Pacific Gas and Electric Company®

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By Alameda County Environmental Health 10:24 am, Sep 01, 2017

August 31st 2017

Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

Subject: 205 Brush Street
Oakland, CA
RO0003196

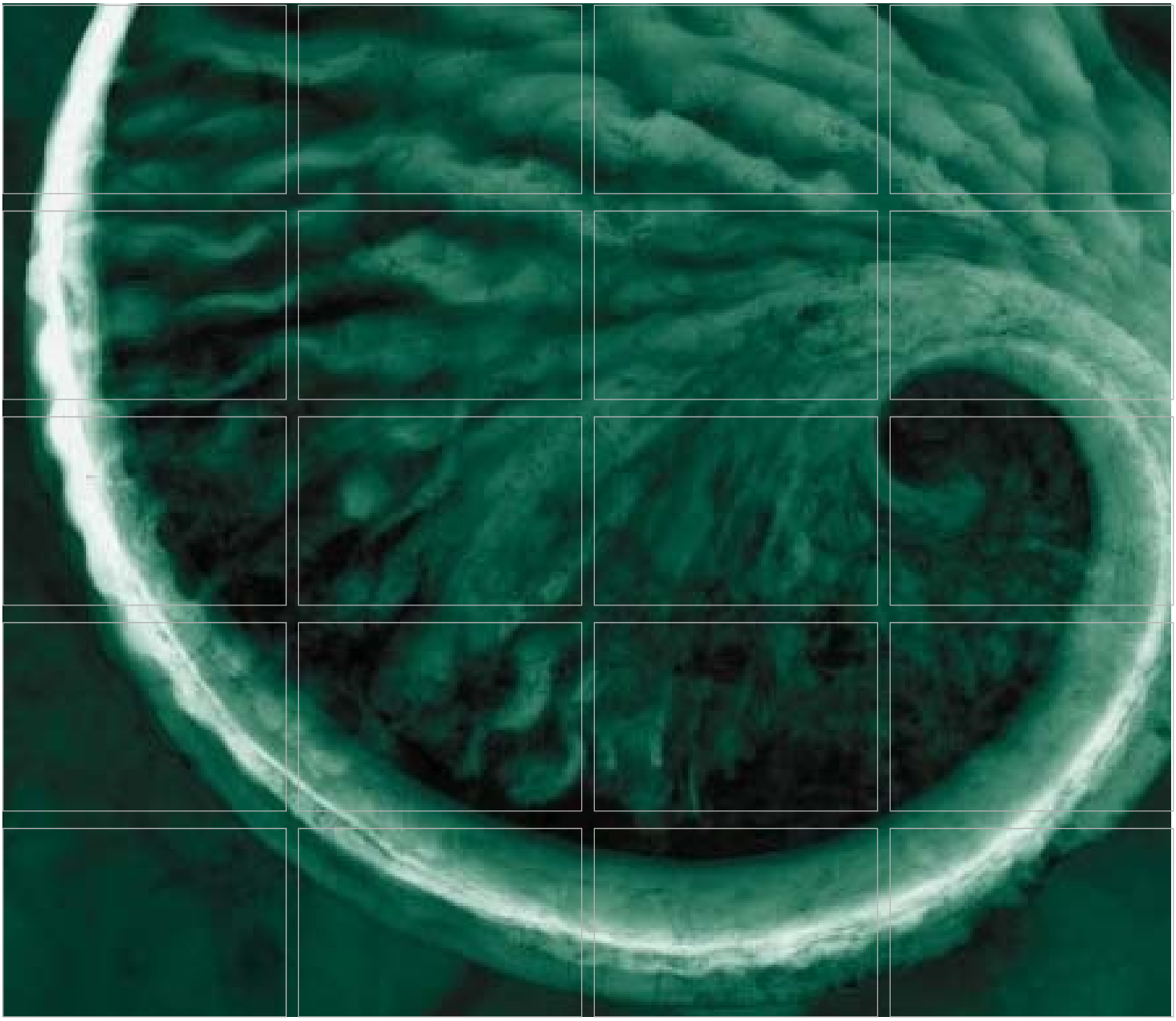
Mr. Keith Nowell:

As the legal authorized representative of PG&E, who contracted ERM-WEST, Inc.(ERM) to prepare the *In Situ Chemical Oxidation Pilot Study Implementation Report,* I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document or report submitted on my behalf to Alameda County Department of Environmental Health's FTP server and the State Water Resources Control Board's GeoTracker website.

Sincerely,

Ben A. LePage, Ph.D.

Manager, Remediation



In Situ Chemical Oxidation Pilot Study Implementation Report

205 Brush Street
Oakland, California

Prepared for:
Pacific Gas and Electric Company

August 2017

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The business of sustainability

Pacific Gas and Electric Company

In Situ Chemical Oxidation Pilot Study Implementation Report

205 Brush Street
Oakland, California

August 2017

Project No. 0399889

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LIST OF ACRONYMS

°C	degrees Celsius
µg/L	micrograms per liter
µmhos/cm	micromhos per centimeter
ACEH	Alameda County Environmental Health
ASP	activated persulfate
bgs	below ground surface
BMP	best management practice
BTEX	benzene, toluene, ethylbenzene, and xylenes
DO	dissolved oxygen
ERM	ERM-West, Inc.
FS/RAP	Feasibility Study/Remedial Action Plan
HASP	Health and Safety Plan
ISCO	in situ chemical oxidation
mg/L	milligrams per liter
MTBE	methyl tertiary-butyl ether
mV	millivolt
ORP	oxidation-reduction potential
PG&E	Pacific Gas and Electric Company
QA/QC	quality assurance/quality control
RWQCB	California Regional Water Quality Control Board, San Francisco Bay Region
SVOC	semivolatile organic compound
TPH	total petroleum hydrocarbons
TPH-d	total petroleum hydrocarbons as diesel
TPH-g	total petroleum hydrocarbons as gasoline
TPH-mo	total petroleum hydrocarbons as motor oil
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound

1.0 INTRODUCTION

On behalf of Pacific Gas and Electric Company (PG&E), ERM-West, Inc. (ERM) has prepared this *In Situ Chemical Oxidation Pilot Study Implementation Report* for the former Port of Oakland property located at 205 Brush Street in Oakland, Alameda County, California (site; Figure 1). This report documents the in situ chemical oxidation (ISCO) pilot study and bench-scale testing work completed as outlined in the *Additional Investigation, In Situ Chemical Oxidation Pilot Study, and Bench-Scale Testing Work Plan* [Work Plan, (ERM 2017a)].

PG&E acquired this property from the Port of Oakland for redevelopment as part of upgrading and improving safety of its natural gas distribution infrastructure in the area. As part of the 6 March 2015 Real Property Transfer Agreement, PG&E will address the on-site environmental conditions; all off-site impacts are the responsibility of the Port of Oakland. PG&E performed this work prior to site redevelopment to fully address any potential health risks to construction workers, expedite soil remediation to mitigate risks to site workers, and eliminate any potential sources of impact to groundwater.

This report summarizes the field activities completed as part of the ISCO pilot study. The following sections present the site background and summarize the pilot study and bench-scale testing completed.

1.1 IN SITU CHEMICAL OXIDATION PILOT STUDY OBJECTIVES

The goal of the ISCO pilot study is to evaluate remedial options and begin total petroleum hydrocarbon (TPH) and associated volatile organic compound (VOC) mass removal at the site. Specific objectives of the pilot study were to:

- Collect site-specific data on the ability to distribute the oxidant in the shallow groundwater interval;
- Collect data on the lateral spacing at injection locations for evaluating a full-scale ISCO program;
- Determine the volume and concentration of oxidant for evaluating a full-scale ISCO program;
- Determine overall cost and effectiveness of the full-scale ISCO program that can be compared with other remedial alternatives; and
- Begin groundwater remediation within the identified source area using the presumptive remedial technology to breakdown the residual petroleum

hydrocarbon mass remaining at the site since the underground storage tanks (UST) removal and focused soil remediation conducted in 2003.

1.2 DOCUMENT ORGANIZATION

This report presents the following information:

- Section 2.0 describes the site background;
- Section 3.0 presents the field activities;
- Section 4.0 presents the initial results of the pilot study;
- Section 5.0 presents the conclusions; and
- Section 6.0 lists documents referenced in this report.

Figures, tables, and appendices follow the report text.

2.0 SITE BACKGROUND

The site consists of an approximately 0.74-acre parcel of land that is improved with three vacant structures and concrete- and/or asphalt-paved areas. The property is identified as Alameda County Assessor's Parcel Number 001-0111-005-02 and is situated in a primarily commercial and light industrial area in Oakland, California (Figure 1). Historical use of the site is presented in the *Site Characterization Investigation Work Plan, 205 Brush Street, Oakland, California* (ERM 2015). Alameda County Environmental Health (ACEH) staff is the lead oversight agency for the site.

The site is currently occupied by three commercial buildings (Buildings 412, 413, and 414) located in the northern and eastern portions of the site. The remainder of the site consists of a concrete-paved yard, except for an asphalt-paved area on the western side of the site (where former USTs were removed). The vacant portion of the site is surrounded by fencing with an access gate located along the western boundary at Market Street.

2.1 PREVIOUS INVESTIGATIONS AND SITE CHARACTERIZATION SUMMARY

Several phases of investigation have been completed at the site to characterize the extent of VOCs in soil, soil vapor, and groundwater. A summary of historical investigation results is presented in the *Site Characterization Summary Report, 205 Brush Street, Oakland, California* (ERM 2016). The most recent investigation results are summarized in the *Additional Investigation – Monitoring Well and Soil Vapor Probe Installation Summary Report* (ERM 2017b). The investigations were performed to characterize impacts to the soil, soil vapor, and groundwater that were identified in the limited pre-purchase Phase II investigation (ERM 2014).

2.1.1 Site Geology and Hydrostratigraphy

Soil lithology was documented during previous investigations. Shallow soil stratigraphy observed during the investigations included a fill layer ranging in thickness from 0.5 to 2 feet that is underlain by fine-grained sands, sandy silts, and clayey silts/sands, which are present to a depth of approximately 22 feet below ground surface (bgs) where a sand interval was encountered. This sand interval was present to total depth of investigation, which ranged from 42 to 48 feet bgs.

During the investigations, groundwater was typically encountered at depths ranging from 5 to 11 feet bgs. This first groundwater interval appears to be

perched, occurring within coarser-grained sand stringers in primarily fine-grained silts and clays. The first water-bearing zone that could be considered a potential aquifer was encountered at a depth of 22 feet bgs and was present to the total depth in the three cone penetrometer test locations completed during a previous investigation.

As presented in the *Additional Investigation – Monitoring Well and Soil Vapor Probe Installation Summary Report* (ERM 2017b), five monitoring wells were installed within the first groundwater interval at the site in April 2017. Monitoring well construction details are provided on Table 1. Based on groundwater elevations collected from site wells in May and July 2017, groundwater flow is to the southwest towards the Port of Oakland. Groundwater elevations are provided on Table 2.

2.1.2 Sustainability Tracking and Practices

In partnership with PG&E and subcontractors at the site, ERM tracked and monitored progress against key sustainability indicators and, where possible, took action to improve performance through best management practices (BMPs). Sustainability stressors considered applicable for these activities include greenhouse gas emissions, waste production, health and safety, and stimulation of the local economy. The following best practices were identified and applied during the pilot test field activities:

- Subcontractors did not idle work trucks while on site;
- Small equipment was powered by rechargeable batteries rather than running generators;
- Consistent and thorough application of health and safety planning and safety culture by PG&E, ERM, and its subcontractor contributed to completion of the event with no safety incidents; and
- Local purchases of lodging, fuel, food, and supplies stimulated the local economy.

ERM tracked the overall impacts caused by project activities at the site, and the reduction of impacts attained through best practices. The site-specific data was provided to PG&E so that programmatic tracking of impact reductions can be tracked and further efforts can be encouraged.

3.0 ISCO PILOT STUDY FIELD ACTIVITIES

This section presents the technology background, pre-mobilization and site preparation, and implementation of the ISCO pilot study.

3.1 TECHNOLOGY BACKGROUND

ISCO treatment involves the direct injection of a chemical oxidant into the groundwater to oxidize VOCs. KLOZUR® CR, a commercially available reagent consisting of alkaline-activated KLOZUR® SP and PermeOx® Ultra engineered calcium peroxide was used as the reagent for the pilot study. KLOZUR® CR couples activated persulfate (ASP)-based chemical oxidation with aerobic and anaerobic bioremediation processes that can last up to one year after application.

Alkaline activation of persulfate was chosen based on application of the material at other sites and the qualities of the oxidant (creation of superoxides) that support aggressive remediation, which is needed especially at the diffusion-limited surface of the lower permeability silt/clay zone to desorb contaminant mass into groundwater.

In addition, KLOZUR® CR offers the following advantages:

- It has been documented to be effective for treatment of benzene, toluene, ethylbenzene, and xylenes (BTEX), certain polynuclear aromatic hydrocarbons, and petroleum hydrocarbons. Sulfate, which is a reaction by-product of ASP, also helps sustain anaerobic bioremediation of petroleum hydrocarbons.
- The soil oxidant demand for sulfate radicals is relatively low compared to other oxidants.
- It has a high water solubility, which will facilitate subsurface delivery and distribution.
- It is stable in the subsurface with a reported half-life of 100 to 500 days.
- PermeOx Ultra, a component of KLOZUR® CR, is formulated to contain oxygen in excess of 18 percent, which is designed for slow release to last over 250 days; this provides a cost-effective approach for enhancing the aerobic bioremediation of petroleum hydrocarbons.

3.1.1 *Chemical and Biological Reactions*

The chemical reaction of alkaline activation of sodium persulfate will produce a transient sulfate radical, with an overall reaction with petroleum hydrocarbon as represented by benzene as follows:

$C_6H_6 + 15Na_2S_2O_8 + 12H_2O \rightarrow 6CO_2 + 30NaHSO_4$

The biological reaction of petroleum hydrocarbon as represented by benzene with oxygen and sulfate is provided below:

$7.5O_2 + C_6H_6 \rightarrow 6CO_2 + 3H_2O$

$7.5H^+ + 3.75SO_4^{2-} + C_6H_6 \rightarrow 6CO_2 + 3.75H_2S^0 + 3H_2O$

3.1.2 *Potential Undesirable Consequences*

KLOZUR® CR also has the potential for some transient secondary effects on the geochemistry, as listed below:

- Base-activated persulfate will cause a temporary increase in pH in the injection area, as well as increase dissolved metals concentrations;
- Oxidative treatment technologies cause a temporary increase in the dissolved metals including hexavalent chromium within the treatment zone; and
- The ASP reaction will temporarily increase sulfate concentrations in the treatment area.

Performance monitoring associated with the ISCO pilot study will evaluate the occurrence and magnitude of these transient secondary effects.

3.2 *PRE-MOBILIZATION AND SITE PREPARATION*

The project-specific Health and Safety Plan (HASP) that covers all phases of pilot study work was updated prior to implementing the field activities. The HASP summarized current site conditions and activities planned during the pilot study. All field staff reviewed the HASP prior to conducting work on site, and ERM's health and safety requirements were discussed with all ERM employees, ERM subcontractors, site personnel, and visitors during the morning tailgate meeting.

Boring permits were obtained from Alameda County Public Works Department for all drilling locations. ERM implemented internal subsurface utility clearance procedures prior to initiation of any field activities. Proposed injection boring

locations were marked in the field prior to initiating the fieldwork. In accordance with the ERM subsurface clearance policy, ERM contacted Underground Services Alert, a service that notifies public utilities of the location and scope of proposed subsurface investigations and, if in conflict, requires them to mark their utilities. ERM also contracted Ground Penetrating Radar Systems, Inc., a private utility locator, to mark subsurface utilities and structures potentially in conflict with the proposed scope of work. Drilling locations were modified, as necessary, to avoid underground utilities.

