

***Annual Report on Groundwater
Monitoring, Area IV, 2023***

***Santa Susana Field Laboratory
Ventura County, California***



Prepared for:
**United States
Department of Energy**

Prepared by:
North Wind Portage, Inc.

April 2025
Revision 1



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Ventura County, California***

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Revision 1

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PROFESSIONAL CERTIFICATION

**Annual Report on Groundwater Monitoring, Area IV, 2023
January 1 through December 31, 2023
Santa Susana Field Laboratory
Ventura County, California**

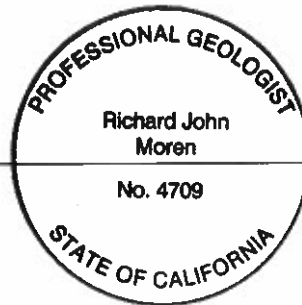
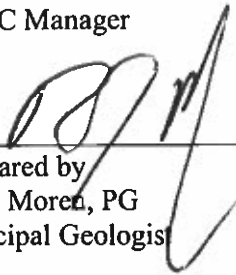
April 2025

Revision 1

This Annual Groundwater Monitoring Report has been prepared by a team of qualified professionals under the supervision of the senior staff whose seal and signatures appear below.

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EXECUTIVE SUMMARY

This report summarizes the United States Department of Energy (DOE) groundwater monitoring activities conducted during 2023 at Area IV within the Santa Susana Field Laboratory (SSFL), located in Ventura County, California. This report is prepared by DOE to satisfy the California Environmental Protection Agency (EPA) and Department of Toxic Substances Control (DTSC) requirements to report on annual groundwater monitoring at SSFL. The report has been developed by North Wind Portage, Inc., (North Wind) in collaboration and with contributions from CDM Federal Programs Corporation (CDM Smith), and includes water quality data collected from administrative Area IV, Northern Buffer Zone, and off-site wells. For simplicity, data from these areas reported herein are referred to as “Area IV.” DOE has gone above and beyond meeting the groundwater requirements outlined in the Site-Wide Groundwater Water Quality Sampling and Analysis Plan (WQSAP) by including additional water quality samples in support of the Groundwater Resource Conservation and Recovery Act Facility Investigations (RFI) Program (CDM Smith 2015a).

Water quality samples were collected in Q1 2023 pursuant to the Site-Wide Groundwater Monitoring Program (Haley & Aldrich 2010b) and the RFI Program (CDM Smith 2015a) with water levels measured quarterly. The Q1 2023 sampling event was conducted during a period of higher-than-normal rainfall across the region. Based on results in the Q1 2023 report, stakeholders agreed to an off-normal round of groundwater sample collection in Q3 2023 to address possible groundwater impacts from the high rainfall during Q1 2023. All results are considered sufficient to meet project requirements. Site-wide samples were collected except for wells RD-59A and RD-59B, which were inaccessible in the Q1 2023 sampling round. Two wells were selected as alternate sampling locations (C-08 and DS-46).

Sample Results Evaluation

Some analytes were reported for the first time and above the associated SSFL screening criteria in wells with established historical data during Q1 2023 and Q3 2023:

Q1 2023

- 1,4-dioxane in well PZ-120 (1.12 µg/L).
- Trichloroethene in well DD-157 at 9.96 µg/L (total).

Q3 2023

- Various dissolved and total reportable metals in wells DD-141, PZ-104, PZ-121, PZ-124, PZ-162, PZ-163, RD-27, and RD-74. Data from future sampling rounds will be used to evaluate potential trends.
- Diesel-range organics (DRO) in wells DD-139 (127 µg/L JQ/J [total]), PZ-005 (135 µg/L J/J [total]), PZ-104 (213 µg/L Q/J [total]), PZ-120 (320 µg/L Q/J [total]), PZ-162 (118 µg/L QJ/J [total]), RD-64 (169 µg/L J/J [total]), and RD-65 (165 µg/L J/J [total]).
- Gasoline-range organics (GRO) in wells DD-144 (39.7 µg/L J/J [total]), DS-48 (23 µg/L J/J [total]), PZ-108 (58.4 µg/L J/J [total]), PZ-163 (50.8 µg/L J/J [total]), and RD-64 (42.9 µg/L J/J [total]).

These first-time detections above the relevant screening levels may result from statistical variability and influenced by seasonal rainfall impacting near-surface conditions. Data from future sampling rounds will be used to evaluate potential trends.

Some analytes were reported at a new maximum concentration and above the associated SSFL screening criteria in wells with established historical data during Q1 2023 and Q3 2023:

Q1 2023

- 1,4-dioxane in wells DD-144 (2.18 µg/L total), PZ-098 (1.38 µg/L total), and PZ-163 (2.21 µg/L total).
- Various dissolved and total reportable metals in wells RD-21, RD-34A, RD-91, DS-43, DS-45, RS-28, PZ-005, PZ-098, PZ-102, PZ-105, and PZ-109. Data from future sampling rounds will be used to evaluate potential trends.
- Fluoride in well RD-34B at 1 mg/L. Data from future sampling rounds will be used to evaluate potential trends.
- Cis-1,2-DCE in well PZ-109 (36.3 µg/L) — while not a first detection, it is higher than previous detections and is related to breakdown of TCE in groundwater causing the presence of this daughter product.
- Trichloroethene in well DS-48 at 41.4 µg/L and well PZ-109 at 10 µg/L. The new maximum detection in PZ-109 is consistent with previous detections. The new maximum in DS-48 is appreciably higher than the previous reported detections. Since DS-48 is a relatively new well, data from future sampling rounds will be used to further evaluate extent and potential trends.
- Radium-226 in RD-98 (6.45 pCi/L dissolved) and RS-28 (7.17 pCi/L dissolved).
- Strontium-90 in RD-98 (119 pCi/L total).
- Nitrate as N in PZ-005 at 14.3 QH/J mg/L.

Q3 2023

- 1,4-dioxane in well PZ-120 (1.55 µg/L total).
- Various dissolved and total reportable metals in wells DD-144, DS-45, DS-47, PZ-005, PZ-041, PZ-103, PZ-104, PZ-105, PZ-108, PZ-109, PZ-120, PZ-121, PZ-122, RD-54A, and RD-64. Data from future sampling rounds will be used to evaluate potential trends.
- Cis-1,2-DCE in well PZ-163 (10.2 µg/L total). While a new maximum, this is related to breakdown of TCE in groundwater causing the presence of this daughter product.
- GRO in well RD-54A (24 µg/L J/J total) and RD-65 (154 µg/L total).
- Trichloroethene in well DS-48 at 41.7 µg/L (total). The new maximum in DS-48 is only slightly higher than the Q1 2023 reported detection. Since DS-48 is a relatively new well, data from future sampling rounds will be used to further evaluate extent and potential trends.
- Off-site wells RD-59A and RD-59B were not sampled in Q1 2023 due to dangerous access conditions caused by significant rainfall events across the region. Additionally, off-site wells were not selected for sampling in Q3 2023.

Analytes that were above associated SSFL screening criteria in Site-Wide Monitoring Program wells will be sampled in 2024. New first-time detected analytes in Site-Wide wells will also be sampled for in 2024.

Conclusions

The 2023 sampling activities met the objectives stated in the Site-Wide Groundwater Monitoring Program and Site-Wide WQSAP except where noted above and in the body of this report. Areas of impact to groundwater from contaminants of concern remained consistent and will be further evaluated with the 2023 results to see if any changes are required. Any newly detected sample results will be monitored in future sampling events.

Heavy seasonal rainfall in the spring of 2023 resulted in an overall increase in the static groundwater level across Area IV. With few exceptions, the largest increases in static water levels were measured between the Q1 2023 and Q2 2023 well gaging events. Continued increases were much more subdued between the Q2 2023 and Q3 water level gaging events. The large range in water level increases and the rapid response to the rainfall event are a result of the complex topographic, stratigraphic, and structural features present in and around Area IV.

In general, chemical sample results were consistent with historical results, and increases or decreases in concentrations may have been influenced by seasonal rains, statistical variability, and/or movement of groundwater caused by pumping of wells in the Former Sodium Disposal Facility area as part of the groundwater interim measure. Data from future sampling rounds will be used to evaluate extent and potential trends.

Recommendations

In the Annual Report for 2022, some outstanding issues were identified, and recommendations were made for potential follow-up work. These recommendations and how they were addressed during the Q1 2023 sampling event are as follows:

- Add well DS-46 for sampling in 2023 to further evaluate the increasing trend of 1,4-dioxane in that well from 2018 (1.5 µg/L); 2019 (2.2 /J µg/L); and 2020 (3.7 µg/L). The well was not sampled in 2021 or 2022. **DS-46 was sampled in 2023. The results (3.6 µg/L in Q1 2023 and 3.28 µg/L in Q3 2023) were consistent with the 2020 result.**
- Update the WQSAP (Haley & Aldrich 2010b) to include contaminants of concern, including tritium, to further evaluate potential trends in wells such as RD-90 and RD-95. **This recommendation is administrative in nature and is under consideration.**

Recommendations for follow-up in 2024 include:

- Update the WQSAP (Haley & Aldrich 2010b) to include contaminants of concern (COCs), including tritium, to further evaluate potential trends in wells such as RD-90 and RD-95.
- Continue to monitor the increased number of wells across Area IV with detections of DRO and GRO above the screening criteria to evaluate potential trends related to the rainfall and percolation that occurred in Spring 2023.
- Continue to monitor TCE in the Former Sodium Disposal Facility (FSDF) Groundwater Impact Area. There was a noticeable increase in TCE from 2022 to 2023 in several wells (RD-65, RD-54A) due to the high seasonal rainfall in Spring 2023.
- Continue to monitor TCE in the Hazardous Materials Storage Area/Coal Gasification Process Development Unit (HMSA)/(PDU) Groundwater Impact Area. Though less pronounced than the impact to FSDF, TCE levels increased noticeably in several wells (DD-144 and PZ-163) in this area also.

- Continue to monitor reportable metals concentrations across the site. The number of new maximum detections for reportable metals in 2023 was increased due to increased precipitation and infiltration. Continued monitoring will support extent and trend analysis.
- New detections (maximum detection) of the COCs in the Site-Wide Groundwater Monitoring Program above the SSFL screening value were reported in the following 17 wells: DD-139, DD-141, DD-144, DD-157, DS-48, PZ-005, PZ-104, PZ-108, PZ-120, PZ-121, PZ-124, PZ-162, PZ-163, RD-27, RD-64, RD-65, and RD-74. These wells are recommended for future sampling rounds to evaluate potential extent and trends.

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ACRONYMS AND ABBREVIATIONS

µg/L	micrograms per liter
1,1-DCA	1,1-dichloroethane
1,1-DCE	1,1-dichloroethene
1,2,3-TCP	1,2,3-trichloropropane
1,2-DCA	1,2-dichloroethane
22 CCR	Title 22 of California Code of Regulations
Boeing	The Boeing Company
BTOC	below top of casing
CDM Smith	CDM Federal Programs Corporation
cis-1,2-DCE	cis-1,2-dichloroethene
COC	contaminant of concern
DOE	United States Department of Energy
DPH	Department of Public Health
DQO	data quality objective
DRO	diesel-range organics
DTSC	Department of Toxic Substances Control
EPA	United States Environmental Protection Agency
FSDF	Former Sodium Disposal Facility
GRO	gasoline-range organics
GWIM	groundwater interim measure
GWRC	Groundwater Resources Consultants
HMSA	Hazardous Materials Storage Area
HSA	hollow-stem auger
IDW	investigation-derived waste
LUFT	leaking underground fuel tank
MCL	maximum contaminant level
MDL	method detection limit
mg/L	milligrams per liter
mrem/yr	millirems per year
MSL	mean sea level
MWH	Montgomery Watson Harza
NASA	National Aeronautics and Space Administration
NDMA	n-nitrosodimethylamine

North Wind	North Wind Portage, Inc.
OCY	Old Conservation Yard
PCE	tetrachloroethene
pCi/L	picocuries per liter
PCP	Post-Closure Permit
PDU	Coal Gasification Process Development Unit
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RMHF	Radioactive Materials Handling Facility
RI	Remedial Investigation
RWQCB	Regional Water Quality Control Board
SMCL	secondary maximum contaminant level
SSFL	Santa Susana Field Laboratory
SWGWRBSL	site-wide groundwater risk-based screening level
TCE	trichloroethene
TPH	total petroleum hydrocarbons
trans-1,2-DCE	trans-1,2-dichloroethene
VOC	volatile organic compound
WQSAP	Water Quality Sampling and Analysis Plan

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Annual Report on Groundwater Monitoring, Area IV, 2023

Santa Susana Field Laboratory Ventura County, California

1. INTRODUCTION

This report summarizes the groundwater monitoring activities conducted during 2023 by the United States Department of Energy (DOE) within Area IV of the Santa Susana Field Laboratory (SSFL) located in Ventura County, California (Figure 1). Historical annual reports prior to 2014 reported groundwater monitoring activities performed for the entirety of SSFL, including areas administered by The Boeing Company (Boeing) and the National Aeronautics and Space Administration (NASA) at administrative Areas I, II, III, IV, and undeveloped land both to the north and south. Beginning in 2014, DOE has been submitting annual reports for wells within Area IV for which it has responsibility under the 2007 Consent Order for Corrective Action (Department of Toxic Substances Control [DTSC] 2007). This report describes groundwater monitoring activities that occurred from January 1, 2023, through December 31, 2023, within administrative Area IV, the Northern Buffer Zone, and off-site wells located to the north and west of Area IV. For simplicity, administrative Area IV, Northern Buffer Zone, and off-site wells associated with Area IV are termed “Area IV” in this report.

In typical years, groundwater samples are collected during the first quarter (Q1) of the calendar year. The Q1 2023 sampling event was conducted during a period of higher-than-normal rainfall across the region. Based on results in the Q1 2023 report, stakeholders agreed to an off-normal round of groundwater sample collection in Q3 2023 to address possible groundwater impacts from the high rainfall during Q1 2023. This annual report discusses the analytical results of the two quarters and provides additional information on the impacts of the historical rainfall on the groundwater levels within Area IV. This report contains Area IV information relative to DOE activities only and as such has been modified to reflect regulatory compliance requirements for Area IV. There are currently no Post-Closure Permit (PCP) Regulated Unit Monitoring Program requirements or leaking underground fuel tank (LUFT) requirements for Area IV.

Area IV groundwater monitoring activities described in this report were the result of implementation of the December 2010 Site-Wide Water Quality Sampling and Analysis Plan (WQSAP; Haley & Aldrich 2010b), and site-wide activities in support of the DOE Area IV Groundwater Resource Conservation and Recovery Act (RCRA) Facility Investigations (RFI) Program (CDM Smith 2015a).

1.1 Site Description

The SSFL is located approximately 29 miles northwest of downtown Los Angeles, California, in the southeast corner of Ventura County (Figure 1). The SSFL occupies approximately 2,850 acres of hilly terrain, with approximately 1,100 feet of topographic relief near the crest of the Simi Hills. Figure 1 shows the geographic location and property boundaries of the site, as well as surrounding areas. The site is divided into four administrative areas (Areas I, II, III, and IV) and includes undeveloped land both to the north and south. Most of Area I and all of Areas III and IV are owned by Boeing. The United States Environmental Protection Agency (EPA) Identification Number for Areas I and III is CAD093365435. Area II is owned by the federal government and administered by NASA along with a portion of Area I. The EPA Identification Number for Area II is CA1800090010. Boeing owns the entirety of Area IV. The

EPA Identification Numbers for Area IV are CAD000629972 and CA389009001. Ninety acres of Area IV were leased to the DOE, which also owns facilities in Area IV. The northern and southern undeveloped lands of SSFL were not used for industrial activities and are owned by Boeing.

1.2 Regulatory Background

Prior to 2014, groundwater sampling activities for Area IV were reported along with results from Areas I, II, and III. As a result, previous annual reports were intended to fulfill the requirements of multiple regulatory programs being implemented at SSFL. These include requirements addressed in the PCP monitoring programs (Regulated Unit Programs) for Areas I, II, and III approved by the California EPA DTSC, the Site-Wide Groundwater Monitoring Program approved by DTSC, and LUFT monitoring program overseen by DTSC. There are no Regulated Unit or LUFT requirements for Area IV and thus they are not addressed in this document.

The content of this report complies with the December 2010 Site-Wide WQSAP (Haley & Aldrich 2010b). The Site-Wide Groundwater Monitoring Program is prescribed by the Site-Wide WQSAP.

1.3 Objectives

Area IV groundwater compliance requirements are presented in the Site-Wide Groundwater Monitoring Program. The objective of this report is to document compliance with that program. The scope of this report includes the following:

- Executive summary of significant findings;
- Summary of monitoring programs and activities conducted during the calendar year;
- Summary of maintenance inspections of monitored wells, if any;
- Summary of modifications made to monitoring equipment during the calendar year, if any;
- Summary of deviations from the Site-Wide WQSAP, if any;
- Discussion of significant events that may influence the occurrence and movement of groundwater;
- Summary of results of laboratory analyses of water samples;
- Summary tables indicating monitoring parameter results that lie outside of historical range for each monitoring location;
- Summary of constituent concentrations at wells that exceed SSFL groundwater screening reference values (SSFL screening criteria);
- Summary of outstanding issues and/or follow-up work;
- Contaminant plume maps with isoconcentration contours for specific regulated units or areas;
- Water level data, hydrographs, and groundwater elevation contour maps;
- Contaminant concentration versus time plots and a discussion of evident trends; and
- Results of quality assurance/quality control sampling and analysis and assessment of data quality, including accuracy, precision, and completeness with associated laboratory and data validation reports.

1.4 Report Organization

The remainder of this report is organized as follows:

- Section 2 provides a description of the site geology and hydrogeology;
- Section 3 provides a summary of the activities performed during this reporting period;
- Section 4 presents the results of field work and analytical testing;
- Section 5 presents planned activities for 2024; and
- Section 6 provides references.

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2. SITE GEOLOGY AND HYDROGEOLOGY

2.1 Geology

The SSFL is in the Western Transverse Ranges physiographic province of southern California. The province's geology and physiography reflect at least 70 million years of geologic history. The sedimentary rocks in the portion encompassing SSFL range from coarse-grained conglomerates and sandstones to fine-grained siltstones and shale. The geologic history of the Western Transverse Ranges is complex and involves several distinct episodes of structural deformation involving tectonic extension, rotation, compression, and shearing. Near SSFL, this has caused the Western Transverse Ranges to rotate more than 90 degrees clockwise. This complex geologic history is reflected in multiple fold, fault, and fracture orientations in the vicinity of SSFL.

The Chatsworth Formation underlies much of the province and is exposed across most of SSFL (Figure 2). It is a turbid sandstone with interbedded shale, siltstone, and conglomerate approximately 6,000 feet thick and more than 65 million years old. As a result of geologic folding, the Chatsworth Formation dips moderately (typically 25 to 35 degrees) to the northwest at SSFL, along the south limb of the Simi Valley syncline. Detailed geologic mapping in the site vicinity was performed to augment published geologic maps, resulting in the subdivision of the Chatsworth Formation into upper and lower units (Montgomery Watson Harza [MWH] 2009). The lower formation is exposed in southeastern SSFL and dips northwest beneath the remainder of the site. The upper Chatsworth Formation is exposed across much of the remainder of the site and has been subdivided further into stratigraphic packages consisting of coarse- and fine-grained members. Numerous steeply dipping to near-vertical faults offset this stratigraphy. Fault gouge and fracturing, ancillary to faults, are observed at some locations.

Unconsolidated deposits at SSFL include alluvium, artificial fill, and thin soils over the Chatsworth Formation (bedrock). The alluvium generally consists of silty sand and occurs in topographic lows and along ephemeral drainages. Areas with 5 to 30 feet of alluvium cover more than 300 acres of SSFL, or about 11 percent of the site.

2.2 Hydrogeology

Groundwater occurs at SSFL in alluvium and weathered and unweathered bedrock (Montgomery Watson 2000; MWH 2009). First-encountered groundwater may be observed in any of these media under water table conditions. For regulatory purposes, near-surface groundwater is defined to occur within the site's unconsolidated deposits (e.g., alluvium) and shallow weathered bedrock, whereas deep groundwater, referred to as "Chatsworth Formation groundwater," occurs in the unweathered bedrock. The near-surface groundwater may be perched or vertically continuous with deeper groundwater.

The boundaries of the mountain groundwater system encompassing SSFL include where the Simi Hills meet the floor of the Simi and San Fernando valleys, and where groundwater tends to discharge to seeps and phreatophytes along several surrounding canyons. The base of the active groundwater flow system occurs at the boundary between fresh and connate groundwater, assumed to occur at approximately sea level. The upper boundary of the mountain groundwater flow system is the regional water table and localized perched water tables. Hydrogeologic boundaries internal to the groundwater flow system include areas of groundwater discharge to seeps and phreatophytes, pumped wells, and various boundary effects along faults and geologic contacts.

Portions of the Chatsworth Formation comprise locally transmissive aquifer units. These units generally consist of the fractured sandstone members of the upper Chatsworth Formation, many of which are

several hundred feet thick. Separating the major sandstone units are a series of relatively thin shale and siltstone members that typically behave as aquitards.

The arrangement and geometry of the hydrogeologic units are controlled by geologic contacts, folding, and faulting. Faults truncate permeable zones and fractures, juxtapose different units and fold orientations, and form low-permeability boundaries and zones of enhanced fracturing. Together, these structures result in a complex three-dimensional distribution of hydrogeologic units and anisotropic permeability that influence directions and rates of groundwater flow. Major faults subdivide SSFL into several large blocks, which are further subdivided by shale beds.

The SSFL water table is a subdued reflection of the topography, which, relative to the surrounding valleys, presents as a large groundwater mound that is maintained by rainfall recharge. Distinct differences in groundwater head are observed across fine-grained units and faults that impede groundwater flow. Groundwater moves from areas of recharge toward pumping wells and downward and outward toward hill slope seeps and the surrounding lowlands. The direction of vertical flow is downward at most site locations. Insight into the pattern of SSFL groundwater flow has been provided through the development and use of a representative three-dimensional groundwater flow model (CDM Smith 2018).

3. REPORTING PERIOD ACTIVITIES

The reporting period for this report covers the 2023 calendar year, from January 1, 2023, to December 31, 2023. Groundwater samples were collected as part of the Area IV Site-Wide Groundwater Monitoring Program and to support the DOE Groundwater RFI Program. North Wind Portage, Inc., (North Wind) completed field groundwater monitoring activities and CDM Smith completed groundwater investigation and remediation activities during the reporting period.

The Site-Wide Groundwater Monitoring Program – December 2010 Site-Wide WQSAP (Haley & Aldrich 2010b) was implemented to fulfill the groundwater monitoring program specific to Area IV at SSFL, with exceptions to the WQSAP described in Section 3.5. The following activities stipulated by the Site-Wide WQSAP were conducted during the reporting period:

- Measurement of groundwater levels at all accessible program wells.
- Collection and submission of groundwater samples from select wells for laboratory analysis.
- Data validation, data analysis, and database management.

The activities of Groundwater RFI (CDM Smith 2015a) sampling conducted during 2023 consisted of:

- Collecting water levels and groundwater samples from monitoring wells not sampled as part of the Site-Wide Groundwater Monitoring Program.
- Closing the remaining groundwater data gaps for existing wells through additional chemical analyses from those stated in the Site-Wide WQSAP.
- Sampling to support groundwater investigations and interim measures, as described in Section 3.1.

All data collection activities reported herein were performed separately by North Wind and CDM Smith under separate contracts to DOE. Table 1 lists the wells present within Area IV during the sampling and associated sampling program and identifies those wells that were sampled under the WQSAP or sampled to address groundwater RFI data needs.

Well, piezometer, and seep locations are shown on Figure 3. Figure 4 identifies the wells that were sampled in Q1 2023 and Q3 2023 with discussions included in this report. Well construction details are provided in Appendix A.

3.1 DOE Groundwater Investigation and Remediation Activities

3.1.1 Groundwater Elevation Monitoring

Water level measurements were collected monthly at the Former Sodium Disposal Facility (FSDF) and Hazardous Materials Storage Area (HMSA) and collected periodically at the Old Conservation Yard (OCY). The measurements are used to identify the effects of precipitation recharging near-surface groundwater, and the decline in water levels following the precipitation events.

The effects of above-average 2023 rainfall were significant, resulting in rising water levels following winter rainfall in Q1 2023 and the subdued increase or decline in water levels in Q2, Q3, and Q4 2023. A slight rise in water levels was observed following a significant rainfall event in August 2023.

Annual rainfall data are presented in Appendix B.

3.1.2 New Well Installations

CDM Smith installed six new monitoring wells at the HMSA in Q4 2023. This work was performed under the *Final Area IV Groundwater Data Gap Well Installation Work Plan Addendum 2 for the Hazardous Materials Storage Area*, dated October 2023 (CDM Smith 2023a).

All work areas were surveyed using *U.S. Fish and Wildlife Service (USFWS) Biological Opinion for the Cleanup of Area IV of the Santa Susana Field Laboratory (2018-F-0407)* (USFWS 2018). During all intrusive work, monitoring was performed under *Monitoring and Inadvertent Discovery Plan for Tribal and Archeological Monitors for Remediation of Area IV and Northern Buffer Zone of Santa Susana Field Laboratory* (DOE 2020).

Monitoring wells were installed by BC2 Environmental using a hollow-stem auger (HSA) drill rig. Well installation commenced on November 11 with well development completed on December 20, 2023. An 8-inch-diameter HSA was used to penetrate the unconsolidated alluvium and weathered bedrock sandstone. Upon review of lithologic logs and consultation with CDM Smith and DOE, the total depth of the borehole and polyvinyl chloride screen interval was selected to meet the well's data quality objective (DQO).

The new and existing HMSA wells will be sampled in Q1 2024. HMSA investigation data will be presented in the HMSA Data Gap Well Installation activities report scheduled for submission in April 2024. This report will include borings logged by certified geologist under the supervision of California registered geologist, well construction diagrams, and monitoring well development data.

3.1.3 FSDF Groundwater Interim Action

The FSDF Groundwater Interim Measure (GWIM) continued in calendar year 2023. Four wells (RS-54, C-21, C-24, and C-25) exhibiting elevated volatile organic chemical (VOC) groundwater concentrations were pumped on a routine basis. RS-54 was pumped 39 times with 1,533 gallons extracted. C-21 was pumped 45 times with 3,632 gallons extracted. C-24 was pumped 39 times with 1,501 gallons extracted. C-25 was pumped 19 times with 494 gallons extracted. A total of 7,160 gallons were extracted from these wells in 2023.

During the course of the 2023 GWIM operation, water samples from extraction wells were collected and analyzed for VOCs and periodically for metals. The FSDF GWIM will continue in 2024 because 2023 sample results showed that groundwater VOC concentrations remained above the 1,000 micrograms per liter ($\mu\text{g/L}$) VOC threshold in several samples. Data for the FSDF GWIM will be presented in the FSDF GWIM 2023 Annual Report scheduled for submission in March 2024.

3.1.4 Other Groundwater Sampling Activities

CDM Smith collected samples from various locations in Area IV for specific DQOs during 2023. Each sampling activity is summarized below.

Seep Sampling – From May 22 through May 30, 2023, seep wells SP-T02A, SP-T02B, SP-T02C, SP-T02D, SP-19A, SP-19B, SP-424A, SP-424B, SP-424C, and SP-900B were sampled (Q2 2023).

Depending on water availability, samples were collected for VOCs, metals, tritium, and gross alpha/gross beta. The results for all wells were consistent with prior year's sampling results. The results of the sampling event will be provided in a report to be submitted in February 2024.

FSDF GWIM Monitoring Data – In addition to the GWIM groundwater samples collected from the extraction wells discussed in Section 3.1.3, groundwater samples were collected in 2023 to monitor the FSDF groundwater investigation area. Ten monitoring wells (C-20, C-22, C-23, C-26, C-27, C-28, C-29, C-30, C-32, and RS-18) were sampled to further develop and update the FSDF conceptual site model. Data from FSDF GWIM extraction and monitoring wells will be presented in the FSDF GWIM 2023 Annual Report scheduled for submission in March 2024.

FSDF Borehole Isolation – Prior to implementation of borehole isolation activities at C-08, RD-23, RD-54A, and RD-65 a groundwater sample was collected from these wells on October 9, 2023. The results of the sampling event will be provided in the FSDF Borehole Isolation activities report scheduled for submission in April 2024.

3.1.5 Other Investigation Activities

OCY Geophysical Survey – A geophysical survey to evaluate the presence of metal debris and equipment in the OCY was performed November 6 through 15, 2023. The objective of the field geophysical survey was to locate potential surface and subsurface metal debris or equipment at the OCY that could have contributed to soil or groundwater impacts. This work was performed under the *Final Geophysical Survey Work Plan for the Old Conservation Yard*, dated November 2023 (CDM Smith 2023b).

SubSurface Surveys & Associates, Inc. performed and provided information on detectable surface and subsurface debris to as great a depth as possible. CDM Smith will evaluate the geophysical survey results and compare to existing soil and groundwater flow direction data to assess if monitoring wells are adequately located. The OCY geophysical survey report is scheduled for submission in March 2024.

3.2 Modifications to Well Network and Equipment

In Q4 2023, multiple well modifications activities occurred in Area IV, as described below.

Open Borehole Video Survey

On October 24, 2023, Pacific Surveys conducted a video survey of wells RD-57, RD-74, and C-23 to determine the type and degree of obstruction in the wells. The results of the video survey are discussed in sections below for these wells.

Borehole Isolation

The objective of the interval isolation work was to insert a barrier into the borehole to prevent seepage from the impacted shallow interval from contaminating deeper groundwater. The barrier incorporated a pipe that allowed access to the groundwater beneath the barrier for sampling and water level measurements. Monitoring wells C-08, RD-23, RD-54A, and RD-65 at the FSDF were included in the borehole isolation program.

Borehole isolation work started on November 3 and was completed on December 14, 2023. BC2 Environmental reamed and installed the barrier in the wells. Well construction data and field observations for this work will be provided in the FSDF Borehole Isolation activities report scheduled for submission in April 2024.

During reaming of C-08, a loose pipe fitting and corroded surface seal allowed the release of drill cuttings onto the ground and a nearby coastal oak. An engineered solution was developed and implemented with drill cuttings transported to the investigation-derived waste (IDW) soil bin. To ensure drill cuttings have

not negatively impacted the ground or oak, solid cuttings were collected and disposed of in the IDW soil bin. Surface water wattles were placed around the oak, the leaves cleaned using potable water, and rinse water collected and contained in an IDW 55-gallon steel drum. Soil samples were collected from the non-impacted areas and from areas that underwent restoration. These soil sample results will be reported in the FSDF Borehole Isolation activities report scheduled for submission in April 2024.

RD-57 FLUTE™ System Removal

A FLUTE™ system was installed in September 2003, and an attempt was made to remove it in June 2016. Approximately 280 feet of liner were removed from the borehole. Water level and groundwater samples could not be collected due to the liner being present in the open borehole. This liner had to be removed for RD-57 to be operational and available for monitoring.

A video survey of RD-57 conducted on October 24, 2023, revealed the liner present at 150 feet bgs and no fishing tool attachment points available at the exposed liner. For this reason, removal of the liner using fishing tools could not be performed and the decision was made to use a 6.5-inch-diameter reaming bit to pulverize and remove the liner from open borehole.

Because of the durability of liner materials (transducer wiring, sample tubing, sample ports, metal rope, and liner) pulverizing the 139 feet of liner was more difficult than anticipated. Reaming and pulverizing of the liner was performed from October 25 through 30, and from December 18 through 26, 2023.

Reaming of the borehole and removal of the liner was achieved to a total depth of 300 feet bgs. The interval from 300 to the total depth of the well of 419 feet bgs remains inaccessible. Field observations for this work and recommendations will be provided in the RD-57 FLUTE™ System activities report scheduled for submission in March 2024.

RD-57 is accessed by a narrow dirt road in the Northern Buffer Zone. A six-wheeled drill rig, four-wheeled air compressor, four-wheel-drive all-terrain forklift, and support vehicles and trailers were required to perform the work. Seasonal precipitation occurred, which made the dirt road muddy and difficult to navigate. In several corridors, the heavy vehicles created ruts (soil disturbance), which will require repair. CDM Smith intends to hire a subcontractor to smooth the road in these areas.

Well Obstruction Removal

During numerous well gauging events, water level and total depth at monitoring well RD-74 could not be accomplished due to a reported obstruction in the open borehole at 95.1 feet bgs. A video survey was performed and found rock/sediment at 93.8 feet below top of casing (BTOC) but no evidence of an abandoned pump in the well. Although originally scheduled for reaming using a 6.5-inch-diameter bedrock reaming bit, it was decided that the sediments could be removed using well development techniques. RD-74 was re-developed on December 20, 2023. Total depth of the well following sediment removal and re-development was 96.7 ft BTOC with approximately 1.5 feet of sediment remaining in the well.

A video survey of C-23 confirmed a thick root system from an adjacent coastal oak growing between the end of conductor casing and start of the open borehole, and continuing down the borehole to a hard camera stop at 12.8 feet BTOC. An attempt was made to use a “cookie cutter” head, wire line, and water development rig to remove the roots on December 19, 2023. Due to thickness of roots and lack of weight on the cookie cutter, roots could not be removed from the borehole using this method. Additional rehabilitation on C-23 will be performed in 2024 to allow water level monitoring and groundwater extraction if necessary.

Roots and/or sediment were removed from C-25, C-26, and C-29 using the well development rig on December 18 and 19, 2023. These wells were successfully rehabilitated.

Well Re-Development

Two wells (DD-158 and DD-159) at the OCY and one well (DD-157) at the HMSA were subject to re-development using a well development rig. The bottoms of three existing wells were tagged to measure the amount of sand and silt accumulation. A bailer was lowered to the bottom of each well to clean out the fines. A surge block was used to agitate water up and down the well's screen to draw fines from the formation. The bailer was used again to remove any accumulated fines. A submersible pump was used to pump or purge the well. These wells were successfully re-developed.

Investigation-Derived Waste

During 2023, water generated from GWIM pumping and monitoring well sampling was stored in a 4,000-gallon water storage tank at the FSDF. A 5,000-gallon water storage tank was also brought to the FSDF in March due to the increase in groundwater pumping. This tank was subsequently removed in August. Groundwater IDW stored at the FSDF was profiled and disposed of as non-hazardous waste by American Integrated (Star Resources). This water was removed from the site in April, May, August, and September. Soil and water IDW generated during the Q4 2023 drilling event were contained in a soil bin and the 4,000-gallon storage tank. These materials will be sampled, profiled, and disposed of in 2024, and IDW management will be documented in the appropriate activities reports.

3.3 Water Level Gauging

Area IV static water levels were gauged at all accessible program wells. Depths to water were measured from the top of each well casing. Conditions of the well (e.g., loose caps, damaged casing) were recorded in field logs. Wells were gauged using an electronic water-level meter. Portions of the cable and meter or probe that were in contact with groundwater were decontaminated before use at each well. Water levels were gauged in the first, second, third, and fourth quarters of 2023 and are summarized in Table 3.

3.4 Groundwater Sampling and Analysis

Area IV monitoring wells are scheduled to be sampled annually in accordance with the Site-Wide WQSAP. DOE is responsible for 21 wells in the Area IV Site-Wide Groundwater Monitoring Sampling Program. In Q1 2023, a total of 19 Site-wide Program wells were scheduled to be sampled; however, three were dry and two were inaccessible. Thus, 14 Site-Wide Program wells were sampled. An additional 61 wells are subject to groundwater sampling under the RFI Program and 26 were selected to be sampled during Q1 2023 reporting period. Thus, a total of 40 DOE wells were sampled during Q1 2023. In Q3 2023, eight Site-Wide Program wells were selected for sampling; however, one was dry. Additionally, 35 wells under the RFI Program were selected to be sampled during the Q3 2023 reporting period. Of those 35 wells, four were dry. Thus, a total of 43 DOE wells were scheduled to be sampled but samples could be collected from only 38 wells during Q3 2023.

Four clusters of groundwater seep probes are monitored by DOE. One cluster is in the Northern Buffer Zone and the other three are on Brandeis property north of SSFL Area IV. None of the seep clusters were sampled during the 2023 reporting periods. The locations of all wells, piezometers, and seeps are presented on Figure 3. The Site-Wide Groundwater Monitoring Program wells sampled in Q1 2023 and Q3 2023 are presented in Table 1 and shown on Figure 4. Figure 4 also shows the wells that could not be sampled and the alternative wells that were selected in Q1 2023 to be sampled. Wells that could not be sampled in Q1 2023 and Q3 2023 and the associated reasons are discussed in Table 4. Groundwater field

parameters collected during purging, prior to sample collection, are presented in Table 5. Tables 6 and 7 present the samples analyzed and analytical methods, respectively.

3.5 Deviations from Water Quality Sampling and Analysis Plans

Exceptions to the Site-Wide WQSAP (Haley & Aldrich 2010b) are presented in Table 4. Stabilization readings for some wells were collected at intervals greater than 5 minutes based on giving enough time to exchange water in the flow-through cell due to the flow rate. Low-flow stabilization criteria for some wells were not met based on the water level drawdown exceeding 0.3 feet.

Table 4 also includes wells that could not be sampled in Q1 2023 and Q3 2023, and where appropriate, identifies the alternate wells selected that support the overall data quality objectives.

Additionally, well RD-34B was sampled above an obstruction, which is a variance for the pump intake being placed halfway between the depth to water and the bottom of the saturated open interval of the well.

Six SDGs were validated to Level II instead of Level III or Level IV. These include SDGs 611006 (metals), 611338 (metals and anions), 611477 (anions and perchlorate), 611842 (anions), 612262 (metals and anions), and 612640 (anions).

The reporting limit for vinyl chloride and cis-1,3-dichloropropene (0.666 µg/L) was above the SSFL groundwater screening level reference value (i.e., SSFL screening criterion) maximum contaminant level (MCL) criterion of 0.5 µg/L; however, the method detection limit (MDL) was 0.333 µg/L so the 0.666 µg/L reporting limit is considered sufficient for project purposes. The reporting limit was also elevated for 1,2-dichloroethane (1,2-DCA) at 0.666 µg/L (MDL = 0.333 µg/L), whereas the MCL criterion is 0.5 µg/L. The reporting limit for carbon tetrachloride was also above the SSFL screening criterion MCL of 0.5 µg/L at 0.666 µg/L; the MDL was 0.333 µg/L, which is below the criterion. If results are detected between the MDL and reporting limit, they are reported as detected estimated results. All these sample reporting limits are considered sufficient and meet project requirements.

4. MONITORING RESULTS

This section provides a review of Area IV 2023 groundwater levels, and groundwater quality results and trends. Historical data were summarized in previous reports by:

- Groundwater Resources Consultants (GWRC 2000);
- Haley & Aldrich (2001 through 2009; 2010a);
- MWH (2011a, 2011b, 2012, 2013, 2014);
- CDM Smith (2015b, 2016a, 2016b, 2016c); and
- North Wind (2017, 2018, 2019, 2020, 2021, 2022, 2023).

Groundwater screening reference values used to evaluate results are presented in Table 8. First-time detections of analytes and new historical maximum results are presented in Table 9. The purpose of Table 9 is to help identify changes from established trends to support decision-making processes.

4.1 Groundwater Elevations and Flow Conditions

Groundwater elevations measured in SSFL Chatsworth Formation monitoring wells during Q1 2023 ranged from a low of approximately 1,314 feet above mean sea level (MSL) at well RD-59A to a high of approximately 1,793 feet above MSL at well DD-157 (Table 3, Figure 5). The shallow zone elevations ranged from a low of 1,753 feet above MSL at RS-28 to a high of 1,874 feet above MSL at RS-23.

Groundwater elevations measured in SSFL Chatsworth Formation monitoring wells during Q3 2023 ranged from a low of approximately 1,312 feet above MSL at well RD-59A to a high of approximately 1,813 feet above MSL at well RD-50 (Table 3, Figure 5). The shallow zone elevations ranged from a low of 1,743 feet above MSL at PZ-124 to a high of 1,831 feet above MSL at RS-54.

Static water level measurements in Q1 2021, Q1 2022, Q1 2023, Q2 2023, Q3 2023, and Q4 2023 show a generally consistent increase in water levels from Q1 2021 through Q2 2023. With some exceptions, water levels generally stabilized or decreased between Q2 2023 and Q4 2023. The difference between static water levels was calculated by well for each time interval. The average increase or decrease and maximum increase and maximum decrease of static water levels by time interval are presented in the text box below.

Time Interval	Average Increase / (Decrease)	Maximum Increase	Maximum (Decrease)
Q1 2021 to Q1 2022	(3.27) ft	8.78 ft	(34.71) ft
Q1 2022 to Q1 2023	0.51 ft	7.53 ft	(5.39) ft
Q1 2023 to Q2 2023	12.83 ft	79.32 ft	(3.57) ft
Q2 2023 to Q3 2023	(0.55) ft	17.12 ft	(13.69) ft
Q3 2023 to Q4 2023	(1.42) ft	4.08 ft	(7.53) ft

As noted in the data above, even with the 12.83-foot average increase in water levels from Q1 2023 to Q2 2023, there were several wells where the static water level decreased. The data also show that the static water level increases due to the heavy rains during Q1 2023 occurred primarily between Q1 2023 and Q2 2023. The range of static water level changes across the site are indicative of the various types of recharge mechanisms and geologic conditions present, including topographic (surface terrain), stratigraphic (bedding orientation and grain size), and structural (faults, fractures, and lineaments) as discussed previously in Section 2, Site Geology and Hydrology. Hydrographs for selected wells are presented in Appendix C.

Figure 5 presents contours of first-encountered, non-perched groundwater elevations, as determined from water levels measured during Q1 2023. Additional information that helped constrain the contouring included topography, the approximate elevations of identified seeps, historical water level data for wells and piezometers not gauged during 2023, and the understanding that groundwater level discontinuities coincide with certain fault segments and other geologic structures. In the case of well clusters, water levels from the shallowest wells were used. The data represent water levels primarily within the Chatsworth Formation but include levels in younger deposits where the zone of saturation is continuous with the underlying formations.

The groundwater elevation contour maps are provided to satisfy, in part, the requirements of Title 22 of California Code of Regulations (22 CCR), Section 66264.97, for determining groundwater flow rates and directions. A groundwater elevation contour map can be used in simple hydrogeologic settings to depict variations in the elevation of the water table surface, which in turn can be used to interpret apparent relative directions of groundwater flow. However, the groundwater elevation contours depicted in Figure 5 are not used to infer groundwater flow directions or rates of groundwater movement due to the hydrogeologic complexities at SSFL, as described in Section 2.2. Mountain-scale estimates of groundwater flow rates and three-dimensional groundwater flow directions from areas within SSFL were made and are presented in the draft groundwater remedial investigation (RI) report (MWH 2009). While DOE acknowledges the significant effort that has been spent calibrating the mountain-scale model, DOE believes that the model does not characterize the flow paths in Area IV with sufficient accuracy to make important investigation and remediation decisions. As part of the RFI Program, local-scale flow and transport modeling was performed for DOE by Dr. Scott James of Baylor University and Dr. Bill Arnold to reflect Area IV groundwater conditions. The results of the model revisions are reported in the Draft RCRA Facility Groundwater RI Report (CDM Smith 2018).

4.2 Groundwater Quality

Laboratory analytical results for groundwater Q1 2023 and Q3 2023 samples are tabulated in Tables 10 through 15. Constituents detected for the first time in groundwater sampled from individual locations are presented in Table 9. The purpose of Table 9 is to help identify changes from established trends to support decision-making processes. Aside from these exceptions listed in Table 9, the analytical results were within historical ranges (GWRC 2000; Haley & Aldrich 2001 through 2009 and 2010b; MWH 2003, 2011a, 2011b, 2012, 2013, 2014), as presented in the 2014 through 2022 Annual Reports (CDM Smith 2015b, 2016c; North Wind 2017, 2018, 2019, 2020, 2021, 2022, 2023). Time series plots of analytical data for select wells and analytes are provided in Appendix D.

Groundwater chemical concentration data from the Q1 2023 reporting period are presented on chemical extent maps illustrating areas of impacted groundwater for 13 chemicals on Figures 6 through 18. These chemicals were selected for mapping because they are contaminants of concern (COCs) in the Site-Wide Groundwater Monitoring Program and were selected for presentation on chemical extent maps in the Groundwater RI Report (MWH 2009).

4.2.1 Quality Assurance and Quality Control

Completeness goals regarding the Q1 and Q3 2023 data quality were met, and the data are suitable for the intended uses (Appendix E). The planned Q1 analysis of 1,4-dioxane at well RD-34C was not completed. The analyte was included on the chain of custody but was inadvertently not analyzed by the laboratory.

Per the Site-Wide WQSAP (Haley & Aldrich 2010b), the quality assurance assessment provides an assessment of data quality, including precision, accuracy, representativeness, comparability, completeness, and sensitivity. The quality assurance assessment also includes results of the data validation process, and a summary of the field sampling and analytical program, data management review procedure, and data verification process.

4.2.2 Groundwater Screening Reference Values

Groundwater screening reference values are presented in Table 8. The groundwater sampling results for individual chemicals are compared for discussion purposes to the following screening values, listed in approximate descending order of importance and/or relevance:

- Site-specific values developed by DTSC (i.e., groundwater comparison concentrations for metals) (listed as SSFL Comparison in report tables);
- Isotope-specific activity limits for individual beta/photon emitters based on the effective dose equivalent of 4 millirems per year (mrem/yr) (Federal Register 2000);
- Primary MCLs established by the EPA and promulgated by the Safe Drinking Water Act, and by the California Department of Public Health (DPH) promulgated by 22 CCR, sections 64431 through 64449 and 64672 (Regional Water Quality Control Board [RWQCB] 2008; DPH 2008) (listed as Primary MCL and Cal MCL in report tables);
- Notification Levels/Advisory Levels established by the California DPH (RWQCB 2008; DPH 2010);
- Secondary maximum contaminant levels (SMCLs), which address aesthetics such as taste and odor (RWQCB 2008; DPH 2006) (listed as Secondary MCL in report tables);
- Taste and Odor Threshold (RWQCB 2008) (listed as Taste/Odor in report tables); and
- Site-specific values developed for SSFL using risk assessment procedures assuming direct ingestion of groundwater (listed as site-wide groundwater risk-based screening level [SWGWRBSL] in report tables).

For chemicals with more than one screening value, the lower value is used to be more conservative. When EPA and California DPH values for MCLs differ, the lower value is used. In cases where the SMCL is lower than the primary MCL, the SMCL is used.

The methodology used to develop the risk-based screening values for chemicals that are not metallic elements and where there are no agency-published values is described in a technical memorandum included in Appendix 7-C of the Groundwater RI Report (MWH 2009).

4.2.3 Areas of Impacted Groundwater

Chemical concentration data from the 2023 reporting period are posted on chemical extent maps showing areas of impacted groundwater for 13 chemicals on Figures 6 through 18. The figures present the current (2023) or most recent sample results (within the past 3 years). The 13 chemicals were selected for mapping because they are COCs in the Site-Wide Groundwater Monitoring Program, generally exhibit

more than solitary spatially isolated detects, were presented on chemical extent maps in the Groundwater RI Report (MWH 2009) and the RFI Work Plan (CDM Smith 2015a), and were based on a comprehensive site-wide evaluation of their extent in groundwater.

The COC figures presented in this report reflect data for:

- trichloroethene (TCE)
- tetrachloroethene (PCE)
- cis-1,2-dichloroethene (cis-1,2-DCE)
- trans-1,2-dichloroethene (trans-1,2-DCE)
- vinyl chloride
- 1,1-dichloroethene (1,1-DCE)
- 1,2-DCA
- 1,1-dichloroethane (1,1-DCA)
- 1,4-dioxane
- carbon tetrachloride
- total petroleum hydrocarbons (TPH)
- nitrate
- and tritium.

Perchlorate is a COC but current conditions indicate that no areas of impacted groundwater are present. No figure is presented for this analyte. Analytes 1,2,3-trichloropropene (1,2,3-TCP), formaldehyde, n-nitrosodimethylamine (NDMA), and fluoride are discussed in this section because they were analytes previously identified as needing further evaluation.

Chemicals with concentrations historically exceeding screening values at five or more locations but having adequate sampling coverage in current (2023) and recent data to indicate the chemicals are no longer present at concentrations above the SSFL screening criteria (e.g., 1,1,1-trichloroethane, chloroform, and benzene) were not included. Chemicals that are common laboratory contaminants (e.g., methylene chloride and bis [2-ethylhexyl] phthalate) and those that are naturally occurring and for which there is no known site-related anthropogenic source (e.g., sulfate) were also not included, even if they had concentrations exceeding screening values at five or more locations.

The 2023 analytical results were evaluated to identify any additional chemicals for which a chemical extent map was warranted according to the criteria used in the Groundwater RI Report (MWH 2009). No additional chemicals were identified for generation of a chemical extent map.

Areas of impacted groundwater from the Groundwater RFI Report (CDM Smith 2018) form the basis of those shown in the chemical extent maps in this report. Adjustments to the areas of impacted groundwater are made each year, as new data are collected. The chemical extent boundaries for each chemical are defined by the groundwater screening reference values listed in Table 8. The maximum concentrations at each location from samples collected in 2023 are posted for each chemical and the locations are color-coded to indicate whether the result exceeded the screening value, was detected below the screening value, or was not detected. For locations that were not sampled in 2023, the most recent historical result is posted along with the date the sample was collected.

Isoconcentration lines equal to screening values for selected chemicals in groundwater are depicted in Figures 6 through 18 and are based on the 2023 results and consideration for historical sampling results as well as professional judgment, particularly for chemicals that are transformation or daughter products from either the biological or abiotic decay of a parent (e.g., cis-1,2-DCE produced from the biological transformation of TCE). The screening-value isoconcentration lines represent the interpreted map-view extent of impacted groundwater based on all available data, not just the most recent reporting period. Screening-value isoconcentration lines are adjusted after a concentration at a well increases above or decreases below the screening value for two or more consecutive years.

The areas of impacted groundwater for each of the chemicals plotted are discussed below and have been adjusted based on the results from 2023. In general, sample results were consistent with historical results, and reported concentrations will be further evaluated by comparing 2023 results to results from one or more future sampling rounds and performing trend analysis.

Contaminant detections are reported as a concentration followed by the laboratory qualifier and the data validation qualifier. The qualifiers are defined in Tables 10 through 13 and in Appendix E. Concentrations with a J qualifier are considered estimated due to uncertainty in the reported value. This uncertainty is due to not meeting accuracy criteria (Appendix E) and/or the reported value was above the method detection limit (i.e., lowest concentration that can be detected) but below the quantitation limit (i.e., lowest concentration that can be quantitatively detected with accuracy and precision).

Trichloroethene (Figure 6 and Table 10)

FSDF Area

TCE concentrations detected above the MCL of 5 µg/L for this area in 2023 include wells:

- RD-54A showed an increasing trend from 2018 (2.3 µg/L), 2019 (9.4 µg/L), and 2020 (23.7 µg/L). The Q1 2021 result decreased to 7.59 µg/L, and further decreased in Q1 2022 to 3.3 µg/L. The TCE concentration increased in Q1 2023 to 4.9 µg/L and above the screening criteria in Q3 2023 to 47.8 µg/L. The 2023 increasing results in this well are influenced by shallow impacted groundwater migrating downward from near-surface bedrock fractures. Data from future sampling rounds will be used to evaluate the current increasing trend.
- RD-21 at 63.9 µg/L and RD-65 at 276 µg/L were above the screening criteria in Q1 2023. RD-21 was not sampled in Q3 2023. RD-65 showed a continued increase to 354 µg/L in Q3 2023. While the RD-21 detection in Q1 2023 decreased from the Q1 2022 result (97.6 µg/L), the RD-65 detection increased in Q1 2023 and Q3 2023 from Q1 2022 detection (5.38 µg/L). The increases in TCE concentration in 2023 are influenced by high seasonal rainfall recharging near-surface bedrock fractures. Data from future sampling rounds will be used to evaluate potential trends.
- RD-64 at 76.8 µg/L (Q3 2023) is increased from the previous reported detection of 15.6 µg/L in 2020. Data from future sampling rounds will be used to evaluate potential trends.

Metals Clarifier Area

TCE concentration detected above the MCL of 5 µg/L for this area in 2023 includes well:

- PZ-105 at 6.37 µg/L in Q1 2023 and 6.87 µg/L in Q3 2023 is increased from 2022 (5.5 µg/L) and decreased from 2020 (8.34 µg/L). PZ-105 was not sampled in 2021. Fluctuating TCE concentrations are influenced by seasonal rainfall recharging near-surface fractures. Data from future sampling rounds will be used to evaluate potential trends.

Building 4057/59/626

TCE concentrations detected above the MCL of 5 µg/L for this area in 2023 include wells:

- PZ-109 at 10 µg/L Q1 2023 and 6.19 µg/L in Q3 2023 is increased and decreased, respectively, from the 2022 detection of 7.58 µg/L. PZ-109 was not sampled in 2021. Data from future sampling rounds will be used to evaluate potential trends.

Building 4100 / Building 56 Landfill Area

TCE concentrations detected above the MCL of 5 µg/L for this area in 2023 include wells:

- RD-07 at 43.7 µg/L Q1 2023 and 55.3 µg/L in Q3 2023 is increased and decreased, respectively, from 2021 (45.1 µg/L) and both are decreased from 2021 (60.2 µg/L). The results remain above the result detected in 2019 (22.2 µg/L). TCE concentrations are influenced by seasonal rainfall recharging near-surface fractures. Data from future sampling rounds will be used to evaluate potential trends.
- RD-91 at 87.8 µg/L in Q1 2023 is decreased from the 2022 result (91.4 µg/L). RD-91 was not sampled in Q3 2023. This well supports extent and trend analysis in the area, particularly near well RD-07, and may be evaluated in future sampling rounds for confirmation of extent and trend analysis.

HMSA Area

TCE concentrations detected above the MCL of 5 µg/L for this area in Q1 2023 include wells:

- DD-157 at 9.96 µg/L (Q1); DS-48 at 41.4 µg/L (Q1) and 41.7 µg/L (Q3). Neither of these wells were sampled in Q1 2022. Both of the results are increased from the 2021 results (DD-157 non-detect and DS-48 at 4.89 µg/L), which was the first year these two wells were sampled after installation.
- PZ-108 at 119 µg/L in Q1 2023 and 130 µg/L in Q3 2023 are decreased from the Q1 2022 result of 141 µg/L.
- PZ-162 at 12.8 µg/L in Q1 2023 and 5.61 µg/L in Q3 2023 are increased and decreased, respectively, from the Q1 2022 result of 9.56 µg/L.
- PZ-163 at 77.2 µg/L in Q1 2023 and 129 µg/L in Q3 2023 are decreased and increased, respectively, from the Q1 2022 result of 78.4 µg/L.
- DD-144 at 108 µg/L in Q1 2023 and 79 µg/L in Q3 2023 are both increased from the 2022 result (14.3 µg/L) and decreased from the 2020 result (168 µg/L).

The fluctuations in TCE concentrations are influenced by seasonal rainfall impacting near-surface conditions. Data from future sampling rounds will be used to evaluate potential trends.

Radioactive Materials Handling Facility (RMHF) Area

None of the TCE concentrations detected in this area in Q1 2023 were above the MCL of 5 µg/L. TCE concentrations detected above the MCL of 5 µg/L for this area in Q3 2023 include well:

- RS-28 at 1.53 µg/L in Q1 2023 and 7.01 µg/L in Q3 2023. RS-28 was not sampled in 2022 or 2021.

Tetrachloroethene (Figure 7 and Table 10)

- PZ-109 at 29.7 µg/L in Q1 2023 and 29.1 µg/L in Q3 2023 are decreased from the Q1 2022 result (33.8 J/J µg/L). PZ-109 is located east of Building 56 Landfill and was the only reported detection of tetrachloroethene above the MCL (5 µg/L) in samples collected and analyzed in Q1 and Q3 2023.

cis-1,2-Dichloroethene (Figure 8 and Table 10)

cis-1,2-DCE concentrations detected above the MCL of 6 µg/L for this area in 2023 include:

HMSA Area

- DD-144 at 10.4 µg/L in Q1 2023 and 10.7 µg/L in Q3 2023 are increased from the 2022 result of 1.24 µg/L, and decreased from the 2020 result of 12.6 µg/L.
- DS-48 at 17.1 µg/L in Q1 2023 and 12.5 µg/L in Q3 2023 are decreased from the 2021 result of 25 µg/L.
- PZ-108 at 16.5 µg/L in Q1 2023 and 11.9 µg/L in Q3 2023 are increased and decreased, respectively, from the 2022 result (13.6 µg/L), and decreased from 2021 (19.2 µg/L).
- PZ-109 at 36.3 µg/L in Q1 2023 and 9.5 µg/L in Q3 2023 are increased and decreased, respectively, from the 2022 result (11.9 µg/L) and decreased from the 2020 result (0.77 J/J µg/L).
- PZ-163 at 7.12 µg/L in Q1 2023 and 10.2 µg/L in Q3 2023 are increased from the 2022 result (6.5 µg/L) and decreased and increased, respectively, from the 2020 result (7.41 µg/L).

The fluctuation in *cis*-1,2-DCE concentrations is influenced by seasonal rainfall impacting near-surface conditions. Data from future sampling rounds will be used to evaluate potential trends.

FSDF Area

- RD-65 at 9.38 µg/L in Q1 2023 and 10.2 µg/L in Q3 2023 are increased from the 2022 result (7.93 µg/L) and decreased from the 2020 result (11.4 µg/L).
- RD-64 at 10.1 µg/L in Q1 2023 is above the SSFL screening criteria.

Building 4100 / Building 56 Landfill Area

- RD-91 at 7.68 µg/L in Q1 2023 is the only detection above the screening criteria in this area and is increased from the 2022 result (3.69 µg/L). RD-91 was not sampled in Q3 2023.

trans-1,2-Dichloroethene (Figure 9 and Table 10)

For samples collected and analyzed in Q1 and Q3 2023, there was one well with reported detections of *trans*-1,2-DCE above the MCL of 10 µg/L. Well RD-65 near FSDF had a reported detection of 21.2 µg/L in Q1 and 12.9 µg/L in Q3 2023. The Q1 result increased from 2022 and the Q3 result decreased from the 2022 result (17.4 µg/L).

Vinyl Chloride (Figure 10 and Table 10)

Vinyl chloride results were non-detect for all wells sampled during the Site-Wide events in Q1 and Q3 2023. The MDL for all vinyl chloride results was 0.333 µg/L and is considered sufficient for project purposes. The MCL for vinyl chloride is 0.5 µg/L.

1,1-Dichloroethene (Figure 11 and Table 10)

For samples collected and analyzed in Q1 and Q3 2023, there was one well with reported detections of 1,1-DCE above the MCL of 6 µg/L. RD-65 near FSDF had a reported detection of 23.4 µg/L in Q1 and 26.8 µg/L in Q3 2023. These are increased from the Q1 2022 result of 5.23 µg/L.

1,2-Dichloroethane (Figure 12 and Table 10)

There were no reported detections of 1,2-DCA above the MCL (0.5 µg/L) in samples collected and analyzed in Q1 or Q3 2023.

- 1,2-DCA was detected in FSDF coreholes at concentrations ranging from 2.5 µg/L to 5.2 µg/L during GWIM sampling events conducted in 2020 (CDM Smith 2022b). There were no detections in 2023.

1,1-Dichloroethane (Figure 13 and Table 10)

For samples collected and analyzed in Q1 and Q3 2023, there were no reported detections of 1,1-DCA above the MCL of 5 µg/L.

FSDF Area

- 1,1-DCA was detected below the MCL in RD-65 at 3.56 µg/L in Q1 2023 L and 4.18 µg/L in Q3 2023, which is an increase from the Q1 2022 detection (1.9 µg/L). Data from future sampling rounds will be used to evaluate potential trends.

RMHF Area

- 1,1-DCA was detected below the MCL in RD-63 at an estimated concentration of 0.42 J/J µg/L in Q1 2023, which is consistent with the Q1 2022 result (0.44 J/J µg/L) and the 2021 result (0.44 J/J µg/L).

HMSA/PDU Area

- 1,1-DCA was detected below the MCL in DD-144 at an estimated concentration of 0.35 J/J µg/L in Q1 2023.
- 1,1-DCA was detected below the MCL in PZ-163 at an estimated concentration of 0.36 J/J µg/L in Q1 2023. 1,1 DCA was not reported as a detection in 2022.
- 1,1-DCA was detected below the MCL in RD-88 at an estimated concentration of 0.36 J/J µg/L in Q3 2023.

1,4-Dioxane (Figure 14 and Table 10)

During 2019, 1,4-dioxane was analyzed for in wells DD-140, RD-33A, RD-63, and RS-54 following the recommendation in the 2018 annual report and was detected above the screening value of 1 µg/L. Based on the 2019 recommendation, 1,4-dioxane was added to Site-Wide wells scheduled for VOC analysis. The 2023 results for 1,4-dioxane above the screening value (notification level; 1 µg/L) are discussed below.

FSDF Area

- DS-46 at 3.6 µg/L (Q1 2023) decreasing to 3.28 µg/L in Q3 2023.
- PZ-098 at 1.38 µg/L in Q1 2023 decreasing to 1.06 µg/L in Q3 2023.
- RD-64 at 2.54 µg/L in Q3 2023. RD-64 was not sampled in 2022 or Q1 2023.
- RD-33A at 2.31 µg/L in Q1 2023 is increased from the 2021 result (1.97 µg/L).

Data from future sampling rounds will be used to evaluate potential trends.

HMSA Area

- PZ-163 at 2.21 µg/L in Q1 2023 decreased to 1.35 µg/L in Q3 2023. The 2023 results are increased from the Q1 2022 estimated result of 1.3 J/J- µg/L.
- PZ-120 at 1.12 µg/L in Q1 2023 was the first detection and new maximum detection for this well. The Q3 2023 result of 1.55 µg/L was slightly increased from the Q1 2023 reported detection to become the new maximum reported detection.
- 1,4-dioxane was detected for the first time in DD-144 at 2.18 µg/L in Q1 2023. The Q3 2023 result of 0.893 µg/L in Q3 2023 was decreased from the Q1 2023 reported detection.
- PZ-162 at 0.233 J/J µg/L in Q1 2023 and 0.308 J/J µg/L in Q3 2023 is decreased and increased, respectively, from the 2022 estimated concentration (0.28 J/J µg/L). Both 2023 results are below the notification level of 1 µg/L.

Tritium Plume

- RD-88 at 5.69 µg/L in Q3 2023 is lower than the last reported detection in this well, 19 µg/L in Q3 2013. RD-88 was not sampled in Q1 2023. Data from future sampling rounds will be used to evaluate extent and trends.

Several areas with 1,4-dioxane results less than the notification level of 1 µg/L are identified below. Continued analysis for 1,4-dioxane in future sampling rounds will be used to evaluate extent and trends.

RMHF Area

- 1,4-dioxane was detected below the notification level in RD-34A (0.644 µg/L in Q1 2023 and 0.121 µg/L J/J in Q3 2023), RD-63 at 0.943 µg/L in Q1 2023 increasing to 1.19 µg/L in Q3 2023, RD-98 (0.141 J/J µg/L in Q1 2023 and 0.129 J/J µg/L in Q3 2023), and RS-28 at 0.189 J/J µg/L in Q1 2023 and 0.534 µg/L in Q3 2023). The concentrations are generally consistent with the estimated concentrations detected in 2020, 2021, and 2022 for RD34A, RD-63, and RD-98. The reported 2023 detections in RS-28 were maximum detections for this well. Data from future sampling rounds will be used to evaluate extent and trends.
- RD-30 at 0.229 J/J µg/L in Q1 2023 increasing to 0.296 J/J µg/L in Q3 2023. The 2023 reported detections were decreased from the 2022 reported detection of 0.323 J/J µg/L.

Data from future sampling rounds will be used to evaluate extent and trends.

Old Conservation Yard

- 1,4-dioxane was detected below the notification level in well RD-14 at 0.609 µg/L (Q1 2023), an increase from 2022 (0.522 µg/L), and further increased from the 2021 detection of 0.495 µg/L.
- 1,4-dioxane was detected below the notification level in DD-159 at 0.112 J/J µg/L (Q1 2023).

Data from future sampling rounds will be used to evaluate extent and trends.

Metals Clarifier / DOE Leach Fields 3

- In 2022, 1,4-dioxane was detected for the first time in DD-145 at 0.102 J/J µg/L. DD-145 was not selected for sampling in 2023.

Data from future sampling rounds will be used to evaluate extent and trends.

Carbon Tetrachloride (Figure 15 and Table 10)

There was one reported detection of carbon tetrachloride above the method detection limit (0.333 µg/L) and the MCL (0.5 µg/L) in samples collected and analyzed in Q1 2023. Well RD-21 had a reported detection of 12 µg/L, an increase from the 2022 result (11.1 µg/L). RD-21 was not sampled in Q3 2023. Data from future sampling rounds will be used to evaluate extent and potential trends.

Total Petroleum Hydrocarbons (DRO and GRO) (Figure 16 and Table 12)

Total Petroleum Hydrocarbons consist of many constituents broken into three categories: diesel-range organics (DRO), gasoline-range organics (GRO), and residual-range organics (RRO). DRO and GRO are the most common constituents tested for and found on site.

In Q1 2023, DRO was detected above the screening criterion in one well, PZ-105, at 193 µg/L. There were no detections of GRO above the MDL of 16.7 µg/L.

In Q3 2023, DRO was detected above the screening criteria in eight wells and below the screening criteria in two wells. GRO was detected above the screening criterion and the MDL in seven wells with no reported detections below the screening criteria or the MDL. Data from future sampling rounds will be used to evaluate extent and potential trends.

Nitrate as N (Figure 17 and Table 13)

In Q1 2023, nitrate as N was detected above the screening criterion of 10 mg/L in PZ-005 at 14.3 J/QH mg/L. PZ-005 was not selected to be analyzed for nitrate as N in Q3 2023.

Tritium (Figure 18 and Table 14)

Tritium Plume Area

- In Q1 2023 and Q3 2023, there were no detections of tritium above the MCL of 20,000 picocuries per liter (pCi/L). In Q1 2022, the concentrations of tritium were above the MCL for well RD-90 at 27,100 pCi/L, and below the MCL for well RD-95 at 14,700 pCi/L. Neither RD-90 nor RD-95 were selected for sampling in Q1 2023 or Q3 2023. Based on the WQSAP, tritium was not required to be sampled and no samples were collected in 2021. In 2020, the concentrations of tritium were above the MCL for well RD-90 at 26,000 pCi/L, and for well RD-95 at 23,300 pCi/L. The concentrations decreased from the results detected in 2019 (37,900 pCi/L and 33,000 pCi/L, respectively). Tritium concentration versus time graphs presented in Appendix D illustrate overall decreasing trends for these wells. The graphs include trendlines generated from both actual tritium detections and projected tritium half-life decay from the highest historical detection. Based on the detection trendlines, tritium is expected to decrease to below the MCL by 2024 in RD-90 and by 2022 in RD-95. The decay trendlines indicate a much longer timeframe with tritium decaying below the MCL by 2032 in RD-90 and by 2040 in RD-95. The Groundwater RFI Report notes that the rate of diminishing tritium concentrations is faster than the half-life decay due to dispersion and dilution factors (CDM Smith 2018).

Other Analytes of Interest

The following analytes are not considered COCs but are of potential interest.

Perchlorate (Table 11)

In the past there was one area of impacted groundwater for perchlorate, FSDF. Current conditions indicate that there are no areas of impacted groundwater from perchlorate since all 2023 sample results are below the MCL of 6 µg/L. Sample results for 2023 are discussed below for the former area of impacted groundwater.

FSDF Area

- Perchlorate was detected at concentrations below the MCL of 6 µg/L in two FSDF area wells, including PZ-098 at 1.02 µg/L (Q1 2023) and 0.793 µg/L (Q3 2023), respectively above and below the 2022 result (0.86 µg/L), and RD-21 at 2.42 µg/L (Q1 2023) below the 2022 result (3.64 µg/L).
- All other 2023 perchlorate results were below the MDL of 0.05 µg/L.

No figure is required for this analyte.

Formaldehyde

Areas of impacted groundwater for formaldehyde are not present in Area IV. Formaldehyde was not analyzed for in 2023. No figure is required for this analyte.

N-Nitrosodimethylamine

NDMA was not analyzed in any Area IV wells since there have been no previous detections in Area IV. No figure is required for this analyte.

Fluoride (Table 13)

The previous area of impact for fluoride was in the vicinity and south of the Systems Nuclear Auxiliary Power Facility. Since fluoride was not detected above the screening value (800 mg/L) for any Area IV wells in 2014, this area of impact was removed at that time. The 2023 fluoride results reported in Area IV wells range from 0.235 J/ mg/L to 1 mg/L with only one reported detection above the SSFL comparison value of 0.8 mg/L.

- In Q1 2023, fluoride was detected in RD-34B at 1 mg/L, above the comparison value of 0.8 mg/L. This is an increase from the 2022 result of 0.87 mg/L in well RD-34B. No other detections above the comparison value were reported in Q1 2023 samples. Fluoride was not analyzed in Q3 2023. In 2022, fluoride was detected in well RD-59A at 0.797 mg/L, just below the SSFL comparison value of 0.8 mg/L. This is an increase from the 2021 result (0.75 mg/L). In 2020, fluoride was detected in off-site well RD-59A at a concentration of 0.805 mg/L, an increase from 2019 (0.67 mg/L). The increase above the comparison value in 2020 did not persist into the 2021 or 2022 sampling rounds. Off-site well RD-59A was not sampled in Q1 2023 due to dangerous access conditions.

4.2.4 Analytical Results

For the Q1 2023 and Q3 2023 sampling periods, analytes in groundwater samples collected in Area IV that were detected for the first time at a particular well, and/or were analyzed for the first time, are shown in Table 9. Table 9 also shows whether the Q1 or Q3 2023 detected result is a new maximum value for that analyte at that well. The following items depict the process of identifying the analytes shown in Table 9:

- Analytes that were detected for the first time in a well in 2023.
- Analytes that were analyzed for the first time ever for that well (none for 2023).

- Of these analytes, the detected values are compared to all data to see if the 2023 value is the new maximum value for that well.

4.2.4.1 On-Site Detections

Constituent concentrations (except for radiochemical constituents, which are discussed separately in Section 4.2.5) detected in groundwater samples collected from on-site wells in Q1 2023 and Q3 2023 and presented in Table 9 are discussed below.

First-Time Analyses of an Analyte at a Particular Well

Groundwater samples from the four new wells, DS-48, DD-157, DD-158, and DD-159, were collected and analyzed for the first time in 2021. Data from these wells are incorporated into the discussions below. No new wells or analytes were added for sampling in Q1 2023.

First-Time Detection of the Analyte and New Maximum Value

As shown in Table 9, reportable analytes were detected above the respective screening criteria for the first time during Q1 2023 and Q3 2023 in various wells, and those concentrations are also now the new maximum values for those analytes at these wells. New maximum concentrations in this category above the associated SSFL screening criteria values are described below.

Q1 2023

- 1,4-dioxane in well PZ-120 (1.12 µg/L).
- Trichloroethene in well DD-157 at 9.96 µg/L (total).

Q3 2023

- Various dissolved and total reportable metals in wells DD-141, PZ-104, PZ-121, PZ-124, PZ-162, PZ-163, RD-27, and RD-74. Data from future sampling rounds will be used to evaluate potential trends.
- DRO in wells DD-139 (127 JQ/J µg/L [total]), PZ-005 (135 J/J µg/L [total]), PZ-104 (213 Q/J µg/L [total]), PZ-120 (320 Q/J µg/L [total]), PZ-162 (118 QJ/J µg/L [total]), RD-64 (169 J/J µg/L [total]), and RD-65 (165 J/J µg/L [total]).
- GRO in wells DD-144 (39.7 J/J µg/L [total]), DS-48 (23 J/J µg/L [total]), PZ-108 (58.4 J/J µg/L [total]), PZ-163 (50.8 J/J µg/L [total]), and RD-64 (42.9 J/J µg/L [total]).

In this category in Q3 2023, first-time detections were limited to various metals and DRO and GRO in multiple wells. In contrast, the Q1 2023 results were limited to 1,4-dioxane in one well and TCE in one well. These first-time detections may result from natural variability and be influenced by seasonal rainfall impacting near-surface conditions. Data from future sampling rounds will be used to evaluate trends.

Not a First-Time Detection but Analyte Concentration is New Maximum Value

As shown in Table 9, reportable analytes were detected as new maximum values in various wells during Q1 2023 and Q3 2023. Each detected concentration was not the first time each analyte was seen in the well; however, the value is now a new maximum concentration. New maximum values for previously detected analytes exceeding the associated SSFL screening criteria values are discussed below.

Q1 2023

- 1,4-dioxane in wells DD-144 (2.18 µg/L total), PZ-098 (1.38 µg/L total), and PZ-163 (2.21 µg/L total).
- Various dissolved and total reportable metals in wells RD-21, RD-34A, RD-91, DS-43, DS-45, RS-28, PZ-005, PZ-098, PZ-102, PZ-105, and PZ-109. Data from future sampling rounds will be used to evaluate potential trends.
- Fluoride in well RD-34B at 1 mg/L. Data from future sampling rounds will be used to evaluate potential trends.
- Cis-1,2-DCE in well PZ-109 (36.3 µg/L) — while not a new detection, it is higher than previous detections and is related to breakdown of TCE in groundwater causing the presence of this daughter product.
- Trichloroethene in well DS-48 at 41.4 µg/L and well PZ-109 at 10 µg/L. The new maximum detection in PZ-109 is consistent with previous detections. The new maximum in DS-48 is appreciably higher than the previous reported detections. Since DS-48 is a relatively new well, data from future sampling rounds will be used to further evaluate extent and potential trends.
- Nitrate as N in PZ-005 at 14.3 QH/J mg/L.

Q3 2023

- 1,4-dioxane in well PZ-120 (1.55 µg/L total).
- Various dissolved and total reportable metals in wells DD-144, DS-45, DS-47, PZ-005, PZ-041, PZ-103, PZ-104, PZ-105, PZ-108, PZ-109, PZ-120, PZ-121, PZ-122, RD-54A, and RD-64. Data from future sampling rounds will be used to evaluate potential trends.
- Cis-1,2-DCE in well PZ-163 (10.2 µg/L total) — while a new maximum, this is related to breakdown of TCE in groundwater causing the presence of this daughter product.
- GRO in well RD-54A (24 J/J µg/L total) and RD-65 (154 µg/L total).
- Trichloroethene in well DS-48 at 41.7 µg/L (total). The new maximum in DS-48 is only slightly higher than the Q1 2023 reported detection. Since DS-48 is a relatively new well, data from future sampling rounds will be used to further evaluate extent and potential trends.

These new maximum detections may result from natural variability. Data from future sampling rounds will be used to evaluate potential trends.

4.2.4.2 Off-Site Detections

Off-site wells RD-59A and RD-59B were not sampled in Q1 2023 due to dangerous access conditions caused by significant rainfall events across the region. The off-site wells were not selected for sampling/analysis in Q3 2023.

4.2.5 Radiochemistry Results

Radiochemistry analyses were performed for samples collected during the 2023 reporting period under the Site-Wide and RFI programs, and results are presented in Table 14 and discussed further below. Radiochemistry analyses included both total (non-filtered water) and dissolved (filtered water) results.

Radiochemistry analytes reported for the first time in groundwater at individual locations, as well as any new maximum concentrations, are presented in Table 9.

First-Time Analyses of an Analyte at a Particular Well

There were no new analytical suites included in the Q1 2023 or Q3 2023 sampling events.

First-Time Detection of the Analyte and the New Maximum Value

Q1 2023

As shown in Table 9, in Q1 2023, there were no first-time and new maximum reported detections exceeding the respective screening limits.

There were several first-time detections at new maximums, all below the respective screening level, in the following wells:

- Gross alpha, gross beta, radium-226, uranium-233/234, uranium-235/236, and uranium-238 in well DS-45
- Uranium-233/234 in well RD-94
- Uranium-235/236 in well DD-158 at 0.584 pCi/L; well DS-45 at 0.582 pCi/L; and well RD-94 at 0.863 pCi/L.

Q3 2023

Q3 2023 analyses were limited to strontium-90 and tritium on selected wells. As shown on Table 9, there were no first-time detections for strontium-90 or tritium resulting in a new maximum detection.

Results from future sampling rounds will be used to confirm extent and establish trends.

Not a First-Time Detection but Analyte Concentration is New Maximum Value

Q1 2023

As shown in Table 9, gross alpha, gross beta, radium-226, radium-228, strontium-90, uranium-233/234, uranium-235/236, and uranium-238 were reported as new maximum values in various wells during Q1 2023. Each reported concentration was not the first time each analyte was seen in the well; however, the value is now a new maximum concentration.

- Gross beta in well DD-158 at 118 /J pCi/L above the screening level of 50 pCi/L. The increase may be transitory and attributable to decay of radium and/or uranium isotopes detected in groundwater from these wells. Data from future sampling rounds will be used to evaluate potential trends.
- Radium-226 was reported as a new maximum detection in wells RD-98 at 6.45 pCi/L(dissolved) and RS-28 at 7.17 pCi/L (dissolved), above the screening level of 5 pCi/L.
- Strontium-90 was reported as a new maximum detection in well RD-98 at 119 pCi/L, above the screening level of 8 pCi/L.

There are no other new maximum values for previously detected analytes that exceed the associated SSFL screening criteria.

Q3 2023

Q3 2023 analyses were limited to strontium-90 and tritium on selected wells. As shown on Table 9, there were no new maximum reported detections for strontium-90 or tritium in wells with previous detections.

Results from the future sampling rounds will be used to confirm if increasing trends are established.

4.2.5.1 Off-Site Detections

Off-site wells RD-59A and RD-59B were not sampled in Q1 2023 due to dangerous access conditions caused by significant rainfall events across the region. The off-site wells were not selected for sampling/analysis in Q3 2023.

Previous investigations have determined that radium-226 and radium-228 are naturally occurring in Area IV (EPA 2012).

4.2.6 2022 Results Follow-up

This section evaluates whether or not sampling and analyses performed during 2023 are sufficient to resolve documented follow-up sampling issues from the previous annual report (North Wind 2023), and assesses the need for changes to the groundwater monitoring program.

4.2.6.1 2022 Outstanding Issues

Follow-up for 2022 Recommendations

- Add well DS-46 for sampling in 2023 to further evaluate the increasing trend of 1,4-dioxane in that well from 2018 (1.5 µg/L), to 2019 (2.2 /J µg/L), to 2020 (3.7 µg/L). The well was not sampled in 2021 or 2022. **DS-46 was sampled in Q1 2023. The 1,4-dioxane results (3.6 µg/L in Q1 2023 and 3.28 µg/L in Q3 2023) are slightly less than the 2020 results.**
- Update the WQSAP (Haley & Aldrich 2010b) to include COCs, including tritium, to further evaluate potential trends in wells such as RD-90 and RD-95. **This recommendation is being evaluated.**

Follow-up for 2022 First-Time and New Maximum Results

First-time selenium results in wells DS-46 and RD-19 in 2020 were not confirmed in 2021. DS-46 was not sampled in 2022 and samples in 2023 were non-detect for selenium. Selenium was not detected in RD-19 in Q1 2022 or Q1 2023, decreasing from the 2020 result of 2.56 µg/L. The recent non-detects suggest selenium is not an issue in these two wells.

During 2019, TCE was detected at a new maximum concentration of 240 µg/L in well PZ-108. This well was not sampled during Q1 2020. The Q1 2021 result for TCE was 91.5 µg/L. The Q1 2022 result was 141 µg/L and the Q1 2023 and Q3 2023 results were 119 µg/L and 130 µg/L respectively. The fluctuating results, all below the maximum detection, may be due to seasonal rains or statistical variation. This well is in the HMSA/PDU groundwater impact area, which will be monitored in future sampling rounds.

In 2020, 1,4-dioxane in well DS-46 was detected at a new maximum (3.7 µg/L), which was an increase from the 2019 result (2.2 /J µg/L). The 2023 results were 3.6 µg/L and 3.28 µg/L in Q1 2023 and Q3 2023, respectively. Beginning in 2021, 1,4-dioxane has been added as an analyte to all wells analyzed for VOCs. Additional sample results from this well may be used to evaluate lateral and vertical extent and support trend analysis.

Various dissolved and total metal concentrations reported since 2020 have not been consistent. The variability in metals concentrations across Area IV is assumed to be naturally occurring.

New maximum results for gross alpha in wells RD-54A, RD-63, and RD-98 in 2020 were not confirmed in 2021 or 2022. New maximums for gross alpha were reported in 2022 in wells DD-140, DD-158, PZ-162, and RD-30. Reported results in PZ-162 and RD-30 were slightly above the screening value in 2022. In 2023, reported results for PZ-162 were decreased from 2022 yet still slightly above the screening value. The reported value in well RD-30 decreased below the screening value in 2023. Gross alpha detections may be transitory and attributed to decay of radium and/or uranium isotopes detected in groundwater. Future sampling rounds may be used to evaluate extent and support trend analysis.

Results for radium-228 in wells RD-17 and RD-19 in 2021 decreased from results reported in 2020. RD-17 was not sampled in 2022, and radium-228 in RD-19 in Q1 2023 was consistent with the 2021 results. Radium-228 was not selected for the Q3 2023 sampling round. Additional results from future sampling rounds may be used to evaluate extent and support trend analysis.

Follow-up for Potentially Increasing Trends Identified during 2022

TCE in RD-54A showed an increasing trend from 2018 (2.3 µg/L); to 2019 (9.4 µg/L); to 2020 (23.7 µg/L). The Q1 2021 result decreased to 7.59 µg/L, and further decreased to 3.3 µg/L in Q1 2022. The TCE concentration increased in Q1 2023 to 4.9 µg/L and above the screening criteria in Q3 2023 to 47.8 µg/L. The fluctuating results may be influenced by seasonal rains and shallow impacted groundwater migrating downward from near-surface bedrock fractures. Future sampling data will be used to evaluate extent and trend analysis.

Cis-1,2-DCE showed an increasing trend above the MCL (6 µg/L) in PZ-108 from a 2018 concentration of 12 µg/L to a 2019 concentration of 19 /J µg/L. Well PZ-108 was not sampled during 2020. In Q1 2021, cis-1,2-DCE was detected at 19.2 µg/L and in Q1 2022 at 13.6 µg/L, Cis-1,2-DCE was reported at 16.5 µg/L in Q1 2023 and 11.9 µg/L in Q3 2023 . The fluctuating results may be influenced by seasonal rains and shallow impacted groundwater migrating downward from near-surface bedrock fractures. Future sampling data will be used to evaluate extent and trend analysis.

1,4-dioxane showed an increasing trend above the notification level in well DS-46 from 2018 (1.5 µg/L); to 2019 (2.2 /J µg/L); to 2020 (3.7 µg/L). DS-46 is not specified as a Site-Wide sampling well and was not sampled during 2021 or 2022. The 2023 results of 3.6 µg/L (Q1 2023) decreasing to 3.28 µg/L in Q3 2023 were consistent with the 2020 results. Continued analysis of 1,4-dioxane in all Area IV wells analyzed for VOCs will help to evaluate lateral and vertical extent and support trend analysis.

During 2019, DRO was detected in well PZ-103 above the 100 µg/L threshold criterion at an estimated concentration of 230 J/J µg/L for a first-time and new maximum detection. Well PZ-103 was not sampled during Q1 2020. The 2021 result for DRO was non-detect. DRO was not analyzed for in Q1 2022 samples collected. DRO at PZ-103 was non-detect in Q3 2023. Future sampling rounds will be used to evaluate extent and trend analysis.

4.2.6.2 2022 On-site Detects

For on-site reported sample results included in the 2022 annual report, Section 4.2.4 (North Wind 2023), all analytes were analyzed accordingly unless the well had insufficient sample volume or was dry.

4.2.6.3 2022 Off-site Detects

For off-site reported sample results included in the 2022 annual report, Section 4.2.4 (North Wind 2023), all analytes were analyzed accordingly unless the well had insufficient sample volume or was dry.

4.2.6.4 2022 Radiochemistry Results

For radiochemistry sample results reported in the 2022 annual report, Section 4.2.4 (North Wind 2023), all required methods were analyzed accordingly unless the well had insufficient sample volume or was dry.

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5. 2024 PLANNED ACTIVITIES

The monitoring frequency for the Site-Wide Program will be quarterly for water level monitoring and annually for sampling and analysis, with sampling to be performed in the first calendar quarter of 2024.

5.1 Outstanding Issues and/or Follow-Up Work

After review of the 2023 sampling, the following outstanding issues were identified, and recommendations have been made for potential follow-up work:

- Update the WQSAP (Haley & Aldrich 2010b) to include COCs, including tritium, to further evaluate potential trends in wells such as RD-90 and RD-95.
- Continue to monitor the increased number of wells across Area IV with detections of DRO and GRO above the screening criteria to evaluate potential trends related to the rainfall and percolation that occurred in Spring 2023.
- Continue to monitor TCE in the FSDF Groundwater Impact Area. There was noticeable increase in TCE from 2022 to 2023 in several wells (RD-65, RD-54A) due to the high seasonal rainfall in Spring 2023.
- Continue to monitor TCE in the HMSA/PDU Groundwater Impact Area. Though less pronounced than the impact to FSDF, TCE levels increased noticeably in several wells (DD-144 and PZ-163) in this area also.
- Continue to monitor reportable metals concentrations across the site. The number of new maximum detections for metals in 2023 was increased due to increased precipitation and infiltration. Continued monitoring will support extent and trend analysis.
- New detections (maximum detection) of the COCs in the Site-Wide Groundwater Monitoring Program above the SSFL screening values were reported in the following 17 wells: DD-139, DD-141, DD-144, DD-157, DS-48, PZ-005, PZ-104, PZ-108, PZ-120, PZ-121, PZ-124, PZ-162, PZ-163, RD-27, RD-64, RD-65, and RD-74. These wells are recommended for future sampling rounds to evaluate potential extent and trends.

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TABLES

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TABLE 1
LIST OF DOE WELLS - 2023 ANNUAL SITE-WIDE GROUNDWATER MONITORING PROGRAM
DOE AREA IV GROUNDWATER RFI
SANTA SUSANA FIELD LABORATORY, VENTURA COUNTY, CALIFORNIA

Well ID	Sampling Program ¹	Water Level Monitoring Program	Groundwater Impact Area
C-08	RFI	---	FSDf B4886
PZ-005	RFI	---	MC/DOE LF3
PZ-041	RFI	---	HMSA
PZ-097	S	W	FSDf B4886
PZ-098	RFI	---	FSDf B4886
PZ-100	RFI	---	FSDf B4886
PZ-102	RFI	---	MC/DOE LF2
PZ-103	RFI	---	MC/DOE LF3
PZ-104	RFI	---	MC/DOE LF3
PZ-105	RFI	---	MC/DOE LF3
PZ-108	S	W	B4457 HMSA
PZ-109	RFI	---	B4057/4059/4626
PZ-116	RFI	---	RMHF
PZ-120	RFI	---	B4457 HMSA
PZ-121	RFI	---	B4457 HMSA
PZ-122	RFI	---	B4457 HMSA
PZ-124	S	W	B56 Landfill
PZ-162	RFI	---	HMSA
PZ-163	RFI	---	HMSA
PZ-164	RFI	---	HMSA/PDU
PZ-165	RFI	---	HMSA/PDU
PZ-166	RFI	---	HMSA/PDU
PZ-167	RFI	---	HMSA/PDU
PZ-168	RFI	---	HMSA/PDU
PZ-169	RFI	---	HMSA/PDU
RD-07	S	W	B56 Landfill
RD-14	S	W	Old Conservation Yard
RD-17	RFI	W	B4030/4093 Leachfields
RD-19	S	W	B4133
RD-20	S	W	B4100 Trench
RD-21	RFI	W	FSDf B4886
RD-22	RFI	W	FSDf B4886
RD-23	RFI	W	FSDf B4886
RD-24	RFI	W	B4057/4059/4626
RD-27	RFI	W	RMHF
RD-29	RFI	W	B4457 HMSA
RD-30	RFI	W	RMHF
RD-33A	S	W	FSDf B4886
RD-33B	S	W	FSDf B4886
RD-33C	S	W	FSDf B4886
RD-34A	S	W	RMHF
RD-34B	S	W	RMHF
RD-34C	S	W	RMHF
RD-54A	S	W	FSDf B4886
RD-54B	RFI	W	FSDf B4886
RD-54C	RFI	W	FSDf B4886
RD-59A	S	W	Offsite
RD-59B	S	W	Offsite
RD-59C	S	W	Offsite
RD-63	S	W	RMHF
RD-64	RFI	W	FSDf B4886
RD-65	RFI	W	FSDf B4886
RD-74	RFI	W	B56 Landfill
RD-87	RFI	W	Tritium Plume
RD-88	RFI	W	Tritium Plume
RD-90	RFI	W	Tritium Plume
RD-91	S	W	B4100
RD-93	RFI	W	Tritium Plume
RD-94	RFI	W	Tritium Plume
RD-95	RFI	W	Tritium Plume
RD-96	S	W	B4057/4059/4626

TABLE 1
LIST OF DOE WELLS - 2023 ANNUAL SITE-WIDE GROUNDWATER MONITORING PROGRAM
DOE AREA IV GROUNDWATER RFI
SANTA SUSANA FIELD LABORATORY, VENTURA COUNTY, CALIFORNIA

Well ID	Sampling Program ¹	Water Level Monitoring Program	Groundwater Impact Area
RD-97	RFI	W	B4057/4059/4626
RD-98	RFI	W	RMHF
RS-16	RFI	W	B56 Landfill
RS-18	S	W	FSDf B4886
RS-23	RFI	---	FSDf B4886
RS-25	RFI	W	B133
RS-27	RFI	W	B4457 HMSA
RS-28	RFI	W	RMHF
RS-54	RFI	W	FSDf B4886
DS-43	RFI	---	B4057/4059/4626
DS-44	RFI	---	B4030/4093 Leachfields
DS-45	RFI	---	B4064
DS-46	RFI	---	FSDf B4886
DS-47	RFI	---	B4064
DS-48	RFI	---	B4457 HMSA
DD-139	RFI	---	FSDf B4886
DD-140	RFI	---	FSDf B4886
DD-141	RFI	---	B56 Landfill
DD-142	RFI	---	B4057/4059/4626
DD-143	RFI	---	RMHF
DD-144	RFI	---	B4457 HMSA
DD-145	RFI	---	MC/DOE LF3
DD-146	RFI	---	B4457 HMSA
DD-147 ² (Formerly RD-89)	RFI	W	Tritium Plume
DD-157	RFI	---	B4457 HMSA
DD-158	RFI	---	Old Conservation Yard
DD-159	RFI	---	Old Conservation Yard
Seeps and Springs ³	Sampling Program ¹	Water Level Monitoring Program	Nearest Impact Area
SP-900A	N/A	N/A	FSDf B4886
SP-900B	N/A	N/A	FSDf B4886
SP-900C	N/A	N/A	FSDf B4886
SP-19A	N/A	N/A	Tritium Plume
SP-19B	N/A	N/A	Tritium Plume
SP-T02A	N/A	N/A	Tritium Plume
SP-T02B	N/A	N/A	Tritium Plume
SP-T02C	N/A	N/A	Tritium Plume
SP-T02D	N/A	N/A	Tritium Plume
SP-424A	N/A	N/A	RMHF
SP-424B	N/A	N/A	RMHF
SP-424C	N/A	N/A	RMHF

Notes and Abbreviations:

¹ Haley & Aldrich, 2010. Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Simi Hills, Ventura County, California, Revision 1, File No. 20090-456/556/656/M489. December.

