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Mr. Keith Nowell
Hazardous Materials Specialist
Alameda County Department of Environmental Health
1131 Harbor Bay Pkwy
Alameda, California 94502

Subject: Work Plan for Soil Gas Investigation and Additional 2017 Activities
City of Oakland Municipal Service Center (MSC)
7101 Edgewater Drive Oakland California

Reference: ACDEH Fuel Leak Case No. RO0000293; GeoTracker Global ID T0600100375

Dear Mr. Nowell:

The City of Oakland is pleased to submit the attached Work Plan for Soil Gas Investigation and Additional 2017 Activities prepared by Terraphase. I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document submitted on City's behalf to ACDEH's FTP server and the SWRCB's GeoTracker website.

Please contact me at (510) 238-7314 if you have any questions or comments.

Sincerely,

Kayleigh Lim
Environmental Program Specialist

June 15, 2017

Keith Nowell
Hazardous Materials Specialist
Alameda County Department of Environmental Health
1131 Harbor Bay Pkwy
Alameda, California 94502

sent via email to keith.nowell@acgov.org*; uploaded to GeoTracker and Alameda County FTP site*

Subject: Transmittal of Deliverables
RO293- City of Oakland Municipal Service Center
7101 Edgewater Drive, GeoTracker Global ID T0600100375

Dear Mr. Nowell:

Terraphase has prepared the attached tabulated work plan on behalf of the City of Oakland for the City of Oakland Municipal Service Center located at 7101 Edgewater Drive in Oakland California. In a meeting dated May 31, 2017 with the Alameda County Department of Environmental Health (ACDEH), the City of Oakland proposed the following activities:

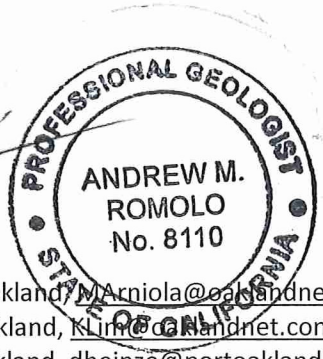
- Soil Gas Investigation: Soil gas samples will be collected from permanent soil gas wells to be installed adjacent to site buildings and biased to evaluate if utility corridors are preferential pathways for contaminants of concern.
    - Sub slab vapor sampling was discussed as a contingency sampling activity based on the results of the soil gas investigation.
    - Soil gas sampling will take place in June/early July 2017 as well as October 2017.
- Additional Soil and Groundwater Characterization: Based on soil, soil gas and groundwater data collected across the Site, a Work Plan will be prepared to collect additional soil and groundwater data using a membrane interface probe (MIP) and ultra-violet optical screening tool (UVOST) technology.
- A second groundwater monitoring and sampling event to be scheduled in October 2017.

The additional monitoring and sampling data will be used to further refine the site conceptual model and assess if additional remedial activities are warranted at the Site. In addition, with this submittal, Terraphase has included an update regarding the previous data gap investigation completed at the Site and the results of groundwater monitoring completed in May 2017.

As discussed with the ACDEH, the City of Oakland can schedule the soil gas well installations and sampling to take place by the end of June 2017, if regulatory and permitting approvals are feasible. If you have any question or comments regarding this submittal, please contact Andrew Romolo at Andrew.romolo@terraphase.com or 510-645-1850 x34.

For Terraphase Engineering Inc.

Andrew Romolo, P.G.



cc:
Mark Arinola, City of Oakland, MArniola@oaklandnet.com
Kayleigh Lim, City of Oakland, KLim@oaklandnet.com
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Enclosures:

1. Work Plan for Soil Gas Investigation
   - Table 1: Sample Matrix
   - Figure 1: Site Location
   - Figure 2: Proposed Soil Gas Well Locations with Site Features and Utilities
   - Figure 3: Typical Soil Gas Well Construction
   - Attachment A: Soil Gas Well Installation and Sampling Technical Guide
   - Attachment B: Standard Operating Procedure, Installation and Extraction of Vapor Pin®

2. Data Gap Status Update Package, June 2017, with attachments A through G

3. Results of May 2017 Groundwater Monitoring Activities
   - Table 1: Groundwater Elevation Data
   - Table 2: Chemical Concentrations in Groundwater
   - Figure 1: Site Location
   - Figure 2: Groundwater Elevation Contours, May 10, 2017
   - Figure 3: Groundwater Chemical Data, May 10, 2017
   - Attachment A: Groundwater Field Sampling Logs, May 10-11, 2017
   - Attachment B: Laboratory Analytical Reports

Work Plan for Soil Gas Investigation and Additional 2017 Activities
City of Oakland Municipal Service Center
7101 Edgewater Drive Oakland, California

Subtask	Description	Proposed Scope/Methodology	Rationale	Analyses/Methods	Projected Completion Date
PHASE I: Soil Gas Investigation					
a.	Installation and sampling of permanent soil gas wells across the Site.	The objective of this phase of investigation is to install and sample permanent soil gas wells at 13 locations to assess soil gas conditions across the Site in proximity to existing buildings. Proposed sampling locations are presented on attached **Figure 2.** A sample matrix presenting proposed analytical methods and sample containers is presented as **Table 1**. Proposed analyses are selected based on known chemicals of concern present in other media at the Site (soil, groundwater). Soil gas sample locations are proposed adjacent to buildings and biased to evaluate whether nearby utility corridors are acting as preferential pathways between known impacts and the sensitive receptors (building occupants). Resulting chemical data will support an evaluation if additional sub slab sample data is required at the buildings. Prior to soil gas well installation, a private utility locator will survey proposed boring locations to ensure that subsurface utility locations are well marked. An Underground Service Alert ticket will also be opened for the work. A boring permit from Alameda County Public Works Department will be secured prior to initiation of boring activities. Soil gas samples will be collected from permanent wells installed at depths between 3-5 feet below ground surface (bgs). Depth to water across the Site ranges between approximately 2 feet bgs and 9 feet bgs. Care will be taken to install wells above saturated soils to prevent moisture from compromising sample collection. If the sample point (i.e. the filter tip of the sampling tube) cannot be installed at a minimum of 3 feet bgs due to saturated conditions, the location will be abandoned since construction of a shallower soil gas well will result in a surface seal that may not be sufficient to protect from atmospheric infiltration during sampling. . Well locations will be advanced by hand auger, and will be constructed with Teflon tubing, a 1-inch stainless steel filter tip emplaced in a 1-foot sand pack (with approximately 6-inches of sand below the filter tip), and sealed with bentonite and grout. Soil gas well construction is presented as Figure 3. Wells will be sampled a minimum of 48 hours following installation, and will be purged prior to collecting a sample as described in utilizing Summa canisters. A helium shroud will be utilized for leak detection at each sample location. All soil gas sampling activities will be performed in general accordance with the DTSC's most recent guidance (*Active Soil Gas Advisory, 2011).* Procedures for soil gas well installation and sampling are included as Attachment A.	In order to support eventual Site closure under LTCP, this media and potential pathway requires assessment. Results of sampling will provide characterization of soil gas in select areas across the Site. Locations have been selected to provide data between the known source areas and the potential (human) receptors in buildings. An evaluation of the data will determine whether additional sampling methods and locations are necessary to evaluate the potential for vapor intrusion concerns.	• TPH-g • BTEX • Naphthalene • Methane • Fixed gases • Helium (leak detection compound)	**End of June, 2017**
b.	Contingency Task: Vapor pin installation and sub-slab vapor sample collection.	Based on the encountered conditions in the field, and analytical results of the June 2017 soil gas sampling event described above, Terraphase may recommend collection of sub-slab vapor samples from beneath the slabs of existing on-Site buildings as a contingency data collection program. Groundwater is known to be shallow at the Site, and an increase in the elevation of the water table has been observed over recent years. The most recently measured depths to groundwater are included in Table 1 of the enclosed Groundwater Monitoring Activities documents. Permanent soil gas wells cannot reliably be installed with the filter tip emplaced shallower than 3 feet below ground surface. If shallow saturated soils prevent some or all of the proposed permanent soil gas wells to be installed as described above, sub-slab vapor sampling may be utilized as an alternative investigation method. Additionally, if data generated from successful sampling of permanent soil gas wells as described above indicates that concentrations of certain chemicals may pose a vapor intrusion risk, sub-slab sampling may also be recommended. Collection of sub-slab data supports a more accurate assessment of potential vapor intrusion conditions. If warranted, Vapor Pin® sub-slab sample points will be installed in general accordance with the procedures presented in Attachment B. The sub-slab sampling program, if warranted, (i.e. number, location, analytical program) will be determined by any available results of soil gas data from soil gas wells, and will be presented in an addendum to this work plan. If data from the soil gas sampling event does not indicate the presence of potential vapor intrusion concerns, no sub-slab sampling will be proposed. In this instance, data from a second round of soil gas sampling from the 13 proposed permanent soil gas wells will also be evaluated to determine the necessity of performing sub-slab sampling.	Shallow groundwater conditions may inhibit installation of permanent soil gas wells at the Site. Vapor Pins® installed for sub-slab soil gas sampling may be an appropriate alternative. Additionally, soil gas data generated from sampling of the soil gas wells as described above may be insufficient to accurately assess vapor intrusion into on-Site buildings. Sub-slab soil gas data is better suited to evaluating this pathway. If soil gas conditions outside Site buildings are elevated, additional sampling, including sub-slab vapor pin samples, may be recommended for the most accurate vapor intrusion assessment.	TBD.	**Contingency sampling**
c.	Second sampling of permanent soil gas wells.	A second round of soil gas samples from all 13 permanent soil gas wells is proposed to occur in approximately October 2017. This will satisfy DTSC guidance and ACDEH recommendations for conducting sampling in both wet and dry seasons of one year. Soil gas wells will be constructed with materials and completions that support repeated sampling over several years to monitor soil gas conditions over time.	Guidance recommends multiple sampling events to demonstrate any effects of temporal or seasonal changes on soil gas conditions. The analytical program for this event may be adjusted from the first round of soil gas sampling based on detected compounds. Results of any additional Site investigations (See Phase II, below) will be utilized to refine the soil gas program.	Same as item A The analytical program for this event may be adjusted from the first round of soil gas sampling based on detected compounds. Results of any additional Site investigations (See Phase II, below) will be utilized to refine the soil gas program.	**October 2017**

Subtask	Description	Proposed Scope/Methodology	Rationale	Analyses/Methods	Projected Completion Date
PHASE II: Additional Subsurface Characterization - TBD					
a.	MIP and UVOST Investigation	Membrane interface probe (MIP) and Ultra Violet Optical Screening Tool (UVOST) technologies are proposed for an additional phase of Site screening/assessment. MIP and UVOST borings will be advanced in areas of known impacts/historical product plume(s), and step out borings will be advanced outwards in linear fashion to provide impact delineation and to close remaining data gaps. A work plan for this phase of additional Site investigation will be provided to ACDEH by August 30, 2017. Results of the recent groundwater monitoring event and the upcoming soil gas sampling will be incorporated in the proposed sampling locations for MIP and UVOST.	The proposed investigation is intended to provide vertical and horizontal delineation of VOCs in areas with residual impacts. Arcadis' 2016 Data Gap Investigation identified areas where additional characterization is warranted. Results of the investigation will support any recommendations for confirmatory soil, soil gas, and/or groundwater sampling locations to provide quantified chemical data at targeted locations identified by MIP.	Real-time, in the field *qualitative* response to VOC impacts. No lab analyses.	**September 2017**
PHASE III: Ongoing Groundwater Monitoring					
a.	Access well locations not sampled during the May 2017 event	• A total of 7 wells were found to be inaccessible during the May 2017 groundwater monitoring event. • MW-12 is believed to be buried under stored materials or possibly a shipping container in the northwest portion of the Site. Terraphase will work with on-Site personnel to move materials and attempt to locate this well for sampling. • RW-B3 was buried under a pile of telephone poles during the May event. Terraphase will work with on-Site personnel to move materials to access this well for sampling. • RW-C4, RW-C5, RW-C6, RW-C7, and OB-C1 were unable to be opened. The well vaults/lids appeared to be cemented shut; heavy equipment was utilized to attempt to access these locations during the May 2017 sampling event, but efforts were unsuccessful. One potential approach is to remove the un-openable vaults using a jackhammer or similar, and re-install working vaults at these 5 wells. If this approach is undertaken, extreme care will be taken not to damage the well casing. • Terraphase and the City of Oakland will undertake all necessary and available methods to access the 7 wells listed above. If and when these wells are accessible, Terraphase will conduct a supplementary groundwater sampling event to collect data from those wells included in the May 2017 proposed sampling program (depth to water will be gauged at all 7 wells; samples will be collected at MW-12, RW-C6, and RW-C7).	Seven wells were inaccessible during the May 2017 groundwater monitoring event. Efforts to enable sampling at these wells is warranted. Necessary measures may include working with Site personnel to move on-Site items, and re-installing surface completions at wells whose vaults are unable to be opened.	Moving stored materials obstructing MW-12 and RW-B3. Installation of replacement vaults at RW-C4, RW-C5, RW-C6, RW-C7, and OB-C1, if warranted by further investigation	**Ongoing from June 2017**
b.	Second Semester 2017 Groundwater Monitoring Event	• Collect groundwater samples from selected well network and submit for chemical analysis. • Utilize low flow sampling methods at all wells for sample collection, if feasible. [Three well volumes and/or purge and recharge will be utilized for wells that do not perform during attempted low flow]. • Chemical data and field measured water quality parameters (dissolved oxygen [DO], oxidation-reduction potential [ORP], conductivity, and pH) will be evaluated to assess whether current conditions are favorable for natural attenuation. • Presence of free product, if encountered, will be used to update current plume extents. • Select samples will be run for side-by-side TPH-d and TPH-mo analyses with and without the silica gel cleanup procedure. An evaluation of the resulting data will be utilized to assess the presence of biogenic hydrocarbons and polars compounds, and will be utilized to support Terraphase's recommendation for use (or elimination) of this preparation method in future sampling events. • Chromatographs of TPH data will be closely evaluated to provide supporting information about nature and condition of remaining impacts, variation across the Site, and to support inferences about relative stability of the material. • Results of this semi-annual sampling event will be reported within 90 days of the date of sampling; appropriate deliverables (TBD in consultation with ACDEH) will be uploaded to GeoTracker.	Groundwater monitoring was recently performed in May 2017. Results of that event are appended to this work plan. A second sampling event for 2017 is proposed to occur at the end of the dry season.	• TPH-g, TPH-d, TPH-mo, TPH-k, (8015B) With and Without Silica Gel Cleanup, as appropriate • BTEX, MTBE (8260B) • TOC (5310C)	**October 2017**

Tables

Table 1
Sample Matrix
Work Plan for Soil Gas Sampling
Oakland Municipal Services Center
7101 Edgewater Drive, Oakland California

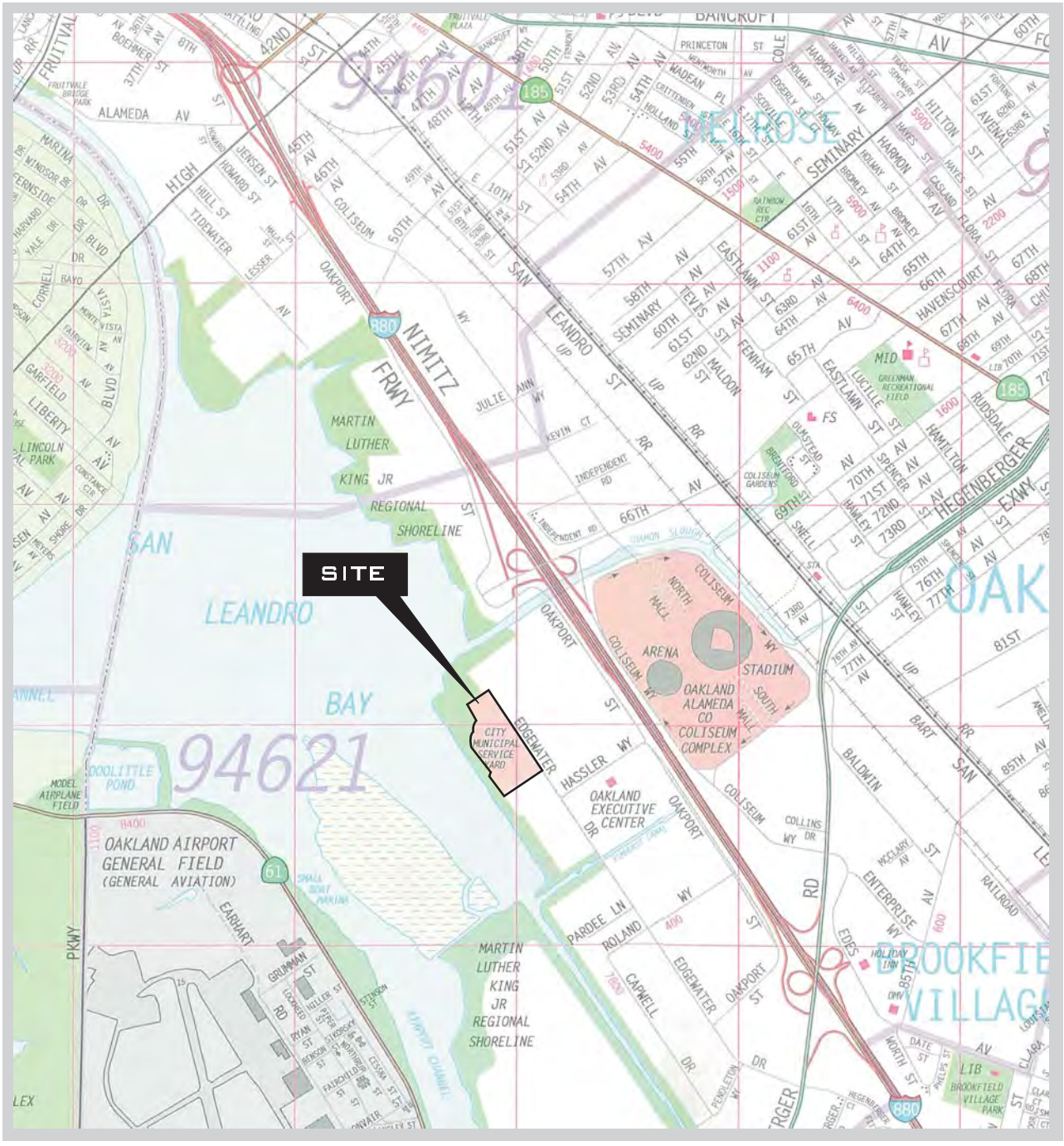
terraphase engineering

Proposed Analyses and Analytical Methods

	Fixed Gases (ASTM 1946)	Methane (ASTM 1946)	TPH-g (TO-15)	BTEX (TO-15)	Naphthalene (TO-15)	Sample Container
Units	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	
Field ID						
SG-1	X	X	X	X	X	1 L Summa
SG-2	X	X	X	X	X	1 L Summa
SG-3	X	X	X	X	X	1 L Summa
SG-4	X	X	X	X	X	1 L Summa
SG-5	X	X	X	X	X	1 L Summa
SG-6	X	X	X	X	X	1 L Summa
SG-7	X	X	X	X	X	1 L Summa
SG-8	X	X	X	X	X	1 L Summa
SG-9	X	X	X	X	X	1 L Summa
SG-10	X	X	X	X	X	1 L Summa
SG-11	X	X	X	X	X	1 L Summa
SG-12	X	X	X	X	X	1 L Summa
SG-13	X	X	X	X	X	1 L Summa

Notes:
ASTM = American Society for Testing and Methods
BTEX = benzene, toluene, ethylbenzene, xylenes
Fixed gases = oxygen, carbon dioxide, helium (leak check compound)
TPH-g = Total petroluem hydrocarbons as gasoline
TO-15 = United States Environmental Protection Agency Method TO-15
µg/m^3 = micorgrams per cubic meter
1 L Summa = One-liter volume Summa® cannister

Figures



SOURCE: 2002 THOMAS GUIDE FOR ALAMEDA AND CONTRA COSTA COUNTIES

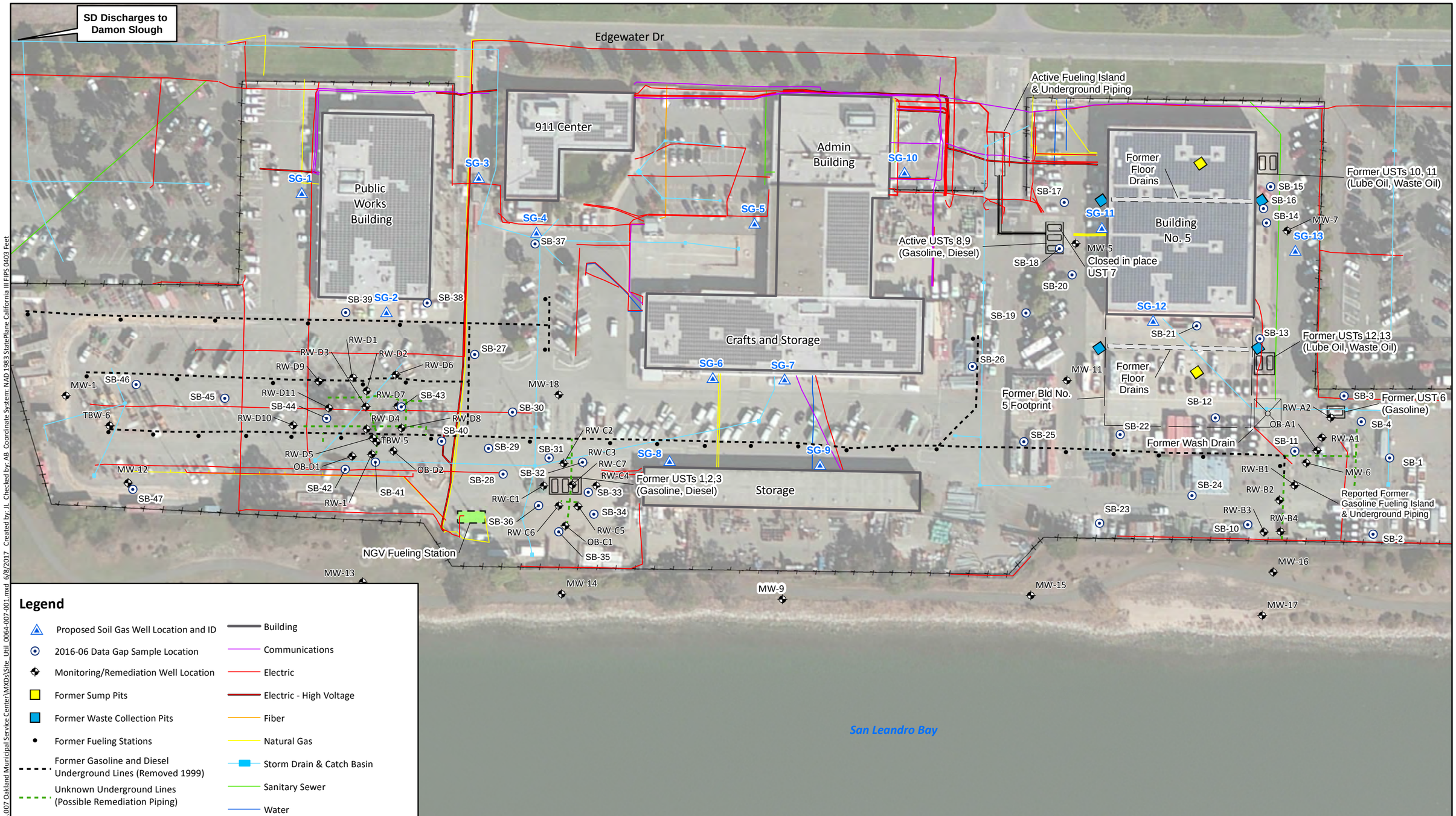
SITE LOCATION

Oakland Municipal Service Center
7101 Edgewater Drive, Oakland, California

terraphase engineering

FIGURE
1

DESIGN\09225\11\000\09225 MSC SiteVicinity.CDR



Legend

- Proposed Soil Gas Well Location and ID
- 2016-06 Data Gap Sample Location
- Monitoring/Remediation Well Location
- Former Sump Pits
- Former Waste Collection Pits
- Former Fueling Stations
- Former Gasoline and Diesel Underground Lines (Removed 1999)
- Unknown Underground Lines (Possible Remediation Piping)
- Building
- Communications
- Electric
- Electric - High Voltage
- Fiber
- Natural Gas
- Storm Drain & Catch Basin
- Sanitary Sewer
- Water

Notes:
Aerial imagery source - NAIP June 2014.
Geophysical Survey Data (2015) provided by previous Site consultant: accuracy unconfirmed by Terraphase.

0 50 100 150 200 Feet

1 inch = 100 feet

N

SAFETY FIRST

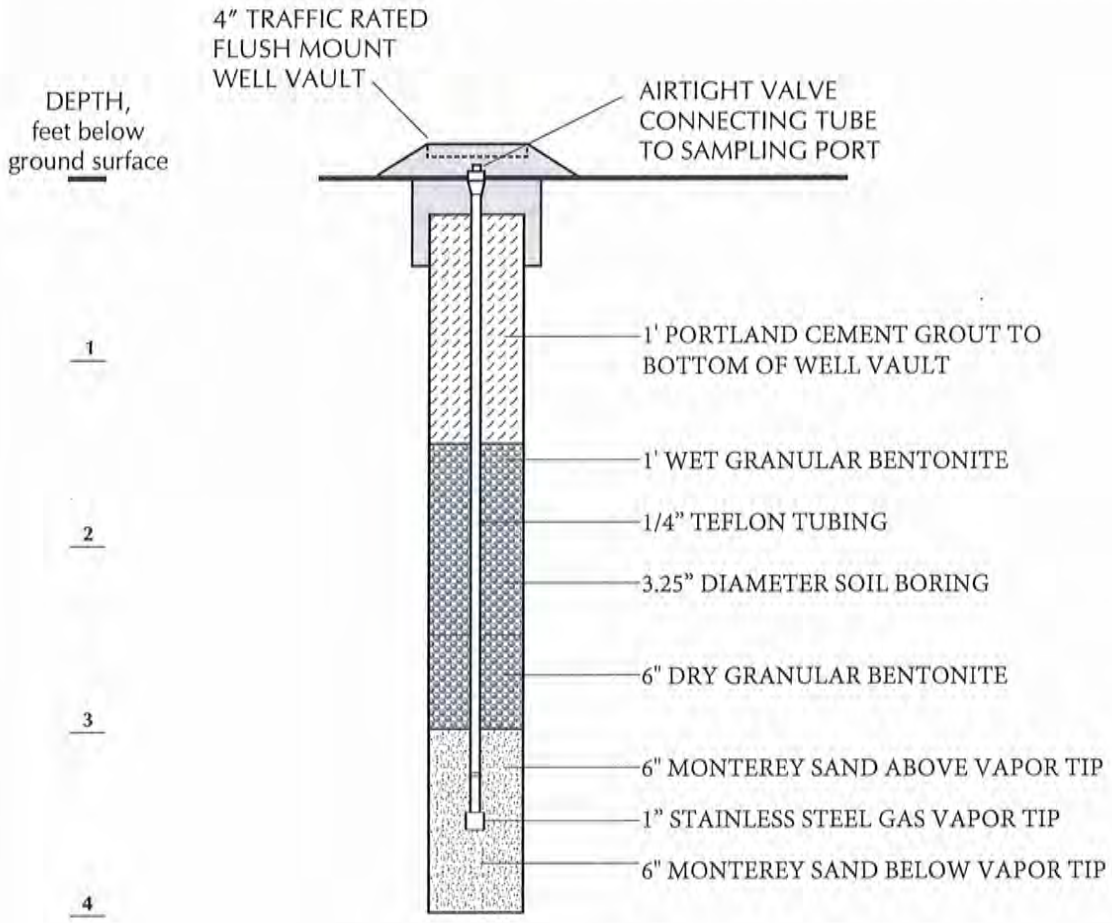
terraphase engineering

CLIENT:	Municipal Service Center
PROJECT:	Work Plan for Soil Gas Investigation 7101 Edgewater Drive, Oakland CA
PROJECT NUMBER:	0064.007.001

Proposed Soil Gas Well Locations with Site Features and Utilities

FIGURE 2

File: J:\GIS Backup\GIS Data\0064.007 Oakland Municipal Service Center\MXDs\Site_Util_0064-007-001.mxd 6/8/2017 Created by: JL Checked by: AB Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet



SHALLOW SOIL GAS WELL
(4 FEET BGS)

NOT TO SCALE

Typical Soil Gas Well Construction

terraphase engineering

FIGURE 3

Attachment A

Soil Gas Well Installation and Sampling Technical Guide

SOIL GAS WELL INSTALLATION AND SAMPLING TECHNICAL GUIDE

1.0 PERFORMANCE OBJECTIVE

The purpose of this guide is to describe the procedures that shall be used during the installation of permanent soil gas wells and soil gas sample collection. These procedures are the recommended handling procedures to be used during all soil gas sampling in order to provide consistency in sample collection technique. Strict adherence to these procedures shall help ensure that the soil gas sampling results in meaningful and accurate data. The sampling activities should be performed in general accordance with Department of Toxic Substance (DTSC) and California Environmental Protection Agency (Cal/EPA) guidance (DTSC 2011 and 2012; Cal/EPA 2012).

2.0 INSTALLATION

The following procedures shall be adhered to during the installation of soil gas sampling probes. Well locations will be advanced by hand auger to a depth of 3.5 to 5 feet. A stainless steel gas vapor tip will be placed six inches above the bottom of the borehole connected to Teflon or Teflon-lined tubing extending to the ground surface. At the ground surface, the tubing will be fitted with an airtight valve using a Swagelok or equivalent. The borehole will be backfilled with one foot of clean sand, with six inches sitting below the gas vapor tip and six inches above the gas vapor tip. The remainder of the borehole will be backfilled with six inches of dry bentonite followed by at minimum one foot of hydrated bentonite, hydrated in six-inch lifts. The surface of the installation should be sealed with grout, and covered with a traffic rated flush mount well vault for protection.

After installation, a small amount of soil vapor will be purged from the probe to adequately flush the sample probe and line. The subsurface vapor points will then be capped to ensure no moisture enters the tubing, and allowed to equilibrate at minimum 48 hours prior to sampling.

3.0 SAMPLE EQUIPMENT

- Sample canister (SUMMA canister, tedlar bag, or similar);
- Sampling manifold with flow controller pre-set to proper flow rate (100-200mL/min) from lab;
- Sample inlet line (nylaflow or tefflon tubing) with proper fittings for connections to the well and the sampling manifold (Swagelok or Tygon tubing fittings);
- Purging device (60 mL syringe with Luer-Lok tip/3 way valve, pump, or extra SUMMA canister);

- Sampling shroud (shown in Figure 1 below) either constructed by Terraphase or supplied by the lab;
- Weights (placed on top of the shroud to improve the surface seal);
- Helium supply with compatible flow regulator (or similar leak detection gas/liquid);
- MGD-2002 helium detector, or Gas Alert Micro 5 PID (or similar) multi-gas meter;
- Soil gas sampling field logs;
- Recommended Tools:
    - Clipboard
    - Flathead screwdriver
    - 9/16 inch and 1/2 inch open end combo wrenches
    - Scissors/Snips to cut tubing
    - Ball point pen
    - Nitrile gloves

Figure 1: Soil Gas Sampling Shroud

- Fittings for connecting soil gas well to manifold/sampling apparatus
    - Common fittings include:
        - Swagelock – ¼ inch – Plug SAF 2507 (Superlok 316 SDJ 1/4)
        - 3-way or 1-way Polycarbonate stop valve (Luer Lok)
        - 2 inch section of tygon tubing with zip-ties
- Stopwatch or other time keeping device; and
- HASP

4.0 SOIL GAS SAMPLING METHODS

Soil gas sampling should not occur during a significant rain event (1/2 inch or greater during a 24-hour period) and should only occur after five days without a significant rain event. This is because rainfall limits the transport of volatile contaminants by decreasing the air-filled porosity in shallow soil. Soil gas contaminants may partition into clean infiltrating rainwater, which may potentially bias soil gas sampling results.

4.1 Sample Apparatus Leak Test

Prior to initiating soil-gas sampling activities, an initial leak test will be conducted to assess the sample apparatus fittings. With the valves at the sample canister and the soil-gas well both in the closed position, a manual purging device (i.e.; gas tight syringe with purge valve) will be used to apply a vacuum to the sampling apparatus of at least 10 inches of mercury (Hg). The valve between the tee and the manual purging device will then be closed to observe whether the vacuum is maintained in the sampling apparatus between the soil-gas well and the sample canister. After receiving the canister from the laboratory, and prior to sampling, the pressure in the canister should be measured and recorded to ensure that the appropriate negative pressure exists within the sample container. Screening of hydrocarbons may be performed using a PID or FID meter.

4.2 Soil-Gas Purging

In accordance with DTSC guidance, the purpose of the purging activities is to remove stagnant soil-gas in the soil-gas well tubing and screen prior to sample collection. A minimum of three purge volumes will be extracted prior to sampling. Soil-gas will be purged using the manual purging device (i.e., gas-tight syringe). If water is entrained in the sampling system during purging or sampling, the sampling will be discontinued. A note will be made on the field form that the soil-gas sample was unrecoverable. Purge volumes will be calculated to include the vapor probe tip, tubing, 30% available sand porosity, and an assumed 50% porosity for the dry bentonite zone. To aid in the calculation of the well volume, a purge calculator has been created and saved on the Terraphase server in the file path below:

J:\Project Management Policies and Forms\Field Forms\Soil Gas, Indoor, Outdoor Air

4.3 Soil-Gas Sample Collection

Prior to the sample collection, the sample shroud will be placed around the top of the soil-gas well and the soil-gas sample apparatus (connected to the well). A weight will be used to seal the shroud with the ground surface. The helium detector will be connected to the shroud so that helium measurements of the shroud atmosphere may be recorded. The helium supply will be connected to the shroud and the air inside the shroud will be enriched with helium (or other gas used for leak detection) to a target concentration of 25% by volume (measured using a portable helium detector). Helium levels will be maintained and recorded on the soil gas sampling field logs throughout sampling. After the leak check has been performed and the soil-gas point has been purged, a sample will be collected in the sample canister.

To begin sampling the valve will then be opened on the sample canister and the start time of sample collection, the initial helium concentration inside the shroud, and vacuum inside the canister will be recorded on the field form. Measurements of the helium inside the shroud and remaining vacuum inside the sample canister will be collected every 1-minute after the canister

valve has been opened. Either the sample canister or the connected sampling manifold will be fitted by the laboratory with a vacuum gauge and critical orifice flow regulation device sized to allow sample collection at a flow rate of approximately 100 to 200 mL/min. The flow rate will be verified from the rate of change in the canister vacuum.

The sample canister valve will be shut off so that there is residual vacuum left in the canister (residual vacuum will be approximately 5 inches of Hg). The residual vacuum will be recorded on the field form. If the soil-gas sampling is not completed within the expected timeframe, approximately 8 to 9 minutes for a 1-liter canister, the vacuum on the sampling apparatus will continue to be monitored. If the rate of change in vacuum indicates the target vacuum cannot be met within 30 minutes, sampling will be stopped and the analysis of the sample may be infeasible or limited if insufficient sample volume is obtained.

Selected laboratory analyses for constituents of concern will be run in addition to the tracer gas (helium by Method ASTM D-1946). The weather conditions during the field investigations will also be documented. An ambient air leak up to 5% is considered acceptable by the DTSC if quantitative tracer testing is performed by shrouding.

5.0 DOCUMENTATION

Field documentation will be maintained in the soil gas sampling field logs recording, at a minimum, the site and weather conditions observed at the time of the soil gas sample collection, the sample duration, the beginning and ending canister pressures, the beginning and ending Helium percentages/concentrations measured by the field instrument and any deviations from the above protocol. It is recommended that the canister pressure and the percentage of Helium be recorded throughout sampling. For the standard soil gas sampling that typically has a sample duration of less than 10 minutes, canister pressure and Helium percentage readings every 1 to 3 minutes would be sufficient.

6.0 SPECIAL NOTES

Duplicate samples will be collected from a single soil-gas implant affixed with a “Y” connection that has two tubes that connect to separate SUMMA canisters or other sampling devices.

Each vacuum gauge should be inspected prior to use as they can sometimes be damaged during transport. Gauges that are reading well outside of their indicated range or have broken protective housing or stuck needles shall not be used.

When ordering laboratory equipment, a minimum of one extra set (i.e. SUMMA canister and manifold) should be ordered than the number of samples planned for collection in case of damaged equipment, leaking fittings, or insufficient canister vacuum.

Attachment B

Standard Operating Procedure, Installation and Extraction of Vapor Pin®

Standard Operating Procedure Installation and Extraction of the Vapor Pin®

Updated September 9, 2016

Scope:

This standard operating procedure describes the installation and extraction of the VAPOR PIN® for use in sub-slab soil-gas sampling.

Purpose:

The purpose of this procedure is to assure good quality control in field operations and uniformity between field personnel in the use of the VAPOR PIN® for the collection of sub-slab soil-gas samples or pressure readings.

Equipment Needed:

- Assembled VAPOR PIN® [VAPOR PIN® and silicone sleeve(Figure 1)]; Because of sharp edges, gloves are recommended for sleeve installation;
- Hammer drill;
- 5/8-inch (16mm) diameter hammer bit (hole **must** be 5/8-inch (16mm) diameter to ensure seal. It is recommended that you use the drill guide). (Hilti™ TE-YX 5/8" x 22" (400 mm) #00206514 or equivalent);
- 1½-inch (38mm) diameter hammer bit (Hilti™ TE-YX 1½" x 23" #00293032 or equivalent) for flush mount applications;
- ¾-inch (19mm) diameter bottle brush;
- Wet/Dry vacuum with HEPA filter (optional);
- VAPOR PIN® installation/extraction tool;
- Dead blow hammer;
- VAPOR PIN® flush mount cover, if desired;
- VAPOR PIN® drilling guide, if desired;
- VAPOR PIN® protective cap; and
- VOC-free hole patching material (hydraulic cement) and putty knife or trowel for repairing the hole following the extraction of the VAPOR PIN®.

Figure 1. Assembled VAPOR PIN®

Installation Procedure:

1) Check for buried obstacles (pipes, electrical lines, etc.) prior to proceeding.

2) Set up wet/dry vacuum to collect drill cuttings.

3) If a flush mount installation is required, drill a 1½-inch (38mm) diameter hole at least 1¾-inches (45mm) into the slab. Use of a VAPOR PIN® drilling guide is recommended.

4) Drill a 5/8-inch (16mm) diameter hole through the slab and approximately 1-inch (25mm) into the underlying soil to form a void. Hole **must** be 5/8-inch (16mm) in diameter to ensure seal. It is recommended that you use the drill guide.

VAPOR PIN® protected under US Patent # 8,220,347 B2, US 9,291,531 B2 and other patents pending

5) Remove the drill bit, brush the hole with the bottle brush, and remove the loose cuttings with the vacuum.

6) Place the lower end of VAPOR PIN® assembly into the drilled hole. Place the small hole located in the handle of the installation/extraction tool over the vapor pin to protect the barb fitting, and tap the vapor pin into place using a dead blow hammer (Figure 2). Make sure the installation/extraction tool is aligned parallel to the vapor pin to avoid damaging the barb fitting.

Figure 2. Installing the VAPOR PIN®

During installation, the silicone sleeve will form a slight bulge between the slab and the VAPOR PIN® shoulder. Place the protective cap on VAPOR PIN® to prevent vapor loss prior to sampling (Figure 3).

Figure 3. Installed VAPOR PIN®

7) For flush mount installations, cover the vapor pin with a flush mount cover, using either the plastic cover or the optional stainless-steel Secure Cover (Figure 4).

Figure 4. Secure Cover Installed

8) Allow 20 minutes or more (consult applicable guidance for your situation) for the sub-slab soil-gas conditions to re-equilibrate prior to sampling.

9) Remove protective cap and connect sample tubing to the barb fitting of the VAPOR PIN®. This connection can be made using a short piece of Tygon™ tubing to join the VAPOR PIN® with the Nylaflow tubing (Figure 5). Put the

Nylaflow tubing as close to the VAPOR PIN® as possible to minimize contact between soil gas and Tygon™ tubing.

Figure 5. VAPOR PIN® sample connection

10) Conduct leak tests in accordance with applicable guidance. If the method of leak testing is not specified, an alternative can be the use of a water dam and vacuum pump, as described in SOP Leak Testing the VAPOR PIN® via Mechanical Means (Figure 6). For flush-mount installations, distilled water can be poured directly into the 1 1/2 inch (38mm) hole.

Figure 6. Water dam used for leak detection

11) Collect sub-slab soil gas sample or pressure reading. When finished, replace the protective cap and flush mount cover until the next event. If the sampling is complete, extract the VAPOR PIN®.

Extraction Procedure:

1) Remove the protective cap, and thread the installation/extraction tool onto the barrel of the VAPOR PIN® (Figure 7). Turn the tool clockwise continuously, don't stop turning, the VAPOR PIN® will feed into the bottom of the installation/extraction tool and will extract from the hole like a wine cork, DO NOT PULL.

2) Fill the void with hydraulic cement and smooth with a trowel or putty knife.

Figure 7. Removing the VAPOR PIN®

- Prior to reuse, remove the silicone sleeve and protective cap and discard. Decontaminate the VAPOR PIN® in a hot water and Alconox® wash, then heat in an oven to a temperature of 265° F (130° C) for 15 to 30 minutes. For both steps, **STAINLESS – ½ hour, BRASS 8 minutes**

3) Replacement parts and supplies are available online.

Data Gap Status Update

Oakland Municipal Service Center
7101 Edgewater Drive, Oakland, California

Prepared by

Terraphase Engineering Inc.
1404 Franklin Street, Suite 600
Oakland, California

June 2017

terraphase engineering

CONTENTS

Data Gap Investigation Status Update, June 2017

ATTACHMENTS

A Figure 1: Site Utilities
B Mass Removal Summary
C Summary of Groundwater Elevation and Analytical Data, February 2015
D Historical Groundwater Elevation Contour Figures
E Hydrographs
F June 2016 Soil and Groundwater Sampling Data Tables and Figures
G ACDEH Email Memorandum, May 31, 2017

Data Gap Investigation Status Update
Oakland Municipal Service Center
7101 Edgewater Drive Oakland, California
June 2017

<table>
<tr><th>Task</th><th>Data Gap Item Description</th><th>Proposed Investigation (Arcadis)</th><th>Rationale</th><th>Status Update
Arcadis / Terraphase</th><th>Arcadis' Priority Category</th></tr>
<tr><td colspan="6">TASK 1: CONDUCT CONDUIT STUDY - COMPLETED</td></tr>
<tr><td>1.</td><td>The precise locations of the elements of the storm drain system, the sanitary sewer system, and the conveyance piping are unknown.</td><td>The November 2004 Conduit Study by Ninyo & Moore will be reviewed to assess the locations of the subsurface storm drain and sanitary sewer systems.
Additional utility surveys will be conducted if the Conduit Study by Ninyo & Moore is assessed to be inadequate. A private third-party utility locator will be contracted to identify underground utilities. Magnetic, electromagnetic, sonic/acoustic, ground penetrating radar (GPR) and live line detector techniques will be used to detect, trace, and map buried utilities.</td><td>These potential preferential pathways may be located in portions of the Site that intersect areas with impacted groundwater, thus potentially acting as a conduit for contaminant migration.</td><td>The November 2004 Conduit Study by Ninyo & Moore and other available utility figures were reviewed by Arcadis to assess the locations of the subsurface utilities at the Site. Based on the review, the historical records for underground utilities at the MSC were found to be incomplete, and that the survey that was conducted focused only on certain areas of the MSC.
In the spring of 2015, Arcadis staff performed a site-wide utility survey with a utility locating subcontractor. Arcadis provided TEI with the resulting utility map of the Site produced in Spring 2015 (exact date unknown).
TEI has utilized Arcadis' survey and all available historical documentation provided by Arcadis, the City and the Port of Oakland, to create a compilation figure. This overlay figure includes current and historic Site features and utilities in order to support evaluation of possible preferential pathways created by utility corridors and historical subsurface features.
The Site Utilities Figure is presented as Attachment A.</td><td>A</td></tr>
<tr><td colspan="6">TASK 2: MONITORING WELL NETWORK ASSESSMENT – IN PROGRESS</td></tr>
<tr><td>2a.</td><td>Permitting / utility clearance for all tasks below, including Task 2, 3 and 8</td><td>Well and encroachment permits, and utility clearance for all soil borings, temporary wells and monitoring well locations (Task 2, Task 3 and Task 8).</td><td>To save cost and time, utility clearance and permitting were performed for all tasks below as one event.</td><td>Completed.</td><td>B</td></tr>
<tr><td>2b</td><td>Wells MW-1 and RW-D8 have submerged well screens (average groundwater elevation is greater than the top of the well's screened interval).
MW-1 is located in a portion of the Site where light non-aqueous phase liquid (LNAPL) has not been detected. Chemical concentrations have decreased over time and current water-quality results do not suggest that LNAPL is present.
RW-D8 is located in a portion of the Site where LNAPL has been present (identified Plume D area). The potential presence of LNAPL cannot be assessed adequately in well RW-D8.</td><td>Collect in-situ groundwater samples from temporary wells at two locations southwest of RW-D8 (equidistant between RW-D8 and RW-C1) and two locations east of MW-1 (equidistant between MW-1 and RW-D9) to assess the potential presence of free product and groundwater quality between the Plume D and Plume C areas and the area west of the Plume D.
• The temporary wells will be installed using direct push rig technology to approximately 15 to 20 feet below ground surface (bgs).
• Soil will be logged continuously and samples may be collected based on field observations and photoionization detector (PID) readings.
• The temporary wells will be constructed such that they screen across the water table based on field observation and measurement from nearby wells RW-D8 and RW-C1.
• If LNAPL is not present in the temporary wells, grab groundwater samples will be collected from each temporary well and submitted under chain-of-custody protocol to Curtis & Tompkins, Ltd., Analytical Laboratories (C&T), a California Department of Health Services-certified environmental laboratory located in Berkeley, California.
• A monitoring well, or wells, may be recommended based on the results of this assessment.</td><td>Historically, LNAPL has been observed in Plume C and Plume D. The temporary wells will be located in between the two plumes to assess the potential presence of free product. Two additional borings will be located west of Plume D (between wells MW-1 and RW-D9) to evaluate the potential presence of LNAPL and groundwater quality.</td><td>Direct push borings SB-28 and SB-40 were advanced to 20' bgs by Arcadis between RW-D8 and RW-C1 in June 2016. Grab groundwater samples were collected from temporary wells at these locations which were screened from 10'-15' bgs. LNAPL was reportedly not encountered in either temporary well. Analytical results of sampling and testing from this investigation and the most recent groundwater monitoring event are as follows: (RW-C7 is adjacent to RW-C1)
<table>
<tr><th>Analyte</th><th>SB-28 (2016)</th><th>SB-40 (2016)</th><th>RW-D8 (2013)</th><th>RW-C7 (2013)</th></tr>
<tr><td>TPH as Diesel</td><td>27,000</td><td>34,000</td><td>1,800 Y</td><td>340 Y</td></tr>
<tr><td>TPH as Gasoline</td><td>220,000</td><td>20,000</td><td>4,200</td><td>120</td></tr>
<tr><td>TPH as Motor Oil</td><td>23,000</td><td>11,000</td><td>790</td><td>340</td></tr>
<tr><td>Benzene</td><td>6700</td><td>1400</td><td>14</td><td>21</td></tr>
<tr><td>Ethylbenzene</td><td>250</td><td>98</td><td>14</td><td><0.50</td></tr>
<tr><td>Methyl Tertiary Butyl Ether</td><td><50</td><td><13</td><td><0.50</td><td><0.50</td></tr>
<tr><td>Toluene</td><td>150</td><td>32</td><td>15</td><td>0.68</td></tr>
<tr><td>Xylene (o)</td><td><50</td><td>26</td><td>NA</td><td>NA</td></tr>
<tr><td>Xylene Total</td><td>230</td><td>69</td><td>450</td><td>3.82</td></tr>
</table>
Red font indicates exceedance of ESLs – Saltwater Ecotox.
Shaded cells indicate exceedance of ESLs - Commercial-Industrial for vapor intrusion.

Direct push borings SB-45 and SB-46 were advanced to 20' bgs by Arcadis between MW-1 and RW-D9 in June 2016. Grab groundwater samples were collected from temporary wells at these locations which were screened from 10'-15' bgs. LNAPL was reportedly not encountered in either temporary well. Analytical results of sampling and testing from this investigation and the most recent groundwater monitoring event are as follows:
<table>
<tr><th>Analyte</th><th>SB-45 (2016)</th><th>SB-46 (2016)</th><th>MW-1 (2017)</th><th>RW-D9 (2013)</th></tr>
<tr><td>TPH as Diesel</td><td>1200</td><td>97,000</td><td>170 Y</td><td>93 Y</td></tr>
<tr><td>TPH as Gasoline</td><td>5600Y</td><td>7400Y</td><td>990</td><td>590</td></tr>
<tr><td>TPH as Motor Oil</td><td>420</td><td>10,000</td><td><380</td><td><290</td></tr>
<tr><td>Benzene</td><td>0.5</td><td><0.5</td><td>3.5</td><td>120</td></tr>
<tr><td>Ethylbenzene</td><td>1</td><td><0.5</td><td><0.5</td><td>5.4</td></tr>
<tr><td>Methyl Tertiary Butyl Ether</td><td><0.5</td><td><0.5</td><td><0.5</td><td><0.50</td></tr>
<tr><td>Toluene</td><td><0.5</td><td><0.5</td><td>1.2</td><td>4.0</td></tr>
<tr><td>Xylene (o)</td><td><0.5</td><td><0.5</td><td><0.5</td><td>NA</td></tr>
<tr><td>Xylene Total</td><td><0.5</td><td><0.5</td><td>1.5</td><td>58</td></tr>
</table>
Red font indicates exceedance of ESLs – Saltwater Ecotox.
Shaded cells indicate exceedance of ESLs - Commercial-Industrial for vapor intrusion.
No new monitoring wells were installed at the Site by Arcadis as a result of testing. New wells (if needed) will be proposed by Terraphase following the MIP/UVOST investigation.
Data from Arcadis' investigation are presented in Attachment F.</td><td>B</td></tr>
</table>

Data Gap Investigation Status Update
Oakland Municipal Service Center
7101 Edgewater Drive Oakland, California
June 2017

Task	Data Gap Item Description	Proposed Investigation (Arcadis)	Rationale	Status Update Arcadis / Terraphase	Priority Category
TASK 2 (continued): MONITORING WELL NETWORK ASSESSMENT – IN PROGRESS					
2c	Remediation wells RW-D6 through RW-D11 are screened over a 15-foot interval. As a result, groundwater samples collected from these wells may be diluted.	Collect groundwater samples from wells OB-D1 and OB-D2 which are located near, and downgradient, of remediation wells RW-D6 through RW-D11. The screens in these two wells are 10 feet in length. • Depth to groundwater and depth to LNAPL will be measured using an electric oil/water interface probe • A polyvinyl chloride (PVC) sampling bailer will be used to purge a minimum of three well-casing volumes of groundwater and the wells will be allowed to recover to at least 80 percent of their original static groundwater levels before they are sampled, or at least two hours of recovery time, whichever comes first. Dissolved oxygen, temperature, pH, conductivity, and oxidation-reduction potential will be measured for each well volume purged. Additionally, characteristics of the water (color, turbidity, odor, sheen) will be noted on the field data sheets • The samples will be secured in a chilled cooler and transported to C&T.	Collecting groundwater samples from wells OB-D1 and OB-D2 will provide adequate groundwater quality data in this portion of the Site. In addition, groundwater data obtained from wells OB-D1 and OB-D2 will be compared to data previously collected from remediation wells RW-D6 through RW-D11 to assess if the groundwater samples collected from RW-D6 through RW-D11 may have been diluted.	Wells OB-D1 and OB-D2 were sampled on February 9 and 10, 2015 by Arcadis in accordance with the outlined procedures. Collected samples were analyzed for TPH-d, TPH-mo and TPH-k by EPA Method 8015B with Silica Gel Clean-up, and for TPH-g and BTEX compounds by EPA Method 8260B. Tables and Figures were produced by Arcadis. Depth to groundwater was measured at each well. LNAPL free product was not observed in either well; however, sheen was observed at OB-D1 and an odor was detected at OB-D2. The sampling results from OB-D1 and OB-D2 are similar to the results seen in RW-D6 through RW-D11. The results are within the same order of magnitude, indicative that the groundwater concentrations detected in RW-D6 through RW-D11 were minimally diluted. Data from Arcadis' investigation are presented in Attachment F.	A
2d	Top-of-casing elevations are not available for the following wells: MW-18, OB-A1, RW-D6 through RW-D11, and RW-1.	The top of casing and ground surface elevation, as well as the northing and easting for these wells, will be surveyed by a California-licensed land surveyor.	These data will allow the groundwater elevation data from these wells to be used to better assess conditions at the Site and allows for more precision in assessing groundwater flow direction. These data will be provided to the Department of Water Resources (DWR)	TEI recommends re-surveying all on-Site wells during one mobilization to ensure that groundwater gradient is calculated consistently and accurately.	C
2e	Potential obstruction in well OB-C1	Conduct a field assessment of the well condition and propose action to fix the well. A downhole camera will be used to inspect the sidewalls of the well. Deterioration, obstruction, perforation blockage, or other physical damage to the casing or screen will be noted. The well will be repaired based on the condition of the well. The well may be abandoned and re-installed, if needed.	Potential obstruction prohibits groundwater elevation and water-quality data from being obtained at this location.	On February 11, 2015, Arcadis staff visually inspected well OB-C1. The initial total depth measured in the 2-inch diameter well was about 4.5 feet below ground surface. Further inspection indicated that the well contained a significant amount of mud and sediment. Arcadis staff used a 10-foot rod and bailed out about 5.5 gallons of mud and silty water, clearing the well to about 9.5 feet below ground surface. Heavy sheen and strong odor were present in the mud/silt water. The source of the sediment is unknown, but possibilities include large perforations in the well screen or material falling into the well because of an unsecured well cap. A well construction or boring log was not available for this well. It is recommended to redevelop this well, or potentially replacing it if the redevelopment is not successful. On June 21, 2016, Arcadis redeveloped well OB-C1. The well was surged with a 2" plug attached to ¾" PVC, and a stainless steel bailer was used to remove groundwater and sediments; this surging and bailing was repeated five times. Total depth of the well was increased from 9.3' BTOC pre-development to 14.4' BTOC post-development. 25 gallons of material were removed from the well during redevelopment. Dark brown oil was observed in the well and removed material throughout the development. Redevelopment was stopped at this time due to continued presence of oil; however, a significant amount of sediment was noted to be present in water purged from the well. This indicates that full redevelopment was not achieved. Terraphase recommends additional effort to evacuate the oil and sediment from this well and clean it sufficiently for use.	A
2f	Lack of water in well MW-16 and the presence of a black, tar-like coating on the casing of this well	Abandon and replace well MW-16 to an appropriate depth. Prior to abandonment, MW-16 will be inspected and depth to water at this location will be measured to confirm that it is no longer an appropriate monitoring point.	During the July 2013 Arcadis sampling event, the well appeared to be dry, in addition, black, tar-like coating was observed on the casing of this well. Well MW-16 was completed at a depth approximately five feet less than nearby, down gradient well MW-17. Based on this and the presence of the black, tar-like coating on the casing of this well, it is likely no longer an appropriate monitoring point.	Terraphase proposes continued assessment of the existing MW-16 prior to replacement. During our recent groundwater monitoring event in May 2017, MW-16 was found to be in good condition, with no observations of black, tar-like coating on the casing, and had sufficient water to sample. During future sampling events, MW-16 will be evaluated for changing conditions that may warrant replacement. Results of the proposed MIP and UVOST investigation may be utilized to ensure that a replacement well, if necessary, is best located to provide data down-gradient of known Site impacts but up-gradient of MW-17 and the Bay.	B

Data Gap Investigation Status Update
Oakland Municipal Service Center
7101 Edgewater Drive Oakland, California
June 2017

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Arcadis / Terraphase</th><th>Priority Category</th></tr>
<tr><td colspan="6">TASK 3: PLUME DELINEATION – IN PROGRESS</td></tr>
<tr><td>3a-1</td><td>The lateral extent of affected groundwater near former plume D is not adequately defined</td><td>Monitor and collect groundwater samples from wells MW-18; RW-D1; RW-D2, RW-D7; OB-D1, and OB-D2. These wells will be monitored and sampled using similar method described in Task 2b</td><td>LNAPL was historically present in the former Plume D but was no longer observed after October 2009. To assess the lateral extent of affected groundwater by LNAPL, groundwater samples will be collected from adjacent wells, including RW-D1, RW-D7, RW-D10 which were last sampled in November 2008 and wells RW-D2, OB-D1, OB-D2, which have never been sampled.</td><td>Wells MW-18, RW-D1, RW-D2, RW-D7, OB-D1, and OB-D2 were sampled by Arcadis on February 9 and 10, 2015 in accordance with the outlined procedures.
Collected samples were analyzed for TPH-d, TPH-mo and TPH-k by EPA Method 8015B with Silica Gel Clean-up, and for TPH-g and BTEX compounds by EPA Method 8260B. The analytical results are summarized in Arcadis' attached Table 1, and are illustrated on Arcadis' attached Figure 1 (Attachment C). In addition, the data are screened against previously set Water Quality Objectives for this site.
Depth to groundwater was measured at each well (see Table 1). LNAPL was not observed in any of the monitored wells; however, sheen was observed in RW-D1 and OB-D1, and an odor was detected in RW-D1, RW-D2, and OB-D2.
No measurable product was noted in any of the wells gauged during the May 2017 groundwater monitoring event.</td><td>A</td></tr>
<tr><td>3a-2</td><td></td><td>Collect in-situ groundwater samples from temporary wells at three locations north, east and southeast of RW-D6 to assess the potential impact in groundwater. These temporary wells will be installed and sampled using similar method described in Task 2a</td><td>Three additional grab water samples north east and southeast of plume D are also proposed to further assess the up- and cross gradient of the plume.</td><td>Soil borings SB-27, SB-38, and SB-39, were advanced by Arcadis in June 2016: north, east and southeast of "plume D".
Grab groundwater samples were collected from temporary wells at these locations which were screened from 10'-15' bgs. LNAPL was reportedly not encountered in any of the temporary wells. Analytical results of sampling and testing from this investigation are as follows:
<table>
<tr><th>Analyte</th><th>SB-27</th><th>SB-38</th><th>SB-39</th></tr>
<tr><td></td><td>6/7/2016</td><td>6/8/2016</td><td>6/8/2016</td></tr>
<tr><td>TPH as Diesel</td><td>150Y</td><td>3500Y</td><td>480Y</td></tr>
<tr><td>TPH as Gasoline</td><td>360</td><td>8300Y</td><td>410</td></tr>
<tr><td>TPH as Motor Oil</td><td>370</td><td><400</td><td>1100</td></tr>
<tr><td>Benzene</td><td>15</td><td><1</td><td>8</td></tr>
<tr><td>Ethylbenzene</td><td>8.4</td><td>5.7</td><td>4.8</td></tr>
<tr><td>Methyl Tertiary Butyl Ether</td><td><0.5</td><td><1</td><td><0.5</td></tr>
<tr><td>Toluene</td><td>15</td><td><1</td><td>6.9</td></tr>
<tr><td>Xylene (o)</td><td>14</td><td><1</td><td>7.7</td></tr>
<tr><td>Xylene Total</td><td>25</td><td><1</td><td>8.7</td></tr>
</table>
Red font indicates exceedance of ESLs – Saltwater Ecotox.
Shaded cells indicate exceedance of ESLs - Commercial-Industrial for vapor intrusion.
Plume delineation was not achieved with these samples due to elevated detections in 2016 grab groundwater samples.
Data from Arcadis' investigation are presented in Attachment F.</td><td>B</td></tr>
<tr><td>3b.</td><td>The lateral extent of affected groundwater in the north, east, and south near former plume C is not adequately defined</td><td>Monitor wells RWC1, RWC2, & OB-C2 for LNAPL and groundwater quality (see Task 2d). These wells will be monitored and sampled using similar methods as described in Task 2b</td><td>LNAPL was historically present in the former plume C but was not observed after April 2010. To assess the lateral extent of affected groundwater; samples will be collected from well RW-C2 (never collected) and wells RW-C1 & RW-C3 (last sampled in Nov.2008).</td><td>Wells RW-C1 and RW-C2 were sampled on February 10 and 11, 2015 in accordance with the outlined procedures.
Collected samples were analyzed for TPH-d, TPH-mo and TPH-k by EPA Method 8015B with Silica Gel Clean-up, and for TPH-g and BTEX compounds by EPA Method 8260B. The analytical results are summarized in Arcadis' attached Table 1, and are illustrated on Arcadis' attached Figure 1 (Attachment C). In addition, the data are screened against previously set Water Quality Objectives for this site.
Depth to groundwater was measured at each well (see Table 1). LNAPL free product was not observed in either well; however, sheen and a strong odor were detected at well RW-C2.
Groundwater samples were not collected from well OB-C1 as the well was filled with sediment. (See task 2e for more details on the well OB-C1 condition)
Plume delineation was not achieved with these samples due to elevated detections in 2016 grab groundwater samples.
Data from Arcadis' investigation are presented in Attachment F.</td><td>A</td></tr>
</table>

Data Gap Investigation Status Update
Oakland Municipal Service Center
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June 2017

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<tr><td>3c</td><td>The lateral and downgradient extent of affected groundwater north, south and west near former plumes A and B is not adequately defined.</td><td>Advance 10 borings to approximately 15 to 20 feet bgs for the collection of grab groundwater samples:
North (SB-26), south (SB-23), and west of MW-11, (SB-25)
north of well RW-B3 (SB-24), and
south (not advanced) and east of RW-B4 (SB-2)
The proposed grab groundwater sample locations are distributed at approximately 100 to 120 feet from existing wells or other proposed locations such that the lateral extent of the groundwater plume can be defined. If field observations warrant, (i.e. PID readings & visual observations), additional borings may be completed as stepout locations.
Borings will be installed & groundwater samples collected using similar method discussed in Task 2a.</td><td>Analytical results for samples from existing wells do not define the lateral extent of affected groundwater associated with former plumes A and B in this area of the Site. Additional boring locations are proposed to monitor for LNAPL and groundwater quality</td><td>Data from Arcadis' June 2016 investigation indicates that delineation of impacts in groundwater has not yet been fully and adequately achieved. While LNAPL was not encountered in the most recent investigation, concentrations of TPH-g in particular indicate that free product may nevertheless be present. Findings of the recent investigation revealed more widely distributed impacts outside of the known source areas. Active remediation conducted at the source areas may not have fully removed LNAPLs; isolated remaining 'pockets' of product may persist in areas with inadequate chemical data. Additional investigations are proposed by Terraphase, which will utilize various in-Situ sensing technologies including UVOST and MIP which will provide greater density of data and better inform placement of confirmation sampling of soils, soil gas, and groundwater.
Grab groundwater samples were collected from temporary wells at these locations which were screened from 10'-15' bgs. LNAPL was reportedly not encountered in any of the temporary wells. Analytical results of sampling and testing from this investigation are summarized in the table below:
<table>
<tr><th>Analyte</th><th>SB-02</th><th>SB-23</th><th>SB-24</th><th>SB-25</th><th>SB-26</th></tr>
<tr><td></td><td>6/1/2016</td><td>6/6/2016</td><td>6/6/2016</td><td>6/6/2016</td><td>6/6/2016</td></tr>
<tr><td>TPH as Diesel</td><td><53</td><td>1300Y</td><td>2700Y</td><td><50</td><td><59</td></tr>
<tr><td>TPH as Gasoline</td><td><50</td><td>37,000</td><td>29,000</td><td>680</td><td><50</td></tr>
<tr><td>TPH as Motor Oil</td><td><320</td><td><300</td><td><350</td><td><300</td><td><350</td></tr>
<tr><td>Benzene</td><td>0.6</td><td>1600</td><td>3000</td><td>120</td><td>0.8</td></tr>
<tr><td>Ethylbenzene</td><td><0.5</td><td>670</td><td>770</td><td>19</td><td><0.5</td></tr>
<tr><td>Methyl Tertiary Butyl Ether</td><td><0.5</td><td><20</td><td><31</td><td><1</td><td><0.5</td></tr>
<tr><td>Toluene</td><td><0.5</td><td>3300</td><td>900</td><td>9.6</td><td><0.5</td></tr>
<tr><td>Xylene (o)</td><td><0.5</td><td>1200</td><td>280</td><td>19</td><td><0.5</td></tr>
<tr><td>Xylene Total</td><td><0.5</td><td>2900</td><td>760</td><td>50</td><td><0.5</td></tr>
</table>
Red font indicates exceedance of ESLs – Saltwater Ecotox.
Shaded cells indicate exceedance of ESLs - Commercial-Industrial for vapor intrusion.
Plume delineation was not achieved with these samples due to elevated detections in 2016 grab groundwater samples.
Data from Arcadis' investigation are presented in Attachment F.</td><td>B</td></tr>
<tr><td>3d</td><td>Further assess the nature and extent of LNAPL. LNAPL has not been present in the wells at the Site since 2009.</td><td>Soil borings are proposed to be advanced near wells that formerly exhibited LNAPL to assess the lateral extent of the LNAPL.
Borings will be advanced using direct-push probe equipment to an approximate depth of 15 to 20 feet bgs. Soil samples will be collected continuously in 5-foot long acetate liners, logged for stratigraphic characteristics, and field screened for the presence of VOCs using a PID.
Selected soil samples (where PID readings are elevated) will be tested using the OIL-IN-SOIL™ field screening test kit (an oliophillic dye). Soil will be added to the container provided in the test kit; water will be added to a pre-set line and container will be shaken to release the dyes. A colored ring or spots indicates the presence of TPH at or above 2,500 ppm. A Styrofoam ball turning pink indicates hydrocarbon concentrations down to 500 ppm
Based on the screening tests described above, soil samples with potential LNAPL impact will be collected and submitted to C&T for confirmation</td><td>Soil borings will be drilled near wells in which LNAPL was measured to assess if product is in the soil matrix or near locations where LNAPL has been measured.
This will also further assess the lateral and vertical extent of affected soil and groundwater at the Site.</td><td>Data from Arcadis' June 2016 investigation indicates that delineation of impacts in soils has not yet been fully and adequately achieved. Findings of the recent investigation revealed more widely distributed impacts outside of the known source areas.
OIL-IN-SOIL test kits had positive results, and/or notes in the boring logs described "oily" soils at several borings both in and outside of the historically defined plume areas A-D.
Additional investigations will be proposed by Terraphase, which will utilize various in-Situ sensing technologies including UVOST and MIP which will provide greater density of data and better inform placement of confirmation sampling of soils, soil gas, and groundwater. Proposed activities will be included in a future work plan.
Data from Arcadis' investigation are presented in Attachment F including field observations indicating potential presence of LNAPL in soils.</td><td>B</td></tr>
</table>

Data Gap Investigation Status Update
Oakland Municipal Service Center
7101 Edgewater Drive Oakland, California
June 2017

Task	Data Gap Item Description	Proposed Investigation (Arcadis)	Rationale	Status Update Arcadis / Terraphase	Priority Category
3e	Anomalous benzene concentrations in several wells	Benzene is detected at higher concentrations than TPHg in several wells. This phenomenon will be assessed and presented in the Revised Report.	May provide information concerning other sources of benzene	Terraphase will continue to evaluate benzene as one of the primary COCs at the Site in all media (including the proposed soil gas investigation). Terraphase encourages the City to inquire as to current or historical known usage of benzene at the Site; however, a specific inquiry into this issue is not considered necessary at this time.	**A**
TASK 4: MASS REMOVAL - COMPLETED					
4.	Mass Removal	Data from remediation reports will be compiled and presented in the Revised Report.	Provides documentation of remedial achievements	Available historical reports were reviewed. The total mass of petroleum hydrocarbon removed by various remediation technologies, including soil excavation, groundwater removal, vacuum truck, active and passive skimmer, hand bailing and dual phase extraction was summarized in attached Arcadis Table 3a and Table 3b (Attachment B).	A
TASK 5: HYDROGRAPHS - COMPLETED					
5.	Hydrographs	Revised hydrographs will be prepared that will include an appropriate scale, the top and bottom of the screen interval, the maximum and minimum historical groundwater elevations, timelines for DPE and hydrogen peroxide initiation and cessation, as well as historical chemical concentration data.	Historical trends	Updated hydrographs are included as Attachment E. The hydrographs were generated by Terraphase based on complete data set available for the site. Please note that hydrographs were not generated for the wells sampled in February 2015 for the following reasons: Wells MW-18, RW-D1 and RW-D7 were sampled only for the second time, thus only have two data points available; well RW-C1 has only three data points; and, wells RW-C2, RW-D2, OB-D1, and OB-D2 were sampled for the first time, and have no additional data.	A
5a.	Rebound is not expected to have occurred after the hydrogen peroxide injections at the Site based on available groundwater data, but this is not certain.	Assess the relationship between chemical concentrations in injection wells and injection schedule using the revised hydrographs	Assess continued effectiveness of remedial injections following cessation	Rebound evaluation will be evaluated using the updated groundwater concentrations. This task is ongoing.	A
TASK 6: HISTORICAL GROUNDWATER CONTOUR MAPS AND TIDAL STUDIES – IN PROGRESS					
6.	Historical Groundwater Contour Maps	Groundwater contour maps will be prepared and assessed for potential fluctuations in groundwater flow direction, tidal effects, mounding, etc.	n/a	Groundwater elevation contour maps from the last eleven monitoring events, going back to November 2008 have been compiled. Groundwater flow direction has been relatively consistent at the Site from November 2008 to May 2017.	A
	Tidal Studies	A summary of the tidal studies that were conducted at the Site in 1995 and 1997 are provided in the Baseline 2001 report. That report indicates that groundwater levels in isolated near-Bay areas are subject to daily tidal influences.	Tidal influences may help design the most effective groundwater sampling program	Based on the results of additional Site investigation and characterization efforts planned for the remainder of 2017, Terraphase may recommend performing a study at the Site utilizing down-well pressure transducers. If it is determined that this data is required, it would be collected to evaluate the lateral extent of tidal influences along the perimeter of the Site. If warranted, the study would likely occur in early 2018.	A

Data Gap Investigation Status Update
Oakland Municipal Service Center
7101 Edgewater Drive Oakland, California
June 2017

Task	Data Gap Item Description	Proposed Investigation (Arcadis)	Rationale	Status Update Arcadis / Terraphase	Priority Category
TASK 7: DAMON SLOUGH – COMPLETED / ON HOLD					
7.	The potential impact of on-Site contaminants to Damon Slough is unknown. In addition, the physical features of Damon Slough are unknown	To determine if Site impacts have affected Damon Slough, chemical data from the Site and physical features of the slough will be inspected: • Historical chemical concentration data collected from wells MW-2 and MW-10 (located between impacted portions of the Site and Damon Slough) will be analyzed to evaluate potential plume migration to the slough. If data suggests such potential, a surface water sample from Damon Slough may be collected for laboratory analysis • The physical features of the slough will be inspected visually and documented in photographs. If needed, a boat may be rented to measure the depth in the middle of the slough	Data will be used to show if Site impacts have affected Damon Slough	MW-10, an offsite down-gradient well, has exhibited moderate to non-detect levels of chemical impact during its sampling history between November 1996 and May 2017. The most recent monitoring event showed non-detect concentrations of all analyzed consituents. Benzene has been detected in four out of the most recent six sampling events. TPHs in the gasoline, diesel, and motor oil ranges have historically been detected in this well, but with the exception of the TPH-d impact in the July 2013 sampling event have not been detected above reporting limits since 2006. Benzene concentrations in this well do not appear to be consistently increasing or decreasing over time; concentrations may be influenced by tidal fluctuations due to this well's proximity to Damon Slough and the bay. MW-2 is further from the source area onsite, and also further from Damon Slough, than MW-10. MW-2 has exhibited very few detections of COCs during sampling between 1989 and 2017. No samples were collected from this well between 2009-2017. Benzene has been the most frequent and recent compound detected, and has been present above the reporting limit in the majority of samples, including the most recent in May 2017 (1.2 ug/L). No investigation or documentation of the physical features of Damon Slough have been undertaken to date by Arcadis or Terraphase. No surface water samples from the slough have been collected for chemical analysis. At this time, Terraphase does not recommend further effort on this task.	C
TASK 8: SOIL INVESTIGATION – COMPLETED; ADDITIONAL WORK PROPOSED BY TERRAPHASE					
8a.	The soil data set does not adequately characterize the contamination in all areas of the Site	A total of 33 soil borings are proposed to be advanced across the Site (including soil borings for LNAPL delineation – Data Gap 3d). Soil sampling will be conducted adjacent to previously sampled locations. The locations were selected based on historical soil data in close proximity to the source area with soil concentrations exceeding the environmental screening levels (ESLs). The results of the soil sampling will be used to assess current soil conditions. The soil sampling results will also be used to update the conceptual Site model (CSM) with more current Site data. If field observations warrant, (i.e. PID readings and visual observations), additional soil borings may be completed as step out locations. In order to differentiate polycyclic aromatic hydrocarbons (PAHs) in the fill materials from PAHs in the petroleum hydrocarbon impacted soil, soil samples will also be collected from locations in the fill area outside the currently defined plume. These samples will be analyzed for PAHs in addition to TPH-d, TPH-mo and TPH-g and BTEX. The exact sampling locations are subject to change by the field team based on field observation of LNAPL since these samples are proposed to be collected outside of the plume area.	Soil data will be used to evaluate current concentrations of chemicals of concern in soil.	Data from Arcadis' June 2016 investigation indicates that delineation of impacts in soils has not yet been fully and adequately achieved. Findings of the recent investigation revealed more widely distributed impacts outside of the known source areas. Additional investigations will be proposed by Terraphase, which will utilize various in-Situ sensing technologies including UVOST and MIP which will provide greater density of data and better inform placement of confirmation sampling of soils, soil gas, and groundwater. Proposed additional investigation activities will be presented in future work plans. Data from Arcadis' investigation are presented in Attachment F.	B

Data Gap Investigation Status Update
Oakland Municipal Service Center
7101 Edgewater Drive Oakland, California
June 2017

Task	Data Gap Item Description	Proposed Investigation (Arcadis)	Rationale	Status Update Arcadis / Terraphase	Priority Category
TASK 9: ASPHALT PIT AND UST 14 – COMPLETED					
9.	Asphalt Pit and UST #14 (waste latex and joint sealer)	Compile documentation concerning the removal of these features and present it in the Revised Report. This work was completed by one of the City of Oakland's on-call consultants.	Historical documentation efforts	This work was reportedly completed by one of the City of Oakland's on-call consultants.	A
TASK 10: CROSS SECTIONS – DRAFTS COMPLETED					
10.	Cross Sections (subsurface features will be identified, including dikes, utilities/trenches, stream channels, piping/trench, soil and groundwater data, USTs, excavations, the Fill/native material boundary, and other features)	The revised cross sections will be presented in the Revised Report.	Update the Site Conceptual Model as new data is gathered	Completed drafts were presented during the meeting with the County on September 26, 2016. Updates and/or additional cross-sections will be produced following proposed investigations (UVOST, MIP).	C
TASK 11: PLAN VIEWS – COMPLETED OR NO LONGER APPLICABLE					
11.	Plan Views	Arcadis proposed preparation of several additional figures: Map with all boring/well locations Map showing excavations Map showing utilities Historic free product contour maps Historic groundwater quality contour maps Map showing buried streams	Historical documentation efforts	The County requested preparation of the utility figure overlay, which has been drafted (Attachment A). Further figures as listed in this task are not currently requested to be completed, or are already available in historical materials.	C
TASK 12: CURRENT UST SYSTEM DETAILS – COMPLETED					
12.	Current UST System Details	Review construction details of the USTs, and associated conveyance piping and dispensers. Potentially, collect soil/in-situ groundwater samples.	Current Site conditions	The City has provided Terraphase with details of the active USTs present at the Site. At this time, additional soil and groundwater sampling in this vicinity is not proposed; a soil gas well is proposed in the vicinity of the active USTs, and MW-5 is also existing in this area.	A
TASK 13: HUMAN HEALTH RISK ASSESSMENT – ON HOLD					
13.	Human health risk assessment (bounding vapor intrusion uncertainty)	This discussion will be presented in the Revised Report.	Moving the Site towards future closure efforts.	In lieu of / prior to this task, Terraphase is proposing collection of Site-wide soil gas samples. Adequate data has not been produced to support an accurate HRA for the Site; particularly with respect to soil gas conditions.	C
TASK 14: SITE DEVELOPMENT – ON HOLD					
14.	Site Development (Coliseum EIR and plans for Site)	A discussion of the EIR, when it becomes available, and plans for the Site will be included in future deliverables, if applicable.	n/a	Not currently applicable	C
TASK 15: PROJECT AND ACCOUNT MANAGEMENT – TRANSFERRED TO TERRAPHASE					
15.	Project and Account Management	n/a	n/a	Project transferred from Arcadis to Terraphase – this task is ongoing – duration not delimited.	A/B/C
TASK 16: REPORTING					
16.	Reporting	n/a	n/a	Deliverables and proposed dates of submittal are presented in ACDEH's email memorandum received on 5/31/2017 (Attachment G)	C

Attachment A

Figure 1: Site Utilities

SD Discharges to Damon Slough

Edgewater Dr

911 Center

Admin Building

Public Works Building

Crafts and Storage

Active Fueling Island & Underground Piping

Former Floor Drains

Building No. 5

Former USTs 10, 11 (Lube Oil, Waste Oil)

Active USTs 8,9 (Gasoline, Diesel)

Closed in place UST 7

Former Floor Drains

Former USTs 12,13 (Lube Oil, Waste Oil)

Former Bld No. 5 Footprint

Former Wash Drain

Former UST 6 (Gasoline)

Former USTs 1,2,3 (Gasoline, Diesel)

Storage

Reported Former Gasoline Fueling Island & Underground Piping

NGV Fueling Station

San Leandro Bay

SB-1 SB-2 SB-3 SB-4 SB-10 SB-11 SB-12 SB-13 SB-14 SB-15 SB-16 SB-17 SB-18 SB-19 SB-20 SB-21 SB-22 SB-23 SB-24 SB-25 SB-26 SB-27 SB-28 SB-29 SB-30 SB-31 SB-32 SB-33 SB-34 SB-35 SB-36 SB-37 SB-38 SB-39 SB-40 SB-41 SB-42 SB-43 SB-44 SB-45 SB-46 SB-47

MW-1 MW-5 MW-6 MW-7 MW-9 MW-11 MW-12 MW-13 MW-14 MW-15 MW-16 MW-17

RW-1 RW-A1 RW-A2 RW-B1 RW-B2 RW-B3 RW-B4 RW-C1 RW-C2 RW-C3 RW-C5 RW-C6 RW-C7 RW-D1 RW-D2 RW-D3 RW-D4 RW-D5 RW-D6 RW-D7 RW-D8 RW-D9 RW-D10 RW-D11

TBW-5 TBW-6

OB-A1 OB-C1 OB-D1 OB-D2

Legend

- 2016-06 Data Gap Sample Location
- Monitoring Well Location
- Remediation Well Location
- Former Sump Pits
- Former Waste Collection Pits
- Former Fueling Stations
- Former Gasoline and Diesel Underground Lines (Removed 1999)
- Unknown Underground Lines (Possible Remediation Piping)
- Building
- Communications
- Electric
- Electric - High Voltage
- Fiber
- Natural Gas
- Storm Drain & Catch Basin
- Sanitary Sewer
- Water

Notes:
Aerial imagery source - NAIP June 2014.
Geophysical Survey Data (2015) provided by previous Site consultant: accuracy unconfirmed by Terraphase.

0 50 100 150 200 Feet

1 inch = 100 feet

N

SAFETY FIRST

terraphase engineering

CLIENT: Municipal Service Center

PROJECT: Data Gap Analysis
7101 Edgewater Drive, Oakland CA

PROJECT NUMBER: 0064.007.001

Site Utilities

FIGURE 1

File: C:\GIS_Local\Projects\0064.007 Oakland Municipal Service Center\MXDs\Site_Util_0064-007-001.mxd 2/10/2017 Created by: JL Checked by: AB Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet

Attachment B

Mass Removal Summary

City of Oakland Municipal Services Center Remediation Project -- Mass Removal

Date	Activity	TPH Removed through (1), (2), (3)				Volume of Groundwater Extracted (gal)	Reference
		Soil Vapor (lb) (1)	Groundwater Extraction (lb)* (2)	Free Product (gal) ** (3)	Total (lb) (1)+(2)+(3)		
5/21/1997	product removed by vacuum truck from TBW-3 within UST 6 excavation pit			1500	10367		Site History and Characterization, (Baseline, January 2001)
03/1998 - 10/1998	Approx 62,225 gallons of groundwater removed from TBW-1 within excavation pit of USTs 1, 2, & 3		31		31	62,225	Site History and Characterization, (Baseline, January 2001)
09/1999 - 12/2000	Product removed by passive & active skimmer and hand bailing from TBW-5			66	456		Site History and Characterization, (Baseline, January 2001)
2001 - 2003	Product removed by passive & active skimmer and hand bailing from TBW-5			200	1382		Status update presentation, September 16, 2009
2002	Product removed from plume B & C area by DPE pilot testing			800	5529		TPE Pilot Test and Feasibility Report, (Cambria, August 2002); Results of Dual-Phase Extraction Pilot Test for Plumes A&B, (URS, August 2002)
05/2006-12/2009	Active skimming; Dual phase extraction (product, soil vapor & groundwater)	58,473	779	379	61,934	2,847,483	Self-Monitoring Report-4th Quarter & Year 2009, (ARCADIS & OTG, January 2010)
Total		58,473	810	2,945	79,700		

Note:

* The mass of TPH removed through groundwater extraction is calculated based on the lab reported TPH gas and diesel concentrations and the volume of groundwater extracted.

** Assumed diesel density, 0.83 kg/L

Date	Activity	Volume of Soil Removed (yd^3)	Reference
9/5/1995	Excavation at the northeastern end of Building #5 following removal of USTs 10,11	20	UST Removal Report (Dove Engineering, October 1997)
5/20/1997	Excavation following removal of USTs 1,2,3	100	Underground Storage Tank Closure Report (MicroSearch, August 1997)
5/20/1997	Excavation following removal of UST 6	150	Underground Storage Tank Closure Report (MicroSearch, August 1997)
5/21/1997	Over-excavation at location of USTs 1, 2, 3 aftert UST removal	150	Underground Storage Tank Closure Report (MicroSearch, August 1997)
6/23/1997	Excavation following removal of USTs 12, 13	20	Underground Storage Tank Closure Report (MicroSearch, August 1997)
09/23/1998 - 12/10/1998	Over-excavation from the sidewalls and bottom during the fuel hydrant system removal	338	Fuel Pipeline Removal Sampling Report (Cambria, July 1999)
3/8/2002	Excavation of abandoned fuel lines near Plumes A & B.	37	Report for the Removal of Underground Fuel Pipelines at Oakland Municipal Service Center (Uribe & Associates, April, 202)
05/16/2007, 05/17/2007, 14/06/2007	Excavation from the waste collection pits near Building #5.	167	Supplemental Investigation and Remediation Data Report (Baseline, August 2007)
Total		**982**	

Note: Assumed saturated loose and mixed sand density, 124 lb/ft^3

Attachment C

Summary of Groundwater Elevation and Analytical Data, February 2015 (Arcadis)

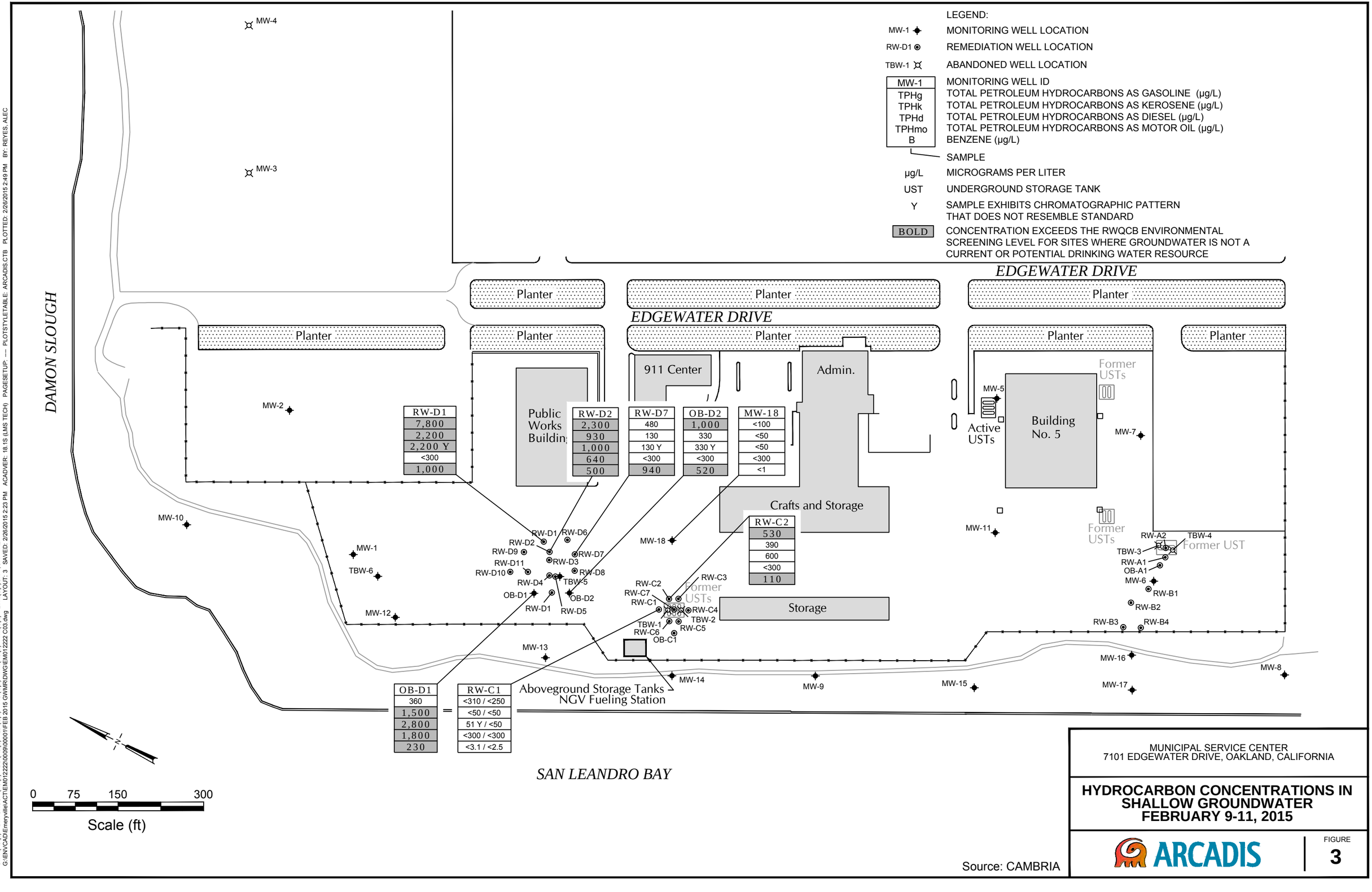
Table 1
Summary of Groundwater Elevation and Analytical Data
February 2015 - Petroleum Hydrocarbons
Municipal Service Center
7101 Edgewater Drive, Oakland, California

Well ID	Sample Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Notes	TPH-d (µg/l)	TPH-mo (µg/l)	TPH-k (µg/l)	TPH-g (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE (µg/l)
MW-18	2/9/15	6.71	---	SPH: None	<50	<300	<50	<100	<1	<1	<1	<1	---
RW-C1	2/11/15	6.55	3.89	SPH: None	51 Y	<300	<50	<310	<3.1	<3.1	<3.1	<3.1	---
dup	2/11/15	---	---	SPH: None	<50	<300	<50	<250	<2.5	<2.5	<2.5	<2.5	---
RW-C2	2/10/15	5.95	4.63	SPH: Sheen, odor	600	<300	390	**530**	**110**	9.9	8	21	---
RW-D1	2/10/15	6.41	3.77	SPH: Sheen, odor	**2,200 Y**	<300	**2,200**	**7,800**	**1,000**	**160**	**120**	**1,390**	---
RW-D2	2/10/15	5.97	4.36	SPH: None, odor	**1,000**	**640**	**930**	**2,300**	**500**	23	**55**	**148**	---
RW-D7	2/10/15	5.11	---	SPH: None	130 Y	<300	130	480	**940**	9.1	3.3	19	---
OB-D1	2/10/15	4.99	4.47	SPH: Sheen	**2,800**	**1,800**	**1,500**	360	**230**	6	<2	<2	---
OB-D2	2/9/15	5.56	4.39	SPH: Odor	330 Y	<300	330	**1,000**	**520**	5.7	<4.2	<4.2	---
Field Blank	2/9/15	---	---		<50	<300	<50	<50	<0.50	<0.50	<0.50	<0.50	---
			Water Quality Objectives (1):		640	640	640	500	27	130	43	100	1,800

Notes:

(1) = Water Quality Objectives based on San Francisco - Regional Water Quality Control Board's Environmental Screening Levels for where groundwater is not a current or potential drinking water resource (Table F-1b), May 2013.

