SIXTH FIVE-YEAR REVIEW REPORT
FOR
SOUTH VALLEY SUPERFUND SITE
ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO

March 25, 2020

Prepared by

U.S. Environmental Protection Agency
Region 6
DALLAS, TEXAS

SIXTH FIVE-YEAR REVIEW REPORT
SOUTH VALLEY SUPERFUND SITE
EPA ID#: NMD980745558
ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO

This memorandum documents the U.S. Environmental Protection Agency's performance, determinations, and approval of the South Valley Superfund Site (Site) sixth five-year review under Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S. Code Section 9621(c), as provided in the attached Sixth Five-Year Review Report.

Summary of the Sixth Five-Year Review Report

The U.S. Environmental Protection Agency Region 6 (EPA) has conducted the Sixth Five-Year Review (FYR) of the remedial actions (RA)s implemented at the South Valley Superfund Site (Site) in Albuquerque, Bernalillo County, New Mexico. The purpose of this Sixth FYR was to determine whether the selected remedies for the Site continue to protect human health and the environment. The Site involves two potentially responsible parties (PRP)s, Univar USA, Inc. (Univar) and General Electric Aviation (GEA). This FYR covers the 5-year period starting on July 15, 2015.

This FYR for the Site was performed through a review of the Record of Decisions (ROD)s, Explanation of Significant Differences (ESD)s; other historic site documents; site inspections performed on October 21-22, 2019, at Univar and GEA facilities; interviews with stakeholders; and a review of data collected at the Site during the previous review periods.

The South Valley Site includes two industrial source facilities and is composed of six operable units (OUs). The facilities, GEA and Univar, were for the manufacturing of various aircraft parts and used for various industrial and commercial purposes, respectively:

- OU 01 – The Record of Decision (ROD) was signed on March 22, 1985, with no identified PRP, and consists of the City of Albuquerque municipal wells, San Jose 6 (SJ-6) and San Jose 3 (SJ-3) which were contaminated with volatile organic compounds (VOC)s. The Remedial Action Objective (RAO) was to eliminate the threat to human health posed by potentially introducing contaminants from SJ-6 and SJ-3 wells into the City of Albuquerque drinking water supply. This was accomplished by replacing municipal wells SJ-6 and SJ-3 with the Burton #4 well which was completed in April 1987.

  On June 5, 2017, EPA submitted a letter to the New Mexico Environment Department (NMED) requesting comments to the proposal to commence with deletion of OU 01 from the National Priorities List (NPL). On August 11, 2017, NMED submitted a letter to EPA concurring with the proposal to commence with the deletion procedures for OU 01. On June 13, 2018, EPA issued a deletion docket to commence with the deletion of OU 01. EPA completed the deletion of OU 01 from the NPL on September 23, 2019. There are no hazardous substances remaining at OU1 above levels that allow for unlimited use/unrestricted exposure (UU/UE) so therefore, OU1 will not be included in FYRs going forward.

- OU 02 – The ROD was signed on September 30, 1988 for which GEA is the PRP, with a remedial goal of eliminating conduit(s) for contaminant migration from the shallow to intermediate aquifers. The RAO was accomplished by plugging and abandoning municipal wells SJ-6 and SJ-3 and other shallow wells, restricting ground water use, and implementing a ground water monitoring program. GEA submitted a letter to EPA requesting they commence with the deletion procedures for OU 02 on April 7, 2017. On August 11, 2017, NMED provided concurrence to EPA regarding GEA's request. EPA issued a deletion docket on June 13, 2018 and on September 23, 2019, EPA completed the deletion of OU 02 from the NPL. There are no hazardous substances remaining at OU 02 above levels that allow for unlimited use/unrestricted exposure (UU/UE) so therefore, OU 02 will not be included in FYRs going forward.

- OU 03 – The ROD for the Edmunds Street Ground Water Plume (Univar) was signed on June 28, 1988. The RAO included reducing the concentrations in ground water of site-related VOCs to acceptable levels (aquifer restoration) via a pump-treat-injection system. A ground water recovery system was initiated in April 1992 and a vapor recovery system was initiated in November 1999. The recovery systems for ground water and vapor were shut off in September 2006 and November 2006, respectively. Subsequent monitoring has shown that the ground water and vapor extraction systems reduced the dissolved chlorinated VOC concentrations to levels below and compliant with Applicable or Relevant and Appropriate Requirements (ARARs) as defined in the ROD. On June 10, 2014, EPA approved Univar's request to close OU 03 for VOCs.

  EPA approved Univar's recommended actions regarding the further investigation of 1,4-dioxane as a contaminant of concern (COC). Univar submitted a Human Health Risk Evaluation (HHRE) that evaluated potential human health risks and defined site-specific risk-based cleanup goals. In addition to continually monitoring ground water, Univar proposed additional monitoring wells to delineate and identify the migration of the existing 1,4-dioxane plume. A remedial work plan was submitted to EPA and NMED for review and was approved on July 22, 2016. A ground water recovery, treatment, and injection system for the removal of 1,4-dioxane was installed and became operational on March 5, 2018. The ground water treatment system continues to operate to achieve the site 1,4-dioxane clean-up goals.

- OU 04 – The ROD for the Edmunds Street Source Control (to address the potential vadose zone contamination) was signed on March 30, 1989. Univar, the PRP, was required to locate the source of the solvent contamination by investigating the soil around a pit on their property. The investigation found that no additional action was necessary in the vadose zone. The ROD specified No Further Action.

- OU 05 – The ROD was signed on September 30, 1988. GEA is the PRP for this OU. The GEA Shallow Zone consists of the unsaturated and saturated portion of the shallow zone aquifer at the GEA facility. The RAO for this OU is to remediate the shallow zone ground water plume and eliminate source materials via enhanced dewatering, soil flushing, and soil vapor extraction techniques. GEA installed shallow ground water recovery systems on both the North Plant 83 and South Plant 83 Areas. Both ground water recovery system operations began in May 1994. The ground water treatment system at this OU was completely shut down in July 2010. Compliance ground water monitoring was completed on September 22, 2014. GEA requested closure of OU 05, stating that all requirements in the Administrative Order, dated July 3, 1989, had been fulfilled.

  All wells and infrastructure associated with the OU 05 ground water treatment system were plugged and abandoned or removed as approved by EPA. GEA submitted a letter to EPA requesting that they commence with the deletion procedures for OU 05 on April 7, 2017. On August 11, 2017, NMED provided concurrence to EPA regarding GEA's request. EPA issued a deletion docket on June 13, 2018 and on September 23, 2019, EPA completed the deletion of OU 05 from the NPL.

- OU 06 – The ROD was signed on September 30, 1988. GEA is the PRP for this OU. The GEA Deep Zone for OU 06 refers to the deep aquifer beneath the GEA facility. The RAO is to hydraulically contain the ground water plume to protect the City of Albuquerque's water supply wells from being impacted and to reduce the concentrations of site-related VOCs in ground water to acceptable levels (aquifer restoration). The ground water remediation system at this OU began operation in March 1996. Remedial activities performed at OU 06 have hydraulically contained and reduced the overall volume and mass of the plume. A pumping and injection regimen is being implemented to address residual contaminants in the Deep Zone ground water plume.

Based on the information available during this Sixth FYR, the following determinations were made for the selected remedies for the OUs at the South Valley Superfund Site:

OU 03 - The remedy is protective of human health and the environment.

OU 04 -The remedy is protective of human health and the environment.

OU 05 - The remedy is protective of human health and the environment.

OU 06 - The remedy is protective of human health and the environment.

The remedial actions at OU 03, OU 04, OU 05, and OU6 are protective.

Environmental Indicators

Human Exposure Status: Under Control
Contaminated Ground Water Status: Under Control
Site-Wide Ready for Reuse: Yes

Actions Needed

The following actions must be taken for the remedy to be protective: None

Determination

I have determined that the remedy for Operable Units 3, 4, 5, and 6 at the South Valley Superfund Site is protective.

WREN STENGER Digitally signed by WREN STENGER
DN: c=US, o=U.S. Government, ou=Environmental Protection Agency, cn=WREN STENGER, 0.9.2342.19200300.100.1.1=68001003651787
Date: 2020.03.25 16:23:40 -05'00'

_____ _____

Wren Stenger Date
Director, Superfund and Emergency Management Division
U.S. Environmental Protection Agency Region 6

CONCURRENCES

SIXTH FIVE-YEAR REVIEW REPORT
SOUTH VALLEY SUPERFUND SITE
EPA ID#: NMD980745558
ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO

MICHAEL HEBERT

Digitally signed by MICHAEL HEBERT
DN: c=US, o=U.S. Government, ou=Environmental Protection Agency, cn=MICHAEL HEBERT, 0.9.2342.19200300.100.1.1=68001003655443
Date:2020.03.25 11:14:04 -05'00'

Michael Hebert . Date
Remedial Project Manager

BLAKE ATKINS

Digitally signed by BLAKE ATKINS
DN: c=US, o=U.S. Government, ou=Environmental Protection Agency, cn=BLAKE ATKINS, 0.9.2342.19200300.100.1.1=68001003652741
Date: 2020.03.25 12:23:53 -05'00'

Blake Atkins Date
Chief, Louisiana/New Mexico/Oklahoma Section

JOHN MEYER

Digitally signed by JOHN MEYER
DN: c=US, o=U.S. Government, ou=Environmental Protection Agency, cn=JOHN MEYER, 0.9.2342.19200300.100.1.1=68001003655626
Date: 2020.03.25 11:54:38 -05'00'

John C. Meyer Date
Chief, Superfund Remedial Branch

(see attached email concurrence) 3 – 18 - 20
Leonard Schilling Date
Attorney, Office of Regional Counsel

(see attached email concurrence) 3 – 23 -20
I-Jung Chiang Date
Chief, Superfund Branch, Office of Regional Counsel

From: Schilling, Leonard
To: Hebert, Michael
Subject: RE: 0611/06R8 - South Valley - Five Year Review Report for concurrence
Date: Wednesday, March 18, 2020 10:04:15 AM

I concur

From: Hebert, Michael <hebert.michael@epa.gov>
Sent: Monday, March 16, 2020 9:17 AM
To: Schilling, Leonard <Schilling.Leonard@epa.gov>
Subject: 0611/06R8 - South Valley - Five Year Review Report for concurrence

E-Version of Draft South Valley Five Year Review Report

Sent for remote concurrence due to COVID-19 optional situational flexiplace.

Thanks, Hebert

From: Travis, Pamela
To: Hebert, Michael
Subject: RE: 0611/06R8 - South Valley Five Year Review Report- for concurrence
Date: Monday, March 23, 2020 5:29:15 PM

Please accept this e-mail as my concurrence on the South Valley Five Year Review Report.

From: Hebert, Michael <hebert.michael@epa.gov>
Sent: Monday, March 23, 2020 2:44 PM
To: Travis, Pamela <Travis.Pamela@epa.gov>
Subject: 0611/06R8 - South Valley Five Year Review Report- for concurrence

E-Version of Draft South Valley Five Year Review Report

Sent for remote concurrence due to COVID-19 optional situational flexiplace.

Thanks, Hebert

ISSUES/RECOMMENDATIONS

SIXTH FIVE-YEAR REVIEW REPORT
SOUTH VALLEY SUPERFUND SITE
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None

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LIST OF ABBREVIATIONS & ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COPC	Contaminant of Potential Concern
EPA	United States Environmental Protection Agency
FYR	Five-Year Review
GRTIS	Ground Water Recovery and Injection System
GWPS	Ground Water Protection Standards
GWQB	Ground Water Quality Bureau
ICs	Institutional Controls
MCL	Maximum Contaminant Level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NMED	New Mexico Environment Department
NMWQCC	New Mexico Water Quality Control Commission
NPL	National Priorities List
OU	Operable Unit
O&M	Operation and Maintenance
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objectives
RAP	Remedial Action Plan
RI/FS	Remedial Investigation and Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
SOS	Superfund Oversight Section
VOCs	Volatile Organic Compounds

I. INTRODUCTION

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in five-year review reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this five-year review pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP)(40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the sixth FYR for the South Valley Superfund Site. The triggering action for this statutory review is the completion date of the previous FYR. This FYR has been prepared due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of six Operating Units (OUs). OU 01 and OU 02 will not be included in this or future FYRs because there are no contaminants remaining on site above levels that allow for UU/UE. OUs 3, 4, 5 and 6 are included in this FYR.

- OU 03 addresses: Univar ground water
- OU 04 addresses: Univar Edmunds street source control (vadose zone)
- OU 05 addresses: General Electric Aviation (GEA) groundwater, shallow zone
- OU 06 addresses: GEA groundwater, deep zone

OUs are further summarized in **Table C-1**, **Appendix C** and in greater detail in the data review and technical assessment sections of this FYR.

The South Valley Superfund Site Five-Year Review was led Mr. Bill Pearson and Mr. Angelo Ortelli, of the New Mexico Environment Department (NMED), Ground Water Quality Bureau (GWQB), Superfund Oversight Section (SOS) and Michael Hebert (EPA). Participants for the Site inspection included: Ms. Katy Brantingham, Associate Vice President, Arcadis US, Inc.; Ms. Julie Einerson, Owner, Genesis Environmental, Safety, and Health, LLC.; John Billiard, Technical Services Director, Axis Group, Inc. The potential responsible parties were notified of the initiation of the five-year review. The review began on 8/26/2019.

Site Background

The South Valley Site is in an industrial area in the southern portion of Albuquerque, New Mexico, one-half mile west of the Albuquerque International Airport; one-half mile east of the Rio Grande; close to the intersection of South Broadway and Woodward Road. Historical and current land use surrounding the Site is primarily industrial, with some residential use to the north of the site.

One portion of the South Valley Site is known as the Univar Site (**Appendix C**, **Figure C-1**). The Univar site has been utilized by multiple companies as a distribution facility for dry ice, chlorine, ammonia gas, and other industrial chemicals since 1965. Since 1985, Univar has remained the only active company on the Site. Univar purchased the property from AmeriGas in June 1988. The contamination identified in this designated portion is addressed in OU 03 and OU 04.

The other portion of the Site is known as the former Air Force Plant 83 Site (also referred to as the General Electric Aviation (GEA) Site). The Plant 83 consisted of two facilities: North Plant 83 Area, located north of Woodward Road, which was demolished in October 1997; and South Plant 83 Area, located south of Woodward Road, which was demolished in May 2011 (**Appendix C**, **Figure C-1**). Both facilities have been used for manufacturing purposes since the 1950's, first by Eidel Manufacturing; followed by the Atomic Energy Commission through its contractor,

American Car Foundry; followed by the U.S. Air Force through its contractors at General Electric; and finally, by General Electric Aviation (GEA) as facility owner since 1984. The contamination identified in this designated portion of the Site is addressed in OU 03, OU 05, and OU 06.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: South Valley		
EPA ID: NMD980745558		
Region: 6	**State:** NM	**City/County:** Albuquerque/Bernalillo.
SITE STATUS		
NPL Status: Final		
Multiple OUs? Yes	**Has the site achieved construction completion?** Yes	
REVIEW STATUS		
Lead agency: EPA *[If "Other Federal Agency", enter Agency name]*:		
Author name (Federal or State Project Manager): Michael Hebert, Remedial Project Manager		
Author affiliation: EPA Region 6		
Review period: 8/30/2019 to 7/3/2020		
Date of site inspection: 10/21-22/2019		
Type of review: Statutory		
Review number: 6		
Triggering action date: 7/3/2015		
Due date *(five years after triggering action date)*: 7/3/2020		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

In 1978, the City of Albuquerque detected low levels of VOCs in municipal wells SJ-3 and SJ-6 which prompted their removal (both plugged and abandoned) and the subsequent installation of a replacement well, Burton #4 (OU 01). In 1981, the EPA and NMED designated a one square mile area around SJ-6 as a Superfund Site which was added to the National Priorities List (NPL).

OU 03

Initial investigations starting in 1978 through the early 1980's resulted in the discovery of a plume of contaminated groundwater starting at the Univar site and extending to the east. Various VOCs were detected in the first groundwater zone at the site. During site characterization, the following hazardous substances were detected in ground water: acetone, carbon tetrachloride, chloroform, 1,2-Dichloroethane (1,2-DCA), trans-1,2- Dichloroethene (trans-1,2-DCE), 1,1- Dichloroethene (1,1-DCE), methylene chloride, tetrachloroethene (PCE), trichloroethene (TCE) and 1,1,1-Trichloroethane (TCA). This operable unit was solely concerned with groundwater ingestion being the route of exposure.

OU 04

As a result of the detection of contaminated groundwater which initiated OU3, subsequent investigations were performed in the 1980's to determine the source of the groundwater contamination. Various VOCs (i.e., Tetrachloroethene, 1,1-Dichloroethene) were detected in soils at the site, but the highest concentrations of soil contamination was found at the water table interface which indicated most of the contamination had migrated to the groundwater. OU4 considered three primary routes of exposure: direct contact, ingestion of contaminated soils, and inhalation.

OU 05 and OU 06

Initial investigations on the GEA property were conducted in 1984 and 1985. A second investigation was conducted in 1987 and 1988. VOCs in ground water were detected as high as 112 micrograms per liter (µg/L) for DCA, 55 µg/L for DCE, 30 µg/L for 1,2-DCA, 64 µg/L for TCE, 28 µg/L for PCE, and 2.6 µg/L for vinyl chloride. Low concentrations of VOCs were detected in soils. These operable units were concerned with groundwater ingestion being the route of exposure.

Descriptions of the Site hydrology as it pertains to the Operable Units, including the Shallow Zone Aquifer and the Deep Zone Aquifer are provided in **Appendix B**.

Appendix C, **Table C-1** lists the issues and basis for taking action, the remedial actions (RA), implementation status, and the actions proposed for each Operating Unit (OU) associated with the South Valley superfund Site.

Response Actions

OU 01 Municipal Wells

A Record of Decision (ROD) for OU 01 was signed on March 22, 1985. The remedy included in the ROD was to replace city water supply wells, San Jose #3 & #6.

RAOs described in the ROD include:

- Provide a new water supply well to replace the capacity of the contaminated well San Jose No. 6.

OU 02 Institutional Controls

A ROD for OU 02 was signed on September 30, 1988. The remedy components selected in the ROD included:

- Plug SJ #3 & #6 wells plus any private wells that might be a conduit from shallow to intermediate aquifers;
- Groundwater monitoring; and
- Access restrictions.

RAOs selected in the ROD include:

- Eliminate potential conduits for shallow groundwater contamination to migrate to lower groundwater zones.
- Restrict the usage of groundwater at or near the site.

OU 03 Univar Ground Water Plume

The ROD for OU 03, issued in June 1988, was to address ground water contamination. The ROD stated that although there were no current users of the ground water within the contaminated plume area, the movement of the plume could impact a major well field for the City of Albuquerque water supply.

OU 03 includes monitoring of ground water, treated water, and ambient air to ensure the effectiveness of the remedy. The risks were assessed according to the Maximum Contaminant Levels (MCLs)**,** set forth under the Safe Drinking Water Act and New Mexico Water Quality Control Commission (NMWQCC) Regulations (New Mexico Administrative Code [NMAC]) (**Table C-2**, **Appendix C**).

An Explanation of Significant Differences was issued on September 26, 2006, which changed the cleanup goal for PCE from 20 µg/l to 5.0 µg/l. This change did not require a change in the design or operation of the remediation system as the existing remediation system was designed to remediate PCE in groundwater to 5.0 µg/l.

OU 04 Vadose Zone

The ROD for OU4, issued in March 1989, was to address the source of groundwater contamination. The Univar OU 04 soil investigation for potential COCs in the vadose zone determined that the soils did not pose a risk to human health and the environment. The ROD issued in 1989 specified No Further Action.

The OU 04 ROD did include a provision to determine if after groundwater remedial action, whether the soil gases would pose any threat to human health and the environment. A Soil Vapor Extraction (SVE) system was implemented and completed which resulted in non-detect soil vapor concentrations for all VOCs. Thus, it was determined that the soil gases did not pose a threat to human health or the environment.

OU 05 Shallow Zone Aquifer and OU 06 Deep Zone Aquifer

The Former Plant 83/General Electric ROD was signed on September 30, 1988, and covered OU 05 and OU 06. At GEA, the 1988 ROD documented the presence of VOCs and metals in soil and ground water samples collected at the Site. A comprehensive assessment was completed and confirmed that metals concentrations in ground water were not significantly above ARARs. Metals were removed as COCs for OU 05 and OU 06.

The remedy selected in the 1988 ROD, addressed VOCs in soil and in two distinct aquifer zones, later designated as the shallow zone and the deep zone aquifers (note: the deep zone aquifer includes both the intermediate and shallow zones described in the ROD). A list of COCs was not provided in the ROD but three COCs were identified due to their carcinogenic effects: 1,1-DCE, isophorone, and PCE. The shallow and deep ground water zones up to 160 ft bgs required remediation based on risk calculations. Requirements and standards specified in the NMWQCC Regulations had a prominent role in the listing of this site (**Table C-3**, **Appendix C**).

As part of the site characterization, soil cleanup levels (i.e. action levels) were established for VOCs that were detected in the vadose zone. The VOCs detected in the soil did not pose a threat to human health, however they could dissolve and migrate from the vadose zone to the shallow zone aquifer.

The 1988 ROD required the following response actions:

OU 05:

- Further characterization of the lateral extent of VOCs in the vadose zone and the lateral extent of VOCs in the shallow zone aquifer through the installation of additional monitoring wells;
- Extraction of VOC soil vapors from the vadose zone in Hazardous Waste Storage Areas 1, 3, and 4, at the north end of the North Plant 83 Area and south end of the South Plant 83 Area. Treatment of the extracted soil vapors via vapor-phase activated carbon;
- Extraction and treatment of ground water in the shallow zone aquifer (at a depth of approximately 30 ft bgs) via liquid-phase activated carbon; continue treatment until contaminant concentrations decrease below state and federal regulatory standards; and

OU 06:

- Extraction and treatment of ground water in the deep zone aquifer (at a depth of approximately 160 ft bgs) via air stripping and liquid-phase activated carbon; continue treatment until the contaminant concentrations decrease below state and federal regulatory standards.

Remedial goals selected in the ROD for OU5 included:

- remediating shallow zone groundwater, and
- eliminating source materials via enhanced dewatering, soil flushing, and SVE.

Remedial goals selected in the ROD for OU6 included:

- remediating deep zone groundwater.

An Explanation of Significant Differences was issued on October 16, 2006, which changed the cleanup goal for PCE from 20 µg/l to 5.0 µg/l. This change did not require a change in the design or operation of the remediation system as the existing remediation system was designed to remediate PCE in groundwater to 5.0 µg/l.

Status of Implementation

Remedy implementation activities were conducted during this Sixth Five-Year Review period at OU 03, OU 05, and OU 06 pursuant to the requirements of the South Valley Superfund Site ROD(s) and the decision documents referenced in **Appendix A**.

OU 01

The OU 1 remedy was addressed when the Burton 4 municipal well was installed to replace the use of contaminated City of Albuquerque supply wells, SJ-3 and SJ-6. OU 01 RA objectives were achieved in April 1987. OU 01 was deleted from the NPL on September 23, 2019. OU1 will not be included in this FYR because no hazardous substances remain in this OU above levels that allow for UU/UE.

OU 02

The OU2 remedial action was implemented by plugging and abandonment of several wells that were identified as potential contamination conduits to the shallow and deep ground water zones. Both SJ-3 and SJ-6 municipal wells that contained low levels of VOCs were plugged and abandoned. Ground water use and access restrictions were enforced through the New Mexico Office of State Engineers (NMOSE). OU 02 included the establishment of a monitoring well network containing 23 wells downgradient and north/east of the Site, in the vicinity of SJ-6 (completed between 1990 and 1992). The monitoring program at OU 02 was transferred to OU 06 in 1996, making all OU 02 activities complete except for the associated institutional controls, which remain in place and are considered part of OU 06 per the OU 06 ROD (see below). OU 02 RA objectives were achieved in 1994. OU 02

was deleted from the NPL on September 23, 2019. OU 02 will not be included in this FYR because no hazardous substances remain in this OU above levels that allow for UU/UE.

OU 03 Univar Ground Water Plume

The selected RA was implemented in accordance with the 1990 Consent Decree and the design described in the Remedial Action Plan (RAP) and Remedial Design Report. A ground water monitoring plan to determine the effectiveness of the RAs was also included in the RAP. The RA consisted of the containment and collection of the contaminated ground water using an extraction well system, treatment of the recovered ground water through packed tower aeration and return of the treated water to the aquifer through infiltration galleries. The RAP recovery wells were installed in 1989 and the treatment unit was constructed during the first quarter of 1990. The treatment system was fully operational by the end of 1990. Vadose zone treatment (originally intended for OU 04 remediation) was initiated in 1999 by Univar to improve the efficiency of the extraction system for VOCs in ground water within OU 03. The dissolved chlorinated VOC concentrations were reduced to below ARARs as defined in the ROD, and EPA approved Univar's request for a partial closure of OU 03 for VOCs on June 10, 2014 (Refer to **Appendix B** for additional details).

In November 2009, the EPA required Univar, pursuant to Section XVI(D) of the Univar Consent Decree (CIV 90-0291SC), to evaluate 1,4-Dioxane and to ensure that the 1,4-Dioxane does not pose a threat to human health and the environment. In early 2014, after the collection of groundwater data, a Human Health Risk Evaluation (HHRE) was completed by Univar to evaluate potential human health risks and define site-specific risk-based cleanup goals associated with 1,4-dioxane contamination. The cleanup goals for on-site ground water at Univar was set at 29 micrograms per liter (μg/L) or less and off-site ground water (properties not owned by Univar) to 6.7 μg/L or less. On July 27, 2016, EPA and NMED approved Univar's Remedial Work Plan to continue monitoring 1,4-dioxane and to remediate ground water with a treatment system for OU 03. Two recovery wells (RW-05 and RW-06) and three injection wells (IW-01, IW-02, and IW-03) were installed for OU 03 in accordance with the Univar Well Installation Report dated April 27, 2017, and a ground water monitoring program was initiated. Operation of the groundwater recovery system was initiated in March 2018.

OU 05 Shallow Zone Aquifer

The shallow zone ground water remediation system started in May of 1994, which included 30 monitoring wells, eight extraction wells, one injection well, and a ground water treatment system. The remediation system extracted ground water from eight extraction wells. The ground water treatment system at OU 05 was shut down in July 2010. Compliance ground water monitoring and extraction well data from the North Plant 83 indicated all VOCs were below ARARs for at least eight consecutive quarters. EPA approved closure of all wells on the North Plant 83 Area on May 31, 2011. All wells and infrastructure associated with the OU 05 ground water treatment system were plugged and abandoned or removed after remedial and monitoring activities were completed. On November 1, 2011, GEA requested formal closure of the Operable Unit 05 (OU 05) North Plant 83 Area shallow zone ground water remediation system. GEA recorded a Declaration of Restrictive Covenants for the South Plant 83 Area with the Bernalillo County Clerk's Office on September 16, 2014. The restrictive covenant limits property uses and establishes ground water use restrictions and soil engineering controls. GEA requested closure of the OU 05 ROD on September 22, 2014, stating that they had satisfactorily completed all requirements of the Administrative Order dated July 3, 1989.

On April 7, 2017, GEA requested that EPA commence with NPL deletion procedures for OU 05. Remedial Action Closeout Reports for OU 01, dated April 11, 2017, and OU 02 and OU 05, dated January 17, 2018, detailed the completion of the remedial action objectives and goals for the OUs and fulfilled the NPL deletion procedural requirements. OU 05 was determined complete and deleted from the NPL on September 23, 2019. No O&M tasks

were implemented during this FYR period for OU 05. The history and progression of remedy implementations that were completed at OU 05 are documented in previous FYR reports and summarized in the Remedial Action Closeout Report that is Referenced in **Appendix A**.

OU 06 Deep Zone Aquifer

The deep zone aquifer is designated as the aquifer encountered at the site below an elevation of 4,900 ft above mean sea level (amsl). In the 1988 OU 06 ROD, this aquifer is further subdivided for purposes of reference into the intermediate and the deep zones. EPA adopted the five intervals to describe the Deep Zone Aquifer:

- Deep-shallow zone (DS) -4900 to 4840 feet amsl
- Deep-Intermediate zone (DI) - 4840 to 4790 feet amsl
- Deep-Intermediate & Deep-Deep Zone (DD) -4790 to 4660
- Deep-Low-Permeability Zone (DLPZ)- 4660 to 4600 feet amsl
- Below-Deep-Low-Permeability Zone (BDLPZ)- 4600 to 4500 feet amsl

Ground water is encountered at an elevation of approximately 4,900 ft amsl, which corresponds to depths of approximately 49-115 ft bgs. The deep zone ground water remediation system remediates ground water from a 240-ft interval (4,600 to 4,840 ft amsl).

The remediation system began operating in April 1996 and included monitoring wells, extraction wells, injection wells, and a ground water treatment system to remove VOCs from the extracted ground water to concentrations below the ARARs (
Figure C-3**, Appendix C**). The deep zone ground water remediation system operates by extracting ground water from three to four large diameter extraction wells and conveying it via a dual-walled pipe to the treatment system located on the northwest intersection of Woodward Road and the Albuquerque Metropolitan Arroyo Flood Control Association (AMAFCA) South Diversion Channel. The dual-walled pipe is located within a larger pipe to mitigate a potential for a leak to the subsurface. The extracted ground water is conveyed to the treatment plant via separate pipelines into the influent tank. Phosphate (AquaMag™) is added to the water to prevent scaling of minerals during treatment and injection. AquaMag™ is approved for use in drinking water and drinking water supply aquifers.

IC Summary

In 1988, the State of New Mexico's Engineers Office restricted access to groundwater in and near the site due to the presence of organic contaminants in excess of drinking water standards. All wells drilled in New Mexico must receive a permit from the Engineers Office and thus, are subject to the restrictions employed in 1988.