² RD-89 was drilled to a deeper depth in May 2018. The well ID is now DD-147 and is 257 feet deep.

³ Seeps and springs are monitored under a separate program.

FSDf - Former Sodium Disposal Facility

HMSA - Hazardous Materials Storage Area

MC/DOE LF3 - Metals Clarifier / DOE Leach Fields 3

N/A - not applicable

RMHF - Radioactive Materials Handling Facility

RFI - Resource Conservation and Recovery Act Facility Investigation (Collected as part of DOE Area IV GW RFI)

S - Included in Site-Wide Sampling Program

W - Included in Site-Wide Water Level Monitoring Program

--- - Water level only collected during a sampling event

**TABLE 2
MODIFICATIONS TO MONITORING WELL NETWORK AND EQUIPMENT, ANNUAL 2023 - DOE AREA IV
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

WELL MAINTENANCE							
Well ID	Monitoring Program	Quarter Identified	Issue Identification Date	Issue	Issue Resolution	Quarter Resolved	Issue Resolution Date
RD-34B	SW	2010/2011	2010/2011	Borehole obstruction at 167 feet below ground surface.	Groundwater samples have been collected using a pump placed immediately above the obstruction.	---	---
RD-57	SW	2016Q1	3/10/2016	FLUTE was only partially removed due to an obstruction. Well cap welded shut.	No planned action at this time.	---	---
RD-74	SW	2014Q1	2/4/2014	Obstruction at about 95 ft bgs due to pump left in well. Total well depth is 101 feet.	Issue discussed with DTSC in March 2016. Well is dry. No planned action at this time.	---	---
RD-17	SW	2019Q1	3/1/2019	Removed electric submersible pump (230V;1/3HP). Had problem with the pump shutting off while sampling during 2019Q1 sampling event.	In the future the well will be sampled using a non-dedicated low-flow bladder pump.	2019Q3	7/16/2019
RD-24	SW	2019Q1	2/27/2019	Removed electric submersible pump (230V;1/3HP). Removed proactively to support future sampling with non-dedicated pumps.	In the future the well will be sampled using a non-dedicated low-flow bladder pump.	2019Q3	7/16/2019
RD-29	SW	2019Q1	2/27/2019	Removed electric submersible pump (230V;1/2HP). Had problem with the pump shutting off while sampling during 2019Q1 sampling event.	In the future the well will be sampled using a non-dedicated low-flow bladder pump.	2019Q3	7/16/2019
EQUIPMENT MODIFICATIONS							
Well ID	Monitoring Program	Quarter	Modification Date	Description			
None	None	None	None	None			
WELL CONSTRUCTION							
Well ID	Monitoring Program	Quarter	Completion Date	Description			
None	None	None	None	None			
WELL DEVELOPMENT							
Well ID	Monitoring Program	Quarter	Development Date	Description			
None	None	None	None	None			

Notes and Abbreviations:
SW - Well monitored under Site-Wide Program
--- - no data

TABLE 3
WATER LEVEL DATA, ANNUAL 2023 - DOE AREA IV
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY CALIFORNIA

Quarter	Well Identifier	Geological Unit	Reference Point Elevation (feet above MSL)	Date of Measurement	Depth to Water (feet BTOC)	Static Water Level Elevation (feet above MSL)	Notes
Q1	C-8	Chatsworth	1842.23	2/10/2023	212.02	1630.21	none
Q2	C-8	Chatsworth	1842.23	6/23/2023	210.11	1632.12	none
Q3	C-8	Chatsworth	1842.23	8/10/2023	209.15	1633.08	none
Q4	C-8	Chatsworth	1842.23	11/9/2023	---	---	(4)
Q1	DD-139	Chatsworth	1793.01	2/8/2023	169.07	1623.94	none
Q2	DD-139	Chatsworth	1793.01	6/23/2023	135.78	1657.23	none
Q3	DD-139	Chatsworth	1793.01	8/10/2023	118.66	1674.35	none
Q4	DD-139	Chatsworth	1793.01	11/9/2023	122.04	1670.97	none
Q1	DD-140	Chatsworth	1798.16	2/9/2023	155.45	1642.71	none
Q2	DD-140	Chatsworth	1798.16	6/23/2023	143.39	1654.77	none
Q3	DD-140	Chatsworth	1798.16	8/10/2023	141.64	1656.52	none
Q4	DD-140	Chatsworth	1798.16	11/9/2023	141.42	1656.74	none
Q1	DD-141	Chatsworth	1762.79	2/8/2023	77.04	1685.75	none
Q2	DD-141	Chatsworth	1762.79	6/23/2023	64.57	1698.22	none
Q3	DD-141	Chatsworth	1762.79	8/10/2023	64.69	1698.10	none
Q4	DD-141	Chatsworth	1762.79	11/9/2023	65.51	1697.28	none
Q1	DD-142	Chatsworth	1812.22	2/9/2023	62.50	1749.72	none
Q2	DD-142	Chatsworth	1812.22	6/23/2023	57.00	1755.22	none
Q3	DD-142	Chatsworth	1812.22	8/10/2023	55.59	1756.63	none
Q4	DD-142	Chatsworth	1812.22	11/9/2023	53.96	1758.26	none
Q1	DD-143	Chatsworth	1789.74	2/8/2023	36.62	1753.12	none
Q2	DD-143	Chatsworth	1789.74	6/22/2023	18.42	1771.32	none
Q3	DD-143	Chatsworth	1789.74	8/10/2023	21.92	1767.82	none
Q4	DD-143	Chatsworth	1789.74	11/10/2023	25.38	1764.36	none
Q1	DD-144	Chatsworth	1810.69	2/9/2023	24.27	1786.42	none
Q2	DD-144	Chatsworth	1810.69	6/23/2023	11.82	1798.87	none
Q3	DD-144	Chatsworth	1810.69	8/10/2023	12.91	1797.78	none
Q4	DD-144	Chatsworth	1810.69	11/9/2023	14.51	1796.18	none
Q1	DD-145	Chatsworth	1798.90	2/8/2023	27.48	1771.42	none
Q2	DD-145	Chatsworth	1798.90	6/23/2023	19.11	1779.79	none
Q3	DD-145	Chatsworth	1798.90	8/10/2023	14.22	1784.68	none
Q4	DD-145	Chatsworth	1798.90	11/9/2023	20.11	1778.79	none
Q1	DD-146	Chatsworth	1812.72	2/9/2023	23.19	1789.53	none
Q2	DD-146	Chatsworth	1812.72	6/23/2023	13.01	1799.71	none
Q3	DD-146	Chatsworth	1812.72	8/10/2023	19.80	1792.92	none
Q4	DD-146	Chatsworth	1812.72	11/9/2023	15.72	1797.00	none
Q1	DD-147	Chatsworth	1818.30	2/10/2023	49.68	1768.62	(3)
Q2	DD-147	Chatsworth	1818.30	6/22/2023	32.75	1785.55	(3)
Q3	DD-147	Chatsworth	1818.30	8/10/2023	34.03	1784.27	(3)
Q4	DD-147	Chatsworth	1818.30	11/10/2023	35.69	1782.61	(3)
Q1	DD-157	Chatsworth	1814.21	2/9/2023	20.99	1793.22	none
Q2	DD-157	Chatsworth	1814.21	6/23/2023	11.41	1802.80	none
Q3	DD-157	Chatsworth	1814.21	8/11/2023	13.46	1800.75	none
Q4	DD-157	Chatsworth	1814.21	11/9/2023	15.45	1798.76	none
Q1	DD-158	Chatsworth	1832.09	2/9/2023	134.76	1697.33	none
Q2	DD-158	Chatsworth	1832.09	6/23/2023	125.91	1706.18	none
Q3	DD-158	Chatsworth	1832.09	8/11/2023	123.53	1708.56	none
Q4	DD-158	Chatsworth	1832.09	11/10/2023	120.94	1711.15	none
Q1	DD-159	Chatsworth	1838.35	2/9/2023	99.58	1738.77	none
Q2	DD-159	Chatsworth	1838.35	6/23/2023	68.56	1769.79	none
Q3	DD-159	Chatsworth	1838.35	8/11/2023	68.84	1769.51	none
Q4	DD-159	Chatsworth	1838.35	11/10/2023	69.73	1768.62	none
Q1	DS-43	Shallow	1809.52	2/9/2023	17.54	1791.98	none
Q2	DS-43	Shallow	1809.52	6/23/2023	10.98	1798.54	none
Q3	DS-43	Shallow	1809.52	8/10/2023	11.53	1797.99	none
Q4	DS-43	Shallow	1809.52	11/9/2023	12.45	1797.07	none

TABLE 3
WATER LEVEL DATA, ANNUAL 2023 - DOE AREA IV
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY CALIFORNIA

Quarter	Well Identifier	Geological Unit	Reference Point Elevation (feet above MSL)	Date of Measurement	Depth to Water (feet BTOC)	Static Water Level Elevation (feet above MSL)	Notes
Q1	DS-44	Shallow	1851.21	2/9/2023	68.75	1782.46	none
Q2	DS-44	Shallow	1851.21	6/23/2023	50.16	1801.05	none
Q3	DS-44	Shallow	1851.21	8/10/2023	51.69	1799.52	none
Q4	DS-44	Shallow	1851.21	11/10/2023	54.98	1796.23	none
Q1	DS-45	Shallow	1866.58	2/8/2023	69.71	1796.87	none
Q2	DS-45	Shallow	1866.58	6/23/2023	68.71	1797.87	none
Q3	DS-45	Shallow	1866.58	8/10/2023	67.41	1799.17	none
Q4	DS-45	Shallow	1866.58	11/10/2023	66.42	1800.16	none
Q1	DS-46	Shallow	1797.79	2/9/2023	31.51	1766.28	none
Q2	DS-46	Shallow	1797.79	6/23/2023	28.64	1769.15	none
Q3	DS-46	Shallow	1797.79	8/10/2023	34.45	1763.34	none
Q4	DS-46	Shallow	1797.79	11/9/2023	37.73	1760.06	none
Q1	DS-47	Shallow	1867.94	2/8/2023	109.95	1757.99	none
Q2	DS-47	Shallow	1867.94	6/23/2023	102.44	1765.50	none
Q3	DS-47	Shallow	1867.94	8/10/2023	100.45	1767.49	none
Q4	DS-47	Shallow	1867.94	11/10/2023	98.44	1769.50	none
Q1	DS-48	Shallow	1814.46	2/9/2023	23.43	1791.03	none
Q2	DS-48	Shallow	1814.46	6/23/2023	10.69	1803.77	none
Q3	DS-48	Shallow	1814.46	8/11/2023	12.39	1802.07	none
Q4	DS-48	Shallow	1814.46	11/9/2023	14.40	1800.06	none
Q1	PZ-097	Shallow	1761.87	2/8/2023	DRY	---	none
Q2	PZ-097	Shallow	1761.87	6/23/2023	DRY	---	none
Q3	PZ-097	Shallow	1761.87	8/10/2023	DRY	---	none
Q4	PZ-097	Shallow	1761.87	11/9/2023	DRY	---	none
Q1	PZ-098	Shallow	1797.78	8/11/2023	26.83	1770.95	none
Q2	PZ-098	Shallow	1797.78	11/9/2023	29.82	1767.96	none
Q3	PZ-098	Shallow	1797.78	2/9/2023	23.29	1774.49	none
Q4	PZ-098	Shallow	1797.78	6/23/2023	22.46	1775.32	none
Q1	PZ-102	Shallow	1827.78	2/8/2023	54.67	1773.11	none
Q2	PZ-102	Shallow	1827.78	6/23/2023	57.64	1770.14	none
Q3	PZ-102	Shallow	1827.78	8/10/2023	59.5	1768.28	none
Q4	PZ-102	Shallow	1827.78	11/9/2023	DRY	---	none
Q1	PZ-105	Shallow	1803.87	2/8/2023	15.43	1788.44	none
Q2	PZ-105	Shallow	1803.87	6/23/2023	10.70	1793.17	none
Q3	PZ-105	Shallow	1803.87	8/11/2023	11.61	1792.26	none
Q4	PZ-105	Shallow	1803.87	11/9/2023	13.15	1790.72	none
Q1	PZ-108	Shallow	1809.36	2/9/2023	20.23	1789.13	none
Q2	PZ-108	Shallow	1809.36	6/23/2023	7.75	1801.61	none
Q3	PZ-108	Shallow	1809.36	8/10/2023	9.62	1799.74	none
Q4	PZ-108	Shallow	1809.36	11/9/2023	11.71	1797.65	none
Q1	PZ-109	Shallow	1809.51	2/9/2023	17.90	1791.61	none
Q2	PZ-109	Shallow	1809.51	6/23/2023	12.20	1797.31	none
Q3	PZ-109	Shallow	1809.51	8/11/2023	12.44	1797.07	none
Q4	PZ-109	Shallow	1809.51	11/9/2023	13.14	1796.37	none
Q1	PZ-124	Shallow	1764.11	2/8/2023	DRY	---	none
Q2	PZ-124	Shallow	1764.11	6/23/2023	18.44	1745.67	none
Q3	PZ-124	Shallow	1764.11	8/10/2023	20.62	1743.49	none
Q4	PZ-124	Shallow	1764.11	11/9/2023	23.84	1740.27	none
Q1	PZ-162	Shallow	1814.26	2/9/2023	26.02	1788.24	none
Q2	PZ-162	Shallow	1814.26	6/23/2023	12.54	1801.72	none
Q3	PZ-162	Shallow	1814.26	8/11/2023	13.54	1800.72	none
Q4	PZ-162	Shallow	1814.26	11/9/2023	15.14	1799.12	none
Q1	PZ-163	Shallow	1814.03	2/9/2023	24.82	1789.21	none
Q2	PZ-163	Shallow	1814.03	6/23/2023	12.76	1801.27	none
Q3	PZ-163	Shallow	1814.03	8/11/2023	14.00	1800.03	none
Q4	PZ-163	Shallow	1814.03	11/9/2023	15.27	1798.76	none

TABLE 3
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Quarter	Well Identifier	Geological Unit	Reference Point Elevation (feet above MSL)	Date of Measurement	Depth to Water (feet BTOC)	Static Water Level Elevation (feet above MSL)	Notes
Q1	RD-07	Chatsworth	1812.82	2/8/2023	100.36	1712.46	none
Q2	RD-07	Chatsworth	1812.82	6/23/2023	93.95	1718.87	none
Q3	RD-07	Chatsworth	1812.82	8/10/2023	91.83	1720.99	none
Q4	RD-07	Chatsworth	1812.82	11/9/2023	89.05	1723.77	none
Q1	RD-14	Chatsworth	1824.18	2/9/2023	103.76	1720.42	none
Q2	RD-14	Chatsworth	1824.18	6/23/2023	75.89	1748.29	none
Q3	RD-14	Chatsworth	1824.18	8/10/2023	72.54	1751.64	none
Q4	RD-14	Chatsworth	1824.18	11/10/2023	71.18	1753.00	none
Q1	RD-17	Chatsworth	1836.30	2/9/2023	45.48	1790.82	none
Q2	RD-17	Chatsworth	1836.30	6/23/2023	31.46	1804.84	none
Q3	RD-17	Chatsworth	1836.30	8/10/2023	31.19	1805.11	none
Q4	RD-17	Chatsworth	1836.30	11/10/2023	31.45	1804.85	none
Q1	RD-19	Chatsworth	1853.16	2/9/2023	90.22	1762.94	none
Q2	RD-19	Chatsworth	1853.16	6/23/2023	54.11	1799.05	none
Q3	RD-19	Chatsworth	1853.16	8/10/2023	67.80	1785.36	none
Q4	RD-19	Chatsworth	1853.16	11/10/2023	72.45	1780.71	none
Q1	RD-20	Chatsworth	1819.52	2/9/2023	48.50	1771.02	none
Q2	RD-20	Chatsworth	1819.52	6/23/2023	36.51	1783.01	none
Q3	RD-20	Chatsworth	1819.52	8/10/2023	36.76	1782.76	none
Q4	RD-20	Chatsworth	1819.52	11/9/2023	37.25	1782.27	none
Q1	RD-21	Chatsworth	1866.96	2/9/2023	100.67	1766.29	none
Q2	RD-21	Chatsworth	1866.96	6/23/2023	86.86	1780.10	none
Q3	RD-21	Chatsworth	1866.96	8/10/2023	85.76	1781.20	none
Q4	RD-21	Chatsworth	1866.96	11/9/2023	85.86	1781.10	none
Q1	RD-22	Chatsworth	1853.41	2/10/2023	299.24	1554.17	none
Q2	RD-22	Chatsworth	1853.41	6/23/2023	298.66	1554.75	none
Q3	RD-22	Chatsworth	1853.41	8/10/2023	297.84	1555.57	none
Q4	RD-22	Chatsworth	1853.41	11/9/2023	298.25	1555.16	none
Q1	RD-23	Chatsworth	1838.19	2/10/2023	243.65	1594.54	none
Q2	RD-23	Chatsworth	1838.19	6/23/2023	241.94	1596.25	none
Q3	RD-23	Chatsworth	1838.19	8/10/2023	241.28	1596.91	none
Q4	RD-23	Chatsworth	1838.19	11/9/2023	---	---	(4)
Q1	RD-24	Chatsworth	1809.93	2/9/2023	46.78	1763.15	none
Q2	RD-24	Chatsworth	1809.93	6/23/2023	37.46	1772.47	none
Q3	RD-24	Chatsworth	1809.93	8/10/2023	36.89	1773.04	none
Q4	RD-24	Chatsworth	1809.93	11/10/2023	36.25	1773.68	none
Q1	RD-27	Chatsworth	1841.67	2/9/2023	60.52	1781.15	none
Q2	RD-27	Chatsworth	1841.67	6/23/2023	45.55	1796.12	none
Q3	RD-27	Chatsworth	1841.67	8/10/2023	46.44	1795.23	none
Q4	RD-27	Chatsworth	1841.67	11/10/2023	47.71	1793.96	none
Q1	RD-29	Chatsworth	1806.29	2/8/2023	13.94	1792.35	none
Q2	RD-29	Chatsworth	1806.29	6/23/2023	11.04	1795.25	none
Q3	RD-29	Chatsworth	1806.29	8/10/2023	13.22	1793.07	none
Q4	RD-29	Chatsworth	1806.29	11/10/2023	14.61	1791.68	none
Q1	RD-30	Chatsworth	1768.69	2/8/2023	15.53	1753.16	none
Q2	RD-30	Chatsworth	1768.69	6/22/2023	0.00	1768.69	none
Q3	RD-30	Chatsworth	1768.69	8/10/2023	2.31	1766.38	none
Q4	RD-30	Chatsworth	1768.69	11/10/2023	4.76	1763.93	none
Q1	RD-33A	Chatsworth	1792.97	2/8/2023	213.09	1579.88	none
Q2	RD-33A	Chatsworth	1792.97	6/23/2023	210.84	1582.13	none
Q3	RD-33A	Chatsworth	1792.97	8/10/2023	209.10	1583.87	none
Q4	RD-33A	Chatsworth	1792.97	11/9/2023	206.72	1586.25	none
Q1	RD-33B	Chatsworth	1793.72	2/8/2023	279.23	1514.49	none
Q2	RD-33B	Chatsworth	1793.72	6/23/2023	277.16	1516.56	none
Q3	RD-33B	Chatsworth	1793.72	8/10/2023	276.58	1517.14	none
Q4	RD-33B	Chatsworth	1793.72	11/9/2023	276.28	1517.44	none

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Quarter	Well Identifier	Geological Unit	Reference Point Elevation (feet above MSL)	Date of Measurement	Depth to Water (feet BTOC)	Static Water Level Elevation (feet above MSL)	Notes
Q1	RD-33C	Chatsworth	1793.61	2/8/2023	281.11	1512.50	none
Q2	RD-33C	Chatsworth	1793.61	6/23/2023	279.15	1514.46	none
Q3	RD-33C	Chatsworth	1793.61	8/10/2023	278.62	1514.99	none
Q4	RD-33C	Chatsworth	1793.61	11/9/2023	278.10	1515.51	none
Q1	RD-34A	Chatsworth	1761.91	2/9/2023	43.58	1718.33	none
Q2	RD-34A	Chatsworth	1761.91	6/23/2023	12.16	1749.75	none
Q3	RD-34A	Chatsworth	1761.91	8/10/2023	18.34	1743.57	none
Q4	RD-34A	Chatsworth	1761.91	11/10/2023	25.30	1736.61	none
Q1	RD-34B	Chatsworth	1762.51	2/10/2023	63.53	1698.98	none
Q2	RD-34B	Chatsworth	1762.51	6/23/2023	19.93	1742.58	none
Q3	RD-34B	Chatsworth	1762.51	8/10/2023	24.56	1737.95	none
Q4	RD-34B	Chatsworth	1762.51	11/10/2023	29.80	1732.71	none
Q1	RD-34C	Chatsworth	1762.79	2/9/2023	25.84	1736.95	none
Q2	RD-34C	Chatsworth	1762.79	6/23/2023	7.53	1755.26	none
Q3	RD-34C	Chatsworth	1762.79	8/10/2023	7.47	1755.32	none
Q4	RD-34C	Chatsworth	1762.79	11/10/2023	8.17	1754.62	none
Q1	RD-50	Chatsworth	1914.88	2/9/2023	127.80	1787.08	none
Q2	RD-50	Chatsworth	1914.88	6/22/2023	102.41	1812.47	none
Q3	RD-50	Chatsworth	1914.88	8/11/2023	102.19	1812.69	none
Q4	RD-50	Chatsworth	1914.88	11/9/2023	102.87	1812.01	none
Q1	RD-54A	Chatsworth	1841.72	2/10/2023	187.21	1654.51	none
Q2	RD-54A	Chatsworth	1841.72	6/23/2023	186.13	1655.59	none
Q3	RD-54A	Chatsworth	1841.72	8/10/2023	185.62	1656.10	none
Q4	RD-54A	Chatsworth	1841.72	11/9/2023	189.67	1652.05	none
Q1	RD-54B	Chatsworth	1842.54	2/10/2023	242.92	1599.62	none
Q2	RD-54B	Chatsworth	1842.54	6/23/2023	240.34	1602.20	none
Q3	RD-54B	Chatsworth	1842.54	8/10/2023	239.15	1603.39	none
Q4	RD-54B	Chatsworth	1842.54	11/9/2023	246.21	1596.33	none
Q1	RD-54C	Chatsworth	1843.77	2/10/2023	230.21	1613.56	none
Q2	RD-54C	Chatsworth	1843.77	6/23/2023	224.72	1619.05	none
Q3	RD-54C	Chatsworth	1843.77	8/10/2023	222.30	1621.47	none
Q4	RD-54C	Chatsworth	1843.77	11/9/2023	221.32	1622.45	none
Q1	RD-59A	Chatsworth	1340.59	2/8/2023	26.01	1314.58	none
Q2	RD-59A	Chatsworth	1340.59	6/22/2023	26.08	1314.51	none
Q3	RD-59A	Chatsworth	1340.59	8/10/2023	28.39	1312.20	none
Q4	RD-59A	Chatsworth	1340.59	11/9/2023	27.24	1313.35	none
Q1	RD-59B	Chatsworth Artesian	1342.49	2/8/2023	21.00	---	(1)
Q2	RD-59B	Chatsworth Artesian	1342.49	6/22/2023	21.00	---	(1)
Q3	RD-59B	Chatsworth Artesian	1342.49	8/10/2023	21.00	---	(1)
Q4	RD-59B	Chatsworth Artesian	1342.49	11/9/2023	21.00	---	(1)
Q1	RD-59C	Chatsworth Artesian	1345.41	2/8/2023	20.00	---	(1)
Q2	RD-59C	Chatsworth Artesian	1345.41	6/22/2023	21.00	---	(1)
Q3	RD-59C	Chatsworth Artesian	1345.41	8/10/2023	21.00	---	(1)
Q4	RD-59C	Chatsworth Artesian	1345.41	11/9/2023	21.00	---	(1)
Q1	RD-63	Chatsworth	1764.83	2/10/2023	33.67	1731.16	none
Q2	RD-63	Chatsworth	1764.83	6/22/2023	8.90	1755.93	none
Q3	RD-63	Chatsworth	1764.83	8/10/2023	13.25	1751.58	none
Q4	RD-63	Chatsworth	1764.83	11/10/2023	17.12	1747.71	none
Q1	RD-64	Chatsworth	1857.04	2/10/2023	251.52	1605.52	none
Q2	RD-64	Chatsworth	1857.04	6/23/2023	238.31	1618.73	none
Q3	RD-64	Chatsworth	1857.04	8/10/2023	239.80	1617.24	none
Q4	RD-64	Chatsworth	1857.04	11/9/2023	244.99	1612.05	none
Q1	RD-65	Chatsworth	1819.14	2/10/2023	224.46	1594.68	none
Q2	RD-65	Chatsworth	1819.14	6/23/2023	223.99	1595.15	none
Q3	RD-65	Chatsworth	1819.14	8/10/2023	223.82	1595.32	none
Q4	RD-65	Chatsworth	1819.14	11/9/2023	---	---	(4)

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Quarter	Well Identifier	Geological Unit	Reference Point Elevation (feet above MSL)	Date of Measurement	Depth to Water (feet BTOC)	Static Water Level Elevation (feet above MSL)	Notes
Q1	RD-74	Chatsworth	1810.90	2/8/2023	DRY	---	(2)
Q2	RD-74	Chatsworth	1810.90	6/23/2023	90.45	1720.45	(2)
Q3	RD-74	Chatsworth	1810.90	8/10/2023	87.87	1723.03	(2)
Q4	RD-74	Chatsworth	1810.90	11/9/2023	87.07	1723.83	(2)
Q1	RD-87	Chatsworth	1789.09	2/10/2023	51.15	1737.94	none
Q2	RD-87	Chatsworth	1789.09	6/22/2023	34.63	1754.46	none
Q3	RD-87	Chatsworth	1789.09	8/10/2023	39.14	1749.95	none
Q4	RD-87	Chatsworth	1789.09	11/10/2023	43.25	1745.84	none
Q1	RD-88	Chatsworth	1774.62	2/10/2023	30.71	1743.91	none
Q2	RD-88	Chatsworth	1774.62	6/22/2023	18.22	1756.40	none
Q3	RD-88	Chatsworth	1774.62	8/10/2023	19.99	1754.63	none
Q4	RD-88	Chatsworth	1774.62	11/10/2023	27.52	1747.10	none
Q1	RD-90	Chatsworth	1784.75	2/10/2023	40.81	1743.94	none
Q2	RD-90	Chatsworth	1784.75	6/22/2023	24.15	1760.60	none
Q3	RD-90	Chatsworth	1784.75	8/10/2023	25.87	1758.88	none
Q4	RD-90	Chatsworth	1784.75	11/10/2023	28.02	1756.73	none
Q1	RD-91	Chatsworth	1818.04	2/9/2023	91.05	1726.99	none
Q2	RD-91	Chatsworth	1818.04	6/23/2023	11.73	1806.31	none
Q3	RD-91	Chatsworth	1818.04	8/10/2023	13.03	1805.01	none
Q4	RD-91	Chatsworth	1818.04	11/9/2023	15.82	1802.22	none
Q1	RD-92	Chatsworth	1833.74	2/9/2023	72.52	1761.22	none
Q2	RD-92	Chatsworth	1833.74	6/23/2023	66.52	1767.22	none
Q3	RD-92	Chatsworth	1833.74	8/10/2023	65.23	1768.51	none
Q4	RD-92	Chatsworth	1833.74	11/10/2023	63.46	1770.28	none
Q1	RD-93	Chatsworth	1810.48	2/10/2023	43.16	1767.32	none
Q2	RD-93	Chatsworth	1810.48	6/22/2023	30.94	1779.54	none
Q3	RD-93	Chatsworth	1810.48	8/10/2023	30.94	1779.54	none
Q4	RD-93	Chatsworth	1810.48	11/10/2023	31.38	1779.10	none
Q1	RD-94	Chatsworth	1744.38	2/10/2023	26.89	1717.49	none
Q2	RD-94	Chatsworth	1744.38	6/22/2023	9.03	1735.35	none
Q3	RD-94	Chatsworth	1744.38	8/10/2023	11.22	1733.16	none
Q4	RD-94	Chatsworth	1744.38	11/10/2023	13.41	1730.97	none
Q1	RD-95	Chatsworth	1811.36	2/10/2023	66.20	1745.16	none
Q2	RD-95	Chatsworth	1811.36	6/22/2023	53.11	1758.25	none
Q3	RD-95	Chatsworth	1811.36	8/10/2023	51.72	1759.64	none
Q4	RD-95	Chatsworth	1811.36	11/10/2023	51.38	1759.98	none
Q1	RD-96	Chatsworth	1805.49	2/8/2023	78.73	1726.76	none
Q2	RD-96	Chatsworth	1805.49	6/23/2023	69.50	1735.99	none
Q3	RD-96	Chatsworth	1805.49	8/10/2023	67.51	1737.98	none
Q4	RD-96	Chatsworth	1805.49	11/9/2023	66.01	1739.48	none
Q1	RD-97	Chatsworth	1792.22	2/8/2023	67.24	1724.98	none
Q2	RD-97	Chatsworth	1792.22	6/23/2023	47.85	1744.37	none
Q3	RD-97	Chatsworth	1792.22	8/10/2023	49.06	1743.16	none
Q4	RD-97	Chatsworth	1792.22	11/9/2023	51.04	1741.18	none
Q1	RD-98	Chatsworth	1808.73	2/8/2023	44.98	1763.75	none
Q2	RD-98	Chatsworth	1808.73	6/22/2023	29.10	1779.63	none
Q3	RD-98	Chatsworth	1808.73	8/10/2023	33.25	1775.48	none
Q4	RD-98	Chatsworth	1808.73	11/10/2023	36.91	1771.82	none
Q1	RS-18	Shallow	1802.86	2/10/2023	4.01	1798.85	none
Q2	RS-18	Shallow	1802.86	6/23/2023	7.58	1795.28	none
Q3	RS-18	Shallow	1802.86	8/10/2023	8.94	1793.92	none
Q4	RS-18	Shallow	1802.86	11/10/2023	11.22	1791.64	none
Q1	RS-23	Shallow	1887.25	2/9/2023	13.44	1873.81	none
Q2	RS-23	Shallow	1887.25	6/22/2023	DRY	---	none
Q3	RS-23	Shallow	1887.25	8/11/2023	DRY	---	none
Q4	RS-23	Shallow	1887.25	11/10/2023	DRY	---	none

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Quarter	Well Identifier	Geological Unit	Reference Point Elevation (feet above MSL)	Date of Measurement	Depth to Water (feet BTOC)	Static Water Level Elevation (feet above MSL)	Notes
Q1	RS-25	Shallow	1862.71	2/9/2023	13.49	1849.22	none
Q2	RS-25	Shallow	1862.71	6/23/2023	14.12	1848.59	none
Q3	RS-25	Shallow	1862.71	8/10/2023	DRY	---	none
Q4	RS-25	Shallow	1862.71	11/10/2023	DRY	---	none
Q1	RS-27	Shallow	1804.78	2/8/2023	DRY	---	none
Q2	RS-27	Shallow	1804.78	6/23/2023	9.26	1795.52	none
Q3	RS-27	Shallow	1804.78	8/10/2023	DRY	---	none
Q4	RS-27	Shallow	1804.78	11/9/2023	DRY	---	none
Q1	RS-28	Shallow	1768.59	2/8/2023	15.23	1753.36	none
Q2	RS-28	Shallow	1768.59	6/22/2023	0.00	1768.59	none
Q3	RS-28	Shallow	1768.59	8/10/2023	2.14	1766.45	none
Q4	RS-28	Shallow	1768.59	11/10/2023	4.57	1764.02	none
Q1	RS-54	Shallow	1846.66	2/10/2023	22.64	1824.02	none
Q2	RS-54	Shallow	1846.66	6/23/2023	20.75	1825.91	none
Q3	RS-54	Shallow	1846.66	8/10/2023	15.63	1831.03	none
Q4	RS-54	Shallow	1846.66	11/9/2023	16.24	1830.42	none

Notes and Abbreviations:

- (1) - Pressure transducers installed on artesian well.
- (2) - Obstruction at 95.1 feet bgs; prior investigators left pump in well.
- (3) - RD-89 was drilled to a deeper depth in May 2018. The well ID is now DD-147 and is 257 feet deep.
- (4) - Could not gauge, well was being modified

--- - No data available or not applicable.

BTOC - below top of casing

Chatsworth - Chatsworth Formation groundwater unit.

Chatsworth Artesian - Chatsworth Formation groundwater unit - Artesian with hydrostatic head above land surface.

GWIM - Groundwater Interim Measure

MSL - mean sea level

PSI - pounds per square inch

Shallow - Near Surface groundwater unit.

**TABLE 4
EXCEPTIONS TO PLANNED SITE-WIDE WATER QUALITY AND RFI SAMPLING
ANNUAL 2023 - DOE AREA IV
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

WELLS SCHEDULED BUT NOT SAMPLED				
Well Identifier		Notes		
Q1 2023 : PZ-097, PZ-124, PZ-104		Wells were dry.		
Q1 2023 : RD-59A, RD-59B		Due to record rainfall amounts wells could not be accessed.		
Q1 2023 : RD-33C, RD-59C, RS-18		Wells were not scheduled to be sampled.		
Q3 2023 : PZ-097, PZ-102, RS-16, RS-27, RS-25		Wells were dry.		
Q3 2023 : RD-14, RD-19, RD-20, RD-33A, RD-33B, RD-33C, RD-34B, RD-34C, RD-57, RD-59A, RD-59B, RD-59C, RS-18		Wells were not scheduled to be sampled.		
STABILIZATION CRITERIA COLLECTED AT FIXED INTERVALS GREATER THAN 5 MINUTES				
Well Identifier		Notes		
Q1 2023 : PZ-005, PZ-098, PZ-102, PZ-105, PZ-108, PZ-109, PZ-163, RD-20, RD-90, RD-96, DS-45		Readings were collected every 6 minutes to give enough time to exchange water in the flow through cell due to 50 mL/min flow rate.		
Q3 2023 : PZ-005, PZ-041, PZ-098, PZ-103, PZ-104, PZ-105, PZ-108, PZ-109, PZ-116, PZ-121, PZ-122, PZ-124, PZ-163		Readings were collected every 6 minutes to give enough time to exchange water in the flow through cell due to 50 mL/min flow rate.		
PURGE VOLUME REQUIREMENTS NOT MET				
Q1 2023 : Purge volume was met on all wells sampled.				
Q3 2023 : Purge volume was met on all wells sampled.				
LOW-FLOW STABILIZATION CRITERIA NOT MET				
Well Identifier		Notes		
Q1 2023 : PZ-098, PZ-109, RD-91, DS-45		Water level drawdown exceeded 0.3 feet.		
Q3 2023 : PZ-104, PZ-109		Water level drawdown exceeded 0.3 feet.		
QUALITY ASSURANCE PROJECT PLAN (QAPP) REQUIREMENTS Q1 and Q3 2023				
Requirement		Exceptions		
Trip Blanks submitted daily with samples analyzed for volatile organic compounds (VOCs) and gasoline-range organics.		None		
Quality control (QC) samples collected		See Appendix E		
Precision/Accuracy requirements met		See Appendix E		
OTHER				
RD-34B		The pump was placed immediately above an obstruction at 169 feet bgs (variance from intake placed halfway between the depth to water and the bottom of the saturated open interval of the well).		
Level II Validation		6 SDGs were validated to Level II instead of Level III or Level IV. These include SDGs 611006 (metals); 611338 (metals and anions); 611477 (anions and perchlorate); 611842 (anions), 612262 (metals and anions) and 612640 (anions)		
ELEVATED REPORTING LIMITS AND ANALYTES NOT ANALYZED				
The below analytes had reporting limits (RLs) above values listed in WQSAP Table B-II that are based on SSFL screening criteria. However, the method detection limits (MDLs) were below the applicable screening criterias and are considered sufficient for project purposes.				
Analyte	WQSAP RL	2023 RL	2023 MDL	Notes
1,2-dichloroethane (µg/L)	0.5	0.666	0.333	MDL below respective screening criterion.
Carbon tetrachloride (µg/L)	0.5	0.666	0.333	MDL below respective screening criterion.
cis-1,3-Dichloropropene	0.5	0.666	0.333	MDL below respective screening criterion.
Vinyl chloride (µg/L)	0.5	0.666	0.333	MDL below respective screening criterion.
DRO and GRO (µg/L)	---	---	---	The SSFL screening criterion for DRO is 100 µg/L and for GRO is 5 µg/L. There are discrepancies between these criteria and the associated reporting limits presented in the WQSAP. Laboratories have shown it is difficult to achieve these lower limits. For evaluation in this document the limits used are as stated, and evaluation of non-detect results in cases where the values are greater than the SSFL screening criteria is performed on a case-by-case basis
Analyte Not Analyzed				
1,4-dioxane was not analyzed during Q1 at well RD-34C. The analyte was included on the chain of custody but was inadvertently not analyzed by the laboratory.				

Notes and Abbreviations:

- - no data
- bgs - below ground surface
- MDL - method detection limit
- mL/min - milliliter per minute
- QC - quality control
- RL - reporting limit
- µg/L - microgram per liter
- VOC - volatile organic compound
- WQSAP - Water Quality Sampling and Analysis Plan

**TABLE 5
GROUNDWATER FIELD PARAMETERS, ANNUAL 2023 - DOE AREA IV
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Well Identifier	Date	Temperature (° C)	pH	Conductivity (mmhos)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Oxidation Reduction Potential (mV)
C-08	3/3/2023	17.4	7.32	0.693	1.69	5.0	68.6
DD-139	2/21/2023	15.50	7.05	0.618	0.79	11.0	43.9
DD-139	8/18/2023	21.40	7.03	0.841	1.27	10.0	38.8
DD-141	2/17/2023	10.70	7.25	0.847	2.31	35.0	86.9
DD-141	8/23/2023	26.20	7.17	0.937	1.90	29.0	-52.0
DD-143	8/17/2023	21.51	6.87	1.267	0.96	35.0	-61.5
DD-144	3/2/2023	16.66	7.13	0.901	0.78	147.0	19.1
DD-144	8/15/2023	25.50	7.03	0.990	2.03	56.0	117.9
DD-157	2/28/2023	13.90	7.47	0.626	0.65	4.0	-133.9
DD-158	2/28/2023	15.40	7.31	0.653	1.95	30.0	30.8
DD-159	2/20/2023	16.46	7.35	0.820	1.45	31.0	11.4
DS-43	2/14/2023	19.55	7.20	1.092	0.59	26.0	-9.2
DS-43	8/21/2023	19.74	7.08	1.026	0.90	21.0	-2.1
DS-44	8/23/2023	23.86	7.14	1.085	0.84	4.0	72.3
DS-45	2/27/2023	12.69	7.12	0.777	6.29	18.0	52.0
DS-45	8/18/2023	21.80	6.91	0.800	3.07	11.0	91.4
DS-46	3/3/2023	16.80	6.87	1.001	0.66	28.0	-68.1
DS-46	8/22/2023	19.46	6.59	0.975	0.71	81.0	-48.2
DS-47	8/18/2023	21.50	7.12	0.708	2.02	4.0	120.4
DS-48	8/14/2023	22.60	7.64	0.769	0.75	7.0	-114.8
DS-48	2/28/2023	16.90	7.24	0.784	0.49	8.0	-71.2
PZ-005	8/25/2023	26.99	7.13	1.091	4.11	7.0	100.3
PZ-005	3/2/2023	18.6	7.09	0.921	4.36	15.0	46.1
PZ-041	8/15/2023	26.79	7.28	0.820	0.72	7.0	30.7
PZ-098	2/14/2023	14.20	6.90	0.792	4.90	1.0	100.7
PZ-098	8/22/2023	20.30	6.85	0.840	2.18	2.0	97.7
PZ-102	3/2/2023	18.10	6.20	0.339	2.82	3.0	91.1
PZ-103	8/14/2023	23.85	7.22	1.321	5.55	27.0	127.2
PZ-104	8/16/2023	21.66	7.10	3.111	0.53	10.0	-130.4
PZ-105	3/2/2023	13.50	7.41	0.909	2.40	2.0	86.3
PZ-105	8/14/2023	23.66	6.86	1.004	0.33	48.0	21.4
PZ-108	2/28/2023	9.40	7.14	1.049	2.74	25.0	62.0
PZ-108	8/14/2023	23.80	7.10	1.152	3.51	21.0	-15.5

**TABLE 5
GROUNDWATER FIELD PARAMETERS, ANNUAL 2023 - DOE AREA IV
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Well Identifier	Date	Temperature (° C)	pH	Conductivity (mmhos)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Oxidation Reduction Potential (mV)
PZ-109	2/14/2023	13.03	7.09	1.257	1.77	40.0	14.5
PZ-109	8/21/2023	17.40	7.30	1.268	0.55	7.0	72.1
PZ-116	8/17/2023	24.80	6.81	1.508	1.60	4.0	-81.0
PZ-120	3/1/2023	14.46	7.21	0.690	2.42	23.0	42.2
PZ-120	8/16/2023	27.60	7.29	0.782	1.87	28.0	-106.2
PZ-121	8/15/2023	30.86	6.19	0.618	0.49	6.0	-12.9
PZ-122	8/16/2023	28.43	7.11	1.121	0.82	5.0	58.7
PZ-124	8/23/2023	20.10	6.87	2.695	0.86	8.0	-23.5
PZ-162	2/16/2023	16.60	7.14	0.879	0.87	36.0	-18.4
PZ-162	8/16/2023	24.70	7.03	0.904	1.43	32.0	-112.0
PZ-163	3/2/2023	12.12	7.02	0.925	1.85	10.0	39.5
PZ-163	8/15/2023	26.10	7.04	1.026	1.88	10.0	-133.9
RD-07	2/13/2023	14.40	7.23	0.750	2.29	2.0	68.9
RD-07	8/21/2023	18.60	7.17	0.732	1.90	4.0	-58.3
RD-14	2/15/2023	16.67	7.27	0.755	1.25	4.0	2.9
RD-19	2/17/2023	11.04	6.84	1.593	1.79	3.0	45.9
RD-20	2/16/2023	13.63	7.18	1.515	2.97	1.0	29.4
RD-21	2/14/2023	18.50	7.38	0.604	2.53	4.0	61.0
RD-27	8/21/2023	20.69	7.31	0.563	1.05	101.0	62.8
RD-30	2/21/2023	15.40	6.85	1.088	1.24	25.0	37.4
RD-30	8/17/2023	24.57	6.91	0.971	0.32	10.0	65.9
RD-33A	2/22/2023	15.90	7.58	0.564	0.48	5.0	-33.1
RD-33B	2/21/2023	18.20	8.09	0.355	2.26	2.0	-47.9
RD-34A	2/27/2023	13.50	6.76	1.127	0.69	4.0	-38.0
RD-34A	8/22/2023	24.60	0.67	1.184	0.67	5.0	-97.0
RD-34B	3/1/2023	14.00	7.88	0.212	0.54	6.0	-134.9
RD-34C	2/24/2023	12.85	7.86	0.491	0.91	2.0	-143.7
RD-54A	2/24/2023	14.80	7.28	0.688	2.23	2.0	82.1
RD-54A	8/25/2023	20.68	6.82	0.737	1.54	4.0	92.6
RD-63	2/20/2023	10.40	6.97	0.938	0.62	1.0	-29.1
RD-63	8/22/2023	18.40	7.02	1.040	0.80	4.0	-28.7
RD-64	8/24/2023	20.75	6.97	0.788	1.68	2.0	135.3
RD-65	3/1/2023	15.35	7.39	0.493	0.97	5.0	18.8

TABLE 5
GROUNDWATER FIELD PARAMETERS, ANNUAL 2023 - DOE AREA IV
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

Well Identifier	Date	Temperature (° C)	pH	Conductivity (mmhos)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Oxidation Reduction Potential (mV)
RD-65	8/24/2023	23.13	7.53	0.504	0.52	3.0	-133.3
RD-74	8/23/2023	22.89	6.86	0.932	1.80	32.0	97.4
RD-87	3/1/2023	17.26	6.97	1.065	2.52	7.0	44.8
RD-88	8/17/2023	27.60	7.02	0.749	1.57	52.0	-156.8
RD-91	3/2/2023	20.48	7.11	1.142	3.68	31.0	29.6
RD-94	2/23/2023	11.40	6.9	1.216	2.54	7.0	102.8
RD-94	8/17/2023	20.40	7.00	1.302	2.28	6.0	97.4
RD-96	2/15/2023	14.10	7.09	0.898	0.94	1.0	63
RD-98	2/23/2023	13.27	7.34	0.615	4.85	1.0	54.5
RD-98	8/18/2023	26.63	7.43	0.553	2.84	17.0	83.2
RS-28	2/22/2023	13.01	6.95	1.718	2.49	18.0	39.6
RS-28	8/18/2023	18.42	6.19	0.879	1.01	1.0	175.2

Notes and Abbreviations:

° C - degrees Celsius
mmhos - millimhos
mg/L - milligrams per liter
mV - millivolt
NTU - nephelometric turbidity unit
--- - no data

**TABLE 6
SAMPLES ANALYZED, 2023- DOE AREA IV
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Location	SampleDate	Method
C-08	3/3/2023	1,4-Dioxane Metals Volatile Organic Compounds
DD-139	2/21/2023	1,4-Dioxane Perchlorate Volatile Organic Compounds
DD-139	3/3/2023	Metals
DD-139	8/18/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Volatile Organic Compounds
DD-141	2/17/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Perchlorate Radio Chemical Strontium-90 Volatile Organic Compounds
DD-141	8/23/2023	1,4-Dioxane Metals Volatile Organic Compounds
DD-143	8/17/2023	1,4-Dioxane Metals Strontium-90 Volatile Organic Compounds
DD-144	3/2/2023	1,4-Dioxane Metals Volatile Organic Compounds
DD-144	8/15/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Volatile Organic Compounds
DD-157	2/28/2023	1,4-Dioxane Metals Volatile Organic Compounds
DD-158	2/28/2023	1,4-Dioxane Metals Radio Chemical Strontium-90 Volatile Organic Compounds
DD-159	2/20/2023	1,4-Dioxane Metals Radio Chemical Strontium-90 Volatile Organic Compounds
DS-43	2/14/2023	1,4-Dioxane Metals Volatile Organic Compounds
DS-43	8/21/2023	1,4-Dioxane Metals Volatile Organic Compounds
DS-44	8/23/2023	1,4-Dioxane Metals Volatile Organic Compounds
DS-45	2/27/2023	1,4-Dioxane Metals Radio Chemical Strontium-90 Volatile Organic Compounds
DS-45	8/18/2023	1,4-Dioxane Metals Volatile Organic Compounds
DS-46	3/3/2023	1,4-Dioxane Metals Volatile Organic Compounds

**TABLE 6
SAMPLES ANALYZED, 2023- DOE AREA IV
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Location	SampleDate	Method
DS-46	8/22/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Perchlorate Volatile Organic Compounds
DS-47	8/18/2023	1,4-Dioxane Metals Volatile Organic Compounds
DS-48	2/28/2023	1,4-Dioxane Metals Volatile Organic Compounds
DS-48	8/14/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Volatile Organic Compounds
PZ-005	3/2/2023	1,4-Dioxane Metals Nitrate Volatile Organic Compounds
PZ-005	8/25/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Volatile Organic Compounds
PZ-041	8/15/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Volatile Organic Compounds
PZ-097	1Q2023	Dry, Not sampled
PZ-098	2/14/2023	1,4-Dioxane Metals Perchlorate Volatile Organic Compounds
PZ-098	8/22/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Perchlorate Volatile Organic Compounds
PZ-102	3/2/2023	1,4-Dioxane Metals Volatile Organic Compounds
PZ-103	8/14/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Volatile Organic Compounds
PZ-104	8/16/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Volatile Organic Compounds
PZ-105	3/2/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Nitrate Volatile Organic Compounds
PZ-105	8/14/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Volatile Organic Compounds
PZ-108	2/28/2023	1,4-Dioxane Metals Volatile Organic Compounds

**TABLE 6
SAMPLES ANALYZED, 2023- DOE AREA IV
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Location	SampleDate	Method
PZ-108	8/14/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Volatile Organic Compounds
PZ-109	2/14/2023	1,4-Dioxane Metals Volatile Organic Compounds
PZ-109	8/21/2023	1,4-Dioxane Metals Volatile Organic Compounds
PZ-116	8/17/2023	1,4-Dioxane Strontium-90 Volatile Organic Compounds
PZ-120	3/1/2023	1,4-Dioxane Metals Volatile Organic Compounds
PZ-120	8/16/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Volatile Organic Compounds
PZ-121	8/15/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Volatile Organic Compounds
PZ-122	8/16/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Volatile Organic Compounds
PZ-124	8/23/2023	1,4-Dioxane Metals Volatile Organic Compounds
PZ-162	2/16/2023	1,4-Dioxane Radio Chemical Strontium-90 Volatile Organic Compounds
PZ-162	8/16/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Volatile Organic Compounds
PZ-163	3/2/2023	1,4-Dioxane Volatile Organic Compounds
PZ-163	8/15/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Volatile Organic Compounds
RD-07	2/13/2023	1,4-Dioxane Radio Chemical Strontium-90 Volatile Organic Compounds
RD-07	8/21/2023	1,4-Dioxane Metals Volatile Organic Compounds
RD-14	2/15/2023	1,4-Dioxane Fluoride Metals Radio Chemical Strontium-90 Volatile Organic Compounds
RD-19	2/17/2023	1,4-Dioxane Fluoride Metals Radio Chemical Strontium-90 Volatile Organic Compounds

**TABLE 6
SAMPLES ANALYZED, 2023- DOE AREA IV
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Location	SampleDate	Method
RD-20	2/16/2023	1,4-Dioxane Radio Chemical Strontium-90 Volatile Organic Compounds
RD-21	2/14/2023	1,4-Dioxane Metals Perchlorate Volatile Organic Compounds
RD-27	8/21/2023	1,4-Dioxane Metals Strontium-90 Volatile Organic Compounds
RD-30	2/21/2023	1,4-Dioxane Radio Chemical Strontium-90 Volatile Organic Compounds
RD-30	8/17/2023	1,4-Dioxane Strontium-90 Volatile Organic Compounds
RD-33A	2/22/2023	1,4-Dioxane Metals Perchlorate Radio Chemical Strontium-90 Volatile Organic Compounds
RD-33B	2/21/2023	1,4-Dioxane Metals Perchlorate Radio Chemical Strontium-90 Volatile Organic Compounds
RD-34A	2/27/2023	1,4-Dioxane Diesel Range Organics Fluoride Gasoline Range Organics Metals Radio Chemical Strontium-90 Volatile Organic Compounds
RD-34A	8/22/2023	1,4-Dioxane Metals Strontium-90 Volatile Organic Compounds
RD-34B	3/1/2023	1,4-Dioxane Fluoride Metals Radio Chemical Strontium-90 Volatile Organic Compounds
RD-34C	2/24/2023	Fluoride Metals Radio Chemical Strontium-90 Volatile Organic Compounds
RD-54A	2/24/2023	1,4-Dioxane Metals Perchlorate Radio Chemical Strontium-90 Volatile Organic Compounds
RD-54A	8/25/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Perchlorate Volatile Organic Compounds

**TABLE 6
SAMPLES ANALYZED, 2023- DOE AREA IV
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Location	SampleDate	Method
RD-63	2/20/2023	1,4-Dioxane Fluoride Metals Radio Chemical Strontium-90 Volatile Organic Compounds
RD-63	8/22/2023	1,4-Dioxane Metals Strontium-90 Volatile Organic Compounds
RD-64	8/24/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Volatile Organic Compounds
RD-65	3/1/2023	1,4-Dioxane Volatile Organic Compounds
RD-65	8/24/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Volatile Organic Compounds
RD-74	8/23/2023	1,4-Dioxane Metals Volatile Organic Compounds
RD-87	3/1/2023	Tritium Volatile Organic Compounds
RD-88	8/17/2023	1,4-Dioxane Tritium Volatile Organic Compounds
RD-91	3/2/2023	Metals Volatile Organic Compounds
RD-94	2/23/2023	Radio Chemical Strontium-90 Tritium Volatile Organic Compounds
RD-94	8/17/2023	1,4-Dioxane Tritium Volatile Organic Compounds
RD-96	2/15/2023	1,4-Dioxane Radio Chemical Strontium-90 Volatile Organic Compounds
RD-98	2/23/2023	1,4-Dioxane Radio Chemical Strontium-90 Volatile Organic Compounds
RD-98	8/18/2023	1,4-Dioxane Strontium-90 Volatile Organic Compounds
RS-28	2/22/2023	1,4-Dioxane Diesel Range Organics Gasoline Range Organics Metals Radio Chemical Strontium-90 Volatile Organic Compounds
RS-28	8/18/2023	1,4-Dioxane Metals Strontium-90 Volatile Organic Compounds

TABLE 7
GROUNDWATER MONITORING PROGRAM ANALYSES, 2023 - DOE AREA IV
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

Analyte	Analytical Method
Anions	
Fluoride	E300
Nitrate	E300
DRO and/or GRO	
Diesel Range Organics	SW8015D
Gasoline Range Organics	SW8015D
Metals	
Antimony	SW6020
Arsenic	SW6020
Barium	SW6020
Beryllium	SW6020
Cadmium	SW6020
Chromium	SW6020
Cobalt	SW6020
Copper	SW6020
Lead	SW6020
Mercury	SW7470A
Nickel	SW6020
Selenium	SW6020
Silver	SW6020
Sodium	SW6020
Thallium	SW6020
Tin	SW6020
Vanadium	SW6020
Zinc	SW6020
Perchlorate	
Perchlorate	SW6850
Radio Chemical	
Actinium-228	E901.1
Americium-241	E901.1
Antimony-125	E901.1
Barium-133	E901.1
Cesium-134	E901.1
Cesium-137	E901.1
Cobalt-57	E901.1
Cobalt-60	E901.1
Europium-152	E901.1
Europium-154	E901.1
Europium-155	E901.1
Gross Alpha	E900
Gross Beta	E900
Manganese-54	E901.1
Potassium-40	E901.1
Ra-226 - total	E903.1
Ra-228 - total	E904
Sodium-22	E901.1
Strontium-90	905.0 M
Tritium	E906.0
Uranium-233/234	EML300_U02MOD
Uranium-235/236	EML300_U02MOD
Uranium-238	EML300_U02MOD

TABLE 7
GROUNDWATER MONITORING PROGRAM ANALYSES, 2023 - DOE AREA IV
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

Analyte	Analytical Method
Volatile Organic Compounds	
1,1,1-Trichloroethane	SW8260D
1,1,2-trichloro-1,2,2-trifluoroethane	SW8260D
1,1,2-trichloroethane	SW8260D
1,1-Dichloroethane	SW8260D
1,1-Dichloroethene	SW8260D
1,2-Dichloroethane	SW8260D
1,4-Dioxane	SW8270E SIM
2-butanone	SW8260D
Acetone	SW8260D
Benzene	SW8260D
Carbon tetrachloride	SW8260D
Chloroform	SW8260D
cis-1,2-Dichloroethene	SW8260D
Ethylbenzene	SW8260D
Methylene chloride	SW8260D
m-xylene & p-xylene	SW8260D
o-Xylene (1,2-dimethyl-benzene)	SW8260D
Tetrachloroethene	SW8260D
Toluene	SW8260D
trans-1,2-Dichloroethene	SW8260D
Trichloroethene	SW8260D
Trichlorofluoromethane	SW8260D
Vinyl chloride	SW8260D

**TABLE 8
GROUNDWATER SCREENING REFERENCE VALUES, SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Analyte Group	Chemical Analyte	Screening Value	Units	Screening Type
Radiochemistry	Actinium-228	N/A	N/A	N/A
Radiochemistry	Antimony-125	300	pCi/L	Primary MCL ^(a)
Radiochemistry	Barium-133	1520	pCi/L	Primary MCL ^(b)
Radiochemistry	Barium-137m	2150000	pCi/L	Primary MCL ^(b)
Radiochemistry	Bismuth-212	N/A	N/A	N/A
Radiochemistry	Bismuth-214	N/A	N/A	N/A
Radiochemistry	Carbon-14	2000	pCi/L	Primary MCL ^(a)
Radiochemistry	Cesium-134	80	pCi/L	Primary MCL ^(a)
Radiochemistry	Cesium-137	200	pCi/L	Primary MCL ^(a)
Radiochemistry	Cobalt-57	1000	pCi/L	Primary MCL ^(a)
Radiochemistry	Cobalt-60	100	pCi/L	Primary MCL ^(a)
Radiochemistry	Europium-152	200	pCi/L	Primary MCL ^(a)
Radiochemistry	Gross alpha	15	pCi/L	Primary MCL
Radiochemistry	Gross beta	50	pCi/L	Cal MCL
Radiochemistry	Gross beta	4	mrem/yr	Primary MCL
Radiochemistry	Iodine-129	1	pCi/L	Primary MCL ^(a)
Radiochemistry	Lead-210	N/A	N/A	N/A
Radiochemistry	Lead-212	N/A	N/A	N/A
Radiochemistry	Lead-214	N/A	N/A	N/A
Radiochemistry	Potassium-40	N/A	N/A	N/A
Radiochemistry	Manganese-54	300	pCi/L	Primary MCL ^(a)
Radiochemistry	Neptunium-236	5960	pCi/L	Primary MCL ^(b)
Radiochemistry	Niobium-94	707	pCi/L	Primary MCL ^(b)
Radiochemistry	Radium-226/228	5	pCi/L	Primary MCL
Radiochemistry	Sodium-22	400	pCi/L	Primary MCL ^(a)
Radiochemistry	Strontium-90	8	pCi/L	Primary MCL
Radiochemistry	Thallium-208	N/A	N/A	N/A
Radiochemistry	Thorium-234	N/A	N/A	N/A
Radiochemistry	Thulium-171	1000	pCi/L	Primary MCL ^(a)
Radiochemistry	Tin-126	293	pCi/L	Primary MCL ^(b)
Radiochemistry	Tritium	20000	pCi/L	Primary MCL
Radiochemistry	Uranium-233/234	20	pCi/L	Cal MCL
Radiochemistry	Uranium-235	20	pCi/L	Cal MCL
Radiochemistry	Uranium-238	20	pCi/L	Cal MCL
Halogenated Ethenes	1,2-Dichloroethene	130	ug/L	SWGWS RBSL
Halogenated Ethenes	Chlorotrifluoroethylene	N/A	N/A	N/A
Halogenated Ethenes	Tetrachloroethene	5	ug/L	Primary MCL
Halogenated Ethenes	Trichloroethene	5	ug/L	Primary MCL
Halogenated Ethenes	cis-1,2-Dichloroethene	6	ug/L	Cal MCL
Halogenated Ethenes	trans-1,2-Dichloroethene	10	ug/L	Cal MCL
Halogenated Ethenes	1,1-Dichloroethene	6	ug/L	Cal MCL
Halogenated Ethenes	Vinyl chloride	0.5	ug/L	Cal MCL
Halogenated Ethanes	1,1,1,2-Tetrachloroethane	N/A	N/A	N/A
Halogenated Ethanes	1,1,2,2-Tetrachloroethane	1	ug/L	Cal MCL
Halogenated Ethanes	1,1,2-Trichloroethane	5	ug/L	Primary MCL
Halogenated Ethanes	1,1,1-Trichloroethane	200	ug/L	Primary MCL
Halogenated Ethanes	1,2-Dichloroethane	0.5	ug/L	Cal MCL
Halogenated Ethanes	1,1-Dichloroethane	5	ug/L	Cal MCL
Halogenated Ethanes	Chloroethane	16	ug/L	Taste/Odor
Halogenated Ethanes	2-Chloro-1,1,1-trifluoroethane	N/A	N/A	N/A
Halogenated Ethanes	1,2-Dibromoethane	0.05	ug/L	Primary MCL
Halogenated Ethanes	Dichlorodifluoroethane	N/A	N/A	N/A
Halogenated Ethanes	1,1,2-Trichloro-1,2,2-trifluoroethane	1200	ug/L	Cal MCL
Halogenated Ethanes	1,2-Dichloro-1,1,2-trifluoroethane	190000	ug/L	SWGWS RBSL
Halogenated Ethanes	Dichlorotrifluoroethane	N/A	N/A	N/A

**TABLE 8
GROUNDWATER SCREENING REFERENCE VALUES, SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Analyte Group	Chemical Analyte	Screening Value	Units	Screening Type
Halogenated Ethanes	2,2-Dichloro-1,1,1-trifluoroethane	190000	ug/L	SWGWS RBSL
Halogenated Ethanes	Trichlorotrifluoroethane	N/A	N/A	N/A
Halogenated Methanes	Dichlorofluoromethane	N/A	N/A	N/A
Halogenated Methanes	Isocyanomethane	N/A	N/A	N/A
Halogenated Methanes	Carbon Tetrachloride	0.5	ug/L	Cal MCL
Halogenated Methanes	Chloroform	80	ug/L	Primary MCL
Halogenated Methanes	Methylene chloride	5	ug/L	Primary MCL
Halogenated Methanes	Chloromethane	5.7	ug/L	SWGWS RBSL
Halogenated Methanes	Trichlorofluoromethane	150	ug/L	Cal MCL
Halogenated Methanes	Dichlorodifluoromethane	1000	ug/L	Notification Level
Halogenated Methanes	Bromochloromethane	34000	ug/L	Taste/Odor
Halogenated Methanes	Bromodichloromethane	80	ug/L	Primary MCL
Halogenated Methanes	Bromoform	80	ug/L	Primary MCL
Halogenated Methanes	Bromomethane	8.8	ug/L	SWGWS RBSL
Halogenated Methanes	Dibromochloromethane	80	ug/L	Primary MCL
Halogenated Methanes	Dibromomethane	N/A	N/A	N/A
Halogenated Methanes	Iodomethane	N/A	N/A	N/A
Non-Halogenated VOCs	Total Complex Matrix	N/A	N/A	N/A
Non-Halogenated VOCs	1-Chlorohexane	N/A	N/A	N/A
Non-Halogenated VOCs	1-Hexanol	N/A	N/A	N/A
Non-Halogenated VOCs	1-Octanol	N/A	N/A	N/A
Non-Halogenated VOCs	2-Heptanone	280	ug/L	Taste/Odor
Non-Halogenated VOCs	2-Naphthaleneethanol	N/A	N/A	N/A
Non-Halogenated VOCs	Acetic Acid Ester	N/A	N/A	N/A
Non-Halogenated VOCs	Acetic Acid, 2-Methylpropyl Ester	N/A	N/A	N/A
Non-Halogenated VOCs	Acetic Acid, Butyl Ester	N/A	N/A	N/A
Non-Halogenated VOCs	Acetic Acid, Hexyl Ester	N/A	N/A	N/A
Non-Halogenated VOCs	Benzene, 1-Bromo-3-fluoro-	N/A	N/A	N/A
Non-Halogenated VOCs	Benzyl chloride	12	ug/L	Taste/Odor
Non-Halogenated VOCs	Butanoic Acid, Ethyl Ester	N/A	N/A	N/A
Non-Halogenated VOCs	Butyl Cyclooctane	N/A	N/A	N/A
Non-Halogenated VOCs	Cumene	770	ug/L	Notification Level
Non-Halogenated VOCs	Ethanol	760000	ug/L	Taste/Odor
Non-Halogenated VOCs	Ethanone, 1-(2,4,6-Trihydroxyphenyl)-	N/A	N/A	N/A
Non-Halogenated VOCs	Ethyl acetate	2600	ug/L	Taste/Odor
Non-Halogenated VOCs	Ethyl cyanide	N/A	N/A	N/A
Non-Halogenated VOCs	Ethyl ether	750	ug/L	Taste/Odor
Non-Halogenated VOCs	Formic acid, octyl ester	N/A	N/A	N/A
Non-Halogenated VOCs	Heptanal	N/A	N/A	N/A
Non-Halogenated VOCs	Hexanoic Acid, Ethyl Ester	N/A	N/A	N/A
Non-Halogenated VOCs	Methanol	740000	ug/L	Taste/Odor
Non-Halogenated VOCs	Methyl sulfide	N/A	N/A	N/A
Non-Halogenated VOCs	m-Xylene & p-Xylene	1750	ug/L	Cal MCL
Non-Halogenated VOCs	Naphthalene, 1-(2-Propenyl)-	N/A	N/A	N/A
Non-Halogenated VOCs	n-Hexane	6.4	ug/L	Taste/Odor
Non-Halogenated VOCs	Octanal	N/A	N/A	N/A
Non-Halogenated VOCs	p-Cymene	N/A	N/A	N/A
Non-Halogenated VOCs	Pentanal	17	ug/L	Taste/Odor
Non-Halogenated VOCs	Propanoic Acid, 2-Methyl-, ethyl ester	N/A	N/A	N/A
Non-Halogenated VOCs	sec-Butyl alcohol	19000	ug/L	Taste/Odor
Non-Halogenated VOCs	tert-Butyl alcohol	12	ug/L	Notification Level
Non-Halogenated VOCs	tert-Butyl ethyl ether	N/A	N/A	N/A
Non-Halogenated VOCs	Tetrahydrofuran	N/A	N/A	N/A
Non-Halogenated VOCs	Tetramethylurea	N/A	N/A	N/A
Non-Halogenated VOCs	Trimethylcyclopentane Isomer	N/A	N/A	N/A

**TABLE 8
GROUNDWATER SCREENING REFERENCE VALUES, SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Analyte Group	Chemical Analyte	Screening Value	Units	Screening Type
Non-Halogenated VOCs	1,3,5-Trimethylbenzene	330	ug/L	Notification Level
Non-Halogenated VOCs	Biphenyl	N/A	N/A	N/A
Non-Halogenated VOCs	1,2,4-Trimethylbenzene	330	ug/L	Notification Level
Non-Halogenated VOCs	2-Hexanone	250	ug/L	Taste/Odor
Non-Halogenated VOCs	Acetone	20000	ug/L	Taste/Odor
Non-Halogenated VOCs	Acetonitrile	300000	ug/L	Taste/Odor
Non-Halogenated VOCs	Acrolein	110	ug/L	Taste/Odor
Non-Halogenated VOCs	Acrylonitrile	910	ug/L	Taste/Odor
Non-Halogenated VOCs	Benzene	1	ug/L	Cal MCL
Non-Halogenated VOCs	Carbon Disulfide	160	ug/L	Notification Level
Non-Halogenated VOCs	Diisopropyl ether	N/A	N/A	N/A
Non-Halogenated VOCs	Ethane	7500	ug/L	Taste/Odor
Non-Halogenated VOCs	Ethyl methacrylate	N/A	N/A	N/A
Non-Halogenated VOCs	Ethylbenzene	300	ug/L	Cal MCL
Non-Halogenated VOCs	Ethylene	39	ug/L	Taste/Odor
Non-Halogenated VOCs	Isobutanol	N/A	N/A	N/A
Non-Halogenated VOCs	Isopropanol	160000	ug/L	Taste/Odor
Non-Halogenated VOCs	m-Xylene	1750	ug/L	Cal MCL
Non-Halogenated VOCs	Methacrylonitrile	2100	ug/L	Taste/Odor
Non-Halogenated VOCs	Methane	3100	ug/L	SWGWS RBSL
Non-Halogenated VOCs	Methyl ethyl ketone	3800	ug/L	SWGWS RBSL
Non-Halogenated VOCs	Methyl isobutyl ketone (MIBK)	120	ug/L	Notification Level
Non-Halogenated VOCs	Methyl methacrylate	25	ug/L	Taste/Odor
Non-Halogenated VOCs	Methyl tert-butyl ether	5	ug/L	Secondary MCL
Non-Halogenated VOCs	n-Butylbenzene	260	ug/L	Notification Level
Non-Halogenated VOCs	n-Propylbenzene	260	ug/L	Notification Level
Non-Halogenated VOCs	Naphthalene	17	ug/L	Notification Level
Non-Halogenated VOCs	o + p Xylene	1750	ug/L	Cal MCL
Non-Halogenated VOCs	o-Xylene	1750	ug/L	Cal MCL
Non-Halogenated VOCs	sec-Butylbenzene	260	ug/L	Notification Level
Non-Halogenated VOCs	Styrene	100	ug/L	Primary MCL
Non-Halogenated VOCs	tert-Amyl methyl ether	N/A	N/A	N/A
Non-Halogenated VOCs	tert-Butylbenzene	260	ug/L	Notification Level
Non-Halogenated VOCs	Toluene	150	ug/L	Cal MCL
Non-Halogenated VOCs	Vinyl acetate	88	ug/L	Taste/Odor
Non-Halogenated VOCs	Xylenes, Total	1750	ug/L	Cal MCL
Halogenated Benzenes	1,4-Dichlorobenzene-d4	N/A	N/A	N/A
Halogenated Benzenes	1,2,3-Trichlorobenzene	2.1	ug/L	SWGWS RBSL
Halogenated Benzenes	1,2,4-Trichlorobenzene	5	ug/L	Cal MCL
Halogenated Benzenes	1,2-Dichlorobenzene	600	ug/L	Primary MCL
Halogenated Benzenes	1,3-Dichlorobenzene	600	ug/L	Archived Advisory Level
Halogenated Benzenes	1,4-Dichlorobenzene	5	ug/L	Cal MCL
Halogenated Benzenes	Bromobenzene	N/A	N/A	N/A
Halogenated Benzenes	Chlorobenzene	70	ug/L	Cal MCL
Halogenated Benzenes	Dichlorobenzenes	N/A	N/A	N/A
Halogenated Propene/Propanes	cis-1,4-Dichloro-2-butene	N/A	N/A	N/A
Halogenated Propene/Propanes	Dichloropropane	N/A	N/A	N/A
Halogenated Propene/Propanes	sec-Dichloropropane	N/A	N/A	N/A
Halogenated Propene/Propanes	1,1-Dichloropropene	N/A	N/A	N/A
Halogenated Propene/Propanes	1,2,3-Trichloropropane	0.005	ug/L	Notification Level
Halogenated Propene/Propanes	3-Chloro-2(Chloromethyl)-1-Propene	N/A	N/A	N/A
Halogenated Propene/Propanes	1,2-Dibromo-3-chloropropane	0.2	ug/L	Primary MCL
Halogenated Propene/Propanes	1,2-Dichloropropane	5	ug/L	Primary MCL
Halogenated Propene/Propanes	1,3-Dichloropropane	130	ug/L	SWGWS RBSL
Halogenated Propene/Propanes	1,3-Dichloropropene	0.5	ug/L	Cal MCL

**TABLE 8
GROUNDWATER SCREENING REFERENCE VALUES, SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Analyte Group	Chemical Analyte	Screening Value	Units	Screening Type
Halogenated Propene/Propanes	Allyl chloride	8.9	ug/L	Taste/Odor
Halogenated Propene/Propanes	cis-1,3-Dichloropropene	0.5	ug/L	Cal MCL
Halogenated Propene/Propanes	trans-1,3-Dichloropropene	0.81	ug/L	SWGWS RBSL
Other Halogenated VOCs	1,1-Dichlorobutane	N/A	N/A	N/A
Other Halogenated VOCs	o-Chlorotoluene	140	ug/L	Notification Level
Other Halogenated VOCs	p-Chlorotoluene	140	ug/L	Notification Level
Other Halogenated VOCs	Total Organic Halogens	N/A	N/A	N/A
Other Halogenated VOCs	trans-1,4-Dichloro-2-butene	N/A	N/A	N/A
Other Halogenated VOCs	Hexachlorobutadiene	N/A	N/A	N/A
Other Halogenated VOCs	Chloroprene	N/A	N/A	N/A
Other Halogenated VOCs	2-Chloroethylvinyl ether	N/A	N/A	N/A
1,4-Dioxane	1,4-Dioxane	1	ug/L	Notification Level
SVOC	2-n-Butoxyethanol	N/A	N/A	N/A
SVOC	Amino Hexanoic Acid	N/A	N/A	N/A
SVOC	Benzene Alcohol	N/A	N/A	N/A
SVOC	Benzophenone	N/A	N/A	N/A
SVOC	Carboxylic Acid	N/A	N/A	N/A
SVOC	Decanol	N/A	N/A	N/A
SVOC	Dibenzyl Ether	N/A	N/A	N/A
SVOC	Dichloro Alkene	N/A	N/A	N/A
SVOC	Dichloromethylpropene	N/A	N/A	N/A
SVOC	Dichloropropene, NOS	N/A	N/A	N/A
SVOC	Dimethyl Decene	N/A	N/A	N/A
SVOC	Dimethyl Undecane	N/A	N/A	N/A
SVOC	Diphenyl ether	630	ug/L	SWGWS RBSL
SVOC	Molecular Sulfur	N/A	N/A	N/A
SVOC	p-Cresol	63	ug/L	SWGWS RBSL
SVOC	p-Dinitrobenzene	1.3	ug/L	SWGWS RBSL
SVOC	Trimethyl Decane	N/A	N/A	N/A
SVOC	1,1-Dimethylhydrazine	N/A	N/A	N/A
SVOC	1,2-Dinitrobenzene	N/A	N/A	N/A
SVOC	1-Chloronaphthalene	N/A	N/A	N/A
SVOC	1-Nitronaphthalene	N/A	N/A	N/A
SVOC	2,3,4-Trichlorophenol	N/A	N/A	N/A
SVOC	4-Am-2,6-DNT	N/A	N/A	N/A
SVOC	4-Nitroquinoline-1-oxide	N/A	N/A	N/A
SVOC	Acetamidofluorene	N/A	N/A	N/A
SVOC	alpha, alpha-Dimethylphenethylamine	N/A	N/A	N/A
SVOC	alpha-Naphthylamine	N/A	N/A	N/A
SVOC	alpha-Picoline	N/A	N/A	N/A
SVOC	beta-Naphthylamine	N/A	N/A	N/A
SVOC	Carbazole	N/A	N/A	N/A
SVOC	Decamethylcyclopentasiloxane	N/A	N/A	N/A
SVOC	Diazinon	1.2	ug/L	Notification Level
SVOC	Dibenz(a,j)acridine	N/A	N/A	N/A
SVOC	Diethyl phthalate	10000	ug/L	SWGWS RBSL
SVOC	Ethylene glycol	14000	ug/L	Notification Level
SVOC	Formaldehyde	100	ug/L	Notification Level
SVOC	Hydrazine	160000	ug/L	Taste/Odor
SVOC	m+p Cresol	N/A	N/A	N/A
SVOC	m-Cresol	37	ug/L	Taste/Odor
SVOC	Monomethylhydrazine	N/A	N/A	N/A
SVOC	o-Cresol	630	ug/L	SWGWS RBSL
SVOC	p-Chloroaniline	N/A	N/A	N/A
SVOC	p-Nitroaniline	N/A	N/A	N/A

**TABLE 8
GROUNDWATER SCREENING REFERENCE VALUES, SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Analyte Group	Chemical Analyte	Screening Value	Units	Screening Type
SVOC	Surfactants	N/A	N/A	N/A
SVOC	sym-Trinitrobenzene	N/A	N/A	N/A
SVOC	Zinophos	N/A	N/A	N/A
SVOC	1,1'-Phenylene-Bis-Ethanone	N/A	N/A	N/A
SVOC	1,2,3-Trichloropropene	0.005	ug/L	Notification Level
SVOC	1,2,4,5-Tetrachlorobenzene	N/A	N/A	N/A
SVOC	1,2-Diphenylhydrazine	N/A	N/A	N/A
SVOC	1,3-Dinitrobenzene	1.3	ug/L	SWGWS RBSL
SVOC	1,4-Naphthoquinone	N/A	N/A	N/A
SVOC	2,3,4,6-Tetrachlorophenol	N/A	N/A	N/A
SVOC	2,4,5-Trichlorophenol	N/A	N/A	N/A
SVOC	2,4,6-Trichlorophenol	2.1	ug/L	SWGWS RBSL
SVOC	2,4-Dichlorophenol	N/A	N/A	N/A
SVOC	2,4-Dimethylphenol	100	ug/L	Archived Advisory Level
SVOC	2,4-Dinitrophenol	N/A	N/A	N/A
SVOC	2,4-Dinitrotoluene	N/A	N/A	N/A
SVOC	2,6-Dichlorophenol	N/A	N/A	N/A
SVOC	2,6-Dinitrotoluene	0.22	ug/L	SWGWS RBSL
SVOC	2-Butoxyethoxyethanol	N/A	N/A	N/A
SVOC	2-Chloronaphthalene	N/A	N/A	N/A
SVOC	2-Chlorophenol	63	ug/L	SWGWS RBSL
SVOC	2-Nitroaniline	N/A	N/A	N/A
SVOC	2-Nitrophenol	N/A	N/A	N/A
SVOC	3,3'-Dichlorobenzidine	0.12	ug/L	SWGWS RBSL
SVOC	3-Methylcholanthrene	N/A	N/A	N/A
SVOC	3-Nitroaniline	N/A	N/A	N/A
SVOC	4,6-Dinitro-o-cresol	1.3	ug/L	SWGWS RBSL
SVOC	4-Aminobiphenyl	N/A	N/A	N/A
SVOC	4-Bromophenyl phenyl ether	N/A	N/A	N/A
SVOC	4-Chlorophenylphenyl ether	N/A	N/A	N/A
SVOC	4-Nitrophenol	N/A	N/A	N/A
SVOC	5-Nitro-o-toluidine	N/A	N/A	N/A
SVOC	7,12-Dimethylbenz(a)anthracene	N/A	N/A	N/A
SVOC	Acetophenone	N/A	N/A	N/A
SVOC	Alkene	N/A	N/A	N/A
SVOC	Aniline	65000	ug/L	Taste/Odor
SVOC	Aramite	N/A	N/A	N/A
SVOC	Azobenzene	N/A	N/A	N/A
SVOC	Benzidine	0.0003	ug/L	SWGWS RBSL
SVOC	Benzo (b+k) fluoranthene (Total)	N/A	N/A	N/A
SVOC	Benzoic acid	50000	ug/L	SWGWS RBSL
SVOC	Benzyl alcohol	N/A	N/A	N/A
SVOC	bis(2-Chloroethoxy)methane	38	ug/L	SWGWS RBSL
SVOC	bis(2-Chloroethyl) ether	360	ug/L	Taste/Odor
SVOC	bis(2-Chloroisopropyl) ether	N/A	N/A	N/A
SVOC	bis(2-Ethylhexyl) phthalate	4	ug/L	Cal MCL
SVOC	Butyl benzyl phthalate	78	ug/L	SWGWS RBSL
SVOC	Di-n-butyl phthalate	1300	ug/L	SWGWS RBSL
SVOC	Di-n-octyl phthalate	500	ug/L	SWGWS RBSL
SVOC	Dibenzofuran	N/A	N/A	N/A
SVOC	Dimethyl phthalate	130000	ug/L	SWGWS RBSL
SVOC	Diphenylamine	N/A	N/A	N/A
SVOC	Ethyl methanesulfonate	N/A	N/A	N/A
SVOC	Hexachlorobenzene	1	ug/L	Primary MCL
SVOC	Hexachlorocyclopentadiene	50	ug/L	Primary MCL

**TABLE 8
GROUNDWATER SCREENING REFERENCE VALUES, SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Analyte Group	Chemical Analyte	Screening Value	Units	Screening Type
SVOC	Hexachloroethane	10	ug/L	Taste/Odor
SVOC	Hexachlorophene	N/A	N/A	N/A
SVOC	Hexachloropropene	N/A	N/A	N/A
SVOC	Isodrin	N/A	N/A	N/A
SVOC	Isophorone	5400	ug/L	Taste/Odor
SVOC	Isosafrole	N/A	N/A	N/A
SVOC	Methapyrilene	N/A	N/A	N/A
SVOC	Methyl methanesulfonate	N/A	N/A	N/A
SVOC	n-Nitrosodi-n-butylamine	N/A	N/A	N/A
SVOC	n-Nitrosodi-n-propylamine	0.01	ug/L	Notification Level
SVOC	n-Nitrosodiethylamine	0.01	ug/L	Notification Level
SVOC	n-Nitrosodiphenylamine	16	ug/L	SWGWS RBSL
SVOC	n-Nitrosomethylethylamine	N/A	N/A	N/A
SVOC	n-Nitrosomorpholine	N/A	N/A	N/A
SVOC	n-Nitrosopiperidine	N/A	N/A	N/A
SVOC	n-Nitrosopyrrolidine	N/A	N/A	N/A
SVOC	Nitrobenzene	110	ug/L	Taste/Odor
SVOC	o,o,o-Triethylphosphorothioate	N/A	N/A	N/A
SVOC	o-Tolidine	N/A	N/A	N/A
SVOC	o-Tolidine	11000	ug/L	Taste/Odor
SVOC	p-Chloro-m-cresol	N/A	N/A	N/A
SVOC	p-Dimethylaminoazobenzene	N/A	N/A	N/A
SVOC	p-Phenylenediamine	N/A	N/A	N/A
SVOC	Pentachlorobenzene	N/A	N/A	N/A
SVOC	Pentachloroethane	N/A	N/A	N/A
SVOC	Pentachloronitrobenzene	20	ug/L	Archived Advisory Level
SVOC	Pentachlorophenol	1	ug/L	Primary MCL
SVOC	Phenacetin	N/A	N/A	N/A
SVOC	Phenol	4200	ug/L	Archived Advisory Level
SVOC	Pronamide	N/A	N/A	N/A
SVOC	Pyridine	950	ug/L	Taste/Odor
SVOC	Safrole	N/A	N/A	N/A
SVOC	Tetrachloropropene	N/A	N/A	N/A
PAH	1-Methyl naphthalene	N/A	N/A	N/A
PAH	2-Methylnaphthalene	50	ug/L	SWGWS RBSL
PAH	Acenaphthene	N/A	N/A	N/A
PAH	Acenaphthylene	N/A	N/A	N/A
PAH	Anthracene	3800	ug/L	SWGWS RBSL
PAH	Benzo(a)anthracene	N/A	N/A	N/A
PAH	Benzo(a)pyrene	0.2	ug/L	Primary MCL
PAH	Benzo(b)fluoranthene	N/A	N/A	N/A
PAH	Benzo(ghi)perylene	N/A	N/A	N/A
PAH	Benzo(k)fluoranthene	N/A	N/A	N/A
PAH	Chrysene	N/A	N/A	N/A
PAH	Dibenzo(a,h)anthracene	N/A	N/A	N/A
PAH	Fluoranthene	N/A	N/A	N/A
PAH	Fluorene	N/A	N/A	N/A
PAH	Indeno(1,2,3-cd)pyrene	N/A	N/A	N/A
PAH	Phenanthrene	3800	ug/L	SWGWS RBSL
PAH	Pyrene	380	ug/L	SWGWS RBSL
NDMA	n-Nitrosodimethylamine	0.01	ug/L	Notification Level
Energetics	Perchlorate	6	ug/L	Cal MCL
Energetics	2-Amino-4,6-Dinitrotoluene	N/A	N/A	N/A
Energetics	2-Nitrotoluene	N/A	N/A	N/A
Energetics	3-Nitrotoluene	N/A	N/A	N/A

**TABLE 8
GROUNDWATER SCREENING REFERENCE VALUES, SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Analyte Group	Chemical Analyte	Screening Value	Units	Screening Type
Energetics	4-Nitrotoluene	N/A	N/A	N/A
Energetics	Nitroglycerin	N/A	N/A	N/A
Energetics	PETN	N/A	N/A	N/A
Energetics	Tetryl	N/A	N/A	N/A
Energetics	2,4,6-Trinitrotoluene	1	ug/L	Notification Level
Energetics	HMX	350	ug/L	Notification Level
Energetics	RDX	0.3	ug/L	Notification Level
TPH	Fuel Hydrocarbons, C4-C12, as heavy	500	ug/L	SWGWS RBSL
TPH	Fuel Hydrocarbons, C6-C14, as JP-4	1800	ug/L	SWGWS RBSL
TPH	Fuel Hydrocarbons, C6-C15, as JP-4	1800	ug/L	SWGWS RBSL
TPH	Fuel Hydrocarbons, C6-C16, as JP-4	1800	ug/L	SWGWS RBSL
TPH	Fuel Hydrocarbons, C6-C16, C21-C24, as JP-4	1800	ug/L	SWGWS RBSL
TPH	Fuel Hydrocarbons, C6-C7	500	ug/L	SWGWS RBSL
TPH	Fuel Hydrocarbons, C6-C7, C10-C16, as	N/A	N/A	N/A
TPH	Fuel Hydrocarbons, C7-C10, as gasoline	5	ug/L	Taste/Odor
TPH	Fuel Hydrocarbons, C7-C14, as JP-4	1800	ug/L	SWGWS RBSL
TPH	Fuel Hydrocarbons, C7-C16, as JP-4	1800	ug/L	SWGWS RBSL
TPH	Fuel Hydrocarbons, C8-C10, as gasoline	5	ug/L	Taste/Odor
TPH	Fuel Hydrocarbons, C8-C12, as heavy	1800	ug/L	SWGWS RBSL
TPH	Fuel Hydrocarbons, C8-C14, as heavy	1800	ug/L	SWGWS RBSL
TPH	Gasoline Range Organics (C4-C12)	5	ug/L	Taste/Odor
TPH	Gasoline Range Organics (C6-C14)	5	ug/L	Taste/Odor
TPH	Gasoline Range Organics (C6-C7)	N/A	N/A	N/A
TPH	Gasoline Range Organics (C7-C12)	5	ug/L	Taste/Odor
TPH	Total Extractable Hydrocarbons C10-C18	N/A	N/A	N/A
TPH	Total Hydrocarbons C8-C18	N/A	N/A	N/A
TPH	Diesel Range Organics	100	ug/L	Taste/Odor
TPH	Diesel Range Organics (C12-C14)	100	ug/L	Taste/Odor
TPH	Diesel Range Organics (C13-C22)	100	ug/L	Taste/Odor
TPH	Diesel Range Organics (C14-C20)	100	ug/L	Taste/Odor
TPH	Diesel Range Organics (C15-C20)	100	ug/L	Taste/Odor
TPH	Diesel Range Organics (C20-C30)	100	ug/L	Taste/Odor
TPH	Diesel Range Organics (C21-C24)	100	ug/L	Taste/Odor
TPH	Diesel Range Organics (C21-C30)	100	ug/L	Taste/Odor
TPH	Diesel Range Organics (C8-C11)	100	ug/L	Taste/Odor
TPH	Diesel Range Organics (C8-C30)	100	ug/L	Taste/Odor
TPH	Fuel Hydrocarbons, C6-C17, as JP-4	1800	ug/L	SWGWS RBSL
TPH	Gasoline Range Organics (C8-C11)	1800	ug/L	SWGWS RBSL
TPH	Jet Fuel 4 (C6-C13)	1800	ug/L	SWGWS RBSL
TPH	Kerosene (C10-C12)	1800	ug/L	SWGWS RBSL
TPH	Kerosene (C10-C14)	1800	ug/L	SWGWS RBSL
TPH	Kerosene (C6-C14)	N/A	N/A	N/A
TPH	Kerosene Range Organics (C11-C14)	1800	ug/L	SWGWS RBSL
TPH	Oil Range Organics (C23-C32)	N/A	N/A	N/A
TPH	Total Petroleum Hydrocarbons	N/A	N/A	N/A
TPH	Total Petroleum Hydrocarbons (as Kerosene)	1800	ug/L	SWGWS RBSL
TPH	Total Volatile Hydrocarbons	N/A	N/A	N/A
TPH	Gasoline Range Organics	5	ug/L	Taste/Odor
TPH	Gasoline Range Organics (C6-C12)	5	ug/L	Taste/Odor
TPH	TRPH	N/A	N/A	N/A
TPH	Total Extractable Hydrocarbons C16-C25	N/A	N/A	N/A
TPH	Petroleum Hydrocarbons	N/A	N/A	N/A
PCB	Aroclor 1016	0.5	ug/L	Primary MCL
PCB	Polychlorinated biphenyls	0.5	ug/L	Primary MCL
PCB	Aroclor 1254	0.5	ug/L	Primary MCL

