LANDAU ASSOCIATES

TECHNICAL MEMORANDUM

TO: Sandy Smith, PE, LHG, Washington State Department of Ecology

CC: Eric Huseby, City of Tacoma

FROM: Katie Gauglitz, LG and Sierra Mott

DATE: May 3, 2023

RE: Long-Term Groundwater Monitoring Status Report No. 10
2023 Annual Groundwater Monitoring
Former Sauro's Cleanerama Site
Tacoma, Washington
Project No. 0094048.100.106

INTRODUCTION

On behalf of the City of Tacoma (City), Landau Associates, Inc. (Landau) is providing results for long-term groundwater monitoring activities at the former Sauro's Cleanerama site (site). Figure 1 shows the site location.

The City is implementing a Cleanup Action Plan (CAP; Ecology 2014), which is part of Agreed Order No. DE 11080 between the City and the Washington State Department of Ecology (Ecology). Under the CAP, the City is implementing the monitored natural attenuation (MNA) remedy selected in the feasibility study, which has a total 30-year timeframe. As identified in the AO (Ecology 2015), 2013 is the first year of MNA; year 30 will be 2043. Following completion of the AO and CAP, the City conducted 2 years of semiannual groundwater monitoring beginning in January 2016 and continuing through July 2017. After completion of semiannual monitoring, winter was identified as the appropriate sampling timeframe because higher volatile organic compound (VOC) concentrations generally occur during the winter (Landau 2017). The City received approval from Ecology (Coleman 2018), and commenced the annual sampling in January 2018.

This technical memorandum summarizes the tenth groundwater monitoring event under the CAP, conducted on March 6 and 7, 2023. Monitoring includes collection of groundwater samples and analysis for VOCs and MNA geochemical parameters, in accordance with the CAP. Before annual sampling was completed, monitoring well LAI-MW-4 was re-developed on February 17, 2023.

GROUNDWATER MONITORING PROGRAM SUMMARY

The existing site groundwater monitoring well network includes 17 wells. Of the 17 wells, nine were selected for long-term monitoring under the CAP. Figure 2 shows the locations of the nine wells selected for long-term monitoring. Table 1 presents a sampling matrix for the long-term monitoring wells.

During the March 2023 sampling event, groundwater samples were collected in accordance with the *Sampling and Analysis Plan* (Landau 2013). Samples for VOC and MNA analysis were collected using a peristaltic pump at MW-2. The other eight wells were sampled using passive diffusion bags for VOCs and dedicated Waterra foot valves for MNA parameters. VOC samples at RNS-MW6 are collected at two discrete depths because of the relatively long screen (20 feet) and because prior sampling has demonstrated stratification within the well; all other wells were sampled at a single depth. All samples were submitted for analysis under proper chain-of-custody protocols to Eurofins TestAmerica Laboratories, Inc. (TestAmerica) located in Fife, Washington.

All groundwater samples were analyzed by the laboratory for VOC constituents of concern tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cDCE), and vinyl chloride (VC); and MNA parameters (chloride, nitrate, nitrite, total organic carbon [TOC], sulfate, sulfide, and dissolved gases [acetylene, methane, ethane, and ethene]). Samples were analyzed using the following methods: VOCs by US Environmental Protection Agency (EPA) Method 8260D, nitrate/nitrite and chloride/sulfate by EPA Method 300.0, TOC by EPA Method SM 5310C, sulfide by SM 4500-S2 D, and dissolved gases (methane only in 2022) by EPA Method RSK-175. Field parameters were also collected, including dissolved oxygen (DO) and oxygen-reduction potential (ORP) using a field meter (YSI Quatro Pro Plus) and ferrous iron using a HACH® field test kit (Model IR-18C). A duplicate sample was collected at LAI-MW3 (Dup1) for quality control purposes. Data will be electronically submitted to Ecology's Environmental Information Management system in spring 2023. Table 2 presents the analytical methods, practical quantitation limits (i.e., reporting limits), preservatives, and holding times. Groundwater elevations and contours are presented on Figure 2 and in Table 3. Figure 3 and Table 4 present VOC analytical results. Table 5 presents MNA analytical results. VOC time series plots are provided in Attachment 1. A copy of the laboratory data packages for the most recent sampling event (March 2023), cumulative results, and copies of the March 2023 sample collection forms are provided in Attachments 2, 3, and 4, respectively.

Groundwater Elevation Results

Groundwater conditions at the site are influenced by local geology and precipitation. During March 2023, groundwater elevations at monitoring wells nearest to the former Sauro's property were about 35 feet higher than those at downgradient monitoring well LAI-MW4, furthest from the Sauro's property and nearest the Thea Foss Waterway. The groundwater flow direction is east, towards the Thea Foss Waterway.

Volatile Organic Compound Results

The VOC plume at the site is somewhat bifurcated, with the main portion of the plume extending east-northeast of the site and a smaller, lower-concentration portion of the plume extending south-southeast of the site. The east-northeast segment of the plume is characterized by monitoring wells LAI-MW5, RNS-MW6, MW-13, LAI-MW1, LAI-MW2, LAI-MW3, and LAI-MW4. The south-southeast segment of the plume is characterized by monitoring wells RNS-MW2 and MW-2.

VOC analytical results from the March 2023 sampling event are consistent with historical results. At four wells (LAI-MW1, LAI-MW5, MW-2, and LAI-MW-4), all VOC concentrations are below their respective cleanup levels, except for VC at MW-2 where the concentration was reported as slightly above the cleanup level (0.28 micrograms per liter [µg/L]). LAI-MW5 is located adjacent to the northeast corner of the property, LAI-MW1 bounds the northern edge of the east-northeast segment of the plume, MW-2 is located toward the downgradient end of the south-southeast segment of the plume, and LAI-MW4 is located downgradient from the property near the western bank of the Thea Foss Waterway. At the five remaining wells, one or more VOCs exceeded cleanup levels. The cleanup level for both PCE and TCE is 5 µg/L, the cleanup level for cDCE is 70 µg/L, and the cleanup level for VC is 0.2 µg/L.

- LAI-MW2, MW-13, and RNS-MW6 (42.5 and 52.5 feet), which are located in the core of the east-northeast plume segment, continue to report the highest concentrations of VOCs.
  - The March 2023 results indicate concentrations above cleanup levels for PCE, TCE, and/or cDCE, with PCE and TCE concentrations having the largest exceedances of cleanup levels.
  - Concentrations of PCE at these wells ranged from 170 µg/L to 350 µg/L and concentrations of TCE ranged from 58 µg/L to 120 µg/L.
  - VC was not detected at concentrations exceeding the laboratory reporting limit at any of these locations; however, the reporting limit was elevated at LAI-MW-2 (to 50 times the cleanup level) and RNS-MW6 (to 20 times the cleanup level). Typically, VC is detected above the laboratory reporting limit and above the cleanup level at LAI-MW2 and RNS-MW6. During 2021, VC was detected at a concentration of 0.89 µg/L at LAI-MW2 and at concentrations of 0.37 and 0.38 µg/L at RNS-MW6 (Landau 2021); reporting limits were also elevated in 2022.
- Analytical results from LAI-MW3, also located in the east-northeast plume segment, indicate concentrations of PCE and TCE exceed applicable cleanup levels; however, concentrations are somewhat lower (79 µg/L and 33 µg/L, respectively) than at the three wells discussed above and lower than previously measured in January 2022. VC was not detected at concentrations exceeding the laboratory reporting limit at this location; however, the reporting limit was elevated (10 times the cleanup level). LAI-MW3 is located downgradient of MW-13.
- Analytical results from RNS-MW2, located in the south-southeast plume segment, indicate that the concentration of PCE (15 µg/L) continues to exceed the applicable cleanup level. However, the concentration of PCE at adjacent well MW-2 (0.64 µg/L) is below the cleanup level. RNS-MW2 is screened slightly deeper (38.5 feet below ground surface [ft bgs]), than MW-2 (15 ft bgs).

Discussion of Volatile Organic Compound Data Trends

An interim soil removal action was completed at the site in 2010 and the site was subsequently filled and paved. In the downgradient well nearest the source area (RNS-MW6), a period of increasing VOC concentrations occurred following the removal action, likely due to significant soil disturbance associated with the removal action. A turning point occurred in 2013, and formerly increasing VOC concentration trends at RNS-MW6 began to decline. In wells farther downgradient, the shift in concentration trends from increasing to decreasing occurred later, in 2016. The following sections

provide detailed observations regarding VOC concentration trends. VOC concentration time series plots are provided in Attachment 1.

East-Northeast Plume Segment

- LAI-MW1 and LAI-MW5 have historically shown decreasing concentration trends with recent trends indicating that concentrations of all VOCs remain below the laboratory reporting limits. LAI-MW5 is located adjacent to the former source area, and LAI-MW1 is located downgradient and bounds the northern edge of the plume.
- LAI-MW4 has historically shown decreasing or non-detect concentration trends. Data suggested an increasing trend between 2020 and 2021, with 2022 and 2023 again indicating decreasing trends. No VOCs were detected above the laboratory reporting limit during March 2023. LAI-MW4 is the farthest downgradient well and is intended to monitor the downgradient extent of the plume.
- RNS-MW6, located immediately downgradient of the source area, is sampled at two depths within the screen.
  - VOC concentration trends at the 42.5-foot depth vary by constituent. PCE, TCE, and cDCE showed relatively stable or decreasing trends since April 2013. However, data trends for these three constituents are difficult to interpret due to variability. As mentioned above, VC was not detected above an elevated laboratory reporting limit in 2022 (10 µg/L) and 2023 (4 µg/L).
  - The data trends at the 52.5-foot sampling depth indicate decreases in PCE, TCE, and cDCE concentrations with historical maximums in 2012 and 2013. Overall, data trends are relatively stable for PCE, TCE, and cDCE. The VC concentration is generally decreasing. VC was not detected above the elevated laboratory reporting limit in 2022 (10 µg/L) and 2023 (4 µg/L; VC was detected at a concentration of 0.37 µg/L in 2021).
- Data trends in the mid-plume region are generally declining.
  - Concentrations at MW-13 show stable or decreasing trends for all four VOCs in 2023. MW-13 is located down-gradient of the source area and RNS-MW6.
  - At LAI-MW2, peak concentrations of PCE, TCE, and cDCE occurred in 2016, somewhat later than other upgradient wells. After 2016, concentrations of all four VOCs showed declining trends through 2021. Concentrations of PCE, TCE, and cDCE in 2022 were somewhat elevated compared to recent results; however, concentrations again decreased in 2023. VC was not detected above the elevated laboratory reporting limit in 2022 (2 µg/L) and 2023 (10 µg/L; VC was detected at a concentration of 0.89 µg/L in 2021).
  - LAI-MW3 exhibits relatively stable trends for PCE, TCE, and cDCE from 2016 to present. VC has not been detected at this well since 2016 and VC was not detected above the elevated laboratory reporting limit in 2023 (2 µg/L).
- Data trends at downgradient well LAI-MW4 show variable trends. Concentrations of TCE and VC were non-detect for approximately seven years, but detections have appeared over a period of four years (2019 to 2022). During 2023, all VOC concentrations were non-detect. cDCE was non-detect in 2022 and 2023. PCE remains non-detect.

South-Southeast Plume Segment

- At RNS-MW2, only PCE exceeded the applicable cleanup level in 2023. PCE concentrations showed an increasing trend until 2016; however, concentrations have been declining since then.
- At MW-2, VC was reported as slightly above the cleanup level (0.28 µg/L), whereas no constituents exceeded cleanup levels in 2022. Concentrations show decreasing trends for all four VOCs through 2013. In 2016, concentrations of all VOCs rebounded but have continued to show decreasing trends through 2023. The presence of VC may be attributed to the nearby well RNS-MW2. RNS-MW2 is still showing concentrations of PCE while the well has potential for reducing conditions; therefore, VC could become present in MW-2 due to the reduction of PCE and groundwater flow to the downgradient well.

Monitored Natural Attenuation Results

Natural attenuation of chlorinated ethenes occurs through several mechanisms, with the primary mechanism being biologically mediated reductive dechlorination. For reductive dechlorination to occur, the aquifer must be reducing and a food source (electron donor) for the bacteria must be available. Measures of aquifer redox conditions include DO, ORP, nitrate, ferrous iron, sulfate, and methane. TOC concentration is a measure of available electron donor. In general, low concentrations of DO, nitrate, and sulfate, and detections or elevated concentrations of ferrous iron and methane are indicators of reduced aquifer conditions. However, the redox state of the aquifer can be variable and complex, and assessment typically requires evaluation of multiple indicators.

MNA data appear to suggest the most favorable conditions for reductive dechlorination are at LAI-MW5 (near the source area) and LAI-MW4 (the most downgradient well) where ferrous iron concentrations are highest. Elevated TOC concentrations also occur at these wells, indicating the presence of electron donor. Indicators of reducing aquifer conditions and electron donor availability at LAI-MW4 and LAI-MW5 during the March 2023 sampling event are summarized below.

- Ferrous iron was detected in both wells at concentrations of 2.5 milligrams per liter (mg/L) at LAI-MW4 and 1.5 mg/L at LAI-MW5.
- Nitrate and nitrite were non-detect at LAI-MW4 and LAI-MW5. Detections of sulfate are relatively low at LAI-MW5 but have increased at LAI-MW4 in 2022 and 2023 (indicative of saltwater intrusion).
- Methane was detected at a concentration of 0.33 mg/L at LAI-MW4 and 6.4 mg/L at LAI-MW5.
- ORP readings were negative at both wells.
- TOC concentrations were somewhat elevated at both wells (concentrations of 3.0 mg/L and 6.1 mg/L at LAI-MW4 and LAI-MW5, respectively).

At the remaining seven wells, results indicate some capacity for reductive dechlorination. Ferrous iron is present at three of the seven wells, TOC was detected above the laboratory reporting limit at all wells, and nitrate and nitrite are low or not detected. Additionally, VOC concentrations at most wells appear to be declining or stable.

OCCURRENCE OF PROBLEMS

On February 17, 2023, LAI-MW4 was re-developed due to potential saltwater intrusion in the well. Construction activities were completed near the location of the well during 2021 and 2022 and may have caused disruption of the normal groundwater conditions. The activity potentially allowed for groundwater and tidal water to mix in the well; therefore, the samples prior to the re-development may not be representative of groundwater conditions in the area. Results of the 2023 sampling event indicate that certain compounds, which showed changes in 2021 and 2022 indicative of saltwater intrusion, had trended back towards historical trends; for example chloride, sulfate, and conductivity were detected between 25 and 50 percent lower. Turbidity was elevated in the sample, which can result from aggressive pumping activities.

PLANNED GROUNDWATER MONITORING ACTIVITIES

Groundwater monitoring results will continue to be submitted to Ecology 60 days after completion of sampling activities. The next scheduled sampling event will occur in January 2024.

USE OF THIS TECHNICAL MEMORANDUM

This technical memorandum has been prepared for the exclusive use of the City of Tacoma and Washington State Department of Ecology for specific application to the former Sauro's Cleanerama Groundwater Monitoring project. No other party is entitled to rely on the information, conclusions, and recommendations included in this document without the express written consent of Landau. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau, shall be at the user's sole risk. Landau warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. Landau makes no other warranty, either express or implied.

Please contact us if you have any questions concerning groundwater monitoring activities at the site or the results presented in this status report. This document has been prepared under the supervision and direction of the following key staff.

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REFERENCES

Coleman, M. 2018. Re: Draft Sauro's Long-Term Groundwater Monitoring Status Report No. 4. From Marv Coleman, Toxics Cleanup Program, Washington State Department of Ecology, to Sierra Mott, Senior Project Scientist, Landau Associates, Inc. January 22.

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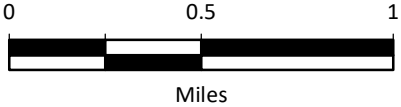
Landau. 2021. Technical Memorandum: Long-Term Groundwater Monitoring Status Report No. 8, January 2021 Annual Groundwater Monitoring, Former Sauro's Cleanerama Site; Tacoma,Washington. Landau Associates, Inc. April 19.

Attachments

Figure 1:	Vicinity Map
Figure 2:	Groundwater Elevation Contours (March 2023)
Figure 3:	Monitoring Well Network and Volatile Organic Compound Concentrations in Groundwater (March 2023)
Table 1:	Sample Matrix
Table 2:	Laboratory Analytical and Field Parameter Details
Table 3:	Groundwater Elevations
Table 4:	Groundwater Analytical Results for Constituents of Concern
Table 5:	Monitored Natural Attenuation Parameters
Attachment 1:	Constituents of Concern Concentration Time Series Plots
Attachment 2:	March 2023 Laboratory Data Package
Attachment 3:	Cumulative Results Table
Attachment 4:	Sample Collection Forms



Data Source: Esri.

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Sauro's Cleanerama Tacoma, Washington	**Vicinity Map**	Figure 1

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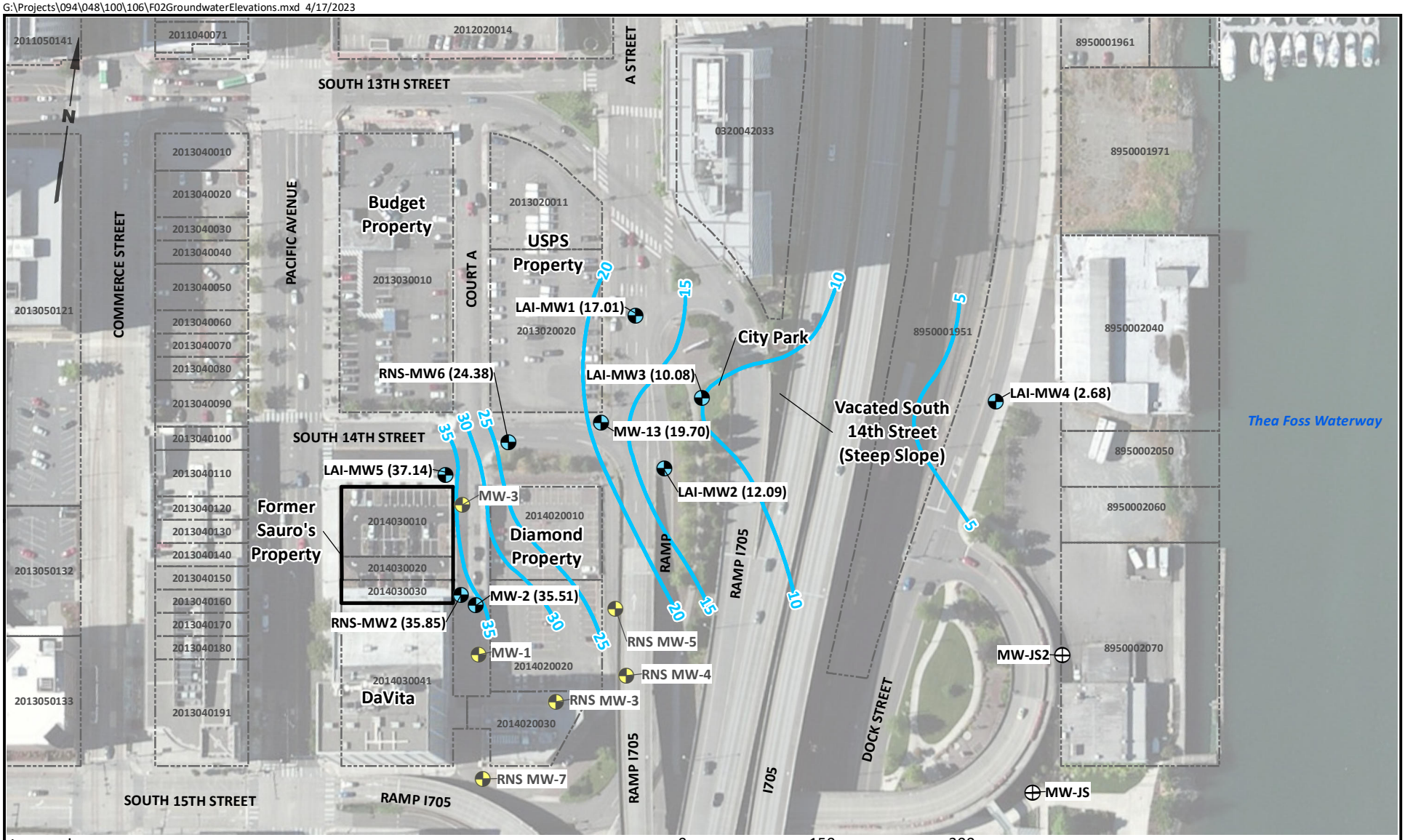

Legend

- Long-Term Groundwater Monitoring Well (and Groundwater Elevation)
- Pre-RI Monitoring Well
- Non-Project Wells
- Groundwater Elevation Contour
- Subject Property
- Tax Parcels with Parcel ID

0 150 300

Scale in Feet

Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

LANDAU ASSOCIATES

Data Source: Esri World Imagery, 2016.

Sauro's Cleanerama
Tacoma, Washington

Groundwater Elevations (March 2023)

Figure 2

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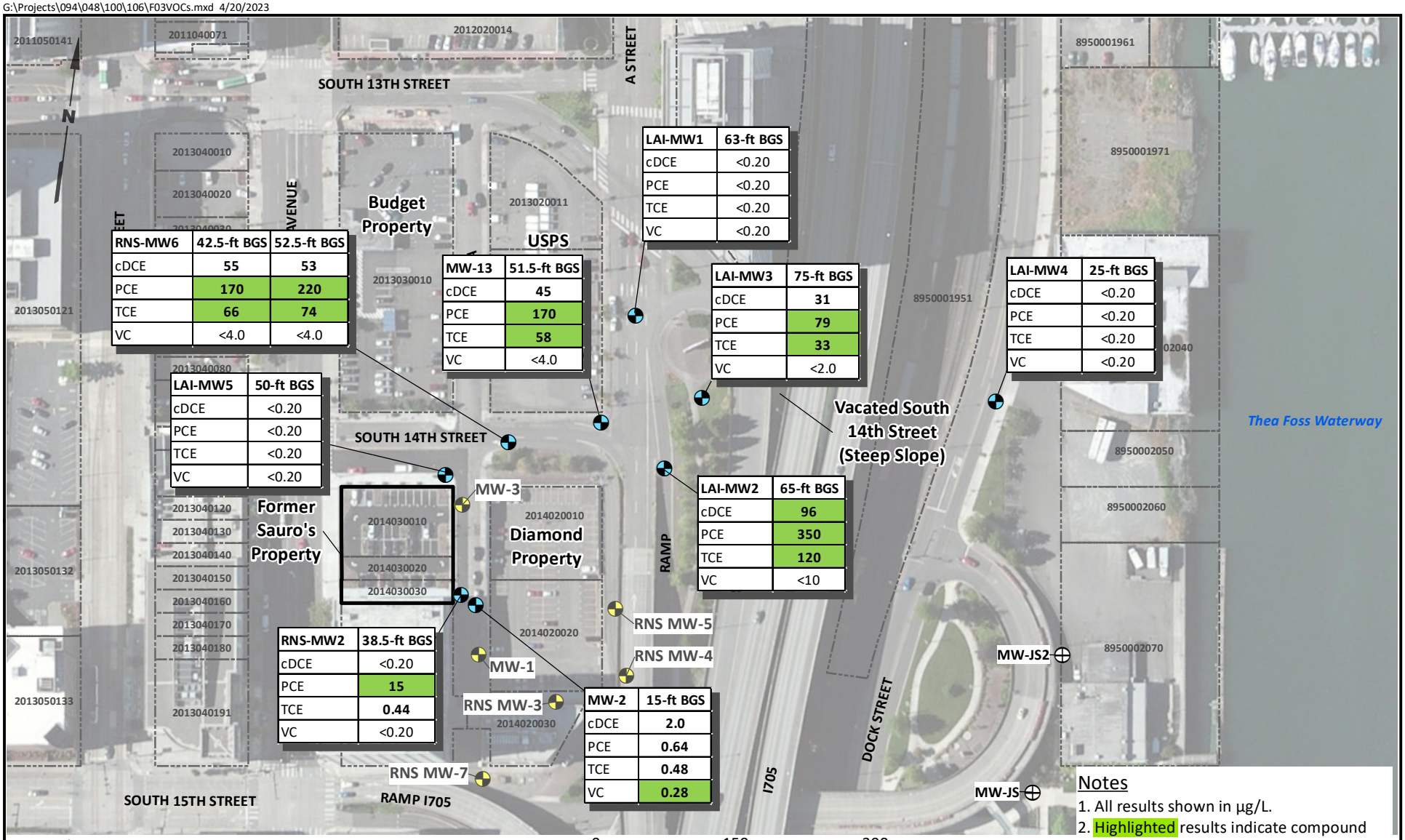

RNS-MW6	42.5-ft BGS	52.5-ft BGS
cDCE	55	53
PCE	170	220
TCE	66	74
VC	<4.0	<4.0

MW-13	51.5-ft BGS
cDCE	45
PCE	170
TCE	58
VC	<4.0

LAI-MW1	63-ft BGS
cDCE	<0.20
PCE	<0.20
TCE	<0.20
VC	<0.20

LAI-MW3	75-ft BGS
cDCE	31
PCE	79
TCE	33
VC	<2.0

LAI-MW4	25-ft BGS
cDCE	<0.20
PCE	<0.20
TCE	<0.20
VC	<0.20

LAI-MW5	50-ft BGS
cDCE	<0.20
PCE	<0.20
TCE	<0.20
VC	<0.20

LAI-MW2	65-ft BGS
cDCE	96
PCE	350
TCE	120
VC	<10

RNS-MW2	38.5-ft BGS
cDCE	<0.20
PCE	15
TCE	0.44
VC	<0.20

MW-2	15-ft BGS
cDCE	2.0
PCE	0.64
TCE	0.48
VC	0.28

Legend

- Long-Term Groundwater Monitoring Well (and Sampling Depth)
- Pre-RI Monitoring Well
- Non-Project Wells
- Subject Property
- Tax Parcels with Parcel ID

0 150 300

Scale in Feet

Notes

1. All results shown in µg/L.
2. Highlighted results indicate compound detected above cleanup level.
3. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

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Data Source: Esri World Imagery, 2016.

Sauro's Cleanerama
Tacoma, Washington

VOC Concentrations in Groundwater (March 2023)

Figure 3

Table 1
Sample Matrix
Former Sauro's Cleanerama Site – Tacoma, Washington

Location	VOC Sampling Depth (ft)	VOC Sampling Method	MNA Parameters Sampling Depth (ft)	MNA Parameters Sampling Method
LAI-MW1	63	PDB	63	WAT
LAI-MW2	65	PDB	65	WAT
LAI-MW3	75	PDB	75	WAT
LAI-MW4	25	PDB	25	WAT
LAI-MW5	50	PDB	50	WAT
MW-2	15	PP	15	PP
MW-13	51.5	PDB	51.5	WAT
RNS-MW2	38.5	PDB	38.5	WAT
RNS-MW6[a]	42.5 and 52.5	PDB	47.5	WAT

Note:

[a] For RNS-MW6, where there are two VOC sampling depths, the MNA sampling depth is the mid-point between the two VOC sampling depths.

Abbreviations/Acronyms:

ft = feet
HDPE = high-density polyethylene
MNA = monitored natural attenuation
PDB = passive diffusion bag
PP = peristaltic pump with dedicated tubing
VOC = volatile organic compound
WAT = (dedicated) Waterra foot valve (with dedicated 5/8-inch HDPE tubing)

Table 2
Laboratory Analytical and Field Parameter Details
Former Sauro's Cleanerama Site – Tacoma, Washington

Groundwater Analytical Parameters	EPA Analytical Method	Practical Quantitation Limit	Preservation	Maximum Holding Time (Days)
Volatile Organic Compounds				
Tetrachloroethene	8260D	0.2 µg/L	Add HCl to pH<2; Store cool at 6°C	14
Trichloroethene	8260D	0.2 µg/L	Add HCl to pH<2; Store cool at 6°C	14
cis-1,2-Dichloroethene	8260D	0.2 µg/L	Add HCl to pH<2; Store cool at 6°C	14
Vinyl Chloride	8260D	0.2 µg/L	Add HCl to pH<2; Store cool at 6°C	14
Monitored Natural Attenuation				
Chloride	300.0	0.90 mg/L	Store cool at 6°C	28
Nitrate (NO_3) (Total) as N	300.0	0.2 mg/L[a]	Store cool at 6°C	48 hours
Nitrite (NO_2) (Total) as N	300.0	0.4 mg/L[a]	Store cool at 6°C	48 hours
Total Organic Carbon	SM 5310C	1.00 mg/L	Add 2mL 9N H2SO4 pH<2; Store at 6°C	28
Sulfate (SO_4) (Total)	300.0	1.2 mg/L	Store cool at 6°C	28
Sulfide (SO_2) (Total)	SM 4500-S2 D	0.050 mg/L	Store cool at 6°C	7
AMEE	RSK-175	0.0050 mg/L	Store cool at 6°C	14

Groundwater Field Parameters	Data Collection Method	Instrument	Units
Monitored Natural Attenuation			
Conductivity	Field meter	YSI[b]	µS/cm
Dissolved Oxygen	Field meter	YSI[b]	mg/L
Oxidation Reduction Potential	Field meter	YSI[b]	units +/- mV
pH	Field meter	YSI[b]	unitless
Temperature	Field meter	YSI[b]	(°C)
Ferrous Iron (Fe^{2+})	Field meter	Hach® Kit	mg/L
Turbidity	Field meter	Turbidity Meter	NTU
Water Level	Field meter	Water Level Indicator	0.01 ft

Notes:

[a] Reporting limits for nitrate and nitrite were raised prior to the July 2016 sampling event due to laboratory capabilities.

[b] YSI shall be recalibrated daily.

Abbreviations/Acronyms:

AMEE = acetylene, methane, ethane, and ethene
°C = degrees Celsius
EPA = US Environmental Protection Agency
ft = foot
µg/L = micrograms per liter
mg/L = milligrams per liter
mL = milliliters
mV = millivolts
µS/cm = microSiemens per centimeter
NTU = nephelometric turbidity units

Table 3
Groundwater Elevations
Former Sauro's Cleanerama Site — Tacoma, Washington

Location	Measurement Date	Measurement Time	Depth to Water (ft)	Top of Casing Elevation (ft) (a)	Calculated Groundwater Elevation (ft)
LAI-MW1	3/6/2023	11:05	45.37	62.38	17.01
LAI-MW2	3/6/2023	9:37	44.48	56.57	12.09
LAI-MW3	3/6/2023	12:03	51.60	61.68	10.08
LAI-MW4	3/6/2023	8:29	11.56	14.24	2.68
LAI-MW5	3/6/2023	15:26	23.86	61.00	37.14
MW13	3/6/2023	15:29	39.51	59.21	19.70
MW2	3/6/2023	13:15	15.55	51.06	35.51
RNS-MW2	3/6/2023	13:25	16.56	52.41	35.85
RNS-MW6	3/6/2023	14:25	36.04	60.42	24.38

Notes:

(a) Vertical datum is National Geodetic Vertical Datum of 1929.

Acronyms/Abbreviations:

ft = feet

Table 4
Groundwater Analytical Results for Constituents of Concern
Former Sauro's Cleanerama Site – Tacoma, Washington

Analyte	Groundwater MTCA Method A CUL or Federal/State MCL (µg/L)	Sampling Location, Sampling Date, Laboratory Sample ID, Sample Type										
		LAI-MW1 3/6/2023 580-124308-4 N	LAI-MW2 3/6/2023 580-124308-3 N	LAI-MW3 3/6/2023 580-124308-5 N	LAI-MW3 3/6/2023 580-124308-6 FD	LAI-MW4 3/6/2023 580-124308-2 N	LAI-MW5 3/7/2023 580-124315-1 N	MW2 3/7/2023 580-124315-2 N	MW13 3/6/2023 580-124308-10 N	RNS-MW2 3/6/2023 580-124308-9 N	RNS-MW6-42.5 3/6/2023 580-124308-7 N	RNS-MW6-52.5 3/6/2023 580-124308-8 N
Volatile Organic Compounds (µg/L; SW-846 8260C)												
cis-1,2-Dichloroethene	70[a]	0.20 U	**96**	**31**	**30**	0.20 U	0.20 U	**2.0**	**45**	0.20 U	**55**	**53**
Tetrachloroethene	5	0.20 U	**350**	**79**	**77**	0.20 U	0.20 U	**0.64**	**170**	**15**	**170**	**220**
Trichloroethene	5	0.20 U	**120**	**33**	**32**	0.20 U	0.20 U	**0.48**	**58**	**0.44**	**66**	**74**
Vinyl Chloride	0.2	0.20 U	10 U	2.0 U	2.0 U	0.20 U	0.20 U	**0.28**	4.0 U	0.20 U	4.0 U	4.0 U

Notes:

U = The compound was not detected at the reported concentration.

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

Bold = detected analyte

Green highlighting = compound detected at concentrations above cleanup criteria.

[a] Cis-1,2-Dichloroethene does not have a MTCA Method A CUL for groundwater; therefore, the Federal/State primary MCL value of 70 µg/L is used as the CUL.

Abbreviations and Acronyms:

µg/L = micrograms per liter
CUL = cleanup level
FD = field duplicate
ID = identification
MCL = maximum contaminant levels
MTCA = Model Toxics Control Act
N = primary sample

Table 5
Monitored Natural Attenuation Parameters
Former Sauro's Cleanerama Site – Tacoma, Washington

Analyte	Sampling Location, Sampling Date, Laboratory Sample ID, Sample Type									
	LAI-MW1 3/6/2023 580-124308-4 N	LAI-MW2 3/6/2023 580-124308-3 N	LAI-MW3 3/6/2023 580-124308-5 N	LAI-MW3 3/6/2023 580-124308-6 FD	LAI-MW4 3/6/2023 580-124308-2 N	LAI-MW5 3/7/2023 580-124315-1 N	MW2 3/7/2023 580-124315-2 N	MW13 3/6/2023 580-124308-10 N	RNS-MW2 3/6/2023 580-124308-9 N	RNS-MW6-52.5 3/6/2023 580-124308-8 N
Natural Attenuation Parameters (mg/L; EPA 300.0/SM 4500-S2-D/SM 5310B)										
Chloride	**67**	**26**	**20**	**20 J**	**3500**	**100**	**47**	**38**	**54**	**48**
Nitrogen, Nitrate (as N)	**1.8**	0.20 U	**0.55**	**0.56 J**	20 U	0.20 U	**0.45**	**0.70**	**2.8**	**0.96**
Nitrogen, Nitrite	0.40 U	0.40 U	0.40 U	0.40 U	40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
Sulfate	**20**	**23**	**25**	**24 J**	**530**	**12**	**23**	**24**	**23**	**27**
Sulfide, Total	0.050 U	0.050 U	0.050 U	0.050 U	**0.061**	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Total Organic Carbon (TOC)	**1.4**	**1.6**	**1.3**	**1.2**	**3.0**	**6.1**	**3.6**	**1.2**	**1.3**	**1.4**
Dissolved Gases (mg/L; RSK-175)										
Acetylene	0.00073 U	0.00073 U	0.00073 U	0.00073 U	0.00073 U	0.00073 U	0.00073 U	0.00073 U	0.00073 U	0.00073 U
Ethane	0.00057 U	**0.0038**	0.00057 U	0.00057 U	0.00057 U	0.00057 U	0.00057 U	**0.00081**	0.00057 U	**0.0035**
Ethene	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00040 U
Methane	0.00063 U	**0.014**	**0.0023**	**0.0019**	**0.33**	**6.4**	**0.32**	**0.0050**	0.00063 U	**0.017**
Field Parameters										
Dissolved Oxygen (mg/L)	2.16	2.35	3.04	2.92	2.81	5.47	1.55	2.95	5.79	0.45
Oxidation Reduction Potential (mV)	50.3	-7.4	61.2	62.0	-10.2	-41.1	-13.9	74.6	82.8	80.8
Ferrous Iron (mg/L)	**0.5**	0.0	0.0	0.0	**2.5**	**1.5**	**0.5**	0.0	**0.1**	0.0

Notes:

Bold text indicates detected analyte.

U = The compound was not detected at the reported concentration.

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.