Upon cessation of manufacturing operations at the GEA South Plant 83 in October 2010, investigations were performed to determine if there was any contamination underneath the buildings. Due to hexavalent chromium and semi-volatile organic compound contamination, GEA performed a removal action in 2011. The area was backfilled with clean fill and capped with concrete. GEA filed a deed restriction in 2014 which identified the areas where contamination exceeded industrial soil screening levels. GEA performs property maintenance inspections to determine the integrity of the capped removal area.

Table 1: Summary of Planned and/or Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Ground Water	Yes	Yes	The New Mexico State Engineer designated an area that encompasses the entire South Valley Superfund Site	Restrict use and access to the shallow ground water aquifer to protect the public from potentially contaminated water.	Press Release in 1988 from the New Mexico Office of the State Engineer.
Ground Water/Soil	Yes	No	Former South Plant 83, GEA (OU 05)	Restrict ground water use/restricts specific areas from excavation.	Declaration of Restrictive Covenants, September 16, 2014

III. PROGRESS SINCE THE LAST REVIEW

This section includes the protectiveness determinations and statements from the last five-year review, as well as the recommendations from the last five-year review and the current status of those recommendations.

Table 2: Protectiveness Determinations/Statements from the 2015 FYR

OU #	Protectiveness Determination	Protectiveness Statement
01	Protective	The remedy is protective of human health and the environment.
02	Protective	The remedy is protective of human health and the environment.
03	Short-term Protective	The remedy currently protects human health and the environment, because the remedy consisting of ground water recovery and treatment functioned as designed. However, in order for the remedy to be protective in the long-term, the presence of 1,4-dioxane in ground water should be evaluated.
04	Protective	The remedy is protective of human health and the environment.
05	Protective	The remedy is protective of human health and the environment.
06	Short-term Protective	The remedy currently protects human health and the environment, because the remedy consisting of water recovery and treatment functioned as designed. However, in order for the remedy to be protective in the long-term, the following actions need to be taken: (1) coordinate with NMED regarding the recent increase of MTBE concentrations; and (2) evaluate and address the TCE and 1,1-DCE concentration increases at a water level elevation of 4,500 to 4,600 ft-amsl.
Sitewide*	Short-term Protective	The remedial actions at OU 01, OU 02, OU 04, and OU 05 are protective. The remedial actions at OU 03 and OU 06 are protective in the short-term. However, for OU 03 and OU 06, the recommendations and follow-up actions identified in this FYR process should be addressed to ensure the long-term remedy will remain protective of human health and the environment.

***Please note:** An incorrect (typographical error) sitewide protectiveness determination was reported in the 2015 FYR. The sitewide protectiveness determination must represent the least protective of the OUs. As can be seen above, the least protective of the OUs has a protectiveness determination of "Short-term Protective", therefore the sitewide determination should be "Short-term Protective".

Table 3: Status of Recommendations from the 2015 FYR

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description*	Completion Date (if applicable)
02	Status of OU 02 remedial requirements	Determine if OU 02 remedial requirements have been achieved or define the monitoring well network and sample frequency for that network of wells associated with OU 02.	Completed	General Electric addressed the status of the OU 02 remedial requirements in a RA Report for OU 02 – All requirements were met.	1/17/2018
03	1,4-Dioxane- This compound is known to have been used as a stabilizer in solvent at Univar. Its presence above certain levels could affect the future protectiveness of the ground water remedy at OU 03 at this facility. While the quantitative and qualitative risk data for this compound are still in development, a path forward for evaluation should be determined for this compound.	Continue sampling for this compound at OU 03 (Univar). In addition, an evaluation should be performed to determine if additional remedial activities are needed. Proposed monitoring wells should be installed and a remedial action plan developed upon completion of well installations and ground water monitoring.	Completed	On July 22, 2016, Arcadis U.S., Inc on behalf of Univar Solutions USA, Inc. submitted an approved Remedial Work Plan for 1,4-Dioxane in ground water at OU 03. On March 5, 2018, Univar installed and began operation of a recovery, treatment, and injection system (advanced oxidation process) with 1,4-dioxane risk-based cleanup goals of 29 micrograms/L (µg/L) for on-site ground water and 6.7 µg/L for off-site ground water.	7/27/2016
06	1,1-DCA in Sentinel Well P83-19U.	Evaluate the detection of 1,1-DCA since 2012 in sentinel well P83-19U.	Completed	In the Fifth FYR (July 2015), sentinel monitoring well P83-19U was mentioned as having detectable concentrations of 1,1-DCA (2.3 µg/L) below its ARAR of 25 µg/L. Continued monitoring is warranted.	3/14/2016

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

A public notice was made available by a newspaper posting in the Albuquerque Journal, on September 6, 2019, stating that there was a five-year review and inviting the public to submit any comments to the U.S. EPA. The results of the review and the report will be made available at the following Site information repositories:

Zimmerman Library
Government Information Dept.
University of New Mexico
Albuquerque, NM 87131
505.277.9100

New Mexico Environment Department
Ground Water Quality Bureau
1190 St. Francis Drive, Suite N2300
Santa Fe, NM 87502-5469

During the FYR process, interviews were conducted to document successes and any problems with the remedy that had been implemented to date**.** Interview records are included in **Appendix D**. The results of these interviews are summarized below.

Interview participants included community members, site contract engineers, consultants, managers, and County representatives. Three community members contacted declined to provide a response. In general, participants agreed that the project continues to progress and is beneficial to the environment. Cleanup activities at the site have not disrupted the nearby community. However, a community representative expressed that some residents are unsatisfied with how contamination cleanup has been addressed and they would like to be better informed about the status of cleanup activities at the South Valley Superfund Site. According to the County, trespassing and illegal dumping continues to be a problem at the Site.

Some interviewees expressed concern for potential human health exposures to hazardous chemicals from the site. They indicated that community members have expressed concerns specifically related to the future development of portions of the South Valley superfund site property. Participants suggested that future development projects could disproportionately pose health risks to the low income and minority populations living nearby. Interviewees also expressed concerns that future development in the area would exclude the local community and benefit only commercial or industrial land use.

Site consultants, contractors, and managers indicated that ARARs have been achieved at three Operable Units and portions of the site have been successfully completed and deleted. Participants explained that the partial NPL deletion of OUs at the Site are beneficial to the community and make the property viable for future use. The remedies implemented have been successful in reducing concentrations of VOCs in the ground water. ARARs in the Deep Ground Water (OU 06) are expected to be achieved with the continued operation of the Remediation System. The remedy implemented at the Site continues to be protective of human health and the environment. Concentrations of 1,4-dioxane are being successfully addressed to at least achieve the onsite and offsite standards of 29 µg/L and 6.7 µg/L, respectively. The treatment system has successfully removed approximately 6 pounds of 1,4-dioxane from the ground water.

Univar and GEA have completed operation and maintenance activities at the site including, rehabilitating extraction wells to improve efficiency and installing additional wells to better address VOCs in the ground water. Difficulties at the Site include the natural bacteria growth and accumulation that occurs when the injection/extraction system is shut down. During this time, well screen intervals become clogged. Well rehabilitation, following system shutdowns, has been costly and in some cases has caused the equipment to fail. The system is periodically shutdown

to improve capture and removal of contaminants in the ground water. Operators are present at the Site at least five days per week and remain on-call daily to address any problems that arise (OU 06). System operation remains costly and the treatment program has achieved asymptotic levels of contaminant removal. At the Univar (OU 03) site, the system is operated remotely and monitored daily. Biweekly site visits are conducted to visually inspect the condition and components of the treatment system.

Data Review

The Site data generated and reviewed during this Sixth FYR period were ground water elevation levels and analytical results for the ground water samples collected at OU 03 and OU 06. As stated previously, all remedial activities associated with OU 04, and OU 05 have been fulfilled and additional data beyond site inspection and IC maintenance were not collected. The data collection and monitoring activities completed during this FYR period satisfy the requirements set forth in decision documents and operation, maintenance and monitoring plans referenced in **Appendix A**.

OU 03 Ground Water Flow

Ground water consistently flows in east to southeast direction across the Site. When the OU 03 treatment system started in March 5, 2018, mounding was observed northwest of the active recovery wells and (partially) near the infiltration gallery. The mounding is influenced by the treated ground water being discharged into the injection well network. A ground water cone of depression was also observed around the recovery wells in response to ground water extractions. As of October 3, 2018, all treated ground water is discharged into the infiltration gallery. The ground water mound observed near the active injection wells started to dissipate and mounding increased near the infiltration gallery (

Figure C-11**, Appendix C**). The cone of depression remains around the recovery wells as the treatment system continues to operate. Despite these influences to ground water beneath the Site, flow continues in a southeasterly direction. Potentiometric surface elevation contour maps are depicted in
Figure C-5 through

Figure C-11**, Appendix C**.

OU 03 Univar Ground Water Plume

Univar evaluated the existing monitoring well network and submitted the Remedial Work Plan to address 1,4-dioxane contamination in the ground water on May 13, 2016. After EPA approved the Remedial Work Plan on July 22, 2016, additional wells were installed to complete the lateral delineation of the plume. A final well installation report, detailing the completion of two new recovery wells, three injection wells, and the redevelopment of existing wells was provided on April 27, 2017. Univar installed and began operating an Advance Oxidation Treatment System and the ground water recovery and injection system (GRTIS) on March 5, 2018. The treatment system was designed to treat 1,4-dioxane contaminated ground water to a concentration of less than 6.7 µg/L.

The ground water system at OU 03 encompasses recovery wells (RW-02, RW-05, RW-06, and GM-27) and the treated water is injected above the water table via injection wells (VE-4, VE-6, IW-01, IW-02, IW-03) and the infiltration gallery. Depth to ground water was measured periodically during 2018 and quarterly in 2019. Ground water is sampled at least semi-annually using low-flow procedures and/or HydraSleeve™ samplers at the following monitoring wells: GM-02, GM-09S, GM-11S, GM-14S, GM-15S, GM-21, GM-25, GM-26, GM-29, GM-30, RW-04, and I-01 (**Figure C-2**, **Appendix C**). Samples were collected via a submersible pump using low flow methods and/or hydraSleeve™ samplers. The results discussed herein are depicted in **Figure C-4**, **Appendix C**.

Operation and maintenance (O&M) activities at OU 03 were conducted, at a minimum, on a bi-weekly schedule during this FYR period. O&M activities were completed in accordance with the Univar Operation, Maintenance and Monitoring Manual (July 31, 2018). The O&M activities implemented were not limited to the inspection and monitoring of GRTIS system components including, tanks and piping, flow rates, and recovery well pressures. Performance sampling and treatment process monitoring activities were also completed to assess the system for optimization. Univar samples the 1,4-dioxane concentrations in the ground water influent and effluent to assess the operational performance of the GRTIS. The performance monitoring results from the Univar Annual 2019 Remediation Report are provided in **Table C-4**, **Appendix C**.

The system initially operated by conveying treated ground water from the remediation system into the upgradient injection wells. Treated ground water was re-injected into the potentially impacted vadose zone to flush out any 1,4-dioxane contamination. Flow rates were adjusted down and eventually suspended in October 2018, after 1,4-dioxane concentrations decreased. Treated ground water has since been redirected and pumped to the infiltration gallery. Concentrations of 1,4-dioxane gradually rebounded after the shift, facilitating increased contaminant removal from the ground water near GM-27, RW-05, and RW-06. Due to the low concentrations of 1,4-dioxane in samples collected from recovery well RW-2 (near or less than 1.0 µg/L reporting limit), RW-2 operation was suspended. RW-2 is now incorporated into the ground water monitoring program. The ground water monitoring schedule is evaluated and modified annually as needed. Remedy implementation to address 1,4-dioxane and VOCs at OU 03 are further detailed in **Appendix B**.

Since the startup of the GRTIS, considerable progress has been made toward achieving the onsite cleanup goal of 29 µg/L and offsite cleanup goal of 6.7 µg/L for 1,4-dioxane, in the shallow aquifer at the Univar site. The post treatment data described herein includes annual concentration ranges for 2018 and 2019. Data collected during January 22-28, 2016 and April 25-27, 2017 was used to establish pre-remedial, baseline concentrations. The sitewide baseline ground water monitoring results, according to the Univar 2016 Remedial Work Plan, indicated that as many as 20 samples exceeded off-site cleanup goals. The maximum (pre GRTIS startup) concentration was 187 µg/L in a GM-27 duplicate grab sample that was collected.

Concentrations of 1,4-dioxane in onsite upgradient monitoring well GM-09S decreased from 65.4 µg/L in January 2016, to non-detect in the ground water grab samples collected in October 2018 and then increased above onsite cleanup levels of 29 µg/L in April 2019 (43.3 µg/L). Onsite well GM-02 remains below cleanup levels and has steadily decreased from 3.6 µg/L in January 2016, to non-detect in 2019. Similar increasing and decreasing trends were observed in offsite wells since GRTIS operations started.

Offsite cleanup levels of 6.7 µg/L were exceeded in the 2019 hydraSleeve™ samples collected in one downgradient well (GM-29, located east of highway I-25). In January 2016, concentrations from hydraSleeve™ samples were 23.6 µg/L at GM-29 and, by October 2018, were non-detect. In April 2019, concentrations were still reduced overall but had increased to 8.7 µg/L at GM-29.

Remedial goals were achieved in the downgradient offsite well GM-15S by May 2018, and an increase from non-detect to 4.4 µg/L was observed in the hydraSleeve™ samples from April 2019. Concentrations of 1,4-dioxane persist in the other nearby, downgradient offsite wells located east of the I-25 (RW-04, GM-14S, and GM-30; hydraSleeve™ samples). Concentrations were relatively steady since baseline sampling events in 2016 and 2017. The GRTIS capture area is not yet estimated to extend downgradient and east of I-25, where remedial progress remains comparatively slow.

Grab samples from offsite monitoring wells GM-25, GM-26, and I-01 (west of I-25) are all below offsite cleanup goals and have remained relatively steady since baseline sampling. Notable remedial progress has been observed at offsite well GM-21. Baseline 1,4-dioxane concentrations were 143 µg/L (hydraSleeve™ sample) in 2016 and 98.6 µg/L (grab sample) in 2017. Concentrations dramatically decreased to non-detect and 8.4 µg/L in 2018 and cleanup

goals were achieved at GM-21 by April 2019. Progress is slower, but remedial goals have been achieved in the GM-11S well. 1,4-dioxane concentrations decreased from 6.1 µg/L in 2017 to 1.9 µg/L in 2019.

Recovery wells were also sampled monthly, and then quarterly, after the startup of the remedial system. The ground water recovery well network consists of RW-02, RW-05, RW-06, and GM-27. Concentrations of 1,4-dioxane in the recovery wells decreased significantly within two years of GRTIS startup and then remained relatively stable during the period of injection well operation, indicating that flushing of the vadose zone is occurring and that clean water is being successfully captured by the recovery wells.

Concentrations of 1,4-dioxane have remained relatively stable and below cleanup goals in the recovery wells since startup, except for at GM-27, which has shown remedial progress. Recovery well GM-27 historically contained maximum concentrations of 1,4-dioxane (199 µg/L in August 2015 and 102 µg/L in April 2017). The onsite cleanup goals were achieved at GM-27 three months after the GRTIS started in March 2018. Concentrations were as low as 4.1 µg/L in August 2018. Steady increases above offsite remedial goals were observed at GM-27 until 2019, when concentrations stabilized between 28.7 µg/L in February and 24.9 µg/L in April. The initial decreasing trends followed by significant increases observed in the recovery wells at the site coincide with the temporary cessation of treated (clean) ground water discharges into the injection wells IW-1, IW-2, IW-3 and VE-06 on October 3, 2018. Univar recovery well data since GRTIS startup, including the ground water influent and effluent 1,4-dioxane concentrations, is summarized in **Table C-4**, **Appendix C**.

The GRTIS system operated 99.9% of the time from November through April 2019. Approximately 2.7 pounds of 1,4-dioxane was removed from 40,269,827 gallons of extracted ground water (February 23, 2018 through April 29, 2019). Since March 2018, the combined extracted ground water flow rate has been approximately 65 gallons per minute (gpm). Recovery well flow rates were approximately 25 gpm at RW-05 and RW-06 and 15 gpm at GM-27, with slight fluctuations occurring over time. The mass of 1,4-dioxane that has been removed is estimated to be 2.7 pounds during November 2018 through April 2019. Progress toward achieving offsite and onsite cleanup goals is expected to continue to improve with the continuous operation of the GRTIS.

OU 06 (Deep Zone Aquifer)

Ground Water Level Monitoring

In 2008, the City of Albuquerque terminated pumping operations from municipal supply well Miles-01. Since that time, ground water levels within the Site have steadily risen. During this FYR, ground water elevations have continued to rise on average three to ten feet, depending on the well location and type of well. The ground water flow direction has also changed from a northeasterly direction to a more east-southeasterly direction. Ground water elevations were calculated using ground water measurements from monitoring, injection, and extraction wells. GEA continues to monitor changes in total head fluctuations to identify any influences this may have on the remedial system.

During this FYR period the OU 06 treatment plant operated continuously. Operations were only halted to address system malfunctions, complete maintenance activities, or to implement system optimization measures. According to the GEA Annual Reports from 2015 through 2019, system repairs that were completed included, and were not limited to, replacing and semi-annually back-flushing the activated carbon in two vessels, replacing an air compressor in the treatment plant, and installing a Programmable Logic Controller.

Improvements that have been made to the remediation system include the installation of two extraction wells, EW-005 (December 2014) and EW-006 (January 2015) to target concentrations of 1,1-DCE, TCE, and PCE that persist in monitoring well P83-09D. Injection well IW-636 was replaced with IW-636R in January 2015. The well became operational by June 2015. Until November 15, 2017, the remediation system used four operating extraction wells to capture impacted ground water for subsequent treatment and injection. GEA submitted a plan to implement an

alternate extraction remedy that included transitioning from continuous extraction from four extraction wells (EW003R, EW-004, EW-005, and EW-006) to pulse-pumping, to better address the residual contamination in the Deep Zone Aquifer. The pump was replaced at EW-004 after it failed in March 2019, and the well was fully operational by April.

Since July 24, 2018, the Deep Zone Remediation System has been running three extraction wells, a VOC removal treatment system, a redundant treatment via liquid-phase granular activated carbon, and 11 injection wells (to return treated water to the Deep Zone Aquifer).

Currently, pulse-pumping is ongoing within OU 06. GEA started quarterly monitoring of VOCs in the combined influent. GEA continues to evaluate alternatives to the long-term optimization of the system to achieve RAOs. Complete O&M records are provided in the GEA Annual Reports referenced in **Appendix A.** Overall, the system is functioning as designed. Most of the VOCs have been successfully reduced at OU 06, and mass removal has consequently slowed, reaching asymptotic levels of contaminant removal. A summary of the Performance and Compliance Monitoring schedule for each well at OU 06 is provided in **Appendix C**, **Table C-5**.

OU 06 Deep Zone Analytical Results

Monthly compliance sampling of treatment system effluent during this FYR demonstrated that VOC concentrations were non-detect before treated ground water was injected back into the aquifer.

The ground water data reviewed herein references the OU 06 COCs and the ARARs in **Appendix C**, **Table C-3**. The data review covers samples collected in 49 monitoring wells/ ports and 6 extraction wells. The review is organized by samples that were collected in the five designated aquifer zones: DS, DI, DD, DLPZ, and BDLPZ.

Deep-Shallow Zone (DS) (4900 to 4840 feet amsl)

Well data used to represent water quality in the DS zone is obtained from the following monitoring wells/ ports: WB-01(1) and WB-05(1). Samples collected at WB-01(1) were non-detect for all COCs. TCE was the only VOC detected in WB-05(1). Maximum concentrations, below ARARS, were 2.7 µg/L in October 2015 and, in 2019, were decreased to 1.4 µg/L. A MTBE concentration of 3.7 µg/L was detected in WB-05(1) in 2016 and has remained relatively steady in 2019. Note that WB-05(1) is most influenced by extraction well EW-003R (discussed below).

Deep-Intermediate zone (DI) (4840 to 4790 feet amsl)

Well data used to represent water quality in the DI zone is obtained from the following monitoring wells/ ports: P83-07D, P83-09D, P83-19U (sentinel well), P83-22S, P83-29S, WB-01(2), WB-02(1), WB-04(1), WB-05(2), and WB-07(1). Monitoring wells P83-07D, P83-22S, P83-29S, WB-02(1), and WB-07(1) were non-detect for all COCs during this FYR period. ARARs were exceeded in P83-09D for PCE and 1,1 DCE in 2017 and 2018. TCE concentrations have remained above ARARs at P83-09D since 2017.

The cleanup level for PCE is based on the MCL which is 5 µg/L. PCE increased in well P83-09D from 1.5 µg/L in 2015 to 7.4 µg/L in April 2018. PCE concentrations decreased to 4.7 µg/L in 2019. Similarly, TCE concentrations increased from 3.2 µg/L in 2015 to 16 µg/L in 2018 and subsequently decreased to 9.9 µg/L in 2019. Concentrations in WB-05(2) persist below ARARs for PCE (ranging from 1.2 µg/L in 2019 to 1.7 µg/L in 2016) and TCE (ranging from 1.3 µg/L in 2015 to 3.5 µg/L in 2016).

1,1-DCE exceeded ARARs in P83-09D in 2017 through 2018, with concentrations at 6.8 µg/L in January 2018. In 2019, 1,1-DCE was below ARARs (4.1 µg/L). Similar rising and falling trends below ARARs occurred for 1,1-DCA and 1,2-DCA at this well during the same time period and likely coincide with the extraction and pumping activities implemented at EW-003R (discussed in the following sections).

Only 1,1-DCA was detected below ARARs (ranging from 1.2 µg/L to 2.8 µg/L) at sentinel monitoring well P83-19U from 2015 to 2018 (and a single detection of 2.0 µg/L at P83-29S in 2015). Samples collected at P83-19U exhibited non-detects for all COCs by October 2018. In the Fifth FYR (July 2015), sentinel monitoring well P83-19U was mentioned as having detectable concentrations of 1,1-DCA (2.3 µg/L) below its ARAR of 25 µg/L. Discussions with EPA and GEA concerning detections in the sentinel well, could not identify the source of the 1,1-DCA. One possible source discussed included a former landfill located adjacent to P83-19U.

MTBE was detected at WB-05(1) at concentrations ranging from 1.9 µg/L in 2015 to 3.7 µg/L in 2017. MTBE was non-detect at well P83-09D in 2016 and continued to show gradual increases to 6.4 µg/L in 2019.

Deep-Intermediate & Deep-Deep Zone (DD) (4790 to 4660 feet amsl)

Well data used to represent water quality in the DD zone of the aquifer was obtained from the following monitoring wells/ports: P83-19M (sentinel well), P83-22M, P83-22D, P83-26M, P83-26D, WB-01(3), WB-01(4), WB-01(5), WB-02(2), WB-04(2), WB-04(3), WB-05(3), WB-05(4), WB-07(2), WB-07(3), and WB-07(4). ARARs were briefly exceeded during this FYR period at WB-01(03) and WB-01(4), however, in 2019, all COCs in the DD zone were below ARARs.

Trace PCE was detected in West Bay wells WB-05(4), WB-01(5), WB-01(4), and WB-01(3). PCE detections at WB-01(3) and WB-05(4) were reduced in 2019 from respective highs of 2.1 µg/L (April 2018) and 1.5 µg/L (January 2018). All other wells containing PCE were reduced to non-detect by at least 2017. TCE concentrations at WB-01(03) increased from 2.6 µg/L in 2015 to above ARARs (5.5 µg/L) in April 2018 and, by 2019, concentrations decreased again to 2.8 µg/L. TCE concentrations at WB-01(05) steadily decreased from 2.4 µg/L in 2015 to non-detect in 2018. Except for WB-01(03), TCE was non-detect in all DD well samples in 2019.

In 2015, 1,1 DCE was above ARARs (6.4 µg/L) at WB-01(4), however, non-detect concentrations were achieved by 2016. 1,1-DCE detections steadily increased at WB-05(4) from 1.7 µg/L in 2017 to above ARARs in 2018. Concentrations reached a high of 8.3 µg/L in July 2018 and in 2019 were decreased to just below ARARs. Trace detections for 1,1-DCE and 1,1-DCA were also reported in WB-01(3) during this FYR period.

Chloroform was detected at WB-01(4) at concentrations ranging from 1.6 (2018) to 11 µg/L (April 2016) and were non-detect by April 2018 (the ARAR for chloroform is 80 µg/L). Chloroform was not detected at any other location during the FYR period. Trace detections of MTBE were only at WB-01(3) from April 2018 to January 2019. All other DD zone monitoring wells (P83-19M-sentinel well, P83-22M, P83-22D P83-26M P83-26D WB-02(2) WB-07(4) WB-04(2) WB-04(3) WB-07(2) WB-07(3) and WB-07(4)) were non-detect for all COCs during this FYR period.

Deep-Low-Permeability Zone (DLPZ) (4660 to 4600 feet amsl)

Well data used to represent water quality in the DLPZ is obtained from the following sample locations at monitor wells/ports: P83-19LR, WB-01(6), WB-02(3), WB-04(4), and WB-05(5). Well samples collected at P83-19LR, WB-01(6), and WB-02(3) were non-detect for all COCs during this FYR period.

Trace PCE (1 µg/L) was detected at WB-05(5) only in October 2015. TCE was detected below ARARs at WB-04(4). Concentrations gradually increased from initial detections in 2016 to a high of 2.2 µg/L in January 2019 and, by April 2019, were non-detect. According to the 2014-2015 GEA Annual Report, 1,1-DCE at WB-05(5) was detected above ARARs, ranging from 5.2 µg/L to 7.1 µg/L. Beginning in 2016, concentrations were decreased to below ARARs (ranging from 2 µg/L to 3.3 µg/L in 2019). 1,1-DCA was also detected consistently below ARARs at WB-05(5) throughout the FYR period and at WB-04(4) from 2018 through January 2019.

Below-Deep-Low-Permeability Zone (BDLPZ) (4600 to 4500 feet amsl)

Well data used to represent water quality in the BDLPZ is obtained from samples collected at the following monitoring wells/ports: WB-02(4), WB-02(5), WB-04(5), WB-04(6), WB-05(6), P83-19D-2, P83-22D-2,

WB-07(5), and P83-30D-2 (sentinel well). PCE decreased at WB-04(5) from 14 µg/L in July 2015 to non-detect in 2018. Concentrations (2.3 µg/L in 2015) at WB-02(4) were also non-detect by 2017. TCE decreased significantly in both WB-04(5) and WB-02(4) and persists at concentrations below ARARs. High TCE concentrations at WB-04(5) were 31 µg/L at the start of the FYR period and in 2019 were reduced to 1.4 µg/L.

Decreasing trends from above ARARS (15µg/L in 2015) to non-detect in 2019 were also indicated in WB-04(5) for 1,1-DCE. Detections of 1,1-DCA and 1,2-DCA were reduced to non-detect at WB-04(5) beginning in 2017 and 2018, respectively. In WB-02(4), concentrations of 1,1-DCE (1.2 µg/L) and 1,1-DCA (1.5 µg/L) continue to persist at low levels in 2019. Note that WB-02(4) and WB-04(5) are in an area that is most influenced by extraction activities at EW-004. All other samples collected at wells within the BDLPZ were non-detect for all COCs.

Extraction Wells

In 2015, extraction wells EW-005 and EW-006 were installed to improve contaminant extraction. At the beginning of this FYR period, extraction wells EW-003R, EW-004, EW-005, and EW-006 were operational (**Figure C-3**, **Appendix C**). PCE was only detected in EW-006 in 2015 (2.5 µg/L) and 2016 (1.8 µg/L) and remained non-detect in all extraction wells thereafter. TCE was detected above ARARs (6.4 µg/L) only in 2015 at EW-006 and decreased to 1.4 µg/L in 2019. TCE was detected at a concentration of 1.3 µg/L at EW-003R and 1.0 µg/L at EW-004 at the beginning of the FYR period. Concentrations returned to non-detect in both wells by 2017 and 2016, respectively.

Non-detect levels of 1,1-DCA and 1,1-DCE were achieved in all extraction wells by 2018. Only EW-003R, EW-005, and EW-006 had detections below ARARs at the start of the FYR period, with highest detections of 1,1-DCE (3.7 µg/L) and 1,1-DCA (4.2 µg/L) at EW-006.

OU 06 VOC Mass Removal

GEA calculated total VOC mass removal based on treated ground water extraction volumes and the average total VOC concentrations removed. GEA's assessment is a combined total sum of detectable VOC concentrations for 1,1-DCA, 1,1-DCE, 1,2-DCA, PCE, and TCE. Approximately 17.6 lbs. of VOCs were removed from approximately 989 million gallons of extracted and treated ground water via the Deep Zone Remediation System from August 2015 through June 2019. Since April 1996, 7.7 billion gallons of ground water has been treated and an accumulative VOC mass of 1,568.5 lbs. has been removed. VOC mass removal was improved in 2015 in the 4600 to 4570 aquifer depth intervals, following the installation of two extraction wells. Mass removal was 9.1 lbs. from 2015 to 2016, compared to 4.8lbs from 2014 to 2015. VOC mass removal in the subsequent years was 6.1 lbs. (2016 to 2017), 4.2 lbs. (2017 to 2018), and 0.0 lbs. (2018 to 2019). Since April of 2018, progress in VOC mass removal has led to asymptotic conditions at the site. Complete mass removal data since the startup of the remedial system in 1996 is provided in Table 4 of GE Annual Reports for the Ground Water Remediation System (Reports from 2015 through 2019 are referenced in **Appendix A**).