**TABLE 8
GROUNDWATER SCREENING REFERENCE VALUES, SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Analyte Group	Chemical Analyte	Screening Value	Units	Screening Type
PCB	Aroclor 1260	0.5	ug/L	Primary MCL
PCB	Aroclor 1221	0.5	ug/L	Primary MCL
PCB	Aroclor 1232	0.5	ug/L	Primary MCL
PCB	Aroclor 1242	0.5	ug/L	Primary MCL
PCB	Aroclor 1248	0.5	ug/L	Primary MCL
Herbicides	2,4,5-Trichlorophenoxypropionic acid (Silvex)	50	ug/L	Cal MCL
Herbicides	2,4-Dichlorophenoxyacetic Acid (2,4-D)	130	ug/L	SWGWS RBSL
Herbicides	2,4,5-T	130	ug/L	SWGWS RBSL
Herbicides	Dalapon	200	ug/L	Cal MCL
Herbicides	Dinoseb	7	ug/L	Primary MCL
Herbicides	MCPP	N/A	N/A	N/A
Herbicides	Propachlor	90	ug/L	Notification Level
Pesticides	4,4'-DDT	N/A	N/A	N/A
Pesticides	a-Chlordane	N/A	N/A	N/A
Pesticides	Chlorobenzilate	N/A	N/A	N/A
Pesticides	Diallate	N/A	N/A	N/A
Pesticides	Famphur	N/A	N/A	N/A
Pesticides	Kepone	0.0093	ug/L	SWGWS RBSL
Pesticides	Endosulfan I	75	ug/L	SWGWS RBSL
Pesticides	Endosulfan II	75	ug/L	SWGWS RBSL
Pesticides	Endrin ketone	N/A	N/A	N/A
Pesticides	gamma-BHC	0.2	ug/L	Primary MCL
Pesticides	gamma-Chlordane	N/A	N/A	N/A
Pesticides	Methyl parathion	2	ug/L	Archived Advisory Level
Pesticides	p,p'-Methoxychlor	30	ug/L	Cal MCL
Pesticides	Parathion	40	ug/L	Archived Advisory Level
Pesticides	Tetra ethyldithiopyrophosphate	N/A	N/A	N/A
Pesticides	gamma-Chlordane	N/A	N/A	N/A
Pesticides	Endosulfan sulfate	75	ug/L	SWGWS RBSL
Pesticides	4,4'-DDE	0.44	ug/L	SWGWS RBSL
Pesticides	Aldrin	0.002	ug/L	Archived Advisory Level
Pesticides	alpha-BHC	0.015	ug/L	Archived Advisory Level
Pesticides	beta-BHC	0.025	ug/L	Archived Advisory Level
Pesticides	Chlordane	0.1	ug/L	Cal MCL
Pesticides	delta-BHC	N/A	N/A	N/A
Pesticides	Dieldrin	0.002	ug/L	Archived Advisory Level
Pesticides	Dimethoate	1	ug/L	Archived Advisory Level
Pesticides	Dimethoate	N/A	N/A	N/A
Pesticides	Disulfoton	N/A	N/A	N/A
Pesticides	4,4'-DDD	0.62	ug/L	SWGWS RBSL
Pesticides	Toxaphene	3	ug/L	Primary MCL
Pesticides	Endrin	2	ug/L	Primary MCL
Pesticides	Endrin aldehyde	N/A	N/A	N/A
Pesticides	Heptachlor	0.01	ug/L	Cal MCL
Pesticides	Heptachlor epoxide	0.01	ug/L	Cal MCL
Pesticides	Phorate	N/A	N/A	N/A
Dioxins/Furans	1,2,3,4,6,7,8-Heptachlorodibenzofuran	N/A	N/A	N/A
Dioxins/Furans	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	N/A	N/A	N/A
Dioxins/Furans	1,2,3,4,7,8,9-Heptachlorodibenzofuran	N/A	N/A	N/A
Dioxins/Furans	1,2,3,4,7,8-Hexachlorodibenzofuran	N/A	N/A	N/A
Dioxins/Furans	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	N/A	N/A	N/A
Dioxins/Furans	1,2,3,6,7,8-Hexachlorodibenzofuran	N/A	N/A	N/A
Dioxins/Furans	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	N/A	N/A	N/A
Dioxins/Furans	1,2,3,7,8,9-Hexachlorodibenzofuran	N/A	N/A	N/A
Dioxins/Furans	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	N/A	N/A	N/A

**TABLE 8
GROUNDWATER SCREENING REFERENCE VALUES, SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Analyte Group	Chemical Analyte	Screening Value	Units	Screening Type
Dioxins/Furans	1,2,3,7,8-Pentachlorodibenzofuran	N/A	N/A	N/A
Dioxins/Furans	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	N/A	N/A	N/A
Dioxins/Furans	2,3,4,6,7,8-Hexachlorodibenzofuran	N/A	N/A	N/A
Dioxins/Furans	2,3,4,7,8-Pentachlorodibenzofuran	N/A	N/A	N/A
Dioxins/Furans	2,3,7,8-Tetrachlorodibenzofuran	N/A	N/A	N/A
Dioxins/Furans	Heptachlorodibenzofurans	N/A	N/A	N/A
Dioxins/Furans	Heptachlorodibenzo-p-dioxins	N/A	N/A	N/A
Dioxins/Furans	Hexachlorodibenzofurans	N/A	N/A	N/A
Dioxins/Furans	Hexachlorodibenzo-p-dioxins	N/A	N/A	N/A
Dioxins/Furans	Octachlorodibenzofuran	N/A	N/A	N/A
Dioxins/Furans	Octachlorodibenzo-p-dioxin	N/A	N/A	N/A
Dioxins/Furans	PCDFs (Furans)	N/A	N/A	N/A
Dioxins/Furans	Pentachlorodibenzofurans	N/A	N/A	N/A
Dioxins/Furans	Pentachlorodibenzo-p-dioxins	N/A	N/A	N/A
Dioxins/Furans	Tetrachlorodibenzofurans	N/A	N/A	N/A
Dioxins/Furans	Tetrachlorodibenzo-p-dioxins	N/A	N/A	N/A
Dioxins/Furans	1,3,4,7,8-PeCDF	N/A	N/A	N/A
Dioxins/Furans	PCDDs (Dioxins)	N/A	N/A	N/A
Dioxins/Furans	2,3,7,8-TCDD	0.00003	ug/L	Primary MCL
Metals	Aluminum, Dissolved	13000	ug/L	SWGWS RBSL
Metals	Boron, Dissolved	340	ug/L	SSFL Comparison
Metals	Tin, Dissolved	2.4	ug/L	SSFL Comparison
Metals	Antimony, Dissolved	2.5	ug/L	SSFL Comparison
Metals	Arsenic, Dissolved	7.7	ug/L	SSFL Comparison
Metals	Barium, Dissolved	150	ug/L	SSFL Comparison
Metals	Beryllium, Dissolved	0.14	ug/L	SSFL Comparison
Metals	Cadmium, Dissolved	0.2	ug/L	SSFL Comparison
Metals	Chromium, Dissolved	14	ug/L	SSFL Comparison
Metals	Cobalt, Dissolved	1.9	ug/L	SSFL Comparison
Metals	Copper, Dissolved	4.7	ug/L	SSFL Comparison
Metals	Hexavalent Chromium, Dissolved	38	ug/L	SWGWS RBSL
Metals	Iron, Dissolved	4100	ug/L	SSFL Comparison
Metals	Lead, Dissolved	11	ug/L	SSFL Comparison
Metals	Magnesium, Dissolved	77000	ug/L	SSFL Comparison
Metals	Manganese, Dissolved	150	ug/L	SSFL Comparison
Metals	Mercury, Dissolved	0.063	ug/L	SSFL Comparison
Metals	Molybdenum, Dissolved	2.2	ug/L	SSFL Comparison
Metals	Nickel, Dissolved	17	ug/L	SSFL Comparison
Metals	Potassium, Dissolved	9600	ug/L	SSFL Comparison
Metals	Selenium, Dissolved	1.6	ug/L	SSFL Comparison
Metals	Silver, Dissolved	0.17	ug/L	SSFL Comparison
Metals	Sodium, Dissolved	190000	ug/L	SSFL Comparison
Metals	Strontium, Dissolved	800	ug/L	SSFL Comparison
Metals	Thallium, Dissolved	0.13	ug/L	SSFL Comparison
Metals	Vanadium, Dissolved	2.6	ug/L	SSFL Comparison
Metals	Zinc, Dissolved	6300	ug/L	SSFL Comparison
Metals	Zirconium	N/A	N/A	N/A
Metals	Zirconium, dissolved	N/A	N/A	N/A
Metals	Aluminum	200	ug/L	Secondary MCL
Metals	Antimony	2.5	ug/L	SSFL Comparison
Metals	Arsenic	7.7	ug/L	SSFL Comparison
Metals	Barium	150	ug/L	SSFL Comparison
Metals	Beryllium	0.14	ug/L	SSFL Comparison
Metals	Boron	340	ug/L	SSFL Comparison
Metals	Cadmium	0.2	ug/L	SSFL Comparison

**TABLE 8
GROUNDWATER SCREENING REFERENCE VALUES, SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Analyte Group	Chemical Analyte	Screening Value	Units	Screening Type
Metals	Chromium	14	ug/L	SSFL Comparison
Metals	Cobalt	1.9	ug/L	SSFL Comparison
Metals	Copper	4.7	ug/L	SSFL Comparison
Metals	Hexavalent Chromium	14	ug/L	SSFL Comparison
Metals	Iron	4100	ug/L	SSFL Comparison
Metals	Lead	11	ug/L	SSFL Comparison
Metals	Magnesium	77000	ug/L	SSFL Comparison
Metals	Manganese	150	ug/L	SSFL Comparison
Metals	Mercury	0.063	ug/L	SSFL Comparison
Metals	Molybdenum	2.2	ug/L	SSFL Comparison
Metals	Nickel	17	ug/L	SSFL Comparison
Metals	Potassium	9600	ug/L	SSFL Comparison
Metals	Selenium	1.6	ug/L	SSFL Comparison
Metals	Silver	0.17	ug/L	SSFL Comparison
Metals	Sodium	190000	ug/L	SSFL Comparison
Metals	Strontium	800	ug/L	SSFL Comparison
Metals	Thallium	0.13	ug/L	SSFL Comparison
Metals	Tin	2.4	ug/L	SSFL Comparison
Metals	Vanadium	2.6	ug/L	SSFL Comparison
Metals	Zinc	6300	ug/L	SSFL Comparison
Inorganics	Carbon Dioxide	N/A	N/A	N/A
Inorganics	Dissolved Organic Carbon	N/A	N/A	N/A
Inorganics	Phosphite (PO3)	N/A	N/A	N/A
Inorganics	Bicarbonate	N/A	N/A	N/A
Inorganics	Calcium, Dissolved	N/A	N/A	N/A
Inorganics	Carbonate	N/A	N/A	N/A
Inorganics	Chlorine	4000	ug/L	Primary MCL
Inorganics	Iron Oxide	N/A	N/A	N/A
Inorganics	Redox Potential	N/A	N/A	N/A
Inorganics	Silica, Dissolved	N/A	N/A	N/A
Inorganics	Silicon, Dissolved	N/A	N/A	N/A
Inorganics	Specific gravity	N/A	N/A	N/A
Inorganics	Sulfide, Dissolved	N/A	N/A	N/A
Inorganics	Alkalinity	N/A	N/A	N/A
Inorganics	Alkalinity as CaCO3	N/A	N/A	N/A
Inorganics	Ammonia-N	N/A	N/A	N/A
Inorganics	Bicarbonate Alkalinity as CaCO3	N/A	N/A	N/A
Inorganics	Bromide	N/A	N/A	N/A
Inorganics	Carbonate Alkalinity as CaCO3	N/A	N/A	N/A
Inorganics	Calcium	N/A	N/A	N/A
Inorganics	Cation/Anion Balance (%)	N/A	N/A	N/A
Inorganics	Chloride	250000	ug/L	Secondary MCL
Inorganics	Chlorate	800	ug/L	Notification Level
Inorganics	Dissolved oxygen	N/A	N/A	N/A
Inorganics	Cyanides	150	ug/L	Cal MCL
Inorganics	Fluoride	800	ug/L	SSFL Comparison
Inorganics	Nitrate-NO3	44628	ug/L	Primary MCL
Inorganics	Nitrate-N	10	mg/L	Primary MCL
Inorganics	Nitrite-N	10000	ug/L	Primary MCL
Inorganics	Phosphate	N/A	N/A	N/A
Inorganics	Sulfate	376000	ug/L	SSFL Comparison
Inorganics	Sulfide	N/A	N/A	N/A
Inorganics	Total Dissolved Solids	500000	ug/L	Recommended SMCL
Inorganics	Total Dissolved Solids	1000000	ug/L	Upper SMCL
Inorganics	Total Dissolved Solids	1500000	ug/L	Short-Term SMCL

**TABLE 8
GROUNDWATER SCREENING REFERENCE VALUES, SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Analyte Group	Chemical Analyte	Screening Value	Units	Screening Type
Inorganics	Total Kjeldahl nitrogen	N/A	N/A	N/A
Inorganics	Total Organic Carbon	N/A	N/A	N/A
Inorganics	Total Suspended Solids	N/A	N/A	N/A
General Parameters	Ammonium	N/A	N/A	N/A
General Parameters	Bulk Density	N/A	N/A	N/A
General Parameters	Deuterium	N/A	N/A	N/A
General Parameters	Formic Acid	1700000	ug/L	Taste/Odor
General Parameters	Hydraulic Conductivity	N/A	N/A	N/A
General Parameters	Moisture	N/A	N/A	N/A
General Parameters	Oxygen-18	N/A	N/A	N/A
General Parameters	pH	N/A	N/A	N/A
General Parameters	Porosity, Total	N/A	N/A	N/A
General Parameters	Total Non-Volatile Solids	N/A	N/A	N/A
General Parameters	Total Solids	N/A	N/A	N/A
General Parameters	volumetric saturation (air)	N/A	N/A	N/A
General Parameters	Turbidity	5	NTU	Secondary MCL
General Parameters	Specific conductivity	900	umhos/cm	Recommended SMCL
General Parameters	Specific conductivity	1600	umhos/cm	Upper SMCL
General Parameters	Specific conductivity	2200	umhos/cm	Short-Term SMCL
General Parameters	Hardness	N/A	N/A	N/A
General Parameters	Coliform bacteria	N/A	N/A	N/A

Notes and Abbreviations:

(a) - isotope-specific MCL for beta emitters based on Primary MCL of 4 mrem/yr critical organ dose limit for gross beta (EPA, 2000)

(b) - isotope-specific MCL for beta emitters based on the 4 mrem/yr effective dose equivalent for gross beta (EPA, 2000)

Cal MCL - California Primary Maximum Contaminant Level

mrem/yr - millirem per year

N/A - not applicable

NDMA - n-Nitrosodimethylamine

NTU - nephelometric turbidity units

PAH - polycyclic aromatic hydrocarbon

PCB - polychlorinated biphenyl

pCi/L - picocuries per liter

Primary MCL - Primary Maximum Contaminant Level

Secondary MCL - Secondary Maximum Contaminant Level

SMCL - Secondary Maximum Contaminant Level

SSFL Comparison - site-specific values for metals developed by DTSC

SVOC - semi volatile organic compound

SWGWRBSL - Site-Wide Groundwater Risk-Based Screening Level proposed in GW RI Report (MWH, 2009)

Taste/Odor - Taste/Odor Threshold

TPH - total petroleum hydrocarbons

ug/L - micrograms per liter

umhos/cm - micromhos per centimeter

VOCs - volatile organic compounds

Sources:

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California Department of Public Health (DPH), 2010. "Drinking Water Notification Levels and Response Levels: An Overview." <http://www.cdph.ca.gov/certlic/drinkingwater/Documents/Notificationlevels/NotificationLevels.pdf>, updated November 22.

Federal Register, 2000. "Environmental Protection Agency, 40 CFR Parts 9, 141, and 142, National Primary Drinking Water Regulations; Radionuclides; Final Rule." Federal Register Volume 65, Number 236, pp 76708 – 76753. December 7.

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Jon D. Marshack, D.Env. July.

van den Berg, Martin, et al., 2006. "The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds," July.

**TABLE 9
FIRST TIME DETECTS AND NEW MAXIMUM CONCENTRATIONS, ANNUAL 2023 - DOE AREA IV**

Analyte	Well ID	GW Impacted Area	Fraction	Sample Date	Result	Units	Qualifiers	New Detection	New Max Detection	Screening Value	Units	Exceeds SV
1,1-Dichloroethane	DD-144	HMSA	Total	03/02/2023	0.35	ug/L	J/J	Yes	Yes	5	ug/L	No
1,1-Dichloroethane	PZ-163	HMSA/PDU	Total	03/02/2023	0.36	ug/L	J/J	Yes	Yes	5	ug/L	No
1,4-Dioxane	C-08	FSDf	Total	03/03/2023	0.164	ug/L	J/J	Yes	Yes	1	ug/L	No
1,4-Dioxane	DD-144	HMSA	Total	03/02/2023	2.18	ug/L	---	No	Yes	1	ug/L	Yes
1,4-Dioxane	PZ-098	FSDf	Total	02/14/2023	1.38	ug/L	---	No	Yes	1	ug/L	Yes
1,4-Dioxane	PZ-120	HMSA/PDU	Total	03/01/2023	1.12	ug/L	---	Yes	Yes	1	ug/L	Yes
1,4-Dioxane	PZ-163	HMSA/PDU	Total	03/02/2023	2.21	ug/L	---	No	Yes	1	ug/L	Yes
1,4-Dioxane	RD-14	OCY	Total	02/15/2023	0.609	ug/L	---	No	Yes	1	ug/L	No
1,4-Dioxane	RS-28	RMHF	Total	02/22/2023	0.189	ug/L	J/J	Yes	Yes	1	ug/L	No
Acetone	DS-48	HMSA/PDU	Total	02/28/2023	1.84	ug/L	J/J	Yes	Yes	20000	ug/L	No
Acetone	PZ-105	DOE Leachfield 3	Total	03/02/2023	1.82	ug/L	J/J	Yes	Yes	20000	ug/L	No
Antimony	DS-45	B4064 Leachfield	Dissolved	02/27/2023	1.67	ug/L	J/J	No	Yes	2.5	ug/L	No
Arsenic	C-08	FSDf	Dissolved	03/03/2023	2.23	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	C-08	FSDf	Total	03/03/2023	3.04	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	DD-141	Bldg 56 Landfill	Dissolved	02/17/2023	2.39	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	DD-141	Bldg 56 Landfill	Total	02/17/2023	2.37	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	DS-45	B4064 Leachfield	Dissolved	02/27/2023	3.08	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	DS-45	B4064 Leachfield	Total	02/27/2023	3.55	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	PZ-098	FSDf	Dissolved	02/14/2023	2.02	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	PZ-098	FSDf	Total	02/14/2023	2.05	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	PZ-120	HMSA/PDU	Total	03/01/2023	2.92	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	RD-63	RMHF	Total	02/20/2023	2.3	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	RS-28	RMHF	Dissolved	02/22/2023	2.71	ug/L	J/J	Yes	Yes	7.7	ug/L	No
Arsenic	RS-28	RMHF	Total	02/22/2023	2.86	ug/L	J/J	No	Yes	7.7	ug/L	No
Barium	C-08	FSDf	Total	03/03/2023	51.5	ug/L	---	No	Yes	150	ug/L	No
Barium	DD-157	HMSA/PDU	Dissolved	02/28/2023	51.7	ug/L	---	Yes	Yes	150	ug/L	No
Barium	DS-46	FSDf	Dissolved	03/03/2023	65.7	ug/L	---	No	Yes	150	ug/L	No
Barium	DS-46	FSDf	Total	03/03/2023	71.8	ug/L	---	No	Yes	150	ug/L	No
Barium	PZ-005	DOE Leachfield 3	Dissolved	03/02/2023	66.9	ug/L	---	No	Yes	150	ug/L	No
Barium	PZ-102	B4009 Leachfield	Dissolved	03/02/2023	8.69	ug/L	---	No	Yes	150	ug/L	No
Barium	PZ-102	B4009 Leachfield	Total	03/02/2023	29.2	ug/L	---	No	Yes	150	ug/L	No
Barium	PZ-105	DOE Leachfield 3	Dissolved	03/02/2023	33.7	ug/L	---	No	Yes	150	ug/L	No
Barium	PZ-105	DOE Leachfield 3	Total	03/02/2023	77.6	ug/L	---	No	Yes	150	ug/L	No
Barium	PZ-109	B4057/59/626	Dissolved	02/14/2023	36.6	ug/L	---	No	Yes	150	ug/L	No
Barium	PZ-109	B4057/59/626	Total	02/14/2023	40.6	ug/L	---	No	Yes	150	ug/L	No
Barium	RD-91	Building 100 Trench	Total	03/02/2023	90.9	ug/L	---	No	Yes	150	ug/L	No
Barium	RS-28	RMHF	Dissolved	02/22/2023	91.7	ug/L	---	No	Yes	150	ug/L	No
Barium	RS-28	RMHF	Total	02/22/2023	103	ug/L	---	No	Yes	150	ug/L	No
cis-1,2-Dichloroethene	DD-157	HMSA/PDU	Total	02/28/2023	0.8	ug/L	J/J	Yes	Yes	6	ug/L	No
cis-1,2-Dichloroethene	PZ-109	B4057/59/626	Total	02/14/2023	36.3	ug/L	---	No	Yes	6	ug/L	Yes
Cobalt	DD-158	OCY	Total	02/28/2023	1.48	ug/L	---	No	Yes	1.9	ug/L	No
Cobalt	DS-43	DOE Leachfield	Dissolved	02/14/2023	0.704	ug/L	J/J	No	Yes	1.9	ug/L	No
Cobalt	DS-43	DOE Leachfield	Total	02/14/2023	0.849	ug/L	J/J	No	Yes	1.9	ug/L	No
Cobalt	DS-45	B4064 Leachfield	Total	02/27/2023	2.01	ug/L	---	No	Yes	1.9	ug/L	Yes
Cobalt	PZ-098	FSDf	Dissolved	02/14/2023	0.647	ug/L	J/J	No	Yes	1.9	ug/L	No
Cobalt	PZ-102	B4009 Leachfield	Total	03/02/2023	1.96	ug/L	---	No	Yes	1.9	ug/L	Yes
Cobalt	RD-34A	RMHF	Dissolved	02/27/2023	5.65	ug/L	---	No	Yes	1.9	ug/L	Yes
Copper	C-08	FSDf	Dissolved	03/03/2023	0.931	ug/L	J/J	No	Yes	4.7	ug/L	No
Copper	DD-158	OCY	Dissolved	02/28/2023	0.829	ug/L	J/J	No	Yes	4.7	ug/L	No
Copper	DS-45	B4064 Leachfield	Total	02/27/2023	2.15	ug/L	---	No	Yes	4.7	ug/L	No
Copper	RS-28	RMHF	Dissolved	02/22/2023	0.969	ug/L	J/J	No	Yes	4.7	ug/L	No
Fluoride	RD-34B	RMHF	Total	03/01/2023	1	ug/L	---	No	Yes	800	ug/L	Yes
Gross Alpha	DD-159	OCY	Dissolved	02/20/2023	5.27	pCi/L	---	No	Yes	15	pCi/L	No
Gross Alpha	DS-45	B4064 Leachfield	Dissolved	02/27/2023	8.3	pCi/L	---	Yes	Yes	15	pCi/L	No
Gross Alpha	DS-45	B4064 Leachfield	Total	02/27/2023	10.8	pCi/L	---	Yes	Yes	15	pCi/L	No
Gross Alpha	RD-14	OCY	Total	02/15/2023	7.63	pCi/L	---	No	Yes	15	pCi/L	No
Gross Beta	DD-158	OCY	Total	02/28/2023	118	pCi/L	/J	No	Yes	50	pCi/L	Yes
Gross Beta	DS-45	B4064 Leachfield	Dissolved	02/27/2023	4.54	pCi/L	/J	Yes	Yes	50	pCi/L	No
Gross Beta	DS-45	B4064 Leachfield	Total	02/27/2023	12.4	pCi/L	/J	Yes	Yes	50	pCi/L	No
Gross Beta	PZ-162	HMSA/PDU	Dissolved	02/16/2023	13.3	pCi/L	/J	No	Yes	50	pCi/L	No
Gross Beta	RD-34C	RMHF	Total	02/24/2023	31	pCi/L	/J	No	Yes	50	pCi/L	No
Gross Beta	RD-63	RMHF	Dissolved	02/20/2023	21.7	pCi/L	/J	No	Yes	50	pCi/L	No
Lead	DD-159	OCY	Total	02/20/2023	0.506	ug/L	J/J	Yes	Yes	11	ug/L	No
Lead	DS-45	B4064 Leachfield	Total	02/27/2023	0.629	ug/L	J/J	Yes	Yes	11	ug/L	No
Lead	PZ-102	B4009 Leachfield	Total	03/02/2023	1.73	ug/L	J/J	No	Yes	11	ug/L	No
Lead	PZ-105	DOE Leachfield 3	Total	03/02/2023	0.762	ug/L	J/J	No	Yes	11	ug/L	No
Nickel	DD-158	OCY	Dissolved	02/28/2023	1.33	ug/L	J/J	No	Yes	17	ug/L	No
Nickel	DS-45	B4064 Leachfield	Total	02/27/2023	3.23	ug/L	---	No	Yes	17	ug/L	No
Nickel	PZ-102	B4009 Leachfield	Total	03/02/2023	13.5	ug/L	---	No	Yes	17	ug/L	No
Nickel	PZ-105	DOE Leachfield 3	Total	03/02/2023	2.84	ug/L	---	No	Yes	17	ug/L	No
Nickel	PZ-108	HMSA/PDU	Total	02/28/2023	5.05	ug/L	---	No	Yes	17	ug/L	No
Nickel	RS-28	RMHF	Dissolved	02/22/2023	1.65	ug/L	J/J	No	Yes	17	ug/L	No
Nitrate	PZ-005	DOE Leachfield 3	Total	03/02/2023	14.3	mg/L	QH/J	No	Yes	10	mg/L	Yes
Radium-226	DD-158	OCY	Dissolved	02/28/2023	1.57	pCi/L	---	No	Yes	5	pCi/L	No
Radium-226	DS-45	B4064 Leachfield	Dissolved	02/27/2023	0.806	pCi/L	---	Yes	Yes	5	pCi/L	No
Radium-226	DS-45	B4064 Leachfield	Total	02/27/2023	0.98	pCi/L	---	Yes	Yes	5	pCi/L	No
Radium-226	PZ-162	HMSA/PDU	Dissolved	02/16/2023	0.688	pCi/L	---	No	Yes	5	pCi/L	No
Radium-226	PZ-162	HMSA/PDU	Total	02/16/2023	1	pCi/L	---	No	Yes	5	pCi/L	No
Radium-226	RD-07	Bldg 56 Landfill	Total	02/13/2023	1.41	pCi/L	---	No	Yes	5	pCi/L	No
Radium-226	RD-14	OCY	Dissolved	02/15/2023	1.16	pCi/L	---	No	Yes	5	pCi/L	No
Radium-226	RD-14	OCY	Total	02/15/2023	1.26	pCi/L	---	No	Yes	5	pCi/L	No
Radium-226	RD-20	B4100 Trench	Dissolved	02/16/2023	1.04	pCi/L	---	No	Yes	5	pCi/L	No
Radium-226	RD-20	B4100 Trench	Total	02/16/2023	0.912	pCi/L	---	No	Yes	5	pCi/L	No
Radium-226	RD-30	RMHF	Dissolved	02/21/2023	1.18	pCi/L	---	No	Yes	5	pCi/L	No
Radium-226	RD-30	RMHF	Total	02/21/2023	1.66	pCi/L	---	No	Yes	5	pCi/L	No
Radium-226	RD-33A	FSDf	Total	02/22/2023	1.17	pCi/L	---	No	Yes	5	pCi/L	No
Radium-226	RD-34C	RMHF	Dissolved	02/24/2023	1.34	pCi/L	---	No	Yes	5	pCi/L	No
Radium-226	RD-63	RMHF	Total	02/20/2023	2.37	pCi/L	---	No	Yes	5	pCi/L	No
Radium-226	RD-94	Tritium Plume	Dissolved	02/23/2023	1.33	pCi/L	---	No	Yes	5	pCi/L	No
Radium-226	RD-94	Tritium Plume	Total	02/23/2023	1.47	pCi/L	---	No	Yes	5	pCi/L	No
Radium-226	RD-96	B4057/59/626	Dissolved	02/15/2023	1.83	pCi/L	---	No	Yes	5	pCi/L	No

TABLE 9
FIRST TIME DETECTS AND NEW MAXIMUM CONCENTRATIONS, ANNUAL 2023 - DOE AREA IV

Radium-226	RD-98	RMHF	Dissolved	02/23/2023	6.45	pCi/L	---	No	Yes	5	pCi/L	Yes
Radium-226	RD-98	RMHF	Total	02/23/2023	0.586	pCi/L	---	No	Yes	5	pCi/L	No
Radium-226	RS-28	RMHF	Dissolved	02/22/2023	7.17	pCi/L	---	No	Yes	5	pCi/L	Yes
Radium-226	RS-28	RMHF	Total	02/22/2023	1.39	pCi/L	---	No	Yes	5	pCi/L	No
Radium-228	DD-159	OCY	Total	02/20/2023	3.3	pCi/L	---	No	Yes	5	pCi/L	No
Radium-228	RD-14	OCY	Total	02/15/2023	2.97	pCi/L	---	No	Yes	5	pCi/L	No
Radium-228	RD-30	RMHF	Dissolved	02/21/2023	1.76	pCi/L	/J	No	Yes	5	pCi/L	No
Radium-228	RD-33B	FSDf	Dissolved	02/21/2023	2.68	pCi/L	/J	No	Yes	5	pCi/L	No
Radium-228	RD-63	RMHF	Total	02/20/2023	3.35	pCi/L	---	No	Yes	5	pCi/L	No
Selenium	PZ-005	DOE Leachfield 3	Dissolved	03/02/2023	1.73	ug/L	J/J	No	Yes	1.6	ug/L	Yes
Selenium	PZ-005	DOE Leachfield 3	Total	03/02/2023	2.14	ug/L	J/J	No	Yes	1.6	ug/L	Yes
Selenium	PZ-098	FSDf	Total	02/14/2023	1.75	ug/L	J/J	No	Yes	1.6	ug/L	Yes
Selenium	PZ-105	DOE Leachfield 3	Total	03/02/2023	1.93	ug/L	J/J	No	Yes	1.6	ug/L	Yes
Selenium	RS-28	RMHF	Dissolved	02/22/2023	8.18	ug/L	---	No	Yes	1.6	ug/L	Yes
Selenium	RS-28	RMHF	Total	02/22/2023	9.49	ug/L	---	No	Yes	1.6	ug/L	Yes
Sodium	DD-157	HMSA/PDU	Dissolved	02/28/2023	49900	ug/L	---	Yes	Yes	190000	ug/L	No
Sodium	DS-48	HMSA/PDU	Total	02/28/2023	62100	ug/L	---	No	Yes	190000	ug/L	No
Sodium	RD-91	Building 100 Trench	Dissolved	03/02/2023	61900	ug/L	---	No	Yes	190000	ug/L	No
Sodium	RD-91	Building 100 Trench	Total	03/02/2023	62400	ug/L	---	No	Yes	190000	ug/L	No
Sodium	RS-28	RMHF	Dissolved	02/22/2023	81900	ug/L	---	No	Yes	190000	ug/L	No
Sodium	RS-28	RMHF	Total	02/22/2023	84200	ug/L	---	Yes	Yes	190000	ug/L	No
Strontium-90	RD-98	RMHF	Total	02/23/2023	119	pCi/L	---	No	Yes	8	pCi/L	Yes
Trichloroethene	DD-157	HMSA/PDU	Total	02/28/2023	9.96	ug/L	---	Yes	Yes	5	ug/L	Yes
Trichloroethene	DD-159	OCY	Total	02/20/2023	0.62	ug/L	J/J	Yes	Yes	5	ug/L	No
Trichloroethene	DS-48	HMSA/PDU	Total	02/28/2023	41.4	ug/L	---	No	Yes	5	ug/L	Yes
Trichloroethene	PZ-109	B4057/59/626	Total	02/14/2023	10	ug/L	---	No	Yes	5	ug/L	Yes
Uranium-233/234	DS-45	B4064 Leachfield	Dissolved	02/27/2023	4.44	pCi/L	---	Yes	Yes	20	pCi/L	No
Uranium-233/234	DS-45	B4064 Leachfield	Total	02/27/2023	4.78	pCi/L	---	Yes	Yes	20	pCi/L	No
Uranium-233/234	PZ-162	HMSA/PDU	Dissolved	02/16/2023	6.33	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-233/234	PZ-162	HMSA/PDU	Total	02/16/2023	7.26	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-233/234	RD-20	B4100 Trench	Total	02/16/2023	4.82	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-233/234	RD-30	RMHF	Dissolved	02/21/2023	6.23	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-233/234	RD-30	RMHF	Total	02/21/2023	6.65	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-233/234	RD-94	Tritium Plume	Total	02/23/2023	13.6	pCi/L	---	Yes	Yes	20	pCi/L	No
Uranium-233/234	RD-98	RMHF	Total	02/23/2023	5.76	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-233/234	RS-28	RMHF	Dissolved	02/22/2023	6.5	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-233/234	RS-28	RMHF	Total	02/22/2023	9.71	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-235/236	DD-158	OCY	Total	02/28/2023	0.584	pCi/L	---	Yes	Yes	20	pCi/L	No
Uranium-235/236	DS-45	B4064 Leachfield	Total	02/27/2023	0.582	pCi/L	---	Yes	Yes	20	pCi/L	No
Uranium-235/236	PZ-162	HMSA/PDU	Dissolved	02/16/2023	0.468	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-235/236	PZ-162	HMSA/PDU	Total	02/16/2023	0.656	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-235/236	RD-07	Bldg 56 Landfill	Total	02/13/2023	0.483	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-235/236	RD-14	OCY	Total	02/15/2023	0.266	pCi/L	---	Yes	Yes	20	pCi/L	No
Uranium-235/236	RD-19	B4133	Total	02/17/2023	0.845	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-235/236	RD-30	RMHF	Total	02/21/2023	0.7	pCi/L	/J	No	Yes	20	pCi/L	No
Uranium-235/236	RD-34A	RMHF	Total	02/27/2023	0.919	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-235/236	RD-94	Tritium Plume	Dissolved	02/23/2023	1.07	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-235/236	RD-94	Tritium Plume	Total	02/23/2023	0.863	pCi/L	---	Yes	Yes	20	pCi/L	No
Uranium-235/236	RD-96	B4057/59/626	Total	02/15/2023	0.551	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-235/236	RD-98	RMHF	Dissolved	02/23/2023	0.546	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-235/236	RD-98	RMHF	Total	02/23/2023	0.454	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-238	DD-141	Bldg 56 Landfill	Dissolved	02/17/2023	2.08	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-238	DD-159	OCY	Dissolved	02/20/2023	2.62	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-238	DD-159	OCY	Total	02/20/2023	2.13	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-238	DS-45	B4064 Leachfield	Dissolved	02/27/2023	3.75	pCi/L	---	Yes	Yes	20	pCi/L	No
Uranium-238	DS-45	B4064 Leachfield	Total	02/27/2023	4.55	pCi/L	---	Yes	Yes	20	pCi/L	No
Uranium-238	PZ-162	HMSA/PDU	Dissolved	02/16/2023	5.9	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-238	PZ-162	HMSA/PDU	Total	02/16/2023	6.9	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-238	RD-20	B4100 Trench	Total	02/16/2023	5.23	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-238	RD-30	RMHF	Total	02/21/2023	6.33	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-238	RD-34C	RMHF	Dissolved	02/24/2023	0.411	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-238	RS-28	RMHF	Dissolved	02/22/2023	7.36	pCi/L	---	No	Yes	20	pCi/L	No
Uranium-238	RS-28	RMHF	Total	02/22/2023	11.3	pCi/L	---	No	Yes	20	pCi/L	No
Vanadium	DS-43	DOE Leachfield	Dissolved	02/14/2023	5.88	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	DS-43	DOE Leachfield	Total	02/14/2023	6.51	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	DS-45	B4064 Leachfield	Dissolved	02/27/2023	5.71	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	DS-45	B4064 Leachfield	Total	02/27/2023	7.76	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	PZ-005	DOE Leachfield 3	Dissolved	03/02/2023	4	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	PZ-098	FSDf	Dissolved	02/14/2023	5.48	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	PZ-098	FSDf	Total	02/14/2023	5.36	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	PZ-102	B4009 Leachfield	Total	03/02/2023	7.74	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	PZ-105	DOE Leachfield 3	Total	03/02/2023	7.08	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	PZ-109	B4057/59/626	Dissolved	02/14/2023	6.39	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	PZ-109	B4057/59/626	Total	02/14/2023	7.46	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	RD-21	FSDf	Total	02/14/2023	3.34	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	RD-91	Building 100 Trench	Total	03/02/2023	4.69	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Zinc	DD-159	OCY	Total	02/20/2023	4.83	ug/L	J/J	Yes	Yes	6300	ug/L	No
Zinc	DS-45	B4064 Leachfield	Total	02/27/2023	6.97	ug/L	J/J	No	Yes	6300	ug/L	No
Zinc	PZ-098	FSDf	Dissolved	02/14/2023	7.27	ug/L	J/J	No	Yes	6300	ug/L	No
Zinc	PZ-098	FSDf	Total	02/14/2023	8.51	ug/L	J/J	No	Yes	6300	ug/L	No
Zinc	PZ-102	B4009 Leachfield	Total	03/02/2023	19.4	ug/L	J/J	No	Yes	6300	ug/L	No
Zinc	RS-28	RMHF	Dissolved	02/22/2023	14.8	ug/L	J/J	No	Yes	6300	ug/L	No
Zinc	RS-28	RMHF	Total	02/22/2023	35.3	ug/L	---	No	Yes	6300	ug/L	No
1,4-Dioxane	DD-143	RMHF	Total	8/17/2023	0.157	ug/L	J/J	Yes	Yes	1	ug/L	No
1,4-Dioxane	PZ-103	MC/DOE Leach	Total	8/14/2023	0.308	ug/L	/J	Yes	Yes	1	ug/L	No
1,4-Dioxane	PZ-104	DOE Leachfield 3	Total	8/16/2023	0.425	ug/L	---	Yes	Yes	1	ug/L	No
1,4-Dioxane	PZ-120	HMSA/PDU	Total	8/16/2023	1.55	ug/L	---	No	Yes	1	ug/L	Yes
1,4-Dioxane	PZ-122	HMSA/PDU	Total	8/16/2023	0.207	ug/L	/J	Yes	Yes	1	ug/L	No
1,4-Dioxane	PZ-162	HMSA/PDU	Total	8/16/2023	0.308	ug/L	/J	No	Yes	1	ug/L	No
1,4-Dioxane	RS-28	RMHF	Total	8/18/2023	0.534	ug/L	---	No	Yes	1	ug/L	No
2-butanone	DD-141	Bldg 56 Landfill	Total	8/23/2023	50.3	ug/L	---	Yes	Yes	3800	ug/L	No
2-butanone	PZ-120	HMSA/PDU	Total	8/16/2023	9.18	ug/L	---	No	Yes	3800	ug/L	No
2-butanone	PZ-124	Bldg 56 Landfill	Total	8/23/2023	5.75	ug/L	---	Yes	Yes	3800	ug/L	No

**TABLE 9
FIRST TIME DETECTS AND NEW MAXIMUM CONCENTRATIONS, ANNUAL 2023 - DOE AREA IV**

Acetone	DD-141	Bldg 56 Landfill	Total	8/23/2023	13.1	ug/L	---	Yes	Yes	20000	ug/L	No
Acetone	DS-45	B4064 Leachfield	Total	8/18/2023	2.79	ug/L	J/J	Yes	Yes	20000	ug/L	No
Acetone	PZ-041	HMSA/PDU	Total	8/15/2023	1.98	ug/L	J/J	Yes	Yes	20000	ug/L	No
Acetone	PZ-105	DOE Leachfield 3	Total	8/14/2023	2.2	ug/L	J/J	No	Yes	20000	ug/L	No
Acetone	PZ-116	RMHF	Total	8/17/2023	2.63	ug/L	J/J	Yes	Yes	20000	ug/L	No
Acetone	PZ-121	HMSA/PDU	Total	8/15/2023	3.48	ug/L	J/J	Yes	Yes	20000	ug/L	No
Antimony	DS-45	B4064 Leachfield	Dissolved	8/18/2023	1.74	ug/L	J/J	No	Yes	2.5	ug/L	No
Antimony	DS-45	B4064 Leachfield	Total	8/18/2023	1.81	ug/L	J/J	No	Yes	2.5	ug/L	No
Antimony	PZ-005	DOE Leachfield 3	Dissolved	8/25/2023	1.21	ug/L	J/J	Yes	Yes	2.5	ug/L	No
Antimony	PZ-005	DOE Leachfield 3	Total	8/25/2023	1.56	ug/L	J/J	Yes	Yes	2.5	ug/L	No
Antimony	PZ-124	Bldg 56 Landfill	Dissolved	8/23/2023	1.93	ug/L	J/J	Yes	Yes	2.5	ug/L	No
Antimony	PZ-124	Bldg 56 Landfill	Total	8/23/2023	2.46	ug/L	J/J	Yes	Yes	2.5	ug/L	No
Arsenic	DD-141	Bldg 56 Landfill	Total	8/23/2023	2.62	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	DD-143	RMHF	Total	8/17/2023	2.38	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	DD-144	HMSA	Dissolved	8/15/2023	2.18	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	DD-144	HMSA	Total	8/15/2023	3.44	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	DS-44	DOE Leachfield	Total	8/23/2023	2.07	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	DS-45	B4064 Leachfield	Dissolved	8/18/2023	3.36	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	DS-45	B4064 Leachfield	Total	8/18/2023	3.71	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	DS-47	B4064 Leachfield	Total	8/18/2023	3.57	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	PZ-005	DOE Leachfield 3	Dissolved	8/25/2023	2.67	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	PZ-005	DOE Leachfield 3	Total	8/25/2023	2.52	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	PZ-041	HMSA/PDU	Dissolved	8/15/2023	2.74	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	PZ-041	HMSA/PDU	Total	8/15/2023	2.81	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	PZ-098	FSDf	Dissolved	8/22/2023	2.27	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	PZ-098	FSDf	Total	8/22/2023	2.26	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	PZ-103	MC/DOE Leach	Dissolved	8/14/2023	2.55	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	PZ-104	DOE Leachfield 3	Dissolved	8/16/2023	9.57	ug/L	---	No	Yes	7.7	ug/L	Yes
Arsenic	PZ-104	DOE Leachfield 3	Total	8/16/2023	8.26	ug/L	---	No	Yes	7.7	ug/L	Yes
Arsenic	PZ-108	HMSA/PDU	Total	8/14/2023	4.02	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	PZ-120	HMSA/PDU	Total	8/16/2023	3.92	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	PZ-121	HMSA/PDU	Dissolved	8/15/2023	2.53	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	PZ-121	HMSA/PDU	Total	8/15/2023	4.58	ug/L	J/J	Yes	Yes	7.7	ug/L	No
Arsenic	PZ-122	HMSA/PDU	Dissolved	8/16/2023	2.77	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	PZ-122	HMSA/PDU	Total	8/16/2023	2.79	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	PZ-124	Bldg 56 Landfill	Dissolved	8/23/2023	9.61	ug/L	---	Yes	Yes	7.7	ug/L	Yes
Arsenic	PZ-124	Bldg 56 Landfill	Total	8/23/2023	10.7	ug/L	---	Yes	Yes	7.7	ug/L	Yes
Arsenic	PZ-162	HMSA/PDU	Dissolved	8/16/2023	2.73	ug/L	J/J	Yes	Yes	7.7	ug/L	No
Arsenic	PZ-162	HMSA/PDU	Total	8/16/2023	3.45	ug/L	J/J	Yes	Yes	7.7	ug/L	No
Arsenic	PZ-163	HMSA/PDU	Dissolved	8/15/2023	2.47	ug/L	J/J	Yes	Yes	7.7	ug/L	No
Arsenic	PZ-163	HMSA/PDU	Total	8/15/2023	3.62	ug/L	J/J	Yes	Yes	7.7	ug/L	No
Arsenic	RD-27	RMHF	Total	8/21/2023	2.61	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	RD-63	RMHF	Total	8/22/2023	2.37	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	RD-64	FSDf	Dissolved	8/24/2023	4.01	ug/L	J/J	No	Yes	7.7	ug/L	No
Arsenic	RD-64	FSDf	Total	8/24/2023	3.33	ug/L	J/J	No	Yes	7.7	ug/L	No
Barium	DS-44	DOE Leachfield	Dissolved	8/23/2023	70.7	ug/L	J/	No	Yes	150	ug/L	No
Barium	DS-44	DOE Leachfield	Total	8/23/2023	75.4	ug/L	J/	No	Yes	150	ug/L	No
Barium	PZ-005	DOE Leachfield 3	Dissolved	8/25/2023	74.5	ug/L	---	No	Yes	150	ug/L	No
Barium	PZ-041	HMSA/PDU	Dissolved	8/15/2023	34.3	ug/L	---	No	Yes	150	ug/L	No
Barium	PZ-098	FSDf	Dissolved	8/22/2023	49.2	ug/L	---	No	Yes	150	ug/L	No
Barium	PZ-103	MC/DOE Leach	Dissolved	8/14/2023	86.3	ug/L	---	No	Yes	150	ug/L	No
Barium	PZ-104	DOE Leachfield 3	Dissolved	8/16/2023	121	ug/L	---	No	Yes	150	ug/L	No
Barium	PZ-104	DOE Leachfield 3	Total	8/16/2023	123	ug/L	---	No	Yes	150	ug/L	No
Barium	PZ-105	DOE Leachfield 3	Dissolved	8/14/2023	45.2	ug/L	---	No	Yes	150	ug/L	No
Barium	PZ-108	HMSA/PDU	Total	8/14/2023	40.8	ug/L	---	No	Yes	150	ug/L	No
Barium	PZ-109	B4057/59/626	Total	8/21/2023	44.6	ug/L	---	No	Yes	150	ug/L	No
Barium	PZ-121	HMSA/PDU	Dissolved	8/15/2023	64.8	ug/L	---	No	Yes	150	ug/L	No
Barium	PZ-121	HMSA/PDU	Total	8/15/2023	69.1	ug/L	---	No	Yes	150	ug/L	No
Barium	PZ-122	HMSA/PDU	Dissolved	8/16/2023	57.9	ug/L	---	No	Yes	150	ug/L	No
Barium	PZ-124	Bldg 56 Landfill	Dissolved	8/23/2023	9.17	ug/L	J/	Yes	Yes	150	ug/L	No
Barium	PZ-124	Bldg 56 Landfill	Total	8/23/2023	11	ug/L	J/	Yes	Yes	150	ug/L	No
Barium	PZ-162	HMSA/PDU	Dissolved	8/16/2023	44.1	ug/L	---	Yes	Yes	150	ug/L	No
Barium	PZ-162	HMSA/PDU	Total	8/16/2023	58.4	ug/L	---	Yes	Yes	150	ug/L	No
Barium	PZ-163	HMSA/PDU	Dissolved	8/15/2023	39.7	ug/L	---	Yes	Yes	150	ug/L	No
Barium	PZ-163	HMSA/PDU	Total	8/15/2023	62.3	ug/L	---	Yes	Yes	150	ug/L	No
Barium	RD-27	RMHF	Total	8/21/2023	71.3	ug/L	---	No	Yes	150	ug/L	No
Barium	RD-65	FSDf	Dissolved	8/24/2023	25.3	ug/L	---	No	Yes	150	ug/L	No
Barium	RD-65	FSDf	Total	8/24/2023	25.7	ug/L	---	No	Yes	150	ug/L	No
Barium	RD-74	Bldg 56 Landfill	Dissolved	8/23/2023	74.8	ug/L	J/	No	Yes	150	ug/L	No
Barium	RD-74	Bldg 56 Landfill	Total	8/23/2023	83	ug/L	J/	Yes	Yes	150	ug/L	No
Cadmium	DD-141	Bldg 56 Landfill	Total	8/23/2023	0.398	ug/L	J/J	Yes	Yes	0.2	ug/L	Yes
Cadmium	PZ-121	HMSA/PDU	Dissolved	8/15/2023	0.542	ug/L	J/J	No	Yes	0.2	ug/L	Yes
Cadmium	PZ-121	HMSA/PDU	Total	8/15/2023	3.67	ug/L	---	Yes	Yes	0.2	ug/L	Yes
Cadmium	PZ-124	Bldg 56 Landfill	Total	8/23/2023	0.815	ug/L	J/J	Yes	Yes	0.2	ug/L	Yes
Chromium	PZ-098	FSDf	Dissolved	8/22/2023	3.02	ug/L	J/J	Yes	Yes	14	ug/L	No
Chromium	PZ-108	HMSA/PDU	Dissolved	8/14/2023	3.49	ug/L	J/J	No	Yes	14	ug/L	No
Chromium	PZ-108	HMSA/PDU	Total	8/14/2023	10.2	ug/L	---	No	Yes	14	ug/L	No
Chromium	PZ-109	B4057/59/626	Total	8/21/2023	4	ug/L	J/J	No	Yes	14	ug/L	No
Chromium	PZ-120	HMSA/PDU	Total	8/16/2023	11.1	ug/L	---	No	Yes	14	ug/L	No
Chromium	PZ-124	Bldg 56 Landfill	Total	8/23/2023	3.58	ug/L	J/J	Yes	Yes	14	ug/L	No
Chromium	PZ-162	HMSA/PDU	Total	8/16/2023	3.49	ug/L	J/J	Yes	Yes	14	ug/L	No
Chromium	PZ-163	HMSA/PDU	Total	8/15/2023	5.64	ug/L	J/J	Yes	Yes	14	ug/L	No
cis-1,2-Dichloroethene	PZ-104	DOE Leachfield 3	Total	8/16/2023	0.52	ug/L	J/J	No	Yes	6	ug/L	No
cis-1,2-Dichloroethene	PZ-163	HMSA/PDU	Total	8/15/2023	10.2	ug/L	---	No	Yes	6	ug/L	Yes
Cobalt	DD-143	RMHF	Dissolved	8/17/2023	1.27	ug/L	---	No	Yes	1.9	ug/L	No
Cobalt	DD-143	RMHF	Total	8/17/2023	1.51	ug/L	---	No	Yes	1.9	ug/L	No
Cobalt	DS-44	DOE Leachfield	Total	8/23/2023	1.3	ug/L	---	No	Yes	1.9	ug/L	No
Cobalt	DS-47	B4064 Leachfield	Total	8/18/2023	12.4	ug/L	---	No	Yes	1.9	ug/L	Yes
Cobalt	PZ-105	DOE Leachfield 3	Dissolved	8/14/2023	0.551	ug/L	J/J	No	Yes	1.9	ug/L	No
Cobalt	PZ-109	B4057/59/626	Total	8/21/2023	0.732	ug/L	J/J	No	Yes	1.9	ug/L	No
Cobalt	PZ-121	HMSA/PDU	Dissolved	8/15/2023	2.44	ug/L	---	Yes	Yes	1.9	ug/L	Yes
Cobalt	PZ-121	HMSA/PDU	Total	8/15/2023	2.34	ug/L	---	Yes	Yes	1.9	ug/L	Yes
Cobalt	PZ-124	Bldg 56 Landfill	Dissolved	8/23/2023	2.36	ug/L	---	Yes	Yes	1.9	ug/L	Yes

**TABLE 9
FIRST TIME DETECTS AND NEW MAXIMUM CONCENTRATIONS, ANNUAL 2023 - DOE AREA IV**

Cobalt	PZ-124	Bldg 56 Landfill	Total	8/23/2023	2.51	ug/L	---	Yes	Yes	1.9	ug/L	Yes
Cobalt	PZ-162	HMSA/PDU	Total	8/16/2023	0.755	ug/L	J/J	Yes	Yes	1.9	ug/L	No
Cobalt	PZ-163	HMSA/PDU	Total	8/15/2023	1.44	ug/L	---	Yes	Yes	1.9	ug/L	No
Cobalt	RD-27	RMHF	Total	8/21/2023	0.359	ug/L	J/J	No	Yes	1.9	ug/L	No
Cobalt	RD-64	FSDf	Total	8/24/2023	2.17	ug/L	---	No	Yes	1.9	ug/L	Yes
Cobalt	RD-74	Bldg 56 Landfill	Total	8/23/2023	0.409	ug/L	J/J	Yes	Yes	1.9	ug/L	No
Copper	DS-48	HMSA/PDU	Dissolved	8/14/2023	0.855	ug/L	J/J	No	Yes	4.7	ug/L	No
Copper	PZ-041	HMSA/PDU	Dissolved	8/15/2023	0.793	ug/L	J/J	Yes	Yes	4.7	ug/L	No
Copper	PZ-124	Bldg 56 Landfill	Dissolved	8/23/2023	1.11	ug/L	J/J	Yes	Yes	4.7	ug/L	No
Copper	PZ-124	Bldg 56 Landfill	Total	8/23/2023	6.9	ug/L	J/	Yes	Yes	4.7	ug/L	Yes
Copper	PZ-162	HMSA/PDU	Dissolved	8/16/2023	0.492	ug/L	J/J	Yes	Yes	4.7	ug/L	No
Copper	PZ-162	HMSA/PDU	Total	8/16/2023	1.64	ug/L	J/J	Yes	Yes	4.7	ug/L	No
Copper	PZ-163	HMSA/PDU	Dissolved	8/15/2023	0.742	ug/L	J/J	Yes	Yes	4.7	ug/L	No
Copper	PZ-163	HMSA/PDU	Total	8/15/2023	2.97	ug/L	---	Yes	Yes	4.7	ug/L	No
Copper	RD-63	RMHF	Total	8/22/2023	0.529	ug/L	J/J	No	Yes	4.7	ug/L	No
Copper	RD-74	Bldg 56 Landfill	Dissolved	8/23/2023	0.801	ug/L	J/J	Yes	Yes	4.7	ug/L	No
Copper	RD-74	Bldg 56 Landfill	Total	8/23/2023	1.45	ug/L	J/J	Yes	Yes	4.7	ug/L	No
Diesel Range Organics	DD-139	FSDf	Total	8/18/2023	127	ug/L	J/J	Yes	Yes	100	ug/L	Yes
Diesel Range Organics	DS-46	FSDf	Total	8/22/2023	92.5	ug/L	J/J	Yes	Yes	100	ug/L	No
Diesel Range Organics	PZ-005	DOE Leachfield 3	Total	8/25/2023	135	ug/L	J/J	Yes	Yes	100	ug/L	Yes
Diesel Range Organics	PZ-098	FSDf	Total	8/22/2023	96.8	ug/L	J/J	Yes	Yes	100	ug/L	No
Diesel Range Organics	PZ-104	DOE Leachfield 3	Total	8/16/2023	213	ug/L	Q/J	Yes	Yes	100	ug/L	Yes
Diesel Range Organics	PZ-120	HMSA/PDU	Total	8/16/2023	320	ug/L	Q/J	Yes	Yes	100	ug/L	Yes
Diesel Range Organics	PZ-162	HMSA/PDU	Total	8/16/2023	118	ug/L	Q/J	Yes	Yes	100	ug/L	Yes
Diesel Range Organics	RD-64	FSDf	Total	8/24/2023	169	ug/L	J/J	Yes	Yes	100	ug/L	Yes
Diesel Range Organics	RD-65	FSDf	Total	8/24/2023	165	ug/L	J/J	Yes	Yes	100	ug/L	Yes
Gasoline Range Organics	DD-144	HMSA	Total	8/15/2023	39.7	ug/L	J/J	Yes	Yes	5	ug/L	Yes
Gasoline Range Organics	DS-48	HMSA/PDU	Total	8/14/2023	23	ug/L	J/J	Yes	Yes	5	ug/L	Yes
Gasoline Range Organics	PZ-108	HMSA/PDU	Total	8/14/2023	58.4	ug/L	J/J	Yes	Yes	5	ug/L	Yes
Gasoline Range Organics	PZ-163	HMSA/PDU	Total	8/15/2023	50.8	ug/L	J/J	Yes	Yes	5	ug/L	Yes
Gasoline Range Organics	RD-54A	FSDf	Total	8/25/2023	24	ug/L	J/J	No	Yes	5	ug/L	Yes
Gasoline Range Organics	RD-64	FSDf	Total	8/24/2023	42.9	ug/L	J/J	Yes	Yes	5	ug/L	Yes
Gasoline Range Organics	RD-65	FSDf	Total	8/24/2023	154	ug/L	---	No	Yes	5	ug/L	Yes
Lead	DS-45	B4064 Leachfield	Total	8/18/2023	0.641	ug/L	J/J	No	Yes	11	ug/L	No
Lead	PZ-108	HMSA/PDU	Total	8/14/2023	0.975	ug/L	J/J	No	Yes	11	ug/L	No
Lead	PZ-124	Bldg 56 Landfill	Total	8/23/2023	0.727	ug/L	J/J	Yes	Yes	11	ug/L	No
Lead	PZ-163	HMSA/PDU	Total	8/15/2023	0.863	ug/L	J/J	Yes	Yes	11	ug/L	No
Lead	RD-64	FSDf	Total	8/24/2023	1.96	ug/L	J/J	No	Yes	11	ug/L	No
Lead	RD-74	Bldg 56 Landfill	Total	8/23/2023	0.521	ug/L	J/J	Yes	Yes	11	ug/L	No
Methylene chloride	DD-139	FSDf	Total	8/18/2023	0.52	ug/L	J/J	Yes	Yes	5	ug/L	No
Methylene chloride	DD-143	RMHF	Total	8/17/2023	0.54	ug/L	J/J	Yes	Yes	5	ug/L	No
Methylene chloride	DS-45	B4064 Leachfield	Total	8/18/2023	0.51	ug/L	J/J	Yes	Yes	5	ug/L	No
Methylene chloride	PZ-116	RMHF	Total	8/17/2023	0.5	ug/L	J/J	Yes	Yes	5	ug/L	No
Methylene chloride	RD-30	RMHF	Total	8/17/2023	0.57	ug/L	J/J	Yes	Yes	5	ug/L	No
Methylene chloride	RD-88	DOE Leachfield 2	Total	8/17/2023	0.54	ug/L	J/J	Yes	Yes	5	ug/L	No
Methylene chloride	RD-94	Tritium Plume	Total	8/17/2023	0.51	ug/L	J/J	Yes	Yes	5	ug/L	No
Nickel	DD-143	RMHF	Dissolved	8/17/2023	1.65	ug/L	J/J	No	Yes	17	ug/L	No
Nickel	DS-48	HMSA/PDU	Dissolved	8/14/2023	1.8	ug/L	J/J	No	Yes	17	ug/L	No
Nickel	PZ-041	HMSA/PDU	Dissolved	8/15/2023	1.05	ug/L	J/J	Yes	Yes	17	ug/L	No
Nickel	PZ-109	B4057/59/626	Total	8/21/2023	4.08	ug/L	---	No	Yes	17	ug/L	No
Nickel	PZ-121	HMSA/PDU	Dissolved	8/15/2023	5.36	ug/L	---	No	Yes	17	ug/L	No
Nickel	PZ-121	HMSA/PDU	Total	8/15/2023	5.61	ug/L	---	Yes	Yes	17	ug/L	No
Nickel	PZ-124	Bldg 56 Landfill	Dissolved	8/23/2023	4.58	ug/L	---	Yes	Yes	17	ug/L	No
Nickel	PZ-124	Bldg 56 Landfill	Total	8/23/2023	5.35	ug/L	---	Yes	Yes	17	ug/L	No
Nickel	PZ-162	HMSA/PDU	Dissolved	8/16/2023	1.23	ug/L	J/J	Yes	Yes	17	ug/L	No
Nickel	PZ-162	HMSA/PDU	Total	8/16/2023	2.41	ug/L	---	Yes	Yes	17	ug/L	No
Nickel	PZ-163	HMSA/PDU	Dissolved	8/15/2023	1.09	ug/L	J/J	Yes	Yes	17	ug/L	No
Nickel	PZ-163	HMSA/PDU	Total	8/15/2023	3.96	ug/L	---	Yes	Yes	17	ug/L	No
Nickel	RD-27	RMHF	Dissolved	8/21/2023	0.932	ug/L	J/J	Yes	Yes	17	ug/L	No
Nickel	RD-27	RMHF	Total	8/21/2023	1.05	ug/L	J/J	No	Yes	17	ug/L	No
Nickel	RD-64	FSDf	Dissolved	8/24/2023	27.6	ug/L	---	No	Yes	17	ug/L	Yes
Nickel	RD-64	FSDf	Total	8/24/2023	28.1	ug/L	---	No	Yes	17	ug/L	Yes
Nickel	RD-65	FSDf	Dissolved	8/24/2023	0.963	ug/L	J/J	Yes	Yes	17	ug/L	No
Nickel	RD-65	FSDf	Total	8/24/2023	0.947	ug/L	J/J	Yes	Yes	17	ug/L	No
Nickel	RD-74	Bldg 56 Landfill	Dissolved	8/23/2023	3.1	ug/L	---	Yes	Yes	17	ug/L	No
Nickel	RD-74	Bldg 56 Landfill	Total	8/23/2023	4.09	ug/L	---	Yes	Yes	17	ug/L	No
Selenium	DS-47	B4064 Leachfield	Total	8/18/2023	1.89	ug/L	J/J	No	Yes	1.6	ug/L	Yes
Selenium	PZ-105	DOE Leachfield 3	Total	8/14/2023	2.14	ug/L	J/J	No	Yes	1.6	ug/L	Yes
Selenium	RD-74	Bldg 56 Landfill	Dissolved	8/23/2023	4.38	ug/L	J/J	Yes	Yes	1.6	ug/L	Yes
Selenium	RD-74	Bldg 56 Landfill	Total	8/23/2023	4.79	ug/L	J/J	Yes	Yes	1.6	ug/L	Yes
Sodium	DD-139	FSDf	Dissolved	8/18/2023	35300	ug/L	---	No	Yes	190000	ug/L	No
Sodium	DD-139	FSDf	Total	8/18/2023	36400	ug/L	---	No	Yes	190000	ug/L	No
Sodium	DS-44	DOE Leachfield	Dissolved	8/23/2023	61100	ug/L	---	No	Yes	190000	ug/L	No
Sodium	DS-44	DOE Leachfield	Total	8/23/2023	65400	ug/L	---	No	Yes	190000	ug/L	No
Sodium	DS-46	FSDf	Dissolved	8/22/2023	64800	ug/L	---	No	Yes	190000	ug/L	No
Sodium	DS-47	B4064 Leachfield	Dissolved	8/18/2023	43500	ug/L	---	No	Yes	190000	ug/L	No
Sodium	DS-47	B4064 Leachfield	Total	8/18/2023	43100	ug/L	---	No	Yes	190000	ug/L	No
Sodium	DS-48	HMSA/PDU	Dissolved	8/14/2023	63900	ug/L	---	No	Yes	190000	ug/L	No
Sodium	DS-48	HMSA/PDU	Total	8/14/2023	64500	ug/L	---	No	Yes	190000	ug/L	No
Sodium	PZ-005	DOE Leachfield 3	Dissolved	8/25/2023	124000	ug/L	---	No	Yes	190000	ug/L	No
Sodium	PZ-005	DOE Leachfield 3	Total	8/25/2023	121000	ug/L	---	No	Yes	190000	ug/L	No
Sodium	PZ-103	MC/DOE Leach	Dissolved	8/14/2023	103000	ug/L	---	No	Yes	190000	ug/L	No
Sodium	PZ-103	MC/DOE Leach	Total	8/14/2023	102000	ug/L	---	No	Yes	190000	ug/L	No
Sodium	PZ-104	DOE Leachfield 3	Dissolved	8/16/2023	586000	ug/L	---	No	Yes	190000	ug/L	Yes
Sodium	PZ-104	DOE Leachfield 3	Total	8/16/2023	570000	ug/L	---	No	Yes	190000	ug/L	Yes
Sodium	PZ-109	B4057/59/626	Dissolved	8/21/2023	204000	ug/L	---	No	Yes	190000	ug/L	Yes
Sodium	PZ-121	HMSA/PDU	Dissolved	8/15/2023	62500	ug/L	---	Yes	Yes	190000	ug/L	No
Sodium	PZ-122	HMSA/PDU	Dissolved	8/16/2023	69500	ug/L	---	Yes	Yes	190000	ug/L	No
Sodium	PZ-124	Bldg 56 Landfill	Dissolved	8/23/2023	309000	ug/L	---	Yes	Yes	190000	ug/L	Yes
Sodium	PZ-124	Bldg 56 Landfill	Total	8/23/2023	296000	ug/L	---	Yes	Yes	190000	ug/L	Yes
Sodium	PZ-162	HMSA/PDU	Dissolved	8/16/2023	65000	ug/L	---	Yes	Yes	190000	ug/L	No
Sodium	PZ-162	HMSA/PDU	Total	8/16/2023	63600	ug/L	---	Yes	Yes	190000	ug/L	No
Sodium	PZ-163	HMSA/PDU	Dissolved	8/15/2023	70000	ug/L	---	Yes	Yes	190000	ug/L	No

TABLE 9
FIRST TIME DETECTS AND NEW MAXIMUM CONCENTRATIONS, ANNUAL 2023 - DOE AREA IV

Sodium	PZ-163	HMSA/PDU	Total	8/15/2023	68300	ug/L	---	Yes	Yes	190000	ug/L	No
Sodium	RD-27	RMHF	Total	8/21/2023	36100	ug/L	---	Yes	Yes	190000	ug/L	No
Sodium	RD-34A	RMHF	Total	8/22/2023	86100	ug/L	---	No	Yes	190000	ug/L	No
Sodium	RD-65	FSDF	Dissolved	8/24/2023	39600	ug/L	---	Yes	Yes	190000	ug/L	No
Sodium	RD-65	FSDF	Total	8/24/2023	41100	ug/L	---	Yes	Yes	190000	ug/L	No
Sodium	RD-74	Bldg 56 Landfill	Dissolved	8/23/2023	81100	ug/L	---	No	Yes	190000	ug/L	No
Sodium	RD-74	Bldg 56 Landfill	Total	8/23/2023	80300	ug/L	---	Yes	Yes	190000	ug/L	No
Tin	PZ-103	MC/DOE Leach	Total	8/14/2023	1.03	ug/L	J/J	No	Yes	2.4	ug/L	No
Tin	PZ-108	HMSA/PDU	Total	8/14/2023	1.18	ug/L	J/J	Yes	Yes	2.4	ug/L	No
Trichloroethene	DS-48	HMSA/PDU	Total	8/14/2023	41.7	ug/L	---	No	Yes	5	ug/L	Yes
Trichloroethene	PZ-122	HMSA/PDU	Total	8/16/2023	2.25	ug/L	---	No	Yes	5	ug/L	No
Vanadium	DD-144	HMSA	Dissolved	8/15/2023	3.39	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	DS-45	B4064 Leachfield	Dissolved	8/18/2023	8.59	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	DS-45	B4064 Leachfield	Total	8/18/2023	10.5	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	PZ-005	DOE Leachfield 3	Dissolved	8/25/2023	4.88	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	PZ-041	HMSA/PDU	Dissolved	8/15/2023	4.57	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	PZ-041	HMSA/PDU	Total	8/15/2023	4.97	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	PZ-103	MC/DOE Leach	Dissolved	8/14/2023	3.47	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	PZ-104	DOE Leachfield 3	Dissolved	8/16/2023	3.31	ug/L	J/J	Yes	Yes	2.6	ug/L	Yes
Vanadium	PZ-108	HMSA/PDU	Total	8/14/2023	7.57	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	PZ-120	HMSA/PDU	Dissolved	8/16/2023	5.79	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	PZ-120	HMSA/PDU	Total	8/16/2023	9.89	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	PZ-121	HMSA/PDU	Total	8/15/2023	3.88	ug/L	J/J	Yes	Yes	2.6	ug/L	Yes
Vanadium	PZ-122	HMSA/PDU	Dissolved	8/16/2023	4.03	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	PZ-122	HMSA/PDU	Total	8/16/2023	4.29	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	PZ-124	Bldg 56 Landfill	Total	8/23/2023	3.57	ug/L	J/J	Yes	Yes	2.6	ug/L	Yes
Vanadium	PZ-162	HMSA/PDU	Dissolved	8/16/2023	4.47	ug/L	J/J	Yes	Yes	2.6	ug/L	Yes
Vanadium	PZ-162	HMSA/PDU	Total	8/16/2023	8.3	ug/L	J/J	Yes	Yes	2.6	ug/L	Yes
Vanadium	PZ-163	HMSA/PDU	Dissolved	8/15/2023	4.18	ug/L	J/J	Yes	Yes	2.6	ug/L	Yes
Vanadium	PZ-163	HMSA/PDU	Total	8/15/2023	11.5	ug/L	J/J	Yes	Yes	2.6	ug/L	Yes
Vanadium	RD-27	RMHF	Total	8/21/2023	3.66	ug/L	J/J	Yes	Yes	2.6	ug/L	Yes
Vanadium	RD-54A	FSDF	Dissolved	8/25/2023	3.75	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	RD-64	FSDF	Dissolved	8/24/2023	4.97	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	RD-64	FSDF	Total	8/24/2023	3.48	ug/L	J/J	No	Yes	2.6	ug/L	Yes
Vanadium	RD-74	Bldg 56 Landfill	Total	8/23/2023	5.14	ug/L	J/J	Yes	Yes	2.6	ug/L	Yes
Zinc	DS-45	B4064 Leachfield	Total	8/18/2023	7.04	ug/L	J/J	No	Yes	6300	ug/L	No
Zinc	PZ-041	HMSA/PDU	Dissolved	8/15/2023	22.1	ug/L	---	Yes	Yes	6300	ug/L	No
Zinc	PZ-121	HMSA/PDU	Dissolved	8/15/2023	38.8	ug/L	---	No	Yes	6300	ug/L	No
Zinc	PZ-121	HMSA/PDU	Total	8/15/2023	41.6	ug/L	---	Yes	Yes	6300	ug/L	No
Zinc	PZ-124	Bldg 56 Landfill	Dissolved	8/23/2023	20.6	ug/L	---	Yes	Yes	6300	ug/L	No
Zinc	PZ-124	Bldg 56 Landfill	Total	8/23/2023	62.6	ug/L	---	Yes	Yes	6300	ug/L	No
Zinc	PZ-162	HMSA/PDU	Dissolved	8/16/2023	3.84	ug/L	J/J	Yes	Yes	6300	ug/L	No
Zinc	PZ-162	HMSA/PDU	Total	8/16/2023	12	ug/L	J/J	Yes	Yes	6300	ug/L	No
Zinc	PZ-163	HMSA/PDU	Dissolved	8/15/2023	4.43	ug/L	J/J	Yes	Yes	6300	ug/L	No
Zinc	PZ-163	HMSA/PDU	Total	8/15/2023	14.6	ug/L	J/J	Yes	Yes	6300	ug/L	No
Zinc	RD-64	FSDF	Dissolved	8/24/2023	700	ug/L	---	No	Yes	6300	ug/L	No
Zinc	RD-64	FSDF	Total	8/24/2023	734	ug/L	---	No	Yes	6300	ug/L	No
Zinc	RD-74	Bldg 56 Landfill	Total	8/23/2023	72.7	ug/L	---	Yes	Yes	6300	ug/L	No

Notes and Abbreviations:

Results from wells installed after 2017 are not included in this table due to insufficient data for establishing baseline trends.

--- - none

/ - separates lab qualifiers from data validation flags

B - Blank contamination

H - Analytical holding time exceeded

J - Result is an estimated quantity. Associated numerical value is approximate concentration of analyte in sample

mg/L - milligrams per liter

pCi/L - picocuries per liter

Q - LCS recovery not within control limits

SV - screening value

U - analyzed for, but not detected above reported sample quantitation limit. Result shown is the Method Detection Limit.

ug/L - micrograms per liter

Table 10
 Volatile Organic Compounds Analytical Results, 2023 - AreaIV
 Santa Susana Field Laboratory, Ventura County, CA

				Analyte	1,1,1-Trichloroethane	1,1,2-trichloro- 1,2-trifluoroethane	1,1,2-trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dichloroethane	1,4-Dioxane	2-butanone	Acetone	Benzene	Carbon tetrachloride
				Method Units	SW8260D ug/l	SW8260D ug/l	SW8260D ug/l	SW8260D ug/l	SW8260D ug/l	SW8260D ug/l	SW8270E SIM ug/l	SW8260D ug/l	SW8260D ug/l	SW8260D ug/l	SW8260D ug/l
Well Identifier	GW Impact	Sample Name	Sample Date												
C-08	FSDf	C-08_030323_01_L	03/03/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.164 J / J	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
DD-139	FSDf	DD-139_022123_01_L	02/21/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
DD-139	FSDf	DD-139_081823_01_L	08/18/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
DD-141	Bldg 56 Landfill	DD-141_021723_01_L	02/17/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
DD-141	Bldg 56 Landfill	DD-141_082323_01_L	08/23/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	50.3 /	13.1 /	0.333 U / U	0.333 U / U
DD-143	RMHF	DD-143_081723_01_L	08/17/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.157 J / J	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
DD-144	HMSA	DD-144_030223_01_L	03/02/2023		0.333 U / U	11.3 /	0.333 U / U	0.35 J / J	0.333 U / U	0.333 U / U	2.18 /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
DD-144	HMSA	DD-144_081523_01_L	08/15/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.893 /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
DD-157	HMSA	DD-157_022823_01_L	02/28/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
DD-158	OCY	DD-158_022823_01_L	02/28/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
DD-159	OCY	DD-159_022023_01_L	02/20/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.112 J / J	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
DS-43	B4057/59/626	DS-43_021423_01_L	02/14/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
DS-43	B4057/59/626	DS-43_082123_01_L	08/21/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
DS-44	DOE Leachfield	DS-44_082323_01_L	08/23/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
DS-45	B4064 Leachfield	DS-45_022723_01_L	02/27/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
DS-45	B4064 Leachfield	DS-45_081823_01_L	08/18/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	2.79 J / J	0.333 U / U	0.333 U / U
DS-46	FSDf	DS-46_030323_01_L	03/03/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	3.6 /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
DS-46	FSDf	DS-46_082223_01_L	08/22/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	3.28 /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
DS-47	B4064 Leachfield	DS-47_081823_01_L	08/18/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
DS-48	HMSA	DS-48_022823_01_L	02/28/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.169 J / J	1.67 U / U	1.84 J / J	0.333 U / U	0.333 U / U
DS-48	HMSA	DS-48_081423_01_L	08/14/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.141 J / J	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
PZ-005	Bldg 65 Metals Clarifier	PZ-005_030223_01_L	03/02/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	2.9 J / J	0.333 U / U	0.333 U / U
PZ-005	Bldg 65 Metals Clarifier	PZ-005_082523_01_L	08/25/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
PZ-041	HMSA	PZ-041_081523_01_L	08/15/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.98 J / J	0.333 U / U	0.333 U / U
PZ-098	FSDf	PZ-098_021423_01_L	02/14/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	1.38 /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
PZ-098	FSDf	PZ-098_082223_01_L	08/22/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	1.06 /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
PZ-102	B4009 Leachfield	PZ-102_030223_01_L	03/02/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	2.04 J / J	0.333 U / U	0.333 U / U
PZ-103	Bldg 65 Metals Clarifier	PZ-103_081423_01_L	08/14/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.308 J /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
PZ-104	Bldg 65 Metals Clarifier	PZ-104_081623_01_L	08/16/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.425 /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
PZ-105	Bldg 65 Metals Clarifier	PZ-105_030223_01_L	03/02/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.82 J / J	0.333 U / U	0.333 U / U
PZ-105	Bldg 65 Metals Clarifier	PZ-105_081423_01_L	08/14/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	2.2 J / J	0.333 U / U	0.333 U / U
PZ-108	HMSA	PZ-108_022823_01_L	02/28/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.163 J / J	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
PZ-108	HMSA	PZ-108_081423_01_L	08/14/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.157 J / J	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
PZ-109	B4057/59/626	PZ-109_021423_01_L	02/14/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
PZ-109	B4057/59/626	PZ-109_082123_01_L	08/21/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
PZ-116	RMHF	PZ-116_081723_01_L	08/17/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	2.63 J / J	0.333 U / U	0.333 U / U
PZ-120	HMSA	PZ-120_030123_01_L	03/01/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	1.12 /	1.67 U / U	1.81 J / J	0.333 U / U	0.333 U / U
PZ-120	HMSA	PZ-120_081623_01_L	08/16/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	1.55 /	9.18 /	1.74 U / U	0.333 U / U	0.333 U / U
PZ-121	HMSA	PZ-121_081523_01_L	08/15/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	3.48 J / J	0.333 U / U	0.333 U / U
PZ-122	HMSA	PZ-122_081623_01_L	08/16/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.207 J /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
PZ-124	Bldg 56 Landfill	PZ-124_082323_01_L	08/23/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	5.75 /	1.74 U / U	0.333 U / U	0.333 U / U
PZ-162	HMSA	PZ-162_021623_01_L	02/16/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.233 J / J	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
PZ-162	HMSA	PZ-162_081623_01_L	08/16/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.308 J /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
PZ-163	HMSA	PZ-163_030223_01_L	03/02/2023		0.333 U / U	11.8 /	0.333 U / U	0.36 J / J	0.333 U / U	0.333 U / U	2.21 /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
PZ-163	HMSA	PZ-163_081523_01_L	08/15/2023		0.333 U / U	14.3 /	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	1.35 /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-07	Bldg 56 Landfill	RD-07_021323_01_L	02/13/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-07	Bldg 56 Landfill	RD-07_082123_01_L	08/21/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-14	OCY	RD-14_021523_01_L	02/15/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.609 /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-19	B4133	RD-19_021723_01_L	02/17/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-20	B4100 Trench	RD-20_021623_01_L	02/16/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-21	FSDf	RD-21_021423_01_L	02/14/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	12 /

Table 10
Volatile Organic Compounds Analytical Results, 2023 - AreaIV
Santa Susana Field Laboratory, Ventura County, CA

				Analyte	Chloroform	cis-1,2-Dichloroethane	Ethylbenzene	Methylene chloride	m-xylene & p-xylene	o-Xylene (1,2-dimethyl-benzene)	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Trichlorofluoromethane	Vinyl chloride
				Method	SW8260D	SW8260D	SW8260D	SW8260D	SW8260D	SW8260D	SW8260D	SW8260D	SW8260D	SW8260D	SW8260D	SW8260D
				Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Well Identifier	GW Impact	Sample Name	Sample Date													
C-08	FSDf	C-08_030323_01_L	03/03/2023	0.333 U / U	0.91 J / J	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	4.07 /	0.333 U / U	0.333 U / U	0.333 U / U
DD-139	FSDf	DD-139_022123_01_L	02/21/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
DD-139	FSDf	DD-139_081823_01_L	08/18/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.52 J / J	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
DD-141	Bldg 56 Landfill	DD-141_021723_01_L	02/17/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
DD-141	Bldg 56 Landfill	DD-141_082323_01_L	08/23/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
DD-143	RMHF	DD-143_081723_01_L	08/17/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.54 J / J	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
DD-144	HMSA	DD-144_030223_01_L	03/02/2023	0.333 U / U	10.4 /	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	108 /	0.333 U / U	0.333 U / U	0.333 U / U
DD-144	HMSA	DD-144_081523_01_L	08/15/2023	0.333 U / U	10.7 /	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	79 /	0.333 U / U	0.333 U / U	0.333 U / U
DD-157	HMSA	DD-157_022823_01_L	02/28/2023	0.333 U / U	0.8 J / J	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	9.96 /	0.333 U / U	0.333 U / U	0.333 U / U
DD-158	OCY	DD-158_022823_01_L	02/28/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
DD-159	OCY	DD-159_022023_01_L	02/20/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.62 J / J	0.333 U / U	0.333 U / U	0.333 U / U
DS-43	B4057/59/626	DS-43_021423_01_L	02/14/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
DS-43	B4057/59/626	DS-43_082123_01_L	08/21/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
DS-44	DOE Leachfield	DS-44_082323_01_L	08/23/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
DS-45	B4064 Leachfield	DS-45_022723_01_L	02/27/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
DS-45	B4064 Leachfield	DS-45_081823_01_L	08/18/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.51 J / J	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
DS-46	FSDf	DS-46_030323_01_L	03/03/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
DS-46	FSDf	DS-46_082223_01_L	08/22/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
DS-47	B4064 Leachfield	DS-47_081823_01_L	08/18/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
DS-48	HMSA	DS-48_022823_01_L	02/28/2023	0.333 U / U	17.1 /	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	41.4 /	0.333 U / U	0.333 U / U	0.333 U / U
DS-48	HMSA	DS-48_081423_01_L	08/14/2023	0.333 U / U	12.5 /	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	41.7 /	0.333 U / U	0.333 U / U	0.333 U / U
PZ-005	Bldg 65 Metals Clarifier	PZ-005_030223_01_L	03/02/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	1.56 /	0.333 U / U	0.333 U / U	0.333 U / U
PZ-005	Bldg 65 Metals Clarifier	PZ-005_082523_01_L	08/25/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	1.11 /	0.333 U / U	0.333 U / U	0.333 U / U
PZ-041	HMSA	PZ-041_081523_01_L	08/15/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
PZ-098	FSDf	PZ-098_021423_01_L	02/14/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	2.24 /	0.333 U / U	0.333 U / U	0.333 U / U
PZ-098	FSDf	PZ-098_082223_01_L	08/22/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	3.77 /	0.333 U / U	0.333 U / U	0.333 U / U
PZ-102	B4009 Leachfield	PZ-102_030223_01_L	03/02/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
PZ-103	Bldg 65 Metals Clarifier	PZ-103_081423_01_L	08/14/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.68 J / J	0.333 U / U	0.333 U / U	0.333 U / U
PZ-104	Bldg 65 Metals Clarifier	PZ-104_081623_01_L	08/16/2023	0.333 U / U	0.52 J / J	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
PZ-105	Bldg 65 Metals Clarifier	PZ-105_030223_01_L	03/02/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	6.37 /	0.333 U / U	0.333 U / U	0.333 U / U
PZ-105	Bldg 65 Metals Clarifier	PZ-105_081423_01_L	08/14/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	6.87 /	0.333 U / U	0.333 U / U	0.333 U / U
PZ-108	HMSA	PZ-108_022823_01_L	02/28/2023	0.333 U / U	16.5 /	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	119 /	0.333 U / U	0.333 U / U	0.333 U / U
PZ-108	HMSA	PZ-108_081423_01_L	08/14/2023	0.333 U / U	11.9 /	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	130 /	0.333 U / U	0.333 U / U	0.333 U / U
PZ-109	B4057/59/626	PZ-109_021423_01_L	02/14/2023	0.333 U / U	36.3 /	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	10 /	0.333 U / U	0.333 U / U	0.333 U / U
PZ-109	B4057/59/626	PZ-109_082123_01_L	08/21/2023	0.333 U / U	9.5 /	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	6.19 /	0.333 U / U	0.333 U / U	0.333 U / U
PZ-116	RMHF	PZ-116_081723_01_L	08/17/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 J / J	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
PZ-120	HMSA	PZ-120_030123_01_L	03/01/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.6 J / J	0.333 U / U	0.333 U / U	0.333 U / U
PZ-120	HMSA	PZ-120_081623_01_L	08/16/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	1.19 /	0.333 U / U	0.333 U / U	0.333 U / U
PZ-121	HMSA	PZ-121_081523_01_L	08/15/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
PZ-122	HMSA	PZ-122_081623_01_L	08/16/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	2.25 /	0.333 U / U	0.333 U / U	0.333 U / U
PZ-124	Bldg 56 Landfill	PZ-124_082323_01_L	08/23/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
PZ-162	HMSA	PZ-162_021623_01_L	02/16/2023	0.333 U / U	1.49 /	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	12.8 /	0.333 U / U	0.333 U / U	0.333 U / U
PZ-162	HMSA	PZ-162_081623_01_L	08/16/2023	0.333 U / U	0.47 J / J	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	5.61 /	0.333 U / U	0.333 U / U	0.333 U / U
PZ-163	HMSA	PZ-163_030223_01_L	03/02/2023	0.333 U / U	7.12 /	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	77.2 /	0.333 U / U	0.333 U / U	0.333 U / U
PZ-163	HMSA	PZ-163_081523_01_L	08/15/2023	0.333 U / U	10.2 /	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	129 /	0.333 U / U	0.333 U / U	0.333 U / U
RD-07	Bldg 56 Landfill	RD-07_021323_01_L	02/13/2023	0.333 U / U	3.35 /	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	43.7 /	0.333 U / U	0.333 U / U	0.333 U / U
RD-07	Bldg 56 Landfill	RD-07_082123_01_L	08/21/2023	0.333 U / U	4.75 /	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	55.3 /	0.333 U / U	0.333 U / U	0.333 U / U
RD-14	OCY	RD-14_021523_01_L	02/15/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
RD-19	B4133	RD-19_021723_01_L	02/17/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
RD-20	B4100 Trench	RD-20_021623_01_L	02/16/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
RD-21	FSDf	RD-21_021423_01_L	02/14/2023	5.36 /	1.68 /	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	63.9 /	0.333 U / U	0.333 U / U	0.333 U / U

Table 10
 Volatile Organic Compounds Analytical Results, 2023 - AreaIV
 Santa Susana Field Laboratory, Ventura County, CA

				Analyte	1,1,1-Trichloroethane	1,1,2-trichloro- 1,2,2-trifluoroethane	1,1,2-trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dichloroethane	1,4-Dioxane	2-butanone	Acetone	Benzene	Carbon tetrachloride
				Method Units	SW8260D ug/l	SW8260D ug/l	SW8260D ug/l	SW8260D ug/l	SW8260D ug/l	SW8260D ug/l	SW8270E SIM ug/l	SW8260D ug/l	SW8260D ug/l	SW8260D ug/l	SW8260D ug/l
Well Identifier	GW Impact	Sample Name	Sample Date												
RD-27	RMHF	RD-27_082123_01_L	08/21/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-30	RMHF	RD-30_022123_01_L	02/21/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.229 J / J	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-30	RMHF	RD-30_081723_01_L	08/17/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.296 J / J	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-33A	FSDf	RD-33A_022223_01_L	02/22/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.4 J / J	0.333 U / U	2.31 /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-33B	FSDf	RD-33B_022123_01_L	02/21/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-34A	RMHF	RD-34A_022723_01_L	02/27/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.644 /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-34A	RMHF	RD-34A_082223_01_L	08/22/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.121 J / J	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-34B	RMHF	RD-34B_030123_01_L	03/01/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.19 J / J	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-34C	RMHF	RD-34C_022423_01_L	02/24/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	--	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-54A	FSDf	RD-54A_022423_01_L	02/24/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.168 J / J	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-54A	FSDf	RD-54A_082523_01_L	08/25/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.57 J / J	0.333 U / U	0.218 J / J	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-63	RMHF	RD-63_022023_01_L	02/20/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.42 J / J	0.4 J / J	0.333 U / U	0.943 /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-63	RMHF	RD-63_082223_01_L	08/22/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	1.19 /	1.67 U / U	5.75 /	0.333 U / U	0.333 U / U
RD-64	FSDf	RD-64_082423_01_L	08/24/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.73 J / J	0.333 U / U	2.54 /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-65	FSDf	RD-65_030123_01_L	03/01/2023		0.34 J / J	2.98 U / U	0.333 U / U	3.56 /	23.4 /	0.333 U / U	0.398 J /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-65	FSDf	RD-65_082423_01_L	08/24/2023		0.84 J / J	2.98 U / U	0.333 U / U	4.18 /	26.8 /	0.333 U / U	0.552 /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-74	Bldg 56 Landfill	RD-74_082323_01_L	08/23/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-87	Tritium Plume	RD-87_030123_01_L	03/01/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	--	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-88	Tritium Plume	RD-88_081723_01_L	08/17/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.36 J / J	2.97 /	0.333 U / U	5.69 /	1.67 U / U	5.07 /	0.333 U / U	0.333 U / U
RD-91	B4100	RD-91_030223_01_L	03/02/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	--	1.67 U / U	2.95 J / J	0.333 U / U	0.333 U / U
RD-94	Tritium Plume	RD-94_022323_01_L	02/23/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	--	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-94	Tritium Plume	RD-94_081723_01_L	08/17/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-96	B4057/59/626	RD-96_021523_01_L	02/15/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.04 U / U	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-98	RMHF	RD-98_022323_01_L	02/23/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.141 J / J	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RD-98	RMHF	RD-98_081823_01_L	08/18/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.129 J / J	1.67 U / U	2.96 J / J	0.333 U / U	0.333 U / U
RS-28	RMHF	RS-28_022223_01_L	02/22/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.189 J / J	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U
RS-28	RMHF	RS-28_081823_01_L	08/18/2023		0.333 U / U	2.98 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.534 /	1.67 U / U	1.74 U / U	0.333 U / U	0.333 U / U

NOTES AND ABBREVIATIONS

/ - separates lab qualifiers from data validation flags

All non-detection values are reported using the Method Detection Limit (MDL)

ug/l - micrograms/liter

-- Not analyzed

LAB / VALIDATION QUALIFIERS

J - Result is an estimated quantity. Associated numerical value is approximate concentration of analyte in sample.