R = The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

Abbreviations and Acronyms:

EPA = US Environmental Protection Agency

FD = field duplicate

ID = identification

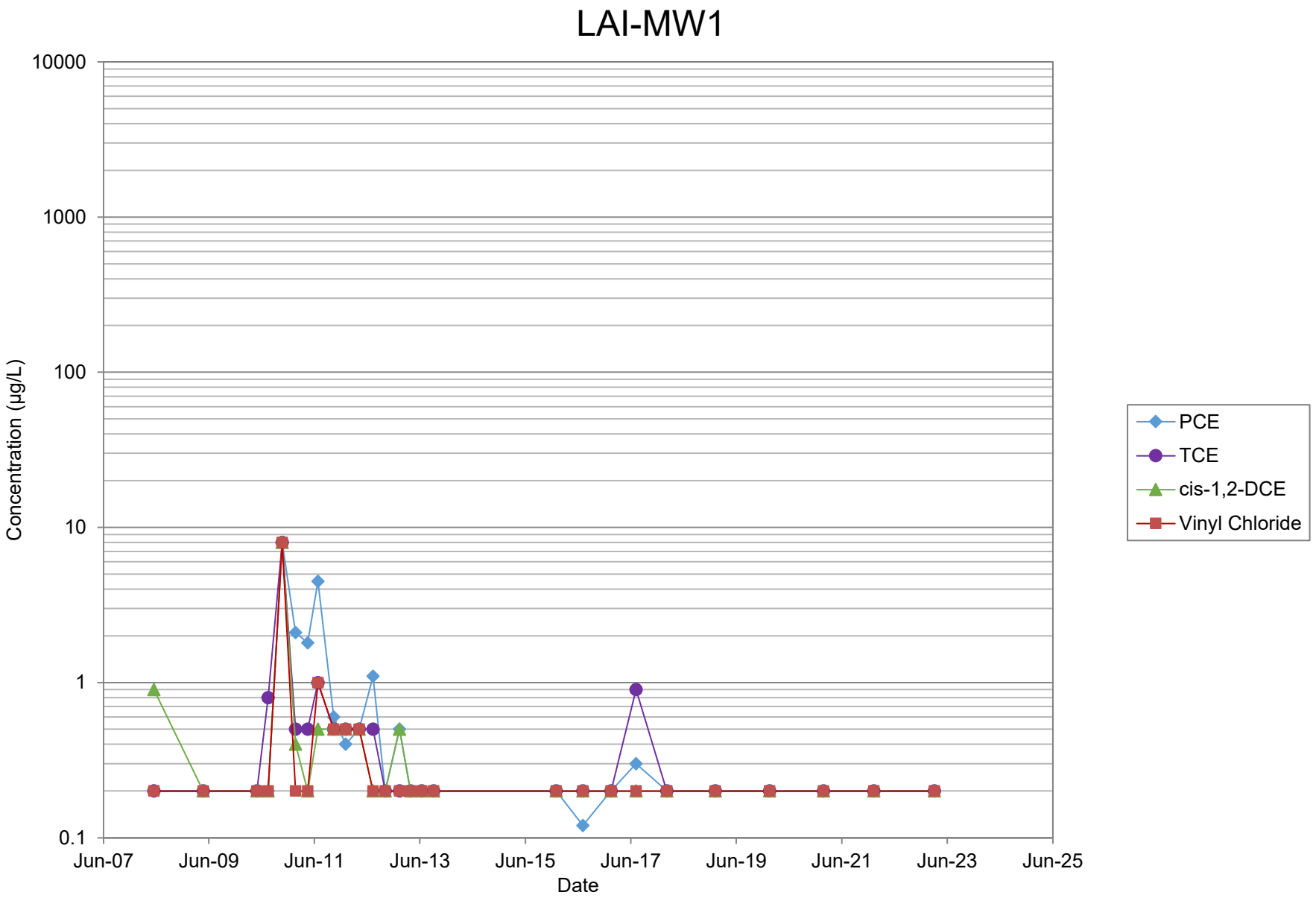
mg/L = milligrams per liter

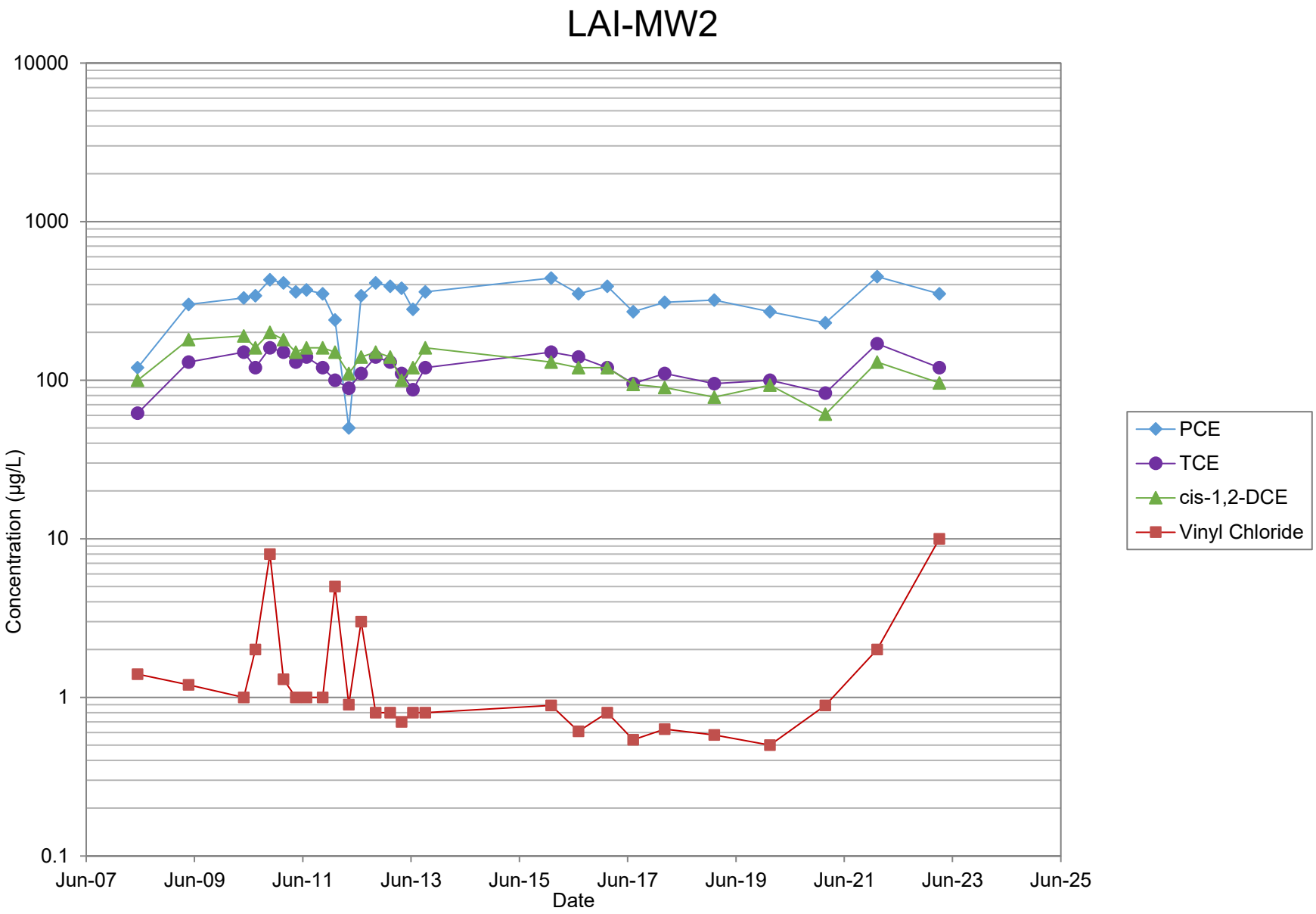
mV = millivolt

N = primary sample

ATTACHMENT 1

Constituents of Concern Concentration Time Series Plots


LAI-MW1
10000
1000
100
10
1
0.1
Concentration (µg/L)
Jun-07
Jun-09
Jun-11
Jun-13
Jun-15
Jun-17
Jun-19
Jun-21
Jun-23
Jun-25
Date
PCE
TCE
cis-1,2-DCE
Vinyl Chloride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Concentration (µg/L)
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Jun-09
Jun-11
Jun-13
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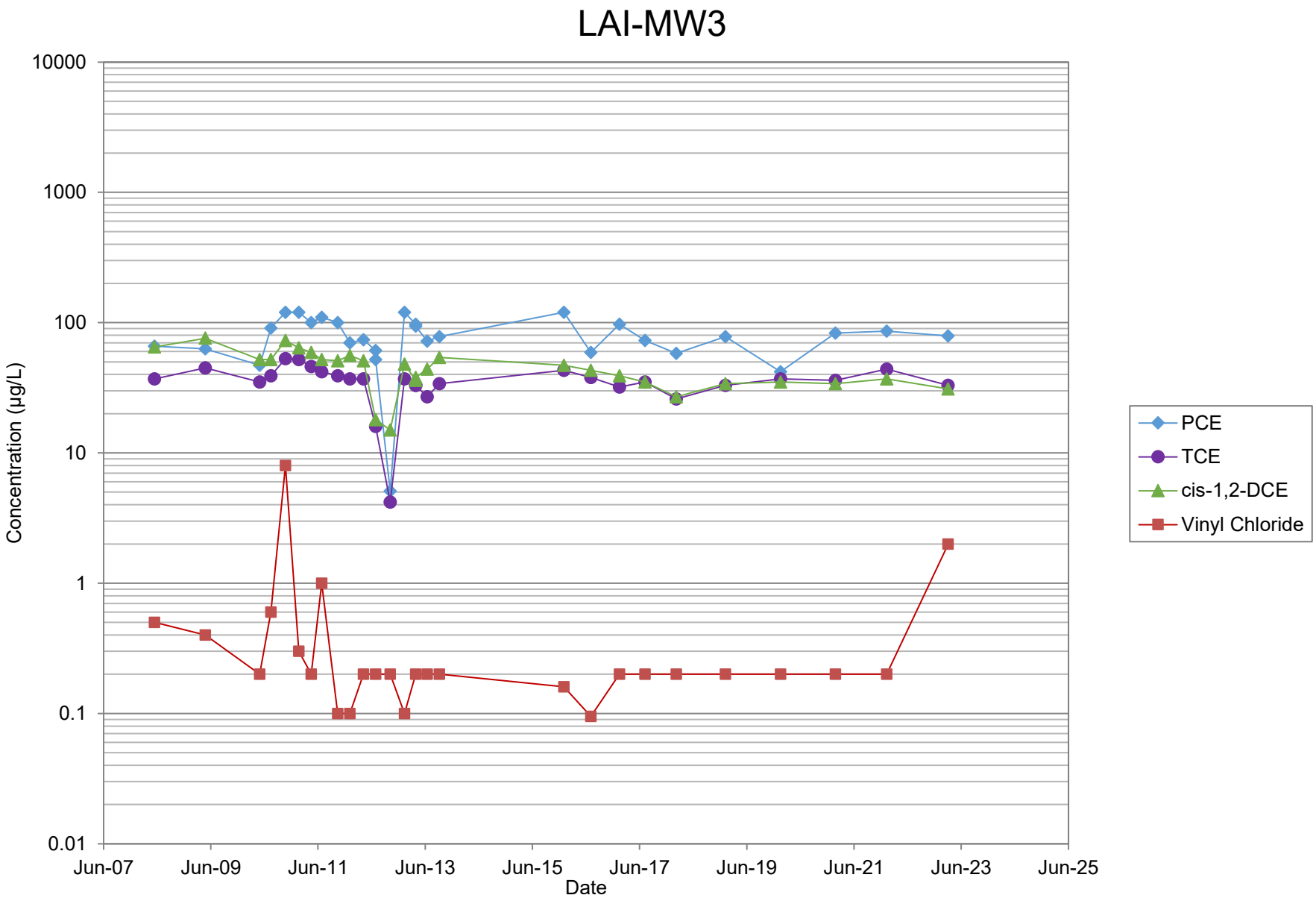
Jun-17
Jun-19
Jun-21
Jun-23
Jun-25
Date
PCE
TCE
cis-1,2-DCE
Vinyl Chloride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100
10
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0.1
0.01
Concentration (µg/L)
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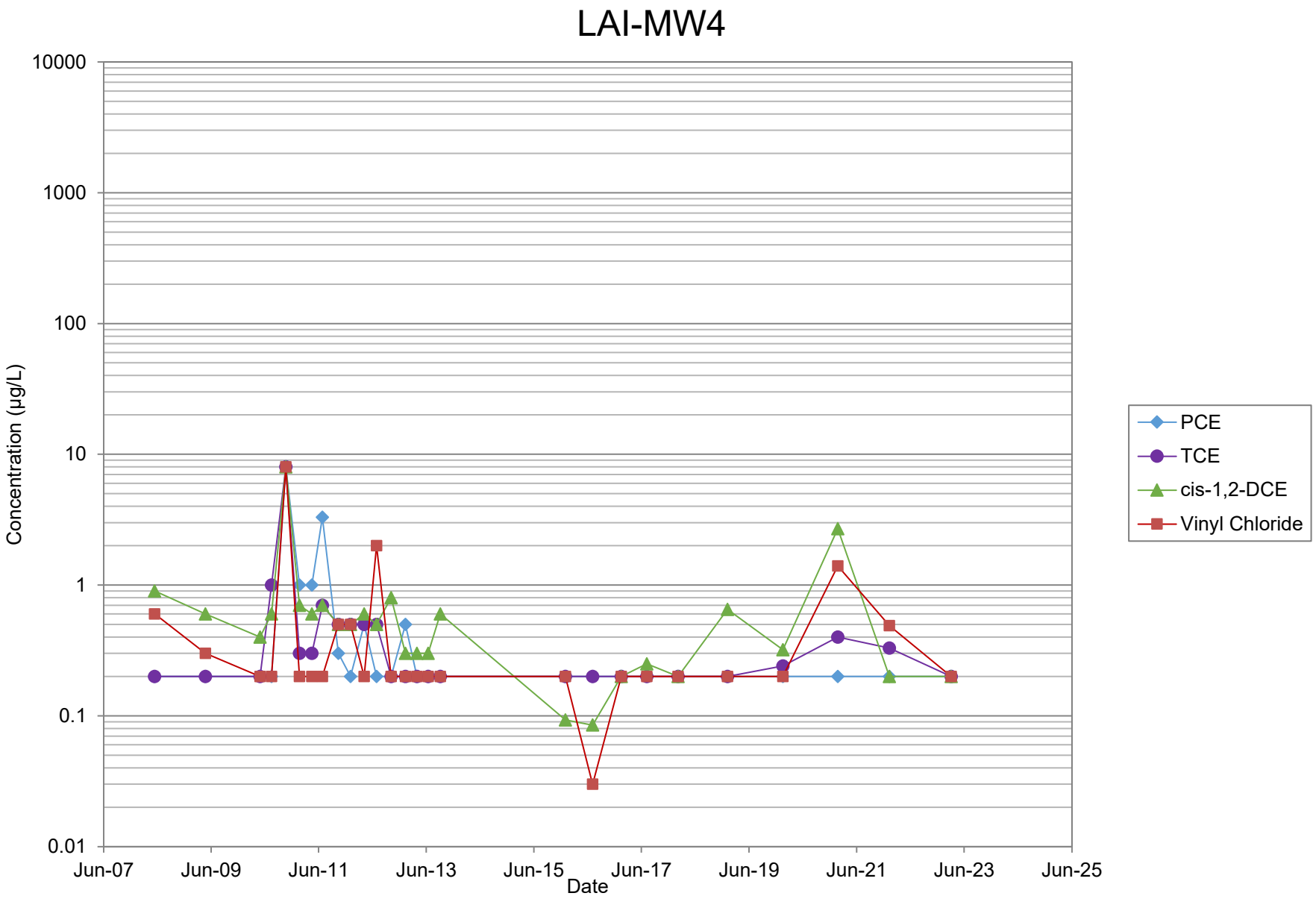
Jun-09
Jun-11
Jun-13
Jun-15
Jun-17
Jun-19
Jun-21
Jun-23
Jun-25
Date
PCE
TCE
cis-1,2-DCE
Vinyl Chloride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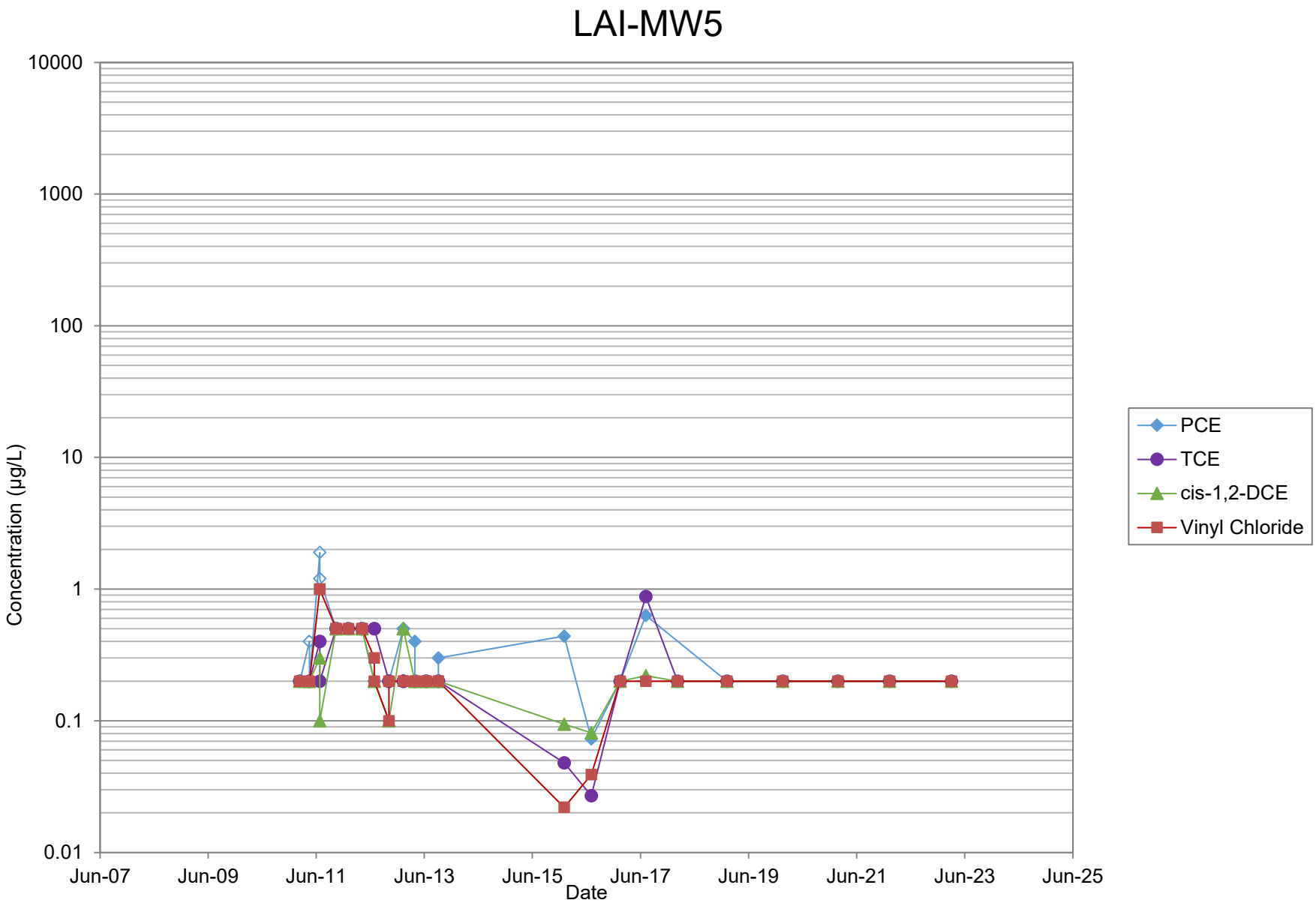
1000
100
10
1
0.1
0.01
Concentration (µg/L)
Jun-07
Jun-09
Jun-11
Jun-13
Jun-15
Jun-17
Jun-19
Jun-21
Jun-23
Jun-25
Date
PCE
TCE
cis-1,2-DCE
Vinyl Chloride


LAI-MW5
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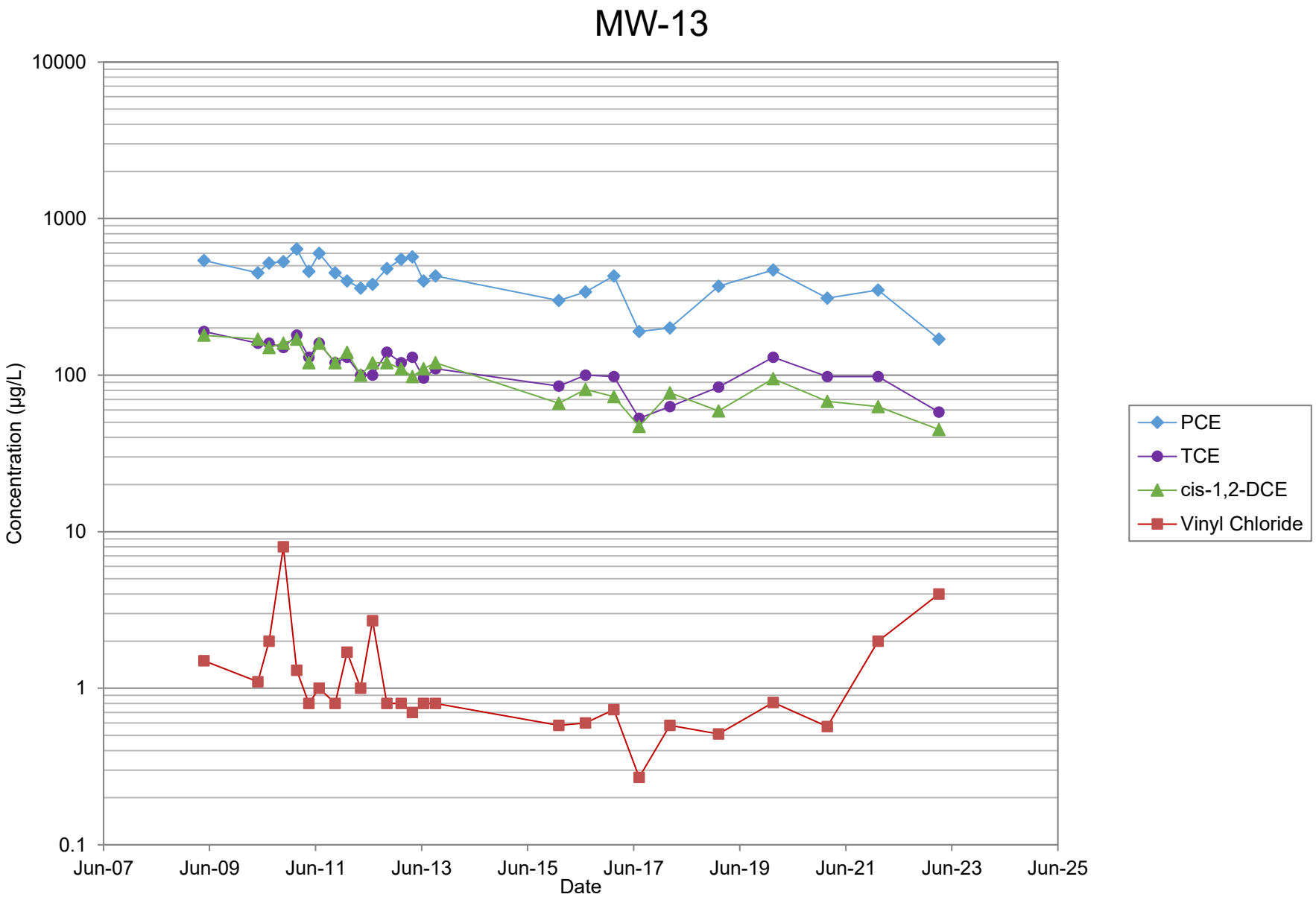
1000
100
10
1
0.1
0.01
Concentration (µg/L)
Jun-07
Jun-09
Jun-11
Jun-13
Jun-15
Jun-17
Jun-19
Jun-21
Jun-23
Jun-25
Date
PCE
TCE
cis-1,2-DCE
Vinyl Chloride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1000
100
10
1
0.1
Concentration (µg/L)
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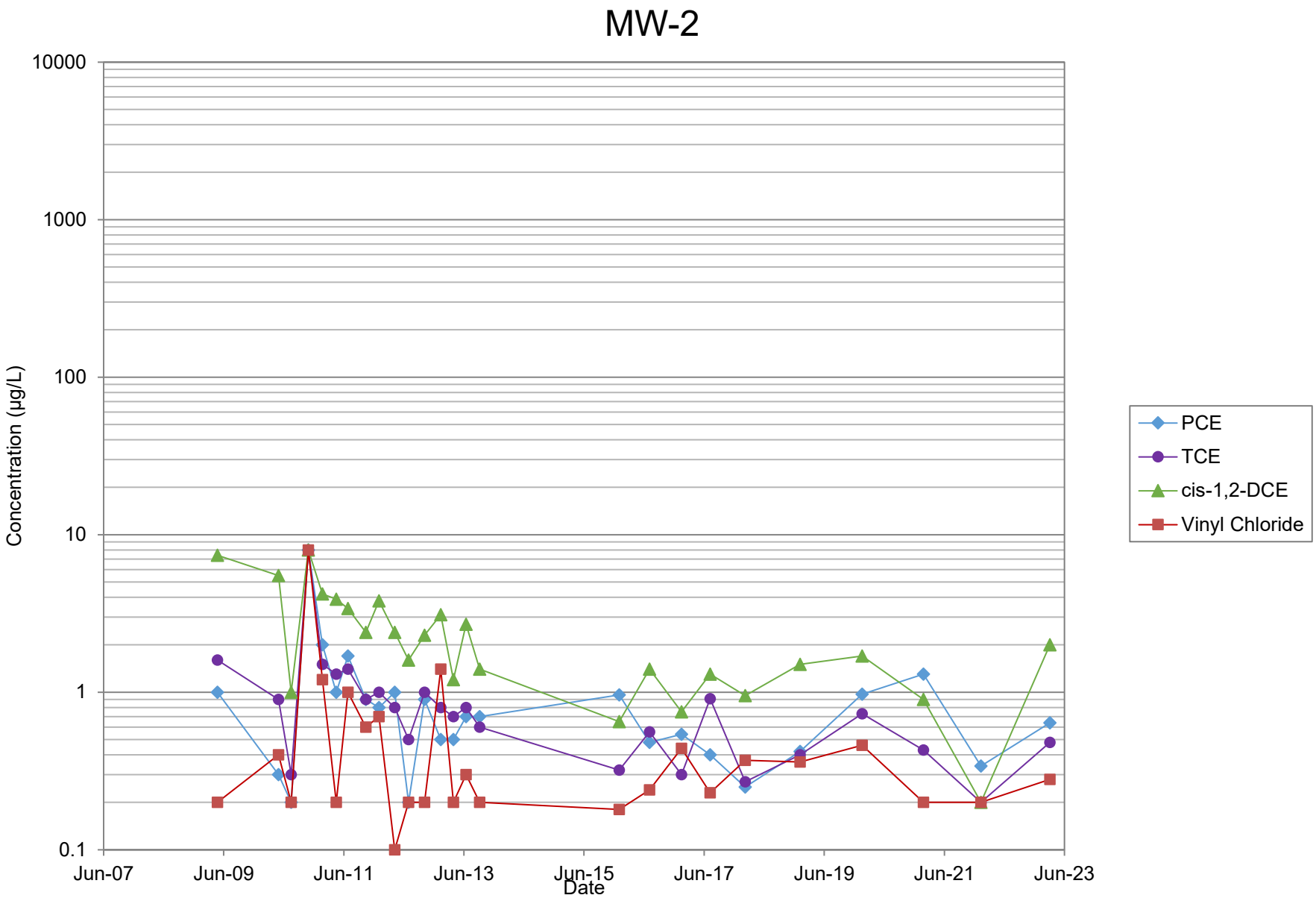
Jun-09
Jun-11
Jun-13
Jun-15
Jun-17
Jun-19
Jun-21
Jun-23
Jun-25
Date
PCE
TCE
cis-1,2-DCE
Vinyl Chloride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1000
100
10
1
0.1
Concentration (µg/L)
Jun-07
Jun-09
Jun-11
Jun-13
Jun-15
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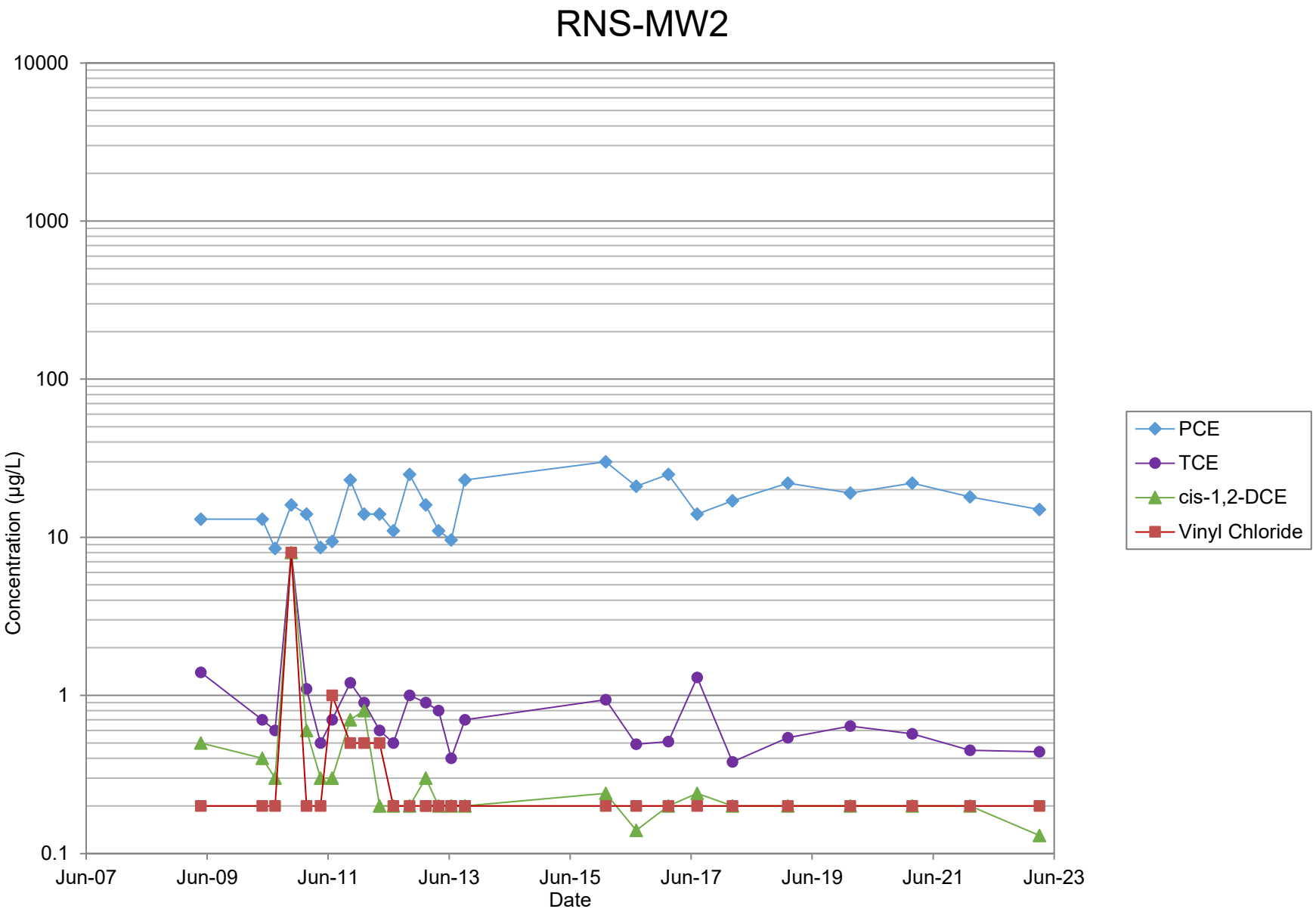
Jun-19
Jun-21
Jun-23
Date
PCE
TCE
cis-1,2-DCE
Vinyl Chloride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1000
100
10
1
0.1
Concentration (µg/L)
Jun-07
Jun-09
Jun-11
Jun-13
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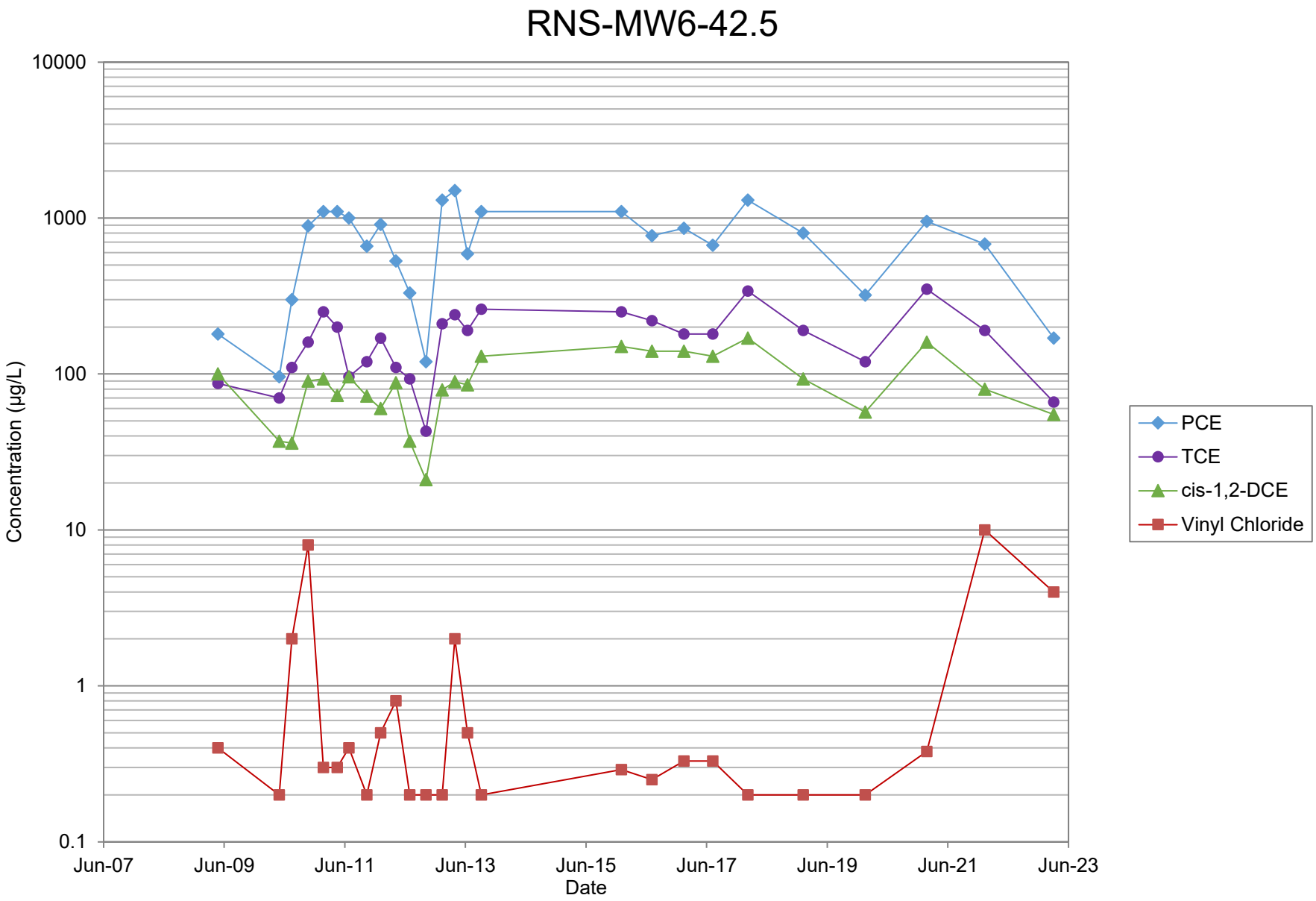
Jun-17
Jun-19
Jun-21
Jun-23
Date
PCE
TCE
cis-1,2-DCE
Vinyl Chloride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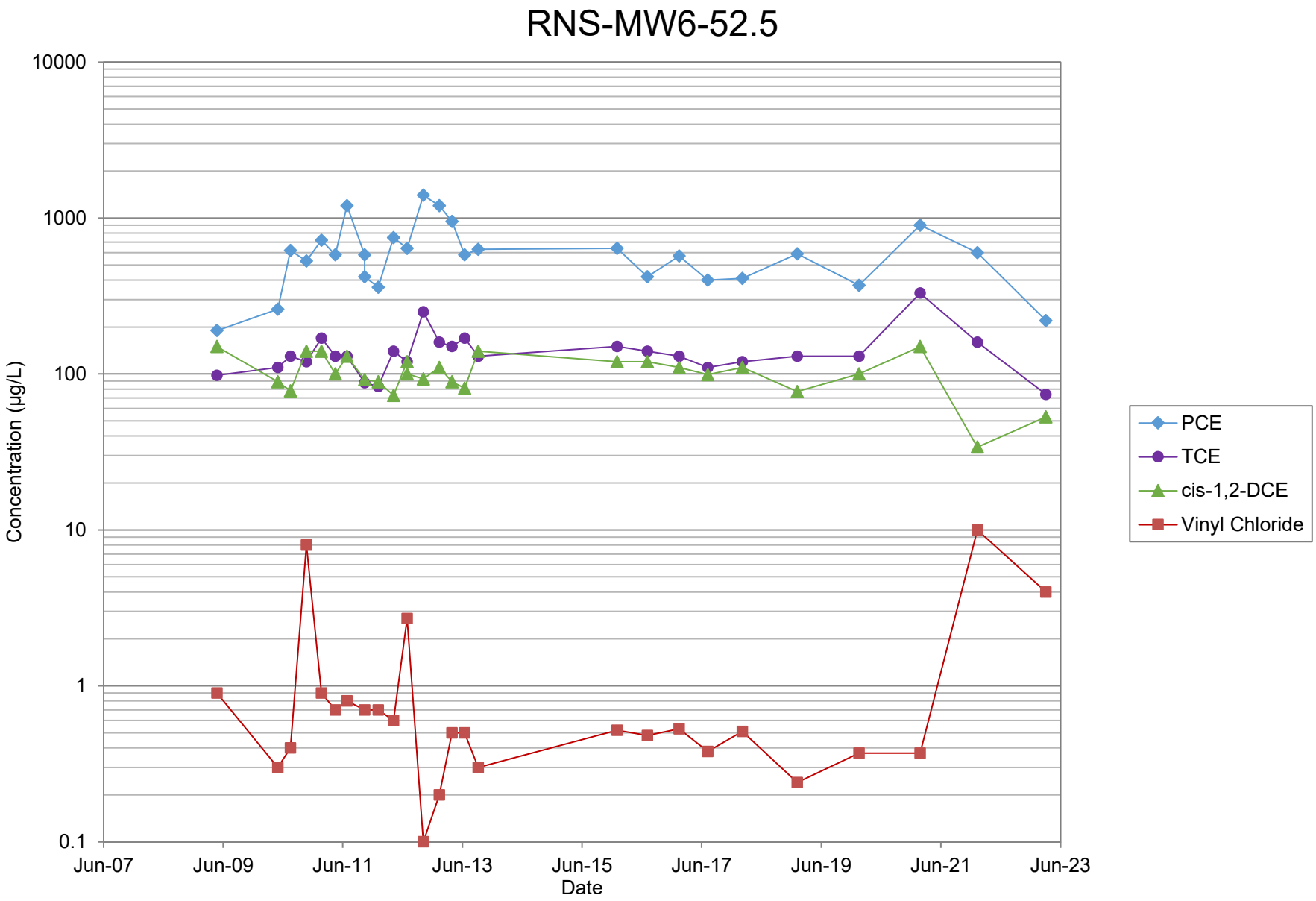
10000
1000
100
10
1
0.1
Concentration (µg/L)
Jun-07
Jun-09
Jun-11
Jun-13
Jun-15
Jun-17
Jun-19
Jun-21
Jun-23
Date
PCE
TCE
cis-1,2-DCE
Vinyl Chloride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1000
100
10
1
0.1
Concentration (µg/L)
Jun-07
Jun-09
Jun-11
Jun-13
Jun-15
Jun-17
Jun-19
Jun-21
Jun-23
Date
PCE
TCE
cis-1,2-DCE
Vinyl Chloride

ATTACHMENT 2

March 2023 Laboratory Data Package

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Katie Gauglitz
Landau & Associates, Inc.
2107 South C Street
Tacoma, Washington 98402

Generated 4/20/2023 10:56:33 AM Revision 2

JOB DESCRIPTION

Sauro's Cleanorama 0094048.100.106

JOB NUMBER

580-124308-1

Eurofins Seattle
5755 8th Street East
Tacoma WA 98424

See page two for job notes and contact information.