OU 06 Summary

During the last (Fifth) FYR period, 1,1-DCA was detected at low levels (from 1.2 µg/L to 2.3 µg/L – below cleanup level of 25 µg/l) in three sentinel wells (P83-19U, P83-19M and P83-30D2) located east and down-gradient of the deep zone remediation system and the capture zone. These wells are monitored to determine if contaminants in the Deep Zone are migrating. P83-30D2 samples never exhibited VOC detections and it had been over 10 years since VOCs were detected in samples collected from the other two wells. Analytical results for P83-19U continued to show 1,1-DCA at levels as high as 3.3 µg/L in October 2013. During this FYR period, concentrations in P83-19U ranged from 1.2 µg/L to 2.8 µg/L. Samples collected at P83-19U exhibited non-detects by October 2018. All detections were below the ARAR of 25 µg/L. P83-19M and P83-30D2 were non-detect for all COCs during this FYR.

Significant progress has been made during this FYR period to capture and treat residual contamination in OU 06. Monitoring wells with detectable concentrations of VOCs have remained the same or declined, with only TCE being detected above ARARs in P83-09D at the end of this FYR period. The installation of extraction wells

EW-005 and EW-006 enhanced extraction rates and VOC capture in the Deep Zone Aquifer. The success of remedy implementations at OU 06 has led to the attainment of asymptotic conditions; consequently, in 2018 through 2019, 241 million gallons were extracted, and an estimated zero pounds of VOCs were removed. GEA continues to explore cost effective remedy enhancements to further improve the removal of residual contaminants in the ground water at the Site.

Site Inspection

The inspection of the Site was conducted on October 21, 2019 at Univar and October 22, 2019 at GEA. The South Valley Superfund Site Five-Year site inspections were led Mr. Bill Pearson and Mr. Angelo Ortelli, of the New Mexico Environment Department (NMED), Ground Water Quality Bureau (GWQB), Superfund Oversight Section (SOS). Participants for the Site inspection at Univar included: Ms. Katy Brantingham, Associate Vice President, Arcadis US, Inc. Participants at GEA included: Ms. Julie Einerson, Owner, Genesis Environmental, Safety, and Health, LLC.; John Billiard, Technical Services Director, and Leonard Stockton, Senior Engineer, Axis Group, Inc. The purpose of the inspection was to assess the current condition of the remedy components and monitoring network.

GEA Inspection

The site inspection team discussed the treatment system and treatment system components for the OU 06 Deep Zone Aquifer Remediation system. Equipment and components associated with remedial systems appeared to be in good working order. The remediation treatment buildings are located within a secure, fenced area. All hazardous materials on-site are properly stored. All pertinent documents were on-site, readily available, and up-to-date.

The former GEA South Plant (OU 05) was inspected. All monitoring and production wells have been plugged and abandoned. Cement caps were installed over all of the soil contamination removal areas. Concrete flooring from the former production buildings, storm water drainage channels, and cement caps, are all that remain. Weeds and sapling tree growth is being managed.

At the GEA North Plant (OU 05), all monitoring and extraction wells have been plugged and abandoned and the infrastructure has been removed. The roads and sidewalks appear to be maintained in good condition. Both Plants (North and South) are presently listed for sale.

The inspection team inspected several monitoring wells (WB-01, WB-04, WB-05, P83-09D) and extraction wells (EW-003R, EW-004, EW-005). All monitoring, extraction and injection wells were locked and secure from vandalism or theft.

Univar Inspection

The general appearance of OU 03 is in excellent condition and well maintained. Equipment associated with the remedial system (advanced oxidation) appeared to be well serviced and maintained. The remediation treatment buildings and many of the wells are located within a fenced secure area. All wells were locked and secure. The wells located outside of the fenced secure area were locked and secure from vandalism and theft. All hazardous materials on-site are properly stored. All exterior security fences were in excellent condition. All pertinent documents were on-site, readily available and up to date. All treated water from the advance oxidation system is being discharged to the infiltration gallery.

The areas associated with OU 03 and OU 06 continue to be plagued by illegal dumping, mostly of household items and construction debris. Dumping activities do not appear to have affected access to wells in either OU.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents? Yes

Question A Summary:

The review of documents, monitoring data, and the results of the site inspection indicates that the remedy components are functioning as intended at OU 03 and OU 06. Remedial action goals and objectives have been achieved at OU 01, OU 02, OU 04 and OU 05. OU 01, OU 02, and OU 05 have been deleted from the NPL for the Site. The following briefly describes the remedial action status at OUs 03, 04, 05 and 06.

OU 03 Univar

The remedial systems at OU 03 (Univar) have decreased the concentrations of VOCs to below the ARARs. The RA has achieved the requirements of the ROD signed on June 28, 1988 and the Consent Decree dated March 27, 1990. The concentrations of COCs (excluding 1,4-dioxane) were less than the clean-up goals for at least eight consecutive sampling events before ground water sampling and treatment was discontinued. On June 10, 2014, EPA approved Univar's request to close OU 03 for VOCs, except for 1,4-dioxane.

On November 19, 2009, EPA notified Univar to evaluate the occurrence of 1,4-dioxane in various wells and determine if it posed a threat to human health and the environment. On January 14, 2010, EPA approved the planned evaluation of 1,4-dioxane in ground water and approved a Remedial Work Plan to address 1,4-dioxane in ground water, on July 22, 2016. On March 5, 2018, Univar began the remediation of 1,4-dioxane in ground water and continues to operate the treatment plant and extraction/injection system as designed. The advance oxidation process, along with the flushing of the vadose zone with treated water, has resulted in a significant reduction (< 12 months) in 1,4-dioxane ground water concentrations. Continued operation of the treatment system is needed to remove additional residual 1,4-dioxane from groundwater.

OU 04 Univar

The ROD for OU4, issued in March 1989, was to address the source of groundwater contamination. The Univar OU 04 soil investigation for potential COCs in the vadose zone determined that the soils did not pose a risk to human health and the environment. The ROD issued in 1989 specified No Further Action.

The OU4 ROD did include a provision to determine if after groundwater remedial action, whether the soil gases would pose any threat to human health and the environment. A Soil Vapor Extraction (SVE) system was implemented and completed, which resulted in non-detect soil vapor concentrations for all VOCs. Thus, it was determined that the soil gases did not pose a threat to human health or the environment.

OU 05 – GEA Shallow Zone

All remedial actions have been completed concerning OU 05. GEA filed a deed restriction in 2014 which identified the areas where soil contamination exceeded industrial soil screening levels. GEA performs property maintenance inspections to determine the integrity of the capped removal area.

OU 06 GEA Deep Zone

The remedial system at OU 06 (the deep zone aquifer at GEA) has reduced the mass and volume of contaminants in the deep zone aquifer and the plume is contained and stable. The remedy continues to operate and function as designed. The deep zone ground water plume has been reduced to one small area near monitoring well P83-09D, with concentrations of TCE above ARARs. All other VOCs are below ARARs. The ground water treatment system effectively treats extracted ground water for reinjection back into the aquifer. The Deep Zone pump and treat system

has reached a state of asymptotic remediation efficiency. GEA continues to pulse-pump extraction wells to improve extraction efficiencies. They are also exploring remedy enhancements to address the remaining VOC contamination.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid? Yes

Question B Summary:

The selected remedies for the South Valley Site were selected to eliminate the VOCs within the Site soils and to restore ground water under and near the Site to levels below State and Federal regulatory standards.

To Be Considered (TBCs) requirements identified within the RODs have been revised or changed since the last FYR. New Mexico Water Quality Control Commission (WQCC) Ground Water standards (20.6.2.3103 NMAC) were revised in December 2018, but did not change the Site clean-up goals as listed in **Table C-2** and **Table C-3**, **Appendix C**. Exposure pathways; land use, health receptors and routes of exposure, ecological receptors and routes of exposure, newly identified contaminants or source areas, toxic byproducts or changes in site conditions, have not changed or been revised since the last FYR. Toxicity factors for COCs and contaminant characteristics have not changed in any way to change or impede the protectiveness of the remedies since the last FYR.

Progress toward meeting RAOs has advanced as anticipated.

- OU 03 – OU 03 is progressing as expected towards meeting restoration of the groundwater with no issues affecting remedy protectiveness.
- OU 04 – OU 04 has met the objective to ensure that the soils and soil vapor do not pose a risk to human health and the environment and there are no issues affecting remedy protectiveness.
- OU 05 – OU 05 has met the objective to restore the groundwater and to ensure the soils do not pose a risk to human health and the environment, and there are no issues affecting remedy protectiveness.
- OU 06 – OU 06 is progressing as expected towards meeting restoration of the groundwater, with no issues affecting remedy protectiveness.

QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy? No

No other information has come to light that could affect the protectiveness of the remedies. There are no additional risks or previously unidentified risks that could affect performance or protectiveness of the identified remedies.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
OU 03, OU 04, OU 05, OU6

OTHER FINDINGS

In addition, the following are recommendations that were identified during the FYR, but do not affect current and/or future protectiveness:

- Increase the frequency of public updates and dissemination of information concerning the progress of the remedy at the Site. In addition, communication of GEA's continued commitment to complete the cleanup of the OUs for which they are responsible, should alleviate concerns that cleanup will be impacted by GEA closing the facility in Albuquerque.

- A public meeting was held on December 11, 2018 to discuss the completion and deletion of OU 01, OU 02 and OU 05. Public notices were published in the local paper and paper notices were mailed out to individuals on the mailing list. During this time, an information session was held where remedial progress at the site was communicated and individuals were able to ask questions and express concerns. Additional public meetings will be scheduled in the future as needed to ensure the public remains up-to date.

- Monitoring results from OU 06 indicate that the system has reached asymptotic contaminant levels. Remedy optimization should be explored to improve removal of remaining VOC contamination.

- Re-evaluate the need for a deed restriction on OU 05, given the significant amount of contaminated soil removed.

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)	
Operable Unit: **OU 03**	*Protectiveness Determination:* Protective
Protectiveness Statement: The remedy is protective of human health and the environment.	

Protectiveness Statement(s)	
Operable Unit: **OU 04**	*Protectiveness Determination:* Protective
Protectiveness Statement: The remedy is protective of human health and the environment.	

Protectiveness Statement(s)	
Operable Unit: **OU 05**	*Protectiveness Determination:* Protective
Protectiveness Statement: The remedy is protective of human health and the environment.	

Protectiveness Statement(s)	
Operable Unit: **OU 06**	*Protectiveness Determination:* Protective
Protectiveness Statement: The remedy is protective of human health and the environment.	

Sitewide Protectiveness Statement
Protectiveness Determination: Protective
Protectiveness Statement: The remedial actions at OU 03, OU 04, OU 05, and OU 06 are protective.

VIII. NEXT REVIEW

The next five-year review report for the South Valley Superfund Site is required five years from the completion date of this review.

APPENDIX A – REFERENCE LIST

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EPA. 2009c. Letter from Mr. Michael Hebert of EPA to Mr. George Sylvester of Univar USA, Inc., Regarding Requirement for Sampling for 1,4-Dioxane. 19 November.

EPA. 2009d. Letter from Mr. Michael Hebert of EPA to Mr. Dana Beaulieu of GE Transportation Regarding Initiation by EPA of the Five-Year Review Process. 19 November.

EPA. 2010a. Letter from Mr. Michael Hebert of EPA to Univar approving proposed activities for the evaluation of 1,4-Dioxane. 14 January

EPA 2010b. Letter from Mr. Michael Hebert to GEA approving the plugging and abandonment of all off-site monitoring and extraction wells related to the North Plant 83 Shallow Zone. 4 March

EPA 2010c. Letter from Mr. Michael Hebert of EPA to GEA approval to conduct Chemical Injection Remediation Program. 1 June.

EPA 2010d. Letter from Mr. Michael Hebert of EPA to GEA requesting a future plan description related to the planned closure of GEA Manufacturing Plant Operations. 12 July.

EPA 2011a. Letter from Mr. Michael Hebert of EPA to GEA stating all recommendations pertaining to GEA as described in the Fourth FYR have been addressed. 23 March.

EPA 2011b. Letter from Mr. Michael Hebert of EPA to GEA approving the request to abandon remaining wells and close the North Plant 83 Shallow Zone System. 31 May.

EPA. 2011c. Letter from Mr. Michael Hebert of EPA to Univar requiring an evaluation of current monitoring network is adequate to determine extent of 1,4-Dioxane. 14 July.

EPA. 2011d. Letter from Mr. Michael Hebert of EPA to GEA approving Work Plan for Remediation of Hazardous Materials East and West Tank Line. 21 October.

EPA. 2011e. Letter from Mr. Michael Hebert of EPA to Univar approving Site conceptual model and proposed investigation activities for 1,4-Dioxane. 21 November.

EPA 2012. Letter from Mr. Michael Hebert of EPA to GEA approving the Final Closure Report, GEA Manufacturing Plant. 2 November.

EPA 2013. Letter from Mr. Michael Hebert of EPA to GEA approving of Closure of the South Plant 83 Remediation System and other unused monitoring wells. 13 February.

EPA. 2014a. Letter from Mr. Michael Hebert of EPA to Univar approves the Revised Human Health Risk Evaluation for 1,4-Dioxane. 18 March

EPA. 2014b. Letter from Mr. Michael Hebert of EPA to Univar approving the Revised Well Installation and Monitoring Network Work Plan. 23 April.

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EPA. 2018b. Memorandum from Mr. Michael Hebert of EPA acknowledgement of completion and Approval of Operable Unit 2 and Operable Unit 5. 17 January

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EPA. 2019a. Letter from Mr. Michael Hebert of EPA to GEA approval of Field Sampling Plan. 24 April

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GEA 2010. Letter from Mr. Oscar Lackey of GEA requesting an optimization review of the Deep Zone Monitoring Network. 19 August.

GEA 2011. Letter from Mr. Dana Beaulieu of GEA to EPA responding to recommendation in the Fourth Five Year Review. 26 January.

GEA 2011, Letter Report from GEA to EPA, Chemical Injection Remediation Final Report including all related groundwater monitoring data and Request to Close OU 05. 9 March.

GEA 2011. Letter Mr. Dana Beaulieu of GEA to EPA requesting to abandon remaining wells and close North Plant 83 Shallow Zone System. 9 May.

GEA 2011. Work Plan for Remediation of Hazardous Materials East and West Tank Line Area. 12 October.

GEA 2011. GEA submits Final Report and Request for Closure of North Plant 83 Shallow Zone. 1 November.

GEA 2011. East West Tank Line Ground Water Sampling and Flow Field Sampling Plan. 4 November.

GEA 2013. Final Report for Closure of the South Plant 83 Remediation System and other unused monitoring wells. 28 May.

GEA 2014. GEA files Declaration of Restrictive Covenants for the former GEA Manufacturing Facility with the Bernalillo County Clerk. 16 September.

GEA 2014. Letter from Randall McAlister of GEA to EPA, Request for Closure Former Plant 83/GE Operable Unit 05. 22 September.

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APPENDIX B – ADDITIONAL SITE INFORMATION

SITE CHRONOLOGY
South Valley Superfund Site

Date	Event
1978	Volatile organic compounds were detected in City of Albuquerque wells from the San Jose and Miles municipal well fields. In subsequent sampling, contamination persisted in wells SJ-3 and SJ-6 (in the San Jose well field) whereas the impact in well Miles-1 (in the Miles well field) was not confirmed and it was returned to service.
1981	As pre-National Priorities List responses, the City of Albuquerque took Albuquerque municipal wells SJ-3 and SJ-6 off-line.
September 8, 1983	The South Valley Site is placed on the National Priorities List.
March 22, 1985	The Record of Decision for OU 01 was signed.
September 28, 2005	Approval of the FYR memorandum for the Site.
August 26, 2010	Fourth Five Year Review completed for the South Valley Superfund Site. First Site wide FYR initiated by EPA.
January 31, 2013	South Valley Superfund Site Open House updating the Public on cleanup progress.
Univar – Edmunds Street OUs (OU 03 and OU 04)	
June 28, 1988	OU 03 - Record of Decision for the Edmunds Street Ground Water OU is signed.
January 1989	Submittal of the Remedial Investigation and Feasibility Study reports to EPA and NMED.
30 March 1989	OU 04 – the Record of Decision for the Edmunds Street Property Source Control is signed.
March 27, 1990	The Consent Decree in the Matter of the United States of America versus Univar Corporation was entered on docket.
September 7, 1990	The Remedial Action Plan for OU 03 was submitted to the EPA and NMED.
1990	The construction of the ground water remedy at OU 03 was completed.
September 10, 1990 through January 14, 1991	The ground water system for OU 03 startup program was conducted.
November 8, 1995	First FYR for Univar completed
March 1996	EPA and NMED verbally approve modifications to the ground water monitoring plan, including use of Columbia Analytical Services, lower reporting limits, and elimination of analysis for benzene, toluene, ethylbenzene, total xylene and 1, 2- dichloroethane.
March 1998	two ground water monitoring wells installed, one as a replacement well (GM-22R) and one new well (GM-25)
November 1998	vapor extraction system for OU 04 installed
July 16, 1999	air quality permit for the vapor extraction system obtained
August 1999	pilot study for the vapor extraction system begins
September 14, 2000	Second FYR for Univar completed

Date	Event
October 2000	installation of additional vapor extraction system wells for full system build out completed
July 15, 2003	City of Albuquerque Environmental Health Department approved discontinuing compliance monitoring for the vapor extraction system (OU 04)
October 7, 2004	Univar received authorization from EPA (Mr. Terry Roundtree) in an electronic communication to discontinue semi-annual sampling of the treatment unit influent and effluent and ground water monitoring wells and to reduce the number of ground water monitoring wells monitored annually.
January 31, 2005	EPA submitted letter to Univar requesting the installation of deeper wells
August 2005	deeper wells GM-27 and GM-28 installed
September 2, 2005	Third FYR for Univar completed
September 7, 2006	ARCADIS on behalf of Univar submitted a work plan to optimize future remedial activities.
October 18, 2006	EPA approved changes to the optimization plan for remedial activities
September 29, 2006	vapor extraction system was shut down
November 3, 2006	ground water treatment system was shut down
December 5, 2007	Discussion between EPA and Univar regarding the results of the optimization study and revision of the remedial actions
January 30, 2008	EPA and NMED approve revised remedial action
November 19, 2009	Letter from EPA notifying Univar that they started the FYR for the South Valley Superfund site and alleviating concerns that Univar should perform this review consistent with the Consent Decree.
November 19, 2009	letter from EPA to Univar requiring evaluation for 1,4-Dioxane
January 7, 2010	letter from ARCADIS on behalf of Univar to EPA outlining activities for the evaluation of 1,4-Dioxane
January 14, 2010	letter from EPA to Univar approving proposed activities for the evaluation of 1,4-Dioxane
July 14, 2011	letter from EPA to Univar requiring an evaluation of current monitoring network adequacy for use in determining extent of 1,4-Dioxane
October 4, 2011	letter from ARCADIS on behalf of Univar detailing proposed investigation actions for 1,4-Dioxane
November 21, 2011	letter from EPA to Univar approving proposed investigation activities for 1,4-Dioxane
February, 2012	ARCADIS on behalf of Univar performs 8-hour pump test
May 29, 2012	ARCADIS on behalf of Univar submits report on 8-hour pump test
May 31, 2012	ARCADIS on behalf of Univar submits work plan for additional actions which include an extended pump test and treatment pilot study for 1,4-Dioxane
June 13, 2012	letter from EPA to Univar approving extended pump test and treatment study for 1,4-Dioxane
Aug-Nov, 2012	ARCADIS extended pump test and treatment study for 1,4-Dioxane
June 24, 2013	ARCADIS on behalf of Univar submits report on extended pump test and treatment study
October 18, 2013	ARCADIS on behalf of Univar submits a Human Health Risk Evaluation for 1,4-Dioxane
January 17, 2014	ARCADIS on behalf of Univar submits Revised Human Health Risk Evaluation of 1,4-Dioxane

Date	Event
January 24, 2014	ARCADIS on behalf of Univar submits Monitoring Well Drilling and Installation and Ground Water Monitoring Network Work Plan
March 18, 2014	letter from EPA to Univar approves the Revised Human Health Risk Evaluation for 1,4-Dioxane
March 19, 2014	ARCADIS on behalf of Univar submits the Revised Well Installation and Monitoring Network Work Plan
April 23, 2014	letter from EPA to Univar approving the Revised Well Installation and Monitoring Network Work Plan
June 2, 2014	ARCADIS on behalf of Univar submits Notice of Completion of Consent Decree Requirements for Constituents of Concern (VOCs). Does not include 1,4-Dioxane
June 10, 2014	letter from EPA to Univar approving completion of Consent Decree requirements
May 13, 2016	Submittal of Remedial Work Plan for 1,4-Dioxane in Ground Water – 3301 Edmunds Street Site
June 10, 2016	EPA comments to Remedial Work Plan for 1,4-Dioxane in Ground Water – 3301 Edmunds Street Site
July 22, 2016	Submittal of revised Remedial Work Plan for 1,4-Dioxane in Ground Water – 3301 Edmunds Street Site
July 27, 2016	EPA approves to Remedial Work Plan for 1,4-Dioxane in Ground Water – 3301 Edmunds Street Site
April 27, 2017	Final Proposed Remedial System Well Installation Report - 3301 Edmunds Street Site
July 13, 2017	April 2017 Groundwater Monitoring Activities - 3301 Edmunds Street Site
October 27, 2017	DESIGN DRAWINGS - 1,4-Dioxane GROUNDWATER PROJECT - UNIVAR USA INCORPORATED
July 31, 2018	Univar submittal of OM&M Manual for 1,4-Dioxane in Groundwater Treatment Project
July 31, 2018	Univar submittal of Treatment System Construction Report for 1,4-Dioxane in Groundwater Treatment Project
April 23, 2019	Univar submittal of Field Sampling Plan for 1,4-Dioxane in Groundwater Treatment Project
April 24, 2019	EPA Approval of Field Sampling Plan for 1,4-Dioxane in Groundwater Treatment Project
June 12, 2019	Univar submittal of Field Sampling Plan – For 1,4-Dioxane in Groundwater Treatment Project
September 1, 2019	Letter – Univar USA, Inc. name changed to Univar Solutions USA, Inc.
GEA – Plant 83/GE OUs (OU 02, OU 05, and OU 06)	
1988	Remedial Investigation/Feasibility Study completed
September 30, 1988	Record of Decision for OU 02, the vicinity of SJ-6 signed
September 30, 1988	Record of Decision for shallow soil and ground water (OU 05) and deep ground water (OU 06) signed
June 16, 1989	Administrative Order in the Matter of General Electric Company, South Valley Superfund Site was entered on docket
1991	remedial design start for OU 05 soil vapor extraction system
1992	remedial design start for OU 05 shallow ground water remediation system
1992	remedial design completed for OU 05 soil vapor extraction system
June 1992	start of the remedial action for the shallow soils

Date	Event
1994	remedial design started for the deep zone ground water remediation system
1993	final closeout report for OU 05 soil vapor extraction system completed
1993	remedial design completed for OU 05 shallow ground water remediation system
May 1994	remedial action starts for the shallow ground water remediation system
1995	remedial design completed for deep zone ground water remediation system
April 1996	dedication ceremony for deep zone ground water remediation system, full time operation begins
September 2000	First FYR for GEA completed
2001	Optimization No. 1 for the deep zone ground water remediation system
September 15, 2005	Second FYR for GEA completed
August 15, 2006	2005-2006 annual reports for the shallow and deep aquifer remediation systems submitted
September 18, 2006	GEA, through their contractor, submits proposed changes to the October 2006 sampling
October 26, 2006	Explanation of Significant Difference stipulates new Maximum Contaminant Level/applicable or relevant and appropriate requirement for tetrachloroethylene at 5 microgram per liter
February 23, 2007	EPA notification that 2 wells, P83-08D and P83-08M, need to be plugged and abandoned
March 2, 2007	EPA receives request for Comfort Letter for the owner of Duke City Distributing Co. property
March 2, 2007	EPA approves to the request to plug and abandon P83-08D and P83-08M
March 9, 2007	EPA provides Comfort Letter to the owner of neighboring property
March 16, 2007	GEA contractor proposal to plug and abandon P83-08D and P83-08M
April 4, 2007	EPA approval to plug and abandon wells P83-08D and P83-08M
April 18, 2007	EPA approves changes to the April 2007 sampling event
May 11, 2007	NMED approves the renewal of the ground water discharge permit DP_1065
July 5, 2007	GEA provided EPA results for 1,4-Dioxane
August 15, 2007	GEA submits the 2006-2007 annual reports for the shallow and deep aquifer remediation systems
September 11, 2007	GEA submits request to terminate operation of North Plant – shallow zone treatment
October 24, 2007	EPA conditionally approves GEA's request to terminate operations at the North Plant shallow zone treatment system
November 5, 2007	GEA response to EPA's conditions approval
November 13, 2007	EPA approves the changes proposed on 5 November
October 31, 2007	operations of the shallow zone ground water treatment system for North Plant terminated
April 2, 2008	GEA submits work plan to optimize the deep zone system
August 15, 2008	GEA submits 2007-2008 annual reports for the shallow and deep aquifer remediation systems
October 17, 2008	1,1-dichloroethene in sample collected from well SEW-05 in North Plant 83 Area exceeds the applicable or relevant and appropriate requirement

Date	Event
October 21, 2008	GEA submits 2008 revision of the performance and compliance monitoring plan for both the shallow and deep zones treatment systems
November 24, 2008	extraction well SEW-05 within the North Plant treatment system is brought back into operation
August, 2009	GEA informs EPA that Manufacturing Plant Operations will cease in late 2010.
October 2009	Operations at the North Plant 83 Area ceased
November 10, 2009	GEA requests to plug and abandon North Plant 83 wells
November 19, 2009	Letter from EPA notifying GEA that they started the FYR for the South Valley Superfund site and alleviating concerns that GEA should perform this review consistent with the Administrative Order.
November 19, 2009	Letter from EPA to GEA regarding sampling for 1,4-Dioxane.
March 4, 2010	Letter from EPA to GEA approving the plugging and abandonment of all off-site monitoring and extraction wells related to the North Plant 83 shallow zone.
March 15, 2010	Axis submits Work Plan to EPA to conduct a chemical injection remediation program in the shallow zone aquifer SW-08 and SEW-05 areas
June 1, 2010	Letter from EPA to GEA approval to conduct chemical injection remediation program
July 12, 2010	Letter from EPA to GEA requesting a plan detailing the investigations related to the closure of GEA manufacturing facility operations
August 3, 2010	GEA response to EPA's request for plans outlining GEA's planned investigations of GEA manufacturing facility
August 19, 2010	GEA requests a review of the deep zone monitoring network
September 1, 2010	ISOTEC on behalf of GEA submitted a report detailing field activities related to the chemical injection remediation program
September 9, 2010	Letter from EPA to GEA requesting a work plan that outlines investigation activities related to the closure of GEA manufacturing facilities
October 19, 2010	EPA approves modifications to the deep zone monitoring program
December 9, 2010	DBS&A on behalf of GEA submits a Sump Investigation Work Plan related to the GEA manufacturing facility closure
January 26, 2011	GEA letter to EPA - response to recommendations in the Fourth FYR
March 9, 2011	GEA submits Chemical Injection Remediation Program Final Report and Request to Close North and South Plant 83
March 16, 2011	GEA submits additional responses to recommendations in the Fourth FYR
March 23, 2011	EPA letter to GEA - acknowledging GEA has addressed all recommendations pertaining to GEA in the Fourth FYR
May 9, 2011	GEA letter to EPA - request to abandon wells and close North Plant 83 Shallow Zone System
May 31, 2011	EPA letter to GEA - approves the request to abandon wells and close the North Plant 83 shallow zone system
August 4, 2011	DBS&A on behalf of GEA submits Sump Inspection and Investigation Report
October 12, 2011	GEA submits Work Plan for Remediation of Hazardous Materials East and West Tank Line Area
October 19, 2011	GEA letter to EPA outlining ground water sampling in the east west tank line area

Date	Event
October 21, 2011	EPA letter to GEA approving Work Plan for Remediation of Hazardous Materials East and West Tank Line
October 25, 2011	EPA letter approves ground water sampling in the east west tank line area.
November 1, 2011	GEA submits letter to EPA Final Report and Request for Closure North Plant 83 Shallow Zone
November 4, 2011	GEA submits East West Tank Line Ground Water Sampling and Flow Field Sampling Plan.
November 28, 2011	EPA letter to GEA - approval of Final Closure Report North Plant 83 Shallow Zone
June 18, 2012	DBS&A on behalf of GEA submits Final Report GEA Manufacturing Facility
August 15, 2012	GEA submits to EPA - report, requests closure of the South Plant 83 Shallow Zone
September 12, 2012	State of New Mexico Ground Water Discharge Plan Renewal (DP-1065) approved
October 17, 2012	GEA submits Revised Final Report GEA Manufacturing Facility.
November 2, 2012	EPA letter to GEA - approval of Final Closure GEA Manufacturing Facility
February 13, 2013	EPA letter to GEA - approval of closure of the South Plant 83 remediation system and other unused monitoring wells
May 28, 2013	GEA submits Final Report for Closure of the South Plant 83 Remediation System
April 1, 2014	GEA submits to EPA - Draft Declaration of Restrictive Covenants that outlines the Institutional Controls for the Former GEA Manufacturing Facility
April 16, 2014	Axis on behalf of GEA submits to EPA - the fourth revision of the Performance Monitoring Compliance Program.
August 25, 2014	Axis on behalf of GEA submits to EPA - Work Plan to Optimize the Deep Zone Remediation System, Operable Unit 06
August 27, 2014	EPA acknowledges Work Plan to Optimize Deep Zone Remediation System and has no further comments.
September 16, 2014	GEA files Declaration of Restrictive Covenants for the former GEA Manufacturing Facility with the Bernalillo County Clerk
September 22, 2014	GEA letter to EPA - Request for Closure Former Plant 83/GE Operable Unit 05
August 5, 2015	Sunport Blvd Public Hearing
February 22, 2016	GEA response to 5th FYR report issue concerning 1,1 DCA in Well P83-09U
April 7, 2017	GEA Request for Partial Deletion
April 11, 2017	Submittal of 2017 Remedial Action Report – San Jose 6 Operable Unit
June 5, 2017	EPA requesting comments to GEA Deletion Request
August 11, 2017	NMED Concurrence Letter to EPA for Deletion of OU 01, OU 02, and OU 05
October 23, 2017	Axis group notification of intention to modify Deep Zone groundwater remediation system extraction rates
October 30, 2017	EPA acknowledgment for request to modify extraction rates for the Deep Zone ground water remediation system
January 17, 2018	EPA approval of the OU 02/ OU 05 remedial action report

Date	Event
May 25, 2018	Maps of South Valley NPL Site OU 01, OU 02, and OU 05, proposed for partial deletion
June 13, 2018	EPA Deletion Docket: South Valley Superfund Site
January 15, 2019	Letter from Mayor of Albuquerque, NM State Representative and NM State Senators – Partial Deletion of Superfund Site
March 5, 2019	EPA response to Mayor of Albuquerque, NM State Rep and NM State Senator letter
March 28, 2019	NMED response to NM State Rep and NM State Senator letter
May 2, 2019	GEA to EPA – Revised request to Plug and Abandon Monitoring Wells P-1, P-2 and P-3
June 6, 2019	Letter (Second) from NM State Representative and NM State Senators – Partial Deletion of Superfund Site
July 10, 2019	NMED letter to Esther Abeyta, NM State Representative and NM State Senators – Partial Deletion of OU 01, OU 02, and OU 05
July 15, 2019	EPA Re-opens Public Comment Period for Partial Deletion of OU 01, OU 02, and OU 05
July 19, 2019	EPA response (Second) to NM State Rep and NM State Senator letter
August 26, 2019	Letter (Third) from NM State Representative and NM State Senators – Partial Deletion of Superfund Site
September 6, 2019	EPA response (Third) to NM State Rep and NM State Senator letter
September 23, 2019	EPA Announces the Deletion of OU 01, OU 02, and OU 05 in Federal Register

Additional Site Information

Hydrology

The hydrogeologic units encountered at the Site are described in the paragraphs below. Ground water is located in the Santa Fe Group Aquifer. The remediation at Univar, OU 03, is limited to the shallow portion of the aquifer while at General Electric Aviation (GEA), OUs 05 and 06, because the impact extends deeper within the formation, the remediation addresses different depth horizons that were divided by convention into the shallow zone aquifer and the deep zone aquifer. The deep zone aquifer includes both the intermediate zone and deep zone referred to in the 1988 ROD for OU 03). OU 05 addresses impacts to the shallow zone aquifer located proximate to the South Plant 83 and North Plant 83 Areas and a portion of the San Jose residential neighborhood, located just north of North Plant 83 Area. OU 06 addresses impacts to portions of the deep zone aquifer found east of the Plant 83 facilities, south of Woodward Road and east of South Broadway. Descriptions of the shallow zone and deep zone aquifers are provided below as outlined in the Second FYR for GEA.