U - Analyzed for, but not detected above reported sample quantitation limit.

UJ- The result is estimated non-detect at the reported concentration

Table 10
 Volatile Organic Compounds Analytical Results, 2023 - AreaIV
 Santa Susana Field Laboratory, Ventura County, CA

				Analyte	Chloroform	cis-1,2-Dichloroethe	Ethylbenzene	Methylene chloride	m-xylene & p-xylene	o-Xylene (1,2-dimethyl-benzene)	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Trichlorofluoromethane	Vinyl chloride
				Method	SW8260D	SW8260D	SW8260D	SW8260D	SW8260D	SW8260D	SW8260D	SW8260D	SW8260D	SW8260D	SW8260D	SW8260D
				Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Well Identifier	GW Impact	Sample Name	Sample Date													
RD-27	RMHF	RD-27_082123_01_L	08/21/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
RD-30	RMHF	RD-30_022123_01_L	02/21/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	2.52 /	0.333 U / U	0.333 U / U
RD-30	RMHF	RD-30_081723_01_L	08/17/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.57 J / J	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	3.13 /	0.333 U / U	0.333 U / U
RD-33A	FSDf	RD-33A_022223_01_L	02/22/2023	0.333 U / U	1.71 /	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	2.73 /	0.333 U / U	0.333 U / U	0.333 U / U
RD-33B	FSDf	RD-33B_022123_01_L	02/21/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
RD-34A	RMHF	RD-34A_022723_01_L	02/27/2023	0.333 U / U	0.43 J / J	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.69 J / J	0.333 U / U	0.333 U / U
RD-34A	RMHF	RD-34A-082223_01_L	08/22/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
RD-34B	RMHF	RD-34B_030123_01_L	03/01/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
RD-34C	RMHF	RD-34C_022423_01_L	02/24/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
RD-54A	FSDf	RD-54A_022423_01_L	02/24/2023	0.333 U / U	1.83 /	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	4.9 /	0.333 U / U	0.333 U / U
RD-54A	FSDf	RD-54A_082523_01_L	08/25/2023	0.333 U / U	2.01 /	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	47.8 /	0.333 U / U	0.333 U / U
RD-63	RMHF	RD-63_022023_01_L	02/20/2023	0.333 U / U	3.64 /	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	3.95 /	0.333 U / U	0.333 U / U
RD-63	RMHF	RD-63-082223_01_L	08/22/2023	0.333 U / U	2.61 /	0.333 U / U	0.5 J / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	3.19 /	0.333 U / U	0.333 U / U
RD-64	FSDf	RD-64_082423_01_L	08/24/2023	0.333 U / U	10.1 /	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.79 J / J	76.8 /	0.333 U / U	0.333 U / U
RD-65	FSDf	RD-65_030123_01_L	03/01/2023	0.333 U / U	9.38 /	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	21.2 /	276 /	0.333 U / U	0.333 U / U
RD-65	FSDf	RD-65_082423_01_L	08/24/2023	0.333 U / U	10.2 /	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	12.9 /	354 /	0.333 U / U	0.333 U / U
RD-74	Bldg 56 Landfill	RD-74_082323_01_L	08/23/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
RD-87	Tritium Plume	RD-87_030123_01_L	03/01/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
RD-88	Tritium Plume	RD-88_081723_01_L	08/17/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.54 J / J	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
RD-91	B4100	RD-91_030223_01_L	03/02/2023	0.333 U / U	7.68 /	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	87.8 /	0.333 U / U	0.333 U / U
RD-94	Tritium Plume	RD-94_022323_01_L	02/23/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
RD-94	Tritium Plume	RD-94_081723_01_L	08/17/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.51 J / J	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
RD-96	B4057/59/626	RD-96_021523_01_L	02/15/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U
RD-98	RMHF	RD-98_022323_01_L	02/23/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	1.01 /	0.333 U / U	0.333 U / U
RD-98	RMHF	RD-98_081823_01_L	08/18/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.4 J / J	0.333 U / U	0.333 U / U
RS-28	RMHF	RS-28_022223_01_L	02/22/2023	0.333 U / U	0.333 U / U	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	0.333 U / U	1.53 /	0.333 U / U	0.333 U / U
RS-28	RMHF	RS-28_081823_01_L	08/18/2023	0.333 U / U	0.52 J / J	0.333 U / U	0.5 U / U	0.5 U / U	0.333 U / U	0.333 U / U	0.63 J / J	0.333 U / U	0.333 U / U	7.01 /	0.333 U / U	0.333 U / U

NOTES AND ABBREVIATIONS

/ - separates lab qualifiers from data validation flags
 All non-detection values are reported using the Method Detection Limit (MDL)
 ug/l - micrograms/liter
 -- Not analyzed

LAB / VALIDATION QUALIFIERS

J - Result is an estimated quantity. Associated numerical value is approximate concentration of analyte in sample.
 U - Analyzed for, but not detected above reported sample quantitation limit.
 UJ- The result is estimated non-detect at the reported concentration

Table 11
 Perchlorate Analytical Results, 2023 - AreaIV
 Santa Susana Field Laboratory, Ventura County, CA

					Analyte Method Units	Perchlorate SW6850 ug/l
Well Identifier	GW Impact	Sample Name	Sample Date	Fraction		
DD-139	FSDf	DD-139_022123_01_L	02/21/2023	NA	0.05 U / U	
DD-141	Bldg 56 Landfill	DD-141_021723_01_L	02/17/2023	NA	0.05 U / U	
DS-46	FSDf	DS-46_082223_01_L	08/22/2023	NA	0.05 U / U	
PZ-098	FSDf	PZ-098_021423_01_L	02/14/2023	NA	1.02 /	
PZ-098	FSDf	PZ-098_082223_01_L	08/22/2023	NA	0.793 /	
RD-21	FSDf	RD-21_021423_01_L	02/14/2023	NA	2.42 /	
RD-33A	FSDf	RD-33A_022223_01_L	02/22/2023	NA	0.05 U / U	
RD-33B	FSDf	RD-33B_022123_01_L	02/21/2023	NA	0.05 U / U	
RD-54A	FSDf	RD-54A_022423_01_L	02/24/2023	NA	0.05 U / U	
RD-54A	FSDf	RD-54A_082523_01_L	08/25/2023	NA	0.05 U / U	

NOTES AND ABBREVIATIONS

/ - separates lab qualifiers from data validation flags

All non-detection values are reported using the Method Detection Limit (MDL)

ug/l - micrograms/liter

LAB / VALIDATION QUALIFIERS

U - Analyzed for, but not detected above reported sample quantitation limit.

Table 12
DRO and/or GRO Analytical Results, 2023 - AreaIV
Santa Susana Field Laboratory, Ventura County, CA

				Analyte Method Units	Diesel Range Organics SW8015D ug/l	Gasoline Range Organics SW8015D ug/l
Well Identifier	GW Impact	Sample Name	Sample Date			
DD-139	FSDf	DD-139_081823_01_L	08/18/2023	127 JQ / J	16.7 U / U	
DD-141	Bldg 56 Landfill	DD-141_021723_01_L	02/17/2023	70.9 UQ / U	16.7 U / U	
DD-144	HMSA	DD-144_081523_01_L	08/15/2023	70.5 J / U	39.7 J / J	
DS-46	FSDf	DS-46_082223_01_L	08/22/2023	92.5 J / J	16.7 U / U	
DS-48	HMSA	DS-48_081423_01_L	08/14/2023	71.1 J / U	23 J / J	
PZ-005	Bldg 65 Metals Clarifier	PZ-005_082523_01_L	08/25/2023	135 J / J	16.7 U / U	
PZ-041	HMSA	PZ-041_081523_01_L	08/15/2023	71.7 U / U	16.7 U / U	
PZ-098	FSDf	PZ-098_082223_01_L	08/22/2023	96.8 J / J	16.7 U / U	
PZ-103	Bldg 65 Metals Clarifier	PZ-103_081423_01_L	08/14/2023	75 J / U	16.7 U / U	
PZ-104	Bldg 65 Metals Clarifier	PZ-104_081623_01_L	08/16/2023	213 Q / J	16.7 U / U	
PZ-105	Bldg 65 Metals Clarifier	PZ-105_030223_01_L	03/02/2023	193 /	16.7 U / U	
PZ-105	Bldg 65 Metals Clarifier	PZ-105_081423_01_L	08/14/2023	70.8 U / U	16.7 U / U	
PZ-108	HMSA	PZ-108_081423_01_L	08/14/2023	71.1 J / U	58.4 J / J	
PZ-120	HMSA	PZ-120_081623_01_L	08/16/2023	320 Q / J	16.7 U / U	
PZ-121	HMSA	PZ-121_081523_01_L	08/15/2023	70.7 J / U	16.7 U / U	
PZ-122	HMSA	PZ-122_081623_01_L	08/16/2023	140 QJ / J	16.7 U / U	
PZ-162	HMSA	PZ-162_081623_01_L	08/16/2023	118 QJ / J	16.7 U / U	
PZ-163	HMSA	PZ-163_081523_01_L	08/15/2023	70.4 J / U	50.8 J / J	
RD-34A	RMHF	RD-34A_022723_01_L	02/27/2023	75 U / U	16.7 U / U	
RD-54A	FSDf	RD-54A_082523_01_L	08/25/2023	71.8 U / U	24 J / J	
RD-64	FSDf	RD-64_082423_01_L	08/24/2023	169 J / J	42.9 J / J	
RD-65	FSDf	RD-65_082423_01_L	08/24/2023	165 J / J	154 /	
RS-28	RMHF	RS-28_022223_01_L	02/22/2023	71.4 UQ / UJ	16.7 U / U	

NOTES AND ABBREVIATIONS

/ - separates lab qualifiers from data validation flags

All non-detection values are reported using the Method Detection Limit (MDL)

ug/l - micrograms/liter

LAB / VALIDATION QUALIFIERS

J - Result is an estimated quantity. Associated numerical value is approximate concentration of analyte in sample.

Q - LCS recovery not within control limits

U - Analyzed for, but not detected above reported sample quantitation limit.

UJ- The result is estimated non-detect at the reported concentration

Table 13
 Anions Analytical Results, 2023 - AreaIV
 Santa Susana Field Laboratory, Ventura County, CA

				Analyte Method Units	Fluoride E300 mg/l	Nitrate E300 mg/l
Well Identifier	GW Impact	Sample Name	Sample Date			
PZ-005	Bldg 65 Metals Clarifier	PZ-005_030223_01_L	03/02/2023	--		14.3 QH / J
PZ-105	Bldg 65 Metals Clarifier	PZ-105_030223_01_L	03/02/2023	--		4.37 HQ / J
RD-14	OCY	RD-14_021523_01_L	02/15/2023	0.235 / J		--
RD-19	B4133	RD-19_021723_01_L	02/17/2023	0.385 /		--
RD-34A	RMHF	RD-34A_022723_01_L	02/27/2023	0.457 J / J		--
RD-34B	RMHF	RD-34B_030123_01_L	03/01/2023	1 /		--
RD-34C	RMHF	RD-34C_022423_01_L	02/24/2023	0.376 /		--
RD-63	RMHF	RD-63_022023_01_L	02/20/2023	0.434 /		--

NOTES AND ABBREVIATIONS

/ - separates lab qualifiers from data validation flags

mg/l - milligrams per liter

-- Not analyzed

LAB / VALIDATION QUALIFIERS

H - Analytical holding time exceeded.

J - Result is an estimated quantity. Associated numerical value is approximate concentration of analyte in sample.

Q - LCS recovery not within control limits

Table 14
Radio Chemical Analytical Results, 2023 - AreaIV
Santa Susana Field Laboratory, Ventura County, CA

				Analyte Method Units	Gross Beta E900 pci/l	Manganese-54 E901.1 pci/l	Potassium-40 E901.1 pci/l	Ra-226 - total E903.1 pci/l	Ra-228 - total E904 pci/l	Sodium-22 E901.1 pci/l	Strontium-90 905.0 M pci/l	Tritium E906.0 pci/l	Uranium-233/234 EML300_U02MOD pci/l	Uranium-235/236 EML300_U02MOD pci/l	Uranium-238 EML300_U02MOD pci/l
Well Identifier	GW Impact	Sample Name	Sample Date	Fraction											
DD-141	Bldg 56 Landfill	DD-141_021723_01_L	02/17/2023	Total	11.3 / J	7.84 U / U	94 U / U	1.36 /	2.84 /	10.2 U / U	1.86 U / U	--	1.73 /	0.292 U / U	1.14 /
DD-141	Bldg 56 Landfill	DD-141_021723_01_L Dissolved	02/17/2023	Dissolved	4.42 / J	7.49 U / U	101 U / U	1.21 /	2.86 /	6.14 U / U	1.26 U / U	--	1.5 /	0.481 U / U	2.08 /
DD-143	RMHF	DD-143_081723_01_L	08/17/2023	Total	--	--	--	--	--	--	1.91 U / U	--	--	--	--
DD-143	RMHF	DD-143_081723_01_L Dissolved	08/17/2023	Dissolved	--	--	--	--	--	--	1.77 U / U	--	--	--	--
DD-158	OCY	DD-158_02282023_01_L	02/28/2023	Total	118 / J	6.79 U / U	74.1 U / U	0.758 /	1.77 U / U	8.76 U / U	1.85 U / U	--	5.29 /	0.584 /	6.44 /
DD-158	OCY	DD-158_02282023_01_L Dissolved	02/28/2023	Dissolved	7.8 / J	8.31 U / U	111 U / U	1.57 /	1.96 /	7.87 U / U	1.93 U / U	--	5.54 /	0.66 U / U	4.87 /
DD-159	OCY	DD-159_022023_01_L	02/20/2023	Total	7.61 / J	6.08 U / U	44.1 UI / UJ	0.752 /	3.3 /	6.67 U / U	1.9 U / U	--	2.21 /	0.576 U / U	2.13 /
DD-159	OCY	DD-159_022023_01_L Dissolved	02/20/2023	Dissolved	3.21 U / UJ	5.93 U / U	60.3 U / U	0.549 U / U	1.94 U / U	6.35 U / U	1.89 U / U	--	1.65 /	0.513 U / U	2.62 /
DS-45	B4064 Leachfield	DS-45_022723_01_L	02/27/2023	Total	12.4 / J	6.27 U / U	48.1 UI / UJ	0.98 /	2.02 U / U	6.38 U / U	1.94 U / U	--	4.78 /	0.582 /	4.55 /
DS-45	B4064 Leachfield	DS-45_022723_01_L Dissolved	02/27/2023	Dissolved	4.54 / J	6.07 U / U	77.8 U / U	0.806 /	1.55 U / U	6.73 U / U	1.87 U / U	--	4.44 /	0.254 U / U	3.75 /
PZ-116	RMHF	PZ-116_081723_01_L	08/17/2023	Total	--	--	--	--	--	--	1.94 U / U	--	--	--	--
PZ-116	RMHF	PZ-116_081723_01_L Dissolved	08/17/2023	Dissolved	--	--	--	--	--	--	1.87 U / U	--	--	--	--
PZ-162	HMSA	PZ-162_021623_01_L	02/16/2023	Total	8.81 / J	8.07 U / U	114 U / U	1 /	1.43 U / U	6.7 U / U	1.8 U / U	--	7.26 /	0.656 /	6.9 /
PZ-162	HMSA	PZ-162_021623_01_L Dissolved	02/16/2023	Dissolved	13.3 / J	10.1 U / U	138 U / U	0.688 /	1.97 U / U	10.7 U / U	1.61 U / U	--	6.33 /	0.468 /	5.9 /
RD-07	Bldg 56 Landfill	RD-07_021323_01_L	02/13/2023	Total	6.48 / J	8.84 U / U	130 U / U	1.41 /	1.65 U / U	11.8 U / U	1.93 U / U	--	4.23 /	0.483 /	2.28 /
RD-07	Bldg 56 Landfill	RD-07_021323_01_L Dissolved	02/13/2023	Dissolved	4.8 / J	8.91 U / U	118 U / U	0.609 U / U	2.24 U / U	8.86 U / U	1.9 U / U	--	4.03 /	0.282 U / U	3.89 /
RD-14	OCY	RD-14_021523_01_L	02/15/2023	Total	6.33 / J	5.34 U / U	55.1 U / U	1.26 /	2.97 /	6.77 U / U	1.68 U / U	--	2.25 /	0.266 /	2.32 /
RD-14	OCY	RD-14_021523_01_L Dissolved	02/15/2023	Dissolved	5.1 / J	5.39 U / U	91.5 U / U	1.16 /	2.03 /	7.45 U / U	1.91 U / U	--	2.49 /	0.424 U / U	2.4 /
RD-19	B4133	RD-19_021723_01_L	02/17/2023	Total	2.82 U / UJ	6.94 U / U	74.7 U / U	1.08 /	3.03 /	6.85 U / U	1.86 U / U	--	12.4 /	0.845 /	14.4 /
RD-19	B4133	RD-19_021723_01_L Dissolved	02/17/2023	Dissolved	17.9 / J	8.77 U / U	71.9 U / U	0.674 /	2.23 /	7.6 U / U	1.87 U / U	--	13.9 /	0.592 /	11.9 /
RD-20	B4100 Trench	RD-20_021623_01_L	02/16/2023	Total	4.46 / J	7.34 U / U	94.8 U / U	0.912 /	2.36 U / U	7.44 U / U	1.76 U / U	--	4.82 /	0.622 U / U	5.23 /
RD-20	B4100 Trench	RD-20_021623_01_L Dissolved	02/16/2023	Dissolved	6.26 / J	5.9 U / U	79.9 U / U	1.04 /	1.97 U / U	5.75 U / U	0.764 U / U	--	5.42 /	0.609 U / U	3.72 /
RD-27	RMHF	RD-27_082123_01_L	08/21/2023	Total	--	--	--	--	--	--	1.79 U / U	--	--	--	--
RD-27	RMHF	RD-27_082123_01_L Dissolved	08/21/2023	Dissolved	--	--	--	--	--	--	1.7 U / U	--	--	--	--
RD-30	RMHF	RD-30_022123_01_L	02/21/2023	Total	12 / J	7.55 U / U	117 U / U	1.66 /	2.46 U / U	7.84 U / U	1.88 U / U	--	6.65 /	0.7 / J	6.33 /
RD-30	RMHF	RD-30_022123_01_L Dissolved	02/21/2023	Dissolved	7.99 / J	8.25 U / U	134 U / U	1.18 /	1.76 / J	8.92 U / U	1.9 U / U	--	6.23 /	0.381 U / U	5.11 /
RD-30	RMHF	RD-30_081723_01_L	08/17/2023	Total	--	--	--	--	--	--	1.82 U / U	--	--	--	--
RD-30	RMHF	RD-30_081723_01_L Dissolved	08/17/2023	Dissolved	--	--	--	--	--	--	1.89 U / U	--	--	--	--
RD-33A	FSDf	RD-33A_022223_01_L	02/22/2023	Total	5.64 / J	7.8 U / U	120 U / U	1.17 /	1.91 / J	7.56 U / U	1.95 U / U	--	2.58 /	0.45 U / U	2.14 /
RD-33A	FSDf	RD-33A_022223_01_L Dissolved	02/22/2023	Dissolved	4.82 / J	6.97 U / U	98.8 U / U	0.88 / J	3.7 /	7.71 U / U	1.89 U / U	--	2.94 /	0.434 U / U	1.9 /
RD-33B	FSDf	RD-33B_022123_01_L	02/21/2023	Total	3.65 U / UJ	6.01 U / U	94.2 U / U	0.554 U / U	1.85 U / U	6.67 U / U	1.88 U / U	--	0.431 U / U	0.348 U / U	0.412 U / U
RD-33B	FSDf	RD-33B_022123_01_L Dissolved	02/21/2023	Dissolved	3.32 U / UJ	4.94 U / U	66.4 U / U	0.749 / J	2.68 / J	6.41 U / U	1.96 U / U	--	0.681 U / U	0.304 U / U	0.539 U / U
RD-34A	RMHF	RD-34A_022723_01_L	02/27/2023	Total	18.3 / J	6.04 U / U	86.6 U / U	0.993 /	1.76 U / U	5.09 U / U	1.86 U / U	--	6.33 /	0.919 /	6.57 /
RD-34A	RMHF	RD-34A_022723_01_L Dissolved	02/27/2023	Dissolved	12.8 / J	5.56 U / U	85.4 U / U	3.85 /	1.65 U / U	5.45 U / U	1.9 U / U	--	6.15 /	0.574 /	6.21 /
RD-34A	RMHF	RD-34A_082223_01_L	08/22/2023	Total	--	--	--	--	--	--	1.7 U / U	--	--	--	--
RD-34A	RMHF	RD-34A_082223_01_L Dissolved	08/22/2023	Dissolved	--	--	--	--	--	--	1.72 U / U	--	--	--	--
RD-34B	RMHF	RD-34B_030123_01_L	03/01/2023	Total	4.74 U / UJ	5.44 U / U	53.8 U / U	0.451 U / U	1.65 U / U	6.21 U / U	1.89 U / U	--	0.98 U / U	0.393 U / U	0.698 U / U
RD-34B	RMHF	RD-34B_030123_01_L Dissolved	03/01/2023	Dissolved	10.7 / J	7.15 U / U	127 U / U	0.439 U / U	1.64 /	6.74 U / U	1.87 U / U	--	0.881 U / U	0.613 U / U	0.429 U / U
RD-34C	RMHF	RD-34C_022423_01_L	02/24/2023	Total	31 / J	6.65 U / U	86.1 U / U	0.659 /	2.65 U / U	8.06 U / U	1.94 U / U	--	0.517 U / U	0.388 U / U	0.431 U / U
RD-34C	RMHF	RD-34C_022423_01_L Dissolved	02/24/2023	Dissolved	4.83 / J	5.22 U / U	59.4 UI / UJ	1.34 /	1.73 U / U	5.98 U / U	1.93 U / U	--	0.606 U / U	0.234 U / U	0.411 /
RD-54A	FSDf	RD-54A_022423_01_L	02/24/2023	Total	4.21 / J	7.89 U / U	146 U / U	0.91 /	2.12 U / U	6.58 U / U	1.89 U / U	--	2.9 /	0.511 U / U	2.09 /
RD-54A	FSDf	RD-54A_022423_01_L Dissolved	02/24/2023	Dissolved	2.79 U / UJ	6.32 U / U	71.8 U / U	1.01 /	1.49 U / U	7.93 U / U	1.9 U / U	--	3.7 /	0.481 U / U	1.15 /
RD-63	RMHF	RD-63_022023_01_L	02/20/2023	Total	12.3 / J	6.14 U / U	95.4 U / U	2.37 /	3.35 /	7.43 U / U	1.95 U / U	--	4.95 /	0.522 U / U	5.97 /
RD-63	RMHF	RD-63_022023_01_L Dissolved	02/20/2023	Dissolved	21.7 / J	8.04 U / U	82.2 U / U	1.16 /	3.03 /	9.15 U / U	1.93 U / U	--	3.69 /	0.485 U / U	4.1 /
RD-63	RMHF	RD-63_082223_01_L	08/22/2023	Total	--	--	--	--	--	--	1.73 U / U	--	--	--	--
RD-63	RMHF	RD-63_082223_01_L Dissolved	08/22/2023	Dissolved	--	--	--	--	--	--	1.71 U / U	--	--	--	--
RD-87	Tritium Plume	RD-87_030123_01_L	03/01/2023	Total	--	--	--	--	--	--	--	660 U / U	--	--	--
RD-88	Tritium Plume	RD-88_081723_01_L	08/17/2023	Total	--	--	--	--	--	--	--	5990 /	--	--	--

Table 14
Radio Chemical Analytical Results, 2023 - AreaIV
Santa Susana Field Laboratory, Ventura County, CA

					Analyte Method Units	Actinium-228 E901.1 pci/l	Americium-241 E901.1 pci/l	Antimony-125 E901.1 pci/l	Barium-133 E901.1 pci/l	Cesium-134 E901.1 pci/l	Cesium-137 E901.1 pci/l	Cobalt-57 E901.1 pci/l	Cobalt-60 E901.1 pci/l	Europium-152 E901.1 pci/l	Europium-154 E901.1 pci/l	Europium-155 E901.1 pci/l	Gross Alpha E900 pci/l
Well Identifier	GW Impact	Sample Name	Sample Date	Fraction													
RD-94	Tritium Plume	RD-94_022323_01_L	02/23/2023	Total	24 U / U	26.4 U / U	14.1 U / U	5.75 U / U	6.49 U / U	6.21 U / U	3.78 U / U	6.48 U / U	16.4 U / U	17.6 U / U	18.4 U / U		29.9 /
RD-94	Tritium Plume	RD-94_022323_01_L Dissolved	02/23/2023	Dissolved	25.7 U / U	23 U / U	18.4 U / U	6.15 U / U	6.57 U / U	5.91 U / U	4.3 U / U	5.3 U / U	16.2 U / U	19.1 U / U	18 U / U		18.8 /
RD-94	Tritium Plume	RD-94_081723_01_L	08/17/2023	Total	--	--	--	--	--	--	--	--	--	--	--	--	--
RD-96	B4057/59/626	RD-96_021523_01_L	02/15/2023	Total	31.6 U / U	33.4 U / U	16.6 U / U	7.34 U / U	6.76 U / U	6.19 U / U	4.48 U / U	5.81 U / U	15.8 U / U	20.9 U / U	19.2 U / U		9.08 /
RD-96	B4057/59/626	RD-96_021523_01_L Dissolved	02/15/2023	Dissolved	37.1 U / U	57.1 U / U	19.1 U / U	8.63 U / U	7.87 U / U	7.74 U / U	5.61 U / U	9.33 U / U	21.2 U / U	24.2 U / U	22.7 U / U		10.7 /
RD-98	RMHF	RD-98_022323_01_L	02/23/2023	Total	28.5 U / U	7.14 U / U	13.6 U / U	6.34 U / U	5.97 U / U	5.44 U / U	3.13 U / U	6.18 U / U	13.2 U / U	19 U / U	11.8 U / U		11.9 /
RD-98	RMHF	RD-98_022323_01_L Dissolved	02/23/2023	Dissolved	23.1 U / U	33.9 U / U	12.9 U / U	5.99 U / U	5.51 U / U	5.53 U / U	3.32 U / U	6.97 U / U	13.1 U / U	15.8 U / U	14.3 U / U		14.4 /
RD-98	RMHF	RD-98_081823_01_L	08/18/2023	Total	--	--	--	--	--	--	--	--	--	--	--	--	--
RD-98	RMHF	RD-98_081823_01_L Dissolved	08/18/2023	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--
RS-28	RMHF	RS-28_022223_01_L	02/22/2023	Total	22.9 U / U	32.9 U / U	13.8 U / U	6.54 U / U	5.42 U / U	5.34 U / U	4.15 U / U	6.3 U / U	13.6 U / U	16.8 U / U	18.4 U / U		22.3 /
RS-28	RMHF	RS-28_022223_01_L Dissolved	02/22/2023	Dissolved	33.7 U / U	24.8 U / U	16 U / U	6.89 U / U	6.84 U / U	5.19 U / U	4.53 U / U	7.77 U / U	19 U / U	20.7 U / U	17 U / U		11.6 /
RS-28	RMHF	RS-28_081823_01_L	08/18/2023	Total	--	--	--	--	--	--	--	--	--	--	--	--	--
RS-28	RMHF	RS-28_081823_01_L Dissolved	08/18/2023	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--

NOTES AND ABBREVIATIONS

/ - separates lab qualifiers from data validation flags

All non-detection values are reported using the Method Detection Limit (MDL)

pci/l - picocuries per liter

-- Not analyzed

LAB / VALIDATION QUALIFIERS

J - Result is an estimated quantity. Associated numerical value is approximate concentration of analyte in sample.

U - Analyzed for, but not detected above reported sample quantitation limit.

UI - Results are considered a false positive due to low abundance.

UJ- The result is estimated non-detect at the reported concentration

Table 14
Radio Chemical Analytical Results, 2023 - AreaIV
Santa Susana Field Laboratory, Ventura County, CA

					Analyte Method Units	Gross Beta E900 pci/l	Manganese-54 E901.1 pci/l	Potassium-40 E901.1 pci/l	Ra-226 - total E903.1 pci/l	Ra-228 - total E904 pci/l	Sodium-22 E901.1 pci/l	Strontium-90 905.0 M pci/l	Tritium E906.0 pci/l	Uranium-233/234 EML300_U02MOD pci/l	Uranium-235/236 EML300_U02MOD pci/l	Uranium-238 EML300_U02MOD pci/l
Well Identifier	GW Impact	Sample Name	Sample Date	Fraction												
RD-94	Tritium Plume	RD-94_022323_01_L	02/23/2023	Total	25.4 / J	5.36 U / U	69.4 U / U	1.47 /	2.04 U / U	6.2 U / U	1.91 U / U	2220 /	13.6 /	0.863 /	14.5 /	
RD-94	Tritium Plume	RD-94_022323_01_L Dissolved	02/23/2023	Dissolved	11.6 / J	4.84 U / U	73 U / U	1.33 /	1.46 U / U	6.69 U / U	1.9 U / U	--	14.6 /	1.07 /	15.6 /	
RD-94	Tritium Plume	RD-94_081723_01_L	08/17/2023	Total	--	--	--	--	--	--	--	2850 /	--	--	--	
RD-96	B4057/59/626	RD-96_021523_01_L	02/15/2023	Total	9.45 / J	5.99 U / U	66.3 U / U	1.21 /	1.76 U / U	7.42 U / U	1.79 U / U	--	3.82 /	0.551 /	3.81 /	
RD-96	B4057/59/626	RD-96_021523_01_L Dissolved	02/15/2023	Dissolved	8.5 / J	5.07 U / U	137 U / U	1.83 /	2.02 U / U	8.49 U / U	1.71 U / U	--	5.37 /	0.477 U / U	4.55 /	
RD-98	RMHF	RD-98_022323_01_L	02/23/2023	Total	140 / J	6 U / U	86.6 U / U	0.586 /	1.63 /	6.7 U / U	119 /	--	5.76 /	0.454 /	2.23 /	
RD-98	RMHF	RD-98_022323_01_L Dissolved	02/23/2023	Dissolved	149 / J	5.96 U / U	84.6 U / U	6.45 /	1.69 U / U	5.51 U / U	106 /	--	5.99 /	0.546 /	2.45 /	
RD-98	RMHF	RD-98_081823_01_L	08/18/2023	Total	--	--	--	--	--	--	74 /	--	--	--	--	
RD-98	RMHF	RD-98_081823_01_L Dissolved	08/18/2023	Dissolved	--	--	--	--	--	--	79.7 /	--	--	--	--	
RS-28	RMHF	RS-28_022223_01_L	02/22/2023	Total	12 / J	5.29 U / U	78.2 U / U	1.39 /	1.44 U / U	6.03 U / U	2.02 U / U	--	9.71 /	0.494 U / U	11.3 /	
RS-28	RMHF	RS-28_022223_01_L Dissolved	02/22/2023	Dissolved	8.44 / J	6.36 U / U	81.8 U / U	7.17 /	1.54 U / U	7.21 U / U	1.92 U / U	--	6.5 /	0.644 /	7.36 /	
RS-28	RMHF	RS-28_081823_01_L	08/18/2023	Total	--	--	--	--	--	--	1.95 U / U	--	--	--	--	
RS-28	RMHF	RS-28_081823_01_L Dissolved	08/18/2023	Dissolved	--	--	--	--	--	--	1.92 U / U	--	--	--	--	

NOTES AND ABBREVIATIONS

/ - separates lab qualifiers from data validation flags

All non-detection values are reported using the Method Detection Limit (MDL)

pci/l - picocuries per liter

-- Not analyzed

LAB / VALIDATION QUALIFIERS

J - Result is an estimated quantity. Associated numerical value is approximate concentration of analyte in sample.

U - Analyzed for, but not detected above reported sample quantitation limit.

UI - Results are considered a false positive due to low abundance.

UJ- The result is estimated non-detect at the reported concentration

Table 15
 Metals Analytical Results, 2023 - AreaIV
 Santa Susana Field Laboratory, Ventura County, CA

Well Identifier	GW Impact	Sample Name	Sample Date	Analyte Method Units	Fraction	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	Silver	Sodium	Thallium	Tin	Vanadium	Zinc
						SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l
C-08	FSDF	C-08_030323_01_L	03/03/2023	Total	1 U / U	3.04 J / J	51.5 /	0.2 U / U	0.3 U / U	3 U / U	0.564 J / J	0.772 J / J	0.5 U / U	0.067 U / U	0.997 J / J	1.5 U / U	0.3 U / U	40900 /	0.6 U / U	1 U / U	3.3 U / U	6.87 J / J	
C-08	FSDF	C-08_030323_01_L Dissolved	03/03/2023	Dissolved	1 U / U	2.23 J / J	46.5 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.931 J / J	0.5 U / U	0.067 U / U	0.6 U / U	1.5 U / U	0.3 U / U	40900 /	0.6 U / U	1 U / U	3.3 U / U	4.14 J / J	
DD-139	FSDF	DD-139_030323_01_L	03/03/2023	Total	1 U / U	2.89 J / J	36.9 /	0.2 U / U	0.3 U / U	3.83 J / J	4.07 /	1.79 J / J	0.807 J / J	0.067 U / U	3.54 /	1.5 U / U	0.3 U / U	30600 /	0.6 U / U	1 U / U	5.87 J / J	8.56 J / J	
DD-139	FSDF	DD-139_030323_01_L Dissolved	03/03/2023	Dissolved	1 U / U	2 U / U	31.3 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.87 J / J	0.5 U / U	0.067 U / U	0.611 J / J	1.5 U / U	0.3 U / U	30300 /	0.6 U / U	1 U / U	3.3 U / U	3.3 U / U	
DD-139	FSDF	DD-139_081823_01_L	08/18/2023	Total	1 U / U	2 U / U	40.3 /	0.2 U / U	0.3 U / U	3 U / U	1.07 /	0.743 J / J	0.5 U / U	0.067 U / U	1.88 J / J	1.5 U / U	0.3 U / U	36400 /	0.6 U / U	1 U / U	4.46 J / J	5.39 J / J	
DD-139	FSDF	DD-139_081823_01_L Dissolved	08/18/2023	Dissolved	1 U / U	2 U / U	37.5 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.566 J / J	0.5 U / U	0.067 U / U	1.13 J / J	1.5 U / U	0.3 U / U	35300 /	0.6 U / U	1 U / U	3.99 J / J	3.42 J / J	
DD-141	Bldg 56 Landfill	DD-141_021723_01_L	02/17/2023	Total	1 U / U	2.37 J / J	73.4 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.695 J / J	0.5 U / U	0.067 U / U	1.11 J / J	1.5 U / U	0.3 U / U	48200 /	0.6 U / U	1 U / U	3.3 U / U	3.3 U / U	
DD-141	Bldg 56 Landfill	DD-141_021723_01_L Dissolved	02/17/2023	Dissolved	1 U / U	2.39 J / J	74.7 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.433 J / J	0.5 U / U	0.067 U / U	0.6 U / U	1.5 U / U	0.3 U / U	51800 /	0.6 U / U	1 U / U	3.3 U / U	3.3 U / U	
DD-141	Bldg 56 Landfill	DD-141_082323_01_L	08/23/2023	Total	1 U / U	2.62 J / J	80.9 J /	0.2 U / U	0.398 J / J	3.4 J / J	2.62 J / J	2.75 J / J	0.909 J / J	0.067 U / U	2.55 /	1.5 U / U	0.3 U / U	59400 /	0.6 U / U	1 U / U	6.97 J / J	14 J / J	
DD-141	Bldg 56 Landfill	DD-141_082323_01_L Dissolved	08/23/2023	Dissolved	1 U / U	2 U / U	70.1 J /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.391 J / J	0.5 U / U	0.067 U / U	0.6 U / U	1.5 U / U	0.3 U / U	58800 /	0.6 U / U	1 U / U	3.5 J / J	3.3 U / U	
DD-143	RMHF	DD-143_081723_01_L	08/17/2023	Total	1 U / U	2.38 J / J	30.7 /	0.2 U / U	0.3 U / U	3 U / U	1.51 /	0.584 J / J	1.04 J / J	0.067 U / U	2.21 /	1.5 U / U	0.3 U / U	60400 /	0.6 U / U	1 U / U	3.53 J / J	4.81 J / J	
DD-143	RMHF	DD-143_081723_01_L Dissolved	08/17/2023	Dissolved	1 U / U	2 U / U	25.9 /	0.2 U / U	0.3 U / U	3 U / U	1.27 /	0.3 U / U	0.5 U / U	0.067 U / U	1.65 J / J	1.5 U / U	0.3 U / U	63100 /	0.6 U / U	1 U / U	3.3 U / U	3.3 U / U	
DD-144	HMSA	DD-144_030223_01_L	03/02/2023	Total	1.00 U / U	2.00 U / U	69.2 /	0.200 U / U	0.300 U / U	3.00 U / U	0.613 J / J	1.15 J / J	0.500 U / U	0.0670 U / U	1.91 J / J	1.50 U / U	0.300 U / U	60100 /	0.600 U / U	1.00 U / U	5.85 J / J	6.08 J / J	
DD-144	HMSA	DD-144_030223_01_L Dissolved	03/02/2023	Dissolved	1.00 U / U	2.00 U / U	56.7 /	0.200 U / U	0.300 U / U	3.00 U / U	0.300 U / U	0.563 J / J	0.500 U / U	0.0670 U / U	1.35 J / J	1.50 U / U	0.300 U / U	58600 /	0.600 U / U	1.00 U / U	3.30 U / U	3.30 U / U	
DD-144	HMSA	DD-144_081523_01_L	08/15/2023	Total	1 U / U	3.44 J / J	70.4 /	0.2 U / U	0.3 U / U	3 U / U	0.623 J / J	3.19 /	0.5 U / U	0.067 U / U	2.24 /	1.5 U / U	0.3 U / U	65600 /	0.6 U / U	1 U / U	7.13 J / J	5.65 J / J	
DD-144	HMSA	DD-144_081523_01_L Dissolved	08/15/2023	Dissolved	1 U / U	2.18 J / J	58.6 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.3 U / U	0.5 U / U	0.067 U / U	1.64 J / J	1.5 U / U	0.3 U / U	62800 /	0.6 U / U	1 U / U	3.39 J / J	3.3 U / U	
DD-157	HMSA	DD-157_022823_01_L	02/28/2023	Total	1 U / U	2 U / U	50.9 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.3 U / U	0.5 U / U	0.067 U / U	0.6 U / U	1.5 U / U	0.3 U / U	50300 /	0.6 U / U	1 U / U	3.3 U / U	3.3 U / U	
DD-157	HMSA	DD-157_022823_01_L Dissolved	02/28/2023	Dissolved	1 U / U	2 U / U	51.7 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.3 U / U	0.5 U / U	0.067 U / U	0.6 U / U	1.5 U / U	0.3 U / U	49900 /	0.6 U / U	1 U / U	3.3 U / U	3.3 U / U	
DD-158	OCY	DD-158_022823_01_L	02/28/2023	Total	1.04 J / J	2.22 J / J	47.4 /	0.2 U / U	0.3 U / U	3 U / U	1.48 /	1.75 J / J	0.623 J / J	0.067 U / U	1.82 J / J	1.5 U / U	0.3 U / U	37900 /	0.6 U / U	1 U / U	6.5 J / J	5.07 J / J	
DD-158	OCY	DD-158_022823_01_L Dissolved	02/28/2023	Dissolved	1 U / U	2 U / U	43.2 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.829 J / J	0.5 U / U	0.067 U / U	1.33 J / J	1.5 U / U	0.3 U / U	38900 /	0.6 U / U	1 U / U	4.4 J / J	3.3 U / U	
DD-159	OCY	DD-159_022023_01_L	02/20/2023	Total	1 U / U	2.47 J / J	43.5 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.946 J / J	0.506 J / J	0.067 U / U	0.839 J / J	1.5 U / U	0.3 U / U	32900 /	0.6 U / U	1 U / U	3.3 U / U	4.83 J / J	
DD-159	OCY	DD-159_022023_01_L Dissolved	02/20/2023	Dissolved	1 U / U	2 U / U	41.7 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.42 J / J	0.5 U / U	0.067 U / U	0.6 U / U	1.5 U / U	0.3 U / U	33700 /	0.6 U / U	1 U / U	3.3 U / U	3.3 U / U	
DS-43	B4057/59/626	DS-43_021423_01_L	02/14/2023	Total	1 U / U	2.37 J / J	88.3 /	0.2 U / U	0.3 U / U	3 U / U	0.849 J / J	0.888 J / J	0.5 U / U	0.067 U / U	2.1 /	1.5 U / U	0.3 U / U	148000 /	0.6 U / U	1 U / U	6.51 J / J	3.31 J / J	
DS-43	B4057/59/626	DS-43_021423_01_L Dissolved	02/14/2023	Dissolved	1 U / U	2.52 J / J	83.7 /	0.2 U / U	0.3 U / U	3 U / U	0.704 J / J	0.3 U / U	0.5 U / U	0.067 U / U	1.75 J / J	1.5 U / U	0.3 U / U	144000 /	0.6 U / U	1 U / U	5.88 J / J	3.3 U / U	
DS-43	B4057/59/626	DS-43_082123_01_L	08/21/2023	Total	1 U / U	2.06 J / J	81.7 /	0.2 U / U	0.3 U / U	3 U / U	0.793 J / J	1.43 J / J	0.5 U / U	0.067 U / U	2.1 /	1.5 U / U	0.3 U / U	145000 /	0.6 U / U	1 U / U	4.07 J / J	3.3 U / U	
DS-43	B4057/59/626	DS-43_082123_01_L Dissolved	08/21/2023	Dissolved	1 U / U	2 U / U	77 /	0.2 U / U	0.3 U / U	3 U / U	0.696 J / J	0.614 J / J	0.5 U / U	0.067 U / U	1.95 J / J	1.5 U / U	0.3 U / U	144000 /	0.6 U / U	1 U / U	3.3 J / J	3.3 U / U	
DS-44	DOE Leachfield	DS-44_082323_01_L	08/23/2023	Total	1 U / U	2.07 J / J	75.4 J /	0.2 U / U	0.3 U / U	3 U / U	1.3 /	1.11 J / J	0.5 U / U	0.067 U / U	1.35 J / J	1.5 U / U	0.3 U / U	65400 /	0.6 U / U	1 U / U	4.32 J / J	4.18 J / J	
DS-44	DOE Leachfield	DS-44_082323_01_L Dissolved	08/23/2023	Dissolved	1 U / U	2 U / U	70.7 J /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.407 J / J	0.5 U / U	0.067 U / U	0.6 U / U	1.5 U / U	0.3 U / U	61100 /	0.6 U / U	1 U / U	3.3 U / U	3.3 U / U	
DS-45	B4064 Leachfield	DS-45_022723_01_L	02/27/2023	Total	1 U / U	3.55 J / J	29.4 /	0.2 U / U	0.3 U / U	3 U / U	2.01 /	2.15 /	0.629 J / J	0.067 U / U	3.23 /	2.83 J / J	0.3 U / U	40400 /	0.6 U / U	1 U / U	7.76 J / J	6.97 J / J	
DS-45	B4064 Leachfield	DS-45_022723_01_L Dissolved	02/27/2023	Dissolved	1.67 J / J	3.08 J / J	25.3 /	0.2 U / U	0.3 U / U	3 U / U	0.467 J / J	1.31 J / J	0.5 U / U	0.067 U / U	2.12 /	2.3 J / J	0.3 U / U	40100 /	0.6 U / U	1 U / U	5.71 J / J	3.3 U / U	
DS-45	B4064 Leachfield	DS-45_081823_01_L	08/18/2023	Total	1.81 J / J	3.71 J / J	34.8 /	0.2 U / U	0.3 U / U	3 U / U	1.36 /	1.6 J / J	0.641 J / J	0.067 U / U	2.69 /	1.5 U / U	0.3 U / U	37600 /	0.6 U / U	1 U / U	10.5 J / J	7.04 J / J	
DS-45	B4064 Leachfield	DS-45_081823_01_L Dissolved	08/18/2023	Dissolved	1.74 J / J	3.36 J / J	27.5 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.551 J / J	0.5 U / U	0.067 U / U	1.43 J / J	1.5 U / U	0.3 U / U	37000 /	0.6 U / U	1 U / U	8.59 J / J	3.3 U / U	
DS-46	FSDF	DS-46_030323_01_L	03/03/2023	Total	1 U / U	2.41 J / J	71.8 /	0.2 U / U	0.3 U / U	3 U / U	2.06 /	0.654 J / J	0.5 U / U	0.067 U / U	7.1 /	1.5 U / U	0.3 U / U	60800 /	0.6 U / U	1 U / U	3.3 U / U	3.3 U / U	
DS-46	FSDF	DS-46_030323_01_L Dissolved	03/03/2023	Dissolved	1 U / U	2.04 J / J	65.7 /	0.2 U / U	0.3 U / U	3 U / U	1.58 /	0.675 J / J	0.5 U / U	0.067 U / U	6.97 /	1.5 U / U	0.3 U / U	60500 /	0.6 U / U	1 U / U	3.3 U / U	3.3 U / U	
DS-46	FSDF	DS-46_082223_01_L	08/22/2023	Total	1 U / U	2.21 J / J	52.3 /	0.2 U / U	0.3 U / U	3 U / U	1.12 /	0.3 U / U	0.5 U / U	0.067 U / U	7.24 /	1.5 U / U	0.3 U / U	61200 /	0.6 U / U	1 U / U	3.3 U / U	3.3 U / U	
DS-46	FSDF	DS-46_082223_01_L Dissolved	08/22/2023	Dissolved	1 U / U	2 U / U	52 /	0.2 U / U	0.3 U / U	3 U / U	1 /	0.3 U / U	0.5 U / U	0.067 U / U	7.4 /	1.5 U / U	0.3 U / U	64800 /	0.6 U / U	1 U / U	3.3 U / U	3.3 U / U	
DS-47	B4064 Leachfield	DS-47_081823_01_L	08/18/2023	Total	1 U / U	3.57 J / J	44.6 /	0.2 U / U	0.3 U / U	3 U / U	12.4 /	2.25 /	2.15 /	0.067 U / U	3.55 /	1.89 J / J	0.3 U / U	43100 /	0.6 U / U	1 U / U	7.08 J / J	9.25 J / J	
DS-47	B4064 Leachfield	DS-47_081823_01_L Dissolved	08/18/2023	Dissolved	1 U / U	2 U / U	40.2 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.3 U / U	0.5 U / U	0.067 U / U	1.04 J / J	1.5 U / U	0.3 U / U	43500 /	0.6 U / U	1 U / U	4.44 J / J	3.3 U / U	
DS-48	HMSA	DS-48_022823_01_L	02/28/2023	Total	1 U / U	2 U / U	46.5 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.3 U / U	0.5 U / U	0.067 U / U	1.58 J / J	1.5 U / U	0.3 U / U	62100 /	0.6 U / U	1 U / U	3.3 U / U	3.3 U / U	
DS-48	HMSA	DS-48_022823_01_L Dissolved	02/28/2023	Dissolved	1 U / U	2 U / U	46.2 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.3 U / U	0.5 U / U	0.067 U / U	1.41 J / J	1.5 U / U	0.3 U / U	60600 /	0.6 U / U	1 U / U	3.3 U / U	3.3 U / U	
DS-48	HMSA	DS-48_081423_01_L	08/14/2023	Total	1 U / U	2 U / U	46.1 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.398 J / J	0.5 U / U	0.067 U / U	1.79 J / J	1.5 U / U	0.3 U / U	64500 /					

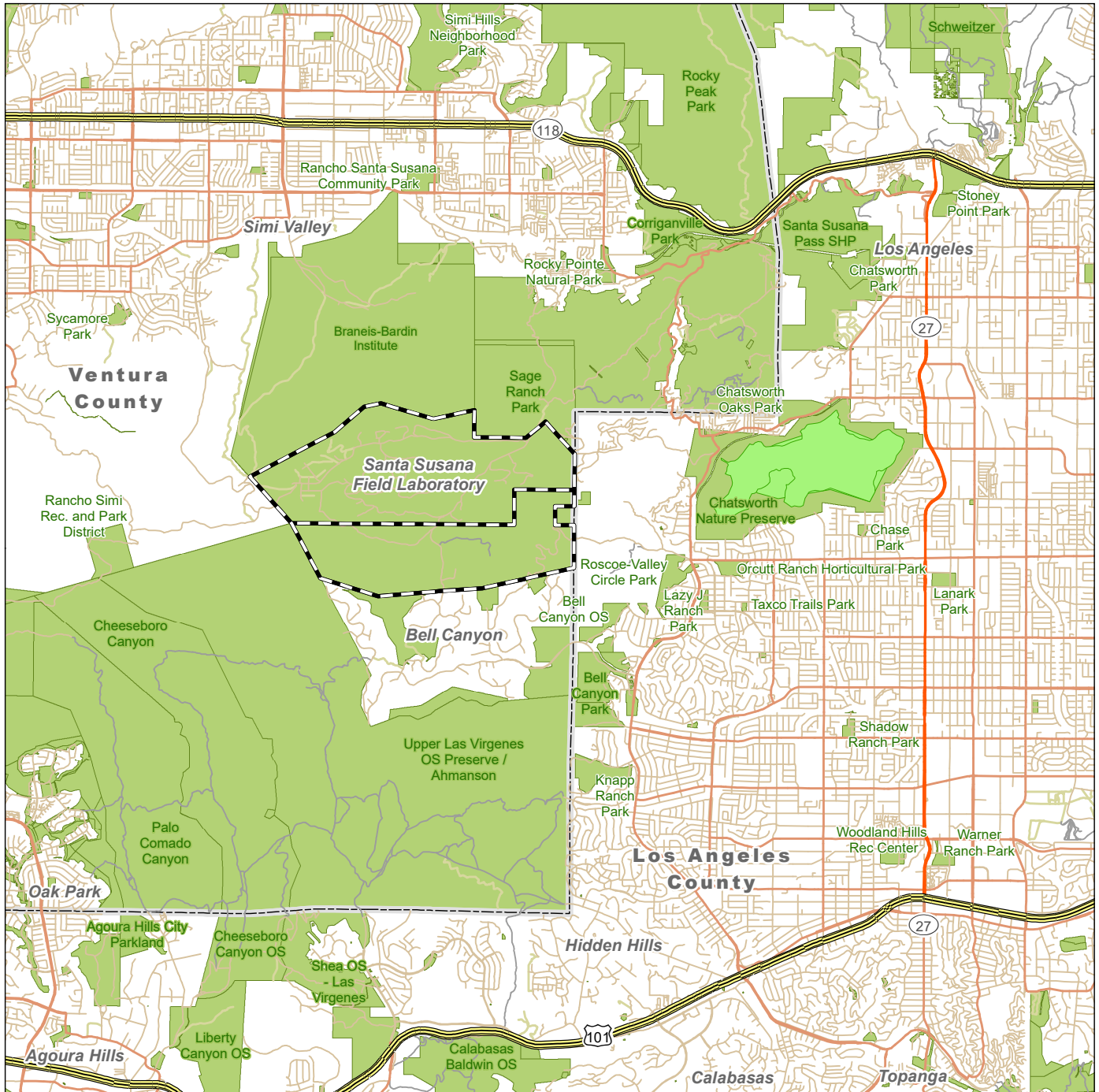
Table 15
Metals Analytical Results, 2023 - AreaIV
Santa Susana Field Laboratory, Ventura County, CA

Well Identifier	GW Impact	Sample Name	Sample Date	Analyte Method Units	Fraction	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	Silver	Sodium	Thallium	Tin	Vanadium	Zinc
						SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l	SW6020 ug/l
PZ-109	B4057/59/626	PZ-109_021423_01_L	02/14/2023	Total		1.25 J / J	3.11 J / J	40.6 /	0.2 U / U	0.3 U / U	3 U / U	0.362 J / J	4.74 /	0.579 J / J	0.067 UJ / UJ	2.88 /	1.5 U / U	0.3 U / U	189000 /	0.6 U / U	1 U / U	7.46 J / J	12.6 J / J
PZ-109	B4057/59/626	PZ-109_021423_01_L Dissolved	02/14/2023	Dissolved		1.22 J / J	2.92 J / J	36.6 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	2.71 /	0.5 U / U	0.067 UJ / UJ	2.21 /	1.5 U / U	0.3 U / U	189000 /	0.6 U / U	1 U / U	6.39 J / J	6.99 J / J
PZ-109	B4057/59/626	PZ-109_082123_01_L	08/21/2023	Total		1.91 J / J	2.28 J / J	44.6 /	0.2 U / U	0.5 J / J	4 J / J	0.732 J / J	2.48 /	1.25 J / J	0.067 U / U	4.08 /	1.5 U / U	0.3 U / U	201000 /	0.6 U / U	1 U / U	6.7 J / J	22.8 /
PZ-109	B4057/59/626	PZ-109_082123_01_L Dissolved	08/21/2023	Dissolved		1.17 J / J	2.13 J / J	34.6 /	0.2 U / U	0.365 J / J	3 U / U	0.3 U / U	1.04 J / J	0.5 U / U	0.067 U / U	2.39 /	1.5 U / U	0.3 U / U	204000 /	0.6 U / U	1 U / U	4.35 J / J	7.4 J / J
PZ-120	HMSA	PZ-120_030123_01_L	03/01/2023	Total		1 U / U	2.92 J / J	17.6 /	0.2 U / U	0.3 U / U	3 U / U	0.379 J / J	2.62 /	0.713 J / J	0.067 U / U	4.66 /	1.5 U / U	0.3 U / U	73800 /	0.6 U / U	1 J / U	4.01 J / J	23.6 /
PZ-120	HMSA	PZ-120_030123_01_L Dissolved	03/01/2023	Dissolved		1 U / U	2.89 J / J	14.7 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.967 J / J	0.5 U / U	0.067 U / U	3.73 /	1.5 U / U	0.3 U / U	72400 /	0.6 U / U	1 J / U	3.73 J / J	12.6 J / J
PZ-120	HMSA	PZ-120_081623_01_L	08/16/2023	Total		1 U / U	3.92 J / J	39.7 /	0.2 U / U	0.339 J / J	11.1 /	1.35 /	16.7 J /	7.12 /	0.067 U / U	7.8 /	1.5 U / U	0.3 U / U	84800 /	0.6 U / U	1 U / U	9.89 J / J	119 /
PZ-120	HMSA	PZ-120_081623_01_L Dissolved	08/16/2023	Dissolved		1 U / U	3.24 J / J	19.3 /	0.2 U / U	0.3 U / U	4.89 J / J	0.3 U / U	2.03 J /	0.5 U / U	0.067 U / U	3.22 /	1.5 U / U	0.3 U / U	83800 /	0.6 U / U	1 U / U	5.79 J / J	18.2 J / J
PZ-121	HMSA	PZ-121_081523_01_L	08/15/2023	Total		1 U / U	4.58 J / J	69.1 /	0.2 U / U	3.67 /	3 U / U	2.34 /	1.25 J / J	0.536 J / J	0.067 U / U	5.61 /	1.5 U / U	0.3 U / U	61900 /	0.6 U / U	1 U / U	3.88 J / J	41.6 /
PZ-121	HMSA	PZ-121_081523_01_L Dissolved	08/15/2023	Dissolved		1 U / U	2.53 J / J	64.8 /	0.2 U / U	0.542 J / J	3 U / U	2.44 /	0.55 J / J	0.5 U / U	0.067 U / U	5.36 /	1.5 U / U	0.3 U / U	62500 /	0.6 U / U	1 U / U	3.3 U / U	38.8 /
PZ-122	HMSA	PZ-122_081623_01_L	08/16/2023	Total		1 U / U	2.79 J / J	59.4 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.324 J / J	0.5 U / U	0.067 U / U	1.89 J / J	1.5 U / U	0.3 U / U	71400 /	0.6 U / U	1 U / U	4.29 J / J	3.3 U / U
PZ-122	HMSA	PZ-122_081623_01_L Dissolved	08/16/2023	Dissolved		1 U / U	2.77 J / J	57.9 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.534 J / J	0.5 U / U	0.067 U / U	1.48 J / J	1.5 U / U	0.3 U / U	69500 /	0.6 U / U	1 U / U	4.03 J / J	3.3 U / U
PZ-124	Bldg 56 Landfill	PZ-124_082323_01_L	08/23/2023	Total		2.46 J / J	10.7 /	11 J /	0.2 U / U	0.815 J / J	3.58 J / J	2.51 /	6.9 J /	0.727 J / J	0.067 U / U	5.35 /	1.5 U / U	0.3 U / U	296000 /	0.6 U / U	1 U / U	3.57 J / J	62.6 /
PZ-124	Bldg 56 Landfill	PZ-124_082323_01_L Dissolved	08/23/2023	Dissolved		1.93 J / J	9.61 /	9.17 J /	0.2 U / U	0.3 U / U	3 U / U	2.36 /	1.11 J / J	0.5 U / U	0.067 U / U	4.58 /	1.5 U / U	0.3 U / U	309000 /	0.6 U / U	1 U / U	3.3 U / U	20.6 /
PZ-162	HMSA	PZ-162_081623_01_L	08/16/2023	Total		1 U / U	3.45 J / J	58.4 /	0.2 U / U	0.3 U / U	3.49 J / J	0.755 J / J	1.64 J / J	0.5 U / U	0.067 U / U	2.41 /	1.5 U / U	0.3 U / U	63600 /	0.6 U / U	1 U / U	8.3 J / J	12 J / J
PZ-162	HMSA	PZ-162_081623_01_L Dissolved	08/16/2023	Dissolved		1 U / U	2.73 J / J	44.1 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.492 J / J	0.5 U / U	0.067 U / U	1.23 J / J	1.5 U / U	0.3 U / U	65000 /	0.6 U / U	1 U / U	4.47 J / J	3.84 J / J
PZ-163	HMSA	PZ-163_081523_01_L	08/15/2023	Total		1 U / U	3.62 J / J	62.3 /	0.2 U / U	0.3 U / U	5.64 J / J	1.44 /	2.97 /	0.863 J / J	0.067 U / U	3.96 /	1.5 U / U	0.3 U / U	68300 /	0.6 U / U	1 U / U	11.5 J / J	14.6 J / J
PZ-163	HMSA	PZ-163_081523_01_L Dissolved	08/15/2023	Dissolved		1 U / U	2.47 J / J	39.7 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.742 J / J	0.5 U / U	0.067 U / U	1.09 J / J	1.5 U / U	0.3 U / U	70000 /	0.6 U / U	1 U / U	4.18 J / J	4.43 J / J
RD-07	Bldg 56 Landfill	RD-07_082123_01_L	08/21/2023	Total		1 U / U	2 U / U	30.5 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.301 J / J	0.5 U / U	0.067 U / U	0.6 U / U	1.66 J / J	0.3 U / U	36200 /	0.6 U / U	1 U / U	3.3 U / U	5.93 J / J
RD-07	Bldg 56 Landfill	RD-07_082123_01_L Dissolved	08/21/2023	Dissolved		1 U / U	2 U / U	29.9 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.434 J / J	0.5 U / U	0.067 U / U	0.6 U / U	1.59 J / J	0.3 U / U	35700 /	0.6 U / U	1 U / U	3.3 U / U	5.81 J / J
RD-14	OCY	RD-14_021523_01_L	02/15/2023	Total		1 U / U	2 U / U	37.9 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.3 U / U	0.5 U / U	0.067 U / U	1.07 J / J	1.5 U / U	0.3 U / U	36200 /	0.6 U / U	1 U / U	3.3 U / U	168 /
RD-14	OCY	RD-14_021523_01_L Dissolved	02/15/2023	Dissolved		1 U / U	2.06 J / J	38 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.3 U / U	0.5 U / U	0.067 U / U	0.917 J / J	1.5 U / U	0.3 U / U	37800 /	0.6 U / U	1 U / U	3.3 U / U	160 /
RD-19	B4133	RD-19_021723_01_L	02/17/2023	Total		1 U / U	2 U / U	80.1 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.449 J / J	0.5 U / U	0.067 U / U	2.26 /	1.5 U / U	0.3 U / U	81800 /	0.6 U / U	1 U / U	3.3 U / U	165 /
RD-19	B4133	RD-19_021723_01_L Dissolved	02/17/2023	Dissolved		1 U / U	2.02 J / J	78.8 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.384 J / J	0.5 U / U	0.067 U / U	1.78 J / J	1.5 U / U	0.3 U / U	82900 /	0.6 U / U	1 U / U	3.3 U / U	167 /
RD-21	FSDf	RD-21_021423_01_L	02/14/2023	Total		1 U / U	2 U / U	31.9 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	2.32 /	0.5 U / U	0.067 UJ / UJ	0.89 J / J	2.29 J / J	0.3 U / U	50800 /	0.6 U / U	1 U / U	3.34 J / J	10 J / J
RD-21	FSDf	RD-21_021423_01_L Dissolved	02/14/2023	Dissolved		1 U / U	2 U / U	31.1 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	2.5 /	0.5 U / U	0.067 UJ / UJ	0.729 J / J	2.23 J / J	0.3 U / U	51200 /	0.6 U / U	1 U / U	3.3 U / U	9.42 J / J
RD-27	RMHF	RD-27_082123_01_L	08/21/2023	Total		1 U / U	2.61 J / J	71.3 /	0.2 U / U	0.3 U / U	3 U / U	0.359 J / J	1.87 J / J	1.5 J / J	0.067 U / U	1.05 J / J	1.5 U / U	0.3 U / U	36100 /	0.6 U / U	1 U / U	3.66 J / J	649 /
RD-27	RMHF	RD-27_082123_01_L Dissolved	08/21/2023	Dissolved		1 U / U	2 U / U	62.1 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.749 J / J	0.5 U / U	0.067 U / U	0.932 J / J	1.5 U / U	0.3 U / U	35800 /	0.6 U / U	1 U / U	3.3 U / U	433 /
RD-33A	FSDf	RD-33A_022223_01_L	02/22/2023	Total		1 U / U	2.05 J / J	47.2 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.388 J / J	0.5 U / U	0.067 U / U	1.42 J / J	1.5 U / U	0.3 U / U	48700 /	0.6 U / U	1 U / U	3.3 U / U	106 /
RD-33A	FSDf	RD-33A_022223_01_L Dissolved	02/22/2023	Dissolved		1 U / U	2.1 J / J	47 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.3 U / U	0.5 U / U	0.067 U / U	1.06 J / J	1.5 U / U	0.3 U / U	48000 /	0.6 U / U	1 U / U	3.3 U / U	49.7 /
RD-33B	FSDf	RD-33B_022123_01_L	02/21/2023	Total		1 U / U	2 U / U	29.8 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.3 U / U	0.5 U / U	0.067 U / U	0.6 U / U	1.5 U / U	0.3 U / U	43600 /	0.6 U / U	1 U / U	3.3 U / U	4.3 J / J
RD-33B	FSDf	RD-33B_022123_01_L Dissolved	02/21/2023	Dissolved		1 U / U	2 U / U	29.7 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.3 U / U	0.5 U / U	0.067 U / U	0.6 U / U	1.5 U / U	0.3 U / U	44100 /	0.6 U / U	1 U / U	3.3 U / U	3.3 U / U
RD-34A	RMHF	RD-34A_022723_01_L	02/27/2023	Total		1 U / U	2.13 J / J	36.9 /	0.2 U / U	0.3 U / U	3 U / U	1.06 /	0.621 J / J	0.5 U / U	0.067 U / U	1.1 J / J	1.5 U / U	0.3 U / U	57300 /	0.6 U / U	1 U / U	3.3 U / U	68.7 /
RD-34A	RMHF	RD-34A_022723_01_L Dissolved	02/27/2023	Dissolved		1 U / U	2.02 J / J	42 /	0.2 U / U	0.3 U / U	3 U / U	5.65 /	0.3 U / U	0.5 U / U	0.067 U / U	2.23 /	1.5 U / U	0.3 U / U	56300 /	0.6 U / U	1 U / U	3.3 U / U	15.5 J / J
RD-34A	RMHF	RD-34A-082223_01_L	08/22/2023	Total		1 U / U	2.04 J / J	37.6 /	0.2 U / U	0.3 U / U	3 U / U	2.14 /	0.797 J / J	0.5 U / U	0.067 U / U	1.46 J / J	1.5 U / U	0.3 U / U	86100 /	0.6 U / U	1 U / U	3.3 U / U	34.6 /
RD-34A	RMHF	RD-34A-082223_01_L Dissolved	08/22/2023	Dissolved		1 U / U	2 U / U	36.7 /	0.2 U / U	0.3 U / U	3 U / U	1.15 /	0.931 J / J	0.5 U / U	0.067 U / U	1.21 J / J	1.5 U / U	0.3 U / U	75600 /	0.6 U / U	1 U / U	3.3 U / U	33.2 /
RD-34B	RMHF	RD-34B_030123_01_L	03/01/2023	Total		1 U / U	2 U / U	9.69 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.3 U / U	0.5 U / U	0.067 U / U	0.6 U / U	1.5 U / U	0.3 U / U	41000 /	0.6 U / U	1 J / U	3.3 U / U	44.4 /
RD-34B	RMHF	RD-34B_030123_01_L Dissolved	03/01/2023	Dissolved		1 U / U	2 U / U	8.42 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.3 U / U	0.5 U / U	0.067 U / U	0.6 U / U	1.5 U / U	0.3 U / U	40700 /	0.6 U / U	1 J / U	3.3 U / U	3.3 U / U
RD-34C	RMHF	RD-34C_022423_01_L	02/24/2023	Total		1 U / U	2 U / U	57.9 /	0.2 U / U	0.3 U / U	3 U / U	0.953 J / J	0.3 U / U	0.612 J / J	0.067 U / U	0.6 U / U	1.5 U / U	0.3 U / U	39000 /	0.6 U / U	1 U / U	3.3 U / U	519 /
RD-34C	RMHF	RD-34C_022423_01_L Dissolved	02/24/2023	Dissolved		1 U / U	2 U / U	54.5 /	0.2 U / U	0.3 U / U	3 U / U	0.3 U / U	0.3 U / U	0.5 U / U	0.067 U / U	0.6 U / U	1.5 U / U	0.3 U / U	39100 /	0.6 U / U	1 U / U	3.3 U / U	8.47 J / J
RD-54A	FSDf	RD-54A_022423_01_L	02/24/2023	Total		1 U / U	3.22 J / J	44 /	0.2 U / U														

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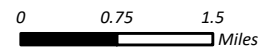
FIGURES

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Legend

- | | | |
|--------------------------------------|--------------------|------------------------|
| Primary Limited Access or Interstate | Local Street | Park or Open Space |
| Primary US and State Highways | 4WD | SSFL Property Boundary |
| Secondary State and County Highways | Other Thoroughfare | County Boundary |

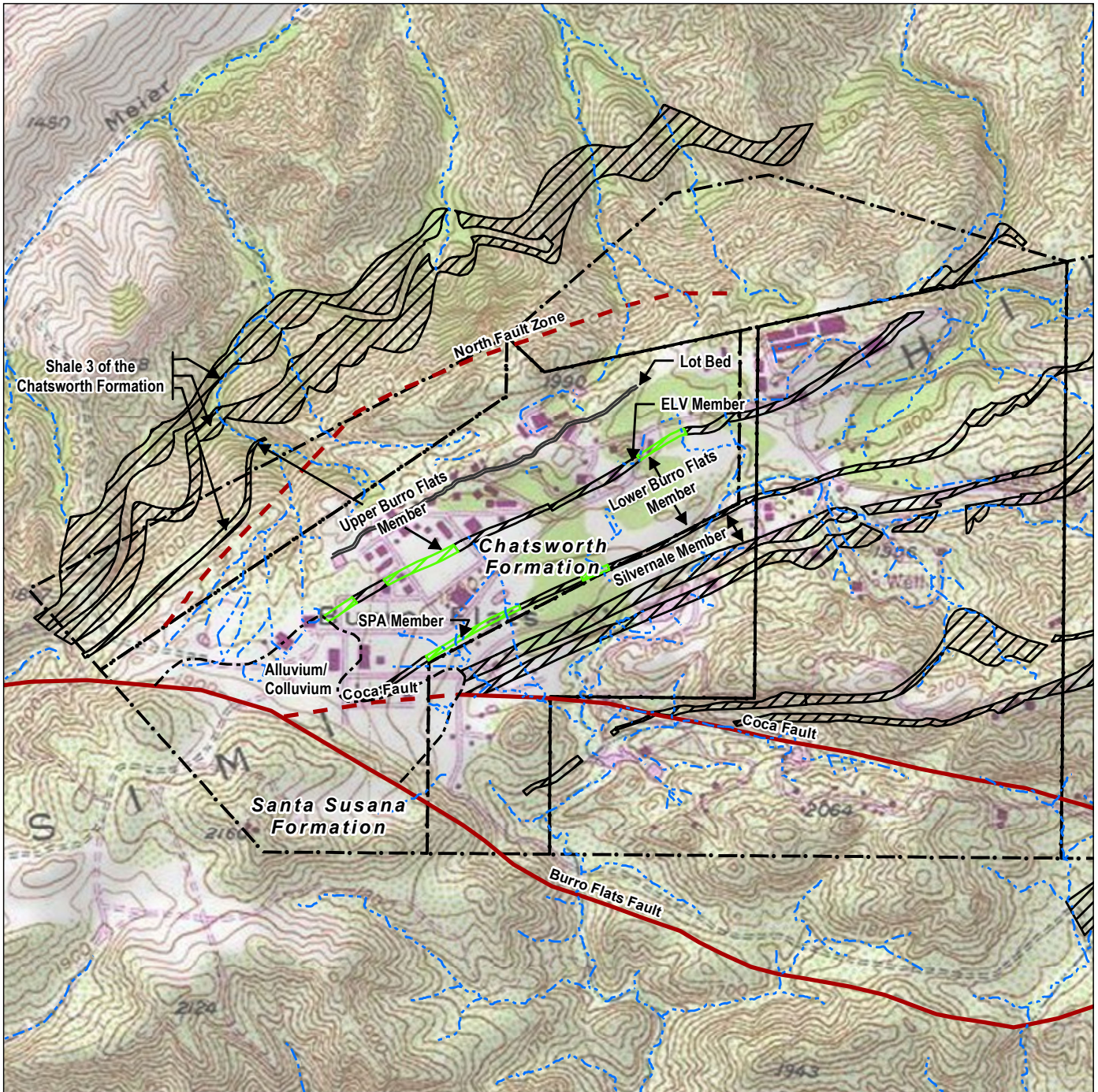


Notes:

- Original GIS layers provided by MWH/Boeing; updated by CDM Smith as needed.
- Service Layer Credits:
 - Park and Open Space Source: California Protected Areas Database (CPAD - www.calands.org), Santa Monica Mountains Conservancy, Mountains Recreation and Conservation Authority, National Park Service (2013); Protected Areas Database, US Geological Survey Gap Analysis Program, 2011; Ventura County Resource Management Agency, 2014.
 - Street Source: Esri, TomTom, 2007.
 - Census County Boundary Source: United States Census Bureau, TIGER/Line Shapefiles, August 2014.

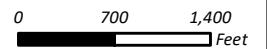


FIGURE 1
Facility Location Map



LEGEND

- | | |
|--------------------------|---|
| — Lot Bed | Fine-grained unit |
| - - - Alluvium/Colluvium | Area where fine-grained unit may be discontinuous |
| — Fault Location | - - - Drainage |
| - - - Fault - Inferred | Area Boundary |



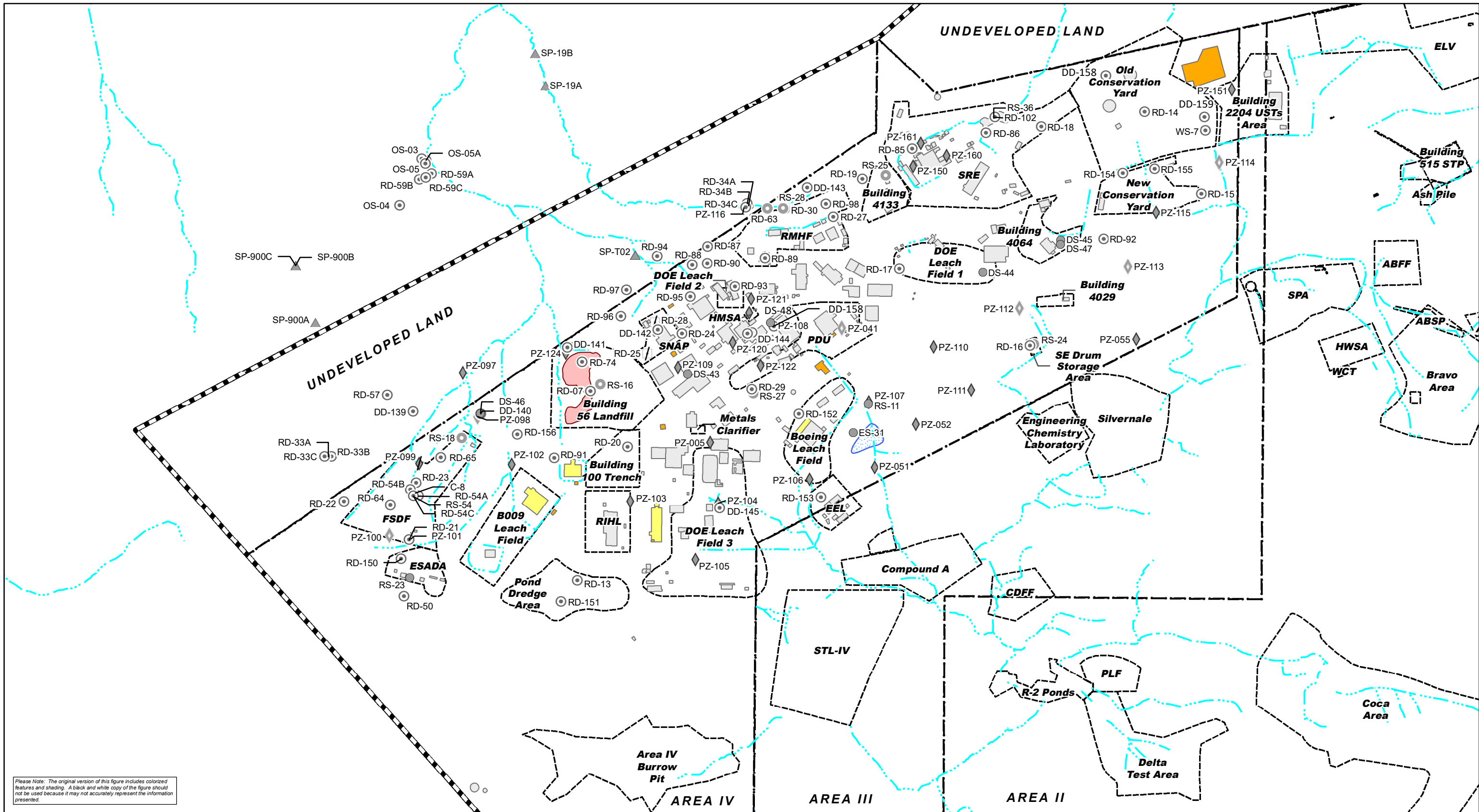
Notes:

- Original GIS layers provided by MWH/Boeing; updated by CDM Smith as needed.
 - Geologic data provided by MWH from Draft Site-wide Groundwater Remedial Investigation Report (MWH, 2009).
- Service Layer Credits:
- Topo Source: Copyright:© 2013 National Geographic Society, i-cubed



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FIGURE 2
SSFL Geologic Map



Please Note: The original version of this figure includes colored features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.

Legend

Well Type and Groundwater Zone

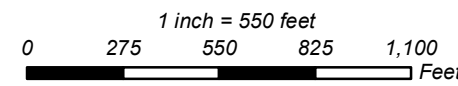
- Groundwater Monitoring Wells**
- Groundwater Monitoring Well, Perched
 - Groundwater Monitoring Well, Near Surface
 - ⊙ Groundwater Monitoring Well, Chatsworth Formation
- Piezometers**
- ◇ Piezometer, Perched
 - ◆ Piezometer, Near Surface

- Seeps/Springs**
- ▲ Seep/spring
- Other**
- ⌘ Abandoned Well
 - ⌘ Abandoned Piezometer
 - ⊕ Corehole

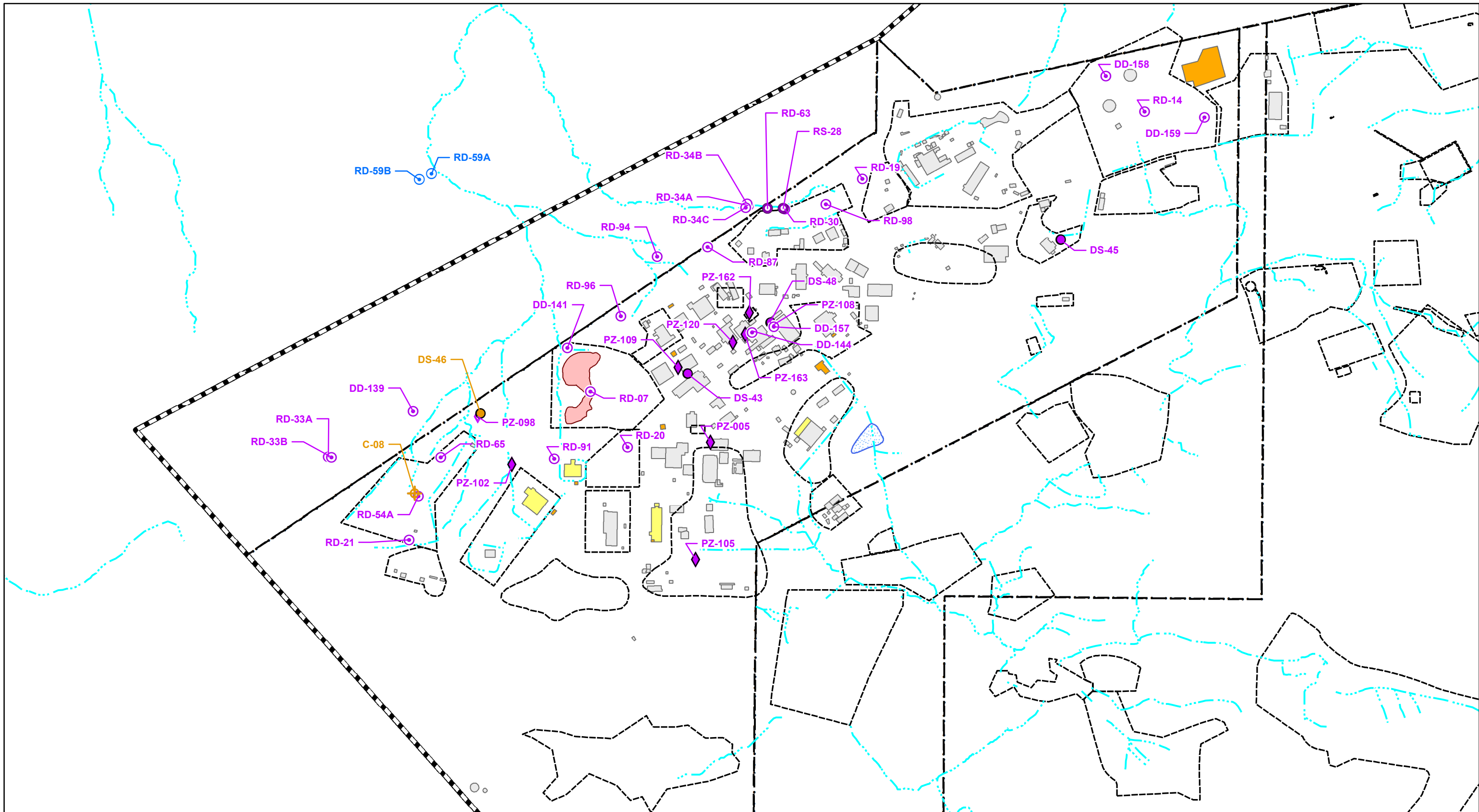
- Basemap**
- Drainage
 - ⬡ RI Site Boundary
 - ⬡ Area IV Boundary
 - ⬡ SSFL Property Boundary

- Structures**
- Existing Landfill
 - Existing Structure
 - Existing Substation
 - Former Pond
 - Demolished Structure

Notes:
Original GIS layers provided by MWH/Boeing; updated by CDM Smith as needed.



SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA
AREA IV
**LOCATION OF WELLS,
PIEZOMETERS, AND SEEPS**
FIGURE 3



- Legend**
- Symbol Color for Site-wide and LUFT Program Monitoring Locations**
- 2023 Alternate Sampled Wells
 - 2023 Wells Originally Selected But Not Sampled
 - 2023 Sampled wells

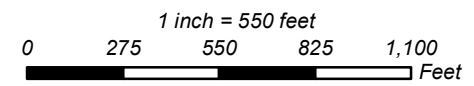
- Well Type and Groundwater Zone**
- Groundwater Monitoring Wells**
- Groundwater Monitoring Well, Perched
 - Groundwater Monitoring Well, Near Surface
 - ⊙ Groundwater Monitoring Well, Chatsworth Formation
- Piezometers**
- ◆ Piezometer, Perched
 - ◆ Piezometer, Near Surface

- Seeps/Springs**
- ▲ Seep/spring
- Other**
- ⌵ Abandoned Well
 - ⌵ Abandoned Piezometer
 - ⊕ Corehole

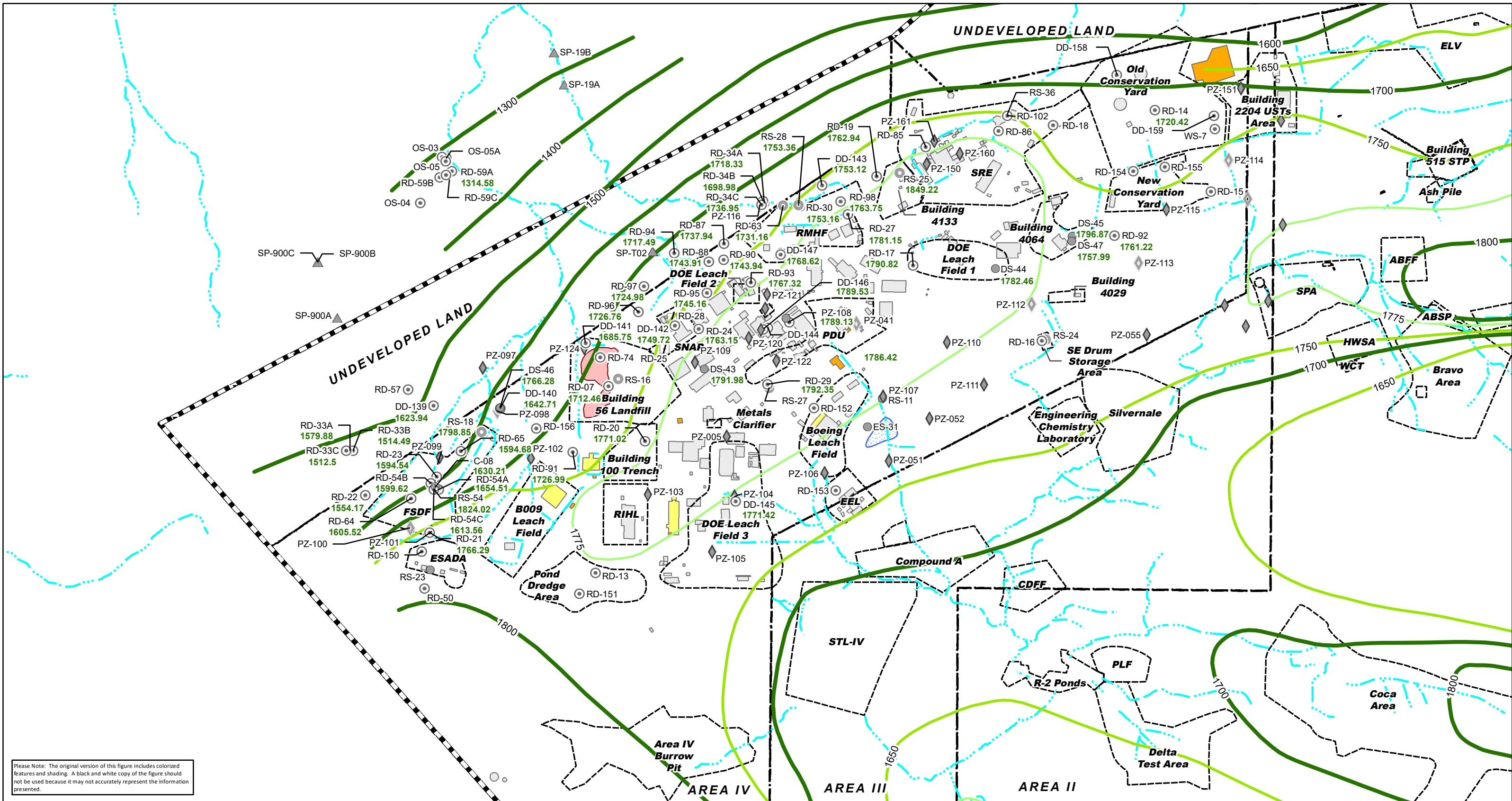
- Basemap**
- Drainage
 - RI Site Boundary
 - Area IV Boundary
 - SSFL Property Boundary

Notes:
Original GIS layers provided by MWH/Boeing; updated by CDM Smith as needed.

Not all Site-wide Program Wells were sampled in 2023



SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA
AREA IV
2023 SAMPLING
LOCATIONS
FIGURE 4



Please Note: The original version of this figure includes colored features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.

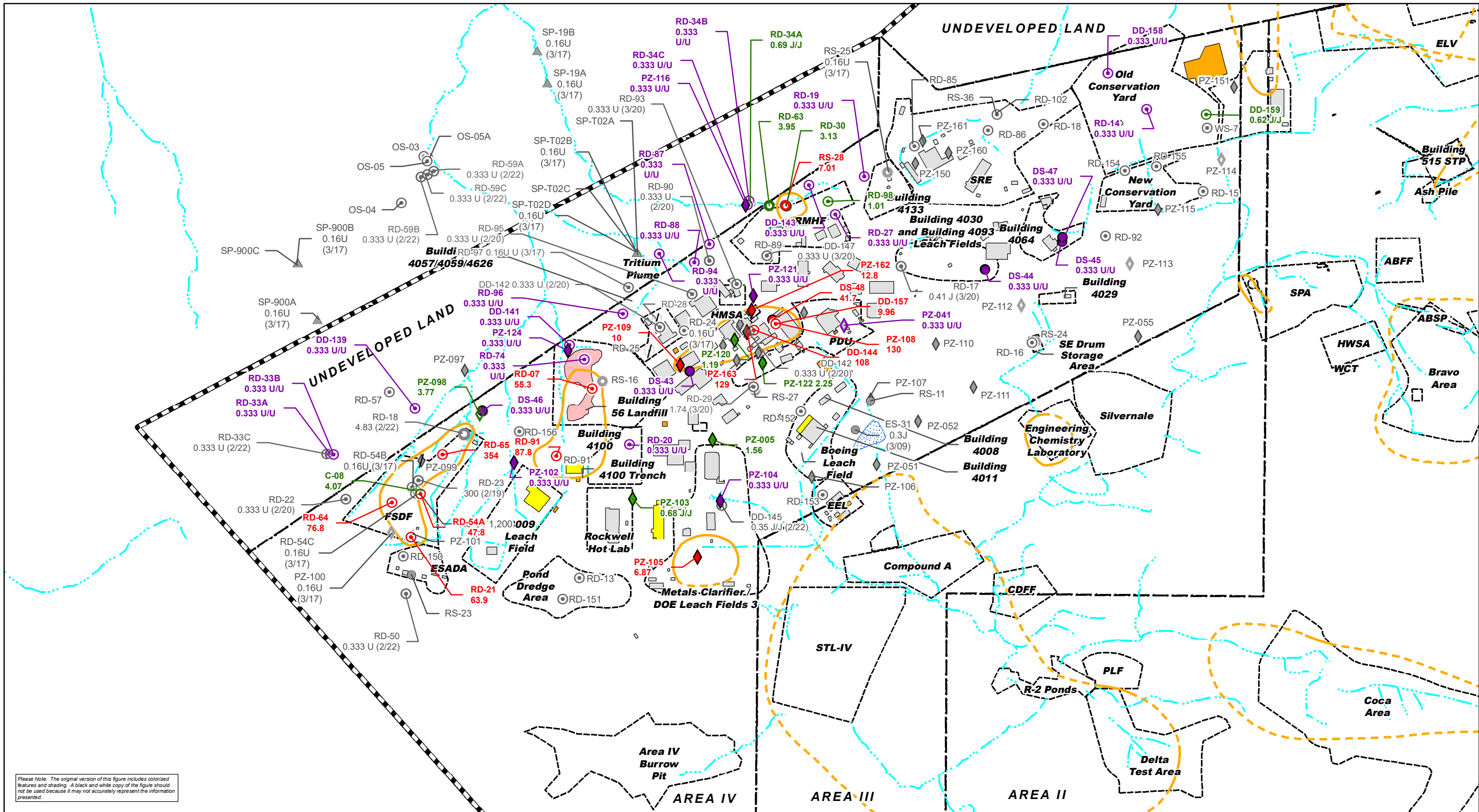
Legend		Basemap		Structures		Approximate Groundwater Elevation Contours (feet above sea level)	
Well Type and Groundwater Zone		Seeps/Springs		Other		Approximate Groundwater Elevation Contours (feet above sea level)	
Groundwater Monitoring Wells		▲ Seep/spring		— RI Site Boundary		— 25-foot Contour	
○ Groundwater Monitoring Well, Perched		/ Abandoned Well		■ Existing Landfill		— 50-foot Contour	
● Groundwater Monitoring Well, Near Surface		◆ Abandoned Piezometer		■ Existing Structure		— 100-foot Contour	
⊙ Groundwater Monitoring Well, Chatsworth Formation		⊕ Corehole		■ Former Pond		— Groundwater Level Elevation in feet above mean sea level	
Piezometers				■ Demolished Structure			
◆ Piezometer, Perched							
◆ Piezometer, Near Surface							

Notes:
 Information used to develop the groundwater elevation contours includes topography; the approximate elevations of identified seeps and springs; water levels measured in seep piezometers gauged during 2023; historical water level data for wells and piezometers not gauged during 2021; and the recognition that groundwater level discontinuities coincide with certain fault segments and other geologic structures. Elevations at DD-139, DS-46, RS-18, RS-25, and RS-54 were anomalous and not used for contouring.