Job Notes

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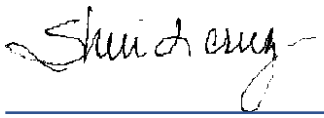
The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

Authorization



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4/20/2023 10:56:33 AM
Revision 2

Authorized for release by
Sheri Cruz, Project Manager I
Sheri.Cruz@et.eurofinsus.com
(253)922-2310

Table of Contents

Job ID: 580-124308-1

Laboratory: Eurofins Seattle

Narrative

Job Narrative
580-124308-1

Comments
3/24/23 revised report for Quad TOC to only report the average and not the individual Quad results per client request.
4/20/23 revised to report all methods to reporting limit (RL) except the RSK175 to MDL.

Receipt
The samples were received on 3/6/2023 4:23 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 4.7º C and 9.3º C.

Receipt Exceptions
One of six VOA vials for the following sample was received broken.: LAI-MW2-02230306 (580-124308-3).

GC/MS VOA
Method 8260D: The following samples were diluted to bring the concentration of target analytes within the calibration range: LAI-MW2-20230306 (580-124308-3), LAI-MW3-20230306 (580-124308-5) and DUP1-20230306 (580-124308-6). Elevated reporting limits (RLs) are provided.

Method 8260D: The following samples were diluted to bring the concentration of target analytes within the calibration range: RNS-MW6-42.5-20230306 (580-124308-7), RNS-MW6-52.5-20230306 (580-124308-8) and MW13-20230306 (580-124308-10). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Method 300.0: The matrix spike and matrix spike duplicate (MS/MSD) recoveries for analytical batch 580-419958 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference is suspected because the associated laboratory control sample and laboratory control sample duplicate (LCS/LCSD) recovery is within acceptance limits.

Method 300.0: The matrix spike and matrix spike duplicate (MS/MSD) recoveries for analytical batch 580-419960 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference is suspected because the associated laboratory control sample and laboratory control sample duplicate (LCS/LCSD) recovery is within acceptance limits.

Method SM 4500 S2 D: The matrix spike and matrix spike duplicate (MS/MSD) recoveries for analytical batch 280-604787 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference is suspected because the associated laboratory control sample and laboratory control sample duplicate (LCS/LCSD) recovery is within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Landau & Associates, Inc. Job ID: 580-124308-1
Project/Site: Sauro's Cleanorama 0094048.100.106

Qualifiers

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Sample Summary

Client: Landau & Associates, Inc.
Project/Site: Sauro's Cleanorama 0094048.100.106

Job ID: 580-124308-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-124308-1	Tripblank-20230306	Water	03/06/23 00:01	03/06/23 16:23
580-124308-2	LAI-MW4-20230306	Water	03/06/23 09:08	03/06/23 16:23
580-124308-3	LAI-MW2-20230306	Water	03/06/23 10:13	03/06/23 16:23
580-124308-4	LAI-MW1-20230306	Water	03/06/23 11:38	03/06/23 16:23
580-124308-5	LAI-MW3-20230306	Water	03/06/23 12:40	03/06/23 16:23
580-124308-6	DUP1-20230306	Water	03/06/23 12:41	03/06/23 16:23
580-124308-7	RNS-MW6-42.5-20230306	Water	03/06/23 14:30	03/06/23 16:23
580-124308-8	RNS-MW6-52.5-20230306	Water	03/06/23 15:10	03/06/23 16:23
580-124308-9	RNS-MW2-20230306	Water	03/06/23 14:01	03/06/23 16:23
580-124308-10	MW13-20230306	Water	03/06/23 16:20	03/06/23 16:23

Chain-of-Custody Record

LANDAU ASSOCIATES

☐ North Seattle (206) 631-8660 ☒ Tacoma (253) 926-2493 ☐ Olympia (360) 791-3178
☐ Spokane (509) 327-9737 ☐ Portland (503) 542-1080 ☐

Date 3/6/23 Page 1 of 1

Turnaround Time: (Standard) Accelerated

Project Name Savio's Cleanerama Project No. 094048-100-106
Project Location/Event Tacoma, WA / March 2023
Sampler's Name SMR/JBD
Project Contact Katie Gauglitz
Send Results To K. Gauglitz, data@landauinc.com

Special Handling Requirements:
Shipment Method:
Stored on ice: (Yes) / No

Sample I.D.	Date	Time	Matrix	No. of Containers	VOCs - 8260D	MEE - RSK-175	TOC - 5310C	Sulfate/Nitrate - 300.0	Sulfide/Chloride - 300.0
Triplian K - 20230306	—	—	Aq	2	X				
LAI-MW4-20230306	3/6/23	908	Aq	9	X	X	X	X	X
LAI-MW2-20230306	3/6/23	1013	Aq	9	X	X	X	X	X
LAI-MW1-20230306	3/6/23	1138	Aq	9	X	X	X	X	X
LAI-MW3-20230306	3/6/23	1240	Aq	9	X	X	X	X	X
Dup1-20230306	3/6/23	1241	Aq	9	X	X	X	X	X
RNS-MW6-425-20230306	3/6/23	1430	Aq	3	X				
RNS-MW6-525-20230306	3/6/23	1510	Aq	9	X	X	X	X	X
RNS-MW2-20230306	3/6/23	1401	Aq	9	X	X	X	X	X
~~MW-3~~ MW13-20230306	3/6/23	1620	Aq	9	X	X	X	X	X

Observations/Comments

☐ Allow water samples to settle, collect aliquot from clear portion ☐
☐ NWTPH-Dx - Acid wash cleanup ☐
- Silica gel cleanup ☐
☐ Dissolved metal samples were field filtered

Other - SHORT HOLD
- 2 coolers
HCl preserved

Therm. ID: IR10 Cor: 9.3 ° Unc: 9.6 °
Cooler Dsc: LB
Packing: Bub
Cust. Seal: Yes ___ No ___
Blue Ice, Wet, Dry, None
FedEx: ___
UPS: ___
Lab Cour: ___
Other: Client

Therm. ID: IR10 Cor: 4.7 ° Unc: 5.0 °
Cooler Dsc: SB
Packing: Bub
Cust. Seal: Yes ___ No X
Blue Ice, Wet, Dry, None
FedEx: ___
UPS: ___
Lab Cour: ___
Other: Client

Relinquished by
Signature
Printed Name Josh Barbash
Company Landau Associates
Date 3/6/23 Time 1623

Received by
Signature
Printed Name E. Groves
Company EETN
Date 3/6/23 Time 1623

Relinquished by
Signature ___
Printed Name ___
Company ___
Date ___

Received by
Signature ___
Printed Name ___
Company ___
Date ___ Time ___

580-124308 Chain of Custody

WHITE COPY - Laboratory YELLOW COPY - Project File PINK COPY - Client Representative

10/2018

Login Sample Receipt Checklist

Client: Landau & Associates, Inc.

Job Number: 580-124308-1

Login Number: 124308
List Number: 1
Creator: Presley, Kim A

List Source: Eurofins Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Refer to Job Narrative for details.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Landau & Associates, Inc.

Job Number: 580-124308-1

Login Number: 124308
List Number: 2
Creator: Held, Wesley

List Source: Eurofins Denver
List Creation: 03/09/23 06:24 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Client Sample ID: Tripblank-20230306 **Lab Sample ID: 580-124308-1**
Date Collected: 03/06/23 00:01 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.20		ug/L			03/09/23 04:52	1
cis-1,2-Dichloroethene	ND		0.20		ug/L			03/09/23 04:52	1
Trichloroethene	ND		0.20		ug/L			03/09/23 04:52	1
Tetrachloroethene	ND		0.20		ug/L			03/09/23 04:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*80 - 120*		*03/09/23 04:52*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 120*		*03/09/23 04:52*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*03/09/23 04:52*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*		*03/09/23 04:52*	*1*

Client Sample ID: LAI-MW4-20230306 **Lab Sample ID: 580-124308-2**
Date Collected: 03/06/23 09:08 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.20		ug/L			03/10/23 06:26	1
cis-1,2-Dichloroethene	ND		0.20		ug/L			03/10/23 06:26	1
Trichloroethene	ND		0.20		ug/L			03/10/23 06:26	1
Tetrachloroethene	ND		0.20		ug/L			03/10/23 06:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*80 - 120*		*03/10/23 06:26*	*1*
Dibromofluoromethane (Surr)	*105*		*80 - 120*		*03/10/23 06:26*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*03/10/23 06:26*	*1*
1,2-Dichloroethane-d4 (Surr)	*109*		*80 - 120*		*03/10/23 06:26*	*1*

Client Sample ID: LAI-MW2-20230306 **Lab Sample ID: 580-124308-3**
Date Collected: 03/06/23 10:13 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		10		ug/L			03/10/23 08:01	50
cis-1,2-Dichloroethene	**96**		10		ug/L			03/10/23 08:01	50
Trichloroethene	**120**		10		ug/L			03/10/23 08:01	50
Tetrachloroethene	**350**		10		ug/L			03/10/23 08:01	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*80 - 120*		*03/10/23 08:01*	*50*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*03/10/23 08:01*	*50*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*03/10/23 08:01*	*50*
1,2-Dichloroethane-d4 (Surr)	*106*		*80 - 120*		*03/10/23 08:01*	*50*

Client Sample ID: LAI-MW1-20230306 **Lab Sample ID: 580-124308-4**
Date Collected: 03/06/23 11:38 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.20		ug/L			03/10/23 06:50	1
cis-1,2-Dichloroethene	ND		0.20		ug/L			03/10/23 06:50	1
Trichloroethene	ND		0.20		ug/L			03/10/23 06:50	1
Tetrachloroethene	ND		0.20		ug/L			03/10/23 06:50	1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*99*		*80 - 120*		*03/10/23 06:50*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 120*		*03/10/23 06:50*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*03/10/23 06:50*	*1*
1,2-Dichloroethane-d4 (Surr)	*107*		*80 - 120*		*03/10/23 06:50*	*1*

Client Sample ID: LAI-MW3-20230306 **Lab Sample ID: 580-124308-5**
Date Collected: 03/06/23 12:40 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		2.0		ug/L			03/10/23 07:14	10
cis-1,2-Dichloroethene	**31**		2.0		ug/L			03/10/23 07:14	10
Trichloroethene	**33**		2.0		ug/L			03/10/23 07:14	10
Tetrachloroethene	**79**		2.0		ug/L			03/10/23 07:14	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*98*		*80 - 120*		*03/10/23 07:14*	*10*
Dibromofluoromethane (Surr)	*102*		*80 - 120*		*03/10/23 07:14*	*10*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*03/10/23 07:14*	*10*
1,2-Dichloroethane-d4 (Surr)	*108*		*80 - 120*		*03/10/23 07:14*	*10*

Client Sample ID: DUP1-20230306 **Lab Sample ID: 580-124308-6**
Date Collected: 03/06/23 12:41 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		2.0		ug/L			03/10/23 07:38	10
cis-1,2-Dichloroethene	**30**		2.0		ug/L			03/10/23 07:38	10
Trichloroethene	**32**		2.0		ug/L			03/10/23 07:38	10
Tetrachloroethene	**77**		2.0		ug/L			03/10/23 07:38	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*99*		*80 - 120*		*03/10/23 07:38*	*10*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*03/10/23 07:38*	*10*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*03/10/23 07:38*	*10*
1,2-Dichloroethane-d4 (Surr)	*107*		*80 - 120*		*03/10/23 07:38*	*10*

Client Sample ID: RNS-MW6-42.5-20230306 **Lab Sample ID: 580-124308-7**
Date Collected: 03/06/23 14:30 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		4.0		ug/L			03/10/23 20:25	20
cis-1,2-Dichloroethene	**55**		4.0		ug/L			03/10/23 20:25	20
Trichloroethene	**66**		4.0		ug/L			03/10/23 20:25	20
Tetrachloroethene	**170**		4.0		ug/L			03/10/23 20:25	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*99*		*80 - 120*		*03/10/23 20:25*	*20*
Dibromofluoromethane (Surr)	*100*		*80 - 120*		*03/10/23 20:25*	*20*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*03/10/23 20:25*	*20*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 120*		*03/10/23 20:25*	*20*

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Client Sample ID: RNS-MW6-52.5-20230306 **Lab Sample ID: 580-124308-8**
Date Collected: 03/06/23 15:10 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		4.0		ug/L			03/10/23 20:03	20
cis-1,2-Dichloroethene	**53**		4.0		ug/L			03/10/23 20:03	20
Trichloroethene	**74**		4.0		ug/L			03/10/23 20:03	20
Tetrachloroethene	**220**		4.0		ug/L			03/10/23 20:03	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 120*		*03/10/23 20:03*	*20*
Dibromofluoromethane (Surr)	*100*		*80 - 120*		*03/10/23 20:03*	*20*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*03/10/23 20:03*	*20*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 120*		*03/10/23 20:03*	*20*

Client Sample ID: RNS-MW2-20230306 **Lab Sample ID: 580-124308-9**
Date Collected: 03/06/23 14:01 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.20		ug/L			03/10/23 15:43	1
cis-1,2-Dichloroethene	ND		0.20		ug/L			03/10/23 15:43	1
Trichloroethene	**0.44**		0.20		ug/L			03/10/23 15:43	1
Tetrachloroethene	**15**		0.20		ug/L			03/10/23 15:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 120*		*03/10/23 15:43*	*1*
Dibromofluoromethane (Surr)	*102*		*80 - 120*		*03/10/23 15:43*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*03/10/23 15:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*03/10/23 15:43*	*1*

Client Sample ID: MW13-20230306 **Lab Sample ID: 580-124308-10**
Date Collected: 03/06/23 16:20 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		4.0		ug/L			03/10/23 20:46	20
cis-1,2-Dichloroethene	**45**		4.0		ug/L			03/10/23 20:46	20
Trichloroethene	**58**		4.0		ug/L			03/10/23 20:46	20
Tetrachloroethene	**170**		4.0		ug/L			03/10/23 20:46	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*80 - 120*		*03/10/23 20:46*	*20*
Dibromofluoromethane (Surr)	*101*		*80 - 120*		*03/10/23 20:46*	*20*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*03/10/23 20:46*	*20*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 120*		*03/10/23 20:46*	*20*

Method: RSK-175 - Dissolved Gases (GC)

Client Sample ID: LAI-MW4-20230306 **Lab Sample ID: 580-124308-2**
Date Collected: 03/06/23 09:08 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**0.33**		0.00063	0.00063	mg/L			03/10/23 11:29	1
Ethylene	ND		0.00040	0.00040	mg/L			03/10/23 11:29	1
Ethane	ND		0.00057	0.00057	mg/L			03/10/23 11:29	1
Acetylene	ND		0.00073	0.00073	mg/L			03/10/23 11:29	1

Client Sample ID: LAI-MW2-20230306 **Lab Sample ID: 580-124308-3**
Date Collected: 03/06/23 10:13 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**0.014**		0.00063	0.00063	mg/L			03/10/23 11:43	1
Ethylene	ND		0.00040	0.00040	mg/L			03/10/23 11:43	1
Ethane	**0.0038**		0.00057	0.00057	mg/L			03/10/23 11:43	1
Acetylene	ND		0.00073	0.00073	mg/L			03/10/23 11:43	1

Client Sample ID: LAI-MW1-20230306 **Lab Sample ID: 580-124308-4**
Date Collected: 03/06/23 11:38 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.00063	0.00063	mg/L			03/10/23 11:57	1
Ethylene	ND		0.00040	0.00040	mg/L			03/10/23 11:57	1
Ethane	ND		0.00057	0.00057	mg/L			03/10/23 11:57	1
Acetylene	ND		0.00073	0.00073	mg/L			03/10/23 11:57	1

Client Sample ID: LAI-MW3-20230306 **Lab Sample ID: 580-124308-5**
Date Collected: 03/06/23 12:40 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**0.0023**		0.00063	0.00063	mg/L			03/10/23 12:10	1
Ethylene	ND		0.00040	0.00040	mg/L			03/10/23 12:10	1
Ethane	ND		0.00057	0.00057	mg/L			03/10/23 12:10	1
Acetylene	ND		0.00073	0.00073	mg/L			03/10/23 12:10	1

Client Sample ID: DUP1-20230306 **Lab Sample ID: 580-124308-6**
Date Collected: 03/06/23 12:41 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**0.0019**		0.00063	0.00063	mg/L			03/10/23 12:24	1
Ethylene	ND		0.00040	0.00040	mg/L			03/10/23 12:24	1
Ethane	ND		0.00057	0.00057	mg/L			03/10/23 12:24	1
Acetylene	ND		0.00073	0.00073	mg/L			03/10/23 12:24	1

Client Sample ID: RNS-MW6-52.5-20230306 **Lab Sample ID: 580-124308-8**
Date Collected: 03/06/23 15:10 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**0.017**		0.00063	0.00063	mg/L			03/10/23 12:37	1
Ethylene	ND		0.00040	0.00040	mg/L			03/10/23 12:37	1
Ethane	**0.0035**		0.00057	0.00057	mg/L			03/10/23 12:37	1
Acetylene	ND		0.00073	0.00073	mg/L			03/10/23 12:37	1

Client: Landau & Associates, Inc.
Project/Site: Sauro's Cleanorama 0094048.100.106

Job ID: 580-124308-1

Method: RSK-175 - Dissolved Gases (GC)

Client Sample ID: RNS-MW2-20230306
Date Collected: 03/06/23 14:01
Date Received: 03/06/23 16:23

Lab Sample ID: 580-124308-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.00063	0.00063	mg/L			03/10/23 12:51	1
Ethylene	ND		0.00040	0.00040	mg/L			03/10/23 12:51	1
Ethane	ND		0.00057	0.00057	mg/L			03/10/23 12:51	1
Acetylene	ND		0.00073	0.00073	mg/L			03/10/23 12:51	1

Client Sample ID: MW13-20230306
Date Collected: 03/06/23 16:20
Date Received: 03/06/23 16:23

Lab Sample ID: 580-124308-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**0.0050**		0.00063	0.00063	mg/L			03/10/23 13:05	1
Ethylene	ND		0.00040	0.00040	mg/L			03/10/23 13:05	1
Ethane	**0.00081**		0.00057	0.00057	mg/L			03/10/23 13:05	1
Acetylene	ND		0.00073	0.00073	mg/L			03/10/23 13:05	1

General Chemistry

Client Sample ID: LAI-MW4-20230306 **Lab Sample ID: 580-124308-2**
Date Collected: 03/06/23 09:08 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	**3500**		150		mg/L			03/07/23 15:17	100
Nitrite as N (EPA 300.0)	ND		40		mg/L			03/07/23 15:17	100
Nitrate as N (EPA 300.0)	ND		20		mg/L			03/07/23 15:17	100
Sulfate (EPA 300.0)	**530**		150		mg/L			03/07/23 15:17	100
Sulfide (SM 4500 S2 D)	**0.061**		0.050		mg/L			03/10/23 16:08	1
Total Organic Carbon - Quad (SM 5310B)	**3.0**		1.0		mg/L			03/11/23 04:53	1

Client Sample ID: LAI-MW2-20230306 **Lab Sample ID: 580-124308-3**
Date Collected: 03/06/23 10:13 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	**26**		1.5		mg/L			03/07/23 12:21	1
Nitrite as N (EPA 300.0)	ND		0.40		mg/L			03/07/23 12:21	1
Nitrate as N (EPA 300.0)	ND		0.20		mg/L			03/07/23 12:21	1
Sulfate (EPA 300.0)	**23**		1.5		mg/L			03/07/23 12:21	1
Sulfide (SM 4500 S2 D)	ND		0.050		mg/L			03/10/23 15:29	1
Total Organic Carbon - Quad (SM 5310B)	**1.6**		1.0		mg/L			03/11/23 05:09	1

Client Sample ID: LAI-MW1-20230306 **Lab Sample ID: 580-124308-4**
Date Collected: 03/06/23 11:38 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	**67**		1.5		mg/L			03/07/23 12:33	1
Nitrite as N (EPA 300.0)	ND		0.40		mg/L			03/07/23 12:33	1
Nitrate as N (EPA 300.0)	**1.8**		0.20		mg/L			03/07/23 12:33	1
Sulfate (EPA 300.0)	**20**		1.5		mg/L			03/07/23 12:33	1
Sulfide (SM 4500 S2 D)	ND		0.050		mg/L			03/10/23 15:30	1
Total Organic Carbon - Quad (SM 5310B)	**1.4**		1.0		mg/L			03/11/23 05:26	1

Client Sample ID: LAI-MW3-20230306 **Lab Sample ID: 580-124308-5**
Date Collected: 03/06/23 12:40 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	**20**		1.5		mg/L			03/07/23 12:56	1
Nitrite as N (EPA 300.0)	ND		0.40		mg/L			03/07/23 12:56	1
Nitrate as N (EPA 300.0)	**0.55**		0.20		mg/L			03/07/23 12:56	1
Sulfate (EPA 300.0)	**25**		1.5		mg/L			03/07/23 12:56	1
Sulfide (SM 4500 S2 D)	ND		0.050		mg/L			03/10/23 15:30	1
Total Organic Carbon - Quad (SM 5310B)	**1.3**		1.0		mg/L			03/11/23 07:55	1

Client Sample ID: DUP1-20230306 **Lab Sample ID: 580-124308-6**
Date Collected: 03/06/23 12:41 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	**20**	**F1**	1.5		mg/L			03/07/23 13:08	1
Nitrite as N (EPA 300.0)	ND	F1	0.40		mg/L			03/07/23 13:08	1
Nitrate as N (EPA 300.0)	**0.56**	**F1**	0.20		mg/L			03/07/23 13:08	1

General Chemistry (Continued)

Client Sample ID: DUP1-20230306 **Lab Sample ID: 580-124308-6**
Date Collected: 03/06/23 12:41 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (EPA 300.0)	24	F1	1.5		mg/L			03/07/23 13:08	1
Sulfide (SM 4500 S2 D)	ND		0.050		mg/L			03/10/23 15:30	1
Total Organic Carbon - Quad (SM 5310B)	1.2		1.0		mg/L			03/11/23 08:11	1

Client Sample ID: RNS-MW6-52.5-20230306 **Lab Sample ID: 580-124308-8**
Date Collected: 03/06/23 15:10 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	48		1.5		mg/L			03/07/23 14:07	1
Nitrite as N (EPA 300.0)	ND		0.40		mg/L			03/07/23 14:07	1
Nitrate as N (EPA 300.0)	0.96		0.20		mg/L			03/07/23 14:07	1
Sulfate (EPA 300.0)	27		1.5		mg/L			03/07/23 14:07	1
Sulfide (SM 4500 S2 D)	ND		0.050		mg/L			03/10/23 15:31	1
Total Organic Carbon - Quad (SM 5310B)	1.4		1.0		mg/L			03/11/23 08:27	1

Client Sample ID: RNS-MW2-20230306 **Lab Sample ID: 580-124308-9**
Date Collected: 03/06/23 14:01 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	54		1.5		mg/L			03/07/23 14:19	1
Nitrite as N (EPA 300.0)	ND		0.40		mg/L			03/07/23 14:19	1
Nitrate as N (EPA 300.0)	2.8		0.20		mg/L			03/07/23 14:19	1
Sulfate (EPA 300.0)	23		1.5		mg/L			03/07/23 14:19	1
Sulfide (SM 4500 S2 D)	ND		0.050		mg/L			03/10/23 15:32	1
Total Organic Carbon - Quad (SM 5310B)	1.3		1.0		mg/L			03/11/23 08:43	1

Client Sample ID: MW13-20230306 **Lab Sample ID: 580-124308-10**
Date Collected: 03/06/23 16:20 **Matrix: Water**
Date Received: 03/06/23 16:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	38		1.5		mg/L			03/07/23 14:30	1
Nitrite as N (EPA 300.0)	ND		0.40		mg/L			03/07/23 14:30	1
Nitrate as N (EPA 300.0)	0.70		0.20		mg/L			03/07/23 14:30	1
Sulfate (EPA 300.0)	24		1.5		mg/L			03/07/23 14:30	1
Sulfide (SM 4500 S2 D)	ND		0.050		mg/L			03/10/23 16:07	1
Total Organic Carbon - Quad (SM 5310B)	1.2		1.0		mg/L			03/11/23 08:59	1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-419886/7
Matrix: Water
Analysis Batch: 419886

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.20		ug/L			03/09/23 01:43	1
cis-1,2-Dichloroethene	ND		0.20		ug/L			03/09/23 01:43	1
Trichloroethene	ND		0.20		ug/L			03/09/23 01:43	1
Tetrachloroethene	ND		0.20		ug/L			03/09/23 01:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*80 - 120*		*03/09/23 01:43*	*1*
Dibromofluoromethane (Surr)	*102*		*80 - 120*		*03/09/23 01:43*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*03/09/23 01:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*		*03/09/23 01:43*	*1*

Lab Sample ID: LCS 580-419886/4
Matrix: Water
Analysis Batch: 419886

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Vinyl chloride			5.00	5.26		ug/L		105	41 - 150		
cis-1,2-Dichloroethene			5.00	5.10		ug/L		102	72 - 120		
Trichloroethene			5.00	4.70		ug/L		94	72 - 120		
Tetrachloroethene			5.00	5.27		ug/L		105	75 - 124		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*104*		*80 - 120*
Dibromofluoromethane (Surr)	*104*		*80 - 120*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*96*		*80 - 120*

Lab Sample ID: LCSD 580-419886/5
Matrix: Water
Analysis Batch: 419886

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Vinyl chloride			5.00	4.90		ug/L		98	41 - 150	7	32
cis-1,2-Dichloroethene			5.00	4.66		ug/L		93	72 - 120	9	22
Trichloroethene			5.00	4.70		ug/L		94	72 - 120	0	22
Tetrachloroethene			5.00	5.18		ug/L		104	75 - 124	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*105*		*80 - 120*
Dibromofluoromethane (Surr)	*98*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*94*		*80 - 120*

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-420030/7
Matrix: Water
Analysis Batch: 420030

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.20		ug/L			03/10/23 02:30	1
cis-1,2-Dichloroethene	ND		0.20		ug/L			03/10/23 02:30	1
Trichloroethene	ND		0.20		ug/L			03/10/23 02:30	1
Tetrachloroethene	ND		0.20		ug/L			03/10/23 02:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*80 - 120*		*03/10/23 02:30*	*1*
Dibromofluoromethane (Surr)	*104*		*80 - 120*		*03/10/23 02:30*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*03/10/23 02:30*	*1*
1,2-Dichloroethane-d4 (Surr)	*108*		*80 - 120*		*03/10/23 02:30*	*1*

Lab Sample ID: LCS 580-420030/4
Matrix: Water
Analysis Batch: 420030

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Vinyl chloride			5.00	5.00		ug/L		100	41 - 150		
cis-1,2-Dichloroethene			5.00	4.96		ug/L		99	72 - 120		
Trichloroethene			5.00	4.33		ug/L		87	72 - 120		
Tetrachloroethene			5.00	5.16		ug/L		103	75 - 124		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*80 - 120*
Dibromofluoromethane (Surr)	*103*		*80 - 120*
4-Bromofluorobenzene (Surr)	*108*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*

Lab Sample ID: LCSD 580-420030/5
Matrix: Water
Analysis Batch: 420030

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Vinyl chloride			5.00	4.59		ug/L		92	41 - 150	9	32
cis-1,2-Dichloroethene			5.00	4.65		ug/L		93	72 - 120	6	22
Trichloroethene			5.00	4.33		ug/L		87	72 - 120	0	22
Tetrachloroethene			5.00	5.17		ug/L		103	75 - 124	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*105*		*80 - 120*
Dibromofluoromethane (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 120*

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-420104/7
Matrix: Water
Analysis Batch: 420104

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.20		ug/L			03/10/23 13:54	1
cis-1,2-Dichloroethene	ND		0.20		ug/L			03/10/23 13:54	1
Trichloroethene	ND		0.20		ug/L			03/10/23 13:54	1
Tetrachloroethene	ND		0.20		ug/L			03/10/23 13:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*80 - 120*		*03/10/23 13:54*	*1*
Dibromofluoromethane (Surr)	*102*		*80 - 120*		*03/10/23 13:54*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*03/10/23 13:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 120*		*03/10/23 13:54*	*1*

Lab Sample ID: LCS 580-420104/4
Matrix: Water
Analysis Batch: 420104

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	5.00	4.81		ug/L		96	41 - 150
cis-1,2-Dichloroethene	5.00	5.11		ug/L		102	72 - 120
Trichloroethene	5.00	4.97		ug/L		99	72 - 120
Tetrachloroethene	5.00	4.86		ug/L		97	75 - 124

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*102*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 120*

Lab Sample ID: LCSD 580-420104/5
Matrix: Water
Analysis Batch: 420104

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Vinyl chloride	5.00	4.88		ug/L		98	41 - 150	1	32
cis-1,2-Dichloroethene	5.00	5.07		ug/L		101	72 - 120	1	22
Trichloroethene	5.00	4.92		ug/L		98	72 - 120	1	22
Tetrachloroethene	5.00	4.70		ug/L		94	75 - 124	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 280-604666/5
Matrix: Water
Analysis Batch: 604666

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.00063	0.00063	mg/L			03/09/23 22:12	1
Ethylene	ND		0.00040	0.00040	mg/L			03/09/23 22:12	1
Ethane	ND		0.00057	0.00057	mg/L			03/09/23 22:12	1
Acetylene	ND		0.00073	0.00073	mg/L			03/09/23 22:12	1

Lab Sample ID: LCS 280-604666/3
Matrix: Water
Analysis Batch: 604666

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane	0.0657	0.0657		mg/L		100	75 - 125
Ethylene	0.115	0.119		mg/L		104	75 - 125
Ethane	0.123	0.127		mg/L		103	75 - 125
Acetylene	0.107	0.112		mg/L		105	75 - 125

Lab Sample ID: LCSD 280-604666/4
Matrix: Water
Analysis Batch: 604666

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methane	0.0657	0.0639		mg/L		97	75 - 125	3	20
Ethylene	0.115	0.116		mg/L		101	75 - 125	3	20
Ethane	0.123	0.124		mg/L		100	75 - 125	3	20
Acetylene	0.107	0.109		mg/L		102	75 - 125	3	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-419958/3
Matrix: Water
Analysis Batch: 419958

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.5		mg/L			03/07/23 11:23	1
Sulfate	ND		1.5		mg/L			03/07/23 11:23	1

Lab Sample ID: LCS 580-419958/4
Matrix: Water
Analysis Batch: 419958

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	53.4		mg/L		107	90 - 110
Sulfate	50.0	51.9		mg/L		104	90 - 110

Lab Sample ID: LCSD 580-419958/5
Matrix: Water
Analysis Batch: 419958

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	53.3		mg/L		107	90 - 110	0	15
Sulfate	50.0	51.9		mg/L		104	90 - 110	0	15

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 580-124308-6 MS
Matrix: Water
Analysis Batch: 419958

Client Sample ID: DUP1-20230306
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	20	F1	50.0	84.6	F1	mg/L		130	90 - 110
Sulfate	24	F1	50.0	88.6	F1	mg/L		128	90 - 110

Lab Sample ID: 580-124308-6 MSD
Matrix: Water
Analysis Batch: 419958

Client Sample ID: DUP1-20230306
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	20	F1	50.0	84.5	F1	mg/L		130	90 - 110	0	15
Sulfate	24	F1	50.0	88.8	F1	mg/L		129	90 - 110	0	15

Lab Sample ID: MB 580-419960/3
Matrix: Water
Analysis Batch: 419960

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.40		mg/L			03/07/23 11:23	1
Nitrate as N	ND		0.20		mg/L			03/07/23 11:23	1

Lab Sample ID: LCS 580-419960/4
Matrix: Water
Analysis Batch: 419960

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	5.00	5.25		mg/L		105	90 - 110
Nitrate as N	5.00	5.10		mg/L		102	90 - 110

Lab Sample ID: LCSD 580-419960/5
Matrix: Water
Analysis Batch: 419960

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	5.00	5.26		mg/L		105	90 - 110	0	15
Nitrate as N	5.00	5.10		mg/L		102	90 - 110	0	15

Lab Sample ID: 580-124308-6 MS
Matrix: Water
Analysis Batch: 419960

Client Sample ID: DUP1-20230306
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	ND	F1	5.00	6.40	F1	mg/L		128	90 - 110
Nitrate as N	0.56	F1	5.00	6.79	F1	mg/L		125	90 - 110

Lab Sample ID: 580-124308-6 MSD
Matrix: Water
Analysis Batch: 419960

Client Sample ID: DUP1-20230306
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	ND	F1	5.00	6.41	F1	mg/L		128	90 - 110	0	15
Nitrate as N	0.56	F1	5.00	6.80	F1	mg/L		125	90 - 110	0	15

Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 280-604787/11
Matrix: Water
Analysis Batch: 604787

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050		mg/L			03/10/23 14:01	1

Lab Sample ID: LCS 280-604787/9
Matrix: Water
Analysis Batch: 604787

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	0.500	0.510		mg/L		102	81 - 122

Lab Sample ID: LCSD 280-604787/10
Matrix: Water
Analysis Batch: 604787

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfide	0.500	0.514		mg/L		103	81 - 122	1	10

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-604917/31
Matrix: Water
Analysis Batch: 604917

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Quad	ND		1.0		mg/L			03/10/23 21:37	1

Lab Sample ID: MB 280-604917/62
Matrix: Water
Analysis Batch: 604917

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Quad	ND		1.0		mg/L			03/11/23 05:59	1

Lab Sample ID: LCS 280-604917/30
Matrix: Water
Analysis Batch: 604917

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Quad	25.0	25.3		mg/L		101	88 - 112

Lab Sample ID: LCS 280-604917/61
Matrix: Water
Analysis Batch: 604917

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Quad	25.0	25.6		mg/L		102	88 - 112

Lab Chronicle

Client: Landau & Associates, Inc.
Project/Site: Sauro's Cleanorama 0094048.100.106

Job ID: 580-124308-1

Client Sample ID: Tripblank-20230306
Date Collected: 03/06/23 00:01
Date Received: 03/06/23 16:23

Lab Sample ID: 580-124308-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	419886	JBT	EET SEA	03/09/23 04:52

Client Sample ID: LAI-MW4-20230306
Date Collected: 03/06/23 09:08
Date Received: 03/06/23 16:23

Lab Sample ID: 580-124308-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	420030	JBT	EET SEA	03/10/23 06:26
Total/NA	Analysis	RSK-175		1	604666	JPH	EET DEN	03/10/23 11:29
Total/NA	Analysis	300.0		100	419958	CA	EET SEA	03/07/23 15:17
Total/NA	Analysis	300.0		100	419960	CA	EET SEA	03/07/23 15:17
Total/NA	Analysis	SM 4500 S2 D		1	604787	SJD	EET DEN	03/10/23 16:08
Total/NA	Analysis	SM 5310B		1	604917	ABW	EET DEN	03/11/23 04:53

Client Sample ID: LAI-MW2-20230306
Date Collected: 03/06/23 10:13
Date Received: 03/06/23 16:23

Lab Sample ID: 580-124308-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		50	420030	JBT	EET SEA	03/10/23 08:01
Total/NA	Analysis	RSK-175		1	604666	JPH	EET DEN	03/10/23 11:43
Total/NA	Analysis	300.0		1	419958	CA	EET SEA	03/07/23 12:21
Total/NA	Analysis	300.0		1	419960	CA	EET SEA	03/07/23 12:21
Total/NA	Analysis	SM 4500 S2 D		1	604787	SJD	EET DEN	03/10/23 15:29
Total/NA	Analysis	SM 5310B		1	604917	ABW	EET DEN	03/11/23 05:09

Client Sample ID: LAI-MW1-20230306
Date Collected: 03/06/23 11:38
Date Received: 03/06/23 16:23

Lab Sample ID: 580-124308-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	420030	JBT	EET SEA	03/10/23 06:50
Total/NA	Analysis	RSK-175		1	604666	JPH	EET DEN	03/10/23 11:57
Total/NA	Analysis	300.0		1	419958	CA	EET SEA	03/07/23 12:33
Total/NA	Analysis	300.0		1	419960	CA	EET SEA	03/07/23 12:33
Total/NA	Analysis	SM 4500 S2 D		1	604787	SJD	EET DEN	03/10/23 15:30
Total/NA	Analysis	SM 5310B		1	604917	ABW	EET DEN	03/11/23 05:26

Client Sample ID: LAI-MW3-20230306
Date Collected: 03/06/23 12:40
Date Received: 03/06/23 16:23

Lab Sample ID: 580-124308-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		10	420030	JBT	EET SEA	03/10/23 07:14

Lab Chronicle

Client: Landau & Associates, Inc.
Project/Site: Sauro's Cleanorama 0094048.100.106

Job ID: 580-124308-1

Client Sample ID: LAI-MW3-20230306
Date Collected: 03/06/23 12:40
Date Received: 03/06/23 16:23

Lab Sample ID: 580-124308-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	RSK-175		1	604666	JPH	EET DEN	03/10/23 12:10
Total/NA	Analysis	300.0		1	419958	CA	EET SEA	03/07/23 12:56
Total/NA	Analysis	300.0		1	419960	CA	EET SEA	03/07/23 12:56
Total/NA	Analysis	SM 4500 S2 D		1	604787	SJD	EET DEN	03/10/23 15:30
Total/NA	Analysis	SM 5310B		1	604917	ABW	EET DEN	03/11/23 07:55

Client Sample ID: DUP1-20230306
Date Collected: 03/06/23 12:41
Date Received: 03/06/23 16:23

Lab Sample ID: 580-124308-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		10	420030	JBT	EET SEA	03/10/23 07:38
Total/NA	Analysis	RSK-175		1	604666	JPH	EET DEN	03/10/23 12:24
Total/NA	Analysis	300.0		1	419958	CA	EET SEA	03/07/23 13:08
Total/NA	Analysis	300.0		1	419960	CA	EET SEA	03/07/23 13:08
Total/NA	Analysis	SM 4500 S2 D		1	604787	SJD	EET DEN	03/10/23 15:30
Total/NA	Analysis	SM 5310B		1	604917	ABW	EET DEN	03/11/23 08:11

Client Sample ID: RNS-MW6-42.5-20230306
Date Collected: 03/06/23 14:30
Date Received: 03/06/23 16:23

Lab Sample ID: 580-124308-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		20	420104	ITR	EET SEA	03/10/23 20:25

Client Sample ID: RNS-MW6-52.5-20230306
Date Collected: 03/06/23 15:10
Date Received: 03/06/23 16:23

Lab Sample ID: 580-124308-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		20	420104	ITR	EET SEA	03/10/23 20:03
Total/NA	Analysis	RSK-175		1	604666	JPH	EET DEN	03/10/23 12:37
Total/NA	Analysis	300.0		1	419958	CA	EET SEA	03/07/23 14:07
Total/NA	Analysis	300.0		1	419960	CA	EET SEA	03/07/23 14:07
Total/NA	Analysis	SM 4500 S2 D		1	604787	SJD	EET DEN	03/10/23 15:31
Total/NA	Analysis	SM 5310B		1	604917	ABW	EET DEN	03/11/23 08:27

Client Sample ID: RNS-MW2-20230306
Date Collected: 03/06/23 14:01
Date Received: 03/06/23 16:23

Lab Sample ID: 580-124308-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	420104	ITR	EET SEA	03/10/23 15:43
Total/NA	Analysis	RSK-175		1	604666	JPH	EET DEN	03/10/23 12:51

Lab Chronicle

Client: Landau & Associates, Inc.
Job ID: 580-124308-1
Project/Site: Sauro's Cleanorama 0094048.100.106

Client Sample ID: RNS-MW2-20230306
Lab Sample ID: 580-124308-9
Date Collected: 03/06/23 14:01
Matrix: Water
Date Received: 03/06/23 16:23

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	300.0		1	419958	CA	EET SEA	03/07/23 14:19
Total/NA	Analysis	300.0		1	419960	CA	EET SEA	03/07/23 14:19
Total/NA	Analysis	SM 4500 S2 D		1	604787	SJD	EET DEN	03/10/23 15:32
Total/NA	Analysis	SM 5310B		1	604917	ABW	EET DEN	03/11/23 08:43

Client Sample ID: MW13-20230306
Lab Sample ID: 580-124308-10
Date Collected: 03/06/23 16:20
Matrix: Water
Date Received: 03/06/23 16:23

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		20	420104	ITR	EET SEA	03/10/23 20:46
Total/NA	Analysis	RSK-175		1	604666	JPH	EET DEN	03/10/23 13:05
Total/NA	Analysis	300.0		1	419958	CA	EET SEA	03/07/23 14:30
Total/NA	Analysis	300.0		1	419960	CA	EET SEA	03/07/23 14:30
Total/NA	Analysis	SM 4500 S2 D		1	604787	SJD	EET DEN	03/10/23 16:07
Total/NA	Analysis	SM 5310B		1	604917	ABW	EET DEN	03/11/23 08:59

Laboratory References:

EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Landau & Associates, Inc. Job ID: 580-124308-1
Project/Site: Sauro's Cleanorama 0094048.100.106

Laboratory: Eurofins Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0		Water	Chloride
300.0		Water	Nitrate as N
300.0		Water	Nitrite as N
300.0		Water	Sulfate

Laboratory: Eurofins Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23
A2LA	ISO/IEC 17025	2907.01	10-31-23
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	02-08-24
Arizona	State	AZ0713	12-20-23
Arkansas DEQ	State	19-047-0	05-31-23
California	State	2513	01-08-24
Connecticut	State	PH-0686	09-30-22 *
Florida	NELAP	E87667-57	06-30-23
Georgia	State	4025-011	01-08-24
Illinois	NELAP	2000172019-1	04-30-23
Iowa	State	IA#370	12-01-24
Kansas	NELAP	E-10166	04-30-23
Kentucky (WW)	State	KY98047	12-31-23
Louisiana	NELAP	30785	06-30-14 *
Louisiana	NELAP	30785	06-30-23
Louisiana (All)	NELAP	30785	06-30-23
Minnesota	NELAP	1788752	12-31-23
New Hampshire	NELAP	205319	04-28-23
New Jersey	NELAP	190002	06-30-23
New York	NELAP	59923	04-01-23
North Carolina (WW/SW)	State	358	12-31-22 *
North Dakota	State	R-034	01-08-23 *
Oklahoma	NELAP	8614	08-31-23
Oklahoma	State	2018-006	08-31-23
Oregon	NELAP	4025-011	01-10-24
Pennsylvania	NELAP	013	07-31-23
South Carolina	State	72002001	01-08-23 *
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183-21-19	09-30-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-20-00065	12-19-25
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO000262019-11	07-31-23
Virginia	NELAP	12037	06-14-23
Washington	State	C583-19	08-03-23
West Virginia DEP	State	354	11-30-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Landau & Associates, Inc. Job ID: 580-124308-1
Project/Site: Sauro's Cleanorama 0094048.100.106

Laboratory: Eurofins Denver (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999615430	08-31-23
Wyoming (UST)	A2LA	2907.01	10-31-22 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Katie Gauglitz
Landau & Associates, Inc.
2107 South C Street
Tacoma, Washington 98402

Generated 3/20/2023 12:32:06 PM

JOB DESCRIPTION

Sauro's Cleanorama 0094048.100.106

JOB NUMBER

580-124315-1

Eurofins Seattle
5755 8th Street East
Tacoma WA 98424

See page two for job notes and contact information.