--- = Not measured/analyzed
dup = Duplicate sample
µg/L = micrograms per liter
SPH = Separate-phase hydrocarbons; measured thickness
MTBE = Methyl tertiary-butyl
TPH-d = Total petroleum hydrocarbons quantitated as diesel - analyzed by EPA Method 8015B, with silica gel cleanup
TPH-k = Total petroleum hydrocarbons quantitated as kerosene - analyzed by EPA Method 8015B, with silica gel cleanup
TPH-mo = Total petroleum hydrocarbons quantitated as motor oil - analyzed by EPA Method 8015B, with silica gel cleanup
TPH-g = Total petroleum hydrocarbons quantitated as gasoline - analyzed by EPA Method 8260B
BTEX = Benzene, toluene, ethylbenzene, and xylenes - analyzed by EPA Method 8260B
Silica gel cleanup based on Method 3630B prior to TPH-d, TPH-k, or TPH-mo analysis, following California Regional Water Quality Control Board February 16, 1999 memorandum
Y= Sample exhibits chromatographic pattern that does not resemble standard.
BOLD = concentration exceeds Water Quality Objective value for the constituent



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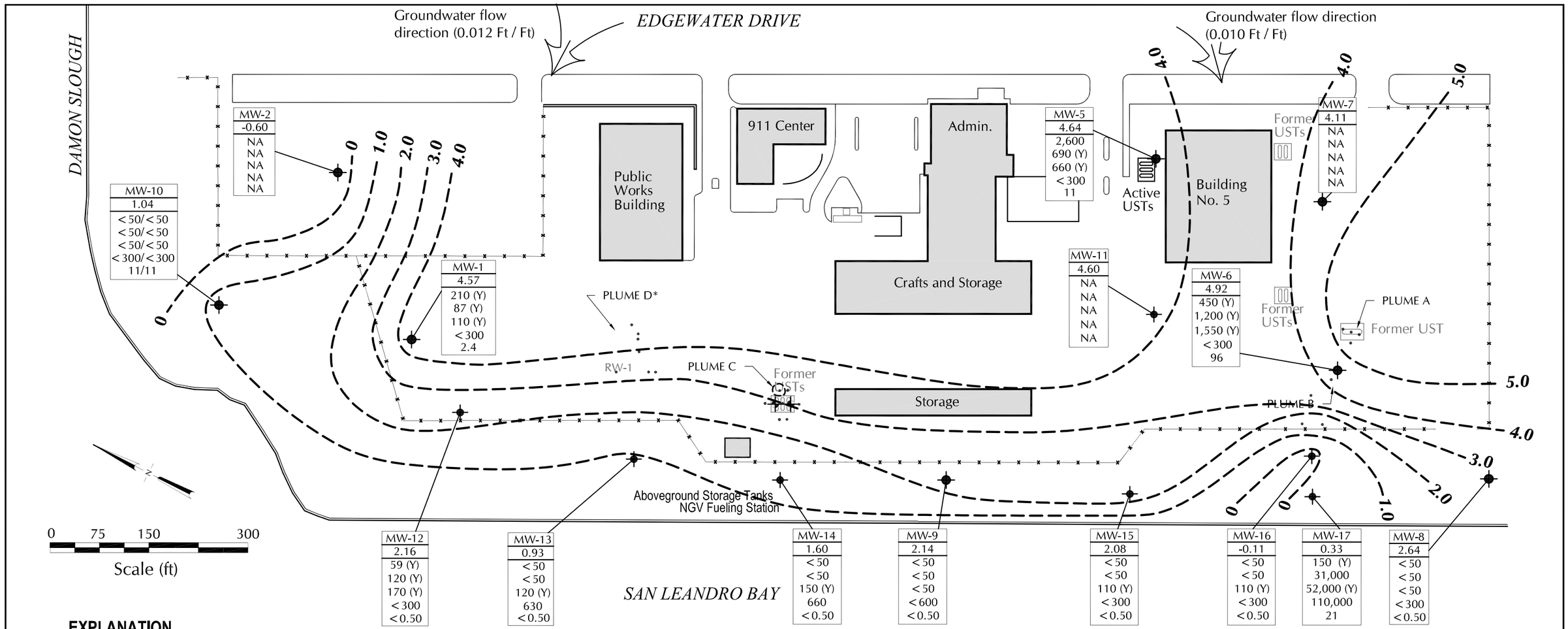
Attachment D

Historical Groundwater Elevation Contour Figures



EXPLANATION

MW-1	Monitoring well location
RW-1	Remediation well location
TBW-1	Tank Backfill Well
MW-3	Abandoned Well
NA	Not sampled this event
L	Lighter hydrocarbons contributed to the quantitation
Y	Sample exhibits chromatographic pattern that does not resemble standard
H	Heavier hydrocarbons contributed to the quantitation
Z	Sample exhibits unknown single peaks or peaks
B	Benzene
FT / FT	Foot per foot
	Fence
3.0	Groundwater elevation contour; dashed where inferred

Well — Monitoring Well ID
ELEV — Groundwater elevation, feet above mean sea level (msl)
TPHg, TPHk TPHd, TPHmo, and benzene concentrations in Micrograms per Liter (ug/L)

TPHg	Total Petroleum Hydrocarbons as Gasoline
TPHk	Total Petroleum Hydrocarbons as Kerosene
TPHd	Total Petroleum Hydrocarbons as Diesel
TPHmo	Total Petroleum Hydrocarbons as Motor Oil

SPH = Separate Phase Hydrocarbons
UST = Underground Storage Tank

* Plume D Wells not used in contouring due to continued extraction.

Source: CAMBRIA

Groundwater Elevation Contour Map and Hydrocarbon Concentrations in Shallow Groundwater, November 2008

Municipal Service Center, Oakland, California

LFR

Figure 2

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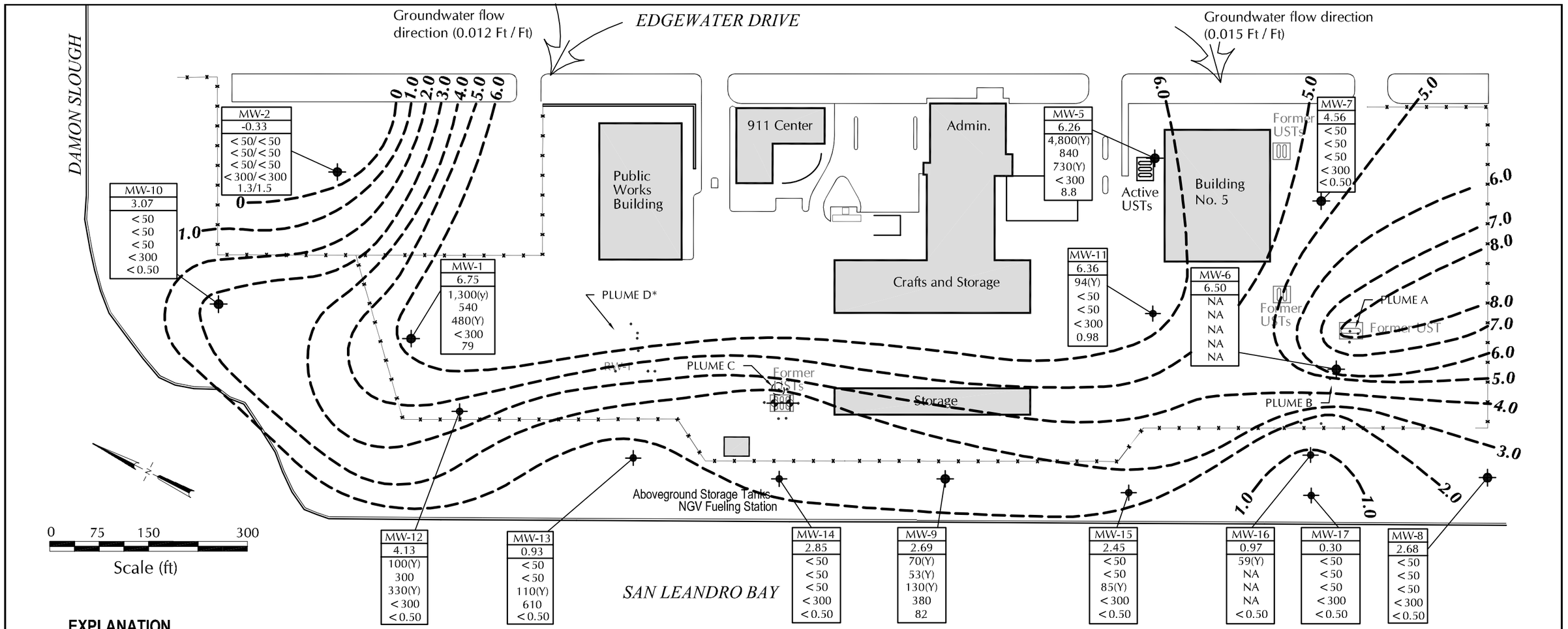

EXPLANATION

MW-1 — Monitoring well location

• — Remediation well location

Y — Sample exhibits chromatographic pattern that does not resemble standard

NA — Not sampled in this event

FT / FT — Foot per foot

Fence

3.0 — Groundwater elevation contour; dashed where inferred

* Wells TBW-5, RW-D1 through RW-D11 and RW-1 (PLUMB D), were converted to extraction wells and could not be accessed for DEPTH-TO -WATER and DEPTH-TO-SPH measurements.

Well
ELEV
TPHg/TPHg
TPHk/TPHk
TPHd/TPHd
TPHmo/TPHmo
B/B

Well — Monitoring Well ID

ELEV — Groundwater elevation, feet above mean sea level (msl)

TPHg/TPHg, TPHk/TPHk, TPHd/TPHd, TPHmo/TPHmo, B/B — TPHg, TPHk TPHd, TPHmo, and benzene concentrations in Micrograms per Liter (ug/L)

Duplicate sample

Sample

TPHg	Total Petroleum Hydrocarbons as Gasoline
TPHk	Total Petroleum Hydrocarbons as Kerosene
TPHd	Total Petroleum Hydrocarbons as Diesel
TPHmo	Total Petroleum Hydrocarbons as Motor Oil
B	Benzene

SPH = Separate Phase Hydrocarbons

UST = Underground Storage Tank

Source: CAMBRIA

Groundwater Elevation Contour Map and Hydrocarbon Concentrations in Shallow Groundwater, April 2009

Municipal Service Center, Oakland, California

LFR

Figure 2

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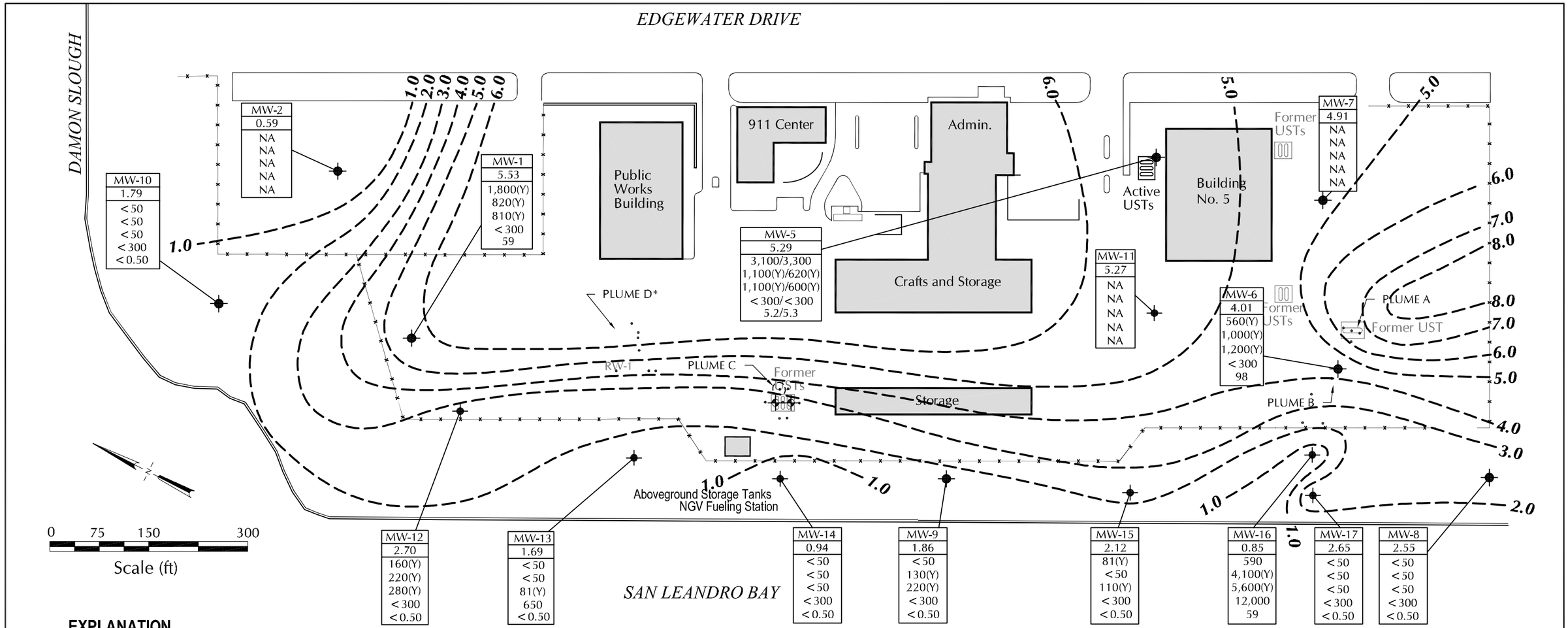


EXPLANATION

MW-1 — Monitoring well location

• — Remediation well location

Y — Sample exhibits chromatographic pattern that does not resemble standard

NA — Not sampled in this event

FT / FT — Foot per foot

Fence

3.0 — Groundwater elevation contour; dashed where inferred

* Wells TBW-5, RW-D1 through RW-D11 and RW-1 (PLUME D), were converted to extraction wells and could not be accessed for DEPTH-TO -WATER and DEPTH-TO-SPH measurements.

M2-2
0.59
TPHg/TPHg TPHk/TPHk TPHd/TPHd TPHmo/TPHmo B/B

- M2-2 — Monitoring Well ID
- 0.59 — Groundwater elevation, feet above mean sea level (msl)
- TPHg/TPHg, TPHk/TPHk, TPHd/TPHd, TPHmo/TPHmo, B/B — TPHg, TPHk TPHd, TPHmo, and benzene concentrations in Micrograms per Liter (ug/L)
- Duplicate sample
- Sample

TPHg Total Petroleum Hydrocarbons as Gasoline
TPHk Total Petroleum Hydrocarbons as Kerosene
TPHd Total Petroleum Hydrocarbons as Diesel
TPHmo Total Petroleum Hydrocarbons as Motor Oil
B Benzene
UST = Underground Storage Tank

Source: CAMBRIA

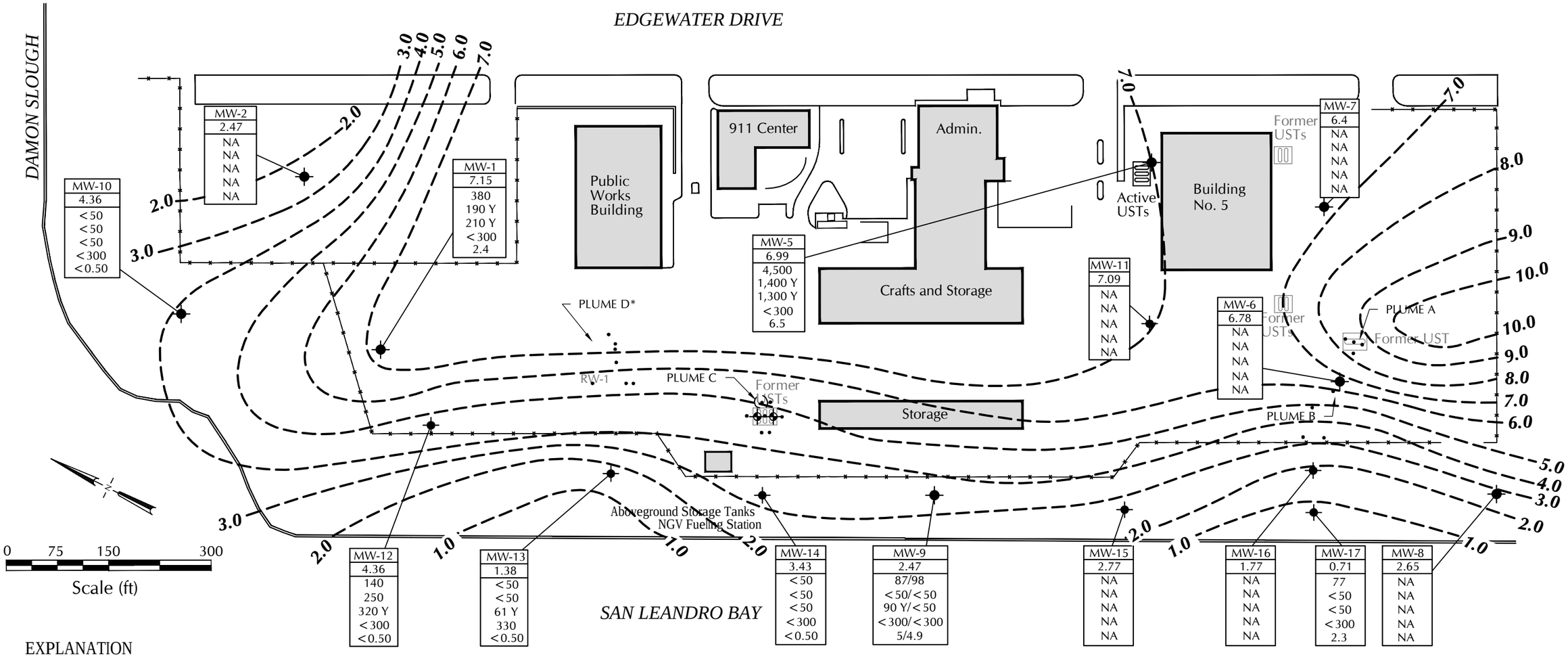
Groundwater Elevation Contour Map and Hydrocarbon Concentration in Shallow Groundwater, October 2009

Municipal Service Center, Oakland, California

Figure 2

LFR an ARCADIS company

I:\Design\001\09225\11\000\dwg\GW Elev October 2009.dwg Mar 12,2010-9:53am



EXPLANATION

- MW-1 — Monitoring well location
- • — Remediation well location
- Y — Sample exhibits chromatographic pattern that does not resemble standard
- NA — Not sampled in this event
- FT / FT — Foot per foot
- Fence
- 3.0 — Groundwater elevation contour; dashed where inferred

M2-2 / 0.59 / TPHg/TPHg, TPHk/TPHk, TPHd/TPHd, TPHmo/TPHmo, B/B

- Monitoring Well ID
- Groundwater elevation, feet above mean sea level (msl)
- TPHg, TPHk TPHd, TPHmo, and benzene concentrations in Micrograms per Liter (ug/L)
- Duplicate sample
- Sample

TPHg Total Petroleum Hydrocarbons as Gasoline
TPHk Total Petroleum Hydrocarbons as Kerosene
TPHd Total Petroleum Hydrocarbons as Diesel
TPHmo Total Petroleum Hydrocarbons as Motor Oil
B Benzene
UST = Underground Storage Tank

Source: CAMBRIA

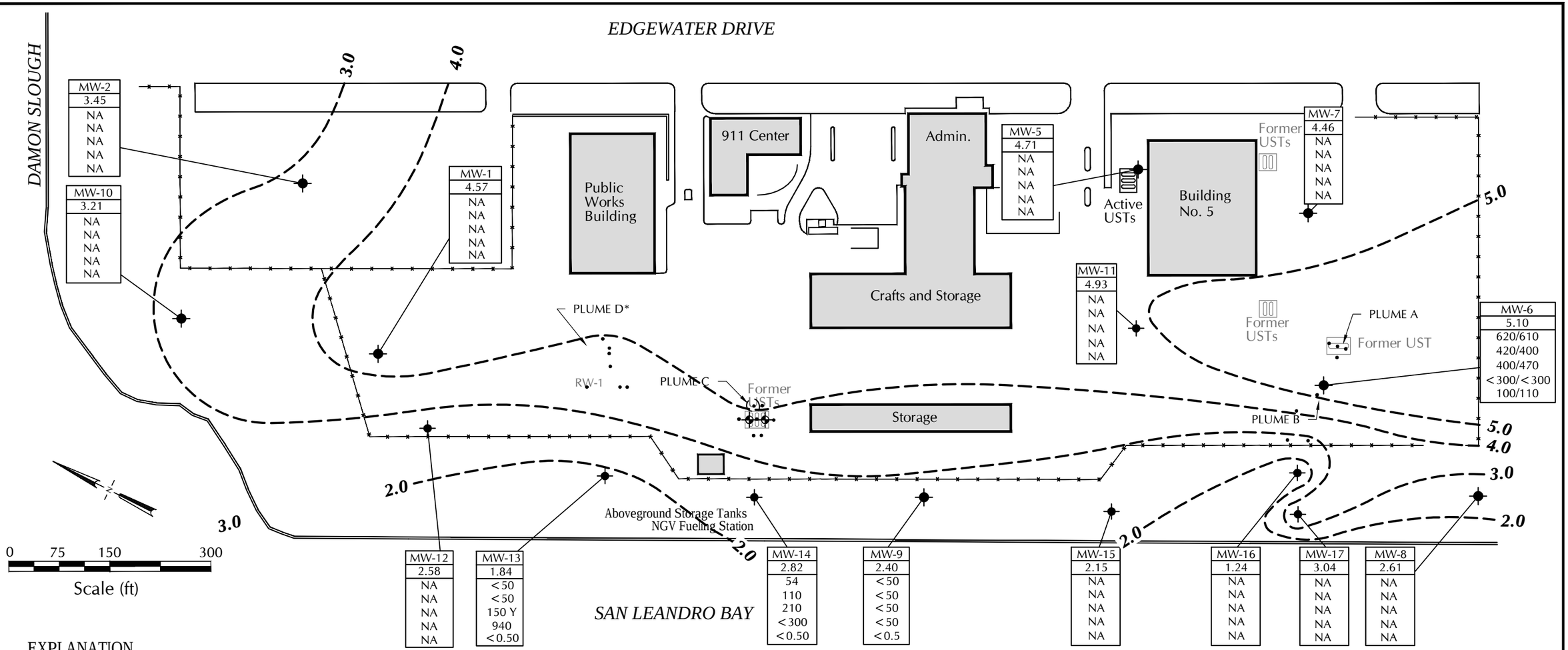
MUNICIPAL SERVICE CENTER, OAKLAND, CALIFORNIA

GROUNDWATER ELEVATION CONTOUR MAP AND HYDROCARBON CONCENTRATIONS IN SHALLOW GROUNDWATER, APRIL 2010

ARCADIS

FIGURE 2

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON = *;OFF = *REF*
G:\ENVCAD\Emeryville\AVD\20111201104201LC01006\GW Elev April 2010.dwg LAYOUT: 2 SAVED: 9/29/2010 10:19 AM ACADVER: 18.1S (LMS TECH)
XREFS: IMAGES: PROJECTNAME: —
April 2009.jpg
draft_Fig_2.jpg



EXPLANATION

- MW-1 — Monitoring well location
- • — Remediation well location
- Y — Sample exhibits chromatographic pattern that does not resemble standard
- NA — Not sampled in this event
- Fence
- 3.0 — Groundwater elevation contour; dashed where inferred

MW-6
5.10
TPHg/TPHg
TPHk/TPHk
TPHd/TPHd
TPHmo/TPHmo
B/B

- MW-6 — Monitoring Well ID
- 5.10 — Groundwater elevation, feet above mean sea level (msl)
- TPHg/TPHg, TPHk/TPHk, TPHd/TPHd, TPHmo/TPHmo, B/B — TPHg, TPHk TPHd, TPHmo, and benzene concentrations in Micrograms per Liter (µg/L)
- Duplicate sample
- Sample

TPHg Total Petroleum Hydrocarbons as Gasoline
TPHk Total Petroleum Hydrocarbons as Kerosene
TPHd Total Petroleum Hydrocarbons as Diesel
TPHmo Total Petroleum Hydrocarbons as Motor Oil
B Benzene
UST = Underground Storage Tank

Source: CAMBRIA

MUNICIPAL SERVICE CENTER
7101 EDGEWATER DRIVE, OAKLAND, CALIFORNIA

GROUNDWATER ELEVATION CONTOUR MAP AND HYDROCARBON CONCENTRATIONS IN SHALLOW GROUNDWATER, OCTOBER 2010

ARCADIS

FIGURE 2

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON = *;OFF = *REF*
G:\ENVCAD\Emeryville\ACTTLC01006000013\GW Elev October 2010.dwg LAYOUT: 2 SAVED: 9/9/2011 8:40 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: —
XREFs: IMAGES: PROJECTNAME: —
April 2009.jpg
draft_Fig_2.jpg
PLOTTED: 10/19/2011 10:42 AM BY: BEARDSLEY, DANIEL

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(OptION = *;OFF = *REF*
G:\ENVCAD\Emeryville\ACTIVE\EC010060001600001\GW Elev September 2011.dwg LAYOUT: 2 SAVED: 11/22/2011 12:49 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: — PLOTSTYLETABLE: ARCADIS-ENV.CTB PLOTTED: 11/22/2011 1:14 PM BY: BEARDSLEY, DANIEL
XREFS: IMAGES: PROJECTNAME: —
April 2009.jpg
SERVER-10069873807 9.jpg

EDGEWATER DRIVE

DAMON SLOUGH

3.0 4.0 5.0

MW-2
3.80
NA
NA
NA
NA
NA

MW-10
3.54
<50
<50
<50
<300
24

MW-1
5.14
200
120
110Y
<300
<0.5

Public Works Building

911 Center

Admin.

MW-5
5.17
2,900
1,400
1,200Y
<300
3.20

Crafts and Storage

Active USTs

Building No. 5

Former USTs

MW-7
4.91
NA
NA
NA
NA
NA

5.0

MW-11
5.32
NA
NA
NA
NA
NA

Former USTs

PLUME A

Former UST

MW-6
5.36
690
1,600
1,800Y
<300
140

PLUME D*

RW-1

PLUME C

Former USTs

Storage

PLUME B

4.0

3.0

Aboveground Storage Tanks
NGV Fueling Station

2.0 1.0 1.0 2.0

MW-12
3.10
NA
NA
NA
NA
NA

MW-13
1.01
<50
<50
51Y
<300
<0.50

MW-14
2.94
72
<50
63Y
<300
<0.50

MW-9
2.73
68
<50
180Y
500
0.99

MW-15
2.40
NA
NA
NA
NA
NA

MW-16
1.47
NA
NA
NA
NA
NA

MW-17
0.52
<50
<50
<50
<300
<0.50

MW-8
2.61
NA
NA
NA
NA
NA

SAN LEANDRO BAY

0 75 150 300

Scale (ft)

EXPLANATION

MW-1 — Monitoring well location

• — Remediation well location

Y — Sample exhibits chromatographic pattern that does not resemble standard

NA — Not sampled in this event

Fence

3.0 — Groundwater elevation contour; dashed where inferred

MW-6	
5.36	Groundwater elevation, feet above mean sea level (msl)
TPHg TPHk TPHd TPHmo B	TPHg, TPHk TPHd, TPHmo, and benzene concentrations in Micrograms per Liter (µg/L)
	Sample

Monitoring Well ID

TPHg	Total Petroleum Hydrocarbons as Gasoline
TPHk	Total Petroleum Hydrocarbons as Kerosene
TPHd	Total Petroleum Hydrocarbons as Diesel
TPHmo	Total Petroleum Hydrocarbons as Motor Oil
B	Benzene

UST = Underground Storage Tank

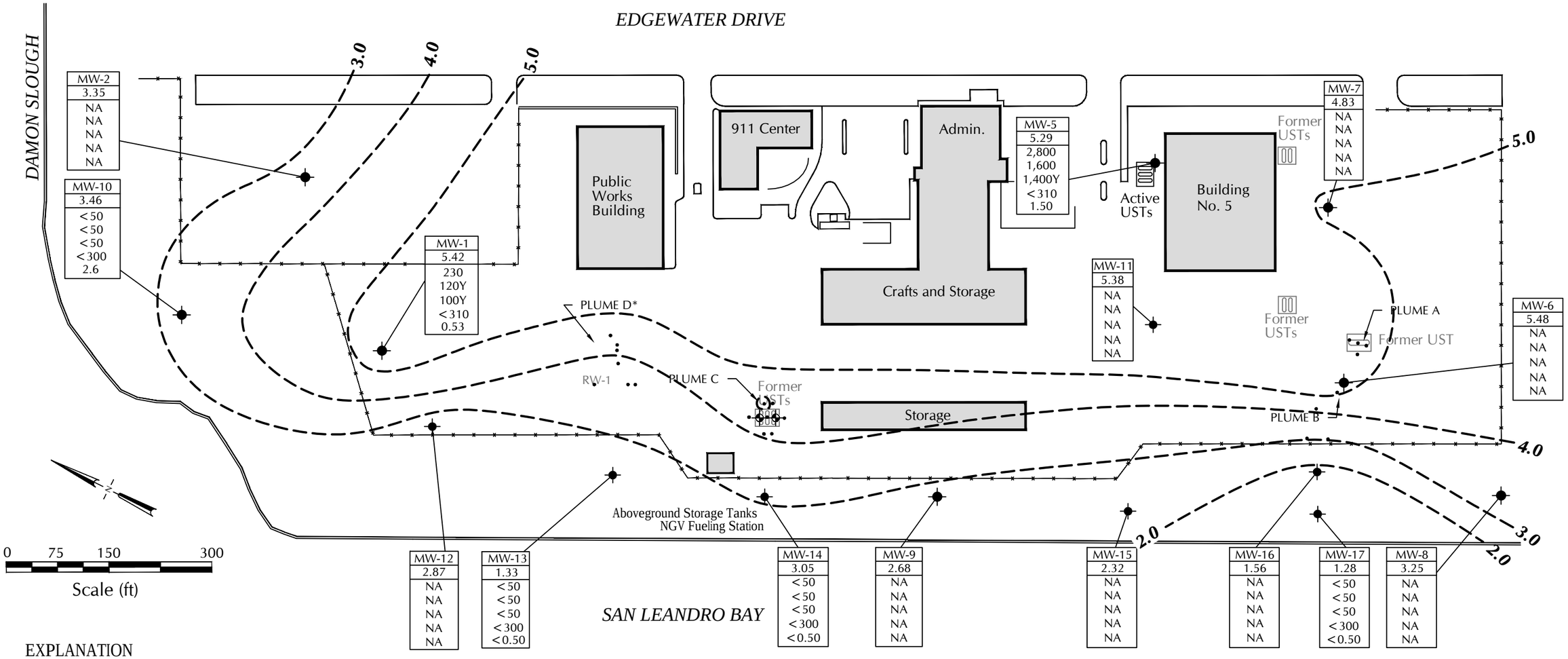
Source: CAMBRIA

MUNICIPAL SERVICE CENTER, OAKLAND, CALIFORNIA

GROUNDWATER ELEVATION CONTOUR MAP AND HYDROCARBON CONCENTRATIONS IN SHALLOW GROUNDWATER, SEPTEMBER 2011

ARCADIS

FIGURE 2



EXPLANATION

- MW-1 — Monitoring well location
- • — Remediation well location
- Y — Sample exhibits chromatographic pattern that does not resemble standard
- NA — Not sampled in this event
- Fence
- 3.0 — Groundwater elevation contour; dashed where inferred

MW-6 / 5.48 / TPHg TPHk TPHd TPHmo B

- MW-6 — Monitoring Well ID
- 5.48 — Groundwater elevation, feet above mean sea level (msl)
- TPHg, TPHk TPHd, TPHmo, and benzene concentrations in Micrograms per Liter (µg/L)
- Sample

TPHg	Total Petroleum Hydrocarbons as Gasoline
TPHk	Total Petroleum Hydrocarbons as Kerosene
TPHd	Total Petroleum Hydrocarbons as Diesel
TPHmo	Total Petroleum Hydrocarbons as Motor Oil
B	Benzene

UST = Underground Storage Tank

Source: CAMBRIA

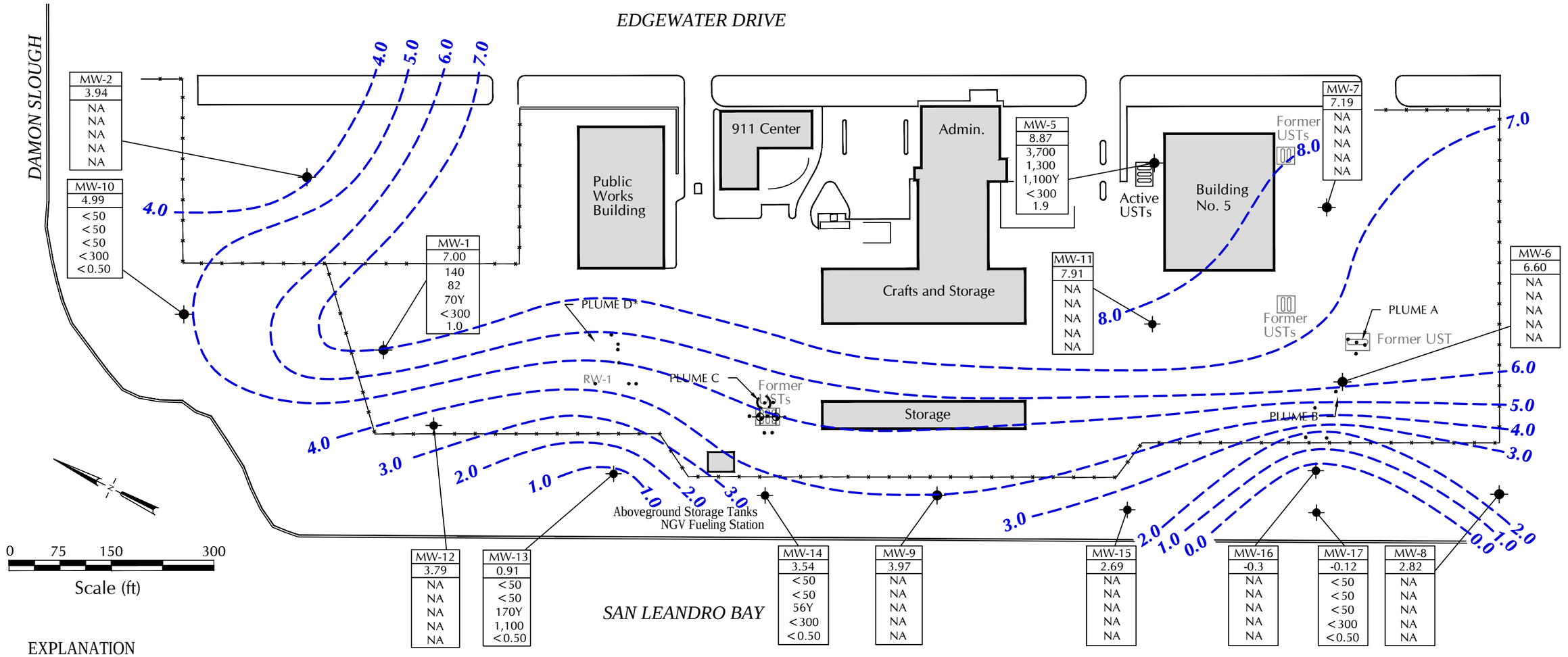
MUNICIPAL SERVICE CENTER, OAKLAND, CALIFORNIA

GROUNDWATER ELEVATION CONTOUR MAP AND HYDROCARBON CONCENTRATIONS IN SHALLOW GROUNDWATER, DECEMBER 2011

ARCADIS

FIGURE 4

CITY:(Req'd) DIV/GROUP:(Req'd) DB:(Req'd) LD:(Opt) PIC:(Opt) PM:(Req'd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Emeryville\ACTIL\C01006900160000\1\GW Elev December 2011.dwg LAYOUT: 4 SAVED: 2/21/2012 11:43 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: — PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 2/28/2012 4:51 PM BY: REYES, ALEC
XREFS: IMAGES: PROJECTNAME: —
April 2009.jpg
SERVER-10069873807 9.jpg



EXPLANATION

- MW-1 — Monitoring well location
- • — Remediation well location
- Y — Sample exhibits chromatographic pattern that does not resemble standard
- NA — Not sampled in this event
- Fence
- 3.0 — Groundwater elevation contour; dashed where inferred

MW-6 (Monitoring Well ID)
6.60 (Groundwater elevation, feet above mean sea level (msl))
TPHg, TPHk TPHd, TPHmo, and benzene concentrations in Micrograms per Liter (µg/L)
TPHg
TPHk
TPHd
TPHmo
B
(Sample)

TPHg	Total Petroleum Hydrocarbons as Gasoline
TPHk	Total Petroleum Hydrocarbons as Kerosene
TPHd	Total Petroleum Hydrocarbons as Diesel
TPHmo	Total Petroleum Hydrocarbons as Motor Oil
B	Benzene

UST = Underground Storage Tank

Source: CAMBRIA

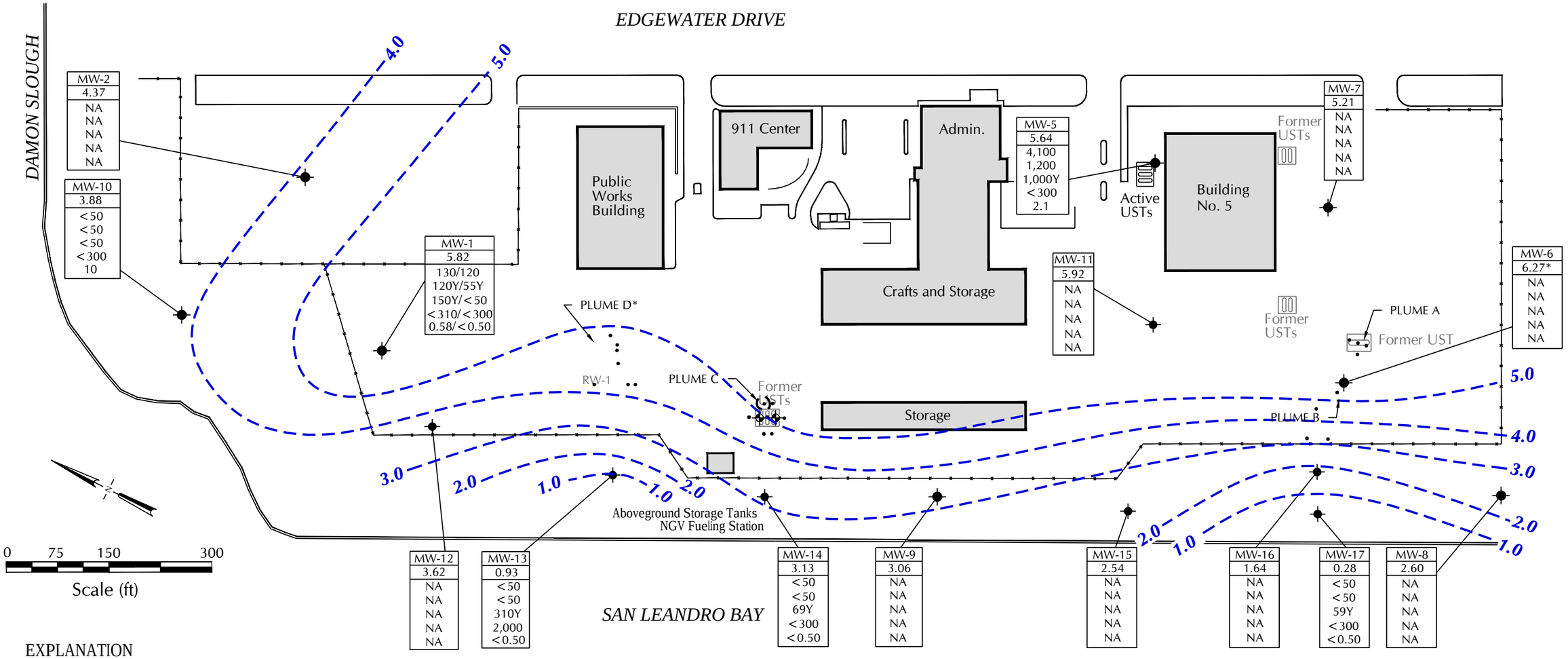
MUNICIPAL SERVICE CENTER, OAKLAND, CALIFORNIA

GROUNDWATER ELEVATION CONTOUR MAP AND HYDROCARBON CONCENTRATIONS IN SHALLOW GROUNDWATER, MARCH 2012

ARCADIS

FIGURE 2

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt/ON = *;OFF = *REF*
G:\ENVCAD\Emeryville\ACTIVLC010060\00160\00033\2ndQtr2012\DWG\LC0100602 02.dwg LAYOUT: 2 SAVED: 7/31/2012 11:47 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: — PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 8/2/2012 10:32 AM BY: REYES, ALEC
XREFS: IMAGES: PROJECTNAME: —
April 2009.jpg
SERVER-100698738079.jpg



EXPLANATION

MW-1 — Monitoring well location

• — Remediation well location

Y — Sample exhibits chromatographic pattern that does not resemble standard

NA — Not sampled in this event

Fence

3.0 — Groundwater elevation contour; dashed where inferred

MW-1	Monitoring Well ID
5.82	Groundwater elevation, feet above mean sea level (msl)
TPHg/TPHg TPHk/TPHk TPHd/TPHd TPHmo/TPHmo B/B	TPHg, TPHk TPHd, TPHmo, and benzene concentrations in Micrograms per Liter (µg/L)
	Duplicate
	Sample

TPHg	Total Petroleum Hydrocarbons as Gasoline
TPHk	Total Petroleum Hydrocarbons as Kerosene
TPHd	Total Petroleum Hydrocarbons as Diesel
TPHmo	Total Petroleum Hydrocarbons as Motor Oil
B	Benzene
UST	Underground Storage Tank
*	Groundwater elevation value not used for contouring

Source: CAMBRIA

MUNICIPAL SERVICE CENTER
7101 EDGEWATER DRIVE, OAKLAND, CALIFORNIA

GROUNDWATER ELEVATION CONTOUR MAP AND HYDROCARBON CONCENTRATIONS IN SHALLOW GROUNDWATER, JUNE 2012

ARCADIS

FIGURE 3

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Emeryville\ACTIL\C0100600016\CloseRPT\DWG\C0100600 C03.dwg LAYOUT: 3 SAVED: 5/1/2013 12:13 PM ACADVER: 18.1S (LMS TECH)
XREFS: IMAGES: PROJECTNAME: —
April 2009.jpg
SERVER-10069873807 9.jpg
PAGESETUP: — PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 5/1/2013 1:05 PM BY: REYES, ALEC

LEGEND:

MW-1	MONITORING WELL LOCATION
RW-D1	REMEDIATION WELL LOCATION
TBW-1	ABANDONED WELL LOCATION
	FENCE
(5.34)	GROUNDWATER ELEVATION, FEET ABOVE MEAN SEA LEVEL (MSL)
3.0	GROUNDWATER ELEVATION CONTOUR (MSL); DASHED WHERE INFERRED
*	GROUNDWATER ELEVATION NOT USED FOR CONTOURING
UST	UNDERGROUND STORAGE TANK
NM	NOT MEASURED

DAMON SLOUGH

EDGEWATER DRIVE

EDGEWATER DRIVE

Planter

Public Works Building

911 Center

Admin.

Crafts and Storage

Storage

Building No. 5

Active USTs

Former USTs

Former USTs

Former UST

Aboveground Storage Tanks
NGV Fueling Station

MW-1 (5.14)
MW-2 (3.60)
MW-3
MW-4
MW-5 (5.22)
MW-6 (5.31)
MW-7 (4.75)
MW-8 (2.60)
MW-9 (2.58)
MW-10 (3.36)
MW-11 (5.34)
MW-12 (NM)
MW-13 (0.98)
MW-14 (2.79)
MW-15 (2.26)
MW-16 (DRY)
MW-17 (0.48)
MW-18

RW-D1 (3.54)
RW-D2 (3.40)
RW-D3 (3.40)
RW-D4 (4.15*)
RW-D5 (3.91)
RW-D6
RW-D7
RW-D8
RW-D9
RW-D10
RW-D11
RW-1
RW-A1 (6.74)
RW-A2 (6.49)
RW-B1 (3.73)
RW-B2 (3.76)
RW-B3 (1.34)
RW-B4 (1.38)
RW-C1 (4.65)
RW-C2 (4.41)
RW-C3 (4.31)
RW-C4 (4.97)
RW-C5 (4.63)
RW-C6 (4.41)
RW-C7 (3.83*)

TBW-1
TBW-2
TBW-3
TBW-4
TBW-5 (3.54)
TBW-6 (3.33)

OB-A1
OB-C1
OB-D1 (3.52)
OB-D2 (3.59)

6.0
5.0
4.0
3.0
2.0
1.0

SAN LEANDRO BAY

N

0 75 150 300
Scale (ft)

Source: CAMBRIA

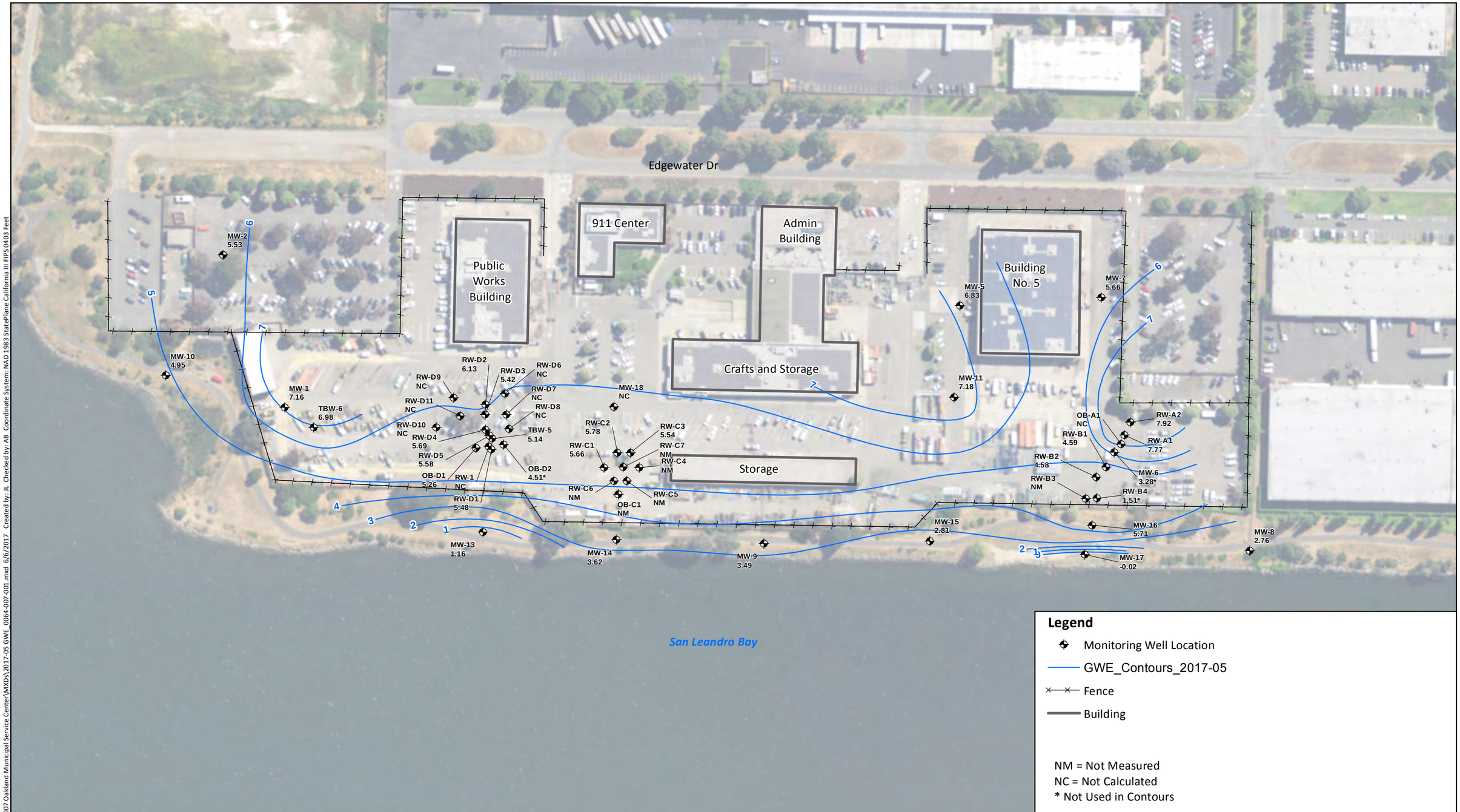
MUNICIPAL SERVICE CENTER
7101 EDGEWATER DRIVE, OAKLAND, CALIFORNIA

GROUNDWATER ELEVATION CONTOUR MAP SHALLOW GROUNDWATER - JULY 2013

ARCADIS

FIGURE 2

CITY:(Req'd) DIV/GROUP:(Req'd) DB:(Req'd) LD:(Opt.) PIC:(Opt.) PM:(Req'd) TM:(Opt.) LYR:(Op)ON=*;OFF=*REF*
G:\ENVCAD\Emeryville\ACT\EM012222\0004\0001\JULY 2013 GWMRI\DWG\EM012222 W02.dwg LAYOUT: 2 SAVED: 1/31/2014 10:38 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: -- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 1/31/2014 10:46 AM BY: REYES, ALEC



Legend

- Monitoring Well Location
- GWE_Contours_2017-05
- Fence
- Building

NM = Not Measured
NC = Not Calculated
* Not Used in Contours

Notes: Aerial imagery source - NAIP June 2014.

0 75 150 225 300 Feet

1 inch = 150 feet

N

SAFETY FIRST

terraphase engineering

CLIENT: Municipal Service Center

PROJECT: Groundwater Monitoring
7101 Edgewater Drive, Oakland CA

PROJECT NUMBER: 0064.007.001

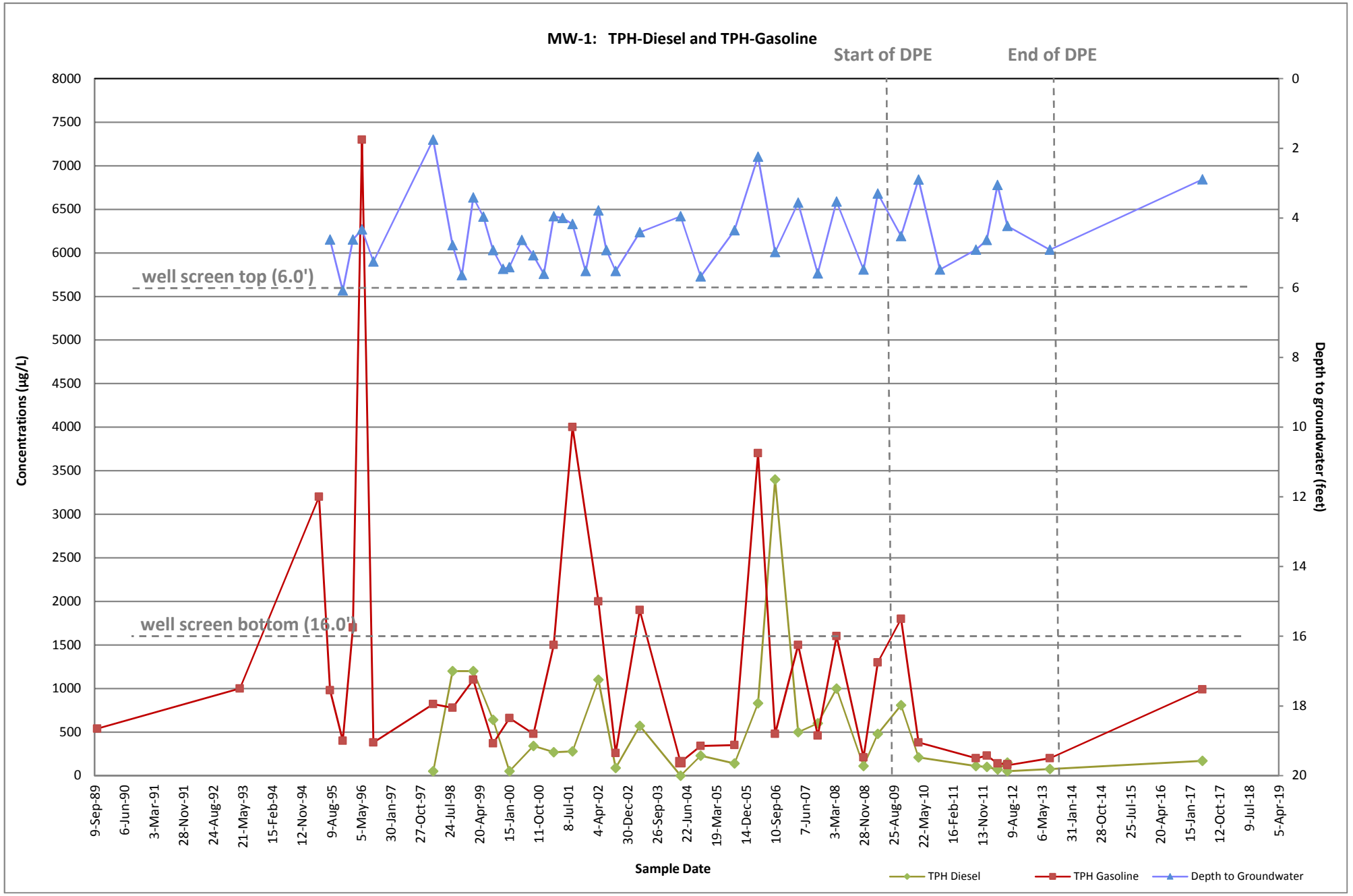
Groundwater Elevation Contours May 10, 2017

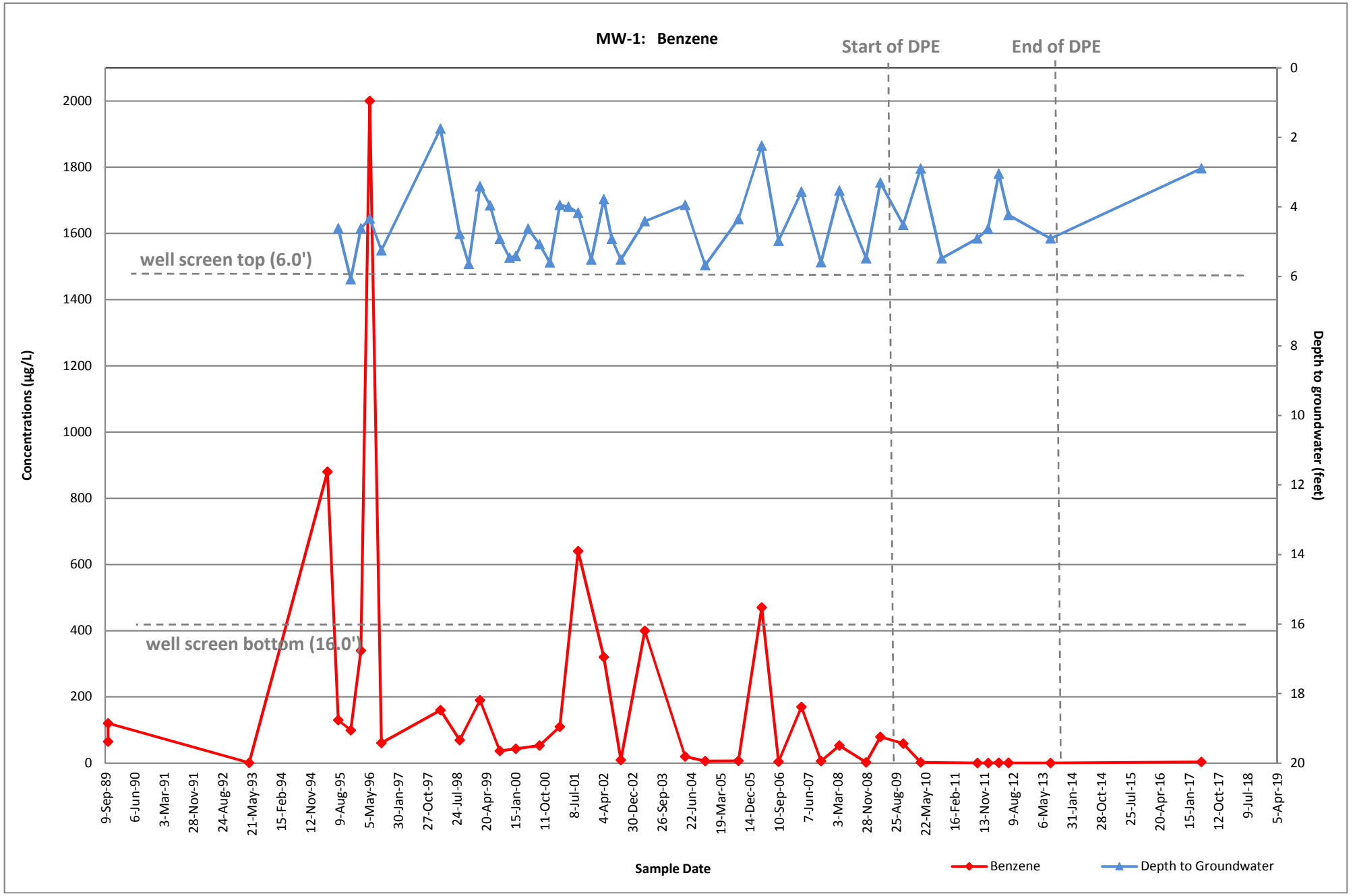
FIGURE 2

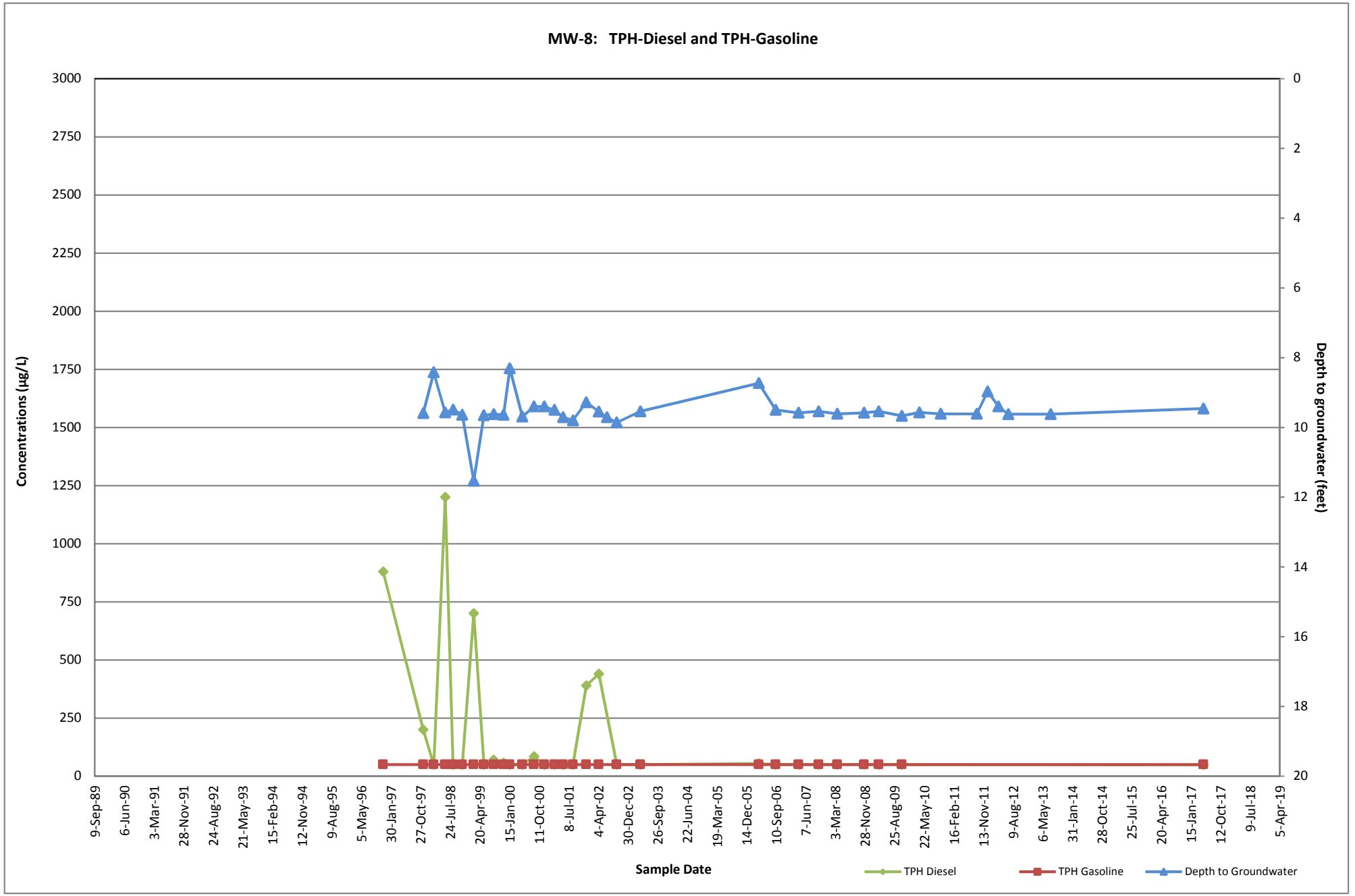
File: J:\GIS Backup\GIS Data\0064.007 Oakland Municipal Service Center\MXDs\2017-05 GWE_0064-007-001.mxd 6/6/2017 Created by: JL Checked by: AB Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet

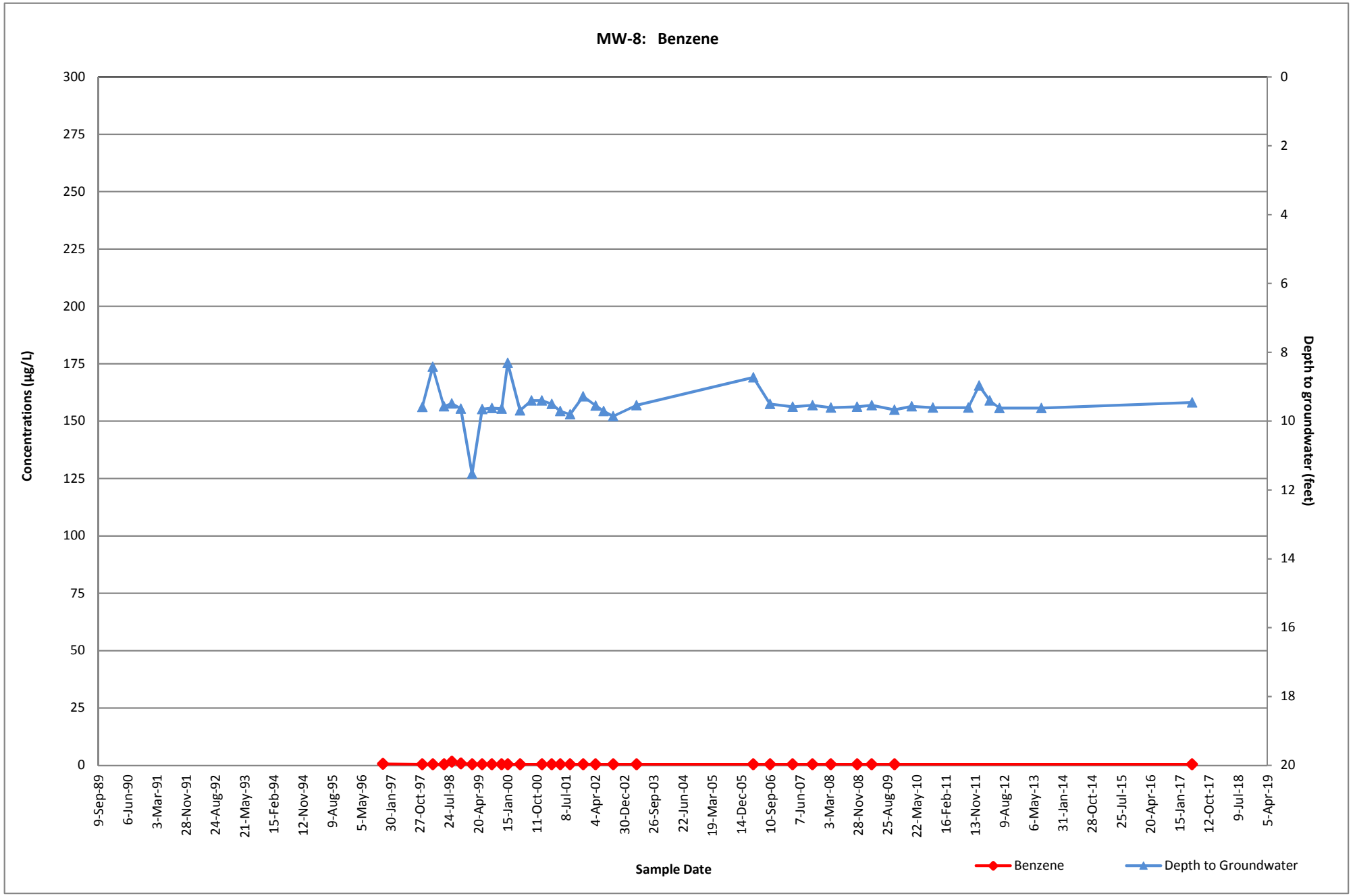
Attachment E

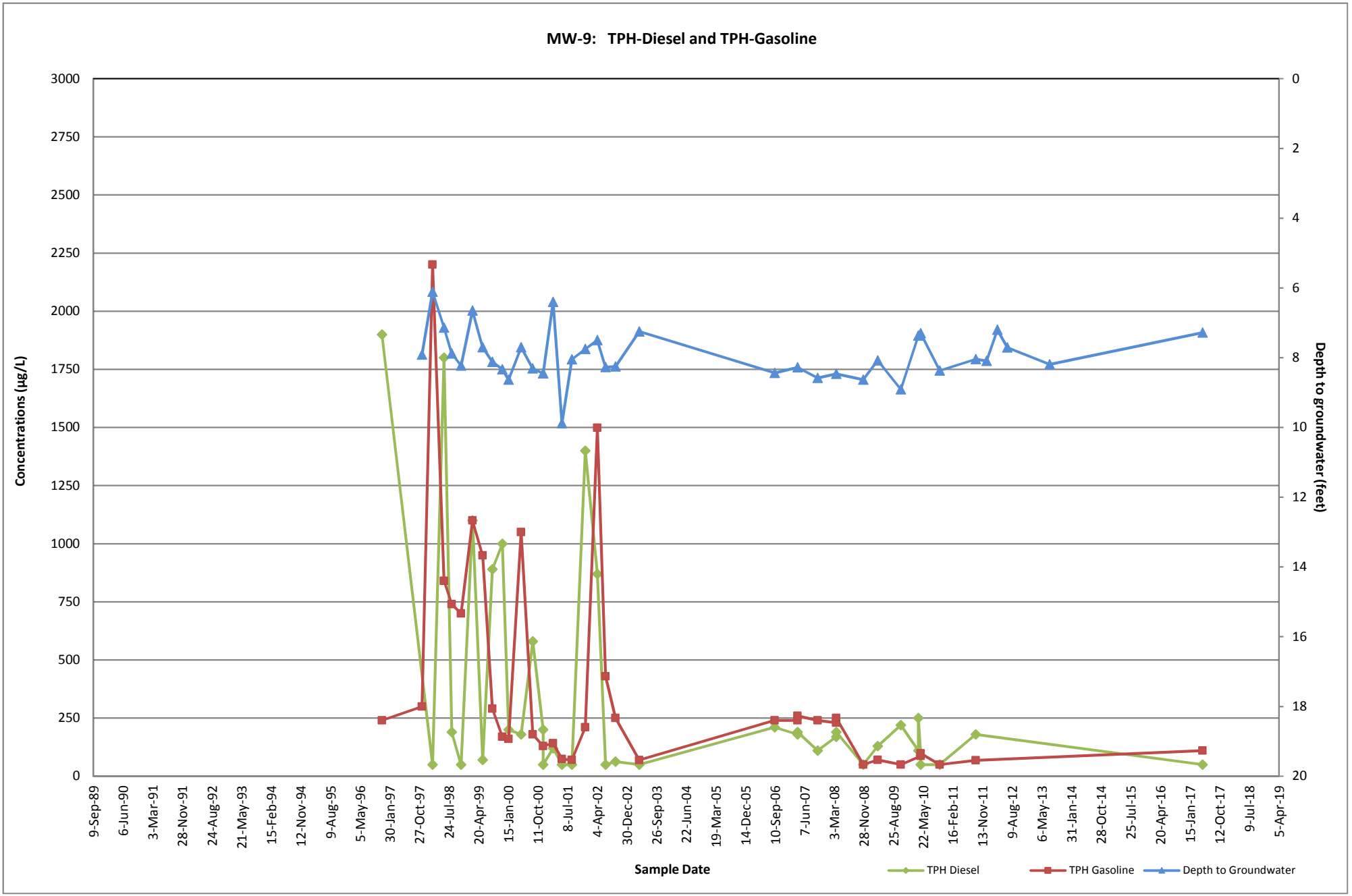
Hydrographs

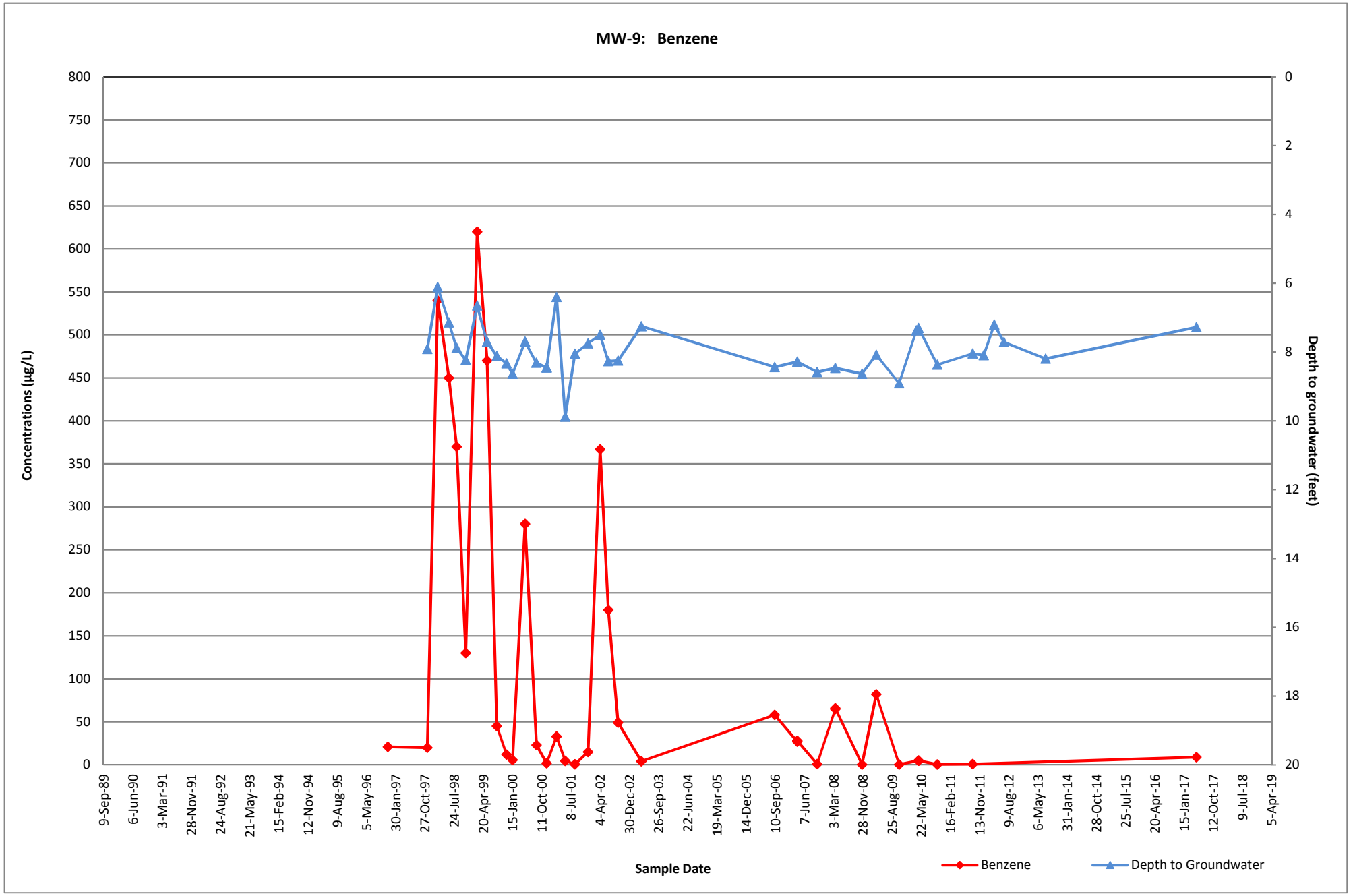

MW-1: TPH-Diesel and TPH-Gasoline
Start of DPE
End of DPE
well screen top (6.0')
well screen bottom (16.0')
Concentrations (µg/L)
Depth to groundwater (feet)
Sample Date
TPH Diesel
TPH Gasoline
Depth to Groundwater

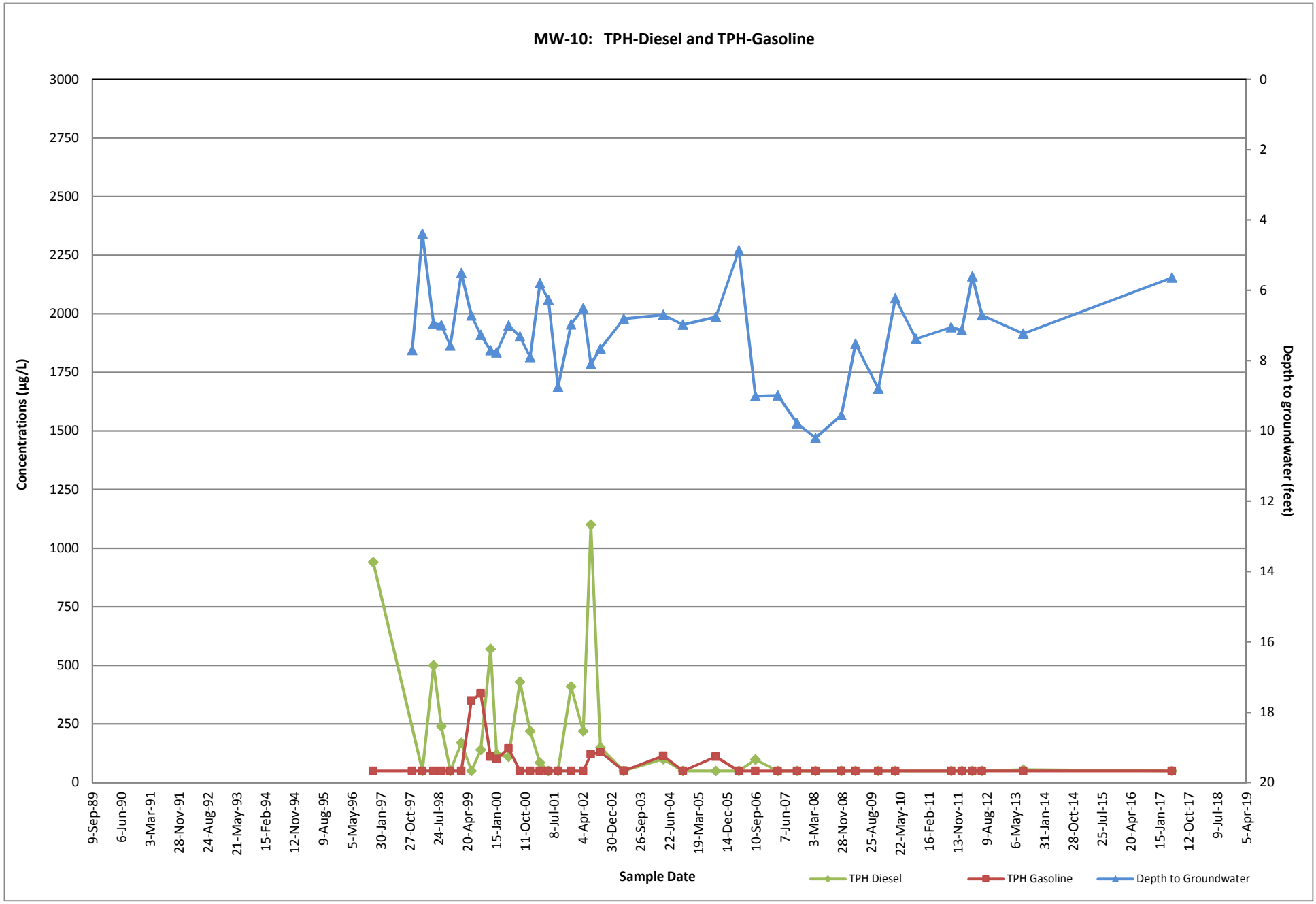

MW-1: Benzene
Start of DPE
End of DPE
well screen top (6.0')
well screen bottom (16.0')
Concentrations (µg/L)
Depth to groundwater (feet)
Sample Date
Benzene
Depth to Groundwater
0
200
400
600
800
1000
1200
1400
1600
1800
2000
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19

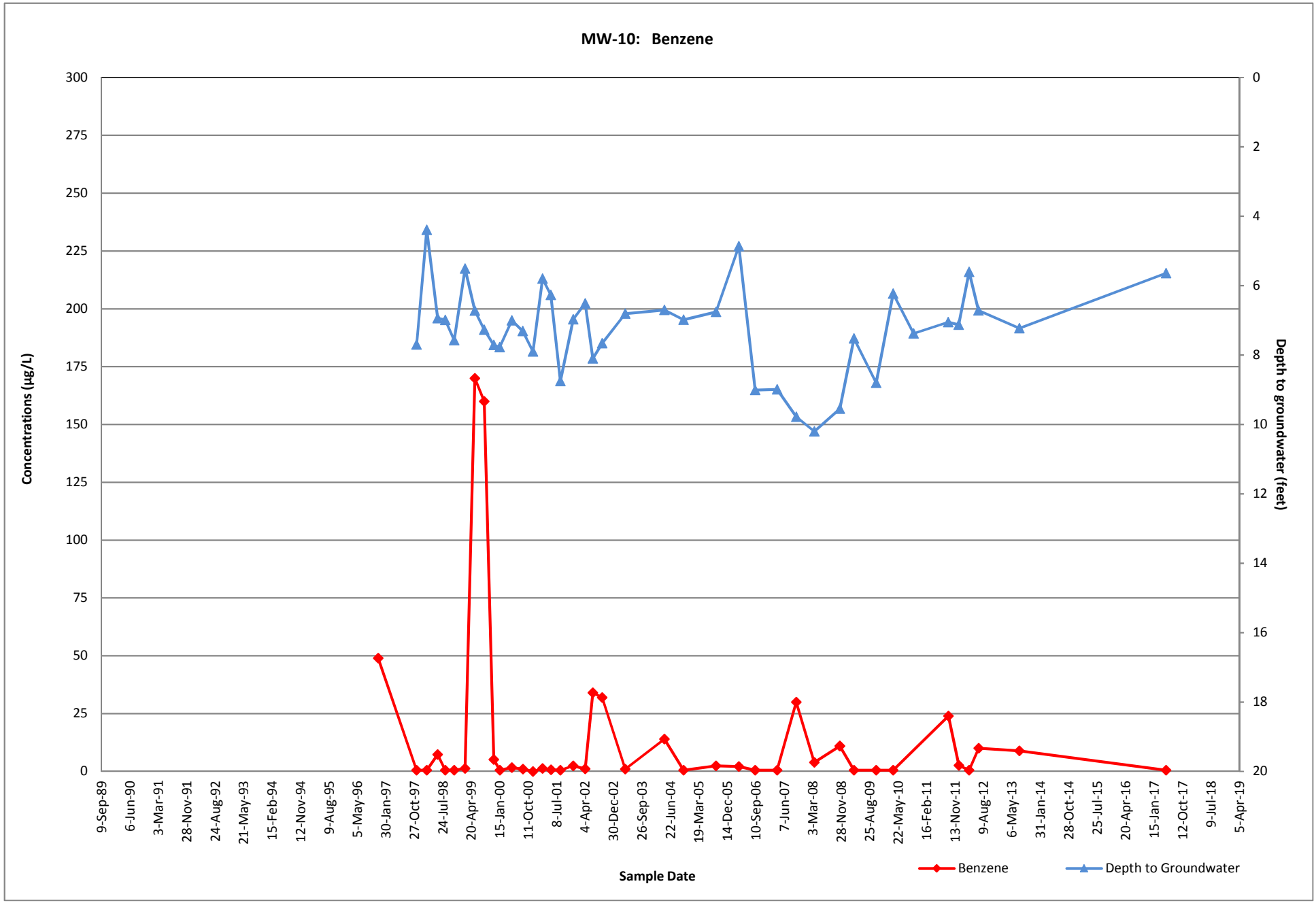

MW-8: TPH-Diesel and TPH-Gasoline
Concentrations (µg/L)
Depth to groundwater (feet)
Sample Date
TPH Diesel
TPH Gasoline
Depth to Groundwater

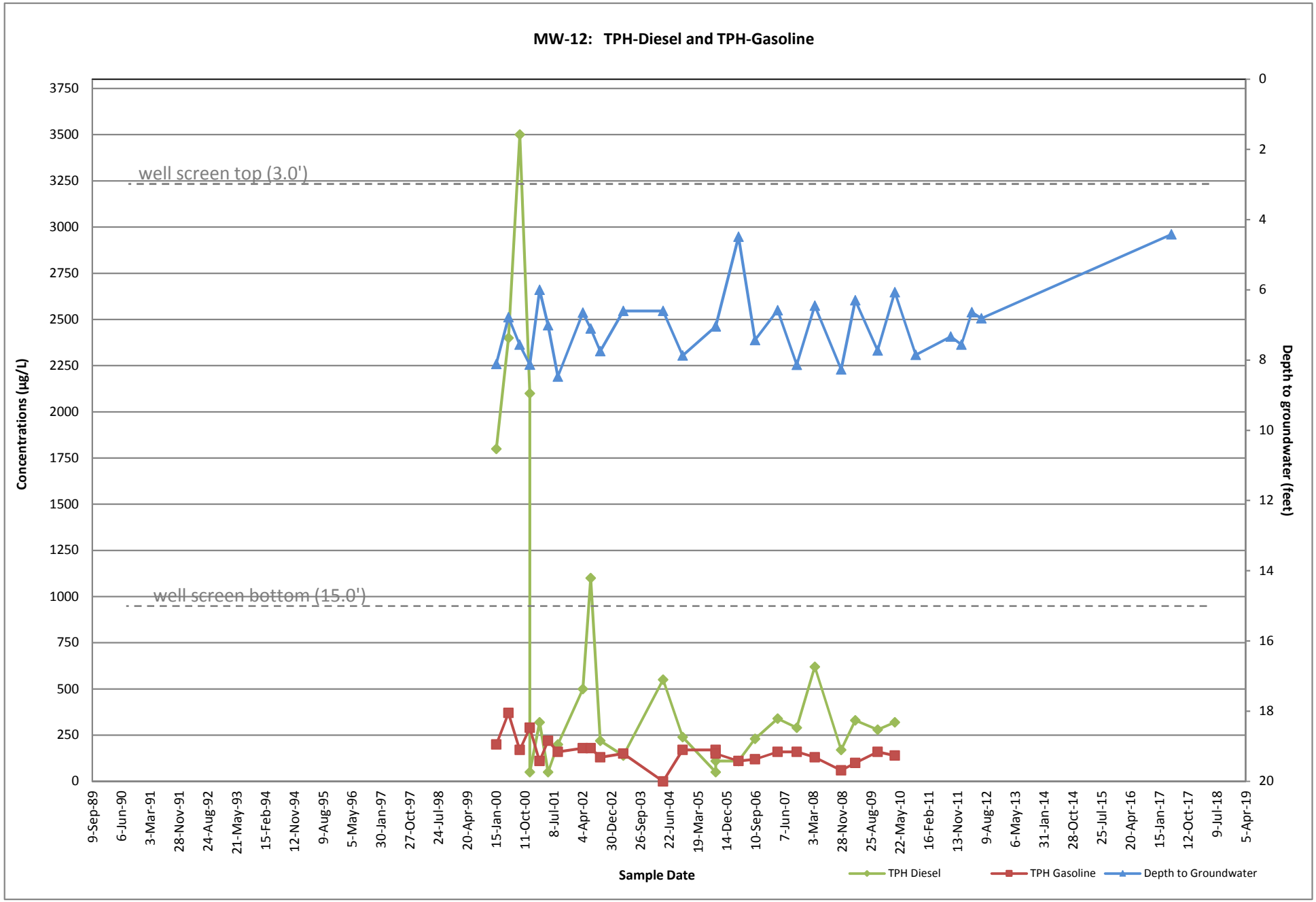

MW-8: Benzene
Concentrations (µg/L)
Depth to groundwater (feet)
300
275
250
225
200
175
150
125
100
75
50
25
0
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19
Sample Date
Benzene
Depth to Groundwater

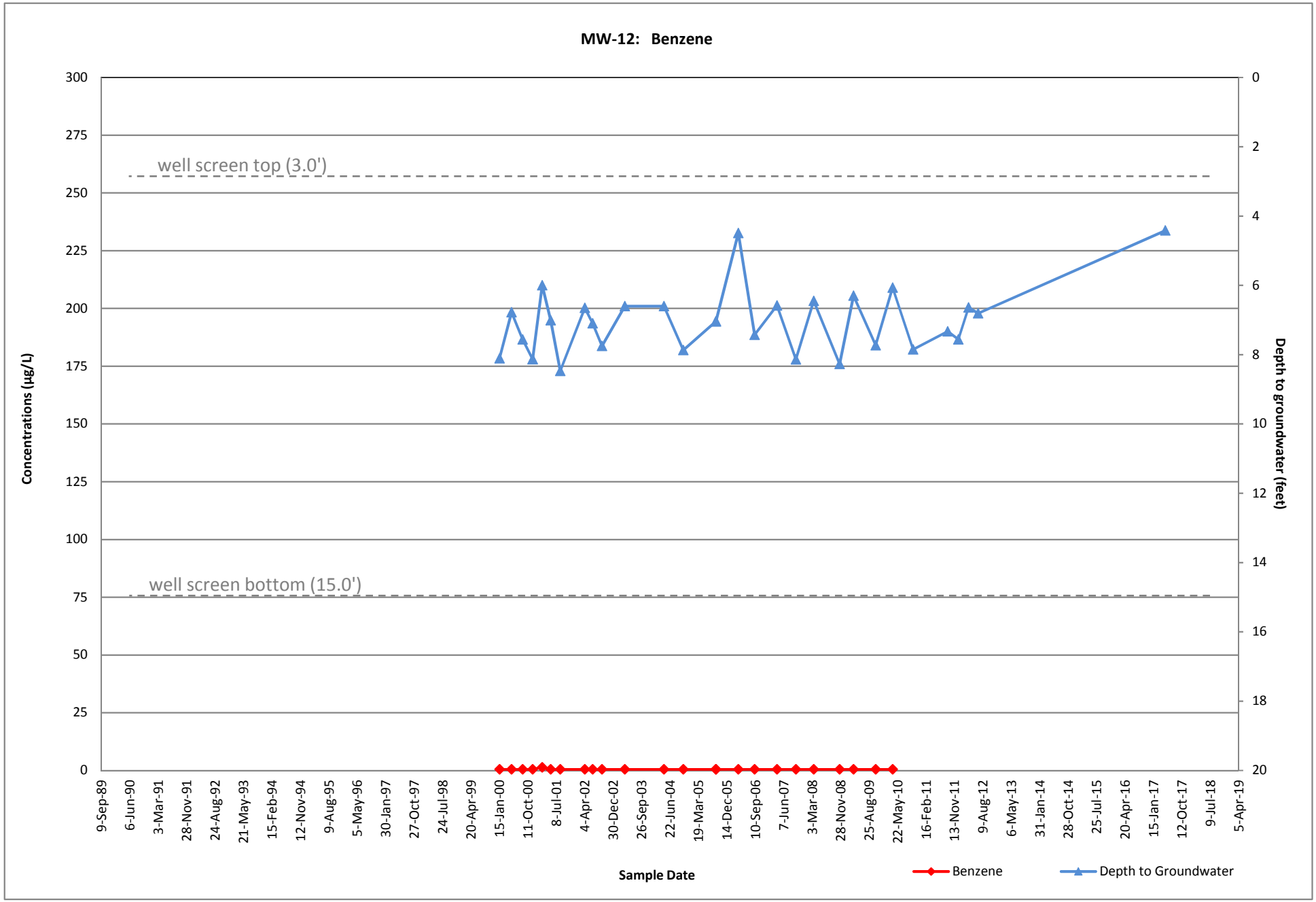

MW-9: TPH-Diesel and TPH-Gasoline
Concentrations (µg/L)
Depth to groundwater (feet)
Sample Date
TPH Diesel
TPH Gasoline
Depth to Groundwater