On-site injection activities were conducted between 6 and 16 June 2017. Cascade Technical Services, LLC, was contracted through TWS Environmental to perform the injection work under ERM oversight. Project materials including a forklift, custom-built injection/mixing rig, direct-push drill rig, 1,000-gallon polyethylene tank for water storage, and decontamination trailer were mobilized to the site prior to the start of injection activities. BMPs for spill response and containment were installed and utilized during injections. BMPs included using secondary containment for all fuel-powered equipment, staging spill kits and portable vacuums within the injection area, and installing packers in site monitoring wells. Site access was controlled by the fence surrounding the site, and work areas and injection points were marked with traffic cones and caution tape as necessary.

3.3 ISCO INJECTION IMPLEMENTATION

The ISCO pilot study targeted the area with shallow groundwater concentrations in excess of Environmental Screening Levels set for TPH and VOCs by the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) in their 22 February 2016 *ESL Workbook, Interim Final, Revision 3* (RWQCB 2016). The anticipated radius of influence for each injection point was estimated to be 10 feet. The injection points were spaced approximately 15 feet apart in the area adjacent to the former UST and approximately 20 feet apart in the remaining impacted groundwater area. Using this spacing, a total of 37 injection points (INJ-1 through INJ-37) were completed within the targeted treatment area. Injection point locations are provided on Figure 2.

The injection equipment included the following:

- A mixing rig consisting of pumps and tanks where oxidant slurry was mixed;
- An aboveground assembly of high-pressure hoses using cam-lock fittings to connect the mix-rig to the delivery equipment;
- A direct-push rig equipped with a specialized injection tool to deliver the reagents; and

- A containment structure around the mix-rig, as well as each injection point, to provide for spill containment.

The initial approach to injection was consistent with the Work Plan and consisted of advancing a sleeved injection tool in 3-foot increments within the targeted injection interval of 8 to 16 feet bgs starting from the "top down." However, due to minor surfacing of oxidant slurry while utilizing "top down" multi-interval methods at the first injection location, this approach was modified. An injection tool with a 5-foot screen was used across a reduced target injection interval of 11 to 16 feet bgs to minimize surfacing of the oxidant slurry. This delivery approach was the primary method utilized for completing the remainder of the injection points. Injection field logs are provided in Appendix A.

As shown on Figure 2, nineteen injections points received a 20 percent weight-per-weight of oxidant to water and the remaining 18 injection points received a 10 percent slurry mixture. Twenty percent slurry mixture locations were strategically placed around the areas with the highest TPH and VOC impacts to groundwater and the former UST (Figure 2). The oxidant was mixed on site using water from a nearby water hydrant. The target slurry volume was 158 gallons at each location.

As shown on the field logs in Appendix A, target volume was emplaced at all locations except for INJ-2 where surfacing prevented full volume from being emplaced. The total volume of slurry injected at all points was 5,872 gallons. Flow rates at injection points were observed between 0.4 and 6.5 gallons per minute and pressures ranged from 15 to 85 pounds per square inch.

As reported on the field logs in Appendix A, minor surfacing was observed at some locations. All surfacing was immediately addressed by spill containment and injection with lower pressure. Following injection, the borings were grouted to surface with neat cement. Injection point locations were surveyed by a licensed surveyor and survey data are provided in Appendix B.

3.4 PERFORMANCE MONITORING

As described in the *Additional Investigation – Monitoring Well and Soil Vapor Probe Installation* (ERM 2017b), a set of baseline groundwater samples was collected from site groundwater monitoring wells MW-01 through MW-05 prior to ISCO pilot study implementation in May 2017. Monitoring well construction details and groundwater elevations are provided on Tables 1 and 2, respectively, and groundwater analytical results are included on Tables 3 through 7. Monitoring well locations are shown on Figure 2.

The baseline groundwater samples were submitted under proper chain-of-custody procedures to Enthalpy Analytical (formerly Curtis & Tompkins), a California-certified laboratory in Berkeley, California, for laboratory analysis of the following parameters:

- TPH as gasoline (TPH-g) and VOCs by U.S. Environmental Protection Agency (USEPA) Method 8260B;
- TPH as diesel (TPH-d) and TPH as motor oil (TPH-mo) by USEPA Method 8015M with silica gel cleanup;
- Semivolatile organic compounds (SVOCs) by USEPA Method 8270C;
- California Title 22 Metals by USEPA Methods 6010/7000 series;
- Polychlorinated biphenyls by USEPA Method 8082; and
- Organochlorine pesticides by USEPA Method 8081.

On 19 July 2017, one month following pilot study implementation, groundwater samples were collected from site monitoring wells for the same analyses as above except for polychlorinated biphenyls and organochlorine pesticides. Groundwater analytical results of performance monitoring are included on Tables 3 through 7. Laboratory analytical reports are included in Appendix C, and groundwater sampling field data sheets are included in Appendix D.

3.5 BENCH TEST

Concurrent with the ISCO pilot study and additional investigation activities (ERM 2017b), a bench test was conducted to evaluate treatability and reagent needs for in situ treatment of dissolved metals at the site. Results of the metals treatability bench test are included in Appendix E. The results provide the potential reagent mixture needed to precipitate metals from site groundwater, if determined necessary.

3.6 ADDITIONAL ANALYSES - SOIL PHYSICAL PROPERTIES

Additional analyses were conducted during the additional investigation and ISCO pilot study to provide data for the upcoming Feasibility Study/Remedial Action Plan (FS/RAP). Vadose zone and saturated soil samples were collected from borings completed during the additional investigation (ERM 2017b) and sent under standard chain-of-custody control to PTS Laboratories, a California state-certified laboratory in Santa Fe Springs, California. The vadose zone sample was analyzed for vapor transport physical properties, and the saturated sample was analyzed for physical properties, hydraulic conductivity, and total organic

carbon. A full discussion of site soil physical properties will be presented in the forthcoming FS/RAP. The soil physical properties laboratory report is included in Appendix F.

3.7 QUALITY ASSURANCE/QUALITY CONTROL MEASURES

ERM performed a data quality assurance/quality control (QA/QC) review of the analytical results from the investigation in accordance with the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review*, October 1999, and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, July 2004. The data quality review evaluated holding times, preservation methods, method blank sample results, laboratory control sample recoveries, and matrix and surrogate spike recoveries. ERM collected one duplicate groundwater sample for QA/QC purposes. Also, a trip blank accompanied all volatile groundwater samples packaged in iced coolers to identify any contamination that may have occurred while transporting samples.

Based on ERM's data quality review, the quality of the data generated during this investigation is acceptable for the preparation of technically defensible documents. The laboratory data packages and the QA/QC review are provided in Appendix C.

3.8 EQUIPMENT DECONTAMINATION

All non-disposable equipment was decontaminated prior to use consistent with USEPA Operating Procedure SESDPROC-206-R3 (USEPA 2015). Equipment decontamination was limited to drilling equipment (hand augers, drill rods, augers, and other downhole equipment) and was completed after the borings were installed. Sampling equipment was either single-use or cleaned by the analytical laboratory and did not require decontamination.

3.9 INVESTIGATION-DERIVED WASTE

ERM provided collection, storage, management, and off-site disposal of solid and liquid investigation-derived waste related to injection activities and/or decontamination of drilling and groundwater sampling equipment. Decontamination water was properly stored in sealed and labeled 55-gallon drums, with drums placed in a secure and designated location on site. Analytical data from the sampling activities were used to characterize investigation-derived waste for profiling and appropriate off-site disposal.

4.0 PERFORMANCE MONITORING RESULTS

The following sections describe the results of the groundwater performance monitoring.

4.1 PERFORMANCE MONITORING RESULTS

The baseline groundwater sampling event was conducted between 4 and 5 May 2017, and the 1-month event post-injection event was completed on 19 July 2017. Samples were analyzed for parameters as described in Section 3.3. Groundwater analytical results are presented in Tables 3 through 7.

4.1.1 Field Parameters

As part of the monitoring program, field parameter data were collected from the five site monitoring wells during the baseline groundwater sampling event and first post-injection event. Field parameters are presented in Table 3.

As shown in Table 3, during the baseline monitoring event, the field parameter results were as follows:

- Temperature ranged from 17.9 degrees Celsius (^{o}C) (MW-05) to 20.4 ^{o}C (MW-01);
- Measurements of pH were neutral to slightly acidic, ranging from 6.16 (MW-03) to 7.31 (MW-01);
- Conductivity values ranged from 646 (MW-01) to 1,550 micromhos per centimeter (µmhos/cm) (MW-03);
- Dissolved oxygen (DO) values ranged from 0.5 (MW-02 and MW-04) to 2.99 milligrams per liter (mg/L) (MW-03); and
- Oxidation-reduction potential (ORP) readings ranged from -74 (MW-04) to 144 millivolts (mV) (MW-01), with one of five wells exhibiting negative ORP readings.

During the first performance monitoring event (July 2017), the field parameters were as follows:

- Temperature values ranged from 20.6 ^{o}C (MW-05) to 23.0 ^{o}C (MW-04);
- Measurements of pH taken at monitoring wells were slightly below 7, with exception of MW-03, which had a pH of 11.98;

- Conductivity readings remained consistent with baseline levels with the exception of MW-03, which increased from 1,550 to 8,724 µmhos/cm;
- DO values were consistent with baseline levels with the exception of the level in MW-03, which increased from 2.99 to 32.27 mg/L; and
- ORP readings ranged from -172.4 (MW-04) to 68.7 mV (MW-01), with two of five wells exhibiting negative ORP readings.

The results indicate that the chemical oxidant injected has readily distributed in the MW-03 area. It is anticipated that other site wells will also exhibit signs of oxidant distribution in future performance monitoring.

4.1.2 Groundwater Analytical Results

TPH and VOC analytical results are presented in Table 4. As shown, TPH compounds were detected in all site monitoring wells during the May 2017 baseline event. Concentrations within the TPH-d carbon range were between 37 micrograms per liter (µg/L) (MW-01) and 1,900 µg/L (MW-04). TPH-g was detected in MW-02 and MW-04 at concentrations of 5,100 µg/L and 8,100 µg/L, respectively. Comparing the baseline and 1-month post-injection events, three of the five site wells (MW-01, MW-3, and MW-05) did not have TPH-d detections above the reporting limit (<50 µg/L) during the 1-month post injection event. In addition, TPH-g concentrations in MW-04 decreased from 8,100 µg/L (May 2017) to 3,500 (July 2017); however, TPH-g concentrations in MW-02 increased from 5,100 µg/L (May 2017) to 9,000 µg/L (July 2017). The increased TPH-g concentration in MW-02 is believed to be a transient condition due to the June 2017 injection program and ERM believes that the TPH-g concentrations in this well will reduce once the oxidant distribution becomes more widespread.

As seen in Table 4, BTEX compounds, methyl tertiary-butyl ether (MTBE), and naphthalene were detected during the baseline event primarily in wells MW-02, MW-03, and MW-04. Comparing the baseline and 1-month post-injection events, BTEX, MTBE, and naphthalene concentrations in MW-04 and the MTBE concentration in MW-03 have decreased. Similar to TPH-g, the BTEX concentrations in MW-02 have increased but this is believed to be a transient condition due to the June 2017 injection program and ERM believes that the BTEX concentrations in this well will reduce once the oxidant distribution becomes more widespread.

Concentrations of metals during the 1-month post-injection events were generally consistent with baseline values, with exception of arsenic, chromium, and thallium. Comparing baseline results to 1-month post-injection, slight increases in arsenic concentrations were observed in MW-03 (1.2 µg/L to 10 µg/L) and MW-04 (8.3 µg/L to 16 µg/L). Chromium and thallium concentrations

in MW-03 increased from less than 0.5 µg/L during the baseline event to 260 and 2.8 µg/L, respectively, during the initial post-injection monitoring. These increases were expected and are transient. These concentrations will decrease as the oxidant gets consumed and the oxidation-reduction conditions within the pilot study area return to natural conditions. Metals will continue to be monitored in subsequent performance monitoring events.

4.1.3 Performance Monitoring Schedule

Collection of groundwater samples will continue monthly through September 2017, which will complete the three monthly performance monitoring events including the August 2017 quarterly monitoring event. After September 2017, monitoring will be quarterly, with the next event in November 2017. The performance monitoring samples will be submitted under proper chain-of-custody procedures to Enthalpy Analytical for laboratory analysis of the following parameters:

- TPH-g and VOCs by USEPA Method 8260B;
- TPH-d and TPH-mo by USEPA Method 8015M with silica gel cleanup;
- SVOCs by USEPA Method 8270C; and
- California Title 22 Metals by USEPA Methods 6010/7000 series.

Results of the performance monitoring will be included in the third quarter 2017 monitoring report, which will be submitted to ACEH in October 2017.

5.0 CONCLUSIONS

This report was prepared to document the results of the ISCO pilot study implemented in June 2017. Based on the pilot study results, the following conclusions can be made:

- The ISCO pilot study program has shown that in situ treatment is a viable remedial alternative to treat chemicals of concern in site groundwater; and
- The 1-month post-sampling event results indicate oxidant distribution in some of the wells and generally show a decreasing trends of chemicals of concern in site groundwater.

It is anticipated that future monitoring events will continue to show a wider distribution of the oxidant and reducing trends of chemicals of concern. The ISCO pilot test results will be used to develop groundwater alternatives for a remedial action plan for the site, which will be submitted to ACEH shortly after the completion of performance monitoring for the pilot study.

6.0 REFERENCES

California Department of Public Health. 2013. *Maximum Contaminant Levels and Regulatory Dates for Drinking Water.* August 2016 update.

California Environmental Protection Agency, Department of Toxic Substances Control; Los Angeles Regional Water Quality Control Board; and San Francisco Bay Regional Water Quality Control Board. 2015. *Advisory—Active Soil Gas Investigations.* July.

ERM. 2014. *Phase II Environmental Site Investigation, 205-209 Brush Street, Oakland, California.* 14 February.

ERM. 2015. *Site Characterization Investigation Work Plan, 205 Brush Street, Oakland, California*. November.

ERM. 2016. *Site Characterization Summary Report, 205 Brush Street, Oakland, California.* October.

ERM. 2017a. *Additional Investigation, In Situ Chemical Oxidation Pilot Study, and Bench-Scale Testing Work Plan, 205 Brush Street, Oakland, California.* February.

ERM. 2017b. *Additional Investigation – Monitoring Well and Soil Vapor Probe Installation Summary Report, 205 Brush Street, Oakland, California.* August

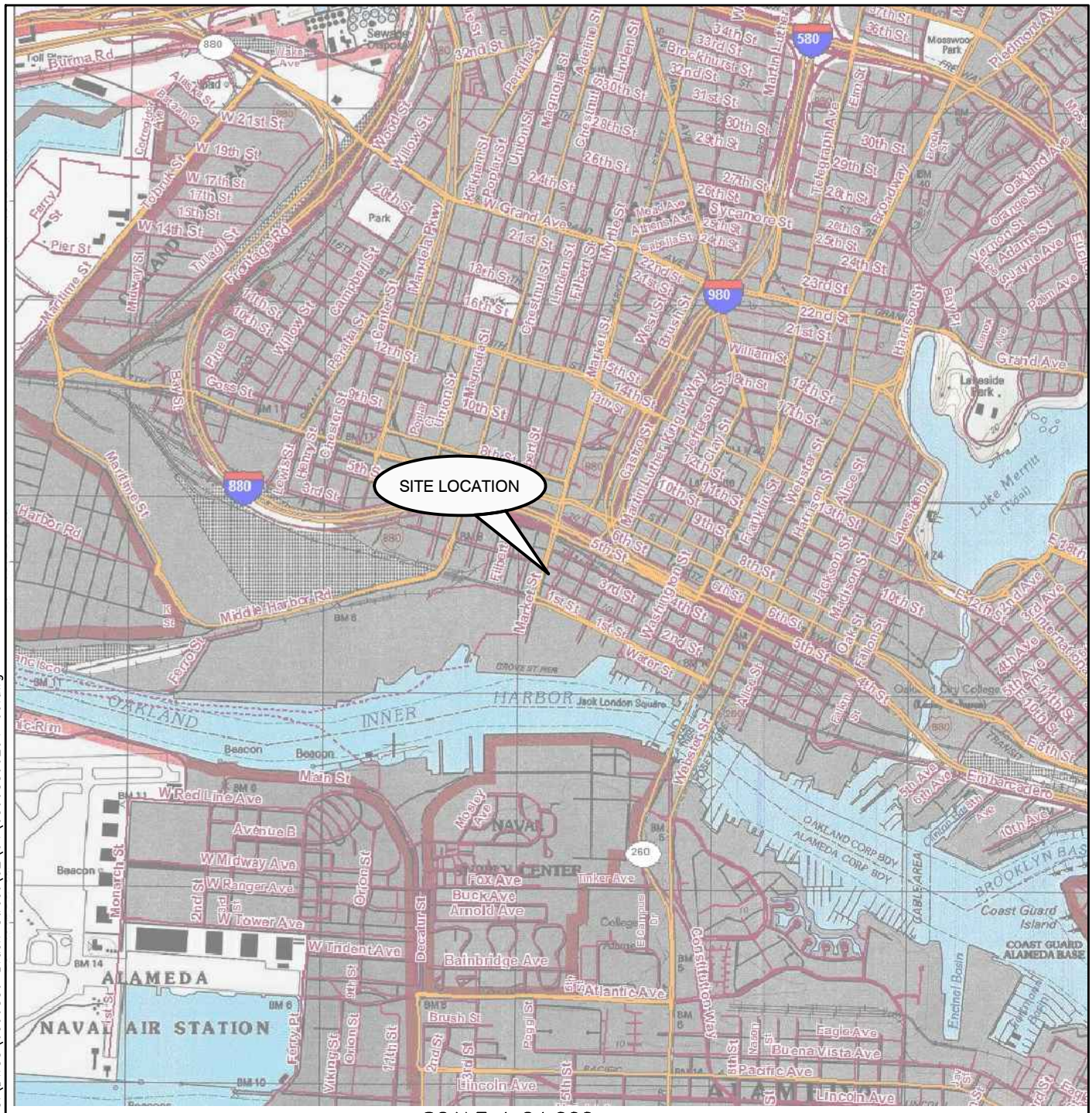
Regional Water Quality Control Board (RWQCB), San Francisco Bay Region. 2016. *ESL Workbook, Interim Final, Revision 3*. 22 February.