Shallow Zone Aquifer

By convention, the shallow zone aquifer refers to ground water that is above the relatively continuous silty clay layer and/or above an elevation of 4,900 feet (ft) above mean sea level (amsl). In the North Plant 83 Area, there is a continuous silty clay layer underneath the aquifer. Accordingly, the shallow zone aquifer ground water is primarily perched. Perched ground water does not have a uniform flow direction, but rather flows in directions dictated by the undulating surface of the underlying silty clay layer. In the South Plant 83 Area, the silty clay layer underneath the aquifer is not continuous. Hence, the ground water generally flows west to east. The shallow zone formation consists of layers of coarse-grained sands, silty sands, clays, and silty clays. This shallow zone aquifer generally extends to a depth of approximately 20-25 ft below ground surface (bgs). The shallow zone formation is underlain by a relatively continuous silty clay layer, except at the south end of South Plant 83 where it is absent or does not provide hydraulic separation from the deep zone aquifer.

Deep Zone Aquifer

By convention, the deep zone aquifer refers to the aquifer below an elevation of 4,900 ft amsl. The following text summarily describes the deep zone aquifer geology. The geology consists of unconsolidated alluvial units of the older Santa Fe Group. These sediments (down to approximately 4,300 ft amsl) are primarily ancestral Rio Grande-related, braided fluvial deposits and contain lenticular deposits of finer grained, relatively lower conductivity sands, silts, and clays. Sediments within the upper 600-700 ft of the deep zone aquifer (the area where ground water is being remediated) are characterized by high proportions of sands and gravels that form extensive and locally high conductivity units across the site. Discontinuous silts and clays are present within this interval and may limit the downward rate of contaminant movement in the vertical direction. Note that these silts and clays form confining layers in upper portions of the aquifer, but these confining layers are not laterally extensive. There is no evidence of a laterally extensive confining layer east of the Albuquerque Metropolitan Arroyo and Flood Control Authority (AMAFCA) South Diversion Channel, in the area of interest.

Status of Implementation

OU 03

Although the ROD for OU 03 required the implementation of a ground water remedy, Univar enhanced the effectiveness of the ground water remediation system for OU 03 by installing a soil vapor extraction system (VES) to address vadose zone contamination.

The original design of the recovery well system was based on modeling of different ground water remediation scenarios. Ground water extraction wells RW-01, RW-02, RW-03, and RW-04 were installed in October and November 1989 at the locations shown on **Figure C-2**, **Appendix C**. These recovery wells were completed at depths of 155, 166, 180, and 200 ft bgs, respectively, in the intermediate aquifer.

The operating requirements for the remedial system were identified during development of the ARARs as part of the remedial investigation and feasibility study (RI/FS). The cleanup goals for the ground water impacted by site-related VOCs are defined as the EPA's MCL and NMWQCC standards (**Appendix C**, **Table C-2**). The ground water and air discharge concentrations from the treatment unit are to meet the ground water discharge criteria specified by the NMWQCC and the air discharge criteria specified by the Albuquerque Environmental Health Department.

The VES was originally installed to address contamination in the vadose zone (OU 04) at the Edmunds Street Source Control and to improve the removal of VOCs from the ground water, although it was not required by the ROD. The VES consists of a self-contained extraction blower, vapor-liquid separator (knockout pot), controls, valves, and piping. The system had a maximum throughput of approximately 450 standard cubic feet per minute and was locked inside of a wheel-mounted trailer located in the southeast corner of the Univar property. Further details on the testing and operation of this system are provided in the Third FYR report. The VES was turned off after cleanup goals were achieved on September 29, 2006.

Approximately 850 million gallons of ground water were treated from June 4, 1990 to April 30, 2006. The ground water remedial system was shut off on November 3, 2006. Subsequent compliance monitoring showed that the ground water and vapor extraction systems reduced the dissolved chlorinated VOC concentrations to levels below ARARs as defined in the ROD. On June 10, 2014, EPA approved Univar's request for a partial closure of OU 03 for VOCs.

Remedy Operation and Maintenance at OU 03

On June 10, 2014, EPA approved Univar's request to close OU 03 for VOCs only. During this FYR period, O&M activities targeted 1,4-dioxane contamination.

VOCs

The ground water treatment system for OU 03 began operation June 4, 1990. Long-term Operations and Maintenance (O&M) of the remedial system had been conducted since system startup in January 1991 through November 2006. All routine O&M of the remedial system was performed as specified in the RAP. Monitoring of the ground water remedial system during the sixteenth year of operation (September 1990 through May, 2006) was conducted to assess the overall effectiveness of the treatment unit and as specified in RAP. The combined remedial system includes the recovery wells, ground water treatment unit, infiltration gallery, VES, and associated equipment.

On September 7, 2006, ARCADIS submitted, on behalf of Univar, a work plan to optimize remedial activities as only PCE was being detected at maximum concentrations of 12 µg/L (MCL of 5 µg/L). In addition, the remedial system had reached an asymptotic recovery rate of less than 1 pound of VOCs per year. EPA approved the work plan which consisted of shutting down the ground water remediation system and the VES the week of November 3, 2006 and continue semi-annual ground water monitoring. On January 30, 2008, EPA and NMED approved revisions to the RAs which kept the remedial systems turned off and continued ground water measurements and sampling to monitor VOC levels. Subsequent ground water monitoring showed that the ground water remediation system and the VES reduced the chlorinated VOC concentrations to levels below ARARs.

1,4-Dioxane

On June 16, 2004, EPA requested that Univar sample and analyze ground water for 1,4-dioxane to determine if the compound was present. On November 19, 2009, following several years of monitoring, EPA notified Univar that they are required to sample for 1,4-dioxane, a probable human carcinogen, as part of the ground water monitoring program pursuant to Section XVI(D) of the Univar Consent Decree. Univar was to evaluate the occurrence of 1,4-dioxane and determine if it poses a threat to human health and the environment. On January 7, 2010, Univar submitted a work plan to further evaluate the presents of 1,4-dioxane in ground water, develop a conceptual site model (CSM), conduct a risk assessment, and propose a schedule to perform ground water sampling from 24 wells previously used for the treatment and extraction of VOCs. On January 14, 2010, EPA approved Univar's recommended approach to further investigation of 1,4-dioxane as a contaminant of concern (COC).

On March 18, 2014, EPA approved a Human Health Risk Evaluation (HHRE) submitted by Univar that evaluated potential human health risks and defined site-specific, risk-based cleanup goals. In addition, Univar evaluated the monitoring well network and submitted a work plan for the installation of additional monitoring wells to aid in the delineation and to monitor the migration of 1,4-dioxane impacted ground water.

APPENDIX C –TABLES AND FIGURES

Table C-1: Operable Units Summary for South Valley Superfund Site, Albuquerque, Bernalillo County, New Mexico.

Operable Unit	Issue	Remedial Action	Current Status	Proposed Action
OU 01	Municipal wells contaminated with volatile organic compounds (VOCs)	Wells were plugged and abandoned, a replacement well installed	Completed in 1987	Deleted from the NPL on September 23, 2019
OU 02	Remedial goal to eliminate/prevent migration of contaminants from shallow to intermediate aquifers	Wells were plugged and abandoned, new and replacement well installed; restrict ground water use; ground water monitoring	Completed in 2019	Deleted from the NPL on September 23, 2019
OU 03	Reduce ground water related VOCs to acceptable levels	Pump-treat-injection system	EPA approved partial completion for VOCs; Continue pump-treat-injection system for 1,4-dioxane	Continue pump-treat-injection system for 1,4-dioxane
OU 04	Soil vadose zone investigation for potential solvent contamination	Investigation found no evidence of contamination	Completed in 1988	ROD specified No Further Action
OU 05	Remediating shallow zone ground water and eliminating source materials	Pump-treat-injection system, enhanced dewatering, soil flushing, and soil vapor extraction	Completed in 2014	Deleted from the NPL on September 23, 2019
OU 06	Hydraulically contain plume to protect water supply wells and reduce the concentrations of VOCs to acceptable levels	Pump-treat-injection system	Continue pump-treat-injection system	Continue pump-treat-injection system for Site related VOCs

Table C-2: Comparison of OU 03 ARARS to Current Standards For Drinking and Ground Water, South Valley Superfund Site, Albuquerque, Bernalillo County, New Mexico.

Constituent	Cleanup Goal from ROD or ESD Micrograms per Liter (µg/L)		Current Standards*** (µg/L)	
	Concentration	Source	MCL	NMWQCC (12/8/2018)
Acetone	NS**	NS	NS	NS
Carbon tetrachloride	5	MCL	5	5
Chloroform	100	NMWQCC	NS	100
1,2-dichloroethane	5	MCL	5	5
Trans-1,2-dichloroethene	70	MCL	100	100
1,1-dichloroethene	5	NMWQCC	7	7
Methylene chloride	100	NMWQCC	NS	5
Tetrachloroethene	5*	MCL	5	5
1,1,1-trichloroethene	60	NMWQCC	200	200
Trichloroethene	5	MCL	5	5
1,4-Dioxane (Offsite)	6.7	HHRE****	NS	NS
1,4-Dioxane (Onsite)	29	HHRE****	NS	NS

* The initial ARAR for tetrachloroethene was set as 20 µg/L, based on NMWQCC standards (based on New Mexico Administrative Code, various dates); this ARAR was modified in a 2006 Explanation of Significant Differences (EPA 2006a) to reflect the MCL of 5 µg/L promulgated in 1992.
** No Standard
*** NMWQCC standards effective December 21, 2018.
**** Human Health Risk Evaluation completed by Univar USA, Inc., March 6, 2014.

Table C-3: Comparison of OU 05 and 06 ARARS to Current Standards For Drinking and Ground Water, South Valley Superfund Site, Albuquerque, Bernalillo County, New Mexico.

Constituent	Cleanup Goal Micrograms per Liter (µg/L)	Current Standards (µg/L)	
		MCL	NMWQCC***
1,1,1-Trichloroethane	60	200	200
1,1,2,2-Tetrachloroethane	10	--	10
1,1,2-Trichloroethane	5	5	5
1,1-Dichloroethane	25	--	25
1,1-Dichloroethene	5	7	7
1,2-Dichloroethane	5	5	5
1,2-Dichloropropane	5	5	5
Benzene	5	5	5
Bromoform	80	80*	--
Carbon tetrachloride	5	5	5
Chlorobenzene	80	100	--
Chloroform	80	80*	100
Chloromethane	2,300,000	--	--
Dibromochloromethane	80	80*	--
Dichlorobromomethane	80	80*	--
Ethylbenzene	700	700	700
Ethylene dibromide	0.05	0.05	0.05
Methyl tertiary butyl ether	100	--	100
Methylene chloride	5	5	5
Tetrachloroethene	5**	5	5
Toluene	750	1,000	1000
trans-1,2-Dichloroethene	100	100	100
Trichloroethene	5	5	5
Vinyl chloride	1	2	2
Xylenes (total)	620	10,000	620

* 80 micrograms per liter is the MCL for Total trihalomethanes.

** The initial ARAR for tetrachloroethene was set as 20 µg/L, based on NMWQCC standards (based on New Mexico Administrative Code, various dates); this ARAR was modified in a 2006 Explanation of Significant Differences (EPA 2006a) to reflect the MCL of 5 µg/L promulgated in 1992.

Note: Dashes (--) indicate no drinking water or ground water standard.

*** NMWQCC standards effective December 21, 2018

Table C-4: OU 03 Concentrations of 1,4-Dioxane in Samples Collected from the Groundwater Treatment System Influent, Effluent, and Recovery Wells Univar USA Inc., South Valley Superfund Site, Albuquerque, Bernalillo County, New Mexico.

Reproduced from Univar 2019 Annual Report, Table 5			Analyte Method Units	1,4-Dioxane 8260BSIM µg/L
Location ID	**Sample Date**	**Sample ID**	**Sample Type**	
INFLUENT	2/23/2018	INF-01-02232018	P	**17.0**
INFLUENT	2/23/2018	INF-02-02232018	P	**17.0**
INFLUENT	2/23/2018	INF-03-02232018	P	**16.0**
INFLUENT	3/6/2018	INF-01-03062018	P	**12.4**
INFLUENT	3/21/2018	INF-01-03212018	P	**8.0**
INFLUENT	3/27/2018	INFLU-01-03272018	P	3.5
INFLUENT	4/4/2018	INFU-01-04042018	P	**7.5**
INFLUENT	5/15/2018	INFL05151810IS	P	6.2
INFLUENT	8/22/2018	INFLU-082218	P	**7.3**
INFLUENT	11/5/2018	INFL-110518-3IS	P	**7.1**
INFLUENT	2/7/2019	INFL-020719-3IS	P	**12.2**
INFLUENT	4/18/2019	INFL-041819-15IS	P	**11.2**
EFFLUENT	2/23/2018	EFF-01-02232018	P	< 1.0
EFFLUENT	2/23/2018	EFF-01-02232018-FD	FD	< 1.0
EFFLUENT	2/23/2018	EFF-02-02232018	P	< 1.0
EFFLUENT	2/23/2018	EFF-03-02232018	P	< 1.0
EFFLUENT	3/6/2018	EFF-01-03062018	P	< 1.0
EFFLUENT	3/12/2018	EFF-01-030122018	P	< 1.0
EFFLUENT	3/21/2018	EFF-01-03212018	P	< 1.0
EFFLUENT	3/27/2018	EFF-01-03272018	P	< 1.0
EFFLUENT	4/4/2018	EFF-01-04042018	P	< 1.0
EFFLUENT	5/15/2018	EFFL05151811IS	P	< 1.0
EFFLUENT	8/22/2018	EFFLU-082218	P	< 1.0
EFFLUENT	11/5/2018	EFFL-110518-4IS	P	< 1.0
EFFLUENT	2/7/2019	EFFL-020719-4IS	P	< 1.0
EFFLUENT	4/18/2019	EFFL-041819-16IS	P	< 1.0
GM-27	3/6/2018	GM-27-03062018	P	**32.2**
GM-27	3/6/2018	GM-27-03062018D	FD	**32.6**
GM-27	4/4/2018	GM-27-04042018	P	**9.8**
GM-27	5/15/2018	GM2705161814IS	FD	4.4
GM-27	5/15/2018	GM2705161813IS	P	4.3
GM-27	8/22/2018	GM-27-082218	P	4.1
GM-27	10/2/2018	GM2710021801FD	FD	**9.4**
GM-27	10/2/2018	GM2710021802IS	P	**9.3**
GM-27	11/5/2018	GM-27-110518-6IS	P	**11.5**
GM-27	11/5/2018	GM-27-110518-7FD	FD	**11.8**
GM-27	2/7/2019	GM27-020719-6IS	P	**28.7**
GM-27	2/7/2019	GM27-020719-7FD	FD	**27.1**
GM-27	4/18/2019	GM27-041819-17IS	P	**24.9**

Reproduced from Univar 2019 Annual Report, Table 5			Analyte	1,4-Dioxane
			Method	8260BSIM
			Units	µg/L
Location ID	Sample Date	Sample ID	Sample Type	
RW-02	3/6/2018	RW-02-03062018	P	1.7
RW-02	5/15/2018	RW020515188IS	P	< 1.0
RW-02	8/22/2018	RW-02-082218	P	< 1.0
RW-02	10/2/2018	RW021002105IS	P	1.3
RW-02	11/5/2018	RW-02-110518-1IS	P	1.6
RW-02	2/7/2019	RW02-020719-1IS	P	1.2
RW-02	4/17/2019	RW02-041719-10IS	P	1.3
RW-05	3/6/2018	RW-05-03062018	P	3.9
RW-05	4/4/2018	RW-05-04042018	P	3.9
RW-05	5/15/2018	RW050515189IS	P	3.9
RW-05	8/22/2018	RW-05-082218	P	4.2
RW-05	10/2/2018	RW0510021804IS	P	5.1
RW-05	11/5/2018	RW-05-110518-2IS	P	3.6
RW-05	2/7/2019	RW05-020719-2IS	P	3.7
RW-05	4/17/2019	RW05-041719-7IS	P	3.7
RW-06	3/6/2018	RW-06-03062018	P	**11.6**
RW-06	4/4/2018	RW-06-04042018	P	**8.9**
RW-06	5/15/2018	RW0605151812IS	P	**7.8**
RW-06	8/22/2018	RW-06-082218	P	**10**
RW-06	8/22/2018	DUP-01-082218	FD	**10.6**
RW-06	10/2/2018	RW0610021803IS	P	**10.7**
RW-06	11/5/2018	RW-06-110518-5IS	P	**8.2**
RW-06	2/7/2019	RW06-020719-5IS	P	**13.5**
RW-06	4/17/2019	RW06-041719-9IS	P	**10.8**

Notes:

Bold = Detection above groundwater treatment goal

µg/L = micrograms per liter

P = Primary/Parent Sample

FD = Field Duplicate

-- = not analyzed

<1.0 = Below Laboratory Reporting Levels

On-site groundwater treatment goal = 29 µg/L

Off-site groundwater treatment goal = 6.7 µg/L

Table C-5: OU 06 Deep Zone Groundwater Remediation System Performance and Compliance Monitoring Plan Taken from GEA Table 1 Annual and Semi-Annual Reports - July 2015 through June 2019, South Valley Superfund Site, Albuquerque, Bernalillo County, New Mexico.

Former Air Force Plant 83/General Electric Operable Unit - Albuquerque, New Mexico Ground Water Quality Monitoring									
Annual	Semi-annual		Semi-annual	Semi-annual			Monthly Treatment System Compliance Sampling		
Monitoring Wells	Extraction and Monitoring Wells		Monitoring Wells	Extraction, Injection, and Monitoring wells			Sample Port SP-425		
P83-22S	EW-001	P83-22D-2	SJ6-02D	D-01	IW-631	P83-22 cluster	7/1/2015	12/2/2016	7/2/2018
P83-22M	EW-002	P83-30D-2	SJ6-07D	D-02	IW-633	P83-23 cluster	8/5/2015	1/5/2017	8/1/2018
P83-22D	EW-003R	WB-01 (1-6)	SJ6-08D	D-03	IW-634	P83-24 cluster	9/2/2015	2/1/2017	9/4/2018
P83-26M	EW-004	WB-02 (1-5)	SJ6-10D	EW-001	IW-635R	P83-25 cluster	10/5/2015	3/2/2017	10/1/2018
P83-26D	P83-07D	WB-04 (3-6)		EW-002	IW-636	P83-26 cluster	11/5/2015	4/3/2017	11/1/2018
P83-29S	P83-09D	WB-05 (1-6)		EW-003R	IW-637R	P83-27 cluster	12/1/2015	5/1/2017	12/3/2018
WB-04 (1-2, 10-12)	P83-19D-2			EW-004	IW-638R	P83-28 cluster	1/20/2016	6/1/2017	1/2/2019
WB-07 (1-5)	P83-19LR			HL-02	IW-639	P83-29 cluster	2/1/2016	7/3/2017	2/1/2019
	P83-19M			HL-05	IW-640	P83-30D-2	3/1/2016	8/1/2017	3/1/2019
	P83-19U			I-03	IW-641	P83-31 cluster	4/1/2016	9/1/2017	4/2/2019
				I-04	IW-642	SJ6-01D	5/5/2016	10/2/2017	5/1/2019
				I-06	P83-07D	WB-01 (1-6)	6/1/2016	11/8/2017	6/4/2019
					P83-09D	WB-02 (1-8)	7/1/2016	12/1/2017	
					P83-10D	WB-04 (1-7)	8/1/2016		
					P83-11D	WB-05 (1-9)	9/1/2016		
					P83-19 cluster	WB-06 (1-8)	10/3/2016		
					P83-21 cluster	WB-07 (1-5)	11/1/2016		

Notes:

1. This table reflects modifications to the sampling program based on the EPAs correspondence dated 10-19-10 regarding agency approval of monitoring program modifications.
2. Number in parentheses in Westbay™ well designations refers to screen/port number.
3. The treatment system compliance samples are collected at the effluent line to the injection header (SP-425).

P = Piezometer

D, LR, and D-2 = Deep interval within deep zone aquifer M = Middle interval within deep zone aquifer

S and U = Shallow interval within deep zone aquifer

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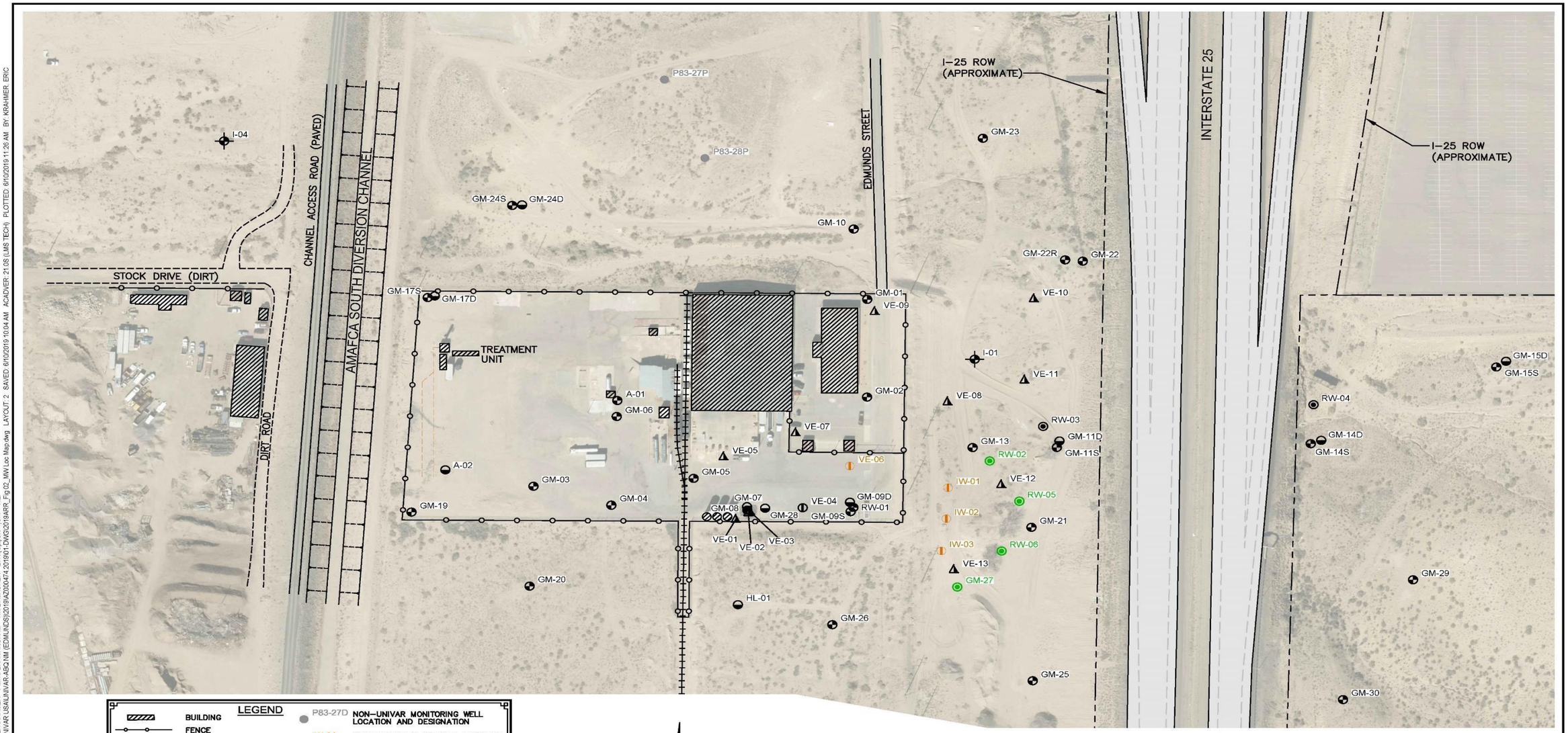
Figure C-1: Operational Units OU 02, OU 05, and OU 06, South Valley Superfund Site, Albuquerque, Bernalillo County, New Mexico

Figure C-2: OU 03 Well Locations and Distribution of 1,4-dioxane at Univar South Valley Superfund Site, Albuquerque, Bernalillo County, New Mexico



LEGEND

- BUILDING
- FENCE
- RAILROAD TRACKS
- INFILTRATION GALLEY

AERIAL PHOTO PROVIDED BY EARTH EXPLORER.GOV USGS ORTHOGRAPHIC IMAGERY DATED SEPTEMBER 2014.

SURVEY COORDINATES: NEW MEXICO STATE PLANES CENTRAL ZONE, U.S. FOOT, NAD83 HORIZONTAL NAVD88 VERTICAL.