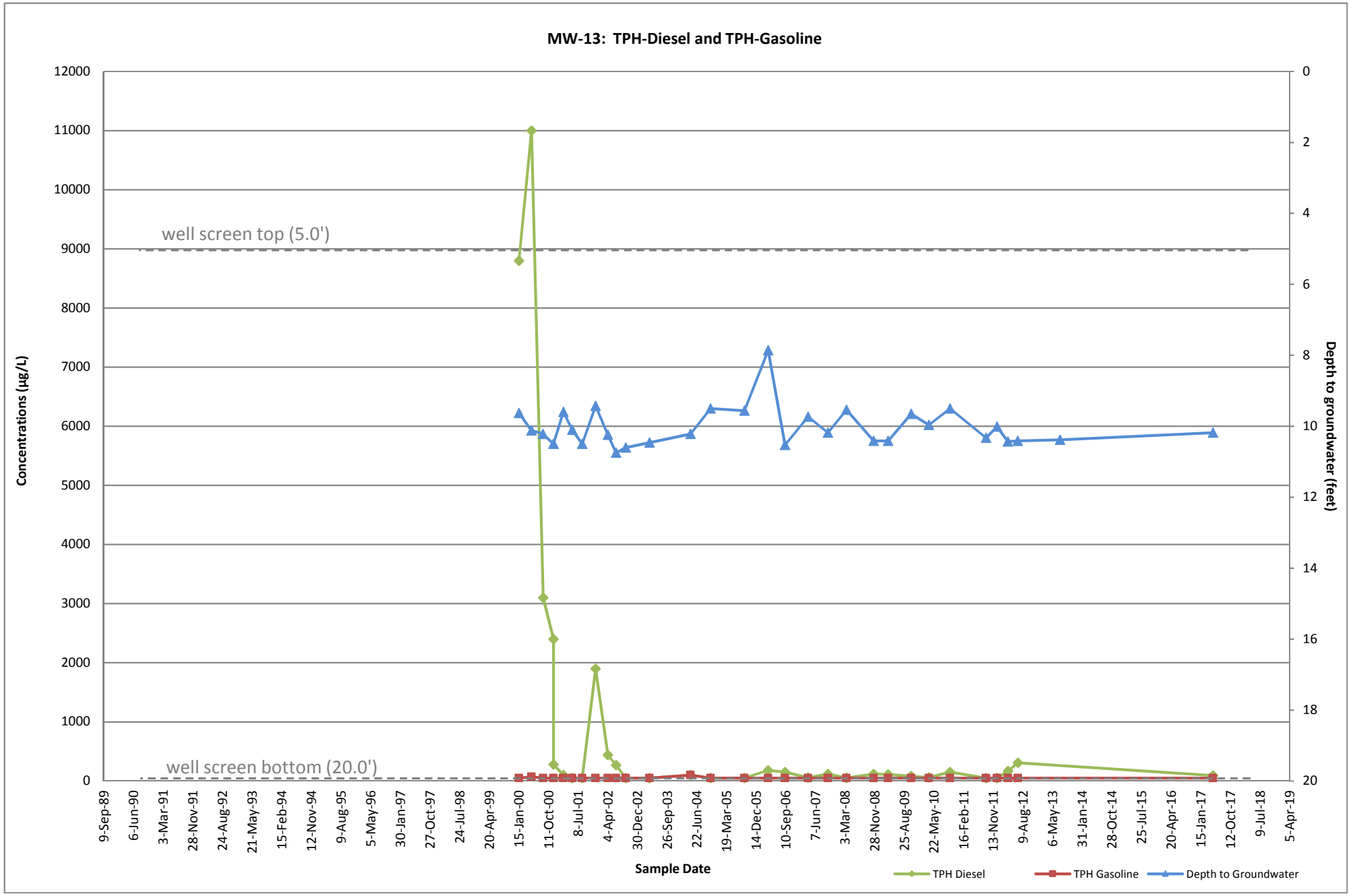

MW-9: Benzene
Concentrations (µg/L)
Depth to groundwater (feet)
Sample Date
Benzene
Depth to Groundwater
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19

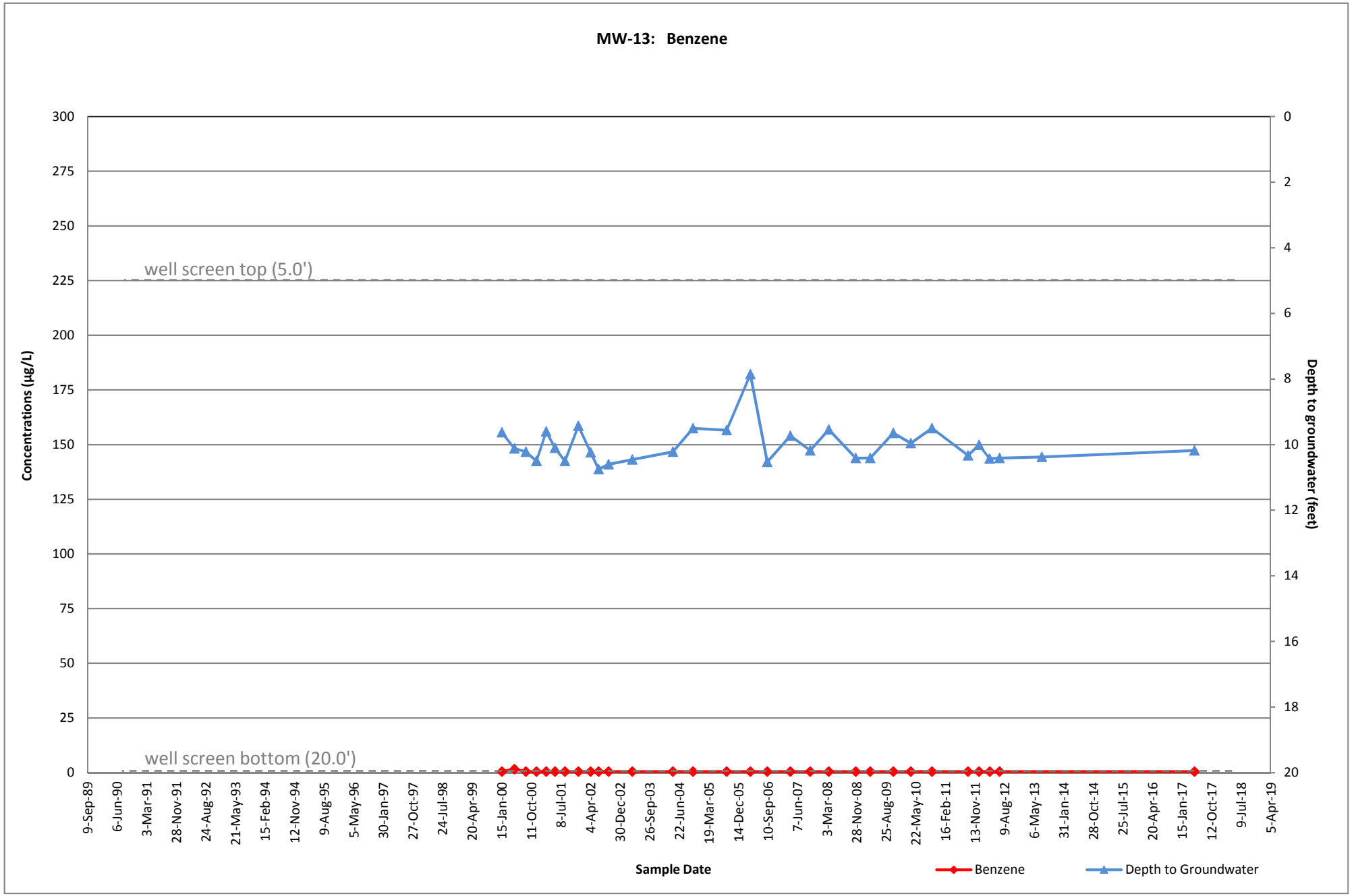

MW-10: TPH-Diesel and TPH-Gasoline
Concentrations (µg/L)
Depth to groundwater (feet)
Sample Date
TPH Diesel
TPH Gasoline
Depth to Groundwater

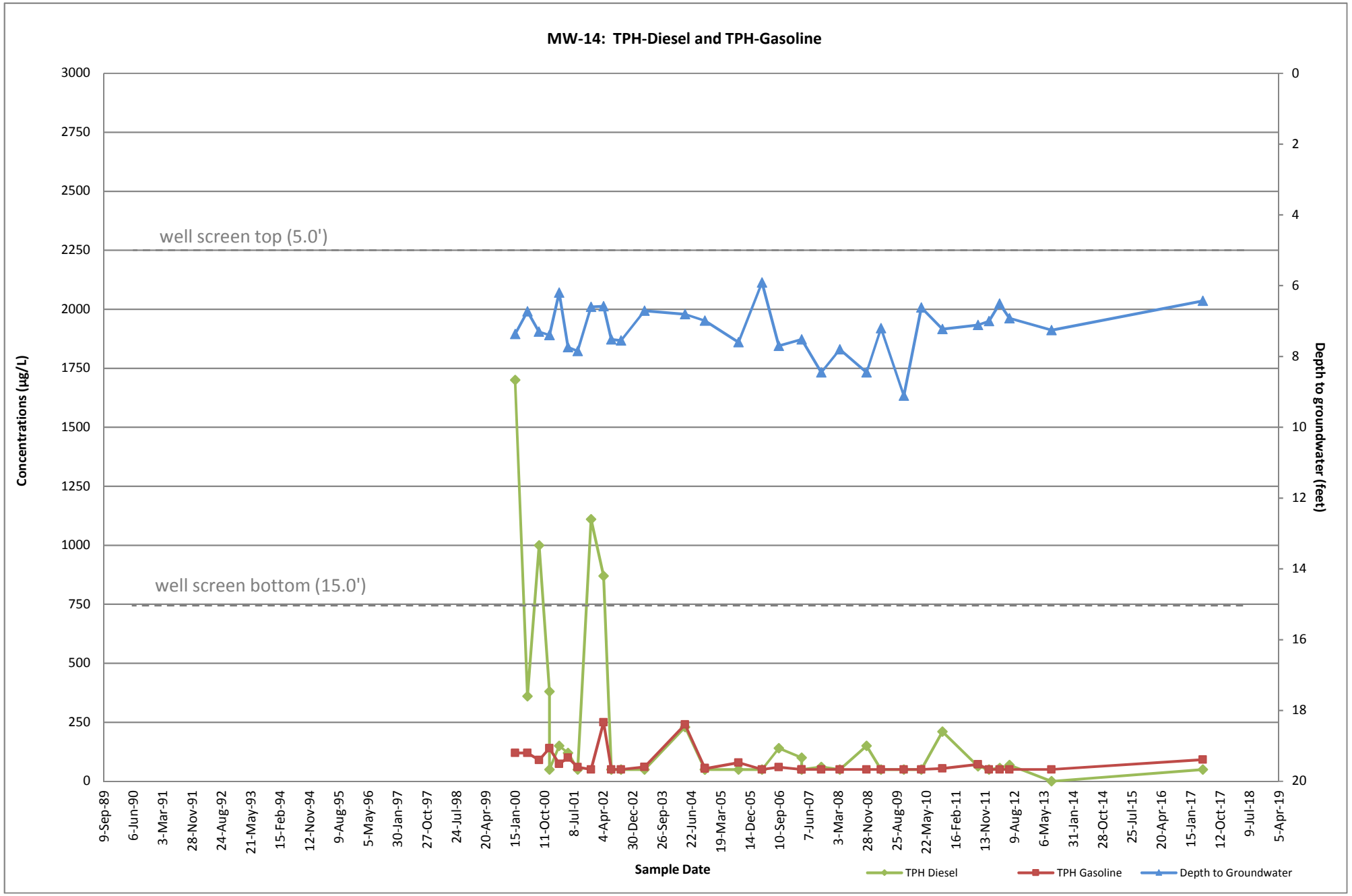

MW-10: Benzene
Concentrations (µg/L)
Depth to groundwater (feet)
Sample Date
Benzene
Depth to Groundwater
300
275
250
225
200
175
150
125
100
75
50
25
0
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19

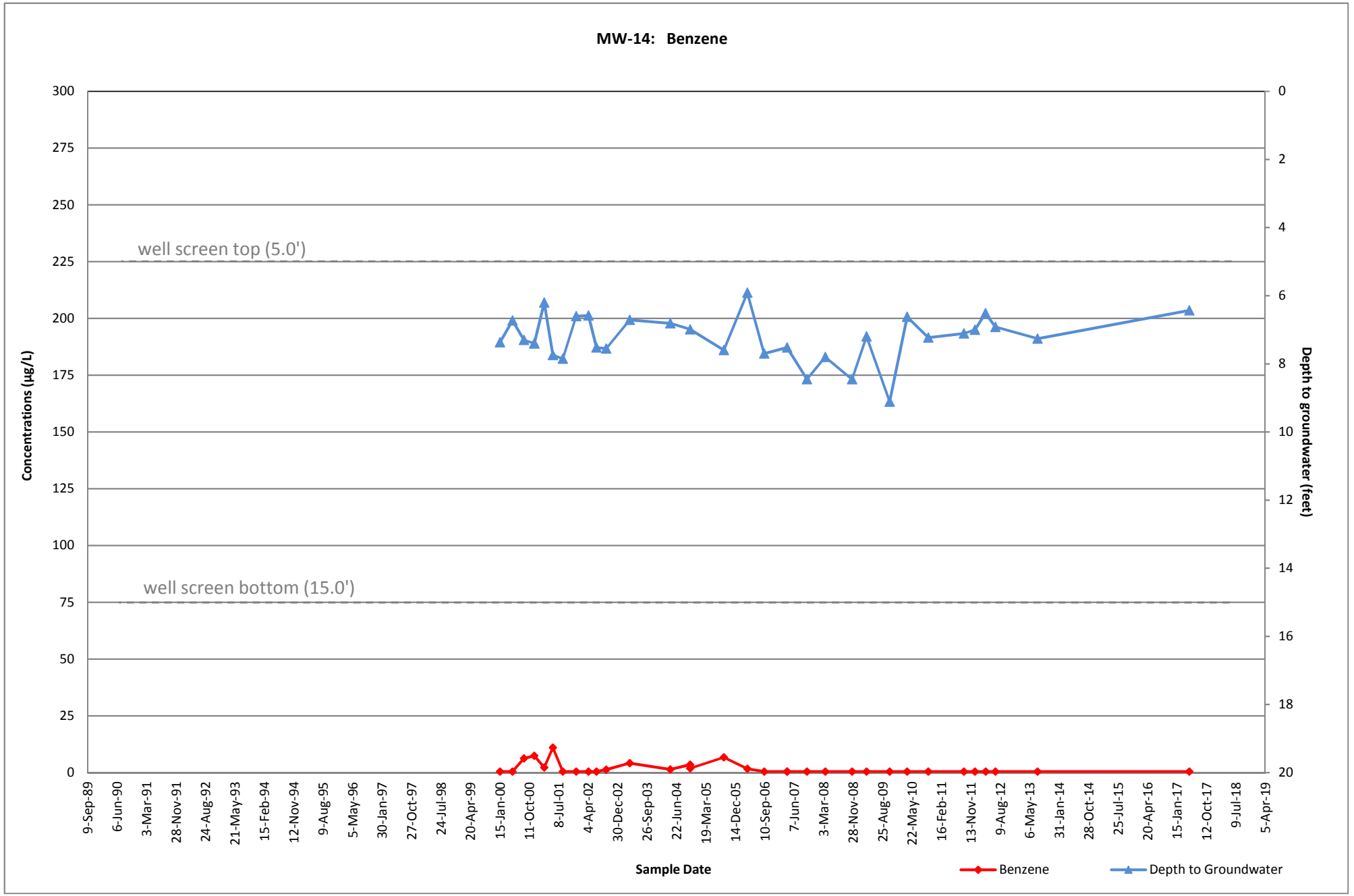

MW-12: TPH-Diesel and TPH-Gasoline
Concentrations (µg/L)
Depth to groundwater (feet)
Sample Date
well screen top (3.0')
well screen bottom (15.0')
TPH Diesel
TPH Gasoline
Depth to Groundwater
3750
3500
3250
3000
2750
2500
2250
2000
1750
1500
1250
1000
750
500
250
0
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19

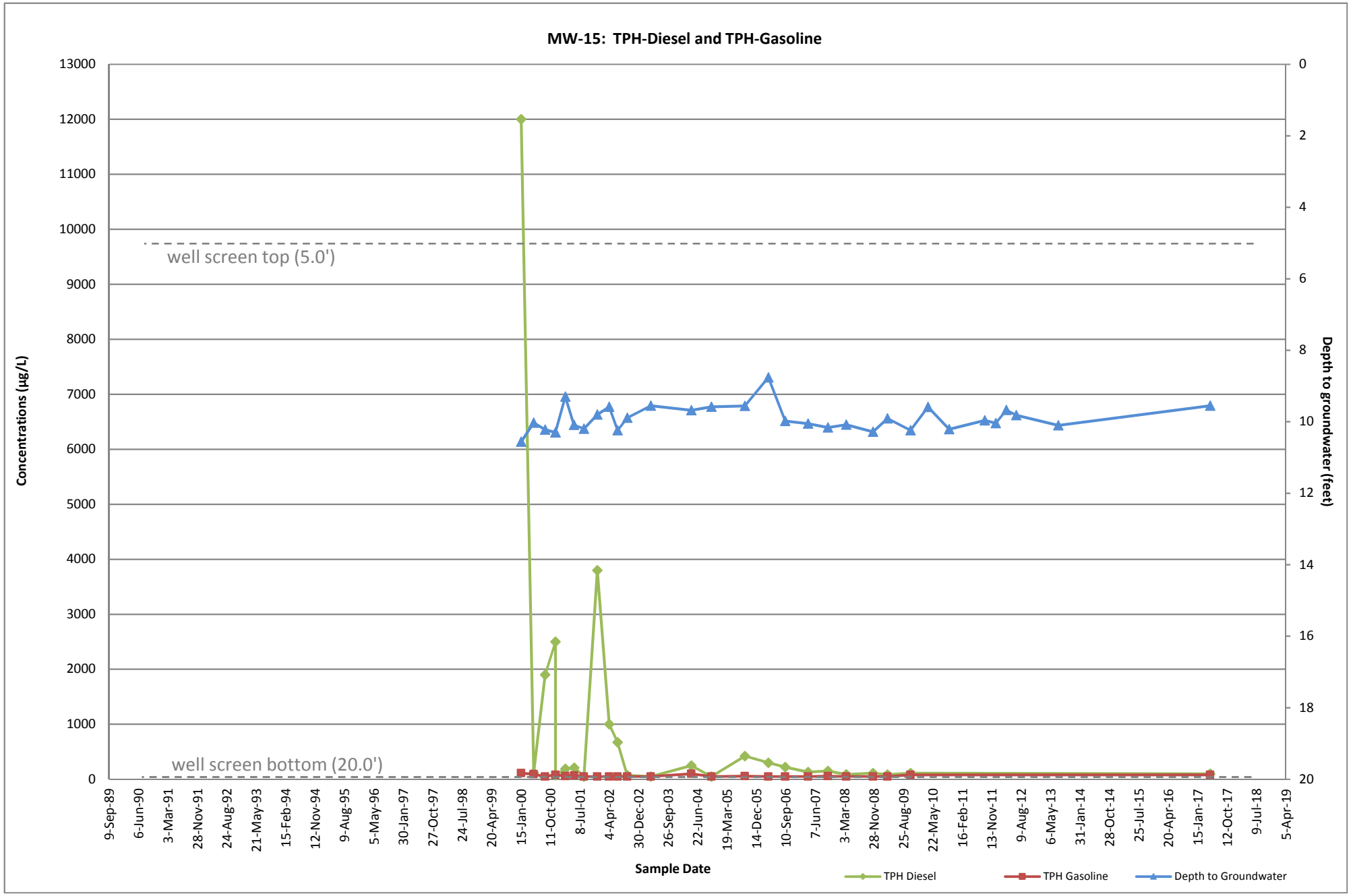

MW-12: Benzene
Concentrations (µg/L)
Depth to groundwater (feet)
well screen top (3.0')
well screen bottom (15.0')
300
275
250
225
200
175
150
125
100
75
50
25
0
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19
Sample Date
Benzene
Depth to Groundwater

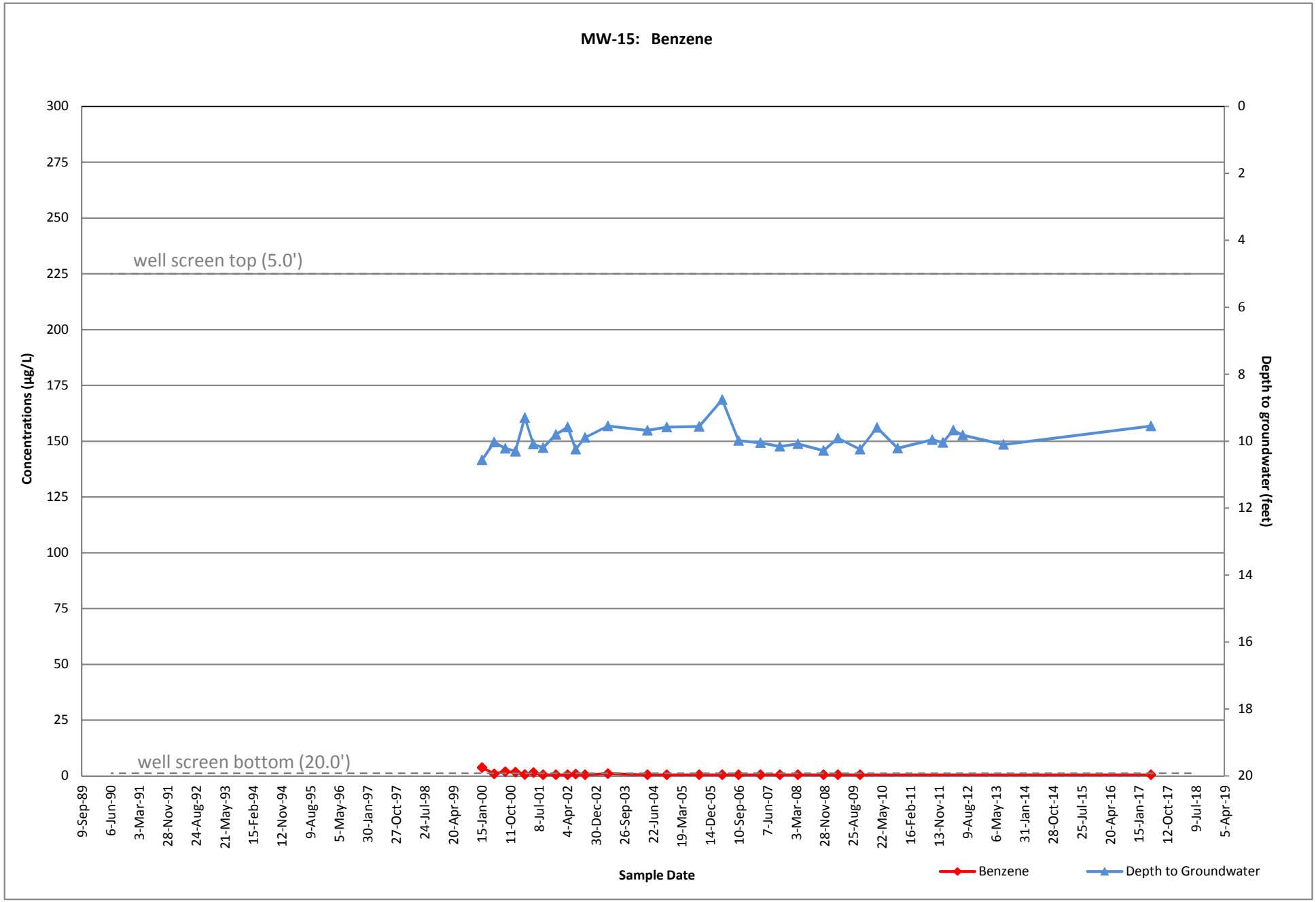

MW-13: TPH-Diesel and TPH-Gasoline
Concentrations (µg/L)
Depth to groundwater (feet)
well screen top (5.0')
well screen bottom (20.0')
Sample Date
TPH Diesel
TPH Gasoline
Depth to Groundwater

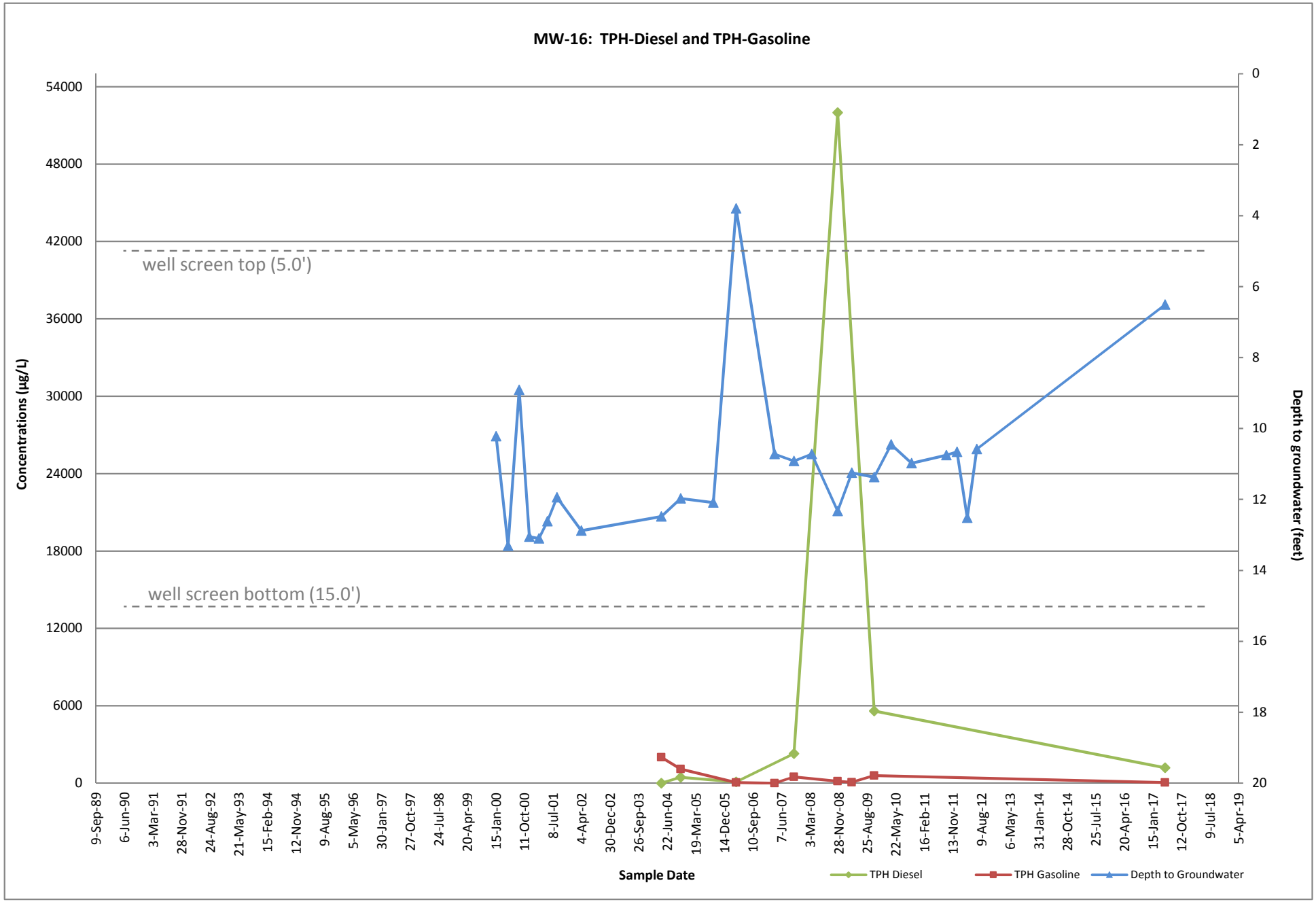

MW-13: Benzene
Concentrations (µg/L)
Depth to groundwater (feet)
well screen top (5.0')
well screen bottom (20.0')
300
275
250
225
200
175
150
125
100
75
50
25
0
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19
Sample Date
Benzene
Depth to Groundwater

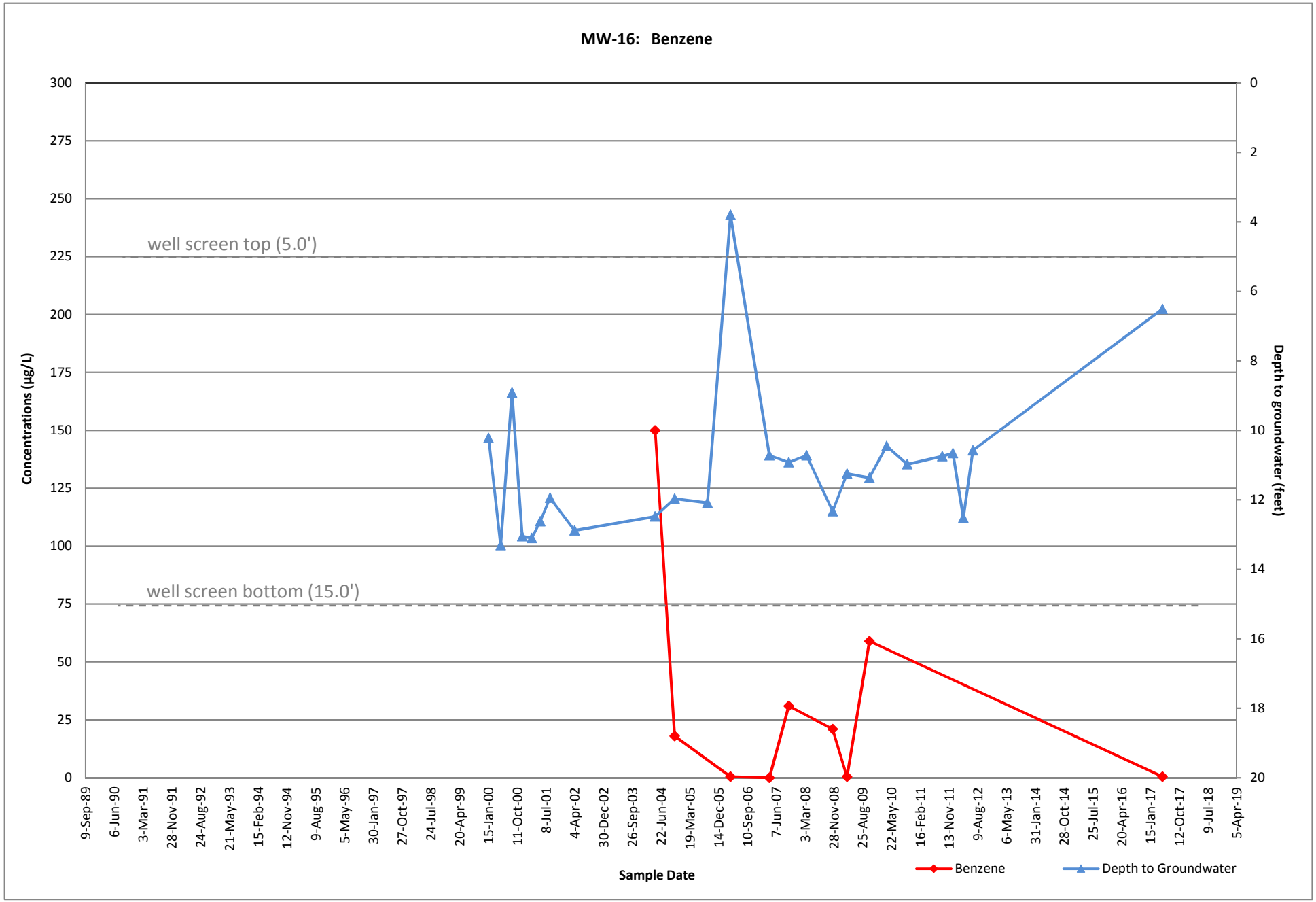

MW-14: TPH-Diesel and TPH-Gasoline
Concentrations (µg/L)
Depth to groundwater (feet)
well screen top (5.0')
well screen bottom (15.0')
Sample Date
TPH Diesel
TPH Gasoline
Depth to Groundwater

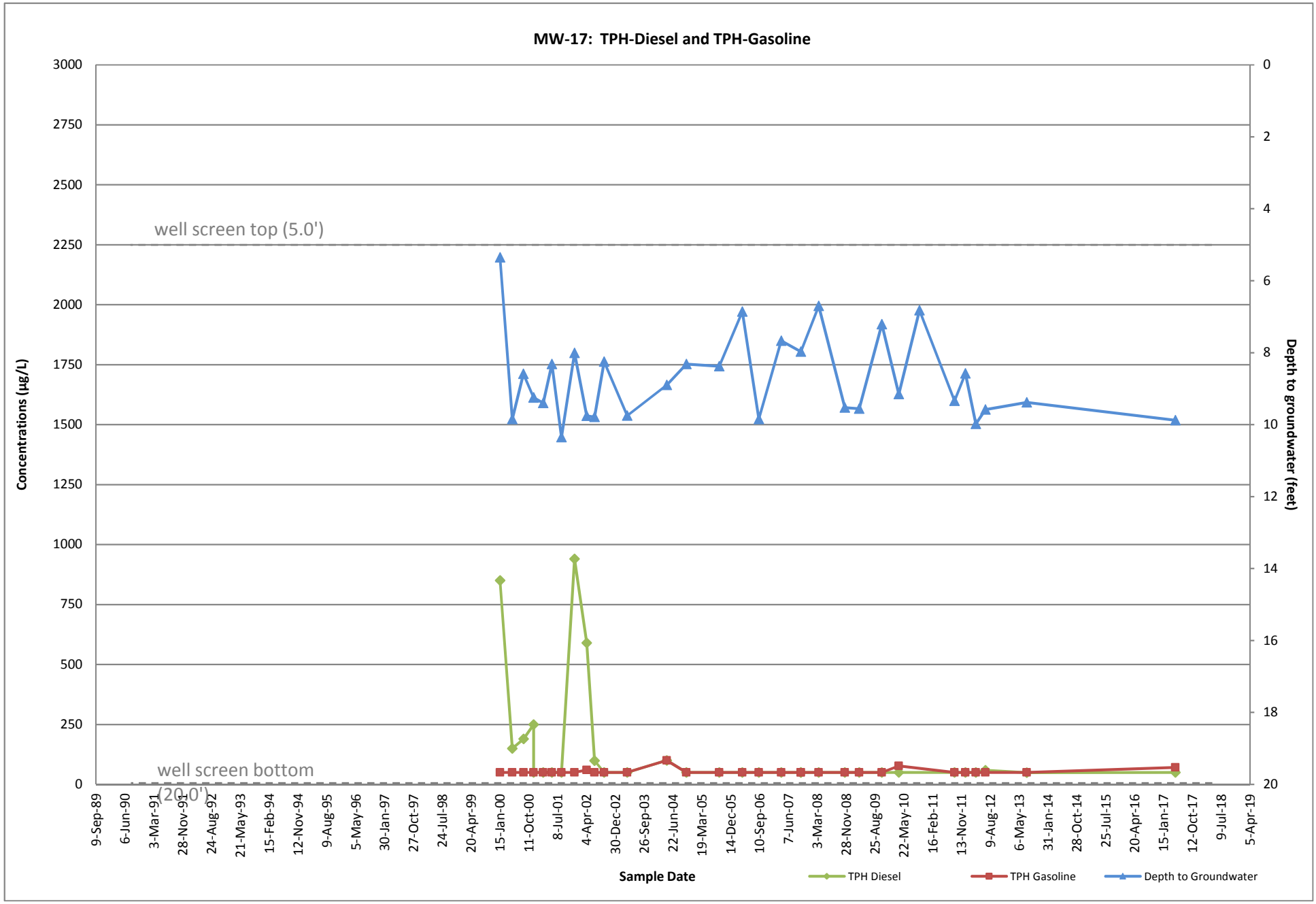

MW-14: Benzene
Concentrations (µg/L)
Depth to groundwater (feet)
well screen top (5.0')
well screen bottom (15.0')
300
275
250
225
200
175
150
125
100
75
50
25
0
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19
Sample Date
Benzene
Depth to Groundwater

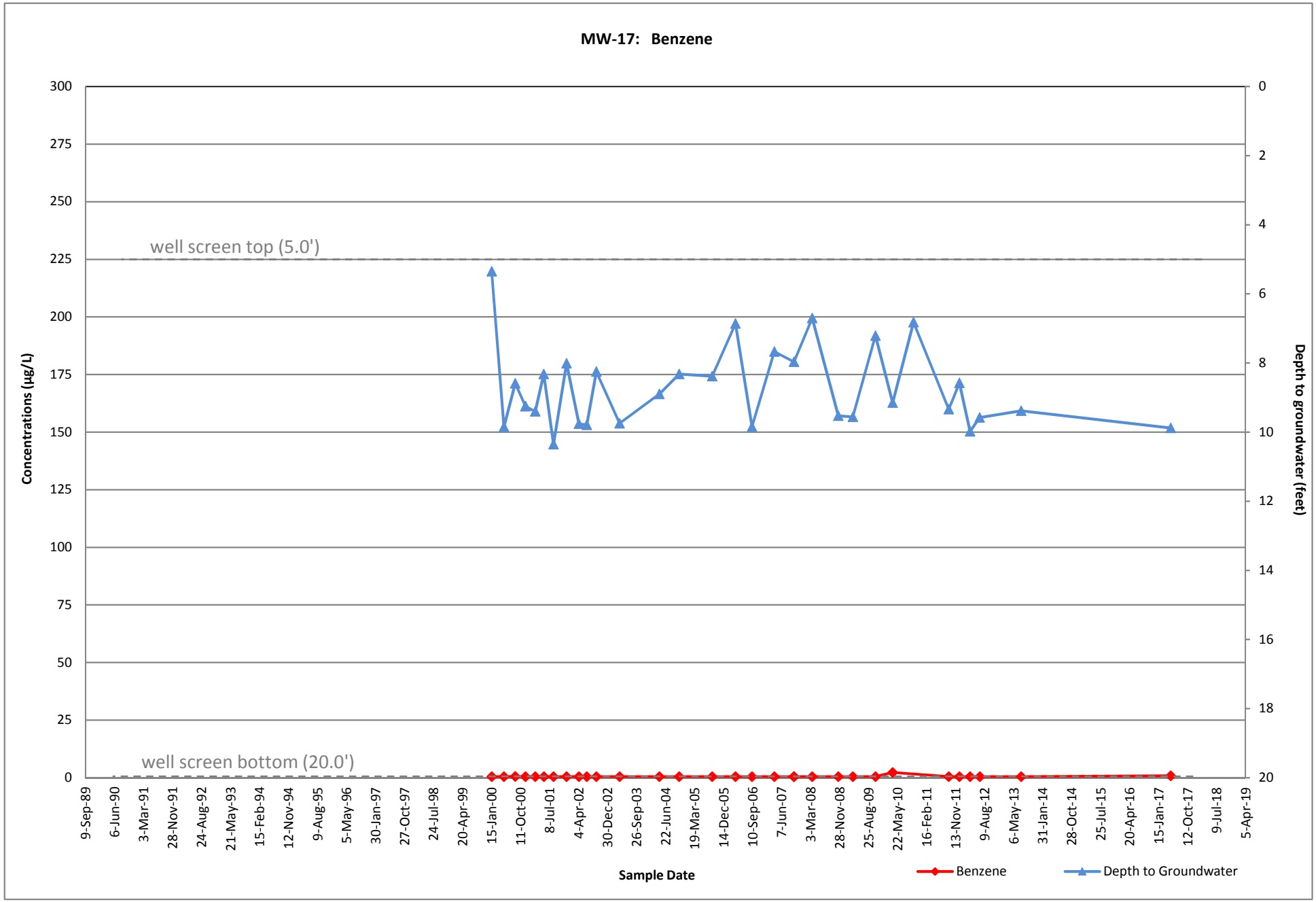

MW-15: TPH-Diesel and TPH-Gasoline
Concentrations (µg/L)
Depth to groundwater (feet)
Sample Date
well screen top (5.0')
well screen bottom (20.0')
TPH Diesel
TPH Gasoline
Depth to Groundwater
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19

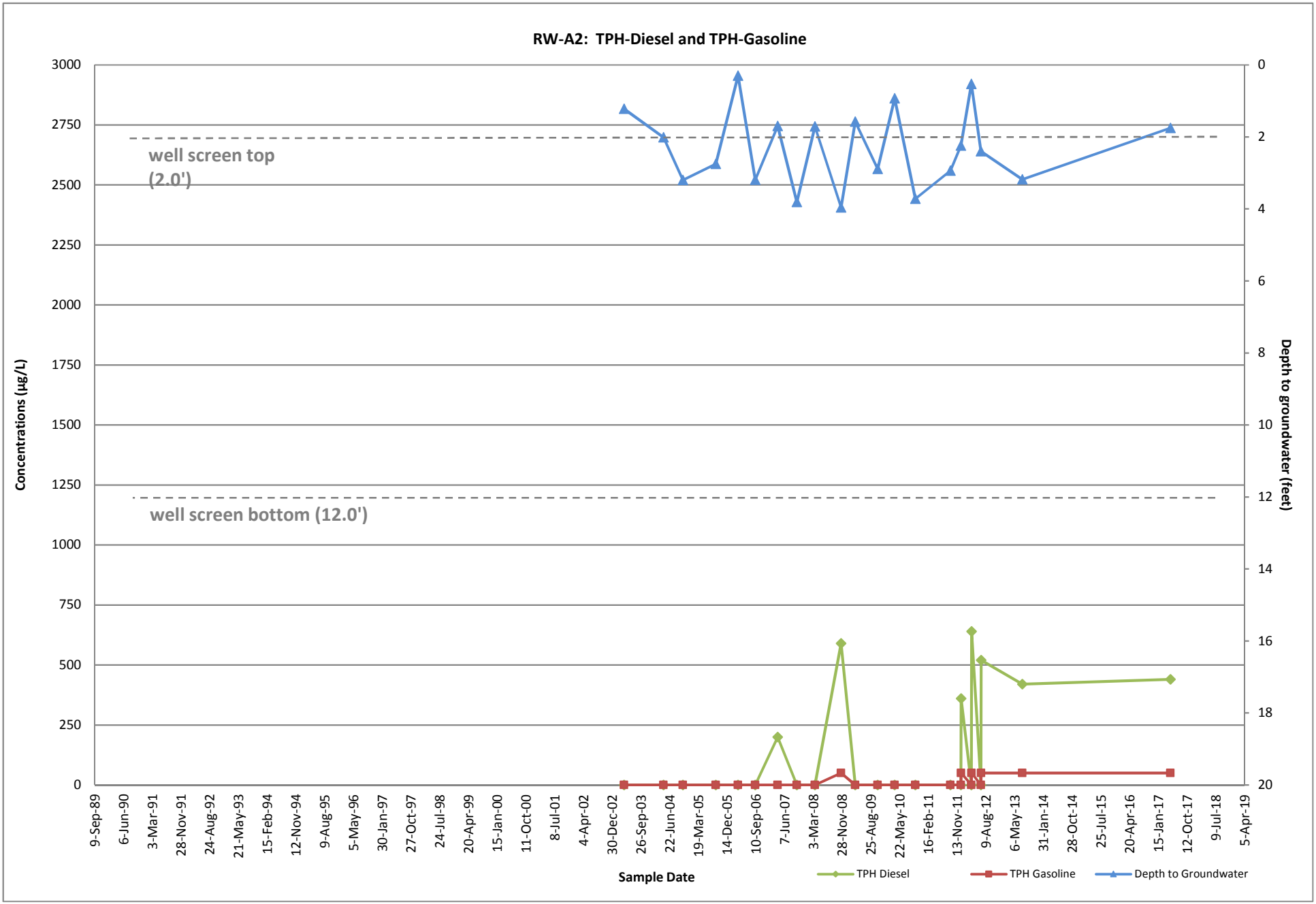

MW-15: Benzene
Concentrations (µg/L)
Depth to groundwater (feet)
well screen top (5.0')
well screen bottom (20.0')
300
275
250
225
200
175
150
125
100
75
50
25
0
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19
Sample Date
Benzene
Depth to Groundwater

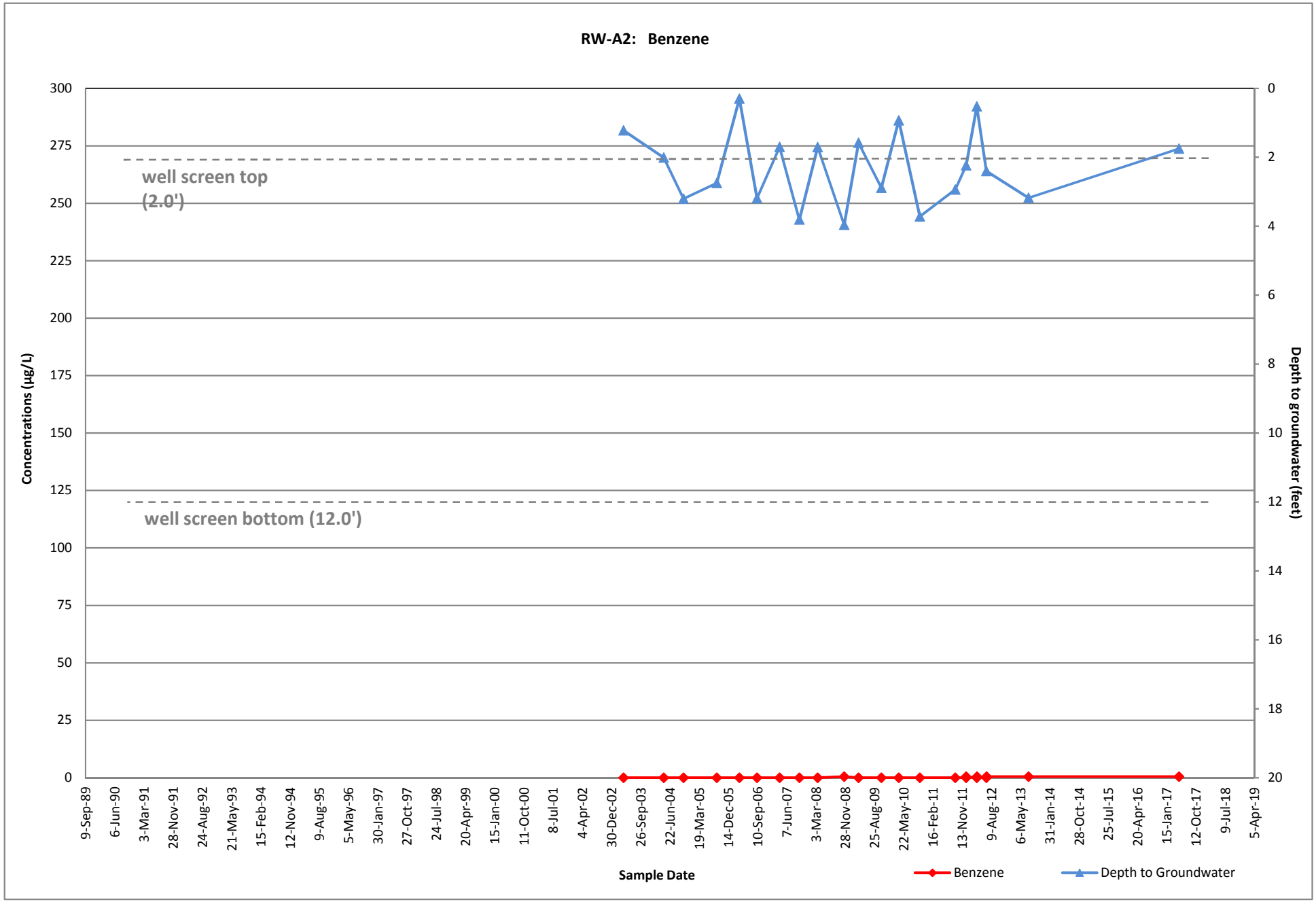

MW-16: TPH-Diesel and TPH-Gasoline
Concentrations (µg/L)
Depth to groundwater (feet)
Sample Date
well screen top (5.0')
well screen bottom (15.0')
TPH Diesel
TPH Gasoline
Depth to Groundwater
54000
48000
42000
36000
30000
24000
18000
12000
6000
0
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19

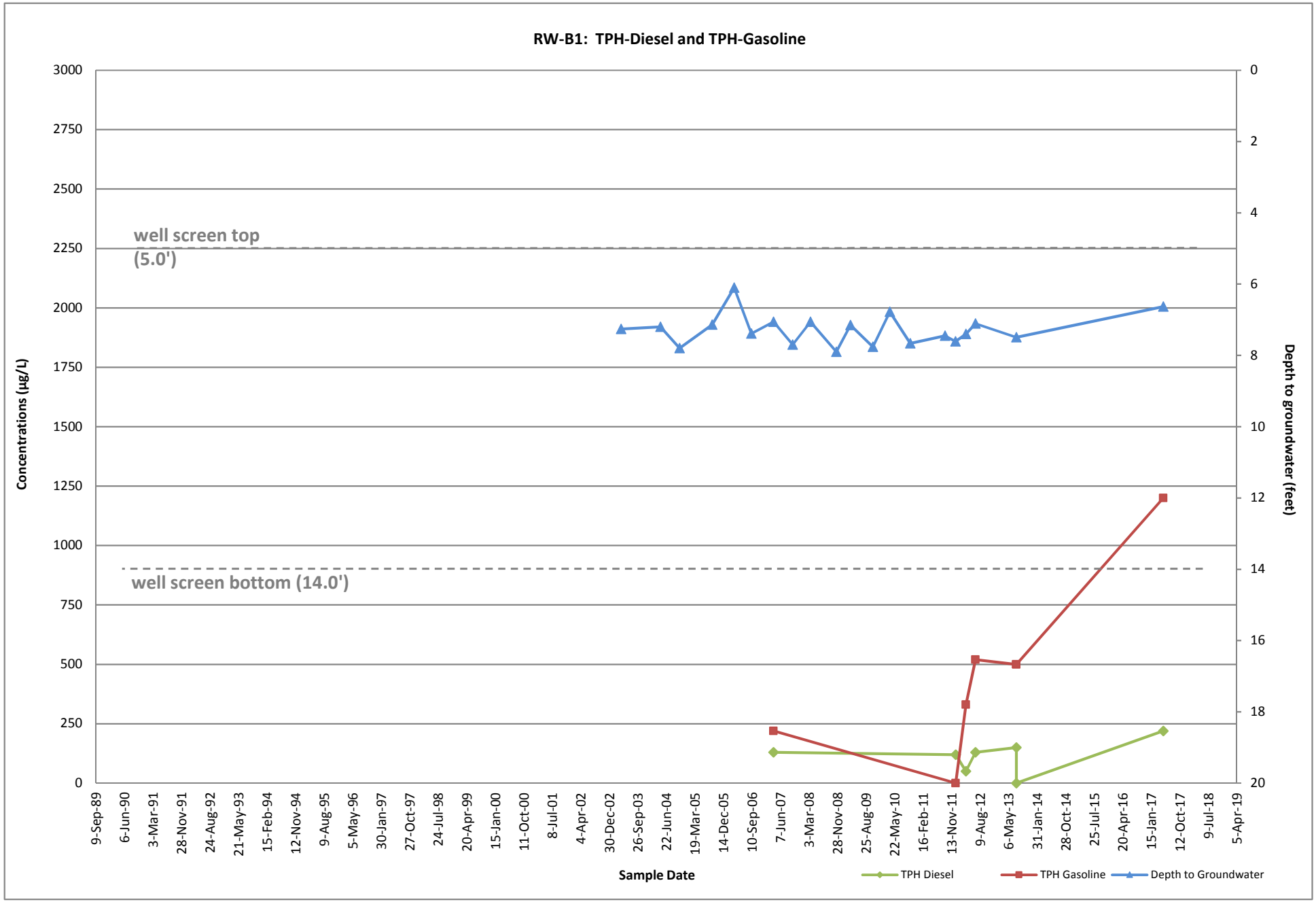

MW-16: Benzene
Concentrations (µg/L)
Depth to groundwater (feet)
Sample Date
well screen top (5.0')
well screen bottom (15.0')
Benzene
Depth to Groundwater
300
275
250
225
200
175
150
125
100
75
50
25
0
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19

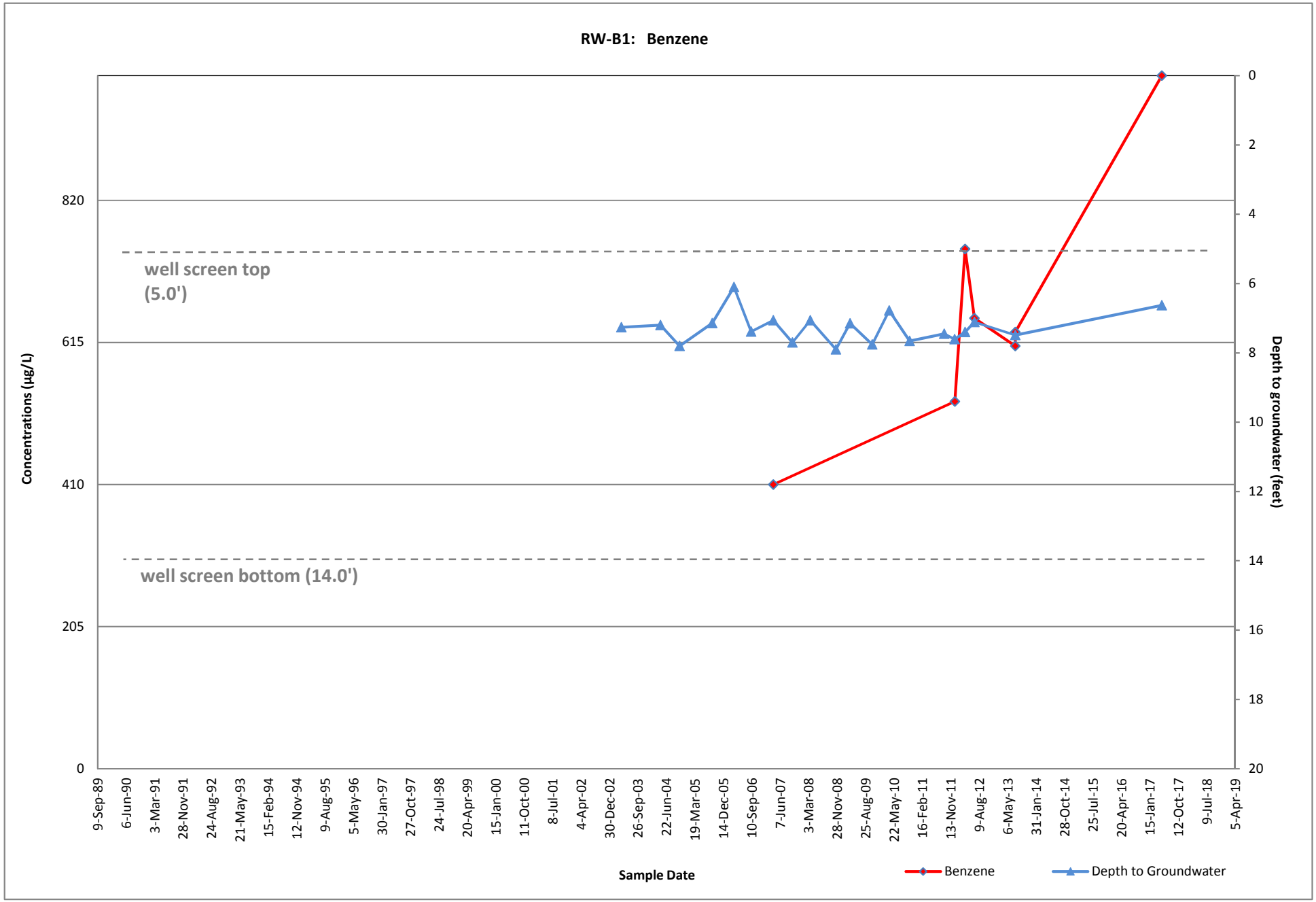

MW-17: TPH-Diesel and TPH-Gasoline
Concentrations (µg/L)
Depth to groundwater (feet)
3000
2750
2500
2250
2000
1750
1500
1250
1000
750
500
250
0
0
2
4
6
8
10
12
14
16
18
20
well screen top (5.0')
well screen bottom (20.0')
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19
Sample Date
TPH Diesel
TPH Gasoline
Depth to Groundwater

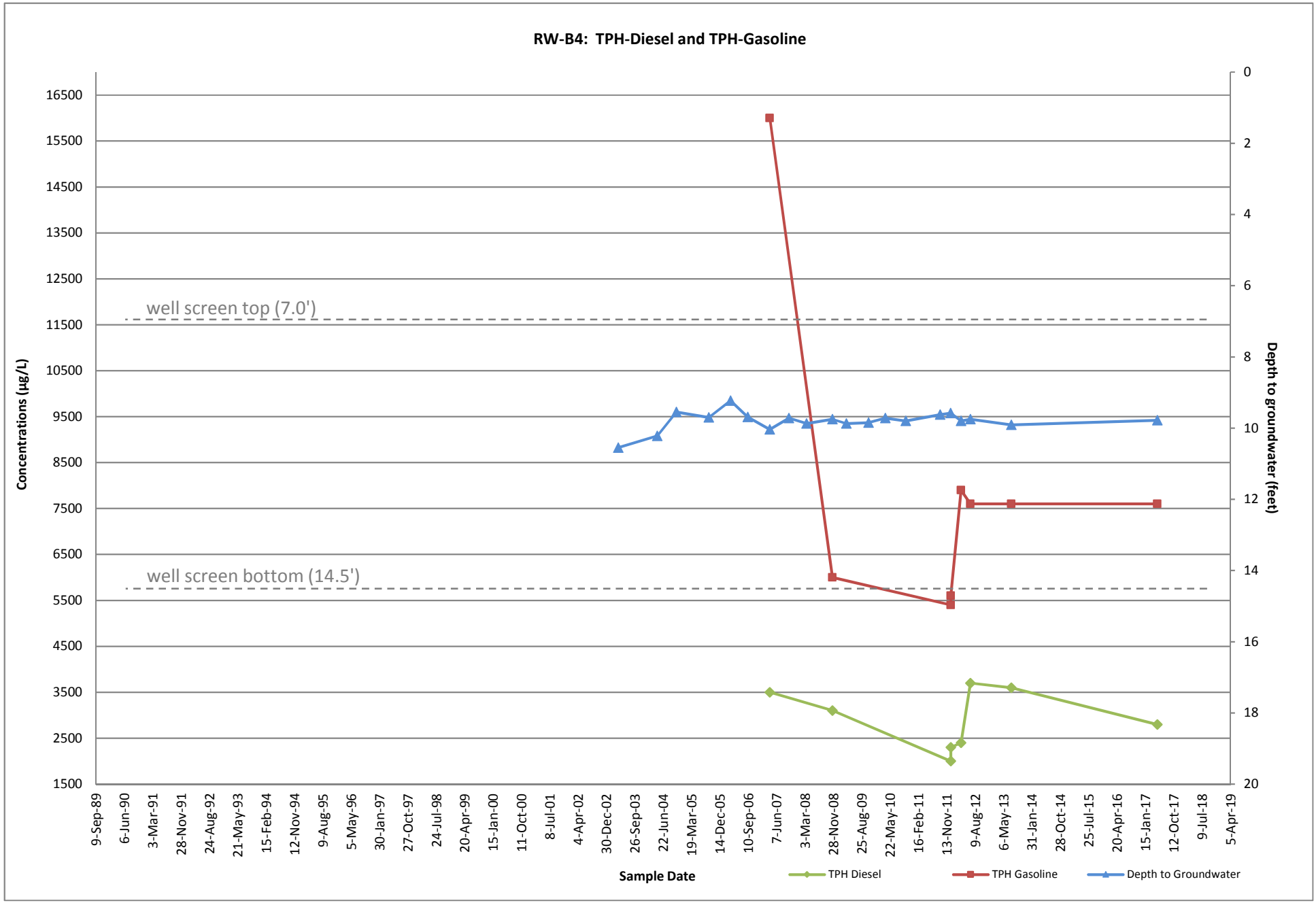

MW-17: Benzene
Concentrations (µg/L)
Depth to groundwater (feet)
well screen top (5.0')
well screen bottom (20.0')
300
275
250
225
200
175
150
125
100
75
50
25
0
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19
Sample Date
Benzene
Depth to Groundwater

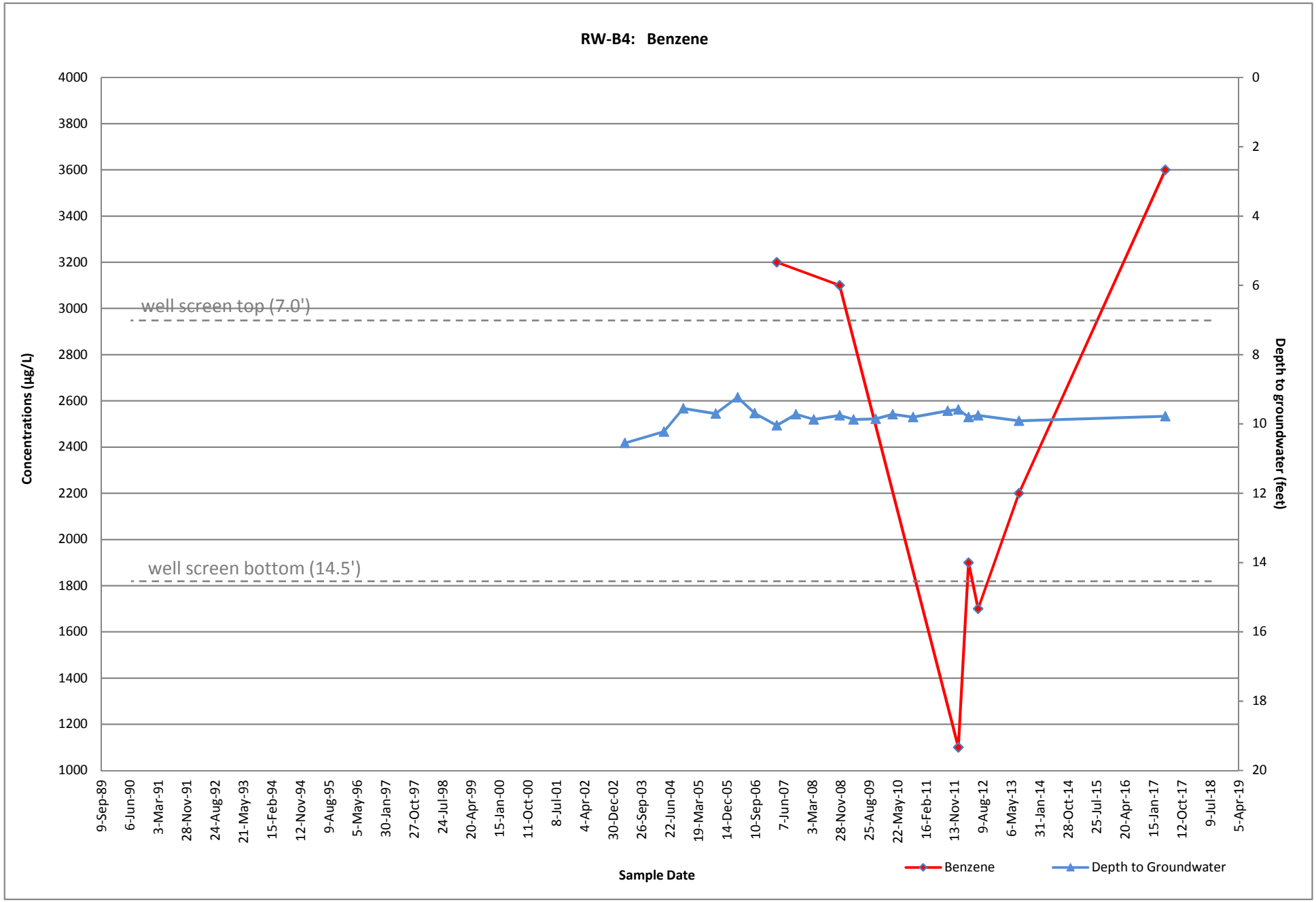

RW-A2: TPH-Diesel and TPH-Gasoline
Concentrations (µg/L)
Depth to groundwater (feet)
Sample Date
well screen top (2.0')
well screen bottom (12.0')
TPH Diesel
TPH Gasoline
Depth to Groundwater

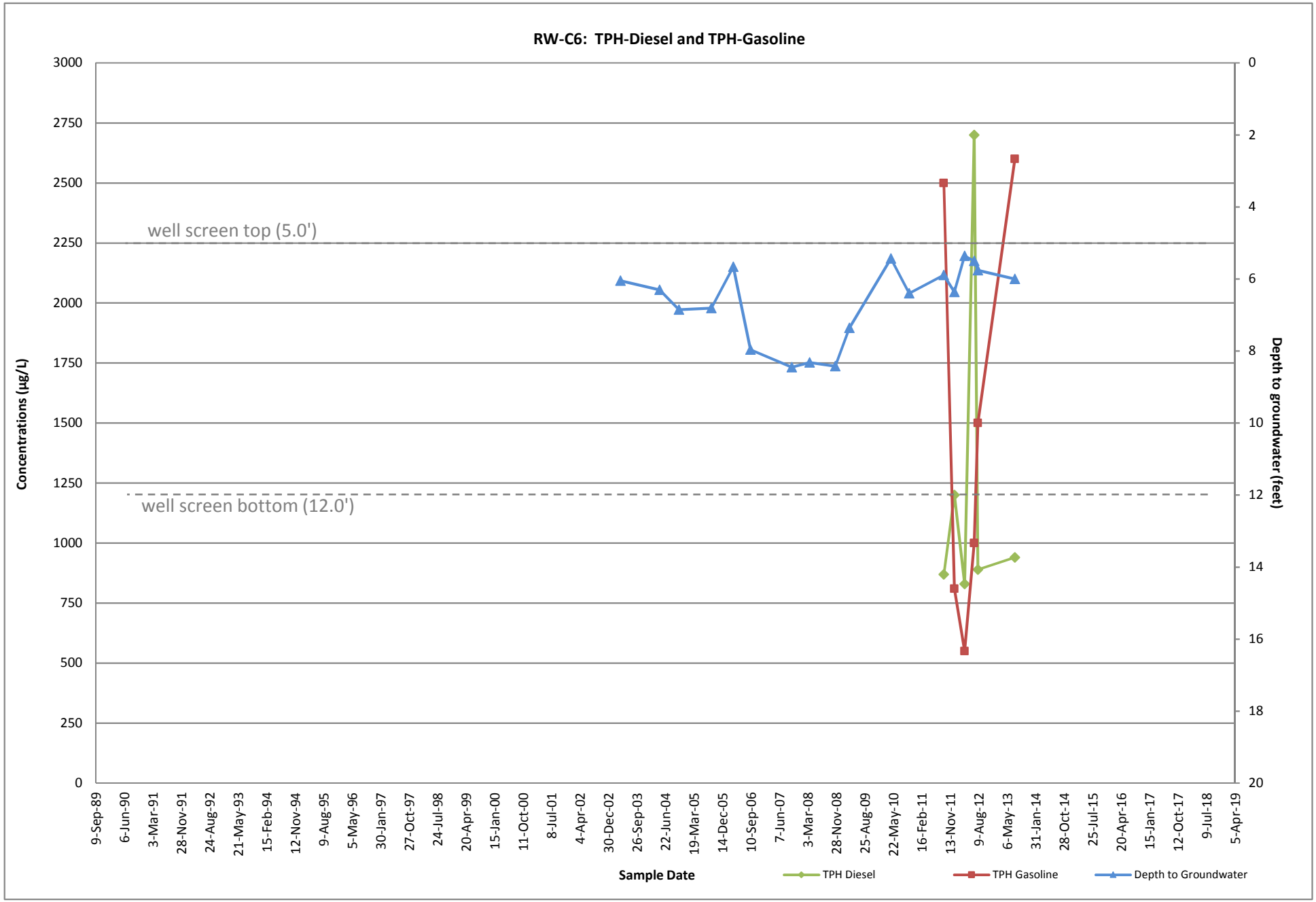

RW-A2: Benzene
Concentrations (µg/L)
Depth to groundwater (feet)
well screen top (2.0')
well screen bottom (12.0')
Sample Date
Benzene
Depth to Groundwater

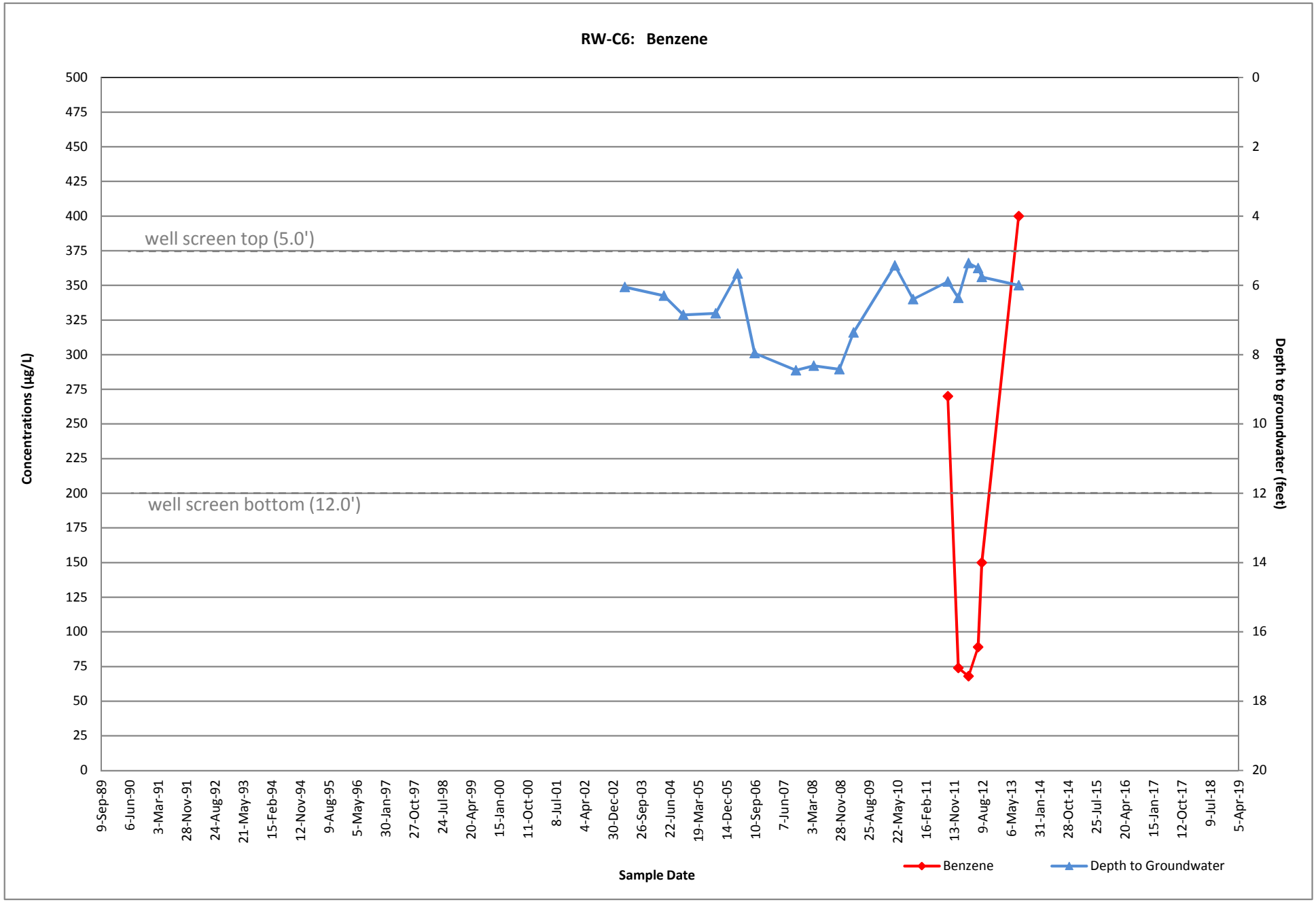

RW-B1: TPH-Diesel and TPH-Gasoline
Concentrations (µg/L)
Depth to groundwater (feet)
Sample Date
well screen top (5.0')
well screen bottom (14.0')
TPH Diesel
TPH Gasoline
Depth to Groundwater

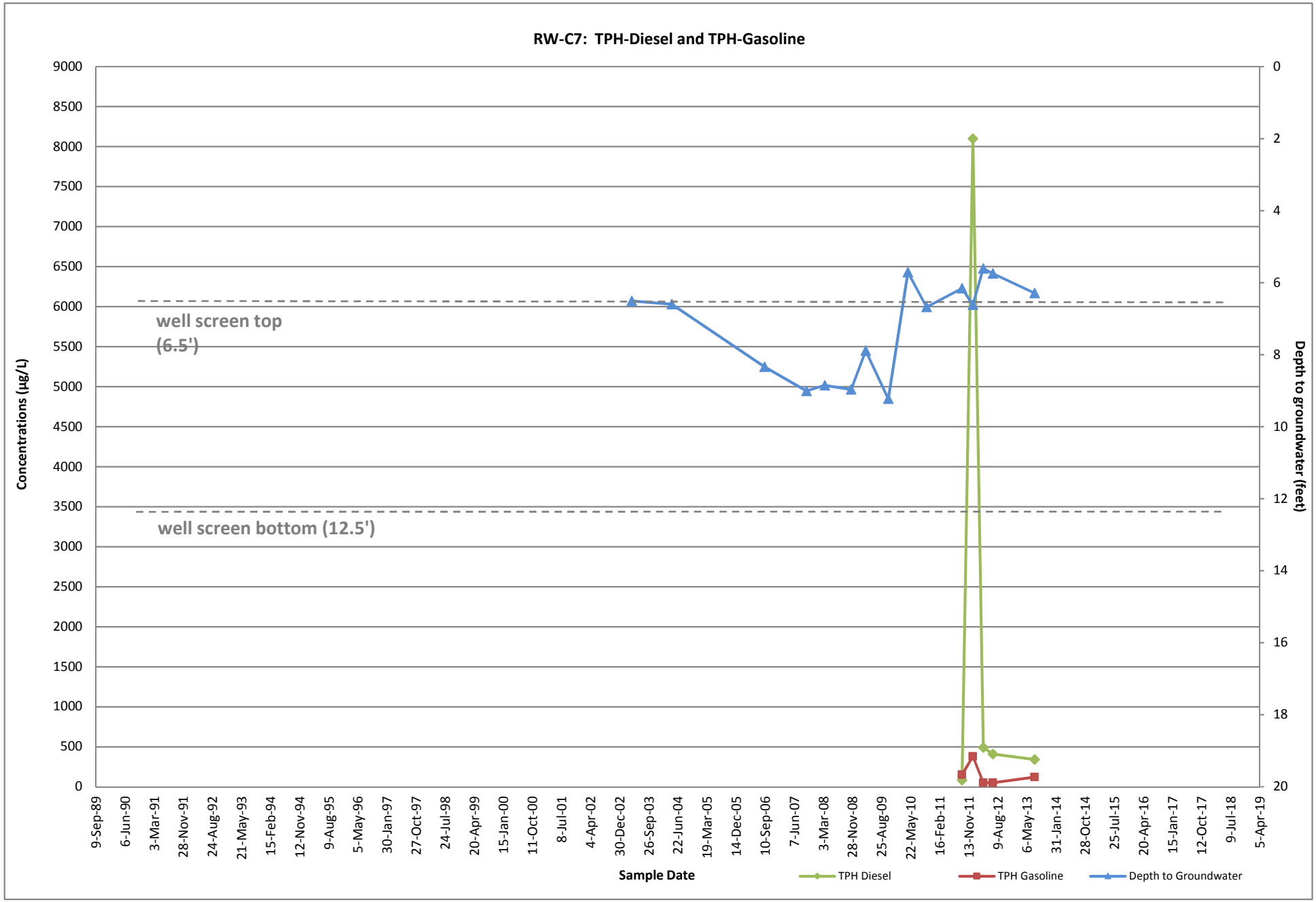

RW-B1: Benzene
Concentrations (µg/L)
Depth to groundwater (feet)
820
615
410
205
0
0
2
4
6
8
10
12
14
16
18
20
well screen top (5.0')
well screen bottom (14.0')
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19
Sample Date
Benzene
Depth to Groundwater

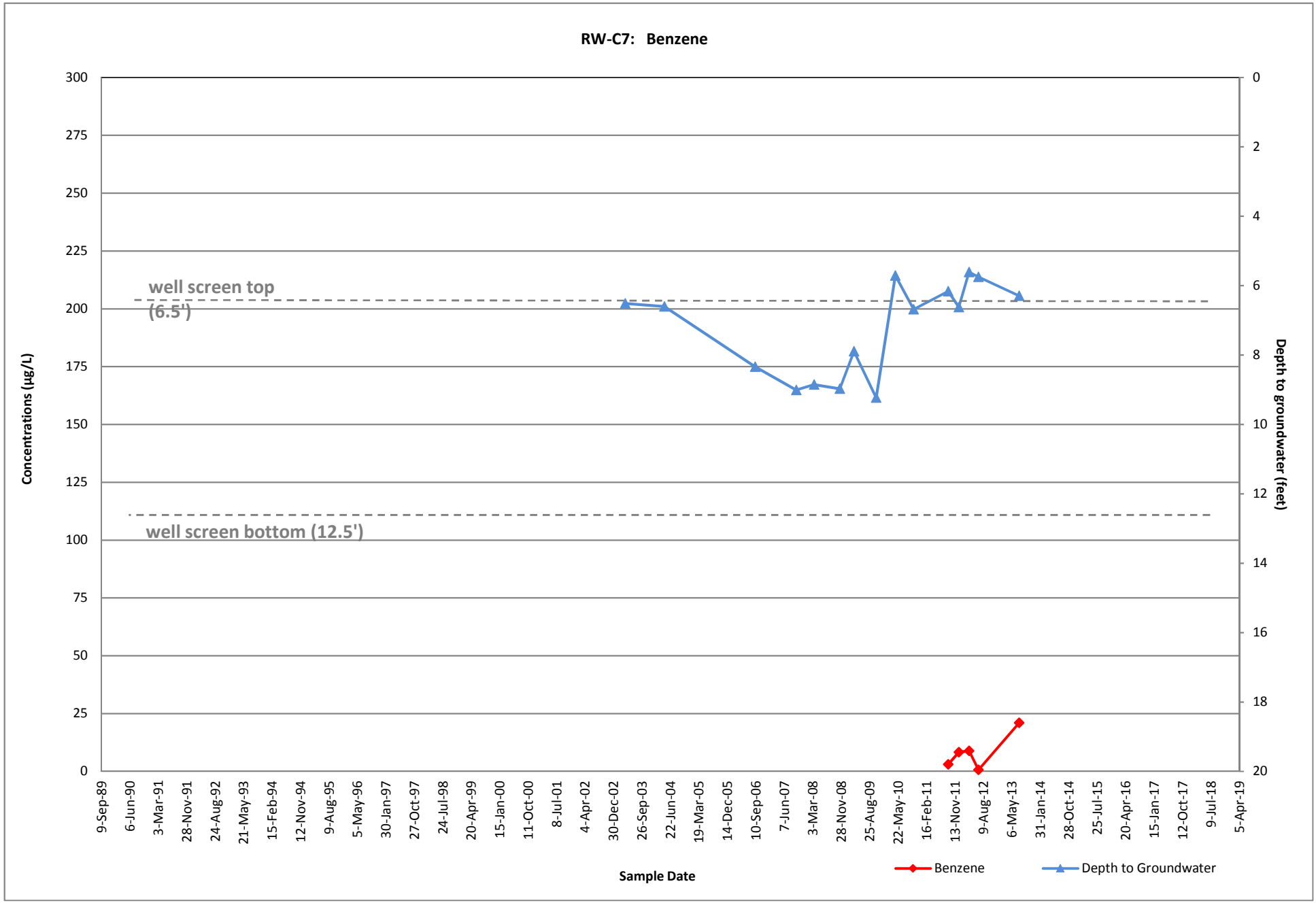

RW-B4: TPH-Diesel and TPH-Gasoline
Concentrations (µg/L)
Depth to groundwater (feet)
well screen top (7.0')
well screen bottom (14.5')
Sample Date
TPH Diesel
TPH Gasoline
Depth to Groundwater

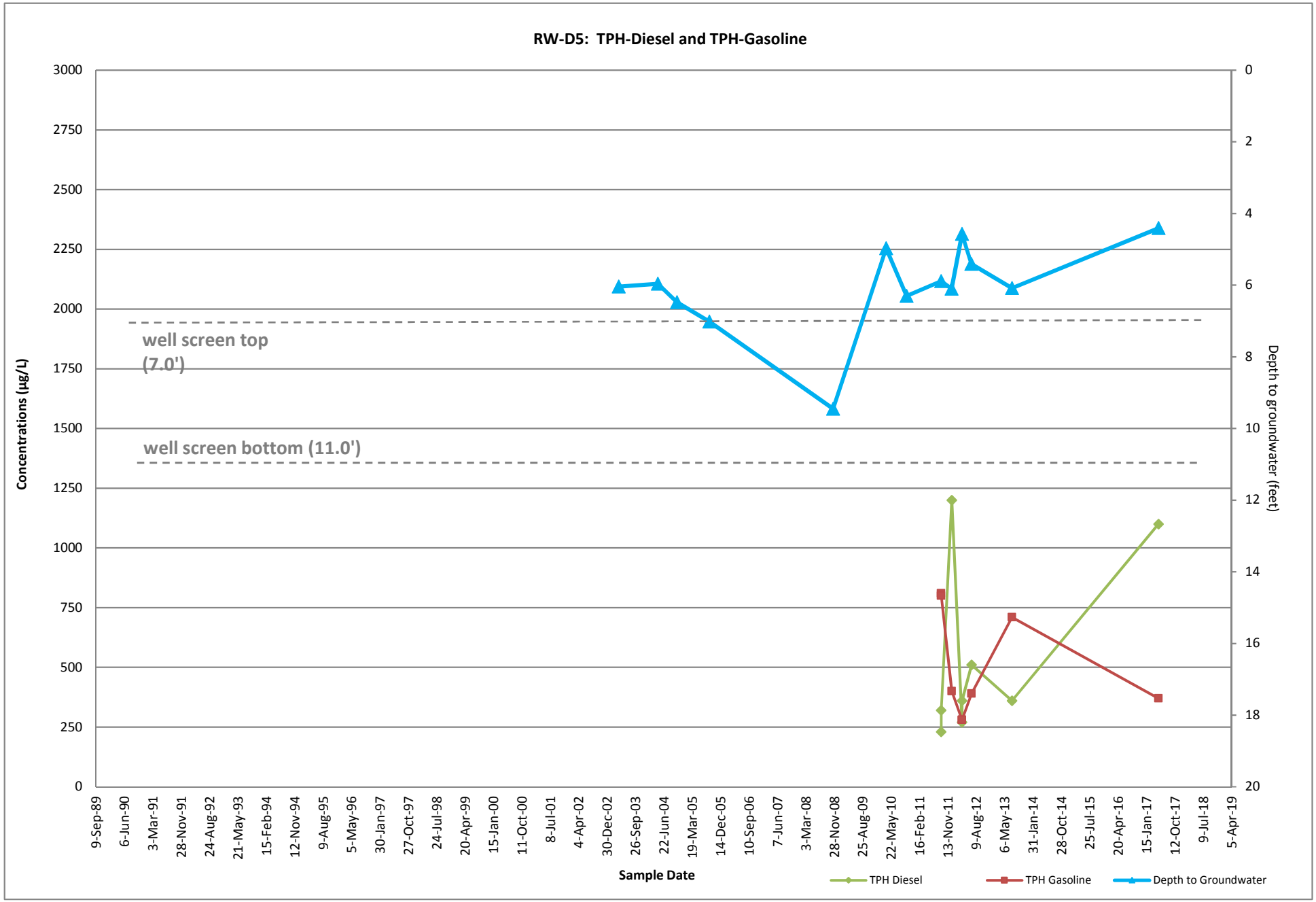

RW-B4: Benzene
Concentrations (µg/L)
Depth to groundwater (feet)
Sample Date
well screen top (7.0')
well screen bottom (14.5')
Benzene
Depth to Groundwater
4000
3800
3600
3400
3200
3000
2800
2600
2400
2200
2000
1800
1600
1400
1200
1000
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19

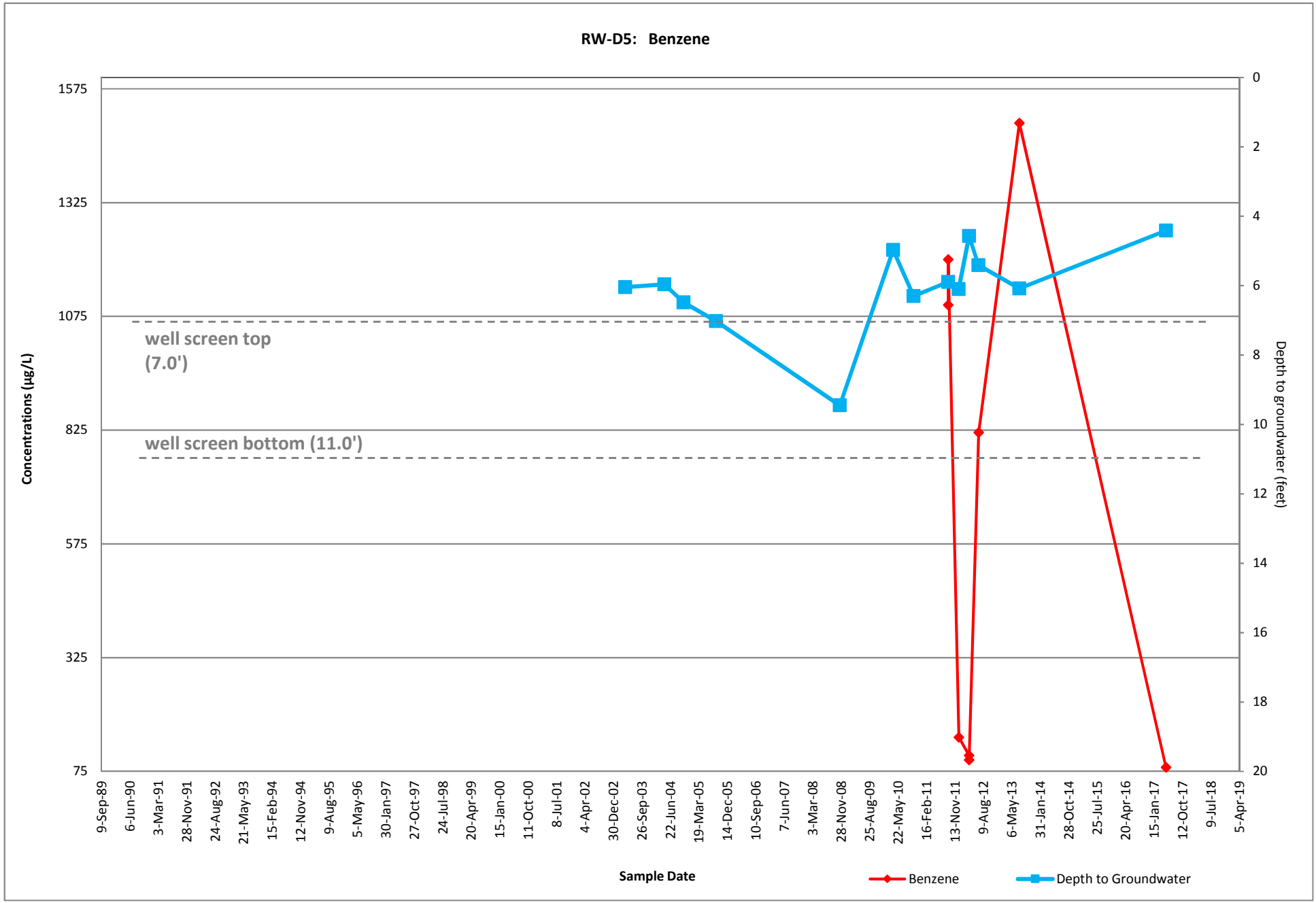

RW-C6: TPH-Diesel and TPH-Gasoline
Concentrations (µg/L)
Depth to groundwater (feet)
well screen top (5.0')
well screen bottom (12.0')
Sample Date
TPH Diesel
TPH Gasoline
Depth to Groundwater