United States Environmental Protection Agency (USEPA). 1999. *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review - EPA 540/R-99/008*. October.

USEPA. 2004. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review - EPA 540/R-04/004*. July.

USEPA. 2015. *Field Equipment Cleaning and Decontamination*. SESDPROC-205-R3. 18 December.

Figures



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1 .5 0 1 KILOMETER

N

References:
TOPO!® Software
U.S.G.S. 7.5 Minute Series (Topographic) Quadrangle,
Oakland West, California
Dated: 1997

Figure 1
Site Location
ISCO Pilot Study Implementation Report
205 Brush Street
Oakland, California

Environmental Resources Management
www.erm.com
ERM

J. Estrada 8/17/2017. 0399889.02.04 G:\DWGS\0399889 Brush Street\02\04\0399889020409.dwg

Legend

- Site Boundary
- Approximate Onsite Area of Groundwater with TPH COCs Exceeding ESLs
- Monitoring Well Location
- 10% Slurry Injection Location
- 20% Slurry Injection Location

Aerial Photo Source: © 2009 Google Earth Pro Ver 5.0.11733.9347

N

0 30

Approx. Scale (feet)

Figure 2

Injection Point and Monitoring Well Location Map
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205 Brush Street
Oakland, California

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Tables

Table 1
Monitoring Well Construction Details
Pilot Study Implementation Report
205 Brush Street
Oakland, California

Well ID	Well Diameter (inches)	Total Depth (feet bgs)	Screened Interval (feet bgs)	Top of Casing (NGVD 88)	Survey Coordinates	
					Northing	Easting
MW-01	4	16.5	4-16	11.42	2118499.190	6,046,290.880
MW-02	2	15.5	5-15	11.50	2,118,406.480	6,046,300.260
MW-03	2	15.5	5-15	10.41	2,118,380.220	6,046,257.080
MW-04	2	15.5	5-15	11.63	2,118,385.350	6,046,288.490
MW-05	2	15.5	5-15	11.81	2,118,360.570	6,046,298.280

Notes:

feet bgs = feet below ground surface

Northing and easting coordinates were surveyed relative to the North American Datum of 1983 (NAD 83).

Elevations were surveyed relative to the North American Vertical Datum of 1988 (NGVD 88) .

Table 2
Groundwater Elevation Summary
Pilot Study Implementation Report
205 Brush Street
Oakland, California

Monitoring Well	Date	Top of Well Casing Elevation (NGVD 88)	Depth to Groundwater (feet bmp)	Groundwater Elevation (NGVD 88)
MW-01	5/4/2017	11.42	4.50	6.92
MW-01	7/18/2017	11.42	5.21	6.21
MW-02	5/4/2017	11.5	4.85	6.65
MW-02	7/18/2017	11.5	5.51	5.99
MW-03	5/4/2017	10.41	3.95	6.46
MW-03	7/18/2017	10.41	4.72	5.69
MW-04	5/4/2017	11.63	5.02	6.61
MW-04	7/18/2017	11.63	5.71	5.92
MW-05	5/5/2017	11.81	5.30	6.51
MW-05	7/18/2017	11.81	5.96	5.85

Notes:

NGVD 88 = North American Vertical Datum of 1988.

bmp = below measuring point

Elevations were surveyed relative to the North American Vertical Datum of 1988 (NGVD 88) .

Table 3
Field and Natural Attenuation Parameters in Groundwater
Pilot Study Implementation Report
205 Brush Street
Oakland, California

Monitoring Well ID	Screen Interval (feet bgs)	Sample Date	Temperature	pH	Conductivity	Turbidity	Dissolved Oxygen[1]	ORP[1]	Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total as $CaCO_3$	Bromide	Chloride	Fluoride	Sulfate	Iron	Manganese	Nitrogen, Nitrite	Nitrogen, Nitrate	Methane	
			°C	S.U.	µmhos/cm	NTU	mg/L	mV	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	mg/L	
MW-01	4-16	5/5/2017	**20.4**	**7.31**	**0.646**	**0.70**	**2.92**	**144**	150	<6.7	<6.7	150	NS	NS	NS	98	<20	350	NS	11.00	0.001	J
MW-01	4-16	7/19/2017	**20.7**	**6.72**	**706**	NS	NS	**68.7**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
MW-02	4-15	5/4/2017	**20.3**	**6.80**	**1.385**	**5.9**	**0.5**	**25.3**	770	<20	<20	770	NS	NS	NS	42	52	580	NS	9.40	0.13	
MW-02	4-15	6/6/2017	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.2	56	<0.50	33	NS	NS	0.16	J 0.33	NS	
MW-02	4-15	7/19/2017	**22.3**	**6.58**	**1,641**	NS	**0.77**	**-130.3**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
MW-03	4-15	5/4/2017	**19.8**	**6.16**	**1.550**	**21.3**	**2.99**	**80**	590	<20	<20	590	NS	NS	NS	320	69	10,000	NS	0.02	J 0.018	
MW-03	4-15	7/19/2017	**22.1**	**11.98**	**8,724**	NS	**32.27**	**43.5**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
MW-04	4-15	5/4/2017	**20.1**	**6.75**	**1.319**	**80.0**	**0.5**	**-74**	960	<20	<20	960	NS	NS	NS	14	3,100	3,200	NS	0.05	2.90	J-
MW-04	4-15	7/19/2017	**23.0**	**6.51**	**819**	NS	**0.78**	**-172.4**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
MW-05	4-15	5/4/2017	**17.9**	**6.80**	**1.017**	**7.5**	**0.55**	**91.5**	460	<20	<20	460	NS	NS	NS	93	<20	810	NS	16.00	<0.005	R
MW-05-DUP	4-15	5/4/2017	NA	NA	NA	NA	NA	NA	450	<20	<20	450	NS	NS	NS	95	<20	820	NS	16.00	<0.005	R
MW-05	4-15	7/19/2017	**20.6**	**6.62**	**1,329**	NS	**0.85**	**43.3**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	

Legend:
--- = No screening level established
MW-# = Monitoring Well Location
< = Analyte not detected at or above the stated laboratory reporting limit
NS = Not Sampled
NA = Not Available
J = Lab Qualifier - Estimated Value
J- = Detected results are estimated with low bias.
U = ERM qualifier - Non-detect
R = Rejected data, > 1 mL headspace
S.U. = Standard Units
µmhos/cm = micromhos per centimeter
NTU = Nephelometric Turbidity Unit
mV = millivolt

Notes:
1. Dissolved oxygen and ORP measurements collected during well development on 2 May 2017.
All concentrations reported in micrograms per liter (µg/L).
Samples were analyzed by United States Environmental Protection Agency (USEPA) Method 6010/7000 series.
Tier 1 ESLs = Tier 1 Environmental Screening Levels for Groundwater, San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB), ESL Workbook, Tier 1 Summary Table, February 2016.
Direct Exposure Groundwater ESLs = San Francisco Bay RWQCB, ESL Workbook, Table GW-1, February 2016.
ESLs for Vapor Intrusion = Commercial/Industrial Environmental Screening Levels for Evaluation of Potential Vapor Intrusion, San Francisco Bay RWQCB, ESL Workbook, Table GW-3, February 2016.
MCLs = Commercial/Industrial Regional Screening Level, EPA Region 9 RSL Summary Table, November 2013.
Bold values indicate detections at or above the laboratory reporting limit.

Table 4
Total Petroleum Hydrocarbons and Volatile Organic Compounds in Groundwater
Pilot Study Implementation Report
205 Brush Street
Oakland, California

Sample ID Location	Sample Interval / Screen Interval (ft bgs)	Date Sampled	TPH-d*	TPH-mo*	TPH-g*	Acetone	Benzene	Chloroform	Toluene	Ethylbenzene	m/p-Xylenes	o-Xylene	Methyl tert-butyl ether (MTBE)	Naphthalene	Tetrachloroethene	Trichloroethene	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dichloroethane	cis-1,2-Dichloroethene	1,2,4-Trimethylbenzene	1,3,5--Trimethylbenzene	2-Butanone	Isopropylbenzene	para-Isopropyl toluene	Propylbenzene	n-Butylbenzene	sec-Butylbenzene	1,2-Dichloropropane	Methylene Chloride
		Tier-1 ESL	*100*	*50,000* [1]	*100*	*1,500*	*1*	*2.3*	*40*	*13*	*20*	*20*	*5*	*0.17*	*3*	*5*	*5*	*3.2*	*0.5*	*6*	---	---	*5,600*	---	---	---	---	---	*5*	*5*
		ESL Direct Exposure	*150*	*50,000*	*220*	*14,000*	*1*	*80*	*150*	*30*	*190*	*190*	*13*	*0.17*	*5*	*5*	*5*	*10.0*	*0.5*	*11*	---	---	*5,600*	---	---	---	---	---	*5*	*5*
		C/I Groundwater ESLs for Vapor Intrusion	---	---	---	*290,000,000*	*9.7*	*20*	*30,000*	*110*	*11,000*	*11,000*	*11,000*	*170*	*26*	*49*	*180*	*1,400*	*53*	*950*	---	---	*13,000,000*	---		---	---	---	*66*	*420*
		MCLs	---	---	---	---	*1*	---	*150*	*300*	*1,750*	*1,750*	---	---	*5*	*5*	---	*6.0*	*0.5*	*6*	---	---	---	---	---	---	--	---	*5*	*5*
MW-01	4-16	5/5/2017	**37 NJ**	<290	<50	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	**1.0**	**0.5**	**0.4 J**	**0.3 J**	**0.9**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-01	4-16	7/19/2017	<50	<300	<50	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	**0.9**	**0.6**	**0.3 J**	**0.3 J**	**0.7**	<0.5	<0.5	**1.1 J**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10
MW-02	4-15	5/4/2017	**2,100**	**1100**	**5,100**	**30 J**	**550**	<3.1	**530**	**94**	**350**	**190**	**26**	**16**	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1	**100**	**33**	**11 J**	**5.9**	**1.3 J**	**15**	**2.8 J**	**3.0 J**	<3.1	<3.1
MW-02	4-15	7/19/2017	**300 NJ**	<300	**9,000**	<330	**2,000**	<17	**1,500**	**170**	**480**	**210**	**35**	**39 J**	<17	<17	<17	<17	<17	<17	**130**	**34**	<330	**7.9 J**	<17	**16 J**	<17	<17	<17	<330
MW-02-DUP	4-15	7/19/2017	**390 NJ**	<300	**8,100**	<330	**1,900**	<17	**1,400**	**150**	**440**	**190**	**31**	<67	<17	<17	<17	<17	<17	<17	**120**	**28**	<330	**7.7 J**	<17	**15 J**	<17	<17	<17	<330
MW-03	4-15	5/4/2017	**550 NJ**	**390**	32 U	<10	**0.1 J**	**0.1 J**	<0.5	**0.2 J**	**0.2 J**	<0.5	**160**	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.1 J**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.3 J**
MW-03	4-15	7/19/2017	<50	<300	**7.7 J**	**31**	**0.2 J**	**0.4 J**	<0.5	<0.5	<0.5	<0.5	**78**	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**3.4 J**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10
MW-04	4-15	5/4/2017	**1,900 NJ**	**890**	**8,100**	<140	**760**	<7.1	**140**	**230**	**590**	**200**	**5.7 J**	**29**	<7.1	< 7.1	<7.1	<7.1	<7.1	<7.1	**160**	**56**	<7.1	**19**	**1.5 J**	**49**	**5.1 J**	**3.5 J**	<7.1	<140
MW-04	4-15	7/19/2017	**850 NJ**	<300	**3,500**	<130	**190**	<6.3	**24**	**260**	**29**	**50**	<6.3	**39**	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	**150**	**40**	<130	**27**	<6.3	**67**	<6.3	**5.6 J**	<6.3	<130
MW-05	4-15	5/4/2017	**240 NJ**	**310**	17 U	<10	<0.5	<0.5	<0.5	**0.1 J**	<0.5	**0.3 J**	**0.8**	<2.0	**0.3 J**	**0.1 J**	<0.5	<0.5	**0.5**	<0.5	**0.1 J**	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<0.5	**0.1 J**	**0.3 J**
MW-05-DUP	4-15	5/4/2017	**180 NJ**	**280 J**	18 U	<10	<0.5	<0.5	<0.5	<0.5	**0.2 J**	<0.5	**0.8**	<2.0	**0.3 J**	**0.2 J**	<0.5	<0.5	**0.6**	<0.5	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.2 J**
MW-05	4-15	7/19/2017	<50	<300	<50	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**1.4**	<2.0	**0.4 J**	**0.2 J**	<0.5	<0.5	**0.8**	<0.5	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10

Legend:
ft bgs = feet below ground surface
TPH-d = Total petroleum hydrocarbons as diesel
TPH-mo = Total petroleum hydrocarbons as motor oil
TPH-g = Total petroleum hydrocarbons as gasoline
C/I = Commercial/Industrial
ESL = Environmental Screening Level
MCL = Maximum Contaminant Level
--- = No screening level established
< = Analyte not detected at or above the stated laboratory reporting limit
NA = Not Analyzed

Qualifiers:
HD - The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
SG - The sample extract was subjected to Silica Gel treatment prior to analysis.
U = ERM qualifier - Non-detect
J = Lab Qualifier - Estimated Value
NJ= ERM qualifier. Sample exhibits unknown single peak or peaks. Estimated value - chromatogram did not resemble the standard hydrocarbon pattern.

Notes:
All concentrations reported in micrograms per liter (µg/L).
* = Samples were analyzed by United States Environmental Protection Agency (USEPA) Method 8015B Modified (M).
Samples were analyzed by USEPA Method 8260B.
Tier 1 ESLs = Tier 1 Environmental Screening Levels for Groundwater, San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB), *ESL Workbook* , Tier 1 Summary Table, February 2016.
Direct Exposure Groundwater ESLs = San Francisco Bay RWQCB, *ESL Workbook* , Table GW-1, February 2016.
ESLs for Vapor Intrusion = Commercial/Industrial Environmental Screening Levels for Evaluation of Potential Vapor Intrusion, San Francisco Bay RWQCB, *ESL Workbook* , Table GW-3, February 2016.
MCLs = Commercial/Industrial Regional Screening Level, EPA Region 9 RSL Summary Table, November 2013.
Bold values indicate detections at or above the laboratory reporting limit.
Values shaded gray indicate concentrations detected above the applicable ESLs. For groundwater, assumes direct exposure.
1. Tier 1 for TPH-mo based on gross contamination level as TPH-mo is not soluble in water.
2. Defaulted to higher value upon comparison of "MCL Priority" and "Human Health Risk Based Only" values from San Francisco Bay RWQCB, ESL Workbook, Table GW-1, February 2016.