1 inch = 550 feet

0 275 550 825 1,100 Feet

SANTA SUSANA FIELD LABORATORY
 VENTURA COUNTY, CALIFORNIA
 AREA IV
**GROUNDWATER ELEVATION
 CONTOUR MAP, 1st Quarter 2023**
FIGURE 5



Please Note: The original version of this figure includes colored features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.

Legend

Symbol Color for Groundwater Results

- Red circle: Detected above MCL
- Green circle: Detected above detection limit, below MCL
- Purple circle: Not detected above detection limits (ND)
- Grey circle: Well/Piezometer not sampled/analyzed

Areas of Impacted Groundwater

- Orange dashed line: Trichloroethene in Groundwater above Primary MCL of 5 ug/L (boundary dashed where inferred)

Well Type and Groundwater Zone

Groundwater Monitoring Wells

- Open circle: Groundwater Monitoring Well, Perched
- Circle with dot: Groundwater Monitoring Well, Near Surface
- Circle with horizontal lines: Groundwater Monitoring Well, Chatsworth Formation

Piezometers

- Diamond with dot: Piezometer, Perched
- Diamond: Piezometer, Near Surface

Seeps/Springs

- Triangle: Seep/spring

Other

- Circle with slash: Abandoned Well
- Diamond with slash: Abandoned Piezometer
- Circle with cross: Corehole

Basemap

- Blue dashed line: Drainage
- Black dashed line: Area IV Boundary
- Black and white dashed line: SSFL Property Boundary

Structures

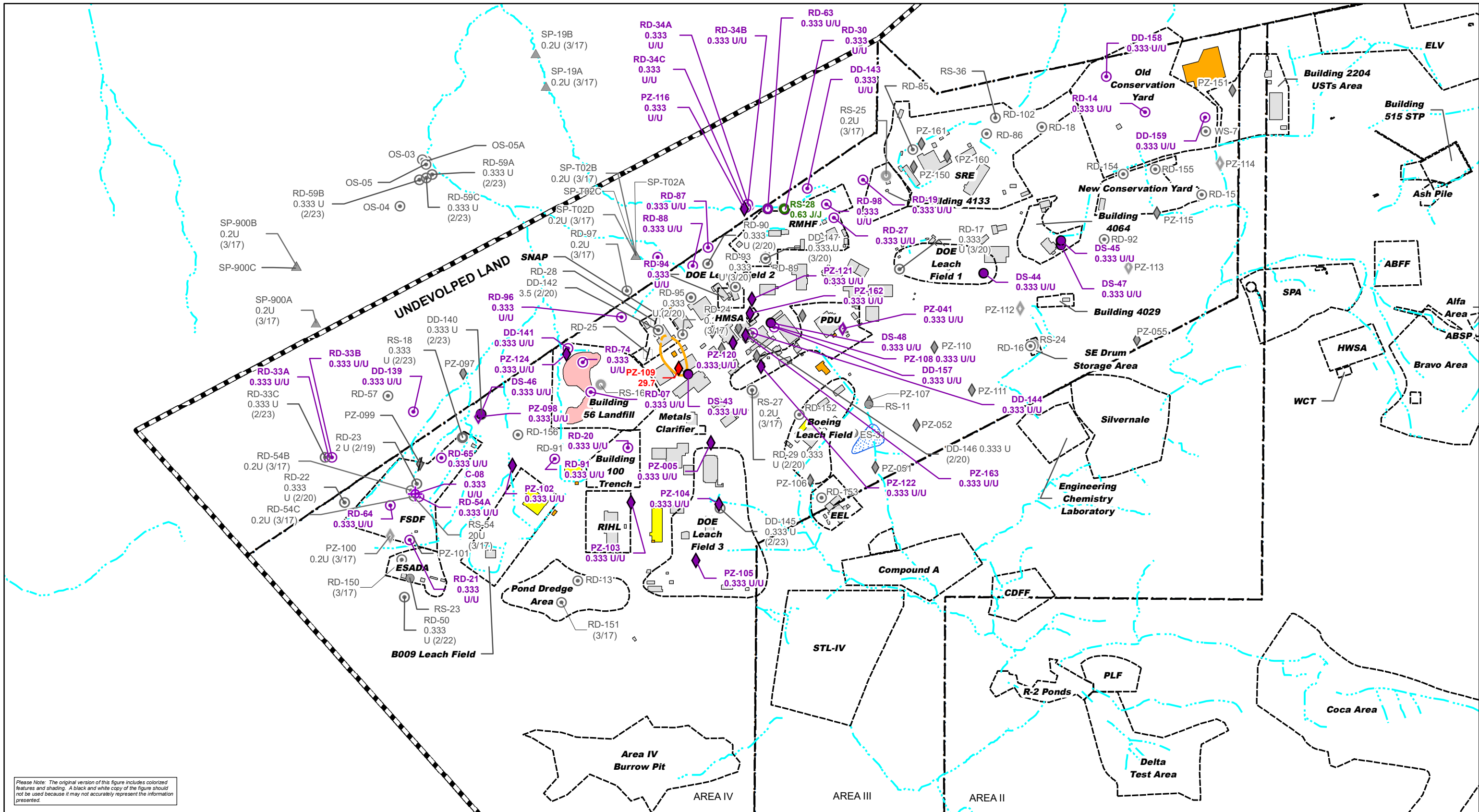
- Red rectangle: Existing Landfill
- Yellow rectangle: Existing Structure
- Orange rectangle: Existing Substation
- Blue rectangle: Former Pond
- Grey rectangle: Demolished Structure

Notes:

Original GIS layers provided by MWH/Boeing; updated by CDM Smith as needed. Values posted beneath well identifiers are maximum concentrations in micrograms per liter (ug/L) detected in 2023 at each location. Values posted at location with no 2023 results are for the most recent analytical result with collection date shown in parentheses. Only primary results shown.



SANTA SUSANA FIELD LABORATORY
 VENTURA COUNTY, CALIFORNIA
 AREA IV
 EXTENT OF TRICHLOROETHENE
 IN GROUNDWATER, 2023
 FIGURE 6



Please Note: The original version of this figure includes colorized features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.

- Legend**
- Symbol Color for Groundwater Results**
- Detected above MCL
 - Detected above detection limit, below MCL
 - Not Detected above detection limits (ND)
 - Well/Piezometer not sampled/analyzed
- Areas of Impacted Groundwater**
- Trichloroethene in Groundwater above Primary MCL of 5 ug/L (boundary dashed where inferred)

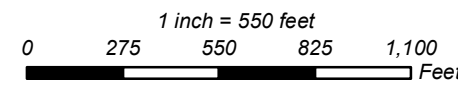
- Well Type and Groundwater Zone**
- Groundwater Monitoring Wells**
- Groundwater Monitoring Well, Perched
 - Groundwater Monitoring Well, Near Surface
 - Groundwater Monitoring Well, Chatsworth Formation
- Piezometers**
- ◇ Piezometer, Perched
 - ◇ Piezometer, Near Surface

- Seeps/Springs**
- ▲ Seep/spring
- Other**
- ⊘ Abandoned Well
 - ⚡ Abandoned Piezometer
 - ⊕ Corehole

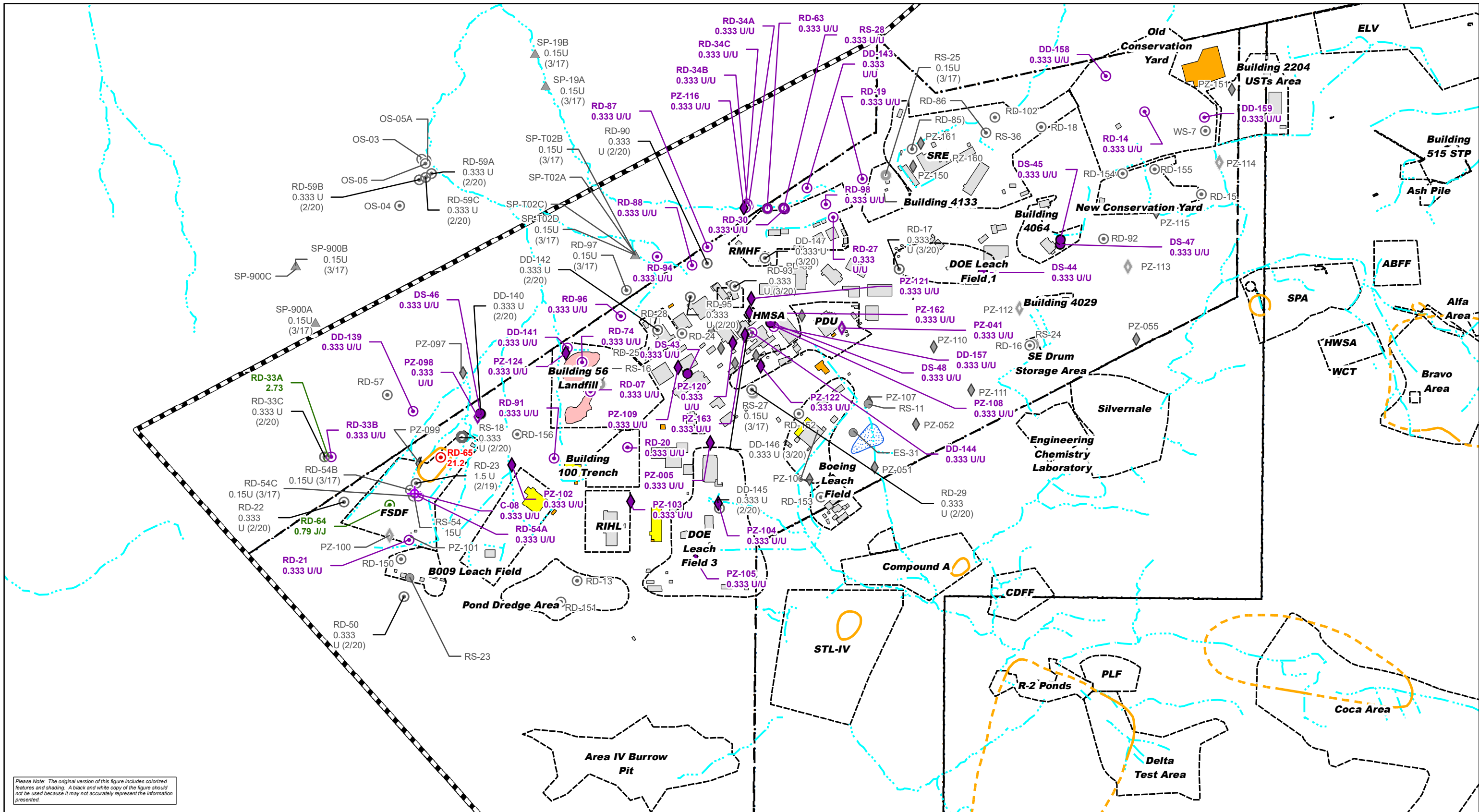
- Basemap**
- Drainage
 - Area IV Boundary
 - SSFL Property Boundary

- Structures**
- Existing Landfill
 - Existing Structure
 - Existing Substation
 - Former Pond
 - Demolished Structure

Notes:
 GIS layers provided by MWH/Boeing.
 Values posted beneath well identifiers are maximum concentrations in micrograms per liter (ug/L) detected in 2023 at each location.
 Values posted at location with no 2023 results are for the most recent analytical result with collection date shown in parentheses.
 Only primary results shown.



SANTA SUSANA FIELD LABORATORY
 VENTURA COUNTY, CALIFORNIA
 AREA IV
 EXTENT OF TETRACHLOROETHENE
 IN GROUNDWATER, 2023
 FIGURE 7



Please Note: The original version of this figure includes colorized features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.

Legend

Symbol Color for Groundwater Results

- Detected above screening level
- Detected below screening level
- Not Detected
- Available Well/Piezometer

Areas of Impacted Groundwater

trans-1,2-Dichloroethene in Groundwater above Cal MCL of 10 ug/L (boundary dashed where inferred)

Well Type and Groundwater Zone

- Groundwater Monitoring Wells**
- Groundwater Monitoring Well, Perched
 - Groundwater Monitoring Well, Near Surface
 - ⊙ Groundwater Monitoring Well, Chatsworth Formation
- Piezometers**
- ◇ Piezometer, Perched
 - ◇ Piezometer, Near Surface

Seeps/Springs

- ▲ Seep/spring
- Other**
- / Abandoned Well
- ⚡ Abandoned Piezometer
- ⊕ Corehole

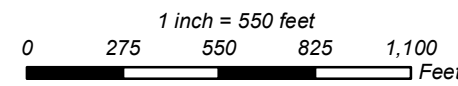
Basemap

- Drainage
- Area IV Boundary
- SSFL Property Boundary

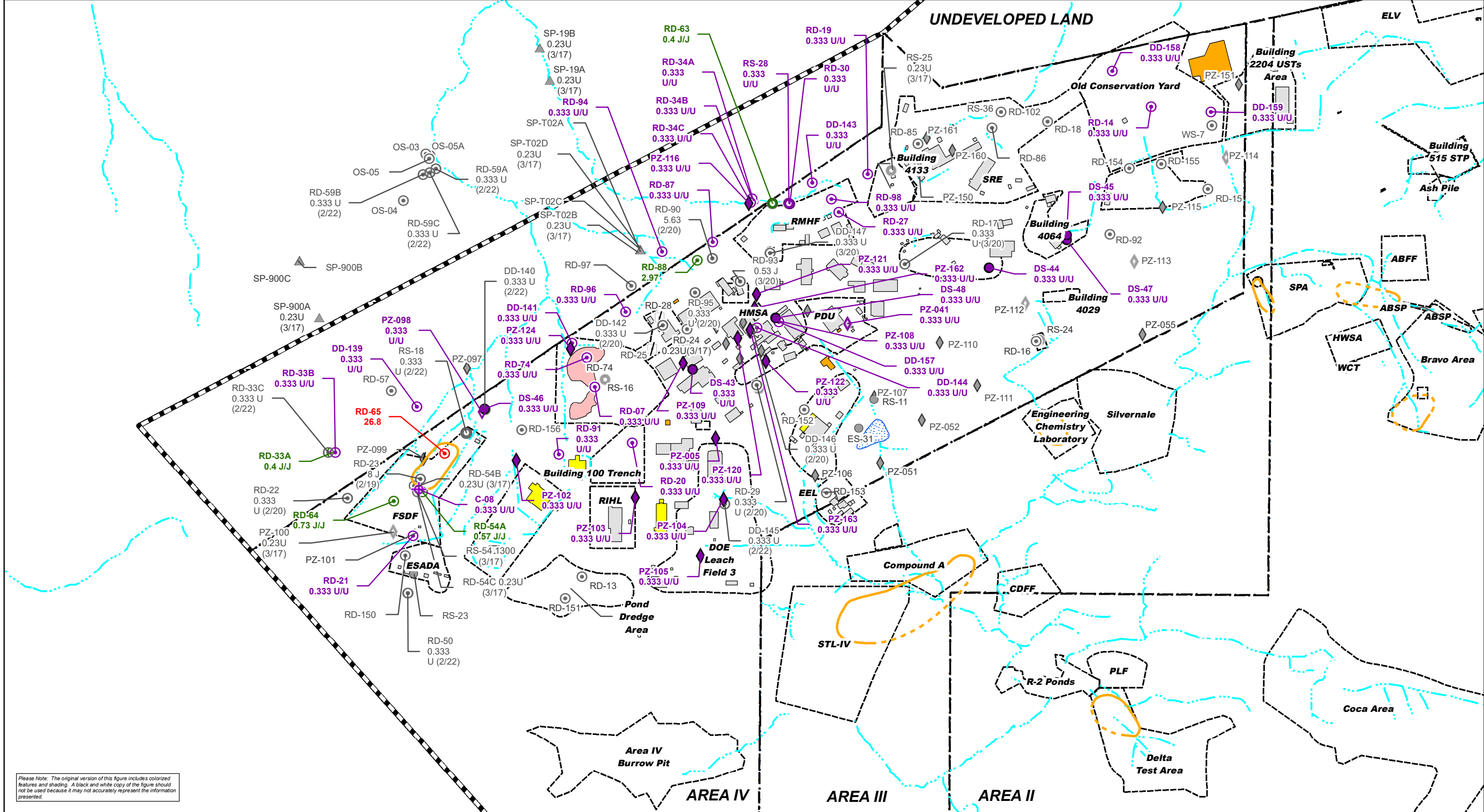
Structures

- Existing Landfill
- Existing Structure
- Existing Substation
- Former Pond
- Demolished Structure

Notes:
Original GIS layers provided by MWH/Boeing; updated by CDM Smith as needed.
Values posted beneath well identifiers are maximum concentrations in micrograms per liter (ug/L) detected in 2023 at each location.
Values posted at location with no 2023 results are for the most recent analytical result with collection date shown in parentheses.
Only primary results shown.

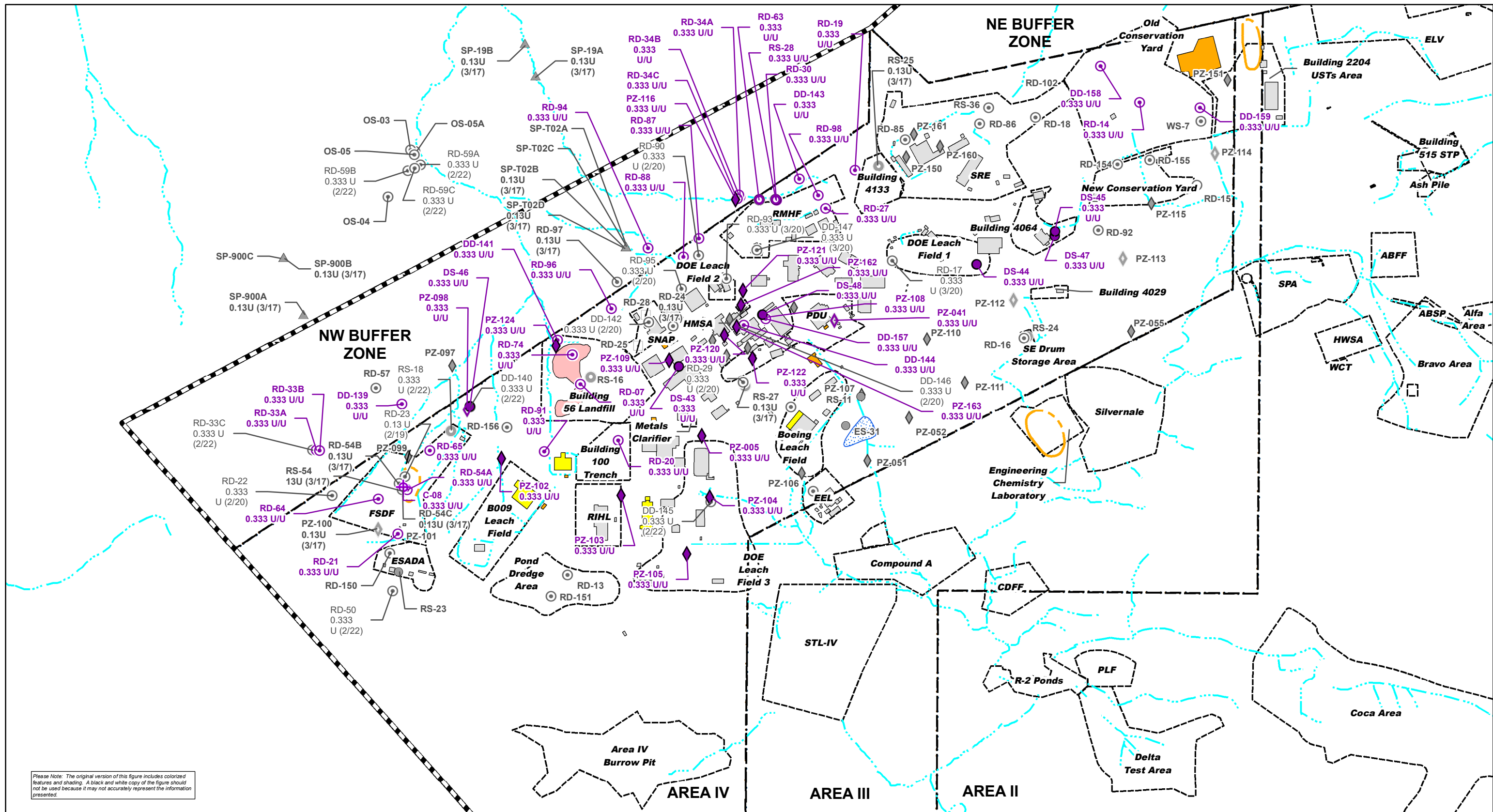


SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA
AREA IV
**EXTENT OF TRANS-1,2-DICHLOROETHENE
IN GROUNDWATER, 2023**
FIGURE 9



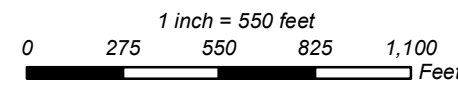
Please Note: The original version of this figure includes colored features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.

<p>Legend</p> <p>Symbol Color for Groundwater Results</p> <ul style="list-style-type: none"> Red circle: Detected above MCL Green circle: Detected above detection limit, below MCL Purple circle: Not detected above detection limits (ND) Grey circle: Well/Piezometer not sampled/analyzed <p>Areas of Impacted Groundwater</p> <ul style="list-style-type: none"> Orange outline: 1,1-Dichloroethene in Groundwater above Cal MCL of 6 ug/L (boundary dashed where inferred) 	<p>Well Type and Groundwater Zone</p> <p>Groundwater Monitoring Wells</p> <ul style="list-style-type: none"> Open circle: Groundwater Monitoring Well, Perched Circle with dot: Groundwater Monitoring Well, Near Surface Circle with horizontal lines: Groundwater Monitoring Well, Chatsworth Formation <p>Piezometers</p> <ul style="list-style-type: none"> Diamond with dot: Piezometer, Perched Diamond: Piezometer, Near Surface 	<p>Seeps/Springs</p> <ul style="list-style-type: none"> Triangle: Seep/spring <p>Other</p> <ul style="list-style-type: none"> Vertical line: Abandoned Well Diamond with vertical line: Abandoned Piezometer Circle with cross: Corehole 	<p>Basemap</p> <ul style="list-style-type: none"> Dashed line: Area IV Boundary Thick dashed line: SSFL Property Boundary 	<p>Structures</p> <ul style="list-style-type: none"> Red rectangle: Existing Landfill Yellow rectangle: Existing Structure Orange rectangle: Existing Substation Blue rectangle: Former Pond Grey rectangle: Demolished Structure 	<p>Notes:</p> <p>Original GIS layers provided by MWH/Boeing; updated by CDM Smith as needed.</p> <p>Values posted beneath well identifiers are maximum concentrations in micrograms per liter (ug/L) detected in 2023 at each location.</p> <p>Values posted at location with no 2023 results are for the most recent analytical result with collection date shown in parentheses.</p> <p>Only primary results shown.</p> <p>1 inch = 550 feet</p> <p>0 275 550 825 1,100 Feet</p> <p>NORTHWIND A CIBI COMPANY</p>	<p>SANTA SUSANA FIELD LABORATORY VENTURA COUNTY, CALIFORNIA AREA IV EXTENT OF 1,1-DICHLOROETHENE IN GROUNDWATER, 2023 FIGURE 11</p>
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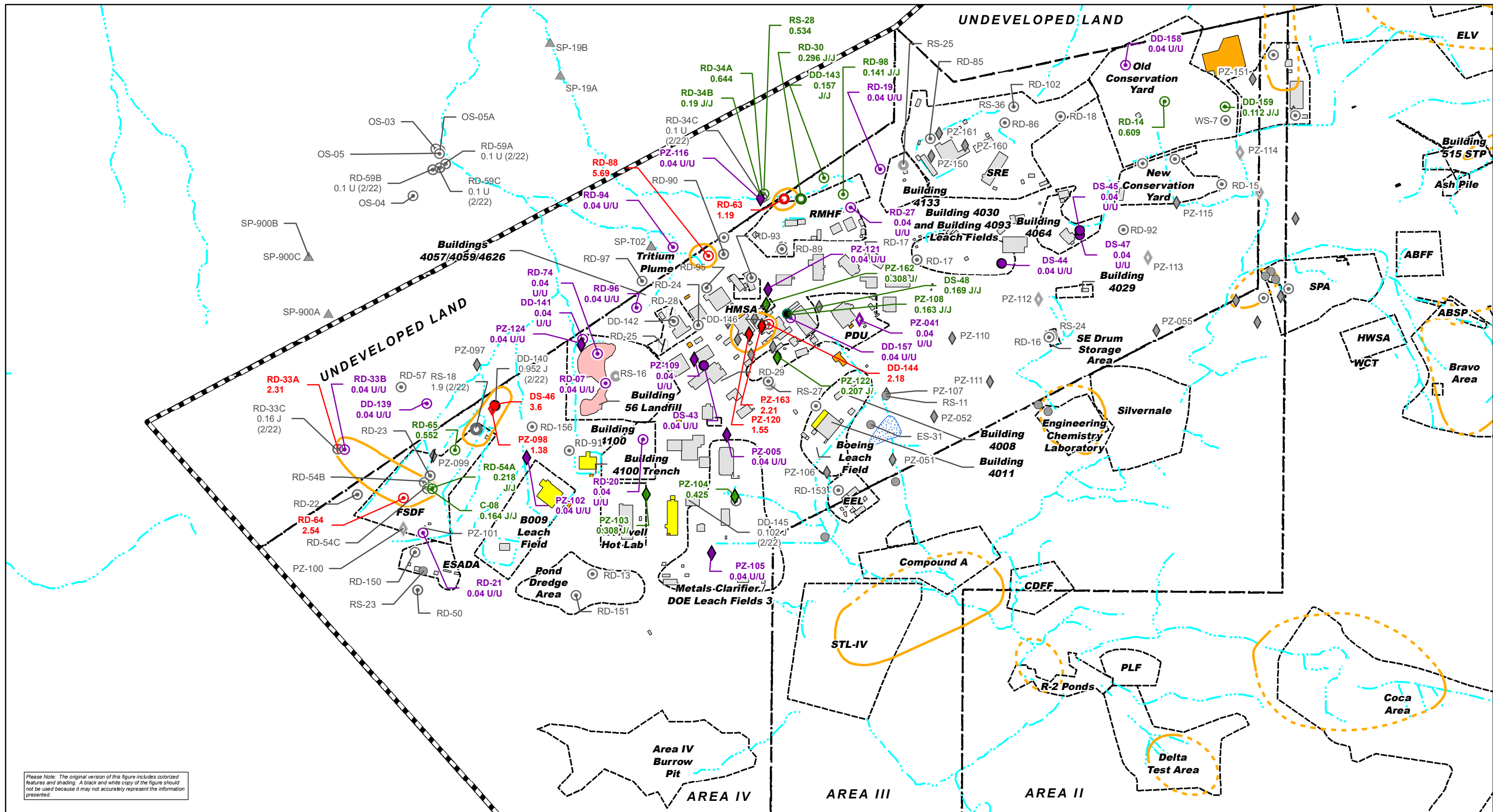


Please Note: The original version of this figure includes colorized features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.

Notes:
Original GIS layers provided by MWH/Boeing; updated by CDM Smith as needed.
Values posted beneath well identifiers are maximum concentrations in micrograms per liter (ug/L) detected in 2023 at each location.
Values posted at location with no 2023 results are for the most recent analytical result with collection date shown in parentheses.
Only primary results shown.



SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA
AREA IV
EXTENT OF 1,2-DICHLOROETHANE
IN GROUNDWATER, 2023
FIGURE 12



Please Note: The original version of this figure includes colored features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.

Legend

Symbol Color for Groundwater Results

- Detected above MCL
- Detected above detection limit, below MCL
- Not detected above detection limits (ND)
- Well/Piezometer not sampled/analyzed

Areas of Impacted Groundwater

- 1,4-Dioxane in Groundwater above Primary MCL of 1 ug/L (boundary dashed where inferred)

Well Type and Groundwater Zone

Groundwater Monitoring Wells

- Groundwater Monitoring Well, Perched
- Groundwater Monitoring Well, Near Surface
- Groundwater Monitoring Well, Chatsworth Formation

Piezometers

- ◆ Piezometer, Perched
- ◆ Piezometer, Near Surface

Seeps/Springs

- ▲ Seep/spring

Other

- ▮ Abandoned Well
- ▮ Abandoned Piezometer
- ⊕ Corehole

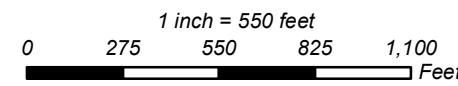
Basemap

- Drainage
- Area IV Boundary
- SSFL Property Boundary

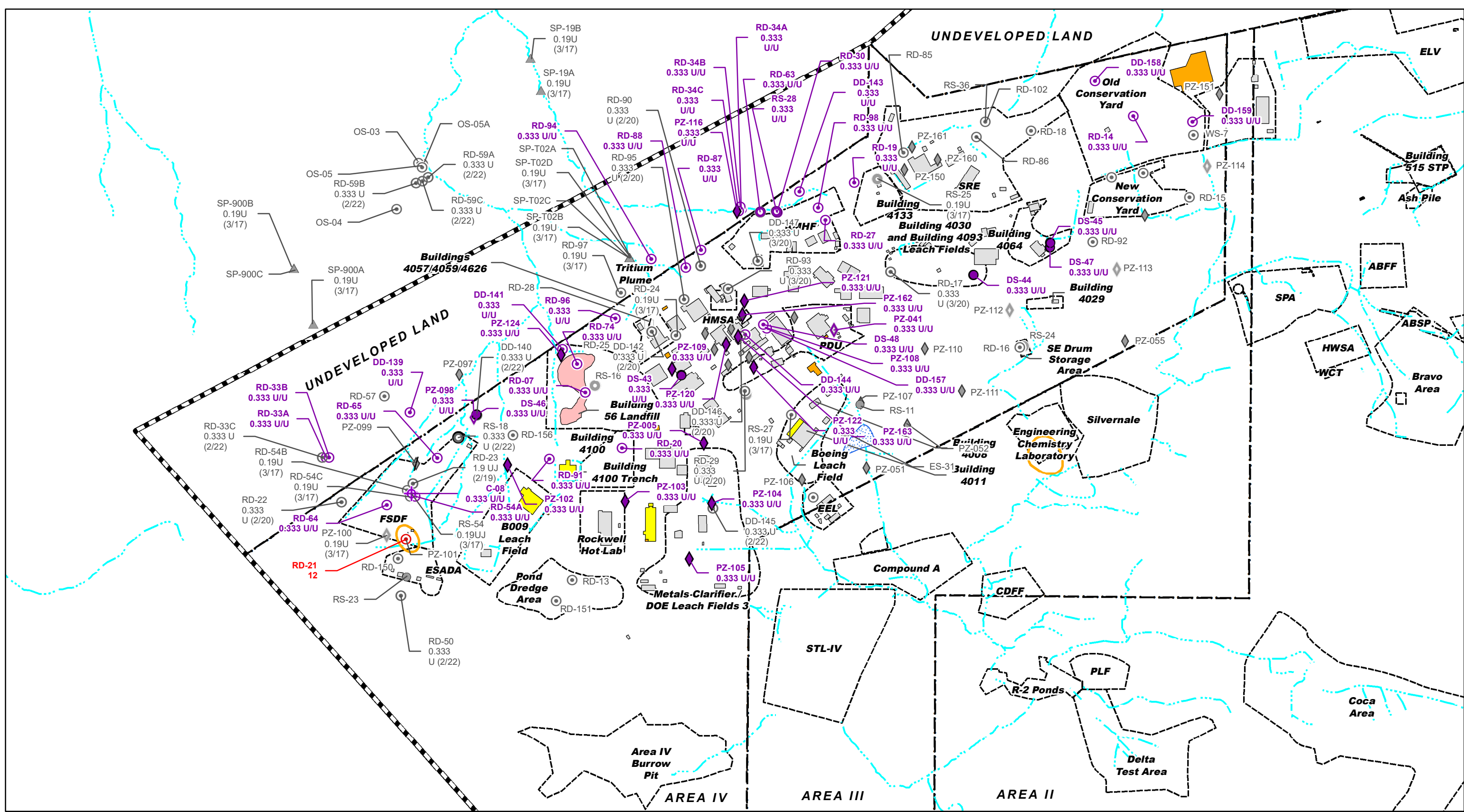
Structures

- Existing Landfill
- Existing Structure
- Existing Substation
- Former Pond
- Demolished Structure

Notes:
Original GIS layers provided by MWH/Boeing; updated by CDM Smith as needed.
Values posted beneath well identifiers are maximum concentrations in micrograms per liter (ug/L) detected in 2023 at each location.
Values posted at location with no 2023 results are for the most recent analytical result with collection date shown in parentheses.
Only primary results shown.



SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA
AREA IV
EXTENT OF 1,4-DIOXANE
IN GROUNDWATER, 2023
FIGURE 14



Legend

Symbol Color for Groundwater Results

- Detected above MCL
- Detected above detection limit, below MCL
- Not detected above detection limits (ND)
- Well/Piezometer not sampled/analyzed

Areas of Impacted Groundwater

- Carbon Tetrachloride in Groundwater above Cal MCL of 0.5 ug/L (boundary dashed where inferred)

Well Type and Groundwater Zone

- Groundwater Monitoring Wells**
- Groundwater Monitoring Well, Perched
 - Groundwater Monitoring Well, Near Surface
 - Groundwater Monitoring Well, Chatsworth Formation
- Piezometers**
- ◆ Piezometer, Perched
 - ◆ Piezometer, Near Surface

Seeps/Springs

- ▲ Seep/spring

Other

- ▮ Abandoned Well
- ▮ Abandoned Piezometer
- ⊕ Corehole

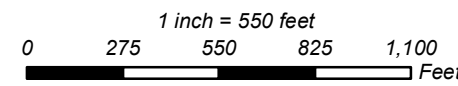
Basemap

- ▬ Drainage
- ▬ Area IV Boundary
- ▬ SSFL Property Boundary

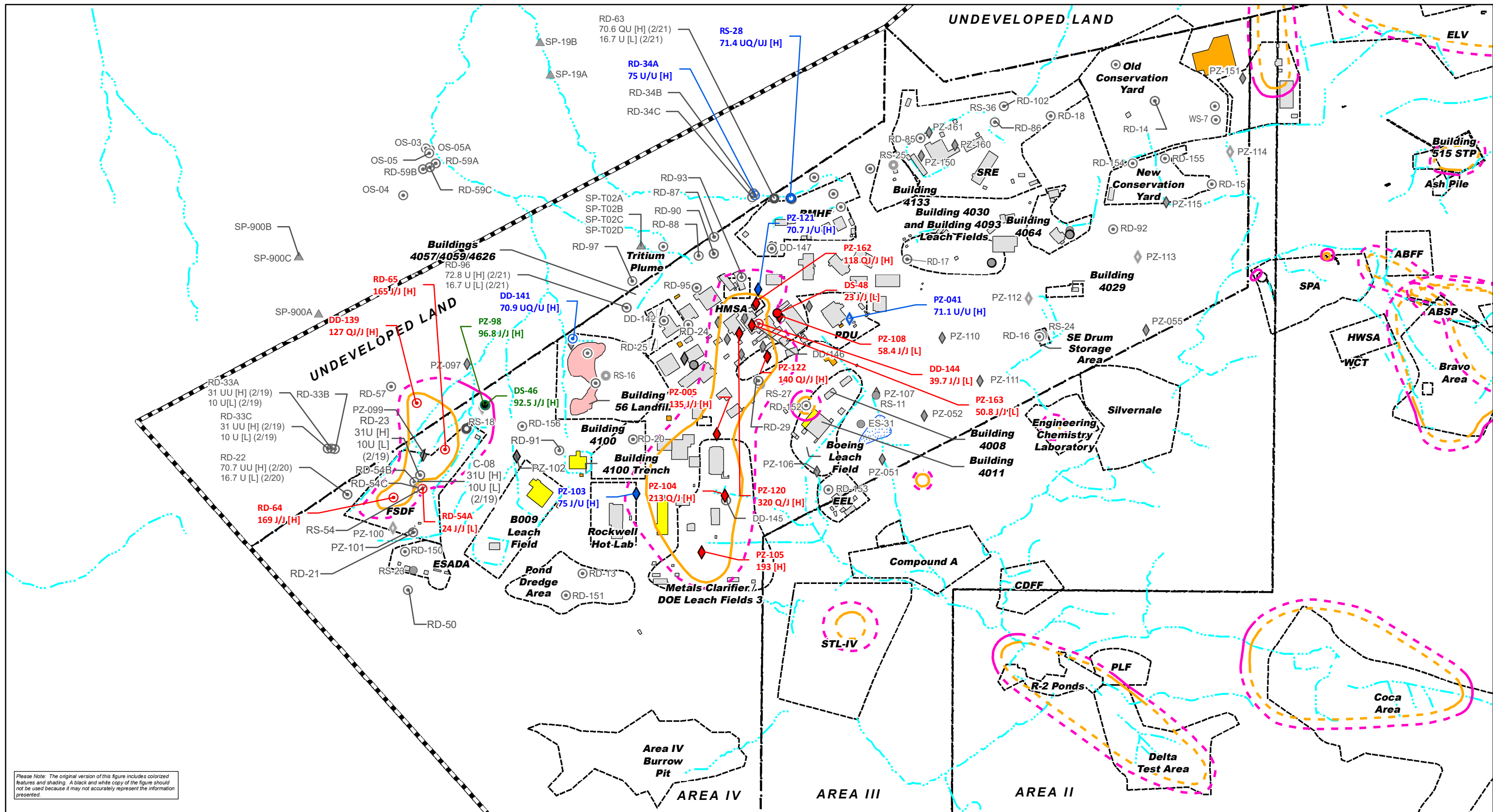
Structures

- Existing Landfill
- Existing Structure
- Existing Substation
- Former Pond
- Demolished Structure

Notes:
 Original GIS layers provided by MWH/Boeing; updated by CDM Smith as needed.
 Values posted beneath well identifiers are maximum concentrations in micrograms per liter (ug/L) detected in 2023 at each location.
 Values posted at location with no 2023 results are for the most recent analytical result with collection date shown in parentheses.
 Only primary results shown.



SANTA SUSANA FIELD LABORATORY
 VENTURA COUNTY, CALIFORNIA
 AREA IV
 EXTENT OF CARBON TETRACHLORIDE
 IN GROUNDWATER, 2023
 FIGURE 15



Please Note: The original version of this figure includes colorized features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.

Legend
Symbol Color for Groundwater Results

- Detected above screening threshold
- Detected above detection limit, but below threshold
- Not detected above detection limits (ND)
- Well/Piezometer not sampled/analyzed

Areas of Impacted Groundwater

- Contour**
- 100 ug/L
 - 100 ug/L Inferred
 - 50 ug/L
 - 50 ug/L Inferred
- TPH in Groundwater above Taste/Odor Threshold of 100 ug/L for DRO, and reporting limit of 5 ug/L for GRO

Well Type and Groundwater Zone

- Groundwater Monitoring Wells**
- Groundwater Monitoring Well, Perched
 - Groundwater Monitoring Well, Near Surface
 - Groundwater Monitoring Well, Chatsworth Formation
- Piezometers**
- ◆ Piezometer, Perched
 - ◆ Piezometer, Near Surface

Seeps/Springs

- ▲ Seep/spring
- Other**
- ▭ Abandoned Well
 - ◆ Abandoned Piezometer
 - ⊕ Corehole

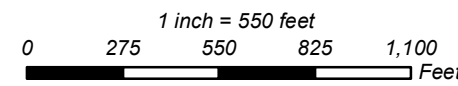
Basemap

- Drainage
- ▭ Area IV Boundary

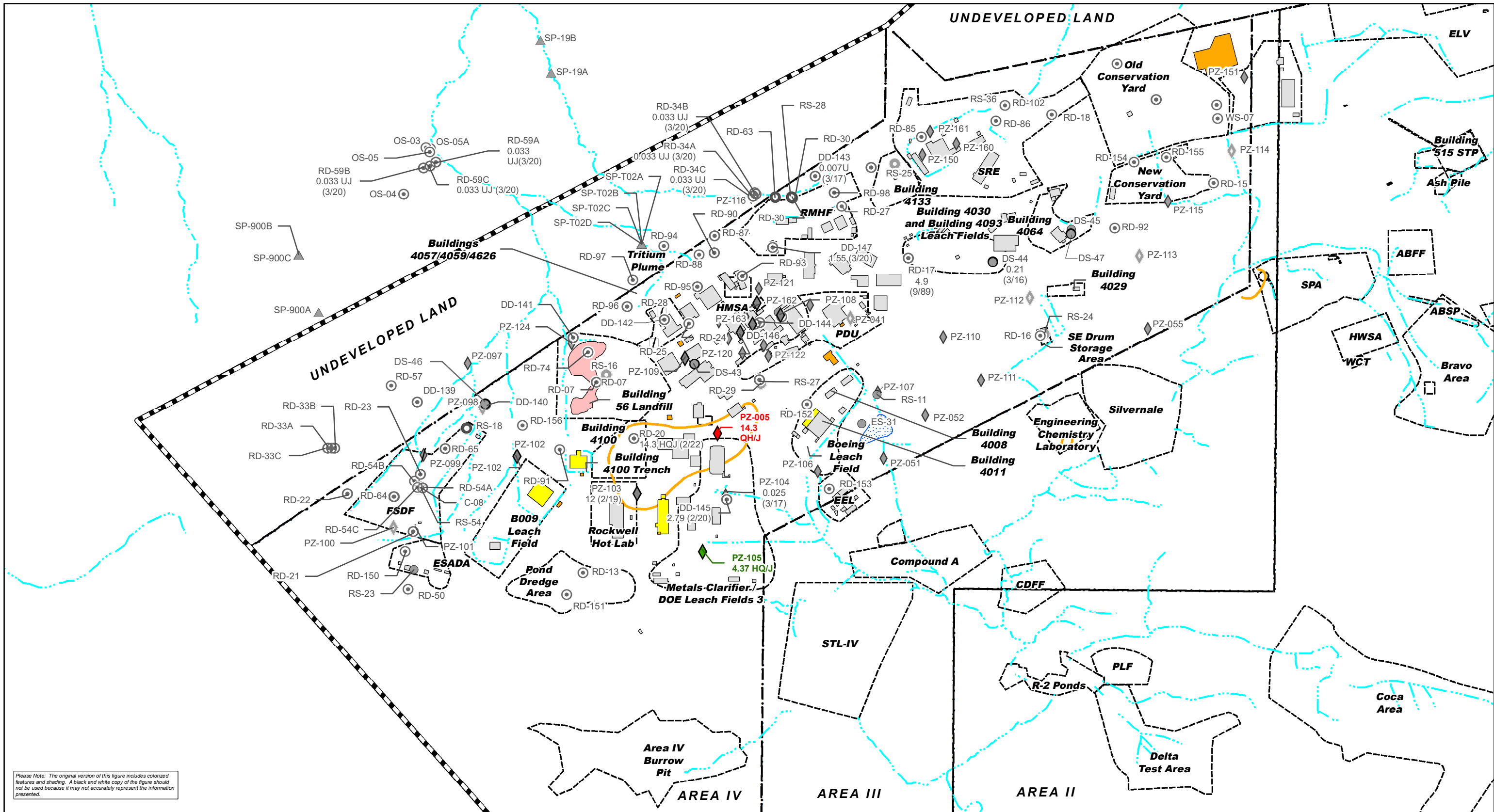
Structures

- ▭ Existing Landfill
- ▭ Existing Structure
- ▭ Existing Substation
- ▭ Former Pond
- ▭ Demolished Structure


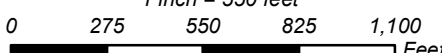
Notes:
 Original GIS layers provided by MWH/Boeing; updated by CDM Smith as needed.
 Values posted beneath well identifiers are maximum concentrations in micrograms per liter (ug/L) detected in 2023 at each location. Values posted at location with no 2023 results are for the most recent analytical result with collection date shown in parentheses. Only primary results shown. Historical TPH results are identified as GRO or DRO on the figure. For 2023, sample results have been identified as Light or Heavy in order to address the overlap in carbon ranges. The Light category consists of EFH C12-C14, EFH C8-C11, GRO C5-C12, GRO C6-C12, and GRO C6-C10. The Heavy category consists of DRO C10-C28, EFH C15-C20, EFH C21-C30, and EFH C30-C40. The GRO from the historical results is considered to be a Light TPH and the DRO is considered to be a Heavy TPH.

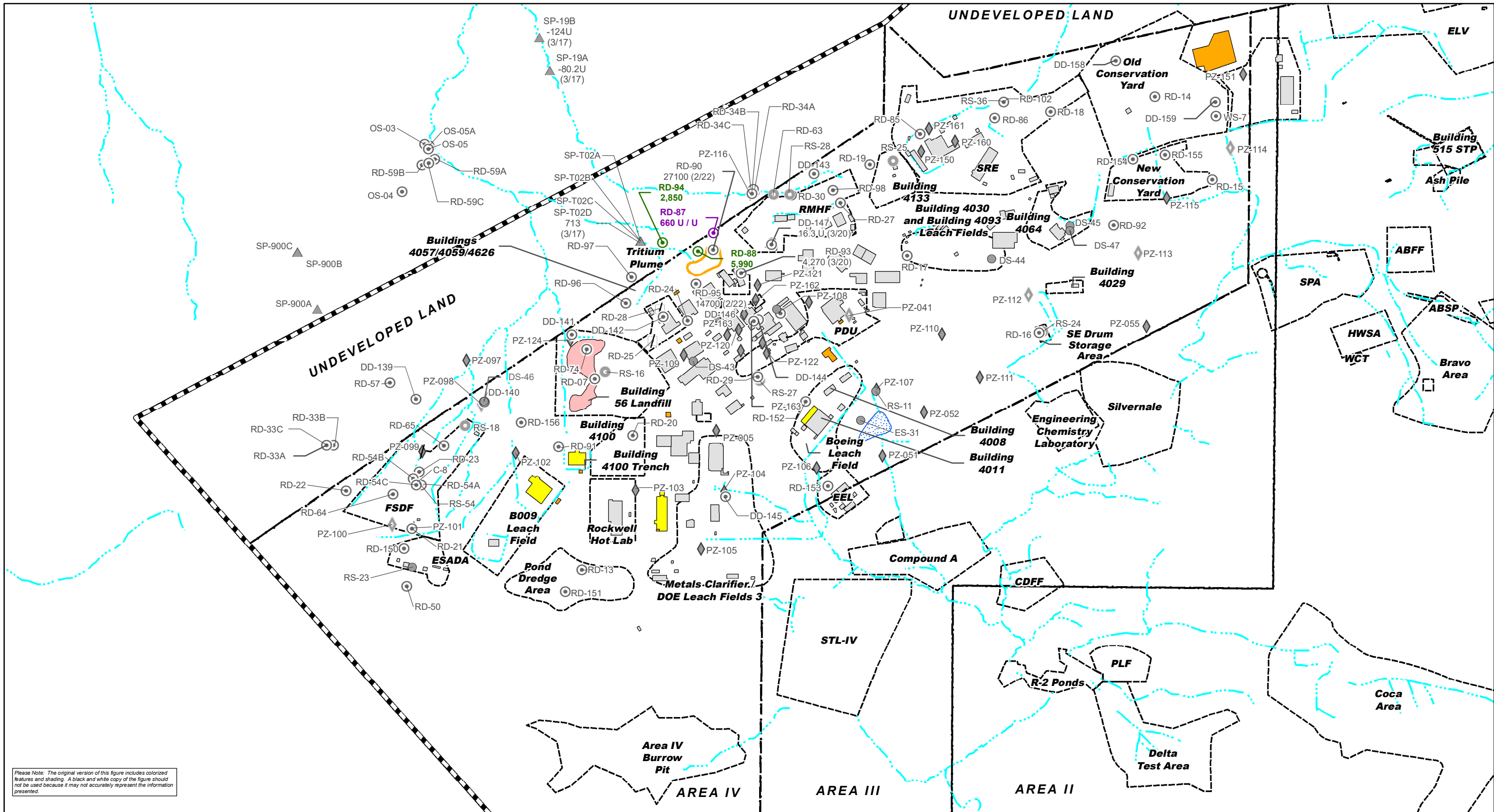


SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA
AREA IV
EXTENT OF TOTAL PETROLEUM
HYDROCARBONS C4-C30
IN GROUNDWATER, 2023
FIGURE 16



Please Note: The original version of this figure includes colorized features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.

<p>Legend</p> <p>Symbol Color for Groundwater Results</p> <ul style="list-style-type: none"> ● Detected above MCL ● Detected above detection limit, below MCL ● Not detected above detection limits (ND) ● Well/Piezometer not sampled/analyzed <p>Areas of Impacted Groundwater</p> <ul style="list-style-type: none"> — Nitrate-N in Groundwater above Cal MCL of 10 mg/L (boundary dashed where inferred) 	<p>Well Type and Groundwater Zone</p> <p>Groundwater Monitoring Wells</p> <ul style="list-style-type: none"> ○ Groundwater Monitoring Well, Perched ○ Groundwater Monitoring Well, Near Surface ○ Groundwater Monitoring Well, Chatsworth Formation <p>Piezometers</p> <ul style="list-style-type: none"> ◇ Piezometer, Perched ◇ Piezometer, Near Surface 	<p>Seeps/Springs</p> <ul style="list-style-type: none"> ▲ Seep/spring <p>Other</p> <ul style="list-style-type: none"> ▭ Abandoned Well ▭ Abandoned Piezometer ⊕ Corehole 	<p>Basemap</p> <ul style="list-style-type: none"> — Drainage ▭ Area IV Boundary ▭ SSFL Property Boundary 	<p>Structures</p> <ul style="list-style-type: none"> ▭ Existing Landfill ▭ Existing Structure ▭ Existing Substation ▭ Former Pond ▭ Demolished Structure 	<p>Notes: Original GIS layers provided by MWH/Boeing; updated by CDM Smithas needed. Values posted beneath well identifiers are maximum concentrations in milligrams per liter (mg/L) detected in 2023 at each location. Values posted at location with no 2023 results are for the most recent analytical result with collection date shown in parentheses. Only primary results shown.</p> <div style="text-align: center;">  <p>1 inch = 550 feet</p>  </div> <p style="text-align: right;">NORTHWIND A CIBI COMPANY</p>	<p>SANTA SUSANA FIELD LABORATORY VENTURA COUNTY, CALIFORNIA AREA IV EXTENT OF NITRATE IN GROUNDWATER, 2023 FIGURE 17</p>
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Please Note: The original version of this figure includes colored features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.

- Legend**
- Symbol Color for Groundwater Results**
- Red circle: Detected above MCL
 - Green circle: Detected above detection limit, below MCL
 - Purple circle: Not detected above detection limits (ND)
 - Grey circle: Well/Piezometer not sampled/analyzed
- Areas of Impacted Groundwater**
- Orange shaded area: Tritium in Groundwater above Primary MCL of 20,000 pCi/L (boundary dashed where inferred)

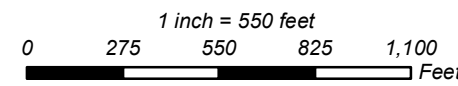
- Well Type and Groundwater Zone**
- Groundwater Monitoring Wells**
- Open circle: Groundwater Monitoring Well, Perched
 - Circle with dot: Groundwater Monitoring Well, Near Surface
 - Circle with horizontal lines: Groundwater Monitoring Well, Chatsworth Formation
- Piezometers**
- Diamond with dot: Piezometer, Perched
 - Diamond: Piezometer, Near Surface

- Seeps/Springs**
- Triangle: Seep/spring
- Other**
- Circle with slash: Abandoned Well
 - Diamond with slash: Abandoned Piezometer
 - Circle with cross: Corehole

- Basemap**
- Blue dashed line: Drainage
 - Black dashed line: Area IV Boundary

- Structures**
- Red rectangle: Existing Landfill
 - Yellow rectangle: Existing Structure
 - Orange rectangle: Existing Substation
 - Blue rectangle with dots: Former Pond
 - Grey rectangle: Demolished Structure

Notes:
Original GIS layers provided by MWH/Boeing; updated by CDM Smith as needed.
Values posted beneath well identifiers are maximum concentrations in picocuries per liter (pCi/L) detected in 2023 at each location.
Values posted at location with no 2023 results are for the most recent analytical result with collection date shown in parentheses.
Only primary results shown.



SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA
AREA IV
EXTENT OF TRITIUM
IN GROUNDWATER, 2023
FIGURE 18

APPENDIX A
Monitoring Well and Piezometer Construction Data

Table A-1 Well Construction Data

Table A-2(a, b) Construction Details of Piezometer Monitoring System

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**TABLE A-1
WELL CONSTRUCTION DATA
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Well Identifier	Area No.	Effective Borehole Depth (feet)	Borehole		Casing		Sealed Interval (feet)	Perforated Interval (feet)	Measuring Point Elevation (ft MSL)	Date Drilling Completed
			Diameter (inches)	Interval (feet)	Inside Diameter (inches)	Interval (feet)				
SHALLOW WELLS										
DS-43	IV	84	14 9-7/8 5-7/8 3-11/16	0 - 10 10-28 28 - 84 84 - 93	6 --- --- ---	0 - 28 --- --- ---	0 - 28	Open Hole Open Hole	1809.52	02/10/16
DS-44	IV	91	14 9-7/8 5-7/8	0 - 10 10 - 19 19 - 91	6 --- ---	0 - 19 --- ---	0 - 19	Open Hole	1851.21	01/20/16
DS-45	IV	75	14 9-7/8 5-7/8 3-11/16	0 - 9 9 - 18 18 - 75 75 - 95	6 --- --- ---	0 - 18 --- --- ---	0 - 18	Open Hole Open Hole	1866.58	01/28/16
DS-46	IV	52	14 9-7/8 5-7/8	0 - 5 5 - 37 37 - 52	6 --- ---	0 - 37 --- ---	0 - 37	Open Hole	1797.79	02/24/16
DS-47	IV	145	14 9-7/8 5-7/8	0 - 10 10 - 19 19 - 145	6 --- ---	0 - 19 --- ---	0 - 19	Open Hole	1867.94	03/17/16
RS-11	IV	17.5	16	0 - 17.5	4	0 - 17.5	0 - 9	10 - 17.5	1790.39	06/10/85
RS-16	IV	20.5	16	0 - 20.5	4	0 - 20.5	0 - 14.5	16.5 - 20.5	1811.05	06/11/85
RS-18	IV	13	16	0 - 13	4	0 - 13	0 - 6	7.5 - 13	1802.86	06/12/85
RS-19	I	15	16	0 - 15	4	0 - 15	0 - 4.8	4.8 - 15	1812.42	09/12/85
RS-20	I	20.5	16	0 - 20.5	4	0 - 20.5	0 - 8.5	10.5 - 20.5	1823.77	09/12/85
RS-21	II	29	16	0 - 29	4	0 - 24.6	0 - 3.5	14.5 - 24.6	1767.36	10/23/85
RS-22	II	31	16	0 - 31	4	0 - 31	0 - 4	21 - 31	1771.23	10/23/85
RS-23	IV	13	12	0 - 13	4	0 - 13	0 - 6.8	8 - 13	1887.25	08/23/88
RS-24	IV	8.5	12	0 - 8.5	4	0 - 8.5	0 - 3	4 - 8.5	1809.24	08/25/88
RS-25	IV	13.5	Trenched	0 - 13.5	4	0 - 13.5	0 - 2	8.5 - 13.5	1862.71	08/25/88
RS-27	IV	9	8	0 - 9	4	0 - 9	0 - 3	5 - 9	1804.78	08/02/88
RS-28	IV	19	8	0 - 19	4	0 - 19	0 - 9	14 - 19	1768.59	08/17/89
RS-36	IV	19.5	9-5/8	0 - 19.5	12 9-5/8	0 - 15 ---	0 - 15 ---	Open Hole	1817.73	11/21/11
RS-54	IV	38	11-1/4 5-7/8	0 - 7 7 - 38	6-1/4 ---	0 - 7 ---	0 - 7	Open Hole	1846.66	08/09/93
ES-31	IV	25	12	0 - 25	6	0 - 25	0 - 9.7	11.6 - 25	1787.01	01/29/87
CHATSWORTH FORMATION										
DD-139	IV	206	14 9-7/8 5-7/8	0 - 10 10 - 19 19 - 206	6 --- ---	0 - 19 --- ---	0 - 19	Open Hole	1793.01	03/04/16
DD-140	IV	167	14 9-7/8 5-7/8	0 - 10 10 - 60 60 - 167	6 --- ---	0 - 60 --- ---	0 - 60	Open Hole	1798.16	02/23/16
DD-141	IV	133	14 9-7/8 5-7/8	0 - 10 10 - 19.5 19.5 - 133	6 --- ---	0 - 19.5 --- ---	0 - 19.5	Open Hole	1762.79	06/29/16
DD-142	IV	91	14 9-7/8 5-7/8	0 - 10 10 - 34 34 - 91	6 --- ---	0 - 34 --- ---	0 - 34	Open Hole	1812.22	02/05/16
DD-143	IV	100	14 9-7/8 5-7/8	0 - 10 10 - 19.7 19.7 - 100	6 --- ---	0 - 19.7 --- ---	0 - 19.7	Open Hole	1789.74	06/15/16
DD-144	IV	71	14 9-7/8 5-7/8	0 - 15 15 - 38 38 - 71	6 --- ---	0 - 38 --- ---	0 - 38	Open Hole	1810.69	02/02/16

**TABLE A-1
WELL CONSTRUCTION DATA
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Well Identifier	Area No.	Effective Borehole Depth (feet)	Borehole		Casing		Sealed Interval (feet)	Perforated Interval (feet)	Measuring Point Elevation (ft MSL)	Date Drilling Completed
			Diameter (inches)	Interval (feet)	Inside Diameter (inches)	Interval (feet)				
DD-145	IV	82	14 9-7/8 5-7/8	0 - 3 3 - 27 27 - 82	6 --- ---	0 - 27 --- ---	0 - 27	Open Hole	1798.90	02/12/16
DD-146	IV	140	10 5-7/8	0 - 40 40 - 140	6 ---	0 - 120 ---	0 - 120	Open Hole	1812.72	06/14/18
DD-147	IV	257	13 5-7/8	0 - 30 30 - 257	8.5 ---	0 - 30 ---	0 - 30	Open Hole	1818.30	06/14/18
RD-07	IV	300	15 8-5/8	0 - 25 25 - 300	10-1/8 ---	0 - 25 ---	0 - 25	Open Hole	1812.82	01/08/86
RD-13	IV	160	12 6-1/2	0 - 30 30 - 160	8-1/4 ---	0 - 30 ---	0 - 30	Open Hole	1840.01	07/25/89
RD-14	IV	125	12 6-1/2	0 - 30 30 - 125	8-1/4 ---	0 - 30 ---	0 - 30	Open Hole	1824.18	07/27/89
RD-15	IV	152	12 6-1/2	0 - 30 30 - 152	8-1/4 ---	0 - 30 ---	0 - 30	Open Hole	1817.70	07/27/89
RD-16	IV	220	12 6-1/2	0 - 30 30 - 220	8-1/4 ---	0 - 30 ---	0 - 30	Open Hole	1808.99	08/15/89
RD-17	IV	125	12 6-1/2	0 - 30 30 - 125	8-1/4 ---	0 - 30 ---	0 - 30	Open Hole	1836.30	08/10/89
RD-18	IV	240	12 6-1/2	0 - 30 30 - 240	8-1/4 ---	0 - 30 ---	0 - 30	Open Hole	1839.51	07/28/89
RD-19	IV	135	12 6-1/2	0 - 30 30 - 135	8-1/4 ---	0 - 30 ---	0 - 30	Open Hole	1853.16	07/31/89
RD-20	IV	127	12 6-1/2	0 - 30 30 - 127	8-1/4 ---	0 - 30 ---	0 - 30	Open Hole	1819.52	07/27/89
RD-21	IV	175	12 6-1/2	0 - 30 30 - 175	8-1/4 ---	0 - 30 ---	0 - 30	Open Hole	1866.96	08/11/89
RD-22	IV	440	12 6-1/2	0 - 30 30 - 440	8-1/4 ---	0 - 30 ---	0 - 30	Open Hole	1853.41	08/15/89
RD-23	IV	440	12 6-1/2	0 - 30 30 - 440	8-1/4 ---	0 - 30 ---	0 - 30	Open Hole	1838.19	08/16/89
RD-24	IV	150	12 6-1/2	0 - 30 30 - 150	8-1/4 ---	0 - 30 ---	0 - 30	Open Hole	1809.93	08/09/89
RD-25	IV	Well abandoned April 2004 as part of Building 4059 demolition.								
RD-27	IV	150	12 6-1/2	0 - 30 30 - 150	8-1/4 ---	0 - 30 ---	0 - 30	Open Hole	1841.67	08/10/89
RD-28	IV	Well abandoned April 2004 as part of Building 4059 demolition.								
RD-29	IV	100	12 6-1/2	0 - 30 30 - 100	8-1/4 ---	0 - 30 ---	0 - 30	Open Hole	1806.29	08/10/89
RD-30	IV	75	12 6-1/2	0 - 30 30 - 75	8-1/4 ---	0 - 30 ---	0 - 30	Open Hole	1768.69	08/11/89
RD-33A	UL-N	320	17-1/2 11 5-1/2	0 - 11 11 - 100 100 - 320	12-1/8 6-1/4 ---	0 - 11 0 - 100 ---	0 - 11 0 - 100	Open Hole	1792.97	09/27/91
RD-33B	UL-N	415	17-1/2 11 6-1/4	0 - 20 20 - 360 360 - 415	12-1/8 6-1/4 ---	0 - 20 0 - 360 ---	0 - 20 20 - 360	Open Hole	1793.72	09/27/91
RD-33C	UL-N	520	17-1/2 11 6-1/4	0 - 10 10 - 480 480 - 520	12-1/8 6-1/4 ---	0 - 10 0 - 480 ---	0 - 10 0 - 480	Open Hole	1793.61	09/21/91
RD-34A	UL-N	60	12-1/4 6-1/2	0 - 16 16 - 60	8-1/4 ---	0 - 16 ---	0 - 16	Open Hole	1761.91	07/25/91
RD-34B	UL-N	240	17-1/2 11 6-1/4	0 - 30 30 - 180 180 - 240	12-1/8 6-1/4 ---	0 - 30 0 - 180 ---	0 - 30 0 - 180	Open Hole	1762.51	08/11/91

**TABLE A-1
WELL CONSTRUCTION DATA
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Well Identifier	Area No.	Effective Borehole Depth (feet)	Borehole		Casing		Sealed Interval (feet)	Perforated Interval (feet)	Measuring Point Elevation (ft MSL)	Date Drilling Completed
			Diameter (inches)	Interval (feet)	Inside Diameter (inches)	Interval (feet)				
RD-34C	UL-N	450	17-1/2 11 6-1/4	0 - 30 30 - 380 380 - 450	12-1/8 6-1/4 ---	0 - 30 0 - 380 ---	0 - 30 0 - 380	Open Hole	1762.79	08/10/91
RD-50	IV	195	12-3/4 6-1/4	0 - 18.5 18.5 - 195	8-1/4 ---	0 - 18.5 ---	0 - 18.5	Open Hole	1914.88	05/28/93
RD-54A	IV	278	17-1/2 11-1/4 5-7/8	0 - 19 19 - 119 119 - 278	12-1/8 6-1/4 ---	0 - 19 0 - 119 ---	0 - 19 0 - 119	Open Hole	1841.72	08/07/93
RD-54B	IV	437	17-1/2 11-1/4 5-7/8	0 - 19 19 - 379 379 - 437	12-1/8 6-1/4 ---	0 - 19 0 - 379 ---	0 - 19 0 - 379	Open Hole	1842.54	08/31/93
RD-54C	IV	638	17-1/2 11-1/4 6-1/4	0 - 20 20 - 558 558 - 638	12-1/8 6-1/4 ---	0 - 20 0 - 557 ---	0 - 20 0 - 557	Open Hole	1843.77	07/27/93
RD-57	UL-N	419	17-1/2 6-1/2	0 - 19.5 19.5 - 419	12-1/8 ---	0 - 19.5 ---	0 - 19.5	Open Hole	1774.15	02/23/94
RD-59A	OS	58	17-1/2 6-1/2	0 - 21 21 - 58	12-1/8 ---	0 - 21 ---	0 - 21	Open Hole	1340.59	05/19/94
RD-59B	OS	214	17-1/2 6-1/2	0 - 19.5 19.5 - 214	12-1/8 2	0 - 19.5 0 - 209	0 - 19.5 0 - 161	178 - 209	1342.49	07/02/94
RD-59C	OS	398	17-1/2 6-1/2	0 - 19 19 - 398	12-1/8 2	0 - 19 0 - 397	0 - 19 0 - 186 250 - 328	345.5 - 397	1345.41	07/02/94
RD-63	IV	230	12-3/4 6-1/2	0 - 20 20 - 230	8-1/4 ---	0 - 20 ---	0 - 20	Open Hole	1764.83	05/10/94
RD-64	IV	398	12-1/4 6-1/2	0 - 19 19 - 398	8-1/4 ---	0 - 19 ---	0 - 19	Open Hole	1857.04	05/19/94
RD-65	IV	397	12-3/4 6-1/2	0 - 19 19 - 397	8-1/4 ---	0 - 19 ---	0 - 19	Open Hole	1819.14	08/14/94
RD-74	IV	101	17-1/2 6-1/2	0 - 30 30 - 101	12 ---	0 - 30 ---	0 - 30	Open Hole	1810.90	01/21/99
RD-85	IV	90	13-3/8 5	0 - 20 20 - 90	8 ---	0 - 20 ---	0 - 20	Open Hole	1849.36	08/04/04
RD-86	IV	80	13-3/8 5	0 - 20 20 - 80	8 ---	0 - 20 ---	0 - 20	Open Hole	1832.16	08/09/04
RD-87	IV	60	13-3/8 5	0 - 20 20 - 60	8 ---	0 - 20 ---	0 - 20	Open Hole	1789.09	08/11/04
RD-88	IV	30	13-3/8 5	0 - 20 20 - 30	8 ---	0 - 20 ---	0 - 20	Open Hole	1774.62	08/16/04
RD-89	IV	50	13 3.8	0 - 30 30 - 50	8 ---	0 - 30 ---	0 - 30	Open Hole	1814.18	05/18/05
RD-90	IV	125	12-3/4 6	0 - 20 20 - 125	8 ---	0 - 20 ---	0 - 20	Open Hole	1784.75	03/11/04
RD-91	IV	140	12-3/4 6	0 - 20 20 - 140	8 ---	0 - 20 ---	0 - 20	Open Hole	1818.04	03/12/04
RD-92	IV	105	12-3/4 6	0 - 20 20 - 105	8 ---	0 - 20 ---	0 - 20	Open Hole	1833.74	03/16/04
RD-93	IV	60	13 3.8	0 - 20 20 - 60	8 ---	0 - 20 ---	0 - 20	Open Hole	1810.48	05/19/05
RD-94	UL, NW of IV	35	13 3.8	0 - 20.5 20.5 - 35	8 ---	0 - 20.5 ---	0 - 20.5	Open Hole	1744.38	05/15/05
RD-95	IV	80	13 3.8	0 - 50 50 - 80	8 ---	0 - 50 ---	0 - 50	Open Hole	1811.36	05/12/05

**TABLE A-1
WELL CONSTRUCTION DATA
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Well Identifier	Area No.	Effective Borehole Depth (feet)	Borehole		Casing		Sealed Interval (feet)	Perforated Interval (feet)	Measuring Point Elevation (ft MSL)	Date Drilling Completed	
			Diameter (inches)	Interval (feet)	Inside Diameter (inches)	Interval (feet)					
RD-96	IV	90	13 4	0 - 20 20 - 90	8 ---	0 - 20 ---	0 - 20	Open Hole	1805.49	05/03/06	
RD-97	UL, NW of IV	74.5	13 4	0 - 20 20 - 74.5	8 ---	0 - 20 ---	0 - 20	Open Hole	1792.22	04/28/06	
RD-98	IV	65	13-3/8 5-1/2	0 - 20 20 - 65	8-1/8 ---	0 - 20 ---	0 - 20	Open hole	1808.73	06/04/08	
RD-102	IV	100	10-5/8 4	0 - 30 30 - 100	6 ---	0 - 30 ---	0 - 30	Open hole	1817.50	11/16/11	
RD-150	IV	170	10 5.5	0-40 40-170	6 ---	0-40 ---	0-40	Open Hole	1877.64	04/26/16	
RD-151	IV	130	10 5.5	0-40 40-130	6 ---	0-40 ---	0-40	Open Hole	1858.38	05/09/16	
RD-152	IV	60	10 5.5	0-20 20-60	6 ---	0-20 ---	0-20	Open Hole	1798.88	04/29/16	
RD-153	IV	55	10 5.5	0-20 20-55	6 ---	0-20 ---	0-20	Open Hole	1776.26	05/11/16	
RD-154	IV	145	10 5.5	0-40 40-145	6 ---	0-40 ---	0-40	Open Hole	1827.62	05/23/16	
RD-155	IV	115	10 5.5	0-40 40-115	6 ---	0-40 ---	0-40	Open Hole	1820.72	05/17/16	
RD-156	IV	170	10 5.5	0-40 40-170	6 ---	0-40 ---	0-40	Open Hole	1819.88	06/09/16	
WS-07	IV	700	15 10	0 - 400 400 - 700	12-1/8 ---	0 - 400 ---	Unknown	216 - 400 Open Hole	1826.19	1954	
PRIVATE OFF-SITE WELLS AND SPRINGS											
OS-02	OS	700	Unknown	Unknown	10 ---	0 - 17 ---	0 - 17	Open Hole	1237.01	03/18/59	
OS-03	OS	100	Drilled with cable tools		8-1/4 ---	0 - 59 ---	0 - 30	30 - 60 Open Hole	1298.15	06/12/50	
OS-04	OS	Well Construction Data Unresolved or Not Available								1334.00	
OS-05	OS	Well Construction Data Unresolved or Not Available									

Notes and Abbreviations:

Depth/intervals are measured in feet below land surface.

OS Off-site

UL-N Undeveloped land in northern part of Facility

UL-S Undeveloped land in southern part of Facility

--- No casing installed over the borehole interval specified; open hole

(v) Top of well below land surface, installed inside zero-grade vault

(WB) Well completed with Westbay Multilevel System

TABLE A-2a
CONSTRUCTION DETAILS OF PIEZOMETER MONITORING SYSTEMS
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

PIEZOMETER ID	LOCATION					PIEZOMETER DESIGN DETAILS						
	Area	SWMU	Northing	Easting	MP Elevation	Date Drilled	Total Depth	Screened Interval	Sand Interval	Bentonite Interval	Grout Interval	Concrete Interval
			[feet]	[feet]	[feet]	[m/d/y]	[feet bgs]	[feet bgs]	[feet bgs]	[feet bgs]	[feet bgs]	[feet bgs]
PZ-005	IV	Central Area IV	266634.9	1784877.3	1800.97	11/7/2000	45.0	15-25	11.5-26.5	8.5-11.5	2-8.5	0-2
PZ-041	IV	PDU	267315.8	1785662.0	1809.10	1/16/2001	29.6	19-29	17-29.6	14-17	2-14	0-2
PZ-051	IV	EEL	266485.8	1785857.0	1770.87	12/14/2000	27.0	5-15	3-16	2-3	N/A	0-2
PZ-052	IV	Eastern Area IV	266742.1	1786103.7	1790.72	12/15/2000	30.0	18.9-28.9	17-30	14-17	2-14	0-2
PZ-055	IV	Eastern Area IV	267253.6	1787421.3	1818.40	1/2/2001	29.5	19-29	17-29.5	14-17	2-14	0-2
PZ-056	IV	OCY S	268068.7	1788028.0	1805.86	12/19/2000	28.0	17-27	13-28	10-13	2-10	0-2
PZ-097	UDL	FSDF	267048.9	1783400.3	1761.87	10/15/2001	44.5	33-43	31-44.5	11.5-28	2-11.5	0-2
PZ-098	IV	FSDF	266788.9	1783488.8	1797.78	10/16/2001	37.5	24-34	21.5-37.5	19-21.5	2-19	0-2
PZ-099	IV	FSDF	Abandoned in place in 2006									
PZ-100	IV	FSDF	266078.3	1782962.2	1870.11	10/17/2001	16.5	5.67-15.67	4.67-16.5	2-4.67	N/A	0-2
PZ-101	IV	FSDF	266057.5	1783090.6	1869.71	10/17/2001	27	10-20	7-27	5-7	1.75-5	0-1.75
PZ-102	IV	Central Area IV	267080.8	1784684.4	1827.78	10/18/2001	59.2	48.5-59.2	45-59.2	43-45	2-43	0-2
PZ-103	IV	Central Area IV	266281.2	1784400.9	1815.93	10/22/2001	39	28.5-38.5	26-39	23.5-26	2-23.5	0-2
PZ-104	IV	Central Area IV	266270.2	1784924.2	1797.47	10/22/2001	38.5	18-28	16-30	13-16	2-13	0-2
PZ-105	IV	Central Area IV	265935.5	1784787.9	1803.87	10/23/2001	28	17-27	15-28	12-15	2-12	0-2
PZ-106	IV	EEL	266411.9	1785469.6	1784.17	10/23/2001	35	18-28	16-30.5	12.75-16	2-12.75	0-2
PZ-107	IV	Eastern Area IV	266876.4	1785822.0	1793.62	10/24/2001	11	5-10	4-11	2-4	N/A	0-2
PZ-108	IV	HMSA	268032.6	1785076.3	1809.36	10/24/2001	30	16-26	13-28.5	10-13	2-10	0-2
PZ-109	IV	Central Area IV	267332.4	1785248.2	1809.51	10/25/2001	36.5	25-35	22-36.5	19-22	2-19	0-2
PZ-110	IV	Eastern Area IV	267204.0	1786209.6	1818.90	10/25/2001	17.5	7-17	5-17.5	2-5	N/A	0-2
PZ-111	IV	Eastern Area IV	266948.4	1786433.9	1794.90	10/26/2001	20.0	7.5-17.5	5-20	N/A	N/A	N/A
PZ-112	IV	Eastern Area IV	267435.9	1786720.8	1829.14	10/26/2001	35.0	24-34	22-35	19-22	2-19	0-2
PZ-113	IV	Eastern Area IV	267682.9	1787367.8	1823.68	10/29/2001	15.0	7-15	5-15	2-5	N/A	0-2
PZ-114	IV	Old Con Yard S	268304.0	1787913.1	1818.19	10/30/2001	48.2	37-47	35-48.2	32-35	2-32	0-2
PZ-115	IV	Eastern Area IV	268006.8	1787536.5	1817.81	10/30/2001	40	25.5-37.5	25-40	22-25	2-22	0-2
PZ-116	UDL	RMHF	266501.1	1783693.0	1827.78	10/31/2001	34	22-32	20-34	17-20	2-17	0-2
PZ-120	IV	HMSA / SCTI	267230.1	1785009.7	1810.96	3/18/2003	26	15-25	12-26	9-12	2-9	0-2
PZ-121	IV	HMSA / SCTI	267491.6	1785120.7	1808.98	3/19/2003	33	15-25	12-28	8.4-12; 28-33	1.5-8.4	0-1.5
PZ-122	IV	HMSA / SCTI	267091.9	1785176.5	1810.80	3/19/2003	27.5	15.5-25.5	12-27.5	9-12	2-9	0-2
PZ-124	IV	B056 Landfill	267166.7	1784015.9	1764.11	3/21/2003	31	14.7-24.7	11.3-31	8.3-11.3	1-8.3	0-1

Notes and Abbreviations:

The difference between the total depth and the bottom of the sand interval was filled with sloughed native material and/or bentonite.

^a The screen for this port is perpendicular to the well casing and covers the open bottom end; therefore, the screened section is a discrete depth.

bgs - Below ground surface

MP - Measuring point

UDL - undeveloped land

TABLE A-2b
CONSTRUCTION DETAILS OF PIEZOMETER MONITORING SYSTEMS
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

Well ID	Northing (feet)	Easting (feet)	Surface Elevation (feet amsl)	TOC Elevation (feet amsl)	Depth to Screen Top (feet bgs)	Depth to Screen Bottom (feet bgs)	Total Depth (feet bgs)	Total Depth Drilled (feet bgs)	Borehole Diameter (inches)	Casing Diameter (inches)	Screen Material	Screen Slot Size (inches)	Casing Material	Filter Pack Grade	Filter Pack Top (feet bgs)	Filter Pack Bottom (feet bgs)	Drilling Method	Driller	Annular Seal Material	Annular Seal Top (feet bgs)	Annular Seal Bottom (feet bgs)	Wellhead Completion
PZ-150	268281.654	1786086.776	1849.92	1852.23	17.5	27.5	27.5	27.5	10 5/8	4	SCH40 PVC	0.020	SCH40 PVC	#3	14.5	27.5	Air Rotary	WDC	Cement-Bentonite Grout	11	14.5	Monument
PZ-151	268743.1285	1787988.758	1860.4	1862.60	69.5	79.5	80	82	8	2	SCH40 PVC	0.02	SCH40 PVC	#3	64	80	CME-85 HSA/HQ w/carbide bit	WDC	Cement-Bentonite Grout Bentonite chips # 60 Sand Bentonite chips	2 52 62 80	52 62 64 82	Monument
PZ-160	268345.039	1786286.124	1849.14	1851.41	17.0	27.0	27	27	10 5/8	4	SCH40 PVC	0.020	SCH40 PVC	#3	14	27	Air Rotary	WDC	Cement-Bentonite Grout	1	14	Monument
PZ-161	268418.806	1786132.353	1850.00	1852.23	18	28	28	28	10 5/8	4	SCH40 PVC	0.020	SCH40 PVC	#3	15	28	Air Rotary	WDC	Cement-Bentonite Grout	1	15	Monument
PZ-162	267406.770	1785109.590	1818.61	1814.26	31	41	41	41.8	8	2	SCH40 PVC	0.020	SCH40 PVC	#3	27	41	HSA	---	Cement-Bentonite Grout	1	27.5	Monument
PZ-163	267277.940	1785109.590	1817.63	1814.03	30	30	40	40	8	4	SCH40 PVC	0.020	SCH40 PVC	#3	27.5	40	HSA	---	Cement-Bentonite Grout	1	27	Monument

Notes and Abbreviations:

--- - no information

Northing and Easting Coordinates are in State Plane NAD 27, US Feet, with the exception of PZ-162 and PZ-163 are NAD83

amsl - above mean sea level

bgs - below ground surface

SCH - schedule

PVC - polyvinyl chloride

TOC - top of casing

NM -not measured

APPENDIX B

Precipitation Data

Table B-1 Summary of Annual Rainfall Measured at the Santa Susana Field Laboratory

Figure B-1 Annual Precipitation at SSFL, 1960 through 2023

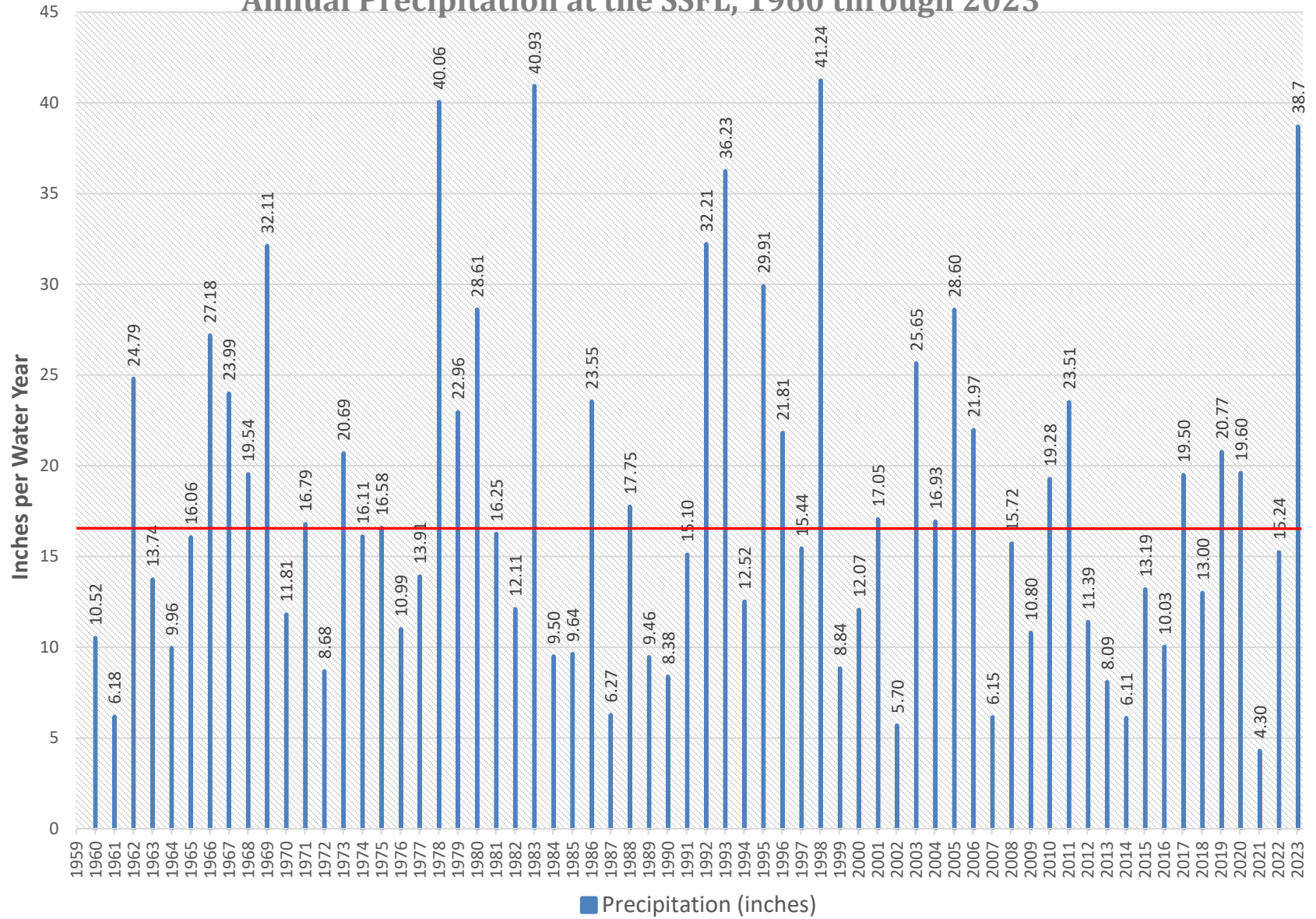
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**TABLE B-1
SUMMARY OF ANNUAL RAINFALL
MEASURED AT THE SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

Water Year Ending in	Precipitation (inches)	Water Year Ending in	Precipitation (inches)
1960	10.52	1991	15.10
1961	6.18	1992	32.21
1962	24.79	1993	36.23
1963	13.74	1994	12.52
1964	9.96	1995	29.91
1965	16.06	1996	21.81
1966	27.18	1997	15.44
1967	23.99	1998	41.24
1968	19.54	1999	8.84
1969	32.11	2000	12.07
1970	11.81	2001	17.05
1971	16.79	2002	5.70
1972	8.68	2003	25.65
1973	20.69	2004	16.93
1974	16.11	2005	28.60
1975	16.58	2006	21.97
1976	10.99	2007	6.15
1977	13.91	2008	15.72
1978	40.06	2009	10.80
1979	22.96	2010	19.28
1980	28.61	2011	23.51
1981	16.25	2012	11.39
1982	12.11	2013	8.09
1983	40.93	2014	6.11
1984	9.50	2015	13.19
1985	9.64	2016	10.03
1986	23.55	2017	19.50
1987	6.27	2018	13.00
1988	17.75	2019	20.77
1989	9.46	2020	19.60
1990	8.38	2021	4.30
		2022	15.24
		2023	38.70
Average Annual Precipitation (1960-2022) =			17.84

NOTE: Precipitation reported annually for the period of October through September of the calendar year indicated.