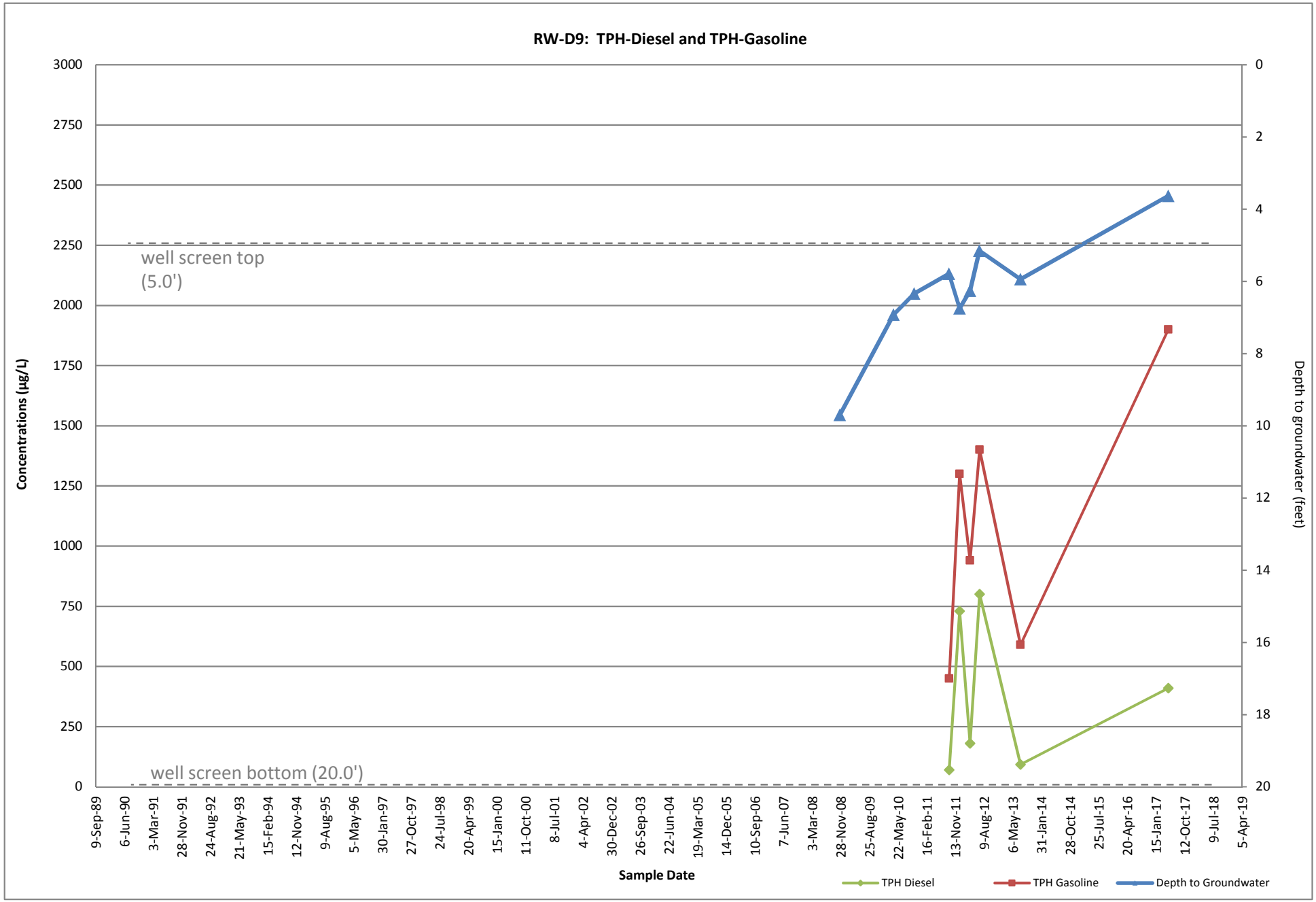

RW-C6: Benzene
Concentrations (µg/L)
Depth to groundwater (feet)
Sample Date
well screen top (5.0')
well screen bottom (12.0')
Benzene
Depth to Groundwater
500
475
450
425
400
375
350
325
300
275
250
225
200
175
150
125
100
75
50
25
0
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19

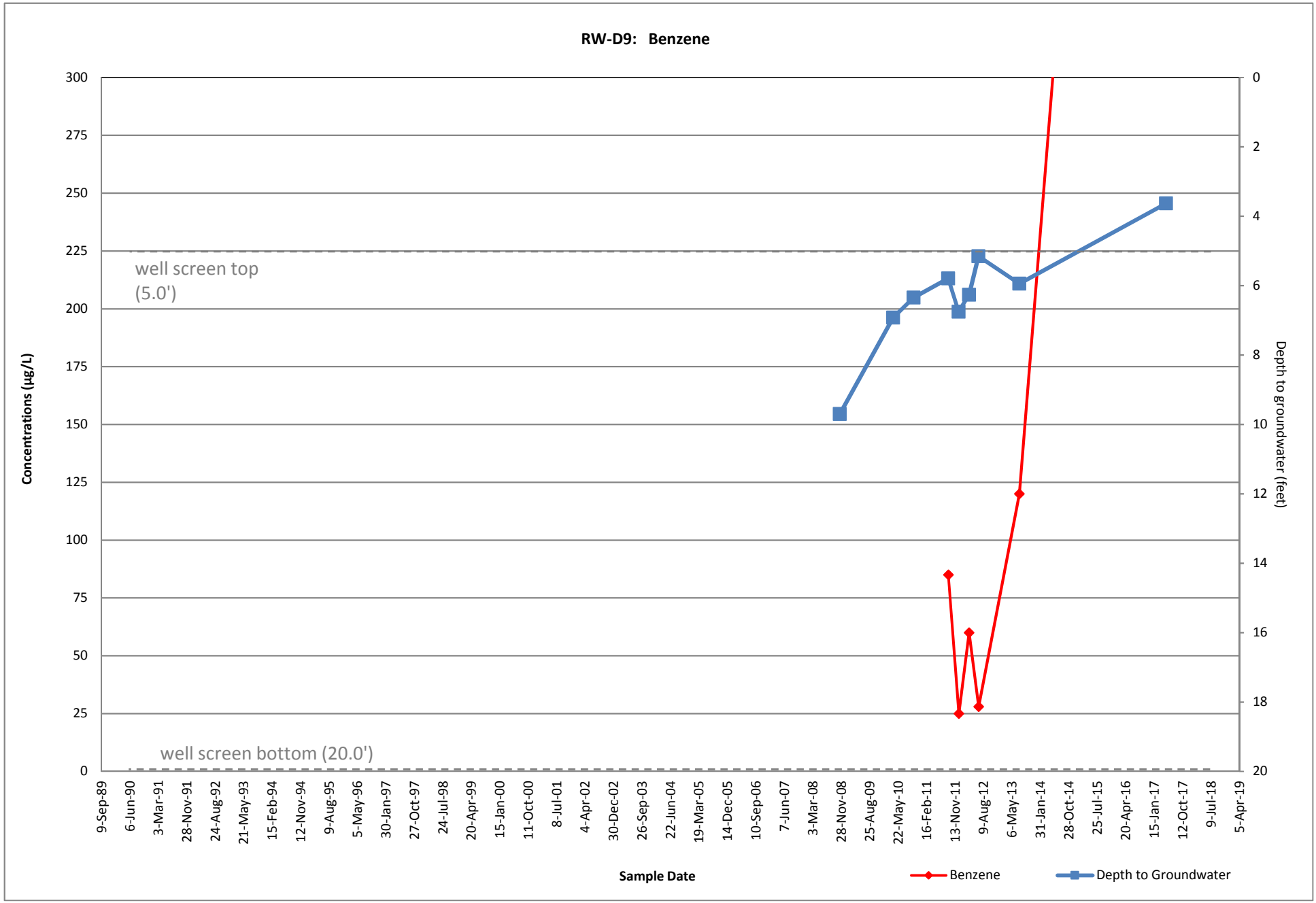

RW-C7: TPH-Diesel and TPH-Gasoline
Concentrations (µg/L)
Depth to groundwater (feet)
well screen top (6.5')
well screen bottom (12.5')
Sample Date
TPH Diesel
TPH Gasoline
Depth to Groundwater

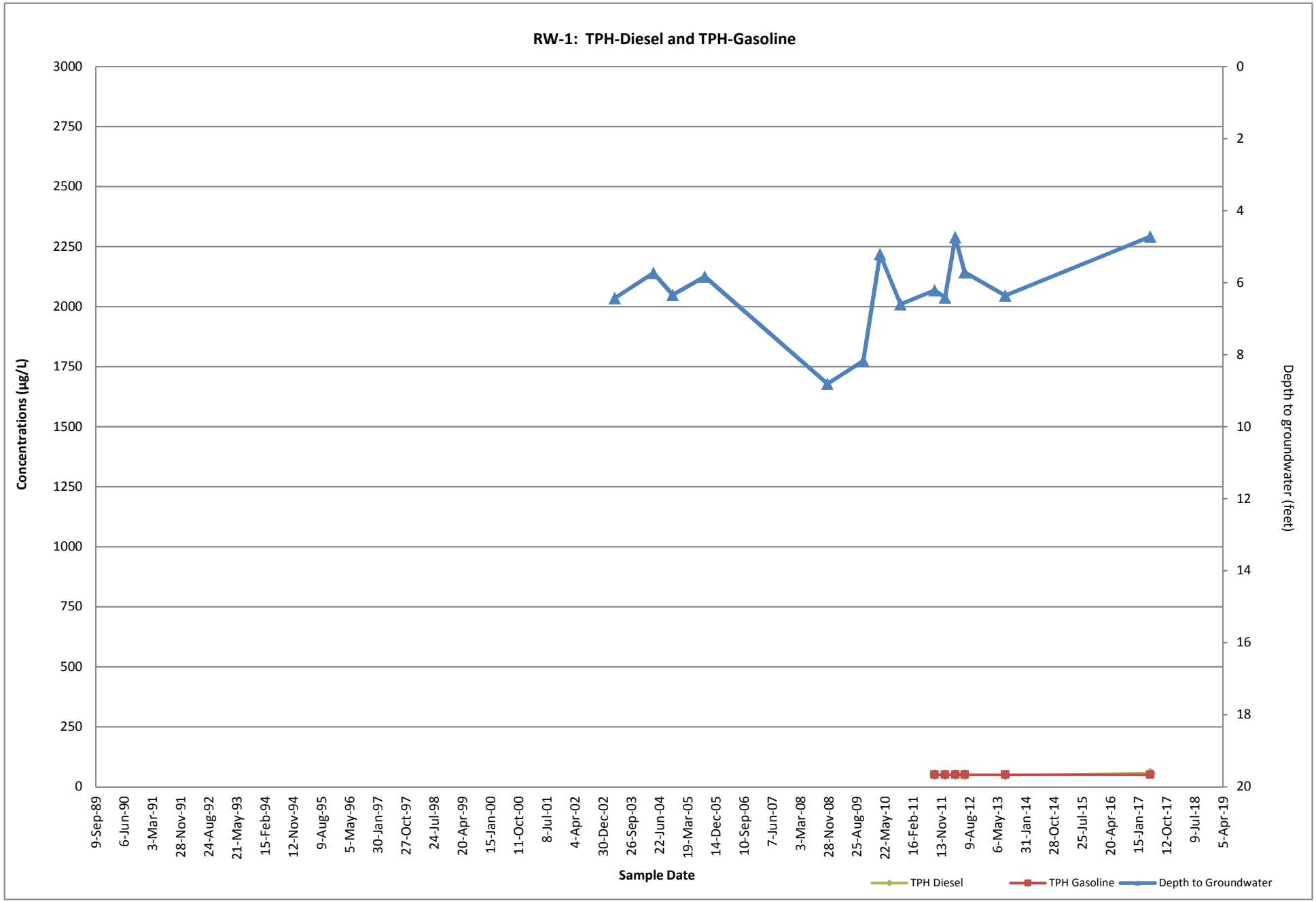

RW-C7: Benzene
Concentrations (µg/L)
Depth to groundwater (feet)
Sample Date
well screen top (6.5')
well screen bottom (12.5')
Benzene
Depth to Groundwater
300
275
250
225
200
175
150
125
100
75
50
25
0
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19

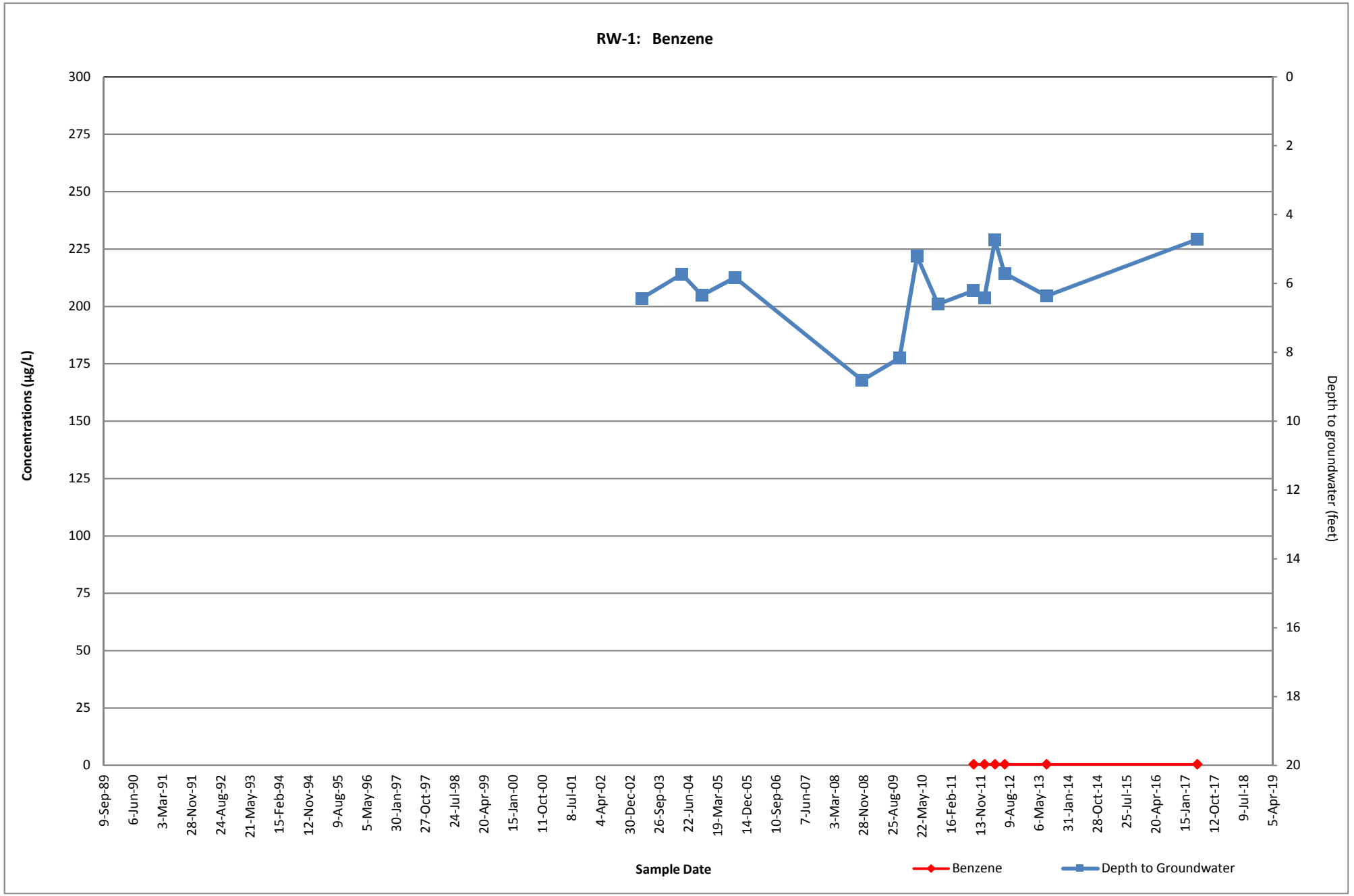

RW-D5: TPH-Diesel and TPH-Gasoline
Concentrations (µg/L)
Depth to groundwater (feet)
well screen top (7.0')
well screen bottom (11.0')
Sample Date
TPH Diesel
TPH Gasoline
Depth to Groundwater


RW-D5: Benzene
Concentrations (µg/L)
1575
1325
1075
825
575
325
75
well screen top
(7.0')
well screen bottom (11.0')
Depth to groundwater (feet)
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19
Sample Date
Benzene
Depth to Groundwater


RW-D9: TPH-Diesel and TPH-Gasoline
Concentrations (µg/L)
Depth to groundwater (feet)
Sample Date
well screen top (5.0')
well screen bottom (20.0')
TPH Diesel
TPH Gasoline
Depth to Groundwater
3000
2750
2500
2250
2000
1750
1500
1250
1000
750
500
250
0
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19


RW-D9: Benzene
Concentrations (µg/L)
Depth to groundwater (feet)
Sample Date
well screen top (5.0')
well screen bottom (20.0')
Benzene
Depth to Groundwater
300
275
250
225
200
175
150
125
100
75
50
25
0
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19


RW-1: TPH-Diesel and TPH-Gasoline
Concentrations (µg/L)
Depth to groundwater (feet)
Sample Date
TPH Diesel
TPH Gasoline
Depth to Groundwater


RW-1: Benzene
Concentrations (µg/L)
300
275
250
225
200
175
150
125
100
75
50
25
0
Depth to groundwater (feet)
0
2
4
6
8
10
12
14
16
18
20
9-Sep-89
6-Jun-90
3-Mar-91
28-Nov-91
24-Aug-92
21-May-93
15-Feb-94
12-Nov-94
9-Aug-95
5-May-96
30-Jan-97
27-Oct-97
24-Jul-98
20-Apr-99
15-Jan-00
11-Oct-00
8-Jul-01
4-Apr-02
30-Dec-02
26-Sep-03
22-Jun-04
19-Mar-05
14-Dec-05
10-Sep-06
7-Jun-07
3-Mar-08
28-Nov-08
25-Aug-09
22-May-10
16-Feb-11
13-Nov-11
9-Aug-12
6-May-13
31-Jan-14
28-Oct-14
25-Jul-15
20-Apr-16
15-Jan-17
12-Oct-17
9-Jul-18
5-Apr-19
Sample Date
Benzene
Depth to Groundwater

Attachment G

June 2016 Soil and Groundwater Sampling Data Tables and Figures

Table 1
Soil Sampling Analytical Results
Data Gap Investigation (Arcadis, June 2016)
Oakland Corp Yard

			Location	SFRWQCB 2016	SB-01	SB-02	SB-03		SB-04	SB-05	SB-06	SB-07	SB-08	SB-09	SB-10	
			Sample Date	rev3 - CI Shallow	6/1/2016	6/1/2016	6/1/2016		6/1/2016	6/1/2016	6/1/2016	6/2/2016	6/2/2016	6/2/2016	6/2/2016	
			Sample Depth	Soil Exposure	6-6.5	6.5-7	2-2.5	6-6.5	8-8.5	2-2.5	6.5-7	8.5-9	7-7.5	11-11.5	2-2.5	12.5-13
			Field ID	ESL	SB-1_6.0	SB-2_6.5	SB-3_2.0	SB-3_6.0	SB-4_8.0	SB-5_2.0	SB-6_6.5	SB-7_8.5	SB-8_7.0	SB-9_11.0	SB-10_2.0	SB-10_12.5
PAH	Acenaphthene	mg/kg		45000	-	-	-	-	-	-	-	-	-	-	-	-
	Acenaphthylene	mg/kg			-	-	-	-	-	-	-	-	-	-	-	-
	Anthracene	mg/kg		230000	-	-	-	-	-	-	-	-	-	-	-	-
	Benz(a)anthracene	mg/kg		2.9	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(a) pyrene	mg/kg		0.29	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(b)fluoranthene	mg/kg		2.9	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(g,h,i)perylene	mg/kg			-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(k)fluoranthene	mg/kg		29	-	-	-	-	-	-	-	-	-	-	-	-
	Chrysene	mg/kg		260	-	-	-	-	-	-	-	-	-	-	-	-
	Dibenz(a,h)anthracene	mg/kg		0.29	-	-	-	-	-	-	-	-	-	-	-	-
	Fluoranthene	mg/kg		30000	-	-	-	-	-	-	-	-	-	-	-	-
	Fluorene	mg/kg		30000	-	-	-	-	-	-	-	-	-	-	-	-
	Indeno(1,2,3-c,d)pyrene	mg/kg		2.9	-	-	-	-	-	-	-	-	-	-	-	-
	Naphthalene	mg/kg		14	-	-	-	-	-	-	-	-	-	-	-	-
	Phenanthrene	mg/kg			-	-	-	-	-	-	-	-	-	-	-	-
	Pyrene	mg/kg		23000	-	-	-	-	-	-	-	-	-	-	-	-
TPH	TPH as Diesel	mg/kg		1100	**390Y**	**73Y**	**15Y**	**3000**	**610**	**170Y**	**1200**	**29,000**	**13,000Y**	**700Y**	**10Y**	**420Y**
	TPH as Gasoline	mg/kg		3900	**1.7Y**	<1	<0.95	**220Y**	**180Y**	<1.1	**150Y**	**3400**	**15,000Y**	**420Y**	<1.1	**55**
	TPH as Motor Oil	mg/kg		140000	**1700**	**390**	**41**	<250	**120**	**2400**	**81**	**3000**	**2500**	**660**	**91**	**1300**
VOCs	Benzene	mg/kg		1	<0.0049	<0.0048	<0.0048	<0.05	**0.06**	<0.005	<0.047	**2.2**	**0.96**	**0.029**	<0.0047	**0.22**
	Ethylbenzene	mg/kg		22	<0.0049	<0.0048	<0.0048	<0.05	<0.049	<0.005	<0.047	**16**	**120**	**0.13**	<0.0047	**0.24**
	Methyl Tertiary Butyl Ether	mg/kg		180	<0.0049	<0.0048	<0.0048	<0.05	<0.049	<0.005	<0.047	<0.25	<0.5	<0.0098	<0.0047	<0.025
	Toluene	mg/kg		4600	<0.0049	<0.0048	<0.0048	<0.05	<0.049	<0.005	<0.047	**1.3**	**2.2**	<0.0098	<0.0047	**0.032**
	Xylene (o)	mg/kg			<0.0049	<0.0048	<0.0048	<0.05	<0.049	<0.005	<0.047	**0.77**	**2**	<0.0098	<0.0047	<0.025
	Xylene Total	mg/kg		2400	<0.0049	<0.0048	<0.0048	<0.05	<0.049	<0.005	<0.047	**2.6**	**19**	**0.013**	<0.0047	**0.14**

Notes:
Detected concentrations are **bold-faced**
Shaded Concentrations exceed the SFRWQCB Commercial-Industrial Direct Exposure ESL for shallow soil
ESL = Environmental Screening Level, SFRWQCB, Interim Final, February 2016, Rev. 3
mg/kg = milligrams per kilogram
- = Not analyzed
< = analyte not detected above laboratory reporting limit
B=Analyte was present in an associated method blank
J = estimated below laboratory reporting limit
Y= Sample exhibits chromatographic pattern which does not resemble standard
SFRWQCB - San Francisco Regional Water Quality Control Board

Table 1
Soil Sampling Analytical Results
Data Gap Investigation (Arcadis, June 2016)
Oakland Corp Yard

		Location	SFRWQCB 2016	SB-11		SB-12	SB-13	SB-14	SB-15	SB-16	SB-17	SB-18	SB-19	SB-20	
		Sample Date	rev3 - CI Shallow	6/2/2016		6/2/2016	6/2/2016	6/2/2016	6/3/2016	6/3/2016	6/3/2016	6/3/2016	6/3/2016	6/3/2016	
		Sample Depth	Soil Exposure	5.5-6	8-8.5	11.5-12	11-11.5	9.5-10	16-16.5	8-8.5	9-9.5	9-9.5	8-8.5	2-2.5	10-10.5
		Field ID	ESL	SB-11_5.5	SB-11_8.0	SB-12_11.5	SB-13_11.0	SB-14_9.5	SB-15_16.0	SB-16_8.0	SB-17_9.0	SB-18_9.0	SB-19_8.0	SB-20_2.0	SB-20_10.0
PAH	Acenaphthene	mg/kg	45000	-	-	-	-	-	-	-	-	-	-	-	-
	Acenaphthylene	mg/kg		-	-	-	-	-	-	-	-	-	-	-	-
	Anthracene	mg/kg	230000	-	-	-	-	-	-	-	-	-	-	-	-
	Benz(a)anthracene	mg/kg	2.9	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(a) pyrene	mg/kg	0.29	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(b)fluoranthene	mg/kg	2.9	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(g,h,i)perylene	mg/kg		-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(k)fluoranthene	mg/kg	29	-	-	-	-	-	-	-	-	-	-	-	-
	Chrysene	mg/kg	260	-	-	-	-	-	-	-	-	-	-	-	-
	Dibenz(a,h)anthracene	mg/kg	0.29	-	-	-	-	-	-	-	-	-	-	-	-
	Fluoranthene	mg/kg	30000	-	-	-	-	-	-	-	-	-	-	-	-
	Fluorene	mg/kg	30000	-	-	-	-	-	-	-	-	-	-	-	-
	Indeno(1,2,3-c,d)pyrene	mg/kg	2.9	-	-	-	-	-	-	-	-	-	-	-	-
	Naphthalene	mg/kg	14	-	-	-	-	-	-	-	-	-	-	-	-
	Phenanthrene	mg/kg		-	-	-	-	-	-	-	-	-	-	-	-
	Pyrene	mg/kg	23000	-	-	-	-	-	-	-	-	-	-	-	-
TPH	TPH as Diesel	mg/kg	1100	**540**	**2000**	**86Y**	**190Y**	**3.7Y**	**2.5Y**	**6.8Y**	<1	**74Y**	**200Y**	**4.2Y**	**80Y**
	TPH as Gasoline	mg/kg	3900	**220Y**	**1800Y**	<1	<0.92	<1.1	<0.94	<1.1	<1.1	**340Y**	**440Y**	<0.94	**380Y**
	TPH as Motor Oil	mg/kg	140000	<25	**260**	**570**	**760**	**33**	**20**	**16**	<5	**11**	**30**	**29**	**9.1**
VOCs	Benzene	mg/kg	1	<0.026	**0.44**	<0.0048	<0.0047	<0.0046	<0.0047	<0.0049	<0.0047	<0.25	<0.25	<0.0047	<0.005
	Ethylbenzene	mg/kg	22	<0.026	**1.9**	<0.0048	<0.0047	<0.0046	<0.0047	<0.0049	<0.0047	**0.58**	**4.9**	<0.0047	<0.005
	Methyl Tertiary Butyl Ether	mg/kg	180	<0.026	<0.05	<0.0048	<0.0047	<0.0046	<0.0047	<0.0049	<0.0047	<0.25	<0.25	<0.0047	<0.005
	Toluene	mg/kg	4600	<0.026	<0.25	<0.0048	<0.0047	<0.0046	<0.0047	<0.0049	<0.0047	<0.25	<0.25	<0.0047	<0.005
	Xylene (o)	mg/kg		<0.026	<0.25	<0.0048	<0.0047	<0.0046	<0.0047	<0.0049	<0.0047	<0.25	<0.25	<0.0047	<0.005
	Xylene Total	mg/kg	2400	<0.026	<0.25	<0.0048	<0.0047	<0.0046	<0.0047	<0.0049	<0.0047	<0.25	<0.25	<0.0047	<0.005

Notes:
Detected concentrations are **bold-faced**
Shaded Concentrations exceed the SFRWQCB Commercial-Industrial
ESL = Environmental Screening Level, SFRWQCB, Interim Final, February 2016, Rev. 3
mg/kg = milligrams per kilogram
- = Not analyzed
< = analyte not detected above laboratory reporting limit
B=Analyte was present in an associated method blank
J = estimated below laboratory reporting limit
Y= Sample exhibits chromatographic pattern which does not resemble standard
SFRWQCB - San Francisco Regional Water Quality Control Board

Table 1
Soil Sampling Analytical Results
Data Gap Investigation (Arcadis, June 2016)
Oakland Corp Yard

		Location	SFRWQCB 2016	SB-21		SB-22		SB-23		SB-24	SB-25	SB-26	SB-27		SB-28	SB-29	
		Sample Date	rev3 - CI Shallow	6/6/2016		6/6/2016		6/6/2016		6/6/2016	6/6/2016	6/6/2016	6/7/2016		6/7/2016	6/7/2016	
		Sample Depth	Soil Exposure	1.5-2	6.5-7	2-2.5	8-8.5	2-2.5	10-10.5	10-10.5	8-8.5	2-2.5	1.5-2	9.5-10	9-9.5	2-2.5	9-9.5
		Field ID	ESL	SB-21-1.5	SB-21-6.5	SB-22-2	SB-22-8	SB-23-2	SB-23-10	SB-24-10	SB-25-8	SB-26-2	SB-27-1.5	SB-27-9.5	SB-28-9	SB-29-2	SB-29-9
PAH	Acenaphthene	mg/kg	45000	-	-	-	-	<0.025	<1	-	-	<0.005	<0.005	<0.2	-	<0.041	<1
	Acenaphthylene	mg/kg		-	-	-	-	<0.025	<1	-	-	<0.005	**0.0057**	<0.2	-	<0.041	<1
	Anthracene	mg/kg	230000	-	-	-	-	<0.025	<1	-	-	<0.005	<0.005	<0.2	-	**0.2**	<1
	Benz(a)anthracene	mg/kg	2.9	-	-	-	-	<0.025	<1	-	-	<0.005	**0.016**	<0.2	-	**0.051**	<1
	Benzo(a) pyrene	mg/kg	0.29	-	-	-	-	<0.025	<1	-	-	<0.005	**0.027**	<0.2	-	<0.041	<1
	Benzo(b)fluoranthene	mg/kg	2.9	-	-	-	-	<0.025	<1	-	-	<0.005	**0.027**	<0.2	-	**0.042**	<1
	Benzo(g,h,i)perylene	mg/kg		-	-	-	-	<0.025	<1	-	-	<0.005	**0.033**	<0.2	-	**0.051**	<1
	Benzo(k)fluoranthene	mg/kg	29	-	-	-	-	<0.025	<1	-	-	<0.005	**0.0078**	<0.2	-	<0.041	<1
	Chrysene	mg/kg	260	-	-	-	-	<0.025	<1	-	-	<0.005	**0.023**	<0.2	-	**0.041**	<1
	Dibenz(a,h)anthracene	mg/kg	0.29	-	-	-	-	<0.025	<1	-	-	<0.005	<0.005	<0.2	-	<0.041	<1
	Fluoranthene	mg/kg	30000	-	-	-	-	<0.025	<1	-	-	<0.005	**0.04**	<0.2	-	**0.34**	<1
	Fluorene	mg/kg	30000	-	-	-	-	<0.025	<1	-	-	<0.005	<0.005	<0.2	-	<0.041	<1
	Indeno(1,2,3-c,d)pyrene	mg/kg	2.9	-	-	-	-	<0.025	<1	-	-	<0.005	**0.022**	<0.2	-	<0.041	<1
	Naphthalene	mg/kg	14	-	-	-	-	<0.025	**35**	-	-	<0.005	<0.005	**9.4**	-	<0.041	**15**
	Phenanthrene	mg/kg		-	-	-	-	<0.025	<1	-	-	<0.005	**0.025**	<0.2	-	**0.24**	<1
	Pyrene	mg/kg	23000	-	-	-	-	<0.025	**1**	-	-	<0.005	**0.052**	<0.2	-	**0.33**	<1
TPH	TPH as Diesel	mg/kg	1100	<1	<1	**390**	**32Y**	**7.9Y**	**2500Y**	**5000Y**	**140Y**	**6.7Y**	**9.8Y**	**150Y**	**200Y**	**200Y**	**1100Y**
	TPH as Gasoline	mg/kg	3900	<0.92	<1	**490**	**38**	<1	**10,000**	**14,000**	**340Y**	<1	<1	**3900**	**23**	**1.7Y**	**1300**
	TPH as Motor Oil	mg/kg	140000	**6.4Y**	<5	**130**	**8.9**	**40**	**200**	**920**	**89**	**48**	**58**	**15**	**120**	**240**	**1000**
VOCs	Benzene	mg/kg	1	<0.0049	<0.0049	<0.026	<0.05	<0.0049	**12**	**32**	<0.25	<0.0048	<0.005	<5	**0.12**	<0.0046	<1
	Ethylbenzene	mg/kg	22	<0.0049	<0.0049	<0.026	**0.54**	<0.0049	**100**	**190**	**4.3**	<0.0048	<0.005	**49**	**0.02**	<0.0046	**10**
	Methyl Tertiary Butyl Ether	mg/kg	180	<0.0049	<0.0049	<0.026	<0.05	<0.0049	<5	<13	<0.25	<0.0048	<0.005	<5	<0.0049	<0.0046	<1
	Toluene	mg/kg	4600	<0.0049	<0.0049	<0.026	<0.05	<0.0049	**160**	**230**	<0.25	<0.0048	<0.005	**28**	**0.012**	<0.0046	**2.5**
	Xylene (o)	mg/kg		<0.0049	<0.0049	<0.026	<0.05	<0.0049	**170**	**260**	**8.3**	<0.0048	<0.005	**69**	<0.0049	<0.0046	**12**
	Xylene Total	mg/kg	2400	<0.0049	<0.0049	<0.026	**0.21**	<0.0049	**360**	**660**	**17**	<0.0048	<0.005	**170**	**0.046**	<0.0046	**36**

Notes:
Detected concentrations are **bold-faced**
Shaded Concentrations exceed the SFRWQCB Commercial-Industrial
ESL = Environmental Screening Level, SFRWQCB, Interim Final, February 2016, Rev. 3
mg/kg = milligrams per kilogram
- = Not analyzed
< = analyte not detected above laboratory reporting limit
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SFRWQCB - San Francisco Regional Water Quality Control Board

Table 1
Soil Sampling Analytical Results
Data Gap Investigation (Arcadis, June 2016)
Oakland Corp Yard

			Location	SFRWQCB 2016	SB-30	SB-31	SB-32		SB-33	SB-34		SB-35	SB-36	SB-37		SB-38	
			Sample Date	rev3 - CI Shallow	6/7/2016	6/7/2016	6/7/2016		6/7/2016	6/8/2016		6/8/2016	6/8/2016	6/8/2016		6/8/2016	
			Sample Depth	Soil Exposure	8.5-9	14-14.5	2-2.5	8-8.5	8.5-9	2-2.5	12.5-13	8.5-9	8.5-9	2-2.5	18-18.5	2-2.5	5.5-6
			Field ID	ESL	SB-30-8.5	SB-31-14	SB-32-2	SB-32-8	SB-33-8.5	SB-34-2	SB-34-12.5	SB-35-8.5	SB-36-8.5	SB-37-2	SB-37-18	SB-38-2	SB-38-5.5
PAH	Acenaphthene	mg/kg		45000	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005
	Acenaphthylene	mg/kg			-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005
	Anthracene	mg/kg		230000	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005
	Benz(a)anthracene	mg/kg		2.9	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005
	Benzo(a) pyrene	mg/kg		0.29	-	-	-	-	-	-	-	-	-	-	-	**0.011**	<0.005
	Benzo(b)fluoranthene	mg/kg		2.9	-	-	-	-	-	-	-	-	-	-	-	**0.011**	<0.005
	Benzo(g,h,i)perylene	mg/kg			-	-	-	-	-	-	-	-	-	-	-	**0.015**	<0.005
	Benzo(k)fluoranthene	mg/kg		29	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005
	Chrysene	mg/kg		260	-	-	-	-	-	-	-	-	-	-	-	**0.0061**	<0.005
	Dibenz(a,h)anthracene	mg/kg		0.29	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005
	Fluoranthene	mg/kg		30000	-	-	-	-	-	-	-	-	-	-	-	**0.013**	<0.005
	Fluorene	mg/kg		30000	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005
	Indeno(1,2,3-c,d)pyrene	mg/kg		2.9	-	-	-	-	-	-	-	-	-	-	-	**0.0097**	<0.005
	Naphthalene	mg/kg		14	-	-	-	-	-	-	-	-	-	-	-	<0.005	**0.038**
	Phenanthrene	mg/kg			-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005
	Pyrene	mg/kg		23000	-	-	-	-	-	-	-	-	-	-	-	**0.017**	<0.005
TPH	TPH as Diesel	mg/kg		1100	**230Y**	**140Y**	**6.7Y**	**220Y**	**390Y**	**9.7Y**	**2500**	**77Y**	**410**	**23Y**	**3.3Y**	**13Y**	**43Y**
	TPH as Gasoline	mg/kg		3900	**1700**	**39Y**	<1	**0.98Y**	**1100**	<1	**3800Y**	**13Y**	**40**	<0.98	**1.5Y**	<1	**40Y**
	TPH as Motor Oil	mg/kg		140000	**54**	**190**	**28**	**53**	**130**	**66**	**2900**	**610**	**190**	**130**	**22**	**24**	**10**
VOCs	Benzene	mg/kg		1	<2.5	<0.25	<0.0047	<0.0049	**0.81**	<0.0049	**5.5**	<0.0048	**0.0056**	<0.0046	<0.005	<0.0047	<0.025
	Ethylbenzene	mg/kg		22	**19**	<0.25	<0.0047	<0.0049	**13**	<0.0049	**1**	<0.0048	**0.032**	<0.0046	**0.0082**	<0.0047	<0.025
	Methyl Tertiary Butyl Ether	mg/kg		180	<2.5	<0.25	<0.0047	<0.0049	<0.25	<0.0049	<0.31	<0.0048	<0.005	<0.0046	<0.005	<0.0047	<0.025
	Toluene	mg/kg		4600	<2.5	<0.25	<0.0047	<0.0049	**0.76**	<0.0049	**0.66**	<0.0048	<0.005	<0.0046	<0.005	<0.0047	<0.025
	Xylene (o)	mg/kg			**19**	<0.25	<0.0047	<0.0049	**13**	<0.0049	**0.37**	<0.0048	**0.016**	<0.0046	**0.011**	<0.0047	<0.025
	Xylene Total	mg/kg		2400	**49**	<0.25	<0.0047	<0.0049	**21**	<0.0049	**2.8**	<0.0048	**0.036**	<0.0046	**0.029**	<0.0047	<0.025

Notes:
Detected concentrations are **bold-faced**
Shaded Concentrations exceed the SFRWQCB Commercial-Industrial
ESL = Environmental Screening Level, SFRWQCB, Interim Final, February 2016, Rev. 3
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SFRWQCB - San Francisco Regional Water Quality Control Board

Table 1
Soil Sampling Analytical Results
Data Gap Investigation (Arcadis, June 2016)
Oakland Corp Yard

		Location	SFRWQCB 2016	SB-39		SB-40	SB-41	SB-42	SB-43	SB-44		SB-45		SB-46	SB-47	
		Sample Date	rev3 - CI Shallow	6/8/2016		6/9/2016	6/9/2016	6/9/2016	6/9/2016	6/8/2016	6/9/2016	6/8/2016	6/9/2016	6/9/2016	6/9/2016	
		Sample Depth	Soil Exposure	2-2.5	9.5-10	9-9.5	12.5-13	9.5-10	8.5-9	8.5-9	2-2.5	5.5-6	2-2.5	2-2.5	2-2.5	4-4.5
		Field ID	ESL	SB-39-2	SB-39-9.5	SB-40-9	SB-41-12.5	SB-42-9.5	SB-43-8.5	SB-44-8.5	SB-44-2	SB-45-5.5	SB-45-2	SB-46-2	SB-47-2	SB-47-4
PAH	Acenaphthene	mg/kg	45000	<0.025	<0.025	<0.25	-	-	-	-	-	-	<0.13	<0.005	-	-
	Acenaphthylene	mg/kg		<0.025	<0.025	<0.25	-	-	-	-	-	-	<0.13	<0.005	-	-
	Anthracene	mg/kg	230000	<0.025	**0.027**	<0.25	-	-	-	-	-	-	<0.13	<0.005	-	-
	Benz(a)anthracene	mg/kg	2.9	<0.025	**0.74**	**0.34**	-	-	-	-	-	-	**0.15**	<0.005	-	-
	Benzo(a) pyrene	mg/kg	0.29	<0.025	**1.2**	**0.39**	-	-	-	-	-	-	**0.21**	<0.005	-	-
	Benzo(b)fluoranthene	mg/kg	2.9	<0.025	**1.4**	**0.48**	-	-	-	-	-	-	**0.27**	<0.005	-	-
	Benzo(g,h,i)perylene	mg/kg		<0.025	**0.67**	**0.29**	-	-	-	-	-	-	**0.29**	<0.005	-	-
	Benzo(k)fluoranthene	mg/kg	29	<0.025	**0.39**	<0.25	-	-	-	-	-	-	<0.13	<0.005	-	-
	Chrysene	mg/kg	260	**0.026**	**1.2**	**0.55**	-	-	-	-	-	-	**0.25**	**0.0051**	-	-
	Dibenz(a,h)anthracene	mg/kg	0.29	<0.025	**0.27**	<0.25	-	-	-	-	-	-	<0.13	<0.005	-	-
	Fluoranthene	mg/kg	30000	**0.037**	**0.59**	**0.6**	-	-	-	-	-	-	**0.36**	<0.005	-	-
	Fluorene	mg/kg	30000	<0.025	<0.025	<0.25	-	-	-	-	-	-	<0.13	<0.005	-	-
	Indeno(1,2,3-c,d)pyrene	mg/kg	2.9	<0.025	**0.62**	<0.25	-	-	-	-	-	-	**0.19**	<0.005	-	-
	Naphthalene	mg/kg	14	<0.025	**1.1**	**9.9**	-	-	-	-	-	-	<0.13	<0.005	-	-
	Phenanthrene	mg/kg		**0.028**	**0.12**	**0.36**	-	-	-	-	-	-	**0.2**	<0.005	-	-
	Pyrene	mg/kg	23000	**0.048**	**0.93**	**0.65**	-	-	-	-	-	-	**0.44**	<0.005	-	-
TPH	TPH as Diesel	mg/kg	1100	**16Y**	**66Y**	**950**	**6900**	**150**	**380**	**390**	**3.8Y**	**1300**	**5.6Y**	**6Y**	**4.4Y**	**54Y**
	TPH as Gasoline	mg/kg	3900	<1.1	**30Y**	**9800**	**33,000Y**	**7.7Y**	**6.3Y**	**320Y**	<0.94	**290Y**	<0.96	<1.1	<1	<1
	TPH as Motor Oil	mg/kg	140000	**160**	**100**	**440**	**790**	**38**	**320**	**22**	**9.6**	**190**	**48**	**63**	**22**	**470**
VOCs	Benzene	mg/kg	1	<0.0047	<0.005	**0.52**	<0.5	<0.0049	**0.019**	<0.25	<0.005	<0.5	<0.0047	<0.0048	<0.0048	<0.0048
	Ethylbenzene	mg/kg	22	<0.0047	**0.1**	**2.7**	<0.5	<0.0049	<0.0049	<0.25	<0.005	<0.5	<0.0047	<0.0048	<0.0048	<0.0048
	Methyl Tertiary Butyl Ether	mg/kg	180	<0.0047	<0.005	<0.5	<0.5	<0.0049	<0.0049	<0.25	<0.005	<0.5	<0.0047	<0.0048	<0.0048	<0.0048
	Toluene	mg/kg	4600	<0.0047	<0.005	<0.5	<0.5	<0.0049	<0.0049	<0.25	<0.005	<0.5	<0.0047	<0.0048	<0.0048	<0.0048
	Xylene (o)	mg/kg		<0.0047	<0.005	**1.6**	<0.5	<0.0049	<0.0049	<0.25	<0.005	<0.5	<0.0047	<0.0048	<0.0048	<0.0048
	Xylene Total	mg/kg	2400	<0.0047	**0.0057**	**2.1**	<0.5	<0.0049	<0.0049	<0.25	<0.005	<0.5	<0.0047	<0.0048	<0.0048	<0.0048

Notes:
Detected concentrations are **bold-faced**
Shaded Concentrations exceed the SFRWQCB Commercial-Industrial
ESL = Environmental Screening Level, SFRWQCB, Interim Final, February 2016, Rev. 3
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SFRWQCB - San Francisco Regional Water Quality Control Board

Table 2
Grab Groundwater Sampling Analytical Results
Data Gap Investigation (Arcadis, June 2016)
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland, California

	Location		SFRWQCB 2016-Rev3 GW Saltwater Ecotox	SFRWQCB 2016-Rev3 VI Shallow GW Com/Ind ESL	SB-01	SB-02	SB-12	SB-19	SB-21	SB-22	SB-23	SB-24	SB-25	SB-26	SB-27	SB-28	SB-38	SB-39	SB-40	SB-45	SB-46
	Sample Date				6/1/2016	6/1/2016	6/2/2016	6/3/2016	6/6/2016	6/6/2016	6/6/2016	6/6/2016	6/6/2016	6/6/2016	6/7/2016	6/7/2016	6/8/2016	6/8/2016	6/9/2016	6/9/2016	6/9/2016
	Field ID				SB-1_GW	SB-2_GW	SB-12_GW	SB-19_GW	SB-21-GW	SB-22-GW	SB-23-GW	SB-24-GW	SB-25-GW	SB-26-GW	SB-27-GW	SB-28-GW	SB-38-GW	SB-39-GW	SB-40-GW	SB-45-GW	SB-46-GW
PAH	Acenaphthene	µg/L	40		-	-	-	-	-	-	<2	-	<0.2	<0.2	<0.2	-	<1	**0.3**	<4.4	<0.8	**3.1**
	Acenaphthylene	µg/L	30		-	-	-	-	-	-	<2	-	<0.2	<0.2	<0.2	-	<1	<0.2	<4.4	<0.8	<2.7
	Anthracene	µg/L			-	-	-	-	-	-	<2	-	<0.2	<0.2	<0.2	-	<1	**0.4**	<4.4	<0.8	<2.7
	Benz(a)anthracene	µg/L			-	-	-	-	-	-	<2	-	<0.2	<0.2	**0.3**	-	<1	**9.2**	<4.4	<0.8	<2.7
	Benzo(a) pyrene	µg/L			-	-	-	-	-	-	<2	-	<0.2	<0.2	**0.4**	-	<1	**15**	<4.4	<0.8	<2.7
	Benzo(b)fluoranthene	µg/L			-	-	-	-	-	-	<2	-	<0.2	<0.2	**0.5**	-	<1	**16**	<4.4	<0.8	<2.7
	Benzo(g,h,i)perylene	µg/L			-	-	-	-	-	-	<2	-	<0.2	<0.2	<0.2	-	<1	**7.5**	<4.4	<0.8	<2.7
	Benzo(k)fluoranthene	µg/L			-	-	-	-	-	-	<2	-	<0.2	<0.2	<0.2	-	<1	**6.5**	<4.4	<0.8	<2.7
	Chrysene	µg/L			-	-	-	-	-	-	<2	-	<0.2	<0.2	**0.4**	-	<1	**14**	<4.4	<0.8	<2.7
	Dibenz(a,h)anthracene	µg/L			-	-	-	-	-	-	<2	-	<0.2	<0.2	<0.2	-	<1	**2.8**	<4.4	<0.8	<2.7
	Fluoranthene	µg/L	8		-	-	-	-	-	-	<2	-	<0.2	<0.2	**0.3**	-	<1	**8.7**	<4.4	<0.8	<2.7
	Fluorene	µg/L	30		-	-	-	-	-	-	<2	-	<0.2	<0.2	<0.2	-	<1	**0.2**	<4.4	<0.8	**7.1**
	Indeno(1,2,3-c,d)pyrene	µg/L			-	-	-	-	-	-	<2	-	<0.2	<0.2	**0.3**	-	<1	**6**	<4.4	<0.8	<2.7
	Naphthalene	µg/L	240	170	-	-	-	-	-	-	**77**	-	**0.8**	<0.2	**1.8**	-	**27**	**1.3**	**61**	**3.4**	<2.7
	Phenanthrene	µg/L	4.6		-	-	-	-	-	-	<2	-	<0.2	<0.2	<0.2	-	<1	**2**	<4.4	<0.8	**3.8**
	Pyrene	µg/L			-	-	-	-	-	-	<2	-	<0.2	<0.2	**0.5**	-	<1	**12**	<4.4	<0.8	<2.7
TPH	TPH as Diesel	µg/L	640		<54	<53	<63	**170Y**	<50	**6300Y**	**1300Y**	**2700Y**	<50	<59	**150Y**	**27,000**	**3500Y**	**480Y**	**34,000**	**1200**	**97,000**
	TPH as Gasoline	µg/L	3700		<50	<50	**120Y**	**580Y**	<50	**3,000,000**	**37,000**	**29,000**	**680**	<50	**360**	**220,000**	**8300Y**	**410**	**20,000**	**5600Y**	**7400Y**
	TPH as Motor Oil	µg/L			<330	<320	<380	<380	<300	**830**	<300	<350	<300	<350	**370**	**23,000**	<400	**1100**	**11,000**	**420**	**10,000**
VOCs	Benzene	µg/L	350	9.7	<0.5	**0.6**	<0.5	**7.7**	<0.5	<10	**1600**	**3000**	**120**	**0.8**	**15**	**6700**	<1	**8**	**1400**	**0.5**	<0.5
	Ethylbenzene	µg/L	43	110	<0.5	<0.5	**13**	**20**	<0.5	**960**	**670**	**770**	**19**	<0.5	**8.4**	**250**	**5.7**	**4.8**	**98**	**1**	<0.5
	Methyl Tertiary Butyl Ether	µg/L	8000	11000	**2.8**	<0.5	<0.5	**4.8**	<0.5	<10	<20	<31	<1	<0.5	<0.5	<50	<1	<0.5	<13	<0.5	<0.5
	Toluene	µg/L	2500	30000	<0.5	<0.5	<0.5	<0.5	<0.5	**32**	**3300**	**900**	**9.6**	<0.5	**15**	**150**	<1	**6.9**	**32**	<0.5	<0.5
	Xylene (o)	µg/L			<0.5	<0.5	<0.5	<0.5	<0.5	**42**	**1200**	**280**	**19**	<0.5	**14**	<50	<1	**7.7**	**26**	<0.5	<0.5
	Xylene Total	µg/L	100	11000	<0.5	<0.5	<0.5	**0.8**	<0.5	**250**	**2900**	**760**	**50**	<0.5	**25**	**230**	<1	**8.7**	**69**	<0.5	<0.5

Notes:
Detected concentrations are **bold-faced**
Shaded Concentrations exceed the SFRWQCB ESL for Commercial-Industrial Shallow Groundwater Vapor Intrusion risk
Red font detections exceed the SFRWQCB Saltwater Ecotox ESL
ESL = Environmental Screening Level, SFRWQCB, Interim Final, February 2016, Rev. 3
µg/L = micrograms per liter
- = Not analyzed
< = analyte not detected above laboratory reporting limit
B=Analyte was present in an associated method blank
J = estimated below laboratory reporting limit
Y= Sample exhibits chromatographic pattern which does not resemble standard
SFRWQCB - San Francisco Regional Water Quality Control Board
TPH = total petroleum hydrocarbon
VOC = volatile organic compounds
PAH = polycyclic aromatic hydrocarbons

SB-45		
Sample Date	6/8/2016	6/9/2016
Sample Depth	5.5	2
Benzene	<0.5	<0.0047
TPH-d	**1,300**	**5.6Y**
TPH-g	**290Y**	<0.96
TPH-mo	**190**	**48**

SB-27		
6/7/2016		
Sample Depth	1.5	9.5
Benzene	<0.005	<5
TPH-d	**9.8Y**	**150Y**
TPH-g	<1	**3,900**
TPH-mo	**58**	**15**

SB-43	
6/9/2016	
Sample Depth	8.5
Benzene	**0.019**
TPH-d	**380**
TPH-g	**6.3Y**
TPH-mo	**320**

SB-29		
6/7/2016		
Sample Depth	2	9
Benzene	<0.0046	<1
TPH-d	**200Y**	**1,100Y**
TPH-g	**1.7Y**	**1,300**
TPH-mo	**240**	**1,000**

SB-33	
6/7/2016	
Sample Depth	8.5
Benzene	**0.81**
TPH-d	**390Y**
TPH-g	**1,100**
TPH-mo	**130**

SB-24	
6/6/2016	
Sample Depth	10
Benzene	**32**
TPH-d	**5,000Y**
TPH-g	**14,000**
TPH-mo	**920**

SB-11		
6/2/2016		
Sample Depth	5.5	8
Benzene	<0.026	**0.44**
TPH-d	**540**	**2,000**
TPH-g	**220Y**	**1,800Y**
TPH-mo	<25	**260**

SB-03		
6/1/2016		
Sample Depth	2	6
Benzene	<0.0048	<0.05
TPH-d	**15Y**	**3,000**
TPH-g	<0.95	**220Y**
TPH-mo	**41**	<250

SB-06	
6/1/2016	
Sample Depth	6.5
Benzene	<0.047
TPH-d	**1,200**
TPH-g	**150Y**
TPH-mo	**81**

SB-04	
6/1/2016	
Sample Depth	8
Benzene	**0.06**
TPH-d	**610**
TPH-g	**180Y**
TPH-mo	**120**

SB-07	
6/2/2016	
Sample Depth	8.5
Benzene	**2.2**
TPH-d	**29,000**
TPH-g	**3,400**
TPH-mo	**3,000**

SB-08	
6/2/2016	
Sample Depth	7
Benzene	**0.96**
TPH-d	**13,000Y**
TPH-g	**15,000Y**
TPH-mo	**2,500**

SB-41	
6/9/2016	
Sample Depth	12.5
Benzene	<0.5
TPH-d	**6,900**
TPH-g	**33,000Y**
TPH-mo	**790**

SB-34		
6/8/2016		
Sample Depth	12.5	2
Benzene	**5.5**	<0.0049
TPH-d	**2,500**	**9.7Y**
TPH-g	**3,800Y**	<1
TPH-mo	**2,900**	**66**

SB-23		
6/6/2016		
Sample Depth	10	2
Benzene	**12**	<0.0049
TPH-d	**2,500Y**	**7.9Y**
TPH-g	**10,000**	<1
TPH-mo	**200**	**40**

SB-10		
6/2/2016		
Sample Depth	12.5	2
Benzene	**0.22**	<0.0047
TPH-d	**420Y**	**10Y**
TPH-g	**55**	<1.1
TPH-mo	**1,300**	**91**

SB-09	
6/2/2016	
Sample Depth	11
Benzene	**0.029**
TPH-d	**700Y**
TPH-g	**420Y**
TPH-mo	**660**

SB-40	
6/9/2016	
Sample Depth	9
Benzene	**0.52**
TPH-d	**950**
TPH-g	**9,800**
TPH-mo	**440**

SB-28	
6/7/2016	
Sample Depth	9
Benzene	**0.12**
TPH-d	**200Y**
TPH-g	**23**
TPH-mo	**120**

SB-36	
6/8/2016	
Sample Depth	8.5
Benzene	**0.0056**
TPH-d	**410**
TPH-g	**40**
TPH-mo	**190**

Legend

Boring log indicated presence of LNAPL

Sample Locations

2016-06 Data Gap Sample Location

Monitoring Well Location

Remediation Well Location

Soil Results (mg/kg)

Benzene detected above the Reporting Limit

TPH and/or Benzene Exceeds ESL (direct exposure CI)

Notes:
mg/kg = micrograms per kilogram
Depths are presented in feet below ground surface
TPH-d = TPH as Diesel; TPH-g = TPH as Gasoline; TPH-mo = TPH as Motor Oil
< = analyte not detected above laboratory reporting limit

Concentrations which exceed the SFRWQCB Commercial-Industrial Shallow Exposure ESL are highlighted gray
SFRWQCB - San Francisco Regional Water Quality Control Board
All Screening Critieria are revision #3, May 2016

Notes: Aerial imagery source - NAIP June 2014.

0 50 100 150 200 Feet

1 inch = 104 feet

N

SAFETY FIRST

terraphase engineering

CLIENT: Municipal Service Center

PROJECT: Data Gap Analysis
7101 Edgewater Drive, Oakland CA

PROJECT NUMBER: 0182.001.001

Exceedances in Soil

FIGURE 1

File: C:\GIS_Local\Projects\0182 Oakland Corp Yard\MXDs\Soil Exceedances 0182-001-001.mxd 8/29/2016 Created by: JL Checked by: AR Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet

SB-45	
6/9/2016	
Benzene	0.5
TPH-d	1,200
TPH-g	5,600Y
TPH-mo	420

SB-46	
6/9/2016	
Benzene	<0.5
TPH-d	97,000
TPH-g	7,400Y
TPH-mo	10,000

RW-D2	
Feb 2015	
Benzene	500

RW-D1	
Feb 2015	
Benzene	1,000

SB-38	
6/8/2016	
Benzene	<1
TPH-d	3,500Y
TPH-g	8,300Y
TPH-mo	<400

SB-27	
6/7/2016	
Benzene	15
TPH-d	150Y
TPH-g	360
TPH-mo	370

RW-D7	
Feb 2015	
Benzene	940

RW-C2	
Feb 2015	
Benzene	110

SB-22	
6/6/2016	
Benzene	<10
TPH-d	6,300Y
TPH-g	3,000,000
TPH-mo	830

SB-24	
6/6/2016	
Benzene	3,000
TPH-d	2,700Y
TPH-g	29,000
TPH-mo	<350

SB-25	
6/6/2016	
Benzene	120
TPH-d	<50
TPH-g	680
TPH-mo	<300

OB-D1	
Feb 2015	
Benzene	230

OB-D2	
Feb 2015	
Benzene	520

SB-40	
6/9/2016	
Benzene	1,400
TPH-d	34,000
TPH-g	20,000
TPH-mo	11,000

SB-28	
6/7/2016	
Benzene	6,700
TPH-d	27,000
TPH-g	220,000
TPH-mo	23,000

SB-23	
6/6/2016	
Benzene	1,600
TPH-d	1,300Y
TPH-g	37,000
TPH-mo	<300

Legend

Sample Locations

- 2016-06 Data Gap Sample Location
- Monitoring Well Location
- Remediation Well Location

Groundwater Results (µg/L)

- No Exceedances
- TPH and/or Benzene Exceeds ESL (Ecotox Non-Drinking Water and/or VI Shallow GW for Commercial-Industrial)

Notes:
µg/L= micrograms per Liter
TPH-d = TPH as Diesel; TPH-g = TPH as Gasoline; TPH-mo = TPH as Motor Oil
< = analyte not detected above laboratory reporting limit

Concentrations which exceed the SFRWQCB GW Saltwater Ecotox are red font
Concentrations which exceed the SFRWQCB GW VI Shallow for Commercial-Industrial are highlighted gray
SFRWQCB - San Francisco Regional Water Quality Control Board
All Screening Critieria are revision #3, May 2016

Notes: Aerial imagery source - NAIP June 2014.

0 50 100 150 200 Feet

1 inch = 104 feet

N

SAFETY FIRST

terraphase engineering

CLIENT: Municipal Service Center

PROJECT: Data Gap Analysis
7101 Edgewater Drive, Oakland CA

PROJECT NUMBER: 0182.001.001

Exceedances in Groundwater

FIGURE 2

File: C:\GIS Local\Projects\0182 Oakland Corp Yard\MXDs\GW Exceedances 0182-001-001.mxd 8/26/2016 Created by: JL Checked by: AR Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet

Attachment G

ACDEH Email Memorandum, May 31, 2017

Anna Behrens

From: Nowell, Keith, Env. Health <Keith.Nowell@acgov.org>
Sent: Wednesday, May 31, 2017 4:16 PM
To: Mark Arniola Oakland (marniola@oaklandnet.com)
Cc: 'Lim, Kayleigh'; Andrew Romolo; Anna Behrens; 'dheinze@portoakland.com'; Roe, Dilan, Env. Health
Subject: RO293- City of Oakland Municipal Service Center, 7101 Edgewater Drive, GeoTracker Global ID T0600100375
Attachments: Attachment_1_and_ftpUploadInstructions_2016-12-15.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Mark,

Thank you and Kayleigh Lim of the City of Oakland, Diane Heinze of the Port of Oakland, and Andrew Romolo and Anna Behrens of Terraphase for participating in the meeting with Alameda County Department of Environmental Health (ACDEH) staff today regarding the subject fuel leak case. The purpose of the meeting was facilitate a discussion regarding the status of work and a path forward to address data gaps identified for the site.

Electronic Submittal of Information-

One item noted for the case was the status of file submittals to the State Water Resources Control Board's GeoTracker website. Of particular note was the many documents associated with report submittals, e.g. EDFs, GEO_WELL, GEO_XY, GEO_Z, and GEO_BORES, are missing from the website. ACDEH requests a review of the county FTP and GeoTracker databases and upload documents that have not been submitted. Please complete your review and submittals by the date specified below. Please see Attachment 1 for submittal instructions.

Request for Work Plans-

As discussed at the meeting, please prepare a work plan for a soil vapor (SV) investigation and additional sampling of groundwater (GW) monitoring wells not accessible during the most recent montoring event. Please include selected groundwater samples to be anayzed for total extractible petroleum hydrocarbons (TEPH) using both with and without silica gel cleanup. Terraphase staff requested the use of low-flow sampling techniques for the additional groundwater sampling. ACDEH concurred with the request. Due to potentially elevated groundwater levels, include a contingency for the use of soil vapor pins (SVP) for evaluating sub-slab vapor conditions. ACDEH requests the soil vapor sampling methodologies include the installation of permenant sampling points and the inclusion of methane and oxygen in the scope of soil vapor analysis. Please submit the SV/SVP- GW work plan by the date specified below. Following ACDEH's review and approval, we request data collected for the investigation be provided via electronic mail for review and discussion of the findings.

Additional delineation of contaminant distribution was proposed using MIP and UVOST technologies. ACDEH requests work plan preparation and submittal for this phase of site characterization. The work plan should propose a fourth quarter (October) 2017 additional round of groundwater monitoring and an additional soil vapor sampling event. Please submit the MIP-UVOST work plan by the date specified below. Following ACDEH's review and approval, we request data collected for the investigation be provided via electronic mail for discussion of the findings at a meeting to be scheduled in mid-February.

Report Submittal-

Please submit the soil, groundwater, and soil vapor investigation report, including data collected in the two work plans referenced above, by the date specified below.

TECHNICAL REPORT REQUEST

Please upload technical reports to the ACDEH FTP site (Attention: Keith Nowell), and to the State Water Resources Control Board's GeoTracker website, in accordance with the following specified file naming convention and schedule:

- **June 30, 2017 – Electronic Submittal of Information**
- **June 30, 2017 – SV/SVP- GW Work Plan** (file name: RO0000293_SWI_R_yyyy-mm-dd)
- **August 30, 2017 – MIP-UVOST Work Plan** (file name: RO0000293_SWI_R_yyyy-mm-dd)
- **February 23, 2018– Tentative meeting date**
- **March 30, 2018 – Soil and Groundwater Investigation** (file name: RO0000293_SWI_R_yyyy-mm-dd)

SUBMITTAL ACKNOWLEDGEMENT STATEMENT

Please note that ACDEH has updated it's Attachment 1 with regard to report submittals to ACDEH. ACDEH will now be requiring a Submittal Acknowledgement Statement, replacing the perjury statement, as a cover letter signed by the Responsible Party (RP). The language for the Submittal Acknowledgement Statement is as follows:

"I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document or report submitted on my behalf to ACDEH's FTP server and the SWRCB's GeoTracker website."

Please make this change to your submittals to ACDEH.

Thank you for your cooperation. If you have any questions or concerns regarding this correspondence or your case, please call me at (510) 567-6764 or send me an electronic mail message at *keith.nowell@acgov.org*.

Sincerely,
Keith Nowell, P.G., C.HG.
Hazardous Materials Specialist

Attachment 1- Responsible Party(ies) Legal Requirements/Obligations
ACDEH Electronic Report Upload (ftp) Instructions

Attachment 1

Responsible Party(ies) Legal Requirements / Obligations

REPORT REQUESTS

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

Alameda County Department of Environmental Health's (ACDEH) Environmental Cleanup Oversight Programs, Local Oversight Program (LOP) and Site Cleanup Program (SCP) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program File Transfer Protocol (FTP) site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to SCP sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website (http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/) for more information on these requirements.

ACKNOWLEDGEMENT STATEMENT

All work plans, technical reports, or technical documents submitted to ACDEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document or report submitted on my behalf to ACDEH's FTP server and the SWRCB's GeoTracker website." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6731, 6735, and 7835) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately licensed or certified professional. For your submittal to be considered a valid technical report, you are to present site-specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this case meet this requirement. Additional information is available on the Board of Professional Engineers, Land Surveyors, and Geologists website at: http://www.bpelsg.ca.gov/laws/index.shtml.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, late reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

Alameda County Environmental Cleanup Oversight Programs (LOP and SCP)	**REVISION DATE:** December 1, 2016
	ISSUE DATE: July 5, 2005
	PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010, July 25, 2010; May 15, 2014, November 29, 2016
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (LOP and SCP) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- **Please do not submit reports as attachments to electronic mail.**
- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection**.
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- **Signature pages and acknowledgement and perjury statements must be included and have either original or electronic signature.**
- **Do not password protect the document**. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted**.
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:

  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Submission Instructions

1) Obtain User Name and Password
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to deh.loptoxic@acgov.org.
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for**.

2) Upload Files to the ftp Site
   a) Open File Explorer using the Windows key + E keyboard shortcut.
      i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
   b) On the address bar, type in ftp://alcoftp1.acgov.org.
   c) Enter your User Name and Password. (Note: Both are Case Sensitive)
   d) Click Log On.
   e) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   f) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to deh.loptoxic@acgov.org notify us that you have placed a report on our ftp site.
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
   d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

Groundwater Monitoring Activities: May 2017

Oakland Municipal Service Center

7101 Edgewater Drive, Oakland, California

Prepared by

Terraphase Engineering Inc.
1404 Franklin Street, Suite 600
Oakland, California

June 2017

terraphase engineering

CONTENTS

Table 1: Groundwater Elevation Data
Table 2: Chemical Cocentrations in Groundwater
Figure 1: Site Location
Figure 2: Groundwater Elevation Contours, May 10, 2017
Figure 3: Groundwater Chemical Data, May 10, 2017
Attachment A: Groundwater Field Sampling Logs, May 10-11, 2017
Attachment B: Laboratory Analytical Reports