USEPA = UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

- P83-27D — NON-UNIVAR MONITORING WELL LOCATION AND DESIGNATION
- IW-01 — SHALLOW INJECTION WELL LOCATION AND DESIGNATION (ORANGE=ACTIVE)
- RW-02 — RECOVERY WELL LOCATION AND DESIGNATION (GREEN=ACTIVE)
- GM-05 — SHALLOW MONITORING WELL LOCATION AND DESIGNATION
- GM-11D — DEEP MONITORING WELL LOCATION AND DESIGNATION
- VE-05 — VAPOR EXTRACTION WELL LOCATION AND DESIGNATION
- I-01 — USEPA SHALLOW MONITORING WELL LOCATION AND DESIGNATION

0 150' 300'
GRAPHIC SCALE

UNIVAR USA INC.
3301 EDMUNDS STREET SITE
ALBUQUERQUE, NEW MEXICO
2019 ANNUAL REMEDIATION REPORT

WELL LOCATIONS

ARCADIS Design & Consultancy for natural and built assets

FIGURE 2

Figure C-3: GEA Well Locations for Deep Zone Remediation System (OU 06), South Valley Superfund Site, Albuquerque, Bernalillo County, New Mexico

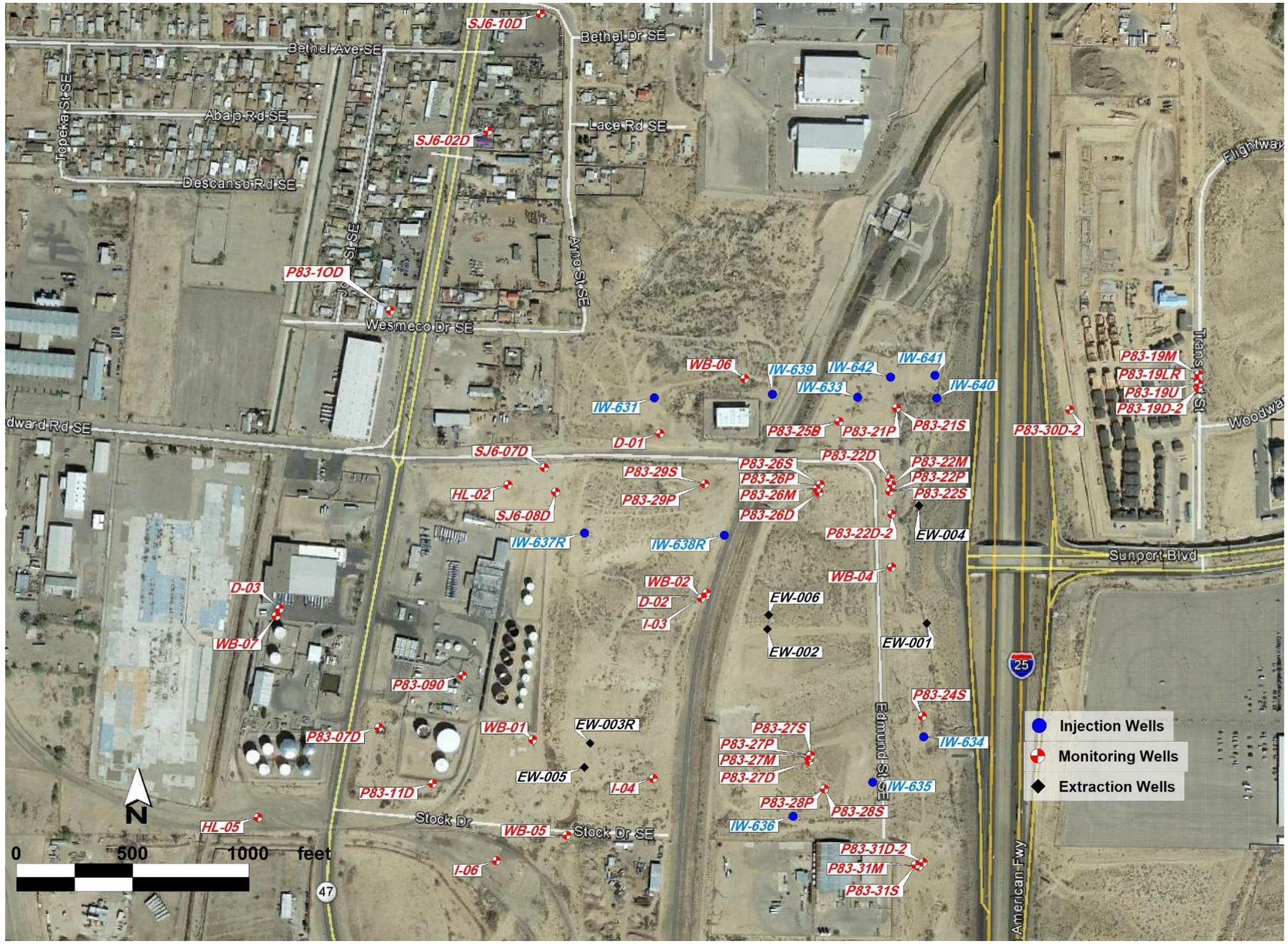
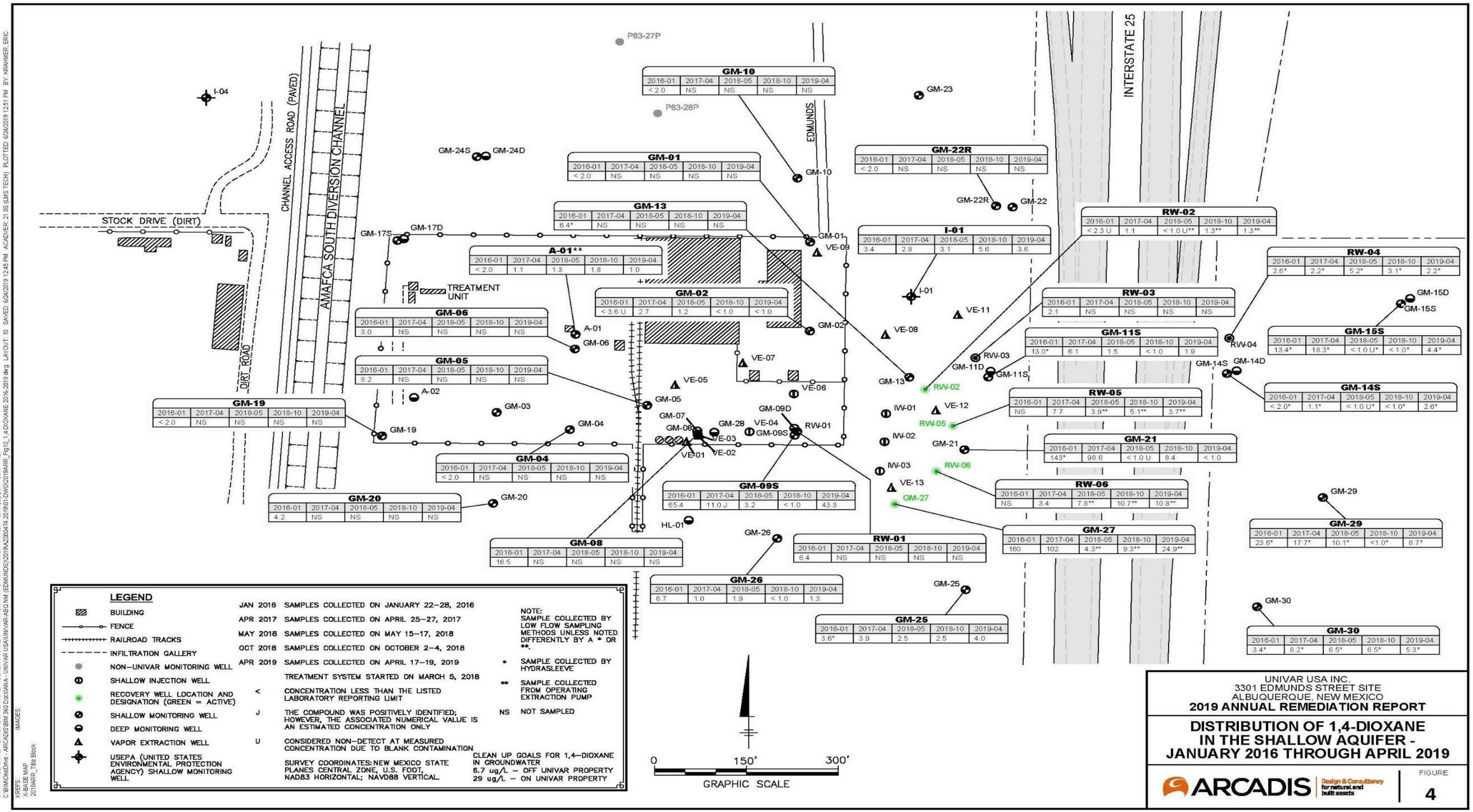


Figure C-4: GEA Well Locations and Distribution of 1,4-dioxane in Shallow Aquifer January 2016 through April 2019, South Valley Superfund Site, Albuquerque, Bernalillo County, New Mexico



GM-10				
2016-01	2017-04	2018-05	2018-10	2019-04
< 2.0	NS	NS	NS	NS

GM-01				
2016-01	2017-04	2018-05	2018-10	2019-04
< 2.0	NS	NS	NS	NS

GM-22R				
2016-01	2017-04	2018-05	2018-10	2019-04
< 2.0	NS	NS	NS	NS

GM-13				
2016-01	2017-04	2018-05	2018-10	2019-04
6.4*	NS	NS	NS	NS

RW-02				
2016-01	2017-04	2018-05	2018-10	2019-04
< 2.3 U	1.1	< 1.0 U**	1.3**	1.3**

I-01				
2016-01	2017-04	2018-05	2018-10	2019-04
3.4	2.8	3.1	5.6	3.6

A-01**				
2016-01	2017-04	2018-05	2018-10	2019-04
< 2.0	1.1	1.3	1.8	1.0

GM-02				
2016-01	2017-04	2018-05	2018-10	2019-04
< 3.6 U	2.7	1.2	< 1.0	< 1.0

RW-04				
2016-01	2017-04	2018-05	2018-10	2019-04
2.6*	2.2*	5.2*	3.1*	2.2*

RW-03				
2016-01	2017-04	2018-05	2018-10	2019-04
2.1	NS	NS	NS	NS

GM-06				
2016-01	2017-04	2018-05	2018-10	2019-04
3.0	NS	NS	NS	NS

GM-11S				
2016-01	2017-04	2018-05	2018-10	2019-04
13.0*	6.1	1.5	< 1.0	1.9

GM-15S				
2016-01	2017-04	2018-05	2018-10	2019-04
13.4*	18.3*	< 1.0 U*	< 1.0*	4.4*

GM-05				
2016-01	2017-04	2018-05	2018-10	2019-04
8.2	NS	NS	NS	NS

RW-05				
2016-01	2017-04	2018-05	2018-10	2019-04
NS	7.7	3.9**	5.1**	3.7**

GM-14S				
2016-01	2017-04	2018-05	2018-10	2019-04
< 2.0*	1.1*	< 1.0 U*	< 1.0*	2.6*

GM-19				
2016-01	2017-04	2018-05	2018-10	2019-04
< 2.0	NS	NS	NS	NS

GM-21				
2016-01	2017-04	2018-05	2018-10	2019-04
143*	98.6	< 1.0 U	8.4	< 1.0

GM-04				
2016-01	2017-04	2018-05	2018-10	2019-04
< 2.0	NS	NS	NS	NS

RW-06				
2016-01	2017-04	2018-05	2018-10	2019-04
NS	3.4	7.8**	10.7**	10.8**

GM-09S				
2016-01	2017-04	2018-05	2018-10	2019-04
65.4	11.0 J	3.2	< 1.0	43.3

GM-27				
2016-01	2017-04	2018-05	2018-10	2019-04
160	102	4.3**	9.3**	24.9**

GM-20				
2016-01	2017-04	2018-05	2018-10	2019-04
4.2	NS	NS	NS	NS

GM-29				
2016-01	2017-04	2018-05	2018-10	2019-04
23.6*	17.7*	10.1*	<1.0*	8.7*

GM-08				
2016-01	2017-04	2018-05	2018-10	2019-04
16.5	NS	NS	NS	NS

RW-01				
2016-01	2017-04	2018-05	2018-10	2019-04
6.4	NS	NS	NS	NS

GM-30				
2016-01	2017-04	2018-05	2018-10	2019-04
3.4*	8.2*	6.5*	6.5*	5.3*

GM-26				
2016-01	2017-04	2018-05	2018-10	2019-04
6.7	1.0	1.9	< 1.0	1.3

GM-25				
2016-01	2017-04	2018-05	2018-10	2019-04
3.6*	3.9	2.5	2.5	4.0

LEGEND

- BUILDING
- FENCE
- RAILROAD TRACKS
- INFILTRATION GALLERY
- NON–UNIVAR MONITORING WELL
- SHALLOW INJECTION WELL
- RECOVERY WELL LOCATION AND DESIGNATION (GREEN = ACTIVE)
- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- VAPOR EXTRACTION WELL
- USEPA (UNITED STATES ENVIRONMENTAL PROTECTION AGENCY) SHALLOW MONITORING WELL

JAN 2018 SAMPLES COLLECTED ON JANUARY 22–28, 2016
APR 2017 SAMPLES COLLECTED ON APRIL 25–27, 2017
MAY 2018 SAMPLES COLLECTED ON MAY 15–17, 2018
OCT 2018 SAMPLES COLLECTED ON OCTOBER 2–4, 2018
APR 2019 SAMPLES COLLECTED ON APRIL 17–19, 2019
TREATMENT SYSTEM STARTED ON MARCH 5, 2018

< CONCENTRATION LESS THAN THE LISTED LABORATORY REPORTING LIMIT
J THE COMPOUND WAS POSITIVELY IDENTIFIED; HOWEVER, THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY
U CONSIDERED NON–DETECT AT MEASURED CONCENTRATION DUE TO BLANK CONTAMINATION

SURVEY COORDINATES: NEW MEXICO STATE PLANES CENTRAL ZONE, U.S. FOOT, NAD83 HORIZONTAL; NAVD88 VERTICAL

NOTE: SAMPLE COLLECTED BY LOW FLOW SAMPLING METHODS UNLESS NOTED DIFFERENTLY BY A * OR **.
* SAMPLE COLLECTED BY HYDRASLEEVE
** SAMPLE COLLECTED FROM OPERATING EXTRACTION PUMP
NS NOT SAMPLED

CLEAN UP GOALS FOR 1,4–DIOXANE IN GROUNDWATER
6.7 ug/L – OFF UNIVAR PROPERTY
29 ug/L – ON UNIVAR PROPERTY

UNIVAR USA INC.
3301 EDMUNDS STREET SITE
ALBUQUERQUE, NEW MEXICO
2019 ANNUAL REMEDIATION REPORT

DISTRIBUTION OF 1,4-DIOXANE IN THE SHALLOW AQUIFER - JANUARY 2016 THROUGH APRIL 2019

ARCADIS Design & Consultancy for natural and built assets

FIGURE 4

Figure C-5: Univar Potentiometric Surface Elevation – April 3, 2018, South Valley Superfund Site, Albuquerque, Bernalillo County, New Mexico

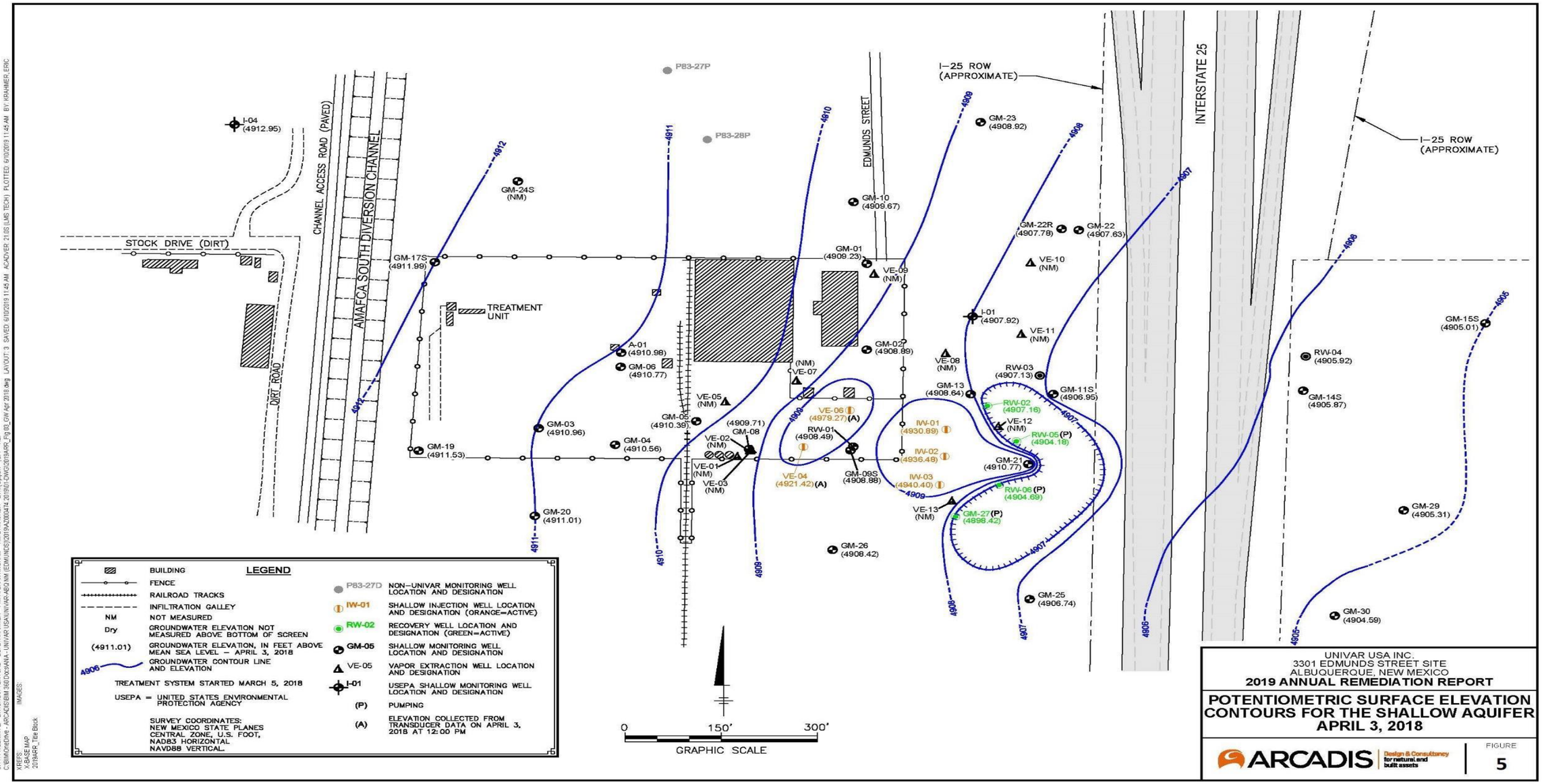
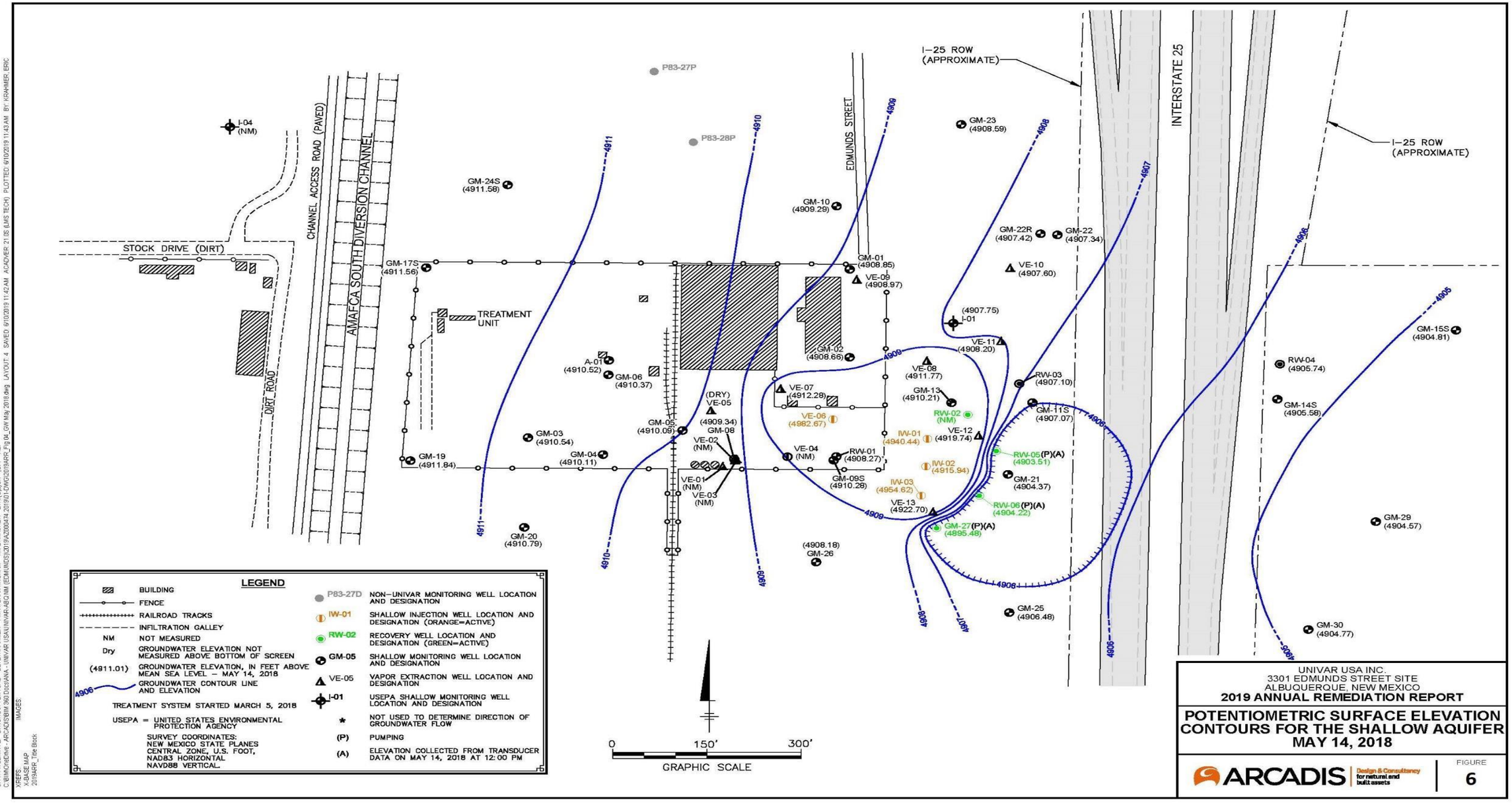


Figure C-6: Univar Potentiometric Surface Elevation – May 14, 2018, South Valley Superfund Site, Albuquerque, Bernalillo County, New Mexico



LEGEND

BUILDING	
FENCE	
RAILROAD TRACKS	
INFILTRATION GALLEY	
NM	NOT MEASURED
Dry	GROUNDWATER ELEVATION NOT MEASURED ABOVE BOTTOM OF SCREEN
(4911.01)	GROUNDWATER ELEVATION, IN FEET ABOVE MEAN SEA LEVEL – MAY 14, 2018
4906	GROUNDWATER CONTOUR LINE AND ELEVATION
TREATMENT SYSTEM STARTED MARCH 5, 2018	
USEPA = UNITED STATES ENVIRONMENTAL PROTECTION AGENCY	
SURVEY COORDINATES: NEW MEXICO STATE PLANES CENTRAL ZONE, U.S. FOOT, NAD83 HORIZONTAL NAVD88 VERTICAL.	
P83-27D	NON–UNIVAR MONITORING WELL LOCATION AND DESIGNATION
IW-01	SHALLOW INJECTION WELL LOCATION AND DESIGNATION (ORANGE=ACTIVE)
RW-02	RECOVERY WELL LOCATION AND DESIGNATION (GREEN=ACTIVE)
GM-05	SHALLOW MONITORING WELL LOCATION AND DESIGNATION
VE-05	VAPOR EXTRACTION WELL LOCATION AND DESIGNATION
I-01	USEPA SHALLOW MONITORING WELL LOCATION AND DESIGNATION
*	NOT USED TO DETERMINE DIRECTION OF GROUNDWATER FLOW
(P)	PUMPING
(A)	ELEVATION COLLECTED FROM TRANSDUCER DATA ON MAY 14, 2018 AT 12:00 PM

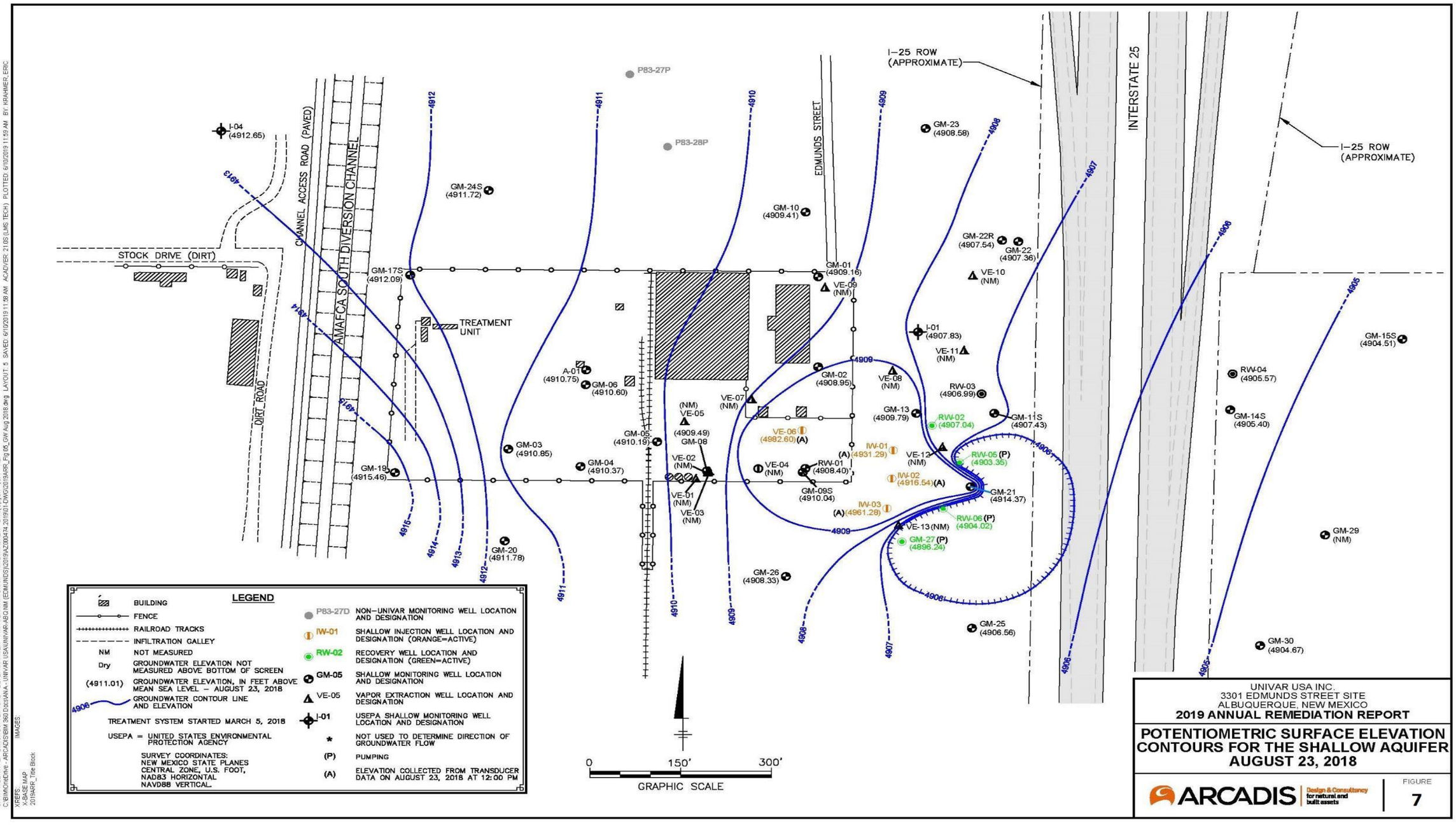
UNIVAR USA INC.
3301 EDMUNDS STREET SITE
ALBUQUERQUE, NEW MEXICO
2019 ANNUAL REMEDIATION REPORT

POTENTIOMETRIC SURFACE ELEVATION CONTOURS FOR THE SHALLOW AQUIFER MAY 14, 2018

ARCADIS Design & Consultancy for natural and built assets

FIGURE 6

Figure C-7: Univar Potentiometric Surface Elevation – August 23, 2018, South Valley Superfund Site, Albuquerque, Bernalillo County, New Mexico



LEGEND

	BUILDING
	FENCE
	RAILROAD TRACKS
	INFILTRATION GALLEY
NM	NOT MEASURED
Dry	GROUNDWATER ELEVATION NOT MEASURED ABOVE BOTTOM OF SCREEN
(4911.01)	GROUNDWATER ELEVATION, IN FEET ABOVE MEAN SEA LEVEL – AUGUST 23, 2018
4906	GROUNDWATER CONTOUR LINE AND ELEVATION
	TREATMENT SYSTEM STARTED MARCH 5, 2018
	USEPA = UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
	SURVEY COORDINATES: NEW MEXICO STATE PLANES CENTRAL ZONE, U.S. FOOT, NAD83 HORIZONTAL NAVD88 VERTICAL.
P83-27D	NON-UNIVAR MONITORING WELL LOCATION AND DESIGNATION
IW-01	SHALLOW INJECTION WELL LOCATION AND DESIGNATION (ORANGE=ACTIVE)
RW-02	RECOVERY WELL LOCATION AND DESIGNATION (GREEN=ACTIVE)
GM-05	SHALLOW MONITORING WELL LOCATION AND DESIGNATION
VE-05	VAPOR EXTRACTION WELL LOCATION AND DESIGNATION
I-01	USEPA SHALLOW MONITORING WELL LOCATION AND DESIGNATION
*	NOT USED TO DETERMINE DIRECTION OF GROUNDWATER FLOW
(P)	PUMPING
(A)	ELEVATION COLLECTED FROM TRANSDUCER DATA ON AUGUST 23, 2018 AT 12:00 PM

UNIVAR USA INC.
3301 EDMUNDS STREET SITE
ALBUQUERQUE, NEW MEXICO
2019 ANNUAL REMEDIATION REPORT

POTENTIOMETRIC SURFACE ELEVATION CONTOURS FOR THE SHALLOW AQUIFER AUGUST 23, 2018

ARCADIS Design & Consultancy for natural and built assets

FIGURE 7

CITY: PHOENIX AZ DIV/GROUP: ENVCAD DB: E. KRAHMER PM: K. BRANTINGHAM TM: D. MAURER LYR:(OptION+";OFF+"REF"
C:\BIM\OneDrive - ARCADIS\BIM 360 Docs\ANA - UNIVAR USA\UNIVAR-ABQ NM (EDMUNDS)\2019\AZ00474.2019\01-DWG\2019ARR_Fig 05_GW Aug 2018.dwg LAYOUT: 5 SAVED: 6/10/2019 11:58 AM ACADVER: 21.0S (LMS TECH) PLOTTED: 6/10/2019 11:59 AM BY: KRAHMER, ERIC
XREFS:
X-BASE MAP
2019ARR_Title Block
IMAGES:

Figure C-8: Univar Potentiometric Surface Elevation – October 4, 2018, South Valley Superfund Site, Albuquerque, Bernalillo County, New Mexico