Job Notes

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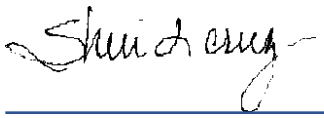
The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

Authorization



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Authorized for release by
Sheri Cruz, Project Manager I
Sheri.Cruz@et.eurofinsus.com
(253)922-2310

Table of Contents

Case Narrative

Client: Landau & Associates, Inc.
Project/Site: Sauro's Cleanorama 0094048.100.106

Job ID: 580-124315-1

Job ID: 580-124315-1

Laboratory: Eurofins Seattle

Narrative

Job Narrative
580-124315-1

Comments
No additional comments.

Receipt
The samples were received on 3/7/2023 10:15 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.5º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Sample Summary

Client: Landau & Associates, Inc.
Project/Site: Sauro's Cleanorama 0094048.100.106

Job ID: 580-124315-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-124315-1	LAI-MW5-20230307	Water	03/07/23 08:35	03/07/23 10:15
580-124315-2	MW2-20230307	Water	03/07/23 09:35	03/07/23 10:15
580-124315-3	Tripblank - 20230307	Water	03/07/23 00:01	03/07/23 10:15

Chain-of-Custody Record

LANDAU ASSOCIATES

☐ North Seattle (206) 631-8660 ☐ Spokane (509) 327-9737
☒ Tacoma (253) 926-2493 ☐ Portland (503) 542-1080
☐ Olympia (360) 791-3178 ☐

Date 3/7/23
Page 1 of 1

Turnaround Time: (Standard) / Accelerated

Project Name Savio's Cleanerama Project No. 009404B.100, 106
Project Location/Event Tacoma, WA / March 2023
Sampler's Name SMR
Project Contact Katie Gauglitz
Send Results To K. Gauglitz, data @ landauinc.com

Special Handling Requirements:
Shipment Method:
Stored on ice: (Yes) / No

Sample I.D.	Date	Time	Matrix	No. of Containers	VOCs (8260D)	MEE (RSK-175)	TOC (SM 5310C)	Sulfate (300.0)	Sulfide (376.2)	Observations/Comments
LAI-MW5-20230307	3/7/23	8:35	AQ	9	X	X	X	X	X	
MW2-20230307	3/7/23	9:35	AQ	4	X	X	X	X	X	
Tripblank-20230307	—	—	AQ	2	X					

Testing Parameters

Allow water samples to settle, collect aliquot from clear portion ☐
NWTPH-Dx - Acid wash cleanup ☐
- Silica gel cleanup ☐
Dissolved metal samples were field filtered

Other ☆ Short hold

Therm. ID: IR10 Cor: 3.5 ° Unc: 5.8 °
Cooler Dsc: GB
Packing: Bub
Cust. Seal: Yes ___ No ✓
Blue Ice, Wet, Dry, None
FedEx: ___
UPS: ___
Lab Cour: ___
Other: Client Shuttle

580-124315 Chain of Custody

Relinquished by	Received by	Relinquished by	Received by
Signature SMR	Signature	Signature	Signature
Printed Name Simone Rodriguez	Printed Name Sydney Caldwell	Printed Name	Printed Name
Company LAI	Company GT	Company	Company
Date 3/7/23 Time 1015	Date 3/7/23 Time 1015	Date Time	Date Time

WHITE COPY - Laboratory YELLOW COPY - Project File PINK COPY - Client Representative 10/2018

Login Sample Receipt Checklist

Client: Landau & Associates, Inc.

Job Number: 580-124315-1

Login Number: 124315
List Number: 1
Creator: Groves, Elizabeth

List Source: Eurofins Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Landau & Associates, Inc.

Job Number: 580-124315-1

Login Number: 124315
List Number: 2
Creator: Held, Wesley

List Source: Eurofins Denver
List Creation: 03/09/23 06:24 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Client Sample ID: LAI-MW5-20230307 **Lab Sample ID: 580-124315-1**
Date Collected: 03/07/23 08:35 **Matrix: Water**
Date Received: 03/07/23 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.20	0.040	ug/L			03/10/23 16:05	1
cis-1,2-Dichloroethene	ND		0.20	0.055	ug/L			03/10/23 16:05	1
Trichloroethene	ND		0.20	0.066	ug/L			03/10/23 16:05	1
Tetrachloroethene	ND		0.20	0.084	ug/L			03/10/23 16:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*80 - 120*		*03/10/23 16:05*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*03/10/23 16:05*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*03/10/23 16:05*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*		*03/10/23 16:05*	*1*

Client Sample ID: MW2-20230307 **Lab Sample ID: 580-124315-2**
Date Collected: 03/07/23 09:35 **Matrix: Water**
Date Received: 03/07/23 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	**0.28**		0.20	0.040	ug/L			03/10/23 16:26	1
cis-1,2-Dichloroethene	**2.0**		0.20	0.055	ug/L			03/10/23 16:26	1
Trichloroethene	**0.48**		0.20	0.066	ug/L			03/10/23 16:26	1
Tetrachloroethene	**0.64**		0.20	0.084	ug/L			03/10/23 16:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*80 - 120*		*03/10/23 16:26*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*03/10/23 16:26*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*03/10/23 16:26*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*		*03/10/23 16:26*	*1*

Client Sample ID: Tripblank - 20230307 **Lab Sample ID: 580-124315-3**
Date Collected: 03/07/23 00:01 **Matrix: Water**
Date Received: 03/07/23 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.20	0.040	ug/L			03/10/23 03:17	1
cis-1,2-Dichloroethene	ND		0.20	0.055	ug/L			03/10/23 03:17	1
Trichloroethene	ND		0.20	0.066	ug/L			03/10/23 03:17	1
Tetrachloroethene	ND		0.20	0.084	ug/L			03/10/23 03:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*80 - 120*		*03/10/23 03:17*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*03/10/23 03:17*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*03/10/23 03:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*109*		*80 - 120*		*03/10/23 03:17*	*1*

Client: Landau & Associates, Inc.
Project/Site: Sauro's Cleanorama 0094048.100.106

Job ID: 580-124315-1

Method: RSK-175 - Dissolved Gases (GC)

Client Sample ID: LAI-MW5-20230307
Date Collected: 03/07/23 08:35
Date Received: 03/07/23 10:15

Lab Sample ID: 580-124315-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**6.4**		0.00063	0.00063	mg/L			03/14/23 02:53	1
Ethylene	ND		0.00040	0.00040	mg/L			03/14/23 02:53	1
Ethane	ND		0.00057	0.00057	mg/L			03/14/23 02:53	1
Acetylene	ND		0.00073	0.00073	mg/L			03/14/23 02:53	1

Client Sample ID: MW2-20230307
Date Collected: 03/07/23 09:35
Date Received: 03/07/23 10:15

Lab Sample ID: 580-124315-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**0.32**		0.00063	0.00063	mg/L			03/14/23 03:07	1
Ethylene	ND		0.00040	0.00040	mg/L			03/14/23 03:07	1
Ethane	ND		0.00057	0.00057	mg/L			03/14/23 03:07	1
Acetylene	ND		0.00073	0.00073	mg/L			03/14/23 03:07	1

General Chemistry

Client Sample ID: LAI-MW5-20230307 **Lab Sample ID: 580-124315-1**
Date Collected: 03/07/23 08:35 **Matrix: Water**
Date Received: 03/07/23 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	**100**		15	4.3	mg/L			03/07/23 14:54	10
Nitrite as N (EPA 300.0)	ND		0.40	0.070	mg/L			03/07/23 14:42	1
Nitrate as N (EPA 300.0)	ND		0.20	0.030	mg/L			03/07/23 14:42	1
Sulfate (EPA 300.0)	**12**		1.5	0.80	mg/L			03/07/23 14:42	1
Sulfide (SM 4500 S2 D)	ND		0.050	0.022	mg/L			03/10/23 15:28	1
TOC Result 1 (SM 5310B)	**6.0**		1.0	0.35	mg/L			03/11/23 09:15	1
TOC Result 2 (SM 5310B)	**6.1**		1.0	0.35	mg/L			03/11/23 09:15	1
TOC Result 3 (SM 5310B)	**6.1**		1.0	0.35	mg/L			03/11/23 09:15	1
TOC Result 4 (SM 5310B)	**6.2**		1.0	0.35	mg/L			03/11/23 09:15	1
Total Organic Carbon - Quad (SM 5310B)	**6.1**		1.0	0.35	mg/L			03/11/23 09:15	1

Client Sample ID: MW2-20230307 **Lab Sample ID: 580-124315-2**
Date Collected: 03/07/23 09:35 **Matrix: Water**
Date Received: 03/07/23 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	**47**		1.5	0.43	mg/L			03/07/23 15:05	1
Nitrite as N (EPA 300.0)	ND		0.40	0.070	mg/L			03/07/23 15:05	1
Nitrate as N (EPA 300.0)	**0.45**		0.20	0.030	mg/L			03/07/23 15:05	1
Sulfate (EPA 300.0)	**23**		1.5	0.80	mg/L			03/07/23 15:05	1
Sulfide (SM 4500 S2 D)	ND		0.050	0.022	mg/L			03/10/23 15:29	1
TOC Result 1 (SM 5310B)	**3.5**		1.0	0.35	mg/L			03/11/23 10:04	1
TOC Result 2 (SM 5310B)	**3.6**		1.0	0.35	mg/L			03/11/23 10:04	1
TOC Result 3 (SM 5310B)	**3.7**		1.0	0.35	mg/L			03/11/23 10:04	1
TOC Result 4 (SM 5310B)	**3.7**		1.0	0.35	mg/L			03/11/23 10:04	1
Total Organic Carbon - Quad (SM 5310B)	**3.6**		1.0	0.35	mg/L			03/11/23 10:04	1

Client: Landau & Associates, Inc.
Project/Site: Sauro's Cleanorama 0094048.100.106

Job ID: 580-124315-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-420030/7
Matrix: Water
Analysis Batch: 420030

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.20	0.040	ug/L			03/10/23 02:30	1
cis-1,2-Dichloroethene	ND		0.20	0.055	ug/L			03/10/23 02:30	1
Trichloroethene	ND		0.20	0.066	ug/L			03/10/23 02:30	1
Tetrachloroethene	ND		0.20	0.084	ug/L			03/10/23 02:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*80 - 120*		*03/10/23 02:30*	*1*
Dibromofluoromethane (Surr)	*104*		*80 - 120*		*03/10/23 02:30*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*03/10/23 02:30*	*1*
1,2-Dichloroethane-d4 (Surr)	*108*		*80 - 120*		*03/10/23 02:30*	*1*

Lab Sample ID: LCS 580-420030/4
Matrix: Water
Analysis Batch: 420030

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Vinyl chloride			5.00	5.00		ug/L		100	41 - 150		
cis-1,2-Dichloroethene			5.00	4.96		ug/L		99	72 - 120		
Trichloroethene			5.00	4.33		ug/L		87	72 - 120		
Tetrachloroethene			5.00	5.16		ug/L		103	75 - 124		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*80 - 120*
Dibromofluoromethane (Surr)	*103*		*80 - 120*
4-Bromofluorobenzene (Surr)	*108*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*

Lab Sample ID: LCSD 580-420030/5
Matrix: Water
Analysis Batch: 420030

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Vinyl chloride			5.00	4.59		ug/L		92	41 - 150	9	32
cis-1,2-Dichloroethene			5.00	4.65		ug/L		93	72 - 120	6	22
Trichloroethene			5.00	4.33		ug/L		87	72 - 120	0	22
Tetrachloroethene			5.00	5.17		ug/L		103	75 - 124	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*105*		*80 - 120*
Dibromofluoromethane (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 120*

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-420104/7
Matrix: Water
Analysis Batch: 420104

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.20	0.040	ug/L			03/10/23 13:54	1
cis-1,2-Dichloroethene	ND		0.20	0.055	ug/L			03/10/23 13:54	1
Trichloroethene	ND		0.20	0.066	ug/L			03/10/23 13:54	1
Tetrachloroethene	ND		0.20	0.084	ug/L			03/10/23 13:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*80 - 120*		*03/10/23 13:54*	*1*
Dibromofluoromethane (Surr)	*102*		*80 - 120*		*03/10/23 13:54*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*03/10/23 13:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 120*		*03/10/23 13:54*	*1*

Lab Sample ID: LCS 580-420104/4
Matrix: Water
Analysis Batch: 420104

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Vinyl chloride			5.00	4.81		ug/L		96	41 - 150		
cis-1,2-Dichloroethene			5.00	5.11		ug/L		102	72 - 120		
Trichloroethene			5.00	4.97		ug/L		99	72 - 120		
Tetrachloroethene			5.00	4.86		ug/L		97	75 - 124		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*102*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 120*

Lab Sample ID: LCSD 580-420104/5
Matrix: Water
Analysis Batch: 420104

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Vinyl chloride			5.00	4.88		ug/L		98	41 - 150	1	32
cis-1,2-Dichloroethene			5.00	5.07		ug/L		101	72 - 120	1	22
Trichloroethene			5.00	4.92		ug/L		98	72 - 120	1	22
Tetrachloroethene			5.00	4.70		ug/L		94	75 - 124	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 280-604986/35
Matrix: Water
Analysis Batch: 604986

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.00063	0.00063	mg/L			03/14/23 00:37	1
Ethylene	ND		0.00040	0.00040	mg/L			03/14/23 00:37	1
Ethane	ND		0.00057	0.00057	mg/L			03/14/23 00:37	1
Acetylene	ND		0.00073	0.00073	mg/L			03/14/23 00:37	1

Lab Sample ID: LCS 280-604986/33
Matrix: Water
Analysis Batch: 604986

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane	0.0657	0.0620		mg/L		94	75 - 125
Ethylene	0.115	0.111		mg/L		97	75 - 125
Ethane	0.123	0.118		mg/L		96	75 - 125
Acetylene	0.107	0.100		mg/L		94	75 - 125

Lab Sample ID: LCSD 280-604986/34
Matrix: Water
Analysis Batch: 604986

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methane	0.0657	0.0627		mg/L		95	75 - 125	1	20
Ethylene	0.115	0.112		mg/L		98	75 - 125	1	20
Ethane	0.123	0.120		mg/L		97	75 - 125	1	20
Acetylene	0.107	0.101		mg/L		94	75 - 125	0	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-419958/3
Matrix: Water
Analysis Batch: 419958

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.5	0.43	mg/L			03/07/23 11:23	1
Sulfate	ND		1.5	0.80	mg/L			03/07/23 11:23	1

Lab Sample ID: LCS 580-419958/4
Matrix: Water
Analysis Batch: 419958

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	53.4		mg/L		107	90 - 110
Sulfate	50.0	51.9		mg/L		104	90 - 110

Lab Sample ID: LCSD 580-419958/5
Matrix: Water
Analysis Batch: 419958

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	53.3		mg/L		107	90 - 110	0	15
Sulfate	50.0	51.9		mg/L		104	90 - 110	0	15

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-419960/3
Matrix: Water
Analysis Batch: 419960

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.40	0.070	mg/L			03/07/23 11:23	1
Nitrate as N	ND		0.20	0.030	mg/L			03/07/23 11:23	1

Lab Sample ID: LCS 580-419960/4
Matrix: Water
Analysis Batch: 419960

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	5.00	5.25		mg/L		105	90 - 110
Nitrate as N	5.00	5.10		mg/L		102	90 - 110

Lab Sample ID: LCSD 580-419960/5
Matrix: Water
Analysis Batch: 419960

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	5.00	5.26		mg/L		105	90 - 110	0	15
Nitrate as N	5.00	5.10		mg/L		102	90 - 110	0	15

Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 280-604787/11
Matrix: Water
Analysis Batch: 604787

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.022	mg/L			03/10/23 14:01	1

Lab Sample ID: LCS 280-604787/9
Matrix: Water
Analysis Batch: 604787

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	0.500	0.510		mg/L		102	81 - 122

Lab Sample ID: LCSD 280-604787/10
Matrix: Water
Analysis Batch: 604787

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfide	0.500	0.514		mg/L		103	81 - 122	1	10

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-604917/62
Matrix: Water
Analysis Batch: 604917

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	ND		1.0	0.35	mg/L			03/11/23 05:59	1

Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: MB 280-604917/62
Matrix: Water
Analysis Batch: 604917

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 2	ND		1.0	0.35	mg/L			03/11/23 05:59	1
TOC Result 3	ND		1.0	0.35	mg/L			03/11/23 05:59	1
TOC Result 4	ND		1.0	0.35	mg/L			03/11/23 05:59	1
Total Organic Carbon - Quad	ND		1.0	0.35	mg/L			03/11/23 05:59	1

Lab Sample ID: LCS 280-604917/61
Matrix: Water
Analysis Batch: 604917

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
TOC Result 1	25.0	25.4		mg/L		102	88 - 112
TOC Result 2	25.0	25.5		mg/L		102	88 - 112
TOC Result 3	25.0	25.9		mg/L		103	88 - 112
TOC Result 4	25.0	25.4		mg/L		102	88 - 112
Total Organic Carbon - Quad	25.0	25.6		mg/L		102	88 - 112

Lab Chronicle

Client: Landau & Associates, Inc.
Project/Site: Sauro's Cleanorama 0094048.100.106

Job ID: 580-124315-1

Client Sample ID: LAI-MW5-20230307

Lab Sample ID: 580-124315-1

Date Collected: 03/07/23 08:35
Matrix: Water
Date Received: 03/07/23 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	420104	ITR	EET SEA	03/10/23 16:05
Total/NA	Analysis	RSK-175		1	604986	JPH	EET DEN	03/14/23 02:53
Total/NA	Analysis	300.0		1	419958	CA	EET SEA	03/07/23 14:42
Total/NA	Analysis	300.0		1	419960	CA	EET SEA	03/07/23 14:42
Total/NA	Analysis	300.0		10	419958	CA	EET SEA	03/07/23 14:54
Total/NA	Analysis	SM 4500 S2 D		1	604787	SJD	EET DEN	03/10/23 15:28
Total/NA	Analysis	SM 5310B		1	604917	ABW	EET DEN	03/11/23 09:15

Client Sample ID: MW2-20230307

Lab Sample ID: 580-124315-2

Date Collected: 03/07/23 09:35
Matrix: Water
Date Received: 03/07/23 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	420104	ITR	EET SEA	03/10/23 16:26
Total/NA	Analysis	RSK-175		1	604986	JPH	EET DEN	03/14/23 03:07
Total/NA	Analysis	300.0		1	419958	CA	EET SEA	03/07/23 15:05
Total/NA	Analysis	300.0		1	419960	CA	EET SEA	03/07/23 15:05
Total/NA	Analysis	SM 4500 S2 D		1	604787	SJD	EET DEN	03/10/23 15:29
Total/NA	Analysis	SM 5310B		1	604917	ABW	EET DEN	03/11/23 10:04

Client Sample ID: Tripblank - 20230307

Lab Sample ID: 580-124315-3

Date Collected: 03/07/23 00:01
Matrix: Water
Date Received: 03/07/23 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	420030	JBT	EET SEA	03/10/23 03:17

Laboratory References:

EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Landau & Associates, Inc. Job ID: 580-124315-1
Project/Site: Sauro's Cleanorama 0094048.100.106

Laboratory: Eurofins Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0		Water	Chloride
300.0		Water	Nitrate as N
300.0		Water	Nitrite as N
300.0		Water	Sulfate

Laboratory: Eurofins Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23
A2LA	ISO/IEC 17025	2907.01	10-31-23
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	02-08-24
Arizona	State	AZ0713	12-20-23
Arkansas DEQ	State	19-047-0	05-31-23
California	State	2513	01-08-24
Connecticut	State	PH-0686	09-30-22 *
Florida	NELAP	E87667-57	06-30-23
Georgia	State	4025-011	01-08-24
Illinois	NELAP	2000172019-1	04-30-23
Iowa	State	IA#370	12-01-24
Kansas	NELAP	E-10166	04-30-23
Kentucky (WW)	State	KY98047	12-31-23
Louisiana	NELAP	30785	06-30-14 *
Louisiana	NELAP	30785	06-30-23
Louisiana (All)	NELAP	30785	06-30-23
Minnesota	NELAP	1788752	12-31-23
Nevada	State	CO000262020-1	07-31-23
New Hampshire	NELAP	205319	04-28-23
New Jersey	NELAP	190002	06-30-23
New York	NELAP	59923	04-01-23
North Carolina (WW/SW)	State	358	12-31-22 *
North Dakota	State	R-034	01-08-23 *
Oklahoma	NELAP	8614	08-31-23
Oklahoma	State	2018-006	08-31-23
Oregon	NELAP	4025-011	01-10-24
Pennsylvania	NELAP	013	07-31-23
South Carolina	State	72002001	01-08-23 *
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183-21-19	09-30-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-20-00065	12-19-25
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO000262019-11	07-31-23
Virginia	NELAP	12037	06-14-23
Washington	State	C583-19	08-03-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Landau & Associates, Inc. Job ID: 580-124315-1
Project/Site: Sauro's Cleanorama 0094048.100.106

Laboratory: Eurofins Denver (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
West Virginia DEP	State	354	11-30-23
Wisconsin	State	999615430	08-31-23
Wyoming (UST)	A2LA	2907.01	10-31-22 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

ATTACHMENT 3

Cumulative Results Table

Table 3-1
Bioremediation Data Summary
Sauro's Cleanerama

Well	Date	Sample Type	Volatile Organic Compounds							Aquifer Redox Conditions										Donor Indicators
			PCE (µg/L)	TCE (µg/L)	cDCE (µg/L)	VC (µg/L)	Ethene (µg/L)	Ethane (µg/L)	Acetylene (µg/L)	Chloride (mg/L)	DO (a) (mg/L)	ORP (a) (mV)	Nitrate (mg/L)	Nitrite (mg/L)	Iron II (a) (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)
Cleanup Level:			5	5	70	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LAI-MW1	1/15/2013	N	0.5 U	0.2 U	0.5 U	0.2 U	5.0 U	5.0 U	5.0 U	**44.1**	**1.90**	**-14.1**	**1.15**	**0.0229**	**0.040**	**17.7**	0.15 U	5.0 U	--	**3.97**
LAI-MW1	4/2/2013	N	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	5.0 U	5.0 U	**44.3**	**2.20**	**1.40**	**1.03 J**	**0.0109 J**	**0.030**	**22.4**	0.150 U	5.0 U	--	**3.40**
LAI-MW1	6/18/2013	N	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	5.0 U	5.0 U	**43.1**	**0.800 J**	**-26.8 J**	**1.39**	**0.0139**	**0.090 J**	**24.9**	0.150 U	5.0 U	--	**9.26**
LAI-MW1	9/9/2013	N	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	5.0 U	5.0 U	**47.8**	**1.20**	**-31.8**	**1.40**	**0.025**	0.03 U	**25.8**	0.150 U	5.0 U	--	**11.2**
LAI-MW1	1/5/2016	N	0.20 U	0.20 U	0.20 U	0.20 U	5.0 U	5.0 U	5.0 U	**48**	**5.96**	**115.00**	**0.84 J**	0.020 UJ	0.0	**19**	0.050 U	**16**	--	**0.27 J**
LAI-MW1	7/7/2016	N	**0.12 J**	0.20 U	0.20 U	0.20 U	5.0 U	5.0 U	5.0 U	**64**	**2.37**	**-16.4**	**1.1**	0.40 U	0.0	**21**	0.050 U	**0.55 J**	--	**1.4 J**
LAI-MW1	1/18/2017	N	0.20 U	0.20 U	0.20 U	0.20 U	5.0 U	5.0 U	5.0 U	**72**	**2.17**	**31.2**	**1.3**	0.40 U	0.0	**19**	0.050 U	5.0 U	--	**2.6**
LAI-MW1	7/11/2017	N	**0.30**	0.90 U	0.20 U	0.20 U	5.0 U	5.0 U	5.0 U	**53**	**2.39**	**59.8**	**1.2**	0.40 U	0.0	**20**	0.050 U	5.0 U	--	**1.8**
LAI-MW1	2/8/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	5.0 U	5.0 U	5.0 U	**47**	**3.13**	**-68.7**	**1.5**	0.40 U	**1.0**	**20**	0.050 U	5.0 U	Fe	**1.9**
LAI-MW1	1/9/2019	N	0.20 U	0.20 U	0.20 U	0.20 U	5.0 U	5.0 U	5.0 U	**52**	**1.65**	**165**	**1.8**	0.40 U	**0.5**	**22**	0.050 U	5.0 U	Fe	**1.3**
LAI-MW1	1/20/2020	N	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	5.0 UJ	5.0 UJ	5.0 UJ	**45 J**	**1.06**	**87.6**	**1.2 J**	0.40 UJ	**0.4**	**20 J**	0.050 UJ	**19 J**	Fe	**1.7 J**
LAI-MW1	1/27/2021	N	0.20 U	0.20 U	0.20 U	0.20 U	5.0 U	5.0 U	5.0 U	**65**	**1.82**	**-280.8**	**2.0**	0.40 U	**1.5**	**23**	0.050 U	5.0 U	Fe	1.5 U
LAI-MW1	1/11/2022	N	0.20 U	0.20 U	0.20 U	0.20 U	--	--	--	**89**	**0.293**	**1.98**	**1.5**	0.40 U	**1.4**	**19**	0.050 U	**8.0 J**	Fe	**1.3**
LAI-MW1	3/6/2023	N	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.57 U	0.73 U	**67**	**2.16**	**50.30**	**1.8**	0.40 U	**0.5**	**20**	0.050 U	0.63 U		**1.4**
LAI-MW2	1/15/2013	N	**390**	**130**	**140**	**0.8**	5.0 U	5.0 U	5.0 U	**8.99**	**3.06**	**-19.2**	0.01 U	**0.0161**	**0.050**	**11.3**	**0.285**	**37**	--	**2.38**
LAI-MW2	4/2/2013	N	**380**	**110**	**100**	**0.7**	5.0 U	5.0 U	5.0 U	**10.0**	**2.80**	**-28.9**	0.01 UJ	**0.0575 J**	**0.280**	**17.5**	**17.5**	**43**	--	**4.11**
LAI-MW2	6/18/2013	N	**280 J**	**87 J**	**120 J**	**0.8**	5.0 U	5.0 U	5.0 U	**10.8**	**1.50 J**	**32.7 J**	**0.018**	0.0100 U	0.030 UJ	**17.2**	**17.2**	**43**	--	**10.3**
LAI-MW2	9/9/2013	N	**360 J**	**120 J**	**160 J**	**0.8**	5.0 U	5.0 U	5.0 U	**13.0**	**2.90**	**-44.8**	0.01 U	**0.015**	0.03 U	**18.9**	**18.9**	**26**	--	**12.3**
LAI-MW2	1/5/2016	N	**440**	**150**	**130**	**0.89**	5.0 U	**3.8 J**	5.0 U	**15**	**6.89**	**81.60**	**0.024 J**	0.020 UJ	**0.5**	**22**	**22**	**17**	--	**2.9**
LAI-MW2	7/7/2016	N	**350**	**140**	**120**	**0.61**	**0.65 J**	**3.7 J**	5.0 U	**15**	**3.34**	**-28.5**	0.20 U	0.40 U	**0.4**	**20**	**20**	**27**	--	**1.3**
LAI-MW2	1/18/2017	N	**390**	**120**	**120**	**0.80 J**	5.0 U	5.0 U	5.0 U	**12**	**6.97**	**15.5**	0.20 U	0.40 U	**1.5**	**19**	**19**	**24**	--	**5.6**
LAI-MW2	7/11/2017	N	**270**	**95**	**94**	**0.54**	5.0 U	5.0 U	5.0 U	**13**	**2.24**	**57.1**	0.20 U	0.40 U	**0.4**	**19**	**19**	**12**	--	**1.8**
LAI-MW2	2/8/2018	N	**310**	**110**	**90**	**0.63**	5.0 U	5.0 U	5.0 U	**12**	**7.28**	**-60.3**	0.20 U	0.40 U	**1.5**	**18**	**18**	**11**	Fe	**1.7**
LAI-MW2	1/9/2019	N	**320**	**95**	**78**	**0.58**	5.0 U	5.0 U	5.0 U	**14 J**	**2.46**	**86.8**	0.20 U	0.40 U	**1.0**	**20 J**	**20 J**	**6.5**	Fe	**1.2**
LAI-MW2	1/20/2020	N	**270 J**	**100 J**	**93 J**	**0.50 J**	5.0 UJ	5.0 UJ	5.0 UJ	**14 J**	**1.47**	**91.4**	0.20 UJ	0.40 UJ	**0.4**	**17 J**	**17 J**	**9.8 J**	Fe	**1.1 J**
LAI-MW2	1/27/2021	N	**230**	**83**	**61**	**0.89**	5.0 U	5.0 U	5.0 U	**25**	**2.99**	**-265**	**0.54**	0.40 U	**0.5**	**24**	**24**	**6.3**	Fe	1.5 U
LAI-MW2	1/11/2022	N	**450**	**170**	**130**	2.0 U	--	--	--	**24**	**5.20**	**18.8**	**0.29**	0.40 U	**2.0**	**24**	**24**	**6.1 J**	Fe	**1.8**
LAI-MW2	3/6/2023	N	**350**	**120**	**96**	10 U	0.40 U	3.8	0.73 U	**26**	**2.35**	**-7.4**	0.20 U	0.40 U	0.0	**23**	0.050 U	**14**		**1.6**
LAI-MW3	1/15/2013	N	**120**	**37**	**48**	**0.1 J**	5.0 U	5.0 U	5.0 U	**5.36**	**5.36**	**-28.1**	**0.165**	**0.0357**	**0.030**	**8.3**	**0.076**	5.0 U	--	**4.36**
LAI-MW3	4/2/2013	N	**97**	**33**	**36**	0.2 U	5.0 U	5.0 U	5.0 U	**13.8**	**3.77**	**-7.10**	**0.416 J**	**0.0184 J**	**0.160**	**24.1**	**0.069 J**	5.0 U	--	**6.35**
LAI-MW3	4/2/2013	FD	**94**	**33**	**38**	0.2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LAI-MW3	6/18/2013	N	**72 J**	**27**	**44**	0.2 U	5.0 U	5.0 U	5.0 U	**17.1**	**1.30 J**	**-34.9 J**	**0.647**	**0.0129**	**0.080 J**	**23.3**	0.150 U	5.0 U	--	**11.8**
LAI-MW3	9/9/2013	N	**78 J**	**34**	**54**	0.2 U	5.0 U	5.0 U	5.0 U	**19.3**	**3.00**	**-29.0**	**0.655**	**0.020**	0.03 U	**21.9**	0.150 U	5.0 U	--	**16.0**
LAI-MW3	1/5/2016	N	**120**	**43**	**47**	**0.16 J**	5.0 U	5.0 U	5.0 U	**18**	**6.42**	**95.1**	**0.51 J**	0.020 UJ	--	**21**	0.050 U	**2.8 J**	--	**2.2**
LAI-MW3	7/7/2016	N	**59**	**38**	**43**	**0.095 J**	5.0 U	5.0 U	5.0 U	**23**	**1.36**	**-36.5**	**0.62**	0.40 U	0.0	**22**	0.050 U	**1.8 J**	--	**1.5**
LAI-MW3	1/18/2017	N	**97**	**32**	**39**	0.20 U	5.0 U	5.0 U	5.0 U	**17**	**1.31**	**31.6**	**0.54**	0.40 U	0.0	**20**	0.050 U	5.0 U	--	**1.8**
LAI-MW3	7/11/2017	N	**73**	**35 J**	**35**	0.20 U	5.0 U	5.0 U	5.0 U	**19**	**2.38**	**55.9**	**0.53**	0.40 U	**1.0**	**20**	0.050 U	5.0 U	--	**2.0**
LAI-MW3	2/8/2018	N	**58**	**26**	**27**	0.20 U	5.0 U	5.0 U	5.0 U	**20**	**2.73**	**-46.1**	**0.65**	0.40 U	**0.5**	**22**	0.050 U	5.0 U	Fe	**2.3**
LAI-MW3	1/9/2019	N	**78**	**33**	**34**	0.20 U	5.0 U	5.0 U	5.0 U	**22**	**3.18**	**130**	**0.70**	0.40 U	**0.5**	**23**	0.050 U	5.0 U	Fe	**1.3**
LAI-MW3	1/20/2020	N	**42 J**	**37 J**	**35 J**	0.20 UJ	5.0 UJ	5.0 UJ	5.0 UJ	**22 J**	**2.29**	**24.6**	**0.64 J**	0.40 UJ	**0.6**	**22 J**	0.050 UJ	5.0 UJ	Fe	**1.5 J**
LAI-MW3	1/27/2021	N	**83**	**36**	**34**	0.20 U	5.0 U	5.0 U	5.0 U	**26**	**4.59**	**-344.2**	**1.3**	0.40 U	**0.5**	**27**	0.050 U	5.0 U	Fe	**1.5**
LAI-MW3	1/11/2022	N	**86**	**44**	**37**	0.20 U	--	--	--	**23**	**3.76**	**38.8**	**0.82**	0.40 U	0.0	**24**	0.050 U	R	N	**1.7**
LAI-MW3	3/6/2023	N	**79**	**33**	**31**	2.0 U	0.40 U	0.57 U	0.73 U	**20**	**3.04**	**61.2**	**0.55**	0.40 U	0.0	**25**	0.050 U	2.3		**1.3**
LAI-MW3	3/6/2023	FD	**77**	**32**	**30**	2.0 U	0.40 U	0.57 U	0.73 U	**20 J**	**2.92**	**62.0**	**0.56 J**	0.40 U	0.0	**24 J**	0.050 U	1.9		**1.2**