Figure B-1
Annual Precipitation at the SSFL, 1960 through 2023



APPENDIX C

Water Level Hydrographs

List of Hydrographs

FSDF

RD-21

RS-54

B4100 Trench

RD-20

Bldg 56 Landfill

RD-07

HMSA/PDU

RD-29

Tritium Plume

RD-90

RD-95

RMHF

RD-30

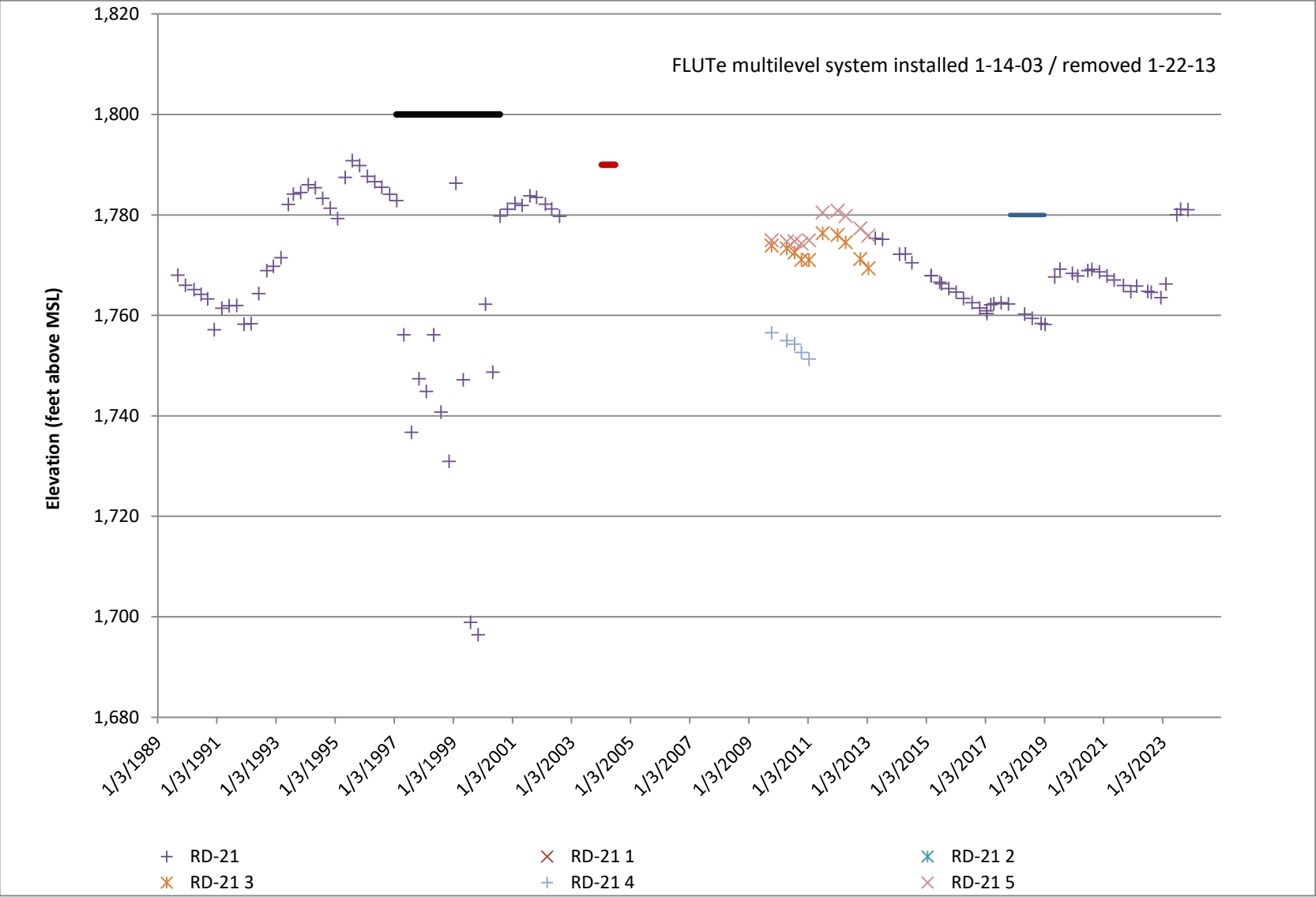
RD-63

Old Conservation Yard

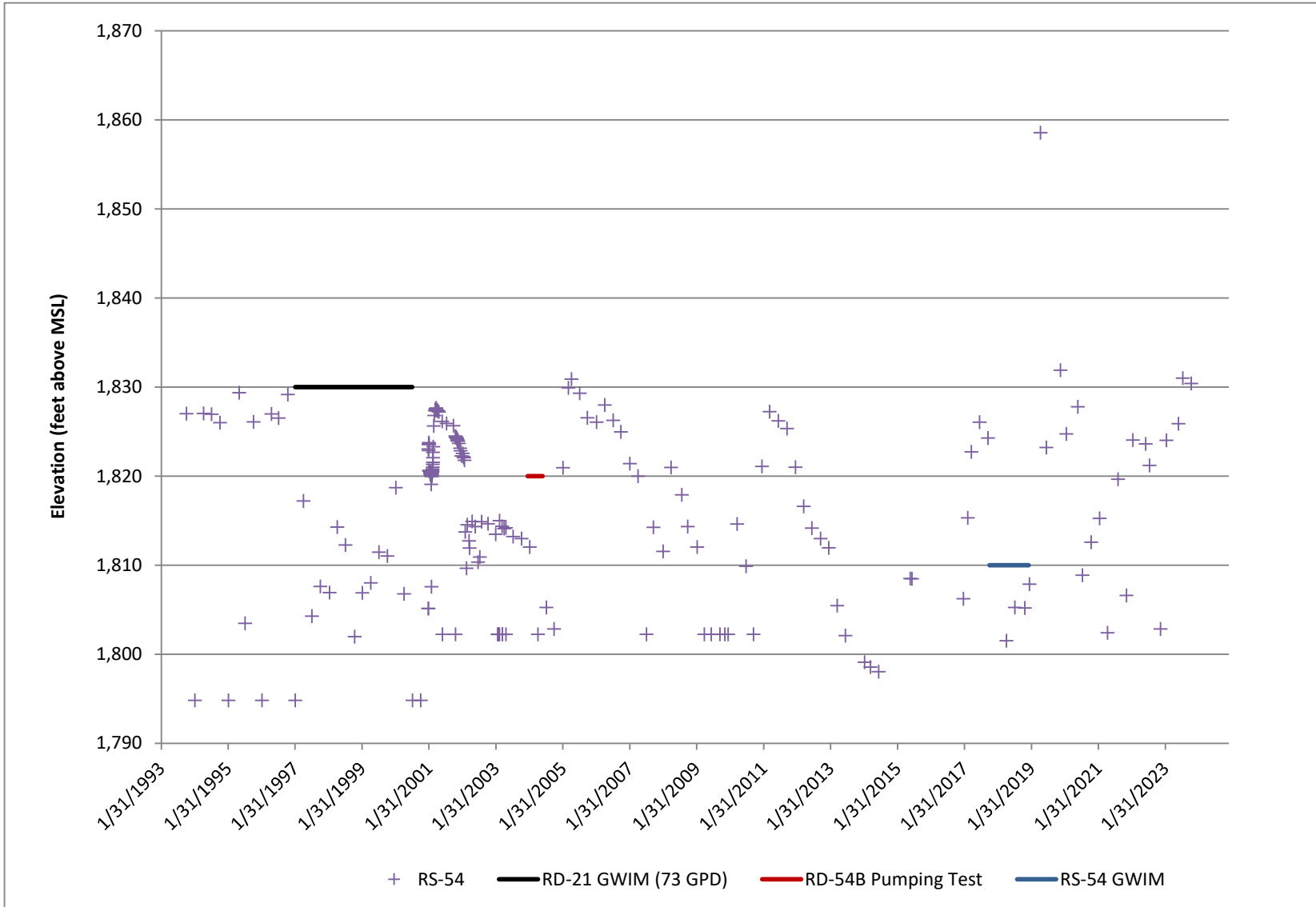
RD-14

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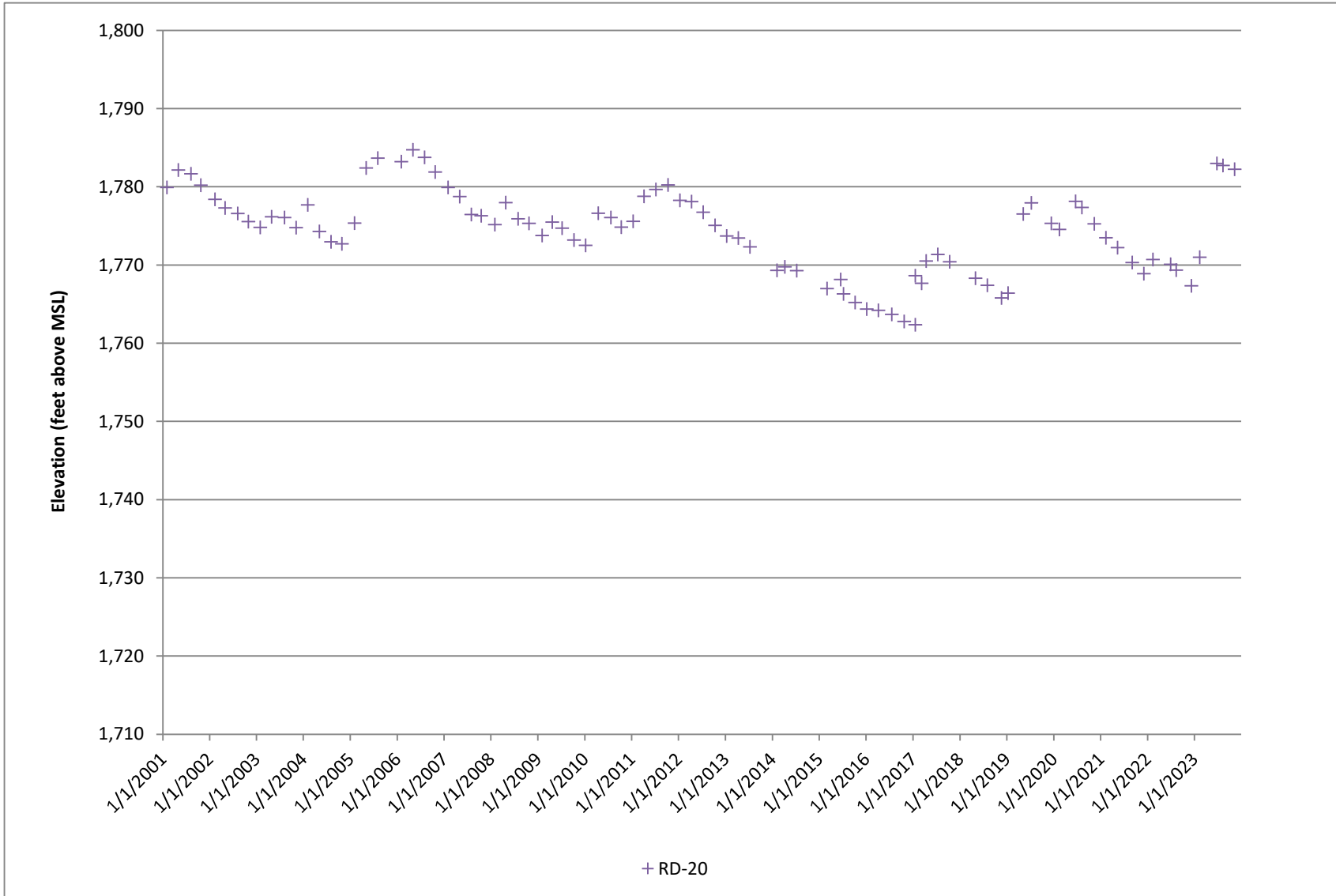
RD-21, FSDF Hydrograph



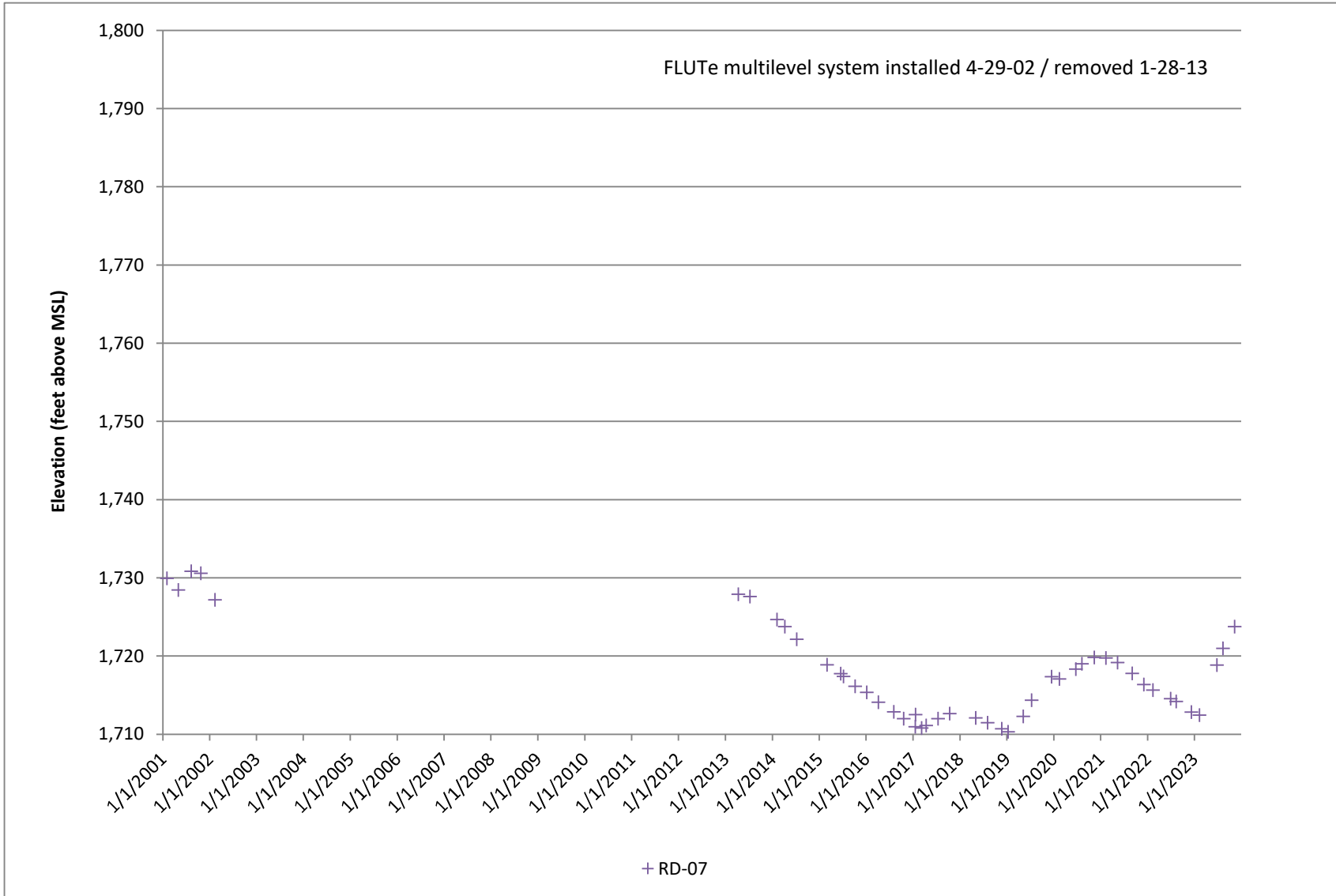
RS-54, FSDF Hydrograph



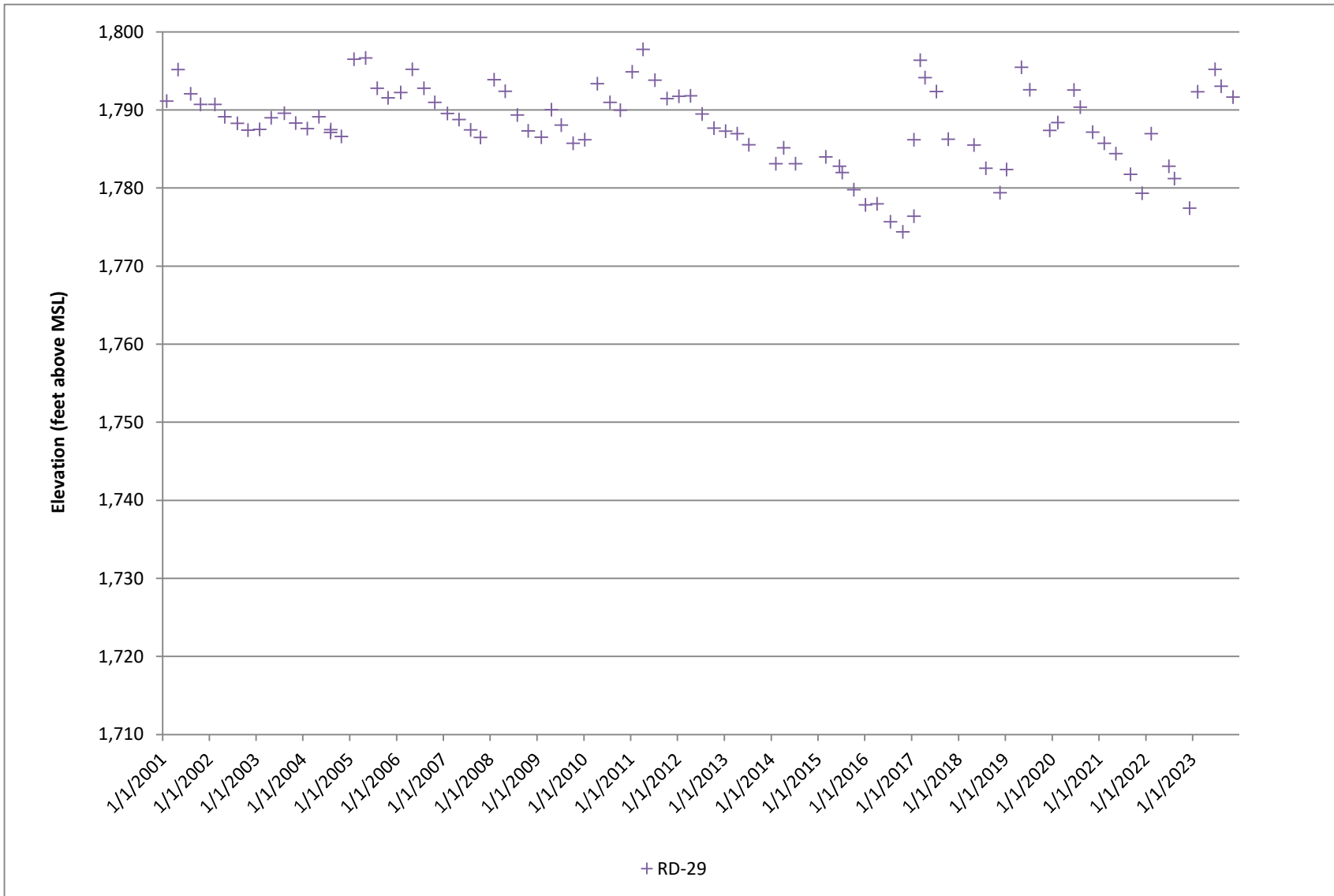
RD-20, B4100 Trench Hydrograph



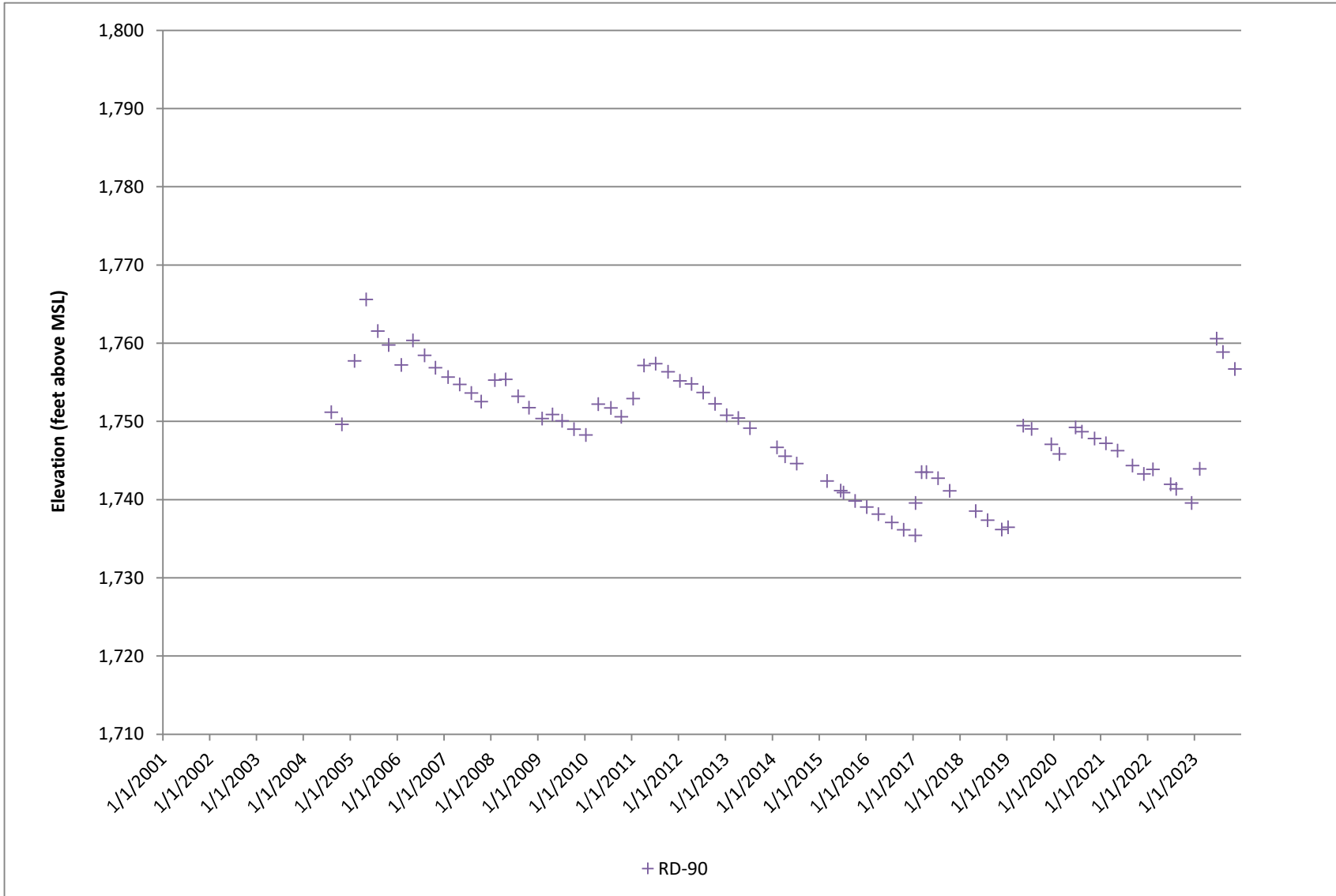
RD-07, Bldg 56 Landfill Hydrograph



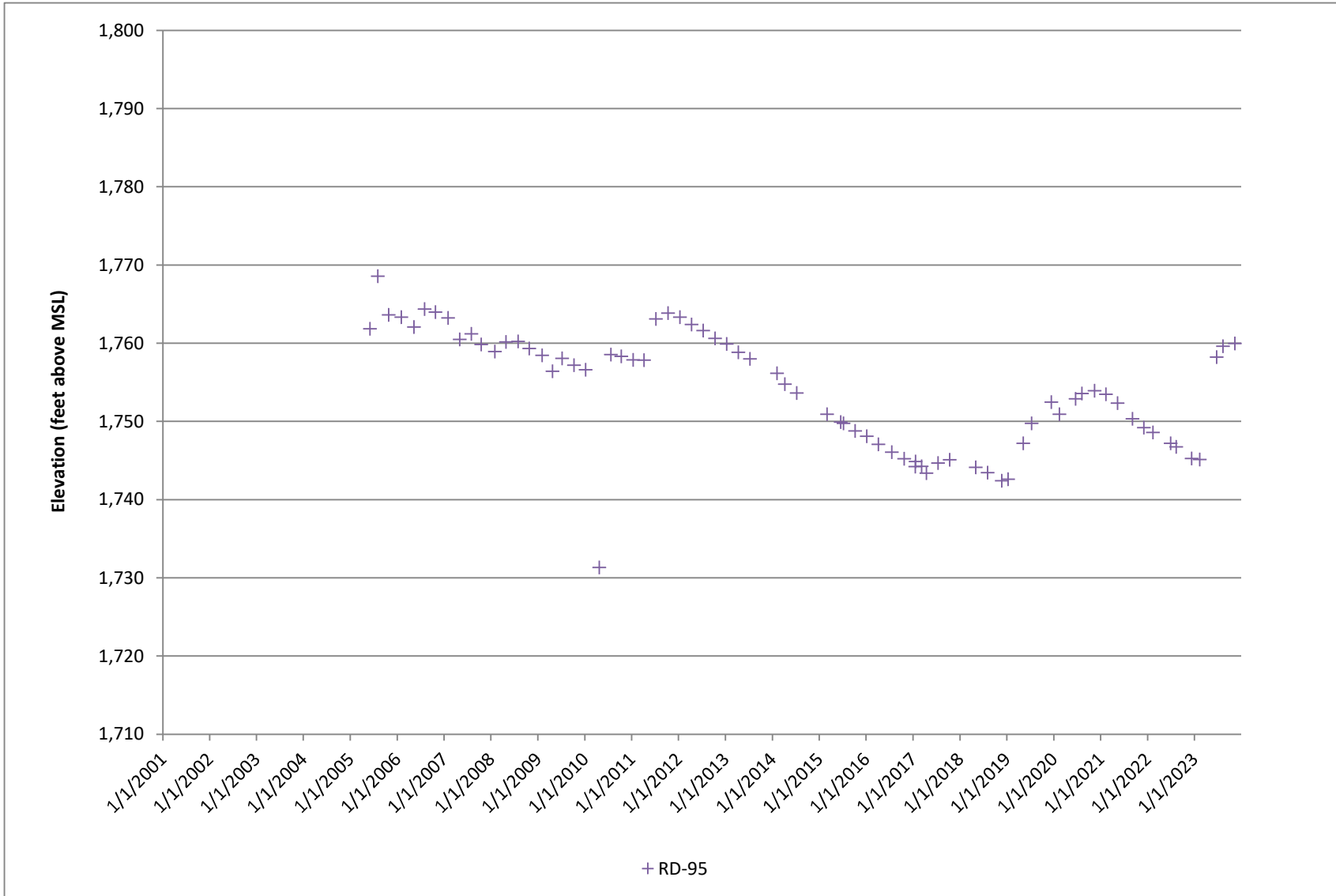
RD-29, B4457 HMSA Hydrograph



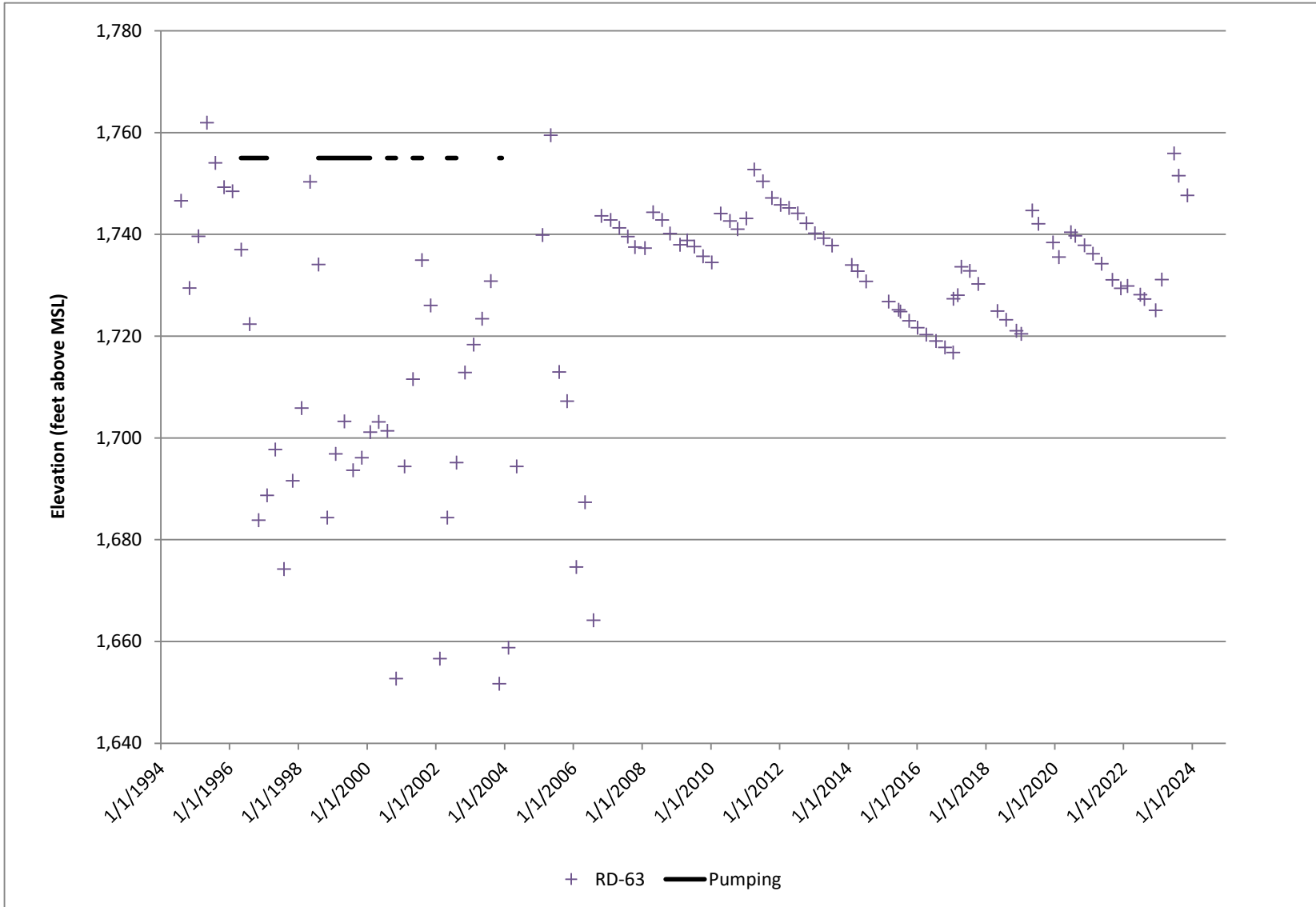
RD-90, Tritium Plume Hydrograph



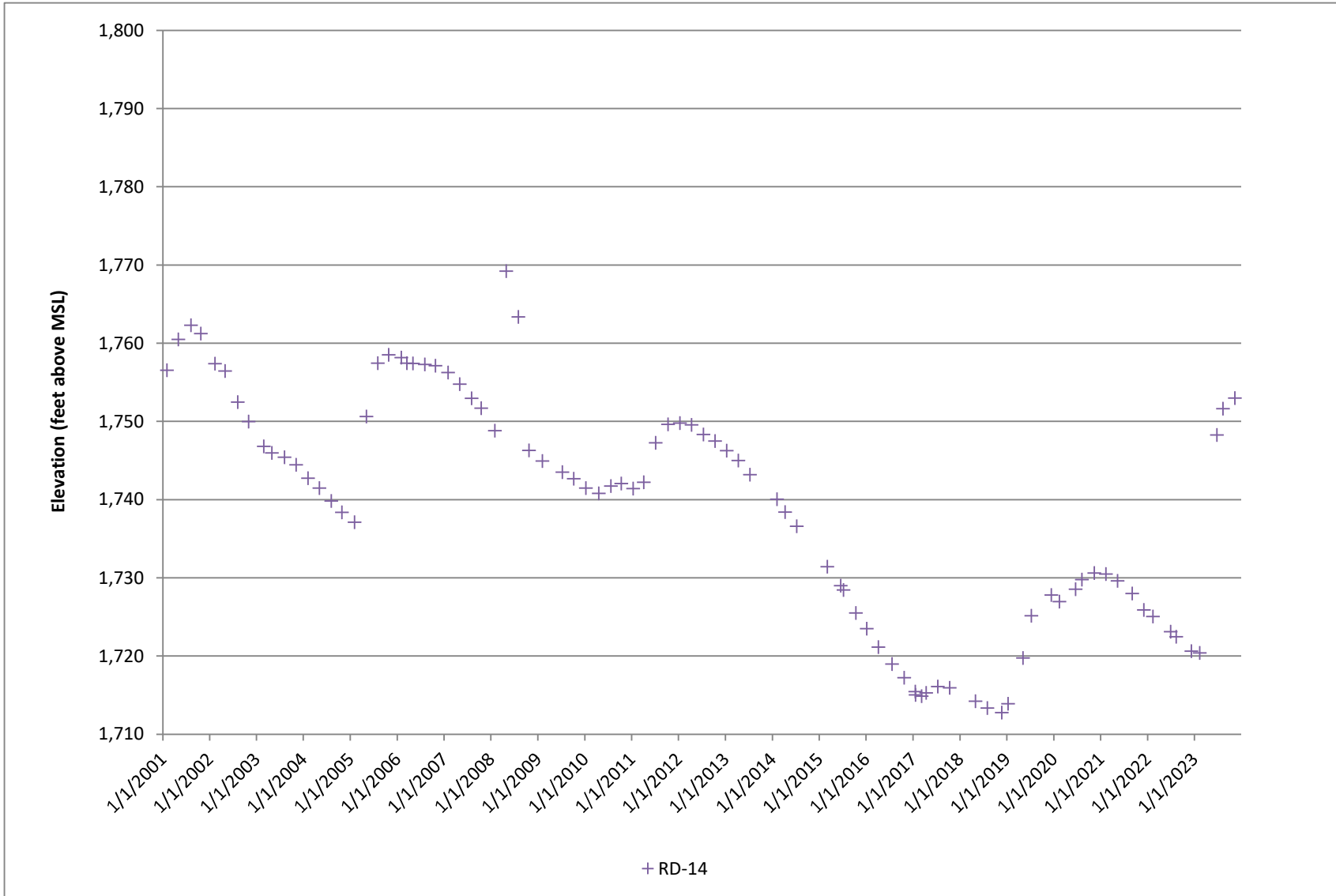
RD-95, Tritium Plume Hydrograph



RD-63, RMHF Hydrograph



RD-14, OCY Hydrograph



APPENDIX D

Time Series Plots of Analytical Data

Time series plots for trichloroethene (TCE), perchlorate, and tritium are presented in this appendix. Only primary sample results for the following wells are presented in the plots.

TCE
FSD/ESADA

RD-21
RD-33A
RD-33B
RD-33C
RD-54A
RD-54B
RD-54C
RD-64
RD-65
RS-18
RS-54

RMHF
RD-30
RD-34A
RD-34B
RD-34C
RD-63
RD-98
RS-28

Bldg 65 Metals Clarifier

PZ-005
PZ-104
PZ-105

TCE (continued)
Bldg 56 Landfill

RD-07

HMSA/PDU

PZ-108
PZ-120

B4057/59/626

PZ-109

OCY

RD-14

Bldg 4100 Trench

RD-20

Bldg 4133

RD-19

Off-site

RD-59A
RD-59B
RD-59C

Perchlorate
FSD/ESADA

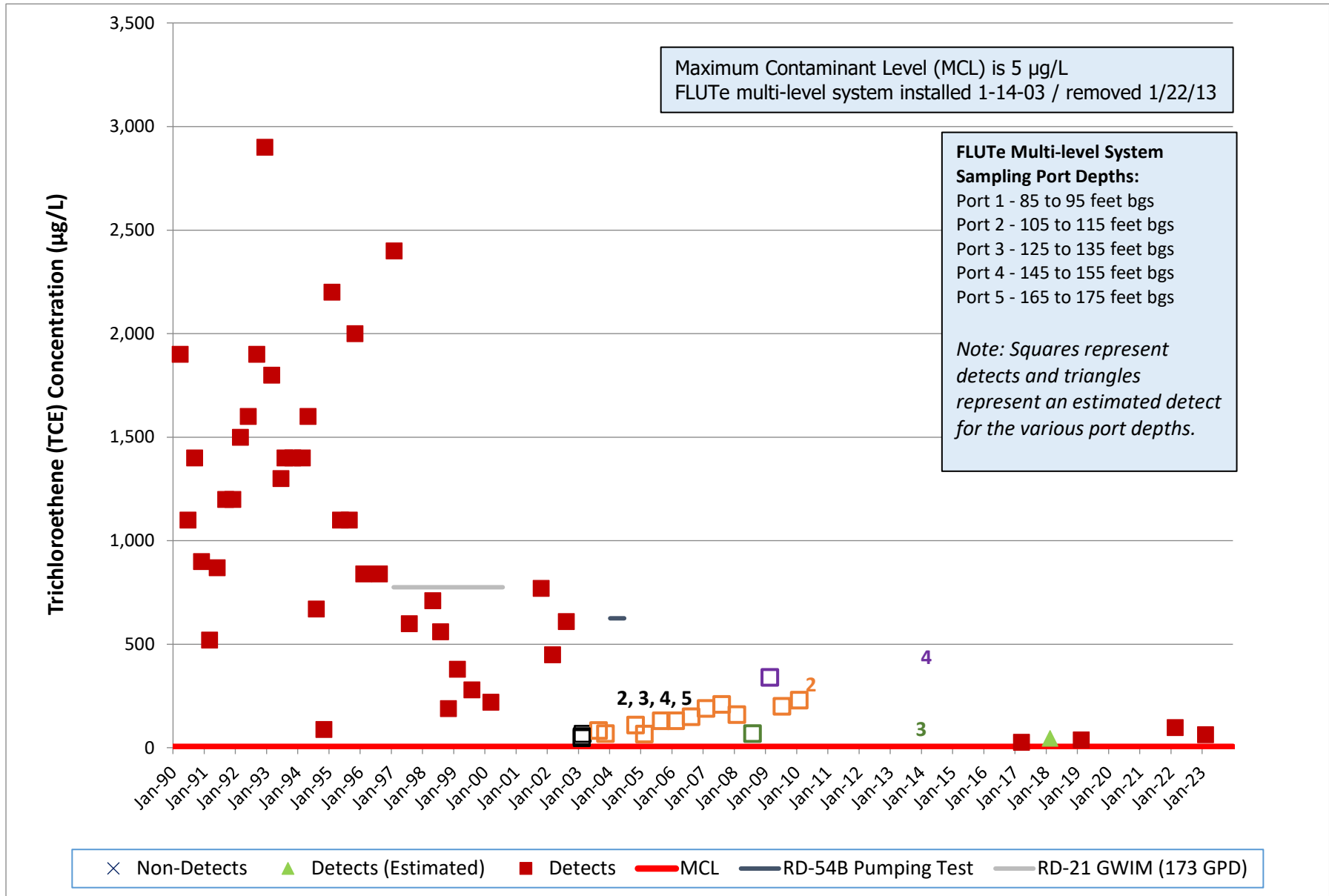
RD-21
RD-54A
RS-18
RS-54

Tritium Plume

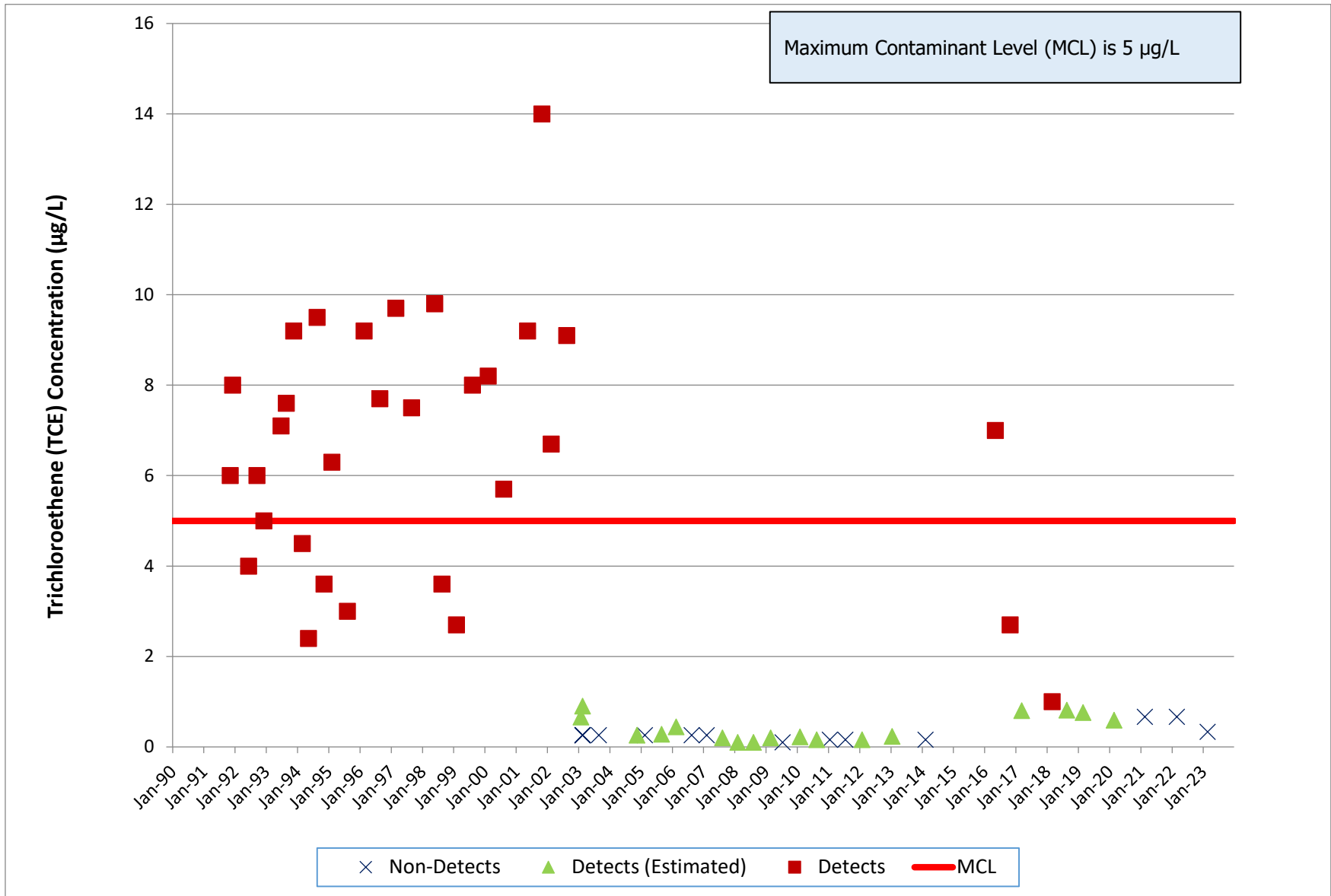
RD-34A
RD-88
RD-90
RD-93
RD-94
RD-95

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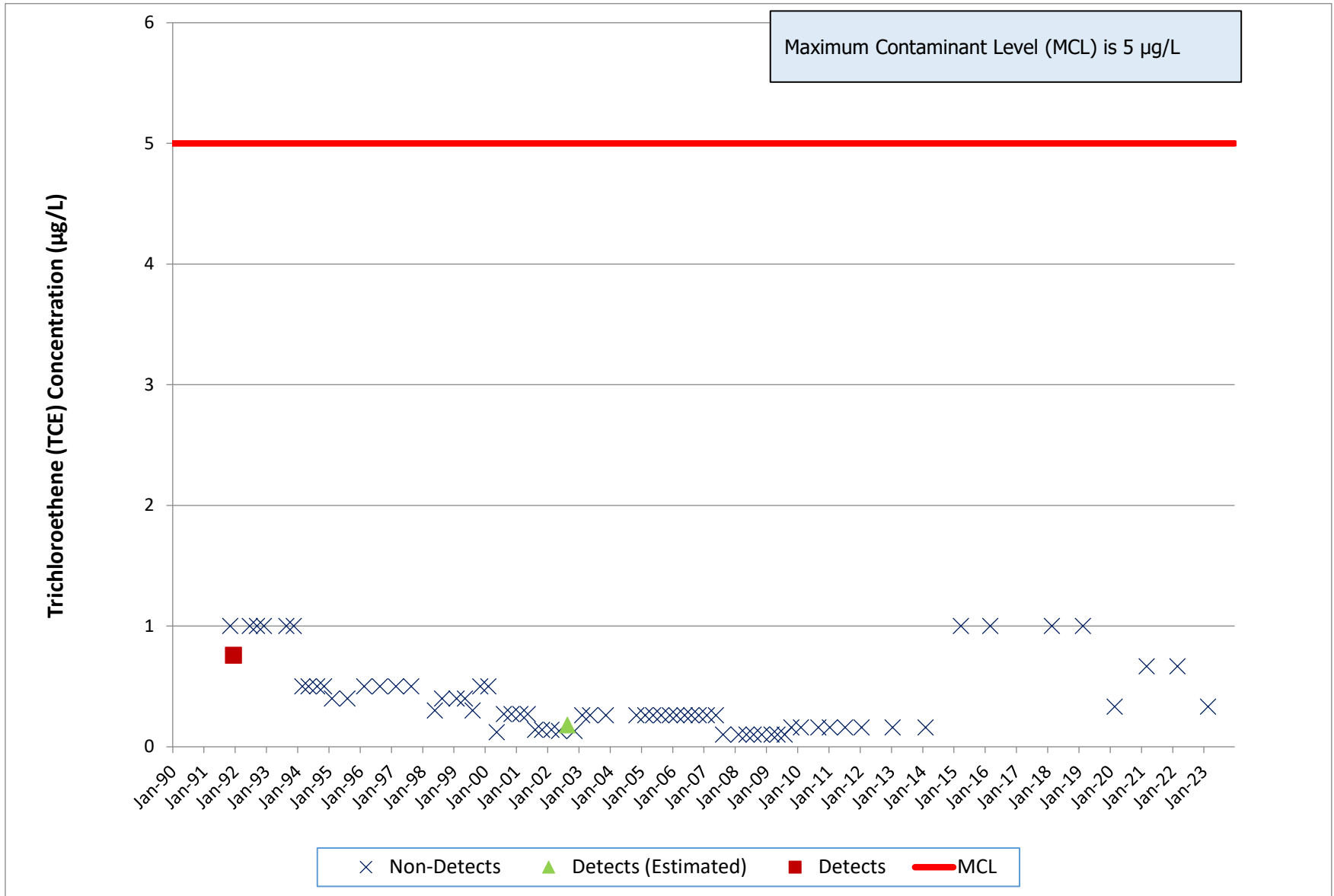
RD-21, FSDF/ESADA Trichloroethene