Table 5
Semivolatile Organic Compounds in Groundwater
Pilot Study Implementation Report
205 Brush Street
Oakland, California

Sample ID Location	Sample Interval / Screen Interval (ft bgs)	Date Sampled	Acenaphthene	Anthracene	Benzo (a) Anthracene	Benzo (a) Pyrene	Benzo (b) Fluoranthene	Benzo (g,h,i) Perylene	Benzo (k) Fluoranthene	Benzoic Acid	bis (2-Ethylhexyl) phthalate	Chrysene	Dibenzofuran	Fluoranthene	Fluorene	Indeno (1,2,3-c,d) Pyrene	2-Methylnaphthalene	1-Methylnaphthalene	2-Methylphenol	4-Methylphenol	2,4-Dimethylphenol	Naphthalene	Phenanthrene	Phenol	Pyrene
		Tier-1 ESL	*20*	*0.73*	*0.027*	*0.014*	*0.012*	*0.1*	*0.017*	---	*4*	*0.049*	---	*8*	*3.9*	*0.034*	*2.1*	-----	---	---	*100*	*0.17*	*4.6*	*5*	*2*
		ESL Direct Exposure	*530*	*1,800*	*0.034*	*0.2*	*0.012*	---	*0.017*	---	*5.6*	*0.17*	---	*800*	*290*	*0.034*	*36*	---	---	---	*100*	*0.17*	---	*4,200*	*120*
		C/I Groundwater ESLs for Vapor Intrusion	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	*170*	---	---	---
		MCLs	---	---	---	*0.2*	---	---	---	---	*4*	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-01	4-16	5/5/2017	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<47	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4
MW-01	4-16	7/19/2017	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	NA	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	NA	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4
MW-02	4-15	5/4/2017	<20	<20	<20	<20	<20	<20	<20	<50	<20	<20	<20	<20	<20	<20	**8.0 J**	<20	**40**	**5.1 J**	**7.7 J**	**16**	**4.4 J**	**86**	<20
MW-02	4-15	7/19/2017	<38	<38	<38	<38	<38	<38	<38	NA	<38	<38	<38	<38	<38	<38	**7.0 J**	NA	**4.8 J**	<9.4	<38	**29 J**	<38	**5.0 J**	<38
MW-02-DUP	4-15	7/19/2017	<38	<38	<38	<38	<38	<38	<38	NA	<38	<38	<38	<38	<38	<38	**8.4 J**	NA	**5.4 J**	**4.5 J**	<38	**34 J**	<38	**5.2 J**	<38
MW-03	4-15	5/4/2017	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<47	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	**1.4 J**
MW-03	4-15	7/19/2017	<9.5	<9.5	<9.5	<9.5	<9.5	<9.5	<9.5	NA	<9.5	<9.5	<9.5	<9.5	<9.5	<9.5	<9.5	NA	<9.5	<9.5	<9.5	<9.5	<9.5	<9.5	<9.5
MW-04	4-15	5/4/2017	**4.2 J**	<19	<19	<19	<19	<19	<19	<94	<19	<19	<19	**6.2 J**	<19	<19	<19	<19	**4.2 J**	<19	**11**	**29**	<19	**52**	**6 J**
MW-04	4-15	7/19/2017	**5.5 J**	**8.8 J**	<9.4	<9.4	<9.4	<9.4	<9.4	NA	<9.4	<9.4	**3.0 J**	**15**	**5.4 J**	<9.4	**12**	NA	<9.4	<9.4	<9.4	**27**	**17**	**2.9 J**	**11**
MW-05	4-15	5/4/2017	< 9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<47	5.9 U	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4
MW-05-DUP	4-15	5/4/2017	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<47	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4
MW-05	4-15	7/19/2017	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	NA	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	NA	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4

Legend:
ft bgs = feet below ground surface
C/I = Commercial/Industrial
ESL = Environmental Screening Level
MCL = Maximum Contaminant Level
--- = No screening level established
< = Analyte not detected at or above the stated laboratory reporting limit
NA = Not Analyzed
J = Lab Qualifier - Estimated Value
U = Nondetected

Notes:
All concentrations reported in micrograms per liter (µg/L).
Samples were analyzed by United States Environmental Protection Agency (USEPA) Method 8270C.
Tier 1 ESLs = Tier 1 Environmental Screening Levels for Groundwater, San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB), ESL Workbook, Tier 1 Summary Table, February 2016.
Direct Exposure Groundwater ESLs = San Francisco Bay RWQCB, ESL Workbook, Table GW-1, February 2016.

ESLs for Vapor Intrusion = Commercial/Industrial Environmental Screening Levels for Evaluation of Potential Vapor Intrusion, San Francisco Bay RWQCB, ESL Workbook, Table GW-3, February 2016.
MCLs = Commercial/Industrial Regional Screening Level, EPA Region 9 RSL Summary Table, November 2013.
Bold values indicate detections at or above the laboratory reporting limit.
Values shaded gray indicate concentrations detected above the applicable ESLs. For groundwater, assumes direct exposure.
1. Defaulted to higher value upon comparison of "MCL Priority" and "Human Health Risk Based Only" values from San Francisco Bay RWQCB, ESL Workbook, Table GW-1, February 2016.

Table 6
Total Metals in Groundwater
Pilot Study Implementation Report
205 Brush Street
Oakland, California

Sample ID Location	Sample Interval / Screen Interval (ft bgs)	Date Sampled	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury
		Tier-1 ESL	*6*	*10*	*1,000*	*2.7*	*0.25*	*50*	*3*	*3.1*	*2.5*	*100*	*8.2*	*5*	*0.19*	*2*	*19*	*81*	*0.051*
		ESL Direct Exposure	*7.8*	*10*	*1,000*	*4*	*5*	*50*	*6*	*1,000*	*15*	*100*	*100*	*50*	*100*	*2*	*50*	*6,000*	*2*
		MCLs	*6*	*10*	*1,000*	*4*	*5*	*50*	*---*	*1,300*	*15*	*---*	*100*	*50*	*---*	*2*	*---*	*---*	*2*
MW-01	4-16	5/5/2017	<0.50	<0.50	**50**	<0.50	<0.25	<0.5	**1.2**	<2	<0.50	**1.4**	**2.6**	<0.5	<0.19	<0.5	**1.6**	<15	<0.20
MW-01	4-16	7/19/2017	<10	<10	**39**	<2.0	**0.43 J**	<5.0	<5.0	**5.1 J+**	**3.4 J**	<5.0	<5.0 U	<10	**1.5 J**	<10	<5.0	<20	<0.20 U
MW-02	4-15	5/4/2017	<0.50	**0.74**	**140**	<0.5	<0.25	<0.5	**5.7**	<2	<0.50	**1.6**	**31**	<0.5	<0.5	<0.5	**2.5**	<15	<0.20
MW-02	4-15	7/19/2017	<10	**3.4 J**	**140**	<2.0	**0.39 J**	<5.0	**7.4**	<5.0 U	<5.0	<5.0	**34**	<10	**4.5 J**	<10	<5.0	<20	**0.054 J**
MW-02-DUP	4-15	7/19/2017	<10	**3.4 J**	**130**	<2.0	**0.38 J**	<5.0	**7.1**	<5.0 U	<5.0	<5.0	**34**	<10	**5.4**	<10	<5.0	<20	<0.20 U
MW-03	4-15	5/4/2017	<0.50	**1.2**	**47**	<0.5	**0.38**	<0.5	**69**	<2	<0.50	**1.8**	**160**	<0.5	<0.19	<0.5	**2**	**98**	<0.20
MW-03	4-15	7/19/2017	<10	**10**	**27**	<2.0	**0.75 J**	**260**	<5.0	<5.0 U	**6.2**	**1.4 J**	<5.0	<10	**16**	**2.8 J**	**13**	<20	<0.20 U
MW-04	4-15	5/4/2017	<0.50	**8.3**	**160**	<0.50	<0.25	<0.5	**2.9**	<2	<0.50	**2.9**	**28**	<0.5	<0.19	<0.5	**1.1**	<15	<0.20
MW-04	4-15	7/19/2017	<10	**16**	**110**	<2.0	**0.36 J**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0 U	<10	**1.1 J**	<10	<5.0	<20	<0.20 U
MW-05	4-15	5/4/2017	<0.50	**0.8**	**35**	<0.5	<0.25	<0.5	**3.2**	<2	<0.5	**1.8**	**12**	<0.5	<0.19	<0.5	**2.2**	**16**	<0.20
MW-05-DUP	4-15	5/4/2017	<0.50	**0.87**	**36**	<0.5	<0.25	<0.5	**3.2**	<2	<0.5	**0.97**	**13**	<0.5	<0.19	<0.5	**2.1**	<15	<0.20
MW-05	4-15	7/19/2017	<10	<10	**35**	<2.0	**0.36 J**	<5.0	**2.8 J**	<5.0 U	**2.8 J**	<5.0	**13**	<10	**3.6 J**	<10	<5.0	**28**	<0.20 U

Legend:

ft bgs = feet below ground surface
ESL = Environmental Screening Level
MCL = Maximum Contaminant Level
--- = No screening level established
< = Analyte not detected at or above the stated laboratory reporting limit
J = Lab Qualifier - Estimated Value
U = ERM qualifier - Non-detect

Notes:

All concentrations reported in micrograms per liter (µg/L).
Samples were analyzed by United States Environmental Protection Agency (USEPA) Method 6010/7000 series.
Samples were field filtered.
Tier 1 ESLs = Tier 1 Environmental Screening Levels for Groundwater, San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB), ESL Workbook, Tier 1 Summary Table, February 2016.
Direct Exposure Groundwater ESLs = San Francisco Bay RWQCB, ESL Workbook, Table GW-1, February 2016.
ESLs for Vapor Intrusion = Commercial/Industrial Environmental Screening Levels for Evaluation of Potential Vapor Intrusion, San Francisco Bay RWQCB, ESL Workbook, Table GW-3, February 2016.
MCLs = Commercial/Industrial Regional Screening Level, EPA Region 9 RSL Summary Table, November 2013.
Bold values indicate detections at or above the laboratory reporting limit.
Values shaded gray indicate concentrations detected above the applicable ESLs. For groundwater, assumes direct exposure.
1. Defaulted to higher value upon comparison of "MCL Priority" and "Human Health Risk Based Only" values from San Francisco Bay RWQCB, ESL Workbook, Table GW-1, February 2016.

Table 7
Organochlorine Pesticides and Polychlorinated Biphenyls in Groundwater
Pilot Study Implementation Report
205 Brush Street
Oakland, California

Sample ID Location	Sample Interval / Screen Interval (ft bgs)	Date Sampled	Organochlorine Pesticides (USEPA 8081A)	PCBs (USEPA 8082)
		Tier-1 ESL	---	---
		ESL Direct Exposure	---	---
		MCLs	---	---
MW-01	4-16	5/5/2017	ND	ND
MW-02	4-15	5/4/2017	ND	ND
MW-03	4-15	5/4/2017	ND	ND
MW-04	4-15	5/4/2017	ND	ND
MW-05	4-15	5/4/2017	ND	ND
MW-05-DUP	4-15	5/4/2017	ND	ND

Legend:

ft bgs = feet below ground surface

ESL = Environmental Screening Level

MCL = Maximum Contaminant Level

ND = non-detect

PCB = polychlorinated biphenyl

--- = No screening level established

NA = Not Analyzed

Notes:

Samples were analyzed by United States Environmental Protection Agency (USEPA) Method 6010/7000 series.

Samples were field filtered.

Tier 1 ESLs = Tier 1 Environmental Screening Levels for Groundwater, San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB), ESL Workbook, Tier 1 Summary Table, February 2016.

Direct Exposure Groundwater ESLs = San Francisco Bay RWQCB, ESL Workbook, Table GW-1, February 2016.

ESLs for Vapor Intrusion = Commercial/Industrial Environmental Screening Levels for Evaluation of Potential Vapor Intrusion, San Francisco Bay RWQCB, ESL Workbook, Table GW-3, February 2016.

MCLs = Commercial/Industrial Regional Screening Level, EPA Region 9 RSL Summary Table, November 2013.

Bold values indicate detections at or above the laboratory reporting limit.

Values shaded gray indicate concentrations detected above the applicable ESLs. For groundwater, assumes direct exposure.

Appendix A
Injection Field Logs

REMEDIATION FIELD SERVICES REPORT

Klozur CR® Injection Services
205 Brush Street
Oakland, California

June 26, 2017

Project Number:
303-17-1105

Prepared For:
TWS Environmental, LLC
460 Evergreen Dr.
S. San Francisco, CA 94080

Prepared By:
Vironex Technical Services LLC
1641 Challenge Drive
Concord CA, 94520

June 26, 2017
Project No. 303-17-1105

Mr. Jeff Baker
Project Manager
TWS Environmental, LLC
460 Evergreen Dr.
S. San Francisco, CA 94080

Subject: Remediation Field Services Report
Klozur CR® Injection Services
205 Brush Street
Oakland, California

Dear Mr. Baker:

In accordance with your request and authorization, Vironex Technical Services LLC (Vironex, a wholly owned subsidiary of Cascade Drilling LP) has performed remediation field services for the subject site. The field services were performed in general accordance with Vironex's proposal dated April 21, 2017.

Vironex appreciates the opportunity to provide our services to you and your firm. If you have any questions or comments regarding this report, please contact the undersigned at your convenience.

Respectfully submitted,
Vironex Technical Services LLC

Brian MacDowell
Remediation Manager

Neil Hey, PG
Program Manager

Distribution: (1) Addressee (via e-mail)
BM/NH/CT/JC/DW

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Appendices

1 INTRODUCTION

TWS Environmental, LLC subcontracted Vironex Technical Services LLC (Vironex, a wholly owned subsidiary of Cascade Drilling LP) to perform remediation field services at 205 Brush Street in Oakland California. Field services were conducted in general accordance with Vironex's proposal dated April 21, 2017.

2 REMEDIATION APPROACH

Vironex mixed and injected into the subsurface via direct push points a reagent slurry comprised of Klozur CR® diluted with hydrant water. The slurry was prepared onsite using a custom mixing and injection system, and injected into the subsurface via small diameter direct push points at the greatest flow rate the subsurface would allow without significant liquid surfacing.. Further details of the reagent injections are provided in the following section.

3 PROJECT ACTIVITIES

The following sections describe the field activities Vironex conducted at the site. The activities were conducted between June 6 and June 16, 2017.

3.1 PRE-MOBILIZATION ACTIVITIES

Prior to mobilization, Vironex performed multiple equipment readiness and performance tests on all of its equipment intended for use at the site. A site-specific health and safety plan was prepared to address worker and general public safety. Underground Services Alert (USA) was notified at least 48 hours prior to the commencement of field activities and inquiry identification number W712801492 was obtained for Vironex's scope of work.

3.2 ONSITE ACTIVITIES

During the week of June 6, 2017, Vironex initiated the project by mobilizing to the site a forklift, temporary toilet and container for storage of the Klozur CR® product. Additional equipment included a custom mixing/injection system, a 1,000 gal tank for dilution water storage, one track mounted direct push technology (DPT) rig, and a decontamination trailer. Prior to initiating the field activities, a tailgate safety meeting was conducted. The safety meeting was followed by a site walk to review the proposed injection locations marked out by ERM. The mixing/injection system was placed within secondary drip containment. Site control measures consisting of traffic cones and caution tape were deployed to delineate the work area. Spill kits and portable vacuums were placed within the work area for immediate use as necessary.