Table 3-1
Bioremediation Data Summary
Sauro's Cleanerama

Well	Date	Sample Type	Volatile Organic Compounds							Aquifer Redox Conditions										Donor Indicators
			PCE (µg/L)	TCE (µg/L)	cDCE (µg/L)	VC (µg/L)	Ethene (µg/L)	Ethane (µg/L)	Acetylene (µg/L)	Chloride (mg/L)	DO (a) (mg/L)	ORP (a) (mV)	Nitrate (mg/L)	Nitrite (mg/L)	Iron II (a) (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)
LAI-MW4	1/15/2013	N	0.5 U	0.2 U	**0.3 J**	0.2 U	5.0 U	5.0 U	5.0 U	**33.1**	**2.52**	**-75.0**	0.01 U	**0.0480**	**4.70**	**4.0**	**0.029**	**2800**	--	**10.7**
LAI-MW4	4/2/2013	N	0.2 U	0.2 U	**0.3**	0.2 U	5.0 U	5.0 U	5.0 U	**31.3**	**1.86**	**-87.3**	0.01 UJ	**0.0319 J**	**5.55**	**6.9**	0.150 U	**3700**	--	**6.73**
LAI-MW4	6/18/2013	N	0.2 U	0.2 U	**0.3**	0.2 U	5.0 U	5.0 U	5.0 U	**32.2**	**1.84 J**	**-62.4 J**	**0.019**	**0.0090**	**6.40 J**	**11.3**	0.150 U	**3400**	--	**17.8**
LAI-MW4	9/9/2013	N	0.2 U	0.2 U	**0.6**	0.2 U	5.0 U	5.0 U	5.0 U	**32.6**	**2.60**	**-82.6**	0.010 U	**0.0550 J**	**2.52**	**11.1**	0.150 U	**3000**	--	**19.6**
LAI-MW4	1/5/2016	N	0.20 UJ	0.20 U	**0.093 J**	0.20 U	5.0 U	**0.77 J**	5.0 U	**34**	**3.65**	**-43.9**	**0.016 J**	0.020 UJ	**1.5**	**9.1**	0.050 U	**4200**	--	**4.3**
LAI-MW4	1/5/2016	FD	**0.88**	**0.092 J**	0.20 U	0.20 U	5.0 U	5.0 U	5.0 U	**34**	**3.64**	**-43.5**	**0.017 J**	0.020 UJ	**1.5**	**9.4**	0.050 U	**4500**	--	**4.2**
LAI-MW4	7/7/2016	N	0.20 U	0.20 U	**0.085 J**	**0.030 J**	5.0 U	**0.78 J**	5.0 U	**27**	--	--	0.20 U	0.40 U	**3.0**	**2.0**	0.050 U	**6400**	--	**2.9**
LAI-MW4	7/7/2016	FD	0.20 U	0.20 U	**0.10 J**	**0.030 J**	5.0 U	**0.90 J**	5.0 U	**27**	--	--	0.20 U	0.40 U	**3.0**	**2.0**	0.050 U	**6100**	--	**2.9**
LAI-MW4	1/18/2017	N	0.20 U	0.20 U	0.20 U	0.20 U	5.0 U	5.0 U	5.0 U	**24**	**2.35**	**-18.3**	0.20 U	0.40 U	**4.5**	**2.1**	0.050 U	**3700 J**	--	**3.6**
LAI-MW4	1/18/2017	FD	0.20 U	0.20 U	0.20 U	0.20 U	5.0 U	5.0 U	5.0 U	**24**	**2.13**	**-19.5**	0.20 U	0.40 U	**4.5**	**2.6**	0.050 U	**4600 J**	--	**3.5**
LAI-MW4	7/11/2017	N	0.20 U	0.20 U	**0.25**	0.20 U	5.0 U	5.0 U	5.0 U	**22**	**3.98**	**6.78**	0.20 U	0.40 U	**3.0**	**1.8**	0.050 U	**5200**	--	**3.7**
LAI-MW4	7/11/2017	FD	0.20 U	0.92 U	**0.27**	0.20 U	5.0 U	5.0 U	5.0 U	**22**	**3.81**	**5.85**	0.20 U	0.40 U	**3.0**	**1.7**	0.050 U	**4900**	--	**4.3**
LAI-MW4	2/8/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	5.0 U	5.0 U	5.0 U	**32**	**3.82**	**-36.2**	0.20 U	0.40 U	**1.5**	1.2 U	0.050 U	**4400**	M	**4.6**
LAI-MW4	2/8/2018	FD	0.20 U	0.20 U	0.20 U	0.20 U	5.0 UJ	5.0 UJ	5.0 U	**33**	**3.79**	**-34.9**	0.20 U	0.40 U	**1.5**	1.2 U	0.050 U	**4600 J**	M	**4.3**
LAI-MW4	1/9/2019	N	0.20 U	0.20 U	**0.65**	0.20 U	5.0 U	5.0 U	5.0 U	**40**	**2.95**	**-40.0**	0.20 U	0.40 U	**4.5**	**4.3**	0.050 U	**2100**	M	**2.6**
LAI-MW4	1/9/2019	FD	0.20 U	0.20 U	**0.58**	0.20 U	5.0 U	5.0 U	5.0 U	**40**	**2.88**	**-40.3**	0.20 U	0.40 U	**4.5**	**4.3**	0.050 U	**1900**	M	**2.7**
LAI-MW4	1/20/2020	N	0.20 UJ	**0.24 J**	**0.32 J**	0.20 UJ	5.0 UJ	5.0 UJ	5.0 UJ	**53 J**	**5.70**	**-9.85**	0.20 UJ	0.40 UJ	**4.8**	**2.5 J**	0.050 UJ	**3000 J**	M	**3.4 J**
LAI-MW4	1/20/2020	FD	0.20 UJ	**0.24 J**	**0.33 J**	0.20 UJ	5.0 UJ	5.0 UJ	5.0 UJ	**54 J**	**5.78**	**-7.33**	0.20 UJ	0.40 UJ	**4.8**	**2.4 J**	0.050 UJ	**3200 J**	M	**3.5 J**
LAI-MW4	1/27/2021	N	0.20 U	**0.40**	**2.7**	**1.4**	5.0 U	5.0 U	5.0 U	**40**	**1.51**	**-251.6**	**0.68 J**	0.40 U	**5.0**	**9.8**	0.050 U	**1000**	M	**3.2**
LAI-MW4	1/27/2021	FD	0.20 U	**0.40**	**2.5**	**1.3**	5.0 U	5.0 U	5.0 U	**40**	**1.47**	**-253.1**	**0.61 J**	0.40 UJ	**5.0**	**9.2**	0.050 U	**1000**	M	**3.5**
LAI-MW4	1/11/2022	N	0.20 U	**0.33**	0.20 U	**0.49 J**	--	--	--	**5,200**	**0.46**	**-102.4**	**1.1**	0.40 U	**4.8**	**720**	0.050 U	**160 J**	Fe	**2.5**
LAI-MW4	1/11/2022	FD	0.20 U	**0.29**	**0.25**	0.20 UJ	--	--	--	**5,300**	**0.47**	**-100.5**	**0.96 J**	R	**4.8**	**710**	0.050 U	**190 J**	Fe	**2.5**
LAI-MW4	3/6/2023	N	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.57 U	0.73 U	**3,500**	**2.81**	**-10.2**	20 U	40 U	**2.5**	**530**	**0.061**	**330**		**3.0**
LAI-MW5-42	1/15/2013	N	0.5 U	0.2 U	0.5 U	0.2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LAI-MW5-42	1/15/2013	FD	0.5 U	0.2 U	0.5 U	0.2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LAI-MW5-42	4/2/2013	N	**0.4**	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LAI-MW5-42	6/18/2013	N	0.2 U	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LAI-MW5-42	9/9/2013	N	0.2 U	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LAI-MW5-50	1/15/2013	N	0.5 U	0.2 U	0.5 U	0.2 U	5.0 U	5.0 U	5.0 U	**58.4**	**2.32**	**-12.2**	0.01 U	**0.0490**	**6.32**	**5.4**	0.15 U	**5200**	M	**10.0**
LAI-MW5-50*	4/2/2013	N	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	5.0 U	5.0 U	**57.5**	**2.00**	**-64.9**	0.01 UJ	**0.138 J**	**10.0**	**13.6**	**0.131 J**	**6600**	M	**10.5**
LAI-MW5-50*	6/18/2013	N	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	5.0 U	5.0 U	**59.7**	**1.70 J**	**-28.2 J**	0.010 U	**0.0373**	**7.95 J**	**10.1**	0.150 U	**10000**	M	**17.8**
LAI-MW5-50*	9/9/2013	N	**0.3 J**	0.2 U	0.2 U	0.2 U	5.0 U	5.0 U	5.0 U	**56.3**	**1.00**	**-69.8**	0.010 U	**0.092 J**	**2.52**	**5.3**	0.150 U	**11000**	M	**24.4**
LAI-MW5-50	9/9/2013	FD	**0.6 J**	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LAI-MW5-50	1/5/2016	N	**0.44**	**0.048 J**	**0.094 J**	0.022 U	10.0 U	10.0 U	5.0 U	**20**	**2.88**	**-39.9**	0.020 UJ	0.020 UJ	**3.0**	**2.6**	0.050 U	**18000**	M	**11**
LAI-MW5-50	7/7/2016	N	**0.073 J**	**0.027 J**	**0.081 J**	**0.039 J**	5.0 U	5.0 U	5.0 U	**24**	**1.68**	**-62.1**	**0.11 J**	0.40 U	**3.6**	**4.1**	0.50 U	**9000**	M	**7.5**
LAI-MW5-50	1/18/2017	N	0.20 U	0.20 U	0.20 U	0.20 U	5.0 U	5.0 U	5.0 U	**14**	**1.81**	**-26.0**	0.20 U	0.40 U	**2.0**	1.2 U	0.10 U	**12000**	M	**9.6**
LAI-MW5-50	7/11/2017	N	**0.63**	0.88 U	**0.22**	0.20 U	5.0 U	5.0 U	5.0 U	**25**	**0.94**	**-16.5**	0.20 U	0.40 U	**2.0**	**1.4**	0.050 U	**8300**	M	**9.6**
LAI-MW5-50	2/8/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	5.0 U	5.0 U	5.0 U	**26**	**2.11**	**-148.6**	0.20 U	0.40 U	**2.0**	1.2 U	0.050 U	**9500**	M	**9.3**
LAI-MW5-50	1/9/2019	N	0.20 U	0.20 U	0.20 U	0.20 U	5.0 U	5.0 U	5.0 U	**57**	**2.41**	**-23.1**	0.20 U	0.40 U	**7.0**	**4.3**	0.050 U	**5400**	M	**6.2**
LAI-MW5-50	1/20/2020	N	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	5.0 UJ	5.0 UJ	5.0 UJ	**110 J**	**1.71**	**-69.7**	0.20 UJ	0.40 UJ	**3.6**	**2.0 J**	**0.24 J**	**14000 J**	M	**6.3 J**
LAI-MW5-50	1/27/2021	N	0.20 U	0.20 U	0.20 U	0.20 U	5.0 U	5.0 U	5.0 U	**89**	**2.91**	**-268.6**	**0.60**	0.40 U	**3.5**	**3.3**	0.050 U	**10000**	M	**7.3**
LAI-MW5-50	1/12/2022	N	0.20 U	0.20 U	0.20 U	0.20 U	--	--	--	**85**	**1.19**	**-38.7**	0.20 U	0.40 U	**6.2**	**4.9**	0.050 U	**9300 J**	M	**6.2**
LAI-MW5-50	3/7/2023	N	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	0.57 U	0.73 U	**100**	**5.47**	**-41.1**	0.20 U	0.40 U	**1.5**	**12**	0.050 U	**6400**		**6.1**

Table 3-1
Bioremediation Data Summary
Sauro's Cleanerama

Well	Date	Sample Type	Volatile Organic Compounds							Aquifer Redox Conditions										Donor Indicators
			PCE (µg/L)	TCE (µg/L)	cDCE (µg/L)	VC (µg/L)	Ethene (µg/L)	Ethane (µg/L)	Acetylene (µg/L)	Chloride (mg/L)	DO (a) (mg/L)	ORP (a) (mV)	Nitrate (mg/L)	Nitrite (mg/L)	Iron II (a) (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)
MW13	1/15/2013	N	550	120	110	0.8	5.0 U	5.0 U	5.0 U	8.28	3.20	-1.10	0.306	0.0168	0.280	24.1	0.15 U	6.0	--	4.51
MW13	4/2/2013	N	570	130	98	0.7	5.0 U	5.0 U	5.0 U	8.16	1.48	-0.800	0.869 J	0.0709 J	0.550	33.1	0.150 U	6.5	--	5.78 J
MW13	4/2/2013	FD	--	--	--	--	5.0 U	5.0 U	5.0 U	--	--	--	0.778 J	0.138 J	--	33.6	0.150 U	6.3	--	7.18 J
MW13	6/18/2013	N	400 J	96 J	110 J	0.8	5.0 U	5.0 U	5.0 U	9.91	3.30 J	77.0 J	1.12	0.0136	0.150 UJ	51.3	0.150 U	9.3	--	7.30
MW13	9/9/2013	N	430 J	110 J	120 J	0.8	5.0 U	5.0 U	5.0 U	10.2	1.28	48.5	1.01 J	0.018 J	0.240	34.6	0.150 U	6.6	--	8.79 J
MW13	9/9/2013	FD	--	--	--	--	5.0 U	5.0 U	5.0 U	10.2	--	--	0.989 J	0.011 J	--	32.0	0.150 U	6.4	--	11.8 J
MW13	1/5/2016	N	300	85	66	0.58	5.0 U	2.4 J	5.0 U	13	1.74	119.3	0.79 J	0.020 UJ	0.0	32	0.050 U	14	--	1.7
MW13	7/7/2016	N	340	100	81	0.60	5.0 U	1.2 J	5.0 U	16	6.38	-25.7	0.73	0.40 U	0.0	33	0.50 U	6.3	--	1.5
MW13	1/18/2017	N	430	98	73	0.73 J	5.0 U	5.0 U	5.0 U	14	2.21	37.7	0.65	0.40 U	0.0	30	0.25 U	10	--	1.7
MW13	7/11/2017	N	190	53	47	0.27	5.0 U	5.0 U	5.0 U	13	--	--	0.67	0.40 U	0.0	30	0.050 U	6.1	--	2.0
MW13	2/8/2018	N	200	63	77	0.58	5.0 U	5.0 U	5.0 U	13	2.91	-40.0	0.79	0.40 U	0.5	31	0.050 U	9.5	Fe	2.4
MW13	1/9/2019	N	370	84	59	0.51	5.0 U	5.0 U	5.0 U	16	3.30	168.6	0.76	0.40 U	1.0	31	0.050 U	5.0 U	Fe	1.3
MW13	1/21/2020	N	470	130	95	0.81	5.0 U	5.0 U	5.0 UJ	17	4.92	139.3	0.65	0.40 UJ	1.8	29	0.37	6.2	Fe	1.2
MW13	1/27/2021	N	310	98	68	0.57	5.0 U	5.0 U	5.0 U	24	2.33	-338.1	1.2	0.40 U	2.0	30	0.050 U	5.0 U	Fe	2.0
MW13	1/12/2022	N	350	98	63	2.0 U	--	--	--	27	2.39	107.5	0.63	0.40 U	0.0	23	0.050 U	6.0 J	Fe	1.6
MW13	3/6/2023	N	170	58	45	4.0 U	0.40 U	0.81	0.73 U	38	2.95	74.6	0.70	0.40 U	0.0	24	0.050 U	5.0		1.2
MW2	1/15/2013	N	0.5	0.8	3.1	1.4	5.0 U	5.0 U	5.0 U	61.5	3.10	-3.60	0.477	0.0209	2.25	37.9	0.15 U	5.0 U	--	4.36
MW2	4/2/2013	N	0.5 J	0.7 J	1.2 J	0.2 UJ	5.0 U	5.0 U	5.0 U	99.4	4.00	47.6	2.03 J	0.0167 J	0.03 U	27.7	0.053 J	4.3 J	--	8.37
MW2	6/18/2013	N	0.7	0.8	2.7	0.3	5.0 U	5.0 U	5.0 U	81.0	2.00 J	51.1 J	2.18	0.0163	0.130 J	31.5	0.150 U	83	--	13.9
MW2	9/9/2013	N	0.7	0.6	1.4	0.2	5.0 U	5.0 U	5.0 U	66.3	--	-113.0	1.63	0.019	--	50.3	0.150 U	260	--	6.74
MW2	1/5/2016	N	0.96	0.32	0.65	0.18 J	5.0 U	5.0 U	5.0 U	17	--	--	1.7 J	0.020 UJ	--	29	0.050 U	590	--	2.5
MW2	7/7/2016	N	0.48	0.56	1.4	0.24	5.0 U	1.3 J	5.0 U	15	--	--	1.9	0.40 U	0.0	20	0.050 U	1100	--	3.3
MW2	1/18/2017	N	0.54	0.30	0.75	0.44	5.0 U	5.0 U	5.0 U	25	1.67	38.9	1.9	0.40 U	0.5	24	0.050 U	1000	--	2.7
MW2	7/11/2017	N	0.40	0.91 U	1.3	0.23	5.0 U	5.0 U	5.0 U	55	1.50	58.4	2.0	0.40 U	--	14	0.050 U	470	--	3.3
MW2	2/8/2018	N	0.25	0.27	0.95	0.37	5.0 U	5.0 U	5.0 U	70	--	--	0.59	0.40 U	1.0	28	0.050 U	640	Fe	3.3
MW2	1/9/2019	N	0.42	0.40	1.5	0.36	5.0 U	5.0 U	5.0 U	60	--	--	1.3	0.40 U	--	42	0.050 U	570	Fe	2.6
MW2	1/20/2020	N	0.97 J	0.73 J	1.7 J	0.46 J	5.0 UJ	5.0 UJ	5.0 UJ	52 J	--	--	1.3 J	0.40 UJ	--	79 J	0.21 J	600 J	?	2.5 J
MW2	1/27/2021	N	1.3	0.43	0.90	0.20 U	5.0 U	5.0 U	5.0 U	80	0.875	-252.8	3.2	0.40 U	0.8	50	0.050 U	300	Fe	3.6
MW2	1/11/2022	N	0.34	0.20 U	0.20 U	0.20 U	--	--	--	50	1.59	-145.7	2.9	0.40 U	0.5	43	0.050 UJ	30 J	Fe	2.8
MW2	3/7/2023	N	0.64	0.48	2.0	0.28	0.40 U	0.57 U	0.73 U	47	1.55	-13.9	0.45	0.40 U	0.5	23	0.050 U	320		3.6
RNS-MW2-21.5	1/15/2013	N	17	0.9 J	0.4 J	0.2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RNS-MW2-21.5	4/2/2013	N	14	0.7	0.4	0.2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RNS-MW2-21.5	6/18/2013	N	7.8	0.4	0.2	0.2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RNS-MW2-21.5	9/9/2013	N	22	0.8	0.3	0.2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RNS-MW2-38.5*	1/15/2013	N	16	0.9	0.3 J	0.2 U	5.0 U	5.0 U	5.0 U	22.9	8.67	24.7	3.28	0.0628	0.060	41.2	0.15 U	5.0 U	Aerobic	2.00
RNS-MW2-38.5*	1/15/2013	FD	--	--	--	--	5.0 U	5.0 U	5.0 U	20.6	--	--	3.44	0.0376	--	37.4	0.15 U	5.0 U	Aerobic	2.56
RNS-MW2-38.5*	4/2/2013	N	11	0.8	0.2	0.2 U	5.0 U	5.0 U	5.0 U	25.8	8.60	134	2.17 J	0.234 J	0.150	37.0	37.0	5.0 U	Aerobic	3.65
RNS-MW2-38.5*	6/18/2013	N	9.6	0.4	0.2	0.2 U	5.0 U	5.0 U	5.0 U	31.8	5.97 J	-21.1 J	2.99	0.0080	0.550 J	77.3	77.3	5.0 U	Aerobic	11.6
RNS-MW2-38.5*	9/9/2013	N	23	0.7	0.2	0.2 U	5.0 U	5.0 U	5.0 U	18.5	6.04	66.5	3.02 J	0.020 J	0.800	33.4	33.4	5.0 U	Aerobic	6.68
RNS-MW2-38.5	1/5/2016	N	30	0.94	0.24	0.20 U	5.0 U	5.0 U	5.0 U	25	6.7	87.9	3.3 J	0.020 UJ	--	35	35	5.0 U	Aerobic	1.3
RNS-MW2-38.5	7/7/2016	N	21	0.49	0.14 J	0.20 U	5.0 U	5.0 U	5.0 U	20	7.51	-2.2	2.9	0.40 U	0.0	30	30	5.0 U	Aerobic	1.1
RNS-MW2-38.5	1/18/2017	N	25	0.51	0.20 U	0.20 U	5.0 U	5.0 U	5.0 U	42	6.37	35.8	2.9	0.40 U	0.0	27	27	5.0 U	Aerobic	1.2
RNS-MW2-38.5	7/11/2017	N	14	1.3 J	0.24	0.20 U	5.0 U	5.0 U	5.0 U	41	6.69	60.1	2.6	0.40 U	0.0	26	26	5.0 U	Aerobic	1.8
RNS-MW2-38.5	2/8/2018	N	17	0.38	0.20 U	0.20 U	5.0 U	5.0 U	5.0 U	67	4.73	-21.2	3	0.40 U	1.0	26	26	5.0 U	Aerobic	1.2
RNS-MW2-38.5	1/9/2019	N	22	0.54	0.20 U	0.20 U	5.0 U	5.0 U	5.0 U	100	5.64	146.0	2.9	0.40 U	1.5	25	25	5.0 U	Aerobic	1.1
RNS-MW2-38.5	1/20/2020	N	19 J	0.64 J	0.20 UJ	0.20 UJ	5.0 UJ	5.0 UJ	5.0 UJ	150 J	5.61	114.2	2.9 J	0.40 UJ	0.2	26 J	26 J	5.0 UJ	Aerobic	1.1 J
RNS-MW2-38.5	1/27/2021	N	22	0.57	0.20 U	0.20 U	5.0 U	5.0 U	5.0 U	100	6.02	-256.5	3.9	0.40 U	0.5	29	29	5.0 U	Aerobic	1.5 U
RNS-MW2-38.5	1/11/2022	N	18	0.45	0.20 U	0.20 U	--	--	--	67 J	6.24	59.0	0.20 U	0.40 U	0.5	23	23	R	Aerobic	1.8
RNS-MW2-38.5	3/6/2023	N	15	0.44	0.20 U	0.20 U	0.40 U	0.57 U	0.73 U	54	5.79	82.8	2.8	0.40 U	0.1	23	0.050 U	0.63 U		1.3

Table 3-1
Bioremediation Data Summary
Sauro's Cleanerama

Well	Date	Sample Type	Volatile Organic Compounds							Aquifer Redox Conditions										Donor Indicators
			PCE (µg/L)	TCE (µg/L)	cDCE (µg/L)	VC (µg/L)	Ethene (µg/L)	Ethane (µg/L)	Acetylene (µg/L)	Chloride (mg/L)	DO (a) (mg/L)	ORP (a) (mV)	Nitrate (mg/L)	Nitrite (mg/L)	Iron II (a) (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)
RNS-MW6-42.5	1/15/2013	N	**1300**	**210**	**79**	0.2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RNS-MW6-42.5	4/2/2013	N	**1500 J**	**240**	**89**	2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RNS-MW6-42.5	6/18/2013	N	**590 J**	**190 J**	**85 J**	**0.5**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RNS-MW6-42.5	9/9/2013	N	**1100 J**	**260 J**	**130 J**	0.2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RNS-MW6-42.5	1/5/2016	N	**1100**	**250**	**150**	**0.29**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RNS-MW6-42.5	7/7/2016	N	**770**	**220**	**140**	**0.25**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RNS-MW6-42.5	1/18/2017	N	**860**	**180**	**140**	**0.33 J**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RNS-MW6-42.5	7/11/2017	N	**670**	**180**	**130**	**0.33**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RNS-MW6-42.5	2/8/2018	N	**1300**	**340**	**170**	0.20 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RNS-MW6-42.5	1/9/2019	N	**800**	**190**	**93**	0.20 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RNS-MW6-42.5	1/20/2020	N	**320 J**	**120 J**	**57 J**	0.20 UJ	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RNS-MW6-42.5	1/27/2021	N	**950**	**350**	**160**	**0.38**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RNS-MW6-42.5	1/12/2022	N	**680**	**190**	**80**	10 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RNS-MW6-42.5	3/6/2023	N	**170**	**66**	**55**	4.0 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RNS-MW6-52.5*	1/15/2013	N	**1200**	**160**	**110**	**0.2**	5.0 U	5.0 U	5.0 U	**17.0**	**2.75**	**-6.80**	**0.049**	**0.0333**	0.03 U	**25.4**	0.15 U	**36**	--	**4.63**
RNS-MW6-52.5*	4/2/2013	N	**950**	**150**	**89**	**0.5**	5.0 U	**4.1 J**	5.0 U	**18.3**	**3.12**	**16.8**	**0.206 J**	**0.0917 J**	0.15 U	**32.8**	**0.083 J**	**36**	--	**8.75**
RNS-MW6-52.5*	6/18/2013	N	**580 J**	**170 J**	**81 J**	**0.5**	5.0 U	5.0 U	5.0 U	**20.2**	**3.70 J**	**58.9 J**	**0.454**	**0.0097**	0.030 UJ	**40.9 J**	0.150 U	**7.6 J**	--	**10.5**
RNS-MW6-52.5*	6/18/2013	FD	**520 J**	**150 J**	**72 J**	**0.4**	5.0 U	5.0 U	5.0 U	**20.2**	--	--	**0.405**	**0.0089**	--	**55.2 J**	0.150 U	**16 J**	--	**12.3**
RNS-MW6-52.5*	9/9/2013	N	**630 J**	**130 J**	**140 J**	**0.3**	5.0 U	**9.2**	5.0 U	**21.0**	**3.72**	**55.8**	**0.317 J**	**0.022 J**	**0.180**	**33.5**	0.150 U	**68**	--	**11.6**
RNS-MW6-52.5	1/5/2016	N	**640**	**150**	**120**	**0.52**	5.0 U	**10**	5.0 U	**26**	**4.08**	**97.6**	**0.57 J**	0.020 UJ	--	**29**	0.050 U	**52**	--	**2.2**
RNS-MW6-52.5	7/7/2016	N	**420**	**140**	**120**	**0.48**	5.0 U	**13**	5.0 U	**30**	**0.95**	**-31.4**	**0.58**	0.40 U	0.0	**31**	0.50 U	**77**	--	**1.7**
RNS-MW6-52.5	1/18/2017	N	**570**	**130**	**110**	10 U	5.0 U	**8.7**	5.0 U	**25**	**2.77**	**41.9**	**0.61**	0.40 U	0.0	**27**	0.25 U	**36**	--	**1.9**
RNS-MW6-52.5	7/11/2017	N	**400**	**110**	**99**	**0.38**	5.0 U	**8.3**	5.0 U	**26**	--	--	**0.64**	0.40 U	0.0	**28**	0.050 U	**43**	--	**2.7**
RNS-MW6-52.5	2/8/2018	N	**410**	**120**	**110**	**0.51**	5.0 U	**10**	5.0 U	**26**	**4.04**	**-49.5**	0.20 U	0.40 U	**1.0**	**28**	0.050 U	**62**	Fe/S	**2.2**
RNS-MW6-52.5	1/9/2019	N	**590**	**130**	**77**	**0.24**	5.0 U	**5.1**	5.0 U	**28**	**1.74**	**173**	**0.78**	0.40 U	**1.0**	**29**	0.050 U	**18**	Fe/S	**1.7**
RNS-MW6-52.5	1/20/2020	N	**370 J**	**130 J**	**100 J**	**0.37 J**	5.0 UJ	**5.4 J**	5.0 UJ	**31 J**	**3.07**	**74.9**	**0.63 J**	0.40 UJ	**2.0**	**25 J**	**1.2 J**	**43 J**	Fe/S	**1.8 J**
RNS-MW6-52.5	1/27/2021	N	**900**	**330**	**150**	**0.37**	5.0 U	**5.1**	5.0 U	**41**	**1.58**	**-380.4**	**1.1**	0.40 U	**2.0**	**26 J**	0.050 U	**160**	Fe/S	**3.1**
RNS-MW6-52.5	1/12/2022	N	**600**	**160**	**34**	10 U	--	--	--	**39**	**0.453**	**115.1**	**0.67**	0.40 U	0.0	**23**	0.050 U	**32 J**	Fe/S	**2.0**
RNS-MW6-52.5	3/6/2023	N	**220**	**74**	**53**	4.0 U	0.40 U	**3.5**	0.73 U	**48**	**0.45**	**80.8**	**0.96**	0.40 U	0.0	**27**	0.050 U	**17**		**1.4**

Notes:

Bold text indicates detected analyte**.**

Green shading indicates detected analyte exceeds applicable cleanup level.

U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

UJ = The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

R = The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

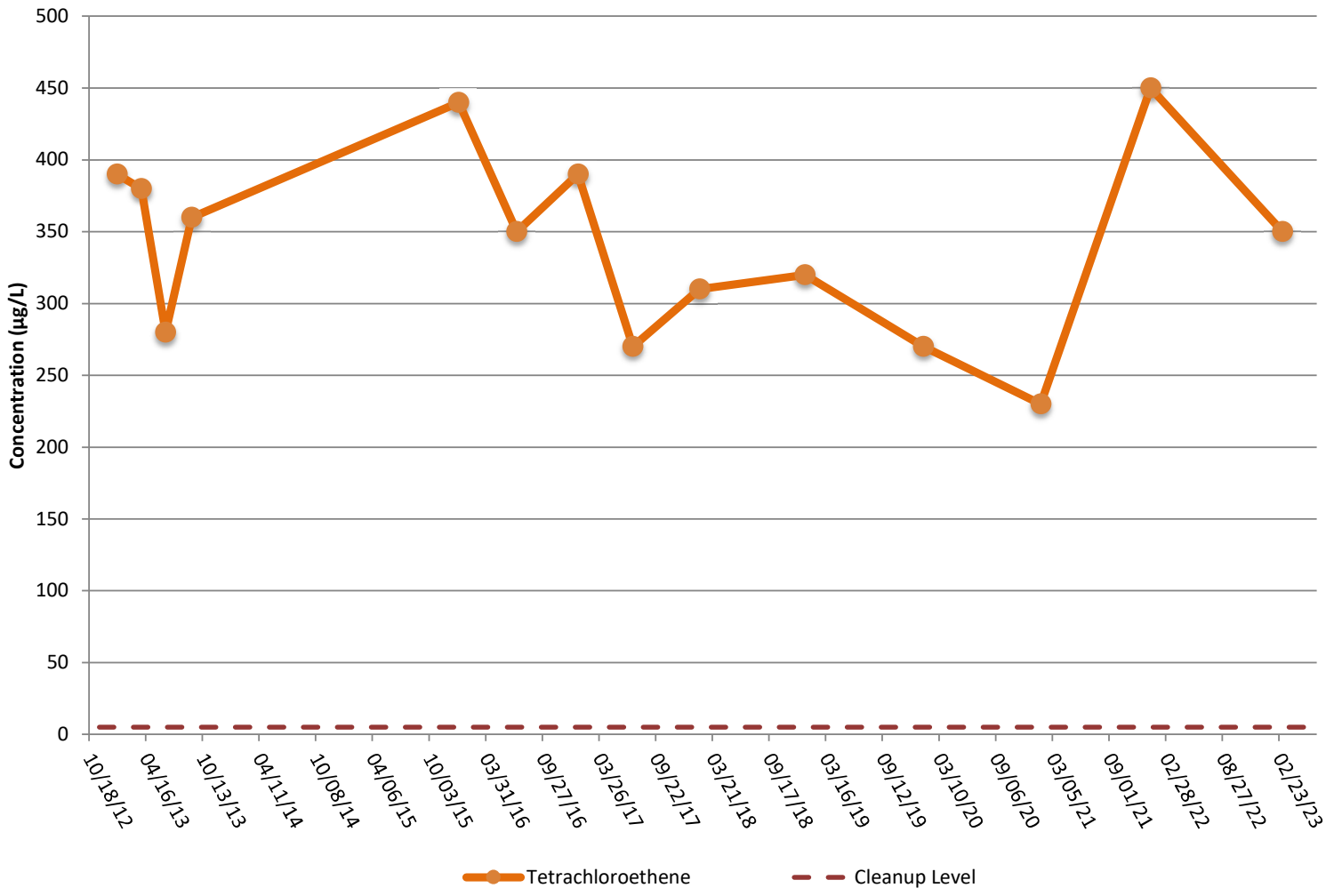
* Samples for dissolved gases (ethane, ethene, methane), sulfate, methane, and TOC were collected from the mid-point depth between the two established well depths.

(a) DO, ORP, and Iron II results reported for 2013 samples were measured at the laboratory; all other DO, ORP, and Iron II measurements were completed in the field.