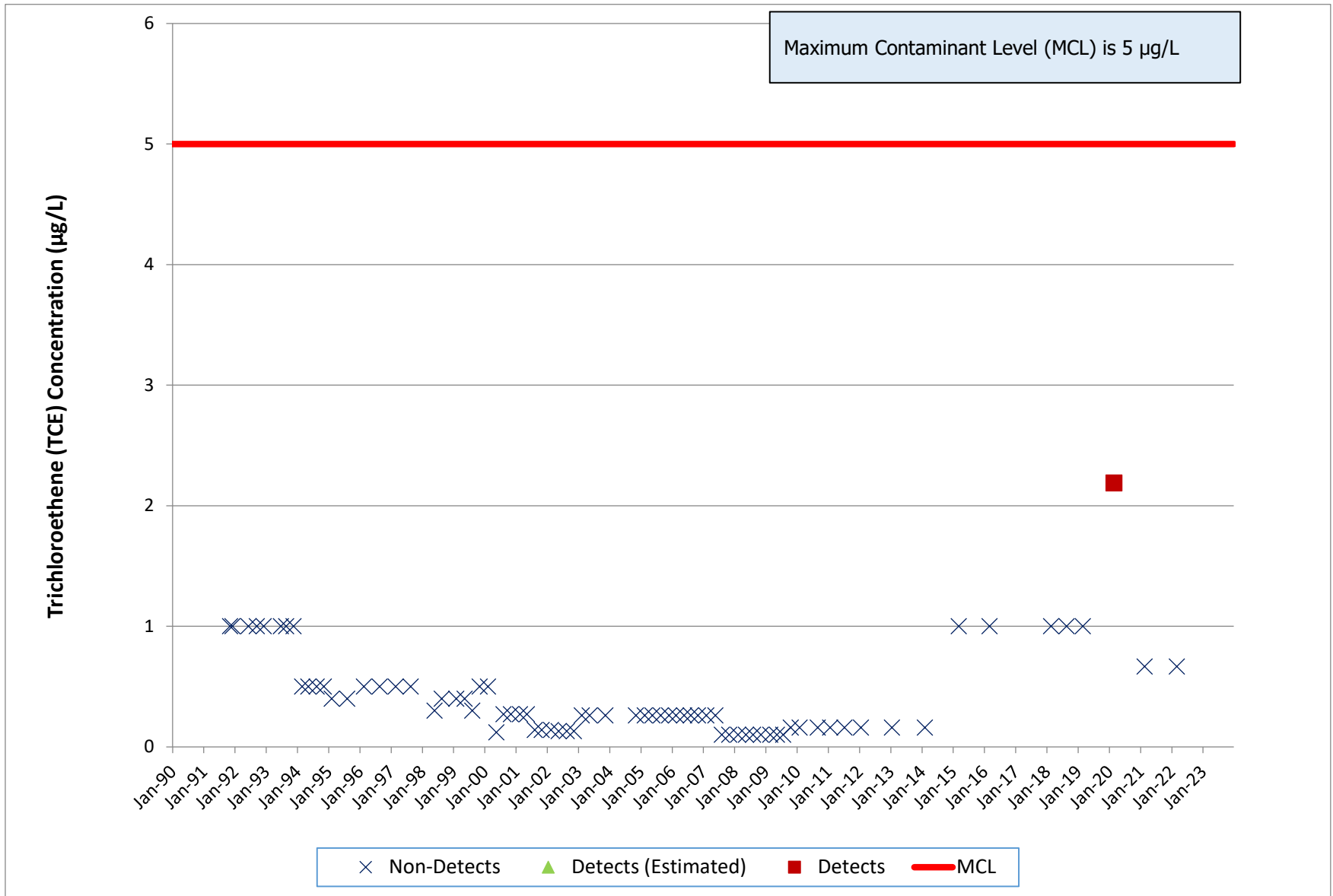
RD-33A, FSDF/ESADA Trichloroethene



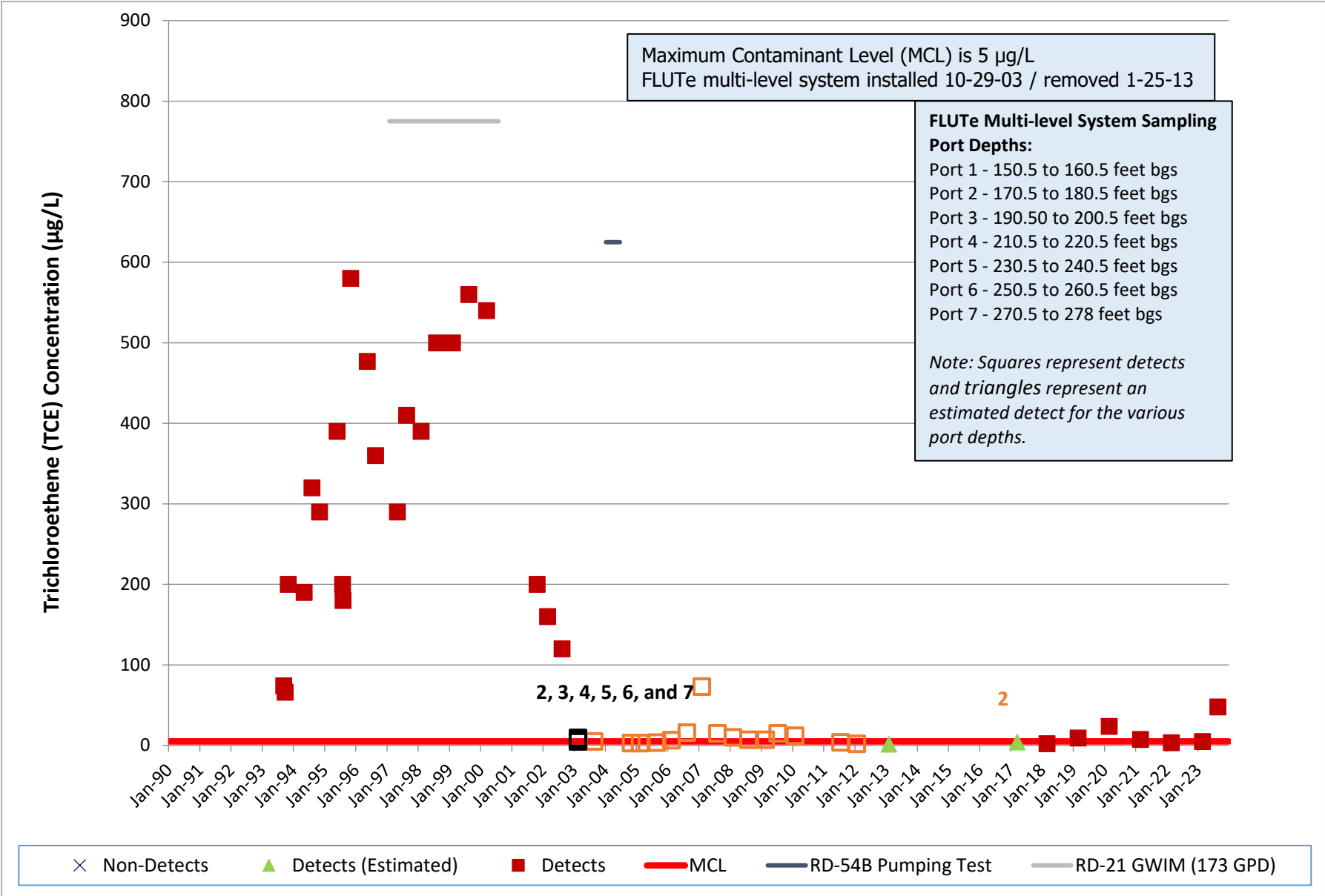
RD-33B, FSDF/ESADA Trichloroethene



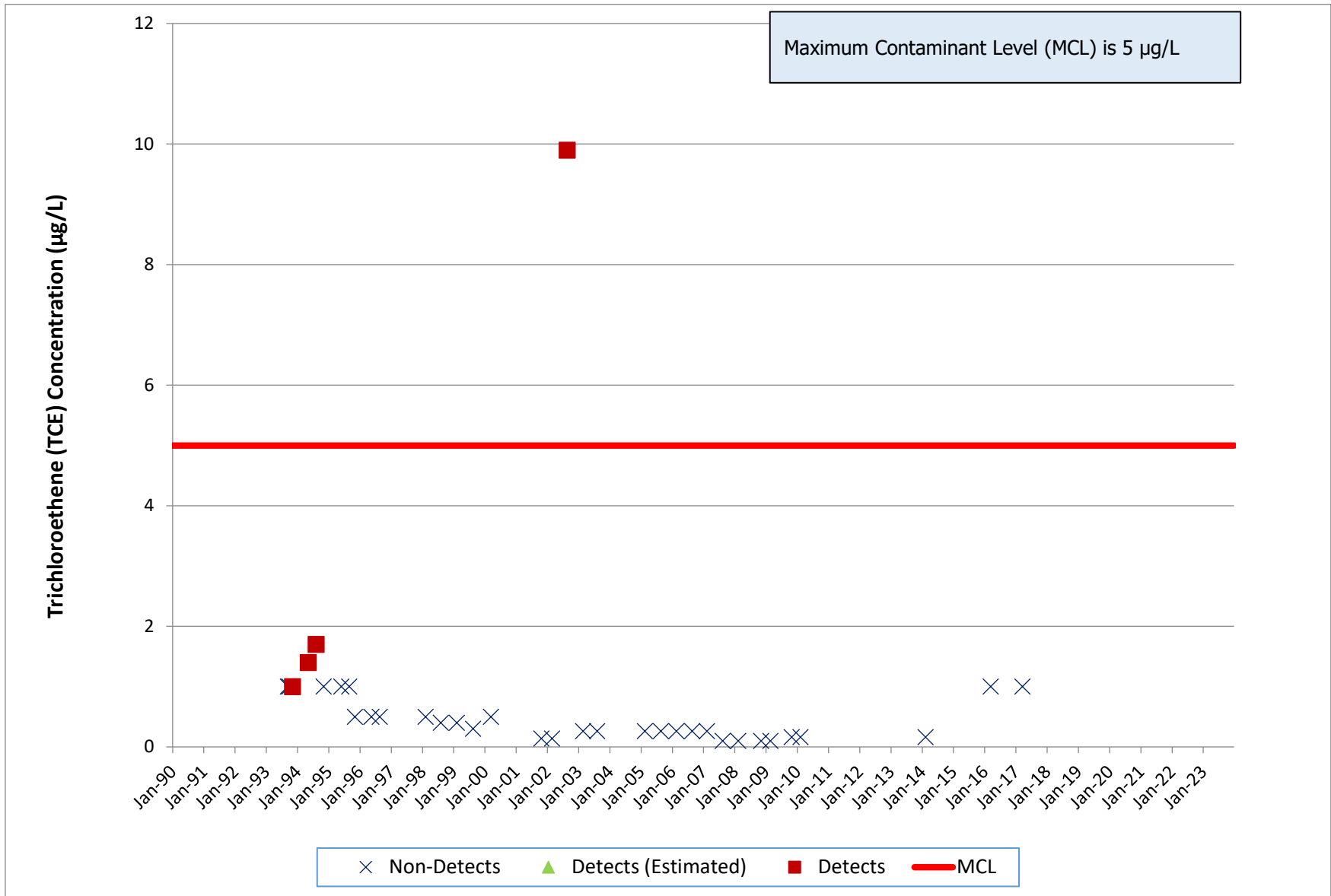
RD-33C, FSDF/ESADA Trichloroethene



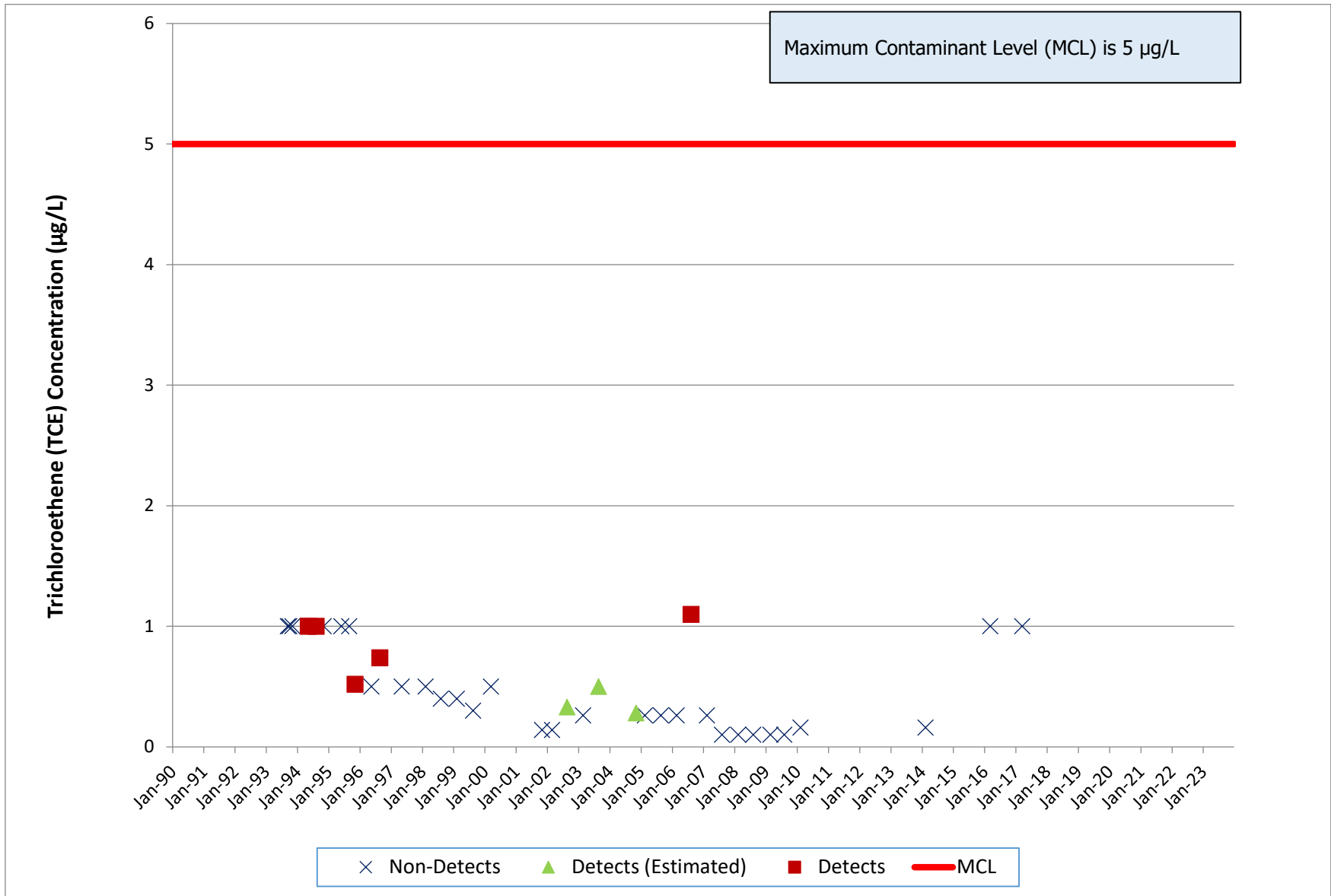
RD-54A FSDF/ESADA Trichloroethene



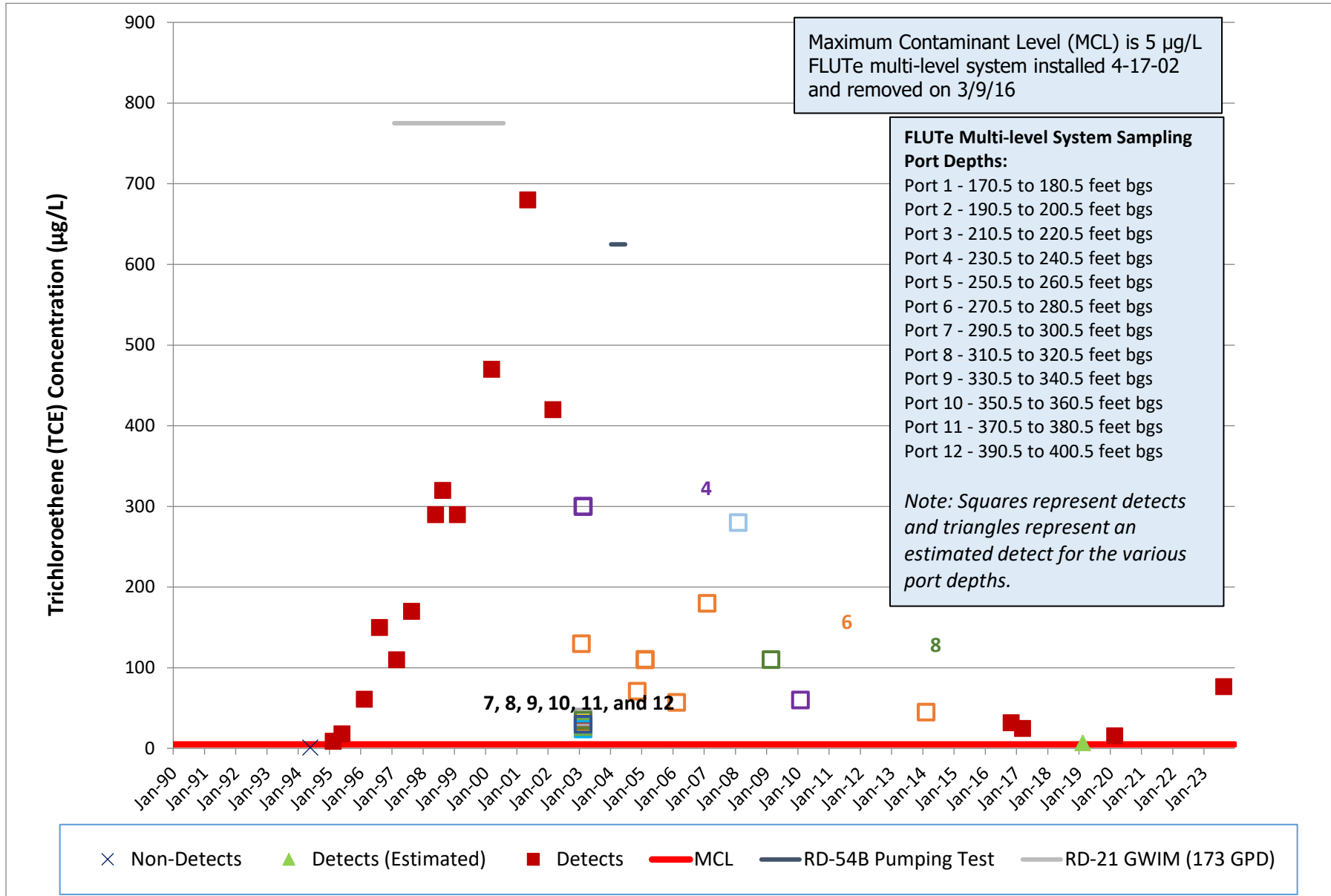
RD-54B, FSDF/ESADA Trichloroethene



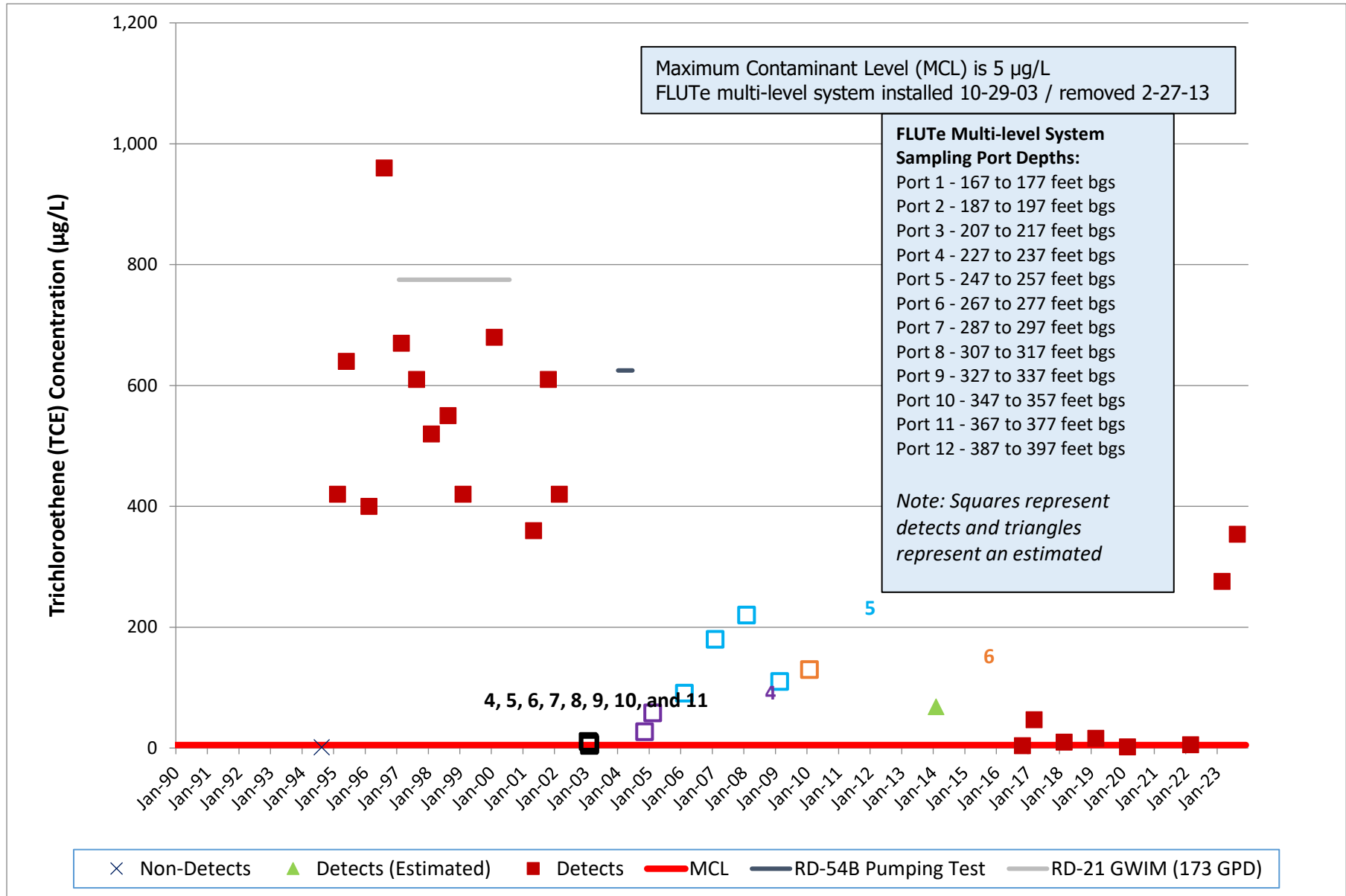
RD-54C, FSDF/ESADA Trichloroethene



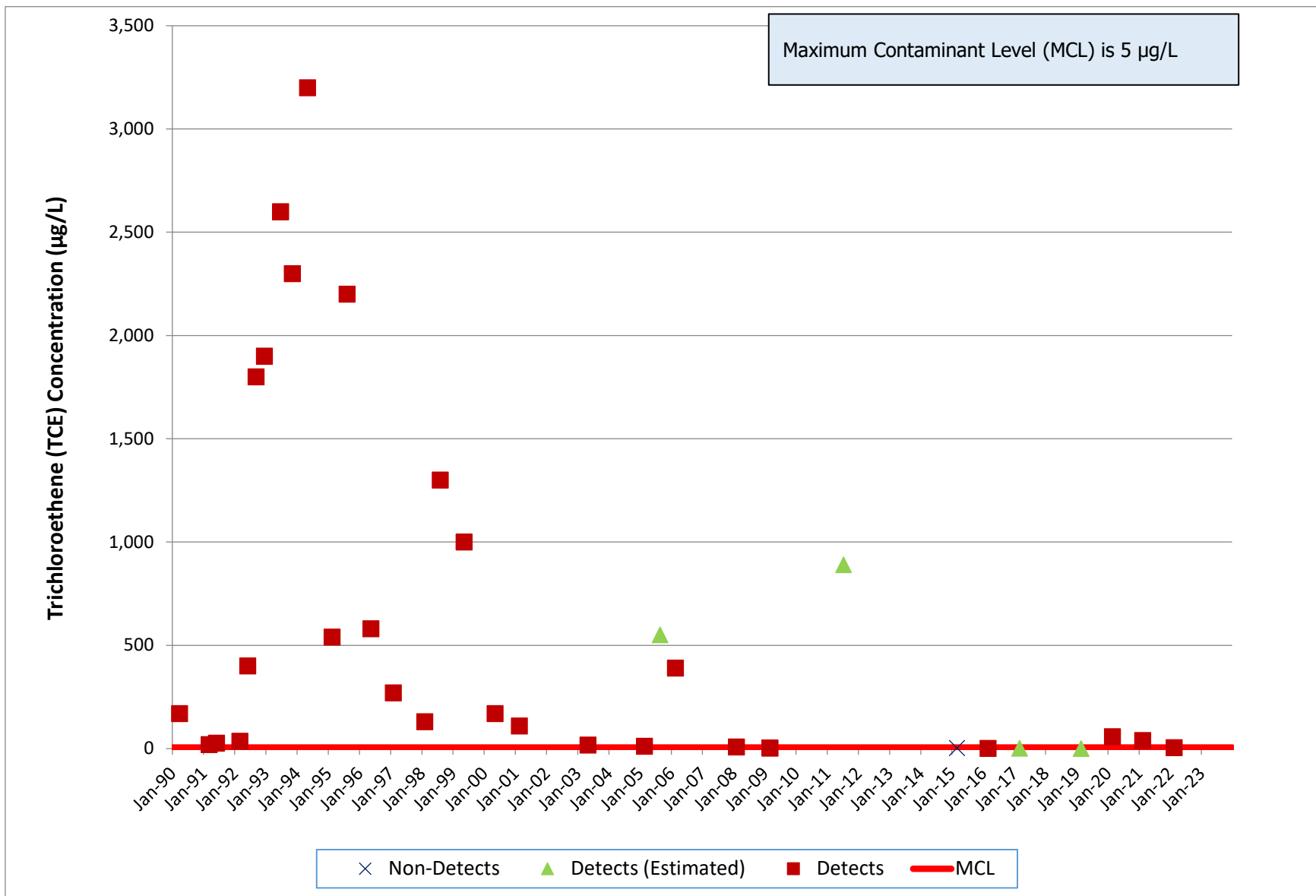
RD-64, FSDF/ESADA Trichloroethene



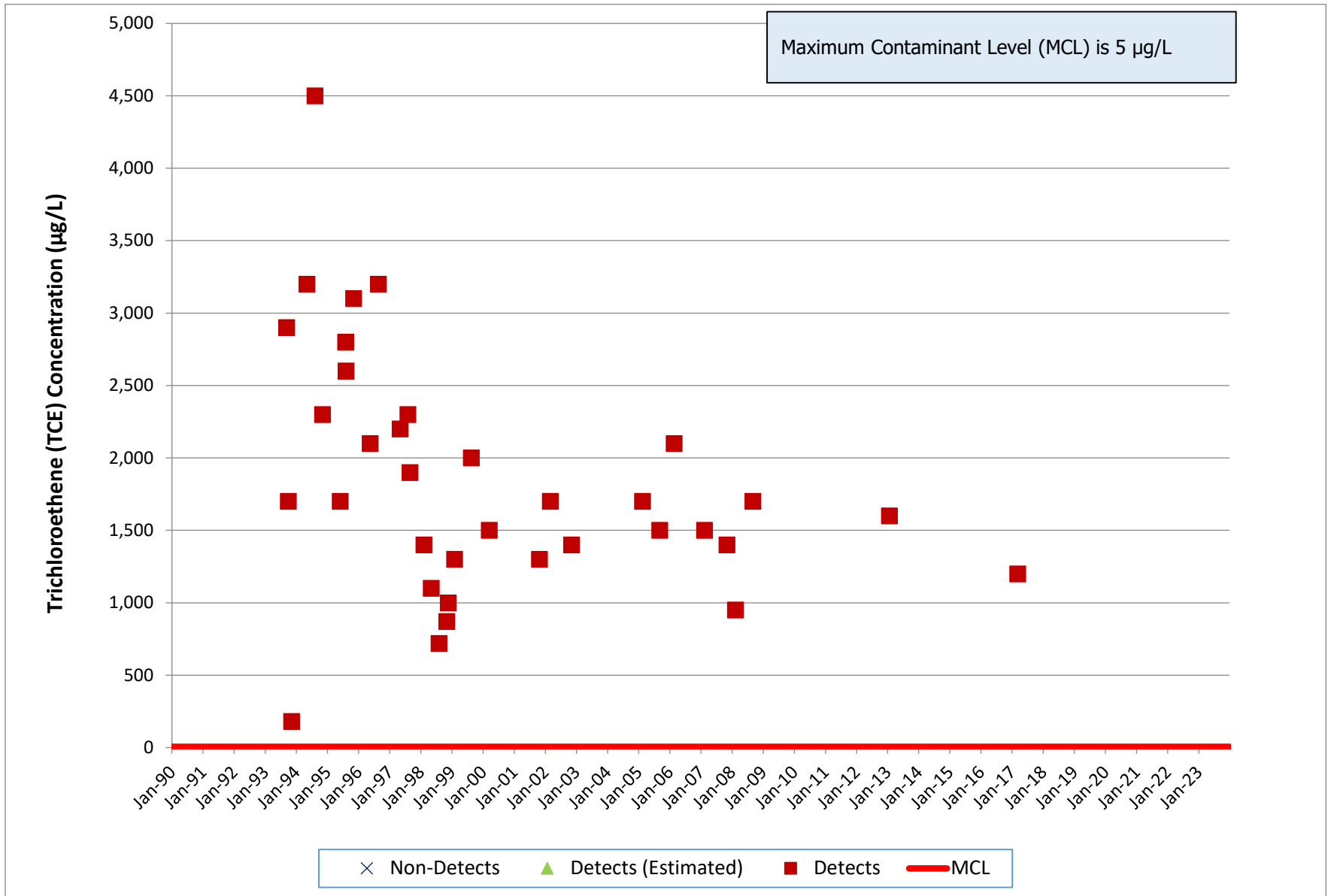
RD-65, FSDF/ESADA Trichloroethene



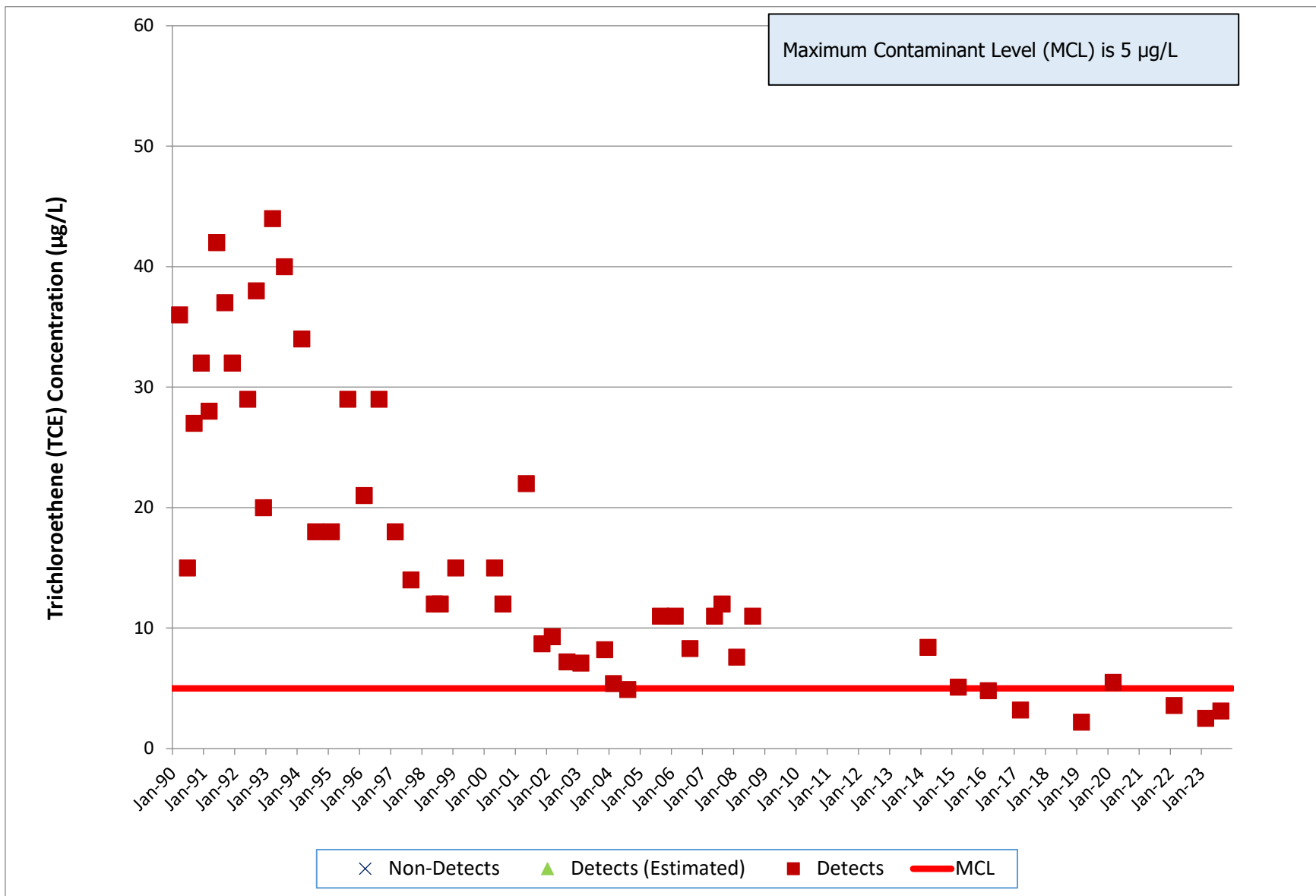
RS-18, FSD/ESADA Trichloroethene



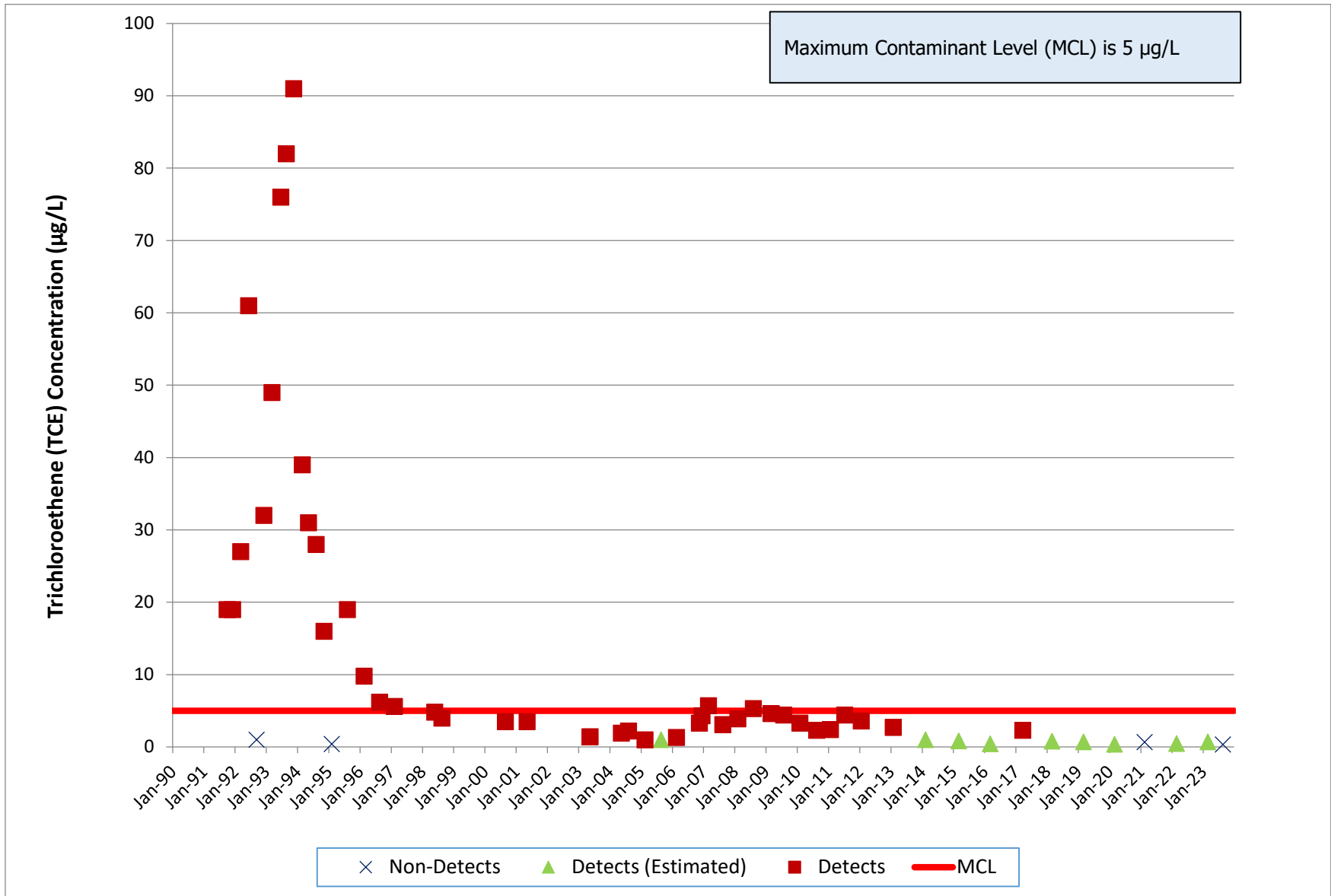
RS-54, FSD/ESADA Trichloroethene



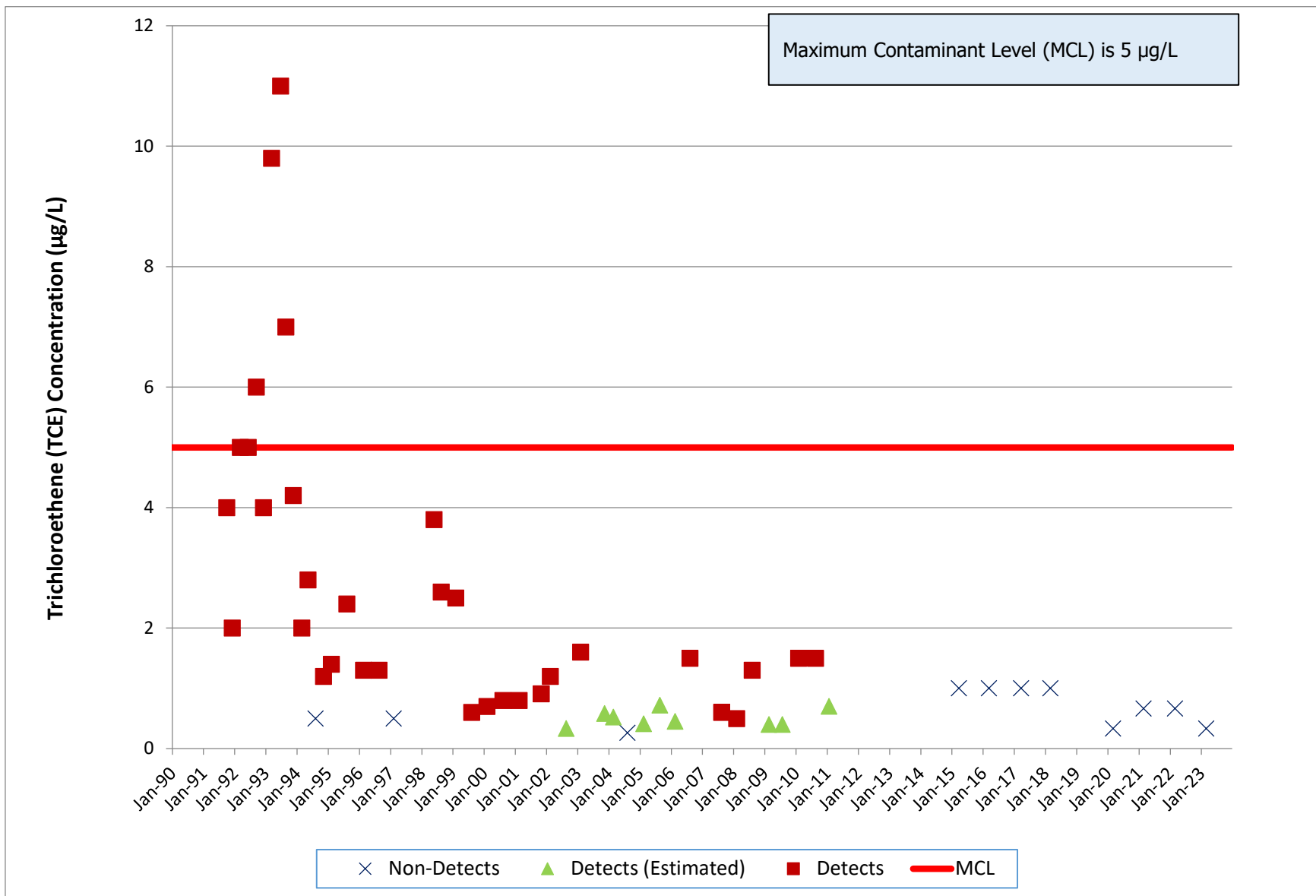
RD-30, RMHF Trichloroethene



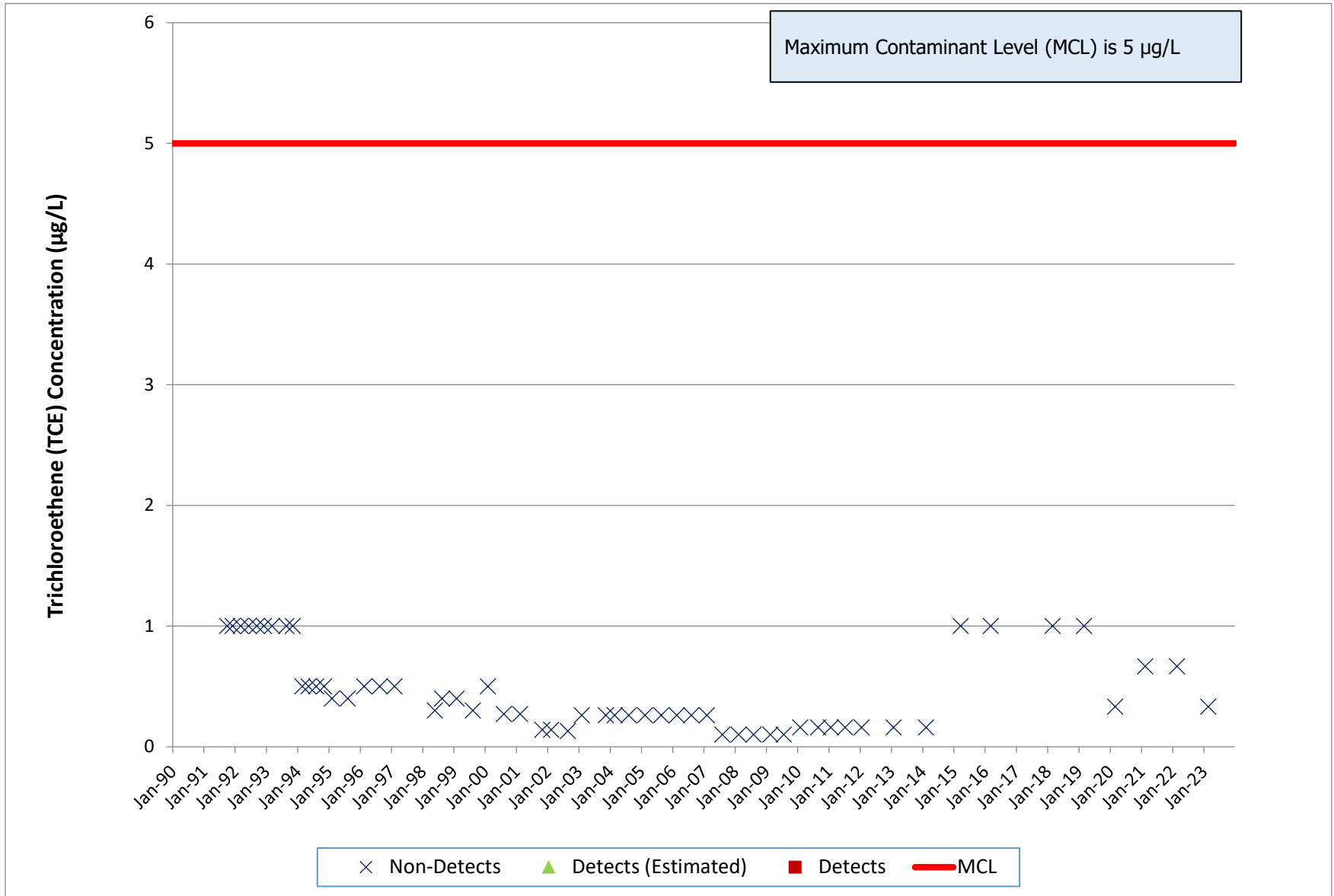
RD-34A, RMHF Trichloroethene



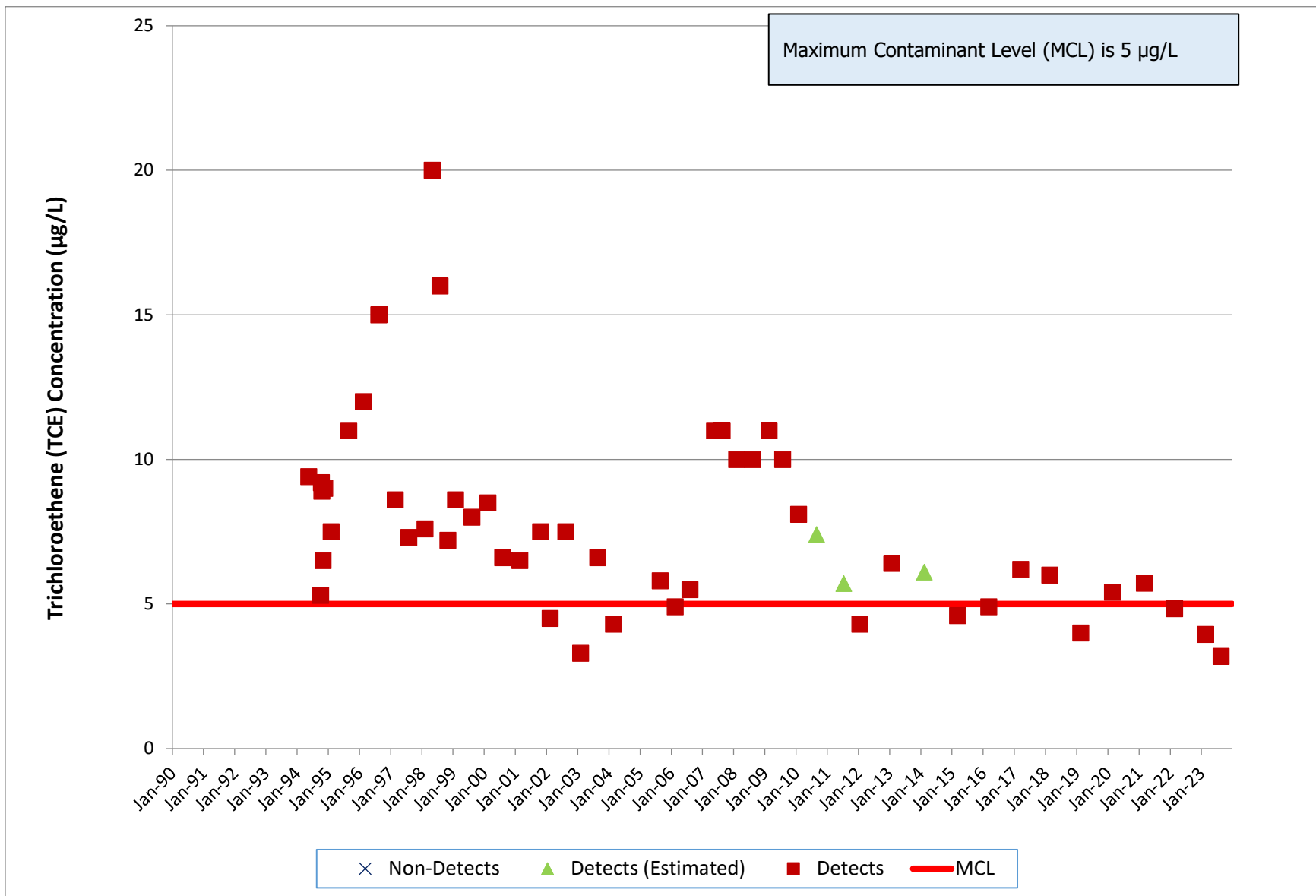
RD-34B, RMHF Trichloroethene



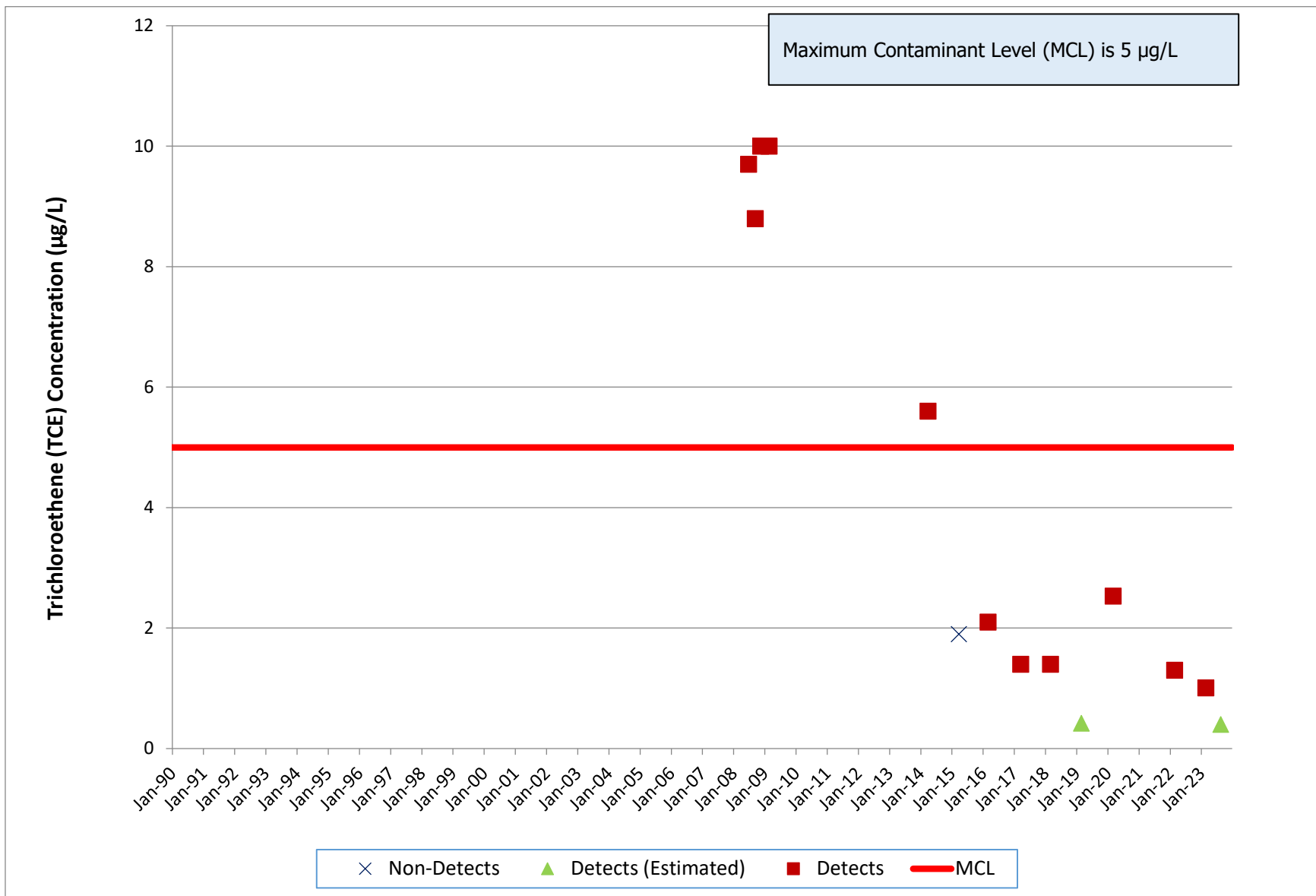
RD-34C, RMHF Trichloroethene



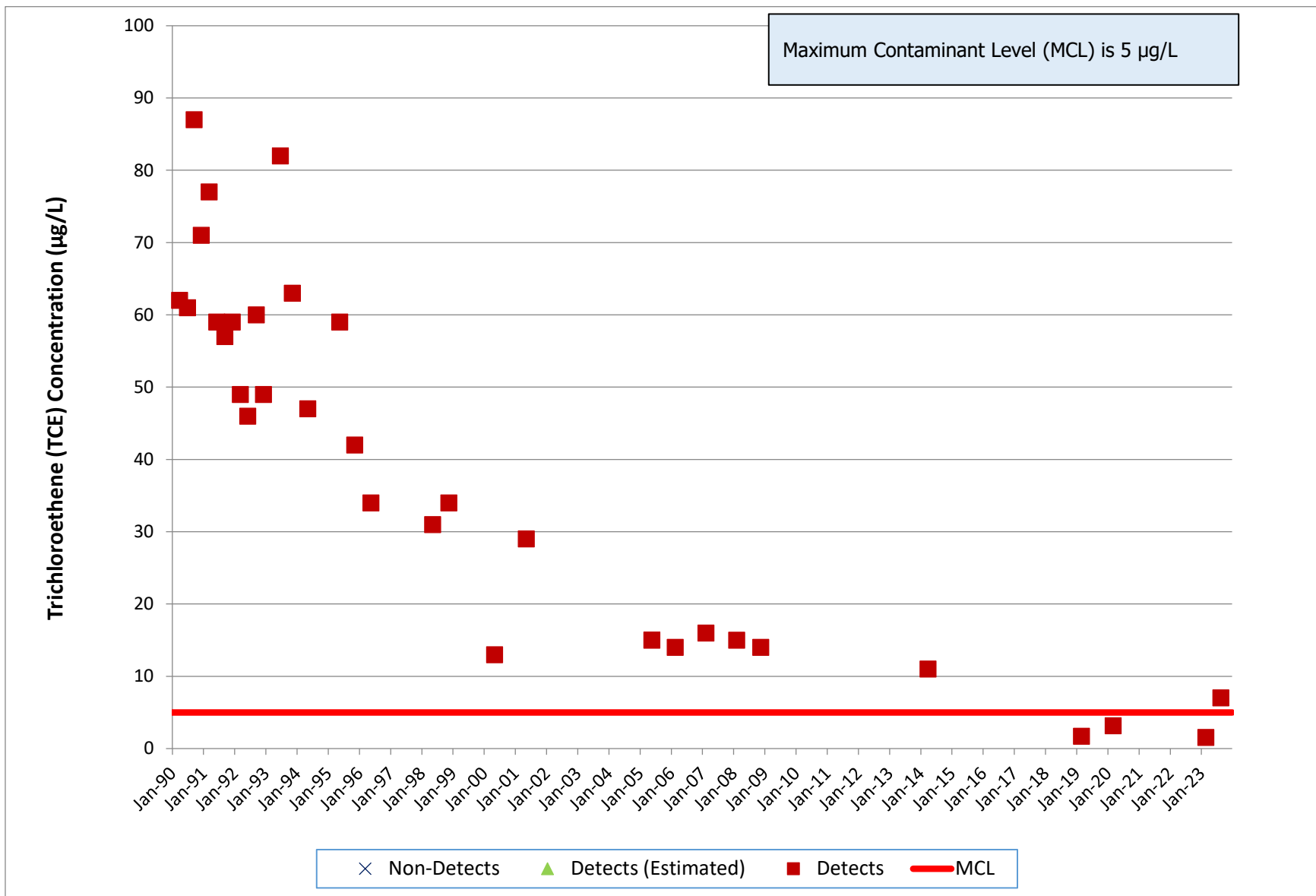
RD-63, RMHF Trichloroethene



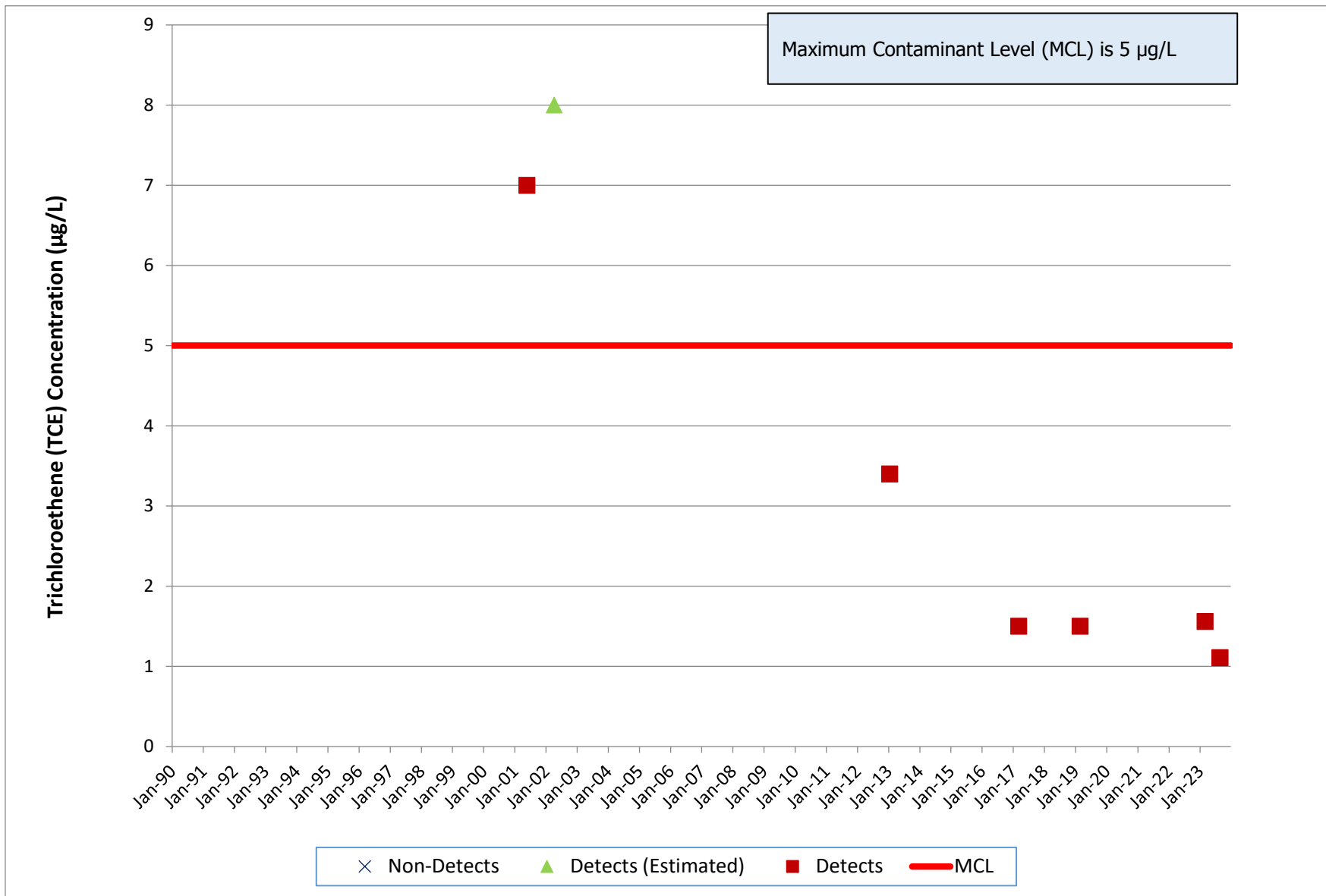
RD-98, RMHF Trichloroethene



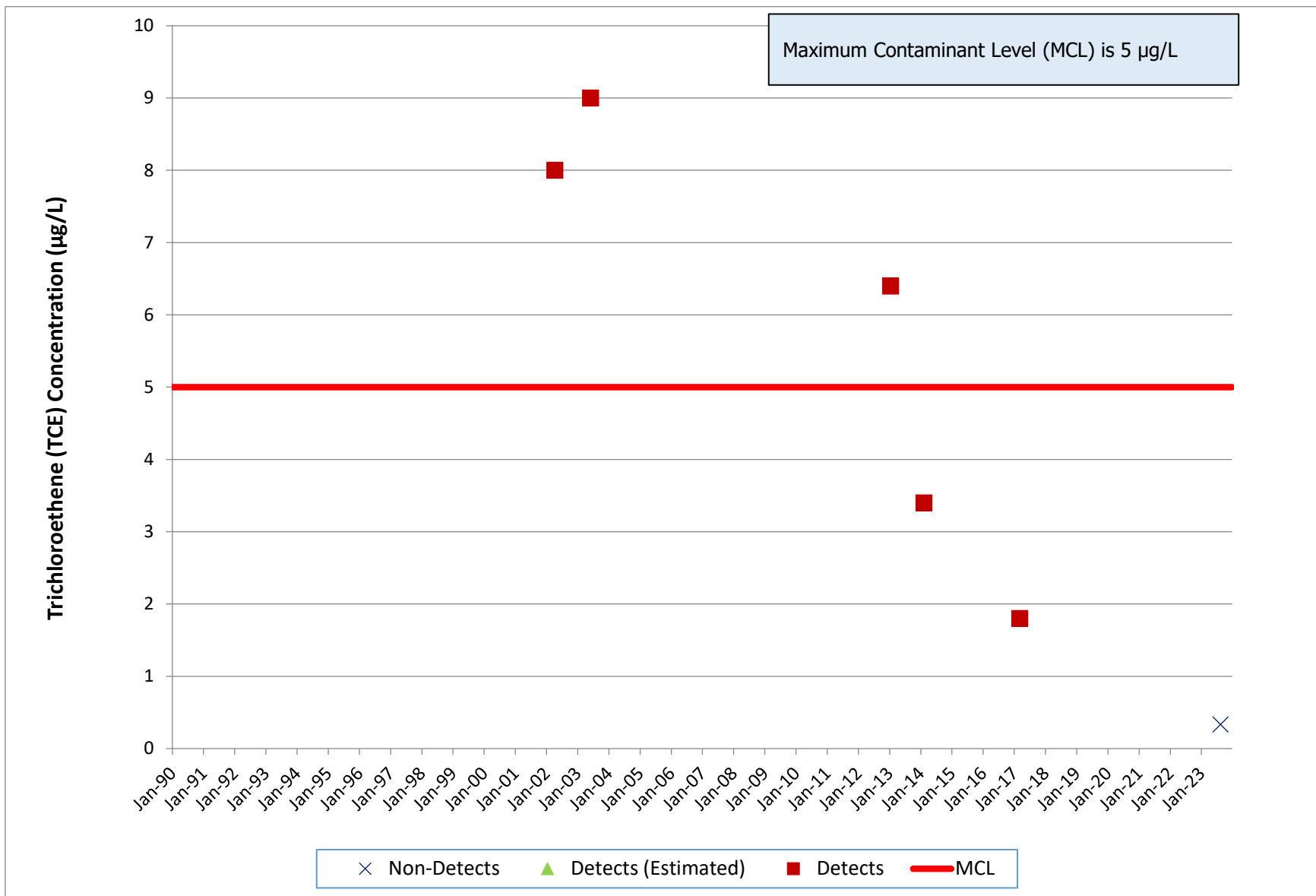
RS-28, RMHF Trichloroethene



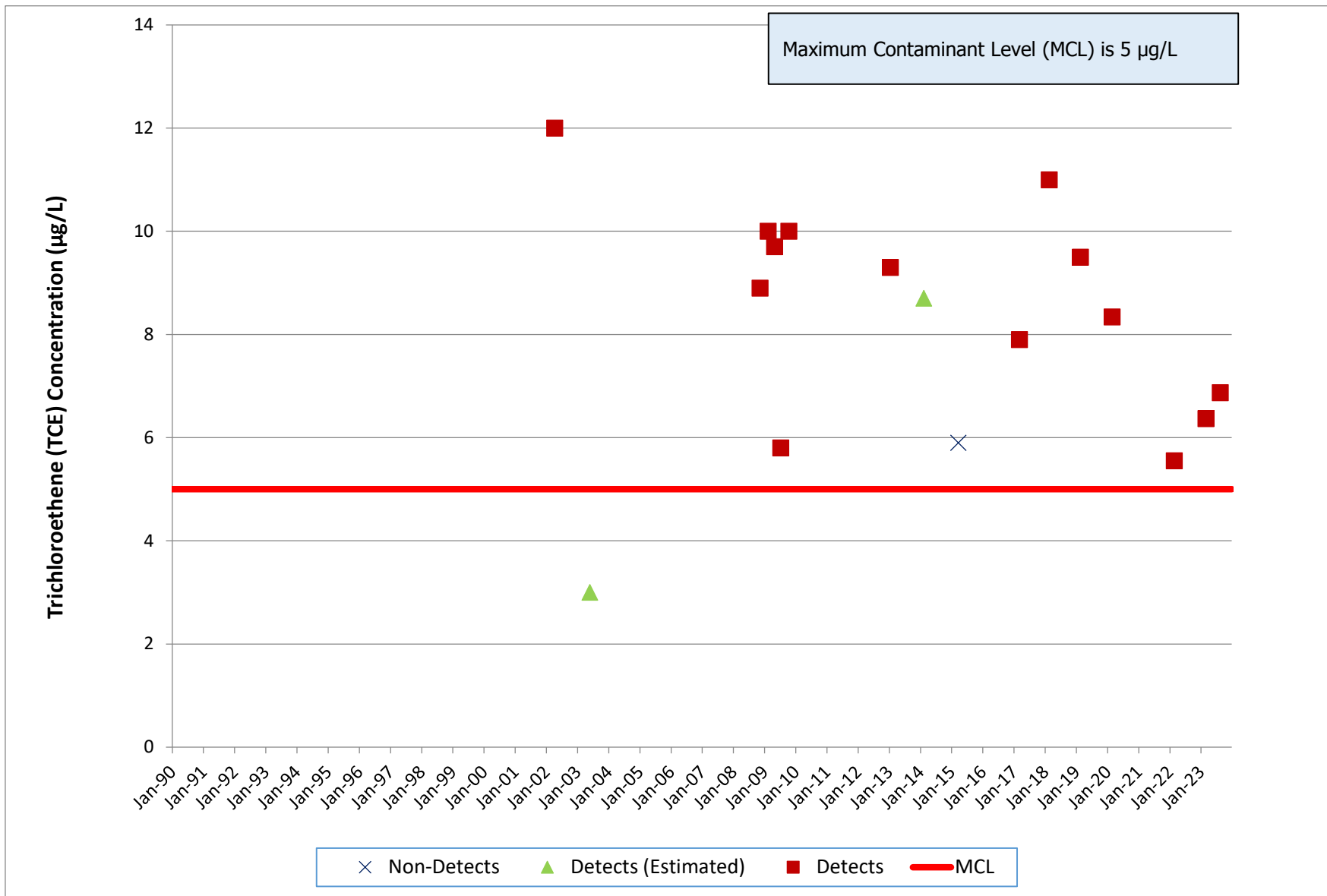
PZ-005, Bldg 65 Metals Clarifier Trichloroethene



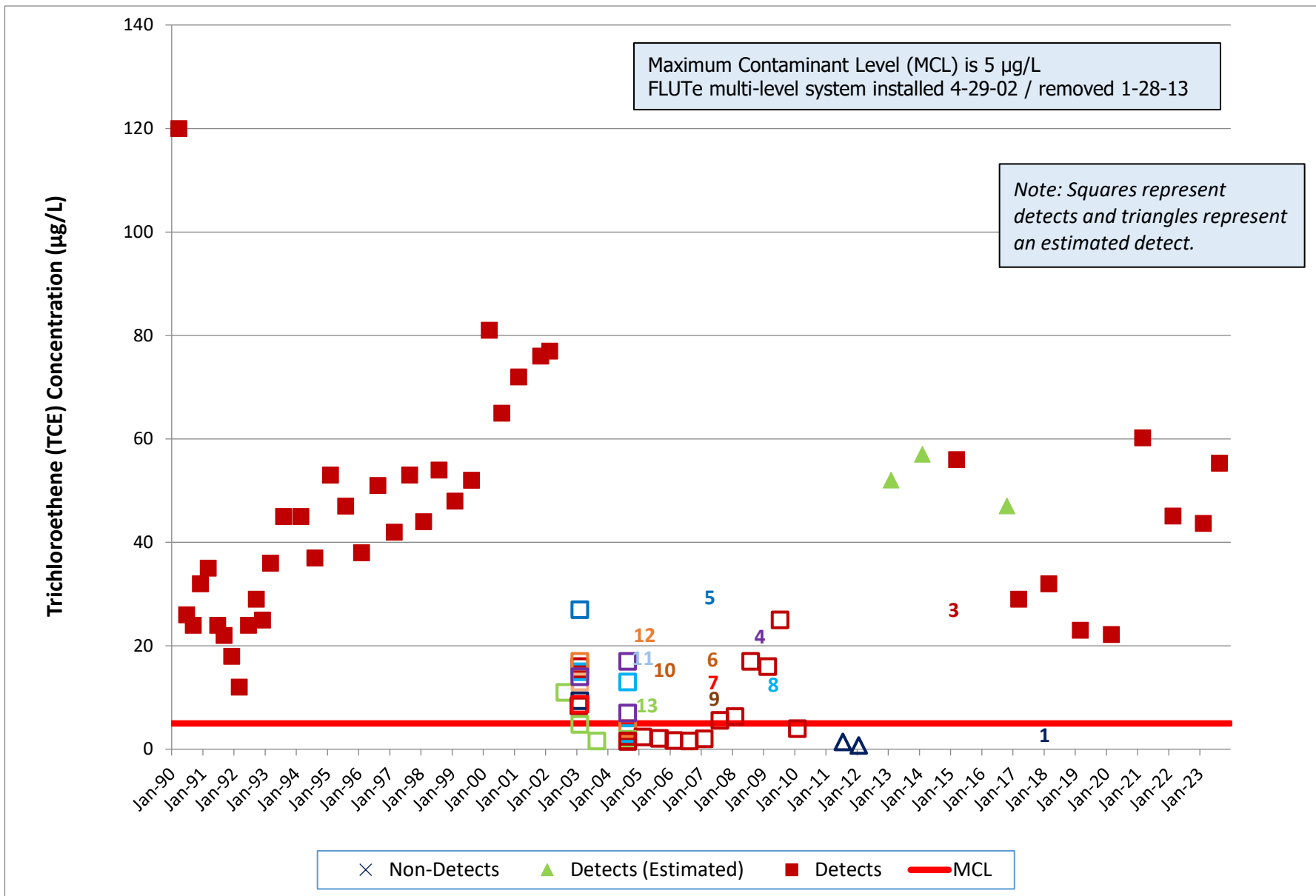
PZ-104, Bldg 65 Metals Clarifier Trichloroethene



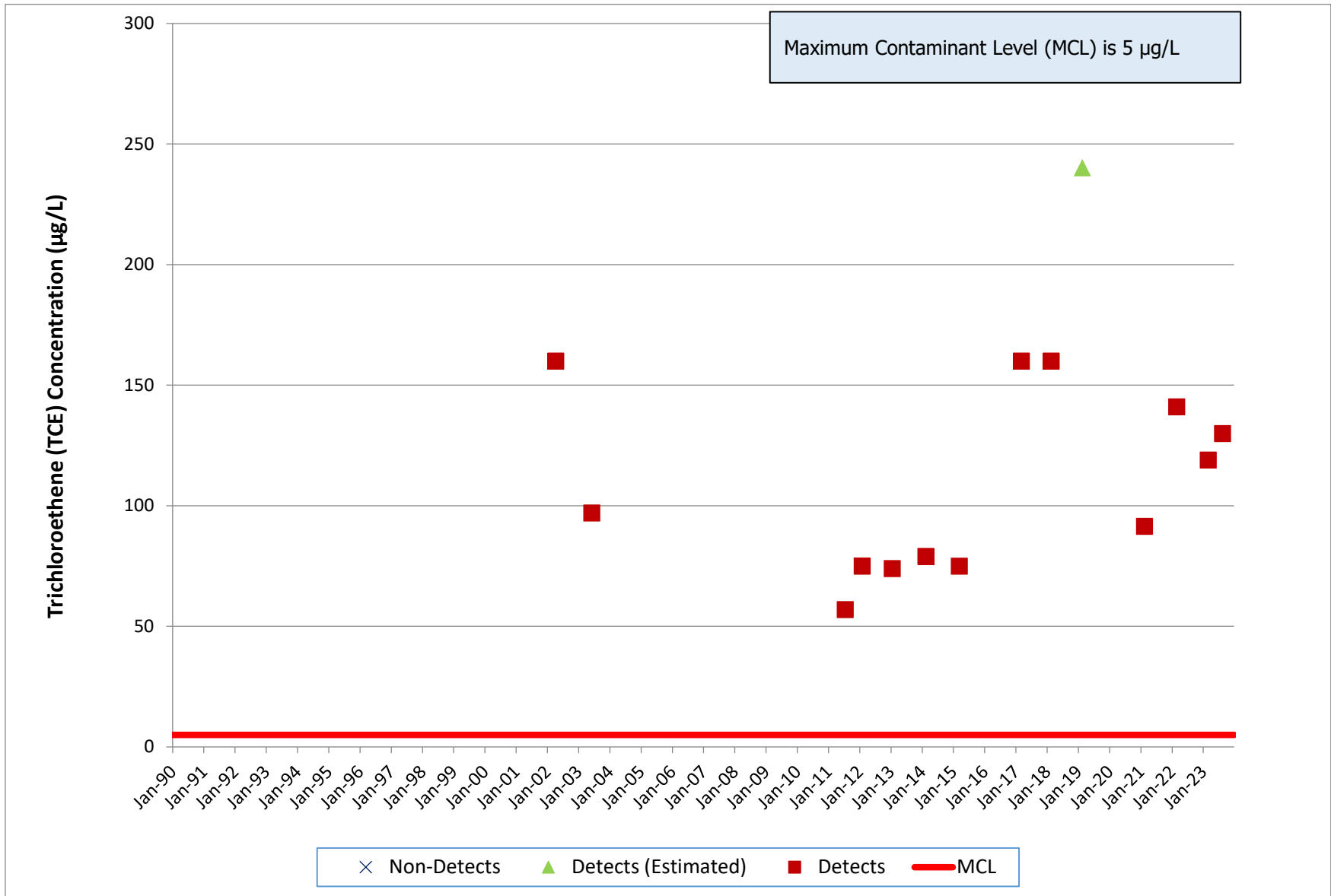
PZ-105, Bldg 65 Metals Clarifier Trichloroethene



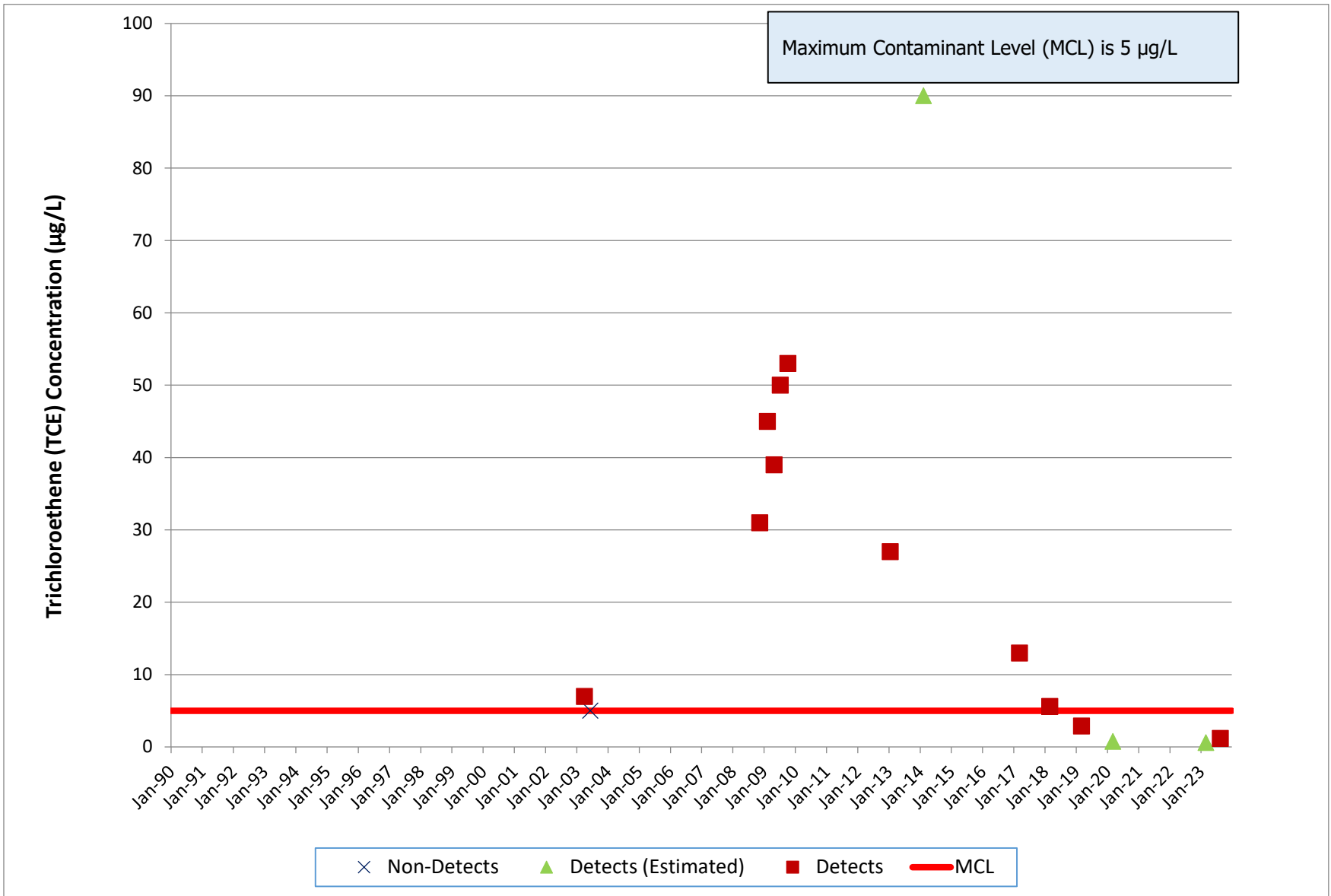
RD-07, Bldg 56 Landfill Trichloroethene



PZ-108, HMSA/PDU Trichloroethene

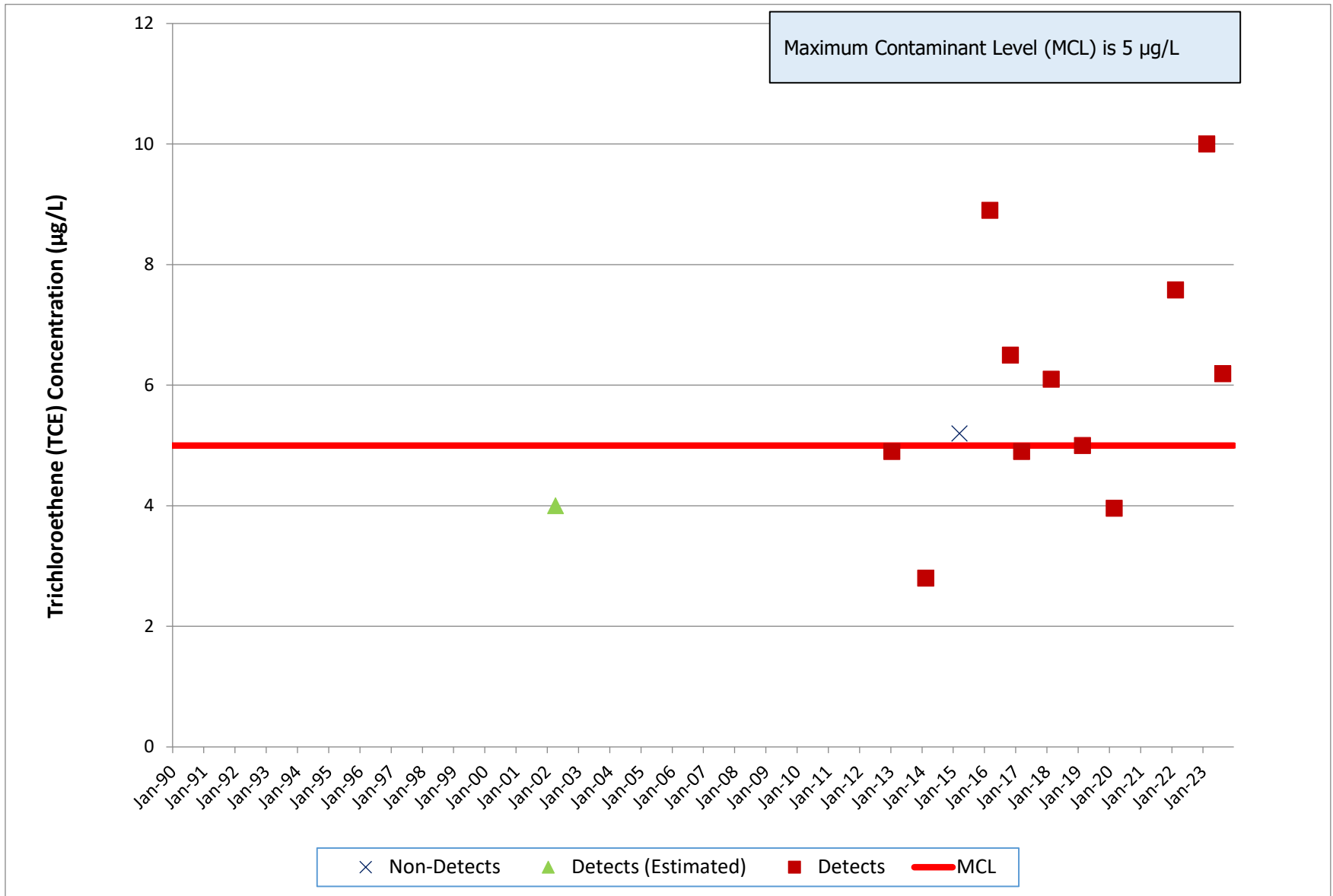


PZ-120, HMSA/PDU Trichloroethene

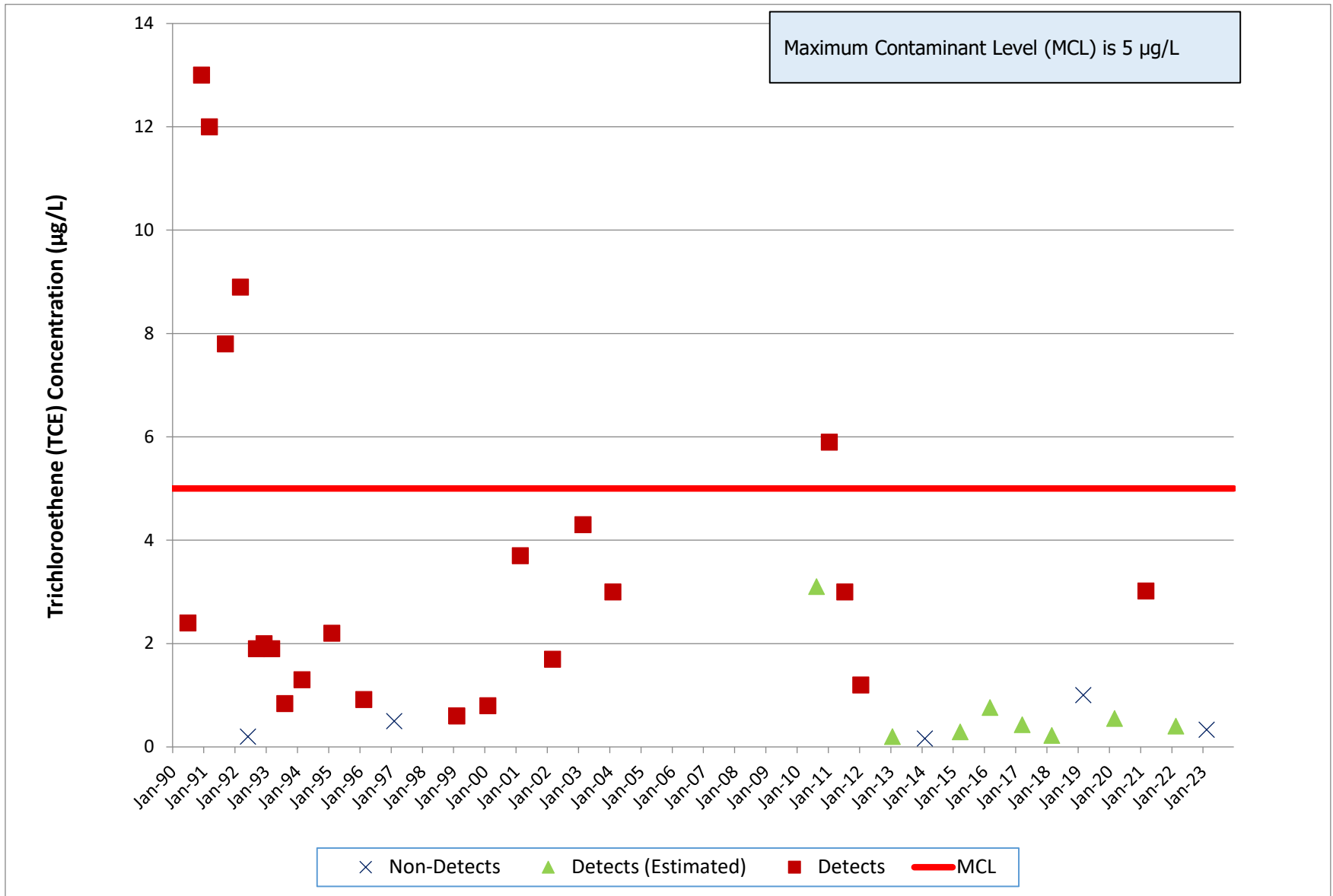


PZ-109, B4057/4059/4626

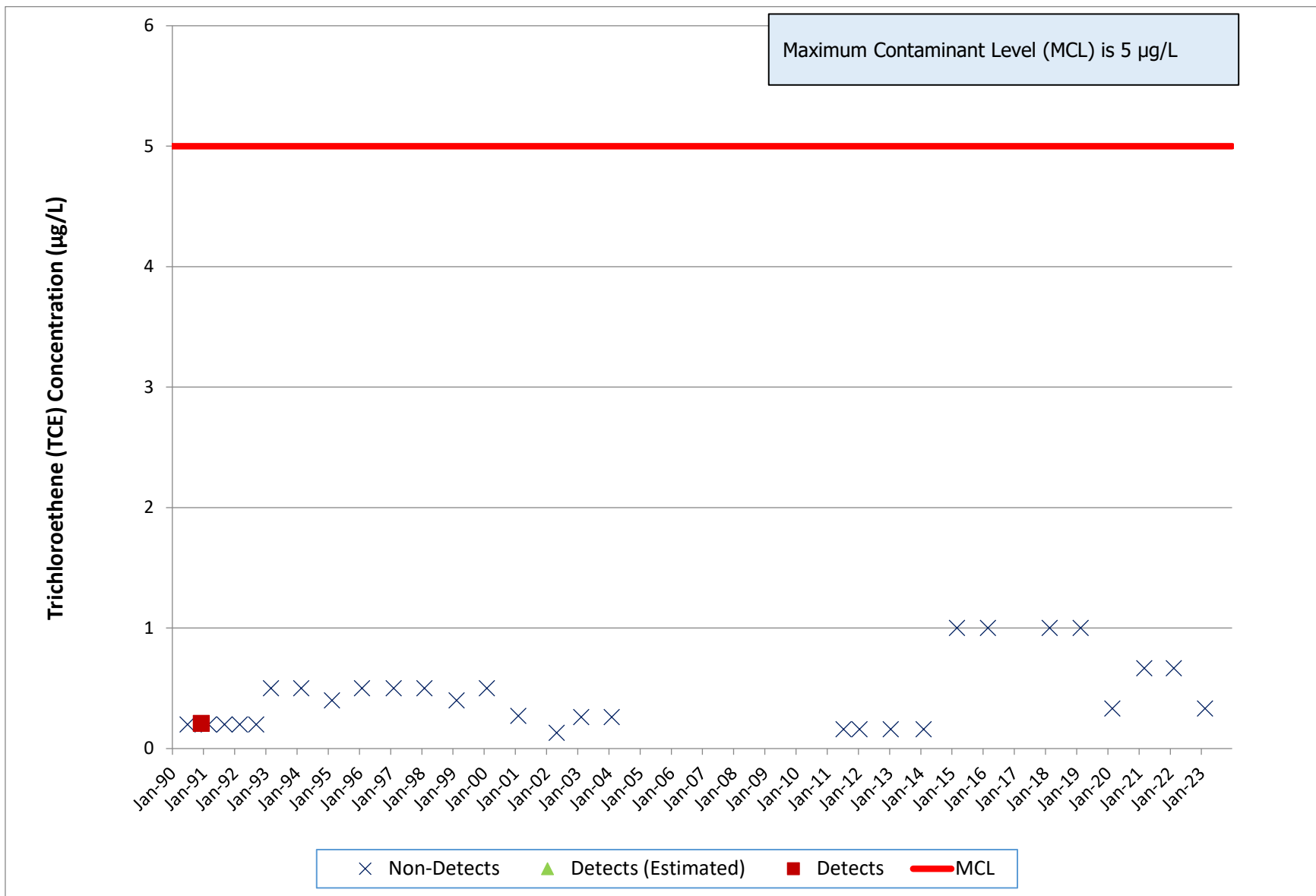
Trichloroethene



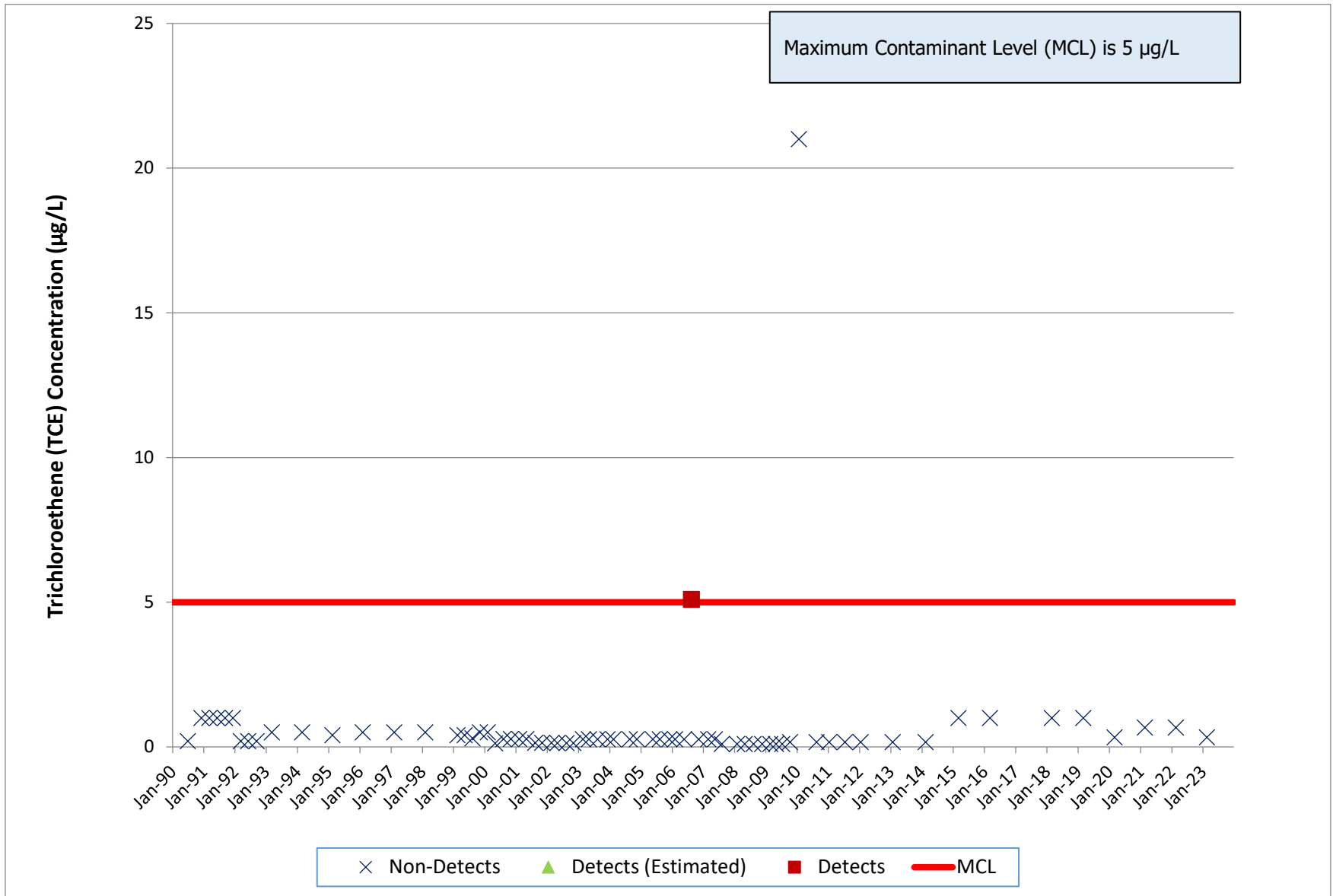
RD-14, OCY Trichloroethene



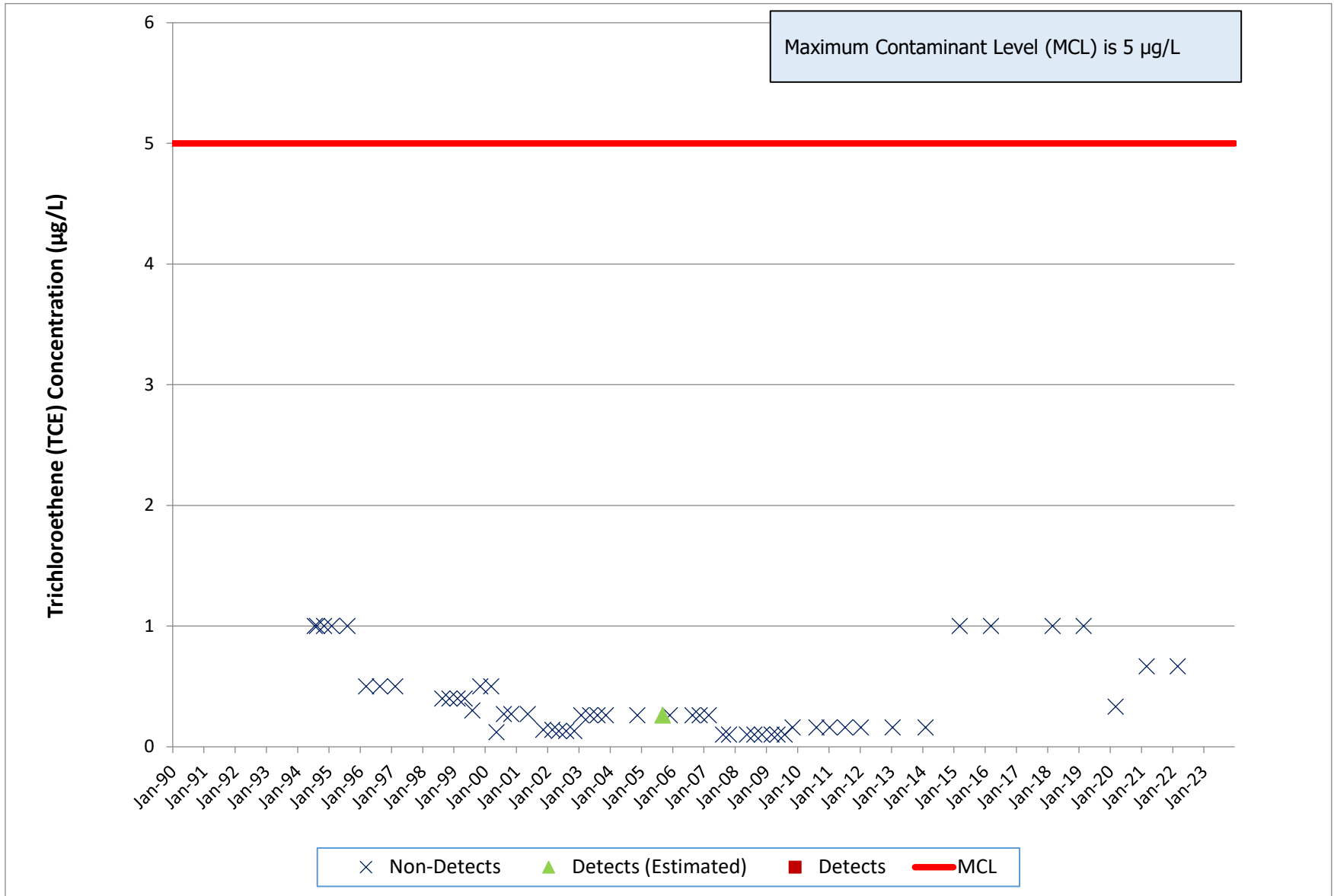
RD-20, Bldg 4100 Trench Trichloroethene



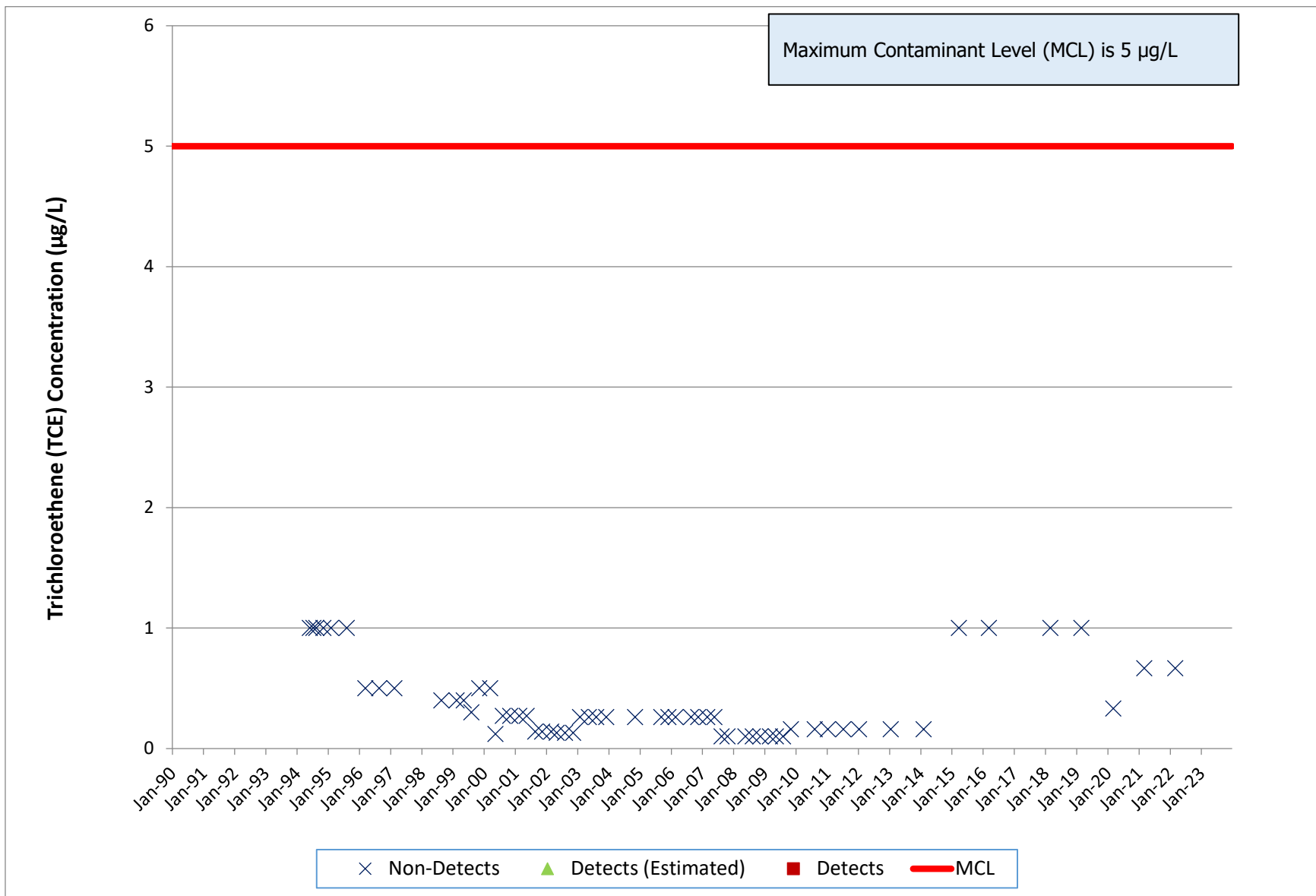
RD-19, B4133 Trichloroethene



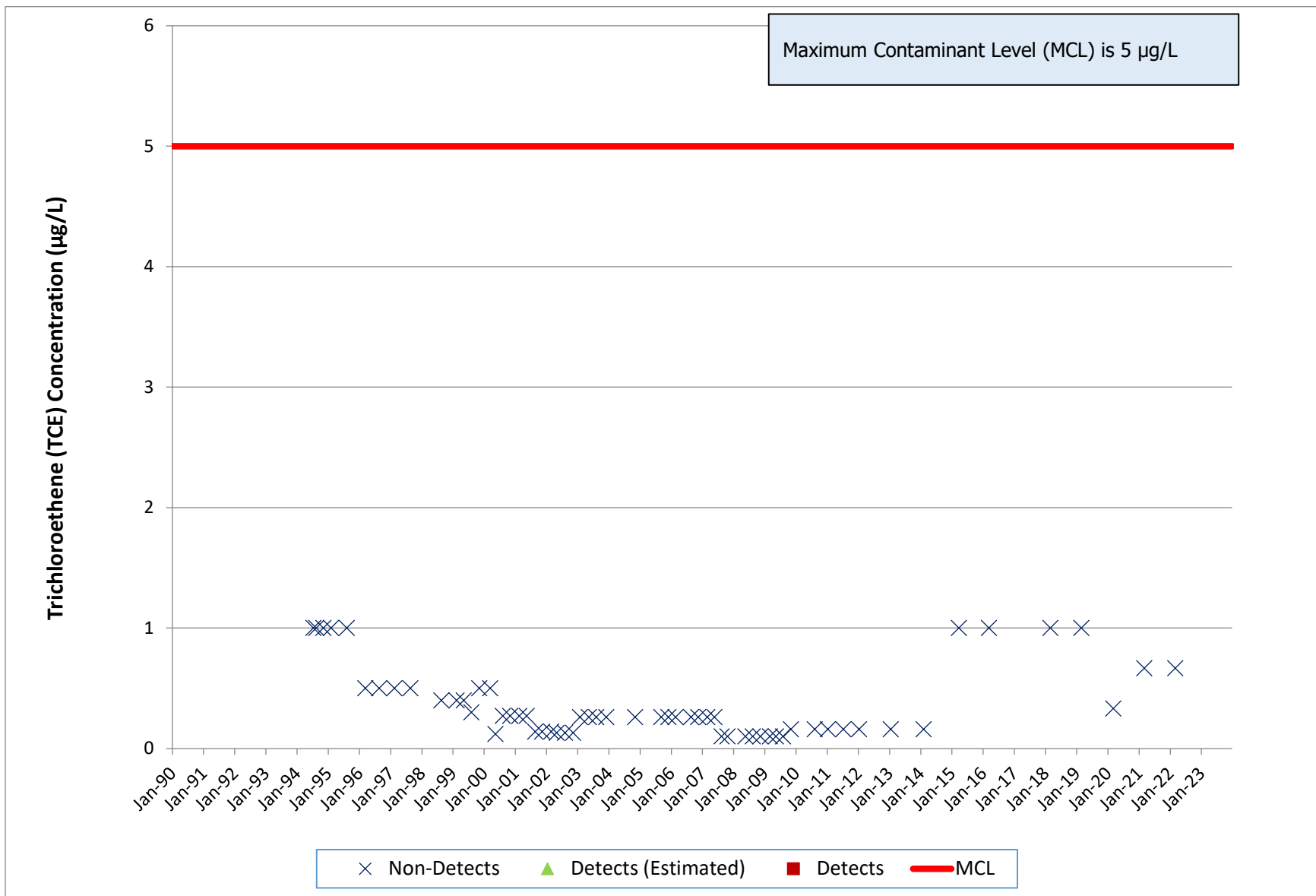
RD-59A, Offsite Trichloroethene



RD-59B, Offsite Trichloroethene



RD-59C, Offsite Trichloroethene

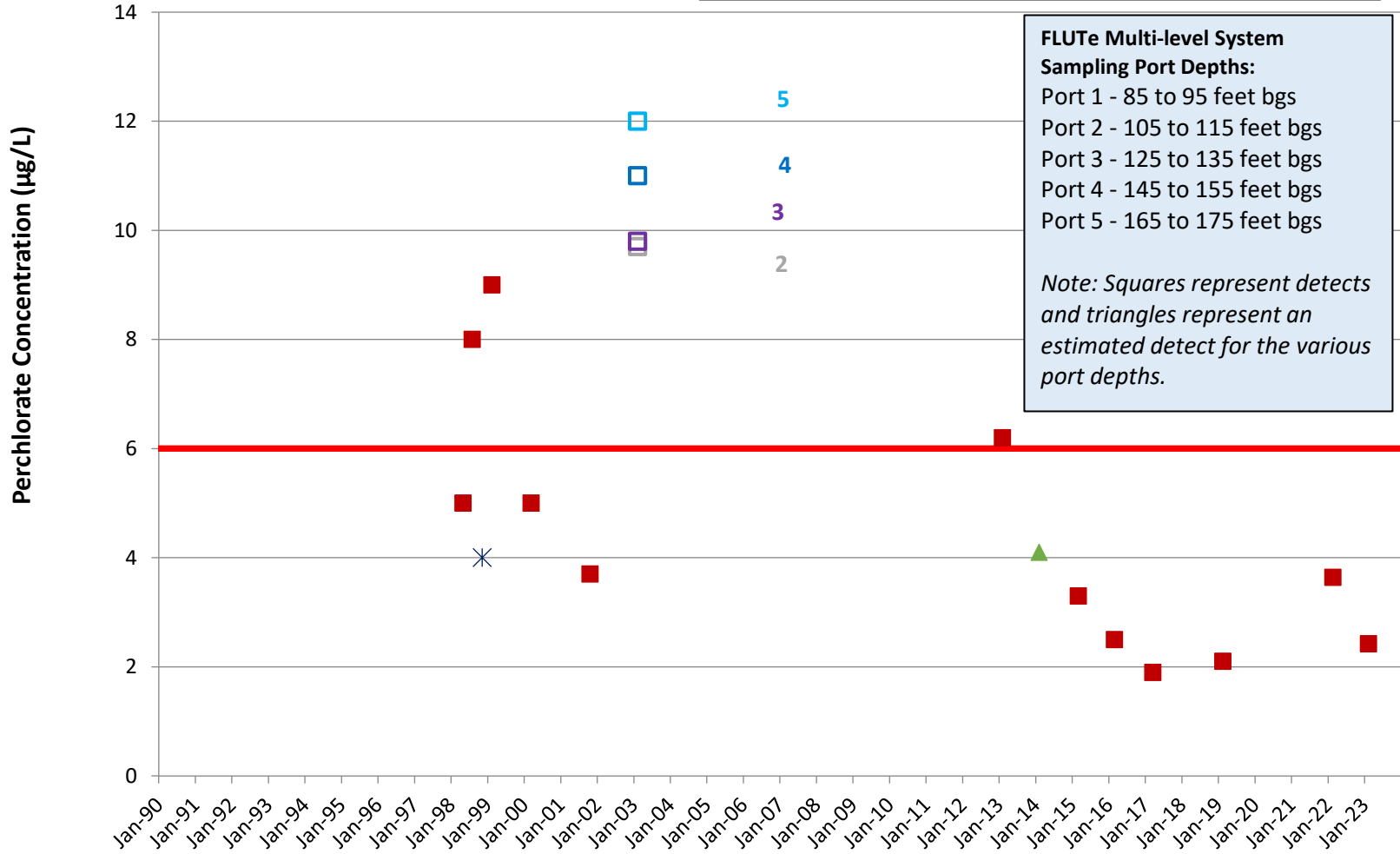


RD-21, FSDF/ESADA Perchlorate

California Maximum Contaminant Level (MCL) 6 µg/L
FLUTe multi-level system installed 1-14-03 / removed 1-22-13

**FLUTe Multi-level System
Sampling Port Depths:**
 Port 1 - 85 to 95 feet bgs
 Port 2 - 105 to 115 feet bgs
 Port 3 - 125 to 135 feet bgs
 Port 4 - 145 to 155 feet bgs
 Port 5 - 165 to 175 feet bgs

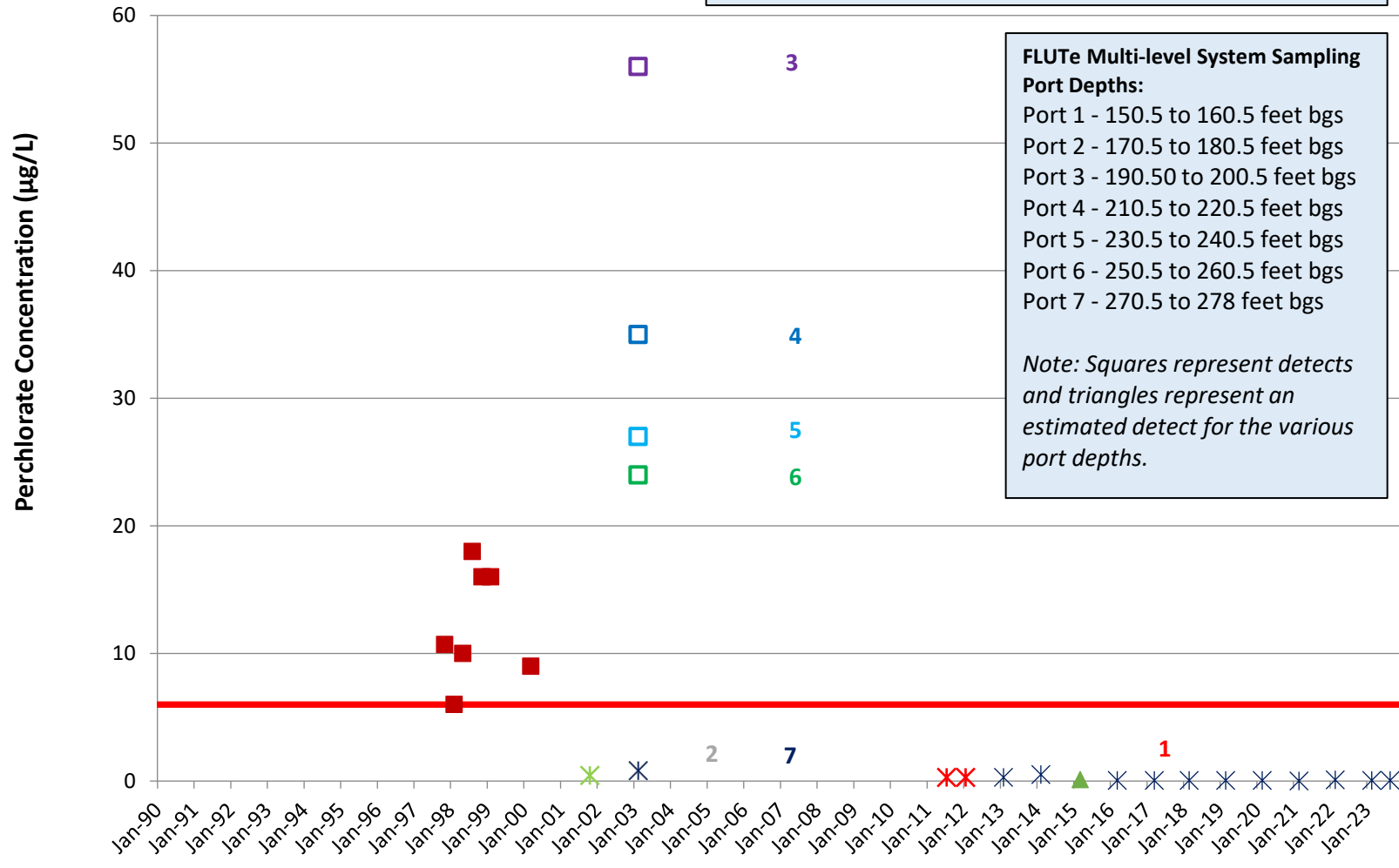
Note: Squares represent detects and triangles represent an estimated detect for the various port depths.



* Non-Detects
▲ Detects (Estimated)
■ Detects
— Cal MCL

RD-54A, FSD/ESADA Perchlorate

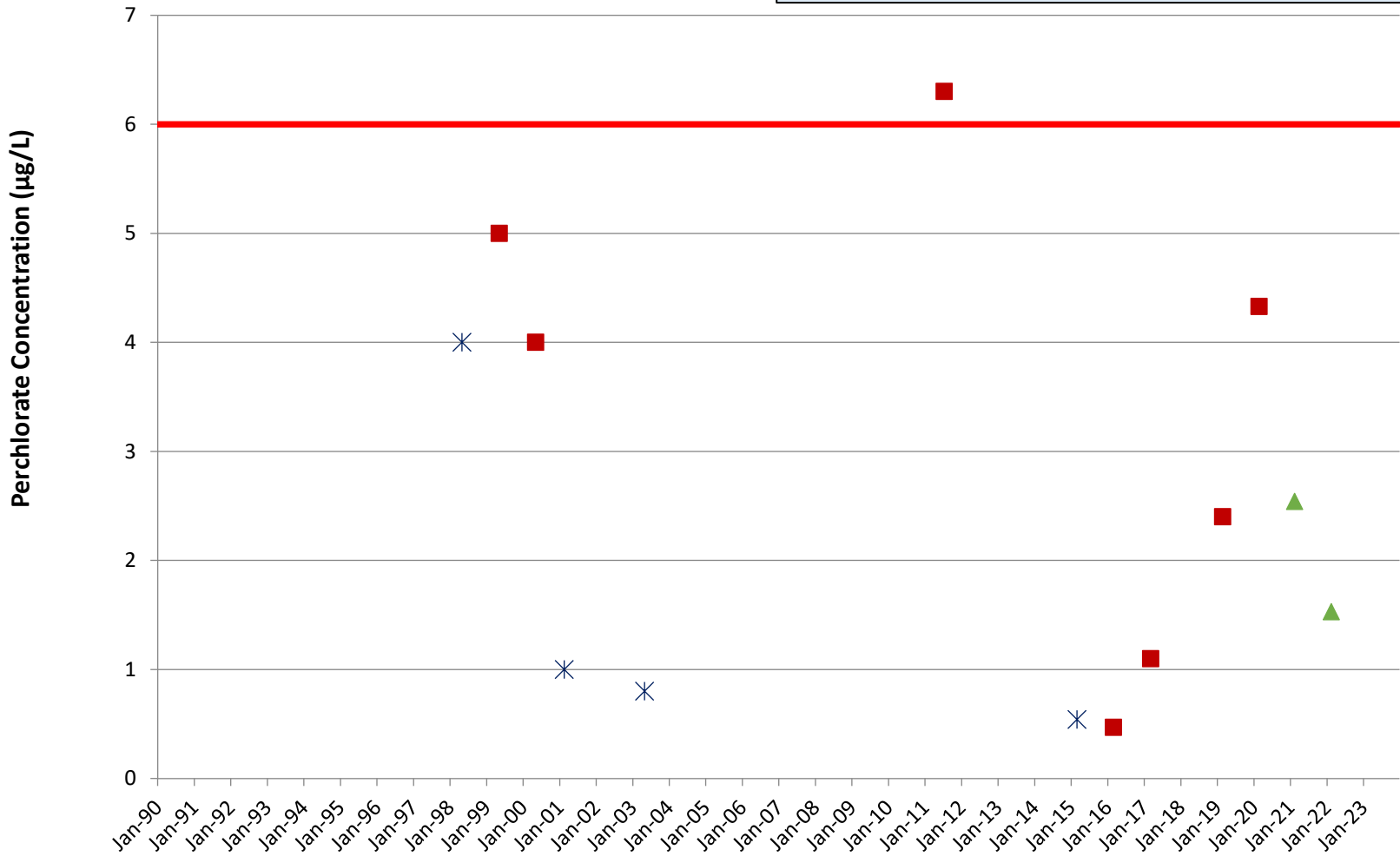
California Maximum Contaminant Level (MCL) 6 µg/L
FLUTe multi-level system installed 1-25-03 / removed 1-25-13



* Non-Detects
▲ Detects (Estimated)
■ Detects
— Cal MCL

RS-18, FSD/ESADA Perchlorate

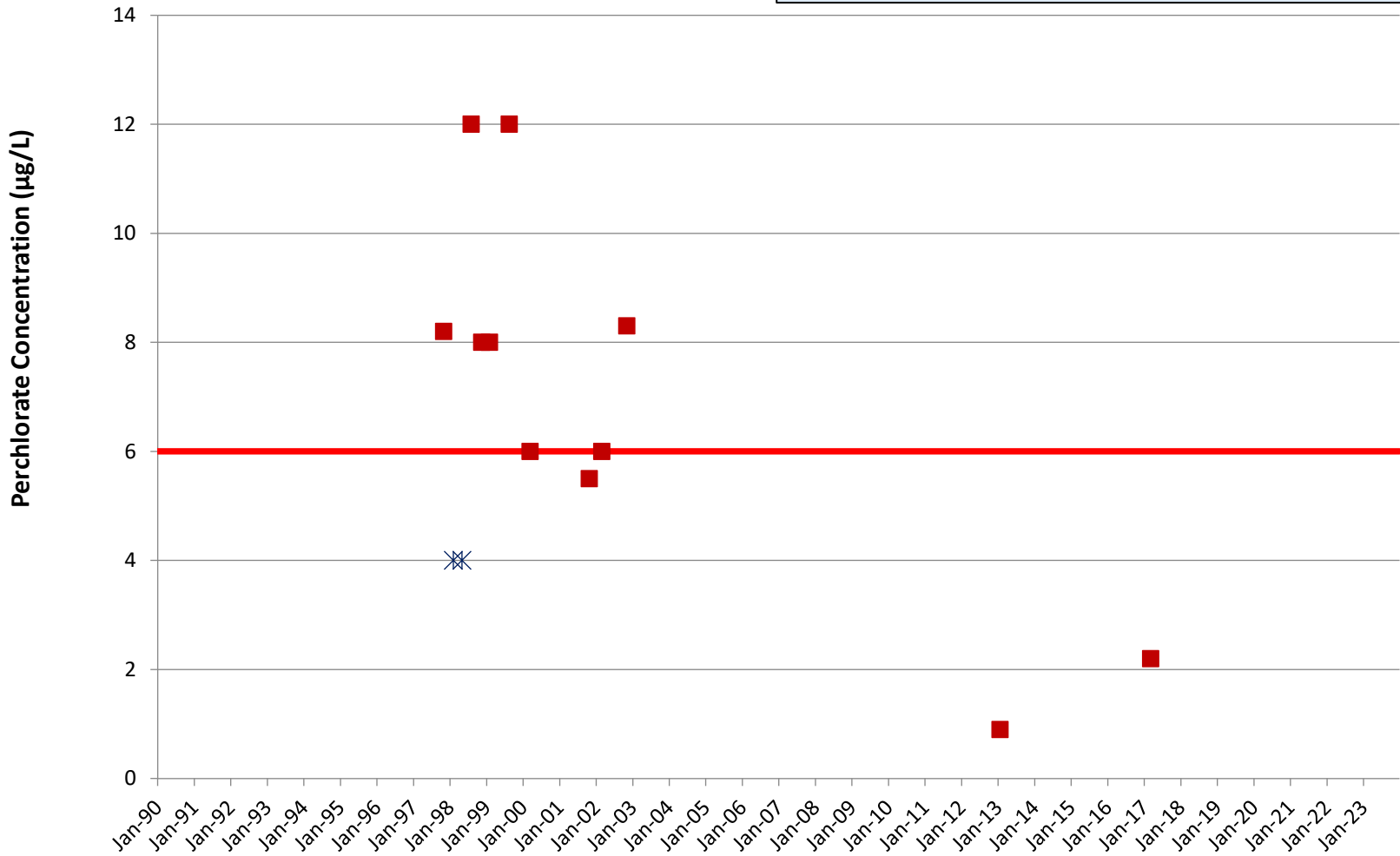
California Maximum Contaminant Level (MCL) 6 $\mu\text{g/L}$



* Non-Detects ▲ Detects (Estimated) ■ Detects — Cal MCL

RS-54, FSD/ESADA Perchlorate

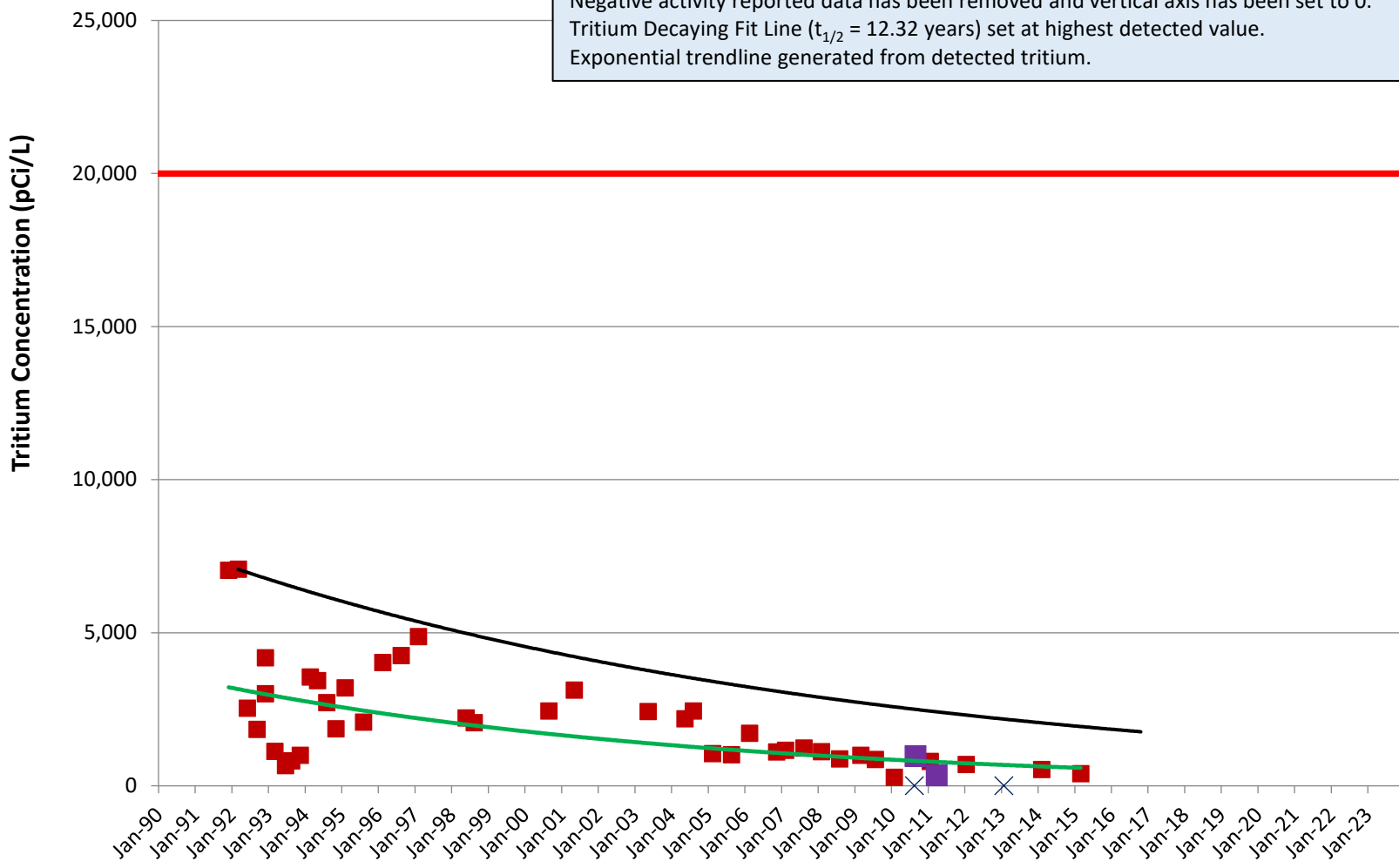
California Maximum Contaminant Level (MCL) 6 µg/L



⌘ Non-Detects ▲ Detects (Estimated) ■ Detects — Cal MCL

RD-34A, Tritium Plume Tritium

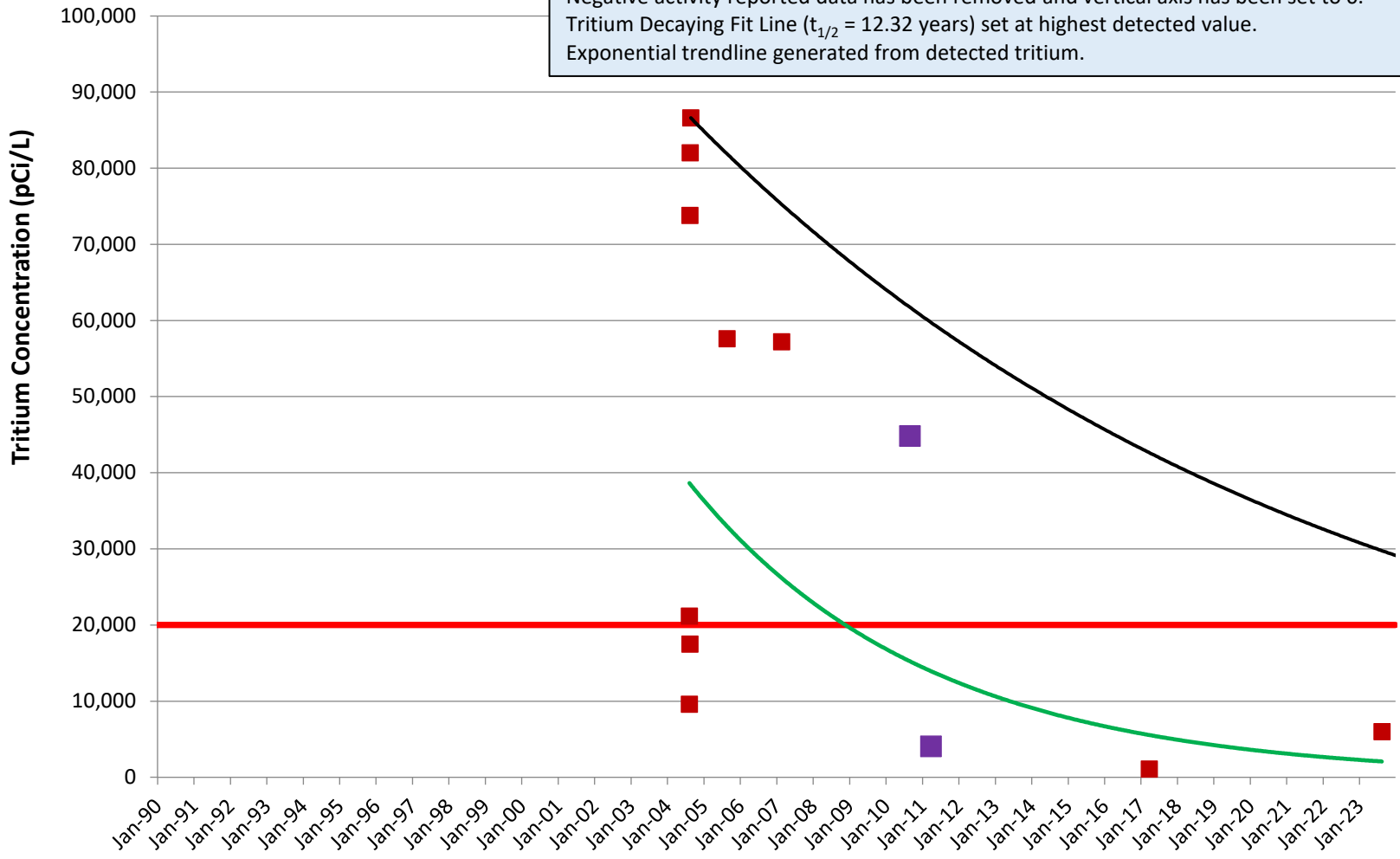
Maximum Contaminant Level (MCL) is 20,000 pCi/L.
10 to 20 pCi/L for current tritium in precipitation at SSFL.
Negative activity reported data has been removed and vertical axis has been set to 0.
Tritium Decaying Fit Line ($t_{1/2} = 12.32$ years) set at highest detected value.
Exponential trendline generated from detected tritium.



× Non-Detects ■ Detects ■ EPA Detects — MCL — Expon. (Detects) — Expon. (Decaying Fit Activity)

RD-88, Tritium Plume Tritium

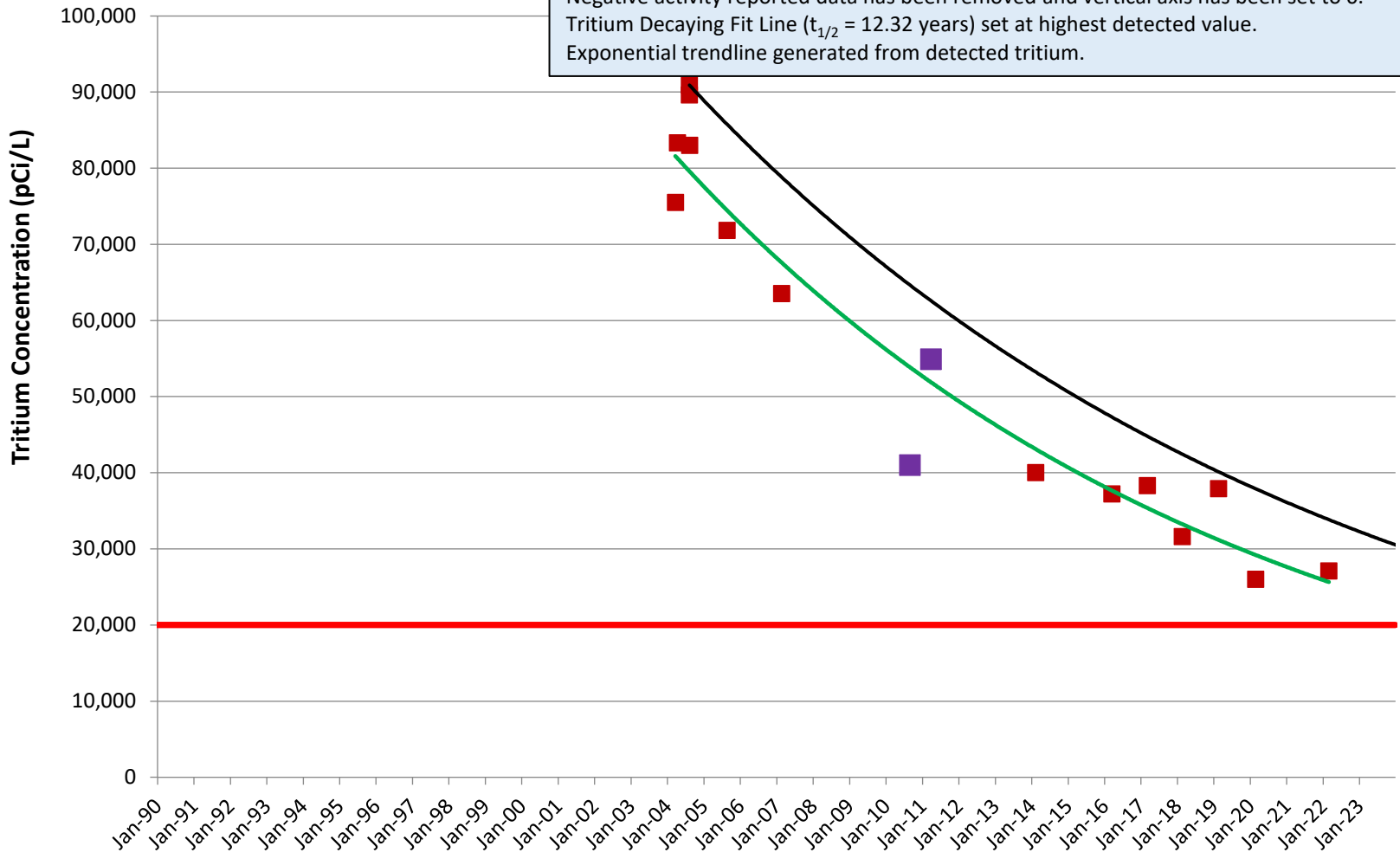
Maximum Contaminant Level (MCL) is 20,000 picoCuries per liter (pCi/L).
 10 to 20 pCi/L for current tritium in precipitation at SSFL.
 Negative activity reported data has been removed and vertical axis has been set to 0.
 Tritium Decaying Fit Line ($t_{1/2} = 12.32$ years) set at highest detected value.
 Exponential trendline generated from detected tritium.



× Non-Detects
 ■ Detects
 ■ EPA Detects
 — MCL
 — Expon. (Detects)
 — Expon. (Decaying Fit Activity)

RD-90, Tritium Plume Tritium

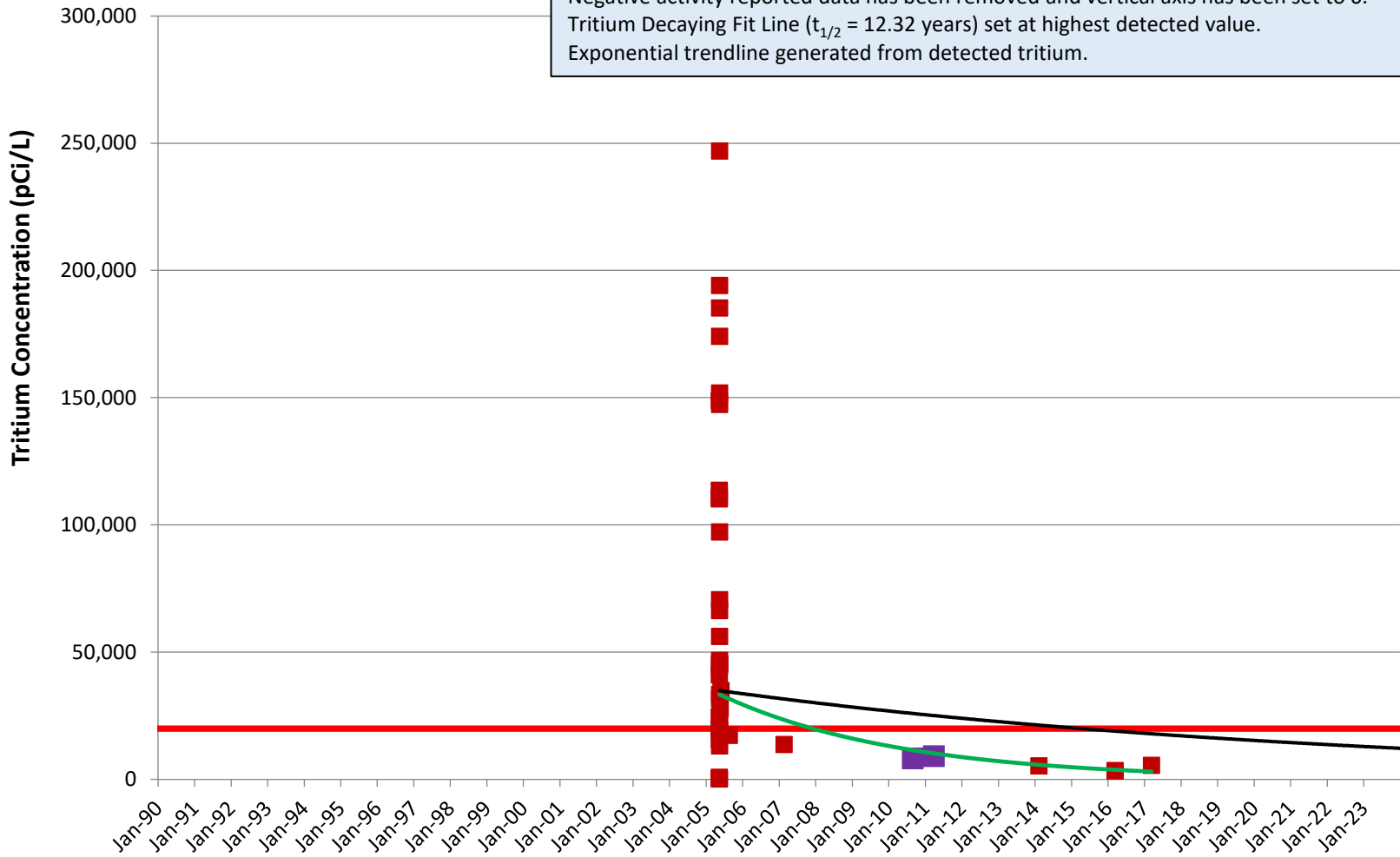
Maximum Contaminant Level (MCL) is 20,000 picoCuries per liter (pCi/L).
10 to 20 pCi/L for current tritium in precipitation at SSFL.
Negative activity reported data has been removed and vertical axis has been set to 0.
Tritium Decaying Fit Line ($t_{1/2} = 12.32$ years) set at highest detected value.
Exponential trendline generated from detected tritium.