Tables

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
MW-1	10/4/89	10.20	---	---	---	
MW-1	10/4/89	10.20	---	---	---	
MW-1	4/27/93	10.20	---	---	---	
MW-1	4/19/95	10.20	---	---	---	
MW-1	7/27/95	10.20	4.62	5.58	---	
MW-1	11/20/95	10.20	6.08	4.12	---	
MW-1	2/21/96	10.20	4.62	5.58	---	
MW-1	5/13/96	10.20	4.33	5.87	---	
MW-1	8/27/96	10.20	5.25	4.95	---	
MW-1	2/23/98	10.20	1.75	8.45	---	
MW-1	8/19/98	10.20	4.78	5.42	---	
MW-1	11/11/98	10.20	5.64	4.56	---	
MW-1	2/23/99	10.20	3.41	6.79	---	
MW-1	5/27/99	10.20	3.96	6.24	---	
MW-1	8/24/99	10.20	4.92	5.28	---	
MW-1	11/22/99	10.20	5.46	4.74	---	
MW-1	1/18/00	10.05	5.41	4.64	---	
MW-1	1/19/00	10.05	---	---	---	
MW-1	5/11/00	10.05	4.63	5.42	---	
MW-1	8/24/00	10.05	5.07	4.98	---	
MW-1	8/25/00	10.05	---	---	---	
MW-1	11/28/00	10.05	5.60	4.45	---	
MW-1	2/27/01	10.05	3.95	6.10	---	
MW-1	5/17/01	10.05	4.00	6.05	---	
MW-1	8/16/01	10.05	4.17	5.88	---	
MW-1	12/15/01	10.05	5.52	4.53	---	
MW-1	4/9/02	10.05	3.78	6.27	---	
MW-1	6/21/02	10.05	4.92	5.13	---	
MW-1	9/13/02	10.05	5.52	4.53	---	
MW-1	4/22/03	10.05	4.41	5.64	---	
MW-1	4/28/04	10.05	3.95	6.10	---	
MW-1	10/29/04	10.05	5.68	4.37	---	
MW-1	9/2/05	10.05	4.35	5.70	---	
MW-1	4/4/06	10.05	2.24	7.81	---	
MW-1	9/6/06	10.05	4.98	5.07	---	
MW-1	4/5/07	10.05	3.56	6.49	---	
MW-1	10/2/07	10.05	5.59	4.46	---	
MW-1	3/20/08	10.05	3.53	6.52	---	
MW-1	11/21/08	10.05	5.48	4.57	---	
MW-1	4/1/09	10.05	3.30	6.75	---	
MW-1	10/30/09	10.05	4.52	5.53	---	
MW-1	4/8/10	10.05	2.90	7.15	0.00	Odor
MW-1	10/19/10	10.05	5.48	4.57	0.00	
MW-1	9/12/11	10.05	4.91	5.14	0.00	
MW-1	9/13/11	10.05	---	---	---	
MW-1	12/21/11	10.05	4.63	5.42	0.00	
MW-1	12/22/11	10.05	---	---	---	
MW-1	3/28/12	10.05	3.05	7.00	0.00	
MW-1	3/29/12	10.05	---	---	---	
MW-1	6/26/12	10.05	4.23	5.82	0.00	
MW-1	6/27/12	---	---	---	---	
MW-1	6/27/12	10.05	---	---	---	
MW-1	7/18/13	10.05	4.91	5.14	0.00	
MW-1	5/10/17	10.05	2.89	7.16	---	
MW-2	10/4/89	10.47	---	---	---	
MW-2	10/4/89	10.47	---	---	---	
MW-2	4/27/93	10.47	---	---	---	
MW-2	4/19/95	10.47	---	---	---	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
MW-2	7/27/95	10.47	6.22	4.25	---	
MW-2	11/20/95	10.47	7.49	2.98	---	
MW-2	2/12/96	10.47	6.68	3.79	---	
MW-2	5/13/96	10.47	6.32	4.15	---	
MW-2	8/27/96	10.47	6.84	3.63	---	
MW-2	2/24/98	10.47	5.44	5.03	---	
MW-2	8/19/98	10.47	6.56	3.91	---	
MW-2	11/11/98	10.47	7.37	3.10	---	
MW-2	2/23/99	10.47	8.68	1.79	---	
MW-2	5/27/99	10.47	5.20	5.27	---	
MW-2	8/24/99	10.47	6.75	3.72	---	
MW-2	11/22/99	10.47	7.58	2.89	---	
MW-2	1/18/00	10.47	7.41	3.06	---	
MW-2	5/11/00	10.47	6.43	4.04	---	
MW-2	8/24/00	10.47	8.91	1.56	---	
MW-2	11/28/00	10.47	7.35	3.12	---	
MW-2	2/27/01	10.47	6.70	3.77	---	
MW-2	5/17/01	10.47	6.90	3.57	---	
MW-2	8/16/01	10.47	6.95	3.52	---	
MW-2	12/15/01	10.47	7.21	3.26	---	
MW-2	4/5/02	10.47	6.02	4.45	---	
MW-2	6/21/02	10.47	8.07	2.40	---	
MW-2	9/17/02	10.47	7.12	3.35	---	
MW-2	4/23/03	10.47	6.36	4.11	---	
MW-2	4/28/04	10.47	5.99	4.48	---	
MW-2	9/1/05	10.47	6.08	4.39	---	
MW-2	4/4/06	10.47	4.96	5.51	---	
MW-2	9/6/06	10.47	9.31	1.16	---	
MW-2	4/5/07	10.47	9.21	1.26	---	
MW-2	10/2/07	10.47	10.81	-0.34	---	
MW-2	3/20/08	10.47	12.36	-1.89	---	
MW-2	11/18/08	10.47	11.07	-0.60	---	
MW-2	4/1/09	---	---	---	---	
MW-2	4/1/09	10.47	10.80	-0.33	---	
MW-2	10/29/09	10.47	9.88	0.59	---	
MW-2	4/8/10	10.47	8.00	2.47	0.00	
MW-2	10/19/10	10.47	7.02	3.45	0.00	
MW-2	9/12/11	10.47	6.67	3.80	0.00	
MW-2	12/21/11	10.47	7.12	3.35	0.00	
MW-2	3/28/12	10.47	6.53	3.94	0.00	
MW-2	6/26/12	10.47	6.1	4.37	0.00	
MW-2	7/17/13	10.47	6.87	3.60	0.00	
MW-2	5/10/17	10.47	4.94	5.53	---	
MW-3	10/4/89	---	---	---	---	
MW-3	10/4/89	---	---	---	---	
MW-3	2/23/98	---	---	---	---	
MW-3	11/11/98	---	5.83	---	---	
MW-3	2/23/99	---	---	---	---	
MW-3	5/27/99	---	1.68	---	---	
MW-3	8/24/99	---	4.76	---	---	
MW-3	11/22/99	---	6.46	---	---	
MW-3	*Abandoned*					
MW-4	10/4/89	7.89	---	---	---	
MW-4	10/4/89	7.89	---	---	---	
MW-4	11/11/98	7.89	6.25	1.64	---	
MW-4	2/23/99	7.89	3.10	4.79	---	
MW-4	5/27/99	7.89	4.03	3.86	---	
MW-4	8/24/99	7.89	5.07	2.82	---	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
MW-4	11/22/99	7.89	6.32	1.57	---	
MW-4	*Abandoned*					
MW-5	12/13/91	11.15	---	---	---	
MW-5	12/13/91	11.15	---	---	---	
MW-5	12/13/91	11.15	---	---	---	
MW-5	12/13/91	11.15	---	---	---	
MW-5	4/27/93	11.15	---	---	---	
MW-5	4/19/95	11.15	---	---	---	
MW-5	7/27/95	11.15	6.29	4.86	---	
MW-5	11/20/95	11.15	6.98	4.17	---	
MW-5	2/21/96	11.15	5.97	5.18	---	
MW-5	5/13/96	11.15	6.25	4.90	---	
MW-5	5/13/96	11.15	---	---	---	
MW-5	8/27/96	11.15	6.40	4.75	---	
MW-5	8/27/96	11.15	---	---	---	
MW-5	2/23/98	11.15	4.22	6.93	---	
MW-5	8/19/98	11.15	6.14	5.01	---	
MW-5	8/19/98	11.15	6.14	5.01	---	
MW-5	11/11/98	11.15	6.51	4.64	---	
MW-5	2/23/99	11.15	3.59	7.56	---	
MW-5	5/27/99	11.15	5.71	5.44	---	
MW-5	8/24/99	11.15	6.02	5.13	---	
MW-5	11/22/99	11.15	6.16	4.99	---	
MW-5	1/18/00	11.15	6.60	4.55	---	
MW-5	1/19/00	11.15	---	---	---	
MW-5	5/11/00	11.15	5.62	5.53	---	
MW-5	8/24/00	11.15	6.32	4.83	---	
MW-5	11/28/00	11.15	6.47	4.68	---	
MW-5	2/27/01	11.15	4.40	6.75	---	
MW-5	5/17/01	11.15	5.77	5.38	---	
MW-5	8/16/01	11.15	4.87	6.28	---	
MW-5	12/15/01	11.15	5.50	5.65	---	
MW-5	4/9/02	11.15	5.15	6.00	---	
MW-5	6/21/02	11.15	6.01	5.14	---	
MW-5	9/12/02	11.15	6.40	4.75	---	
MW-5	4/22/03	11.15	4.69	6.46	---	
MW-5	4/28/04	11.15	5.70	5.45	---	
MW-5	10/29/04	11.15	5.73	5.42	---	
MW-5	9/1/05	11.15	6.08	5.07	---	
MW-5	4/5/06	11.15	3.64	7.51	---	
MW-5	9/6/06	11.15	6.21	4.94	---	
MW-5	4/5/07	11.15	5.31	5.84	---	
MW-5	10/2/07	11.15	6.51	4.64	---	
MW-5	3/20/08	11.15	5.37	5.78	---	
MW-5	11/21/08	11.15	6.51	4.64	---	
MW-5	4/2/09	11.15	4.89	6.26	---	
MW-5	10/30/09	---	---	---	---	
MW-5	10/30/09	11.15	5.86	5.29	---	
MW-5	4/8/10	11.15	4.16	6.99	0.00	
MW-5	10/19/10	11.15	6.44	4.71	0.00	
MW-5	9/12/11	11.15	5.98	5.17	0.00	
MW-5	9/14/11	11.15	---	---	---	
MW-5	12/21/11	11.15	5.86	5.29	0.00	
MW-5	12/22/11	11.15	---	---	---	
MW-5	3/28/12	11.15	2.28	8.87	0.00	Odor
MW-5	3/30/12	11.15	---	---	---	
MW-5	6/26/12	11.15	5.51	5.64	0.00	
MW-5	6/27/12	11.15	---	---	---	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
MW-5	7/18/13	11.15	5.93	5.22	---	Odor
MW-5	5/10/17	11.15	4.32	6.83	---	
MW-6	12/13/91	10.98	---	---	---	
MW-6	12/13/91	10.98	---	---	---	
MW-6	4/27/93	10.98	---	---	---	
MW-6	4/19/95	10.98	---	---	---	
MW-6	4/19/95	10.98	---	---	---	
MW-6	7/27/95	10.98	7.09	3.89	---	
MW-6	7/27/95	10.98	---	---	---	
MW-6	11/20/95	10.98	7.89	3.09	---	
MW-6	11/20/95	10.98	---	---	---	
MW-6	2/21/96	10.98	7.40	3.58	---	
MW-6	2/21/96	10.98	---	---	---	
MW-6	5/13/96	10.98	7.10	3.88	---	
MW-6	8/27/96	10.98	7.42	3.56	---	
MW-6	8/19/98	10.98	---	---	0.13	
MW-6	11/11/98	10.98	7.09	3.93	0.05	
MW-6	2/23/99	10.98	7.31	#VALUE!	---	
MW-6	5/27/99	10.98	6.91	4.23	0.20	
MW-6	8/24/99	10.98	7.46	3.54	0.03	
MW-6	11/22/99	10.98	7.96	3.15	0.16	
MW-6	1/18/00	10.98	8.08	3.05	0.19	
MW-6	5/11/00	10.98	7.52	3.47	0.01	
MW-6	8/24/00	10.98	7.50	3.53	0.06	
MW-6	11/28/00	10.98	6.39	4.62	0.04	
MW-6	2/26/01	10.98	7.80	3.50	0.40	
MW-6	2/26/01	10.98	---	---	---	
MW-6	5/17/01	10.98	7.57	3.41	---	
MW-6	8/16/01	10.98	7.75	3.49	0.32	
MW-6	12/15/01	10.98	7.58	3.66	0.32	
MW-6	4/3/02	10.98	6.92	4.15	0.11	
MW-6	6/21/02	10.98	7.05	4.08	0.19	
MW-6	9/12/02	10.98	7.22	4.02	0.33	
MW-6	4/22/03	10.98	4.71	6.40	0.16	
MW-6	4/28/04	10.98	5.09	6.07	0.23	
MW-6	10/27/04	10.98	6.12	4.86	---	unk
MW-6	8/31/05	10.98	6.11	5.63	0.95	
MW-6	3/27/06	10.98	4.11	7.33	0.57	
MW-6	9/6/06	10.98	5.42	5.57	0.01	
MW-6	9/6/06	10.98	---	---	---	
MW-6	4/4/07	10.98	4.37	6.61	---	
MW-6	10/2/07	10.98	7.25	3.73	---	
MW-6	3/20/08	10.98	6.59	4.39	---	unk
MW-6	11/21/08	10.98	6.06	4.92	---	unk
MW-6	4/1/09	10.98	4.48	6.52	0.03	
MW-6	10/30/09	10.98	6.97	4.01	---	
MW-6	4/8/10	10.98	4.20	6.78	0.00	
MW-6	10/19/10	---	---	---	---	
MW-6	10/19/10	10.98	5.88	5.10	0.00	
MW-6	9/12/11	10.98	5.62	5.36	0.00	
MW-6	9/14/11	10.98	---	---	---	
MW-6	12/21/11	10.98	5.5	5.48	0.00	
MW-6	3/28/12	10.98	4.38	6.60	0.00	
MW-6	6/26/12	10.98	4.71	6.27	0.00	
MW-6	7/19/13	10.98	5.67	5.31	---	Odor
MW-6	5/10/17	10.98	7.70	3.28	---	
MW-7	12/13/91	11.51	---	---	---	
MW-7	12/13/91	11.51	---	---	---	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
MW-7	4/27/93	11.51	---	---	---	
MW-7	4/19/95	11.51	---	---	---	
MW-7	7/27/95	11.51	6.87	4.64	---	
MW-7	11/20/95	11.51	8.48	3.03	---	
MW-7	2/21/96	11.51	6.29	5.22	---	
MW-7	5/13/96	11.51	6.95	4.56	---	
MW-7	8/27/96	11.51	6.80	4.71	---	
MW-7	8/19/98	11.51	6.88	4.63	---	
MW-7	11/11/98	11.51	7.40	4.11	---	
MW-7	2/23/99	11.51	5.57	5.94	---	
MW-7	5/27/99	11.51	6.56	4.95	---	
MW-7	8/24/99	11.51	6.29	5.22	---	
MW-7	11/22/99	11.51	6.80	4.71	---	
MW-7	1/18/00	11.51	7.31	4.20	---	
MW-7	1/19/00	11.51	---	---	---	
MW-7	5/11/00	11.51	6.41	5.10	---	
MW-7	8/24/00	11.51	7.11	4.40	---	
MW-7	11/28/00	11.51	7.30	4.21	---	
MW-7	2/27/01	11.51	5.75	5.76	---	
MW-7	5/17/01	11.51	6.65	4.86	---	
MW-7	8/16/01	11.51	5.97	5.54	---	
MW-7	12/15/01	11.51	6.43	5.08	---	
MW-7	4/8/02	11.51	6.17	5.34	---	
MW-7	6/21/02	11.51	6.75	4.76	---	
MW-7	9/12/02	11.51	7.05	4.46	---	
MW-7	4/22/03	11.51	6.24	5.27	---	
MW-7	4/28/04	11.51	6.61	4.90	---	
MW-7	9/1/05	11.51	6.56	4.95	---	
MW-7	4/5/06	11.51	4.58	6.93	---	
MW-7	9/6/06	11.51	6.67	4.84	---	
MW-7	4/5/07	11.51	6.13	5.38	---	
MW-7	10/2/07	11.51	7.07	4.44	---	
MW-7	3/20/08	11.51	6.24	5.27	---	
MW-7	3/20/08	---	---	---	---	
MW-7	11/18/08	11.51	7.40	4.11	---	
MW-7	4/2/09	11.51	6.95	4.56	---	
MW-7	10/29/09	11.51	6.60	4.91	0.00	
MW-7	4/8/10	11.51	5.11	6.40	0.00	
MW-7	10/19/10	11.51	7.05	4.46	0.00	
MW-7	9/12/11	11.51	6.60	4.91	0.00	
MW-7	12/21/11	11.51	6.68	4.83	0.00	
MW-7	3/28/12	11.51	4.32	7.19	0.00	Odor
MW-7	6/26/12	11.51	6.3	5.21	0.00	
MW-7	7/17/13	11.51	6.76	4.75	0.00	
MW-7	5/10/17	11.51	5.85	5.66	---	
MW-8	11/20/96	12.22	---	---	---	
MW-8	11/20/97	12.22	9.59	2.63	---	
MW-8	2/24/98	12.22	8.42	3.80	---	
MW-8	6/8/98	12.22	9.57	2.65	---	
MW-8	8/19/98	12.22	9.49	2.73	---	
MW-8	11/11/98	12.22	9.64	2.58	---	
MW-8	2/23/99	12.22	11.53	0.69	---	
MW-8	5/27/99	12.22	9.65	2.57	---	
MW-8	8/24/99	12.22	9.62	2.60	---	
MW-8	11/22/99	12.22	9.64	2.58	---	
MW-8	1/18/00	12.22	8.31	3.91	---	
MW-8	5/11/00	12.22	9.69	2.53	---	
MW-8	8/24/00	12.22	9.40	2.82	---	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
MW-8	8/25/00	12.22	---	---	---	
MW-8	11/28/00	12.22	9.40	2.82	---	
MW-8	2/27/01	12.22	9.50	2.72	---	
MW-8	5/17/01	12.22	9.71	2.51	---	
MW-8	5/18/01	12.22	---	---	---	
MW-8	8/16/01	12.22	9.80	2.42	---	
MW-8	12/15/01	12.22	9.28	2.94	---	
MW-8	4/8/02	12.22	9.55	2.67	---	
MW-8	6/21/02	12.22	9.71	2.51	---	
MW-8	9/18/02	12.22	9.86	2.36	---	
MW-8	4/22/03	12.22	9.54	2.68	---	
MW-8	4/28/04	12.22	---	---	---	
MW-8	10/27/04	12.22	NM	---	---	
MW-8	4/5/06	12.22	8.73	3.49	---	
MW-8	9/6/06	12.22	9.50	2.72	---	
MW-8	4/3/07	12.22	9.58	2.64	---	
MW-8	10/3/07	12.22	9.54	2.68	---	
MW-8	3/21/08	12.22	9.61	2.61	---	
MW-8	11/19/08	12.22	9.58	2.64	---	
MW-8	4/2/09	12.22	9.54	2.68	---	
MW-8	10/30/09	12.22	9.67	2.55	---	
MW-8	4/8/10	12.22	9.57	2.65	0.00	
MW-8	10/19/10	12.22	9.61	2.61	0.00	
MW-8	9/12/11	12.22	9.61	2.61	0.00	
MW-8	12/21/11	12.22	8.97	3.25	0.00	
MW-8	3/28/12	12.22	9.4	2.82	0.00	
MW-8	6/26/12	12.22	9.62	2.60	0.00	
MW-8	7/17/13	12.22	9.62	2.60	0.00	
MW-8	5/10/17	12.22	9.46	2.76	---	
MW-9	11/20/96	10.77	---	---	---	
MW-9	11/20/97	10.77	7.91	2.86	---	
MW-9	2/24/98	10.77	6.11	4.66	---	
MW-9	6/8/98	10.77	7.14	3.63	---	
MW-9	8/19/98	10.77	7.88	2.89	---	
MW-9	11/11/98	10.77	8.23	2.54	---	
MW-9	2/23/99	10.77	6.65	4.12	---	
MW-9	5/27/99	10.77	7.70	3.07	---	
MW-9	8/24/99	10.77	8.12	2.65	---	
MW-9	11/22/99	10.77	8.33	2.44	---	
MW-9	1/18/00	10.77	8.63	2.14	---	
MW-9	5/11/00	10.77	7.70	3.07	---	
MW-9	8/24/00	10.77	8.31	2.46	---	
MW-9	8/25/00	10.77	---	---	---	
MW-9	11/28/00	10.77	8.45	2.32	---	
MW-9	11/28/00	10.77	8.45	2.32	---	
MW-9	2/26/01	10.77	6.40	4.37	---	
MW-9	5/17/01	10.77	9.88	0.89	---	
MW-9	5/18/01	10.77	---	---	---	
MW-9	8/16/01	10.77	8.05	2.72	---	
MW-9	12/16/01	10.77	7.75	3.02	---	
MW-9	4/5/02	10.77	7.50	3.27	---	
MW-9	6/20/02	10.77	8.27	2.50	---	
MW-9	9/18/02	10.77	8.25	2.52	---	
MW-9	4/22/03	10.77	7.25	3.52	---	
MW-9	4/28/04	10.77	---	---	---	
MW-9	10/27/04	10.77	NM	---	---	
MW-9	9/6/06	10.77	8.44	2.33	---	
MW-9	4/3/07	10.77	8.28	2.49	---	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
MW-9	4/3/07	10.77	---	---	---	
MW-9	10/3/07	10.77	8.58	2.19	---	
MW-9	3/20/08	10.77	8.46	2.31	---	
MW-9	3/20/08	---	---	---	---	
MW-9	11/21/08	10.77	8.63	2.14	---	
MW-9	4/2/09	10.77	8.08	2.69	---	
MW-9	10/30/09	10.77	8.91	1.86	---	
MW-9	4/8/10	---	---	---	---	
MW-9	4/8/10	10.77	7.37	3.40	0.00	
MW-9	4/29/10	---	---	---	---	
MW-9	4/29/10	10.77	7.3	3.47	0.00	
MW-9	10/19/10	10.77	8.37	2.40	0.00	
MW-9	9/12/11	10.77	8.04	2.73	0.00	
MW-9	12/21/11	10.77	8.09	2.68	0.00	
MW-9	3/28/12	10.77	7.2	3.57	0.00	
MW-9	6/26/12	10.77	7.71	3.06	0.00	
MW-9	7/17/13	10.77	8.19	2.58	0.00	
MW-9	5/10/17	10.77	7.28	3.49	---	
MW-10	11/20/96	10.59	---	---	---	
MW-10	11/20/97	10.59	7.70	2.89	---	
MW-10	2/24/98	10.59	4.39	6.20	---	
MW-10	6/8/98	10.59	6.94	3.65	---	
MW-10	8/19/98	10.59	6.99	3.60	---	
MW-10	11/11/98	10.59	7.57	3.02	---	
MW-10	2/23/99	10.59	5.51	5.08	---	
MW-10	5/27/99	10.59	6.72	3.87	---	
MW-10	8/24/99	10.59	7.27	3.32	---	
MW-10	11/22/99	10.59	7.71	2.88	---	
MW-10	1/18/00	10.59	7.77	2.82	---	
MW-10	1/19/00	10.59	---	---	---	
MW-10	5/11/00	10.59	7.00	3.59	---	
MW-10	8/24/00	10.59	7.31	3.28	---	
MW-10	8/25/00	10.59	---	---	---	
MW-10	11/28/00	10.59	7.90	2.69	---	
MW-10	2/27/01	10.59	5.80	4.79	---	
MW-10	5/17/01	10.59	6.27	4.32	---	
MW-10	5/18/01	10.59	---	---	---	
MW-10	8/16/01	10.59	8.75	1.84	---	
MW-10	12/16/01	10.59	6.97	3.62	---	
MW-10	4/8/02	10.59	6.51	4.08	---	
MW-10	6/20/02	10.59	8.10	2.49	---	
MW-10	9/17/02	10.59	7.66	2.93	---	
MW-10	4/22/03	10.59	6.81	3.78	---	
MW-10	4/28/04	10.59	6.70	3.89	---	
MW-10	10/28/04	10.59	6.98	3.61	---	
MW-10	9/1/05	10.59	6.76	3.83	---	
MW-10	4/5/06	10.59	4.86	5.73	---	
MW-10	9/6/06	10.59	9.01	1.58	---	
MW-10	4/4/07	10.59	8.99	1.60	---	
MW-10	10/3/07	10.59	9.78	0.81	---	
MW-10	3/21/08	10.59	10.20	0.39	---	
MW-10	11/19/08	10.59	9.55	1.04	---	
MW-10	11/19/08	---	---	---	---	
MW-10	4/1/09	10.59	7.52	3.07	---	
MW-10	10/30/09	10.59	8.80	1.79	---	
MW-10	4/8/10	10.59	6.23	4.36	0.00	
MW-10	10/19/10	10.59	7.38	3.21	0.00	
MW-10	9/12/11	10.59	7.05	3.54	0.00	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
MW-10	9/14/11	10.59	---	---	---	
MW-10	12/21/11	10.59	7.13	3.46	0.00	
MW-10	12/22/11	10.59	---	---	---	
MW-10	3/28/12	10.59	5.6	4.99	0.00	
MW-10	3/29/12	10.59	---	---	---	
MW-10	6/26/12	10.59	6.71	3.88	0.00	
MW-10	6/27/12	10.59	---	---	---	
MW-10	7/18/13	10.59	7.23	3.36	0.00	
MW-10	5/10/17	10.59	5.64	4.95	---	
MW-11	1/18/00	11.60	7.08	4.52	---	
MW-11	1/19/00	11.60	---	---	---	
MW-11	5/11/00	11.60	5.95	5.65	---	
MW-11	8/24/00	11.60	6.58	5.02	---	
MW-11	11/28/00	11.60	6.91	4.69	---	
MW-11	2/27/01	11.60	5.65	5.95	---	
MW-11	5/17/01	11.60	6.85	4.75	---	
MW-11	8/16/01	11.60	6.01	5.59	---	
MW-11	12/15/01	11.60	6.26	5.34	---	
MW-11	4/5/02	11.60	5.47	6.13	---	
MW-11	6/21/02	11.60	6.17	5.43	---	
MW-11	9/12/02	11.60	6.60	5.00	---	
MW-11	4/24/03	11.60	5.71	5.89	---	
MW-11	4/28/04	11.60	5.92	5.68	---	
MW-11	10/27/04	11.60	6.59	5.01	---	
MW-11	9/1/05	11.60	6.22	5.38	---	
MW-11	4/4/06	11.60	4.17	7.43	---	
MW-11	4/4/06	11.60	---	---	---	
MW-11	9/6/06	11.60	6.46	5.14	---	
MW-11	4/5/07	11.60	5.60	6.00	---	
MW-11	10/2/07	11.60	6.83	4.77	---	
MW-11	3/20/08	11.60	6.83	4.77	---	
MW-11	11/18/08	11.60	7.00	4.60	---	
MW-11	4/2/09	11.60	5.24	6.36	---	
MW-11	10/29/09	11.60	6.33	5.27	---	
MW-11	4/8/10	11.60	4.51	7.09	0.00	
MW-11	10/19/10	11.60	6.67	4.93	0.00	
MW-11	9/12/11	11.60	6.28	5.32	0.00	
MW-11	12/21/11	11.60	6.22	5.38	0.00	
MW-11	3/28/12	11.60	3.69	7.91	0.00	
MW-11	6/26/12	11.60	5.68	5.92	0.00	
MW-11	7/17/13	11.60	6.26	5.34	0.00	
MW-11	5/10/17	11.60	4.42	7.18	---	
MW-12	1/18/00	10.43	8.11	2.32	---	
MW-12	1/19/00	10.43	---	---	---	
MW-12	5/11/00	10.43	6.78	3.65	---	
MW-12	8/24/00	10.43	7.56	2.87	---	
MW-12	8/25/00	10.43	---	---	---	
MW-12	11/28/00	10.43	8.13	2.30	---	
MW-12	11/28/00	10.43	8.13	2.30	---	
MW-12	2/27/01	10.43	6.00	4.43	---	
MW-12	5/17/01	10.43	7.01	3.42	---	
MW-12	8/16/01	10.43	8.47	1.96	---	
MW-12	4/8/02	10.43	6.65	3.78	---	
MW-12	6/21/02	10.43	7.10	3.33	---	
MW-12	9/17/02	10.43	7.75	2.68	---	
MW-12	4/22/03	10.43	6.60	3.83	---	
MW-12	4/28/04	10.43	6.60	3.83	---	
MW-12	10/29/04	10.43	7.87	2.56	---	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
MW-12	9/1/05	10.43	7.04	3.39	---	
MW-12	9/1/05	10.43	7.04	3.39	---	
MW-12	4/4/06	10.43	4.49	5.94	---	
MW-12	9/6/06	10.43	7.43	3.00	---	
MW-12	4/5/07	10.43	6.58	3.85	---	
MW-12	10/2/07	10.43	8.14	2.29	---	
MW-12	3/19/08	10.43	6.45	3.98	---	
MW-12	11/21/08	10.43	8.27	2.16	---	
MW-12	4/1/09	10.43	6.30	4.13	---	
MW-12	10/29/09	10.43	7.73	2.70	---	
MW-12	4/8/10	10.43	6.07	4.36	0.00	
MW-12	10/19/10	10.43	7.85	2.58	0.00	
MW-12	9/12/11	10.43	7.33	3.10	0.00	
MW-12	12/21/11	10.43	7.56	2.87	0.00	
MW-12	3/28/12	10.43	6.64	3.79	0.00	
MW-12	6/26/12	10.43	6.81	3.62	0.00	
MW-12	7/17/13	10.43	---	---	0.00	
MW-12	5/10/17	10.43	NM	---	---	
MW-13	1/18/00	11.34	9.63	1.71	---	
MW-13	5/11/00	11.34	10.12	1.22	---	
MW-13	8/24/00	11.34	10.22	1.12	---	
MW-13	8/25/00	11.34	---	---	---	
MW-13	11/28/00	11.34	10.50	0.84	---	
MW-13	11/28/00	11.34	10.50	0.84	---	
MW-13	2/26/01	11.34	9.60	1.74	---	
MW-13	5/17/01	11.34	10.10	1.24	---	
MW-13	5/18/01	11.34	---	---	---	
MW-13	8/16/01	11.34	10.50	0.84	---	
MW-13	12/16/01	11.34	9.43	1.91	---	
MW-13	4/8/02	11.34	10.24	1.10	---	
MW-13	6/20/02	11.34	10.75	0.59	---	
MW-13	9/18/02	11.34	10.60	0.74	---	
MW-13	4/22/03	11.34	10.46	0.88	---	
MW-13	4/28/04	11.34	10.22	1.12	---	
MW-13	10/28/04	11.34	9.50	1.84	---	
MW-13	9/1/05	11.34	9.56	1.78	---	
MW-13	4/5/06	11.34	7.86	3.48	---	
MW-13	9/6/06	11.34	10.53	0.81	---	
MW-13	4/4/07	11.34	9.73	1.61	---	
MW-13	10/3/07	11.34	10.18	1.16	---	
MW-13	3/20/08	11.34	9.54	1.80	---	
MW-13	11/21/08	11.34	10.41	0.93	---	
MW-13	4/2/09	11.34	10.41	0.93	---	
MW-13	10/30/09	11.34	9.65	1.69	---	
MW-13	4/8/10	11.34	9.96	1.38	0.00	
MW-13	10/19/10	11.34	9.50	1.84	0.00	
MW-13	9/12/11	11.34	10.33	1.01	0.00	
MW-13	12/21/11	11.34	10.01	1.33	0.00	
MW-13	3/28/12	11.34	10.43	0.91	0.00	
MW-13	3/29/12	11.34	---	---	---	
MW-13	6/26/12	11.34	10.41	0.93	0.00	
MW-13	6/27/12	11.34	---	---	---	
MW-13	7/18/13	11.34	10.38	0.96	0.00	
MW-13	5/10/17	11.34	10.18	1.16	---	
MW-14	1/18/00	10.05	7.37	2.68	---	
MW-14	5/11/00	10.05	6.73	3.32	---	
MW-14	8/24/00	10.05	7.30	2.75	---	
MW-14	8/25/00	10.05	---	---	---	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
MW-14	11/28/00	10.05	7.40	2.65	---	
MW-14	11/28/00	10.05	7.40	2.65	---	
MW-14	2/26/01	10.05	6.20	3.85	---	
MW-14	5/17/01	10.05	7.74	2.31	---	
MW-14	5/18/01	10.05	---	---	---	
MW-14	8/16/01	10.05	7.85	2.20	---	
MW-14	12/16/01	10.05	6.60	3.45	---	
MW-14	4/9/02	10.05	6.58	3.47	---	
MW-14	6/20/02	10.05	7.52	2.53	---	
MW-14	9/18/02	10.05	7.55	2.50	---	
MW-14	4/22/03	10.05	6.71	3.34	---	
MW-14	4/28/04	10.05	6.81	3.24	---	
MW-14	10/28/04	10.05	6.99	3.06	---	
MW-14	10/28/04	10.05	---	---	---	
MW-14	9/1/05	10.05	7.60	2.45	---	
MW-14	4/5/06	10.05	5.91	4.14	---	
MW-14	9/6/06	10.05	7.70	2.35	---	
MW-14	4/4/07	10.05	7.52	2.53	---	
MW-14	4/4/07	10.05	---	---	---	
MW-14	10/3/07	10.05	8.45	1.60	---	
MW-14	3/20/08	10.05	7.80	2.25	---	
MW-14	11/21/08	10.05	8.45	1.60	---	
MW-14	4/2/09	10.05	7.20	2.85	---	
MW-14	10/30/09	10.05	9.11	0.94	---	
MW-14	4/8/10	10.05	6.62	3.43	0.00	
MW-14	10/19/10	10.05	7.23	2.82	0.00	
MW-14	9/12/11	10.05	7.11	2.94	0.00	
MW-14	12/21/11	10.05	7.00	3.05	0.00	
MW-14	3/28/12	10.05	6.51	3.54	0.00	
MW-14	3/29/12	10.05	---	---	---	
MW-14	6/26/12	10.05	6.92	3.13	0.00	
MW-14	6/27/12	10.05	---	---	---	
MW-14	7/18/13	10.05	7.26	2.79	0.00	
MW-14	5/10/17	10.05	6.43	3.62	---	
MW-15	1/18/00	12.36	10.56	1.80	---	
MW-15	5/11/00	12.36	10.03	2.33	---	
MW-15	8/24/00	12.36	10.22	2.14	---	
MW-15	8/25/00	12.36	---	---	---	
MW-15	11/28/00	12.36	10.30	2.06	---	
MW-15	11/28/00	12.36	10.30	2.06	---	
MW-15	2/26/01	12.36	9.30	3.06	---	
MW-15	5/17/01	12.36	10.09	2.27	---	
MW-15	5/18/01	12.36	---	---	---	
MW-15	8/16/01	12.36	10.20	2.16	---	
MW-15	12/16/01	12.36	9.80	2.56	---	
MW-15	4/5/02	12.36	9.58	2.78	---	
MW-15	6/20/02	12.36	10.24	2.12	---	
MW-15	9/18/02	12.36	9.89	2.47	---	
MW-15	4/22/03	12.36	9.55	2.81	---	
MW-15	4/28/04	12.36	9.68	2.68	---	
MW-15	10/28/04	12.36	9.58	2.78	---	
MW-15	9/1/05	12.36	9.56	2.80	---	
MW-15	4/5/06	12.36	8.76	3.60	---	
MW-15	9/6/06	12.36	9.98	2.38	---	
MW-15	4/3/07	12.36	10.05	2.31	---	
MW-15	10/3/07	12.36	10.16	2.20	---	
MW-15	3/20/08	12.36	10.08	2.28	---	
MW-15	11/19/08	12.36	10.28	2.08	---	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
MW-15	4/2/09	12.36	9.91	2.45	---	
MW-15	10/30/09	12.36	10.24	2.12	---	
MW-15	4/8/10	12.36	9.59	2.77	0.00	
MW-15	10/19/10	12.36	10.21	2.15	0.00	
MW-15	9/12/11	12.36	9.96	2.40	0.00	
MW-15	12/21/11	12.36	10.04	2.32	0.00	
MW-15	3/28/12	12.36	9.67	2.69	0.00	
MW-15	6/26/12	12.36	9.82	2.54	0.00	
MW-15	7/17/13	12.36	10.1	2.26	0.00	
MW-15	5/10/17	12.36	9.55	2.81	---	
MW-16	1/18/00	13.57	10.22	3.43	0.10	
MW-16	5/11/00	13.57	13.31	0.27	0.01	
MW-16	8/24/00	13.57	8.91	4.66	---	
MW-16	11/28/00	13.57	13.05	0.86	0.42	
MW-16	2/26/01	13.57	13.10	0.79	0.40	
MW-16	5/17/01	13.57	12.62G	---	---	
MW-16	8/16/01	13.57	11.94G	---	---	
MW-16	12/15/01	13.57	NM	---	---	
MW-16	4/3/02	13.57	12.88	0.69	---	
MW-16	6/21/02	12.22	NM	---	---	
MW-16	4/22/03	12.22	INACC	---	---	
MW-16	4/28/04	12.22	12.48	-0.26	---	
MW-16	10/28/04	12.22	11.97	0.25	---	
MW-16	8/31/05	12.22	12.09	0.13	0.00	
MW-16	4/5/06	12.22	3.80	8.42	---	
MW-16	9/6/06	12.22	DRY	---	---	
MW-16	4/4/07	12.22	10.72	1.50	---	
MW-16	10/3/07	12.22	10.92	1.30	---	
MW-16	3/19/08	12.22	10.72	1.50	---	
MW-16	11/19/08	12.22	12.33	-0.11	---	
MW-16	4/2/09	12.22	11.25	0.97	---	
MW-16	10/30/09	12.22	11.37	0.85	---	
MW-16	4/8/10	12.22	10.45	1.77	0.00	
MW-16	10/19/10	12.22	10.98	1.24	0.00	
MW-16	9/12/11	12.22	10.75	1.47	0.00	
MW-16	12/21/11	12.22	10.66	1.56	0.00	
MW-16	3/28/12	12.22	DRY	---	---	
MW-16	6/26/12	12.22	10.58	1.64	0.00	
MW-16	7/13/13	12.22	DRY	---	---	
MW-16	5/10/17	12.22	6.51	5.71	---	
MW-17	1/18/00	9.86	5.35	4.51	---	
MW-17	5/11/00	9.86	9.85	0.01	---	
MW-17	8/24/00	9.86	8.59	1.27	---	
MW-17	8/25/00	9.86	---	---	---	
MW-17	11/28/00	9.86	9.25	0.61	---	
MW-17	11/28/00	9.86	9.25	0.61	---	
MW-17	2/26/01	9.86	9.40	0.46	---	
MW-17	5/17/01	9.86	8.32	1.54	---	
MW-17	5/18/01	9.86	---	---	---	
MW-17	8/16/01	9.86	10.35	-0.49	---	
MW-17	12/16/01	9.86	8.01	1.85	---	
MW-17	4/9/02	9.86	9.76	0.10	---	
MW-17	6/21/02	9.86	9.79	0.07	---	
MW-17	9/18/02	9.86	8.25	1.61	---	
MW-17	4/23/03	9.86	9.75	0.11	---	
MW-17	4/28/04	9.86	8.90	0.96	---	
MW-17	10/28/04	9.86	8.32	1.54	---	
MW-17	9/1/05	9.86	8.38	1.48	---	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
MW-17	4/5/06	9.86	6.86	3.00	---	
MW-17	9/6/06	9.86	9.85	0.01	---	
MW-17	4/3/07	9.86	7.67	2.19	---	
MW-17	10/3/07	---	---	---	---	
MW-17	10/3/07	9.86	7.97	1.89	---	
MW-17	3/20/08	9.86	6.70	3.16	---	
MW-17	11/19/08	9.86	9.53	0.33	---	
MW-17	4/2/09	9.86	9.56	0.30	---	
MW-17	10/30/09	9.86	7.21	2.65	---	
MW-17	4/8/10	9.86	9.15	0.71	0.00	
MW-17	10/19/10	9.86	6.82	3.04	0.00	
MW-17	9/12/11	9.86	9.34	0.52	0.00	
MW-17	12/21/11	9.86	8.58	1.28	0.00	
MW-17	3/28/12	9.86	9.98	-0.12	0.00	
MW-17	3/29/12	9.86	---	---	---	
MW-17	6/26/12	9.86	9.58	0.28	0.00	
MW-17	6/27/12	9.86	---	---	---	
MW-17	7/18/13	9.86	9.38	0.48	0.00	
MW-17	5/10/17	9.86	9.88	-0.02	---	
MW-18	4/24/03	---	6.49	---	---	
MW-18	4/28/04	---		---	---	
MW-18	8/31/05	---	---	---	---	
MW-18	3/27/06	---	---	---	---	
MW-18	9/6/06	---	---	---	---	
MW-18	5/10/17	---	5.69	--	---	
OB-A1	4/22/03	---	2.24	---	0.01	
OB-A1	4/28/04	---	3.01	---	0.00	
OB-A1	10/27/04	---	5.11	---	0.00	Odor
OB-A1	8/31/05	---	4.10	---	0.00	
OB-A1	3/27/06	---	1.25	---	0.00	
OB-A1	9/7/06	---	4.49	---	---	
OB-A1	4/4/07	---	2.72	---	---	
OB-A1	10/2/07	---	5.34	---	---	
OB-A1	3/19/08	---	2.73	---	0.00	
OB-A1	11/18/08	---	5.31	---	---	
OB-A1	4/1/09	---	2.61	---	---	
OB-A1	10/29/09	---	4.68	---	---	
OB-A1	4/8/10	---	1.95	---	0.00	
OB-A1	10/19/10	---	5.09	---	0.00	
OB-A1	9/12/11	---	4.28	---	0.00	
OB-A1	12/21/11	---	3.28	---	0.00	
OB-A1	3/28/12	---	1.55	---	0.00	
OB-A1	6/26/12	---	3.15	---	0.00	
OB-A1	7/17/13	---	4.48	---	0.00	
OB-A1	5/10/17	---	2.72	--	---	
OB-C1	4/22/03	---	6.26	---	---	
OB-C1	4/28/04	10.39	7.39	4.02	1.27	
OB-C1	10/27/04	10.39	8.06	3.19	1.08	
OB-C1	8/31/05	10.39	7.84	3.79	1.55	
OB-C1	3/27/06	10.39	6.15	5.08	1.05	
OB-C1	9/6/06	---	INACC	---	---	
OB-C1	4/4/07	10.39	7.78	2.61	---	
OB-C1	10/2/07	10.39	8.67	1.74	0.02	
OB-C1	3/19/08	10.39	8.49	2.13	0.29	
OB-C1	11/18/08	10.39	8.57	1.84	0.03	
OB-C1	4/1/09	10.39	7.96	2.94	0.64	
OB-C1	10/29/09	---	INACC	---	---	
OB-C1	4/8/10	10.39	INACC	---	---	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
OB-C1	4/29/10	10.39	5.95	4.44	0.00	
OB-C1	10/19/10	10.39	6.37	4.02	0.00	
OB-C1	9/30/11	10.39	NM	---	0.00	
OB-C1	12/22/11	10.39	Dry	---	0.00	
OB-C1	3/28/12	10.39	Dry	---	---	Total depth: 5.50 feet
OB-C1	6/26/12	10.39	Dry	---	---	Total depth: 5.45 feet
OB-C1	7/17/13	10.39	Dry	---	---	Total depth: 5.33 feet
OB-C1	5/10/17	10.39	NM	--	---	
OB-D1	4/22/03	---	5.41	---	---	Odor
OB-D1	4/28/04	9.46	5.31	4.15	---	Odor
OB-D1	10/27/04	9.46	5.89	3.57	---	
OB-D1	8/31/05	9.46	5.42	4.04	0.00	
OB-D1	3/27/06	9.46	3.09	6.37	0.00	
OB-D1	9/6/06	9.46	8.31	1.16	0.01	
OB-D1	4/4/07	9.46	7.77	1.69	---	
OB-D1	10/2/07	9.46	8.66	0.80	0.00	
OB-D1	3/19/08	9.46	8.90	0.56	0.00	
OB-D1	11/18/08	9.46	8.41	1.05	---	
OB-D1	4/1/09	9.46	8.50	0.96	---	Sheen
OB-D1	10/29/09	9.46	7.65	1.81	0.00	
OB-D1	4/8/10	9.46	4.71	4.75	---	Odor
OB-D1	10/19/10	9.46	6.10	3.36	0.00	
OB-D1	9/12/11	9.46	5.69	3.77	0.00	
OB-D1	12/21/11	9.46	5.9	3.56	0.00	
OB-D1	3/28/12	9.46	4.33	5.13	0.00	
OB-D1	6/26/12	9.46	5.2	4.26	0.00	
OB-D1	7/13/13	9.46	5.94	3.52	0.00	
OB-D1	5/10/17	9.46	4.20	5.26	---	
OB-D2	4/22/03	---	5.14	---	---	
OB-D2	4/28/04	9.95	5.25	4.70	---	
OB-D2	10/27/04	9.95	6.42	3.53	0.00	
OB-D2	8/31/05	9.95	5.71	4.25	0.01	
OB-D2	3/27/06	9.95	2.32	7.63	0.00	
OB-D2	9/6/06	9.95	8.39	1.57	0.01	
OB-D2	4/4/07	9.95	7.94	2.01	---	
OB-D2	10/2/07	9.95	9.07	0.88	0.00	
OB-D2	3/19/08	9.95	8.64	1.31	0.00	
OB-D2	11/18/08	9.95	8.94	1.01	---	
OB-D2	4/1/09	9.95	7.00	2.95	0.00	
OB-D2	10/29/09	9.95	8.24	1.71	0.00	
OB-D2	4/8/10	9.95	5.38	4.57	0.00	
OB-D2	10/19/10	9.95	6.55	3.40	0.00	
OB-D2	9/12/11	9.95	5.59	4.36	0.00	
OB-D2	12/21/11	9.95	6.21	3.74	0.00	
OB-D2	3/28/12	9.95	4.9	5.05	0.00	
OB-D2	6/26/12	9.95	5.41	4.54	0.00	
OB-D2	7/13/13	9.95	6.36	3.59	0.00	
OB-D2	5/10/17	9.95	5.44	4.51	---	
RW-1	4/22/03	---	6.43	---	---	
RW-1	4/28/04	---	5.73	---	---	
RW-1	10/27/04	---	6.34	---	0.00	
RW-1	8/31/05	---	5.83	---	0.00	
RW-1	3/27/06	---	NM	---	---	
RW-1	9/6/06	---	INACC	---	---	
RW-1	4/4/07	---	NM	---	---	
RW-1	10/2/07	---	NM	---	---	
RW-1	3/19/08	---	NM	---	---	
RW-1	11/18/08	---	8.81	---	---	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
RW-1	4/1/09	---	NM	---	---	
RW-1	10/29/09	---	8.17	---	---	
RW-1	4/8/10	---	5.21	---	0.00	
RW-1	10/19/10	---	6.60	---	0.00	
RW-1	9/12/11	---	6.21	---	0.00	
RW-1	9/13/11	---	---	---	---	
RW-1	12/21/11	---	6.41	---	0.00	
RW-1	12/22/11	---	---	---	---	
RW-1	3/28/12	---	4.74	---	0.00	
RW-1	3/29/12	---	---	---	---	
RW-1	6/26/12	---	5.71	---	0.00	
RW-1	6/27/12	---	---	---	---	
RW-1	7/19/13	---	6.36	---	---	
RW-1	5/10/17	---	4.72	--	---	
RW-A1	4/22/03	---	1.81	---	---	
RW-A1	4/28/04	10.09	2.52	7.57	---	
RW-A1	10/27/04	10.09	3.03	7.06	0.00	
RW-A1	8/31/05	10.09	3.31	6.78	0.00	
RW-A1	3/27/06	10.09	0.62	9.47	0.00	
RW-A1	9/6/06	10.09	3.52	6.57	0.00	
RW-A1	4/3/07	10.09	2.93	7.16	---	
RW-A1	10/2/07	10.09	NM	---	---	
RW-A1	3/19/08	10.09	3.16	6.93	0.00	
RW-A1	11/20/08	10.09	4.49	5.60	---	
RW-A1	4/1/09	10.09	2.48	7.61	0.00	
RW-A1	10/29/09	10.09	3.49	6.60	---	
RW-A1	4/8/10	10.09	1.54	8.55	0.00	
RW-A1	10/19/10	10.19	4.22	5.97	0.00	
RW-A1	9/12/11	10.19	3.43	6.76	0.00	
RW-A1	12/21/11	10.19	3.02	7.17	0.00	
RW-A1	3/28/12	10.19	1.44	8.75	0.00	
RW-A1	6/26/12	10.19	3.01	7.18	0.00	
RW-A1	7/17/13	10.19	3.45	6.74	0.00	
RW-A1	5/10/17	10.19	2.42	7.77	---	
RW-A2	4/22/03	---	1.22	---	---	Sheen
RW-A2	4/28/04	9.67	2.01	7.66	---	
RW-A2	10/27/04	9.67	3.20	6.47	0.00	
RW-A2	8/31/05	9.67	2.75	6.92	0.00	
RW-A2	3/27/06	9.67	0.30	9.37	0.00	
RW-A2	9/6/06	9.67	3.19	6.49	0.01	
RW-A2	4/4/07	9.67	1.70	7.97	---	
RW-A2	10/2/07	9.67	3.81	5.86	0.00	
RW-A2	3/19/08	9.67	1.71	7.96	0.00	
RW-A2	11/20/08	9.67	3.96	5.71	---	
RW-A2	4/1/09	9.67	1.58	8.09	0.00	
RW-A2	10/29/09	9.67	2.89	6.78	---	
RW-A2	4/8/10	9.67	0.93	8.74	0.00	
RW-A2	10/19/10	9.67	3.72	5.95	0.00	
RW-A2	9/12/11	9.67	2.94	6.73	0.00	
RW-A2	12/21/11	9.67	2.24	7.43	0.00	
RW-A2	12/22/11	9.67	---	---	---	
RW-A2	3/28/12	9.67	0.53	9.14	0.00	
RW-A2	3/30/12	9.67	---	---	---	
RW-A2	6/26/12	9.67	2.4	7.27	0.00	
RW-A2	6/27/12	9.67	---	---	---	
RW-A2	7/19/13	9.67	3.18	6.49	0.00	
RW-A2	5/10/17	9.67	1.75	7.92	---	
RW-B1	4/22/03	---	7.26	---	---	Sheen

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
RW-B1	4/28/04	11.22	7.20	4.02	---	
RW-B1	10/27/04	11.22	7.80	3.42	0.00	
RW-B1	8/31/05	11.22	7.14	4.08	0.00	
RW-B1	3/27/06	11.22	6.10	5.12	0.00	
RW-B1	9/6/06	11.22	7.39	3.84	0.01	
RW-B1	4/4/07	11.22	7.06	4.16	---	
RW-B1	10/2/07	11.22	7.70	3.52	0.00	
RW-B1	3/19/08	11.22	7.06	4.16	0.00	
RW-B1	11/18/08	11.22	7.90	3.32	0.00	
RW-B1	4/1/09	11.22	7.15	4.07	0.00	
RW-B1	10/29/09	11.22	7.76	3.46	---	
RW-B1	4/8/10	11.22	6.78	4.44	0.00	
RW-B1	10/19/10	11.22	7.66	3.56	0.00	
RW-B1	9/12/11	11.22	7.45	3.77	0.00	
RW-B1	12/21/11	11.22	7.61	3.61	0.00	
RW-B1	12/22/11	11.22	---	---	---	
RW-B1	3/28/12	11.22	7.4	3.82	0.00	
RW-B1	3/29/12	11.22	---	---	---	
RW-B1	6/26/12	11.22	7.11	4.11	0.00	
RW-B1	7/19/13	11.22	7.49	3.73	---	
RW-B1	7/19/13	11.22	---	---	0.00	
RW-B1	5/10/17	11.22	6.63	4.59	---	
RW-B2	4/22/03	---	7.29	---	---	Sheen, odor
RW-B2	4/28/04	11.23	7.20	4.03	---	
RW-B2	10/27/04	11.23	7.81	3.42	0.00	
RW-B2	8/31/05	11.23	7.14	4.09	0.00	
RW-B2	3/27/06	11.23	6.09	5.14	0.00	
RW-B2	9/6/06	11.23	7.39	3.84	0.00	
RW-B2	4/4/07	11.23	9.84	1.39	---	
RW-B2	10/2/07	11.23	7.71	3.52	0.00	
RW-B2	3/19/08	11.23	7.07	4.16	---	Odor
RW-B2	11/20/08	11.23	7.92	3.31	---	
RW-B2	4/1/09	11.23	7.16	4.07	0.00	
RW-B2	10/29/09	11.23	7.78	3.45	---	
RW-B2	4/8/10	11.23	6.80	4.43	0.00	
RW-B2	10/19/10	11.23	7.67	3.56	0.00	
RW-B2	9/12/11	11.23	7.47	3.76	0.00	
RW-B2	12/21/11	11.23	7.63	3.60	0.00	
RW-B2	3/28/12	11.23	7.39	3.84	0.00	
RW-B2	6/26/12	11.23	7.14	4.09	0.00	
RW-B2	7/19/13	11.23	7.47	3.76	0.00	
RW-B2	5/10/17	11.23	6.65	4.58	---	
RW-B3	4/22/03	---	9.90	---	---	unk
RW-B3	4/28/04	11.14	13.20	0.41	3.09	
RW-B3	10/27/04	11.14	9.33	1.81	0.00	
RW-B3	8/31/05	11.14	9.60	1.55	0.01	
RW-B3	3/27/06	11.14	9.08	2.06	0.00	
RW-B3	9/6/06	11.14	9.61	1.53	0.00	
RW-B3	4/4/07	11.14	9.84	1.30	---	
RW-B3	10/2/07	11.14	9.56	1.58	0.00	
RW-B3	3/19/08	---	NM	---	---	
RW-B3	11/18/08	11.14	9.57	1.57	---	
RW-B3	4/1/09	11.14	9.80	1.34	---	
RW-B3	10/29/09	11.14	9.61	1.53	---	
RW-B3	4/8/10	11.14	9.61	1.53	0.00	
RW-B3	10/19/10	11.14	9.50	1.64	0.00	
RW-B3	9/12/11	11.14	9.40	1.74	0.00	
RW-B3	12/21/11	11.14	9.44	1.70	0.00	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
RW-B3	3/28/12	11.14	9.73	1.41	0.00	Odor
RW-B3	6/26/12	11.14	9.65	1.49	0.00	
RW-B3	7/19/13	11.14	9.8	1.34	---	Odor
RW-B3	5/10/17	11.14	NM	---	---	
RW-B4	4/22/03	---	10.55	---	0.55	
RW-B4	4/28/04	11.29	10.22	1.07	0.00	
RW-B4	10/27/04	11.29	9.55	1.74	0.00	
RW-B4	8/31/05	11.29	9.70	1.59	0.00	
RW-B4	3/27/06	11.29	9.23	2.06	0.00	
RW-B4	9/6/06	11.29	9.69	1.60	0.00	
RW-B4	4/4/07	11.29	10.04	1.25	---	
RW-B4	10/2/07	11.29	9.72	1.57	0.00	
RW-B4	3/19/08	11.29	9.87	1.42	0.00	Odor
RW-B4	11/20/08	11.29	9.75	1.54	---	
RW-B4	4/1/09	11.29	9.87	1.42	0.00	
RW-B4	10/29/09	11.29	9.85	1.44	---	
RW-B4	4/8/10	11.29	9.72	1.57	0.00	
RW-B4	10/19/10	11.29	9.80	1.49	0.00	
RW-B4	9/12/11	11.29	9.62	1.67	0.00	
RW-B4	12/21/11	11.29	9.58	1.71	0.00	
RW-B4	12/22/11	11.29	---	---	---	
RW-B4	12/22/11	11.29	---	---	---	
RW-B4	3/28/12	11.29	9.8	1.49	0.00	Odor
RW-B4	3/29/12	11.29	---	---	---	
RW-B4	6/26/12	11.29	9.75	1.54	0.00	
RW-B4	7/19/13	11.29	9.91	1.38	---	Odor
RW-B4	5/10/17	11.29	9.78	1.51	---	
RW-C1	4/24/03	---	8.34	---	---	
RW-C1	4/28/04	10.44	8.00	2.44	---	
RW-C1	10/27/04	10.44	7.59	2.85	0.00	
RW-C1	8/31/05	10.44	5.81	4.63	0.00	
RW-C1	3/27/06	10.44	1.94	8.50	0.00	
RW-C1	9/6/06	10.44	6.71	3.74	0.01	
RW-C1	4/5/07	10.44	6.66	3.78	---	
RW-C1	10/2/07	10.44	8.48	1.97	0.01	
RW-C1	3/19/08	10.44	8.56	1.88	0.00	
RW-C1	11/20/08	10.44	8.29	2.15	---	
RW-C1	4/1/09	10.44	8.16	2.28	0.00	
RW-C1	10/29/09	10.44	8.64	1.80	---	
RW-C1	4/8/10	10.44	5.62	4.82	0.00	
RW-C1	10/19/10	10.44	5.57	4.87	0.00	
RW-C1	9/13/11	10.44	5.89	4.55	0.00	
RW-C1	12/21/11	10.44	5.87	4.57	0.00	
RW-C1	3/28/12	10.44	5.41	5.03	0.00	
RW-C1	6/26/12	10.44	5.35	5.09	0.00	
RW-C1	7/17/13	10.44	5.79	4.65	0.00	
RW-C1	5/10/17	10.44	4.78	5.66	---	
RW-C2	4/24/03	---	6.22	---	0.03	
RW-C2	4/28/04	10.58	6.19	4.44	0.06	
RW-C2	10/27/04	10.58	7.00	3.58	---	unk
RW-C2	8/31/05	10.58	6.30	4.29	0.01	
RW-C2	3/27/06	10.58	5.10	5.48	0.00	
RW-C2	9/6/06	10.58	8.19	2.49	0.12	
RW-C2	4/4/07	10.58	8.28	2.30	---	
RW-C2	10/2/07	10.58	9.75	0.84	0.02	
RW-C2	10/3/07	10.58	9.39	1.19	0.00	
RW-C2	11/18/08	10.58	9.38	1.20	---	
RW-C2	4/1/09	10.58	7.64	2.94	---	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
RW-C2	10/29/09	10.58	8.90	1.68	---	
RW-C2	4/8/10	10.58	5.86	4.72	0.00	
RW-C2	10/19/10	10.58	6.59	3.99	0.00	
RW-C2	9/12/11	10.58	6.07	4.51	0.00	
RW-C2	12/21/11	10.58	6.46	4.12	0.00	
RW-C2	3/28/12	10.58	5.48	5.10	0.00	
RW-C2	6/26/12	10.58	5.67	4.91	0.00	
RW-C2	7/17/13	10.58	6.17	4.41	0.00	
RW-C2	5/10/17	10.58	4.80	5.78	---	
RW-C3	4/24/03	---	6.36	---	---	
RW-C3	4/28/04	10.71	6.25	4.46	---	
RW-C3	10/27/04	10.71	7.10	3.61	0.00	
RW-C3	8/31/05	10.71	6.39	4.32	0.00	
RW-C3	3/27/06	10.71	5.30	5.41	0.00	
RW-C3	9/6/06	10.71	8.10	2.62	0.01	
RW-C3	4/5/07	10.71	7.97	2.74	0.00	
RW-C3	10/2/07	10.71	8.59	2.13	0.01	
RW-C3	3/19/08	10.71	8.38	2.33	0.00	
RW-C3	11/20/08	10.71	8.61	2.10	---	
RW-C3	4/1/09	10.71	6.98	3.73	0.00	
RW-C3	10/29/09	10.71	8.56	2.15	---	
RW-C3	4/8/10	10.71	5.93	4.78	0.00	
RW-C3	10/19/10	10.71	6.82	3.89	0.00	
RW-C3	9/12/11	10.71	6.32	4.39	0.00	
RW-C3	12/21/11	10.71	6.74	3.97	0.00	
RW-C3	3/28/12	10.71	6.13	4.58	0.00	
RW-C3	6/26/12	10.71	6	4.71	0.00	
RW-C3	7/17/13	10.71	6.4	4.31	0.00	
RW-C3	5/10/17	10.71	5.17	5.54	---	
RW-C4	4/22/03	---	7.15	---	---	Odor
RW-C4	4/28/04	11.32	6.95	4.38	0.01	
RW-C4	10/27/04	11.32	7.45	3.87	0.00	
RW-C4	8/31/05	11.32	6.71	4.61	0.00	
RW-C4	3/27/06	11.32	6.47	4.85	0.00	
RW-C4	9/6/06	11.32	8.16	3.17	0.01	
RW-C4	4/4/07	11.32	8.50	2.82	---	
RW-C4	10/2/07	11.32	8.62	2.70	0.00	
RW-C4	3/19/08	11.32	9.13	2.19	0.00	
RW-C4	11/18/08	11.32	8.99	2.33	---	
RW-C4	4/1/09	11.32	8.52	2.80	---	
RW-C4	10/29/09	11.32	8.53	2.79	---	
RW-C4	4/8/10	11.32	INACC	---	---	
RW-C4	4/29/10	11.32	6.07	5.25	0.00	
RW-C4	10/19/10	11.32	6.84	4.48	0.00	
RW-C4	9/13/11	11.32	6.26	5.06	0.00	
RW-C4	12/22/11	11.32	7.06	4.26	0.00	
RW-C4	3/28/12	11.32	6.53	4.79	0.00	
RW-C4	6/26/12	11.32	5.87	5.45	0.00	
RW-C4	7/13/13	11.32	6.35	4.97	0.00	
RW-C4	5/10/17	11.32	NM	---	---	
RW-C5	4/22/03	---	6.46	---	---	
RW-C5	4/28/04	10.79	6.39	4.40	---	
RW-C5	10/27/04	10.79	7.21	3.58	---	unk
RW-C5	8/31/05	10.79	6.51	4.28	0.00	
RW-C5	3/27/06	10.79	5.33	5.46	0.00	
RW-C5	9/6/06	10.79	8.03	2.77	0.01	
RW-C5	4/4/07	10.79	8.27	2.52	---	
RW-C5	10/2/07	10.79	8.95	1.84	0.00	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
RW-C5	3/19/08	10.79	8.82	1.98	0.01	
RW-C5	11/20/08	10.79	8.92	1.87	0.00	
RW-C5	11/20/08	---	---	---	---	Odor
RW-C5	4/1/09	10.79	7.88	2.91	0.00	
RW-C5	10/29/09	---	INACC	---	---	
RW-C5	4/8/10	10.79	INACC	---	---	
RW-C5	4/29/10	10.79	5.59	5.20	0.00	
RW-C5	10/19/10	10.79	6.54	4.25	0.00	Odor
RW-C5	9/13/11	10.79	6.04	4.75	0.00	Odor
RW-C5	12/22/11	10.79	6.51	4.28	0.00	
RW-C5	3/28/12	10.79	5.47	5.32	0.00	
RW-C5	6/26/12	10.79	5.61	5.18	0.00	
RW-C5	7/17/13	10.79	6.16	4.63	---	Odor
RW-C5	5/10/17	10.79	NM	---	---	
RW-C6	4/22/03	---	6.05	---	0.07	
RW-C6	4/28/04	10.31	6.30	4.05	0.05	
RW-C6	10/27/04	10.31	6.85	3.58	0.15	
RW-C6	8/31/05	10.31	6.81	4.24	0.93	
RW-C6	3/27/06	10.31	5.66	5.42	0.96	
RW-C6	9/6/06	10.31	7.96	2.49	0.18	
RW-C6	4/4/07	10.31	NM	---	---	
RW-C6	10/2/07	10.31	8.45	1.86	---	unk
RW-C6	3/19/08	10.31	8.32	1.99	0.00	
RW-C6	11/18/08	10.31	8.42	1.89	---	Odor
RW-C6	4/1/09	10.31	7.36	2.95	0.00	
RW-C6	10/29/09	---	INACC	---	---	
RW-C6	4/8/10	10.31	INACC	---	---	
RW-C6	4/29/10	10.31	5.43	4.88	0.00	
RW-C6	10/19/10	10.31	6.40	3.91	0.00	
RW-C6	9/13/11	10.31	5.89	4.42	0.00	Odor
RW-C6	12/22/11	10.31	6.36	3.95	0.00	
RW-C6	3/28/12	10.31	5.36	4.95	0.00	
RW-C6	6/26/12	10.31	5.5	4.81	0.00	
RW-C6	7/31/12	10.31	5.76	4.55	0.00	
RW-C6	7/17/13	10.31	6	4.31	---	Odor
RW-C6	5/10/17	10.31	NM	---	---	
RW-C7	4/22/03	---	6.51	---	---	unk
RW-C7	4/28/04	10.12	6.60	3.54	0.02	
RW-C7	10/27/04	10.12	NM	---	---	
RW-C7	8/31/05	10.12	NM	---	---	
RW-C7	3/27/06	10.12	NM	---	---	
RW-C7	9/6/06	10.12	8.34	1.79	0.01	
RW-C7	4/4/07	10.12	NM	---	---	
RW-C7	10/2/07	10.12	9.01	1.11	0.00	
RW-C7	3/19/08	10.12	8.85	1.27	0.00	
RW-C7	11/18/08	10.12	8.97	1.15	---	
RW-C7	4/1/09	10.12	7.89	2.24	0.01	
RW-C7	10/29/09	---	9.23	---	---	
RW-C7	4/8/10	10.12	INACC	---	---	
RW-C7	4/29/10	10.12	5.71	4.41	0.00	
RW-C7	10/19/10	10.12	6.68	3.44	0.00	
RW-C7	9/13/11	10.12	6.16	3.96	0.00	
RW-C7	12/22/11	10.12	6.62	3.50	0.00	
RW-C7	3/28/12	10.12	5.61	4.51	0.00	
RW-C7	6/26/12	10.12	5.75	4.37	0.00	
RW-C7	7/17/13	10.12	6.29	3.83	0.00	
RW-C7	5/10/17	10.12	NM	---	---	
RW-D1	4/22/03	---	6.97	---	---	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
RW-D1	4/28/04	10.18	5.62	#VALUE!	---	
RW-D1	10/27/04	10.18	6.67	#VALUE!	---	unk
RW-D1	8/31/05	10.18	5.75	4.45	0.02	
RW-D1	3/27/06	10.18	NM	---	---	
RW-D1	9/6/06	10.18	INACC	---	---	
RW-D1	4/4/07	10.18	NM	---	---	
RW-D1	10/2/07	10.18	NM	---	---	
RW-D1	3/19/08	---	NM	---	---	
RW-D1	11/19/08	10.18	11.29	-1.11	---	
RW-D1	4/1/09	---	NM	---	---	
RW-D1	10/29/09	---	NM	---	0.00	
RW-D1	4/8/10	10.18	7.70	2.48	0.00	
RW-D1	10/19/10	10.18	6.85	3.33	0.00	
RW-D1	9/12/11	10.18	6.53	3.65	0.00	
RW-D1	12/21/11	10.18	6.92	3.26	0.00	
RW-D1	3/28/12	10.18	6.3	3.88	0.00	
RW-D1	6/26/12	10.18	5.86	4.32	0.00	
RW-D1	7/17/13	10.18	6.64	3.54	0.00	
RW-D1	5/10/17	10.18	4.70	5.48	---	
RW-D10	11/18/08	---	8.84	---	---	
RW-D10	4/1/09	---	NM	---	---	
RW-D10	10/29/09	---	NM	---	0.00	
RW-D10	4/8/10	---	4.87	---	0.00	
RW-D10	10/19/10	---	6.22	---	0.00	
RW-D10	9/12/11	---	5.82	---	0.00	Odor
RW-D10	12/21/11	---	5.99	---	0.00	
RW-D10	3/28/12	---	4.48	---	0.00	
RW-D10	6/26/12	---	5.35	---	0.00	
RW-D10	7/17/13	---	6	---	---	
RW-D10	5/10/17	---	4.33	--	---	
RW-D11	11/18/08	---	8.66	---	---	
RW-D11	4/1/09	---	NM	---	---	
RW-D11	10/29/09	---	NM	---	0.00	
RW-D11	4/8/10	---	4.71	---	---	unk
RW-D11	10/19/10	---	6.04	---	0.00	
RW-D11	9/12/11	---	5.68	---	0.00	
RW-D11	12/21/11	---	5.84	---	0.00	
RW-D11	3/28/12	---	4.32	---	0.00	
RW-D11	6/26/12	---	NM	---	0.00	
RW-D11	7/17/13	---	5.85	---	0.00	
RW-D11	5/10/17	---	4.18	--	---	
RW-D2	4/22/03	---	7.15	---	1.25	
RW-D2	4/28/04	10.33	7.45	2.96	0.10	
RW-D2	10/27/04	10.33	6.41	3.92	---	unk
RW-D2	8/31/05	10.33	8.44	4.39	3.12	
RW-D2	3/27/06	10.33	NM	---	---	
RW-D2	9/6/06	10.33	INACC	---	---	
RW-D2	4/4/07	10.33	NM	---	---	
RW-D2	10/2/07	10.33	NM	---	---	
RW-D2	3/19/08	---	NM	---	---	
RW-D2	11/18/08	10.33	10.95	-0.62	---	
RW-D2	4/1/09	---	NM	---	---	
RW-D2	10/29/09	---	NM	---	0.00	
RW-D2	4/8/10	10.33	7.21	3.12	0.00	
RW-D2	10/19/10	10.33	6.35	3.98	0.00	
RW-D2	9/12/11	10.33	6.02	4.31	0.00	
RW-D2	12/21/11	10.33	6.42	3.91	0.00	
RW-D2	3/28/12	10.33	5.79	4.54	0.00	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
RW-D2	6/26/12	10.33	5.36	4.97	0.00	
RW-D2	7/17/13	10.33	6.15	4.18	0.00	
RW-D2	5/10/17	10.33	4.20	6.13	---	
RW-D3	4/22/03	---	6.89	---	1.58	
RW-D3	4/28/04	10.07	8.18	4.49	3.25	
RW-D3	10/27/04	10.07	6.37	3.70	---	unk
RW-D3	8/31/05	10.07	7.72	4.32	2.46	
RW-D3	3/27/06	10.07	NM	---	---	
RW-D3	9/6/06	10.07	INACC	---	---	
RW-D3	4/4/07	10.07	NM	---	---	
RW-D3	10/2/07	10.07	NM	---	---	
RW-D3	3/19/08	---	NM	---	---	
RW-D3	11/18/08	10.07	10.10	-0.03	---	
RW-D3	4/1/09	---	NM	---	---	
RW-D3	10/29/09	---	NM	---	0.00	
RW-D3	4/8/10	10.07	7.43	2.64	0.00	
RW-D3	10/19/10	10.07	6.97	3.10	0.00	
RW-D3	9/13/11	10.07	6.64	3.43	0.00	
RW-D3	12/21/11	10.07	7.04	3.03	0.00	
RW-D3	3/28/12	10.07	6.32	3.75	0.00	
RW-D3	6/26/12	10.07	5.91	4.16	0.00	
RW-D3	7/17/13	10.07	6.67	3.40	0.00	
RW-D3	5/10/17	10.07	4.65	5.42	---	
RW-D4	4/22/03	---	8.11	---	1.98	
RW-D4	4/28/04	10.22	7.99	3.90	2.09	
RW-D4	10/27/04	10.22	6.49	3.73	---	unk
RW-D4	8/31/05	10.22	8.09	3.83	2.1	
RW-D4	3/27/06	10.22	NM	---	---	
RW-D4	9/6/06	10.22	INACC	---	---	
RW-D4	4/4/07	10.22	NM	---	---	
RW-D4	10/2/07	10.22	NM	---	---	
RW-D4	3/19/08	---	NM	---	---	
RW-D4	11/19/08	10.22	9.10	1.12	---	
RW-D4	4/1/09	---	NM	---	---	
RW-D4	10/29/09	---	NM	---	0.00	
RW-D4	4/8/10	10.22	5.00	5.22	0.00	
RW-D4	10/19/10	10.22	6.37	3.85	0.00	
RW-D4	9/12/11	10.22	5.92	4.30	0.00	
RW-D4	12/21/11	10.22	6.14	4.08	0.00	
RW-D4	3/28/12	10.22	4.64	5.58	0.00	
RW-D4	6/26/12	10.22	5.46	4.76	0.00	
RW-D4	7/17/13	10.22	6.12	4.10	---	Odor
RW-D4	5/10/17	10.22	4.53	5.69	---	
RW-D5	4/22/03	---	6.04	---	0.07	
RW-D5	4/28/04	9.99	5.96	4.03	0.00	
RW-D5	10/27/04	9.99	6.48	3.51	---	unk
RW-D5	8/31/05	9.99	7.02	3.78	1.01	
RW-D5	3/27/06	9.99	NM	---	---	
RW-D5	9/6/06	9.99	INACC	---	---	
RW-D5	4/4/07	9.99	NM	---	---	
RW-D5	10/2/07	9.99	NM	---	---	
RW-D5	3/19/08	---	NM	---	---	
RW-D5	11/18/08	9.99	9.45	0.54	---	
RW-D5	4/1/09	---	NM	---	---	
RW-D5	10/29/09	---	NM	---	0.00	
RW-D5	4/8/10	9.99	4.97	5.02	0.00	
RW-D5	10/19/10	9.99	6.30	3.69	---	
RW-D5	9/12/11	9.99	5.89	4.10	0.00	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
RW-D5	9/13/11	9.99	---	---	---	
RW-D5	9/13/11	9.99	---	---	---	
RW-D5	12/21/11	9.99	6.10	3.89	0.00	
RW-D5	12/22/11	9.99	---	---	---	
RW-D5	3/28/12	9.99	4.57	5.42	0.00	
RW-D5	3/29/12	9.99	---	---	---	
RW-D5	3/29/12	9.99	---	---	---	
RW-D5	6/26/12	9.99	5.41	4.58	0.00	
RW-D5	6/27/12	9.99	---	---	---	
RW-D5	7/18/13	9.99	6.08	3.91	0.00	
RW-D5	5/10/17	9.99	4.41	5.58	---	
RW-D6	11/18/08	---	11.10	---	---	
RW-D6	4/1/09	---	NM	---	---	
RW-D6	10/29/09	---	NM	---	0.00	
RW-D6	4/8/10	---	7.10	---	0.00	Odor
RW-D6	10/19/10	---	6.45	---	0.00	Odor
RW-D6	9/12/11	---	6.11	---	0.00	
RW-D6	9/13/11	---	---	---	---	
RW-D6	12/21/11	---	6.50	---	0.00	
RW-D6	3/28/12	---	5.88	---	0.00	
RW-D6	6/26/12	---	5.44	---	0.00	
RW-D6	7/18/13	---	6.23	---	---	Odor
RW-D6	7/18/13	---	---	---	---	Odor
RW-D6	5/10/17	---	4.30	--	---	
RW-D7	11/19/08	---	9.62	---	---	
RW-D7	4/1/09	---	NM	---	---	
RW-D7	10/29/09	---	NM	---	0.00	
RW-D7	4/8/10	---	5.55	---	0.00	
RW-D7	10/19/10	---	6.45	---	0.00	
RW-D7	9/12/11	---	5.99	---	0.00	
RW-D7	12/21/11	---	6.61	---	0.00	
RW-D7	3/28/12	---	3.53	---	0.00	
RW-D7	6/26/12	---	5.62	---	0.00	
RW-D7	7/17/13	---	6.22	---	---	Odor
RW-D7	5/10/17	---	4.30	--	---	
RW-D8	11/18/08	---	8.48	---	---	
RW-D8	4/1/09	---	NM	---	---	
RW-D8	10/29/09	---	NM	---	0.00	
RW-D8	4/8/10	---	4.27	---	0.00	
RW-D8	10/19/10	---	5.19	---	0.00	
RW-D8	9/12/11	---	4.59	---	0.00	
RW-D8	9/13/11	---	---	---	---	
RW-D8	12/21/11	---	5.04	---	0.00	
RW-D8	3/28/12	---	3.15	---	0.00	
RW-D8	6/26/12	---	4.11	---	0.00	
RW-D8	7/19/13	---	4.99	---	---	Odor
RW-D8	5/10/17	---	3.30	--	---	
RW-D9	11/18/08	---	9.70	---	---	
RW-D9	4/1/09	---	NM	---	---	
RW-D9	10/29/09	---	NM	---	0.00	
RW-D9	4/8/10	---	6.92	---	0.00	
RW-D9	10/19/10	---	6.34	---	0.00	
RW-D9	9/12/11	---	5.79	---	0.00	Odor
RW-D9	9/14/11	---	---	---	---	
RW-D9	12/21/11	---	6.75	---	0.00	
RW-D9	12/22/11	---	---	---	---	
RW-D9	3/28/12	---	6.26	---	0.00	
RW-D9	3/29/12	---	---	---	---	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
RW-D9	6/26/12	---	5.15	---	0.00	
RW-D9	6/27/12	---	---	---	---	
RW-D9	7/18/13	---	5.94	---	---	Odor
RW-D9	5/10/17	---	3.63	--	---	
TBW-1	2/23/99	---	6.25	---	0.10	
TBW-1	5/27/99	---	5.29	---	0.01	
TBW-1	8/24/99	---	6.99	---	0.18	
TBW-1	11/22/99	---	INACC	---	---	
TBW-1	1/18/00	---	INACC	---	---	
TBW-1	5/11/00	---	6.90	---	0.10	
TBW-1	8/24/00	---	7.12	---	---	
TBW-1	11/28/00	---	7.75	---	0.36	
TBW-1	2/27/01	---	9.06	---	0.51	
TBW-1	5/17/01	---	6.98	---	0.28	
TBW-1	8/16/01	---	6.62	---	0.66	
TBW-1	12/15/01	---	6.86	---	0.35	
TBW-1	4/3/02	---	6.14	---	0.00	
TBW-1	9/12/02	---	7.52	---	0.00	
TBW-1	4/22/03	---	6.41	---	0.00	
TBW-1	4/28/04	---	6.33	---	0.00	
TBW-1	10/28/04	---	NM	---	---	
TBW-1	8/31/05	---	6.50	---	---	
TBW-1	3/27/06	---	5.20	---	0.00	
TBW-1	9/6/06	---	NM	---	---	
TBW-1	4/4/07	---	8.26	---	---	
TBW-1	10/2/07	---	NM	---	---	
TBW-1	*Abandoned*					
TBW-2	6/21/02	---	8.28	---	---	
TBW-2	4/22/03	---	6.70	---	---	unk
TBW-2	4/28/04	---	6.61	---	0.00	
TBW-2	10/28/04	---	7.31	---	0.00	
TBW-2	8/31/05	---	NM	---	---	
TBW-2	3/27/06	---	NM	---	---	
TBW-2	9/6/06	---	NM	---	---	
TBW-2	4/4/07	---	NM	---	---	
TBW-2	10/2/07	---	NM	---	---	
TBW-2	*Abandoned*					
TBW-3	2/23/98	---	1.25	---	---	
TBW-3	8/19/98	---	2.67	---	---	
TBW-3	8/19/98	---	2.67	---	---	
TBW-3	5/27/99	---	NM	---	---	
TBW-3	8/24/99	---	3.25	---	---	unk
TBW-3	11/22/99	---	3.68	---	---	
TBW-3	1/18/00	9.92	3.73	6.19	---	unk
TBW-3	5/11/00	9.92	2.07	7.85	---	
TBW-3	8/24/00	9.92	2.82	7.10	---	Sheen
TBW-3	11/28/00	9.92	---	---	---	
TBW-3	2/27/01	9.92	1.29	8.63	---	
TBW-3	5/17/01	9.92	2.47	7.45	---	
TBW-3	8/16/01	9.92	1.81	8.11	---	
TBW-3	12/15/01	9.92	2.52	7.40	0.00	
TBW-3	4/3/02	9.92	1.50	8.42	0.00	
TBW-3	6/21/02	9.92	2.37	7.55	0.00	
TBW-3	9/12/02	9.92	3.48	6.44	0.00	
TBW-3	4/22/03	9.92	1.45	8.47	---	Sheen
TBW-3	4/28/04	9.92	2.26	7.66	0.00	
TBW-3	10/28/04	9.92	3.42	6.50	---	Sheen
TBW-3	8/31/05	9.92	2.99	6.93	0.00	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
TBW-3	3/27/06	9.92	0.49	9.43	0.00	
TBW-3	9/6/06	9.92	3.42	6.51	0.01	
TBW-3	4/4/07	9.92	1.93	7.99	---	
TBW-3	10/2/07	---	NM	---	---	
TBW-3	*Abandoned*					
TBW-4	2/27/01	---	1.35	---	---	
TBW-4	5/17/01	---	2.52	---	---	
TBW-4	8/16/01	---	1.88	---	---	
TBW-4	6/21/02	---	2.32	---	---	
TBW-4	4/22/03	---	1.41	---	---	Sheen
TBW-4	4/28/04	---	2.21	---	---	
TBW-4	10/27/04	---	3.37	---	---	Sheen
TBW-4	8/31/05	---	2.92	---	---	
TBW-4	3/27/06	---	0.49	---	0.00	
TBW-4	9/6/06	---	3.37	---	0.01	
TBW-4	4/4/07	---	1.88	---	---	
TBW-4	10/2/07	---	NM	---	---	
TBW-4	*Abandoned*					
TBW-5	2/23/99	---	9.72	---	1.45	
TBW-5	5/27/99	---	7.03	---	1.13	
TBW-5	8/24/99	---	6.52	---	1.33	
TBW-5	11/22/99	---	8.31	---	1.29	
TBW-5	1/18/00	10.22	6.20	4.74	0.90	
TBW-5	5/11/00	10.22	9.41	1.05	0.30	
TBW-5	8/24/00	10.22	9.62	0.81	0.26	
TBW-5	11/28/00	10.22	10.25	0.34	0.46	
TBW-5	2/27/01	10.22	9.06	1.45	0.36	
TBW-5	5/17/01	10.22	8.75	2.01	0.67	
TBW-5	8/16/01	10.22	8.32	2.51	0.76	
TBW-5	9/12/01	10.22	7.26	2.97	0.01	
TBW-5	12/15/01	10.22	9.09	1.42	0.36	
TBW-5	4/3/02	---	---	---	---	
TBW-5	6/21/02	10.22	7.87	2.37	0.03	
TBW-5	4/22/03	10.22	6.22	4.05	0.06	
TBW-5	4/28/04	10.22	6.26	4.13	0.21	
TBW-5	10/27/04	10.22	3.62	6.60	0.00	
TBW-5	8/31/05	10.22	6.41	4.05	0.30	
TBW-5	3/27/06	10.22	NM	---	---	
TBW-5	9/6/06	10.22	NM	---	---	
TBW-5	4/4/07	10.22	NM	---	---	
TBW-5	10/2/07	---	NM	---	---	unk
TBW-5	3/19/08	---	NM	---	0.00	
TBW-5	11/18/08	10.22	9.32	0.90	---	
TBW-5	4/1/09	---	INACC	---	---	
TBW-5	10/29/09	10.22	8.50	1.72	---	
TBW-5	4/8/10	10.22	5.54	4.68	0.00	
TBW-5	10/19/10	10.22	6.91	3.31	0.00	
TBW-5	9/12/11	10.22	6.55	3.67	0.00	
TBW-5	12/21/11	10.22	6.75	3.47	0.00	
TBW-5	3/28/12	10.22	5.21	5.01	0.00	
TBW-5	6/26/12	10.22	6.07	4.15	0.00	
TBW-5	7/17/13	10.22	6.68	3.54	---	Odor
TBW-5	5/10/17	10.22	5.08	5.14	---	
TBW-6	2/23/99	---	2.09	---	---	
TBW-6	5/27/99	---	3.31	---	---	
TBW-6	8/24/99	---	7.29	---	---	
TBW-6	11/22/99	---	4.37	---	---	
TBW-6	1/18/00	9.49	3.83	5.66	---	

Table 1
Groundwater Elevation Data
Oakland Municipal Service Center
7101 Edgewater Drive, Oakland California

Well ID	Date	TOC Elevation (feet)	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)	SPH Thickness (feet)	Notes
TBW-6	1/19/00	9.49	---	---	---	
TBW-6	5/11/00	9.49	2.51	6.98	---	
TBW-6	8/24/00	9.49	4.34	5.15	---	
TBW-6	8/25/00	9.49	---	---	---	
TBW-6	11/28/00	9.49	4.74	4.75	---	
TBW-6	2/27/01	9.49	2.30	7.19	---	
TBW-6	5/17/01	9.49	3.35	6.14	---	
TBW-6	8/16/01	9.49	3.85	5.64	---	
TBW-6	12/15/01	9.49	3.96	5.53	---	
TBW-6	4/3/02	9.49	2.51	6.98	---	
TBW-6	6/21/02	9.49	3.58	5.91	---	
TBW-6	9/12/02	9.49	6.07	4.56	1.42	
TBW-6	4/23/03	9.49	2.42	7.07	---	
TBW-6	4/28/04	9.49	3.21	6.28	---	
TBW-6	10/27/04	9.49	4.49	5.00	0.00	
TBW-6	8/31/05	9.49	4.43	5.48	0.52	
TBW-6	3/27/06	9.49	1.90	7.59	0.00	
TBW-6	9/6/06	9.49	4.33	5.17	0.01	
TBW-6	4/4/07	9.49	3.08	6.41	---	
TBW-6	10/2/07	9.49	4.98	4.51	0.00	
TBW-6	3/19/08	9.49	3.16	6.33	0.00	
TBW-6	11/18/08	9.49	5.32	4.17	0.00	
TBW-6	4/1/09	9.49	2.87	6.62	---	Sheen
TBW-6	10/29/09	---	INACC	---	---	
TBW-6	4/8/10	9.49	1.87	7.62	0.00	
TBW-6	10/19/10	9.49	4.79	4.70	0.00	
TBW-6	9/12/11	9.49	4.17	5.32	0.00	
TBW-6	12/21/11	9.49	3.81	5.68	0.00	
TBW-6	3/28/12	9.49	1.45	8.04	0.00	
TBW-6	6/26/12	9.49	3.54	5.95	0.00	
TBW-6	7/17/13	9.49	4.16	5.33	0.00	
TBW-6	5/10/17	9.49	2.51	6.98	---	

Notes:

Groundwater elevations corrected for the presence of free product when possible, according to the calculation: GW Elevation = TOC - DTW + (0.8 x SPH thickness)
--- = Not measured/analyzed
amsl = above mean sea level
BTOC = Below top of casing
DTW = Depth to water
ID = Identification
INACC = Inacessible
NM = Not measured
SPH = Separate-phase hydrocarbons; measured thickness
TBW = Tank backfill well
TOC = Top of casing
unk = SPH noted as present but thickness not recorded

Table 2
Chemical Concentrations in Groundwater
First Semester 2017 Semiannual Groundwater Monitoring
Oakland Municipal Services Center
7101 Edgewater Drive,
Oakland, California

Location		GW Saltwater	VI Shallow	MW-01	MW-02	MW-05	MW-06	MW-07	MW-08	MW-09	MW-10	MW-11		MW-13	MW-14	MW-15
Sample Date		Ecotox ESL	GW Com/Ind	5/10/2017	5/10/2017	5/10/2017	5/11/2017	5/11/2017	5/10/2017	5/10/2017	5/10/2017	5/10/2017	5/10/2017	5/10/2017	5/10/2017	5/10/2017
Field ID			ESL	MW-1	MW-2	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-11-D	MW-13	MW-14	MW-15
Other Parameters																
TOC	mg/L	n/a	n/a	**47**	**10**	**4.7**	**22**	**4.5**	**3.9**	**31**	**8.4**	**7.6**	**11**	**4.8**	**23**	**27**
TPH																
TPH as Diesel	µg/L	640	n/a	**170Y**	<50	**530Y**	**1000Y**	<50	<49	<50	<50	<50	<50	**94Y**	<50	**100Y**
TPH as Gasoline	µg/L	3700	n/a	**990**	<50	**2300**	**780**	<50	<50	**110**	<50	**230**	**240**	<50	**92**	**78**
TPH as Motor Oil	µg/L			<380	<300	<300	<310	<300	<290	<300	<300	<300	<300	**710**	<300	**450**
TPH as Kerosene	ug/L			**160Y**	<50	**640Y**	**930**	<50	<49	<50	<50	<50	<50	<50	<50	<50
VOCs																
Benzene	µg/L	350	9.7	**3.5**	**1.2**	**1.1**	**37**	<0.50	<0.50	**9**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	µg/L	43	110	<0.50	<0.50	**29**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Tertiary Butyl Ether	µg/L	8000	11000	<0.50	<0.50	**3.1**	**4.3**	**0.85**	<0.50	<0.50	<0.50	**9.3**	**9**	<0.50	<0.50	<0.50
Toluene	µg/L	2500	30000	**1.2**	<0.50	**1.2**	**3.9**	<0.50	<0.50	**0.7**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Xylene (m & p)	µg/L	n/a	n/a	**1.5**	<0.50	**4.6**	**3.8**	<0.50	<0.50	**1.2**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Xylene (o)	µg/L	n/a	n/a	<0.50	<0.50	**1.1**	**0.84**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

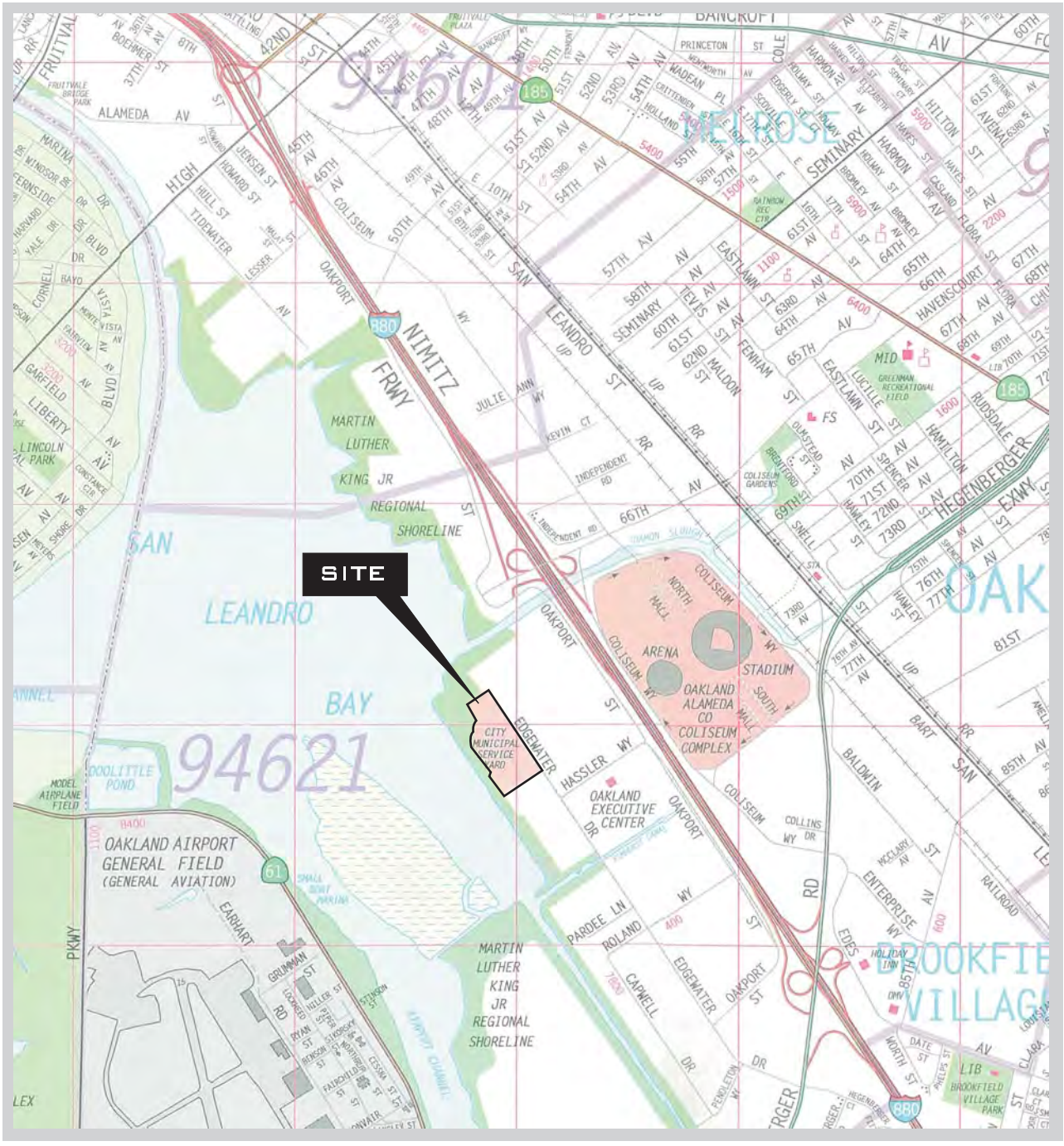
Notes:
Detected concentrations are **bold-faced**
Shaded Concentrations exceed the SFRWQCB ESL for Commercial-Industrial Shallow Groundwater Vapor Intrusion risk
Red font detections exceed the SFRWQCB Saltwater Ecotox ESL
µg/L = micrograms per liter
mg/L = miligrams per liter
- = Not analyzed
< = analyte not detected above laboratory reporting limit
B=Analyte was present in an associated method blank
J = estimated below laboratory reporting limit
Y= Sample exhibits chromatographic pattern which does not resemble standard
ESL = Environmental Screening Level, San Francisco Regional Water Quality Control Board, Rev 3, May 2016
TPH = Total Petroleum Hydrcarbons
TOC = Total Organic Carbon
VOCs = Volatile Organic Compounds

Table 2
Chemical Concentrations in Groundwater
First Semester 2017 Semiannual Groundwater Monitoring
Oakland Municipal Services Center
7101 Edgewater Drive,
Oakland, California

Location		GW Saltwater	VI Shallow	MW-16	MW-17	MW-18	RW-01	RW-A2		RW-B1	RW-B4	RW-D3	RW-D5	RW-D6	RW-D8	RW-D9
Sample Date		Ecotox ESL	GW Com/Ind	5/10/2017	5/10/2017	5/10/2017	5/11/2017	5/11/2017		5/11/2017	5/11/2017	5/11/2017	5/11/2017	5/11/2017	5/11/2017	5/11/2017
Field ID			ESL	MW-16	MW-17	MW-18	RW-1	RW-A2	RW-A2-D	RW-B1	RW-B4	RW-D3	RW-D5	RW-D6	RW-D8	RW-D9
Other Parameters																
TOC	mg/L	n/a	n/a	**15**	**7.8**	**18**	**6**	**6.2**	**6.4**	**24**	**38**	**27**	**16**	**9.3**	**9.7**	**13**
TPH																
TPH as Diesel	µg/L	640	n/a	**1200Y**	<50	<50	<56	**440Y**	**280Y**	**220Y**	**2800Y**	**290Y**	**1100Y**	**450Y**	**220Y**	**410Y**
TPH as Gasoline	µg/L	3700	n/a	<50	**71**	<50	<50	<50	<50	**1200**	**7600**	**1300**	**370**	**1200**	**170**	**1900**
TPH as Motor Oil	µg/L			**7000**	<300	<300	<330	<330	<330	<300	<310	<380	**1200**	<380	**480**	<310
TPH as Kerosene	ug/L			**380**	<50	<50	<56	**170Y**	**100Y**	**230Y**	**3300Y**	**290Y**	**450Y**	**520Y**	**180Y**	**500Y**
VOCs																
Benzene	µg/L	350	9.7	<0.50	**0.81**	<0.50	<0.50	<0.50	<0.50	**1000**	**3600**	**460**	**84**	**180**	**1.4**	**910**
Ethylbenzene	µg/L	43	110	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**17**	**100**	**19**	<0.50	**17**	<0.50	**20**
Methyl Tertiary Butyl Ether	µg/L	8000	11000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<8.3	<25	<3.6	<0.50	<1.3	<0.50	<6.3
Toluene	µg/L	2500	30000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**60**	**41**	**27**	**1.6**	**9.5**	<0.50	<6.3
Xylene (m & p)	µg/L	n/a	n/a	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**20**	<25	**41**	**1.2**	**7.9**	<0.50	**17**
Xylene (o)	µg/L	n/a	n/a	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**18**	<25	**45**	<0.50	**1.7**	<0.50	<6.3

Notes:
Detected concentrations are **bold-faced**
Shaded Concentrations exceed the SFRWQCB ESL for Commercial-Inc
Red font detections exceed the SFRWQCB Saltwater Ecotox ESL
µg/L = micrograms per liter
mg/L = miligrams per liter
- = Not analyzed
< = analyte not detected above laboratory reporting limit
B=Analyte was present in an associated method blank
J = estimated below laboratory reporting limit
Y= Sample exhibits chromatographic pattern which does not resemble st
ESL = Environmental Screening Level, San Francisco Regional Water Q
TPH = Total Petroleum Hydrcarbons
TOC = Total Organic Carbon
VOCs = Volatile Organic Compounds

Figures



SOURCE: 2002 THOMAS GUIDE FOR ALAMEDA AND CONTRA COSTA COUNTIES

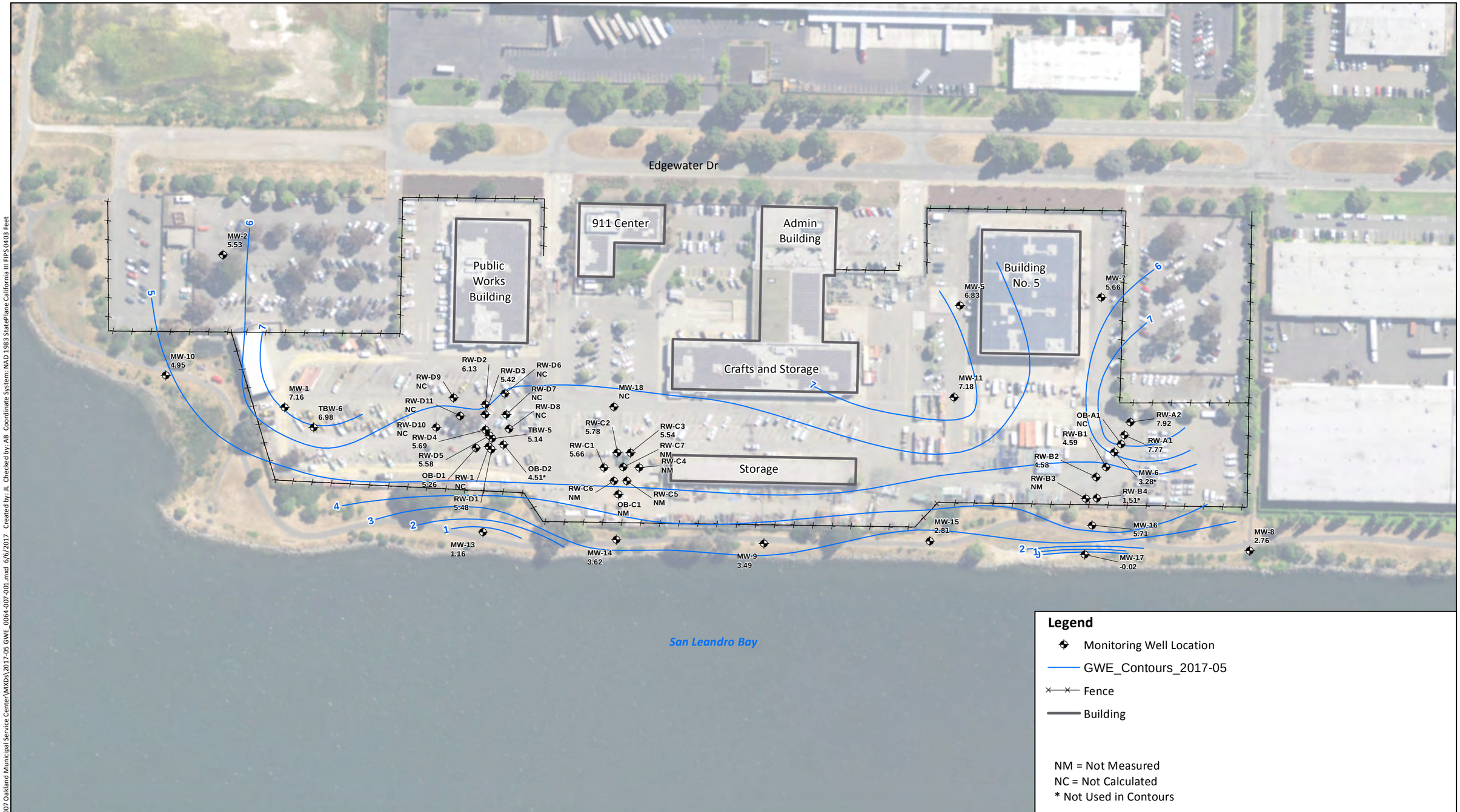
SITE LOCATION

Oakland Municipal Service Center
7101 Edgewater Drive, Oakland, California

terraphase engineering

FIGURE
1

DESIGN\09225\11\000\09225 MSC SiteVicinity.CDR



Legend

- Monitoring Well Location
- GWE_Contours_2017-05
- Fence
- Building

NM = Not Measured
NC = Not Calculated
* Not Used in Contours

Notes: Aerial imagery source - NAIP June 2014.

0 75 150 225 300 Feet

1 inch = 150 feet

N

SAFETY FIRST

terraphase engineering

CLIENT: Municipal Service Center

PROJECT: Groundwater Monitoring
7101 Edgewater Drive, Oakland CA

PROJECT NUMBER: 0064.007.001

Groundwater Elevation Contours May 10, 2017

FIGURE 2

File: J:\GIS Backup\GIS Data\0064.007 Oakland Municipal Service Center\MXDs\2017-05 GWE_0064-007-001.mxd 6/6/2017 Created by: JL Checked by: AB Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet

MW-02	
5/10/2017	
Benzene	1.2
TPH-d	<50
TPH-g	<50
TPH-mo	<300
TPH-k	<50

RW-D9	
5/11/2017	
Benzene	910
TPH-d	410Y
TPH-g	1900
TPH-mo	<310
TPH-k	500Y

RW-D3	
5/11/2017	
Benzene	460
TPH-d	290Y
TPH-g	1300
TPH-mo	<380
TPH-k	290Y

RW-D6	
5/11/2017	
Benzene	180
TPH-d	450Y
TPH-g	1200
TPH-mo	<380
TPH-k	520Y

MW-18	
5/10/2017	
Benzene	<0.50
TPH-d	<50
TPH-g	<50
TPH-mo	<300
TPH-k	<50

RW-D8	
5/11/2017	
Benzene	1.4
TPH-d	220Y
TPH-g	170
TPH-mo	480
TPH-k	180Y

MW-11	
5/10/2017	
Benzene	<0.50/<0.50
TPH-d	<50/<50
TPH-g	230/240
TPH-mo	<300/<300
TPH-k	<50/<50

MW-05	
5/10/2017	
Benzene	1.1
TPH-d	530Y
TPH-g	2300
TPH-mo	<300
TPH-k	640Y

MW-07	
5/11/2017	
Benzene	<0.50
TPH-d	<50
TPH-g	<50
TPH-mo	<300
TPH-k	<50

RW-A2	
5/11/2017	
Benzene	<0.50/<0.50
TPH-d	440Y/280Y
TPH-g	<50/<50
TPH-mo	<330/<330
TPH-k	170Y/100Y

RW-B1	
5/11/2017	
Benzene	1000
TPH-d	220Y
TPH-g	1200
TPH-mo	<300
TPH-k	230Y

MW-06	
5/11/2017	
Benzene	37
TPH-d	1000Y
TPH-g	780
TPH-mo	<310
TPH-k	930

MW-16	
5/10/2017	
Benzene	<0.50
TPH-d	1200Y
TPH-g	<50
TPH-mo	7000
TPH-k	380

MW-08	
5/10/2017	
Benzene	<0.50
TPH-d	<49
TPH-g	<50
TPH-mo	<290
TPH-k	<49

RW-B4	
5/11/2017	
Benzene	3600
TPH-d	2800Y
TPH-g	7600
TPH-mo	<310
TPH-k	3300Y

MW-10	
5/10/2017	
Benzene	<0.50
TPH-d	<50
TPH-g	<50
TPH-mo	<300
TPH-k	<50

MW-01	
5/10/2017	
Benzene	3.5
TPH-d	170Y
TPH-g	990
TPH-mo	<380
TPH-k	160Y

RW-01	
5/11/2017	
Benzene	<0.50
TPH-d	<56
TPH-g	<50
TPH-mo	<330
TPH-k	<56

RW-D5	
5/11/2017	
Benzene	84
TPH-d	1100Y
TPH-g	370
TPH-mo	1200
TPH-k	450Y

MW-17	
5/10/2017	
Benzene	0.81
TPH-d	<50
TPH-g	71
TPH-mo	<300
TPH-k	<50

MW-13	
5/10/2017	
Benzene	<0.50
TPH-d	94Y
TPH-g	<50
TPH-mo	710
TPH-k	<50

MW-14	
5/10/2017	
Benzene	<0.50
TPH-d	<50
TPH-g	92
TPH-mo	<300
TPH-k	<50

MW-09	
5/10/2017	
Benzene	9
TPH-d	<50
TPH-g	110
TPH-mo	<300
TPH-k	<50

MW-15	
5/10/2017	
Benzene	<0.50
TPH-d	100Y
TPH-g	78
TPH-mo	450
TPH-k	<50

Public Works Building

911 Center

Admin Building

Crafts and Storage

Building No. 5

Storage

MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, MW-17, MW-18

RW-A1, RW-A2, RW-B1, RW-B2, RW-B3, RW-B4, RW-C1, RW-C2, RW-C3, RW-C4, RW-C5, RW-C6, RW-C7, RW-D1, RW-D2, RW-D3, RW-D4, RW-D5, RW-D6, RW-D7, RW-D8, RW-D9, RW-D10, RW-D11

OB-A1, OB-C1, OB-D1, OB-D2

TBW-5, TBW-6

Legend

Monitoring / Remediation Well Location

Notes:
µg/L= micrograms per Liter
TPH-d = TPH as Diesel; TPH-g = TPH as Gasoline; TPH-mo = TPH as Motor Oil;
TPH-k = TPH as Kerosene
< = analyte not detected above laboratory reporting limit
Concentrations which exceed the SFRWQCB GW Saltwater Ecotox are red font
Concentrations which exceed the SFRWQCB GW VI Shallow for Commercial-Industrial are highlighted gray
SFRWQCB - San Francisco Regional Water Quality Control Board
All Screening Critieria are revision #3, May 2016

Notes: Aerial imagery source - NAIP June 2014.