Abbreviations/Acronyms:

cDCE = cis-1,2-dichlorethene
DO = dissolved oxygen
-- = not analyzed
PCE = tetrachloroethene
TCE = trichloroethene
VC = vinyl chloride
ORP = oxidation reduction potential
TOC = total organic carbon
mg/L = milligrams per liter
µg/L = micrograms per liter
N = primary sample
FD = field duplicate

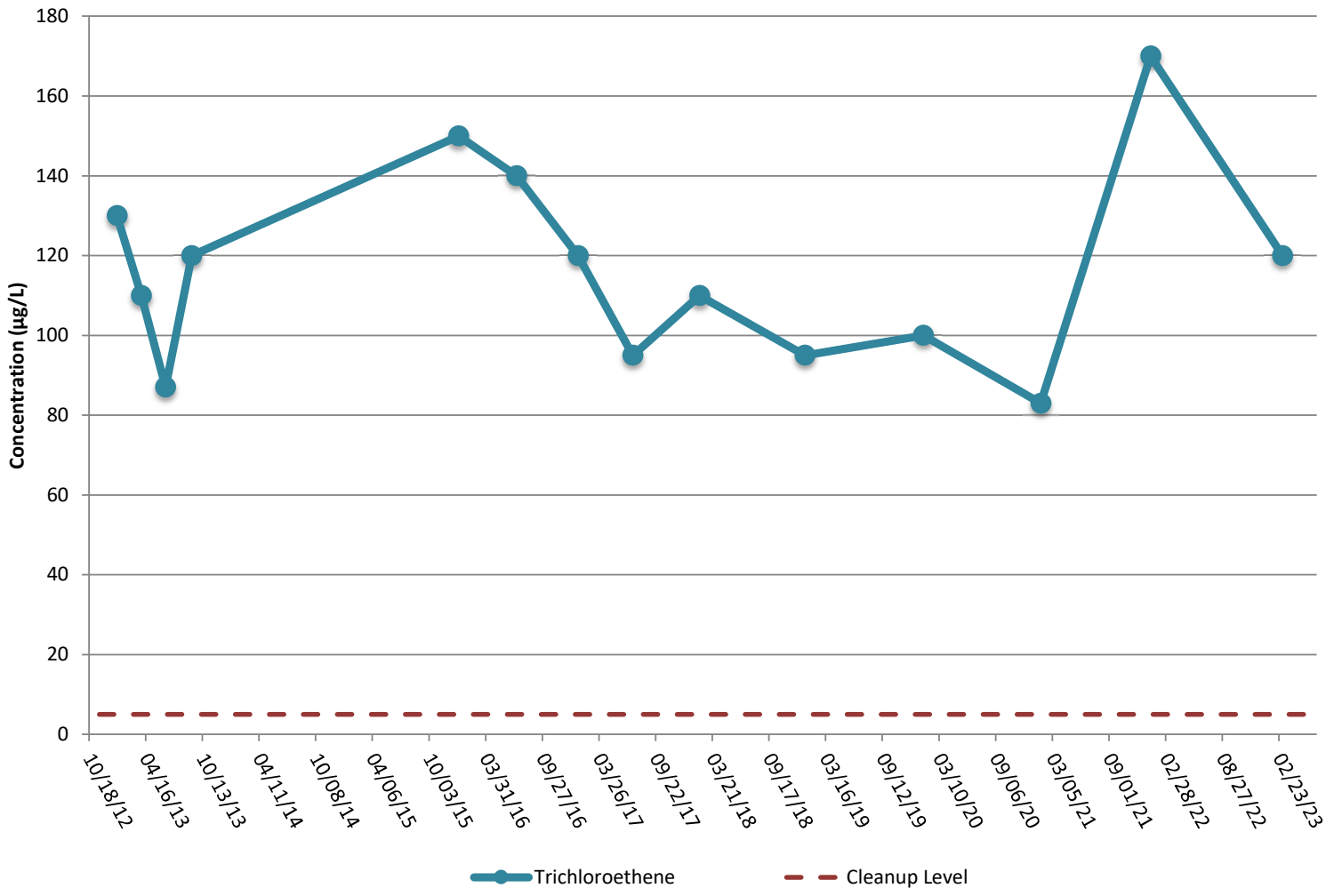
\\tacoma3\PROJECT\094\048.100\.106 Year 6 2023\R\Status Report No. 10\Att3_cumulative tables\Sauros GW Monitoring MASTER Tables and Plots



LANDAU ASSOCIATES

Sauro's Cleanerama Tacoma, Washington	**LAI-MW2** **Tetrachloroethene**	Figure **1-1**

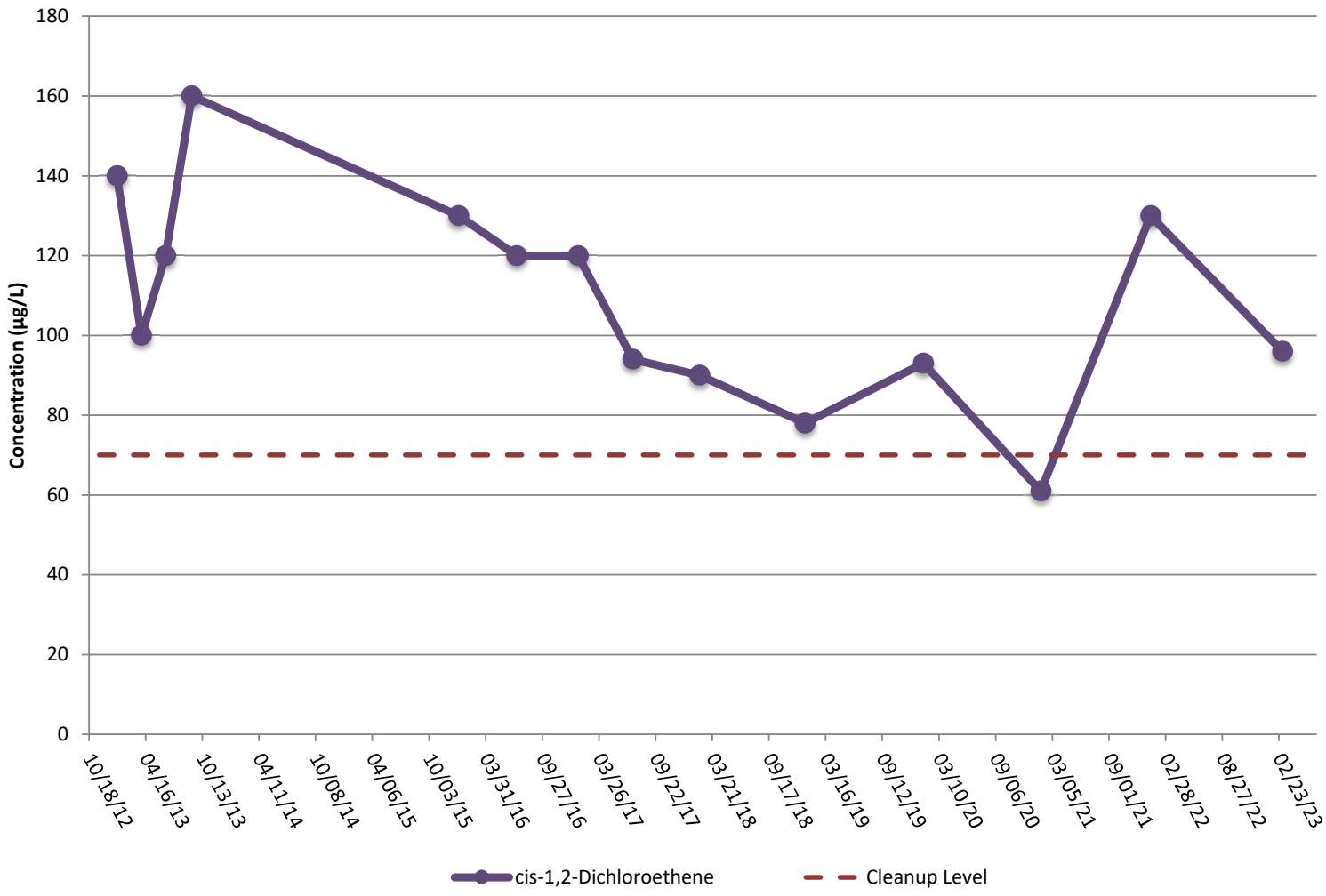
\\tacoma3\PROJECT\094\048.100\.106 Year 6 2023\R\Status Report No. 10\Att3_cumulative tables\Sauros GW Monitoring MASTER Tables and Plots



LANDAU ASSOCIATES

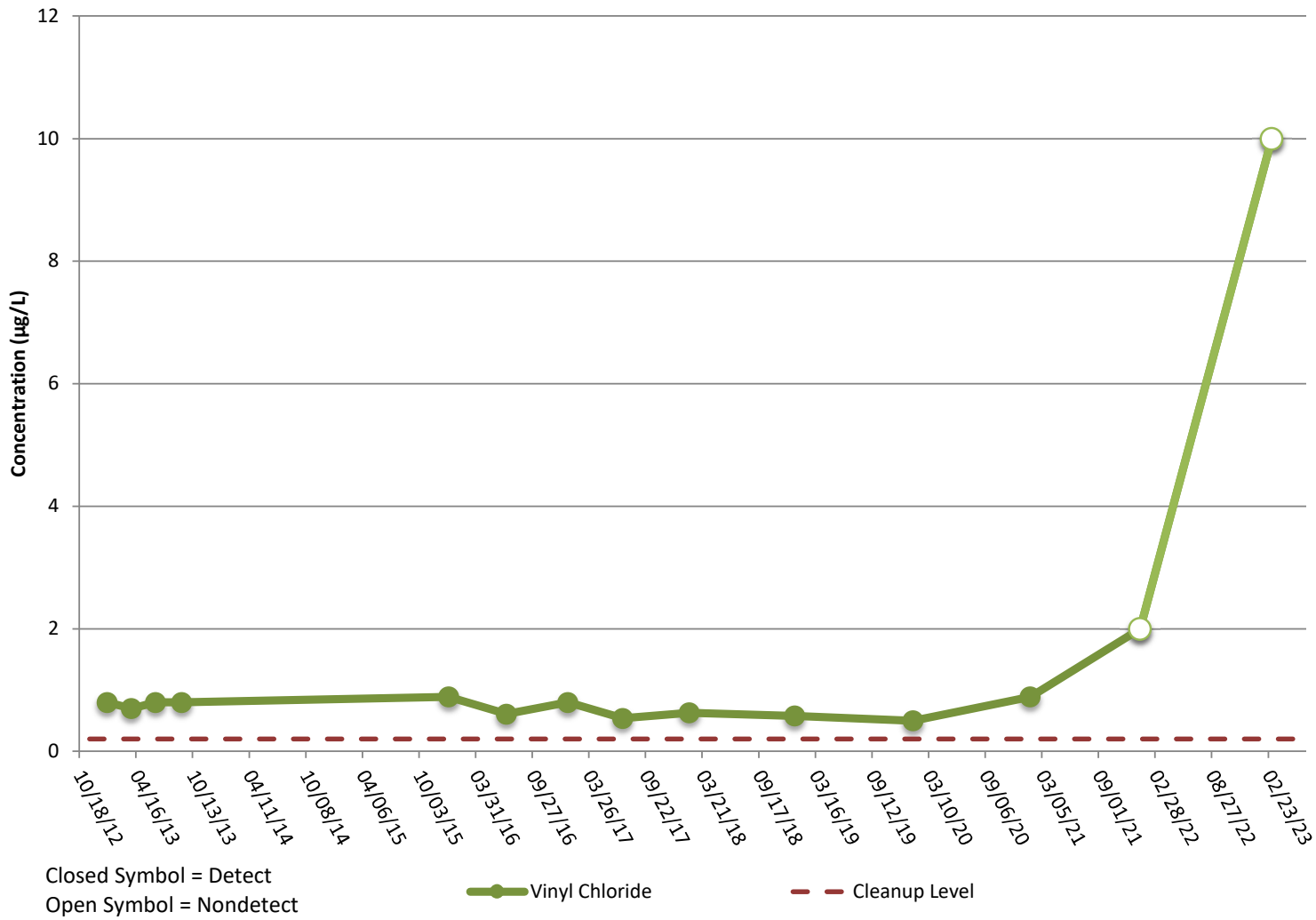
Sauro's Cleanerama Tacoma, Washington	**LAI-MW2** **Trichloroethene**	Figure **1-2**

\\tacoma3\PROJECT\094\048.100\.106 Year 6 2023\R\Status Report No. 10\Att3_cumulative tables\Sauros GW Monitoring MASTER Tables and Plots



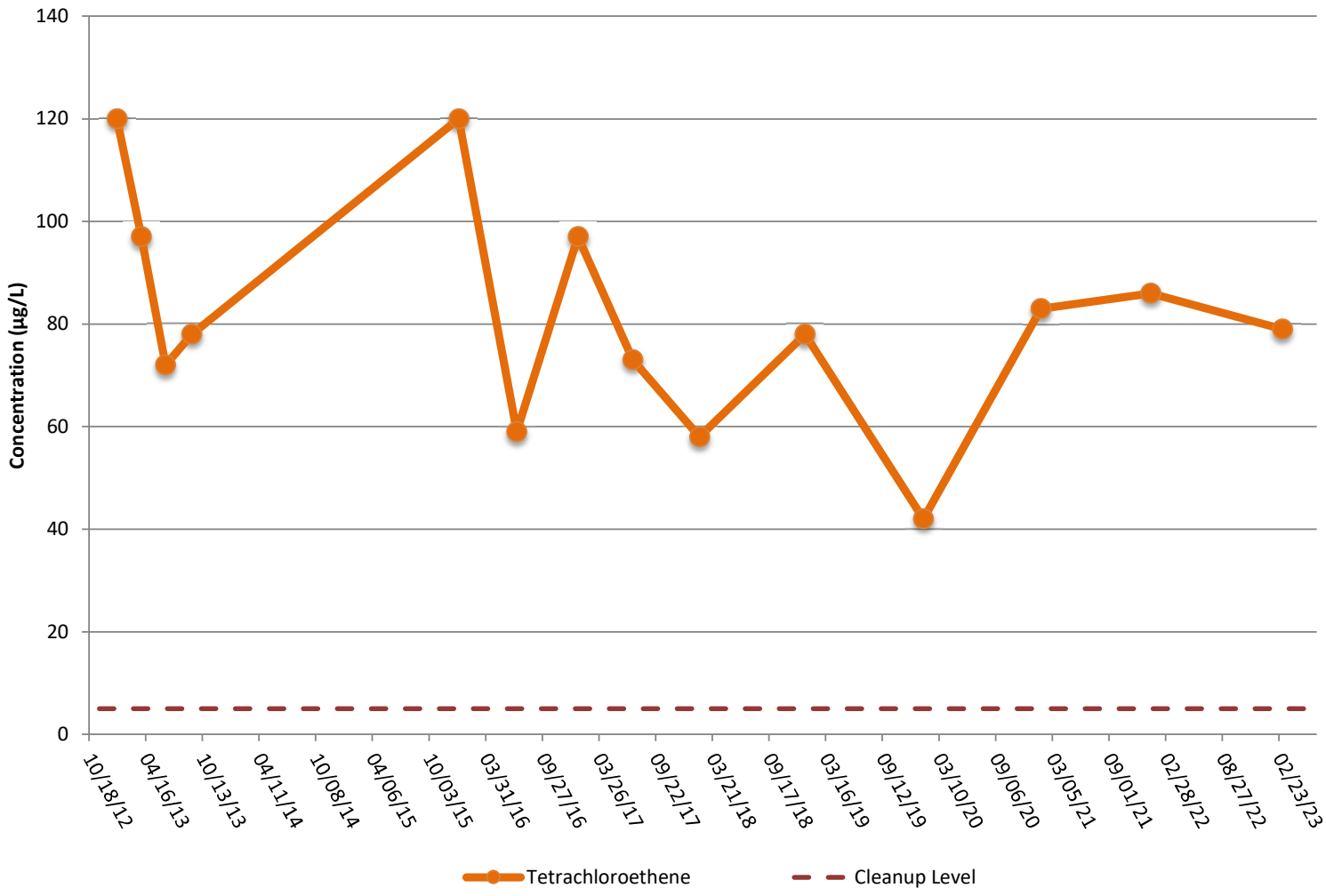
LANDAU ASSOCIATES

Sauro's Cleanerama Tacoma, Washington	**LAI-MW2** **cis-1,2-Dichloroethene**	Figure **1-3**



LANDAU ASSOCIATES	Sauro's Cleanerama Tacoma, Washington	**LAI-MW2** **Vinyl Chloride**
		Figure **1-4**

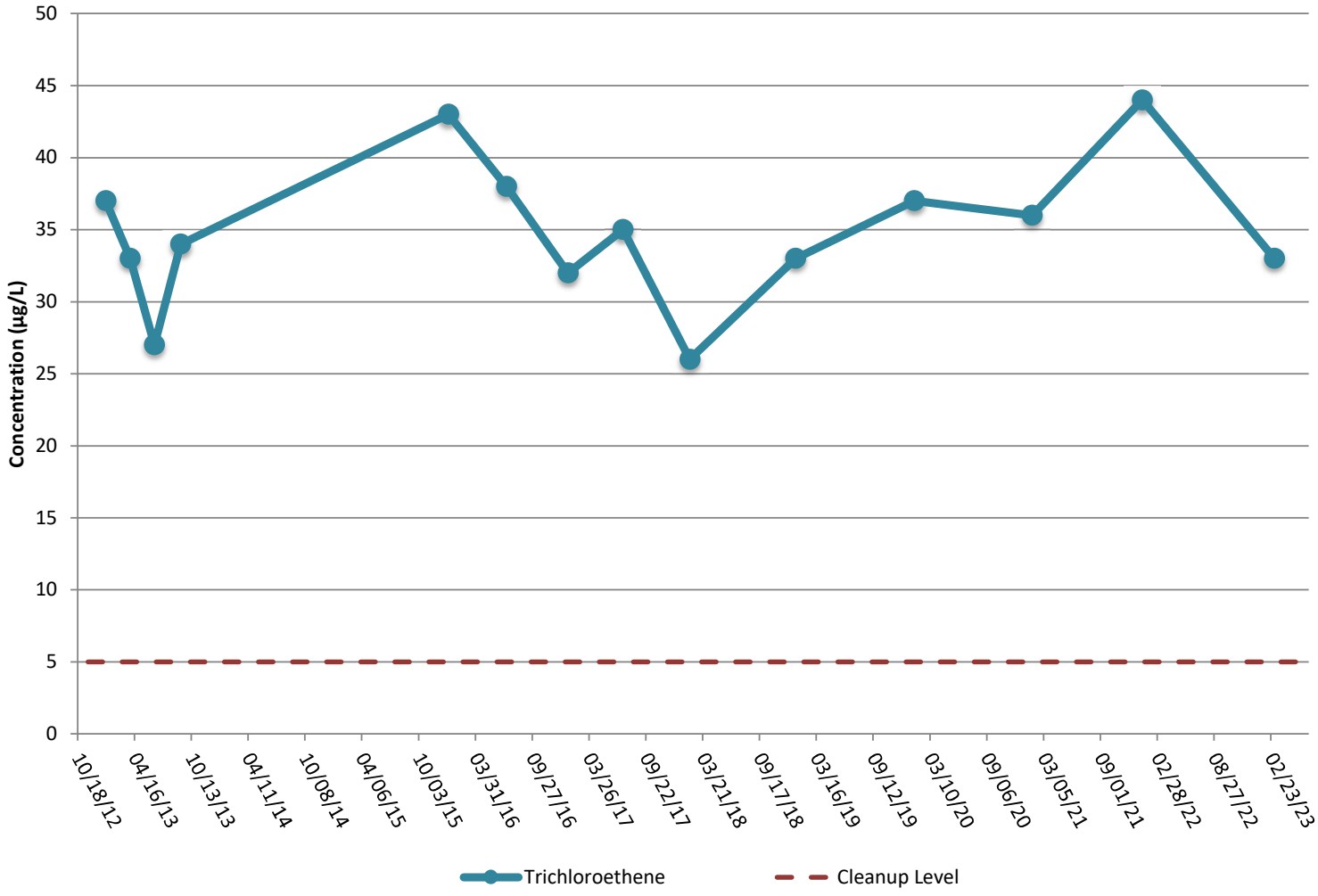
\\tacoma3\PROJECT\094\048.100\.106 Year 6 2023\R\Status Report No. 10\Att3_cumulative tables\Sauros GW Monitoring MASTER Tables and Plots



LANDAU ASSOCIATES

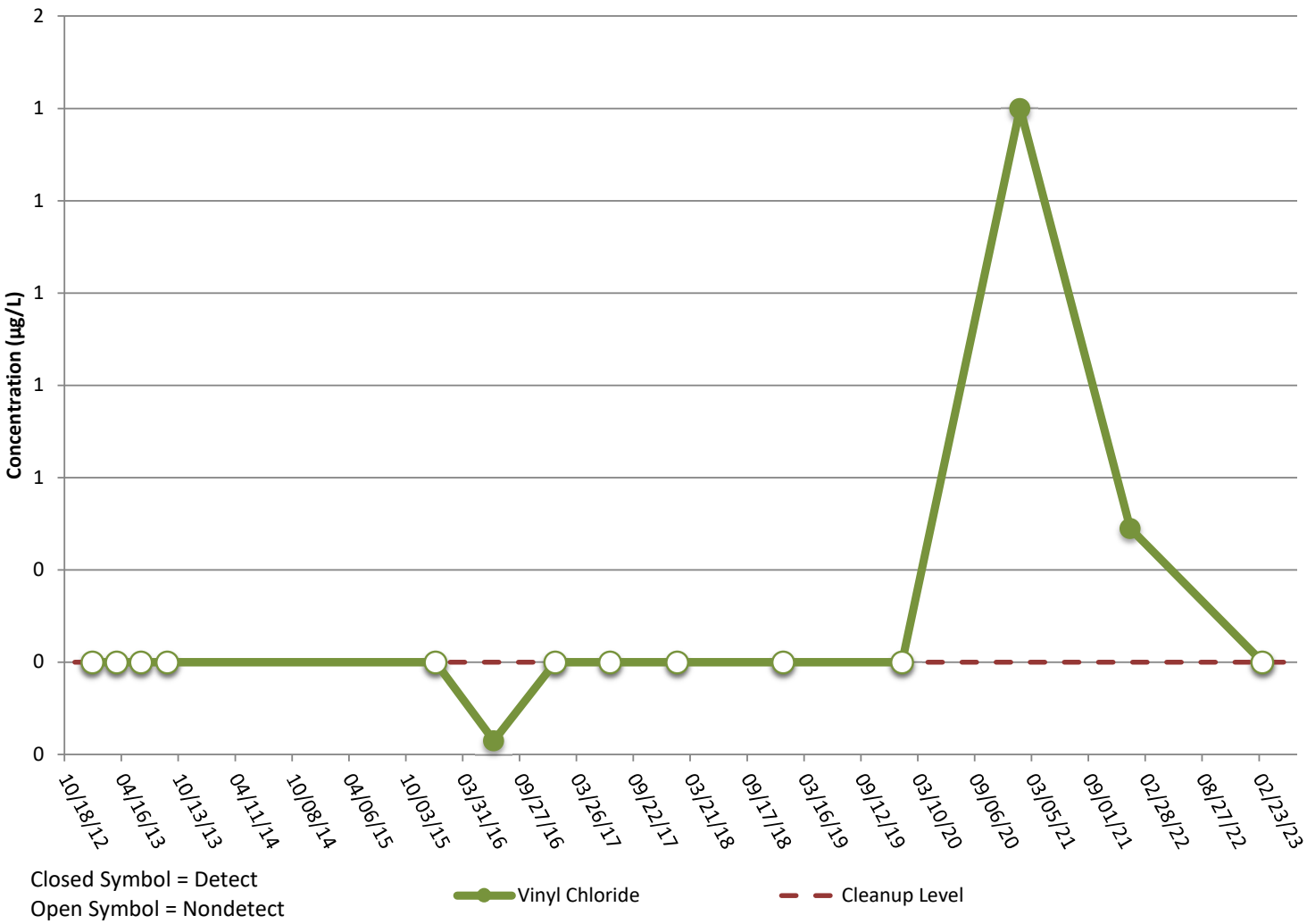
Sauro's Cleanerama Tacoma, Washington	**LAI-MW3** **Tetrachloroethene**	Figure **1-5**

\\tacoma3\PROJECT\094\048.100\.106 Year 6 2023\R\Status Report No. 10\Att3_cumulative tables\Sauros GW Monitoring MASTER Tables and Plots



LANDAU ASSOCIATES

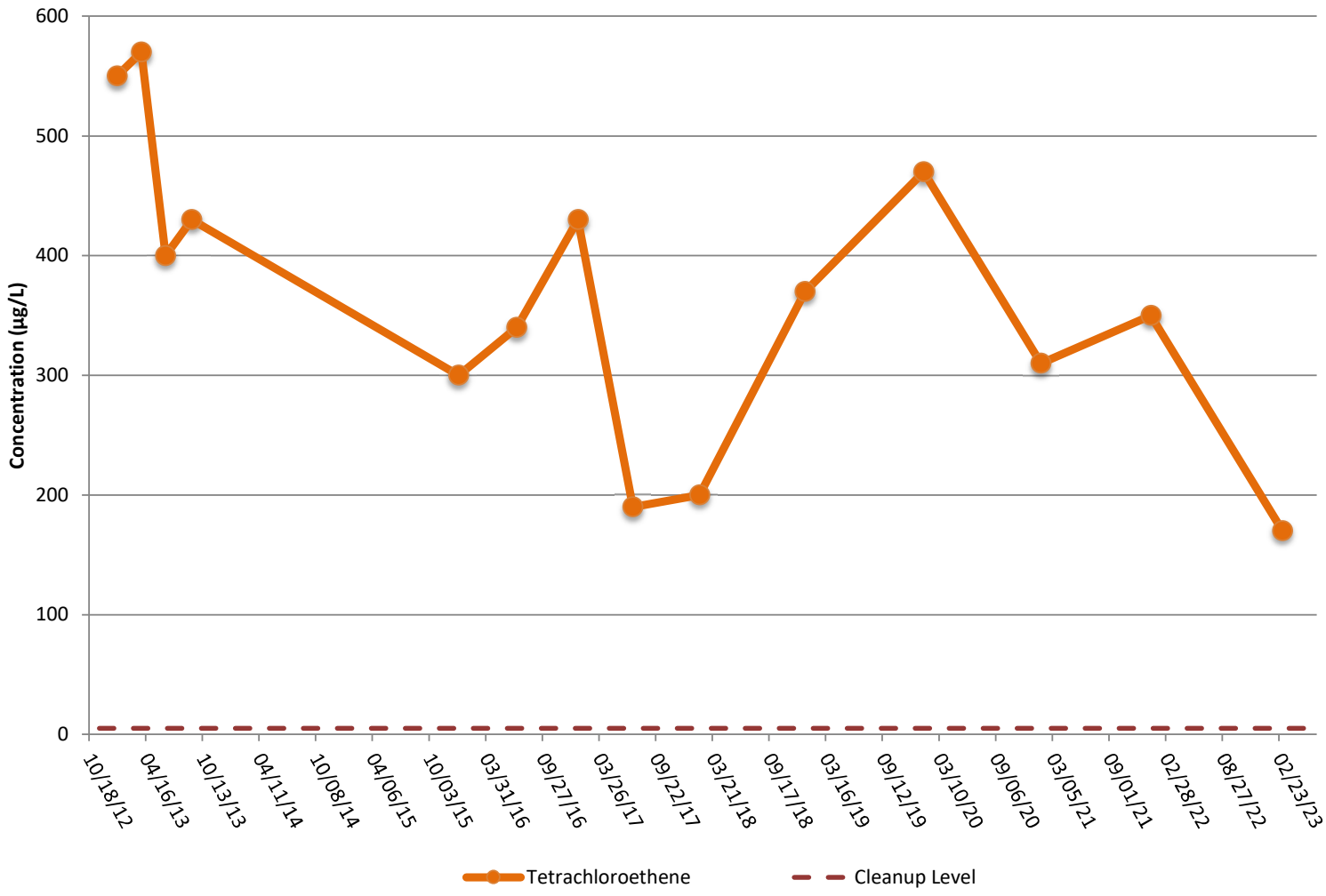
Sauro's Cleanerama Tacoma, Washington	**LAI-MW3** **Trichloroethene**	Figure **1-6**



LANDAU ASSOCIATES

Sauro's Cleanerama Tacoma, Washington	**LAI-MW4** **Vinyl Chloride**	Figure **1-7**

\\tacoma3\PROJECT\094\048.100\.106 Year 6 2023\R\Status Report No. 10\Att3_cumulative tables\Sauros GW Monitoring MASTER Tables and Plots



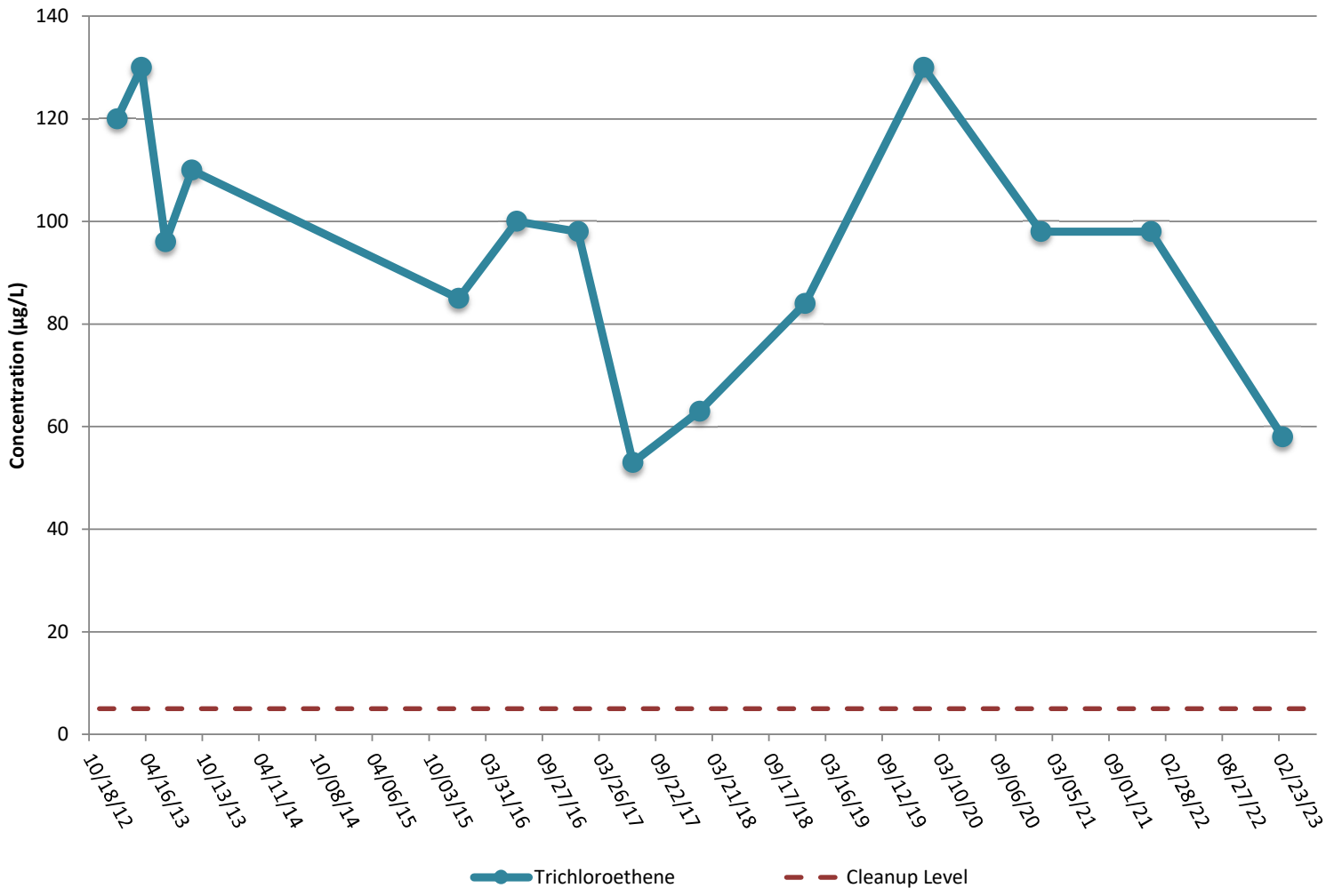
LANDAU ASSOCIATES

Sauro's Cleanerama
Tacoma, Washington

MW13
Tetrachloroethene

Figure
1-8

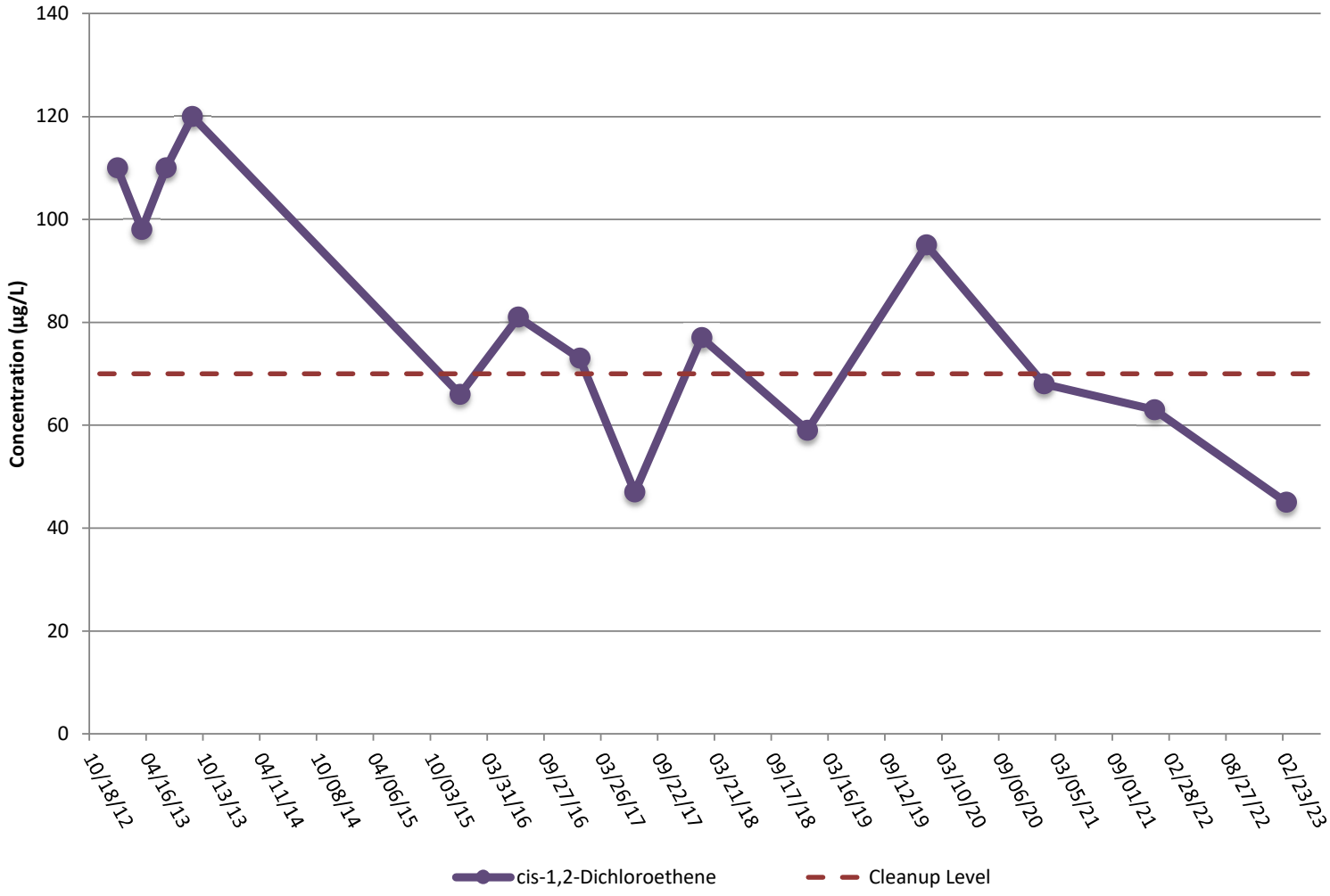
\\tacoma3\PROJECT\094\048.100\.106 Year 6 2023\R\Status Report No. 10\Att3_cumulative tables\Sauros GW Monitoring MASTER Tables and Plots



LANDAU ASSOCIATES

Sauro's Cleanerama Tacoma, Washington	**MW13** **Trichloroethene**	Figure **1-9**

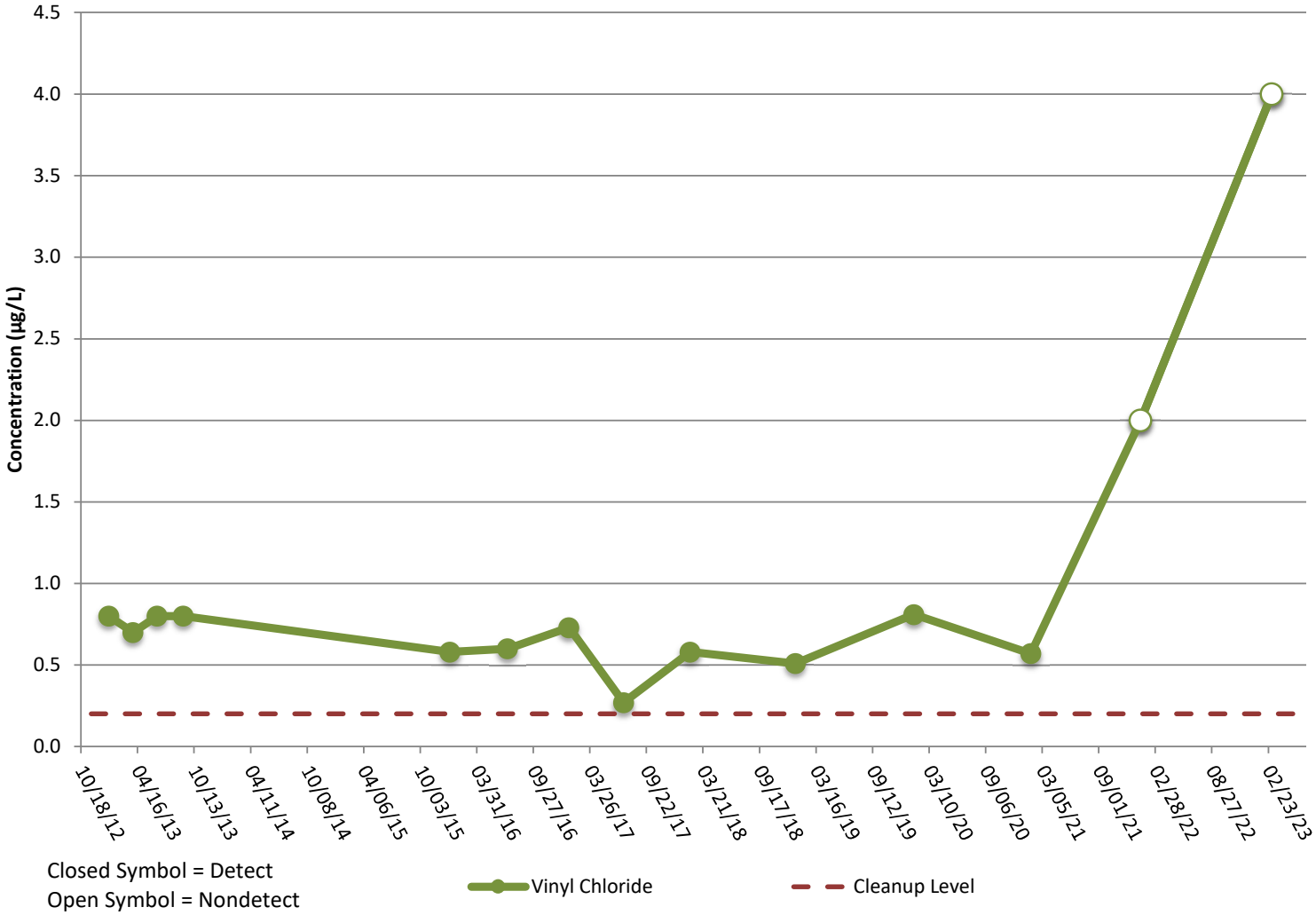
\\tacoma3\PROJECT\094\048.100\.106 Year 6 2023\R\Status Report No. 10\Att3_cumulative tables\Sauros GW Monitoring MASTER Tables and Plots



LANDAU ASSOCIATES

Sauro's Cleanerama Tacoma, Washington	**MW13** **cis-1,2-Dichloroethene**	Figure **1-10**

\\tacoma3\PROJECT\094\048.100\.106 Year 6 2023\R\Status Report No. 10\Att3_cumulative tables\Sauros GW Monitoring MASTER Tables and Plots