Reagent mixing and injection was commenced on June 7. A "top down" injection approach was tested and found to produce surfacing immediately from the borehole. Therefore, a "bottom up" injection approach was tested and found to minimize surfacing on the last interval. However once injections began on the middle and top intervals, surfacing occurred immediately. Consequently, the approach was switched to using a 5-foot screened injection tool across a reduced target injection interval of 11 to 16-feet below ground surface. This became the primary delivery approach for the remainder of the project. The injections were successfully completed on June 15, 2017. Injection Field Logs are provided in Appendix A.

The combined total volume of treatment reagent solution/slurry injected into all locations was 5872 gallons (5732 gallons of KLOZUR solution and 140 gallons of hydrant flush water). The injectate was distributed among 37 temporary DPT injection points at depths ranging between 7 and 16 feet below ground surface. During the course of injection, Vironex observed flow rates between 0.4 and 6.5 gallons per minute at sustained manifold pressures ranging from 15 to 85 pounds per square inch gauge.

On June 16, 2017, Vironex began demobilization activities. Activities completed during demobilization included removal of the DPT rig, temporary toilet, storage container, mixing/injection system, water storage tank, trash and general debris. Demobilization was completed on June 16, 2017.

3.3 SITE RESTORATION

Upon completing the injection activities, each borehole was backfilled with grout/cement per inspector on site. The upper portions of the boreholes (approximately 6-inches) were filled with concrete to match the existing surface.

Investigation-derived waste was not generated during remediation activities at the site. Other waste (i.e. personal protective equipment, packaging materials, etc.) were collected in large trash bags and disposed as municipal solid waste.

4 LIMITATIONS

The implementation of the scope of work was performed in accordance with the clients design specification as described above (Sections 1.1) and supporting injection logs (Appendix A). Cascade bears no responsibility for remediation results or impact to existing conditions.

APPENDIX A

Weekly Project Summary and Injection Field Logs

WEEKLY PROJECT SUMMARY

PROJECT NUMBER / NAME: 303171105 / 205 Brush St Site, Oakland, CA

Day	Date	Site Arrival Time	Site Departure Time	Injection Points Completed	% w/w Slurry		% w/w Slurry Injected (Gallons)	Chase Water Injected (Gallons)	Total Injected (Gallons)
					Klozur CR® (Pounds)	Water (Gallons)			
Tuesday	6/6/2017	7:00 AM	3:30 PM						
Wednesday	6/7/2017	9:30 AM	6:15 PM	0.0	74.3	82.6	87.0	0.0	87.0
Thursday	6/8/2017	7:00 AM	6:00 PM	4.0	1,005.7	491.7	545.0	5.0	550.0
Friday	6/9/2017	7:00 AM	7:15 PM	6.0	1,252.2	766.9	833.5	0.0	833.5
Monday	6/12/2017	7:00 AM	5:15 PM	6.0	1,349.9	874.3	948.0	30.0	978.0
Tuesday	6/13/2017	7:00 AM	4:30 PM	6.0	1,890.0	848.5	948.0	30.0	978.0
Wednesday	6/14/2017	7:00 AM	4:15 PM	8.0	1,897.9	1,165.8	1,264.0	40.0	1,304.0
Thursday	6/15/2017	7:00 AM	3:15 PM	7.0	945.0	1,050.3	1,106.0	35.0	1,141.0
			Totals	37	8,415	5,280	5,732	140	5,872

CASCADE
DRILLING | TECHNICAL SERVICES

INJECTION FIELD LOG - 20% w/w Slurry Locations

PROJECT NUMBER/NAME: 303171105 / 205 Brush St Site, Oakland, CA

LEAD OPERATOR: Anthony Myres

SCOPE OF WORK:
- 19 locations with 158 gallons per location to make 20% slurry. The 158 gallons slurry will be made from 7 x 45 lb KLOZUR pails.
- 18 locations with 158 gallons per location to make 10% slurry. The 158 gallons slurry will be made from 3 x 45 lb KLOZUR pails.
- Overall quantity of KLOZUR is estimated at 8,415 lbs (or 187 x 45-lb pails)
- The target treatment interval is 7 to 15 feet below ground surface.

Injection Point ID	Start Date	Start Time	End Date	End Time	Injection Interval (ft bgs)			Initial Pressure (psig)	Sustained Pressure (psig)	Average Flow Rate (gpm)	20% w/w Slurry		20% w/w Slurry Injected (Gallons)	Flush Water Injected (Gallons)	Total Injected (Gallons)	Day Lighting	Field Notes
											Klozur CR® (Pounds)	Water (Gallons)					
INJ-13	6/8/2017	12:42 PM	6/8/2017	2:04 PM	11.0	to	16.0	50	40	1.9	315.0	141.3	158.0		158.0		Inject one interval of 5 ft per client request. Tooling clogged @ 12:10. Switch Manifold to INJ-11 location.
										TOTALS	**315.0**	**141.3**	**158.0**	**0.0**	**158**		
INJ-11	6/8/2017	11:39 AM	6/8/2017	12:31 PM	11.0	to	16.0	100	85	0.4	39.9	17.9	20.0		20.0		Inject one interval of 5 ft per client request. Due to high pressure and low flow, stop pumping on location and move manifold to INJ-13. Pull and reset injection tooling.
	6/8/2017	2:25 PM	6/8/2017	3:38 PM	11.0	to	16.0	60	45	1.9	275.1	123.4	138.0		138.0		
										TOTALS	**315.0**	**141.3**	**158.0**	**0.0**	**158**		
INJ-8	6/8/2017	3:54 PM	6/8/2017	5:16 PM	11.0	to	16.0	60	65	2.0	315.0	141.3	158.0	5.0	163.0		Inject one interval of 5 ft per client request. Injected 5 gal of water at 10 ft to ensure tooling was clear, pushed down and began product injection.
										TOTALS	**315.0**	**141.3**	**158.0**	**5.0**	**163**		
INJ-10	6/9/2017	2:15 PM	6/9/2017	3:23 PM	11.0	to	16.0	70	70	2.3	315.0	141.3	158.0		158.0		Noticed product rising in borehole. Reduced flow and pressure by half. Finished interval before product came to the top of the concrete.
										TOTALS	**315.0**	**141.3**	**158.0**	**0.0**	**158**		
INJ-12	6/9/2017	2:32 PM	6/9/2017	4:09 PM	11.0	to	16.0	70	70	1.6	315.0	141.3	158.0		158.0		
										TOTALS	**315.0**	**141.3**	**158.0**	**0.0**	**158**		
INJ-14	6/9/2017	2:16 PM	6/9/2017	3:00 PM	10.0	to	13.0	35	40	1.8	157.5	70.7	79.0		79.0		
	6/9/2017	3:10 PM	6/9/2017	3:59 PM	13.0	to	16.0	55	60	1.6	157.5	70.7	79.0		79.0		
										TOTALS	**315.0**	**141.3**	**158.0**	**0.0**	**158**		
INJ-5	6/12/2017	2:05 PM	6/12/2017	2:43 PM	16.0	to	11.0	50	30	4.3	315.0	141.3	158.0	5.0	163.0		
										TOTALS	**315.0**	**141.3**	**158.0**	**5.0**	**163**		
INJ-7	6/12/2017	2:05 PM	6/12/2017	2:56 PM	16.0	to	11.0	50	30	3.2	315.0	141.3	158.0	5.0	163.0		
										TOTALS	**315.0**	**141.3**	**158.0**	**5.0**	**163**		

INJECTION FIELD LOG - 20% w/w Slurry Locations

PROJECT NUMBER/NAME: 303171105 / 205 Brush St Site, Oakland, CA

LEAD OPERATOR: Anthony Myres

SCOPE OF WORK:
- 19 locations with 158 gallons per location to make 20% slurry. The 158 gallons slurry will be made from 7 x 45 lb KLOZUR pails.
- 18 locations with 158 gallons per location to make 10% slurry. The 158 gallons slurry will be made from 3 x 45 lb KLOZUR pails.
- Overall quantity of KLOZUR is estimated at 8,415 lbs (or 187 x 45-lb pails)
- The target treatment interval is 7 to 15 feet below ground surface.

Injection Point ID	Start Date	Start Time	End Date	End Time	Injection Interval (ft bgs)			Initial Pressure (psig)	Sustained Pressure (psig)	Average Flow Rate (gpm)	20% w/w Slurry		20% w/w Slurry Injected (Gallons)	Flush Water Injected (Gallons)	Total Injected (Gallons)	Day Lighting	Field Notes
											Klozur CR® (Pounds)	Water (Gallons)					
INJ-27	6/12/2017	2:05 PM	6/12/2017	2:21 PM	16.0	to	14.0	50	30	3.3	105.0	47.1	52.7		52.7		Switch tooling to 2-foot bottom up tool. Attempt three intervals for plume area.
	6/12/2017	2:22 PM	6/12/2017	3:00 PM	14.0	to	12.0	30	15	2.9	210.0	94.2	105.3	5.0	110.3		Less than 1-gallon of surfacing from cracks in nearby cement. Reduced pressure by half. Pumped remaining product at current interval per client request.
										TOTALS	**315.0**	**141.3**	**158.0**	**5.0**	**163**		
INJ-22	6/13/2017	8:51 AM	6/13/2017	9:19 AM	16.0	to	11.0	50	85	2.7	149.5	67.1	75.0		75.0		
	6/13/2017	9:29 AM	6/13/2017	10:20 AM	16.0	to	11.0	80	50	1.7	165.5	74.2	83.0	5.0	88.0		
										TOTALS	**315.0**	**141.3**	**158.0**	**5.0**	**163**		
INJ-17	6/13/2017	8:51 AM	6/13/2017	9:19 AM	16.0	to	11.0	50	85	2.1	119.6	53.7	60.0		60.0		
	6/13/2017	9:29 AM	6/13/2017	10:30 AM	16.0	to	11.0	80	50	1.7	195.4	87.7	98.0	5.0	103.0		
										TOTALS	**315.0**	**141.3**	**158.0**	**5.0**	**163**		
INJ-6	6/13/2017	8:51 AM	6/13/2017	9:19 AM	16.0	to	11.0	50	85	2.9	163.5	73.3	82.0		82.0		Stopped due to surfacing from cracks in concrete @ 9:19. Less than 1-gallonl. Reduced flow by half and resumed injections @ 9:48.
	6/13/2017	9:48 AM	6/13/2017	9:51 AM	16.0	to	11.0	50	50	1.7	10.0	4.5	5.0		5.0		Stopped due to product rising from borehole @ 9:51. Pulled rod, reset with 2-1/4 inch rod to plug hole. Switched tooling from 5 ft screen to 2 ft botton up type. Resumed injection @ 10:20.
	6/13/2017	10:20 AM	6/13/2017	10:41 AM	16.0	to	14.0	**50**	**50**	3.6	141.6	63.5	71.0	5.0	76.0		
										TOTALS	**315.0**	**141.3**	**158.0**	**5.0**	**163**		
INJ-15	6/13/2017	11:35 AM	6/13/2017	12:26 PM	16.0	to	11.0	65	40	3.2	315.0	141.3	158.0	5.0	163.0		
										TOTALS	**315.0**	**141.3**	**158.0**	**5.0**	**163**		
INJ-21	6/13/2017	11:35 AM	6/13/2017	12:31 PM	16.0	to	11.0	80	43	2.9	315.0	141.3	158.0	5.0	163.0		
										TOTALS	**315.0**	**141.3**	**158.0**	**5.0**	**163**		
INJ-29	6/13/2017	11:35 AM	6/13/2017	12:21 PM	16.0	to	11.0	50	40	3.5	315.0	141.3	158.0	5.0	163.0		
										TOTALS	**315.0**	**141.3**	**158.0**	**5.0**	**163**		

INJECTION FIELD LOG - 20% w/w Slurry Locations

PROJECT NUMBER/NAME: 303171105 / 205 Brush St Site, Oakland, CA

LEAD OPERATOR: Anthony Myres

SCOPE OF WORK:
- 19 locations with 158 gallons per location to make 20% slurry. The 158 gallons slurry will be made from 7 x 45 lb KLOZUR pails.
- 18 locations with 158 gallons per location to make 10% slurry. The 158 gallons slurry will be made from 3 x 45 lb KLOZUR pails.
- Overall quantity of KLOZUR is estimated at 8,415 lbs (or 187 x 45-lb pails)
- The target treatment interval is 7 to 15 feet below ground surface.

Injection Point ID	Start Date	Start Time	End Date	End Time	Injection Interval (ft bgs)			Initial Pressure (psig)	Sustained Pressure (psig)	Average Flow Rate (gpm)	20% w/w Slurry		20% w/w Slurry Injected (Gallons)	Flush Water Injected (Gallons)	Total Injected (Gallons)	Day Lighting	Field Notes
											Klozur CR® (Pounds)	Water (Gallons)					
INJ-28	6/14/2017	8:43 AM	6/14/2017	9:33 AM	16.0	to	11.0	60	70	3.3	315.0	141.3	158.0	5.0	163.0		
										TOTALS	315.0	141.3	158.0	5.0	163		
INJ-20	6/14/2017	8:43 AM	6/14/2017	9:45 AM	16.0	to	11.0	60	70	2.6	315.0	141.3	158.0	5.0	163.0		
										TOTALS	315.0	141.3	158.0	5.0	163		
INJ-16	6/14/2017	1:30 PM	6/14/2017	1:59 PM	16.0	to	11.0	50	55	5.6	315.0	141.3	158.0	5.0	163.0		
										TOTALS	315.0	141.3	158.0	5.0	163		
INJ-19	6/14/2017	1:30 PM	6/14/2017	2:04 PM	16.0	to	11.0	45	60	4.8	315.0	141.3	158.0	5.0	163.0		
										TOTALS	315.0	141.3	158.0	5.0	163		

INJECTION FIELD LOG - 10% w/w Slurry Locations

PROJECT NUMBER/NAME: 303171105 / 205 Brush St Site, Oakland, CA

LEAD OPERATOR: Anthony Myres

SCOPE OF WORK:
- 19 locations with 158 gallons per location to make 20% slurry. The 158 gallons slurry will be made from 7 x 45 lb KLOZUR pails.
- 18 locations with 158 gallons per location to make 10% slurry. The 158 gallons slurry will be made from 3 x 45 lb KLOZUR pails.
- Overall quantity of KLOZUR is estimated at 8,415 lbs (or 187 x 45-lb pails)
- The target treatment interval is 7 to 15 feet below ground surface.