0 60 120 180 240 Feet

1 inch = 125 feet

N

SAFETY FIRST

terraphase engineering

CLIENT: Municipal Service Center

PROJECT: Groundwater Monitoring
7101 Edgewater Drive, Oakland CA

PROJECT NUMBER: 0064.007.001

Groundwater Chemical Data
May 10, 2017

FIGURE 3

File: J:\GIS Backup\GIS Data\0064.007 Oakland Municipal Service Center\MXDs\2017-05 GW Results 0064-007-001.mxd 6/8/2017 Created by: JL Checked by: AR Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet

Attachment A

Groundwater Field Sampling Logs, May 10-11, 2017

Confluence Environmental, Inc.
3300 El Camino Ave, Suite 300 #148
Sacramento, CA 95821
916-760-7641 - main
916-473-8617 - fax
www.confluence-env.com

Chain of Custody

Project Name: Oakland MSC

Job Number: 0064.007.001

TAT: (STANDARD) 5 DAY 2 DAY 24 HOUR OTHER:

Lab: Curtis & Tompkins	Site Address: 7101 Edgewater Dr., Oakland CA	Confluence PM: Jason Brown
Address: 2323 Fifth St., Berkeley CA	California Global ID No.: T0600100375	Phone / Fax: 916-760-7641 / 916-473-8617
Contact:	Include EDF w/ Report: Yes No	Confluence Log Code: **CESC**
Phone/ Fax: 510-486-0900	Consultant / PM: Terraphase/ Anna Behrens	Report to: Anna Behrens
	Phone / Fax: 518-852-9239	Invoice to: Terraphase

	Sample ID	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Requested Analysis: TPH-d/TPH-mo/TPHk (8015B) *	Requested Analysis: TPH-g,BTEX,MTBE (8260)	Requested Analysis: TOC	Requested Analysis: ON Hold	Notes and Comments
	TB-1	–	5/10/17		X			3				3			~~X~~ NC		X	
	MW-5	1505	"		X			6	2	1		3		X	X	X		
	MW-11	1530	"		X			6	2	1		3		X	X	X		
	DUP-1	1535	"		X			6	2	1		3		X	X	X		
	EB-1	1545	"		X			6	2	1		3		X	X	X		
	MW-10	800	5/11/17		X			6	2	1		3		X	X	X		
	MW-13	825	"		X			6	2	1		3		X	X	X		
	MW-14	845	"		X			6	2	1		3		X	X	X		
	MW-9	910	"		X			6	2	1		3		X	X	X		
	MW-15	935	"		X			6	2	1		3		X	X	X		

Sampler's Name: Eric Holmberg	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Confluence Environmental	Eric Holmberg	5-11-17	1330	CSI	5-11-17	1330
Shipment Date:						
Shipment Method:						

Special Instructions: * Silica gel cleanup for TPH-d, TPH-mo, TPH-k

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TAT: (STANDARD) 5 DAY 2 DAY 24 HOUR OTHER:

Lab: Curtis & Tompkins	Site Address: 7101 Edgewater Dr., Oakland CA	Confluence PM: Jason Brown
Address: 2323 Fifth St., Berkeley CA	California Global ID No.: T0600100375	Phone / Fax: 916-760-7641 / 916-473-8617
Contact:	Include EDF w/ Report: Yes No	Confluence Log Code: **CESC**
Phone/ Fax: 510-486-0900	Consultant / PM: Terraphase/ Anna Behrens	Report to: Anna Behrens
	Phone / Fax: 518-852-9239	Invoice to: Terraphase

	Sample ID	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Requested Analysis: TPH-d/TPH-mo/TPHk (8015B) *	Requested Analysis: TPH-g,BTEX,MTBE (8260)	Requested Analysis: TOC	Requested Analysis: ON HOLD	Notes and Comments
	DUP-2	940	5/11/17		X			6	2	1		3		X	X	X		
	MW-17	1015			X			6	2	1		3		X	X	X		
	MW-8	1040			X			6	2	1		3		X	X	X		
	MW-16	1050			X			6	2	1		3		X	X	X		
	MW-2	1130			X			6	2	1		3		X	X	X		
	MW-18	1205			X			6	2	1		3		X	X	X		
	MW-1	1220			X			6	2	1		3		X	X	X		
	EB-2	1230			X			6	2	1		3		X	X	X		
	TB-2	—			X			3				3			X		X	ON HOLD

Sampler's Name: Eric Walmsley	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Confluence Environmental	Eric Walmsley	5-11-17	1330	CSF	5/11	1330
Shipment Date:						
Shipment Method:						

Special Instructions: * silica gel cleanup for TPH-d, TPH-mo TPHK

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Chain of Custody

Project Name: Oakland MSC

Job Number: 0064.007.001

TAT: (STANDARD) 5 DAY 2 DAY 24 HOUR OTHER:

Lab: Curtis & Tompkins	Site Address: 7101 Edgewater Dr., Oakland CA	Confluence PM: Jason Brown
Address: 2323 Fifth St., Berkeley CA	California Global ID No.: T0600100375	Phone / Fax: 916-760-7641 / 916-473-8617
Contact:	Include EDF w/ Report: Yes No	Confluence Log Code: **CESC**
Phone/ Fax: 510-486-0900	Consultant / PM: Terraphase/ Anna Behrens	Report to: Anna Behrens
	Phone / Fax: 518-852-9239	Invoice to: Terraphase

	Sample ID	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Requested Analysis: TPH-d/TPH-mo/TPHk (8015B) *	Requested Analysis: TPH-g,BTEX,MTBE (8260)	Requested Analysis: TOC	Notes and Comments
	MW-7	752	5/11/17		X			6	2	1		3		X	X	X	
	RW-A2	830			X			6	2	1		3		X	X	X	
	MW-6	845			X			6	2	1		3		X	X	X	
	RW-B1	905			X			6	2	1		3		X	X	X	
	RW-B4	920			X			6	2	1		3		X	X	X	
	RW-D3	1015			X			6	2	1		3		X	X	X	
	DUP-3	830			X			6	2	1		3		X	X	X	
	RW-D6	1050			X			6	2	1		3		X	X	X	
	RW-D5	1100			X			6	2	1		3		X	X	X	
	RW-1	1150			X			6	2	1		3		X	X	X	

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name: Ryan Cawdrey						
Sampler's Company: Confluence Environmental		5-11-17	1245		5/11/17	1245
Shipment Date:		5-11-17	1330		5/11/17	1330
Shipment Method:						

Special Instructions: * Silica gel cleanup for TPH-d, TPH-mo, TPHK

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Chain of Custody

Project Name: Oakland MSC

Job Number: 0064.007.001

TAT: (STANDARD) 5 DAY 2 DAY 24 HOUR OTHER:

Lab: Curtis & Tompkins	Site Address: 7101 Edgewater Dr., Oakland CA	Confluence PM: Jason Brown
Address: 2323 Fifth St., Berkeley CA	California Global ID No.: T0600100375	Phone / Fax: 916-760-7641 / 916-473-8617
Contact:	Include EDF w/ Report: Yes No	Confluence Log Code: **CESC**
Phone/ Fax: 510-486-0900	Consultant / PM: Terraphase/ Anna Behrens	Report to: Anna Behrens
	Phone / Fax: 518-852-9239	Invoice to: Terraphase

	Sample ID	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Requested Analysis: TPH-d/TPH-mo/TPHk (8015B)*	Requested Analysis: TPH-g,BTEX,MTBE (8260)	Requested Analysis: TOC	Requested Analysis:	Requested Analysis:	Requested Analysis:	Requested Analysis:	Requested Analysis:	Requested Analysis: On Hold	Notes and Comments
	RW-D9	1200	5/11/17		X			6	2	1		3		X	X	X							
	RW-D8	1215			X			6	2	1		3		X	X	X							
	EB-3	1230			X			6	2	1		3		X	X	X							
	TB-3	—			X			3				3			~~X~~ (NA)							X	

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name: Ryan Candrey						
Sampler's Company: Confluence Environmental		5-11-17	1245		5/11/17	1245
Shipment Date:		5-11-17	1330		5/11	1330
Shipment Method:						

Special Instructions: * Silica gel cleanup for TPH-d, TPH-mo, TPHK

Meter Calibration Log

EQUIPMENT MAKE	EQUIPMENT MODEL	SERIAL NUMBER	DATE	TIME	TEMP OF CALIBRATION STANDARD (°C or °F)	pH STANDAR 4	pH STANDAR 7	pH STANDAR 10	SPECIFIC CONDUCTANCE 1413 µS/cm	ORP 238.0 mV	DISSOLVED OXYGEN 100 mg/L or %
YSI	Pro Plus	15A104949	5/10/17	1355	20.8	4.00	7.00	10.00	1413	238.0	100
11	11	11	5/11/17	700	13.3	4.00	7.00	10.00	1413	247.2	100
YSI	Pro Plus	11 B100249	5/11/17	715	17.7	4.00	7.00	10.00	1413	(241.7) 271.7	100

Confluence Environmental, Inc.

ORP Values (degrees in C then value): 5:257.0 10:250.5 15:244.0 20:237.5 25:231.0 30:224.5 35:218.0 40:211.5

Well Maintenance Inspection Form

Client:Terraphase Site: Oakland MSC Date: 5-10-17

Job #: H1-170510 Technician: E. Holmberg Pg 1

Inspection Point	Well Inspected - No Corrective Action Required	Entry Indicates Deficiency: Cap non-functional	Lock non-functional	Lock missing	Bolts missing (# missing / # total tabs)	Tabs stripped (# stripped / # total tabs.)	Tabs broken (# broken / # of total tabs)	Annular seal incomplete	Apron damaged	Rim / Lid broken	Trip Hazard	Below Grade	Other (explain in notes)	Well Not Inspected (explain in notes)	Notes (Note any repairs made while on site)
MW-1	X														Christy box
MW-2				X											Christy box not a good seal
MW-5					2/2										
MW-6					2/2										
MW-7					2/2										
MW-8				X											
MW-9				X	3/3	3/3									
MW-10					1/3	1/3									
MW-11				X		2/2									
MW-12															Shipping Container on wells
MW-13				X											cap missing
MW-14				X	2/3	2/3									
MW-15	X														
MW-16				X		1/3									
MW-17				X	3/3	3/3	3/3		X	X					
MW-18				X					X						
RW-1					3/4										
RW-A1						2/2									
RW-A2						1/2									
RW-B1				X											christy box

Notes:

Repair codes: **rt**=retap/ bolts added or replaced **as**=annular seal repair,

Well Maintenance Inspection Form

Client:Terraphase Site: Oakland MSC Date: 5-10-17

Job #: H-170516 Technician: E. Holmberg Page 2 of 3

Inspection Point	Well Inspected - No Corrective Action Required	Entry Indicates Deficiency: Cap non-functional	Lock non-functional	Lock missing	Bolts missing (# missing / # total tabs)	Tabs stripped (# stripped / # total tabs.)	Tabs broken (# broken / # of total tabs)	Annular seal incomplete	Apron damaged	Rim / Lid broken	Trip Hazard	Below Grade	Other (explain in notes)	Well Not Inspected (explain in notes)	Notes (Note any repairs made while on site)
RW-B2				X											Christy box
RW-B3															Telephone pole on well.
RW-B4				X											Christy box
RW-C1	X														
RW-C2				X	4/4										
RW-C3	X														
RW-C4															Sewer manhole lids,
RW-C5															unable to remove
RW-C6															
RW-C7															
RW-D1					3/4										
RW-D2				X	1/4										
RW-D3				X	1/4										
RW-D4					1/4										
RW-D5					1/4										
RW-D6					1/4										
RW-D7					1/4										
RW-D8					2/4										
RW-D9				X	1/4										
RW-D10					1/4										

Notes:

Repair codes: **rt**=retap/ bolts added or replaced **as**=annular seal repair,

Well Maintenance Inspection Form

Client:Terraphase Site: Oakland MSC Date: 5-10-17

Job #: 141-170510 Technician: E. Holmberg Page 3 of 3

Inspection Point	Well Inspected - No Corrective Action Required	Entry Indicates Deficiency: Cap non-functional	Lock non-functional	Lock missing	Bolts missing (# missing / # total tabs)	Tabs stripped (# stripped / # total tabs.)	Tabs broken (# broken / # of total tabs)	Annular seal incomplete	Apron damaged	Rim / Lid broken	Trip Hazard	Below Grade	Other (explain in notes)	Well Not Inspected (explain in notes)	Notes (Note any repairs made while on site)
RW-D11					1/4										
TBW-5				X	3/4										
TBW-6				X	2/2										
OB-A1	X														christy box
OB-C1															Sewer manhole lids, unable to remove
OB-D1	X														
OB-D2	X														

Notes:

Repair codes: **rt**=retap/ bolts added or replaced **as**=annular seal repair,

Water Level Measurements

Job Number: H1-170510 Date: 5-10-17 Client: Terraphase

Site: Oakland MSC

Well I.D.	Time	Dia	Depth to NAPL	Thickness of NAPL	Depth to water (DTW)	Total Depth (measured)	Total Depth (historical)	Ref Point TOC/TOB	IP probe	PID (ppm) High	PID (ppm) Low
MW-1	1123	2			2.89	15.70		TOC	✓	24.1	—
MW-2	844	2			4.94	15.70				0.0	—
MW-5	1008	2			4.32	14.18				291.3	—
MW-6	1044	2			7.70	14.17				61.6	—
MW-7	1023	2			5.85	14.20				0.3	—
MW-8	943	2			9.46	15.20				0.0	—
MW-9	925	2			7.28	14.38				0.3	—
MW-10	906	2			5.64	15.09				0.0	—
MW-11	1015	2			4.42	19.25				143.5	—
MW-12								shipping container on well			
MW-13	915	2			10.18	19.44		TOC	✓	0.0	—
MW-14	920	2			6.43	14.65				0.0	—
MW-15	932	2			9.55	20.27				2.8	—
MW-16	938	2			6.51	12.81				0.0	—
MW-17	951	2			9.88	16.75				0.0	—
MW-18	1316	2			5.69	15.68				32.3	31.5
RW-1	1208	4			4.72	16.78				0.3	—
RW-A1	1036	4			2.42	14.00				5.6	—
RW-A2	1029	4			1.75	13.50				1.0	—
RW-B1	1049	4			6.63	15.48				93.6	—

Water Level Measurements

Job Number: 171-170510 Date: 5-10-17 Client: Terraphase

Site: Oakland MSC

Well I.D.	Time	Dia	Depth to NAPL	Thickness of NAPL	Depth to water (DTW)	Total Depth (measured)	Total Depth (historical)	Ref Point TOC/TOB	IP probe	High PID	Low
RW-B2	1053	4			6.65	13.81		TOC	✓	0.6	—
RW-B3								Telephone well	pull out		
RW-B4	1103	4			9.78	13.80			✓	0.3	—
RW-C1	1305	4			4.78	14.34				9.1	8.8
RW-C2	1328	4			4.80	11.73				39.1	37.0
RW-C3	1330	4			5.17	12.92				2.7	2.1
RW-C4			Sewer manhole lids, unable to remove								
RW-C5								TOC	✓		
RW-C6											
RW-C7											
RW-D1	1238	4			4.70	14.28				232.9	229.1
RW-D2	~~1245 1235~~	~~4~~			~~4.70 5.65~~	~~14.04 14.94~~				~~124.9 147.2~~	~~114.5 142.9~~
RW-D3	1247	4			4.65	14.35				106.7	103.7
RW-D4	1217	4			4.53	12.61				167.1	—
RW-D5	1214	4			4.41	11.86				134	—
RW-D6	1158	~~4~~ 6			4.30	19.70				78.5	—
RW-D7	1201	~~4~~ 6			4.30	19.32				80.7	—
RW-D8	1205	6			3.30	19.87				18.1	—
RW-D9	1235	6			3.63	19.94				147.2	142.1
RW-D10	1232	6			4.33	4.94				194.6	178.2

Water Level Measurements

Job Number: N1-170510 Date: 5-10-17 Client: Terraphase

Site: Oakland MSC

Well I.D.	Time	Dia	Depth to NAPL	Thickness of NAPL	Depth to water (DTW)	Total Depth (measured)	Total Depth (historical)	Ref Point TOC/TOB	IP probe	High PID	Low PID
RW-D11	1229	6			4.18	19.55		TOC	✓	106.6	102.3
TBW-5	1212	6			5.08	14.15				182.3	—
TBW-6	1127	6			2.51	12.05				0.4	—
OB-A1	1038	2			2.72	15.96				0.4	—
OB-C1			Sewer manhole lids, unable to remove								
OB-D1	1220	2			4.20	13.43			✓	70.1	—
OB-D2	1225	2			5.44	15.13			✓	111.3	—

Water Quality Sampling Field Log

terraphase engineering

Project Name: Oakland Municipal Services Center | Sample ID: MW-1 | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☑ Primary Sample ☐ Duplicate Sample ☐ Field Blank ☐ Other

Sampler: E. Holmby | Sample Date: 5-11-17

Weather Conditions: Sun | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐ Peristaltic Pump ☐ Disposable Bailer ☑ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 2.89 | Total Well Depth (ft): 15.70 | Pump Inlet: —

Well Diameter: ☐ 1" (0.04 gal/feet) ☑ 2" (0.16 gal/feet) ☐ 4" (0.65 gal/feet) ☐ 5" (1.02 gal/feet) ☐ 6" (1.47 gal/feet)

Water Column Height (ft): 12.81 x 0.8 = 80% = 5.45 ft | DTW ≤ 5.40 ft BTOC

Well Volume (gallons): 2.0 x 3 = 6.0 gal

Purge Water Storage Location and Container Type: —

Notes:

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (µS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
1144	—	2.0	19.0	0.89	6.66	16424	-90.1	40.1	
1145	—	4.0	20.2	0.74	6.82	10505	-114.9	>1000	
	well dewatered @ 4.0 gal								
1220	—	—	19.5	0.91	6.85	11338	-98.7	>1000	
			Pre	0.35			-88.1		
			Post	0.91			-98.7		

Sample Time: 1220 | Duplicate Sample Name: | Duplicate Sample Time:

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center Sample ID: MW-2 Page 1 of 1

Project Number: 0064.007.001 Site Location: 7101 Edgewater Drive, Oakland CA Sample Type: ☑ Primary Sample ☐ Duplicate Sample ☐ Field Blank ☐ Other

Sampler: E. Wolnty Sample Date: 5-11-17

Weather Conditions: Cloudy Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐ Peristaltic Pump ☑ Disposable Bailer ☐ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 4.94 Total Well Depth (ft): 15.70 Pump Inlet

Well Diameter: ☐ 1" (0.04 gal/feet) ☑ 2" (0.16 gal/feet) ☐ 4" (0.65 gal/feet) ☐ 5" (1.02 gal/feet) ☐ 6" (1.47 gal/feet)

Water Column Height (ft): 10.76 x 0.8 = 80%=7.09 ft DTW ≤ 5.11 ft BTOC

Well Volume (gallons): 1.7 x 3 = 5.1 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
1124	-	1.7	18.2	1.00	6.22	24281	-43.5	33.4	
1126	-	3.4	18.2	1.17	6.28	24343	-50.0	36.7	
1128	-	5.1	18.1	1.31	6.36	24476	-55.6	38.1	
			Pre	0.81			-27.1		
			Post	1.24			-57.1		

Sample Time: 1130 Duplicate Sample Name: Duplicate Sample Time:

Not filtered:

☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl

☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)

☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center | Sample ID: MW-5 | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☑ Primary Sample ☐ Duplicate Sample ☐ Field Blank ☐ Other

Sampler: E. Nolmby | Sample Date: 5-10-17

Weather Conditions: Sunny | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐ Peristaltic Pump ☐ Disposable Bailer ☑ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 4.32 | Total Well Depth (ft): 14.18 | Pump Inlet 13'

Well Diameter: ☐ 1" (0.04 gal/feet) ☑ 2" (0.16 gal/feet) ☐ 4" (0.65 gal/feet) ☐ 5" (1.02 gal/feet) ☐ 6" (1.47 gal/feet)

Water Column Height (ft): 9.86 x 0.8 = 7.89 ft | DTW ≤ 4.31 ft BTOC

Well Volume (gallons): 1.6 x 3 = 4.8 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (µS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
1453	-	1.6	18.1	9.79	6.75	2260	-16.8	6.5	
1455	-	3.2	17.9	0.68	6.79	1801	-16.2	6.1	
1457	-	4.8	17.9	0.46	6.80	1771	-20.6	5.8	
			~~Pre~~						
			Pre	0.54			-6.1		
			Post	0.67			-50.3		

Sample Time: 1505 | Duplicate Sample Name: | Duplicate Sample Time:

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center | Sample ID: MW-6 | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☐ Primary Sample ☐ Duplicate Sample ☐ Field Blank ☐ Other

Sampler: R Cavadini | Sample Date: 5/11/17

Weather Conditions: Overcast | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐ Peristaltic Pump ☐ Disposable Bailer ☑ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 7.70 | Total Well Depth (ft): 14.17 | Pump Inlet 14

Well Diameter: ☐ 1" (0.04 gal/feet) ☑ 2" (0.16 gal/feet) ☐ 4" (0.65 gal/feet) ☐ 5" (1.02 gal/feet) ☐ 6" (1.47 gal/feet)

Water Column Height (ft): 6.47 x 0.8 = 5.17 ft | DTW ≤ 8.99 ft BTOC

Well Volume (gallons): 1.25 x 3 = 3.75 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
837	below pump	1.25	19.9	2.75	7.11	3126	158.4	>1000	odor
837	"	2.50	20.2	2.49	7.20	3116	155.5	>1000	"
838	"	3.75	20.1	1.95	7.21	3051	154.7	>1000	"
				briefly waited for 80%					
			Pre	3.68			161.5		
			Post	1.46			128.7		
Sample Time: 845			Duplicate Sample Name:					Duplicate Sample Time:	

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center | Sample ID: MW-7 | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☒ Primary Sample ☐ Duplicate Sample ☐ Field Blank ☐ Other

Sampler: R Cavadini | Sample Date: 5/11/17

Weather Conditions: Overcast | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐ Peristaltic Pump ☐ Disposable Bailer ☒ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 5.85 | Total Well Depth (ft): 14.20 | Pump Inlet 14

Well Diameter: ☐ 1" (0.04 gal/feet) ☒ 2" (0.16 gal/feet) ☐ 4" (0.65 gal/feet) ☐ 5" (1.02 gal/feet) ☐ 6" (1.47 gal/feet)

Water Column Height (ft): 8.35 x 0.8 = 6.68 ft | DTW ≤ 10.02 ft BTOC

Well Volume (gallons): 1.5 x 3 = 4.5 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
748	8.58	PC 1.5	18.9	1.45	6.59	2439	190.0	17.8	
749	8.99	PC 3.0	18.9	1.17	6.63	2416	187.9	15.3	
749	9.13	PC 4.5	18.8	1.07	6.63	2483	187.5	10.13	
			Pre	1.87			189.2		
			Post	3.35			175.0		

Sample Time: 752 @ 8:42 | Duplicate Sample Name: | Duplicate Sample Time:

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center | Sample ID: MW-8 | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☑ Primary Sample ☐ Duplicate Sample ☐ Field Blank ☐ Other

Sampler: E. Walmsley | Sample Date: 5-11-17

Weather Conditions: Cloudy | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐ Peristaltic Pump ☑ Disposable Bailer ☐ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 9.46 | Total Well Depth (ft): 15.20 | Pump Inlet

Well Diameter: ☐ 1" (0.04 gal/feet) ☑ 2" (0.16 gal/feet) ☐ 4" (0.65 gal/feet) ☐ 5" (1.02 gal/feet) ☐ 6" (1.47 gal/feet)

Water Column Height (ft): 5.74 | 80% = 10.61 DTW ≤ _____ ft BTOC | x 0.8 = _____ ft

Well Volume (gallons): 0.9 | x 3 = 2.7 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (ga) / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
1032	—	0.9	17.3	2.52	7.25	20368	-83.3	27.4	
1034	-	1.8	17.2	1.60	7.29	20011	-85.2	24.1	
1036	-	2.7	17.2	1.85	7.27	21646	-81.7	23.0	
			Pre	0.71			-88.7		
			Post	1.80			-80.4		

Sample Time: 1040 | Duplicate Sample Name: | Duplicate Sample Time:

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center | Sample ID: MW-9 | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☑ Primary Sample ☐ Duplicate Sample ☐ Field Blank ☐ Other

Sampler: E. Hulmberg | Sample Date: 5-11-17

Weather Conditions: Cloudy | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐ Peristaltic Pump ☑ Disposable Bailer ☐ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 7.28 | Total Well Depth (ft): 14.38 | Pump Inlet

Well Diameter: ☐ 1" (0.04 gal/feet) ☑ 2" (0.16 gal/feet) ☐ 4" (0.65 gal/feet) ☐ 5" (1.02 gal/feet) ☐ 6" (1.47 gal/feet)

Water Column Height (ft): 7.1 | 80% = 8.70 | DTW ≤ _____ ft BTOC | x 0.8 = _____ ft

Well Volume (gallons): 1.1 | x 3 = 3.3 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (gal) / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
903	-	1.1	17.4	0.65	6.88	9732	-96.5	48.1	
905	-	2.2	17.1	0.70	6.95	10173	-109.0	56.7	
907	-	3.3	17.0	0.81	7.02	10222	-116.9	74.3	
			PRE	0.76			-80.9		
			Post	0.64			-119.1		

Sample Time: 910 | Duplicate Sample Name: | Duplicate Sample Time:

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center | Sample ID: MW-10 | Page ___ of ___

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☑ Primary Sample ☐ Duplicate Sample ☐ Field Blank ☐ Other

Sampler: E. Wilmbg | Sample Date: 5-10-17

Weather Conditions: Sunny | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐ Peristaltic Pump ☑ Disposable Bailer ~~☐~~ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 5.64 | Total Well Depth (ft): 15.09 | Pump Inlet:

Well Diameter: ☐ 1" (0.04 gal/feet) ☑ 2" (0.16 gal/feet) ☐ 4" (0.65 gal/feet) ☐ 5" (1.02 gal/feet) ☐ 6" (1.47 gal/feet)

Water Column Height (ft): 9.45 x 0.8 = 7.56 ft | DTW ≤ 6.64 ft BTOC

Well Volume (gallons): 1.5 x 3 = 4.5 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (ga) / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
751	-	1.5	16.1	1.23	6.67	1840	-11.9	>1000	
753	-	3.0	16.2	1.18	6.72	2448	-10.5	>1000	
755	-	4.5	16.2	1.56	6.79	2134	-21.3	>1000	
			Pre	0.81			14.6		
			Post	1.35 ~~4.6~~			-31.6		

Sample Time: 800 | Duplicate Sample Name: | Duplicate Sample Time:

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center Sample ID: MW-11 Page 1 of 1

Project Number: 0064.007.001 Site Location: 7101 Edgewater Drive, Oakland CA Sample Type: ☑ Primary Sample ☑ Duplicate Sample ☐ Field Blank ☑ Other Equipment blank @1545

Sampler: E. Hilmby Sample Date: 5-10-17

Weather Conditions: Sunny Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐ Peristaltic Pump ☐ Disposable Bailer ☐ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 4.42 Total Well Depth (ft): 19.25 Pump Inlet 17'

Well Diameter: ☐ 1" (0.04 gal/feet) ☑ 2" (0.16 gal/feet) ☐ 4" (0.65 gal/feet) ☐ 5" (1.02 gal/feet) ☐ 6" (1.47 gal/feet)

Water Column Height (ft): 14.83 x 0.8 = 11.86 ft DTW ≤ 6.76 ft BTOC

Well Volume (gallons): 2.4 x 3 = 7.2 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
1521	-	2.4	18.8	0.69	6.45	3068	-49.0	9.9	odor
1523	-	4.8	19.6	0.56	6.44	2892	-57.2	8.7	↓
1525	-	7.2	18.9	0.74	6.43	3579	-58.6	8.4	↓
			Pre	0.33			-23.6		
			Post	1.78			-43.7		

Sample Time: 1530 Duplicate Sample Name: DUP-1 Duplicate Sample Time: 1535

Not filtered:

☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl

☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)

☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center Sample ID: MW-12 Page ___ of ___

Project Number: 0064.007.001 Site Location: 7101 Edgewater Drive, Oakland CA Sample Type: ☐Primary Sample ☐Duplicate Sample ☐Field Blank ☐Other

Sampler: ___ Sample Date: ___

Weather Conditions: ___ Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐Peristaltic Pump ☐Disposable Bailer ☐Centrifugal Pump ☐Bladder Pump ☐Other ___

Depth to Water (ft): ___ Total Well Depth (ft): ___ Pump Inlet ___ DTW ≤ ___ ft BTOC

Well Diameter: ☐1" (0.04 gal/feet) ☐2" (0.16 gal/feet) ☐4" (0.65 gal/feet) ☐5" (1.02 gal/feet) ☐6" (1.47 gal/feet)

Water Column Height (ft): ___ x 0.8 = ___ ft

Well Volume (gallons): ___ x 3 = ___ gal

Purge Water Storage Location and Container Type: ___

Notes: under shipping container

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
		Shipping	Container	on	well				

Sample Time: ___ Duplicate Sample Name: ___ Duplicate Sample Time: ___

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center | Sample ID: MW-13 | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☑ Primary Sample ☐ Duplicate Sample ☐ Field Blank ☐ Other

Sampler: E. Nolmsby | Sample Date: 5-11-17

Weather Conditions: cloudy | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐ Peristaltic Pump ☑ Disposable Bailer ☐ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 10.18 | Total Well Depth (ft): 19.44 | Pump Inlet

Well Diameter: ☐ 1" (0.04 gal/feet) ☐ 2" (0.16 gal/feet) ☐ 4" (0.65 gal/feet) ☐ 5" (1.02 gal/feet) ☐ 6" (1.47 gal/feet)

80% = 12.03 DTW ≤

Water Column Height (ft): 9.26 x 0.8 = _____ ft _____ ft BTOC

Well Volume (gallons): 1.5 x 3 = 4.5 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (µS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
814	-	1.5	17.4	0.88	6.65	14495	-25.4	>1000	
818	-	3.0	17.8	0.97	6.56	14556	-32.9	>1000	
820	-	4.5	17.8	0.89	6.67	14445	-39.3	>1000	
			Pre	0.97			-12.7		
			Post	0.87			-42.1		

Sample Time: 825 | Duplicate Sample Name: | Duplicate Sample Time:

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center | Sample ID: MW-14 | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☑ Primary Sample ☐ Duplicate Sample ☐ Field Blank ☐ Other

Sampler: E. Wilmby | Sample Date: 5-11-17

Weather Conditions: Cloudy | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐ Peristaltic Pump ☑ Disposable Bailer ☐ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 6.43 | Total Well Depth (ft): 14.65 | Pump Inlet

Well Diameter: ☐ 1" (0.04 gal/feet) ☑ 2" (0.16 gal/feet) ☐ 4" (0.65 gal/feet) ☐ 5" (1.02 gal/feet) ☐ 6" (1.47 gal/feet)

Water Column Height (ft): 8.22 | 80% = 8.07 | DTW ≤ 6.20 ft BTOC | x 0.8 = ft

Well Volume (gallons): 1.3 | x 3 = 3.9 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (ga) / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
840	-	1.3	17.2	0.39	7.40	11525	-85.6	>1000	water is black
842	-	2.6	17.0	0.30	7.41	11543	-89.4	>1000	in color
844	-	3.9	17.3	0.93	7.45	11355	-93.4	>1000	
			Pre	0.56			-80.9		
			Post	0.84			-93.3		

Sample Time: 845 | Duplicate Sample Name: | Duplicate Sample Time:

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center | Sample ID: MW-15 | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☑ Primary Sample ☑ Duplicate Sample ☐ Field Blank ☐ Other

Sampler: E. Helmly | Sample Date: 5-11-17

Weather Conditions: Cloudy | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐ Peristaltic Pump ☑ Disposable Bailer ☐ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 9.55 | Total Well Depth (ft): 20.27 | Pump Inlet:

Well Diameter: ☐ 1" (0.04 gal/feet) ☐ 2" (0.16 gal/feet) ☐ 4" (0.65 gal/feet) ☐ 5" (1.02 gal/feet) ☐ 6" (1.47 gal/feet)

Water Column Height (ft): 10.72 | 80% = 11.69 | x 0.8 = ____ ft | DTW ≤ 9.66 ft BTOC

Well Volume (gallons): 1.7 | x 3 = 5.1 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
929	-	1.7	17.8	0.61	7.14	10485	-114.1	62.1	
931	-	3.4	17.2	0.49	7.15	10504	-125.6	83.4	
933	-	5.1	17.7	0.69	7.15	10524	-132.9	84.0	
			Pre	0.59			-94.1		
			Post	0.60			-136.5		

Sample Time: 935 | Duplicate Sample Name: DUP-2 | Duplicate Sample Time: 940

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

terraphase engineering

Project Name: Oakland Municipal Services Center | Sample ID: MW-16 | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☑ Primary Sample ☐ Duplicate Sample ☐ Field Blank ☐ Other

Sampler: G. Wilmby | Sample Date: 5-11-17

Weather Conditions: Cloudy | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐ Peristaltic Pump ☑ Disposable Bailer ☐ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 6.51 | Total Well Depth (ft): 12.81 | Pump Inlet:

Well Diameter: ☐ 1" (0.04 gal/feet) ☑ 2" (0.16 gal/feet) ☐ 4" (0.65 gal/feet) ☐ 5" (1.02 gal/feet) ☐ 6" (1.47 gal/feet)

Water Column Height (ft): 6.3 x 0.8 = 80%=7.77 ft | DTW ≤ 7.76 ft BTOC

Well Volume (gallons): 1.0 x 3 = 3.0 gal

Purge Water Storage Location and Container Type:

Notes:

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
959	-	1.0	18.1	1.89	7.13	1482	-107.7	>1000	
		well	dewatered	@ 1.2	gal				
1050	-	-	18.1	3.77	7.36	2323	-108.7	>1000	
			Pre	5.39			-117.3		
			Post	3.77			-108.7		

Sample Time: 1050 | Duplicate Sample Name: | Duplicate Sample Time:

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center | Sample ID: MW-17 | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☑ Primary Sample ☐ Duplicate Sample ☐ Field Blank ☐ Other

Sampler: E. Hulmby | Sample Date: 5-11-17

Weather Conditions: Cloudy | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐ Peristaltic Pump ☑ Disposable Bailer ☐ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 9.88 | Total Well Depth (ft): 16.75 | Pump Inlet:

Well Diameter: ☐ 1" (0.04 gal/feet) ☑ 2" (0.16 gal/feet) ☐ 4" (0.65 gal/feet) ☐ 5" (1.02 gal/feet) ☐ 6" (1.47 gal/feet)

Water Column Height (ft): 6.87 | 80% = 11.25 | DTW ≤ 9.96 ft BTOC

Well Volume (gallons): 1.6 x 3 = 4.8 gal

Purge Water Storage Location and Container Type:

Notes:

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
1009	-	~~17.6~~ 1.6	17.6	0.86	7.04	17040	-78.9	56.1	
1011	-	3.2	17.6	1.20	7.14	16954	-114.4	48.1	
1013	-	4.8	17.5	0.89	7.22	16932	-160.4	45.3	
			Pre	5.99			-19.0		
			Post	0.80			-163.4		

Sample Time: 1015 | Duplicate Sample Name: | Duplicate Sample Time:

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center | Sample ID: MW-18 | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☑ Primary Sample ☐ Duplicate Sample ☐ Field Blank ☐ Other

Sampler: E. Holmberg | Sample Date: 5-11-17

Weather Conditions: Sunny | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐ Peristaltic Pump ☑ Disposable Bailer ☐ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 5.69 | Total Well Depth (ft): 15.68 | Pump Inlet:

Well Diameter: ☐ 1" (0.04 gal/feet) ☑ 2" (0.16 gal/feet) ☐ 4" (0.65 gal/feet) ☐ 5" (1.02 gal/feet) ☐ 6" (1.47 gal/feet)

Water Column Height (ft): 9.99 x 0.8 = 80% = 7.69 ft | DTW ≤ 6.23 ft BTOC

Well Volume (gallons): 1.6 x 3 = 4.8 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (ga) / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
1157	-	1.6	20.6	0.93	6.65	18677	-103.7	103	
1159	-	3.2	20.2	0.56	6.76	R3502	-106.8	87.4	
1201	-	4.8	20.4	0.99	6.74	20518	-113.1	80.4	
			Pre	0.66			-89.7		
			Post	1.10			-110.8		

Sample Time: 1205 | Duplicate Sample Name: | Duplicate Sample Time:

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center | Sample ID: RW-1 | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☐Primary Sample ☐Duplicate Sample ☐Field Blank ☐Other

Sampler: R Cawdrey | Sample Date: 5/11/17

Weather Conditions: Overcast | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐Peristaltic Pump ☐Disposable Bailer ☑Centrifugal Pump ☐Bladder Pump ☐Other

Depth to Water (ft): 4.72 | Total Well Depth (ft): 16.78 | Pump Inlet: 16

Well Diameter: ☐1" (0.04 gal/feet) ☐2" (0.16 gal/feet) ☑4" (0.65 gal/feet) ☐5" (1.02 gal/feet) ☐6" (1.47 gal/feet)

Water Column Height (ft): 12.06 x 0.8 = 9.64 ft | DTW ≤ 7.13 ft BTOC

Well Volume (gallons): 8 x 3 = 24 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
1136	7.90	8	20.1	1.14	6.87	2526	-77.7	12.4	odor
1139	9.43	16	20.4	1.17	6.90	2884	-78.4	10.85	1
1142	10.65	24	20.3	1.19	6.94	3273	-80.2	7.20	
			walked briefly for 80%						
			Pre	1.64			-79.5		
			Post	1.32					
							-74.7		

Sample Time: 1150 | Duplicate Sample Name: | Duplicate Sample Time:

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center | Sample ID: ~~MW~~ RW-A2 | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☐ Primary Sample ☐ Duplicate Sample ☐ Field Blank ☐ Other

Sampler: R Cawdrey | Sample Date: 5/11/17

Weather Conditions: Overcast | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐ Peristaltic Pump ☐ Disposable Bailer ☑ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 1.75 | Total Well Depth (ft): 13.50 | Pump Inlet: 13

Well Diameter: ☐ 1" (0.04 gal/feet) ☐ 2" (0.16 gal/feet) ☑ 4" (0.65 gal/feet) ☐ 5" (1.02 gal/feet) ☐ 6" (1.47 gal/feet)

Water Column Height (ft): 11.75 x 0.8 = 9.4 ft | DTW ≤ 4.19 ft BTOC

Well Volume (gallons): 8 x 3 = 24 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
820	1.75	8	19.2	2.21	6.73	2663	162.6	12.8	odor
823	1.75	16	19.7	1.74	6.72	2595	160.3	6.62	↓
825	1.75	24	19.6	1.69	6.71	2552	158.1	3.83	↓
			Pre	3.10			188.4		
			Post	2.18			129.3		

Sample Time: 830 | Duplicate Sample Name: DUP-3 | Duplicate Sample Time: 835

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center | Sample ID: RW-81 | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☒ Primary Sample ☐ Duplicate Sample ☐ Field Blank ☐ Other

Sampler: R Cawdrey | Sample Date: 5/11/17

Weather Conditions: Overcast | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐ Peristaltic Pump ☐ Disposable Bailer ☒ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 6.63 | Total Well Depth (ft): 15.48 | Pump Inlet 15

Well Diameter: ☐ 1" (0.04 gal/feet) ☐ 2" (0.16 gal/feet) ☑ 4" (0.65 gal/feet) ☐ 5" (1.02 gal/feet) ☐ 6" (1.47 gal/feet)

Water Column Height (ft): 8.85 x 0.8 = 7.08 ft | DTW ≤ 8.40 ft BTOC

Well Volume (gallons): 6 x 3 = 18 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
856	8.13	6	20.4	0.87	7.18	5930	130.6	16.5	odor
858	8.68	12	20.4	0.74	8.88	5956	112.6	12.7	|
900	8.74	18	20.4	0.70	8.96	5995	72.6	9.46	|
			PRE	1.66			146.2		
			POST	0.81			36.0		

Sample Time: 905 | Duplicate Sample Name: | Duplicate Sample Time:

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center Sample ID: RW-B4 Page 1 of 1

Project Number: 0064.007.001 Site Location: 7101 Edgewater Drive, Oakland CA Sample Type: ☐Primary Sample ☐Duplicate Sample ☐Field Blank ☐Other

Sampler: R Cavadini Sample Date: 5/11/17

Weather Conditions: Overcast Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐Peristaltic Pump ☐Disposable Bailer ☒Centrifugal Pump ☐Bladder Pump ☐Other

Depth to Water (ft): 9.78 Total Well Depth (ft): 13.80 Pump Inlet: 13

Well Diameter: ☐1" (0.04 gal/feet) ☐2" (0.16 gal/feet) ☒4" (0.65 gal/feet) ☐5" (1.02 gal/feet) ☐6" (1.47 gal/feet)

Water Column Height (ft): 21.02 x 0.8 = 5.21 ft DTW ≤ 10.58 ft BTOC

Well Volume (gallons): 3 x 3 = 9 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
913	10.96	3	18.0	0.83	7.15	6073	44.1	12.64	odor
914	10.92	6	18.0	0.78	6.97	5636	40.2	12.7	
915	10.94	9	18.0	0.81	6.90	5586	40.2	12.96	
			Pre	3.16			47.8		
			Post	1.21			51.3		

Sample Time: 920 Duplicate Sample Name: Duplicate Sample Time:

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center Sample ID: RW-C6 Page ___ of ___

Project Number: 0064.007.001 Site Location: 7101 Edgewater Drive, Oakland CA Sample Type: ☐Primary Sample ☐Duplicate Sample ☐Field Blank ☐Other

Sampler: _____ Sample Date: _____

Weather Conditions: _____ Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐Peristaltic Pump ☐Disposable Bailer ☐Centrifugal Pump ☐Bladder Pump ☐Other _____

Depth to Water (ft): _____ Total Well Depth (ft): _____ Pump Inlet _____ DTW ≤ _____ ft BTOC

Well Diameter: ☐1" (0.04 gal/feet) ☐2" (0.16 gal/feet) ☐4" (0.65 gal/feet) ☐5" (1.02 gal/feet) ☐6" (1.47 gal/feet)

Water Column Height (ft): _____ x 0.8 = _____ ft

Well Volume (gallons): _____ x 3 = _____ gal

Purge Water Storage Location and Container Type: _____

Notes: Unable to remove well lid. Large manhole type lid

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
		Sew manhole lid, unable to open							

Sample Time: _____ Duplicate Sample Name: _____ Duplicate Sample Time: _____

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center Sample ID: RW-C7 Page ___ of ___

Project Number: 0064.007.001 Site Location: 7101 Edgewater Drive, Oakland CA Sample Type: ☐Primary Sample ☐Duplicate Sample ☐Field Blank ☐Other

Sampler: _____ Sample Date: _____

Weather Conditions: _____ Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐Peristaltic Pump ☐Disposable Bailer ☐Centrifugal Pump ☐Bladder Pump ☐Other _____

Depth to Water (ft): _____ Total Well Depth (ft): _____ Pump Inlet _____ DTW ≤ _____ ft BTOC

Well Diameter: ☐1" (0.04 gal/feet) ☐2" (0.16 gal/feet) ☐4" (0.65 gal/feet) ☐5" (1.02 gal/feet) ☐6" (1.47 gal/feet)

Water Column Height (ft): _____ x 0.8 = _____ ft

Well Volume (gallons): _____ x 3 = _____ gal

Purge Water Storage Location and Container Type: _____

Notes: unable to remove well lid. Large manhole type lid

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments

Sample Time: _____ Duplicate Sample Name: _____ Duplicate Sample Time: _____

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center | Sample ID: RW-D3 | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☐Primary Sample ☐Duplicate Sample ☐Field Blank ☐Other

Sampler: R Cawdrey | Sample Date: 5/11/17

Weather Conditions: Overcast | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐Peristaltic Pump ☐Disposable Bailer ☑Centrifugal Pump ☐Bladder Pump ☐Other

Depth to Water (ft): 4.65 | Total Well Depth (ft): 14.35 | Pump Inlet 14

Well Diameter: ☐1" (0.04 gal/feet) ☐2" (0.16 gal/feet) ☑4" (0.65 gal/feet) ☐5" (1.02 gal/feet) ☐6" (1.47 gal/feet)

Water Column Height (ft): 9.70 x 0.8 = 7.76 ft | DTW ≤ 6.59 ft BTOC

Well Volume (gallons): 7 x 3 = 21 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
1006	7.19	7	19.4	1.52	6.78	4922	-31.7	7/dec	odor
1008	7.85	14	19.7	1.54	6.96	2506	-51.0	39.4	1
1010	8.22	21	19.7	1.52	6.93	2577	-49.5	42.6	1
			Pre	1.63			-17.5		
			Post	1.57			-37.1		

Sample Time: 1015 | Duplicate Sample Name: | Duplicate Sample Time:

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center | Sample ID: RW-DS | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☐Primary Sample ☐Duplicate Sample ☐Field Blank ☐Other

Sampler: R Cavedney | Sample Date: 5/11/17

Weather Conditions: Overcast | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐Peristaltic Pump ☐Disposable Bailer ☑Centrifugal Pump ☐Bladder Pump ☐Other

Depth to Water (ft): 4.41 | Total Well Depth (ft): 11.86 | Pump Inlet: 11

Well Diameter: ☐1" (0.04 gal/feet) ☐2" (0.16 gal/feet) ☑4" (0.65 gal/feet) ☐5" (1.02 gal/feet) ☐6" (1.47 gal/feet)

Water Column Height (ft): 7.45 x 0.8 = 5.96 ft | DTW ≤ 5.90 ft BTOC

Well Volume (gallons): 5 x 3 = 15 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
1044	4.63	5	20.3	1.10	6.85	3834	-58.1	>1000	odor
1056	4.63	10	20.4	1.18	6.77	3584	-59.5	22.5	"
1058	4.63	15	20.4	1.42	6.72	3883	-61.3	15.4	"
			Pre	1.56			-20.9		
			Post	1.56			60.2		

Sample Time: 1100 | Duplicate Sample Name: | Duplicate Sample Time:

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center | Sample ID: RW-D6 | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☐Primary Sample ☐Duplicate Sample ☐Field Blank ☐Other

Sampler: R Cawdrey | Sample Date: 5/11/17

Weather Conditions: Overcast | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐Peristaltic Pump ☐Disposable Bailer ☑Centrifugal Pump ☐Bladder Pump ☐Other

Depth to Water (ft): 4.30 | Total Well Depth (ft): 19.70 | Pump Inlet 19

Well Diameter: ☐1" (0.04 gal/feet) ☐2" (0.16 gal/feet) ☐4" (0.65 gal/feet) ☐5" (1.02 gal/feet) ☑6" (1.47 gal/feet)

Water Column Height (ft): 15.40 x 0.8 = 12.32 ft | DTW ≤ 7.38 ft BTOC

Well Volume (gallons): 23 x 3 = 69 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
1030	6.58	23	20.1	1.42	6.93	6859	-37.2	12.35	odor
1038	6.73	46	20.2	1.20	6.97	9330	-37.3	7.62	
1046	6.81	69	20.1	1.09	7.02	12035	-37.4	6.90	
			Pre	1.24			9.7		
			Post	1.30			-63.2		

Sample Time: 1050 | Duplicate Sample Name: | Duplicate Sample Time:

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

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Project Name: Oakland Municipal Services Center | Sample ID: RW-D8 | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☐ Primary Sample ☐ Duplicate Sample ☒ Field Blank ☐ Other

Sampler: R Cavadini | Sample Date: 5/11/17

Weather Conditions: Overcast | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐ Peristaltic Pump ☐ Disposable Bailer ☒ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 3.30 | Total Well Depth (ft): 19.87 | Pump Inlet: 19 DTW ≤

Well Diameter: ☐ 1" (0.04 gal/feet) ☐ 2" (0.16 gal/feet) ☐ 4" (0.65 gal/feet) ☐ 5" (1.02 gal/feet) ☑ 6" (1.47 gal/feet)

Water Column Height (ft): 16.57 x 0.8 = 13.25 ft | 6.61 ft BTOC

Well Volume (gallons): 25 x 3 = 75 gal

Purge Water Storage Location and Container Type:

Notes: EB-3 @ 1230

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS or mS / cm C)	ORP (mV)	Turbidity (NTU)	Comments
1118	8.13	25	20.2	2.11	6.54	14433	-34.2	6.79	odor
1126	12.95	50	20.9	1.73	6.91	2665	-79.5	8.67	1
1134	16.22	75	20.8	1.27	6.83	3168	-75.8	9.15	—
			not @	80%,	will	return	to	Sample	
			Pre	1.01			-1.7		
			Post	1.88			-65.7		

Sample Time: 1215 | Duplicate Sample Name: | Duplicate Sample Time:

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Water Quality Sampling Field Log

terraphase engineering

Project Name: Oakland Municipal Services Center | Sample ID: RW-09 | Page 1 of 1

Project Number: 0064.007.001 | Site Location: 7101 Edgewater Drive, Oakland CA | Sample Type: ☐Primary Sample ☐Duplicate Sample ☐Field Blank ☐Other

Sampler: R Cawdrey | Sample Date: 5/11/17

Weather Conditions: Overcast | Sample Plan By: Andrew Romolo/Anna Behrens

Purge Data

Purge Method: ☐Peristaltic Pump ☐Disposable Bailer ☑Centrifugal Pump ☐Bladder Pump ☐Other

Depth to Water (ft): 4.33 | Total Well Depth (ft): ~~4.94~~ 19.79 | Pump Inlet ~~4.19~~

Well Diameter: ☐1" (0.04 gal/feet) ☐2" (0.16 gal/feet) ☐4" (0.65 gal/feet) ☐5" (1.02 gal/feet) ☑6" (1.47 gal/feet)

Water Column Height (ft): ~~15.46~~ 0.67 x 0.8 = ~~12.56~~ 0.78 ft | DTW ≤ ~~7.42~~ 4.45 ft BTOC

Well Volume (gallons): 23 x 3 = ~~369~~ 69 gal

Purge Water Storage Location and Container Type:

Notes

Time	Depth To Water (ft)	Volume Purged (gal / mL)	Temperature (°C)	DO (mg/l)	pH (SU)	Cond. (uS or mS / uS or mS)	ORP (mV)	Turbidity (NTU)	Comments
945	6.91	23	19.2	2.51	6.49	~~20.6~~ 6.15	~~-34.7~~	9.61	odor (Cond=20.6 mS)
952	9.13	46	18.7	2.42	6.59	6113	-21.6	5.26	)
1000	10.47	69	19.0	2.07	6.62	4163	-34.0	11.95	
			not @ 80%, will return to sample						
			PRE	1.14			-11.6		
			Post	1.57			-77.1		

Sample Time: 1200 | Duplicate Sample Name: | Duplicate Sample Time:

Not filtered:

- ☑ TPH-g, BTEX, MTBE (8260) - 3 x 40mL VOAS w/HCl
- ☑ TPH-d, k, mo (8015) - 2 x 500mL Amber (unpreserved)
- ☑ TOC (5310) - 1 x 250 ml amber, H2SO4

Filtered:

Attachment B

Laboratory Analytical Reports

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 288816
ANALYTICAL REPORT

Terraphase Engineering	Project : 0064.007.001
1404 Franklin Street	Location : Oakland MSC
Oakland, CA 94612	Level : II

Sample ID	Lab ID
MW-7	288816-001
RW-A2	288816-002
MW-6	288816-003
RW-B1	288816-004
RW-B4	288816-005
RW-D3	288816-006
RW-A2-D	288816-007
RW-D6	288816-008
RW-D5	288816-009
RW-1	288816-010
RW-D9	288816-011
RW-D8	288816-012
EB-3	288816-013
TB-3	288816-014

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Tracy Babjar Date: 05/18/2017

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226 Ext 13107

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**288816**
Client:	**Terraphase Engineering**
Project:	**0064.007.001**
Location:	**Oakland MSC**
Request Date:	**05/11/17**
Samples Received:	**05/11/17**

This data package contains sample and QC results for thirteen water samples, requested for the above referenced project on 05/11/17. The samples were received cold and intact.

TPH-Extractables by GC (EPA 8015B):
No analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B):
No analytical problems were encountered.

Total Organic Carbon (TOC) (SM5310C):
No analytical problems were encountered.

CT# 288816

Gmail by Google

Tracy Babjar <tbabjar@montrose-env.com>

RE: 0064.007.001 - C&T Login Summary (288823)

Andrew Romolo <andrew.romolo@terraphase.com> Fri, May 12, 2017 at 1:07 PM
To: Tracy Babjar <tracy.babjar@ctberk.com>, Anna Behrens <anna.behrens@terraphase.com>

See clarifications below and let me know if you need anything else.

Thanks

Andrew Romolo, P.G.

From: Tracy Babjar [mailto:tracy.babjar@ctberk.com]
Sent: Friday, May 12, 2017 12:56 PM
To: Anna Behrens <anna.behrens@terraphase.com>
Cc: Andrew Romolo <andrew.romolo@terraphase.com>
Subject: Re: 0064.007.001 - C&T Login Summary (288823)

Please call me back about this request ASAP.

Tracy

On Fri, May 12, 2017 at 12:25 PM, Anna Behrens <anna.behrens@terraphase.com> wrote:

> Sorry – hit send before I was ready!
>
> from ~~288823~~ 28816
>
> - DUP-3 should get changed to: RW-A2-D
>
> from ~~288816~~ 288823
>
> - DUP-1 should get changed to: MW-11-D
> - DUP-2 should get changed to: MW-15-D (Put this on hold since it has not been started yet)
>
> AND please put this sample on HOLD
>
> Hope that's possible, please let me and Andy know.

Confluence Environmental, Inc.
3308 El Camino Ave, Suite 300 #148
Sacramento, CA 95821
916-760-7641 - main
916-473-8617 - fax
www.confluence-env.com

288816

Chain of Custody

Project Name: Oakland MSC

Job Number: 0064.007.001

TAT: (STANDARD) 5 DAY 2 DAY 24 HOUR OTHER:

Lab: Curtis & Tompkins	Site Address: 7101 Edgewater Dr., Oakland CA	Confluence PM: Jason Brown
Address: 2323 Fifth St., Berkeley CA	California Global ID No.: T0600100375	Phone / Fax: 916-760-7641 / 916-473-8617
Contact:	Include EDF w/ Report: Yes No	Confluence Log Code: CESC
Phone/ Fax: 510-486-0900	Consultant / PM: Terraphase/ Anna Behrens	Report to: Anna Behrens
	Phone / Fax: 518-852-9239	Invoice to: Terraphase

	Sample ID	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Requested Analysis: TPH-d/TPH-mo/TPHk (8015B) *	Requested Analysis: TPH-g,BTEX,MTBE (8260)	Requested Analysis: TOC	Notes and Comments
1	MW-7	752	5/11/17		X			6	2	1		3		X	X	X	
2	RW-A2	830			X			6	2	1		3		X	X	X	
3	MW-6	845			X			6	2	1		3		X	X	X	
4	RW-B1	905			X			6	2	1		3		X	X	X	
5	RW-B4	920			X			6	2	1		3		X	X	X	
6	RW-D3	1015			X			6	2	1		3		X	X	X	
7	DUP-3	830			X			6	2	1		3		X	X	X	
8	RW-D6	1050			X			6	2	1		3		X	X	X	
9	RW-D5	1100			X			6	2	1		3		X	X	X	
10	RW-1	1150			X			6	2	1		3		X	X	X	

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name: Ryan Cawdrey						
Sampler's Company: Confluence Environmental		5-11-17	1245		5/11/17	1245
Shipment Date:		5-11-17	1330		5/11/17	1330
Shipment Method:						

Special Instructions: * Silica gel cleanup for TPH-d, TPH-mo, TPHK

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916-760-7641 - main
916-473-8617 - fax
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288816

Chain of Custody

Project Name: Oakland MSC

Job Number: 0064.007.001

TAT: (STANDARD) 5 DAY 2 DAY 24 HOUR OTHER:

Lab: Curtis & Tompkins	Site Address: 7101 Edgewater Dr., Oakland CA	Confluence PM: Jason Brown
Address: 2323 Fifth St., Berkeley CA	California Global ID No.: T0600100375	Phone / Fax: 916-760-7641 / 916-473-8617
Contact:	Include EDF w/ Report: Yes No	Confluence Log Code: CESC
Phone/ Fax: 510-486-0900	Consultant / PM: Terraphase/ Anna Behrens	Report to: Anna Behrens
	Phone / Fax: 518-852-9239	Invoice to: Terraphase

	Sample ID	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Requested Analysis: TPH-d/TPH-mo/TPHk (8015B) *	Requested Analysis: TPH-g,BTEX,MTBE (8260)	Requested Analysis: TOC	Notes and Comments
11	RW-D9	1200	5/11/17		X			6	2	1		3		X	X	X	
12	RW-D8	1215			X			6	2	1		3		X	X	X	
13	EB-3	1230			X			6	2	1		3		X	X	X	
14	TB-3	—			X			3				3			X	X	Hold TB for Addn 5/11/17

Sampler's Name: Ryan Candrey	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Confluence Environmental		5-11-17	1145		5/11/17	1245
Shipment Date:		5-11-17	1330		5/11	1332
Shipment Method:						

Special Instructions: * Silica gel cleanup for TPH-d, TPH-mo, TPHK

Curtis & Tompkins, Ltd.

Login # 249816 Date Received 6-11-17 Number of coolers 2
Client TERRAPHASE Project 0064-007.001

Date Opened 6/11/17 By (print) qm (sign) qm
Date Logged in 6/ By (print) qm (sign) qm
Date Labelled 6/ By (print) qm (sign) qm

1. Did cooler come with a shipping slip (airbill, etc) YES (NO)
Shipping info

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☐ NO
How many Name Date
2B. Were custody seals intact upon arrival? YES NO N/A
3. Were custody papers dry and intact when received? YES NO
4. Were custody papers filled out properly (ink, signed, etc)? YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) YES NO
6. Indicate the packing in cooler: (if other, describe)

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C
Type of ice used: ☐ Wet ☐ Blue/Gel ☐ None Temp(°C) 4.3, 2.7
☐ Temperature blank(s) included? ☐ Thermometer# ☐ IR Gun# A
☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? YES (NO)
If YES, what time were they transferred to freezer?
9. Did all bottles arrive unbroken/unopened? YES NO
10. Are there any missing / extra samples? YES (NO)
11. Are samples in the appropriate containers for indicated tests? YES NO
12. Are sample labels present, in good condition and complete? YES NO
13. Do the sample labels agree with custody papers? YES NO
14. Was sufficient amount of sample sent for tests requested? YES NO
15. Are the samples appropriately preserved? YES NO N/A
16. Did you check preservatives for all bottles for each sample? YES NO N/A
17. Did you document your preservative check? (pH strip lot# 203DH241) YES NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO N/A
19. Did you change the hold time in LIMS for preserved terracores? YES NO N/A
20. Are bubbles > 6mm absent in VOA samples? YES NO N/A
21. Was the client contacted concerning this sample delivery? YES (NO)
If YES, Who was called? By Date:

COMMENTS 15. added H_2SO_4 (1160e17) to sample 3, 5, 7, 8 to pH <2 on 6.5.17 @ 1017

Curtis & Tompkins Sample Preservation for 288816

Sample	pH: <2	>9	>12	Other
-001a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-002a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-003a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-004a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-005a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-006a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-007a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-008a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-009a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-010a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-011a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-012a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-013a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____

Analyst: EM

Date: 5-11-17

Page 1 of 1

Curtis & Tompkins, Ltd.

Detections Summary for 288816

Results for any subcontracted analyses are not included in this summary.

Client : Terraphase Engineering
Project : 0064.007.001
Location : Oakland MSC

Client Sample ID : MW-7 Laboratory Sample ID : 288816-001

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
MTBE	0.85		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Total Organic Carbon	4.5		0.50	mg/L	TOTAL	1.000	SM5310C	METHOD

Client Sample ID : RW-A2 Laboratory Sample ID : 288816-002

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Kerosene C10-C16	170	Y	56	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Diesel C10-C24	440	Y	56	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Total Organic Carbon	6.2		0.50	mg/L	TOTAL	1.000	SM5310C	METHOD

Client Sample ID : MW-6 Laboratory Sample ID : 288816-003

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Kerosene C10-C16	930		52	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Diesel C10-C24	1,000	Y	52	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Gasoline C7-C12	780		50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
MTBE	4.3		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Benzene	37		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Toluene	3.9		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
m,p-Xylenes	3.8		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
o-Xylene	0.84		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Total Organic Carbon	22		2.0	mg/L	TOTAL	4.000	SM5310C	METHOD

Client Sample ID : RW-B1 Laboratory Sample ID : 288816-004

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Kerosene C10-C16	230	Y	50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Diesel C10-C24	220	Y	50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Gasoline C7-C12	1,200		830	ug/L	As Recd	16.67	EPA 8260B	EPA 5030B
Benzene	1,000		8.3	ug/L	As Recd	16.67	EPA 8260B	EPA 5030B
Toluene	60		8.3	ug/L	As Recd	16.67	EPA 8260B	EPA 5030B
Ethylbenzene	17		8.3	ug/L	As Recd	16.67	EPA 8260B	EPA 5030B
m,p-Xylenes	20		8.3	ug/L	As Recd	16.67	EPA 8260B	EPA 5030B
o-Xylene	18		8.3	ug/L	As Recd	16.67	EPA 8260B	EPA 5030B
Total Organic Carbon	24		2.0	mg/L	TOTAL	4.000	SM5310C	METHOD

Curtis & Tompkins, Ltd.

Client Sample ID : RW-B4 Laboratory Sample ID : 288816-005

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Kerosene C10-C16	3,300	Y	52	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Diesel C10-C24	2,800	Y	52	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Gasoline C7-C12	7,600		2,500	ug/L	As Recd	50.00	EPA 8260B	EPA 5030B
Benzene	3,600		25	ug/L	As Recd	50.00	EPA 8260B	EPA 5030B
Toluene	41		25	ug/L	As Recd	50.00	EPA 8260B	EPA 5030B
Ethylbenzene	100		25	ug/L	As Recd	50.00	EPA 8260B	EPA 5030B
Total Organic Carbon	38		20	mg/L	TOTAL	40.00	SM5310C	METHOD

Client Sample ID : RW-D3 Laboratory Sample ID : 288816-006

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Kerosene C10-C16	290	Y	63	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Diesel C10-C24	290	Y	63	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Gasoline C7-C12	1,300		360	ug/L	As Recd	7.143	EPA 8260B	EPA 5030B
Benzene	460		3.6	ug/L	As Recd	7.143	EPA 8260B	EPA 5030B
Toluene	27		3.6	ug/L	As Recd	7.143	EPA 8260B	EPA 5030B
Ethylbenzene	19		3.6	ug/L	As Recd	7.143	EPA 8260B	EPA 5030B
m,p-Xylenes	41		3.6	ug/L	As Recd	7.143	EPA 8260B	EPA 5030B
o-Xylene	45		3.6	ug/L	As Recd	7.143	EPA 8260B	EPA 5030B
Total Organic Carbon	27		2.0	mg/L	TOTAL	4.000	SM5310C	METHOD

Client Sample ID : RW-A2-D Laboratory Sample ID : 288816-007

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Kerosene C10-C16	100	Y	56	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Diesel C10-C24	280	Y	56	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Total Organic Carbon	6.4		0.50	mg/L	TOTAL	1.000	SM5310C	METHOD

Client Sample ID : RW-D6 Laboratory Sample ID : 288816-008

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Kerosene C10-C16	520	Y	63	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Diesel C10-C24	450	Y	63	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Gasoline C7-C12	1,200		130	ug/L	As Recd	2.500	EPA 8260B	EPA 5030B
Benzene	180		1.3	ug/L	As Recd	2.500	EPA 8260B	EPA 5030B
Toluene	9.5		1.3	ug/L	As Recd	2.500	EPA 8260B	EPA 5030B
Ethylbenzene	17		1.3	ug/L	As Recd	2.500	EPA 8260B	EPA 5030B
m,p-Xylenes	7.9		1.3	ug/L	As Recd	2.500	EPA 8260B	EPA 5030B
o-Xylene	1.7		1.3	ug/L	As Recd	2.500	EPA 8260B	EPA 5030B
Total Organic Carbon	9.3		2.0	mg/L	TOTAL	4.000	SM5310C	METHOD

Curtis & Tompkins, Ltd.

Client Sample ID : RW-D5 Laboratory Sample ID : 288816-009

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Kerosene C10-C16	450	Y	56	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Diesel C10-C24	1,100	Y	56	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Motor Oil C24-C36	1,200		330	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Gasoline C7-C12	370		50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Benzene	84		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Toluene	1.6		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
m,p-Xylenes	1.2		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Total Organic Carbon	16		2.0	mg/L	TOTAL	4.000	SM5310C	METHOD

Client Sample ID : RW-1 Laboratory Sample ID : 288816-010

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Total Organic Carbon	6.0		0.50	mg/L	TOTAL	1.000	SM5310C	METHOD

Client Sample ID : RW-D9 Laboratory Sample ID : 288816-011

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Kerosene C10-C16	500	Y	52	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Diesel C10-C24	410	Y	52	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Gasoline C7-C12	1,900		630	ug/L	As Recd	12.50	EPA 8260B	EPA 5030B
Benzene	910		6.3	ug/L	As Recd	12.50	EPA 8260B	EPA 5030B
Ethylbenzene	20		6.3	ug/L	As Recd	12.50	EPA 8260B	EPA 5030B
m,p-Xylenes	17		6.3	ug/L	As Recd	12.50	EPA 8260B	EPA 5030B
Total Organic Carbon	13		2.0	mg/L	TOTAL	4.000	SM5310C	METHOD

Client Sample ID : RW-D8 Laboratory Sample ID : 288816-012

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Kerosene C10-C16	180	Y	56	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Diesel C10-C24	220	Y	56	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Motor Oil C24-C36	480		330	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Gasoline C7-C12	170		50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Benzene	1.4		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Total Organic Carbon	9.7		2.0	mg/L	TOTAL	4.000	SM5310C	METHOD

Client Sample ID : EB-3 Laboratory Sample ID : 288816-013

No Detections

Y = Sample exhibits chromatographic pattern which does not resemble standard

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 3520C
Project#:	0064.007.001	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	05/11/17
Units:	ug/L	Received:	05/11/17
Diln Fac:	1.000	Prepared:	05/12/17
Batch#:	247744		

Field ID: MW-7 Analyzed: 05/15/17
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 288816-001

Analyte	Result	RL
Kerosene C10-C16	ND	50
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	99	52-138

Field ID: RW-A2 Analyzed: 05/15/17
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 288816-002

Analyte	Result	RL
Kerosene C10-C16	170 Y	56
Diesel C10-C24	440 Y	56
Motor Oil C24-C36	ND	330

Surrogate	%REC	Limits
o-Terphenyl	84	52-138

Field ID: MW-6 Analyzed: 05/15/17
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 288816-003

Analyte	Result	RL
Kerosene C10-C16	930	52
Diesel C10-C24	1,000 Y	52
Motor Oil C24-C36	ND	310

Surrogate	%REC	Limits
o-Terphenyl	85	52-138

Field ID: RW-B1 Analyzed: 05/15/17
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 288816-004

Analyte	Result	RL
Kerosene C10-C16	230 Y	50
Diesel C10-C24	220 Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	100	52-138

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 3520C
Project#:	0064.007.001	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	05/11/17
Units:	ug/L	Received:	05/11/17
Diln Fac:	1.000	Prepared:	05/12/17
Batch#:	247744		

Field ID: RW-B4 Analyzed: 05/15/17
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 288816-005

Analyte	Result	RL
Kerosene C10-C16	3,300 Y	52
Diesel C10-C24	2,800 Y	52
Motor Oil C24-C36	ND	310

Surrogate	%REC	Limits
o-Terphenyl	90	52-138

Field ID: RW-D3 Analyzed: 05/15/17
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 288816-006

Analyte	Result	RL
Kerosene C10-C16	290 Y	63
Diesel C10-C24	290 Y	63
Motor Oil C24-C36	ND	380

Surrogate	%REC	Limits
o-Terphenyl	91	52-138

Field ID: RW-A2-D Analyzed: 05/15/17
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 288816-007

Analyte	Result	RL
Kerosene C10-C16	100 Y	56
Diesel C10-C24	280 Y	56
Motor Oil C24-C36	ND	330

Surrogate	%REC	Limits
o-Terphenyl	92	52-138

Field ID: RW-D6 Analyzed: 05/15/17
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 288816-008

Analyte	Result	RL
Kerosene C10-C16	520 Y	63
Diesel C10-C24	450 Y	63
Motor Oil C24-C36	ND	380

Surrogate	%REC	Limits
o-Terphenyl	96	52-138

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 3520C
Project#:	0064.007.001	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	05/11/17
Units:	ug/L	Received:	05/11/17
Diln Fac:	1.000	Prepared:	05/12/17
Batch#:	247744		

Field ID: RW-D5 Analyzed: 05/15/17
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 288816-009

Analyte	Result	RL
Kerosene C10-C16	450 Y	56
Diesel C10-C24	1,100 Y	56
Motor Oil C24-C36	1,200	330

Surrogate	%REC	Limits
o-Terphenyl	104	52-138

Field ID: RW-1 Analyzed: 05/15/17
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 288816-010

Analyte	Result	RL
Kerosene C10-C16	ND	56
Diesel C10-C24	ND	56
Motor Oil C24-C36	ND	330

Surrogate	%REC	Limits
o-Terphenyl	94	52-138

Field ID: RW-D9 Analyzed: 05/16/17
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 288816-011

Analyte	Result	RL
Kerosene C10-C16	500 Y	52
Diesel C10-C24	410 Y	52
Motor Oil C24-C36	ND	310

Surrogate	%REC	Limits
o-Terphenyl	103	52-138

Field ID: RW-D8 Analyzed: 05/16/17
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 288816-012

Analyte	Result	RL
Kerosene C10-C16	180 Y	56
Diesel C10-C24	220 Y	56
Motor Oil C24-C36	480	330

Surrogate	%REC	Limits
o-Terphenyl	101	52-138

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 3520C
Project#:	0064.007.001	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	05/11/17
Units:	ug/L	Received:	05/11/17
Diln Fac:	1.000	Prepared:	05/12/17
Batch#:	247744		

Field ID:	EB-3	Analyzed:	05/16/17
Type:	SAMPLE	Cleanup Method:	EPA 3630C
Lab ID:	288816-013		

Analyte	Result	RL
Kerosene C10-C16	ND	50
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	99	52-138

Type:	BLANK	Analyzed:	05/15/17
Lab ID:	QC885676	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Kerosene C10-C16	ND	50
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	90	52-138

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 3520C
Project#:	0064.007.001	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	247744
Units:	ug/L	Prepared:	05/12/17
Diln Fac:	1.000	Analyzed:	05/15/17

Type: BS Cleanup Method: EPA 3630C
Lab ID: QC885677

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	1,781	71	52-124

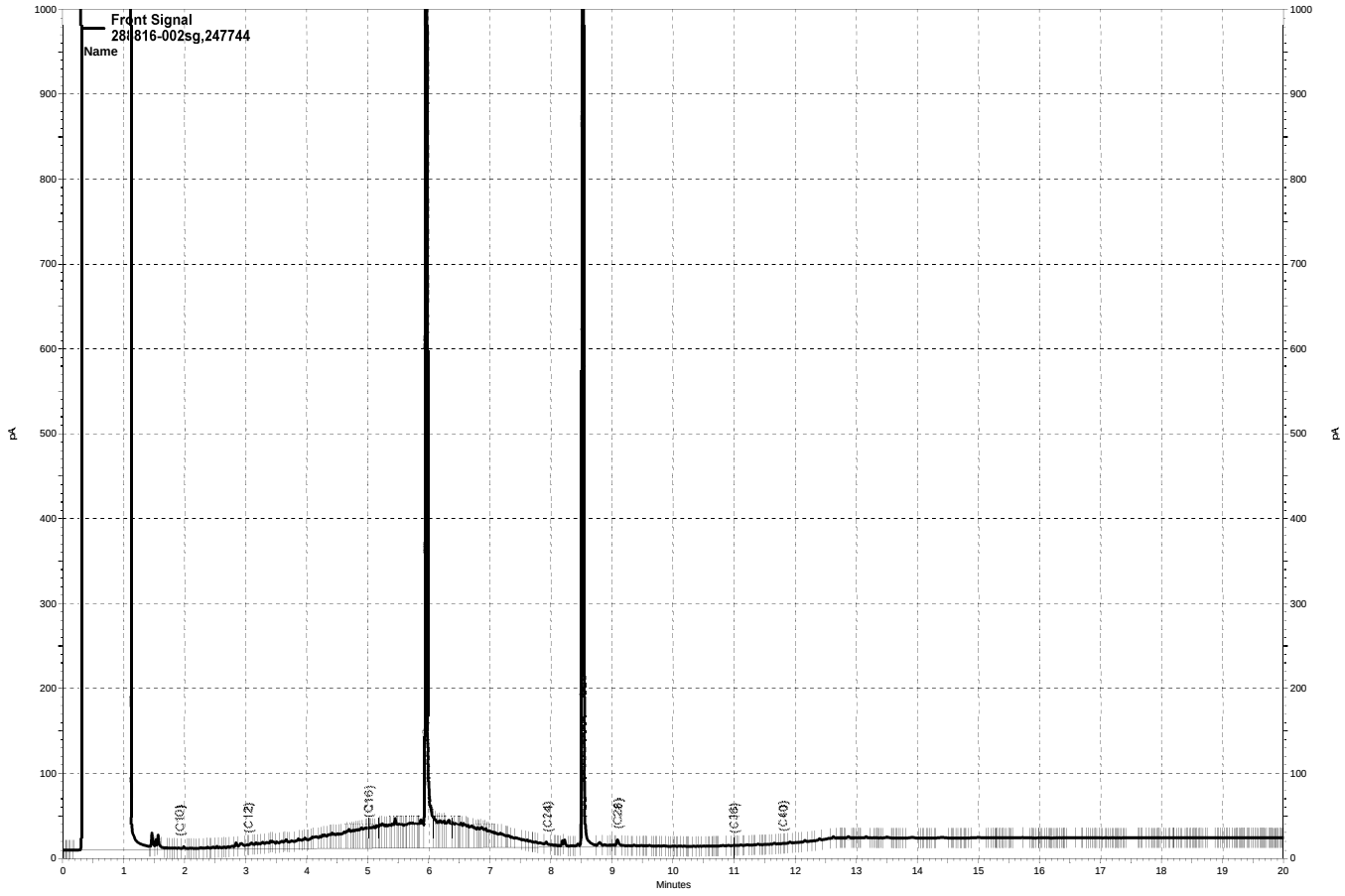
Surrogate	%REC	Limits
o-Terphenyl	82	52-138

Type: BSD Cleanup Method: EPA 3630C
Lab ID: QC885678

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,429	97	52-124	31	34

Surrogate	%REC	Limits
o-Terphenyl	120	52-138

RPD= Relative Percent Difference



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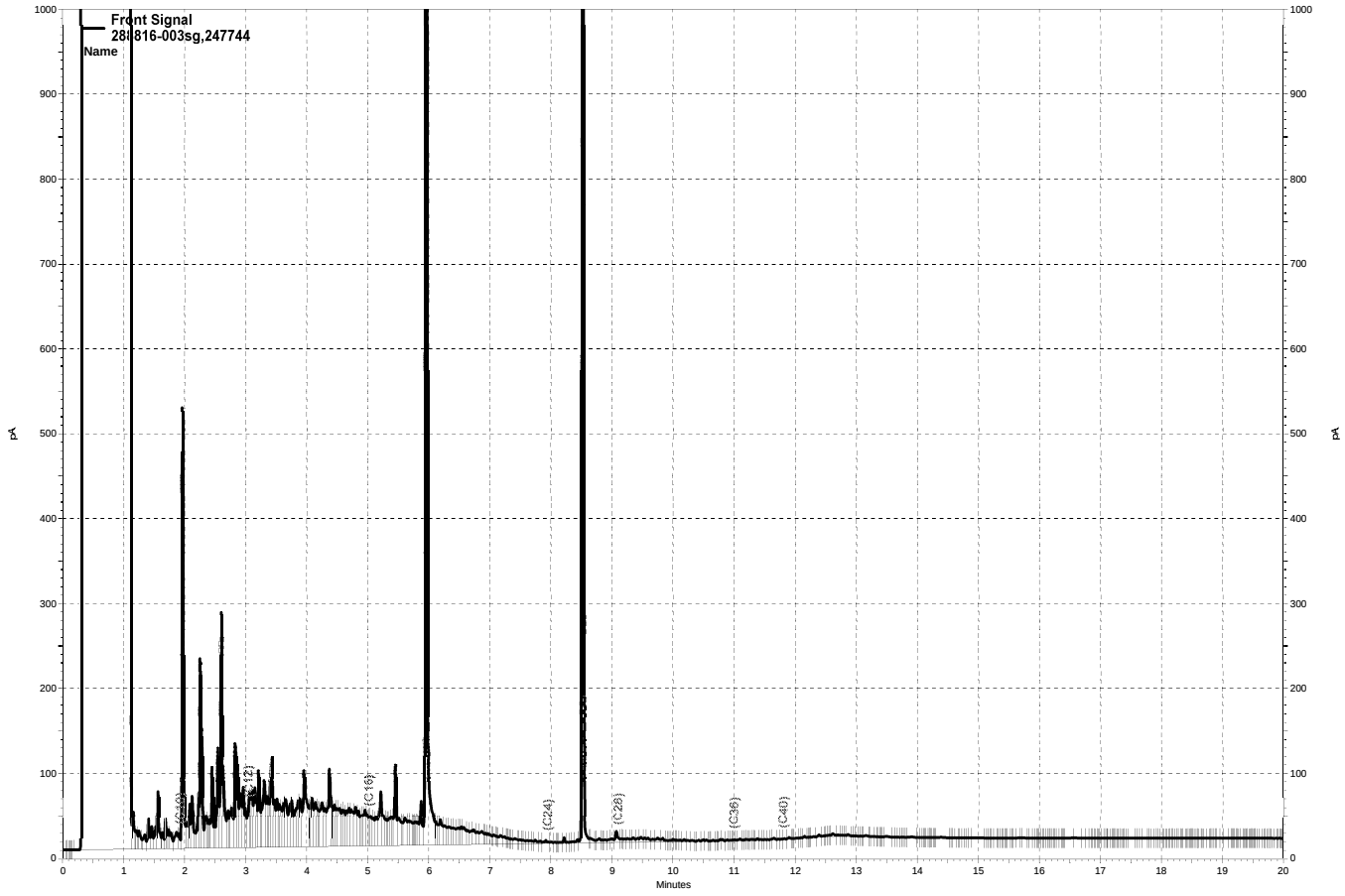

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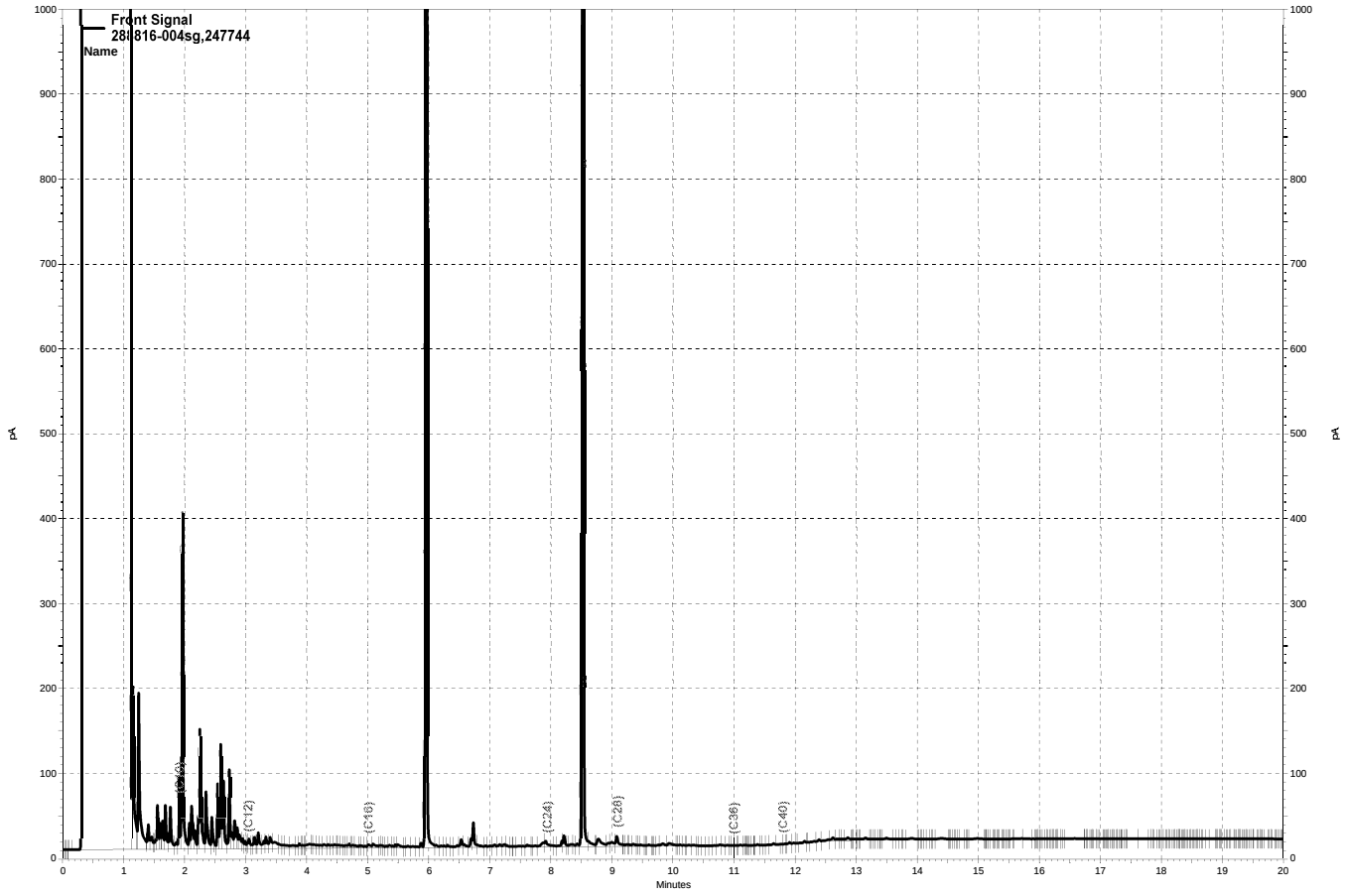

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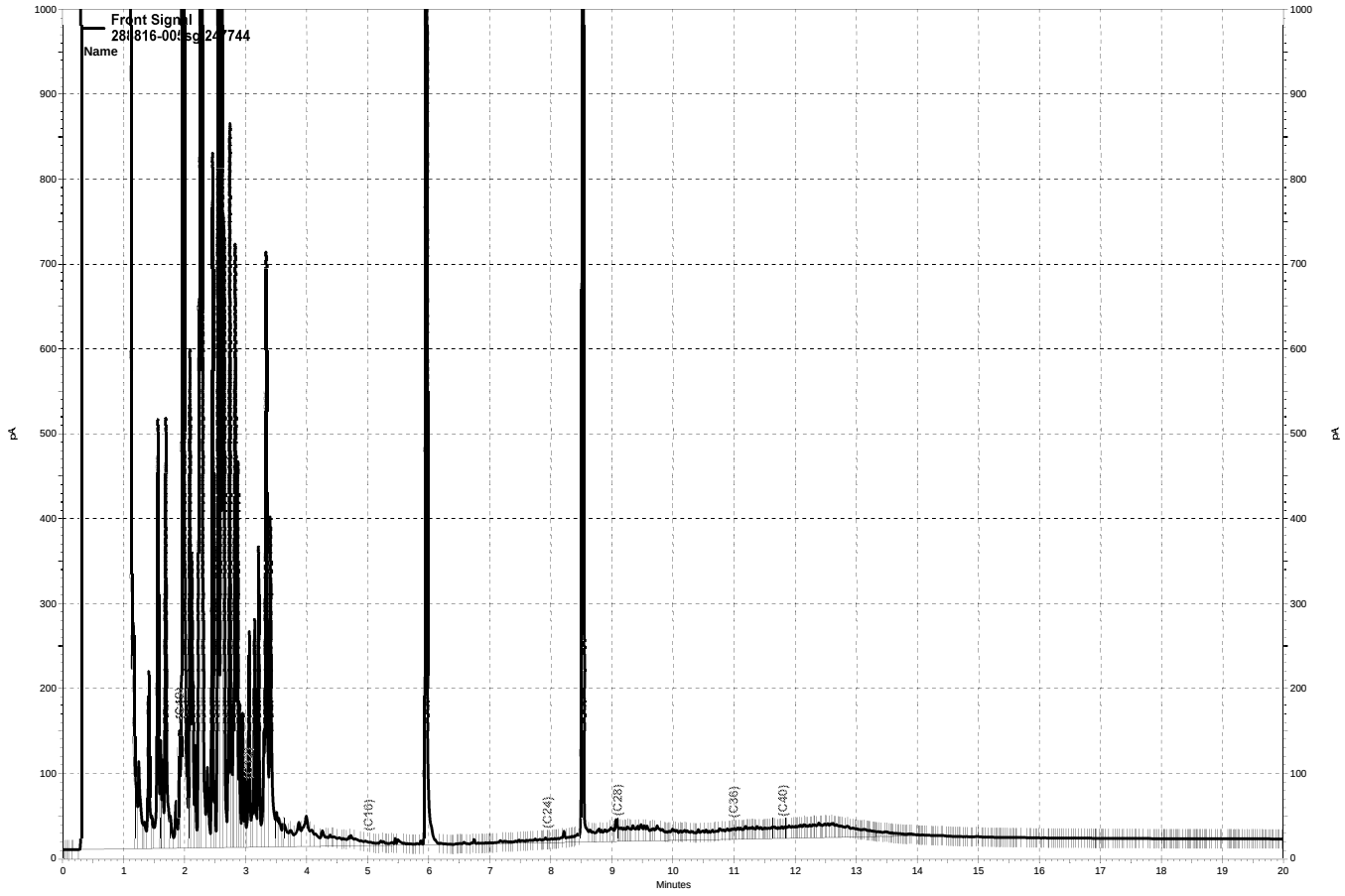

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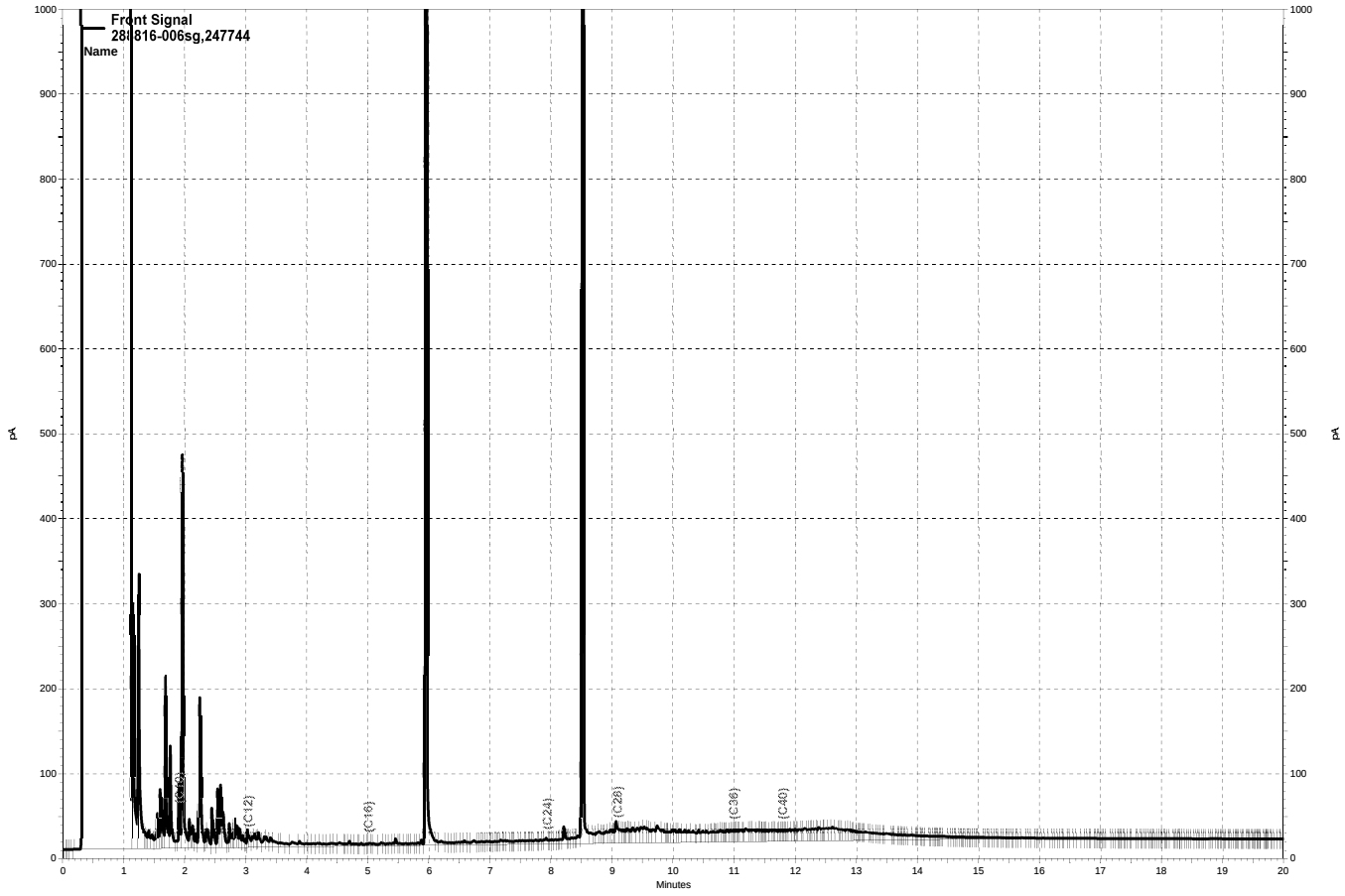

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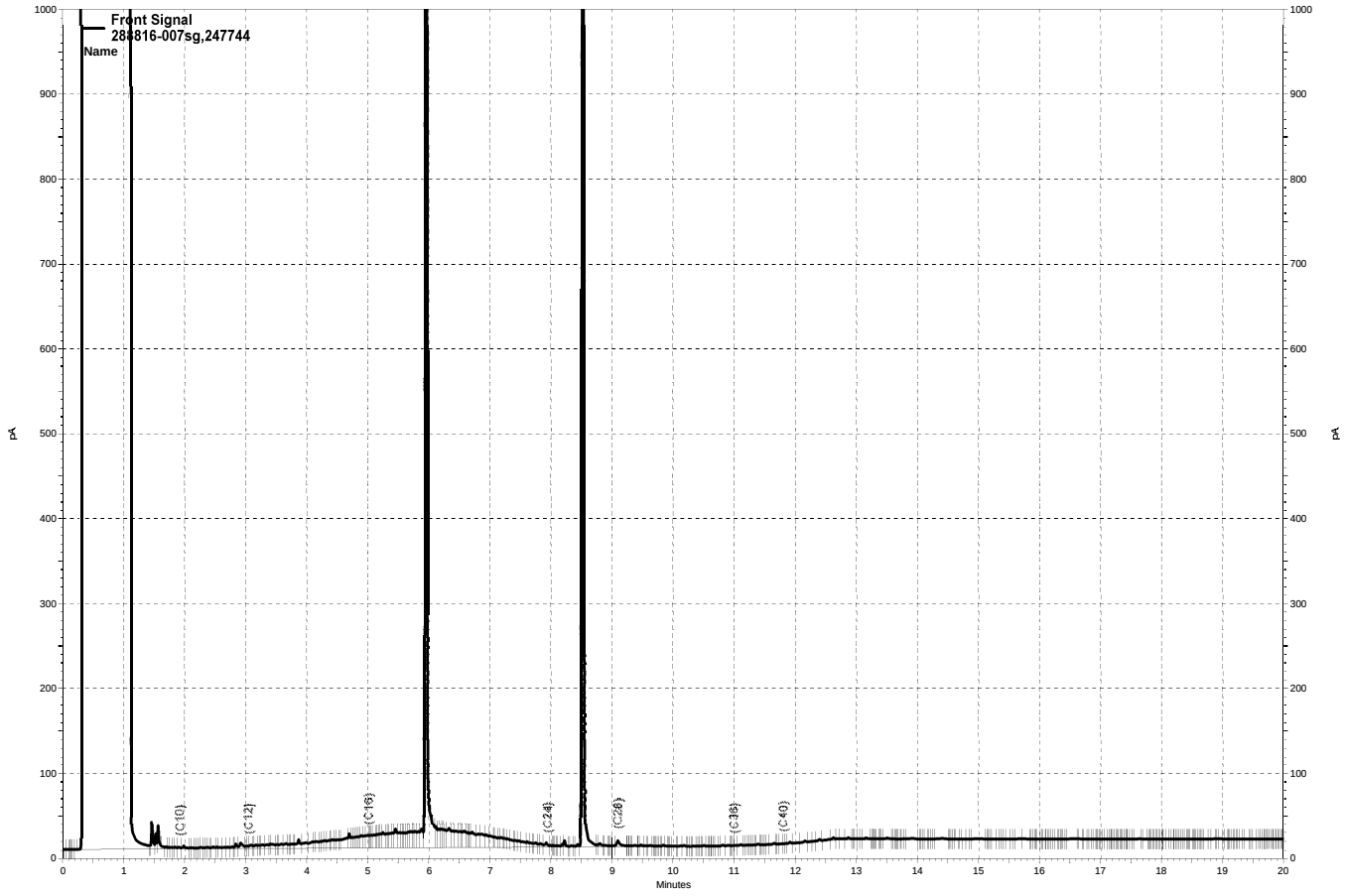