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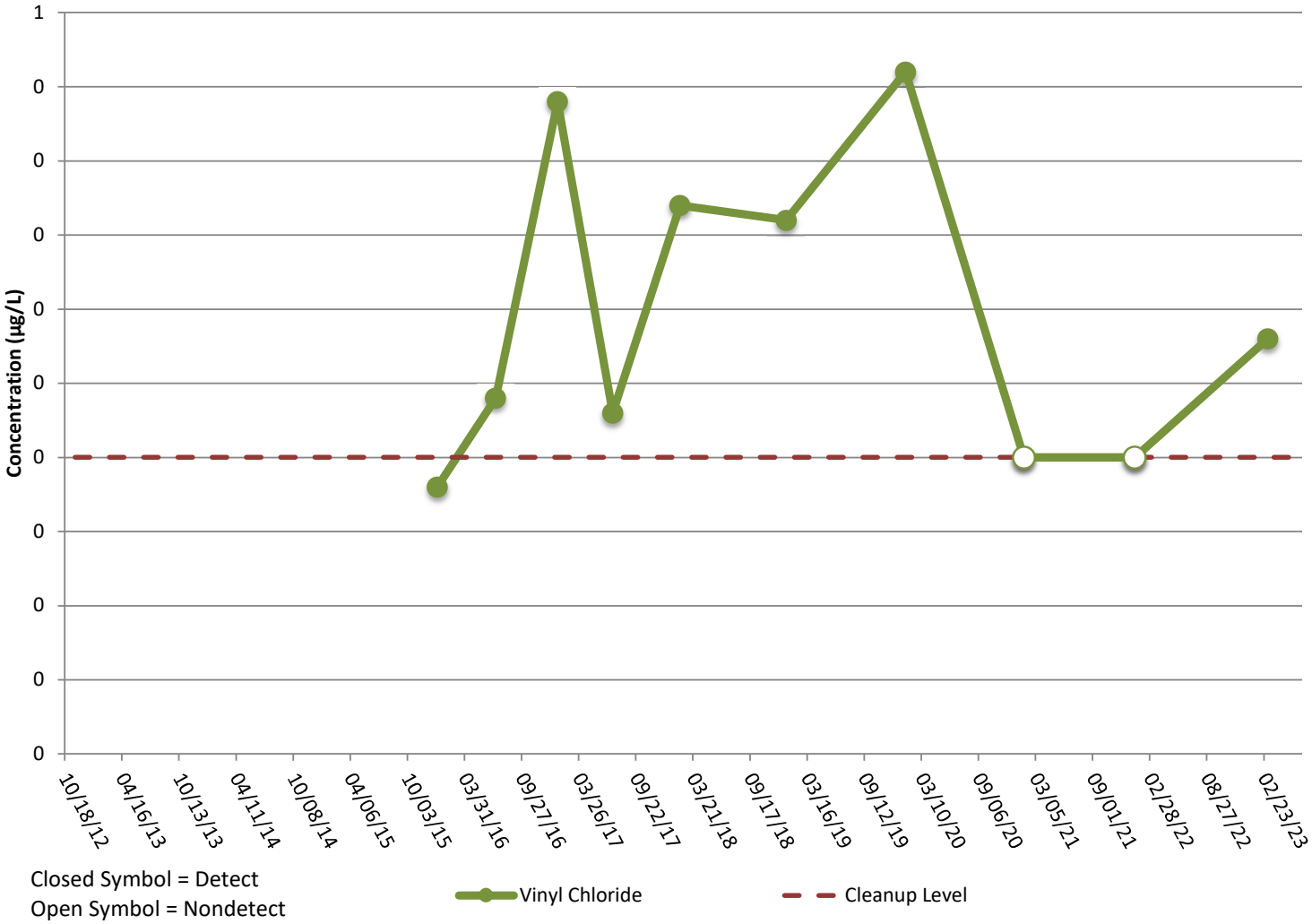
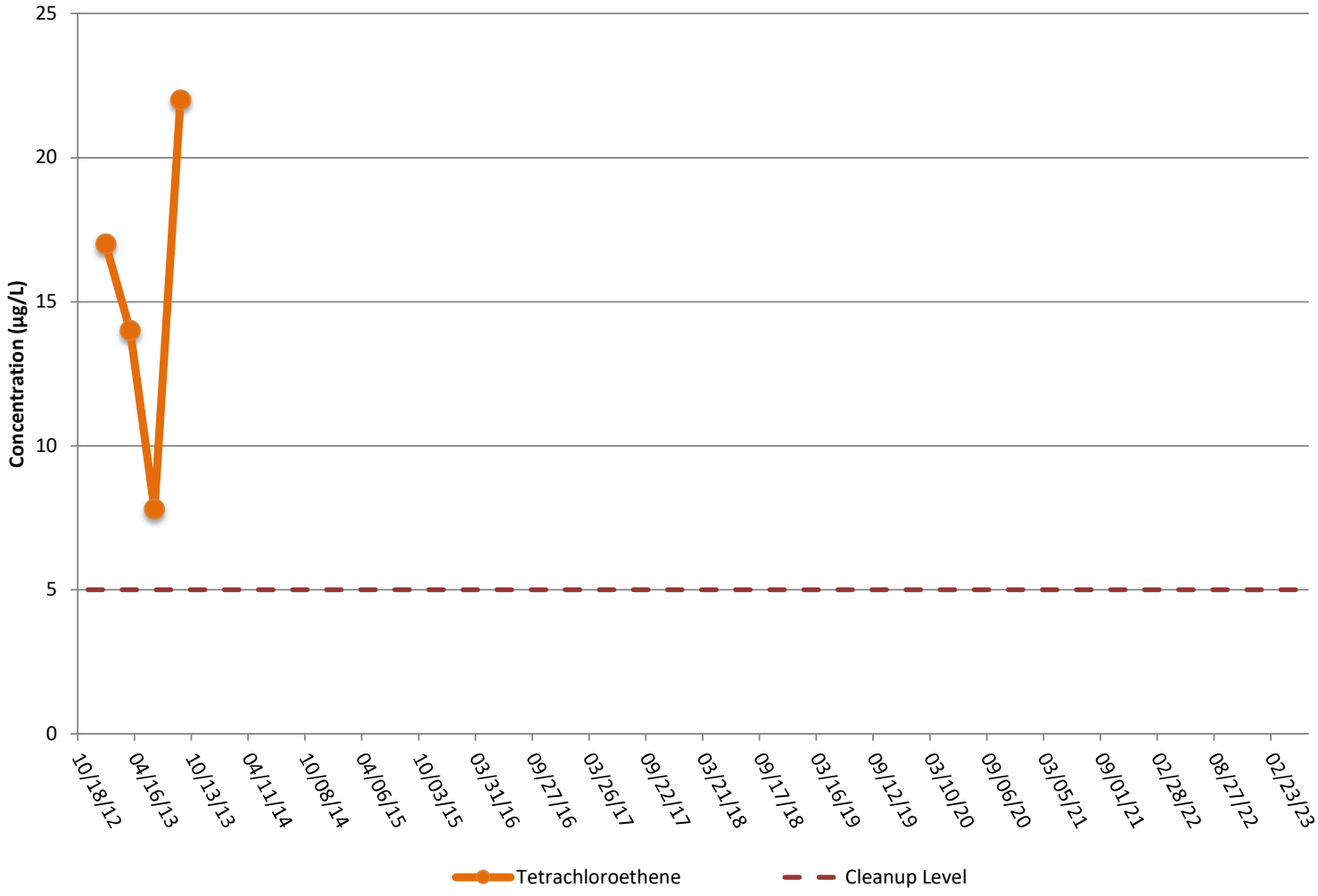
Sauro's Cleanerama Tacoma, Washington	**MW13** **Vinyl Chloride**	Figure **1-11**

\\tacoma3\PROJECT\094\048.100\.106 Year 6 2023\R\Status Report No. 10\Att3_cumulative tables\Sauros GW Monitoring MASTER Tables and Plots



LANDAU ASSOCIATES

Sauro's Cleanerama Tacoma, Washington	**MW2** **Vinyl Chloride**	Figure **1-12**



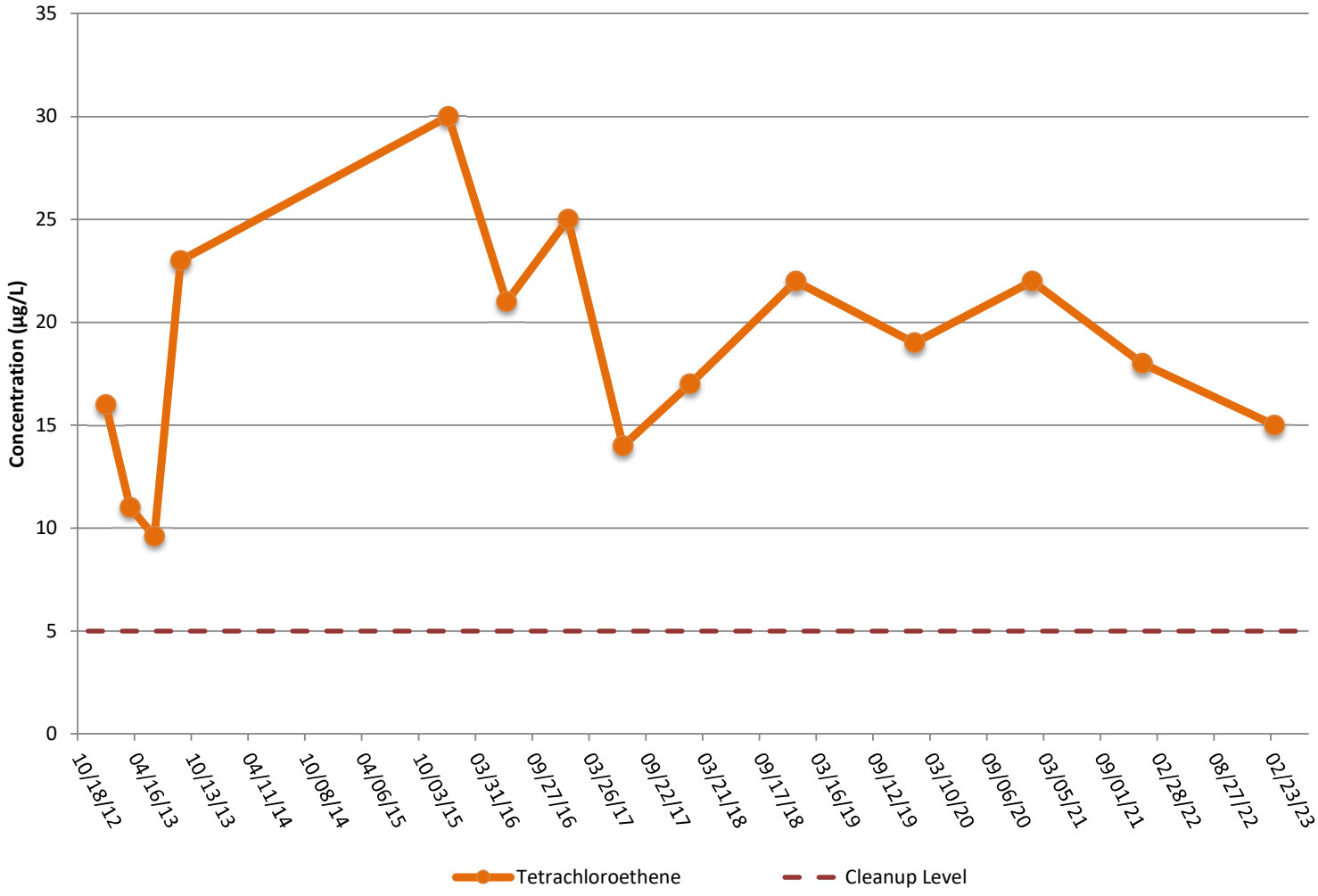
LANDAU ASSOCIATES

Sauro's Cleanerama
Tacoma, Washington

RNS-MW2-21.5
Tetrachloroethene

Figure
1-13

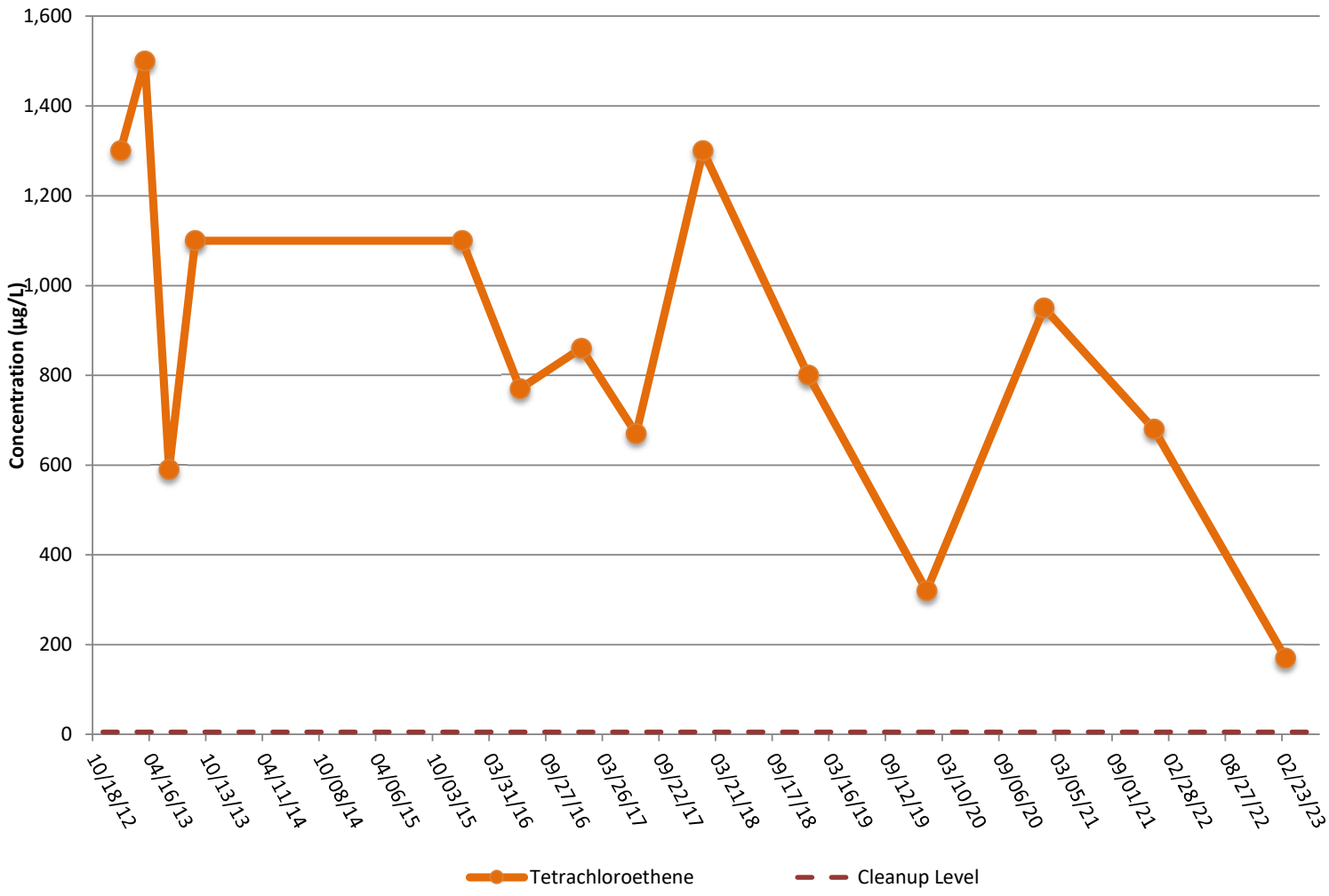
\\tacoma3\PROJECT\094\048.100\.106 Year 6 2023\R\Status Report No. 10\Att3_cumulative tables\Sauros GW Monitoring MASTER Tables and Plots



LANDAU ASSOCIATES

Sauro's Cleanerama Tacoma, Washington	**RNS-MW2-38.5** **Tetrachloroethene**	Figure **1-14**

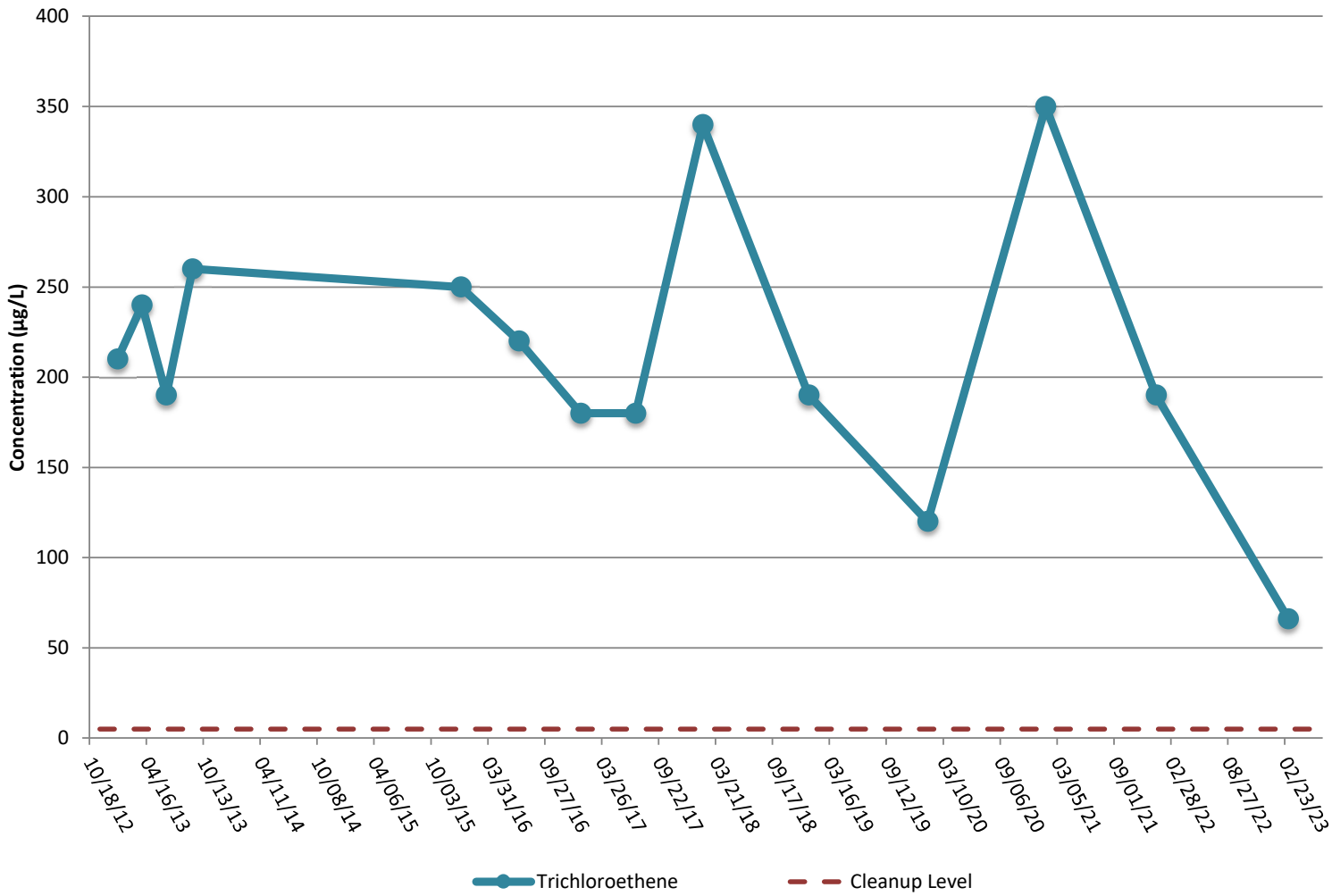
\\tacoma3\PROJECT\094\048.100\.106 Year 6 2023\R\Status Report No. 10\Att3_cumulative tables\Sauros GW Monitoring MASTER Tables and Plots



LANDAU ASSOCIATES

Sauro's Cleanerama Tacoma, Washington	**RNS-MW6-42.5** **Tetrachloroethene**	Figure **1-15**

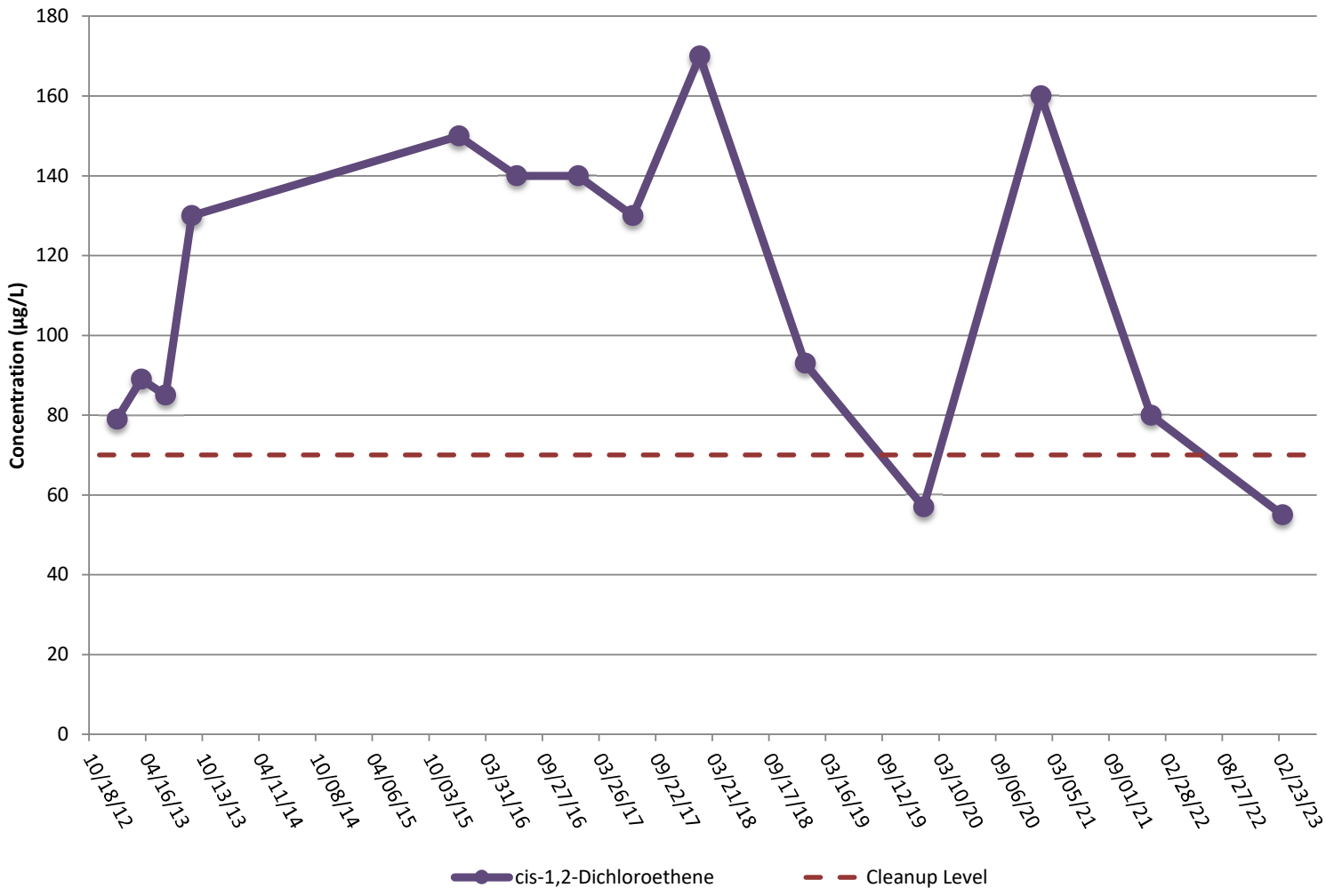
\\tacoma3\PROJECT\094\048.100\.106 Year 6 2023\R\Status Report No. 10\Att3_cumulative tables\Sauros GW Monitoring MASTER Tables and Plots



LANDAU ASSOCIATES

Sauro's Cleanerama Tacoma, Washington	**RNS-MW6-42.5** **Trichloroethene**	Figure **1-16**

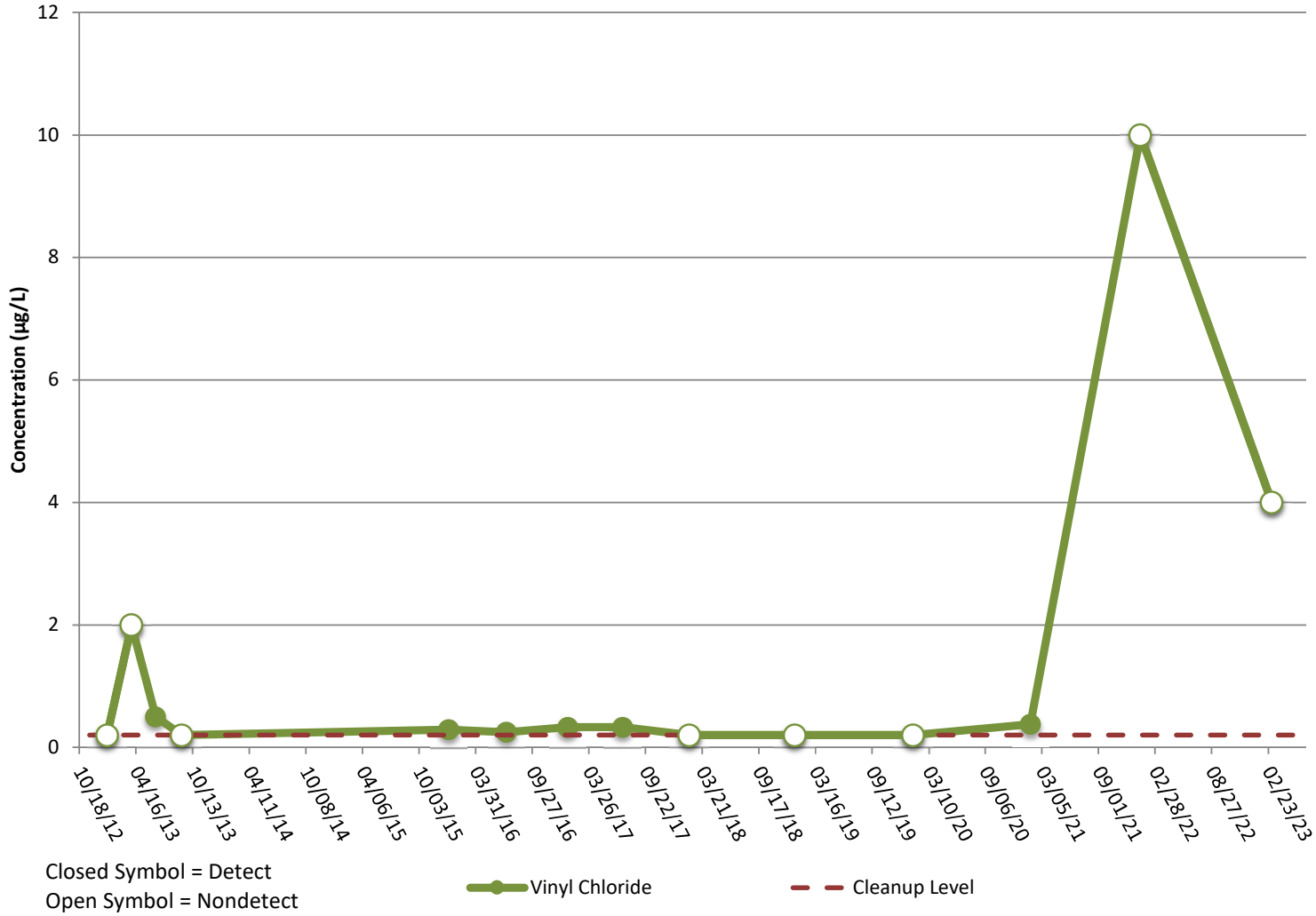
\\tacoma3\PROJECT\094\048.100\.106 Year 6 2023\R\Status Report No. 10\Att3_cumulative tables\Sauros GW Monitoring MASTER Tables and Plots



LANDAU ASSOCIATES

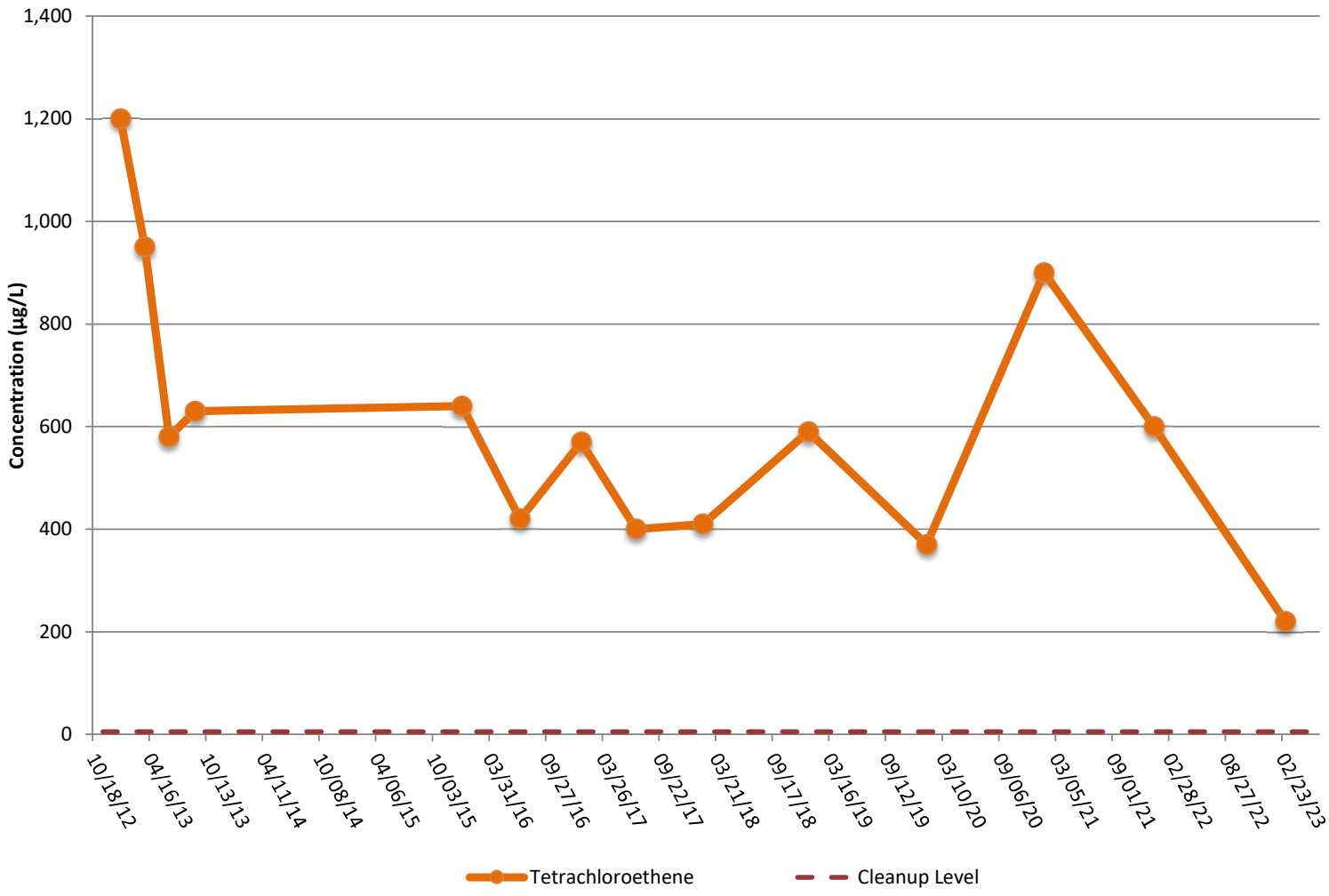
Sauro's Cleanerama Tacoma, Washington	**RNS-MW6-42.5** **cis-1,2-Dichloroethene**	Figure **1-17**

\\tacoma3\PROJECT\094\048.100\.106 Year 6 2023\R\Status Report No. 10\Att3_cumulative tables\Sauros GW Monitoring MASTER Tables and Plots



LANDAU ASSOCIATES	Sauro's Cleanerama Tacoma, Washington	**RNS-MW6-42.5** **Vinyl Chloride**
		Figure **1-18**

\\tacoma3\PROJECT\094\048.100\.106 Year 6 2023\R\Status Report No. 10\Att3_cumulative tables\Sauros GW Monitoring MASTER Tables and Plots



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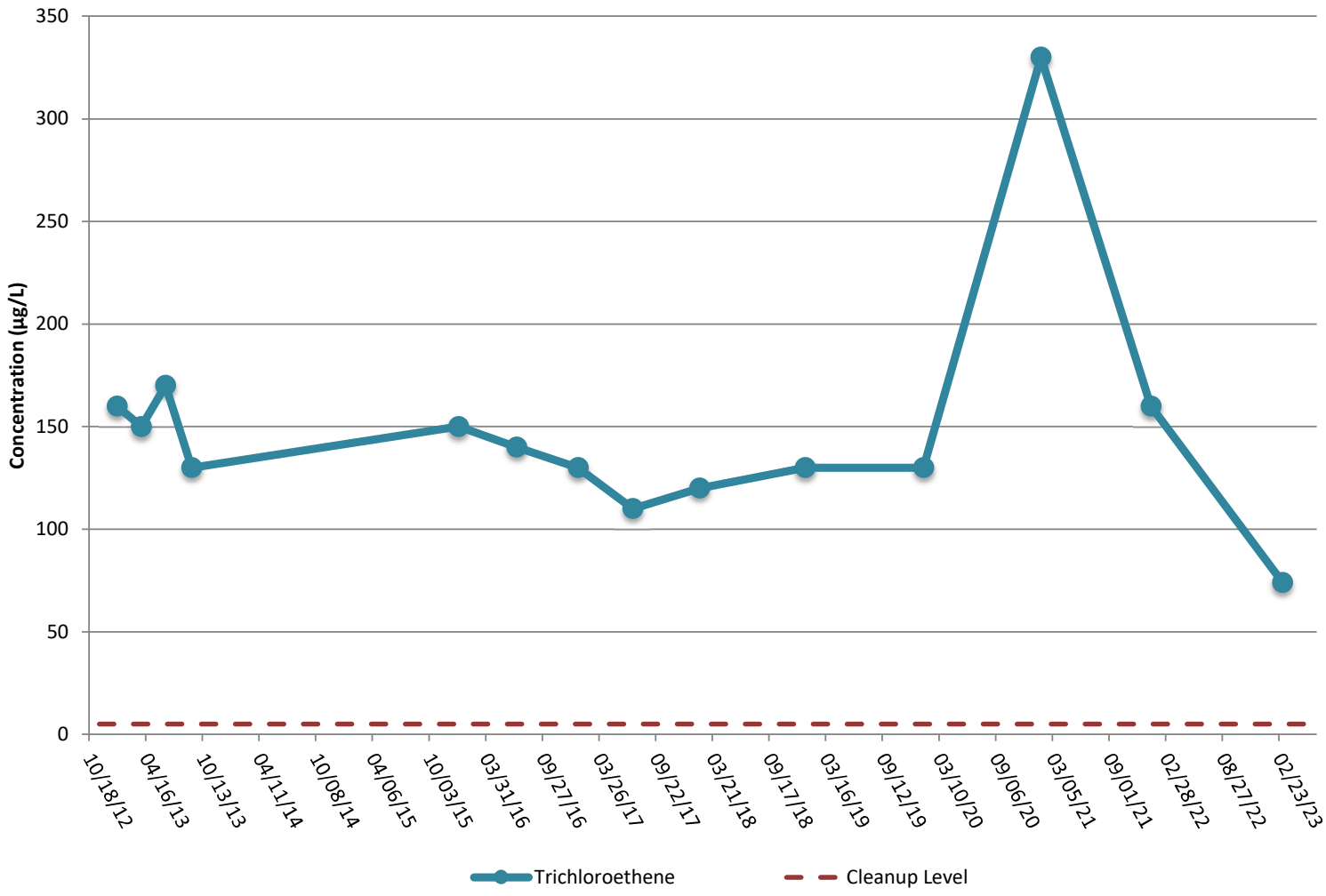
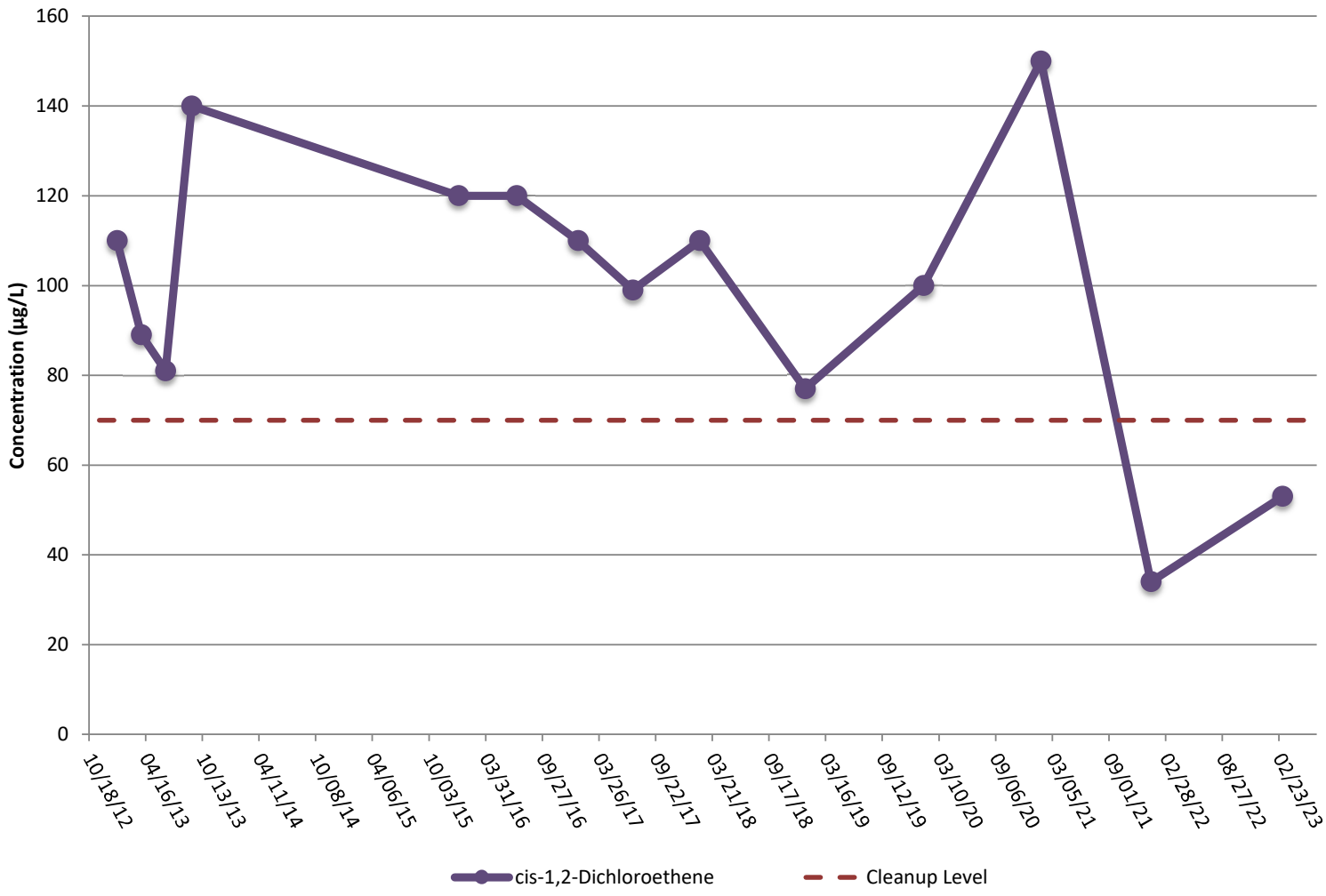
Sauro's Cleanerama Tacoma, Washington	**RNS-MW6-52.5** **Tetrachloroethene**	Figure **1-19**

\\tacoma3\PROJECT\094\048.100\.106 Year 6 2023\R\Status Report No. 10\Att3_cumulative tables\Sauros GW Monitoring MASTER Tables and Plots