Injection Point ID	Start Date	Start Time	End Date	End Time	Injection Interval (ft bgs)			Initial Pressure (psig)	Sustained Pressure (psig)	Average Flow Rate (gpm)	10% w/w Slurry		10% w/w Slurry Injected (Gallons)	Flush Water Injected (Gallons)	Total Injected (Gallons)	Day Lighting	Field Notes
											Klozur CR® (Pounds)	Water (Gallons)					
INJ-3	6/7/2017	3:12 PM	6/7/2017	3:18 PM	7.0	to	10.0	15	15	0.8	4.3	4.8	5.0		5.0		Shortly after injections started, product began rising inside the boring around the rod. Observed level until deemed too close to lip of hole and shut down. Pushed down to next interval and attempted injections per client's request.
	6/7/2017	3:30 PM	6/7/2017	3:55 PM	10.0	to	13.0	20	18	0.8	17.1	19.0	20.0		20.0		During injections, product began rising inside the boring around the rod. Observed level until deemed too close to lip of hole and shut down. Pushed down to next interval and attempted injections per client's request.
	6/7/2017	4:04 PM	6/7/2017	5:12 PM	13.0	to	16.0	20	20	0.8	44.4	49.4	52.0		52.0		Completed injecting all product required for interval with no surfacing.
	6/7/2017	5:22 PM	6/7/2017	5:35 PM	10.0	to	13.0	17	15	0.8	8.5	9.5	10.0		10.0		Pulled back up to reattempt interval per client's request. Shortly after injections began, product began rising inside the boring around rod. Observed level until deemed too close to lip of hole and shut down. Stop for the day and pump remaining product into drums for reinjection tomorrow.
	6/8/2017	9:42 AM	6/8/2017	11:00 AM	13.0	to	16.0	16	16	0.9	60.7	67.5	71.0		71.0		Per client's request, pushed down to bottom interval and attempted to inject remaining volume of location.
										TOTALS	135.0	150.2	158.0	0.0	158		
INJ-9	6/9/2017	10:09 AM	6/9/2017	10:46 AM	11.0	to	16.0	40	60	2.0	62.4	69.4	73.0		73.0		See notes for INJ-2, stopped pumping on all locations.
	6/9/2017	10:57 AM	6/9/2017	11:00 AM	11.0	to	16.0	45	45	1.7	4.3	4.8	5.0		5.0		See notes for INJ-2, stopped pumping on all locations.
	6/9/2017	11:23 AM	6/9/2017	11:59 AM	11.0	to	16.0	**50**	**50**	2.2	68.4	76.1	80.0		80.0		
										TOTALS	135.0	150.2	158.0	0.0	158		
INJ-2	6/9/2017	10:14 AM	6/9/2017	10:46 AM	11.0	to	16.0	40	60	1.3	34.2	38.0	40.0		40.0		10:46 stopped due to surfacing from crack in concrete immediately adjacent to the injection boring. Less than 1-gallon material surfaced. Resumed injecting @ 10:58.
	6/9/2017	10:58 AM	6/9/2017	11:00 AM	11.0	to	16.0	25	30	0.8	1.3	1.4	1.5		1.5		Stopped injection @ 11:00 due to surfacing from crack in asphalt. Less than 1-gallon materials surfaced.
	6/9/2017	11:37 AM	6/9/2017	11:39 AM	11.0	to	16.0	**20**	**20**	1.0	1.7	1.9	2.0		2.0		Removed rod from location. Reset with 5 ft screen injection tool. Resumed injection @ 11:37. Stopped injection @ 11:39 due to product rising around rod inside borehole. Abandoned hole per client request. Add remaining product to INJ-23 per client's request.
										TOTALS	37.2	41.4	43.5	0.0	43.5		
INJ-4	6/9/2017	10:11 AM	6/9/2017	10:46 AM	11.0	to	16.0	40	60	2.4	70.9	78.9	83.0		83.0		See notes for INJ-2, stopped pumping on all locations.
	6/9/2017	10:57 AM	6/9/2017	11:00 AM	11.0	to	16.0	45	45	3.3	8.5	9.5	10.0		10.0		See notes for INJ-2, stopped pumping on all locations.
	6/9/2017	11:23 AM	6/9/2017	11:54 AM	11.0	to	16.0	**50**	**50**	2.1	55.5	61.8	65.0		65.0		
										TOTALS	135.0	150.2	158.0	0.0	158		

INJECTION FIELD LOG - 10% w/w Slurry Locations

PROJECT NUMBER/NAME: 303171105 / 205 Brush St Site, Oakland, CA

LEAD OPERATOR: Anthony Myres

SCOPE OF WORK:
- 19 locations with 158 gallons per location to make 20% slurry. The 158 gallons slurry will be made from 7 x 45 lb KLOZUR pails.
- 18 locations with 158 gallons per location to make 10% slurry. The 158 gallons slurry will be made from 3 x 45 lb KLOZUR pails.
- Overall quantity of KLOZUR is estimated at 8,415 lbs (or 187 x 45-lb pails)
- The target treatment interval is 7 to 15 feet below ground surface.

Injection Point ID	Start Date	Start Time	End Date	End Time	Injection Interval (ft bgs)			Initial Pressure (psig)	Sustained Pressure (psig)	Average Flow Rate (gpm)	10% w/w Slurry		10% w/w Slurry Injected (Gallons)	Flush Water Injected (Gallons)	Total Injected (Gallons)	Day Lighting	Field Notes
											Klozur CR® (Pounds)	Water (Gallons)					
INJ-1	6/12/2017	11:41 AM	6/12/2017	12:06 PM	0.0	to	0.0	40	50	6.5	135.0	150.2	158.0	5.0	163.0		
										TOTALS	135.0	150.2	158.0	5.0	163		
INJ-18	6/12/2017	11:41 AM	6/12/2017	12:09 PM	0.0	to	0.0	40	50	5.8	135.0	150.2	158.0	5.0	163.0		
										TOTALS	135.0	150.2	158.0	5.0	163		
INJ-24	6/12/2017	11:41 AM	6/12/2017	12:20 PM	0.0	to	0.0	40	50	4.2	135.0	150.2	158.0	5.0	163.0		
										TOTALS	135.0	150.2	158.0	5.0	163		
INJ-23	6/14/2017	8:43 AM	6/14/2017	9:39 AM	16.0	to	11.0	60	70	2.9	232.8	150.2	158.0	5.0	163.0		Per client's request only add remaining product from INJ-2 but do not increase water. Total volume of water will be 109 gallons short.
										TOTALS	232.8	150.2	158.0	5.0	163		
INJ-33	6/14/2017	10:56 AM	6/14/2017	11:36 AM	16.0	to	11.0	50	60	4.1	135.0	150.2	158.0	5.0	163.0		
										TOTALS	135.0	150.2	158.0	5.0	163		
INJ-30	6/14/2017	10:45 AM	6/14/2017	11:22 AM	16.0	to	11.0	50	60	4.4	135.0	150.2	158.0	5.0	163.0		
										TOTALS	135.0	150.2	158.0	5.0	163		
INJ-26	6/14/2017	10:56 AM	6/14/2017	11:30 AM	16.0	to	11.0	50	60	4.8	135.0	150.2	158.0	5.0	163.0		
										TOTALS	135.0	150.2	158.0	5.0	163		
INJ-25	6/15/2017	8:34 AM	6/15/2017	9:10 AM	16.0	to	11.0	40	40	4.5	135.0	150.2	158.0	5.0	163.0		
										TOTALS	135.0	150.2	158.0	5.0	163		
INJ-34	6/15/2017	8:34 AM	6/15/2017	9:00 AM	16.0	to	11.0	40	40	6.3	135.0	150.2	158.0	5.0	163.0		
										TOTALS	135.0	150.2	158.0	5.0	163		
INJ-32	6/15/2017	8:34 AM	6/15/2017	9:08 AM	16.0	to	11.0	40	55	4.8	135.0	150.2	158.0	5.0	163.0		
										TOTALS	135.0	150.2	158.0	5.0	163		

INJECTION FIELD LOG - 10% w/w Slurry Locations

PROJECT NUMBER/NAME: 303171105 / 205 Brush St Site, Oakland, CA

LEAD OPERATOR: Anthony Myres

SCOPE OF WORK:
- 19 locations with 158 gallons per location to make 20% slurry. The 158 gallons slurry will be made from 7 x 45 lb KLOZUR pails.
- 18 locations with 158 gallons per location to make 10% slurry. The 158 gallons slurry will be made from 3 x 45 lb KLOZUR pails.
- Overall quantity of KLOZUR is estimated at 8,415 lbs (or 187 x 45-lb pails)
- The target treatment interval is 7 to 15 feet below ground surface.

Injection Point ID	Start Date	Start Time	End Date	End Time	Injection Interval (ft bgs)			Initial Pressure (psig)	Sustained Pressure (psig)	Average Flow Rate (gpm)	10% w/w Slurry		10% w/w Slurry Injected (Gallons)	Flush Water Injected (Gallons)	Total Injected (Gallons)	Day Lighting	Field Notes
											Klozur CR® (Pounds)	Water (Gallons)					
INJ-37	6/15/2017	10:22 AM	6/15/2017	10:50 AM	16.0	to	11.0	40	35	5.8	135.0	150.2	158.0	5.0	163.0		
										TOTALS	135.0	150.2	158.0	5.0	163		
INJ-31	6/15/2017	10:22 AM	6/15/2017	11:06 AM	16.0	to	11.0	50	60	3.7	135.0	150.2	158.0	5.0	163.0		
										TOTALS	135.0	150.2	158.0	5.0	163		
INJ-35	6/15/2017	10:22 AM	6/15/2017	10:57 AM	16.0	to	11.0	50	55	4.7	135.0	150.2	158.0	5.0	163.0		
										TOTALS	135.0	150.2	158.0	5.0	163		
INJ-36	6/15/2017	10:22 AM	6/15/2017	11:03 AM	16.0	to	11.0	50	60	4.0	135.0	150.2	158.0	5.0	163.0		
										TOTALS	135.0	150.2	158.0	5.0	163		

Notes to Tables:

% w/w - percent by weight

ft bgs - feet below ground surface

gpm - gallons per minute

ID - identification

lb - pound

psig - pound per square inch gauge

APPENDIX B
Photographs


303 CONCORD

APPENDIX C
Injection Point Array Layout Map

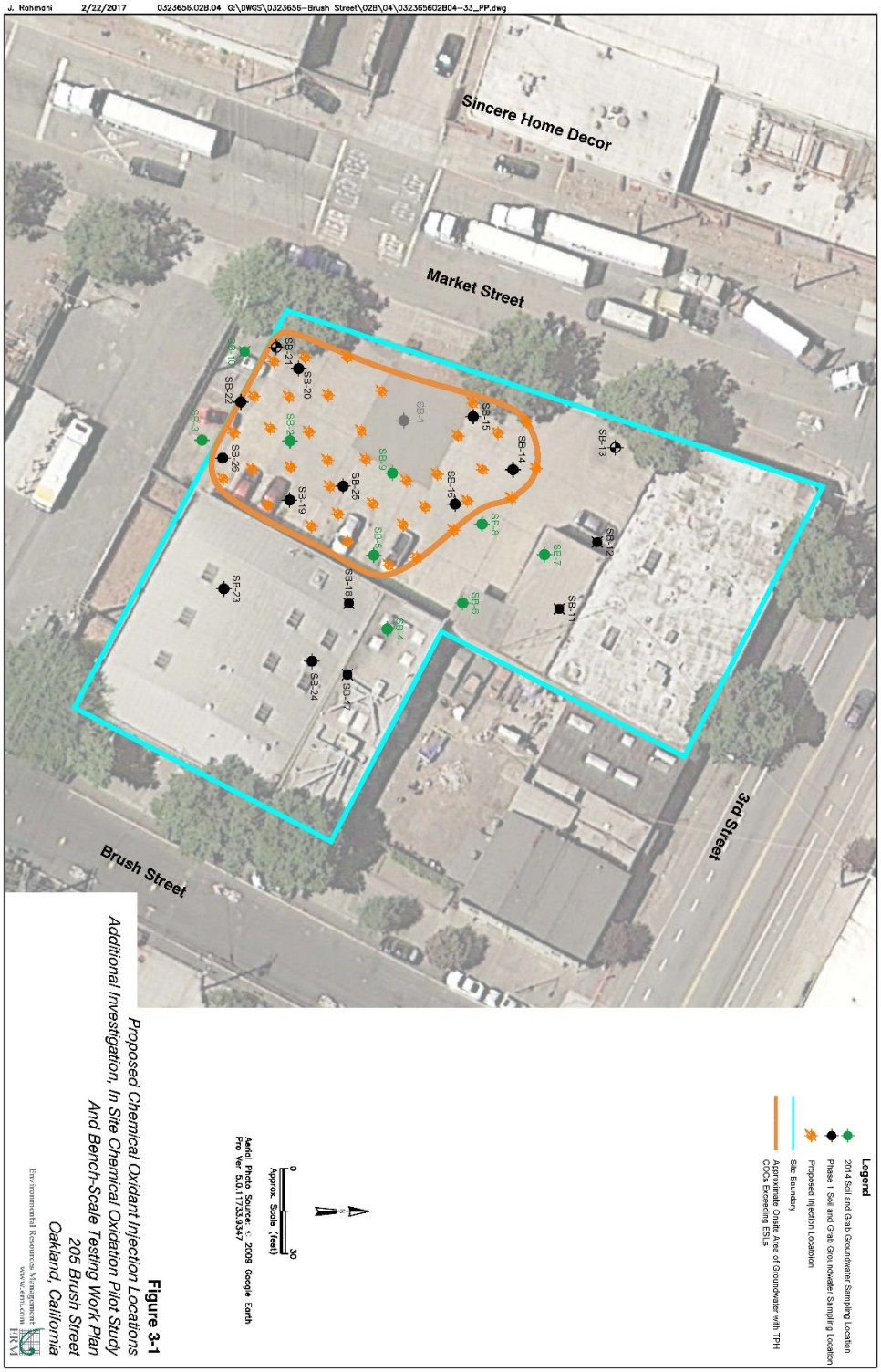

Figure 3-1
Proposed Chemical Oxidant Injection Locations
Additional Investigation, In Site Chemical Oxidation Pilot Study
And Bench-Scale Testing Work Plan
205 Brush Street
Oakland, California

Environmental Resources Management
www.erm.com
ERM

Appendix B
Survey Data

SOIL BORING LOCATIONS

LOCATION	NORTHING (FEET)	EASTING (FEET)	LATITUDE (DD)	LONGITUDE (DD)		FS/NG (ELEVATION)		
INJ-1	2118355.07	6046303.75	37.7991302	-122.2838179		12.31		
INJ-2	2118362.36	6046285.90	37.7991493	-122.2838802		11.94		
INJ-3	2118369.18	6046272.09	37.7991673	-122.2839285		13.63		
INJ-4	2118375.57	6046259.51	37.7991842	-122.2839724		10.97		
INJ-5	2118389.93	6046259.25	37.7992236	-122.2839742		10.87		
INJ-6	2118381.14	6046270.78	37.7992001	-122.2839338		11.35		
INJ-7	2118373.76	6046281.98	37.7991804	-122.2838945		11.72		
INJ-8	2118367.38	6046298.11	37.7991637	-122.2838383		12.12		
INJ-9	2118377.10	6046308.79	37.7991910	-122.2838020		11.97		
INJ-10	2118383.47	6046295.49	37.7992077	-122.2838484		11.97		
INJ-11	2118389.60	6046282.66	37.7992239	-122.2838932		11.56		
INJ-12	2118396.49	6046268.64	37.7992421	-122.2839422		11.08		
INJ-13	2118403.82	6046253.81	37.7992615	-122.2839940		10.60		
INJ-14	2118413.05	6046267.38	37.7992875	-122.2839476		10.85		
INJ-15	2118406.40	6046280.42	37.7992699	-122.2839021		11.31		
INJ-16	2118394.67	6046290.96	37.7992383	-122.2838648		11.72		
INJ-17	2118394.90	6046301.07	37.7992394	-122.2838299		11.99		
INJ-18	2118383.03	6046319.59	37.7992078	-122.2837650		12.15		
INJ-19	2118395.49	6046319.15	37.7992420	-122.2837673		12.37		
INJ-20	2118409.74	6046292.05	37.7992797	-122.2838621		11.56		
INJ-21	2118424.39	6046299.36	37.7993203	-122.2838377		11.76		
INJ-22	2118414.23	6046311.41	37.7992931	-122.2837954		12.03		
INJ-23	2118402.92	6046327.26	37.7992628	-122.2837398		12.65		
INJ-24	2118418.43	6046333.79	37.7993058	-122.2837182		12.61		
INJ-25	2118423.71	6046314.91	37.7993193	-122.2837839		12.16		
INJ-26	2118428.46	6046308.76	37.7993320	-122.2838055		11.98		
INJ-27	2118433.93	6046297.84	37.7993464	-122.2838436		11.66		
INJ-28	2118440.73	6046284.79	37.7993644	-122.2838892		11.36		
INJ-29	2118446.63	6046273.36	37.7993800	-122.2839292		11.15		
INJ-30	2118457.50	6046280.23	37.7994102	-122.2839061		11.36		
INJ-31	2118451.24	6046295.06	37.7993938	-122.2838544		11.63		
INJ-32	2118446.13	6046308.60	37.7993805	-122.2838072		11.90		
INJ-33	2118427.11	6046325.07	37.7993291	-122.2837490		12.33		
INJ-34	2118440.34	6046322.90	37.7993653	-122.2837573		12.20		
INJ-35	2118462.02	6046307.38	37.7994241	-122.2838125		11.90		
INJ-36	2118467.22	6046292.31	37.7994375	-122.2838649		11.68		
INJ-37	2118471.21	6046281.09	37.7994479	-122.2839040		11.45		

Professional's Name:
Armando D. Dupont

Professional's License Type:
Professional Land Surveyor

Professional's License Number:
7780

NOTE:
RISER_HT - RISER HEIGHT
RISER HEIGHT: THE MEASURED DISTANCE FROM GROUND SURFACE TO TOP OF WELL CASING
DD: DECIMAL DEGREES
TOR: TOP OF RIM
TOC: TOP OF CASING
FS: FINISHED SURFACE

DATE OF SURVEY: JULY 19, 2017

BENCHMARK:
THE ELEVATIONS SHOWN HEREON ARE BASED UPON STATIC GPS OBSERVATION, HOLDING THE CSRC DATA POINT "TIBB"; ELEVATION = 38.69 FEET (NAVD 88)

COORDINATES:
THE COORDINATES SHOWN HEREON ARE BASED UPON THE CALIFORNIA COORDINATE SYSTEM (CCS 83), ZONE 3, ZONE 3, 1983 DATUM, DEFINED BY SECTIONS 8801 TO 8819 OF THE CALIFORNIA PUBLIC RESOURCES CODE, BASED UPON STATIC GPS OBSERVATION, HOLDING THE CSRC DATA POINT "TIBB"

Appendix C
Lab Reports and QA/QC Memo

ENTHALPY

ANALYTICAL

Enthalpy Analytical

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 290750
ANALYTICAL REPORT

ERM	Project : 0399889.02.05
1277 Treat Blvd.	Location : PG&E Brush Street
Walnut Creek, CA 94597	Level : II

Sample ID	Lab ID
MW-01	290750-001
MW-02	290750-002
MW-02-DUP	290750-003
MW-04	290750-004
MW-03	290750-005
MW-05	290750-006
COMP-DRUM-ABC	290750-007
COMP-DRUM-EFG	290750-008
PURGE-DRUM	290750-009
TB-071917	290750-010

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: _____ Date: 08/01/2017

Dina Ali
Project Manager
dina.ali@enthalpy.com
(510) 204-2223 Ext 13105

CA ELAP# 2896, NELAP# 4044-001

ENTHALPY ANALYTICAL

CASE NARRATIVE

Laboratory number:	**290750**
Client:	**ERM**
Project:	**0399889.02.05**
Location:	**PG&E Brush Street**
Request Date:	**07/19/17**
Samples Received:	**07/20/17**

This data package contains sample and QC results for seven water samples, requested for the above referenced project on 07/19/17. The samples were received on ice and intact, directly from the field.

