[a.] SPLP result calculated using site specific portioning coefficient, as described in Section 2.4.3

Detected results are shown in bold font.

Results exceeding standards are shown in bold font and shaded.

NMWQCC = New Mexico Water Quality Control Commission

VRP = Voluntary Remediation Program

Figures

Note:
1. VRP = Voluntary Remediation Program

Source:
Basemap Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

N

0 0.25 0.5 1

Approximate scale in miles

Figure **1-1.** Site Location Map
VRP Preliminary Work Plan
Former M-I SWACO Facility
3601 Bloomfield Highway
Farmington, New Mexico

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Note:
1. VRP = Voluntary Remediation Program

Source:
Imagery Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

N

0 25 50 100

Approximate scale in feet

Figure 2-1. Site Map
VRP Preliminary Work Plan
Former M-I SWACO Facility
3601 Bloomfield Highway
Farmington, New Mexico

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