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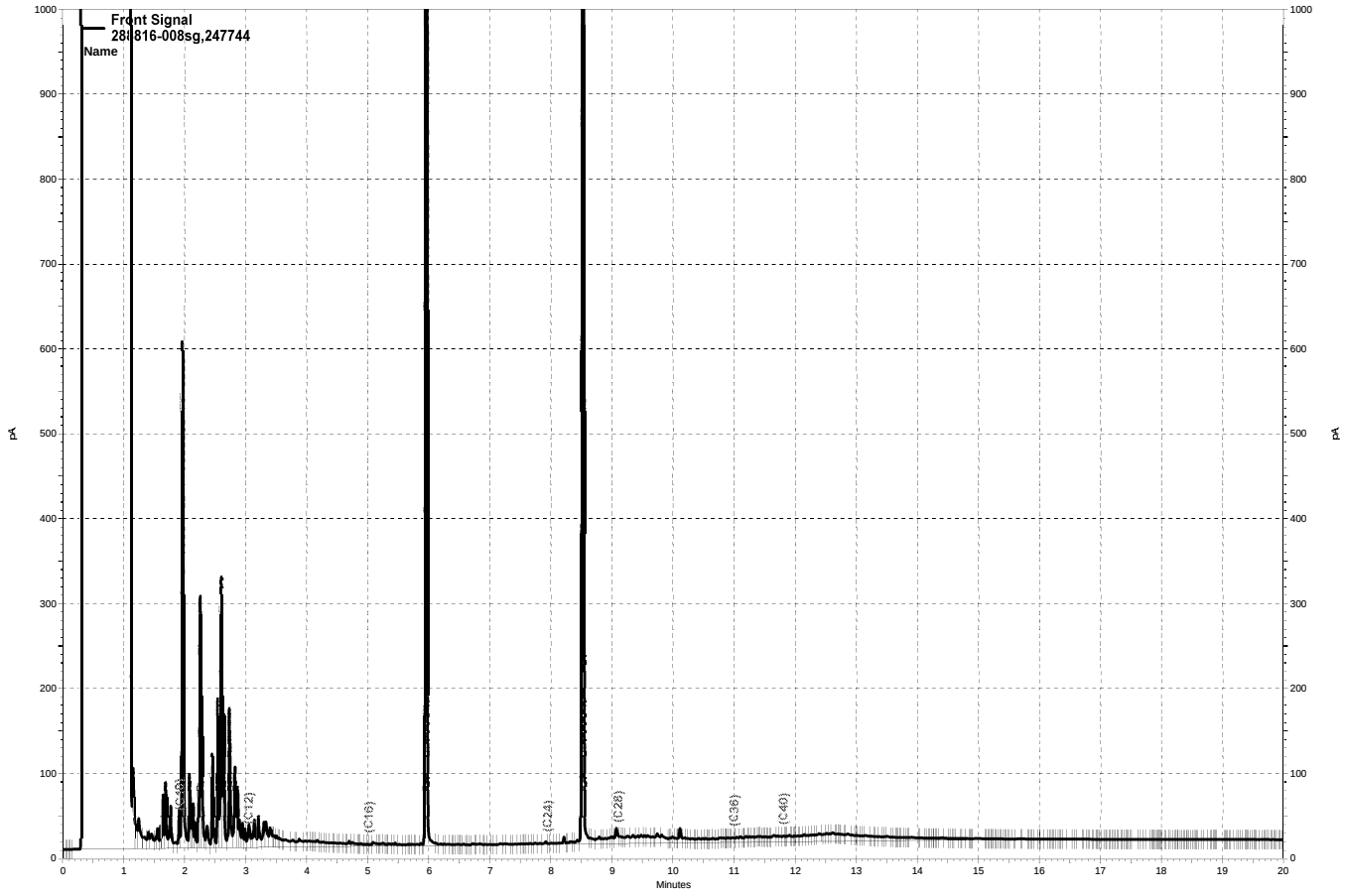

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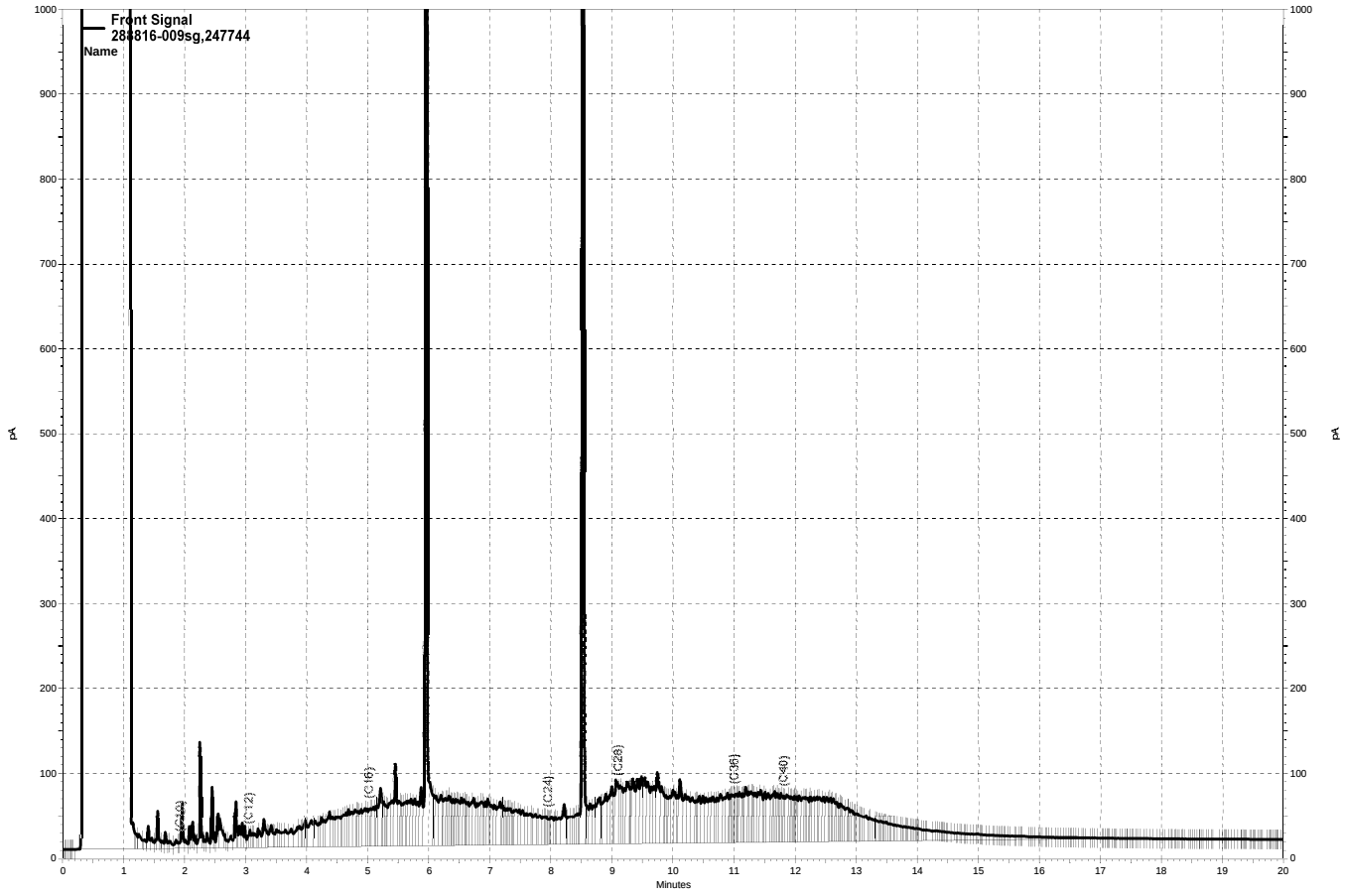

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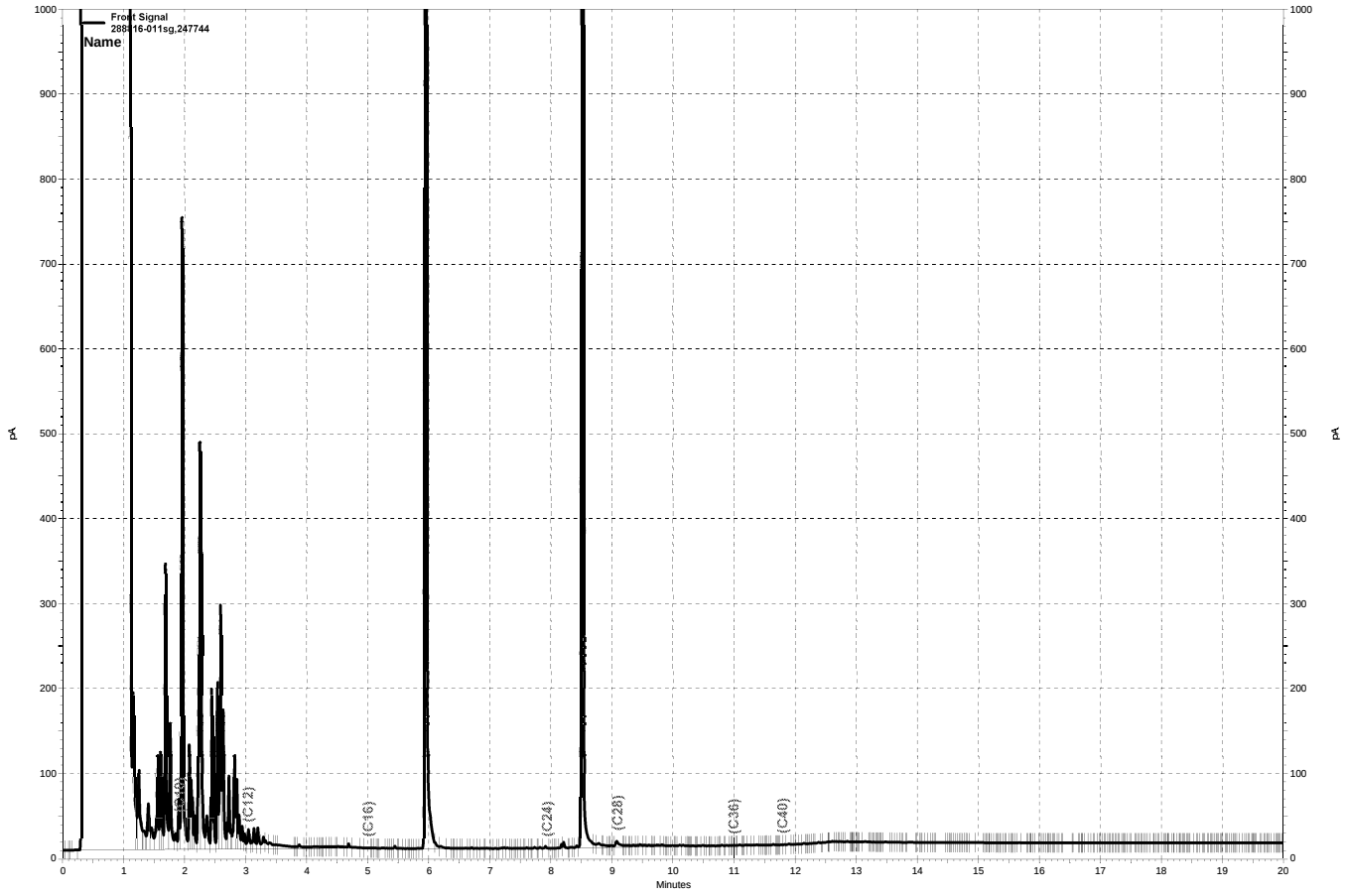

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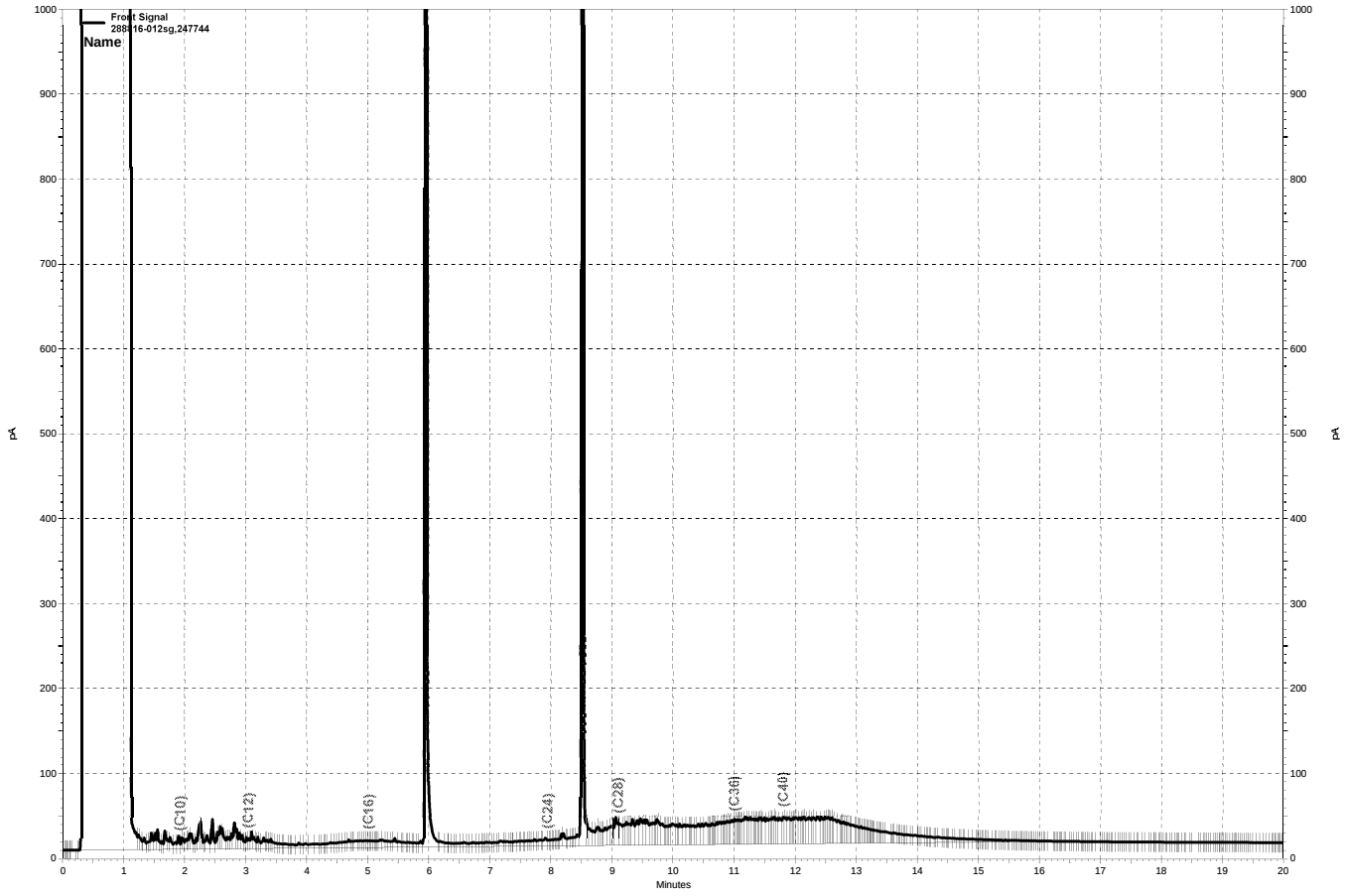

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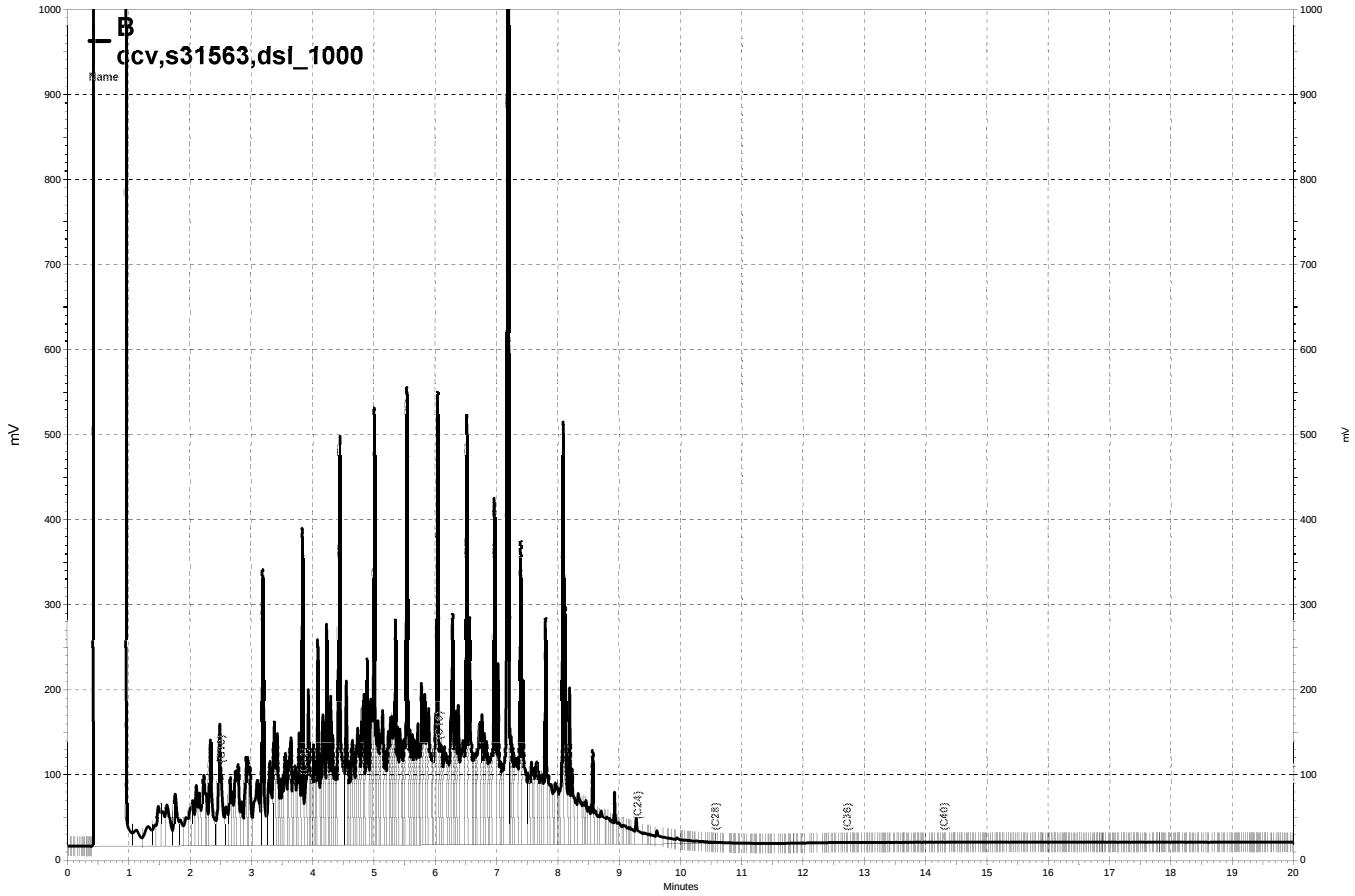

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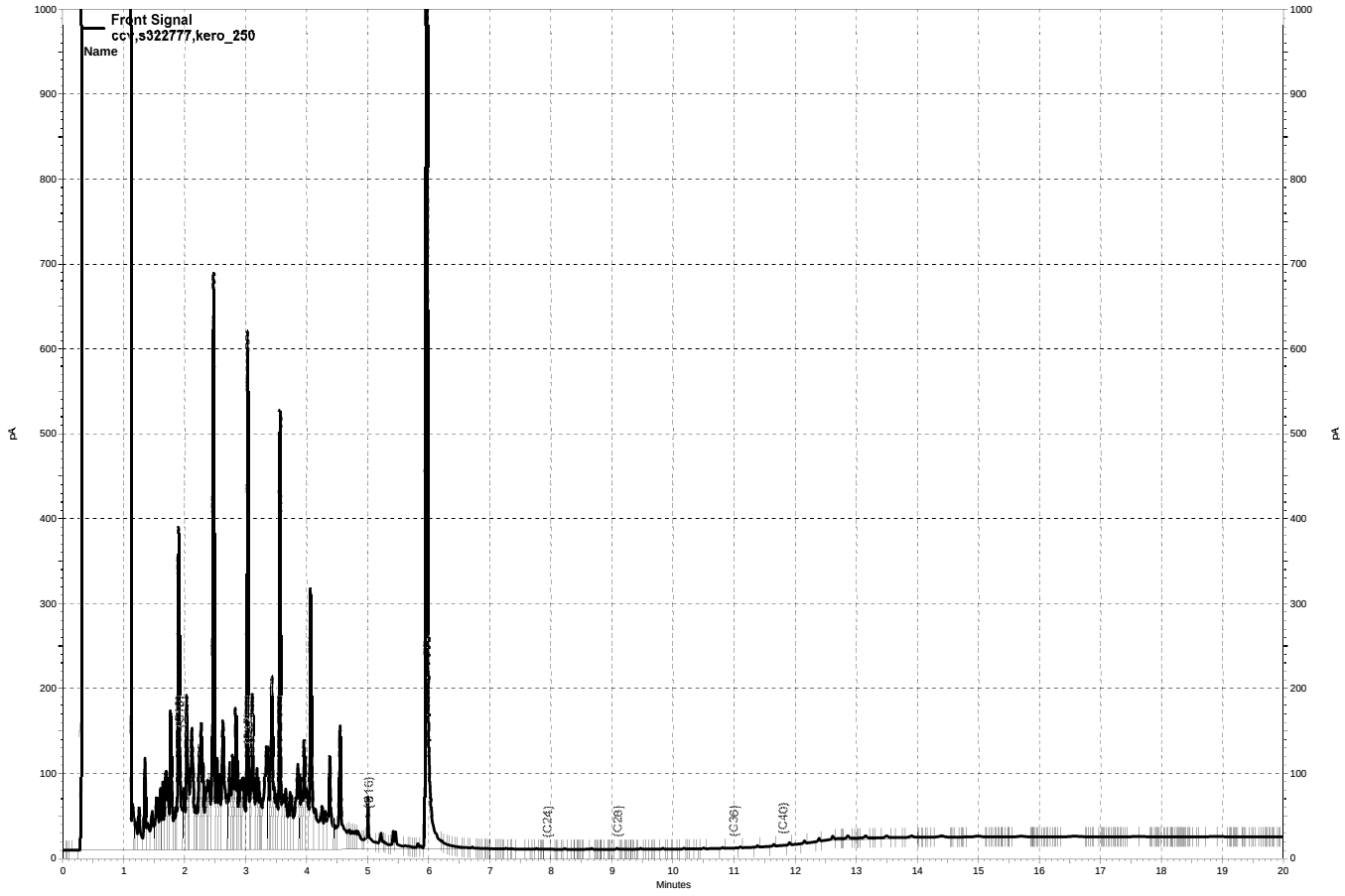

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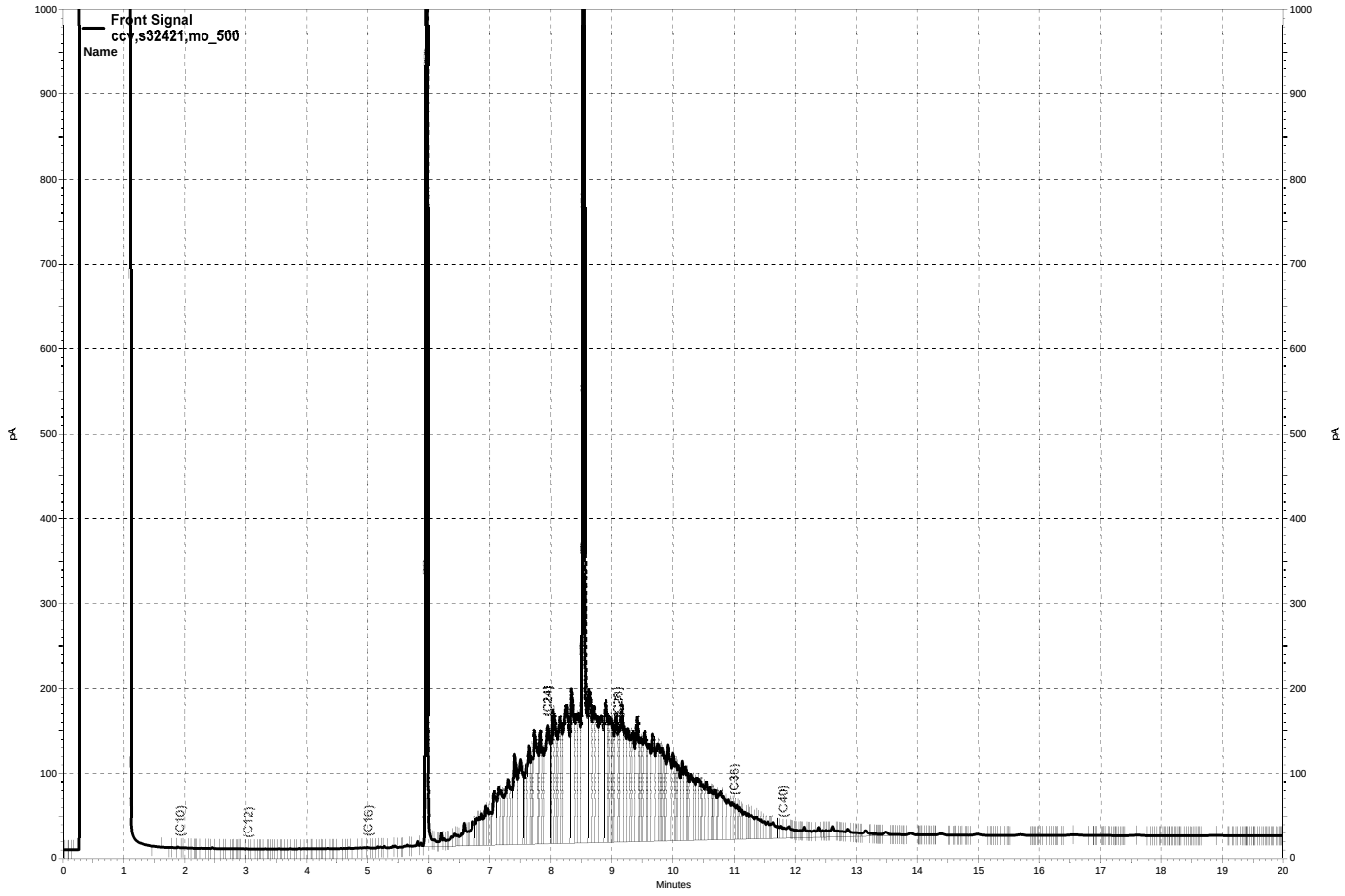

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Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/11/17
Units:	ug/L	Received:	05/11/17

Field ID:	MW-7	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	247739
Lab ID:	288816-001	Analyzed:	05/12/17

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	0.85	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-120
1,2-Dichloroethane-d4	96	73-136
Toluene-d8	100	80-120
Bromofluorobenzene	99	80-120

Field ID:	RW-A2	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	247739
Lab ID:	288816-002	Analyzed:	05/12/17

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-120
1,2-Dichloroethane-d4	93	73-136
Toluene-d8	103	80-120
Bromofluorobenzene	102	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/11/17
Units:	ug/L	Received:	05/11/17

Field ID:	MW-6	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	247786
Lab ID:	288816-003	Analyzed:	05/14/17

Analyte	Result	RL
Gasoline C7-C12	780	50
MTBE	4.3	0.50
Benzene	37	0.50
Toluene	3.9	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	3.8	0.50
o-Xylene	0.84	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-120
1,2-Dichloroethane-d4	101	73-136
Toluene-d8	100	80-120
Bromofluorobenzene	96	80-120

Field ID:	RW-B1	Diln Fac:	16.67
Type:	SAMPLE	Batch#:	247739
Lab ID:	288816-004	Analyzed:	05/12/17

Analyte	Result	RL
Gasoline C7-C12	1,200	830
MTBE	ND	8.3
Benzene	1,000	8.3
Toluene	60	8.3
Ethylbenzene	17	8.3
m,p-Xylenes	20	8.3
o-Xylene	18	8.3

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-120
1,2-Dichloroethane-d4	96	73-136
Toluene-d8	99	80-120
Bromofluorobenzene	98	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/11/17
Units:	ug/L	Received:	05/11/17

Field ID:	RW-B4	Diln Fac:	50.00
Type:	SAMPLE	Batch#:	247837
Lab ID:	288816-005	Analyzed:	05/16/17

Analyte	Result	RL
Gasoline C7-C12	7,600	2,500
MTBE	ND	25
Benzene	3,600	25
Toluene	41	25
Ethylbenzene	100	25
m,p-Xylenes	ND	25
o-Xylene	ND	25

Surrogate	%REC	Limits
Dibromofluoromethane	94	80-120
1,2-Dichloroethane-d4	106	73-136
Toluene-d8	95	80-120
Bromofluorobenzene	106	80-120

Field ID:	RW-D3	Diln Fac:	7.143
Type:	SAMPLE	Batch#:	247786
Lab ID:	288816-006	Analyzed:	05/15/17

Analyte	Result	RL
Gasoline C7-C12	1,300	360
MTBE	ND	3.6
Benzene	460	3.6
Toluene	27	3.6
Ethylbenzene	19	3.6
m,p-Xylenes	41	3.6
o-Xylene	45	3.6

Surrogate	%REC	Limits
Dibromofluoromethane	95	80-120
1,2-Dichloroethane-d4	90	73-136
Toluene-d8	99	80-120
Bromofluorobenzene	97	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/11/17
Units:	ug/L	Received:	05/11/17

Field ID:	RW-A2-D	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	247739
Lab ID:	288816-007	Analyzed:	05/12/17

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-120
1,2-Dichloroethane-d4	95	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	103	80-120

Field ID:	RW-D6	Diln Fac:	2.500
Type:	SAMPLE	Batch#:	247786
Lab ID:	288816-008	Analyzed:	05/15/17

Analyte	Result	RL
Gasoline C7-C12	1,200	130
MTBE	ND	1.3
Benzene	180	1.3
Toluene	9.5	1.3
Ethylbenzene	17	1.3
m,p-Xylenes	7.9	1.3
o-Xylene	1.7	1.3

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-120
1,2-Dichloroethane-d4	93	73-136
Toluene-d8	100	80-120
Bromofluorobenzene	103	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/11/17
Units:	ug/L	Received:	05/11/17

Field ID:	RW-D5	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	247786
Lab ID:	288816-009	Analyzed:	05/14/17

Analyte	Result	RL
Gasoline C7-C12	370	50
MTBE	ND	0.50
Benzene	84	0.50
Toluene	1.6	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	1.2	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-120
1,2-Dichloroethane-d4	99	73-136
Toluene-d8	98	80-120
Bromofluorobenzene	100	80-120

Field ID:	RW-1	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	247739
Lab ID:	288816-010	Analyzed:	05/12/17

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-120
1,2-Dichloroethane-d4	96	73-136
Toluene-d8	100	80-120
Bromofluorobenzene	98	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/11/17
Units:	ug/L	Received:	05/11/17

Field ID:	RW-D9	Diln Fac:	12.50
Type:	SAMPLE	Batch#:	247837
Lab ID:	288816-011	Analyzed:	05/16/17

Analyte	Result	RL
Gasoline C7-C12	1,900	630
MTBE	ND	6.3
Benzene	910	6.3
Toluene	ND	6.3
Ethylbenzene	20	6.3
m,p-Xylenes	17	6.3
o-Xylene	ND	6.3

Surrogate	%REC	Limits
Dibromofluoromethane	95	80-120
1,2-Dichloroethane-d4	104	73-136
Toluene-d8	92	80-120
Bromofluorobenzene	102	80-120

Field ID:	RW-D8	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	247739
Lab ID:	288816-012	Analyzed:	05/12/17

Analyte	Result	RL
Gasoline C7-C12	170	50
MTBE	ND	0.50
Benzene	1.4	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-120
1,2-Dichloroethane-d4	99	73-136
Toluene-d8	100	80-120
Bromofluorobenzene	99	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/11/17
Units:	ug/L	Received:	05/11/17

Field ID:	EB-3	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	247739
Lab ID:	288816-013	Analyzed:	05/12/17

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-120
1,2-Dichloroethane-d4	94	73-136
Toluene-d8	100	80-120
Bromofluorobenzene	101	80-120

Type:	BLANK	Batch#:	247739
Lab ID:	QC885656	Analyzed:	05/12/17
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-120
1,2-Dichloroethane-d4	95	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	98	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/11/17
Units:	ug/L	Received:	05/11/17

Type: BLANK Batch#: 247786
Lab ID: QC885853 Analyzed: 05/14/17
Diln Fac: 1.000

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-120
1,2-Dichloroethane-d4	100	73-136
Toluene-d8	99	80-120
Bromofluorobenzene	112	80-120

Type: BLANK Batch#: 247837
Lab ID: QC886053 Analyzed: 05/16/17
Diln Fac: 1.000

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-120
1,2-Dichloroethane-d4	105	73-136
Toluene-d8	98	80-120
Bromofluorobenzene	108	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	247739
Units:	ug/L	Analyzed:	05/12/17
Diln Fac:	1.000		

Type: BS Lab ID: QC885657

Analyte	Spiked	Result	%REC	Limits
MTBE	12.50	11.56	92	63-120
Benzene	12.50	12.99	104	78-123
Toluene	12.50	13.36	107	80-120
Ethylbenzene	12.50	13.42	107	80-122
m,p-Xylenes	25.00	27.31	109	79-123
o-Xylene	12.50	13.42	107	77-120

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-120
1,2-Dichloroethane-d4	99	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	98	80-120

Type: BSD Lab ID: QC885658

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	12.50	11.19	90	63-120	3	20
Benzene	12.50	12.60	101	78-123	3	20
Toluene	12.50	12.53	100	80-120	6	20
Ethylbenzene	12.50	12.70	102	80-122	6	20
m,p-Xylenes	25.00	25.60	102	79-123	6	20
o-Xylene	12.50	12.88	103	77-120	4	20

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-120
1,2-Dichloroethane-d4	97	73-136
Toluene-d8	100	80-120
Bromofluorobenzene	101	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	247739
Units:	ug/L	Analyzed:	05/12/17
Diln Fac:	1.000		

Type: BS Lab ID: QC885659

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,119	112	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-120
1,2-Dichloroethane-d4	97	73-136
Toluene-d8	102	80-120
Bromofluorobenzene	102	80-120

Type: BSD Lab ID: QC885660

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	1,000	1,073	107	80-120	4	20

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-120
1,2-Dichloroethane-d4	97	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	100	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	247786
Units:	ug/L	Analyzed:	05/14/17
Diln Fac:	1.000		

Type: BS Lab ID: QC885851

Analyte	Spiked	Result	%REC	Limits
MTBE	12.50	13.54	108	63-120
Benzene	12.50	13.16	105	78-123
Toluene	12.50	13.47	108	80-120
Ethylbenzene	12.50	14.42	115	80-122
m,p-Xylenes	25.00	28.89	116	79-123
o-Xylene	12.50	14.49	116	77-120

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-120
1,2-Dichloroethane-d4	104	73-136
Toluene-d8	99	80-120
Bromofluorobenzene	104	80-120

Type: BSD Lab ID: QC885852

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	12.50	11.32	91	63-120	18	20
Benzene	12.50	12.96	104	78-123	2	20
Toluene	12.50	12.99	104	80-120	4	20
Ethylbenzene	12.50	13.61	109	80-122	6	20
m,p-Xylenes	25.00	27.05	108	79-123	7	20
o-Xylene	12.50	13.63	109	77-120	6	20

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-120
1,2-Dichloroethane-d4	102	73-136
Toluene-d8	99	80-120
Bromofluorobenzene	106	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	247786
Units:	ug/L	Analyzed:	05/14/17
Diln Fac:	1.000		

Type: BS Lab ID: QC885860

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	845.4	85	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-120
1,2-Dichloroethane-d4	104	73-136
Toluene-d8	98	80-120
Bromofluorobenzene	104	80-120

Type: BSD Lab ID: QC885861

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	1,000	827.1	83	80-120	2	20

Surrogate	%REC	Limits
Dibromofluoromethane	96	80-120
1,2-Dichloroethane-d4	101	73-136
Toluene-d8	99	80-120
Bromofluorobenzene	103	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	247837
Units:	ug/L	Analyzed:	05/16/17
Diln Fac:	1.000		

Type: BS Lab ID: QC886051

Analyte	Spiked	Result	%REC	Limits
MTBE	12.50	11.61	93	63-120
Benzene	12.50	12.50	100	78-123
Toluene	12.50	12.17	97	80-120
Ethylbenzene	12.50	12.06	96	80-122
m,p-Xylenes	25.00	25.30	101	79-123
o-Xylene	12.50	11.71	94	77-120

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-120
1,2-Dichloroethane-d4	110	73-136
Toluene-d8	94	80-120
Bromofluorobenzene	97	80-120

Type: BSD Lab ID: QC886052

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	12.50	10.66	85	63-120	9	20
Benzene	12.50	11.78	94	78-123	6	20
Toluene	12.50	11.22	90	80-120	8	20
Ethylbenzene	12.50	11.12	89	80-122	8	20
m,p-Xylenes	25.00	21.90	88	79-123	14	20
o-Xylene	12.50	11.18	89	77-120	5	20

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-120
1,2-Dichloroethane-d4	109	73-136
Toluene-d8	96	80-120
Bromofluorobenzene	99	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	247837
Units:	ug/L	Analyzed:	05/16/17
Diln Fac:	1.000		

Type: BS Lab ID: QC886054

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,001	100	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-120
1,2-Dichloroethane-d4	106	73-136
Toluene-d8	97	80-120
Bromofluorobenzene	104	80-120

Type: BSD Lab ID: QC886055

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	1,000	910.6	91	80-120	9	20

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-120
1,2-Dichloroethane-d4	102	73-136
Toluene-d8	96	80-120
Bromofluorobenzene	98	80-120

RPD= Relative Percent Difference

Data File: \\gcmsserver\DD\chem\MSVOA10.i\051417\JEE13TVH.D

Date : 14-MAY-2017 20:25

Client ID:

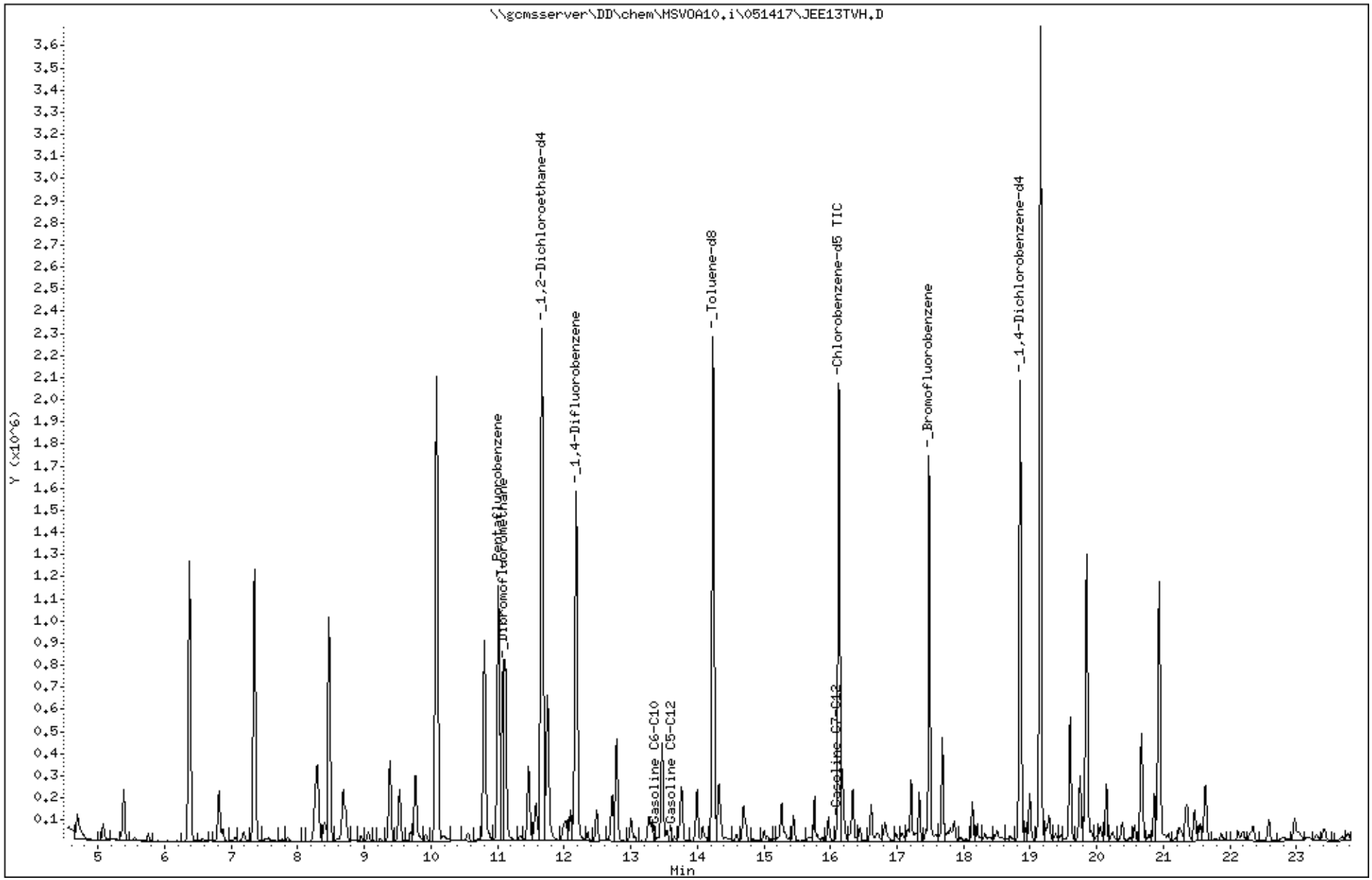
Instrument: MSVOA10.i

Sample Info: s,288816-003

Operator: VOC

Column phase:

Column diameter: 2.00



Data File: \\gcmsserver\DD\chem\MSVOA08.i\051217\HEC20.D

Date : 12-MAY-2017 21:16

Client ID:

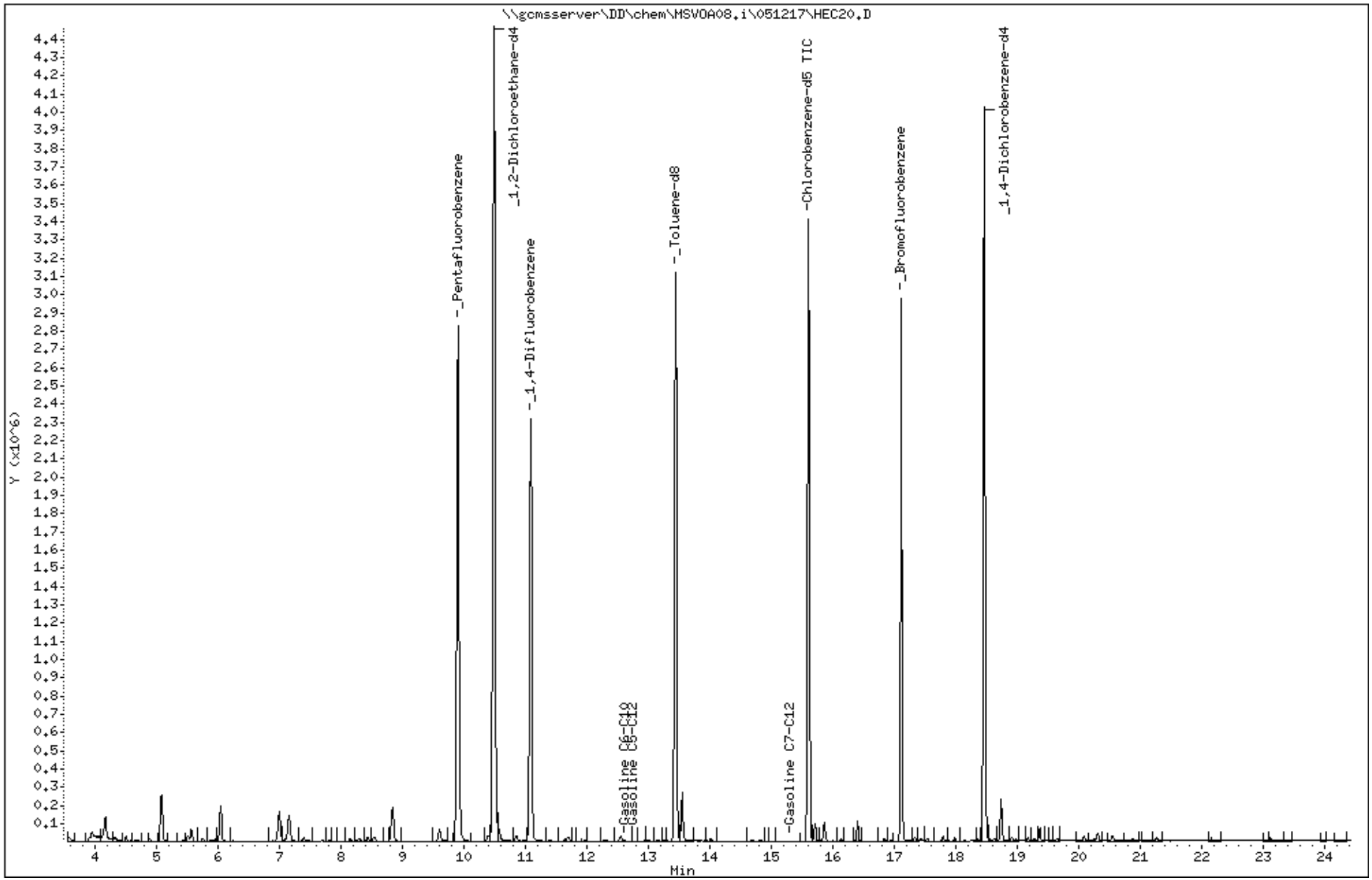
Instrument: MSVOA08.i

Sample Info: S,288816-004

Operator: VOC

Column phase:

Column diameter: 2.00



Data File: \\gcmsserver\DD\chem\MSVOA06.i\051617.b\FEG16TVH.D

Date : 16-MAY-2017 16:26

Client ID:

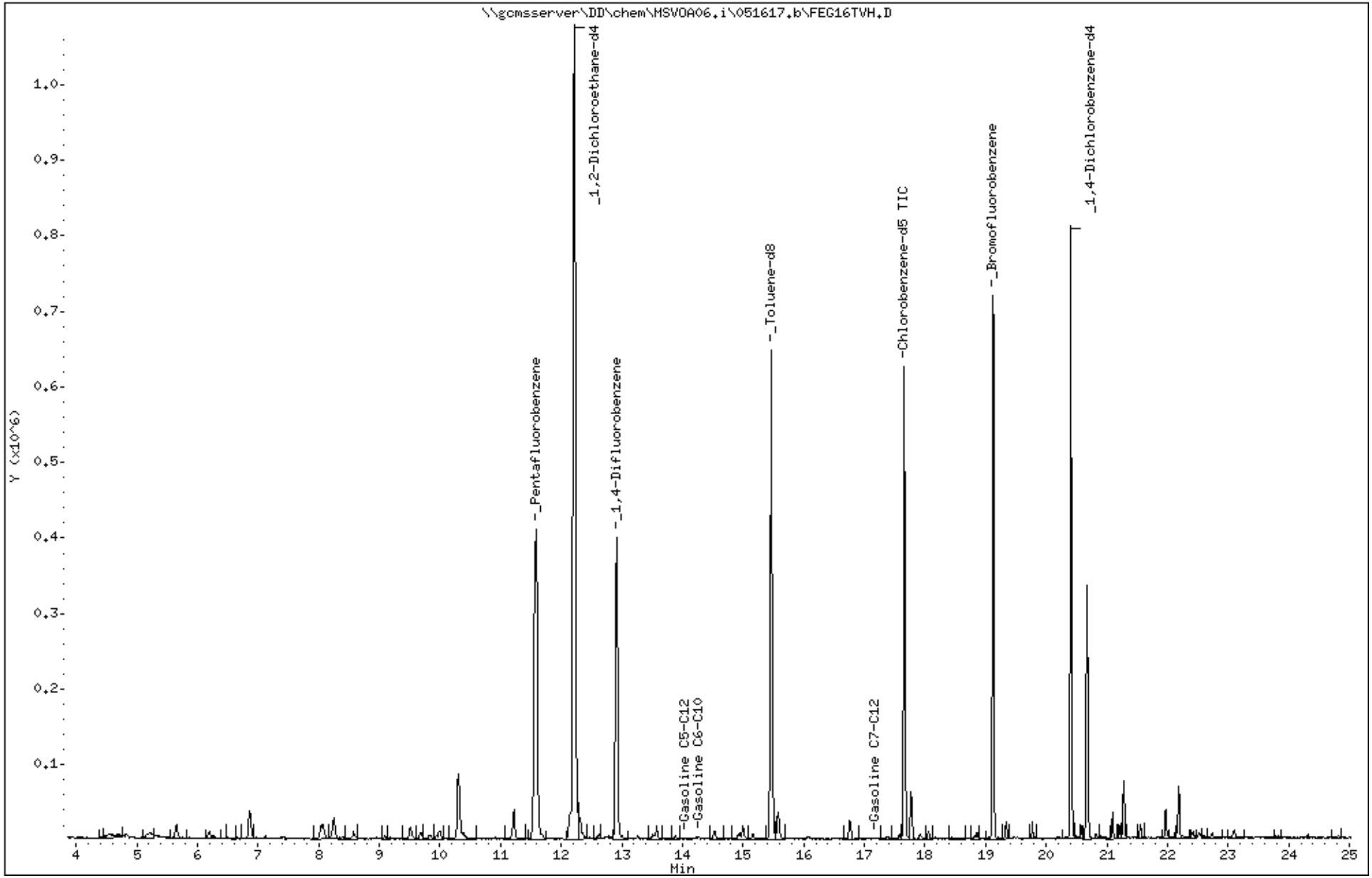
Instrument: MSVOA06.i

Sample Info: S,288816-005,

Operator: VOC

Column phase:

Column diameter: 2.00



Data File: \\gcmsserver\DD\chem\MSVOA10.i\051417\JEE21TVH.D

Date : 15-MAY-2017 01:17

Client ID:

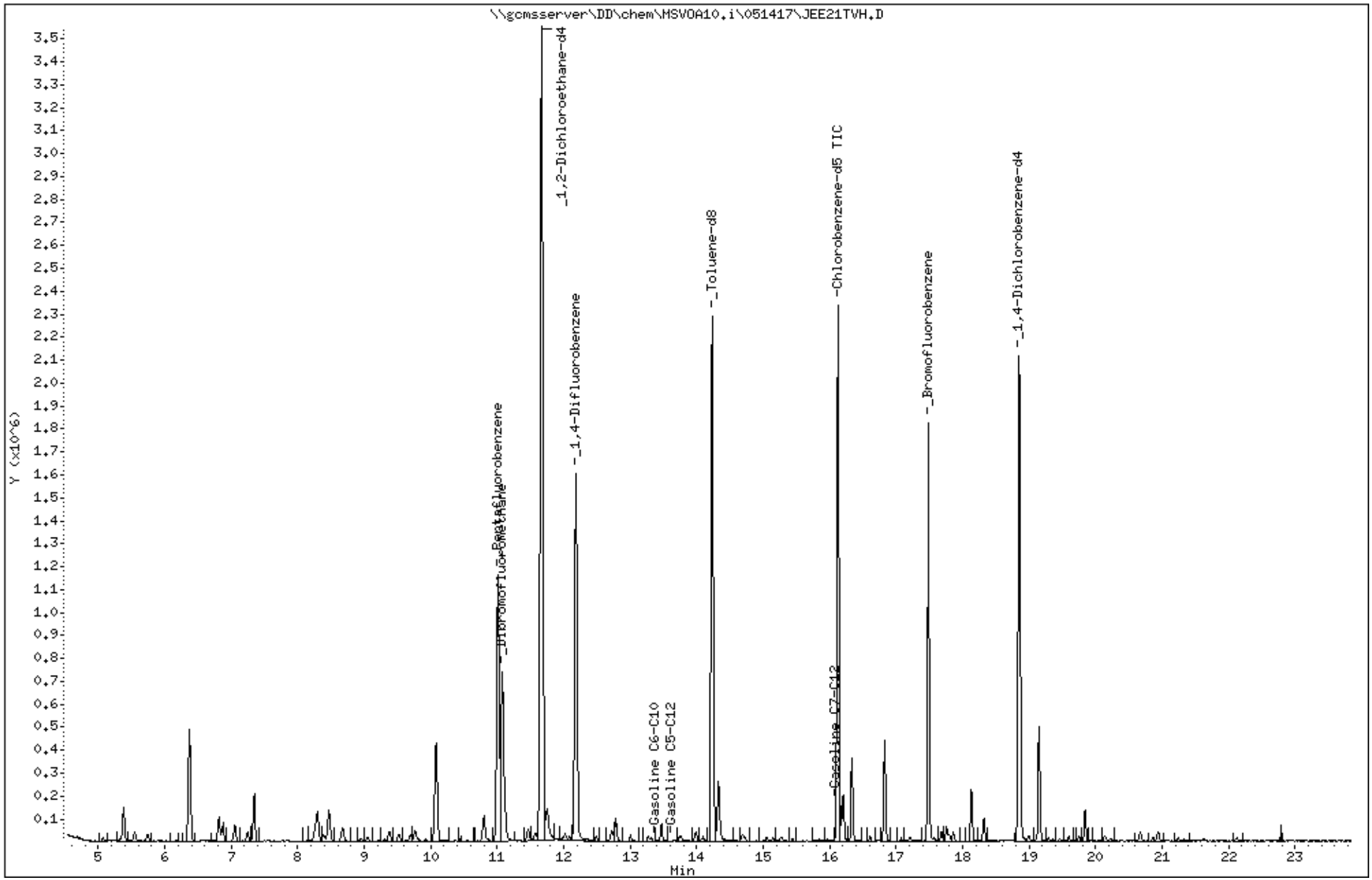
Instrument: MSVOA10.i

Sample Info: s,288816-006

Operator: VOC

Column phase:

Column diameter: 2.00



Data File: \\gcmsserver\DD\chem\MSVOA10.i\051417\JEE20TVH.D

Date : 15-MAY-2017 00:40

Client ID:

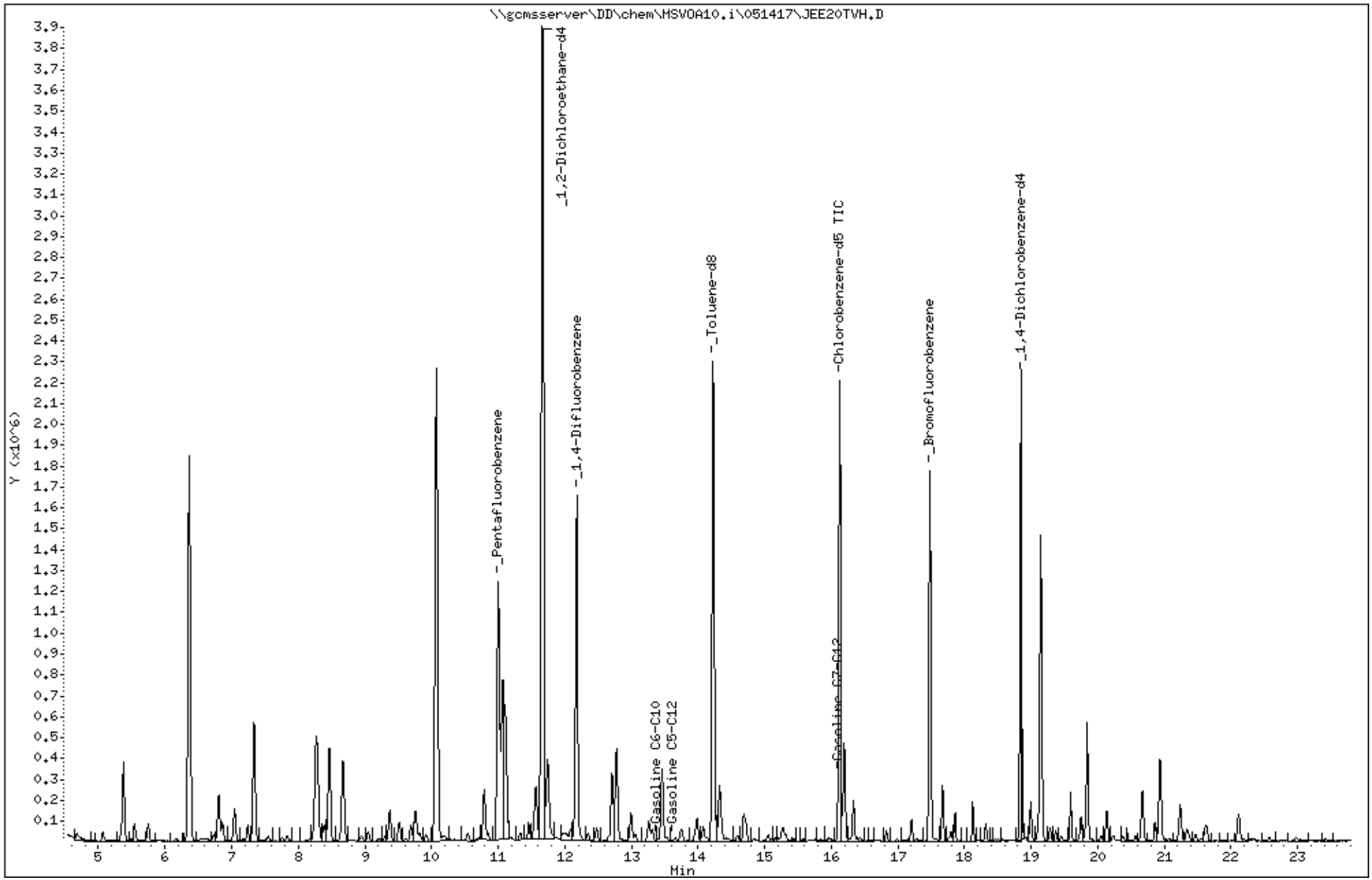
Instrument: MSVOA10.i

Sample Info: s,288816-008

Operator: VOC

Column phase:

Column diameter: 2.00



Data File: \\gcmsserver\DD\chem\MSVOA10.i\051417\JEE14TVH.D

Date : 14-MAY-2017 21:01

Client ID:

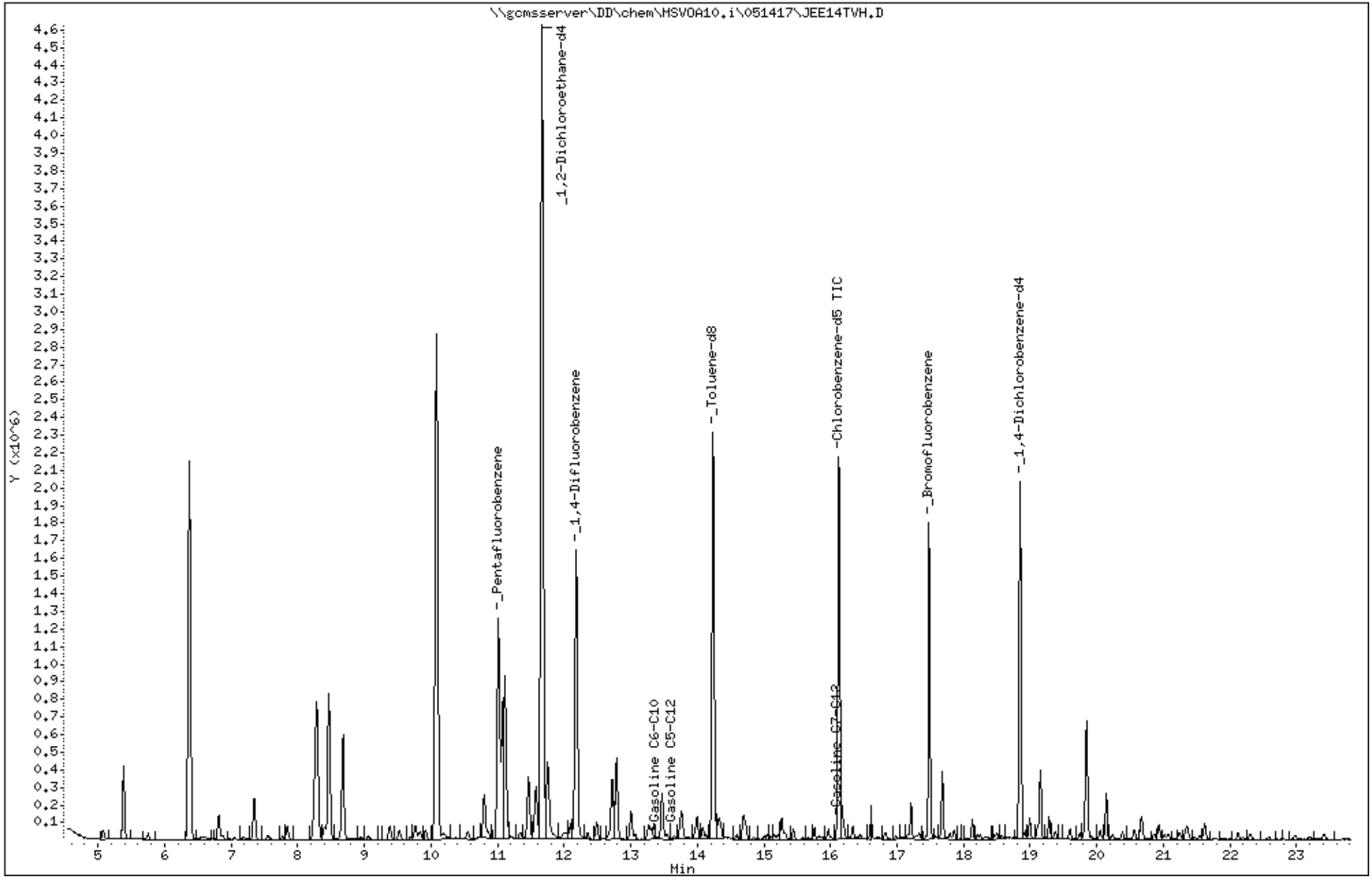
Instrument: MSVOA10.i

Sample Info: s,288816-009

Operator: VOC

Column phase:

Column diameter: 2.00



Data File: \\gcmsserver\DD\chem\MSVOA06.i\051617.b\FEG17TVH.D

Date : 16-MAY-2017 16:59

Client ID:

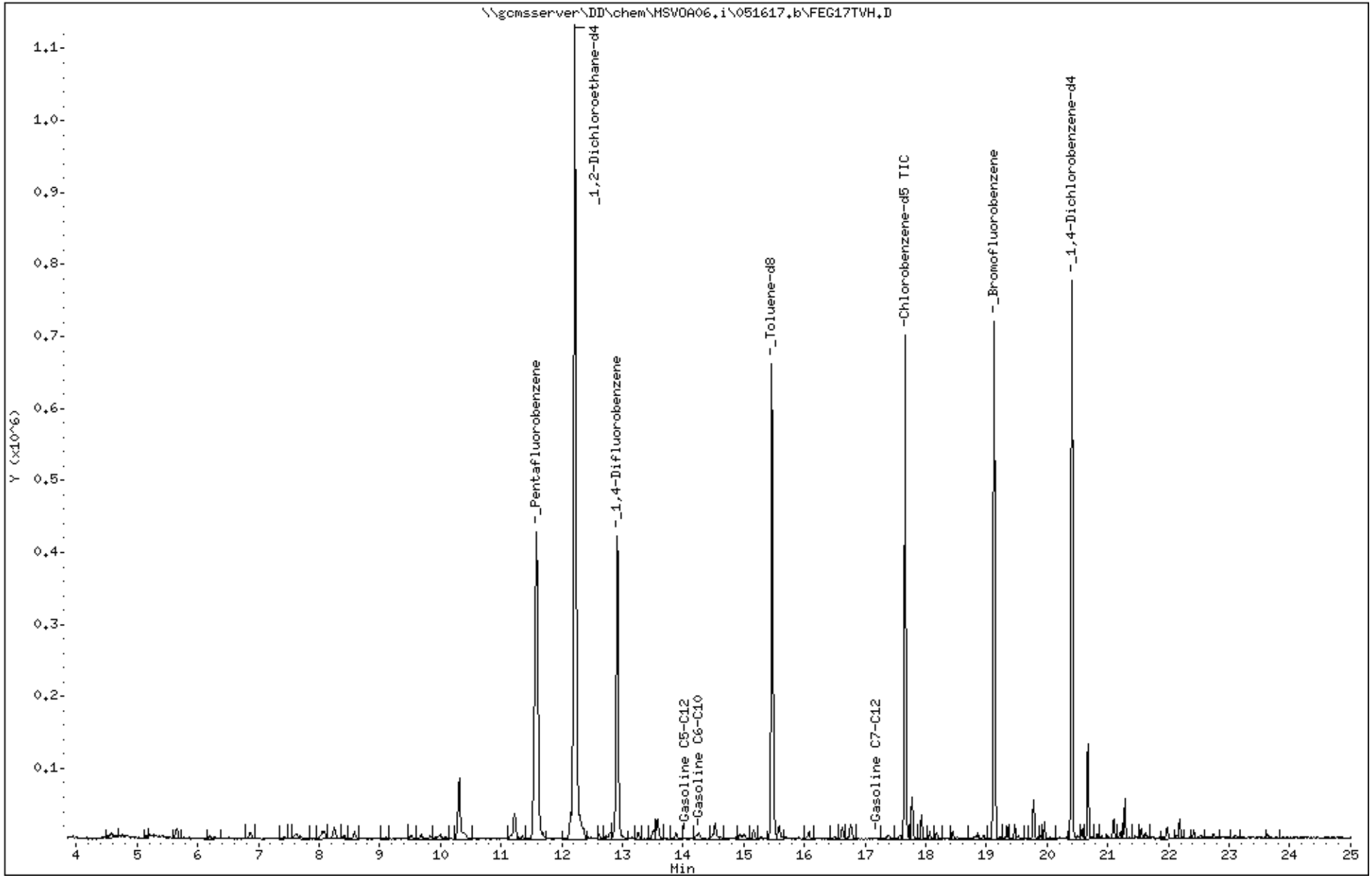
Instrument: MSVOA06.i

Sample Info: S,288816-011,

Operator: VOC

Column phase:

Column diameter: 2.00



Data File: \\gcmsserver\DD\chem\MSVOA08.i\051217\HEC15.D

Date : 12-MAY-2017 18:30

Client ID:

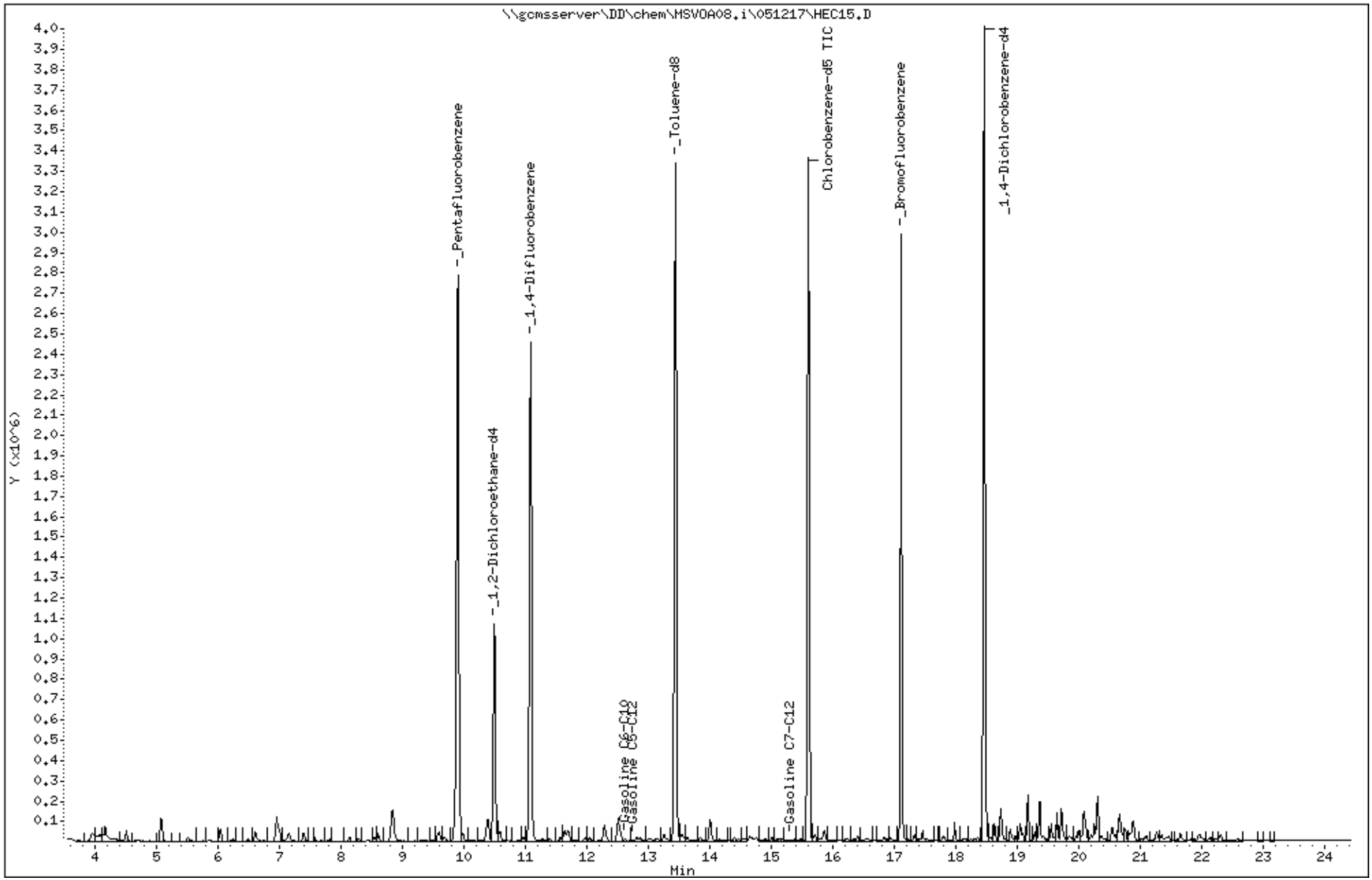
Instrument: MSVOA08.i

Sample Info: S,288816-012

Operator: VOC

Column phase:

Column diameter: 2.00



Data File: \\gcmsserver\DD\chem\MSVOA06.i\051617.b\FEG09TVH.D

Date : 16-MAY-2017 12:13

Client ID:

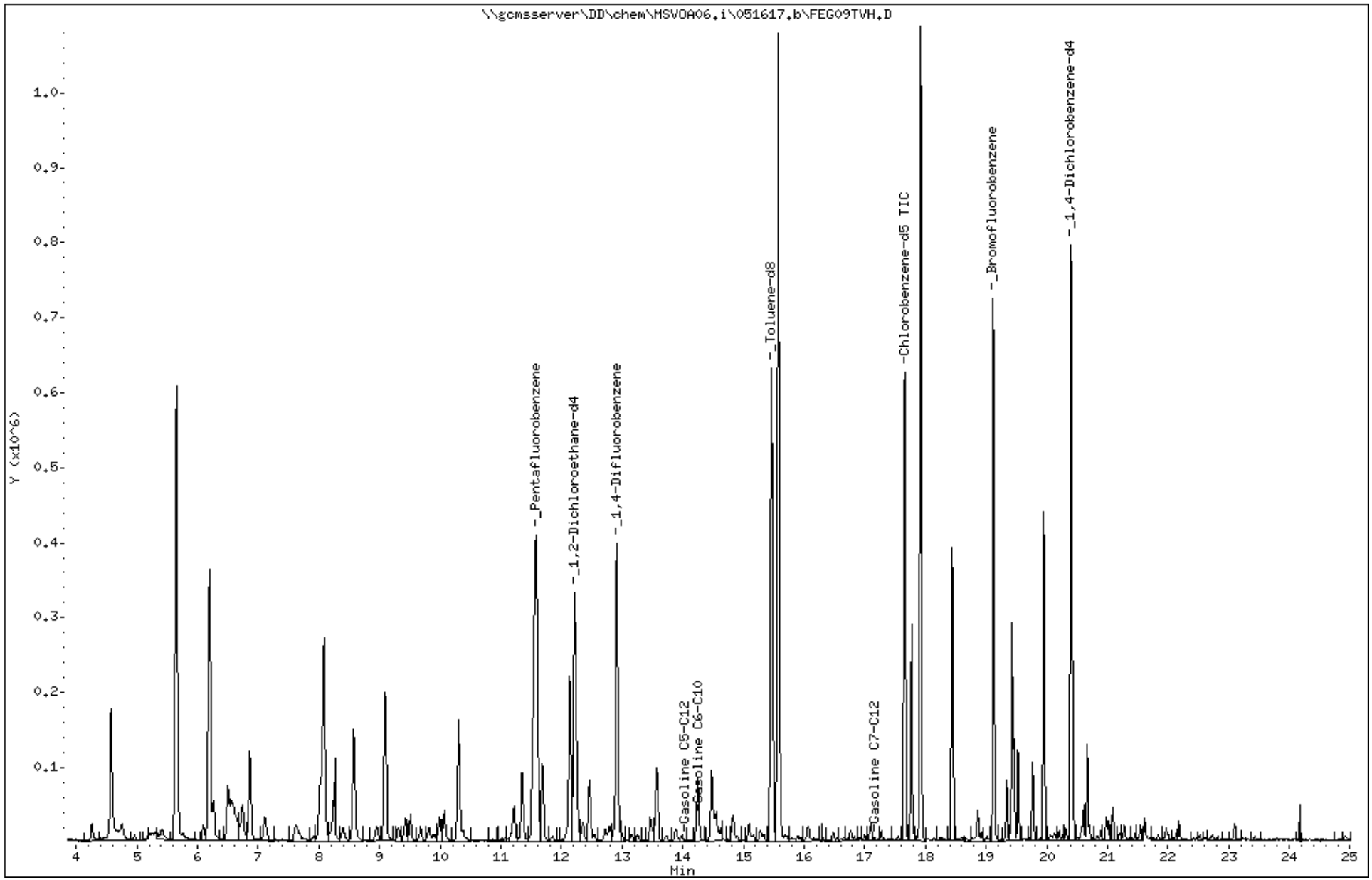
Instrument: MSVOA06.i

Sample Info: ccv/bs,qc886054,247837,

Operator: VOC

Column phase:

Column diameter: 2.00



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Total Organic Carbon (TOC)

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0064.007.001	Analysis:	SM5310C
Analyte:	Total Organic Carbon	Sampled:	05/11/17
Matrix:	Water	Received:	05/11/17
Units:	mg/L	Analyzed:	05/12/17
Batch#:	247733		

Field ID	Type	Lab ID	Result	RL	Diln Fac
MW-7	SAMPLE	288816-001	4.5	0.50	1.000
RW-A2	SAMPLE	288816-002	6.2	0.50	1.000
MW-6	SAMPLE	288816-003	22	2.0	4.000
RW-B1	SAMPLE	288816-004	24	2.0	4.000
RW-B4	SAMPLE	288816-005	38	20	40.00
RW-D3	SAMPLE	288816-006	27	2.0	4.000
RW-A2-D	SAMPLE	288816-007	6.4	0.50	1.000
RW-D6	SAMPLE	288816-008	9.3	2.0	4.000
RW-D5	SAMPLE	288816-009	16	2.0	4.000
RW-1	SAMPLE	288816-010	6.0	0.50	1.000
RW-D9	SAMPLE	288816-011	13	2.0	4.000
RW-D8	SAMPLE	288816-012	9.7	2.0	4.000
EB-3	SAMPLE	288816-013	ND	0.50	1.000
	BLANK	QC885635	ND	0.50	1.000

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Organic Carbon (TOC)

Lab #:	288816	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0064.007.001	Analysis:	SM5310C
Analyte:	Total Organic Carbon	Diln Fac:	1.000
Field ID:	MW-7	Batch#:	247733
MSS Lab ID:	288816-001	Sampled:	05/11/17
Matrix:	Water	Received:	05/11/17
Units:	mg/L	Analyzed:	05/12/17

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
LCS	QC885636		10.00	9.195	92	90-110		
MS	QC885637	4.463	2.000	6.289	91	64-131		
MSD	QC885638		2.000	6.317	93	64-131	0	20

RPD= Relative Percent Difference

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2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 288823
ANALYTICAL REPORT

Terraphase Engineering	Project : 0064.007.001
1404 Franklin Street	Location : Oakland MSC
Oakland, CA 94612	Level : II

Sample ID	Lab ID
TB-1	288823-001
MW-5	288823-002
MW-11	288823-003
MW-11-D	288823-004
EB-1	288823-005
MW-10	288823-006
MW-13	288823-007
MW-14	288823-008
MW-9	288823-009
MW-15	288823-010
MW-15-D	288823-011
MW-17	288823-012
MW-8	288823-013
MW-16	288823-014
MW-2	288823-015
MW-18	288823-016
MW-1	288823-017
EB-2	288823-018
TB-2	288823-019

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Tracy Babjar Date: 05/19/2017

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226 Ext 13107

CA ELAP# 2896, NELAP# 4044-001

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CASE NARRATIVE

Laboratory number:	**288823**
Client:	**Terraphase Engineering**
Project:	**0064.007.001**
Location:	**Oakland MSC**
Request Date:	**05/11/17**
Samples Received:	**05/11/17**

This data package contains sample and QC results for sixteen water samples, requested for the above referenced project on 05/11/17. The samples were received cold and intact.

TPH-Extractables by GC (EPA 8015B):
MW-16 (lab # 288823-014) was diluted due to the dark and viscous nature of the sample extract. No other analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B):
No analytical problems were encountered.

Total Organic Carbon (TOC) (SM5310C):
No analytical problems were encountered.

CT# 288823

Gmail by Google

Tracy Babjar <tbabjar@montrose-env.com>

RE: 0064.007.001 - C&T Login Summary (288823)

Andrew Romolo <andrew.romolo@terraphase.com> Fri, May 12, 2017 at 1:07 PM
To: Tracy Babjar <tracy.babjar@ctberk.com>, Anna Behrens <anna.behrens@terraphase.com>

See clarifications below and let me know if you need anything else.

Thanks

Andrew Romolo, P.G.

From: Tracy Babjar [mailto:tracy.babjar@ctberk.com]
Sent: Friday, May 12, 2017 12:56 PM
To: Anna Behrens <anna.behrens@terraphase.com>
Cc: Andrew Romolo <andrew.romolo@terraphase.com>
Subject: Re: 0064.007.001 - C&T Login Summary (288823)

Please call me back about this request ASAP.

Tracy

On Fri, May 12, 2017 at 12:25 PM, Anna Behrens <anna.behrens@terraphase.com> wrote:

> Sorry – hit send before I was ready!
>
> from ~~288823~~ 28816
>
> - DUP-3 should get changed to: RW-A2-D
>
> from ~~288816~~ 288823
>
> - DUP-1 should get changed to: MW-11-D
> - DUP-2 should get changed to: MW-15-D (Put this on hold since it has not been started yet)
>
> AND please put this sample on HOLD
>
> Hope that's possible, please let me and Andy know.

288823

Confluence Environmental, Inc.
3308 El Camino Ave, Suite 300 #148
Sacramento, CA 95821
916-760-7641 - main
916-473-8617 - fax
www.confluence-env.com

Chain of Custody

Project Name: Oakland MSC

Job Number: 0064.007.001

TAT: (STANDARD) 5 DAY 2 DAY 24 HOUR OTHER:

Lab: Curtis & Tompkins	Site Address: 7101 Edgewater Dr., Oakland CA	Confluence PM: Jason Brown
Address: 2323 Fifth St., Berkeley CA	California Global ID No.: T0600100375	Phone / Fax: 916-760-7641 / 916-473-8617
Contact:	Include EDF w/ Report: Yes No	Confluence Log Code: CESC
Phone/ Fax: 510-486-0900	Consultant / PM: Terraphase/ Anna Behrens	Report to: Anna Behrens
	Phone / Fax: 518-852-9239	Invoice to: Terraphase

	Sample ID	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No.	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Requested Analysis: TPH-d/TPH-mo/TPHk (8015B) *	Requested Analysis: TPH-g,BTEX,MTBE (8260)	Requested Analysis: TOC	Notes and Comments
1	TB-1	–	5/10/17		X			3				3			X	←	Hold
2	MW-5	1505			X			6	2	1		3		X	X	X	TB per client 5/11/17
3	MW-11	1530			X			6	2	1		3		X	X	X	
4	DUP-1	1535			X			6	2	1		3		X	X	X	
5	EB-1	1545			X			6	2	1		3		X	X	X	
6	MW-10	800	5/11/17		X			6	2	1		3		X	X	X	
7	MW-13	825			X			6	2	1		3		X	X	X	
8	MW-14	845			X			6	2	1		3		X	X	X	
9	MW-9	910			X			6	2	1		3		X	X	X	
10	MW-15	935	↓		X			6	2	1		3		X	X	X	

Sampler's Name: Eric Holmberg	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Confluence Environmental	Eric Holmberg	5/11/17	1330	CT	5/11/17	1330
Shipment Date:						
Shipment Method:						

Special Instructions: * Silica gel cleanup for TPH-d, TPH-mo, TPH-K

28823

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Chain of Custody

Project Name: Oakland MSC

Job Number: 0064.007.001

TAT: (STANDARD) 5 DAY 2 DAY 24 HOUR OTHER:

Lab: Curtis & Tompkins	Site Address: 7101 Edgewater Dr., Oakland CA	Confluence PM: Jason Brown
Address: 2323 Fifth St., Berkeley CA	California Global ID No.: T0600100375	Phone / Fax: 916-760-7641 / 916-473-8617
Contact:	Include EDF w/ Report: Yes No	Confluence Log Code: CESC
Phone/ Fax: 510-486-0900	Consultant / PM: Terraphase/ Anna Behrens	Report to: Anna Behrens
	Phone / Fax: 518-852-9239	Invoice to: Terraphase

	Sample ID	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Requested Analysis: TPH-d/TPH-mo/TPHk (8015B) *	Requested Analysis: TPH-g,BTEX,MTBE (8260)	Requested Analysis: TOC	Notes and Comments
11	DUP-2	940	5/4/17		X			6	2	1		3		X	X	X	
12	MW-17	1015			X			6	2	1		3		X	X	X	
13	MW-8	1040			X			6	2	1		3		X	X	X	
14	MW-16	1050			X			6	2	1		3		X	X	X	
15	MW-2	1130			X			6	2	1		3		X	X	X	
16	MW-18	1205			X			6	2	1		3		X	X	X	
17	MW-1	1220			X			6	2	1		3		X	X	X	
18	EB-2	1230			X			6	2	1		3		X	X	X	
19	TB-2	—			X			3				3			X ←		Hold TB for Addn 5/11/17

Sampler's Name: Eric Walmsley	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Confluence Environmental	Eric Walmsley	5-11-17	1330	CFT	5/11	1834
Shipment Date:						
Shipment Method:						

Special Instructions: * silica gel cleanup for TPH-d, TPH-mo TPHK

Curtis & Tompkins, Ltd.

Login # 288323 Date Received 5.11.17 Number of coolers 2
Client TETRA TECH Project 0064.067.001

Date Opened 5/11/17 By (print) _____ (sign) _____
Date Logged in _____ By (print) _____ (sign) _____
Date Labelled _____ By (print) _____ (sign) _____

1. Did cooler come with a shipping slip (airbill, etc) _____ YES (NO)
Shipping info _____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☐ NO
How many _____ Name _____ Date _____
2B. Were custody seals intact upon arrival? _____ YES NO N/A
3. Were custody papers dry and intact when received? _____ YES NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) _____ YES NO
6. Indicate the packing in cooler: (if other, describe) _____

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☐ Wet ☐ Blue/Gel ☐ None Temp(°C) 3.7, 3.2

☐ Temperature blank(s) included? ☐ Thermometer# _____ ☐ IR Gun# _____

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES NO
If YES, what time were they transferred to freezer? _____
9. Did all bottles arrive unbroken/unopened? _____ YES NO
10. Are there any missing / extra samples? _____ YES NO
11. Are samples in the appropriate containers for indicated tests? _____ YES NO
12. Are sample labels present, in good condition and complete? _____ YES NO
13. Do the sample labels agree with custody papers? _____ YES NO
14. Was sufficient amount of sample sent for tests requested? _____ YES NO
15. Are the samples appropriately preserved? _____ YES NO N/A
16. Did you check preservatives for all bottles for each sample? _____ YES NO N/A
17. Did you document your preservative check? (pH strip lot# 2053H39) YES NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO N/A
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO N/A
20. Are bubbles > 6mm absent in VOA samples? _____ YES NO N/A
21. Was the client contacted concerning this sample delivery? _____ YES NO
If YES, Who was called? _____ By _____ Date: _____

COMMENTS 9. Received 1/3 VOAs broken for Sample 19.
20. 2/3 VOAs Received With Bubbles for Sample 17.

Curtis & Tompkins Sample Preservation for 288823

Sample	pH: <2	>9	>12	Other
-002a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-003a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-004a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-005a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-006a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-007a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____

Sample	pH: <2	>9	>12	Other
f	[ ]	[ ]	[ ]	____
-008a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-009a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-010a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-011a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-012a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-013a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____

Sample	pH: <2	>9	>12	Other
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-014a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-015a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-016a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-017a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____
-018a	[ ]	[ ]	[ ]	____
b	[ ]	[ ]	[ ]	____
c	[ ]	[ ]	[ ]	____
d	[X]	[ ]	[ ]	____
e	[ ]	[ ]	[ ]	____
f	[ ]	[ ]	[ ]	____

Analyst: GM

Date: 5/1/17

Page 1 of 1

Curtis & Tompkins, Ltd.

Detections Summary for 288823

Results for any subcontracted analyses are not included in this summary.

Client : Terraphase Engineering
Project : 0064.007.001
Location : Oakland MSC

Client Sample ID : MW-5 Laboratory Sample ID : 288823-002

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Kerosene C10-C16	640	Y	50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Diesel C10-C24	530	Y	50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Gasoline C7-C12	2,300		50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
MTBE	3.1		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Benzene	1.1		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Toluene	1.2		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Ethylbenzene	29		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
m,p-Xylenes	4.6		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
o-Xylene	1.1		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Total Organic Carbon	4.7		2.0	mg/L	TOTAL	4.000	SM5310C	METHOD

Client Sample ID : MW-11 Laboratory Sample ID : 288823-003

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	230		50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
MTBE	9.3		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Total Organic Carbon	7.6		0.50	mg/L	TOTAL	1.000	SM5310C	METHOD

Client Sample ID : MW-11-D Laboratory Sample ID : 288823-004

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	240		50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
MTBE	9.0		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Total Organic Carbon	11		2.0	mg/L	TOTAL	4.000	SM5310C	METHOD

Client Sample ID : EB-1 Laboratory Sample ID : 288823-005

No Detections

Client Sample ID : MW-10 Laboratory Sample ID : 288823-006

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Total Organic Carbon	8.4		0.50	mg/L	TOTAL	1.000	SM5310C	METHOD

Curtis & Tompkins, Ltd.

Client Sample ID : MW-13 Laboratory Sample ID : 288823-007

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	94	Y	50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Motor Oil C24-C36	710		300	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Total Organic Carbon	4.8		0.50	mg/L	TOTAL	1.000	SM5310C	METHOD

Client Sample ID : MW-14 Laboratory Sample ID : 288823-008

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	92		50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Total Organic Carbon	23		2.0	mg/L	TOTAL	4.000	SM5310C	METHOD

Client Sample ID : MW-9 Laboratory Sample ID : 288823-009

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	110		50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Benzene	9.0		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Toluene	0.70		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
m,p-Xylenes	1.2		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Total Organic Carbon	31		2.0	mg/L	TOTAL	4.000	SM5310C	METHOD

Client Sample ID : MW-15 Laboratory Sample ID : 288823-010

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	100	Y	50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Motor Oil C24-C36	450		300	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Gasoline C7-C12	78		50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Total Organic Carbon	27		2.0	mg/L	TOTAL	4.000	SM5310C	METHOD

Client Sample ID : MW-17 Laboratory Sample ID : 288823-012

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	71		50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Benzene	0.81		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Total Organic Carbon	7.8		2.0	mg/L	TOTAL	4.000	SM5310C	METHOD

Client Sample ID : MW-8 Laboratory Sample ID : 288823-013

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Total Organic Carbon	3.9		0.50	mg/L	TOTAL	1.000	SM5310C	METHOD

Curtis & Tompkins, Ltd.