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

Volatile Organics by GC/MS (EPA 8260B):
High response was observed for bromomethane in the CCV analyzed 07/31/17 13:18; affected data was qualified with "b". High response was observed for 1,1-dichloroethene in the CCV analyzed 07/26/17 12:18; affected data was qualified with "b". High recovery was observed for 1,1-dichloroethene in the BSD for batch 250063; the high recovery was not associated with any reported results. High RPD was also observed for 1,1-dichloroethene in the BS/BSD for batch 250063; the high RPD was not associated with any reported results. Naphthalene was detected between the MDL and the RL in the method blank for batch 250063; this analyte was not detected in the sample at or above the RL. 1,2,4-trimethylbenzene and m,p-xylenes were detected between the MDL and the RL in the method blank for batch 250220; these analytes were either not detected in samples at or above the RL, or detected at a level at least 10 times that of the blank. No other analytical problems were encountered.

Semivolatile Organics by GC/MS (EPA 8270C):
Low surrogate recovery was observed for 2,4,6-tribromophenol in MW-03 (lab # 290750-005). MW-02 (lab # 290750-002) and MW-02-DUP (lab # 290750-003) were diluted due to high non-target analytes. No other analytical problems were encountered.

Metals (EPA 6010B and EPA 7470A):
High response was observed for selenium in the CCV analyzed 07/24/17 11:10; affected data was qualified with "b". Mercury was detected between the MDL and the RL in the method blank for batch 250067. Copper was detected above the RL in the method blank for batch 249908. Nickel was detected between the MDL and the RL in the method blank for batch 249908; this analyte was either not detected in samples at or above the RL, or detected at a level at least 10 times that of the blank. Copper and nickel were detected between the MDL and the RL in the method blank for batch 249908. No other analytical problems were encountered.

CHAIN OF CUSTODY

ENTHALPY ANALYTICAL
Formerly Curtis & Tompkins Labs
2323 Fifth Street
Berkeley, CA 94710
Phone (510) 486-0900
Fax (510) 486-0532

Chain of Custody # _____

C&T LOGIN # 240750

Project No: 0323656
Project Name: Brush St.
Project P. O. No: 0323656
EDD Format: Report Level ☒ II ☐ III ☐ IV
Turnaround Time: ☐ RUSH ☒ Standard

Sampler: Hilary Whitney / Anthony Billecci
Report To: John Lucio / Doug Moberg
Company: ERM
Telephone: (925)
Email: doug.moberg@erm.com

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST: VOCs & TPHg by 8260B	TPHd/mo by 8015M w/silica gel	SVOCs by 8270C	CA Title 22 Metals (6010/7000)*	Pesticides by 8081	PCBs by 8082
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None						
	MW-01	7/19/17	12:55	X				9	4		1		5	X	X	X	X		
	MW-02	↑	14:05	X				9	4		1		4	X	X	X	X		
	MW-02-DUP		14:10	X				9	4		1		4	X	X	X	X		
	MW-04		15:20	X				9	4		1		4	X	X	X	X		
	MW-03		17:05	X				8	3		1		4	X	X	X	X		
	MW-05		16:05	X				9	4		1		4	X	X	X	X		
	COMP-DRUM-ABC		1455		X			2					2	X	X	X	X	X	X
	COMP-DRUM-EFG	↓	1456		X			2					2	X	X	X	X	X	X
	PURGE-DRUM	7/19/17	1530	X				9	4		1		4	X	X	X	X		
	TB-071917	7/19/17	—	X				3	3					X					

Notes:
also email hilary.whitney@erm.com and anthony.billecci@erm.com
(*) water samples were filtered in field for metals

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:
Hilary Whitney — DATE: 7/19/17 TIME: 18:30
DATE: TIME:
DATE: TIME:

RECEIVED BY:
RDC — DATE: 7/19/17 TIME: 1830
DATE: TIME:
DATE: TIME:

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 290750 Date Received 7·19·17 Number of coolers 2

Client EKM Project U323656

Date Opened 7·19·17 By (print) MS (sign) MS
Date Logged in ↓ By (print) MS (sign) MS
Date Labelled ↓ By (print) MS (sign) MS

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) 4.2, 1.9

☐ 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# 0URDAC871) **(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 NaOH to samples 2-6 (#11988) MS 7·19·17 2047

20) 1/4 VOAs received w/ bubble sample 2
1/4 " " sample 6

Rev 13, 6/01/16

Curtis & Tompkins Sample Preservation for 290750

Sample	pH: <2	>9	>12	Other
-001a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
f	[ ]	[ ]	[ ]	_____
g	[ ]	[ ]	[ ]	_____
h	[ ]	[ ]	[ ]	_____
i	[ ]	[ ]	[ ]	_____
-002a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
f	[ ]	[ ]	[ ]	_____
g	[ ]	[ ]	[ ]	_____
h	[ ]	[ ]	[ ]	_____
i	[ ]	[ ]	[ ]	_____
-003a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
f	[ ]	[ ]	[ ]	_____
g	[ ]	[ ]	[ ]	_____
h	[ ]	[ ]	[ ]	_____
i	[ ]	[ ]	[ ]	_____
-004a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____

Sample	pH: <2	>9	>12	Other
e	[ ]	[ ]	[ ]	_____
f	[ ]	[ ]	[ ]	_____
g	[ ]	[ ]	[ ]	_____
h	[ ]	[ ]	[ ]	_____
i	[ ]	[ ]	[ ]	_____
-005a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
f	[ ]	[ ]	[ ]	_____
g	[ ]	[ ]	[ ]	_____
h	[ ]	[ ]	[ ]	_____
-006a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
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g	[ ]	[ ]	[ ]	_____
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i	[ ]	[ ]	[ ]	_____
-009a	[ ]	[ ]	[ ]	_____
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c	[ ]	[ ]	[ ]	_____
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g	[ ]	[ ]	[ ]	_____
h	[ ]	[ ]	[ ]	_____
i	[ ]	[ ]	[ ]	_____

Analyst: MS
Date: 7.20.17

ENTHALPY ANALYTICAL

Detections Summary for 290750

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

Client : ERM
Project : 0399889.02.05
Location : PG&E Brush Street

Client Sample ID : MW-01 Laboratory Sample ID : 290750-001

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
1,1-Dichloroethene	0.3	J	0.5	0.1	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
1,1-Dichloroethane	0.6		0.5	0.1	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
2-Butanone	1.1	J	10	1.0	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
cis-1,2-Dichloroethene	0.7		0.5	0.1	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
1,2-Dichloroethane	0.3	J	0.5	0.1	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Trichloroethene	0.9		0.5	0.1	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Barium	39		5.0	1.0	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Cadmium	0.43	J	5.0	0.33	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Copper	5.1		5.0	0.88	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Lead	3.4	J	5.0	1.2	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Mercury	0.13	J	0.20	0.040	ug/L	TOTAL	1.000	EPA 7470A	METHOD
Nickel	1.8	J	5.0	0.34	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Silver	1.5	J	5.0	0.75	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A

Client Sample ID : MW-02 Laboratory Sample ID : 290750-002

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	300	Y	50	16	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Gasoline C7-C12	9,000		1,700	130	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
MTBE	35		17	3.3	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
Benzene	2,000		17	3.3	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
Toluene	1,500		17	3.3	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
Ethylbenzene	170		17	3.4	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
m,p-Xylenes	480		17	4.5	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
o-Xylene	210		17	4.4	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
Isopropylbenzene	7.9	J	17	3.3	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
Propylbenzene	16	J	17	3.3	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
1,3,5-Trimethylbenzene	34		17	4.4	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
1,2,4-Trimethylbenzene	130		17	4.3	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
Naphthalene	39	J	67	8.3	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
Phenol	5.0	J	38	3.0	ug/L	As Recd	4.000	EPA 8270C	EPA 3520C
2-Methylphenol	4.8	J	38	2.6	ug/L	As Recd	4.000	EPA 8270C	EPA 3520C
Naphthalene	29	J	38	5.1	ug/L	As Recd	4.000	EPA 8270C	EPA 3520C
2-Methylnaphthalene	7.0	J	38	5.0	ug/L	As Recd	4.000	EPA 8270C	EPA 3520C
Arsenic	3.4	J	10	1.8	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Barium	140		5.0	1.0	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Cadmium	0.39	J	5.0	0.33	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Cobalt	7.4		5.0	1.0	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Copper	4.7	J	5.0	0.88	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Mercury	0.054	J	0.20	0.040	ug/L	TOTAL	1.000	EPA 7470A	METHOD
Nickel	34		5.0	0.34	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Silver	4.5	J	5.0	0.75	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A

ENTHALPY ANALYTICAL

Client Sample ID : MW-02-DUP Laboratory Sample ID : 290750-003

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	390	Y	50	16	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Gasoline C7-C12	8,100		1,700	130	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
MTBE	31		17	3.3	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
Benzene	1,900		17	3.3	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
Toluene	1,400		17	3.3	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
Ethylbenzene	150		17	3.4	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
m,p-Xylenes	440		17	4.5	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
o-Xylene	190		17	4.4	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
Isopropylbenzene	7.7	J	17	3.3	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
Propylbenzene	15	J	17	3.3	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
1,3,5-Trimethylbenzene	28		17	4.4	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
1,2,4-Trimethylbenzene	120		17	4.3	ug/L	As Recd	33.33	EPA 8260B	EPA 5030B
Phenol	5.2	J	38	3.0	ug/L	As Recd	4.000	EPA 8270C	EPA 3520C
2-Methylphenol	5.4	J	38	2.6	ug/L	As Recd	4.000	EPA 8270C	EPA 3520C
4-Methylphenol	4.5	J	38	4.4	ug/L	As Recd	4.000	EPA 8270C	EPA 3520C
Naphthalene	34	J	38	5.1	ug/L	As Recd	4.000	EPA 8270C	EPA 3520C
2-Methylnaphthalene	8.4	J	38	5.0	ug/L	As Recd	4.000	EPA 8270C	EPA 3520C
Arsenic	3.4	J	10	1.8	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Barium	130		5.0	1.0	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Cadmium	0.38	J	5.0	0.33	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Cobalt	7.1		5.0	1.0	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Copper	3.6	J	5.0	0.88	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Mercury	0.26		0.20	0.040	ug/L	TOTAL	1.000	EPA 7470A	METHOD
Nickel	34		5.0	0.34	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Silver	5.4		5.0	0.75	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A

ENTHALPY ANALYTICAL

Client Sample ID : MW-04 Laboratory Sample ID : 290750-004

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	850	Y	50	16	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Gasoline C7-C12	3,500		630	50	ug/L	As Recd	12.50	EPA 8260B	EPA 5030B
Benzene	190		6.3	1.3	ug/L	As Recd	12.50	EPA 8260B	EPA 5030B
Toluene	24		6.3	1.3	ug/L	As Recd	12.50	EPA 8260B	EPA 5030B
Ethylbenzene	260		6.3	1.3	ug/L	As Recd	12.50	EPA 8260B	EPA 5030B
m,p-Xylenes	29		6.3	1.7	ug/L	As Recd	12.50	EPA 8260B	EPA 5030B
o-Xylene	50		6.3	1.7	ug/L	As Recd	12.50	EPA 8260B	EPA 5030B
Isopropylbenzene	27		6.3	1.3	ug/L	As Recd	12.50	EPA 8260B	EPA 5030B
Propylbenzene	67		6.3	1.3	ug/L	As Recd	12.50	EPA 8260B	EPA 5030B
1,3,5-Trimethylbenzene	40		6.3	1.6	ug/L	As Recd	12.50	EPA 8260B	EPA 5030B
1,2,4-Trimethylbenzene	150		6.3	1.6	ug/L	As Recd	12.50	EPA 8260B	EPA 5030B
sec-Butylbenzene	5.6	J	6.3	1.3	ug/L	As Recd	12.50	EPA 8260B	EPA 5030B
Naphthalene	39		25	3.1	ug/L	As Recd	12.50	EPA 8260B	EPA 5030B
Phenol	2.9	J	9.4	0.96	ug/L	As Recd	1.000	EPA 8270C	EPA 3520C
Naphthalene	27		9.4	1.8	ug/L	As Recd	1.000	EPA 8270C	EPA 3520C
2-Methylnaphthalene	12		9.4	1.7	ug/L	As Recd	1.000	EPA 8270C	EPA 3520C
Acenaphthene	5.5	J	9.4	1.7	ug/L	As Recd	1.000	EPA 8270C	EPA 3520C
Dibenzofuran	3.0	J	9.4	1.8	ug/L	As Recd	1.000	EPA 8270C	EPA 3520C
Fluorene	5.4	J	9.4	1.7	ug/L	As Recd	1.000	EPA 8270C	EPA 3520C
Phenanthrene	17		9.4	1.8	ug/L	As Recd	1.000	EPA 8270C	EPA 3520C
Anthracene	8.8	J	9.4	1.7	ug/L	As Recd	1.000	EPA 8270C	EPA 3520C
Fluoranthene	15		9.4	1.8	ug/L	As Recd	1.000	EPA 8270C	EPA 3520C
Pyrene	11		9.4	1.6	ug/L	As Recd	1.000	EPA 8270C	EPA 3520C
Arsenic	16		10	1.8	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Barium	110		5.0	1.0	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Cadmium	0.36	J	5.0	0.33	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Mercury	0.11	J	0.20	0.040	ug/L	TOTAL	1.000	EPA 7470A	METHOD
Nickel	4.6	J	5.0	0.34	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Silver	1.1	J	5.0	0.75	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A