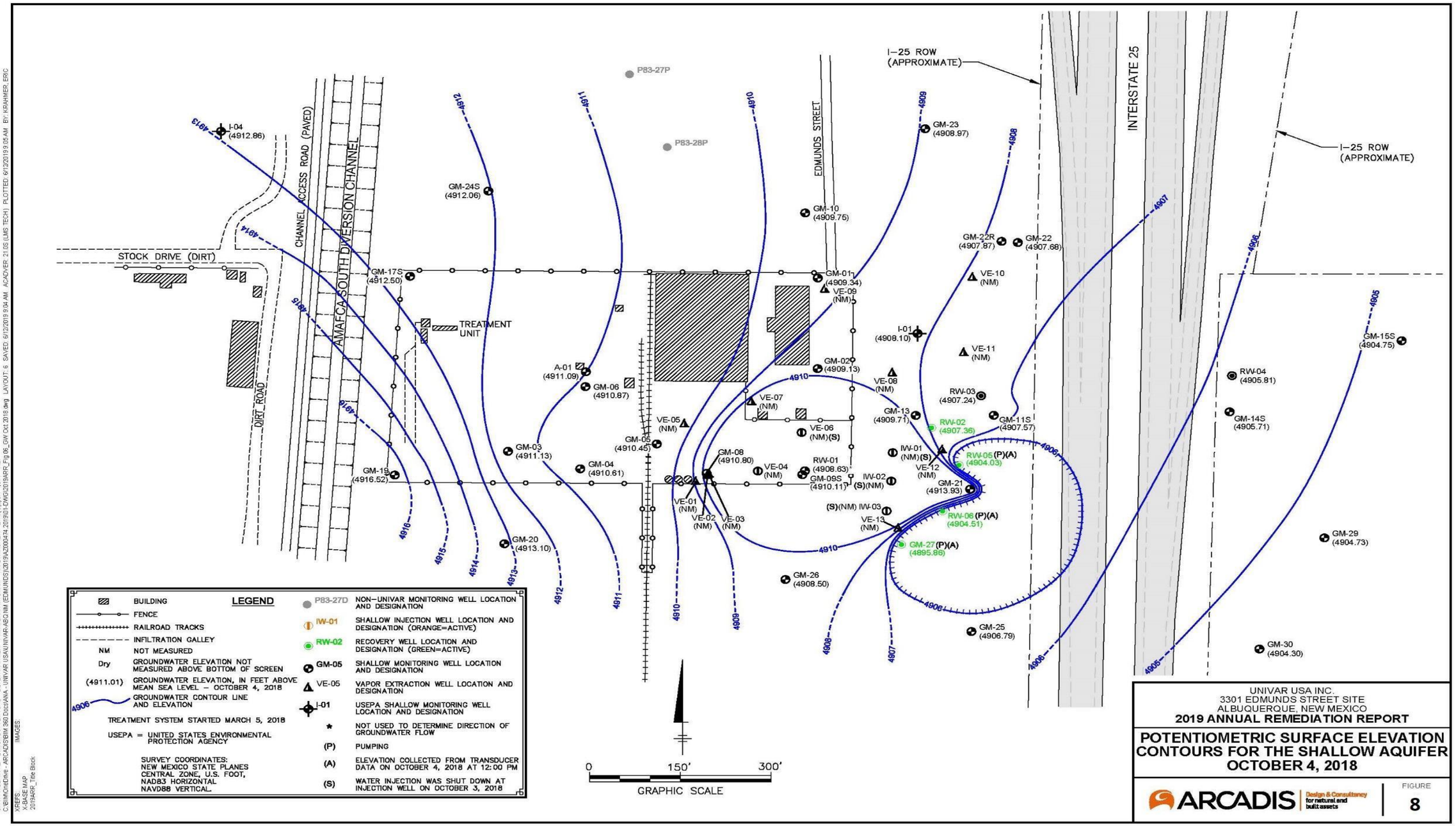


Figure C-9: Univar Potentiometric Surface Elevation – November 6, 2018, South Valley Superfund Site, Albuquerque, Bernalillo County, New Mexico

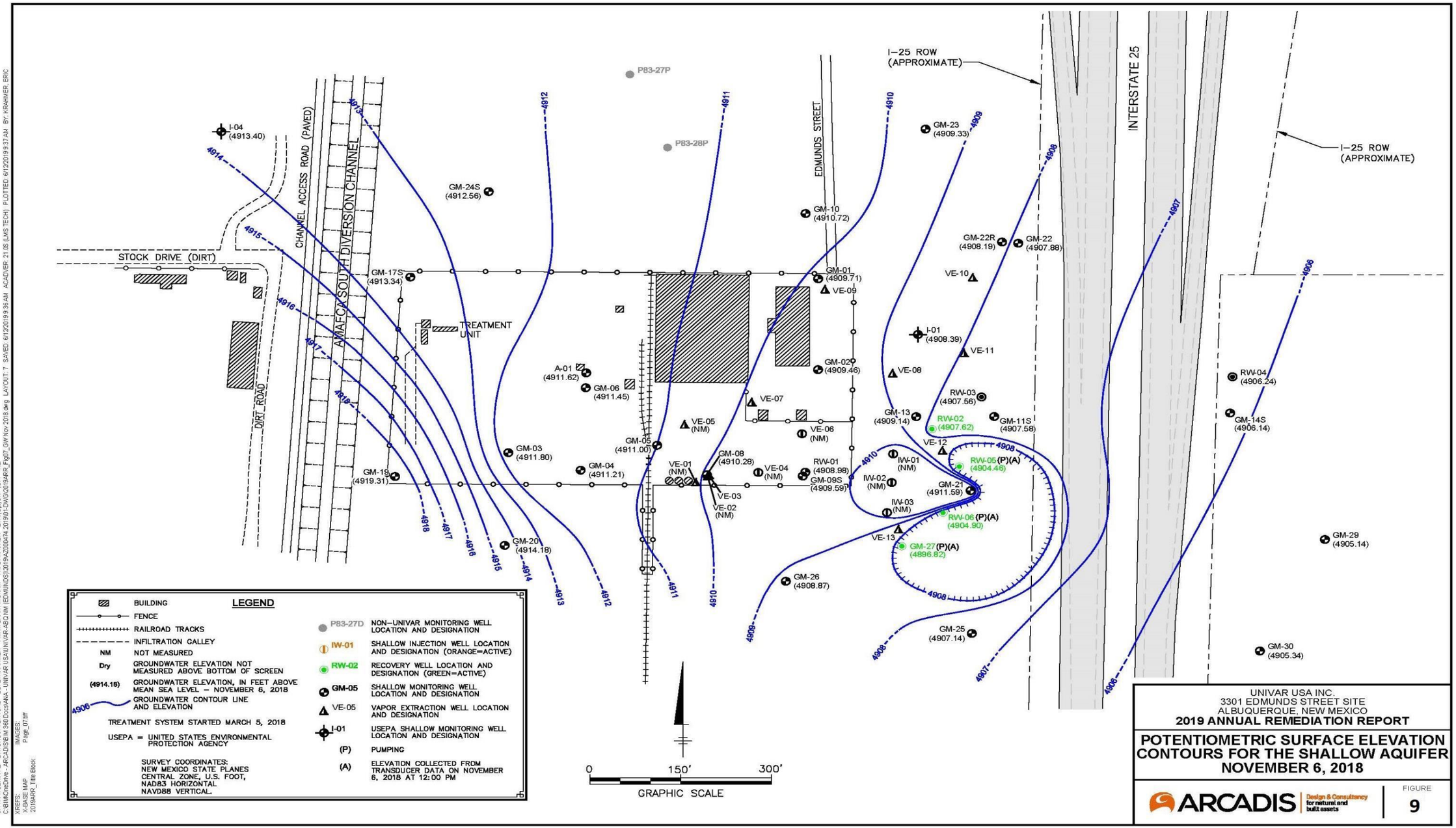


Figure C-10: Univar Potentiometric Surface Elevation – February 6, 2019, South Valley Superfund Site, Albuquerque, Bernalillo County, New Mexico

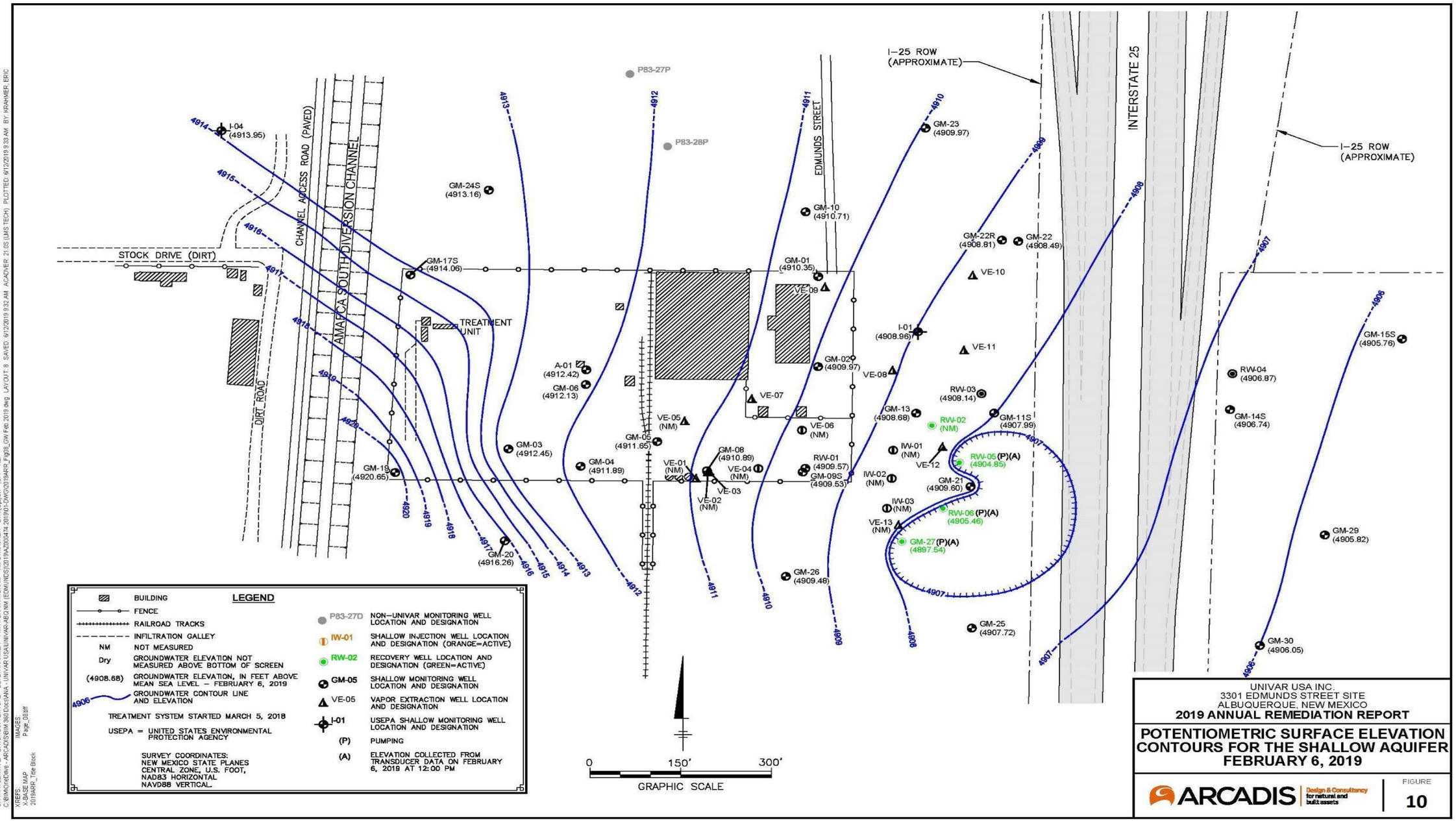
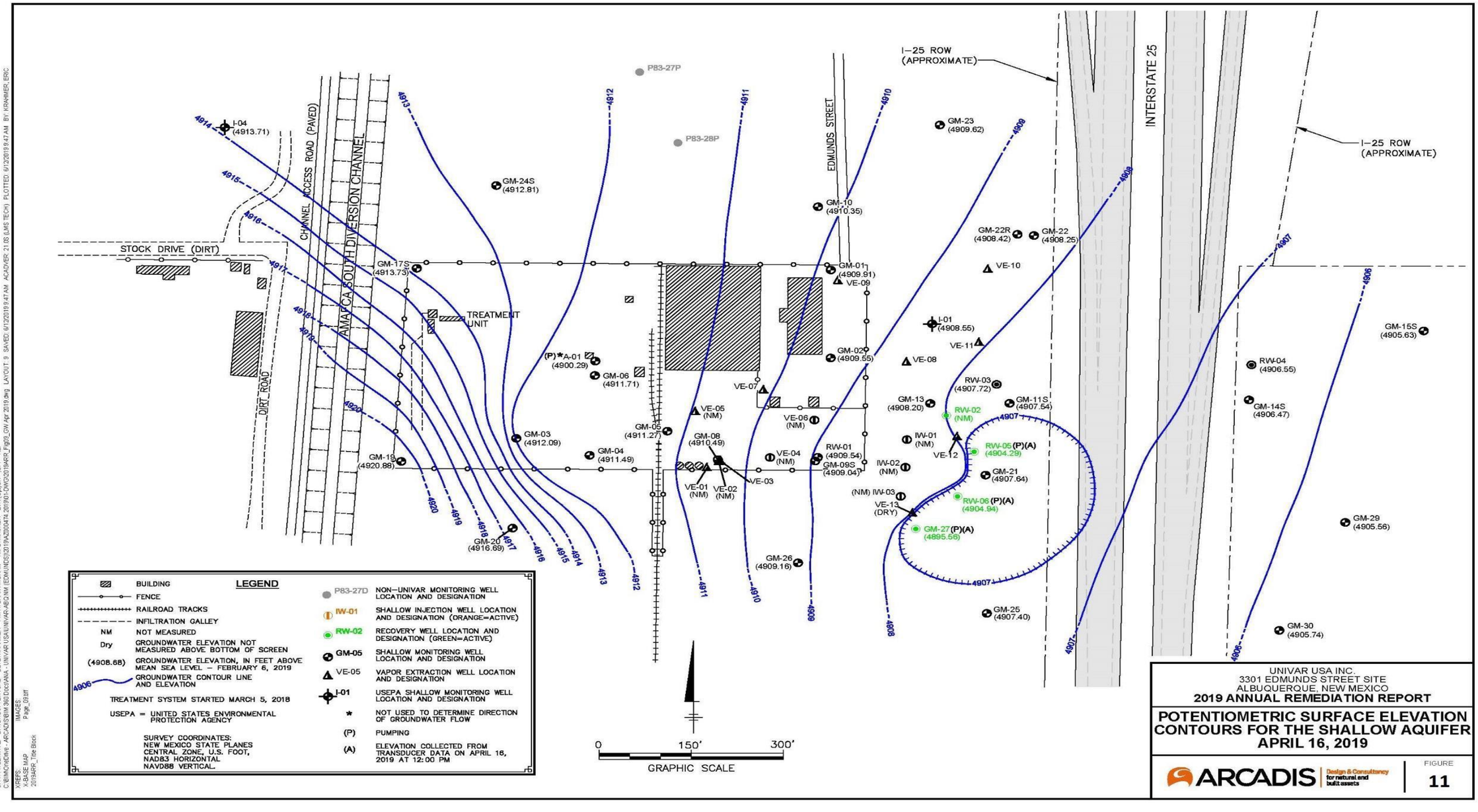


Figure C-11: Univar Potentiometric Surface Elevation – April 16, 2019, South Valley Superfund Site, Albuquerque, Bernalillo County, New Mexico



APPENDIX D – INTERVIEWS

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY		
Site Name: South Valley Superfund Site		**EPA ID No.:** NMD980745558
Location: Albuquerque, Bernalillo County, New Mexico		**Date: November 4, 2019**
Contact Made By:		
Name: Michael Hebert	**Title:** Remedial Project Manager	**Organization:** U.S. EPA
Telephone No.: (214) 665-8315 **E-Mail:** hebert.michael@epa.gov	**Street Address:** 1201 Elm Street, Suite 500, Mailcode 6SEDRL **City, State, Zip:** Dallas, Texas 75270	
Name: Bill Pearson	**Title:** State Project Manager	**Organization:** NMED
Telephone: (505) 827-0039 **E-Mail:** william.pearson@state.nm.us	**Street Address:** 1190 St. Francis Drive **City, State, Zip:** Santa Fe, New Mexico 87505	
Individual Contacted:		
Name: Katy Brantingham	**Title:** Associate VP	**Organization:** Arcadis U.S., Inc. (Lead Project Consultant)
Telephone No: 602.797.4523 **E-Mail Address:** katy.brantingham@arcadis.com	**Street Address:** 410 N. 44th Street, Suite 1000 City, State, Zip: Phoenix, AZ 85008	

Survey Questions

1. What is your overall impression of the project? (general sentiment)

Very Good. Open and cooperative communication between all parties

2. Is the remedy functioning as expected? How well is the remedy performing?

The USEPA and NMED issued a notice of completion dated 6/10/14 that acknowledged Univar USA Inc. (Univar) had completed all the requirements of the Consent Decree as they relate to the Constituents of Concern in ground water with the exception of 1,4-dioxane.

During this 5-year review period (2016-2020), the remedy was modified to treat 1,4-dioxane. The objective of the groundwater recovery, treatment, and injection system (GRTIS) is to reduce 1,4-dioxane concentrations in on-site (Univar property) groundwater to 29 micrograms per liter (µg/L) or less and off-site groundwater (properties not owned by Univar) to 6.7 µg/L or less (Arcadis 2016a). This objective is being achieved by recovering groundwater impacted with 1,4-dioxane and pumping it to the treatment system (advance oxidation process), treating the 1,4-dioxane in the recovery water and reinjecting the treated water upgradient of the recovery area to flush the potentially impacted vadose zone and reduce the groundwater remediation timeframe. The treatment system treats 1,4-dioxane to a concentration less than 6.7 µg/L.

The modified system was started on March 5, 2018. Monitoring and maintenance is on-going. Since startup, the system has operated 99.9 percent of the time and the total volume of extracted groundwater treated by the GRTIS from February 23, 2018 through October2, 2019 was 57,171,964 gallons and 6 pounds of 1,4-dioxane was removed from the extracted groundwater.

The following documents were submitted:

- *Arcadis. 2016. Remedial Work Plan For 1,4-Dioxane In Groundwater Univar USA Inc. 3301 Edmunds Street Site, Albuquerque, New Mexico. July 22.*
- *Arcadis. 2017. Well Installation Univar USA Inc. 3301 Edmunds Street Site, Albuquerque, New Mexico. April 27.*
- *Arcadis. 2018a. Treatment System Construction Report for 1,4-Dioxane in Groundwater. Univar USA Inc. 3301 Edmunds Street Site Albuquerque, New Mexico. July 31.*
- *Arcadis. 2018b. Operation, Monitoring, And Maintenance Manual Univar USA Inc. 3301 Edmunds Street Site Albuquerque, New Mexico. July 31.*
- *Arcadis. 2018c. Field Sampling Plan. Univar USA Inc. 3301 Edmunds Street Albuquerque, New Mexico. July 31.*
- *Arcadis. 2018d. 2018 Remediation Progress Report, For Remedial Actions at Operable Unit 3 of the South Valley Superfund Site in Albuquerque, New Mexico. December 7.*
- *Arcadis. 2019. 2019 Annual Remediation Progress Report, For Remedial Actions at Operable Unit 3 of the South Valley Superfund Site in Albuquerque, New Mexico. June 26.*

3. What does the monitoring data show? Are there any trends that show contaminant levels are decreasing?

The recovery well network has effectively captured the treated water from the injection wells as demonstrated by the potentiometric surface elevation contours and concentrations of 1,4-dioxane in the recovery wells and nearby monitoring wells. 1,4-Dioxane concentrations in the recovery wells decreased significantly within two months of system startup and then remained relatively stable during the period of injection well operation indicating that flushing of the vadose zone had occurred and clean water was breaking through to the recovery wells. 1,4-Dioxane concentrations in recovery wells (RW-05, RW-06, and GM-27), spiked after the cessation of recharge in injection wells IW-1, IW-2, IW-3 and VE-06 in October 2018, but have a decreasing trend throughout the first two quarterly sampling events. 1,4-Dioxane concentrations in downgradient groundwater monitoring wells east of Interstate 25 (I-25) (GM-15S, GM-29, and GM-30) have decreased overall but have not decreased significantly since the start-up of the GRTIS.

4. Is there a continuous on-site O&M presence? If so, please describe staff and activities. If there is not a continuous on-site presence, describe staff and frequency of site inspections and activities.

Univar Solutions USA Inc. (Univar Solutions) still operates at the facility so there are personnel and security at the facility. Maintenance and monitoring of the GRTIS is conducted by Arcadis and includes remote system monitoring, biweekly OM&M site visits, monthly process monitoring, and quarterly GRTIS performance sampling. These were conducted in accordance with the Remedial Work Plan. The GRTIS is adjusted based on the OM&M conducted at the Site to optimize performance. Depths to groundwater is conducted quarterly and groundwater monitoring is conducted semiannually.

During the biweekly OM&M site visits, the general system condition is checked by visually inspecting mechanical and electrical components of the system, tanks, equipment, and associated piping for leaks, cracks, chips, exterior corrosion, or other damage, and performing preventative maintenance on equipment components in accordance with manufacturer's recommendations. During each OM&M visit the following information was collected using a tablet to ensure GRTIS was running at optimal performance:

- *Groundwater recovery flow rates, totalizer flow readings, groundwater level if*

possible, and pressure at each recovery well.

- *Injection flow rate, totalizer readings, groundwater level if possible, and pressure at each injection well and infiltration gallery.*
- *Water-level data from dedicated pressure transducers in operating recovery and injection wells.*
- *System readings including electric meter, tank levels, flow rates, volumes, temperatures, and pressures throughout the treatment units.*

5. Have there been any significant changes in the O&M requirements, maintenance schedules, or sampling routines in the last five years? If so, do they affect the protectiveness or effectiveness of the remedy? Please describe changes and impacts.

None since the system was modified.

6. Have there been unexpected O&M difficulties or costs at the site since the last five years? If so, please give details.

None since the system was modified.

7. Have there been opportunities to optimize O&M, or sampling efforts? Please describe changes and resultant or desired cost savings or improved efficiency.

None since the system was modified.

8. Do you have any comments, suggestions, or recommendations regarding the project?

Due to increasing concentrations of 1,4-dioxane in monitoring well GM-9S, this well will be converted to a groundwater recovery well and vapor extraction wells VE-2 and VE-3 will be converted to injection wells to optimize the system. Continued operation and optimization of the GRTIS is recommended until 1,4-dioxane groundwater concentrations are reduced to less than the 29 µg/L on-site cleanup goal and the 6.7 µg/L off-site cleanup goal. Maintenance and monitoring will continue as approved in the Remedial Work Plan.

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY		
Site Name: South Valley Superfund Site		**EPA ID No.:** NMD980745558
Location: Albuquerque, Bernalillo County, New Mexico		**Date:** October 29, 2019
Contact Made By:		
Name: Michael Hebert	**Title:** Remedial Project Manager	**Organization:** U.S. EPA
Telephone No.: (214) 665-8315 **E-Mail:** hebert.michael@epa.gov	**Street Address:** 1201 Elm Street, Suite 500, Mailcode 6SEDRL **City, State, Zip:** Dallas, Texas 75270	
Name: Bill Pearson	**Title:** State Project Manager	**Organization:** NMED
Telephone: (505) 827-0039 **E-Mail:** william.pearson@state.nm.us	**Street Address:** 1190 St. Francis Drive **City, State, Zip:** Santa Fe, New Mexico 87505	
Individual Contacted:		
Name: Julie Einerson	**Title:** GE Contract Environmental Manager	**Organization:**
Telephone No: (505) 440-2905 **E-Mail Address:** julie.einerson@ge.com	**Street Address:** **City, State, Zip:**	

Survey Questions

1. What is your overall impression of the project? (general sentiment)

   My impression is that the SVSS project is well managed and continues to progress toward completion. The partial deletion of three Operable Units (OUs 1, 2, and 5) is very positive for the community and in the ability to return the properties to viable use. OU 6 is the last operable unit managed by GE and is on track to achieving the goal of reaching ARARs in the groundwater in the very near future.

2. Is the remedy functioning as expected? How well is the remedy performing?

   Yes, only one monitoring well has contaminants that remain above ARARs. The water entering the Treatment Plant System is clean with no detectable contaminants. We've reached the end of the viable use of the pump and treat remedy.

3. What does the monitoring data show? Are there any trends that show contaminant levels are decreasing?

   Yes, as stated in the previous question the system has reached its optimal usefulness and has essentially eliminated the plume of contamination it was originally designed to address. This is shown in that no contaminants above ARARs have been detected in the five of the six extraction wells for at least 10 years. One extraction well (EW-006) has had no VOCs above ARARs for two years. Only two conventional monitoring wells have VOCs above ARARs at this time.

4. Is there a continuous on-site O&M presence? If so, please describe staff and activities. If there is not a continuous on-site presence, describe staff and frequency of site inspections and activities.

   There is continuous on-site presence, operators man the Treatment Plant operations 5 days a week and are on call at night and over weekends in case any system issues arise. The Treatment Plant is programmed to auto-dial the operators if any alarms through the system occur so they can respond as necessary.

5. Have there been any significant changes in the O&M requirements, maintenance schedules, or sampling routines in the last five years? If so, do they affect the protectiveness or effectiveness of the remedy? Please describe changes and impacts.

There have not been any changes in the maintenance schedules or sampling routines in the past five years.

The O&M requirements have been adjusted as needed to shut off pumping in extraction wells to "shock" the aquifer to assist in more efficient removal of the remaining contaminants. This has proven very effective in that in the previous Five-Year Report five wells had contaminants above ARARs. Today only two conventional wells have contaminants above ARARs.

6. Have there been unexpected O&M difficulties or costs at the site since the last five years? If so, please give details.

Yes, as a result of the adjustments to the pumping regimes discussed in Q5, extraction well EW-003R, which had been shut down for several months to pulse the aquifer, had a pump/motor failure within 3 months of returning to service. In rehabilitating the well, it was determined that the shutdown of the well had caused significant bacterial growth in the well which clogged the screen. This bacterial growth of an iron reducing bacteria caused a breach in the well screen allowing sediment to infiltrate the well. It also caused the pump/motor to over-work due to pumping the sediment and difficulty pumping water through the bacterial clogged screen, ultimately causing the failure of the pump/motor. The rehabilitation of this well cost $115K and system downtime. The lesson take-away is that once the system is shut-down there will be no turning it back on. Injection and extraction wells will be lost for use.

7. Have there been opportunities to optimize O&M, or sampling efforts? Please describe changes and resultant or desired cost savings or improved efficiency.

The system optimization was responded to in previous questions. There are no cost savings, the system has reached asymptotic levels of contaminant removal and is extremely costly to continue to operate for the benefit of removing contaminants that have been below ARARs in extraction wells for the past 13 years. The annual operational costs at an average of $1.3M per year for the past 4 years for groundwater below ARAR's in extraction wells is an extremely poor use of resources from a sustainability standpoint, i.e. electrical use, and financially for tax payer funded expenditures.

8. Do you have any comments, suggestions, or recommendations regarding the project?

Yes, it's time to shut the system down.

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY		
Site Name: South Valley Superfund Site		**EPA ID No.:** NMD980745558
Location: Albuquerque, Bernalillo County, New Mexico		**Date:** 10/29/2019
Contact Made By:		
Name: Michael Hebert	**Title:** Remedial Project Manager	**Organization:** U.S. EPA
Telephone No.: (214) 665-8315 **E-Mail:** hebert.michael@epa.gov	**Street Address:** 1201 Elm Street, Suite 500, Mailcode 6SEDRL **City, State, Zip:** Dallas, Texas 75270	
Name: Bill Pearson	**Title:** State Project Manager	**Organization:** NMED
Telephone: (505) 827-0039 **E-Mail:** william.pearson@state.nm.us	**Street Address:** 1190 St. Francis Drive **City, State, Zip:** Santa Fe, New Mexico 87505	
Individual Contacted:		
Name: John W. Billiard, PE	**Title: Principal Engineer**	**Organization: Axis Group Inc**
Telephone No: (303) 332-5757 **E-Mail Address: jwb@axisgroupinc.com**	**Street Address: 5374 E. Otero Dr.** **City, State, Zip: Centennial, CO 80122**	

Survey Questions

1. What is your overall impression of the project? (general sentiment):

The project continues to progress toward completion. Three Operable Units (OUs 1, 2, and 5) are already complete, and have been delisted. OU 6 is on track to achieving its goals of reaching ARARs in the ground water. OU 6 is managed by GE.

2. Is the remedy functioning as expected? How well is the remedy performing?

OU 6 (Deep Ground water) is functioning as designed. Ground water level and quality data collected to date demonstrates capture, containment, treatment, and reinjection of treated water back to the aquifer and that overall, the system has been and continues to be protective of human health and the environment. To date, about 7.8 billion gallons of ground water have been extracted, treated to non-detect levels, and returned to the aquifer for beneficial use.

3. What does the monitoring data show? Are there any trends that show contaminant levels are decreasing?

The OU 6 (Deep Ground water), ground water data indicate levels of dissolved VOCs in ground water are decreasing. At this point, only two ground water sample wells indicate dissolved VOCs in ground water at a level barely above ARARs.

4. Is there a continuous on-site O&M presence? If so, please describe staff and activities. If there is not a continuous on-site presence, describe staff and frequency of site inspections and activities.

The OU 6 (Deep Ground water) remediation system operates on a continuous basis (i.e. 24/7/365). Two engineers currently work at the OU 6 remediation system during normal working hours, five days a week all year. When the operators are not physically at the site, an automated system will alert them via telephone call if the remediation system requires attention. When necessary, one of the operators will return to the site and attend to the remediation system as required outside of normal work hours (evenings and weekends).