LANDAU ASSOCIATES

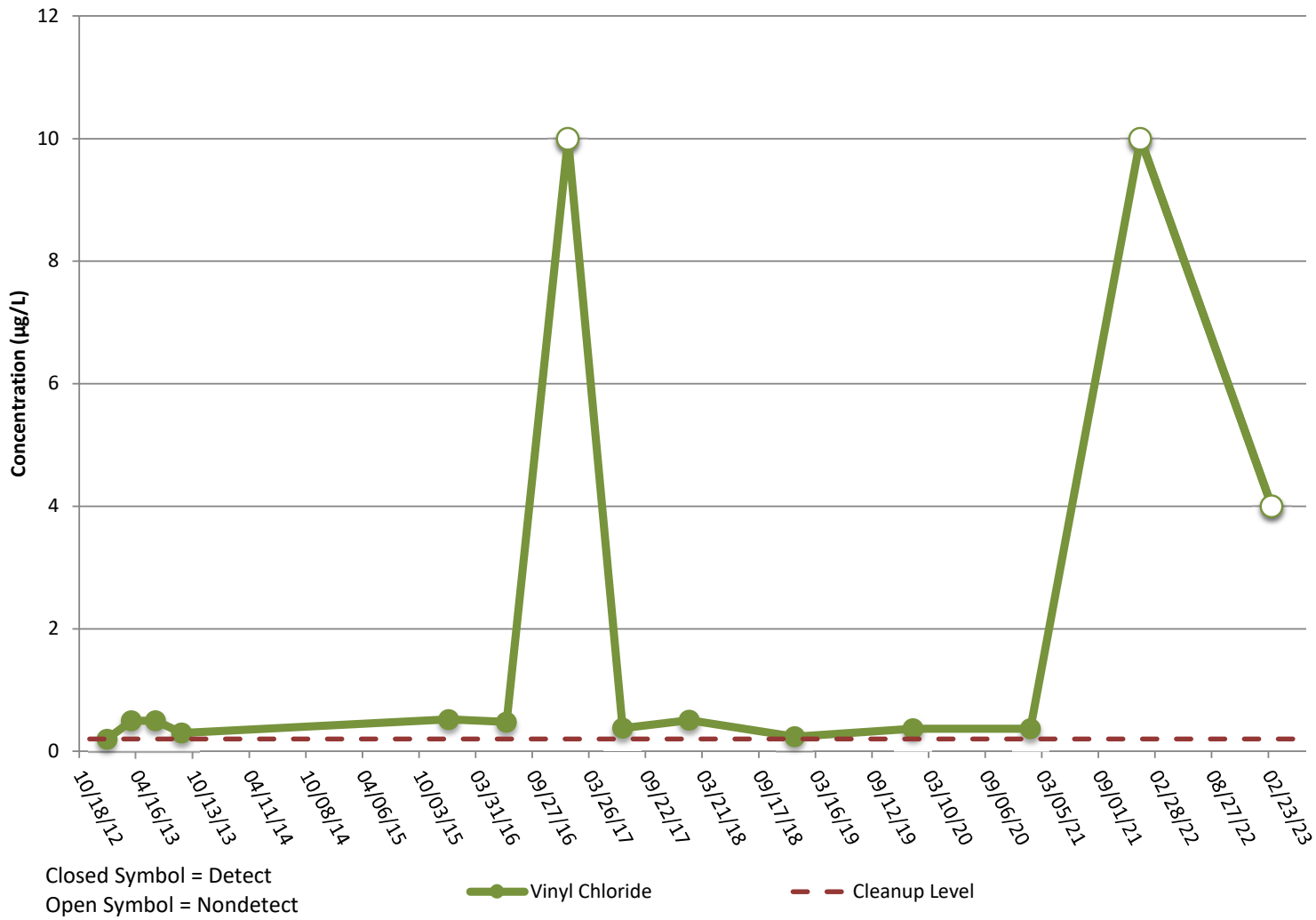
Sauro's Cleanerama Tacoma, Washington	**RNS-MW6-52.5** **Trichloroethene**	Figure **1-20**



LANDAU ASSOCIATES

Sauro's Cleanerama Tacoma, Washington	**RNS-MW6-52.5** **cis-1,2-Dichloroethene**	Figure **1-21**

\\tacoma3\PROJECT\094\048.100\.106 Year 6 2023\R\Status Report No. 10\Att3_cumulative tables\Sauros GW Monitoring MASTER Tables and Plots



LANDAU ASSOCIATES	Sauro's Cleanerama Tacoma, Washington	**RNS-MW6-52.5** **Vinyl Chloride**
		Figure **1-22**

ATTACHMENT 4

Sample Collection Forms

LANDAU ASSOCIATES

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Groundwater Low-Flow Sample Collection Form

Project Name: Sauro's Cleanerama | Project Number: 94048.100.106

Event: March 2023 | Date/Time: 3/6/2023 11:38

Sample Number: LAI-MW1-20230306 | Weather: Overcast, 40F

Landau Representative: SMR/JBD

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure Yes | Damaged No | Describe: | DTB: 69.3

DTW Before Purging (ft) 45.37 | Time: 11:05 | Flow through cell vol. | GW Meter No.(s TAC 100'

Begin Purge: Date/Time: 3/6/2023 11:12 | End Purge: Date/Time: 3/6/2023 11:37 | Gallons Purged: 0.8

Purge water disposed to: ☐ 55-gal Drum ☐ Storage Tank ☐ Ground ☒ Other City of Tacoma Treatment System

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stablization of Parameters for three consecutive readings within the following limits	**+/- 3%**	**+/- 3%**	**+/- 10%**	**+/- 0.1 units**	**+/- 10 mV**	**+/- 10%**	**< 0.3 ft**	**>/= 1 flow through cell**	
11:15	12.6	561	5.22	6.01	5.97	130.7	45.37	0.1	cloudy,c,no,ns
11:18	12.7	548.6	4.91	5.9	42.6	125.9	45.37	0.1	cloudy,c,no,ns
11:21	13.7	516.6	3.95	5.89	42.6	81.42	45.37	0.1	cloudy,c,no,ns
11:24	14	508.1	3.48	5.83	42.9	59.51	45.37	0.1	c,c,no,ns
11:27	14.5	512.2	2.94	5.71	45.2	56.43	45.37	0.1	c,c,no,ns
11:30	14.5	514.4	2.64	5.73	47.1	54.92	45.37	0.1	c,c,no,ns
11:33	14.4	516.7	2.45	5.69	48.6	48.66	45.37	0.1	c,c,no,ns
11:36	14.4	518.7	2.32	5.69	49.5	49.68	45.37	0.1	c,c,no,ns

SAMPLE COLLECTION DATA

Sample Collected With: ☐ Bailer ☒ Pump/Pump Type Wattera and PDB

Made of: ☐ Stainless Steel ☐ PVC ☐ Teflon ☒ Polyethylene ☐ Other ☒ Dedicated

Decon Procedure: ☒ Alconox Wash ☐ Tap Rinse ☒ DI Water ☐ Dedicated

(By Numerical Order) ☐ Other

Sample Description (color, turbidity, odor, sheen, etc.): clear,colorless,no odor,no sheen

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	14.4	519.3	2.2	5.75	50.2				
2	14.4	519.6	2.17	5.63	50.1				
3	14.4	520	2.15	5.67	50.4				
4	14.4	520.4	2.12	5.64	50.5			0.5	
Average:	14.40	519.8	2.16	5.67	50.3				

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)		
3 voa	8260C: PCE, TCE, cis-1,2-DCE and VC	WA ☒	OR ☐
3 voa	RSK 175: Acetylene Methane Ethane Ethene	WA ☒	OR ☐
	EPA Method 300.0: Chloride/Sulfate		
1 unpres poly	EPA Method 300: Nitrate/Nitrite		
1 pres poly	SM 4500: Sulfide		
1 amber	SM 5310B: TOC		
	Ferrous Iron		

Duplicate Sample No(s):

Comments:

Signature: JDB | Date: 3/6/2023

Groundwater Low-Flow Sample Collection Form

Project Name: Sauro's Cleanerama | Project Number: 94048.100.106

Event: March 2023 | Date/Time: 3/6/2023 10:13

Sample Number: LAI-MW2-20230306 | Weather: Overcast, 32F

Landau Representative: SMR/JBD

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure Yes Damaged Yes Describe: Monument hous DTB: 69.9

DTW Before Purging (ft) 44.48 Time: 9:37 Flow through cell vol. GW Meter No.(s TAC 100'

Begin Purge: Date/Time: 3/6/2023 9:47 End Purge: Date/Time: 3/6/2023 10:12 Gallons Purged: 1.65

Purge water disposed to: ☐ 55-gal Drum ☐ Storage Tank ☐ Ground ☒ Other City of Tacoma Treatment System

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stablization of Parameters for three consecutive readings within the following limits	**+/- 3%**	**+/- 3%**	**+/- 10%**	**+/- 0.1 units**	**+/- 10 mV**	**+/- 10%**	**< 0.3 ft**	**>/= 1 flow through cell**	
9:50	11.9	978	3.62	6.84	-60.3	297.2	44.78	0.25	cloudy,brown,no,ns
9:53	12.5	631.3	3.26	6.59	-54.5	278.2	44.55	0.2	cloudy,brown,no,ns
9:56	12.5	558.1	3.59	6.32	-45.5	240.7	44.51	0.15	cloudy,brown,no,ns
9:59	12.7	566.6	3.02	6.3	-35.4	235	44.5	0.15	cloudy,tan,no,ns
10:02	13	559.1	2.82	6.07	-24	212.3	44.55	0.2	cloudy,tan,no,ns
10:05	13	562.7	2.68	6.11	-19.5	211.9	44.52	0.2	cloudy,tan,no,ns
10:08	13.1	536	2.6	6.12	-15.8	181.6	44.52	0.25	cloudy,tan,no,ns
10:11	13.2	524.3	2.44	6.12	-11.3	171.5	44.52	0.25	cloudy,tan,no,ns

SAMPLE COLLECTION DATA

Sample Collected With: ☐ Bailer ☒ Pump/Pump Type Wattera and PDB

Made of: ☐ Stainless Steel ☐ PVC ☐ Teflon ☒ Polyethylene ☐ Other ☒ Dedicated

Decon Procedure: ☒ Alconox Wash ☐ Tap Rinse ☒ DI Water ☐ Dedicated

(By Numerical Order) ☐ Other

Sample Description (color, turbidity, odor, sheen, etc.): cloudy,tan,no odor,no sheen

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	13.3	523.7	2.37	6.02	-8.8				
2	13.3	522.4	2.36	6.07	-8				
3	13.3	520.4	2.35	6.08	-7				
4	13.3	520.6	2.32	6.06	-5.9				
Average:	13.3	521.8	2.35	6.06	-7.4			0	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)		
3 voa	8260C: PCE, TCE, cis-1,2-DCE and VC	WA ☒	OR ☐
3 voa	RSK 175: Acetylene Methane Ethane Ethene	WA ☒	OR ☐
	EPA Method 300.0: Chloride/Sulfate		
1 unpres poly	EPA Method 300: Nitrate/Nitrite		
1 pres poly	SM 4500: Sulfide		
1 amber	SM 5310B: TOC		
	Ferrous Iron		

Duplicate Sample No(s):

Comments:

Signature: JDB Date: 3/6/2023

Groundwater Low-Flow Sample Collection Form

Project Name: Sauro's Cleanerama | Project Number: 94048.100.106

Event: March 2023 | Date/Time: 3/6/2023 12:40

Sample Number: LAI-MW3-20230306 | Weather: Overcast, 40F

Landau Representative: SMR/JBD

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure Yes Damaged No Describe: | DTB: 75.1

DTW Before Purging (ft) 51.6 Time: 12:03 | Flow through cell vol. | GW Meter No.(s TAC 100'

Begin Purge: Date/Time: 3/6/2023 12:14 | End Purge: Date/Time: 3/6/2023 12:39 | Gallons Purged: 0.8

Purge water disposed to: ☐ 55-gal Drum ☐ Storage Tank ☐ Ground ☒ Other City of Tacoma Treatment System

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stablization of Parameters for three consecutive readings within the following limits	**+/- 3%**	**+/- 3%**	**+/- 10%**	**+/- 0.1 units**	**+/- 10 mV**	**+/- 10%**	**< 0.3 ft**	**>/= 1 flow through cell**	
12:17	11.8	484.2	6.61	5.98	59.9	49.31	51.6	0.1	c,c,no,ns
12:20	12.7	486.7	3.44	5.82	62.5	111	51.6	0.1	c,c,no,ns
12:23	12.7	483.6	3.56	5.82	61.8	106.1	51.6	0.1	c,c,no,ns
12:26	12.8	482	3.33	5.79	60	114	51.6	0.1	c,c,no,ns
12:29	12.9	481	3.31	5.85	61.2	83.5	51.6	0.1	c,c,no,ns
12:32	13.1	480.8	3.07	5.79	60.9	80.51	51.6	0.1	c,c,no,ns
12:35	13.2	480.1	3.01	5.98	61	66.93	51.6	0.1	c,c,no,ns
12:38	13.2	479.8	3.01	5.71	60.9	53.05	51.6	0.1	c,c,no,ns

SAMPLE COLLECTION DATA

Sample Collected With: ☐ Bailer ☒ Pump/Pump Type Wattera and PDB

Made of: ☐ Stainless Steel ☐ PVC ☐ Teflon ☒ Polyethylene ☐ Other ☒ Dedicated

Decon Procedure: ☒ Alconox Wash ☐ Tap Rinse ☒ DI Water ☐ Dedicated

(By Numerical Order) ☐ Other

Sample Description (color, turbidity, odor, sheen, etc.): clear,colorless,no odor, no sheen

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	13.2	479.7	3.04	5.94	61.2				
2	13.2	479.7	3.03	5.99	61.1				
3	13.2	479.7	3.05	5.75	61.2				
4	13.2	479.7	3.04	5.81	61.2				
Average:	13.2	479.7	3.04	5.87	61.2			0	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)		
3 voa	8260C: PCE, TCE, cis-1,2-DCE and VC	WA ☒	OR ☐
3 voa	RSK 175: Acetylene Methane Ethane Ethene	WA ☒	OR ☐
	EPA Method 300.0: Chloride/Sulfate		
1 unpres poly	EPA Method 300: Nitrate/Nitrite		
1 pres poly	SM 4500: Sulfide		
1 amber	SM 5310B: TOC		
	Ferrous Iron		

Duplicate Sample No(s): Dup1-20230306

Comments:

Signature: JDB | Date: 3/6/2023

Groundwater Low-Flow Sample Collection Form

Project Name: Sauro's Cleanerama | Project Number: 94048.100.106

Event: March 2023 | Date/Time: 3/6/2023 12:41

Sample Number: Dup1-20230306 | Weather: Overcast, 40F

Landau Representative: SMR/JBD

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure Yes | Damaged No | Describe: | DTB: 75.1

DTW Before Purging (ft): 51.6 | Time: 12:03 | Flow through cell vol. | GW Meter No.(s TAC 100'

Begin Purge: Date/Time: 3/6/2023 12:15 | End Purge: Date/Time: 3/6/2023 12:40 | Gallons Purged: 0.8

Purge water disposed to: ☐ 55-gal Drum ☐ Storage Tank ☐ Ground ☒ Other City of Tacoma Treatment System

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stablization of Parameters for three consecutive readings within the following limits	**+/- 3%**	**+/- 3%**	**+/- 10%**	**+/- 0.1 units**	**+/- 10 mV**	**+/- 10%**	**< 0.3 ft**	**>/= 1 flow through cell**	
12:18	12.4	483.3	5.45	6.24	60.5	49.31	51.6	0.1	c,c,no,ns
12:21	12.5	495.1	4.2	5.71	66.2	111	51.6	0.1	c,c,no,ns
12:24	12.7	483.7	3.52	5.81	60.4	106.1	51.6	0.1	c,c,no,ns
12:27	12.8	481.5	3.61	5.86	60	114	51.6	0.1	c,c,no,ns
12:30	12.9	480.9	3.31	5.83	61	83.5	51.6	0.1	c,c,no,ns
12:33	13.1	480.5	3.13	5.76	60.8	80.51	51.6	0.1	c,c,no,ns
12:36	13.2	480.1	2.96	6.07	61.1	66.93	51.6	0.1	c,c,no,ns
12:39	13.2	479.8	3.03	5.86	61	53.05	51.6	0.1	c,c,no,ns

SAMPLE COLLECTION DATA

Sample Collected With: ☐ Bailer ☒ Pump/Pump Type Wattera and PDB

Made of: ☐ Stainless Steel ☐ PVC ☐ Teflon ☒ Polyethylene ☐ Other ☒ Dedicated

Decon Procedure: ☒ Alconox Wash ☐ Tap Rinse ☒ DI Water ☐ Dedicated

(By Numerical Order) ☐ Other

Sample Description (color, turbidity, odor, sheen, etc.): clear,colorless,no odor,no sheen

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	13.2	479.7	3.04	5.9	61.8				
2	13.2	479.8	3.03	5.6	61.5				
3	13.2	479.8	2.87	5.56	62				
4	13.2	479.9	2.74	5.06	62.5				
Average:	13.20	479.8	2.92	5.53	62.0			0	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)		
3 voa	8260C: PCE, TCE, cis-1,2-DCE and VC	WA ☒	OR ☐
3 voa	RSK 175: Acetylene Methane Ethane Ethene	WA ☒	OR ☐
	EPA Method 300.0: Chloride/Sulfate		
1 unpres poly	EPA Method 300: Nitrate/Nitrite		
1 pres poly	SM 4500: Sulfide		
1 amber	SM 5310B: TOC		
	Ferrous Iron		

Duplicate Sample No(s): LAI-MW3-20230306

Comments:

Signature: JDB | Date: 3/6/2023

Groundwater Low-Flow Sample Collection Form

Project Name: Sauro's Cleanerama | Project Number: 94048.100.106

Event: March 2023 | Date/Time: 3/6/2023 9:08

Sample Number: LAI-MW4-20230306 | Weather: Overcast, 32F

Landau Representative: SMR/JBD

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure Yes | Damaged Yes | Describe: Monument lid | DTB: 30

DTW Before Purging (ft) 11.56 | Time: 8:29 | Flow through cell vol. | GW Meter No.(s TAC 100'

Begin Purge: Date/Time: 3/6/2023 8:42 | End Purge: Date/Time: 3/6/2023 9:07 | Gallons Purged: 1

Purge water disposed to: ☐ 55-gal Drum ☐ Storage Tank ☐ Ground ☒ Other City of Tacoma Treatment System

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stablization of Parameters for three consecutive readings within the following limits	**+/- 3%**	**+/- 3%**	**+/- 10%**	**+/- 0.1 units**	**+/- 10 mV**	**+/- 10%**	**< 0.3 ft**	**>/= 1 flow through cell**	
8:45	11	11413	3.61	6.06	42	200.5	11.56	0.2	cloudy,c,no,ns
8:48	11.4	11255	2.69	6.07	18.9	181.7	11.56	0.2	cloudy,c,no,ns
8:51	11.5	11042	2.57	6.03	7.7	138.3	11.56	0.1	cloudy,c,no,ns
8:54	11	10930	2.84	6.08	-0.03	107.6	11.56	0.1	cloudy,c,no,ns
8:57	11.1	10827	2.46	6.09	-4.7	79.09	11.56	0.1	cloudy,c,no,ns
9:00	11.4	10540	2.41	6.09	-8.3	70.17	11.56	0.1	cloudy,c,no,ns
9:03	11.8	10477	2.53	6.06	-9.8	59.72	11.56	0.1	c,c,no,ns
9:06	11.8	10578	2.66	6.03	-10.1	55.85	11.56	0.1	c,c,no,ns

SAMPLE COLLECTION DATA

Sample Collected With: ☐ Bailer ☒ Pump/Pump Type Wattera and PDB

Made of: ☐ Stainless Steel ☐ PVC ☐ Teflon ☒ Polyethylene ☐ Other ☒ Dedicated

Decon Procedure: ☒ Alconox Wash ☐ Tap Rinse ☒ DI Water ☐ Dedicated

(By Numerical Order) ☐ Other

Sample Description (color, turbidity, odor, sheen, etc.): slightly cloudy, faint tan, no odor, no sheen

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	11.8	10642	2.75	6.04	-10.2				
2	11.9	10640	2.73	6.02	-10.2				
3	11.9	10666	2.83	6.04	-10.2				
4	11.9	10702	2.92	6.09	-10.2				
Average:	11.88	10662.50	2.81	6.05	-10.20			2.5	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)		
3 voa	8260C: PCE, TCE, cis-1,2-DCE and VC	WA ☒	OR ☐
3 voa	RSK 175: Acetylene Methane Ethane Ethene	WA ☒	OR ☐
	EPA Method 300.0: Chloride/Sulfate		
1 unpres poly	EPA Method 300: Nitrate/Nitrite		
1 pres poly	SM 4500: Sulfide		
1 amber	SM 5310B: TOC		
	Ferrous Iron		

Duplicate Sample No(s):

Comments:

Signature: JDB | Date: 3/6/2023

Groundwater Low-Flow Sample Collection Form

Project Name: Sauro's Cleanerama | Project Number: 94048.100.106

Event: March 2023 | Date/Time: 3/6/2023 16:20

Sample Number: MW13-20230306 | Weather: Overcast, 40F

Landau Representative: SMR/JBD

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure Yes Damaged No Describe: DTB: 54.4

DTW Before Purging (ft) 39.51 Time: 15:29 Flow through cell vol. GW Meter No.(s TAC 100'

Begin Purge: Date/Time: 3/6/2023 15:43 End Purge: Date/Time: 3/6/2023 16:10 Gallons Purged: 1.15

Purge water disposed to: ☐ 55-gal Drum ☐ Storage Tank ☐ Ground ☒ Other City of Tacoma Treatment System

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stablization of Parameters for three consecutive readings within the following limits	**+/- 3%**	**+/- 3%**	**+/- 10%**	**+/- 0.1 units**	**+/- 10 mV**	**+/- 10%**	**< 0.3 ft**	**>/= 1 flow through cell**	
15:46	13.6	476.5	3.28	7.46	75.1	641.5	39.51	0.1	cloudy,c,no,ns
15:49	13.7	484.4	3.18	6.58	74.8	279.1	39.51	0.15	cloudy,c,no,ns
15:52	13.9	482	3.22	6.42	72.4	257.3	39.51	0.15	cloudy,c,no,ns
15:55	14.1	475.7	3.07	5.91	72.1	322.9	39.51	0.15	cloudy,c,no,ns
15:58	14.2	467.9	3.3	5.67	73.2	256.1	39.51	0.15	cloudy,c,no,ns
16:01	14.2	463.8	3.03	6.42	73.8	287.5	39.51	0.15	cloudy,c,no,ns
16:04	14.1	462.3	2.98	5.33	74.6	269.4	39.51	0.15	cloudy,c,no,ns
16:07	14.2	459.9	2.91	6.56	73.1	258.8	39.51	0.15	cloudy,c,no,ns

SAMPLE COLLECTION DATA

Sample Collected With: ☐ Bailer ☒ Pump/Pump Type Wattera and PDB

Made of: ☐ Stainless Steel ☐ PVC ☐ Teflon ☒ Polyethylene ☐ Other ☒ Dedicated

Decon Procedure: ☒ Alconox Wash ☐ Tap Rinse ☒ DI Water ☐ Dedicated

(By Numerical Order) ☐ Other

Sample Description (color, turbidity, odor, sheen, etc.): cloudy,clear,no odor,no sheen

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	14.1	459.4	2.96	5.89	75.1				
2	14.1	459.7	2.97	6.3	73.8				
3	14.1	459.3	2.94	7.58	75.5				
4	14.1	458.7	2.92	4.66	74			0	
Average:	14.10	459.3	2.95	6.11	74.6				

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)		
3 voa	8260C: PCE, TCE, cis-1,2-DCE and VC	WA ☒	OR ☐
3 voa	RSK 175: Acetylene Methane Ethane Ethene	WA ☒	OR ☐
	EPA Method 300.0: Chloride/Sulfate		
1 unpres poly	EPA Method 300: Nitrate/Nitrite		
1 pres poly	SM 4500: Sulfide		
1 amber	SM 5310B: TOC		
	Ferrous Iron		

Duplicate Sample No(s):

Comments: pH readinbgs erratic

Signature: JDB Date: 3/6/2023

Groundwater Low-Flow Sample Collection Form

Project Name: Sauro's Cleanerama | Project Number: 94048.100.106

Event: March 2023 | Date/Time: 3/6/2023 14:01

Sample Number: RNS-MW2-20230306 | Weather: Overcast, 40F

Landau Representative: SMR/JBD

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure Yes Damaged No Describe: | DTB: 38.3

DTW Before Purging (ft) 16.56 | Time: 13:25 | Flow through cell vol. | GW Meter No.(s TAC 100'

Begin Purge: Date/Time: 3/6/2023 13:35 | End Purge: Date/Time: 3/6/2023 14:00 | Gallons Purged: 0.8

Purge water disposed to: ☐ 55-gal Drum ☐ Storage Tank ☐ Ground ☒ Other City of Tacoma Treatment System

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stablization of Parameters for three consecutive readings within the following limits	**+/- 3%**	**+/- 3%**	**+/- 10%**	**+/- 0.1 units**	**+/- 10 mV**	**+/- 10%**	**< 0.3 ft**	**>/= 1 flow through cell**	
13:38	12.2	439.6	6.76	8.64	83.3	234	16.56	0.1	cloudy,c,no,ns
13:41	13	438.9	6.23	6.07	81.7	306.5	16.56	0.1	cloudy,c,no,ns
13:44	13.2	439.2	6.02	6.2	81.7	342.8	16.56	0.1	cloudy,c,no,ns
13:47	13.2	436.9	5.92	6.02	82.1	316.8	16.56	0.1	cloudy,c,no,ns
13:50	13.2	440	5.88	6.31	80.5	267.4	16.56	0.1	cloudy,c,no,ns
13:53	13.3	440.4	5.87	6.66	80.8	216.9	16.56	0.1	cloudy,c,no,ns
13:56	13.3	440.5	5.89	6.44	81.4	179.5	16.56	0.1	cloudy,c,no,ns
13:59	13.4	440.3	5.79	5.52	83.9	150.2	16.56	0.1	cloudy,c,no,ns

SAMPLE COLLECTION DATA

Sample Collected With: ☐ Bailer ☒ Pump/Pump Type Wattera and PDB

Made of: ☐ Stainless Steel ☐ PVC ☐ Teflon ☒ Polyethylene ☐ Other ☒ Dedicated

Decon Procedure: ☒ Alconox Wash ☐ Tap Rinse ☒ DI Water ☐ Dedicated

(By Numerical Order) ☐ Other

Sample Description (color, turbidity, odor, sheen, etc.): cloudy,colorless,no odor,no sheen

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	13.4	440.5	5.76	6.78	83.5				
2	13.4	440	5.81	4.36	82.7				
3	13.3	440.2	5.8	5.55	82.2				
4	13.4	439.9	5.78	4.26	82.8			0.1	
Average:	13.38	440.2	5.79	5.24	82.8				

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)		
3 voa	8260C: PCE, TCE, cis-1,2-DCE and VC	WA ☒	OR ☐
3 voa	RSK 175: Acetylene Methane Ethane Ethene	WA ☒	OR ☐
	EPA Method 300.0: Chloride/Sulfate		
1 unpres poly	EPA Method 300: Nitrate/Nitrite		
1 pres poly	SM 4500: Sulfide		
1 amber	SM 5310B: TOC		
	Ferrous Iron		

Duplicate Sample No(s):

Comments: pH has large rapid changes

Signature: JDB | Date: 3/6/2023

Groundwater Low-Flow Sample Collection Form

Project Name: Sauro's Cleanerama | Project Number: 94048.100.106

Event: March 2023 | Date/Time: 3/6/2023 14:30

Sample Number: RNS-MW6-42.5-20230306 | Weather: Overcast, 32F

Landau Representative: SMR/JBD

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure Yes | Damaged No | Describe: | DTB: 54.1

DTW Before Purging (ft) 36.04 | Time: 14:25 | Flow through cell vol. | GW Meter No.(s TAC 100'

Begin Purge: Date/Time: | End Purge: Date/Time: | Gallons Purged:

Purge water disposed to: ☐ 55-gal Drum ☐ Storage Tank ☐ Ground ☒ Other City of Tacoma Treatment System

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stablization of Parameters for three consecutive readings within the following limits	**+/- 3%**	**+/- 3%**	**+/- 10%**	**+/- 0.1 units**	**+/- 10 mV**	**+/- 10%**	**< 0.3 ft**	**>/= 1 flow through cell**	

SAMPLE COLLECTION DATA

Sample Collected With: ☐ Bailer ☐ Pump/Pump Type

Made of: ☐ Stainless Steel ☐ PVC ☐ Teflon ☐ Polyethylene ☐ Other ☐ Dedicated

Decon Procedure: ☒ Alconox Wash ☒ Tap Rinse ☒ DI Water ☐ Dedicated

(By Numerical Order) ☐ Other

Sample Description (color, turbidity, odor, sheen, etc.):

Turbidity before sampling: 292

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1									
2									
3									
4								0	
Average:									

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)		
3 voa	8260C: PCE, TCE, cis-1,2-DCE and VC	WA ☒	OR ☐
3 voa	RSK 175: Acetylene Methane Ethane Ethene	WA ☒	OR ☐
	EPA Method 300.0: Chloride/Sulfate		
1 unpres poly	EPA Method 300: Nitrate/Nitrite		
1 pres poly	SM 4500: Sulfide		
1 amber	SM 5310B: TOC		
	Ferrous Iron		

Duplicate Sample No(s):

Comments: PDB only

Signature: JDB | Date: 3/6/2023

LANDAU ASSOCIATES

Groundwater Low-Flow Sample Collection Form

Project Name: Sauro's Cleanerama | Project Number: 94048.100.106

Event: March 2023 | Date/Time: 3/6/2023 15:10

Sample Number: RNS-MW6-52.5-20230306 | Weather: Overcast, 32F

Landau Representative: SMR/JBD

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure Yes | Damaged No | Describe: | DTB: 54.1

DTW Before Purging (ft) 36.04 | Time: 14:25 | Flow through cell vol. | GW Meter No.(s TAC 100'

Begin Purge: Date/Time: 3/6/2023 14:44 | End Purge: Date/Time: 3/6/2023 15:09 | Gallons Purged: 2

Purge water disposed to: ☐ 55-gal Drum ☐ Storage Tank ☐ Ground ☒ Other City of Tacoma Treatment System

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stablization of Parameters for three consecutive readings within the following limits	**+/- 3%**	**+/- 3%**	**+/- 10%**	**+/- 0.1 units**	**+/- 10 mV**	**+/- 10%**	**< 0.3 ft**	**>/= 1 flow through cell**	
14:47	14.1	502.5	2.7	5.71	87.3	842.9	36.04	0.25	cloudy,c,no,ns
14:50	14.1	510.8	1.04	6.12	84.6	567.1	36.04	0.25	cloudy,c,no,ns
14:53	14.8	512.6	0.56	5.73	83.8	514.8	36.04	0.25	cloudy,c,no,ns
14:56	14.9	512.7	0.51	5.64	83.1	533.6	36.04	0.25	cloudy,c,no,ns
14:59:00	14.9	513.8	0.48	5.26	82.7	443.2	36.04	0.25	cloudy,c,no,ns
15:02	14.8	515	0.47	5.66	81.5	421.4	36.04	0.25	cloudy,c,no,ns
15:05	14.8	515.9	0.45	5.94	81.3	463.7	36.04	0.25	cloudy,c,no,ns
15:08	14.8	516.6	0.45	5.56	81.2	450.4	36.04	0.25	cloudy,c,no,ns

SAMPLE COLLECTION DATA

Sample Collected With: ☐ Bailer ☒ Pump/Pump Type NA - PDB

Made of: ☐ Stainless Steel ☐ PVC ☐ Teflon ☒ Polyethylene ☐ Other ☒ Dedicated

Decon Procedure: ☒ Alconox Wash ☐ Tap Rinse ☒ DI Water ☐ Dedicated

(By Numerical Order) ☐ Other

Sample Description (color, turbidity, odor, sheen, etc.): cloudy, slightly tan, no odor, no sheen

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	14.8	517.5	0.44	5.31	81				
2	14.8	518.1	0.46	5.03	80.9				
3	14.8	518.3	0.44	5.96	80.8				
4	14.8	518.6	0.44	5.59	80.5			0	
Average:	14.80	518.13	0.45	5.47	80.80				

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)		
3 voa	8260C: PCE, TCE, cis-1,2-DCE and VC	WA ☒	OR ☐
		WA ☒	OR ☐

Duplicate Sample No(s):

Comments: Foot valve replaced after sampling, slight leak

Signature: JDB | Date: 3/6/2023

LANDAU ASSOCIATES

Groundwater Low-Flow Sample Collection Form

Project Name: Sauro's Cleanerama | Project Number: 94048.100.106

Event: March 2023 | Date/Time: 3/7/2023 8:35

Sample Number: LAI-MW5-20230307 | Weather: Clear 40 F

Landau Representative: SMR

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES) Damaged (NO) | Describe: Flushmount | DTB: 53.5

DTW Before Purging (ft): 23.86 | Time: 7:43 | Flow through cell vol. | GW Meter No.(s TAC 100'

Begin Purge: Date/Time: 3/7/2023 8:08 | End Purge: Date/Time: 3/7/2023 8:23 | Gallons Purged: 2.5

Purge water disposed to: ☐ 55-gal Drum ☐ Storage Tank ☐ Ground ☒ Other City of Tacoma Treatment System

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stablization of Parameters for three consecutive readings within the following limits	**+/- 3%**	**+/- 3%**	**+/- 10%**	**+/- 0.1 units**	**+/- 10 mV**	**+/- 10%**	**< 0.3 ft**	**>/= 1 flow through cell**	
8:11	12.6	453.3	5.96	6.82	-67	354.6	23.48		
8:14	12.8	504	5.43	6.67	-57.8	261.7	23.48		
8:17	13.2	531	5.49	6.69	-48.4	241.2	23.49		
8:20	13.2	544	5.59	6.68	-43.1	238.9	23.48		
8:23	13.5	559	5.62	6.69	-42	226.6	23.49		

SAMPLE COLLECTION DATA

Sample Collected With: ☐ Bailer ☒ Pump/Pump Type Wattera and PDB

Made of: ☐ Stainless Steel ☐ PVC ☐ Teflon ☒ Polyethylene ☐ Other ☒ Dedicated

Decon Procedure: ☒ Alconox Wash ☐ Tap Rinse ☒ DI Water ☐ Dedicated

(By Numerical Order) ☐ Other

Sample Description (color, turbidity, odor, sheen, etc.): Slightly cloudy w/ fine parts; slight odor/ns

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	13.6	556	5.5	6.68	-41.2			1.5	
2	13.6	556	5.47	6.63	-41.1				
3	13.6	556	5.46	6.67	-41.1				
4	13.6	556	5.44	6.7	-41				
Average:	13.6	556.0	5.47	6.67	-41.1				

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)		
3 voa	8260C: PCE, TCE, cis-1,2-DCE and VC	WA ☐	OR ☐
3 voa	RSK 175: Acetylene Methane Ethane Ethene	WA ☐	OR ☐
	EPA Method 300.0: Chloride/Sulfate		
1 unpres poly	EPA Method 300: Nitrate/Nitrite		
1 pres poly	SM 4500: Sulfide		
1 amber	SM 5310B: TOC		
	Ferrous Iron		

Duplicate Sample No(s):

Comments:

Signature: SMR | Date: 3/7/2023

Groundwater Low-Flow Sample Collection Form

Project Name: Sauro's Cleanerama | Project Number: 94048.100.106

Event: March 2023 | Date/Time: 3/7/2023 9:35

Sample Number: MW2-20230307 | Weather: Clear 40 F

Landau Representative: SMR

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES) Damaged (NO) | Describe: Flushmount | DTB: 19.62

DTW Before Purging (ft): 15.55 | Time: 8:54 | Flow through cell vol. | GW Meter No.(s Oly CMT

Begin Purge: Date/Time: 3/7/2023 8:58 | End Purge: Date/Time: 3/7/2023 8:23 | Gallons Purged: 1

Purge water disposed to: ☐ 55-gal Drum ☐ Storage Tank ☐ Ground ☒ Other City of Tacoma Treatment System

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stablization of Parameters for three consecutive readings within the following limits	**+/- 3%**	**+/- 3%**	**+/- 10%**	**+/- 0.1 units**	**+/- 10 mV**	**+/- 10%**	**< 0.3 ft**	**>/= 1 flow through cell**	
9:01	10.6	507	4.41	6.55	-27.3	143.5			
9:04	10.7	503	2.28	6.52	-23	312.5			Well is slowly begin
	WELL RAN DRY								

SAMPLE COLLECTION DATA

Sample Collected With: ☐ Bailer ☒ Pump/Pump Type Peristaltic

Made of: ☐ Stainless Steel ☐ PVC ☐ Teflon ☒ Polyethylene ☐ Other ☒ Dedicated

Decon Procedure: ☒ Alconox Wash ☒ Tap Rinse ☒ DI Water ☐ Dedicated

(By Numerical Order) ☐ Other

Sample Description (color, turbidity, odor, sheen, etc.): Cloudy w/ particulates; slight odor NS

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	10.1	491	1.57	6.43	-14			0.5	Well ran dry
2	10.1	491	1.55	6.43	-13.9				
3	10.1	491	1.54	6.43	-13.8				
4	10.1	491	1.54	6.43	-13.7				
Average:	10.1	491	1.55	6.43	-13.9				

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)		
3 voa	8260C: PCE, TCE, cis-1,2-DCE and VC	WA ☐	OR ☐
3 voa	RSK 175: Acetylene Methane Ethane Ethene	WA ☐	OR ☐
	EPA Method 300.0: Chloride/Sulfate		
1 unpres poly	EPA Method 300: Nitrate/Nitrite		
1 pres poly	SM 4500: Sulfide		
1 amber	SM 5310B: TOC		
	Ferrous Iron		

Duplicate Sample No(s):

Comments: Took approximately 1 hour to fill all of the bottles, well kept running dry.

Signature: SMR | Date: 3/7/2023