× Non-Detects ■ Detects ■ EPA Detects — MCL — Expon. (Detects) — Expon. (Decaying Fit Activity)

RD-93, Tritium Plume Tritium

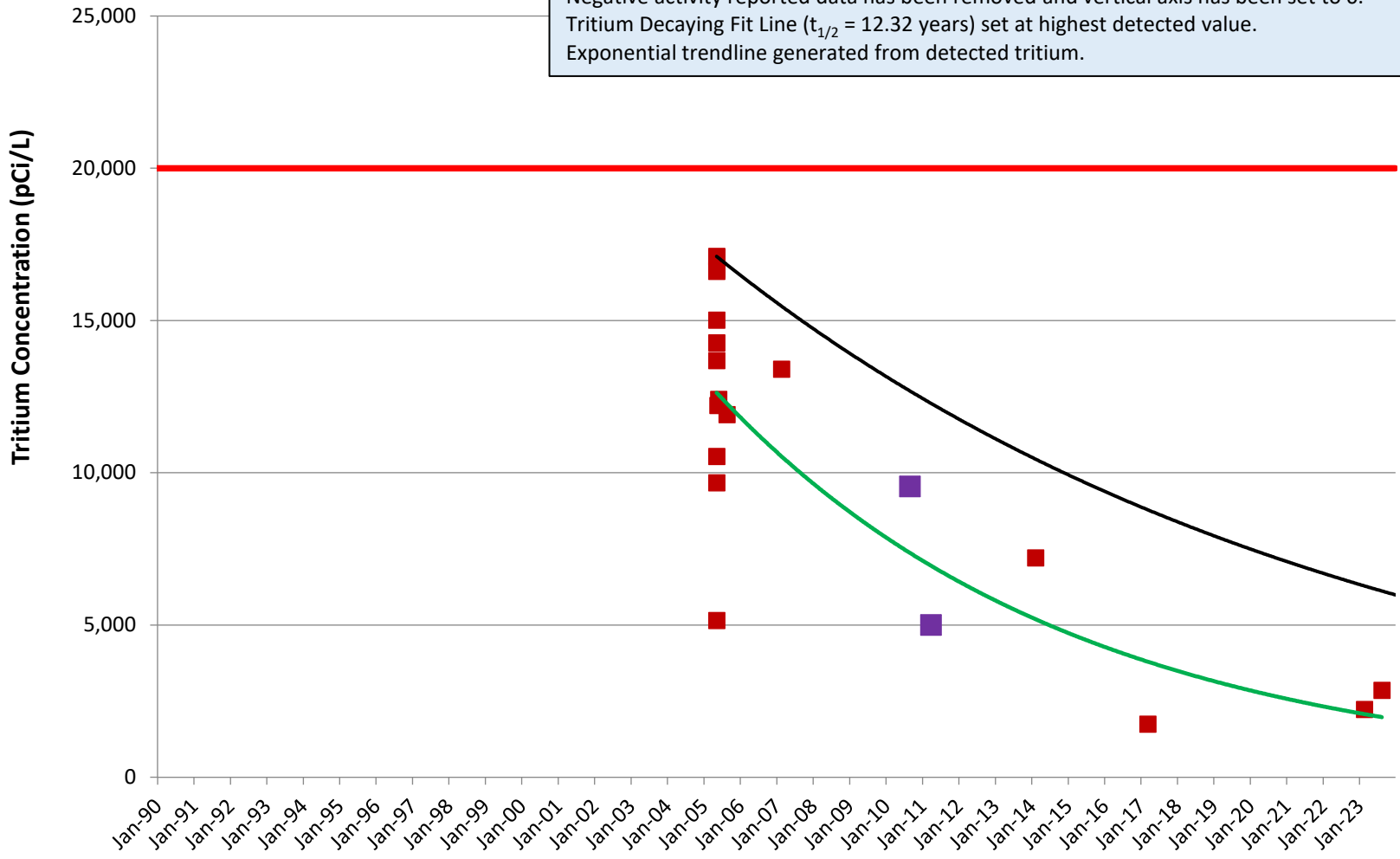
Maximum Contaminant Level (MCL) is 20,000 picoCuries per liter (pCi/L).
 10 to 20 pCi/L for current tritium in precipitation at SSFL.
 Negative activity reported data has been removed and vertical axis has been set to 0.
 Tritium Decaying Fit Line ($t_{1/2} = 12.32$ years) set at highest detected value.
 Exponential trendline generated from detected tritium.



× Non-Detects
 ■ Detects
 ■ EPA Detects
 — MCL
 — Expon. (Detects)
 — Expon. (Decaying Fit Activity)

RD-94, Tritium Plume Tritium

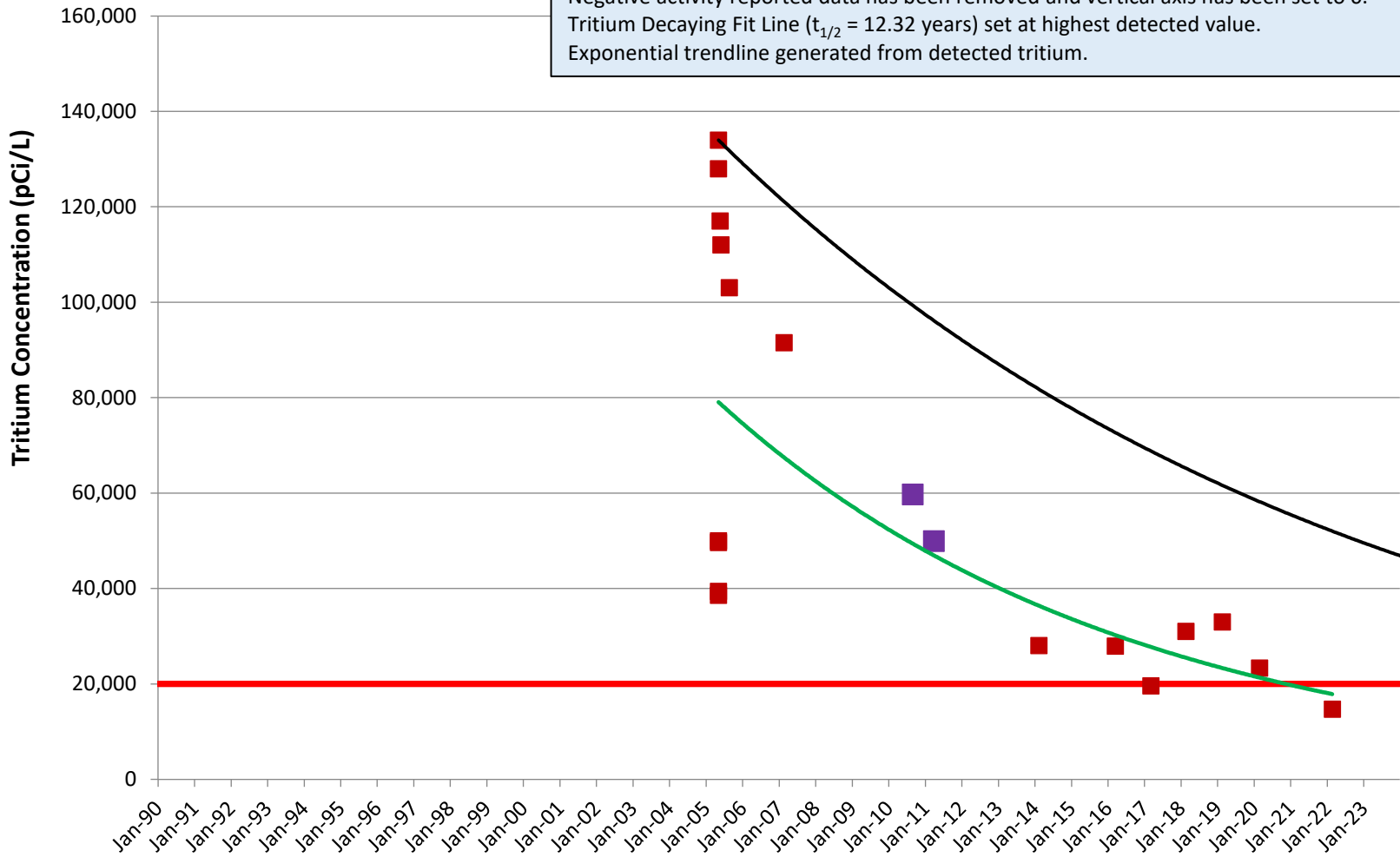
Maximum Contaminant Level (MCL) is 20,000 picoCuries per liter (pCi/L).
 10 to 20 pCi/L for current tritium in precipitation at SSFL.
 Negative activity reported data has been removed and vertical axis has been set to 0.
 Tritium Decaying Fit Line ($t_{1/2} = 12.32$ years) set at highest detected value.
 Exponential trendline generated from detected tritium.



× Non-Detects
 ■ Detects
 ■ EPA Detects
 — MCL
 — Expon. (Detects)
 — Expon. (Decaying Fit Activity)

RD-95, Tritium Plume Tritium

Maximum Contaminant Level (MCL) is 20,000 picoCuries per liter (pCi/L).
 10 to 20 pCi/L for current tritium in precipitation at SSFL.
 Negative activity reported data has been removed and vertical axis has been set to 0.
 Tritium Decaying Fit Line ($t_{1/2} = 12.32$ years) set at highest detected value.
 Exponential trendline generated from detected tritium.



× Non-Detects
 ■ Detects
 ■ EPA Detects
 — MCL
 — Expon. (Detects)
 — Expon. (Decaying Fit Activity)

Appendix E

Quality Assurance Assessment

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1. INTRODUCTION

This appendix summarizes the data validation completed for groundwater monitoring in 2023. The data were validated following the protocols outlined in the following documents and analytical methods:

- *Statement of Work Data Validation Services Santa Susana Field Laboratory Area IV, Ventura County, California.*
- Haley & Aldrich, 2010a, *Site-Wide Water Quality Sampling and Analysis Plan, Revision 1, Santa Susana Field Laboratory, Ventura County, California, Appendix A, December.*
- Haley & Aldrich, 2010b, *Groundwater Monitoring, Quality Assurance Project Plan, Revision 1, Santa Susana Field Laboratory, Ventura County, California, Appendix B, December.*
- U.S. EPA, 2017a, *U.S. EPA National Functional Guidelines for Organic Superfund Methods Data Review, OLEM 9355.0-136 EPA-540-R-2017-002, January.*
- U.S. EPA, 2017b, *U.S. EPA National Functional Guidelines for Inorganic Superfund Methods Data Review, OLEM 9355.0-135 EPA-540-R-2017-001, January.*
- *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA publication SW-846, Third Edition, Final Updates I (1993), II (1995), IIA (1994), IIB (1995), III (1997), IIIA (1999), IIIB (2005), IV (2008), and V (2015).*
- *Multi Agency Radiological Laboratory Analytical Protocols, MARLAP, Manual, EPA 402-B-04-001A, July 2004.*
- *Evaluation of Radiochemical Data Usability, ES/ER-MS-5, April 1997.*

This appendix is organized in two sections corresponding to the Quarter 1 (Q1) and Quarter 3 (Q3) monitoring events. Each section provides an overview of the data set for that quarter with findings from the validation effort.

2. QUARTER 1 2023 ASSESSMENT

2.1 Overview

The Santa Susana Field Laboratory (SSFL) data set for Q1 2023 consisted of 157 water samples, including quality control samples (matrix spikes/matrix spike duplicates [MS/MSD], field blanks, rinsate blanks, trip blanks, and field duplicates). Sixteen sample delivery groups (SDGs) were reported:

Q1 2023 SDGs	
610813	612262
611006	612640
611152	612703
611338	613062
611477	613112
611842	613171
611922	613573
612050	613617

Three SDGs (612262, 613112, and 613617) underwent a Level IV EPA validation. The remaining SDGs underwent a Level III EPA validation with the following deviations performed at a Level II EPA:

- 611006, Metals
- 611338, Metals and Anions
- 611477, Anions and Perchlorate
- 611842, Anions
- 612262, Metals and Anions
- 612640, Anions

Table E-1 shows the number and type of samples collected for the Q1 2023 sampling effort. Attachment 1 provides a complete sample ID table.

Table E-1. Samples collected for SSFL Area IV groundwater sampling, Q1 2023.

Sample Type	Number of Samples
Field Samples	43
Matrix Spikes	36
Matrix Spike Duplicates	30
Trip Blanks	14
Field Blanks	1
Rinsate Blanks	22
Field Duplicates	11

The samples were analyzed for volatile organic compounds (VOCs); 1,4-dioxane; diesel-range organics (DRO); gasoline-range organics (GRO); anions (fluoride and nitrate); total and dissolved metals including mercury; perchlorate; total and dissolved radiochemical (Rad) analyses (isotopic uranium [U], gamma spectroscopy, gross alpha/beta, strontium-90 [Sr-90], radium-226 [Ra-226], Ra-228; and tritium. Table E-2 shows the requested analyses, analytical methods, and number of normal samples analyzed for each analysis.

Table E-2. Summary of analyses, Q1 2023.

Analysis	Method	Number of Normal Samples Analyzed	
Volatile Organic Compounds	USEPA SW-846 8260	40	
1,4-Dioxane	USEPA SW-846 8270 Selective Ion Monitoring (SIM)	36	
DRO and/or GRO ¹	USEPA SW-846 8015	4	
Anions (Fluoride and Nitrate)	EPA 300.0	8	
Metals (Total & Dissolved)	USEPA SW-846 6020 USEPA SW-846 7470	30 Total 30 Dissolved	
Perchlorate	USEPA SW-846 6850 Modified	7	
Radiochemical Analyses (Total & Dissolved)	Isotopic U	DOE EML HASL-300, U-02-RC Modified	21 Total 21 Dissolved
	Gamma Spectroscopy	EPA 901.1	21 Total 21 Dissolved
	Gross Alpha/Beta	EPA 900.0	21 Total 21 Dissolved
	Strontium-90 (Sr-90)	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified	21 Total 21 Dissolved
	Radium-226 (Ra-226)	EPA 903.1 Modified	21 Total 21 Dissolved
	Radium-228 (Ra-228)	EPA 904	21 Total 21 Dissolved
Radiochemical Analysis	Tritium	EPA 906	2

¹ The planned Q1 analysis of 1,4-dioxane at well RD-34C was not completed. The analyte was included on the chain of custody but was inadvertently not analyzed by the laboratory.

2.2 Data Quality Summary

A summary of all data quality qualifiers applied during the Quarter 1 assessment is provided in Section 2.3.

2.2.1 Volatile Organic Compounds by USEPA SW-846 Method 8260:

The SSFL VOC data set consists of 40 water samples. All data points are considered usable for evaluating site conditions.

2.2.2 1,4-Dioxane by USEPA SW-846 Method 8270 SIM:

The SSFL 1,4-dioxane data set consists of 36 water samples. All data points are considered usable for evaluating site conditions.

2.2.3 Gasoline-Range Organics (GRO) and Diesel-Range Organics (DRO) by USEPA SW-846 Method 8015:

The SSFL GRO/DRO data set consists of 4 water samples. All data points are considered usable for evaluating site conditions.

2.2.4 Fluoride and Nitrate by EPA Method 300.0:

The SSFL anions data set consists of 8 water samples analyzed for fluoride/nitrate. All data points are considered usable for evaluating site conditions.

2.2.5 Total and Dissolved Metals by USEPA SW-846 Methods 6020 and 7470:

The SSFL metals data set consists of 30 water samples analyzed for total and dissolved metals, including mercury. All data points are considered usable for evaluating site conditions.

2.2.6 Perchlorate by USEPA SW-846 Method 6850 Modified:

The SSFL GRO/DRO data set consists of 4 water samples. All data points are considered usable for evaluating site conditions.

2.2.7 Radiochemical Analyses:

The SSFL radiochemical data set consists of 21 water samples for each of the following radiochemical parameters: tritium, total and dissolved isotopic uranium, total and dissolved gamma spectroscopy, total and dissolved gross alpha/beta, total and dissolved strontium-90, total and dissolved radium-226, and total and dissolved radium-228. Refer to Table E-2 for each parameter's respective analytical method. All data points are considered usable for evaluating site conditions.

2.2.8 Field Blanks, Rinsate Blanks, and Trip Blanks:

One field blank, 22 rinsate blanks, and 14 trip blanks were collected and analyzed during Q1 and are listed in Table E-3.

Table E-3. Field, rinsate, and trip blanks – Q1 2023.

Sample Delivery Group	Sample ID	Analysis	Quality Control (QC) Type
613171	DS-46_030623_19F_L	Anions, DRO and/or GRO, Metals, Perchlorate, Rad, and VOCs	Field Blank
613573		Rad	
610813	RD-07_021323_19R_L	Rad	Rinsate Blank
611006		VOCs	
611152	DS-43_021423_19R_L	Metals and VOCs	Rinsate Blank
	RD-21_021423_19R_L	Metals, Perchlorate, and VOCs	Rinsate Blank
611338	PZ-162_021623_19R_L	VOCs	Rinsate Blank
611477		Rad	
611477	DD-141_021723_19R_L	DRO and/or GRO, Metals, Perchlorate, and VOCs	Rinsate Blank
611842		Rad	
611842	DD-159_022023_19R_L	Metals, Rad, and VOCs	Rinsate Blank
611922	DD-139_022123_19R_L	Metals, Perchlorate, and VOCs	Rinsate Blank
	RD-30_022123_19R_L	Rad and VOCs	Rinsate Blank
612050	RD-33A_022223_19R_L	Metals, Perchlorate, Rad, and VOCs	Rinsate Blank
	RS-28_022223_19R_L	DRO and/or GRO, Metals, Rad, and VOCs	Rinsate Blank
612262	RD-54A_022423_19R_L	Metals, Perchlorate, Rad, and VOCs	Rinsate Blank
	RD-94_022323_19R_L	Rad and VOCs	Rinsate Blank
	RD-98_022323_19R_L	Rad and VOCs	Rinsate Blank
612640	DS-45_022723_19R_L	Metals and VOCs	Rinsate Blank
613573		Rad	
612703	DD-158_022823_19R_L	Metals and VOCs	Rinsate Blank
	PZ-108_022823_19R_L	Metals and VOCs	Rinsate Blank
613062	DD-144_030223_19R_L	Metals and VOCs	Rinsate Blank
	DS-46_030323_19R_L	Metals and VOCs	Rinsate Blank
613062	PZ-005_030223_19R_L	DRO and/or GRO, Metals, and VOCs	Rinsate Blank
613112		Anions	
613112	RD-34B_030123_19R_L	Anions, Metals, and VOCs	Rinsate Blank
613573		Rad	
613112	RD-87_030123_19R_L	Rad and VOCs	Rinsate Blank
613573	DD-158_02282023_19R_L	Rad	Rinsate Blank
611006	RD-07_021323_78_L	VOCs	Trip Blank
611152	DS-43_021423_78_L	VOCs	Trip Blank
611338	RD-14_021523_78_L	VOCs	Trip Blank

Table E-3. (continued)

Sample Delivery Group	Sample ID	Analysis	Quality Control (QC) Type
611477	RD-19_021723_78_L	GRO	Trip Blank
611477	RD-19_021723_78_L	VOCs	Trip Blank
611842	DD-159_022023_78_L	VOCs and GRO	Trip Blank
611922	RD-30_022123_78_L	VOCs	Trip Blank
612050	RS-28_022223_78_L	VOCs and GRO	Trip Blank
612262	RD-98_022323_78_L	VOCs	Trip Blank
612640	DS-45_022723_78_L	VOCs and GRO	Trip Blank
612703	DD-158_022823_78_L	VOCs	Trip Blank
613062	C-08_030323_78_L	VOCs	Trip Blank
613112	PZ-163_030223_78_L	VOCs and GRO	Trip Blank
	RD-65_030123_78_L	VOCs	Trip Blank
613171	DS-46_030623_78_L	VOCs and GRO	Trip Blank

2.2.8.1 Field Blank Results

1,4-Dioxane by Method 8270SIM was detected and flagged “J”, estimated, a result that was less than the laboratory’s limit of quantitation (LOQ). Acetone was detected in the field blank above the LOQ and was therefor unqualified. All other field blank results were either non-detect or qualified “U” and no further data validation qualifications were warranted. All field blank results are considered usable for their intended purpose.

2.2.8.2 Rinsate Blank Results

While a majority of the rinsate blank results were either non-detect or qualified “U”, multiple rinsate blanks had detections below their respective LOQs and “J” validation flags were applied. Additionally, some rinsate blanks had detections above their respective LOQs and remained unqualified. None of the rinsate blank detections resulted in rejected data and all rinsate blank results are considered usable for their intended purpose.

2.2.8.3 Trip Blank Results

While a majority of the rinsate blank results were either non-detect or qualified “U”, multiple trip blanks had detections below their respective LOQs, and “J” validation flags were applied, primarily for methylene chloride. However, none of the trip blank detections resulted in rejected data and all trip blank results are considered usable for their intended purpose.

2.2.9 Field Duplicates

Eleven pairs of field duplicates were collected during the SSFL Area IV groundwater Q1 2023 sampling effort and are listed in Table E-4.

Table E-4. Field duplicates, Q1 2023.

Sample Delivery Group	Parent ID	Field Duplicate ID	Analysis
611006	DS-43_021423_01_L	DS-43_021423_36_L	VOCs and Metals
	PZ-098_021423_01_L	PZ-098_021423_36_L	Perchlorate
611338	PZ-162_021623_01_L	PZ-162_021623_36_L	Rad
611477	RD-19_021723_01_L	RD-19_021723_36_L	VOCs and Anions
611842	RD-63_022023_01_L	RD-63_022023_36_L	VOCs
612050	RS-28_022223_01_L	RS-28_022223_36_L	Rad
612262	RD-94_022323_01_L	RD-94_022323_36_L	Rad
612703	DD-157_022823_01_L	DD-157_022823_36_L	VOCs and Metals
613112	PZ-102_030223_01_L	PZ-102_030223_36_L	VOCs
	PZ-105_030223_01_L	PZ-105_030223_36_L	DRO and/or GRO
613112	PZ-005_030223_01_L	PZ-005_030223_36_L	VOCs and Anions
613617			Metals

The following field duplicates were outside their relative percent difference (RPD) acceptance criterion:

- Acetone in pair DS-43_021423_01_L/DS-43_021423_36_L had an RPD of 44.91% (limit 35%); however, the parent sample was non-detect and the duplicate was below the LOQ, so no qualification was warranted.
- Aluminum, barium, iron, and potassium in duplicate samples PZ-005_030223_01L and PZ005-030223_36_L have been qualified with a “J” validation flag as the parent and field duplicate result were >detection limit, the field duplicate %RPD >35%, or the absolute difference between the parent and field duplicate was >2× the reporting limit.

All remaining field duplicate precision results were within their RPD criterion.

2.3 Summary of Data Validation Qualifications

Qualifications for normal samples were assigned in accordance with the *U.S. EPA Contract Laboratory Program National Functional Guidelines* and resulted from poor initial and continuing calibration criteria; positive blank detections; poor laboratory control sample (LCS), laboratory control sample duplicate (LCSD), MS/MSD, and serial dilution sample (SDS) performance; and results reported below the quantitation limits. Table E-5 summarizes the findings and data qualifications assigned to SSFL Area IV Groundwater Q1 2023 data results. Attachment 2 provides definitions of the data validation qualifiers.

Table E-5. Summary of data validation qualifications, Q1 2023.

Method	Validation Qualifier:	J	UJ	U or Not Qualified
	Total # Records	#Records	#Records	#Records
Anions	8	4	--	4
DRO and/or GRO	8	--	1	7
Metals	1620	245	8	1367
Perchlorate	7	--	--	7
Rad	968	42	10	916
VOCs	2116	28	65	2023

Note: Assessments provided in the table above are for normal samples only.

-- Indicates that no records for the specified method were qualified with the specified validation qualifier.

2.4 Assessment of Data Usability and Reconciliation with the Site-Wide WQSAP Goals

For the Q1 2023 groundwater sampling, 100.0% of the data validated and reported in this quality assurance summary are suitable for their intended use for site characterization.

The RLs reported generally met the expected limits proposed by the analytical laboratories in their subcontract agreements with North Wind except for the analytes identified previously. Sample results that were qualified as estimated are usable for project decisions. Decisions based on results close to the RL should be made with a degree of caution.

The field duplicate precision criteria were met and the field duplicate error ratio (DER)<2 criterion was met for all radiological samples.

The completeness goal for the number of samples collected was met. The completeness goal for the number of sample results acceptable for use provides sufficient quality data to support project decisions for the wells that were sampled during this sampling event.

3. QUARTER 3 2023 ASSESSMENT

3.1 Overview

The SSFL data set for Q3 2023 consisted of 114 water samples, including quality control samples (MS/MSD, field blanks, rinsate blanks, trip blanks, and field duplicates). Twelve SDGs were reported:

Q3 2023 SDGs	
633523	634316
633653	634388
633824	634410
634055	634540
634056	634764
634197	634992

Two SDGs (633824 and 634992) underwent a Level IV EPA validation. The remaining SDGs underwent a Level III EPA validation. Table E-6 shows the number and type of samples collected for the SSFL Area IV groundwater Q3 2023 sampling effort. Attachment 1 provides a full sample ID table.

Table E-6. Samples collected for SSFL Area IV groundwater sampling, Q3 2023.

Sample Type	Number of Samples
Field Samples	40
Matrix Spikes	19
Matrix Spike Duplicates	17
Trip Blanks	9
Field Blanks	1
Rinsate Blanks	17
Field Duplicates	11

The samples were analyzed for VOCs; 1,4-dioxane; DRO; GRO; perchlorate; dissolved and total metals including mercury; tritium; and dissolved and total strontium-90. Table E-7 shows the requested analyses, analytical methods, and number of normal samples analyzed for each analysis.

Table E-7. Summary of analyses for SSFL Area IV groundwater sampling, Q3 2023.

Analysis	Method		Number of Normal Samples Analyzed
Volatile Organic Compounds	USEPA SW-846 8260		38
1,4-Dioxane	USEPA SW-846 8270 Selective Ion Monitoring (SIM)		38
DRO and/or GRO	USEPA SW-846 8015		19
Perchlorate	USEPA SW-846 6850 Modified		3
Metals (Total & Dissolved)	USEPA SW-846 6020 USEPA SW-846 7470		33 Total 33 Dissolved
Radiochemical Analyses (Total & Dissolved)	Strontium-90 (Sr-90)	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified	8 Total 8 Dissolved
	Tritium	EPA 906	2 Tritium

3.2 Data Quality Summary

A summary of all data quality qualifiers applied during the Quarter 3 assessment is provided in Section 3.3.

3.2.1 Volatile Organic Compounds by USEPA SW-846 Method 8260:

The SSFL VOC data set consists of 38 normal water samples. All data points are considered usable for evaluating site conditions.

3.2.2 1,4-Dioxane by USEPA SW-846 Method 8270 SIM:

The SSFL 1,4-dioxane data set consists of 38 normal water samples. All data points are considered usable for evaluating site conditions.

3.2.3 Gasoline-Range Organics (GRO) and Diesel-Range Organics (DRO) by USEPA SW-846 Method 8015:

The SSFL GRO and DRO data set consists of 19 normal water samples. All 138 data points are considered usable for evaluating site conditions.

3.2.4 Perchlorate by USEPA SW-846 Method 6850 Modified:

The SSFL perchlorate data set consists of 3 normal water samples analyzed for perchlorate. All data points are considered usable for evaluating site conditions.

3.2.5 Total and Dissolved Metals by USEPA SW-846 Methods 6020 and 7470:

The SSFL metals data set consists of 33 normal water samples analyzed for total and dissolved metals, including mercury. All data points are considered usable for evaluating site conditions.

3.2.6 Radiochemical Analyses:

The SSFL radiochemical data set consists of 2 normal water sample for tritium and 8 normal water samples for total and dissolved isotopic strontium-90 (Sr-90). Refer to Table E-7 for each parameter's respective analytical method. All data points are considered usable for evaluating site conditions

3.2.7 Field Blanks, Rinsate Blanks, and Trip Blanks

One field blank, 17 rinsate blanks, and nine trip blanks were collected and analyzed during Q3 and are listed in Table E-8.

Table E-8. Field, rinsate, and trip blanks – Q3 2023.

Sample Delivery Group	Sample ID	Analysis	QC Type
634992	PZ-005_082523_19F_L	DRO and/or GRO, Metals, Perchlorate, Rad, and VOCs	Field Blank
633523	PZ-105_081423_19R_L	DRO and/or GRO, Metals, and VOCs	Rinsate Blank
	PZ-108_081423_19R_L	DRO and/or GRO, Metals, and VOCs	Rinsate Blank
633653	PZ-121_081523_19R_L	DRO and/or GRO, Metals, and VOCs	Rinsate Blank
	PZ-163_081523_19R_L	DRO and/or GRO, Metals, and VOCs	Rinsate Blank
633824	PZ-120_081623_19R_L	DRO and/or GRO, Metals, and VOCs	Rinsate Blank
	PZ-122_081623_19R_L	DRO and/or GRO, Metals, and VOCs	Rinsate Blank
634055	DD-139_081823_19R_L	DRO and/or GRO and VOCs	Rinsate Blank
	RD-98_081823_19R_L	VOCs	Rinsate Blank
634056	PZ-116_081723_19R_L	VOCs	Rinsate Blank
	RD-30_081723_19R_L	VOCs	Rinsate Blank
634197	PZ-116_081723_19R_L	Rad	Rinsate Blank
	RD-30_081723_19R_L	Rad and Metals	Rinsate Blank
634316	DD-139_081823_19R_L	Metals	Rinsate Blank
	RD-98_081823_19R_L	Metals	Rinsate Blank
634388	PZ-116_081723_19R_L	Rad	Rinsate Blank
	RD-27_082123_19R_L	Rad	Rinsate Blank
	RD-98_081823_19R_L	Rad	Rinsate Blank
634410	RD-07_082123_19R_L	Metals and VOCs	Rinsate Blank
	RD-27_082123_19R_L	Metals and VOCs	Rinsate Blank
634540	PZ-098_082223_19R_L	DRO and/or GRO, Metals, Perchlorate, and VOCs	Rinsate Blank
634764	PZ-124_082323_19R_L	Metals and VOCs	Rinsate Blank
	RD-74_082323_19R_L	Metals and VOCs	Rinsate Blank
634992	PZ-005_082523_19R_L	DRO and/or GRO, Metals, Perchlorate, and VOCs	Rinsate Blank
	RD-65_082423_19R_L	DRO and/or GRO, Metals, and VOCs	Rinsate Blank
633523	DS-48_081423_78_L	VOCs and GRO	Trip Blank
633653	PZ-041_081523_78_L	VOCs and GRO	Trip Blank
633824	PZ-104_081623_78_L	VOCs and GRO	Trip Blank
634055	DD-139_081823_78_L	GRO	Trip Blank
634056	DD-143_081723_78_L	GRO	Trip Blank
634410	DS-43_082123_78_L	VOCs	Trip Blank
634540	DS-46_082223_78_L	VOCs and GRO	Trip Blank
634764	PZ-124_082323_78_L	VOCs	Trip Blank
634992	RD-64_082423_78_L	VOCs and GRO	Trip Blank

3.2.7.1 Field Blank Results

1,4-Dioxane by Method 8270SIM was detected and flagged “J”, estimated, a result that was less than the laboratory’s limit of quantitation (LOQ). All other field blank results were either non-detect or qualified “U” and no further data validation qualifications were warranted. All field blank results are considered usable for their intended purpose.

3.2.7.2 Rinsate Blank Results

While a majority of the rinsate blank results were either non-detect or qualified “U”, multiple rinsate blanks had detections below their respective LOQs and “J” validation flags were applied, primarily for vanadium and 1,4-dioxane. None of the rinsate blank detections resulted in rejected data, and all rinsate blank results are considered usable for their intended purpose.

3.2.7.3 Trip Blank Results

While a majority of the rinsate blank results were either non-detect or qualified “U”, multiple trip blanks had detections below their respective LOQs, and “J” validation flags were applied, primarily for methylene chloride. However, none of the trip blank detections resulted in rejected data, and all trip blank results are considered usable for their intended purpose.

3.2.8 Field Duplicates:

Eleven pairs of field duplicates were collected during the SSFL Area IV groundwater Q3 2023 sampling effort and are listed in Table E-9.

Table E-9. Field duplicates, Q3 2023.

Sample Delivery Group	Parent ID	Field Duplicate ID	Analysis
633523	DS-48_081423_01_L	DS-48_081423_36_L	DRO and/or GRO
	PZ-103_081423_01_L	PZ-103_081423_36_L	Metals
	PZ-105_081423_01_L	PZ-105_081423_36_L	VOCs
634056	RD-88_081723_01_L	RD-88_081723_36_L	VOCs
634197			Rad
634316	DS-45_081823_01_L	DS-45_081823_36_L	Metals
	RD-98_081823_01_L	RD-98_081823_36_L	Rad
634540	PZ-098_082223_01_L	PZ-098_082223_36_L	Perchlorate and DRO and/or GRO
	RD-34A-082223_01_L	RD-34A-082223_36_L	VOCs
634764	DD-141_082323_01_L	DD-141_082323_36_L	Metals
634992	PZ-005_082523_01_L	PZ-005_082523_36_L	VOCs
	RD-65_082423_01_L	RD-65_082423_36_L	DRO and/or GRO

The following field duplicates were outside their RPD acceptance criterion:

- For the dissolved metals field duplicate pair PZ-103_081423_01_L and PZ-103_081423_36_L, the field duplicate RPD for copper (46.72%) and nickel (45.51%) were outside of the 35% RPD acceptance criteria. Therefore, copper and nickel in samples PZ103_081423_01_L Dissolved and PZ-103_081423_36_L Dissolved have been qualified with a “J” validation flag due to high field duplicate RPD.

- For the VOCs field duplicate pair PZ-103_081423_01_L and PZ-103_081423_36_L, the RPD for acetone (45.3%) exceeded the project acceptance criteria (35%), however, no qualification is warranted, as the parent sample was below the LOQ and the field duplicate was non-detect.
- For the VOCs field duplicate pair RD-88_081723_01_L and RD-88_081723_36_L, the RPD for 2-butanone (55.7%) and methylene chloride (59.7%) exceeded the project acceptance criteria (35%); however, no qualification is warranted, as one result for each analyte was below the LOQ and the other was non-detect.
- For the total metals field duplicate pair DS-45_081823_01_L and DS-45_081823_36_L, the RPD for copper (38.79%) was outside of the 35% RPD acceptance criteria. Therefore, copper in samples DS-45_081823_01_L and DS-45_081823_36_L have been qualified with a “J” validation flag due to high field duplicate RPD.
- For the DRO field duplicate pair PZ-098_082223_01_L and PZ098_082223_36_L, the RPD for DRO (39.2%) exceeded the project acceptance criteria (35%); however, no qualification is warranted, as the primary sample result was below the LOQ and the duplicate was non-detect.
- For the total metals field duplicate pair DD-141_082323_01_L and DD-141_082323_36_L, the field duplicate RPDs for chromium (46.15%), cobalt (37.77%), iron (40.71%), and lead (36.88%) were outside of the 35% RPD acceptance criteria. Therefore, chromium, cobalt, iron, and lead in samples DD-141_082323_01_L and DD-141_082323_36_L have been qualified with a “J” validation flag due to high field duplicate RPD.
- For the VOC field duplicate pair PZ-005_082523_01_L and PZ005_082523_36_L, the RPD for tetrachloroethylene (47.6%) exceeded the project acceptance criteria (35%); however, no qualification is warranted, as the parent sample was non-detect and the field duplicate was below the LOQ.

All remaining field duplicate precision results were within their RPD criterion.

3.3 Summary of Data Validation Qualifications

Qualifications for normal samples were assigned in accordance with the *U.S. EPA Contract Laboratory Program National Functional Guidelines* and resulted from poor initial and continuing calibration criteria; positive blank detections; poor LCS, LCSD, MS, MSD, and SDS performance; and results reported below the quantitation limits. Table E-10 summarizes the findings and data qualifications assigned to SSFL Area IV Groundwater Q3 2023 data results. Please refer to Attachment 2 for definitions of the data validation qualifiers.

Table E-10. Summary of data validation qualifications, Q3 2023.

Method	Validation Qualifier:	J	UJ	U or Not Qualified
	Total # Records	#Records	#Records	#Records
DRO and/or GRO	38	16	22	--
Metals	1188	262	926	--
Perchlorate	3	--	3	--
Radiochemical	18	--	18	--
Volatile Organic Compounds	874	31	834	9

Note: Assessments provided in the table above are for normal samples only.

-- Indicates that no records for the specified method were qualified with the specified validation qualifier.

3.4 Assessment of Data Usability and Reconciliation with the Site-Wide WQSAP Goals

For the Q3 2023 groundwater sampling, 100.0% of the data validated and reported in this quality assurance summary are suitable for their intended use for site characterization.

The RLs reported generally met the expected limits proposed by the analytical laboratories in their subcontract agreements with North Wind except for the analytes identified previously. Sample results that were qualified as estimated are usable for project decisions. Decisions based on results close to the RL should be made with a degree of caution.

The field duplicate precision criteria were met and the field DER<2 criterion for radiological data.

The completeness goal for the number of samples collected was met. The completeness goal for the number of sample results acceptable for use provides sufficient quality data to support project decisions for the wells that were sampled during this sampling event.

4. DATA REVIEW PROCESS

For both Quarters 1 and 3, data produced by the analytical laboratories were subject to multiple review steps to coincide with the start of distinct tasks. These steps were performed in a timely manner to ensure appropriate feedback and correction of errors. These steps included:

- Cross-reference check of sample chain-of-custody documents against the laboratory acknowledgement of sample receipt form. The laboratory acknowledgement of sample receipt was typically transmitted to the data manager via e-mail 2 to 3 days after sample receipt and log-in and included a summary of the requested analyses to be performed per sample. Sample log-in errors were identified and corrected at this step.
- Tracking of sample collection, receipt, and laboratory SDG numbers on a sample tracking spreadsheet. This spreadsheet also included field QC sample information and well sample location coordinates.
- Laboratory consultation with the project chemists on data quality issues during sample analyses such as missed holding times, poor spike recoveries, etc. These issues were discussed between the project chemists and the laboratory and were resolved based on technical merit and determined if usable in the evaluation.

Upon receipt of the laboratory report (delivered via e-mail), a preliminary review of the data was performed. This review consisted of:

- Reconciliation of the reported analyses against the analyses that were requested on the chain-of-custody documents.
- Review of the laboratory case narratives. The case narrative identified and explained quality issues encountered during the analysis of the samples. Quality issues may include (but not be limited to) expired holding times, poor spike recoveries in matrix or batch-specific QC samples, instrument calibration exceedances, and blank contamination.
- Review of the laboratory-specific QC data. These data were provided by the laboratory in summary form. Any unanticipated deviations from the project or method-specific criteria were reconciled with the laboratory at this stage.

5. DATA QUALITY INDICATORS

This section summarizes the validation performed for both Quarter 1 and Quarter 3 sampling events. Individual SDG validation reports with specific sample details are provided in Attachment 1.

Achievement of the data quality objectives (DQOs) was determined in part by the use of data quality indicators (DQIs). The DQIs for measurement data are expressed in terms of what are collectively referred to as the PARCCS parameters (precision, accuracy, representativeness, comparability, completeness, and sensitivity). The DQIs provide a mechanism for ongoing control to evaluate and measure data quality throughout the project. These criteria are defined in the sections below.

5.1 Precision

Precision is the measurement of the ability to obtain the same value on re-analysis of a sample through the entire analytical process. The closer the measurement results, the greater the precision. Precision has nothing to do with accuracy or true values of the sample. Instead, it is focused on random errors inherent in the analysis that stem from the measurement process and are compounded by the non-homogeneous nature of some samples. Precision is measured by analyzing two portions of the sample (sample and duplicate) and then comparing the results. This comparison can be expressed in terms of RPD. RPD is calculated as the absolute difference between the two measurements divided by the average of the two measurements.

$$\text{RPD} = \frac{|(A-B)|}{\frac{A+B}{2}} \times 100$$

A condition with this formula is that it depends on the average of the two measurements, and the magnitude of the calculated RPD is intimately linked to the magnitude of the results. When sample results are close to the reporting limit (RL), the RPD is greater but does not necessarily indicate that the precision is out of control limits, just that the sample concentrations are low.

RPD as a measure of precision works very well in those cases where the same level of analyte is present in all samples; however, it does not work well as a quantitative tool when varying levels are present. Another option that is used for evaluating the differences between sample results that are close to the RL is calculating the absolute difference between the results. In this situation, the difference between the sample results is compared to the RL and if the difference is greater, the sample results are qualified as estimated “J/UJ.” Sample results are also qualified as estimated “J/UJ” if the RPD is outside of criteria.

Because of the limitations with the use of RPDs for field duplicate precision evaluation, precision is also calculated on spike samples, either on an MS and MSD or on an LCS/LCSD. For spike samples, a known concentration of analyte has been added to each sample and evaluations of RPD can be made that are more applicable to variations in environmental measurements. The drawback is that the precision measurement is applicable only to the particular spike level used.

For the groundwater samples, precision was evaluated by reviewing RPD results for MS/MSDs, LCS/LCSDs, laboratory duplicates, and field duplicates.

Laboratory RPD control limits are presented in the Water Quality Sampling and Analysis Plan (WQSAP) (Haley & Aldrich 2010a) or are laboratory specific. For laboratory duplicates, if one or both of the sample results were less than five times the RL, a control limit of the absolute difference value equal to the RL was used for comparison. The field duplicate RPD criterion is 35%.

Based on laboratory and/or field duplicate precision criteria during the validation process, qualifiers were applied to applicable sample results.

5.2 Accuracy

Accuracy is a concept from quantitative analysis that attempts to address the question of how close the analytical result is to the true value of the analyte in the sample. Accuracy is determined through a spike procedure, where a known amount of the target analyte is added to a portion of the sample and then the sample and the spiked sample are analyzed. The quantitative measure of accuracy is percent recovery (%R), calculated as follows:

$$\text{Percent Recovery} = \frac{(\text{Total Analyte Found} - \text{Analyte Originally Present}) \times 100}{\text{Analyte Added}}$$

Each measurement performed on a sample is subject to random and systematic error. Accuracy is related to the systematic error. Attempts to assess systematic error are always complicated by the inherent random error of the measurement.

Analytical accuracy for the entire data collection activity is difficult to assess because several sources of error exist. Errors can be introduced by any of the following:

- Sampling procedure
- Field contamination
- Sample preservation and handling
- Sample matrix
- Sample preparation
- Analytical techniques.

Accuracy is maintained to the extent possible by adhering to the EPA method and approved field and analytical standard operating procedures.

The following QC samples are used to assess laboratory accuracy:

- Matrix Spikes: These are samples with a known amount of a target analyte added to them. Analysis of the sample that has been spiked and comparison with the results from the unspiked sample (background) gives information about the ability of the test procedure to generate a correct result from the sample.
- Post-Digestion Spikes: Post-digestion spikes are performed after the sample has been prepared and is ready for analysis. These are also termed “analytical spikes.” The technique is used in conjunction with an MS to provide data that can separate interferences produced as part of the sample preparation from interferences that are innate qualities of the sample.
- Laboratory Control Samples: LCSs consist of a portion of analyte-free water spiked with target analytes at a known concentration.
- Surrogates: Surrogate recovery is a QC measure limited to use in organics analysis. Surrogates are compounds added to every sample at the beginning of the sample preparation to monitor the success of the sample preparation and analytical procedures on an individual sample basis. Individual

compounds used as surrogates are selected based on their ability to mimic the behavior of specific target analytes held to be particularly sensitive to the sample preparation manipulations.

- **Interference Check Samples:** Interference check sample analysis is a QC measure unique to metals analysis using inductively coupled plasma atomic emission spectrometry. This QC sample verifies the analytical instrument's ability to overcome interferences typical of those found in samples.
- **Calibrations:** Method requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable quantitative data for metals. Initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analytical run. Continuing calibrations demonstrate that the initial calibration is still valid by checking the performance of the instrument on a continuing basis.
- **Internal Standards:** Internal standards measure the gas chromatograph/ mass spectrometer sensitivity and response stability during each analysis.
- **Serial Dilution:** Serial dilutions are performed on at least one sample from every batch of analyses for metals to determine if physical or chemical interferences exist in the analyte determinations.

For the groundwater samples, accuracy was evaluated by reviewing the %R values and relative response factors of initial and continuing calibration (percent difference or percent drift [%D] for organic analyses), the initial and continuing calibration recoveries for inorganic analyses, internal standards, surrogate spikes (organic analyses only), MS/MSD, LCS/LCSD, inductively coupled plasma (ICP) interferences, and by performing serial dilution checks during metals analyses, in conjunction with method blank, calibration blank, equipment rinsate blank, and trip blank results. These QC results assist in identifying the type and magnitude of effects that may have contributed to system error introduced from field and/or laboratory procedures.

Qualifiers were applied to applicable sample results during the validation process based on laboratory accuracy results. Results were qualified based on calibrations, surrogates, internal standards, ICP serial dilutions, LCS/LCSD recoveries, and MS/MSD recoveries.

Sample preservation, handling, and holding times are additional measures of accuracy of the data. Holding times are defined as the amount of time that elapses from collection of the sample in the field to the start of the analysis. Preservation is defined as techniques used to maintain the target analytes at concentrations representative of the source sampled.

In summary, sample results that have been qualified as estimated "J, or UJ" due to accuracy criteria are usable for project decisions. The sample results are usable for project decisions.

5.3 Blank Contamination

Blanks are used to determine the level of laboratory and field contamination introduced into the samples, independent of the level of target analytes found in the sample source. Sources of sample contamination can include the containers and equipment used to collect the sample; preservatives added to the sample; cross contamination from other samples in transport coolers and laboratory sample storage refrigerators; standards used to calibrate instruments; glassware and reagents used to prepare samples for analysis; airborne contamination in the laboratory preparation area; and the analytical instrument sample introduction equipment. Each analyte group has its own particular suite of common laboratory contaminants. Active measures must be performed to continually measure the ambient contamination level and steps taken to discover the source of the contamination and to eliminate or minimize the levels. Random spot contamination can also occur from analytes that are not common laboratory problems but that can arise as a problem for a specific project or over a short period of time. Field blanks, equipment

blanks, trip blanks, and laboratory method blanks are analyzed to identify possible sources of contamination.

The data validation reports for Q1 discuss the specific results that were qualified as non-detect “U” based on field and laboratory blank contamination.

5.4 Representativeness, Comparability, and Sensitivity

Representativeness, comparability, and sensitivity are achieved by using EPA-approved sampling procedures and analytical methodologies. By following the procedures described in the WQSAP and Groundwater Monitoring QAPP (Haley & Aldrich 2010a, 2010b) for this sampling event and future sampling events, sample analysis should yield results representative of environmental conditions at the time of sampling. Similarly, reasonable comparability of analytical results for this and future sampling events can be achieved if approved EPA analytical methods and standardized reporting units are employed.

5.4.1 Representativeness

Representativeness is a qualitative term that expresses the degree to which the sample data accurately and precisely represent the environmental conditions corresponding to the location and depth interval of sample collection. Requirements and procedures for sample collection are designed to maximize sample representativeness.

Representativeness also can be monitored by reviewing field documentation and/or performing field audits. For this report, a detailed review was performed on the chain-of-custody forms, laboratory sample confirmation logs, and data validation packages.

The most significant measure of representativeness is the accuracy of the sampling network and selection of appropriate locations and depths, etc. Field sampling accuracy was attained through adherence to the approved WQSAP and Groundwater Monitoring QAPP (Haley & Aldrich 2010a, 2010b) for sample location and collection and by using approved standard operating procedures for field data collection. The data should represent, as near as possible, the actual field conditions at the time of sampling.

Representativeness has been achieved by the performed field work and laboratory analyses. The analytical data generated are viewed to be a representative characterization of the project area. The remaining sample results are usable for project decisions.

5.4.2 Comparability

Comparability is a qualitative term that expresses the confidence with which a data set can be compared with another. Strict adherence to standard sample collection procedures, analytical detection limits, reporting units, and analytical methods assures that data from like samples and sample conditions are comparable. This comparability is independent of laboratory personnel, data reviewers, or sampling personnel. Comparability criteria are met for the project if, based on data review, the sample collection and analytical procedures are determined to have been followed, or defined to show that variations did not affect the values reported.

To ensure comparability of data generated for the site, standard sample collection procedures were utilized by North Wind. Department of Toxic Substances Control (DTSC)-approved analytical methods were performed by Test America Laboratories. Similar methods and concentration levels to those used for

previous sampling events also allow for comparable data. Utilizing such procedures and methods enables the current data to be comparable with previous and future data sets generated.

5.4.3 Sensitivity

Sensitivity is related to the ability to compare analytical results with project-specific levels of interest, such as risk-based screening levels or action levels. Analytical detection limits for the various sample analytes should be below the level of interest to allow an effective comparison.

5.4.3.1 Detection Limits

The method detection limit (MDL) study attempts to answer the question, “What is the lowest level of analyte in a sample that will result in a signal different than zero?” The study is based upon repetitive analysis of an interference-free sample spiked with a known amount of the target analyte. The MDL is a measure of the ability of the test procedure to generate a positive response for the target analyte in the absence of any other interferences from the sample.

The RL is generally defined as the lowest concentration at which an analyte can be detected in a sample and its concentration reported with a reasonable degree of accuracy and precision. For samples that do not pose a particular matrix problem, the RL is typically about three to five times higher than the MDL.

Laboratory results are reported according to rules that provide established certainty of detection and RLs. The result for an analyte is flagged with a “U” if that analyte was not detected, or qualified with a “J” flag if associated QC results fall outside the appropriate tolerance limits. Also, if an analyte is present at a concentration between the MDL and the RL, the analytical result is flagged with a “J,” indicating an estimated quantity. Qualifying the result as an estimated concentration reflects increased uncertainty in the reported value.

Qualifiers were applied to applicable sample results by the laboratory and during the validation process based on sample results being reported as detected below the RL/MDL. Details of the validation and specific sample analytes qualified are discussed in the data validation reports.

In summary, for the collected groundwater samples, results for some of the analytes were qualified as estimated due to RL criteria. For the data validated in the 2023 groundwater sampling, RLs for a majority of the sample results were low enough to compare to the RL objectives stated in the WQSAP and Groundwater Monitoring QAPP (Haley & Aldrich 2010a, 2010b). RLs above those stated in these documents are considered usable for project purposes.

Completeness

Completeness of the data collection program is defined as the percentage of samples planned for collection as listed in the WQSAP and Groundwater Monitoring QAPP (Haley & Aldrich 2010a, 2010b) versus the actual number of samples collected during the field program (see Equation A).

Completeness for acceptable data is defined as the percentage of acceptable data obtained judged to be valid versus the total quantity of data generated. Acceptable data include both data that pass all the QC criteria (unqualified data) and data that may not pass all the QC criteria but had appropriate corrective actions taken (qualified but usable data).

The overall completeness goal, as defined in the WQSAP and Groundwater Monitoring QAPP (Haley & Aldrich 2010a, 2010b), for this sampling event is 90% for each analytical test for all project data.

The completeness goal achieved for acceptable data was 100% of the groundwater sample results for the number of measurements judged to be valid, versus the total number of measurements made for all samples analyzed.

The completeness goal for the number of measurements judged to be valid was met for 2023 groundwater monitoring sampling. The data reported and not rejected are suitable for their intended use for characterization of groundwater in Area IV of SSFL.

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**ATTACHMENT 1
SDG AND FIELD SAMPLE ID TABLE**

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Quarter 1 2023				
Well ID	Sample	Method	Sample Type	Related QC
610813				
RD-07	RD-07_021323_01_L	Radio Chemical	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-07	RD-07_021323_19R_L	Radio Chemical	Rinsate Blank	--
611006				
DS-43	DS-43_021423_01_L	Metals	Normal Sample	Field Duplicate
DS-43	DS-43_021423_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate
PZ-098	PZ-098_021423_01_L	Metals	Normal Sample	Field Duplicate
PZ-098	PZ-098_021423_01_L	Perchlorate	Normal Sample	Field Duplicate
PZ-098	PZ-098_021423_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate
PZ-109	PZ-109_021423_01_L	Metals	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
PZ-109	PZ-109_021423_01_L	Volatile Organic Compounds	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-07	RD-07_021323_01_L	Volatile Organic Compounds	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-07	RD-07_021323_19R_L	Volatile Organic Compounds	Rinsate Blank	--
RD-07	RD-07_021323_78_L	Volatile Organic Compounds	Trip Blank	--
RD-21	RD-21_021423_01_L	Metals	Normal Sample	Matrix Spike Matrix Spike Duplicate
RD-21	RD-21_021423_01_L	Perchlorate	Normal Sample	Matrix Spike Matrix Spike Duplicate
RD-21	RD-21_021423_01_L	Volatile Organic Compounds	Normal Sample	Matrix Spike Matrix Spike Duplicate
611152				
DS-43	DS-43_021423_19R_L	Metals	Rinsate Blank	Matrix Spike Matrix Spike Duplicate
DS-43	DS-43_021423_19R_L	Volatile Organic Compounds	Rinsate Blank	Matrix Spike Matrix Spike Duplicate
DS-43	DS-43_021423_78_L	Volatile Organic Compounds	Trip Blank	--

Quarter 1 2023				
Well ID	Sample	Method	Sample Type	Related QC
RD-21	RD-21_021423_19R_L	Metals	Rinsate Blank	--
RD-21	RD-21_021423_19R_L	Perchlorate	Rinsate Blank	--
RD-21	RD-21_021423_19R_L	Volatile Organic Compounds	Rinsate Blank	--
611338				
PZ-162	PZ-162_021623_01_L	Radio Chemical	Normal Sample	Field Duplicate
PZ-162	PZ-162_021623_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate
PZ-162	PZ-162_021623_19R_L	Volatile Organic Compounds	Rinsate Blank	--
RD-14	RD-14_021523_01_L	Anions	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-14	RD-14_021523_01_L	Metals	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-14	RD-14_021523_01_L	Radio Chemical	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-14	RD-14_021523_01_L	Volatile Organic Compounds	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-14	RD-14_021523_78_L	Volatile Organic Compounds	Trip Blank	--
RD-20	RD-20_021623_01_L	Radio Chemical	Normal Sample	--
RD-20	RD-20_021623_01_L	Volatile Organic Compounds	Normal Sample	--
RD-96	RD-96_021523_01_L	Radio Chemical	Normal Sample	--
RD-96	RD-96_021523_01_L	Volatile Organic Compounds	Normal Sample	--
611477				
DD-141	DD-141_021723_01_L	DRO and/or GRO	Normal Sample	--
DD-141	DD-141_021723_01_L	Metals	Normal Sample	--
DD-141	DD-141_021723_01_L	Perchlorate	Normal Sample	--
DD-141	DD-141_021723_01_L	Radio Chemical	Normal Sample	--
DD-141	DD-141_021723_01_L	Volatile Organic Compounds	Normal Sample	--
DD-141	DD-141_021723_19R_L	DRO and/or GRO	Rinsate Blank	Matrix Spike Matrix Spike Duplicate
DD-141	DD-141_021723_19R_L	Metals	Rinsate Blank	Matrix Spike Matrix Spike Duplicate

Quarter 1 2023				
Well ID	Sample	Method	Sample Type	Related QC
DD-141	DD-141_021723_19R_L	Perchlorate	Rinsate Blank	Matrix Spike Matrix Spike Duplicate
DD-141	DD-141_021723_19R_L	Volatile Organic Compounds	Rinsate Blank	Matrix Spike Matrix Spike Duplicate
PZ-162	PZ-162_021623_19R_L	Radio Chemical	Rinsate Blank	--
RD-19	RD-19_021723_01_L	Anions	Normal Sample	Field Duplicate Matrix Spike Matrix Spike Duplicate
RD-19	RD-19_021723_01_L	Metals	Normal Sample	Field Duplicate Matrix Spike Matrix Spike Duplicate
RD-19	RD-19_021723_01_L	Radio Chemical	Normal Sample	Field Duplicate Matrix Spike Matrix Spike Duplicate
RD-19	RD-19_021723_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate Matrix Spike Matrix Spike Duplicate
RD-19	RD-19_021723_78_L	DRO and/or GRO	Trip Blank	--
RD-19	RD-19_021723_78_L	Volatile Organic Compounds	Trip Blank	--
611842				
DD-141	DD-141_021723_19R_L	Radio Chemical	Rinsate Blank	Matrix Spike Matrix Spike Duplicate
DD-159	DD-159_022023_01_L	Metals	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
DD-159	DD-159_022023_01_L	Radio Chemical	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
DD-159	DD-159_022023_01_L	Volatile Organic Compounds	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
DD-159	DD-159_022023_19R_L	Metals	Rinsate Blank	--
DD-159	DD-159_022023_19R_L	Radio Chemical	Rinsate Blank	--
DD-159	DD-159_022023_19R_L	Volatile Organic Compounds	Rinsate Blank	--
DD-159	DD-159_022023_78_L	DRO and/or GRO	Trip Blank	--

Quarter 1 2023				
Well ID	Sample	Method	Sample Type	Related QC
DD-159	DD-159_022023_78_L	Volatile Organic Compounds	Trip Blank	--
RD-63	RD-63_022023_01_L	Anions	Normal Sample	Field Duplicate
RD-63	RD-63_022023_01_L	Metals	Normal Sample	Field Duplicate
RD-63	RD-63_022023_01_L	Radio Chemical	Normal Sample	Field Duplicate
RD-63	RD-63_022023_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate
611922				
DD-139	DD-139_022123_01_L	Metals	Normal Sample	Matrix Spike Matrix Spike Duplicate
DD-139	DD-139_022123_01_L	Perchlorate	Normal Sample	Matrix Spike Matrix Spike Duplicate
DD-139	DD-139_022123_01_L	Volatile Organic Compounds	Normal Sample	Matrix Spike Matrix Spike Duplicate
DD-139	DD-139_022123_19R_L	Metals	Rinsate Blank	--
DD-139	DD-139_022123_19R_L	Perchlorate	Rinsate Blank	--
DD-139	DD-139_022123_19R_L	Volatile Organic Compounds	Rinsate Blank	--
RD-30	RD-30_022123_01_L	Radio Chemical	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-30	RD-30_022123_01_L	Volatile Organic Compounds	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-30	RD-30_022123_19R_L	Radio Chemical	Rinsate Blank	--
RD-30	RD-30_022123_19R_L	Volatile Organic Compounds	Rinsate Blank	--
RD-30	RD-30_022123_78_L	Volatile Organic Compounds	Trip Blank	--
RD-33A	RD-33A_022223_01_L	Metals	Normal Sample	--
RD-33A	RD-33A_022223_01_L	Perchlorate	Normal Sample	--
RD-33A	RD-33A_022223_01_L	Radio Chemical	Normal Sample	--
RD-33A	RD-33A_022223_01_L	Volatile Organic Compounds	Normal Sample	--
RD-33B	RD-33B_022123_01_L	Metals	Normal Sample	--
RD-33B	RD-33B_022123_01_L	Perchlorate	Normal Sample	--
RD-33B	RD-33B_022123_01_L	Radio Chemical	Normal Sample	--
RD-33B	RD-33B_022123_01_L	Volatile Organic Compounds	Normal Sample	--

Quarter 1 2023				
Well ID	Sample	Method	Sample Type	Related QC
612050				
RD-33A	RD-33A_022223_19R_L	Metals	Rinsate Blank	--
RD-33A	RD-33A_022223_19R_L	Perchlorate	Rinsate Blank	--
RD-33A	RD-33A_022223_19R_L	Radio Chemical	Rinsate Blank	--
RD-33A	RD-33A_022223_19R_L	Volatile Organic Compounds	Rinsate Blank	--
RS-28	RS-28_022223_01_L	DRO and/or GRO	Normal Sample	Field Duplicate Lab Duplicate Matrix Spike Matrix Spike Duplicate
RS-28	RS-28_022223_01_L	Metals	Normal Sample	Field Duplicate Lab Duplicate Matrix Spike Matrix Spike Duplicate
RS-28	RS-28_022223_01_L	Radio Chemical	Normal Sample	Field Duplicate Lab Duplicate Matrix Spike Matrix Spike Duplicate
RS-28	RS-28_022223_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate Lab Duplicate Matrix Spike Matrix Spike Duplicate
RS-28	RS-28_022223_19R_L	DRO and/or GRO	Rinsate Blank	--
RS-28	RS-28_022223_19R_L	Metals	Rinsate Blank	--
RS-28	RS-28_022223_19R_L	Radio Chemical	Rinsate Blank	--
RS-28	RS-28_022223_19R_L	Volatile Organic Compounds	Rinsate Blank	--
RS-28	RS-28_022223_78_L	DRO and/or GRO	Trip Blank	--
RS-28	RS-28_022223_78_L	Volatile Organic Compounds	Trip Blank	--
612262				
RD-34C	RD-34C_022423_01_L	Anions	Normal Sample	Matrix Spike Matrix Spike Duplicate
RD-34C	RD-34C_022423_01_L	Metals	Normal Sample	Matrix Spike Matrix Spike Duplicate
RD-34C	RD-34C_022423_01_L	Radio Chemical	Normal Sample	Matrix Spike Matrix Spike Duplicate

Quarter 1 2023				
Well ID	Sample	Method	Sample Type	Related QC
RD-34C	RD-34C_022423_01_L	Volatile Organic Compounds	Normal Sample	Matrix Spike Matrix Spike Duplicate
RD-54A	RD-54A_022423_01_L	Metals	Normal Sample	Matrix Spike Matrix Spike Duplicate
RD-54A	RD-54A_022423_01_L	Perchlorate	Normal Sample	Matrix Spike Matrix Spike Duplicate
RD-54A	RD-54A_022423_01_L	Radio Chemical	Normal Sample	Matrix Spike Matrix Spike Duplicate
RD-54A	RD-54A_022423_01_L	Volatile Organic Compounds	Normal Sample	Matrix Spike Matrix Spike Duplicate
RD-54A	RD-54A_022423_19R_L	Metals	Rinsate Blank	--
RD-54A	RD-54A_022423_19R_L	Perchlorate	Rinsate Blank	--
RD-54A	RD-54A_022423_19R_L	Radio Chemical	Rinsate Blank	--
RD-54A	RD-54A_022423_19R_L	Volatile Organic Compounds	Rinsate Blank	--
RD-94	RD-94_022323_01_L	Radio Chemical	Normal Sample	Field Duplicate
RD-94	RD-94_022323_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate
RD-94	RD-94_022323_19R_L	Radio Chemical	Rinsate Blank	--
RD-94	RD-94_022323_19R_L	Volatile Organic Compounds	Rinsate Blank	--
RD-98	RD-98_022323_01_L	Radio Chemical	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-98	RD-98_022323_01_L	Volatile Organic Compounds	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-98	RD-98_022323_19R_L	Radio Chemical	Rinsate Blank	--
RD-98	RD-98_022323_19R_L	Volatile Organic Compounds	Rinsate Blank	--
RD-98	RD-98_022323_78_L	Volatile Organic Compounds	Trip Blank	--
612640				
DS-45	DS-45_022723_01_L	Metals	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
DS-45	DS-45_022723_01_L	Volatile Organic Compounds	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
DS-45	DS-45_022723_19R_L	Metals	Rinsate Blank	--

Quarter 1 2023				
Well ID	Sample	Method	Sample Type	Related QC
DS-45	DS-45_022723_19R_L	Volatile Organic Compounds	Rinsate Blank	--
DS-45	DS-45_022723_78_L	DRO and/or GRO	Trip Blank	--
DS-45	DS-45_022723_78_L	Volatile Organic Compounds	Trip Blank	--
RD-34A	RD-34A_022723_01_L	Anions	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-34A	RD-34A_022723_01_L	DRO and/or GRO	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-34A	RD-34A_022723_01_L	Metals	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-34A	RD-34A_022723_01_L	Volatile Organic Compounds	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
612703				
DD-157	DD-157_022823_01_L	Metals	Normal Sample	Field Duplicate
DD-157	DD-157_022823_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate
DD-158	DD-158_022823_01_L	Metals	Normal Sample	--
DD-158	DD-158_022823_01_L	Volatile Organic Compounds	Normal Sample	--
DD-158	DD-158_022823_19R_L	Metals	Rinsate Blank	--
DD-158	DD-158_022823_19R_L	Volatile Organic Compounds	Rinsate Blank	--
DD-158	DD-158_022823_78_L	Volatile Organic Compounds	Trip Blank	--
DS-48	DS-48_022823_01_L	Metals	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
DS-48	DS-48_022823_01_L	Volatile Organic Compounds	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
PZ-108	PZ-108_022823_01_L	Metals	Normal Sample	--
PZ-108	PZ-108_022823_01_L	Volatile Organic Compounds	Normal Sample	--
PZ-108	PZ-108_022823_19R_L	Metals	Rinsate Blank	--
PZ-108	PZ-108_022823_19R_L	Volatile Organic Compounds	Rinsate Blank	--

Quarter 1 2023				
Well ID	Sample	Method	Sample Type	Related QC
613062				
C-08	C-08_030323_01_L	Metals	Normal Sample	--
C-08	C-08_030323_01_L	Volatile Organic Compounds	Normal Sample	--
C-08	C-08_030323_78_L	Volatile Organic Compounds	Trip Blank	Matrix Spike Matrix Spike Duplicate
DD-139	DD-139_030323_01_L	Metals	Normal Sample	--
DD-144	DD-144_030223_19R_L	Metals	Rinsate Blank	Lab Duplicate Matrix Spike Matrix Spike Duplicate
DD-144	DD-144_030223_19R_L	Volatile Organic Compounds	Rinsate Blank	Lab Duplicate Matrix Spike Matrix Spike Duplicate
DS-46	DS-46_030323_01_L	Metals	Normal Sample	--
DS-46	DS-46_030323_01_L	Volatile Organic Compounds	Normal Sample	--
DS-46	DS-46_030323_19R_L	Metals	Rinsate Blank	--
DS-46	DS-46_030323_19R_L	Volatile Organic Compounds	Rinsate Blank	--
PZ-005	PZ-005_030223_19R_L	DRO and/or GRO	Rinsate Blank	--
PZ-005	PZ-005_030223_19R_L	Metals	Rinsate Blank	--
PZ-005	PZ-005_030223_19R_L	Volatile Organic Compounds	Rinsate Blank	--
613112				
DD-144	DD-144_030223_01_L	Volatile Organic Compounds	Normal Sample	--
PZ-005	PZ-005_030223_01_L	Anions	Normal Sample	Field Duplicate
PZ-005	PZ-005_030223_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate
PZ-005	PZ-005_030223_19R_L	Anions	Rinsate Blank	--
PZ-102	PZ-102_030223_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate
PZ-105	PZ-105_030223_01_L	Anions	Normal Sample	Field Duplicate Lab Duplicate Matrix Spike Matrix Spike Duplicate
PZ-105	PZ-105_030223_01_L	DRO and/or GRO	Normal Sample	Field Duplicate Lab Duplicate Matrix Spike Matrix Spike Duplicate

Quarter 1 2023				
Well ID	Sample	Method	Sample Type	Related QC
PZ-105	PZ-105_030223_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate Lab Duplicate Matrix Spike Matrix Spike Duplicate
PZ-120	PZ-120_030123_01_L	Metals	Normal Sample	--
PZ-120	PZ-120_030123_01_L	Volatile Organic Compounds	Normal Sample	--
PZ-163	PZ-163_030223_01_L	Volatile Organic Compounds	Normal Sample	Matrix Spike Matrix Spike Duplicate
PZ-163	PZ-163_030223_78_L	DRO and/or GRO	Trip Blank	--
PZ-163	PZ-163_030223_78_L	Volatile Organic Compounds	Trip Blank	--
RD-34B	RD-34B_030123_01_L	Anions	Normal Sample	Matrix Spike Matrix Spike Duplicate
RD-34B	RD-34B_030123_01_L	Metals	Normal Sample	Matrix Spike Matrix Spike Duplicate
RD-34B	RD-34B_030123_01_L	Volatile Organic Compounds	Normal Sample	Matrix Spike Matrix Spike Duplicate
RD-34B	RD-34B_030123_19R_L	Anions	Rinsate Blank	--
RD-34B	RD-34B_030123_19R_L	Metals	Rinsate Blank	--
RD-34B	RD-34B_030123_19R_L	Volatile Organic Compounds	Rinsate Blank	--
RD-65	RD-65_030123_01_L	Volatile Organic Compounds	Normal Sample	--
RD-65	RD-65_030123_78_L	Volatile Organic Compounds	Trip Blank	--
RD-87	RD-87_030123_01_L	Radio Chemical	Normal Sample	Lab Duplicate Matrix Spike
RD-87	RD-87_030123_01_L	Volatile Organic Compounds	Normal Sample	Lab Duplicate Matrix Spike
RD-87	RD-87_030123_19R_L	Radio Chemical	Rinsate Blank	--
RD-87	RD-87_030123_19R_L	Volatile Organic Compounds	Rinsate Blank	--
RD-91	RD-91_030223_01_L	Volatile Organic Compounds	Normal Sample	--
613171				
DS-46	DS-46_030623_19F_L	Anions	Field Blank	Lab Duplicate Matrix Spike Matrix Spike Duplicate
DS-46	DS-46_030623_19F_L	DRO and/or GRO	Field Blank	Lab Duplicate Matrix Spike Matrix Spike Duplicate

Quarter 1 2023				
Well ID	Sample	Method	Sample Type	Related QC
DS-46	DS-46_030623_19F_L	Metals	Field Blank	Lab Duplicate Matrix Spike Matrix Spike Duplicate
DS-46	DS-46_030623_19F_L	Perchlorate	Field Blank	Lab Duplicate Matrix Spike Matrix Spike Duplicate
DS-46	DS-46_030623_19F_L	Radio Chemical	Field Blank	Lab Duplicate Matrix Spike Matrix Spike Duplicate
DS-46	DS-46_030623_19F_L	Volatile Organic Compounds	Field Blank	Lab Duplicate Matrix Spike Matrix Spike Duplicate
DS-46	DS-46_030623_78_L	DRO and/or GRO	Trip Blank	--
DS-46	DS-46_030623_78_L	Volatile Organic Compounds	Trip Blank	--
613573				
DD-158	DD-158_02282023_01_L	Radio Chemical	Normal Sample	--
DD-158	DD-158_02282023_19R_L	Radio Chemical	Rinsate Blank	--
DS-45	DS-45_022723_01_L	Radio Chemical	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
DS-45	DS-45_022723_19R_L	Radio Chemical	Rinsate Blank	--
DS-46	DS-46_030623_19F_L	Radio Chemical	Field Blank	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-34A	RD-34A_022723_01_L	Radio Chemical	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-34B	RD-34B_030123_01_L	Radio Chemical	Normal Sample	Matrix Spike Matrix Spike Duplicate
RD-34B	RD-34B_030123_19R_L	Radio Chemical	Rinsate Blank	--

Quarter 1 2023				
Well ID	Sample	Method	Sample Type	Related QC
613617				
DD-144	DD-144_030223_01_L	Metals	Normal Sample	--
PZ-005	PZ-005_030223_01_L	Metals	Normal Sample	Field Duplicate
PZ-102	PZ-102_030223_01_L	Metals	Normal Sample	Field Duplicate
PZ-105	PZ-105_030223_01_L	Metals	Normal Sample	Field Duplicate Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-91	RD-91_030223_01_L	Metals	Normal Sample	--

Quarter 3 2023				
Well ID	Sample	Method	Sample Type	Related QC
633523				
DS-48	DS-48_081423_01_L	DRO and/or GRO	Normal Sample	Field Duplicate Lab Duplicate Matrix Spike Matrix Spike Duplicate
DS-48	DS-48_081423_01_L	Metals	Normal Sample	Field Duplicate Lab Duplicate Matrix Spike Matrix Spike Duplicate
DS-48	DS-48_081423_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate Lab Duplicate Matrix Spike Matrix Spike Duplicate
DS-48	DS-48_081423_78_L	DRO and/or GRO	Trip Blank	--
DS-48	DS-48_081423_78_L	Volatile Organic Compounds	Trip Blank	--
PZ-103	PZ-103_081423_01_L	DRO and/or GRO	Normal Sample	Field Duplicate Lab Duplicate Matrix Spike Matrix Spike Duplicate
PZ-103	PZ-103_081423_01_L	Metals	Normal Sample	Field Duplicate Lab Duplicate Matrix Spike Matrix Spike Duplicate
PZ-103	PZ-103_081423_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate Lab Duplicate Matrix Spike Matrix Spike Duplicate
PZ-105	PZ-105_081423_01_L	DRO and/or GRO	Normal Sample	Field Duplicate
PZ-105	PZ-105_081423_01_L	Metals	Normal Sample	Field Duplicate
PZ-105	PZ-105_081423_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate
PZ-105	PZ-105_081423_19R_L	DRO and/or GRO	Rinsate Blank	--
PZ-105	PZ-105_081423_19R_L	Metals	Rinsate Blank	--
PZ-105	PZ-105_081423_19R_L	Volatile Organic Compounds	Rinsate Blank	--
PZ-108	PZ-108_081423_01_L	DRO and/or GRO	Normal Sample	--
PZ-108	PZ-108_081423_01_L	Metals	Normal Sample	--
PZ-108	PZ-108_081423_01_L	Volatile Organic Compounds	Normal Sample	--

Quarter 3 2023				
Well ID	Sample	Method	Sample Type	Related QC
PZ-108	PZ-108_081423_19R_L	DRO and/or GRO	Rinsate Blank	--
PZ-108	PZ-108_081423_19R_L	Metals	Rinsate Blank	--
PZ-108	PZ-108_081423_19R_L	Volatile Organic Compounds	Rinsate Blank	--
633653				
DD-144	DD-144_081523_01_L	DRO and/or GRO	Normal Sample	--
DD-144	DD-144_081523_01_L	Metals	Normal Sample	--
DD-144	DD-144_081523_01_L	Volatile Organic Compounds	Normal Sample	--
PZ-041	PZ-041_081523_01_L	DRO and/or GRO	Normal Sample	Matrix Spike Matrix Spike Duplicate
PZ-041	PZ-041_081523_01_L	Metals	Normal Sample	Matrix Spike Matrix Spike Duplicate
PZ-041	PZ-041_081523_01_L	Volatile Organic Compounds	Normal Sample	Matrix Spike Matrix Spike Duplicate
PZ-041	PZ-041_081523_78_L	DRO and/or GRO	Trip Blank	--
PZ-041	PZ-041_081523_78_L	Volatile Organic Compounds	Trip Blank	--
PZ-121	PZ-121_081523_01_L	DRO and/or GRO	Normal Sample	--
PZ-121	PZ-121_081523_01_L	Metals	Normal Sample	--
PZ-121	PZ-121_081523_01_L	Volatile Organic Compounds	Normal Sample	--
PZ-121	PZ-121_081523_19R_L	DRO and/or GRO	Rinsate Blank	--
PZ-121	PZ-121_081523_19R_L	Metals	Rinsate Blank	--
PZ-121	PZ-121_081523_19R_L	Volatile Organic Compounds	Rinsate Blank	--
PZ-163	PZ-163_081523_01_L	DRO and/or GRO	Normal Sample	--
PZ-163	PZ-163_081523_01_L	Metals	Normal Sample	--
PZ-163	PZ-163_081523_01_L	Volatile Organic Compounds	Normal Sample	--
PZ-163	PZ-163_081523_19R_L	DRO and/or GRO	Rinsate Blank	--
PZ-163	PZ-163_081523_19R_L	Metals	Rinsate Blank	--
PZ-163	PZ-163_081523_19R_L	Volatile Organic Compounds	Rinsate Blank	--
633824				
PZ-104	PZ-104_081623_01_L	DRO and/or GRO	Normal Sample	Matrix Spike Matrix Spike Duplicate
PZ-104	PZ-104_081623_01_L	Metals	Normal Sample	Matrix Spike Matrix Spike Duplicate
PZ-104	PZ-104_081623_01_L	Volatile Organic Compounds	Normal Sample	Matrix Spike Matrix Spike Duplicate

Quarter 3 2023				
Well ID	Sample	Method	Sample Type	Related QC
PZ-104	PZ-104_081623_78_L	DRO and/or GRO	Trip Blank	--
PZ-104	PZ-104_081623_78_L	Volatile Organic Compounds	Trip Blank	--
PZ-120	PZ-120_081623_01_L	DRO and/or GRO	Normal Sample	--
PZ-120	PZ-120_081623_01_L	Metals	Normal Sample	--
PZ-120	PZ-120_081623_01_L	Volatile Organic Compounds	Normal Sample	--
PZ-120	PZ-120_081623_19R_L	DRO and/or GRO	Rinsate Blank	--
PZ-120	PZ-120_081623_19R_L	Metals	Rinsate Blank	--
PZ-120	PZ-120_081623_19R_L	Volatile Organic Compounds	Rinsate Blank	--
PZ-122	PZ-122_081623_01_L	DRO and/or GRO	Normal Sample	--
PZ-122	PZ-122_081623_01_L	Metals	Normal Sample	--
PZ-122	PZ-122_081623_01_L	Volatile Organic Compounds	Normal Sample	--
PZ-122	PZ-122_081623_19R_L	DRO and/or GRO	Rinsate Blank	--
PZ-122	PZ-122_081623_19R_L	Metals	Rinsate Blank	--
PZ-122	PZ-122_081623_19R_L	Volatile Organic Compounds	Rinsate Blank	--
PZ-162	PZ-162_081623_01_L	DRO and/or GRO	Normal Sample	--
PZ-162	PZ-162_081623_01_L	Metals	Normal Sample	--
PZ-162	PZ-162_081623_01_L	Volatile Organic Compounds	Normal Sample	--
634055				
DD-139	DD-139_081823_01_L	DRO and/or GRO	Normal Sample	--
DD-139	DD-139_081823_01_L	Volatile Organic Compounds	Normal Sample	--
DD-139	DD-139_081823_19R_L	DRO and/or GRO	Rinsate Blank	--
DD-139	DD-139_081823_19R_L	Volatile Organic Compounds	Rinsate Blank	--
DD-139	DD-139_081823_78_L	DRO and/or GRO	Trip Blank	--
DS-45	DS-45_081823_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate
DS-47	DS-47_081823_01_L	Volatile Organic Compounds	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-98	RD-98_081823_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate
RD-98	RD-98_081823_19R_L	Volatile Organic Compounds	Rinsate Blank	--
RS-28	RS-28_081823_01_L	Volatile Organic Compounds	Normal Sample	--
634056				
DD-143	DD-143_081723_01_L	Volatile Organic Compounds	Normal Sample	--
DD-143	DD-143_081723_78_L	DRO and/or GRO	Trip Blank	--

Quarter 3 2023				
Well ID	Sample	Method	Sample Type	Related QC
PZ-116	PZ-116_081723_01_L	Volatile Organic Compounds	Normal Sample	--
PZ-116	PZ-116_081723_19R_L	Volatile Organic Compounds	Rinsate Blank	Lab Duplicate
RD-30	RD-30_081723_01_L	Volatile Organic Compounds	Normal Sample	Lab Duplicate
RD-30	RD-30_081723_19R_L	Volatile Organic Compounds	Rinsate Blank	--
RD-88	RD-88_081723_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate
RD-94	RD-94_081723_01_L	Volatile Organic Compounds	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
634197				
DD-143	DD-143_081723_01_L	Metals	Normal Sample	--
DD-143	DD-143_081723_01_L	Radio Chemical	Normal Sample	--
PZ-116	PZ-116_081723_01_L	Radio Chemical	Normal Sample	--
PZ-116	PZ-116_081723_19R_L	Radio Chemical	Rinsate Blank	Lab Duplicate
RD-30	RD-30_081723_01_L	Radio Chemical	Normal Sample	Lab Duplicate
RD-30	RD-30_081723_19R_L	Metals	Rinsate Blank	--
RD-30	RD-30_081723_19R_L	Radio Chemical	Rinsate Blank	--
RD-88	RD-88_081723_01_L	Radio Chemical	Normal Sample	Field Duplicate
RD-94	RD-94_081723_01_L	Radio Chemical	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
634316				
DD-139	DD-139_081823_01_L	Metals	Normal Sample	--
DD-139	DD-139_081823_19R_L	Metals	Rinsate Blank	--
DS-45	DS-45_081823_01_L	Metals	Normal Sample	Field Duplicate
DS-47	DS-47_081823_01_L	Metals	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-98	RD-98_081823_01_L	Radio Chemical	Normal Sample	Field Duplicate
RD-98	RD-98_081823_19R_L	Metals	Rinsate Blank	--
RS-28	RS-28_081823_01_L	Metals	Normal Sample	--
RS-28	RS-28_081823_01_L	Radio Chemical	Normal Sample	--

Quarter 3 2023				
Well ID	Sample	Method	Sample Type	Related QC
634388				
PZ-116	PZ-116_081723_19R_L	Radio Chemical	Rinsate Blank	Lab Duplicate
RD-27	RD-27_082123_01_L	Radio Chemical	Normal Sample	--
RD-27	RD-27_082123_19R_L	Radio Chemical	Rinsate Blank	--
RD-34A	RD-34A_082223_01_L	Radio Chemical	Normal Sample	--
RD-63	RD-63_082223_01_L	Radio Chemical	Normal Sample	--
RD-98	RD-98_081823_19R_L	Radio Chemical	Rinsate Blank	--
634410				
DS-43	DS-43_082123_01_L	Metals	Normal Sample	Matrix Spike Matrix Spike Duplicate
DS-43	DS-43_082123_01_L	Volatile Organic Compounds	Normal Sample	Matrix Spike Matrix Spike Duplicate
DS-43	DS-43_082123_78_L	Volatile Organic Compounds	Trip Blank	--
PZ-109	PZ-109_082123_01_L	Metals	Normal Sample	--
PZ-109	PZ-109_082123_01_L	Volatile Organic Compounds	Normal Sample	--
RD-07	RD-07_082123_01_L	Metals	Normal Sample	--
RD-07	RD-07_082123_01_L	Volatile Organic Compounds	Normal Sample	--
RD-07	RD-07_082123_19R_L	Metals	Rinsate Blank	--
RD-07	RD-07_082123_19R_L	Volatile Organic Compounds	Rinsate Blank	--
RD-27	RD-27_082123_01_L	Metals	Normal Sample	--
RD-27	RD-27_082123_01_L	Volatile Organic Compounds	Normal Sample	--
RD-27	RD-27_082123_19R_L	Metals	Rinsate Blank	--
RD-27	RD-27_082123_19R_L	Volatile Organic Compounds	Rinsate Blank	--
634540				
DS-46	DS-46_082223_01_L	DRO and/or GRO	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
DS-46	DS-46_082223_01_L	Metals	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
DS-46	DS-46_082223_01_L	Perchlorate	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate

Quarter 3 2023				
Well ID	Sample	Method	Sample Type	Related QC
DS-46	DS-46_082223_01_L	Volatile Organic Compounds	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
DS-46	DS-46_082223-_78_L	DRO and/or GRO	Trip Blank	--
DS-46	DS-46_082223-_78_L	Volatile Organic Compounds	Trip Blank	--
PZ-098	PZ-098_082223_01_L	DRO and/or GRO	Normal Sample	Field Duplicate
PZ-098	PZ-098_082223_01_L	Metals	Normal Sample	Field Duplicate
PZ-098	PZ-098_082223_01_L	Perchlorate	Normal Sample	Field Duplicate
PZ-098	PZ-098_082223_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate
PZ-098	PZ-098_082223_19R_L	DRO and/or GRO	Rinsate Blank	--
PZ-098	PZ-098_082223_19R_L	Metals	Rinsate Blank	--
PZ-098	PZ-098_082223_19R_L	Perchlorate	Rinsate Blank	--
PZ-098	PZ-098_082223_19R_L	Volatile Organic Compounds	Rinsate Blank	--
RD-34A	RD-34A-082223_01_L	Metals	Normal Sample	Field Duplicate
RD-34A	RD-34A-082223_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate
RD-63	RD-63-082223_01_L	Metals	Normal Sample	--
RD-63	RD-63-082223_01_L	Volatile Organic Compounds	Normal Sample	--
634764				
DD-141	DD-141_082323_01_L	Metals	Normal Sample	Field Duplicate
DD-141	DD-141_082323_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate
DS-44	DS-44_082323_01_L	Metals	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
DS-44	DS-44_082323_01_L	Volatile Organic Compounds	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
PZ-124	PZ-124_082323_01_L	Metals	Normal Sample	--
PZ-124	PZ-124_082323_01_L	Volatile Organic Compounds	Normal Sample	--
PZ-124	PZ-124_082323_19R_L	Metals	Rinsate Blank	--
PZ-124	PZ-124_082323_19R_L	Volatile Organic Compounds	Rinsate Blank	--
PZ-124	PZ-124_082323_78_L	Volatile Organic Compounds	Trip Blank	--
RD-74	RD-74_082323_01_L	Metals	Normal Sample	--
RD-74	RD-74_082323_01_L	Volatile Organic Compounds	Normal Sample	--

Quarter 3 2023				
Well ID	Sample	Method	Sample Type	Related QC
RD-74	RD-74_082323_19R_L	Metals	Rinsate Blank	--
RD-74	RD-74_082323_19R_L	Volatile Organic Compounds	Rinsate Blank	--
634992				
PZ-005	PZ-005_082523_01_L	DRO and/or GRO	Normal Sample	Field Duplicate
PZ-005	PZ-005_082523_01_L	Metals	Normal Sample	Field Duplicate
PZ-005	PZ-005_082523_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate
PZ-005	PZ-005_082523_19F_L	DRO and/or GRO	Field Blank	Lab Duplicate Matrix Spike
PZ-005	PZ-005_082523_19F_L	Metals	Field Blank	Lab Duplicate Matrix Spike
PZ-005	PZ-005_082523_19F_L	Perchlorate	Field Blank	Lab Duplicate Matrix Spike
PZ-005	PZ-005_082523_19F_L	Radio Chemical	Field Blank	Lab Duplicate Matrix Spike
PZ-005	PZ-005_082523_19F_L	Volatile Organic Compounds	Field Blank	Lab Duplicate Matrix Spike
PZ-005	PZ-005_082523_19R_L	DRO and/or GRO	Rinsate Blank	--
PZ-005	PZ-005_082523_19R_L	Metals	Rinsate Blank	--
PZ-005	PZ-005_082523_19R_L	Perchlorate	Rinsate Blank	--
PZ-005	PZ-005_082523_19R_L	Volatile Organic Compounds	Rinsate Blank	--
RD-54A	RD-54A_082523_01_L	DRO and/or GRO	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-54A	RD-54A_082523_01_L	Metals	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-54A	RD-54A_082523_01_L	Perchlorate	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-54A	RD-54A_082523_01_L	Volatile Organic Compounds	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-64	RD-64_082423_01_L	DRO and/or GRO	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate

Quarter 3 2023				
Well ID	Sample	Method	Sample Type	Related QC
RD-64	RD-64_082423_01_L	Metals	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-64	RD-64_082423_01_L	Volatile Organic Compounds	Normal Sample	Lab Duplicate Matrix Spike Matrix Spike Duplicate
RD-64	RD-64_082423_78_L	DRO and/or GRO	Trip Blank	--
RD-64	RD-64_082423_78_L	Volatile Organic Compounds	Trip Blank	--
RD-65	RD-65_082423_01_L	DRO and/or GRO	Normal Sample	Field Duplicate
RD-65	RD-65_082423_01_L	Metals	Normal Sample	Field Duplicate
RD-65	RD-65_082423_01_L	Volatile Organic Compounds	Normal Sample	Field Duplicate
RD-65	RD-65_082423_19R_L	DRO and/or GRO	Rinsate Blank	--
RD-65	RD-65_082423_19R_L	Metals	Rinsate Blank	--
RD-65	RD-65_082423_19R_L	Volatile Organic Compounds	Rinsate Blank	--

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**ATTACHMENT 2
DATA VALIDATION QUALIFIER DEFINITIONS**

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Data Validation Qualifiers

Flag	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Radiochemical Data Validation Qualifiers

Flag	Definition
No Qualification	The analysis was performed, and radioactivity was detected (e.g., the radioanalytical result is statistically positive at the 95% confidence interval and is above its MDC). NOTE: <i>The radionuclide is considered to be present in the sample.</i>
U	The analysis was performed, but no radioactivity was detected (i.e., the radioanalytical result was not statistically positive at the 95% confidence interval and/or the result was below its MDC). The “U” qualifier flag is also applicable to any result reported as zero (0) (\pm an associated uncertainty). NOTE: <i>The radionuclide is not considered to be present in the sample.</i>
UJ	The analysis was performed, but the result is highly questionable due to analytical and/or laboratory quality control anomalies. The use of such a result is strongly discouraged. Analytical and quality control anomalies include such items as: significant blank contamination, known photopeak interferences and/or photopeak resolution problems, known matrix interferences, unacceptable laboratory control sample recoveries, serious instrument calibration problems, improper sample preservation, etc. The “UJ” qualifier flag could designate a possible false positive result in the case of a result that is statistically positive at the 95% confidence level. The “UJ” qualifier flag could indicate the result is considered an estimated non-detect (a non-detect that may be due to loss of analyte from lack of sample preservation, holding time exceedances, etc.). The specific use of the “UJ” flag is included by the validator in the text of the validation report. NOTE: <i>The radionuclide may or may not be present in the sample and the result is considered highly questionable.</i>
J	The analysis was performed, and radioactivity was detected (i.e., the radionuclide result is statistically positive at the 95% confidence interval and is above its MDC). However, the result is questionable due to analytical and/or laboratory quality control anomalies/irregularities and should therefore be used only as an estimated (approximated) quantity. Analytical and/or quality control anomalies include such items as: laboratory duplicate imprecision, unsatisfactory analytical yields, insufficient laboratory control sample recoveries, unacceptable PE sample results, instrument calibration problems, improper sample preservation, etc. NOTE: <i>The radionuclide is considered to be present in the sample; however, the result may not be an accurate representation of the amount of activity actually present in the sample.</i>