5. Have there been any significant changes in the O&M requirements, maintenance schedules, or sampling routines in the last five years? If so, do they affect the protectiveness or effectiveness of the remedy? Please describe changes and impacts.

The Deep Zone Ground water Remediation System has been and continues to be protective of human health and the environment. Minor modifications to the ground water sample program have been made for efficiency and after discussions with the regulatory agencies. Based on ground water data, the ground water extraction and injection systems have been modified to improve the efficiency of the overall system.

6. Have there been unexpected O&M difficulties or costs at the site since the last five years? If so, please give details.

O&M difficulties at the Deep Zone Ground water Remediation System include having to rehabilitate an extraction well after the well was turned off for about six months. Well rehabilitation is very costly and time consuming.

7. Have there been opportunities to optimize O&M, or sampling efforts? Please describe changes and resultant or desired cost savings or improved efficiency.

Extraction wells were added to the overall system to address dissolved VOCs in the groundwater at specific areas. When needed, extraction and injection wells are rehabilitated to improve efficiency. In addition, extraction wells are turned off and then restarted at different times to improve extraction efficiency.

Note that when an extraction or injection well is turned off for a relatively lengthy time (months or longer) naturally occurring bacteria grow and clog the screen interval requiring well rehabilitation prior to restarting extraction or injection. This is very important when considering long term changes such as a shut down. Should the Deep Zone Groundwater System be turned off for a month or longer, it will likely require very significant and costly work to restart the system due to the loss of extraction and injection well capacity.

8. Do you have any comments, suggestions, or recommendations regarding the project?

The Deep Zone Groundwater Treatment System has effectively remediated the San Jose Aquifer. The Deep Zone Groundwater Treatment System extracts, treats, and injects over 20 million gallons per month of virtually clean water. Data from only two monitoring wells in over 60 sampling wells indicate dissolved VOCs above ARARs. In other words, the San Jose Aquifer remediation (OU 6) is effectively complete.

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY		
Site Name: South Valley Superfund Site		**EPA ID No.:** NMD980745558
Location: Albuquerque, Bernalillo County, New Mexico		**Date: November 1, 2019**
Contact Made By:		
Name: Michael Hebert	**Title:** Remedial Project Manager	**Organization:** U.S. EPA
Telephone No.: (214) 665-8315 **E-Mail:** hebert.michael@epa.gov	**Street Address:** 1201 Elm Street, Suite 500, Mailcode SEDRL **City, State, Zip:** Dallas, Texas 75270	
Name: Bill Pearson	**Title:** State Project Manager	**Organization:** NMED
Telephone: (505) 827-0039 **E-Mail:** William.pearson@state.nm.us	**Street Address:** 1190 St. Francis Drive **City, State, Zip:** Santa Fe, New Mexico 87505	
Individual Contacted:		
Name: Todd Burt	**Title: Senior Vice President**	**Organization: Bohannan Huston Inc.**
Telephone No: 505-823-1000 **E-Mail Address: tburt@bhinc.com**	**Street Address: 7500 Jefferson St, NE** **City, State, Zip: Albuquerque, NM 87109**	

Survey Questions

1. What is your general impression of the work conducted at the South Valley Superfund Site?
The work is being handled in a professional manner. The site is kept clean and in working order.

2. What effects have site cleanup operation efforts had on the surrounding community/area? *Based on conversations with the staff, the groundwater contamination is being reduced and efforts to protect the groundwater resource appear beneficial. The staff have also worked to clean up "dumped" trash in the area and have contacted the County or City to assist with these activities.*

3. Are you aware of any community concerns regarding the South Valley Superfund Site? If so, please give details. *No.*

4. Are you aware of any complaints, incidents, or activities at the site in the past five years such as vandalism, trespassing, or emergency responses from local authorities? If so, please provide details. *No.*

5. Do you feel well informed about the site's activities and progress? If not, please indicate how you would like to be informed about site activities – for example by e-mail, regular mail, fact sheets, meetings, etc. *Yes. Communication from staff on-site has been thorough and responsive.*

6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation? *The facility remains in good condition and clean. The operations are overseen consistently and the staff are professional.*

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY		
Site Name: South Valley Superfund Site		**EPA ID No.:** NMD980745558
Location: Albuquerque, Bernalillo County, New Mexico		**Date:11/7/2019**
Contact Made By:		
Name: Michael Hebert	**Title:** Remedial Project Manager	**Organization:** U.S. EPA
Telephone No.: (214) 665-8315 **E-Mail:** hebert.michael@epa.gov	**Street Address:** 1201 Elm Street, Suite 500, Mailcode SEDRL **City, State, Zip:** Dallas, Texas 75270	
Name: Bill Pearson	**Title:** State Project Manager	**Organization:** NMED
Telephone: (505) 827-0039 **E-Mail:** William.pearson@state.nm.us	**Street Address:** 1190 St. Francis Drive **City, State, Zip:** Santa Fe, New Mexico 87505	
Individual Contacted:		
Name: Rodrigo Eichwald	**Title: Engineering Manager**	**Organization: Bernalillo County**
Telephone No: 505-848-1574 **E-Mail Address: rleichwald@bernco.gov**	**Street Address: 2400 Broadway SE** **City, State, Zip: ABQ, NM 87120**	

Survey Questions

1. What is your general impression of the work conducted at the South Valley Superfund Site?

The work being done to clean up the area is impressive.

2. What effects have site cleanup operation efforts had on the surrounding community/area?

It has allowed the Sunport Blvd Extension Project to move forward.

3. Are you aware of any community concerns regarding the South Valley Superfund Site? If so, please give details.

Yes, the community thinks incorrectly that the site has not been cleaned up and they won't let the sins of the past go.

4. Are you aware of any complaints, incidents, or activities at the site in the past five years such as vandalism, trespassing, or emergency responses from local authorities? If so, please provide details.

I'm not aware of any.

5. Do you feel well informed about the site's activities and progress? If not, please indicate how you would like to be informed about site activities – for example by e-mail, regular mail, fact sheets, meetings, etc.

Yes.

6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?

No, the Axis group is doing a fantastic job with their remediation.

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY		
Site Name: South Valley Superfund Site		**EPA ID No.:** NMD980745558
Location: Albuquerque, Bernalillo County, New Mexico		**Date: November 7, 2019**
Contact Made By:		
Name: Michael Hebert	**Title:** Remedial Project Manager	**Organization:** U.S. EPA
Telephone No.: (214) 665-8315 **E-Mail:** hebert.michael@epa.gov	**Street Address:** 1201 Elm Street, Suite 500, Mailcode 6SEDRL **City, State, Zip:** Dallas, Texas 75270	
Name: Bill Pearson	**Title:** State Project Manager	**Organization:** NMED
Telephone: (505) 827-0039 **E-Mail:** William.pearson@state.nm.us	**Street Address:** 1190 St. Francis Drive **City, State, Zip:** Santa Fe, New Mexico 87505	
Individual Contacted:		
Name: Brian Lopez	**Title: Construction Manager**	**Organization: Bernalillo County**
Telephone No: 505-848-1525 **E-Mail Address: bjlopez@bernco.gov**	**Street Address: 2400 Broadway** **City, State, Zip: Albuquerque, NM, 87102**	

Survey Questions

1. What is your general impression of the work conducted at the South Valley Superfund Site?
The work being performed is being handled in a thoughtful manner to the surrounding areas and is beneficial to the environment.
2. What effects have site cleanup operation efforts had on the surrounding community/area?
The site cleanup operation has been performed in a discrete manor so the efforts have had no negative effects.
3. Are you aware of any community concerns regarding the South Valley Superfund Site? If so, please give details. Comments received in the past concerning the site have been residents wanting a safe distance from potential chemical accidents, explosions and release of hazardous chemicals. Development in the area is being persued for financial gains at the expense of the health and well being of the many low income, minority residents in the San Jose and Mountain View communities. Projects in the area are implemented for the sole purpose of enhancing the industrial use of business in the northern area.

4. Are you aware of any complaints, incidents, or activities at the site in the past five years such as vandalism, trespassing, or emergency responses from local authorities? If so, please provide details.
The county is aware of constant trespassing where illegal dumping occurs on a regular basis.
5. Do you feel well informed about the site's activities and progress? If not, please indicate how you would like to be informed about site activities – for example by e-mail, regular mail, fact sheets, meetings, etc.
Yes, I feel I will informed about he site.
6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?
I do not have any additional comments.

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY

Site Name: South Valley Superfund Site	**EPA ID No.:**	NMD980745558
Location: Albuquerque, Bernalillo County, New Mexico	**Date: Novemb**	**19, 2019**
Contact Made By:		
Name: Michael Hebert	**Title:** Remedial Project Manager	**Organization:** U.S. EPA
Telephone No.: (214) 665-8315 **E-Mail:** hebert.michael@epa.gov	**Street Address:** 1201 Elm Street, Suite 500, Mailcode SEDRL **City, State, Zip:** Dallas, Texas 75270	
Name: Bill Pearson	**Title:** State Project Manager	**Organization:** NMED
Telephone: (505) 827-0039 **E-Mail:** William.pearson@state.nm.us	**Street Address:** 1190 St. Francis Drive **City, State, Zip:** Santa Fe, New Mexico 87505	
Individual Contacted:		
Name: Frances Armijo	**Title:**	**Organization:** *South Broadway Neighborhood Association*
Telephone No: *505-247-8798* **E-Mail Address:**	**Street Address:** *915 Williams St. SE* **City, State, Zip:** *Albuquerque, NM 87102*	

Survey Questions

1. What is your general impression of the work conducted at the South Valley Superfund Site?
Not doing enough about the pollution problem (air, water) to make he community safe.
2. What effects have site cleanup operation efforts had on the surrounding community/area?
Not sure.
3. Are you aware of any community concerns regarding the South Valley Superfund Site? If so, please give details.
Yes, concerned about air quality issues in San Jose and adjacent communities.
4. Are you aware of any complaints, incidents, or activities at the site in the past five years such as vandalism, trespassing, or emergency responses from local authorities? If so, please provide details.
NO.
5. Do you feel well informed about the site's activities and progress? If not, please indicate how you would like to be informed about site activities – for example by e-mail, regular mail, fact sheets, meetings, etc.
NO. I get all my information from Esther Abeyta concerning the SV Site. As a community organization I would like to be more informed about issues and events concerning the SV Site. Please add my organization, South Broadway Neighborhood Association, to your mailing/emailing list.

South Broadway Neighborhood Association
C/O Frances Armijo
915 Williams St. SE
Albuquerque, NM 87102
505-247-8798

6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation? *NO.*

APPENDIX E – SITE INSPECTION CHECKLIST

I. SITE INFORMATION	
Site name: South Valley Superfund Site - GEA	**Date of inspection:** October 22, 2019
Location and Region: Albuquerque, New Mexico	**EPA ID: NMD980745558**
Agency, office, or company leading the five-year review: EPA Region 6	**Weather/temperature:** Sunny, Calm, 50s

Remedy Includes: (Check all that apply)

_ Landfill cover/containment
X Access controls
X Institutional controls
X Ground water pump and treatment
_ Surface water collection and treatment
_ Monitored natural attenuation
_ Ground water containment
_ Vertical barrier walls
Other_____

Attachments: X Inspection team roster attached _ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** John Billiard (Name) Technical Director (Title) 10/22/2019 (Date)
   Interviewed X at site _ at office _ by phone Phone no. (303) 332-5757
   Problems, suggestions; X Report attached Survey form attached to report; interview at site as well.

2. **O&M staff** Leonard Stockton Jr. (Name) Senior Engineer (Title) 10/22/2019 (Date)
   Interviewed _at site _ at office _ by phone Phone no. (505) 247-3919
   Problems, suggestions; _ Report attached

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency County of Bernalillo
Contact Brian Lopez Construction Section Manager 10/12/2019 (505) 848-1525
Name Title Date Phone no.
Problems; suggestions; X Report attached

Agency ___
Contact ___ ___ ___ ___ ___
Name Title Date Phone no.
Problems; suggestions; Report attached

Agency ___
Contact ___ ___ ___
Name Title Date Phone no.
Problems; suggestions; Report attached

4. **Other interviews** (optional) X Report attached.

Ester and Steven Abeyta, San Jose Neighborhood Residents

Katy Brantingham, ARCADIS, Inc.

Julie Einerson, GEA Albuquerque

Todd Burt, Bohannan & Huston

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents

X O&M manual	X Readily available	X Up to date	N/A
X As-built drawings	X Readily available	X Up to date	N/A
X Maintenance logs	X Readily available	X Up to date	N/A

Remarks ___

2. Site-Specific Health and Safety Plan X Readily available X Up to date N/A

X Contingency plan/emergency response plan X Readily available X Up to date N/A

Remarks HASP 2014 and PCMP 2014

3. O&M and OSHA Training Records X Readily available X Up to date _N/A
Remarks Leonard Stockton and Louis Keating (Both on file at treatment plant office)

4. Permits and Service Agreements
_Air discharge permit _Readily available _Up to date X N/A
X Effluent discharge X Readily available X Up to date _N/A
_Waste disposal, POTW _Readily available _Up to date X N/A
_Other permits _____ _Readily available _Up to date X N/A
Remarks Ground Water Discharge Plan DP 1625, December 18, 2017

5. Gas Generation Records _Readily available _Up to date X N/A
Remarks _____

6. Settlement Monument Records _Readily available _Up to date X N/A
Remarks _____

7. Ground water Monitoring Records X Readily available X Up to date _N/A
Remarks Annual and Semi-Annual Reports

8. Leachate Extraction Records _Readily available _Up to date X N/A
Remarks _____

9. Discharge Compliance Records
_Air _Readily available _Up to date _N/A
X Water (effluent) X Readily available X Up to date _N/A
Remark s Records Provided Monthly

10. Daily Access/Security Logs X Readily available X Up to date _N/A
Remarks Sign in Sheet hanging by the Treatment Building Office

IV. O&M COSTS

1. O&M Organization
_State in-house _Contractor for State
_PRP in-house X Contractor for PRP
_Federal Facility in-house _Contractor for Federal Facility
_Other _____

2. O&M Cost Records

X Readily available X Up to date

_Funding mechanism/agreement in place

Original O&M cost estimate_____ _Breakdown attached

Total annual cost by year for review period if available

From_____ To_____ _____ _Breakdown attached
Date Date Total cost

From_____ To_____ _____ _Breakdown attached
Date Date Total cost

From_____ To_____ _____ _Breakdown attached
Date Date Total cost

From_____ To_____ _____ _Breakdown attached
Date Date Total cost

From_____ To_____ _____ _Breakdown attached
Date Date Total cost

3. Unanticipated or Unusually High O&M Costs During Review Period

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS X Applicable _ N/A

A. Fencing

1. Fencing damaged _ Location shown on site map X Gates secured _ N/A

Remarks___ Deep Zone Aquifer Treatment System: Treatment building is surrounded by a security fence; it is 9-ft high and consists of an 8-ft high chain-link fabric and three strands of barbed-wire supported by 45-degree extensions. Access is controlled by the plant personnel. All wells are outside of the fenced area but they are secured, extraction wells at the deep zone aquifer being also equipped with alarm systems after vandalism affected system operation. Access at the deep zone aquifer controlled by the Contractor._____

B. Other Access Restrictions

1. Signs and other security measures _ Location shown on site map X N/A

Remarks_____

_____

_____

C. Institutional Controls (ICs)

1. Implementation and enforcement

Site conditions imply ICs not properly implemented _Yes X No _N/A

Site conditions imply ICs not being fully enforced _Yes X No _N/A

Type of monitoring (e.g., self-reporting, drive by) Reporting by other entities to EPA; New Mexico Office of the State Engineers (NMOSE) drilling restrictions; ground water discharge permit

Frequency monthly reporting of discharged volumes, quarterly sampling for ground water permit

Responsible party/agency GEA; EPA; NMED

Contact _____ _____ _____ _____

Name Title Date Phone no.

Reporting is up-to-date X Yes _No _N/A

Reports are verified by the lead agency X Yes _No _N/A

Specific requirements in deed or decision documents have been met _Yes _No X N/A

Violations have been reported _Yes _No X N/A

Other problems or suggestions: _Report attached

EPA region 6 receives periodic report from entities covered by the Unilateral Order. NMOSE restricts issuing permits for drilling vicinity of the Site. NMED issued permit for ground water discharges

2. Adequacy X ICs are adequate _ICs are inadequate _N/A

Remarks

D. General

1. Vandalism/trespassing _Location shown on site map X No vandalism evident

Remarks

2. Land use changes on site X N/A

Remarks

3. Land use changes off site X N/A

Remarks

VI. GENERAL SITE CONDITIONS

A. Roads X Applicable _N/A

1. Roads damaged _Location shown on site map X_Roads adequate _N/A
Remarks_____

B. Other Site Conditions

Remarks The site's general appearance was excellent and well maintained.

VII. LANDFILL COVERS _Applicable X_N/A

A. Landfill Surface

1. Settlement (Low spots) _Location shown on site map _Settlement not evident
Areal extent_____Depth_____
Remarks_____

2. Cracks _ Location shown on site map _ Cracking not evident
Lengths_____ Widths_____ Depths_____
Remarks_____

3. Erosion _ Location shown on site map _ Erosion not evident
Areal extent_____Depth_____
Remarks_____

4. Holes _ Location shown on site map _ Holes not evident
Areal extent_____Depth_____
Remarks_____

5. Vegetative Cover _Grass _Cover properly established _No signs of stress
_Trees/Shrubs (indicate size and locations on a diagram)
Remarks_____

6. Alternative Cover (armored rock, concrete, etc.) _N/A
Remarks_____

7. Bulges _ Location shown on site map _ Bulges not evident
Areal extent_____Height_____
Remarks_____

8. Wet Areas/Water Damage _Wet areas/water damage not evident

_ Wet areas _ Location shown on site map Areal extent_____
_ Ponding _ Location shown on site map Areal extent_____
_ Seeps _ Location shown on site map Areal extent_____
_ Soft subgrade _ Location shown on site map Areal extent_____

Remarks_____

9. Slope Instability _Slides _Location shown on site map _No evidence of slope instability

Areal extent_____

Remarks_____

B. Benches _Applicable X_N/A

(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. Flows Bypass Bench _Location shown on site map _N/A or okay

Remarks_____

2. Bench Breached _Location shown on site map _N/A or okay

Remarks_____

3. Bench Overtopped _Location shown on site map _N/A or okay

Remarks_____

C. Letdown Channels _Applicable X_N/A

(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. Settlement _ Location shown on site map _ No evidence of settlement

Areal extent_____Depth_____

Remarks_____

2. Material Degradation _ Location shown on site map _ No evidence of degradation
Material type_____ Areal extent_____
Remarks_____
_____

3. Erosion _Location shown on site map _No evidence of erosion
Areal extent_____Depth_____
Remarks_____
_____

4. Undercutting _Location shown on site map _ No evidence of undercutting
Areal extent_____Depth_____
Remarks_____
_____

5. Obstructions Type_____ _No obstructions
_Location shown on site map Areal extent_____
Size_____
Remarks_____
_____

6. Excessive Vegetative Growth Type_____
_No evidence of excessive growth
_Vegetation in channels does not obstruct flow
_Location shown on site map Areal extent_____
Remarks_____
_____

D. Cover Penetrations _Applicable X_N/A

1. Gas Vents _Active _Passive
_Properly secured/locked _Functioning _Routinely sampled _Good condition
_Evidence of leakage at penetration _Needs Maintenance
_N/A
Remarks_____
_____

2. Gas Monitoring Probes
_ Properly secured/locked _ Functioning _ Routinely sampled _ Good condition
_ Evidence of leakage at penetration _ Needs Maintenance _ N/A
Remarks_____
_____

3. Monitoring Wells (within surface area of landfill)

_Properly secured/locked _Functioning _Routinely sampled _Good condition

_Evidence of leakage at penetration _Needs Maintenance _N/A

Remarks_____

_____

4. Leachate Extraction Wells

_ Properly secured/locked _ Functioning _ Routinely sampled _ Good condition

_ Evidence of leakage at penetration _ Needs Maintenance _ N/A

Remarks_____

_____

5. Settlement Monuments _Located _Routinely surveyed _N/A

Remarks_____

_____

E. Gas Collection and Treatment _Applicable X_N/A

1. Gas Treatment Facilities

_Flaring _Thermal destruction _Collection for reuse

_Good condition _Needs Maintenance

Remarks_____

_____

2. Gas Collection Wells, Manifolds and Piping

_Good condition _Needs Maintenance

Remarks_____

_____

3. Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings)

_Good condition _Needs Maintenance _N/A

Remarks_____

_____

F. Cover Drainage Layer _Applicable X_N/A

1. Outlet Pipes Inspected _Functioning _N/A

Remarks_____

_____

2. Outlet Rock Inspected _Functioning _N/A

Remarks_____

_____

G. Detention/Sedimentation Ponds _Applicable X_N/A

1. Siltation Areal extent_____Depth_____
_ N/A _ Siltation not evident
Remarks_____
_____

2. Erosion Areal extent_____ Depth_____
_Erosion not evident
Remarks_____
_____

3. Outlet Works _Functioning _N/A
Remarks_____
_____

4. Dam _Functioning _N/A
Remarks_____
_____

H. Retaining Walls _Applicable X_N/A

1. Deformations _Location shown on site map _Deformation not evident
Horizontal displacement_____ Vertical displacement_____
Rotational displacement_____
Remarks_____
_____

2. Degradation _Location shown on site map _Degradation not evident
Remarks_____
_____

I. Perimeter Ditches/Off-Site Discharge _Applicable X_N/A

1. Siltation _Location shown on site map _Siltation not evident
Areal extent_____Depth_____
Remarks_____
_____

2. Vegetative Growth _Location shown on site map _N/A
_Vegetation does not impede flow
Areal extent_____Type_____
Remarks_____
_____

3. Erosion _Location shown on site map _Erosion not evident
Areal extent_____Depth_____
Remarks_____
_____

4. Discharge Structure _Functioning _N/A
Remarks_____
_____
_____

VIII. VERTICAL BARRIER WALLS _Applicable X N/A

1. Settlement _Location shown on site map _Settlement not evident
Areal extent_____Depth_____
Remarks_____
_____

2. Performance Monitoring Type of monitoring_____
_Performance not monitored Frequency_____ _Evidence of breaching
Head differential_____
Remarks_____
_____
_____

IX. GROUND WATER/SURFACE WATER REMEDIES X Applicable _N/A

A. Ground water Extraction Wells, Pumps, and Pipelines X Applicable _N/A

1. Pumps, Wellhead Plumbing, and Electrical
X Good condition X All required wells properly operating _Needs Maintenance _N/A
Remarks_____
_____

2. Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances
X Good condition _Needs Maintenance
Remarks_____
_____

3. Spare Parts and Equipment
X Readily available X Good condition _Requires upgrade _Needs to be provided
Remarks_____
_____

B. Surface Water Collection Structures, Pumps, and Pipelines _Applicable X N/A

1. Collection Structures, Pumps, and Electrical

_Good condition _Needs Maintenance

Remarks_____

_____

2. Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances

_Good condition _Needs Maintenance

Remarks_____

_____

3. Spare Parts and Equipment

_Readily available _Good condition _Requires upgrade _Needs to be provided

Remarks_____

_____

_____

C. Treatment System X_Applicable _N/A

1. Treatment Train (Check components that apply)

_Metals removal _Oil/water separation _Bioremediation

X Air stripping X Carbon adsorbers

X Filters_____

X Additive (e.g., chelation agent, flocculent)__AquaMag and pH control

Others_____

X Good condition _Needs Maintenance

X Sampling ports properly marked and functional

X Sampling/maintenance log displayed and up to date

X Equipment properly identified

X Quantity of ground water treated annually ___See Report_____

_Quantity of surface water treated annually_____

Remarks_____

_____

2. Electrical Enclosures and Panels (properly rated and functional)

_N/A X Good condition _Needs Maintenance

Remarks_____

_____

3. Tanks, Vaults, Storage Vessels _N/A X Good condition _Proper secondary containment _Needs Maintenance Remarks_____ _____
4. Discharge Structure and Appurtenances _N/A X Good condition _Needs Maintenance Remarks_____ _____ _____
5. Treatment Building(s) _N/A X Good condition (esp. roof and doorways) _Needs repair _Chemicals and equipment properly stored Remarks_____ _____
6. Monitoring Wells (pump and treatment remedy) X Properly secured/locked X Functioning X Routinely sampled X Good condition X All required wells located _Needs Maintenance _N/A Remarks_____ _____ _____
D. Monitoring Data X Applicable _ N/A
1. Monitoring Data X Is routinely submitted on time X Is of acceptable quality
2. Monitoring data suggests: X Ground water plume is effectively contained X Contaminant concentrations are declining
D. Monitored Natural Attenuation X Applicable _ N/A

1. Monitoring Wells (natural attenuation remedy)

_Properly secured/locked
_Functioning
_Routinely sampled
_Good condition
_All required wells located
_Needs Maintenance
_N/A

Remarks_____

_____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describin_the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

___Remedy functioned as designed._____

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

_____ Current O&M activities for wells are adequate._____

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

____There are no early indicators of potential remedy failure._____

_____

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

See Five-Year Review report.

I. SITE INFORMATION	
Site name: South Valley Superfund Site - Univar	**Date of inspection:** October 21, 2019
Location and Region: Albuquerque, New Mexico	**EPA ID: NMD980745558**
Agency, office, or company leading the five-year review: EPA Region 6	**Weather/temperature: Calm and sunny**

Remedy Includes: (Check all that apply)

_ Landfill cover/containment
X Access controls
X Institutional controls
X Ground water pump and treatment
_ Surface water collection and treatment
_ Monitored natural attenuation
_ Ground water containment
_ Vertical barrier walls
Other_____

Attachments: X Inspection team roster attached _ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Katy Brantingham (Name) ARCADIS Project Manager (Title) 10-21-2019 (Date)
   Interviewed X at site _ at office _ by phone Phone no. (480) 229-6004
   Problems, suggestions; X Report attached Survey form attached to report; interview at site as well.

2. **O&M staff** None at Site (Name) NA (Title) _____ (Date)
   Interviewed _at site _ at office _ by phone Phone no. _____
   Problems, suggestions; _ Report attached

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency County of Bernalillo
Contact Brian Lopez Construction Section Manager 12/12/2014 (505) 848-1525
Name Title Date Phone no.
Problems; suggestions; X Report attached

Agency ___
Contact ___
Name Title Date Phone no.
Problems; suggestions; Report attached

Agency _____
Contact _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; _Report attached

4. **Other interviews** (optional) X Report attached.

Ester and Steven Abeyta, San Jose Neighborhood Residents

John Billiard, Axis Group, Inc.

Julie Einerson, GEA

Todd Burt, Bohannan & Huston

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents

X O&M manual X Readily available X Up to date _N/A
X As-built drawings X Readily available X Up to date _N/A
X Maintenance logs X Readily available X Up to date _N/A
Remarks ___

2. Site-Specific Health and Safety Plan X Readily available X Up to date _N/A
X Contingency plan/emergency response plan X Readily available X Up to date _N/A
Remarks ___

3. O&M and OSHA Training Records _Readily available _Up to date X N/A
Remarks _Kept with ARCADIS, records are up to date.

4. Permits and Service Agreements

_Air discharge permit _Readily available _Up to date X_N/A

_Effluent discharge _Readily available _Up to date X_N/A

_Waste disposal, POTW _Readily available _Up to date X_N/A

_Other permits_____ _Readily available _Up to date _N/A

Remarks __State Engineer Permit for extraction wells_and Plant facility water supply well._____

5. Gas Generation Records _Readily available _Up to date X_N/A

Remarks_____

_____

6. Settlement Monument Records _Readily available _Up to date X_N/A

Remarks_____

_____

7. Ground water Monitoring Records _Readily available _Up to date X_N/A

Remarks_____

_____

_____

8. Leachate Extraction Records _Readily available _Up to date X_N/A

Remarks_____

_____

9. Discharge Compliance Records

X_ Air _Readily available _Up to date _N/A

_Water (effluent) _Readily available _Up to date X_N/A

Remarks Obtained for VES from City of Albuquerque, system terminated in 2005. Permit Terminated._____

10. Daily Access/Security Logs X_Readily available X_Up to date _N/A

Remarks_____

IV. O&M COSTS

1. O&M Organization

_State in-house _Contractor for State

_PRP in-house X_Contractor for PRP

_Federal Facility in-house _Contractor for Federal Facility

_Other_____

_____

2. O&M Cost Records

X_Readily available X_Up to date

_Funding mechanism/agreement in place

Original O&M cost estimate_____ _Breakdown attached

Total annual cost by year for review period if available

From_____ To_____ _____ _Breakdown attached
Date Date Total cost

From_____ To_____ _____ _Breakdown attached
Date Date Total cost

From_____ To_____ _____ _Breakdown attached
Date Date Total cost

From_____ To_____ _____ _Breakdown attached
Date Date Total cost

From_____ To_____ _____ _Breakdown attached
Date Date Total cost

3. Unanticipated or Unusually High O&M Costs During Review Period

Describe costs and reasons:

__None_____

_____

V. ACCESS AND INSTITUTIONAL CONTROLS X_ Applicable _ N/A

A. Fencing

1. Fencing damaged _ Location shown on site map X_ Gates secured _ N/A

Remarks_____Perimeter security fence has been installed

B. Other Access Restrictions

1. X Signs and other security measures _ Location shown on site map _ N/A

Remarks___No signs placed on fences to identify facility for security purposes; surveillance cameras have been installed.