Client Sample ID : MW-16 Laboratory Sample ID : 288823-014

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Kerosene C10-C16	380		150	ug/L	As Recd	3.000	EPA 8015B	EPA 3520C
Diesel C10-C24	1,200	Y	150	ug/L	As Recd	3.000	EPA 8015B	EPA 3520C
Motor Oil C24-C36	7,000		900	ug/L	As Recd	3.000	EPA 8015B	EPA 3520C
Total Organic Carbon	15		2.0	mg/L	TOTAL	4.000	SM5310C	METHOD

Client Sample ID : MW-2 Laboratory Sample ID : 288823-015

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Benzene	1.2		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Total Organic Carbon	10		2.0	mg/L	TOTAL	4.000	SM5310C	METHOD

Client Sample ID : MW-18 Laboratory Sample ID : 288823-016

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Total Organic Carbon	18		2.0	mg/L	TOTAL	4.000	SM5310C	METHOD

Client Sample ID : MW-1 Laboratory Sample ID : 288823-017

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Kerosene C10-C16	160	Y	63	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Diesel C10-C24	170	Y	63	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Gasoline C7-C12	990		50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Benzene	3.5		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Toluene	1.2		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
m,p-Xylenes	1.5		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Total Organic Carbon	47		2.0	mg/L	TOTAL	4.000	SM5310C	METHOD

Client Sample ID : EB-2 Laboratory Sample ID : 288823-018

No Detections

Y = Sample exhibits chromatographic pattern which does not resemble standard

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 3520C
Project#:	0064.007.001	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	05/10/17
Units:	ug/L	Received:	05/11/17

Field ID:	MW-5	Batch#:	247806
Type:	SAMPLE	Prepared:	05/15/17
Lab ID:	288823-002	Analyzed:	05/16/17
Diln Fac:	1.000	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Kerosene C10-C16	640 Y	50
Diesel C10-C24	530 Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	79	52-138

Field ID:	MW-11	Batch#:	247806
Type:	SAMPLE	Prepared:	05/15/17
Lab ID:	288823-003	Analyzed:	05/16/17
Diln Fac:	1.000	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Kerosene C10-C16	ND	50
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	77	52-138

Field ID:	MW-11-D	Batch#:	247806
Type:	SAMPLE	Prepared:	05/15/17
Lab ID:	288823-004	Analyzed:	05/16/17
Diln Fac:	1.000	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Kerosene C10-C16	ND	50
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	69	52-138

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 3520C
Project#:	0064.007.001	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	05/10/17
Units:	ug/L	Received:	05/11/17

Field ID:	EB-1	Batch#:	247806
Type:	SAMPLE	Prepared:	05/15/17
Lab ID:	288823-005	Analyzed:	05/16/17
Diln Fac:	1.000	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Kerosene C10-C16	ND	49
Diesel C10-C24	ND	49
Motor Oil C24-C36	ND	290

Surrogate	%REC	Limits
o-Terphenyl	84	52-138

Field ID:	MW-10	Batch#:	247806
Type:	SAMPLE	Prepared:	05/15/17
Lab ID:	288823-006	Analyzed:	05/16/17
Diln Fac:	1.000	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Kerosene C10-C16	ND	50
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	77	52-138

Field ID:	MW-13	Batch#:	247806
Type:	SAMPLE	Prepared:	05/15/17
Lab ID:	288823-007	Analyzed:	05/16/17
Diln Fac:	1.000	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Kerosene C10-C16	ND	50
Diesel C10-C24	94 Y	50
Motor Oil C24-C36	710	300

Surrogate	%REC	Limits
o-Terphenyl	66	52-138

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 3520C
Project#:	0064.007.001	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	05/10/17
Units:	ug/L	Received:	05/11/17

Field ID:	MW-14	Batch#:	247806
Type:	SAMPLE	Prepared:	05/15/17
Lab ID:	288823-008	Analyzed:	05/16/17
Diln Fac:	1.000	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Kerosene C10-C16	ND	50
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	82	52-138

Field ID:	MW-9	Batch#:	247806
Type:	SAMPLE	Prepared:	05/15/17
Lab ID:	288823-009	Analyzed:	05/16/17
Diln Fac:	1.000	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Kerosene C10-C16	ND	50
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	85	52-138

Field ID:	MW-15	Batch#:	247806
Type:	SAMPLE	Prepared:	05/15/17
Lab ID:	288823-010	Analyzed:	05/16/17
Diln Fac:	1.000	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Kerosene C10-C16	ND	50
Diesel C10-C24	100 Y	50
Motor Oil C24-C36	450	300

Surrogate	%REC	Limits
o-Terphenyl	81	52-138

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 3520C
Project#:	0064.007.001	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	05/10/17
Units:	ug/L	Received:	05/11/17

Field ID:	MW-17	Batch#:	247806
Type:	SAMPLE	Prepared:	05/15/17
Lab ID:	288823-012	Analyzed:	05/16/17
Diln Fac:	1.000	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Kerosene C10-C16	ND	50
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	88	52-138

Field ID:	MW-8	Batch#:	247806
Type:	SAMPLE	Prepared:	05/15/17
Lab ID:	288823-013	Analyzed:	05/16/17
Diln Fac:	1.000	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Kerosene C10-C16	ND	49
Diesel C10-C24	ND	49
Motor Oil C24-C36	ND	290

Surrogate	%REC	Limits
o-Terphenyl	79	52-138

Field ID:	MW-16	Batch#:	247806
Type:	SAMPLE	Prepared:	05/15/17
Lab ID:	288823-014	Analyzed:	05/16/17
Diln Fac:	3.000	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Kerosene C10-C16	380	150
Diesel C10-C24	1,200 Y	150
Motor Oil C24-C36	7,000	900

Surrogate	%REC	Limits
o-Terphenyl	73	52-138

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 3520C
Project#:	0064.007.001	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	05/10/17
Units:	ug/L	Received:	05/11/17

Field ID:	MW-2	Batch#:	247806
Type:	SAMPLE	Prepared:	05/15/17
Lab ID:	288823-015	Analyzed:	05/16/17
Diln Fac:	1.000	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Kerosene C10-C16	ND	50
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	92	52-138

Field ID:	MW-18	Batch#:	247806
Type:	SAMPLE	Prepared:	05/15/17
Lab ID:	288823-016	Analyzed:	05/16/17
Diln Fac:	1.000	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Kerosene C10-C16	ND	50
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	87	52-138

Field ID:	MW-1	Batch#:	247858
Type:	SAMPLE	Prepared:	05/17/17
Lab ID:	288823-017	Analyzed:	05/18/17
Diln Fac:	1.000	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Kerosene C10-C16	160 Y	63
Diesel C10-C24	170 Y	63
Motor Oil C24-C36	ND	380

Surrogate	%REC	Limits
o-Terphenyl	67	52-138

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 3520C
Project#:	0064.007.001	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	05/10/17
Units:	ug/L	Received:	05/11/17

Field ID:	EB-2	Batch#:	247858
Type:	SAMPLE	Prepared:	05/17/17
Lab ID:	288823-018	Analyzed:	05/18/17
Diln Fac:	1.000	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Kerosene C10-C16	ND	50
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	68	52-138

Type:	BLANK	Prepared:	05/15/17
Lab ID:	QC885931	Analyzed:	05/16/17
Diln Fac:	1.000	Cleanup Method:	EPA 3630C
Batch#:	247806		

Analyte	Result	RL
Kerosene C10-C16	ND	50
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	77	52-138

Type:	BLANK	Prepared:	05/16/17
Lab ID:	QC886124	Analyzed:	05/18/17
Diln Fac:	1.000	Cleanup Method:	EPA 3630C
Batch#:	247858		

Analyte	Result	RL
Kerosene C10-C16	ND	50
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	104	52-138

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 3520C
Project#:	0064.007.001	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	247806
Units:	ug/L	Prepared:	05/15/17
Diln Fac:	1.000	Analyzed:	05/16/17

Type: BS
Lab ID: QC885932
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,055	82	52-124

Surrogate	%REC	Limits
o-Terphenyl	90	52-138

Type: BSD
Lab ID: QC885933
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,012	80	52-124	2	34

Surrogate	%REC	Limits
o-Terphenyl	89	52-138

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 3520C
Project#:	0064.007.001	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	247858
Units:	ug/L	Prepared:	05/16/17
Diln Fac:	1.000	Analyzed:	05/17/17

Type: BS Cleanup Method: EPA 3630C
Lab ID: QC886125

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,232	89	52-124

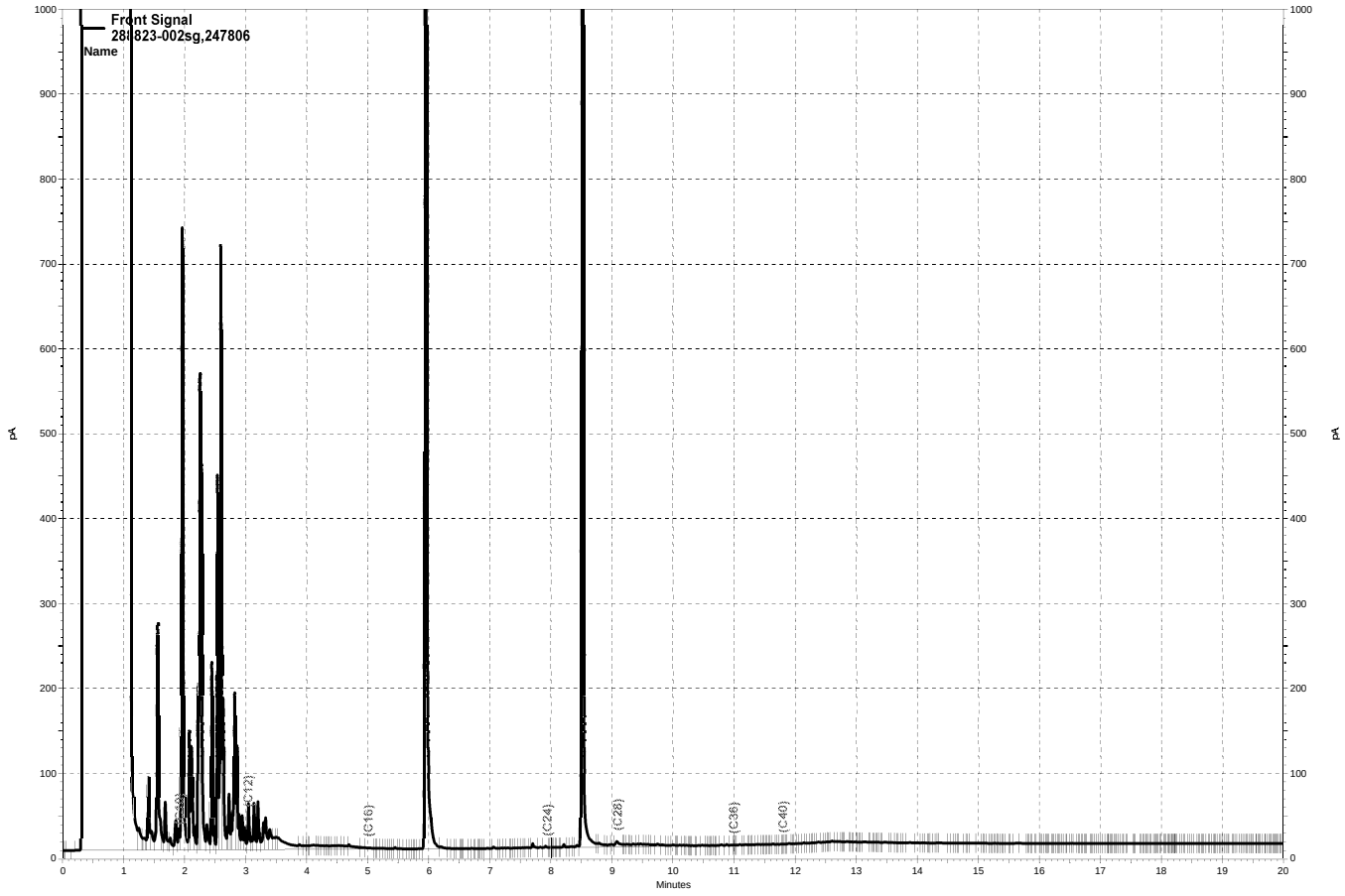
Surrogate	%REC	Limits
o-Terphenyl	98	52-138

Type: BSD Cleanup Method: EPA 3630C
Lab ID: QC886126

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,063	83	52-124	8	34

Surrogate	%REC	Limits
o-Terphenyl	102	52-138

RPD= Relative Percent Difference



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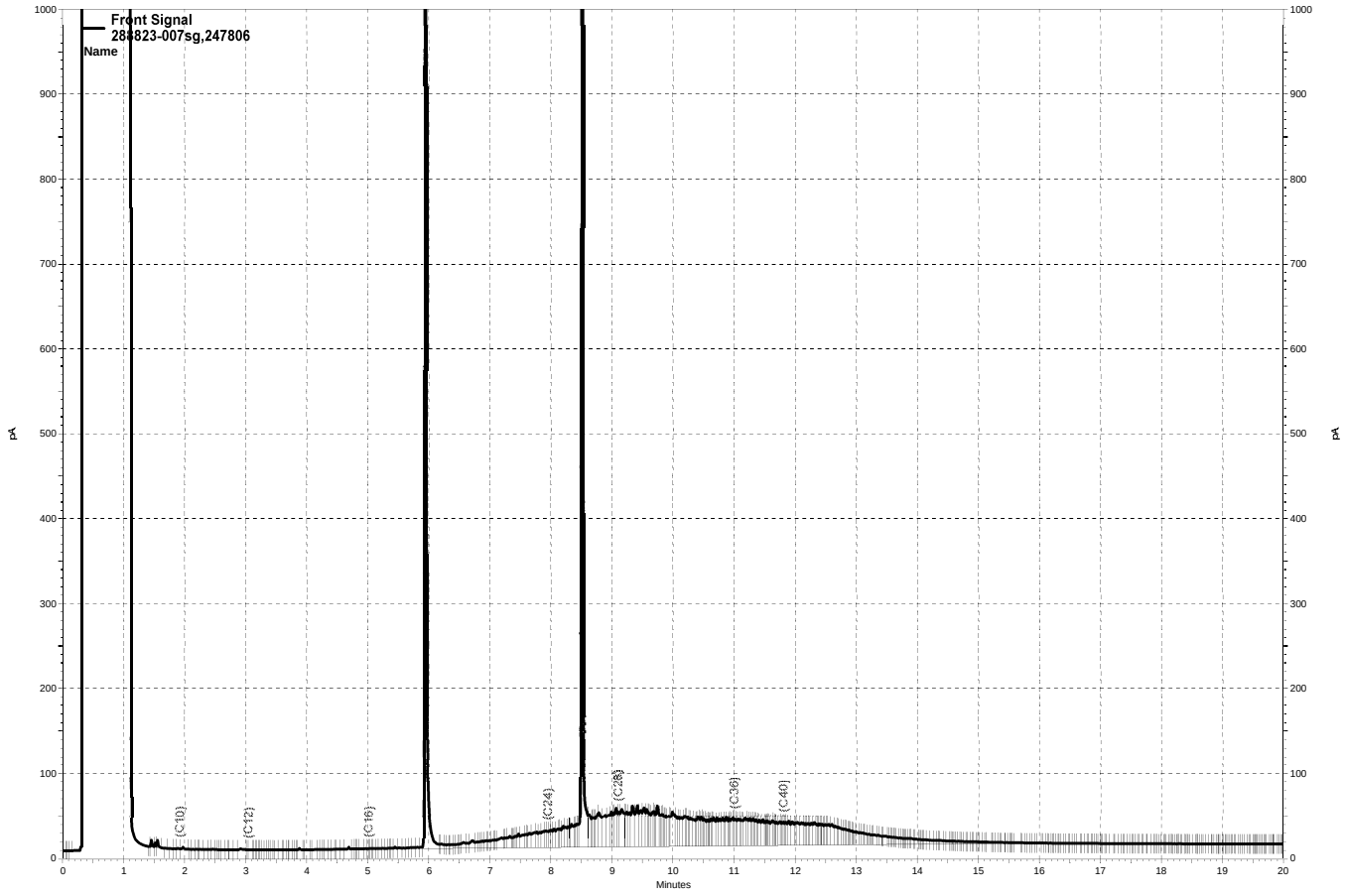

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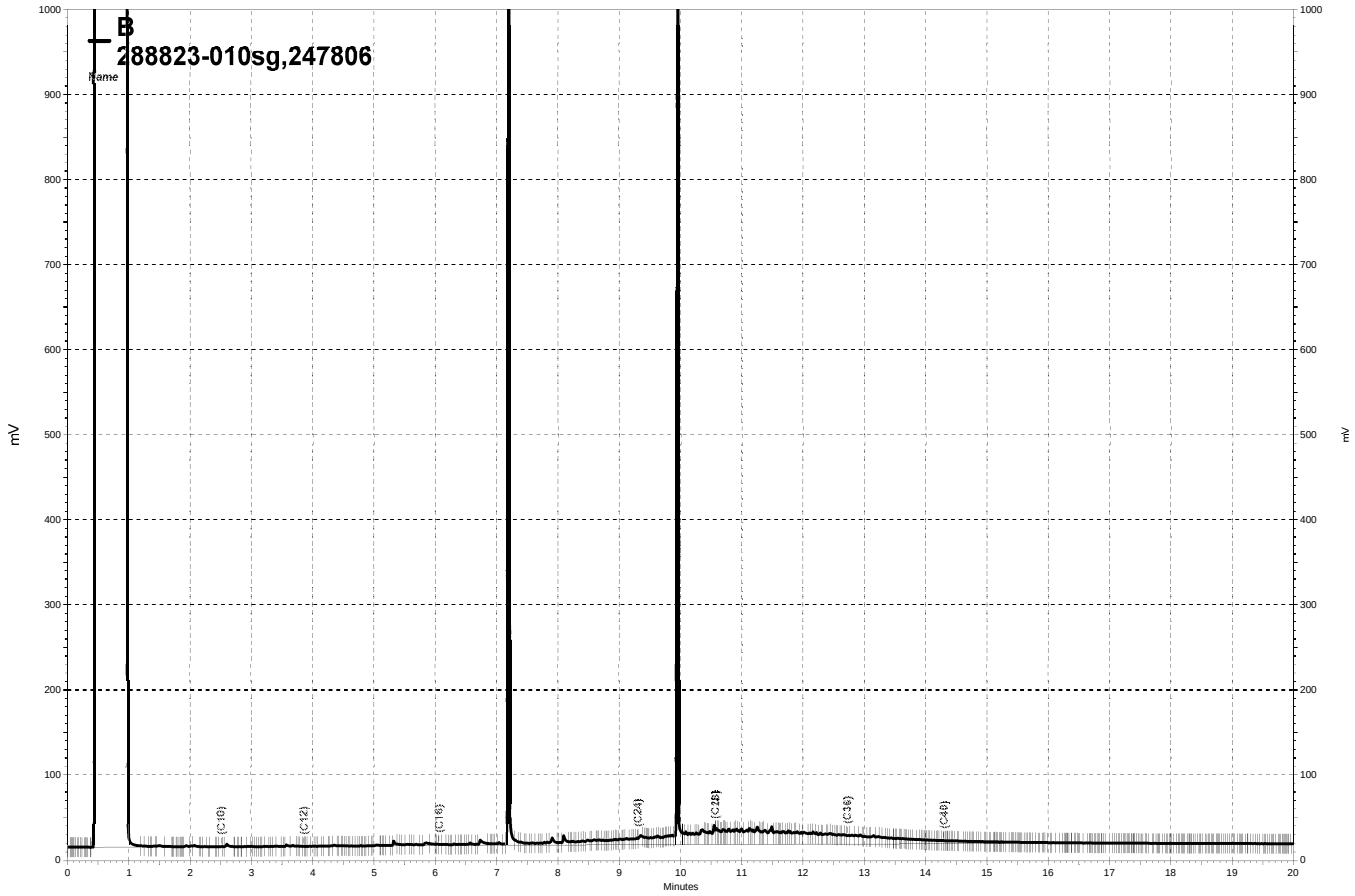

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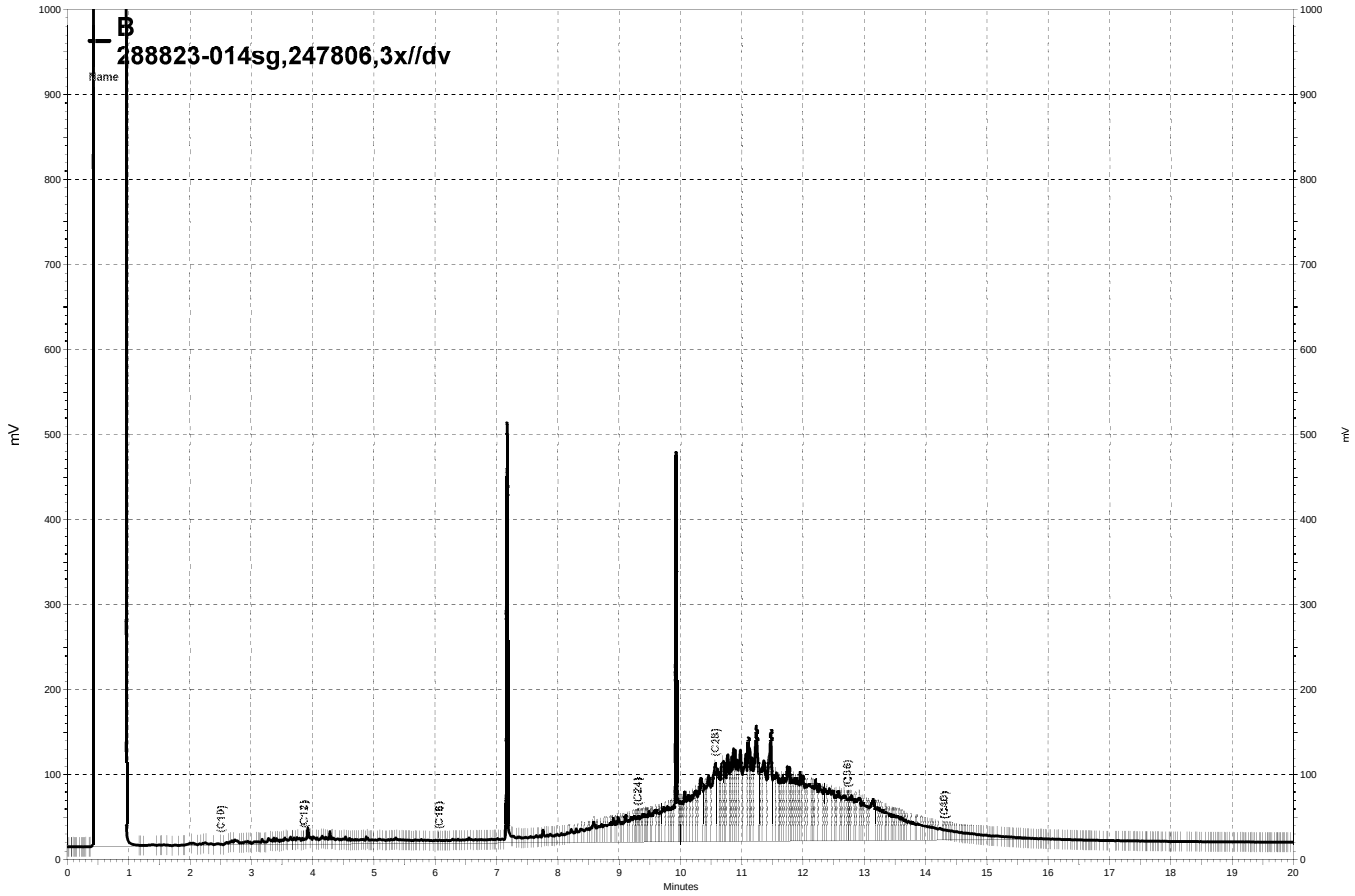

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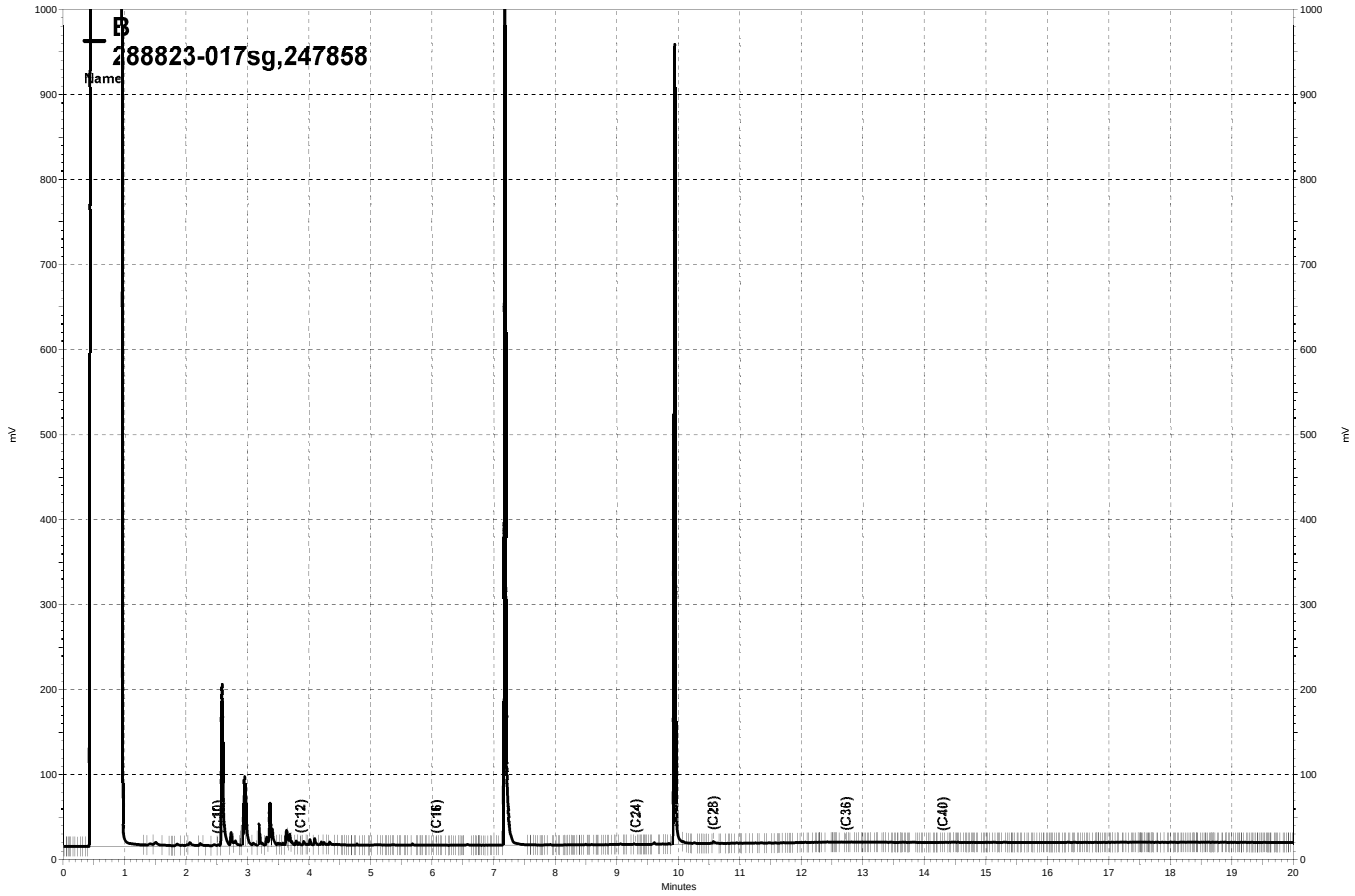

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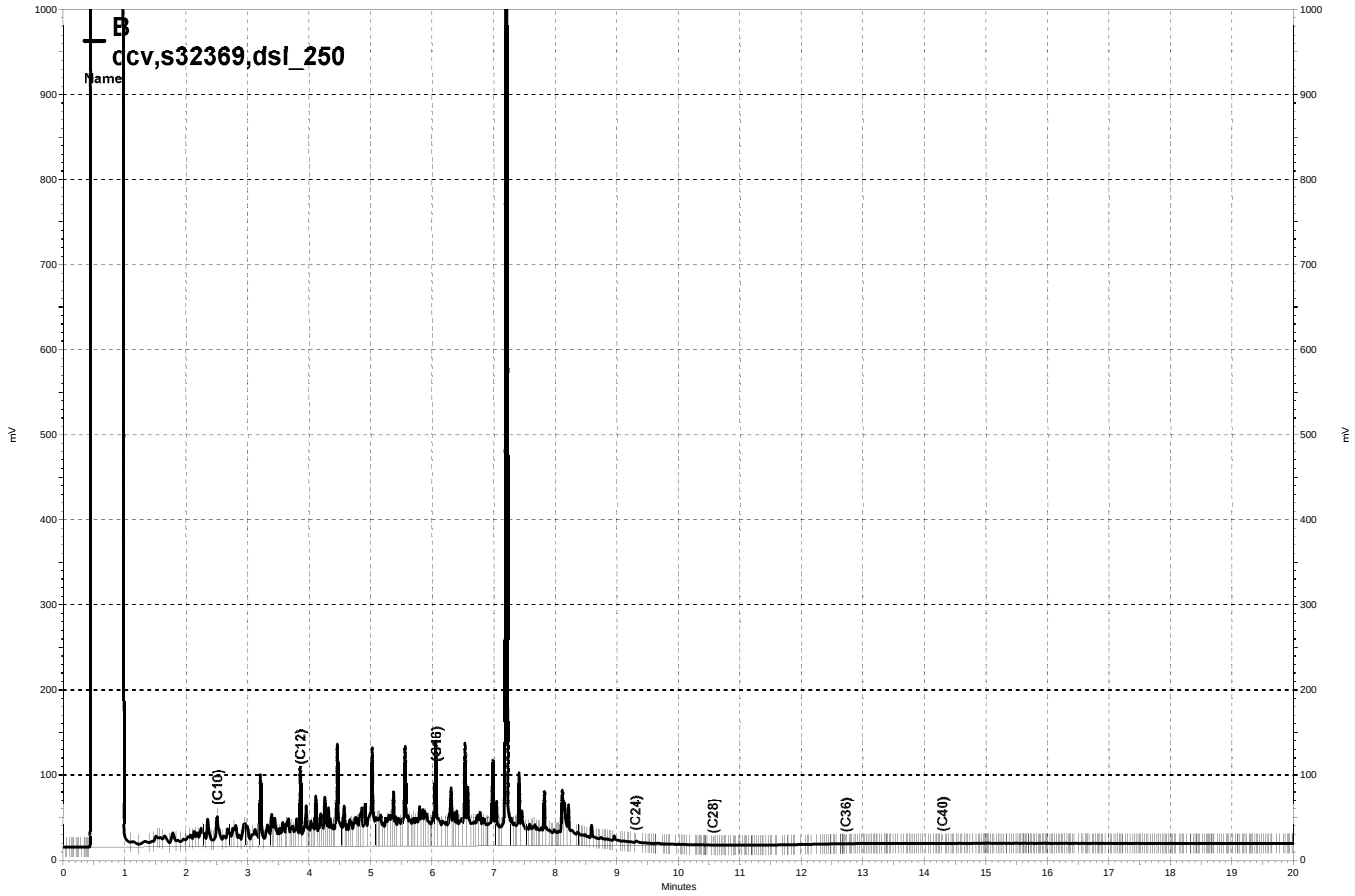

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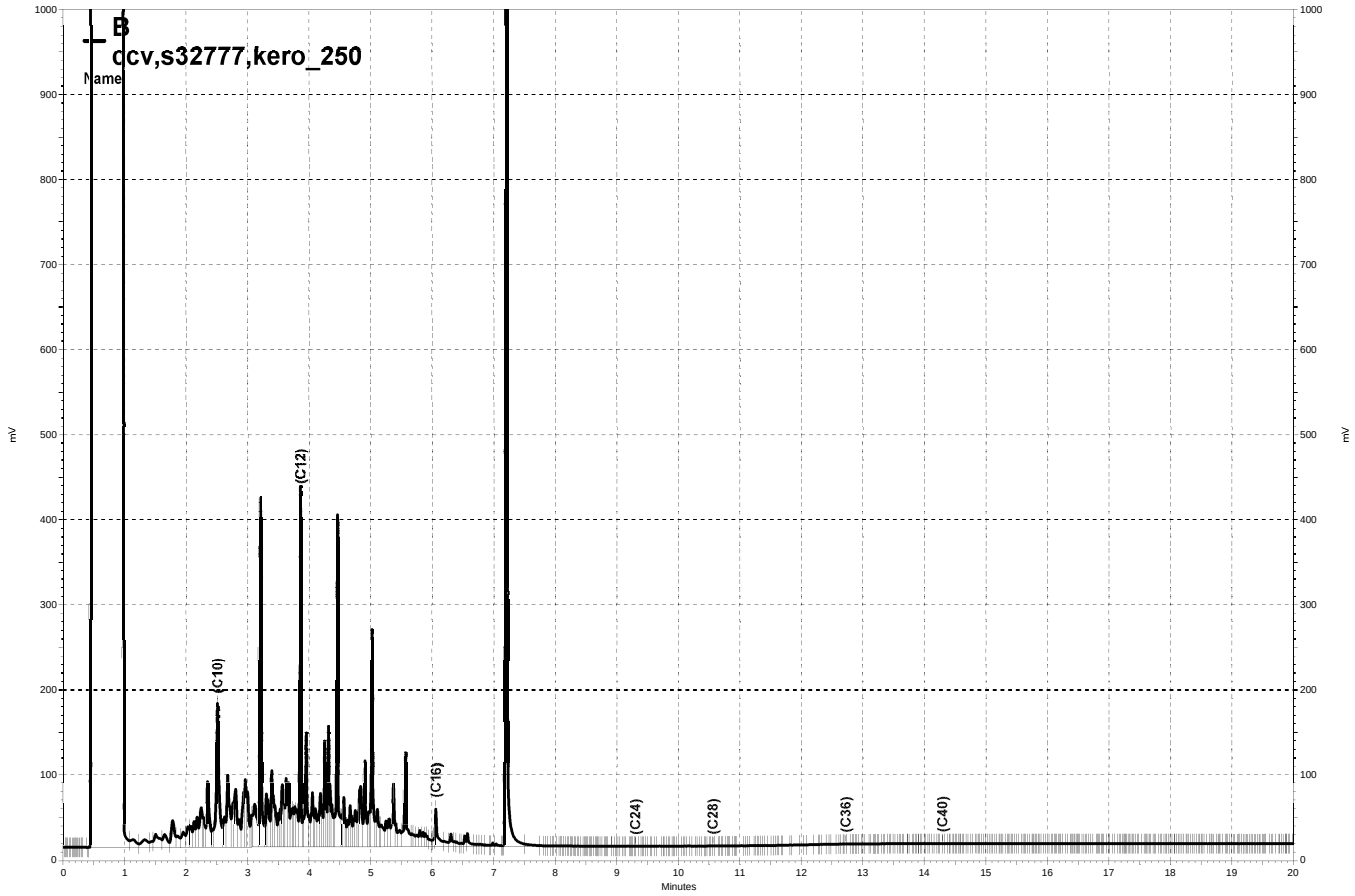

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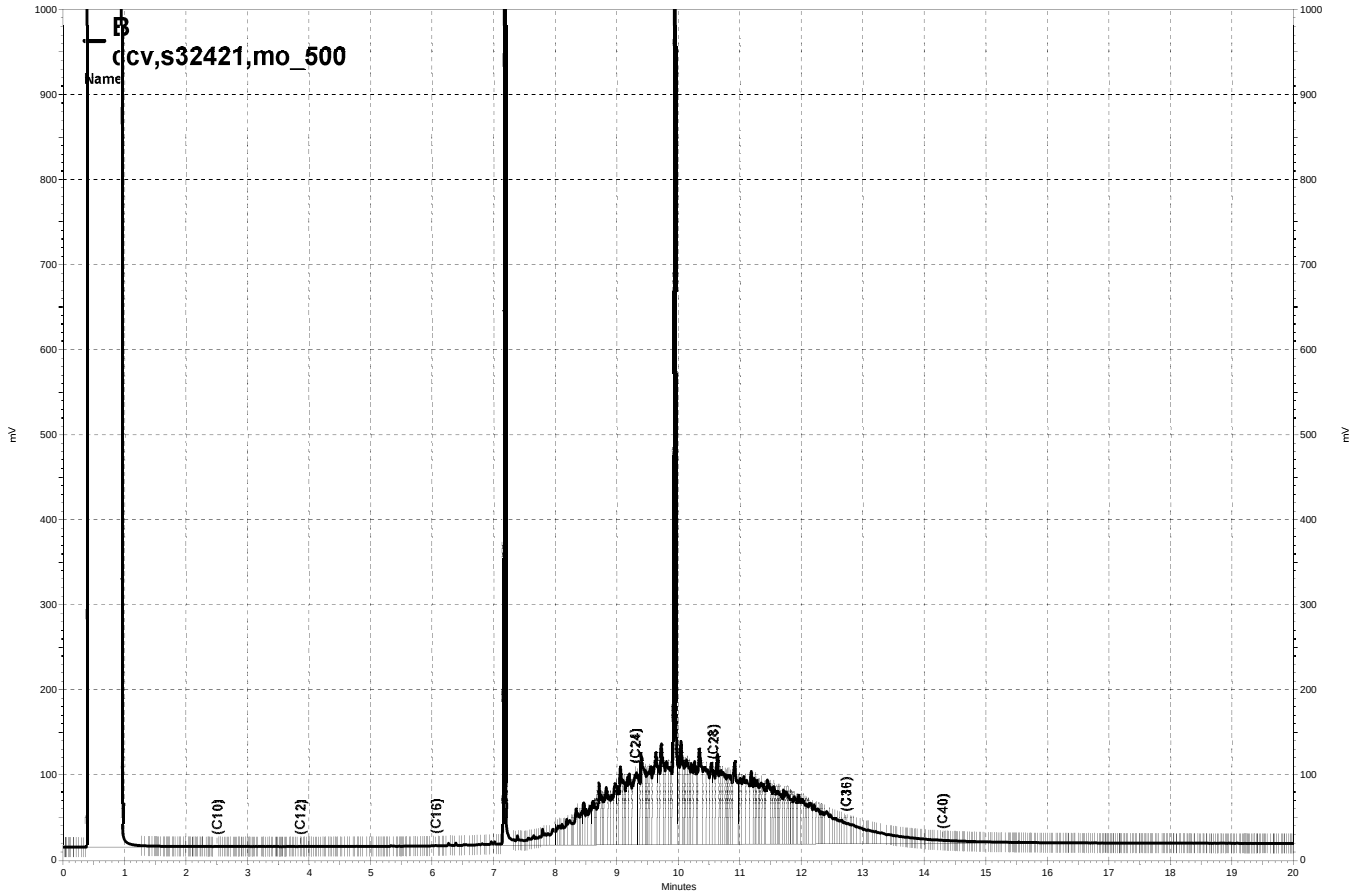

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Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/10/17
Units:	ug/L	Received:	05/11/17
Diln Fac:	1.000		

Field ID:	MW-5	Batch#:	247786
Type:	SAMPLE	Analyzed:	05/14/17
Lab ID:	288823-002		

Analyte	Result	RL
Gasoline C7-C12	2,300	50
MTBE	3.1	0.50
Benzene	1.1	0.50
Toluene	1.2	0.50
Ethylbenzene	29	0.50
m,p-Xylenes	4.6	0.50
o-Xylene	1.1	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-120
1,2-Dichloroethane-d4	97	73-136
Toluene-d8	99	80-120
Bromofluorobenzene	93	80-120

Field ID:	MW-11	Batch#:	247786
Type:	SAMPLE	Analyzed:	05/14/17
Lab ID:	288823-003		

Analyte	Result	RL
Gasoline C7-C12	230	50
MTBE	9.3	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-120
1,2-Dichloroethane-d4	97	73-136
Toluene-d8	98	80-120
Bromofluorobenzene	98	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/10/17
Units:	ug/L	Received:	05/11/17
Diln Fac:	1.000		

Field ID:	MW-11-D	Batch#:	247786
Type:	SAMPLE	Analyzed:	05/14/17
Lab ID:	288823-004		

Analyte	Result	RL
Gasoline C7-C12	240	50
MTBE	9.0	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	96	80-120
1,2-Dichloroethane-d4	96	73-136
Toluene-d8	100	80-120
Bromofluorobenzene	100	80-120

Field ID:	EB-1	Batch#:	247775
Type:	SAMPLE	Analyzed:	05/13/17
Lab ID:	288823-005		

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-120
1,2-Dichloroethane-d4	99	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	97	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/10/17
Units:	ug/L	Received:	05/11/17
Diln Fac:	1.000		

Field ID:	MW-10	Batch#:	247775
Type:	SAMPLE	Analyzed:	05/13/17
Lab ID:	288823-006		

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-120
1,2-Dichloroethane-d4	96	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	99	80-120

Field ID:	MW-13	Batch#:	247775
Type:	SAMPLE	Analyzed:	05/13/17
Lab ID:	288823-007		

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-120
1,2-Dichloroethane-d4	100	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	98	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/10/17
Units:	ug/L	Received:	05/11/17
Diln Fac:	1.000		

Field ID:	MW-14	Batch#:	247775
Type:	SAMPLE	Analyzed:	05/13/17
Lab ID:	288823-008		

Analyte	Result	RL
Gasoline C7-C12	92	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-120
1,2-Dichloroethane-d4	98	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	98	80-120

Field ID:	MW-9	Batch#:	247786
Type:	SAMPLE	Analyzed:	05/14/17
Lab ID:	288823-009		

Analyte	Result	RL
Gasoline C7-C12	110	50
MTBE	ND	0.50
Benzene	9.0	0.50
Toluene	0.70	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	1.2	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-120
1,2-Dichloroethane-d4	92	73-136
Toluene-d8	100	80-120
Bromofluorobenzene	98	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/10/17
Units:	ug/L	Received:	05/11/17
Diln Fac:	1.000		

Field ID:	MW-15	Batch#:	247775
Type:	SAMPLE	Analyzed:	05/13/17
Lab ID:	288823-010		

Analyte	Result	RL
Gasoline C7-C12	78	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-120
1,2-Dichloroethane-d4	96	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	100	80-120

Field ID:	MW-17	Batch#:	247775
Type:	SAMPLE	Analyzed:	05/13/17
Lab ID:	288823-012		

Analyte	Result	RL
Gasoline C7-C12	71	50
MTBE	ND	0.50
Benzene	0.81	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-120
1,2-Dichloroethane-d4	99	73-136
Toluene-d8	100	80-120
Bromofluorobenzene	98	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/10/17
Units:	ug/L	Received:	05/11/17
Diln Fac:	1.000		

Field ID:	MW-8	Batch#:	247775
Type:	SAMPLE	Analyzed:	05/13/17
Lab ID:	288823-013		

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-120
1,2-Dichloroethane-d4	99	73-136
Toluene-d8	100	80-120
Bromofluorobenzene	100	80-120

Field ID:	MW-16	Batch#:	247775
Type:	SAMPLE	Analyzed:	05/13/17
Lab ID:	288823-014		

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-120
1,2-Dichloroethane-d4	100	73-136
Toluene-d8	100	80-120
Bromofluorobenzene	101	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/10/17
Units:	ug/L	Received:	05/11/17
Diln Fac:	1.000		

Field ID:	MW-2	Batch#:	247775
Type:	SAMPLE	Analyzed:	05/13/17
Lab ID:	288823-015		

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	ND	0.50
Benzene	1.2	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-120
1,2-Dichloroethane-d4	89	73-136
Toluene-d8	102	80-120
Bromofluorobenzene	99	80-120

Field ID:	MW-18	Batch#:	247786
Type:	SAMPLE	Analyzed:	05/15/17
Lab ID:	288823-016		

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-120
1,2-Dichloroethane-d4	95	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	97	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/10/17
Units:	ug/L	Received:	05/11/17
Diln Fac:	1.000		

Field ID:	MW-1	Batch#:	247837
Type:	SAMPLE	Analyzed:	05/16/17
Lab ID:	288823-017		

Analyte	Result	RL
Gasoline C7-C12	990	50
MTBE	ND	0.50
Benzene	3.5	0.50
Toluene	1.2	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	1.5	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-120
1,2-Dichloroethane-d4	112	73-136
Toluene-d8	97	80-120
Bromofluorobenzene	106	80-120

Field ID:	EB-2	Batch#:	247786
Type:	SAMPLE	Analyzed:	05/14/17
Lab ID:	288823-018		

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-120
1,2-Dichloroethane-d4	100	73-136
Toluene-d8	100	80-120
Bromofluorobenzene	99	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/10/17
Units:	ug/L	Received:	05/11/17
Diln Fac:	1.000		

Type: BLANK Batch#: 247775
Lab ID: QC885820 Analyzed: 05/13/17

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-120
1,2-Dichloroethane-d4	99	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	99	80-120

Type: BLANK Batch#: 247786
Lab ID: QC885853 Analyzed: 05/14/17

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-120
1,2-Dichloroethane-d4	100	73-136
Toluene-d8	99	80-120
Bromofluorobenzene	112	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/10/17
Units:	ug/L	Received:	05/11/17
Diln Fac:	1.000		

Type:	BLANK	Batch#:	247837
Lab ID:	QC886053	Analyzed:	05/16/17

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-120
1,2-Dichloroethane-d4	105	73-136
Toluene-d8	98	80-120
Bromofluorobenzene	108	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	247775
Units:	ug/L	Analyzed:	05/13/17
Diln Fac:	1.000		

Type: BS Lab ID: QC885816

Analyte	Spiked	Result	%REC	Limits
MTBE	12.50	11.11	89	63-120
Benzene	12.50	12.50	100	78-123
Toluene	12.50	12.69	102	80-120
Ethylbenzene	12.50	12.76	102	80-122
m,p-Xylenes	25.00	26.18	105	79-123
o-Xylene	12.50	12.68	101	77-120

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-120
1,2-Dichloroethane-d4	100	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	99	80-120

Type: BSD Lab ID: QC885817

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	12.50	11.25	90	63-120	1	20
Benzene	12.50	11.88	95	78-123	5	20
Toluene	12.50	12.20	98	80-120	4	20
Ethylbenzene	12.50	12.40	99	80-122	3	20
m,p-Xylenes	25.00	25.38	102	79-123	3	20
o-Xylene	12.50	12.70	102	77-120	0	20

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-120
1,2-Dichloroethane-d4	99	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	100	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	247775
Units:	ug/L	Analyzed:	05/13/17
Diln Fac:	1.000		

Type: BS Lab ID: QC885818

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,101	110	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-120
1,2-Dichloroethane-d4	101	73-136
Toluene-d8	100	80-120
Bromofluorobenzene	99	80-120

Type: BSD Lab ID: QC885819

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	1,000	1,114	111	80-120	1	20

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-120
1,2-Dichloroethane-d4	98	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	100	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	247786
Units:	ug/L	Analyzed:	05/14/17
Diln Fac:	1.000		

Type: BS Lab ID: QC885851

Analyte	Spiked	Result	%REC	Limits
MTBE	12.50	13.54	108	63-120
Benzene	12.50	13.16	105	78-123
Toluene	12.50	13.47	108	80-120
Ethylbenzene	12.50	14.42	115	80-122
m,p-Xylenes	25.00	28.89	116	79-123
o-Xylene	12.50	14.49	116	77-120

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-120
1,2-Dichloroethane-d4	104	73-136
Toluene-d8	99	80-120
Bromofluorobenzene	104	80-120

Type: BSD Lab ID: QC885852

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	12.50	11.32	91	63-120	18	20
Benzene	12.50	12.96	104	78-123	2	20
Toluene	12.50	12.99	104	80-120	4	20
Ethylbenzene	12.50	13.61	109	80-122	6	20
m,p-Xylenes	25.00	27.05	108	79-123	7	20
o-Xylene	12.50	13.63	109	77-120	6	20

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-120
1,2-Dichloroethane-d4	102	73-136
Toluene-d8	99	80-120
Bromofluorobenzene	106	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	247786
Units:	ug/L	Analyzed:	05/14/17
Diln Fac:	1.000		

Type: BS Lab ID: QC885860

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	845.4	85	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-120
1,2-Dichloroethane-d4	104	73-136
Toluene-d8	98	80-120
Bromofluorobenzene	104	80-120

Type: BSD Lab ID: QC885861

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	1,000	827.1	83	80-120	2	20

Surrogate	%REC	Limits
Dibromofluoromethane	96	80-120
1,2-Dichloroethane-d4	101	73-136
Toluene-d8	99	80-120
Bromofluorobenzene	103	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	247837
Units:	ug/L	Analyzed:	05/16/17
Diln Fac:	1.000		

Type: BS Lab ID: QC886051

Analyte	Spiked	Result	%REC	Limits
MTBE	12.50	11.61	93	63-120
Benzene	12.50	12.50	100	78-123
Toluene	12.50	12.17	97	80-120
Ethylbenzene	12.50	12.06	96	80-122
m,p-Xylenes	25.00	25.30	101	79-123
o-Xylene	12.50	11.71	94	77-120

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-120
1,2-Dichloroethane-d4	110	73-136
Toluene-d8	94	80-120
Bromofluorobenzene	97	80-120

Type: BSD Lab ID: QC886052

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	12.50	10.66	85	63-120	9	20
Benzene	12.50	11.78	94	78-123	6	20
Toluene	12.50	11.22	90	80-120	8	20
Ethylbenzene	12.50	11.12	89	80-122	8	20
m,p-Xylenes	25.00	21.90	88	79-123	14	20
o-Xylene	12.50	11.18	89	77-120	5	20

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-120
1,2-Dichloroethane-d4	109	73-136
Toluene-d8	96	80-120
Bromofluorobenzene	99	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0064.007.001	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	247837
Units:	ug/L	Analyzed:	05/16/17
Diln Fac:	1.000		

Type: BS Lab ID: QC886054

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,001	100	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-120
1,2-Dichloroethane-d4	106	73-136
Toluene-d8	97	80-120
Bromofluorobenzene	104	80-120

Type: BSD Lab ID: QC886055

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	1,000	910.6	91	80-120	9	20

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-120
1,2-Dichloroethane-d4	102	73-136
Toluene-d8	96	80-120
Bromofluorobenzene	98	80-120

RPD= Relative Percent Difference

Data File: \\gcmsserver\DD\chem\MSVOA10.i\051417\JEE15TVH.D

Date : 14-MAY-2017 21:37

Client ID:

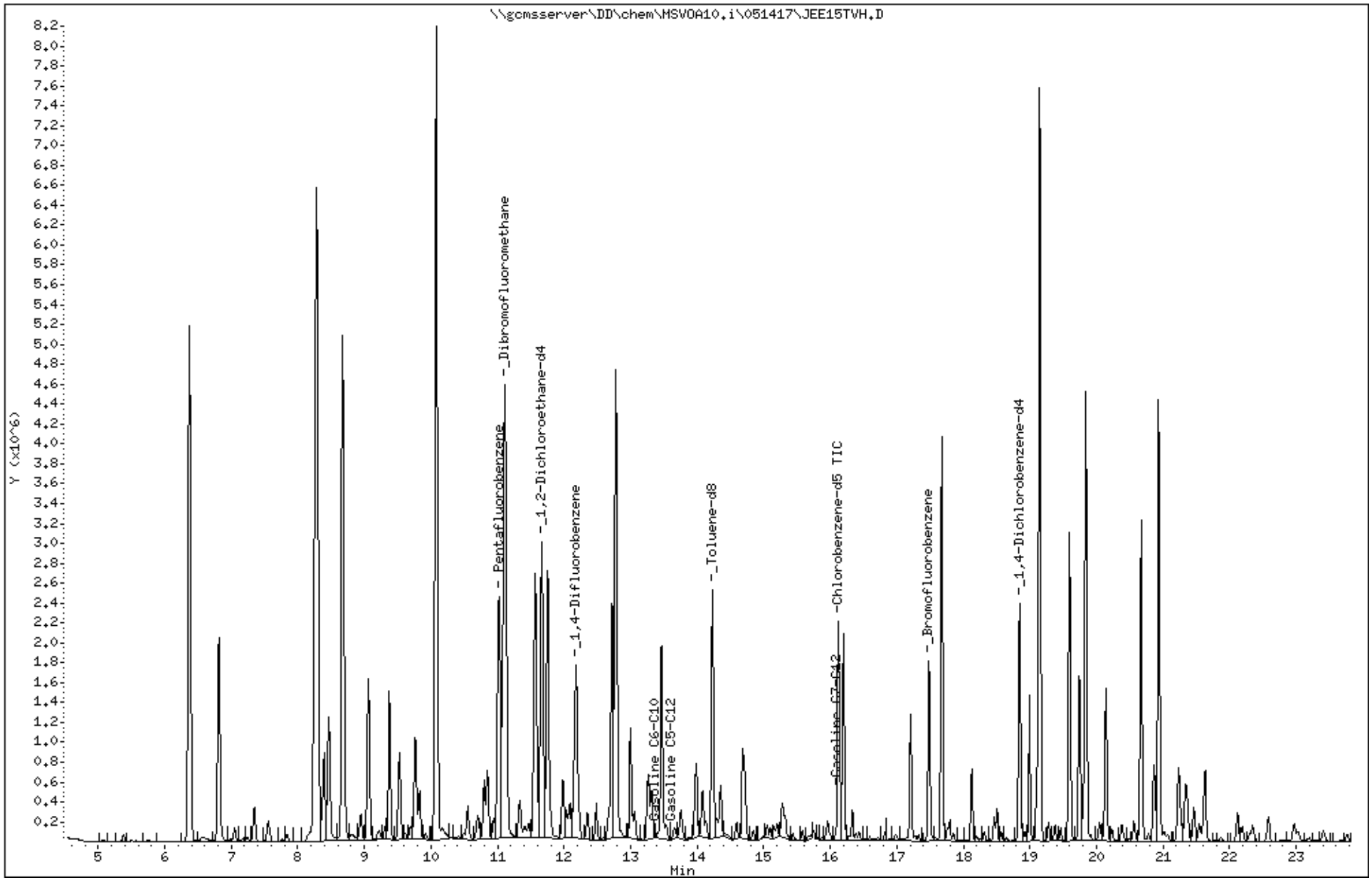
Instrument: MSVOA10.i

Sample Info: s,288823-002

Operator: VOC

Column phase:

Column diameter: 2.00



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Date : 14-MAY-2017 22:14

Client ID:

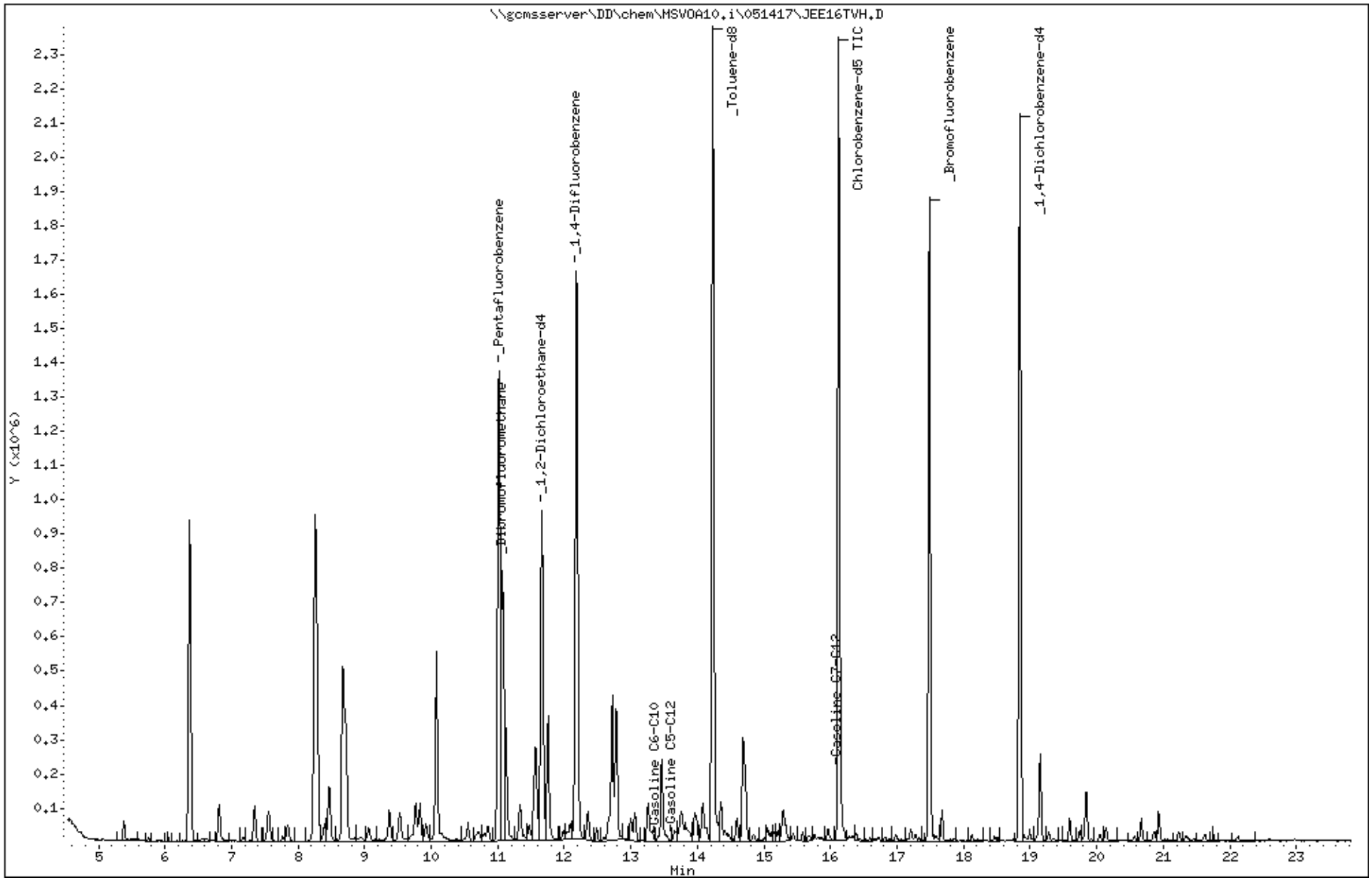
Instrument: MSVOA10.i

Sample Info: s,288823-003

Operator: VOC

Column phase:

Column diameter: 2.00



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Date : 14-MAY-2017 22:50

Client ID:

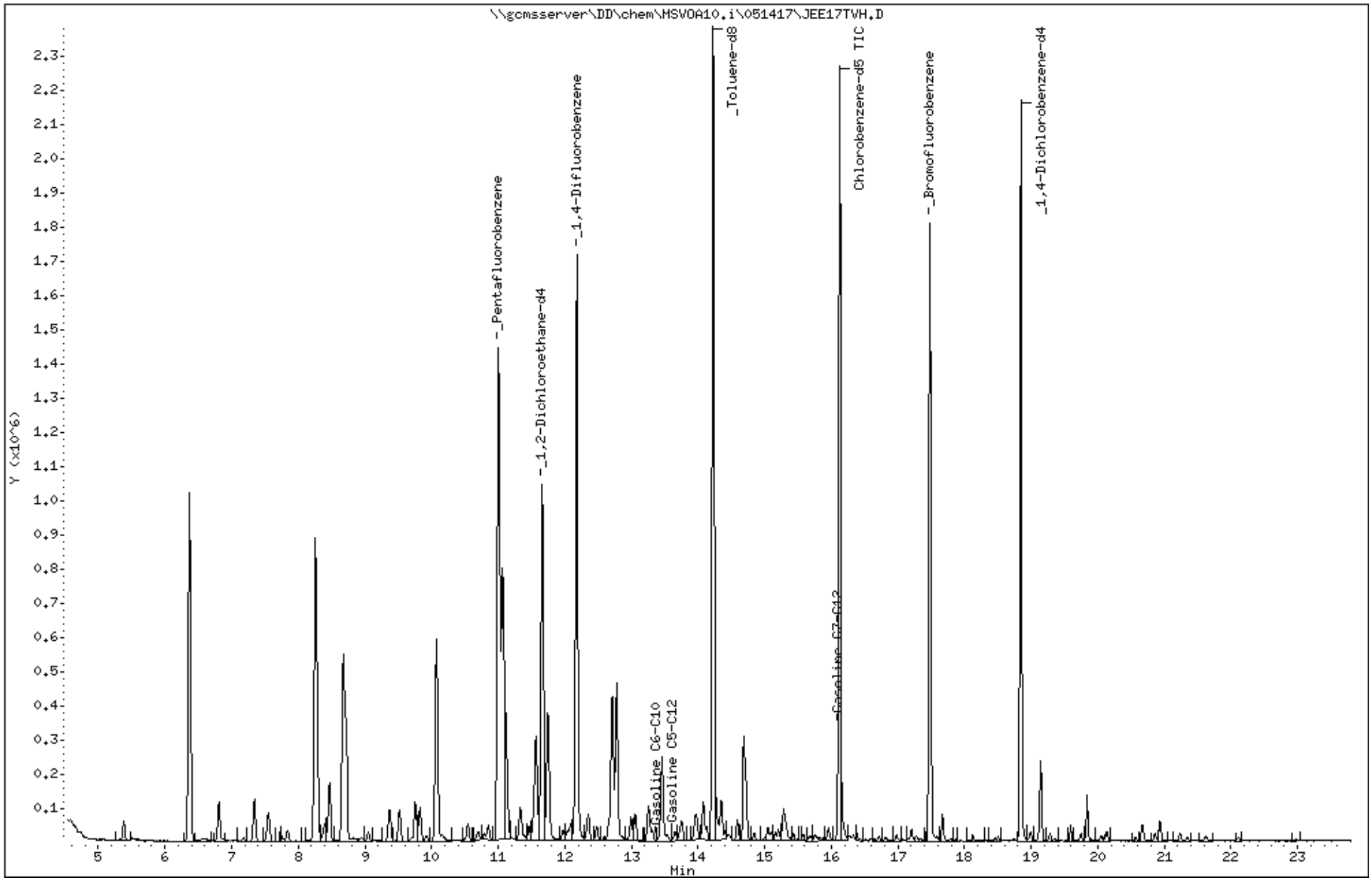
Instrument: MSVOA10.i

Sample Info: s,288823-004

Operator: VOC

Column phase:

Column diameter: 2.00



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Date : 13-MAY-2017 14:07

Client ID:

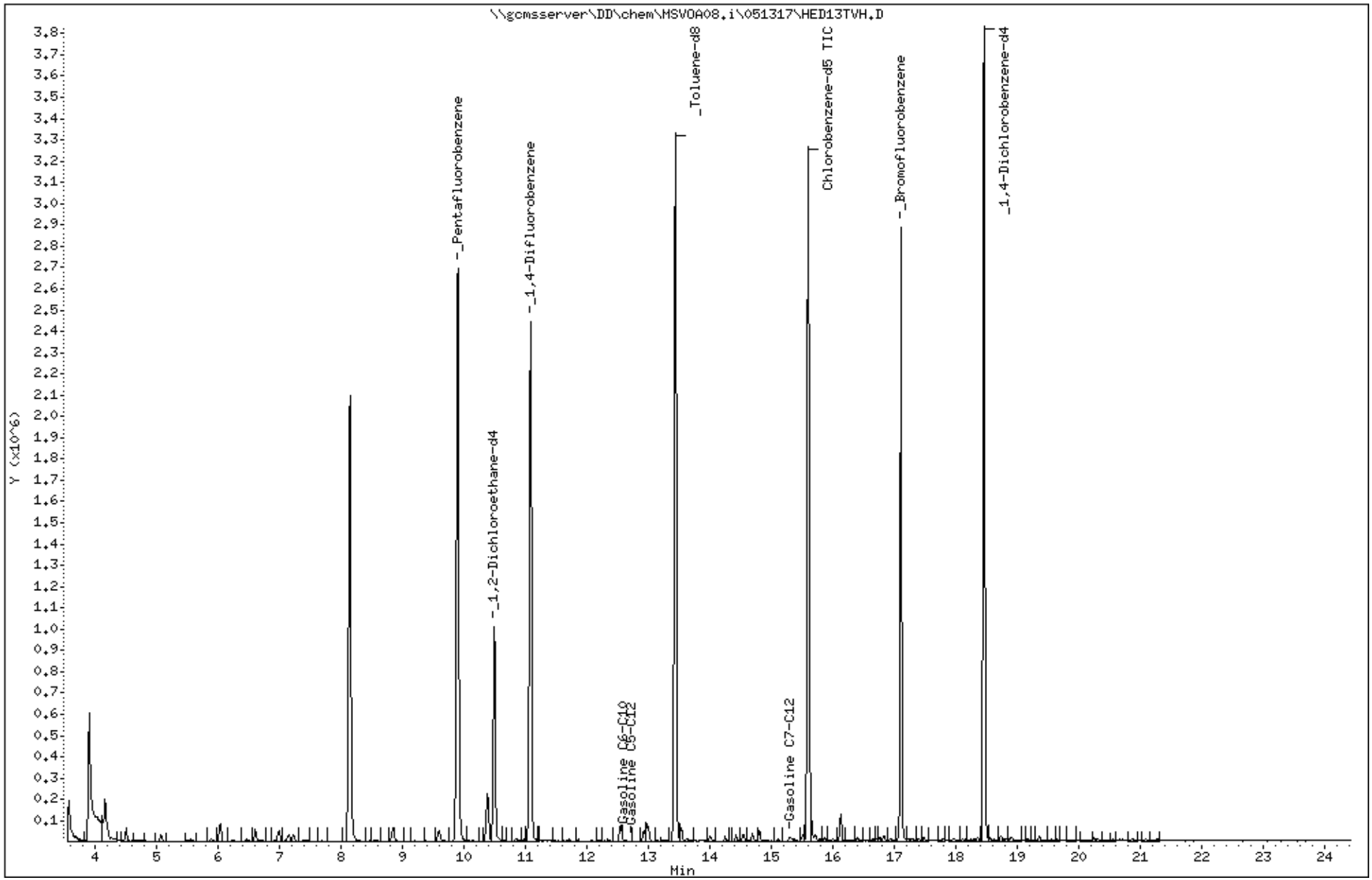
Instrument: MSVOA08.i

Sample Info: S,288823-008

Operator: VOC

Column phase:

Column diameter: 2.00



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Date : 14-MAY-2017 23:27

Client ID:

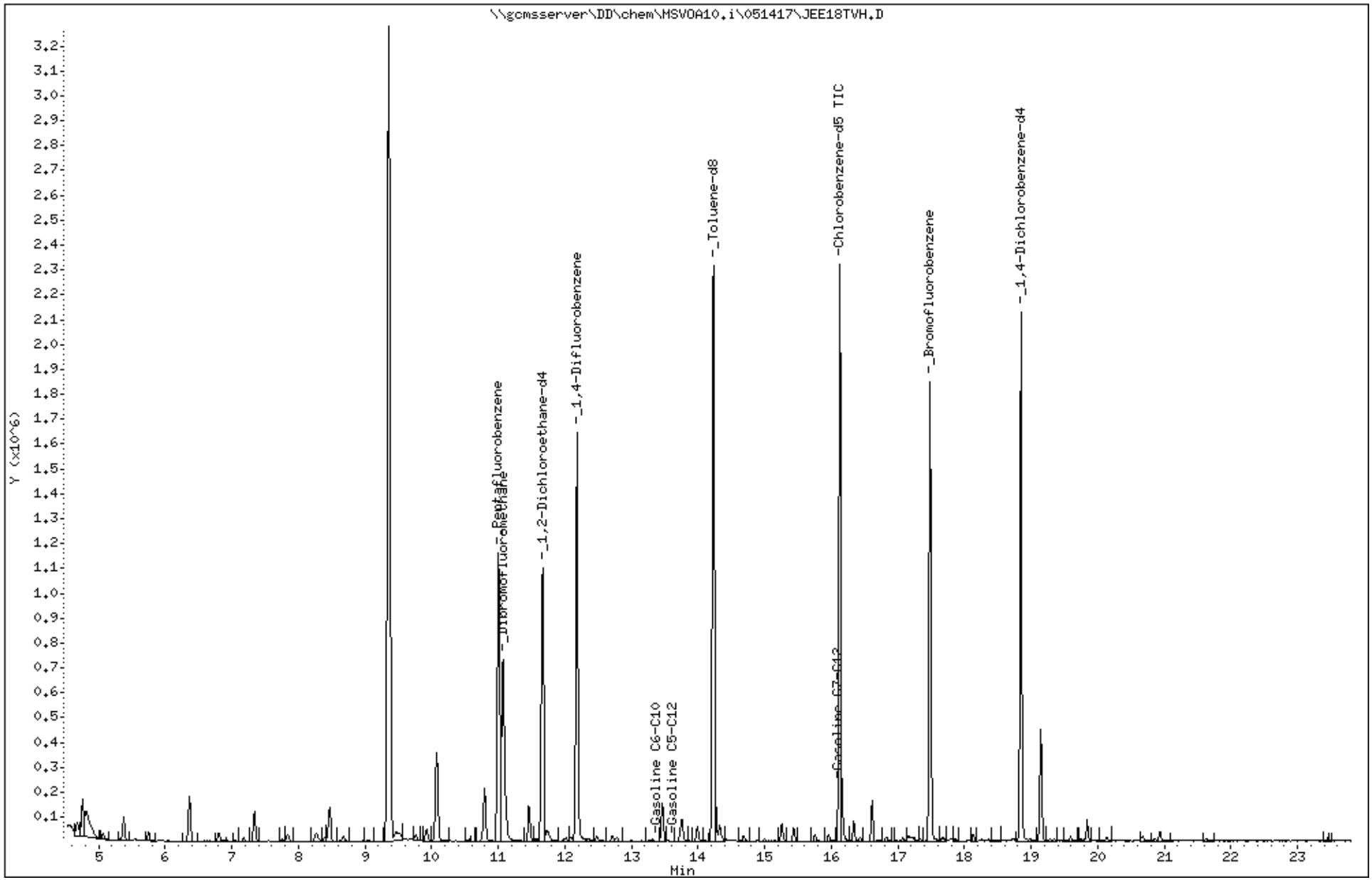
Instrument: MSVOA10.i

Sample Info: s,288823-009

Operator: VOC

Column phase:

Column diameter: 2.00



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Date : 13-MAY-2017 14:40

Client ID:

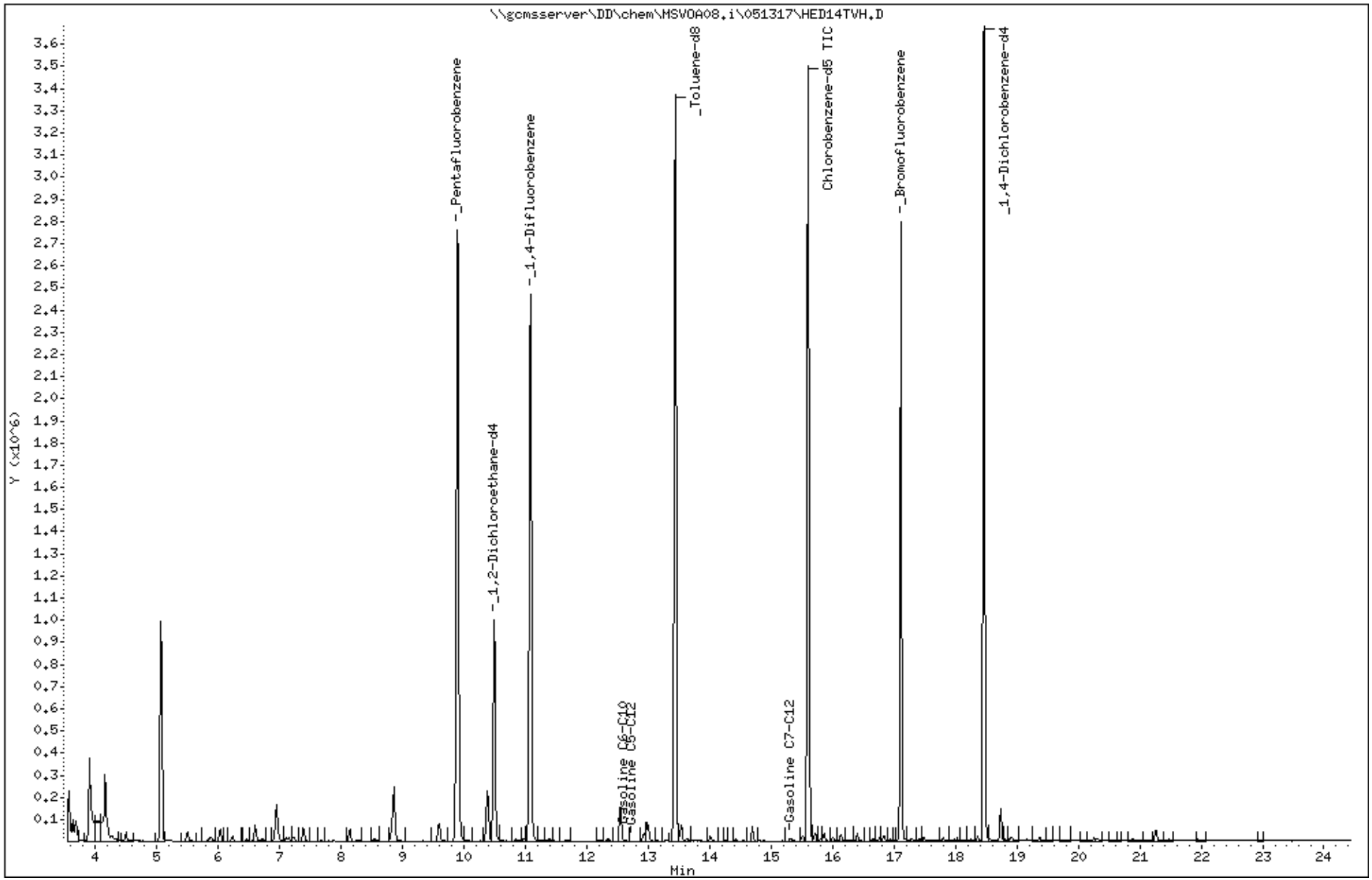
Instrument: MSVOA08.i

Sample Info: S,288823-010

Operator: VOC

Column phase:

Column diameter: 2.00



Data File: \\gcmsserver\DD\chem\MSVOA08.i\051317\HED15TVH.D

Date : 13-MAY-2017 15:13

Client ID:

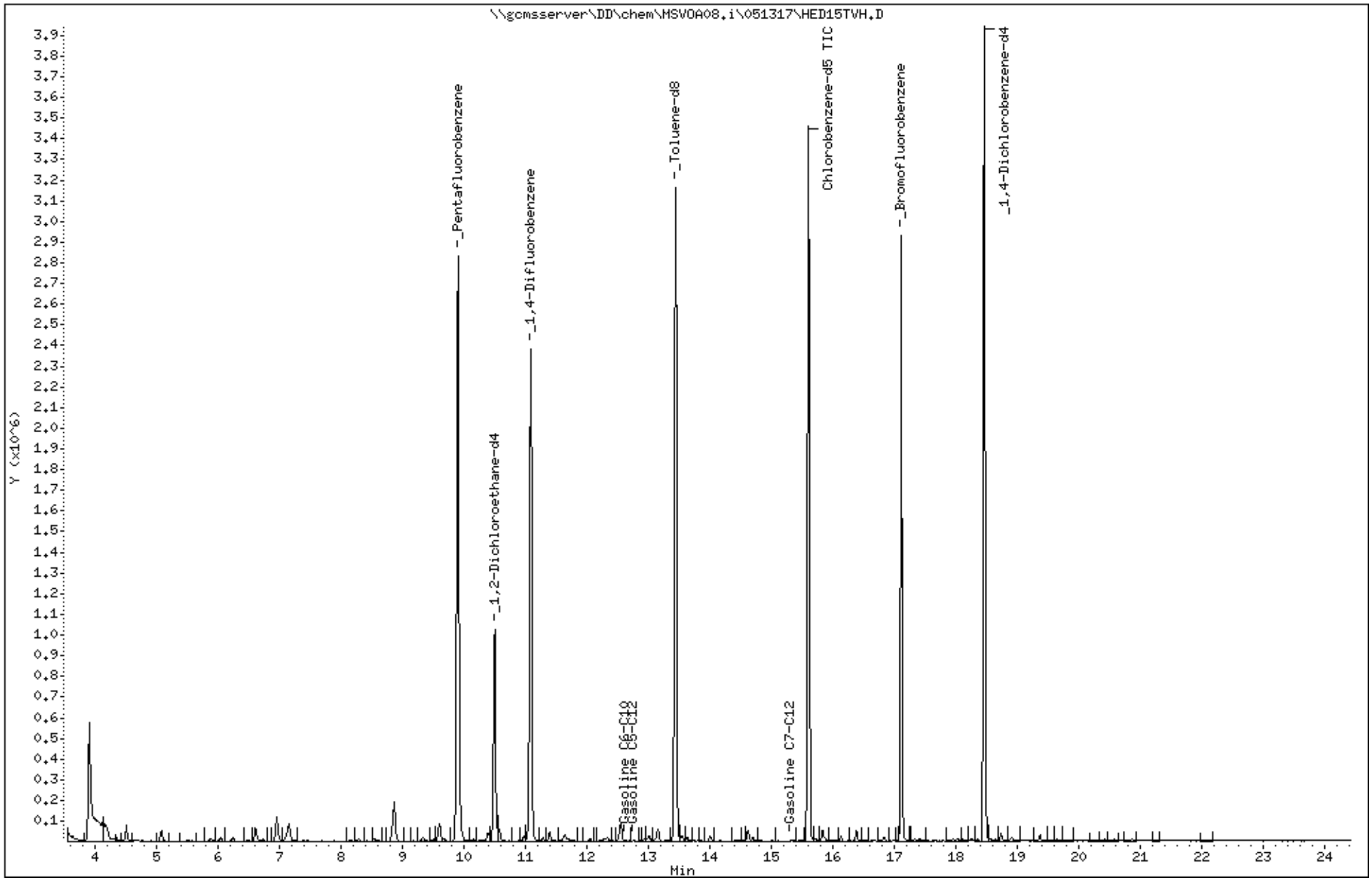
Instrument: MSVOA08.i

Sample Info: S,288823-012

Operator: VOC

Column phase:

Column diameter: 2.00



Data File: \\gcmsserver\DD\chem\MSVOA06.i\051617.b\FEG13TVH.D

Date : 16-MAY-2017 14:47

Client ID:

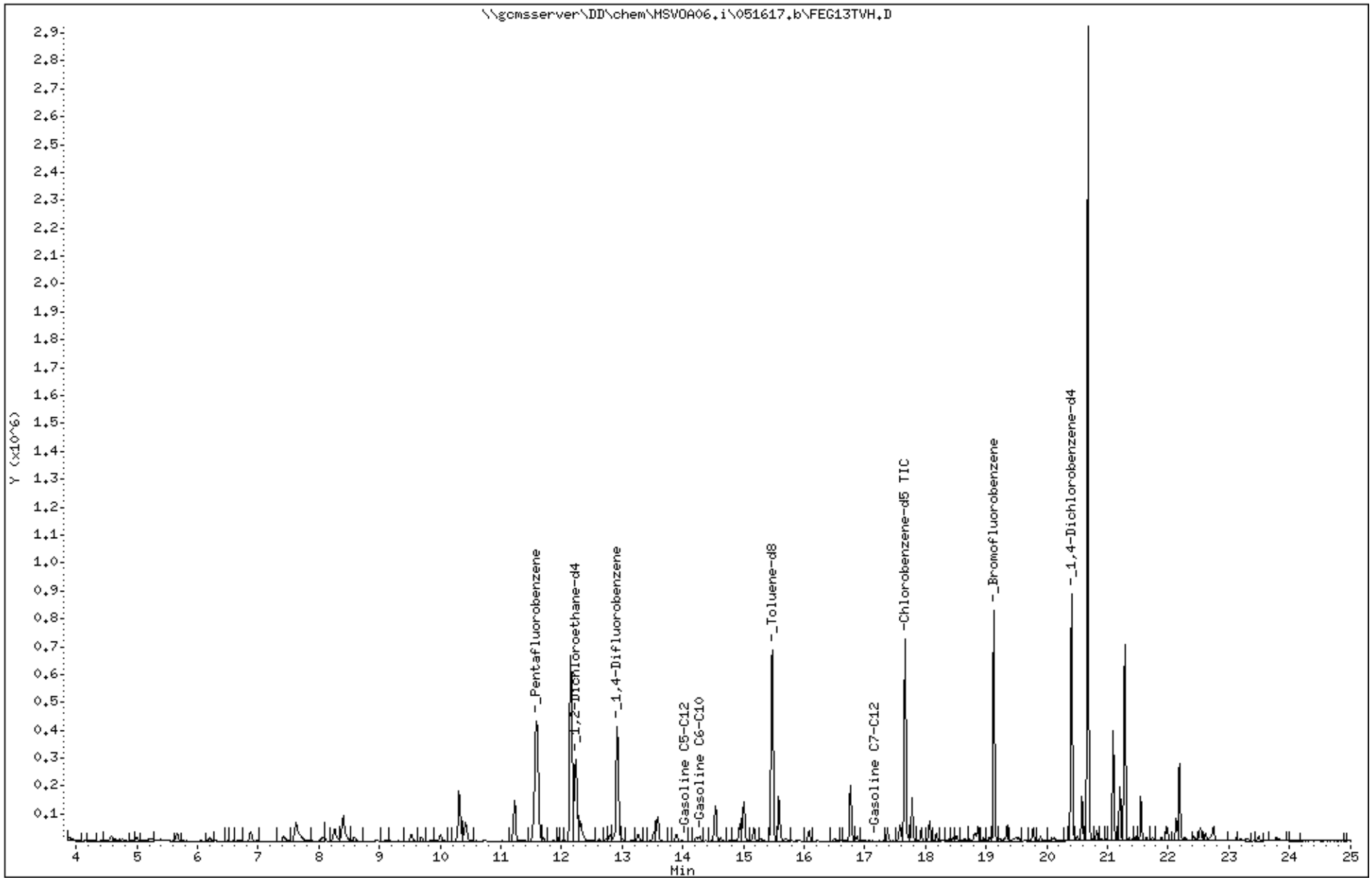
Instrument: MSVOA06.i

Sample Info: S,288823-017,

Operator: VOC

Column phase:

Column diameter: 2.00



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Date : 16-MAY-2017 12:13

Client ID:

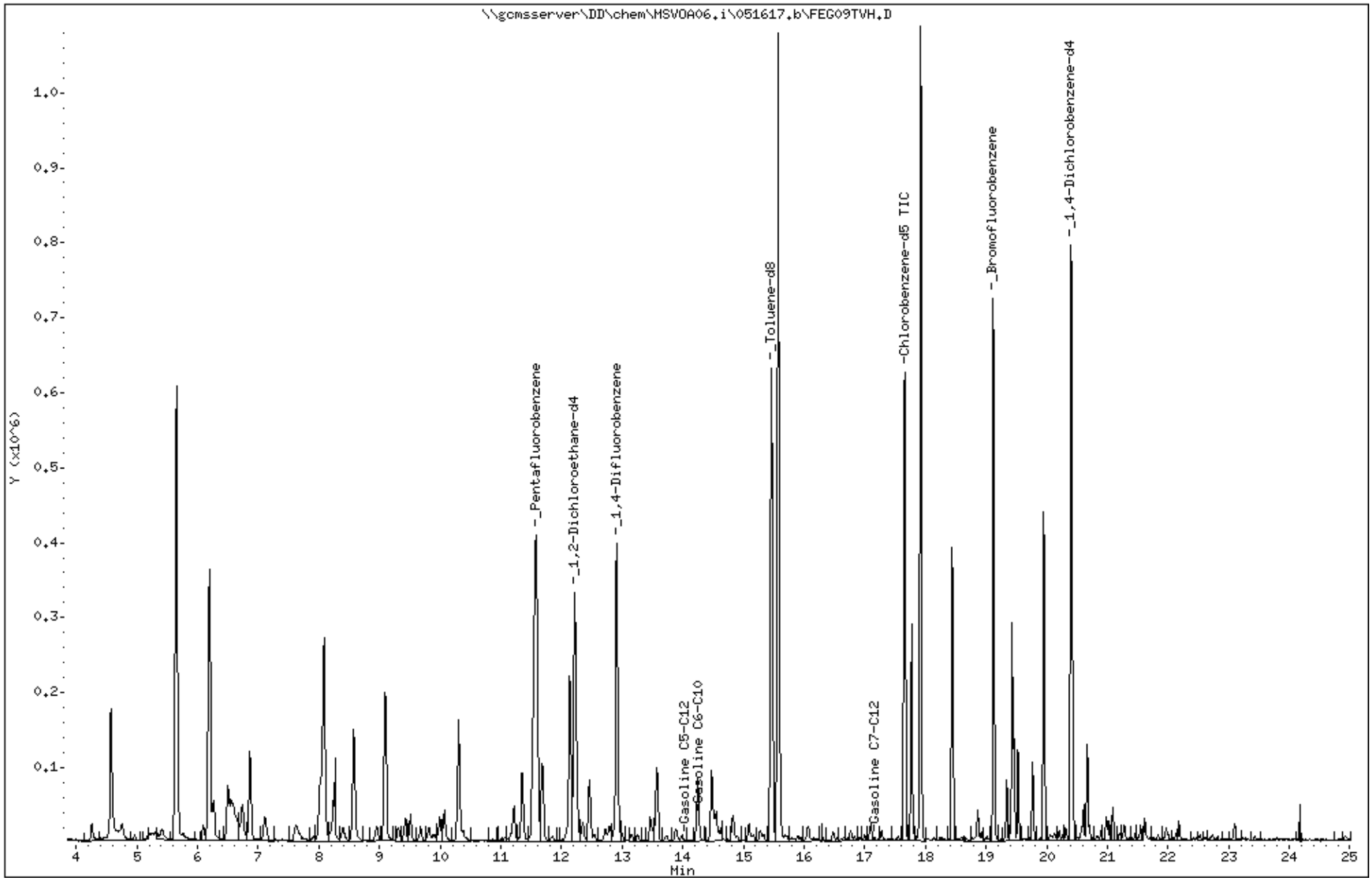
Instrument: MSVOA06.i

Sample Info: ccv/bs,qc886054,247837,

Operator: VOC

Column phase:

Column diameter: 2.00



Curtis & Tompkins, Ltd.

Total Organic Carbon (TOC)

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0064.007.001	Analysis:	SM5310C
Analyte:	Total Organic Carbon	Sampled:	05/10/17
Matrix:	Water	Received:	05/11/17
Units:	mg/L	Analyzed:	05/15/17
Batch#:	247812		

Field ID	Type	Lab ID	Result	RL	Diln Fac
MW-5	SAMPLE	288823-002	4.7	2.0	4.000
MW-11	SAMPLE	288823-003	7.6	0.50	1.000
MW-11-D	SAMPLE	288823-004	11	2.0	4.000
EB-1	SAMPLE	288823-005	ND	0.50	1.000
MW-10	SAMPLE	288823-006	8.4	0.50	1.000
MW-13	SAMPLE	288823-007	4.8	0.50	1.000
MW-14	SAMPLE	288823-008	23	2.0	4.000
MW-9	SAMPLE	288823-009	31	2.0	4.000
MW-15	SAMPLE	288823-010	27	2.0	4.000
MW-17	SAMPLE	288823-012	7.8	2.0	4.000
MW-8	SAMPLE	288823-013	3.9	0.50	1.000
MW-16	SAMPLE	288823-014	15	2.0	4.000
MW-2	SAMPLE	288823-015	10	2.0	4.000
MW-18	SAMPLE	288823-016	18	2.0	4.000
MW-1	SAMPLE	288823-017	47	2.0	4.000
EB-2	SAMPLE	288823-018	ND	0.50	1.000
	BLANK	QC885954	ND	0.50	1.000

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Organic Carbon (TOC)

Lab #:	288823	Location:	Oakland MSC
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0064.007.001	Analysis:	SM5310C
Analyte:	Total Organic Carbon	Batch#:	247812
Field ID:	MW-5	Sampled:	05/10/17
MSS Lab ID:	288823-002	Received:	05/11/17
Matrix:	Water	Analyzed:	05/15/17
Units:	mg/L		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Diln Fac
LCS	QC885955		10.00	10.20	102	90-110			1.000
MS	QC885956	4.669	8.000	13.42	109	64-131			4.000
MSD	QC885957		8.000	13.72	113	64-131	2	20	4.000

RPD= Relative Percent Difference