C. Institutional Controls (ICs)

1. Implementation and enforcement

Site conditions imply ICs not properly implemented _Yes _No X_N/A

Site conditions imply ICs not being fully enforced _Yes _No X_N/A

Type of monitoring (e.g., self-reporting, drive by)

_____

Frequency

_____

Responsible party/agency

_____

Contact _____ _____ _____ _____

Name Title Date Phone no.

Reporting is up-to-date _Yes _No _N/A

Reports are verified by the lead agency _Yes _No _N/A

Specific requirements in deed or decision documents have been met _Yes _No _ N/A

Violations have been reported _Yes _No _N/A

Other problems or suggestions: _Report attached

_____

_____

_____

_____

_____

2. Adequacy _ICs are adequate _ICs are inadequate _N/A

Remarks_____

_____

_____

_____

D. General

1. Vandalism/trespassing _Location shown on site map X_No vandalism evident

Remarks ___Off-site areas around monitoring wells, lots of dumping, mostly construction debris and household items. _____

2. Land use changes on site X_ N/A

Remarks_____

_____

_____

3. Land use changes off site _ N/A

Remarks __Parcel of land to north of Plant contains three monitoring wells has change ownership, no access at this time but not a problem with remedy, wells not currently sampled.

VI. GENERAL SITE CONDITIONS

A. Roads X_ Applicable _ N/A

1. Roads damaged _ Location shown on site map X_ Roads adequate _ N/A

Remarks_____

_____

B. Other Site Conditions

Remarks ___See D. 1. _____

VII. LANDFILL COVERS _Applicable X_N/A

A. Landfill Surface

1. Settlement (Low spots) _Location shown on site map _Settlement not evident

Areal extent_____Depth_____

Remarks_____

_____

2. Cracks _ Location shown on site map _ Cracking not evident

Lengths_____ Widths_____ Depths_____

Remarks_____

_____

3. Erosion _ Location shown on site map _ Erosion not evident

Areal extent_____Depth_____

Remarks_____

_____

_____

4. Holes _ Location shown on site map _ Holes not evident

Areal extent_____Depth_____

Remarks_____

_____

5. Vegetative Cover _Grass _Cover properly established _No signs of stress

_Trees/Shrubs (indicate size and locations on a diagram)

Remarks_____

_____

6. Alternative Cover (armored rock, concrete, etc.) _N/A

Remarks_____

_____

7. Bulges _ Location shown on site map _ Bulges not evident

Areal extent_____Height_____

Remarks_____

_____

8. Wet Areas/Water Damage _Wet areas/water damage not evident

_ Wet areas _ Location shown on site map Areal extent_____

_ Ponding _ Location shown on site map Areal extent_____

_ Seeps _ Location shown on site map Areal extent_____

_ Soft subgrade _ Location shown on site map Areal extent_____

Remarks_____

_____

_____

9. Slope Instability _Slides _Location shown on site map _No evidence of slope instability

Areal extent_____

Remarks_____

_____

_____

B. Benches _Applicable X_ N/A

(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. Flows Bypass Bench _Location shown on site map _N/A or okay

Remarks_____

_____

_____

2. Bench Breached _Location shown on site map _N/A or okay

Remarks_____

_____

_____

3. Bench Overtopped _Location shown on site map _N/A or okay

Remarks_____

_____

_____

C. Letdown Channels _Applicable X_ N/A

(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. Settlement _ Location shown on site map _ No evidence of settlement

Areal extent_____ Depth_____

Remarks_____

_____

_____

2. Material Degradation _ Location shown on site map _ No evidence of degradation

Material type_____ Areal extent_____

Remarks_____

_____

_____

3. Erosion _Location shown on site map _No evidence of erosion

Areal extent_____ Depth_____

Remarks_____

_____

_____

4. Undercutting _Location shown on site map _ No evidence of undercutting

Areal extent_____ Depth_____

Remarks_____

_____

_____

5. Obstructions Type_____ _No obstructions

_Location shown on site map Areal extent_____

Size_____

Remarks_____

_____

_____

6. Excessive Vegetative Growth Type_____

_No evidence of excessive growth

_Vegetation in channels does not obstruct flow

_Location shown on site map Areal extent_____

Remarks_____

_____

_____

D. Cover Penetrations _Applicable X_N/A

1. Gas Vents _Active _Passive
_Properly secured/locked _Functioning _Routinely sampled _Good condition
_Evidence of leakage at penetration _Needs Maintenance
_N/A
Remarks_____
_____
_____

2. Gas Monitoring Probes
_ Properly secured/locked _ Functioning _ Routinely sampled _ Good condition
_ Evidence of leakage at penetration _ Needs Maintenance _ N/A
Remarks_____
_____
_____

3. Monitoring Wells (within surface area of landfill)
_Properly secured/locked _Functioning _Routinely sampled _Good condition
_Evidence of leakage at penetration _Needs Maintenance _N/A
Remarks_____
_____

4. Leachate Extraction Wells
_ Properly secured/locked _ Functioning _ Routinely sampled _ Good condition
_ Evidence of leakage at penetration _ Needs Maintenance _ N/A
Remarks_____
_____
_____

5. Settlement Monuments _Located _Routinely surveyed _N/A
Remarks_____
_____
_____

E. Gas Collection and Treatment _Applicable X_ N/A

1. Gas Treatment Facilities
_Flaring _Thermal destruction _Collection for reuse
_Good condition _Needs Maintenance
Remarks_____
_____
_____

2. Gas Collection Wells, Manifolds and Piping

_Good condition _Needs Maintenance

Remarks_____

_____

_____

3. Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings)

_Good condition _Needs Maintenance _N/A

Remarks_____

_____

_____

F. Cover Drainage Layer _Applicable X N/A

1. Outlet Pipes Inspected _Functioning _N/A

Remarks_____

_____

_____

2. Outlet Rock Inspected _Functioning _N/A

Remarks_____

_____

_____

G. Detention/Sedimentation Ponds _Applicable X_N/A

1. Siltation Areal extent_____Depth_____

_ N/A _ Siltation not evident

Remarks_____

_____

_____

2. Erosion Areal extent_____ Depth_____

_Erosion not evident

Remarks_____

_____

_____

3. Outlet Works _Functioning _N/A

Remarks_____

_____

_____

4. Dam _Functioning _N/A

Remarks_____

_____

_____

H. Retaining Walls _Applicable X_N/A

1. Deformations _Location shown on site map _Deformation not evident
Horizontal displacement_____ Vertical displacement_____
Rotational displacement_____
Remarks_____
_____
_____

2. Degradation _Location shown on site map _Degradation not evident
Remarks_____
_____
_____

I. Perimeter Ditches/Off-Site Discharge _Applicable X_N/A

1. Siltation _Location shown on site map _Siltation not evident
Areal extent_____Depth_____
Remarks_____
_____
_____

2. Vegetative Growth _Location shown on site map _N/A
_Vegetation does not impede flow
Areal extent_____Type_____
Remarks_____
_____

3. Erosion _Location shown on site map _Erosion not evident
Areal extent_____Depth_____
Remarks_____
_____

4. Discharge Structure _Functioning _N/A
Remarks_____
_____
_____

VIII. VERTICAL BARRIER WALLS _Applicable X_N/A

1. Settlement _Location shown on site map _Settlement not evident
Areal extent_____Depth_____
Remarks_____
_____
_____

2. Performance Monitoring Type of monitoring_____

_Performance not monitored Frequency_____ _Evidence of breaching

Head differential_____

Remarks_____

_____

_____

IX. GROUND WATER/SURFACE WATER REMEDIES X_ Applicable _N/A

A. Ground water Extraction Wells, Pumps, and Pipelines X_ Applicable _N/A

1. Pumps, Wellhead Plumbing, and Electrical

X_ Good condition X_ All required wells properly operating _Needs Maintenance _N/A

Remarks_____

_____

2. Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances

X_ Good condition _Needs Maintenance

Remarks VES Unit removed, piping and wells still in place; portion of wells and piping used in 1,4-Dioxane water treatment system, VES terminated in 2005.

~~3. Spare Parts and Equipment~~

X_Readily available _Good condition _Requires upgrade _Needs to be provided

Remarks _____

B. Surface Water Collection Structures, Pumps, and Pipelines _Applicable X_N/A

1. Collection Structures, Pumps, and Electrical

_ Good condition _Needs Maintenance

Remarks_____

_____

2. Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances

_Good condition _Needs Maintenance

Remarks_____

_____

_____

3. Spare Parts and Equipment

_Readily available _Good condition _Requires upgrade _Needs to be provided

Remarks_____

_____

_____

C. Treatment System X_Applicable _N/A

1. Treatment Train (Check components that apply)

_ Metals removal _Oil/water separation _Bioremediation

__Air stripping _Carbon adsorbers

_Filters_____

_Additive (e.g., chelation agent, flocculent)_____

X Others___1,4-dioxane removal by Advanced Oxidation method.

X Good condition _Needs Maintenance

X Sampling ports properly marked and functional

X Sampling/maintenance log displayed and up to date

X Equipment properly identified

_Quantity of ground water treated annually_____

_Quantity of surface water treated annually_____

Remarks_____

_____

_____

2. Electrical Enclosures and Panels (properly rated and functional)

_N/A X Good condition _Needs Maintenance

Remarks_____

_____

_____

3. Tanks, Vaults, Storage Vessels

_N/A X Good condition _Proper secondary containment _Needs Maintenance

Remarks_____

_____

_____

4. Discharge Structure and Appurtenances

_N/A X Good condition _Needs Maintenance

Remarks_____

_____

_____

5. Treatment Building(s)

_N/A X Good condition (esp. roof and doorways) _Needs repair

X Chemicals and equipment properly stored

Remarks_____

_____

_____

6. Monitoring Wells (pump and treatment remedy)

X Properly secured/locked X Functioning X Routinely sampled X Good condition

X All required wells located _Needs Maintenance _N/A

Remarks_____

_____

_____

D. Monitoring Data

1. Monitoring Data

X Is routinely submitted on time X Is of acceptable quality

2. Monitoring data suggests:

X Ground water plume is effectively contained X Contaminant concentrations are declining

E. Monitored Natural Attenuation

1. Monitoring Wells (natural attenuation remedy)

_Properly secured/locked

_Functioning

_Routinely sampled

_Good condition

_All required wells located

_Needs Maintenance

_N/A

Remarks_____

_____

_____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describin_the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relatin_to whether the remedy is effective and functionin_as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

_____Remedy functioned as designed._____

_____

_____

B. Adequacy of O&M
Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. _____Current O&M activities are adequate._____ _____ _____
C. Early Indicators of Potential Remedy Problems
Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. _____There are no early indicators of potential remedy failure._____ _____ _____
D. Opportunities for Optimization
Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. _____See Five-Year Review Report_____ _____

APPENDIX F – SITE INSPECTION PHOTOS

Photograph No. 1 Site: South Valley Superfund Site

Description: OU 03, Outside Treatment Buildings looking North.

Photograph No. 2 Site: South Valley Superfund

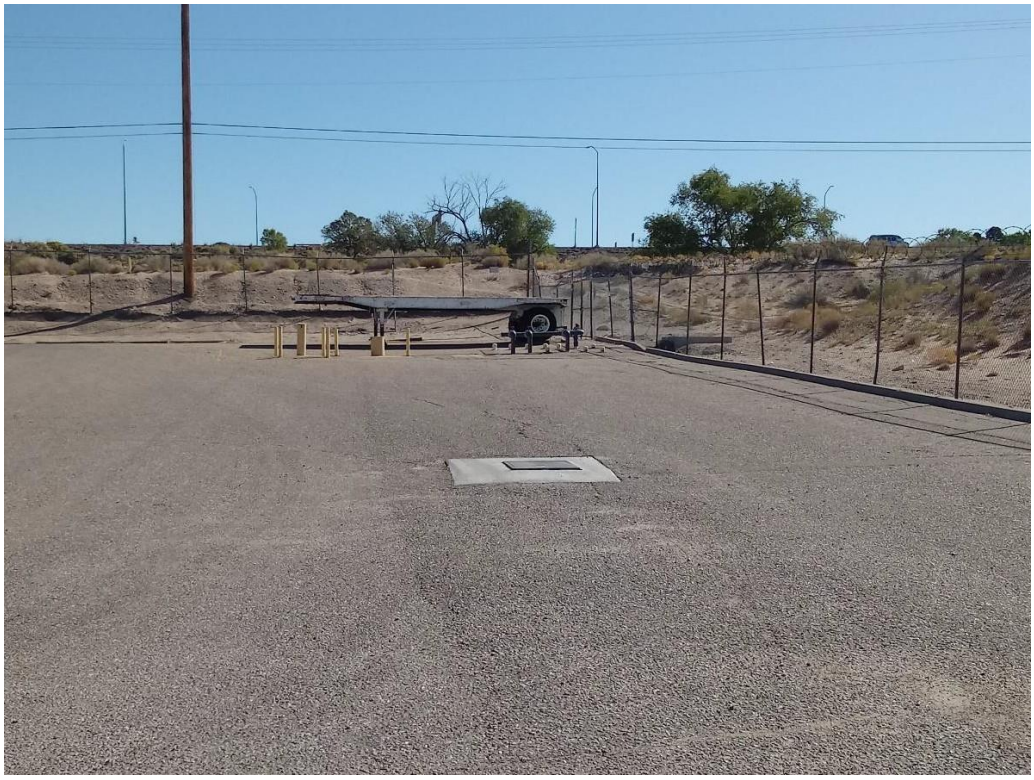
Description: OU 03, Extraction Wells Influent and effluent from Old Treatment Building.

Photograph No. 3 Site: South Valley Superfund

Description: OU 03, New 1,4-dioxane Advanced Oxidation Treatment Building.

Photograph No. 4 Site: South Valley Superfund
Description: OU 03, Equalization Tank and sand filter unit in Treatment Building.

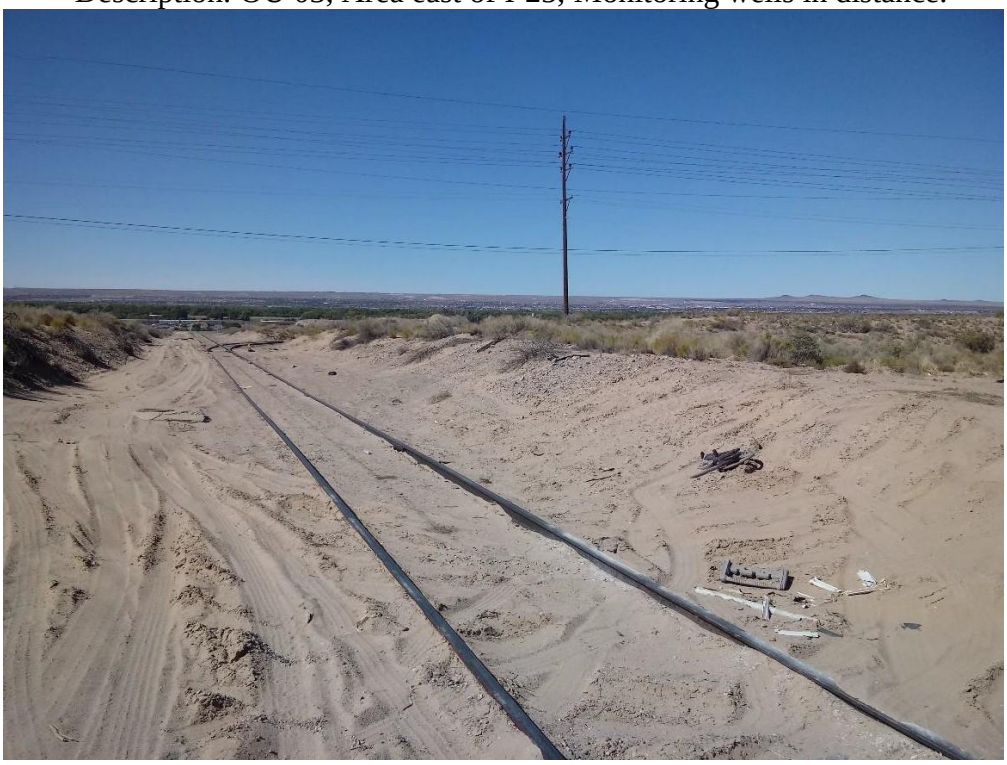
Photograph No. 5 Site: South Valley Superfund
Description: OU 03, UV Oxidation Unit and Hydrogen Peroxide tank in Treatment Building.



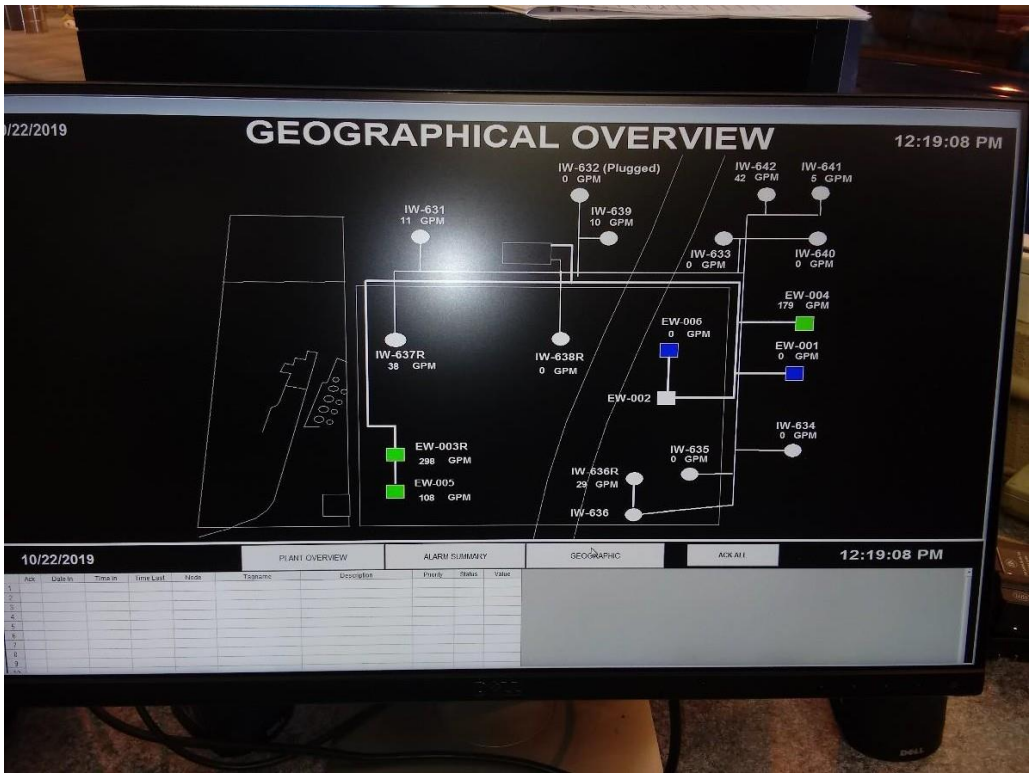
Photograph No. 6 Site: South Valley Superfund
Description: OU 03, Area of VES Treatment Unit – removed. Piping still in place.

Photograph No. 7 Site: South Valley Superfund
Description: OU 03, Area east of fenced area; extraction, injection and monitoring wells.

Photograph No. 8 Site: South Valley Superfund
Description: OU 03, Area east of I-25; Monitoring wells in distance.

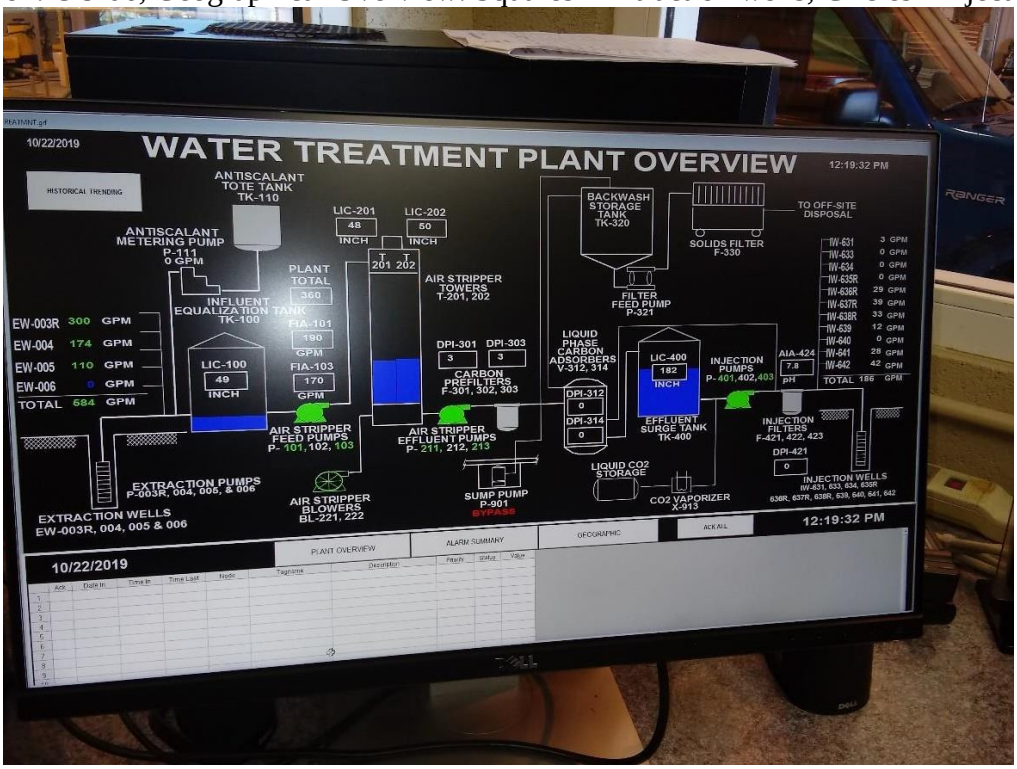


Photograph No. 9 Site: South Valley Superfund
Description: OU 03, Area west of I-25; Railroad spur area of trash dumping.



Photograph No. 10 Site: South Valley Superfund

Description: OU 06, Geographical Overview. Squares– Extraction wells; Circles - Injection wells.



Photograph No. 11 Site: South Valley Superfund

Description: OU 06, Water Treatment Plant Overview.

Photograph No. 12 Site: South Valley Superfund

Description: OU 06, Influent water lines from Extraction wells.

Photograph No. 13 Site: South Valley Superfund

Description: OU 06, Influent water lines from Extraction wells

Photograph No. 14 Site: South Valley Superfund

Description: OU 06, Influent Equalization Tank.

Photograph No. 15 Site: South Valley Superfund

Description: OU 06, Air Stripper towers (2)

Photograph No. 16 Site: South Valley Superfund

Description: OU 06, Carbon Prefilters (3).

Photograph No. 17 Site: South Valley Superfund

Description: OU 06, Liquid Phase Carbon Absorbers (2).

Photograph No. 18 Site: South Valley Superfund
Description: OU 06, Effluent Surge Tank after Carbon Filters.

Photograph No. 19 Site: South Valley Superfund

Description: OU 06, Injection Pumps and Filters. Treated Water is pumped to Injection Wells.

Photograph No. 20 Site: South Valley Superfund

Description: OU 05, Monitoring Well – WB-01 looking northwest at Chevron Facilities.

Photograph No. 21 Site: South Valley Superfund
Description: OU 05, South Plant 83 Area; Concrete Cap, Institutional Control

APPENDIX G – NEWSPAPER AFFIDAVIT OF PUBLICATION

PUBLIC NOTICE

U.S. EPA Region 6
South Valley Superfund Site
Five Year Review
September 2019

The United States Environmental Protection Agency (EPA) and the New Mexico Environment Department (NMED) are conducting the sixth five-year review of the South Valley Superfund Site (Site) in Bernalillo County, New Mexico. The review is required by law under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to assure that human health and the environment are being protected by the remedial actions taken at the Site.

The Site includes two properties: General Electric Aviation where manufacturing occurred and Univar which was used for various industrial and commercial purposes. The Site is approximately 1-square-mile located at the intersection of Broadway Blvd. and Woodward Rd in the South Valley of Albuquerque, NM. The Site is composed of six operable units with a ground water contamination plume containing volatile organic compounds (VOC's) at concentrations greater than EPA drinking wa-

AFFIDAVIT OF PUBLICATION

STATE OF NEW MEXICO

County of Bernalillo SS

Elise Rodriguez , the undersigned, on oath states that she is an authorized Representative of The Albuquerque Journal, and that this newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Session Laws of 1937, and that payment therefore has been made of assessed as court cost; that the notice, copy of which hereto attached, was published in said paper in the regular daily edition, for 1 time(s) on the following date(s):

09/06/2019

OFFICIAL SEAL
Susan Ramirez
NOTARY PUBLIC - STATE OF NEW MEXICO
My Commission Expires: 2/15/2023

Sworn and subscribed before me, a Notary Public, in and for the County of Bernalillo and State of New Mexico this 6 day of September of 2019

PRICE $134.02

Statement to come at the end of month.

ACCOUNT NUMBER 1007595

ter standards or maximum contaminant levels. The presence of VOC's in ground water is a result of past releases from manufacturing operations and chemical distribution. The Site treatment system consists of a ground water extraction, treatment, and re-inject systems. Contaminated ground water is located within the shallow and deep aquifer zones.

The review will summarize the past five years of the remedial activities and evaluate if the remedy continues to protect public health and the environment. This five-year review is scheduled for completion by September 2020 and the report will be made available to the public at the Site's, information repositories:

Zimmerman Library
Government Information Dept.
University of New Mexico
Albuquerque, NM 87131
505.277.9100

New Mexico Environment Department
Ground Water Quality Bureau
1190 St. Francis Drive, Suite N2300
Santa Fe, NM 87502-5469

The EPA seeks the public's input for this five-year review.

If you have any questions, issues or concerns regarding this Superfund Site, please contact the EPA project manager, Mike Hebert at 214.665.8315 or 1.800.533.3508 (toll free) or by email at hebert.michael@epa.gov. You may also contact the NMED project manager, Bill Pearson, at 505.827.0039 or by email at william.pearson@state.nm.us.

Additional information about the South Valley Superfund Site is available at the site repositories or at https://cumulis.epa.gov/supercpad/CurSites/csitinfo.cfm?id=0600881&msspp=med

Journal: September 6, 2019

AVISO PÚBLICO

Región 6 de la EPA de EE. UU.
Sitio del Superfondo de South Valley
Revisión de cinco años
Septiembre 2019

La Agencia de Protección Ambiental de los Estados Unidos (EPA, por sus siglas en inglés) y el Departamento de Medio Ambiente de Nuevo México (NMED, por sus siglas en inglés) están llevando a cabo la sexta revisión de cinco años del Sitio del Superfondo de South Valley (Sitio) en el condado de Bernalillo, Nuevo México. La ley exige la revisión bajo la autoridad de la Ley Integral de Respuesta, Compensación y Responsabilidad Ambiental (CERCLA) para garantizar que la salud humana y el medio ambiente estén protegidos por las medidas correctivas tomadas en el Sitio.

El Sitio incluye dos propiedades: General Electric Aviation donde se produjo la fabricación y Univar, que se utilizó para diversos fines industriales y comerciales. El sitio de aproximadamente 1 milla cuadrada está ubicado en la intersección de Broadway Blvd. y Woodward Rd en South Valley, Albuquerque, NM. El sitio está compuesto por seis unidades operables con una pluma de contaminación de agua subterránea que contiene compuestos orgánicos volátiles (COV) en concentraciones mayores a los estándares de agua potable de la EPA o niveles máximos de contaminantes. La presencia de COV en el agua subterránea es el resultado de emisiones anteriores de operaciones de fabricación y distribución de productos químicos. El sistema de tratamiento del sitio consiste en una extracción de agua subterránea, tratamiento y sistemas de reinyección. El agua subterránea contaminada se encuentra dentro de zonas de acuíferos poco profundos y acuíferos profundos.

AFFIDAVIT OF PUBLICATION

STATE OF NEW MEXICO

County of Bernalillo SS

Elise Rodriguez , the undersigned, on oath states that she is an authorized Representative of The Albuquerque Journal, and that this newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Session Laws of 1937, and that payment therefore has been made of assessed as court cost; that the notice, copy of which hereto attached, was published in said paper in the regular daily edition, for 1 time(s) on the following date(s):

09/06/2019

OFFICIAL SEAL
Susan Ramirez
NOTARY PUBLIC - STATE OF NEW MEXICO
My Commission Expires: 2/15/2023

Sworn and subscribed before me, a Notary Public, in and for the County of Bernalillo and State of New Mexico this 6 day of September of 2019

PRICE $154.56

Statement to come at the end of month.

ACCOUNT NUMBER 1007595

La revisión resumirá los últimos cinco años de las actividades correctivas y evaluará si el remedio continúa protegiendo la salud pública y el medio ambiente. Esta revisión de cinco años está programada para finalizar en septiembre de 2020 y el informe se pondrá a disposición del público en los repositorios de información del Sitio:

Biblioteca Zimmerman
Departamento de Información del Gobierno
Universidad de Nuevo México
Albuquerque, NM 87131
505.277.9100

Departamento de Medio Ambiente de Nuevo México
Oficina de Calidad de Aguas Subterráneas
1190 St. Francis Drive, Suite N2300
Santa Fe, NM 87502-5469

La EPA busca comentarios del público para esta revisión de cinco años.

Si tiene alguna pregunta, problema o inquietud con respecto a este Sitio del Superfondo, comuníquese con el gerente del proyecto de la EPA, Mike Hebert, al 214.665.8315 o al 1.800.533.3508 (llamada gratuita) o por correo electrónico en hebert.michael@epa.gov. También puede comunicarse con el gerente del proyecto de NMED, Bill Pearson, al 505.827.0039 o por correo electrónico en william.pearson@state.nm.us.

Hay disponible información adicional sobre el Sitio del Superfondo de South Valley en los repositorios del sitio o en https://cumulis.epa.gov/supercpad/CurSites/csitinfo.cfm?id=0600881&mssppp=med

Journal: September 6, 2019