ENTHALPY ANALYTICAL

Client Sample ID : MW-03 Laboratory Sample ID : 290750-005

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	7.7	J	50	4.0	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Chloromethane	0.9	J	1.0	0.1	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Bromomethane	2.8	b	1.0	0.2	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Acetone	31		10	3.3	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
MTBE	78		0.5	0.1	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
2-Butanone	3.4	J	10	1.0	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Chloroform	0.4	J	0.5	0.1	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Benzene	0.2	J	0.5	0.1	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Arsenic	10		10	1.8	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Barium	27		5.0	1.0	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Cadmium	0.75	J	5.0	0.33	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Chromium	260		5.0	0.56	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Copper	4.7	J	5.0	0.88	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Lead	6.2		5.0	1.2	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Mercury	0.18	J	0.20	0.040	ug/L	TOTAL	1.000	EPA 7470A	METHOD
Molybdenum	1.4	J	5.0	1.2	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Silver	16		5.0	0.75	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Thallium	2.8	J	10	1.9	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Vanadium	13		5.0	1.0	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A

Client Sample ID : MW-05 Laboratory Sample ID : 290750-006

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
MTBE	1.4		0.5	0.1	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
1,2-Dichloroethane	0.8		0.5	0.1	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Trichloroethene	0.2	J	0.5	0.1	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Tetrachloroethene	0.4	J	0.5	0.1	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Barium	35		5.0	1.0	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Cadmium	0.36	J	5.0	0.33	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Cobalt	2.8	J	5.0	1.0	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Copper	3.1	J	5.0	0.88	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Lead	2.8	J	5.0	1.2	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Mercury	0.19	J	0.20	0.040	ug/L	TOTAL	1.000	EPA 7470A	METHOD
Nickel	13		5.0	0.34	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Silver	3.6	J	5.0	0.75	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Zinc	28		20	4.7	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A

Client Sample ID : TB-071917 Laboratory Sample ID : 290750-010

No Detections

J = Estimated value
Y = Sample exhibits chromatographic pattern which does not resemble standard
b = See narrative

ENTHALPY ANALYTICAL

Total Extractable Hydrocarbons

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	07/19/17
Units:	ug/L	Received:	07/20/17
Diln Fac:	1.000	Prepared:	07/21/17
Batch#:	249924	Analyzed:	07/24/17

Field ID: MW-01 Lab ID: 290750-001
Type: SAMPLE Cleanup Method: EPA 3630C

Analyte	Result	RL	MDL
Diesel C10-C24	ND	50	16
Motor Oil C24-C36	ND	300	96

Surrogate	%REC	Limits
o-Terphenyl	98	52-138

Field ID: MW-02 Lab ID: 290750-002
Type: SAMPLE Cleanup Method: EPA 3630C

Analyte	Result	RL	MDL
Diesel C10-C24	300 Y	50	16
Motor Oil C24-C36	ND	300	96

Surrogate	%REC	Limits
o-Terphenyl	99	52-138

Field ID: MW-02-DUP Lab ID: 290750-003
Type: SAMPLE Cleanup Method: EPA 3630C

Analyte	Result	RL	MDL
Diesel C10-C24	390 Y	50	16
Motor Oil C24-C36	ND	300	96

Surrogate	%REC	Limits
o-Terphenyl	98	52-138

Field ID: MW-04 Lab ID: 290750-004
Type: SAMPLE Cleanup Method: EPA 3630C

Analyte	Result	RL	MDL
Diesel C10-C24	850 Y	50	16
Motor Oil C24-C36	ND	300	96

Surrogate	%REC	Limits
o-Terphenyl	92	52-138

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Total Extractable Hydrocarbons

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	07/19/17
Units:	ug/L	Received:	07/20/17
Diln Fac:	1.000	Prepared:	07/21/17
Batch#:	249924	Analyzed:	07/24/17

Field ID: MW-03 Lab ID: 290750-005
Type: SAMPLE Cleanup Method: EPA 3630C

Analyte	Result	RL	MDL
Diesel C10-C24	ND	50	16
Motor Oil C24-C36	ND	300	96

Surrogate	%REC	Limits
o-Terphenyl	91	52-138

Field ID: MW-05 Lab ID: 290750-006
Type: SAMPLE Cleanup Method: EPA 3630C

Analyte	Result	RL	MDL
Diesel C10-C24	ND	50	16
Motor Oil C24-C36	ND	300	96

Surrogate	%REC	Limits
o-Terphenyl	90	52-138

Type: BLANK Cleanup Method: EPA 3630C
Lab ID: QC894154

Analyte	Result	RL	MDL
Diesel C10-C24	ND	50	16
Motor Oil C24-C36	ND	300	96

Surrogate	%REC	Limits
o-Terphenyl	109	52-138

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	249924
Units:	ug/L	Prepared:	07/21/17
Diln Fac:	1.000	Analyzed:	07/24/17

Type: BS Cleanup Method: EPA 3630C
Lab ID: QC894155

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,562	102	52-124

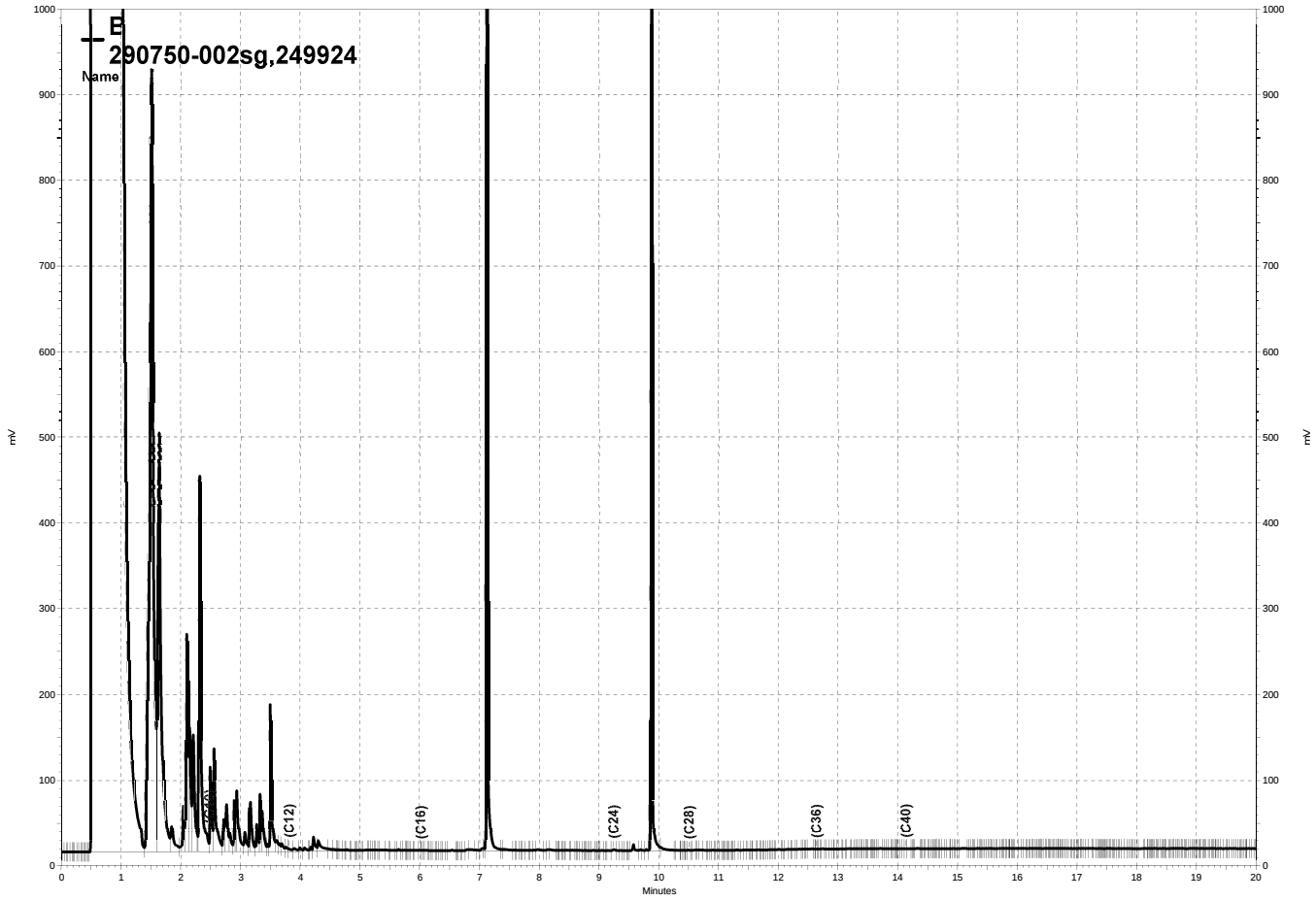
Surrogate	%REC	Limits
o-Terphenyl	120	52-138

Type: BSD Cleanup Method: EPA 3630C
Lab ID: QC894156

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,514	101	52-124	2	34

Surrogate	%REC	Limits
o-Terphenyl	122	52-138

RPD= Relative Percent Difference



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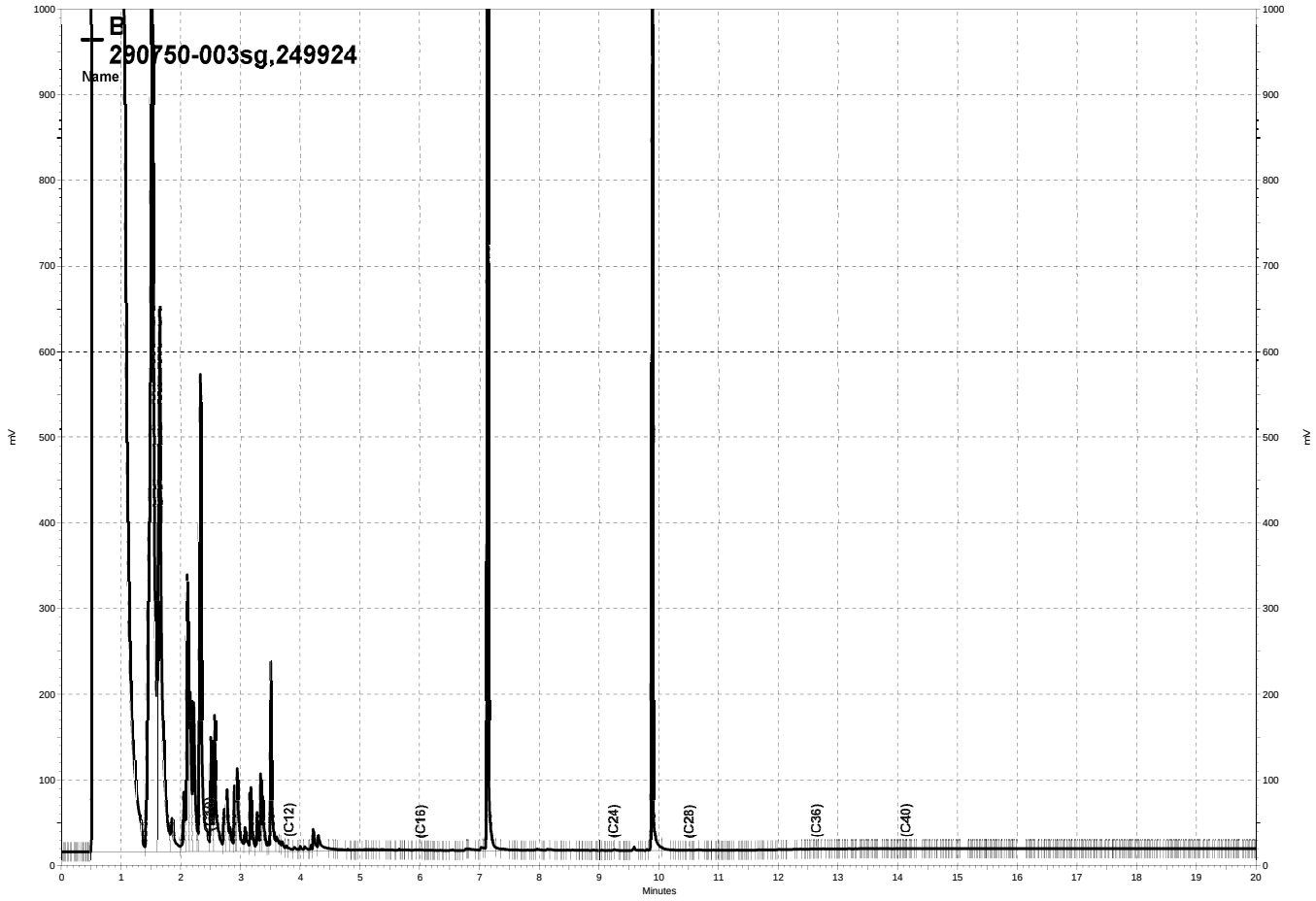

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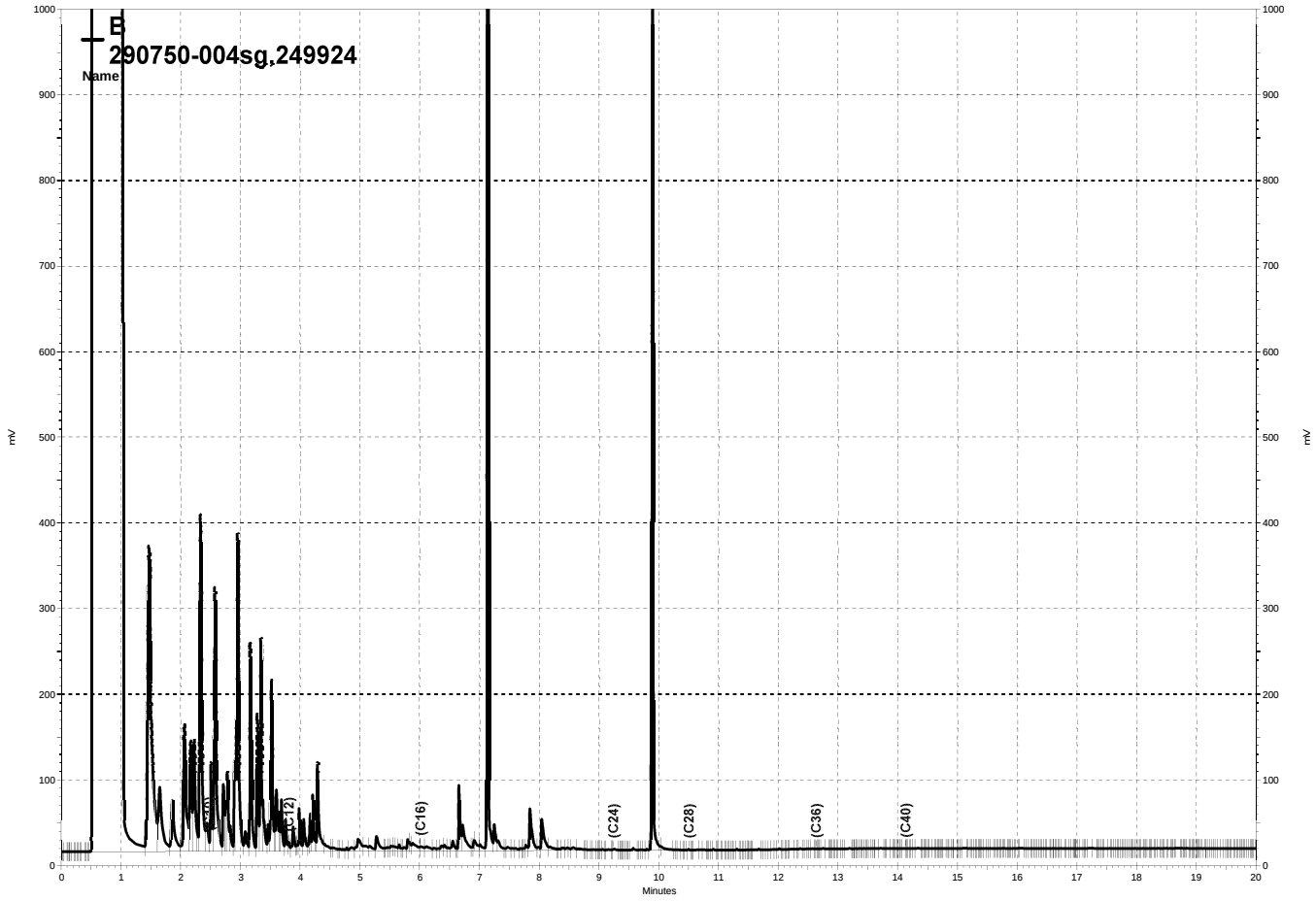

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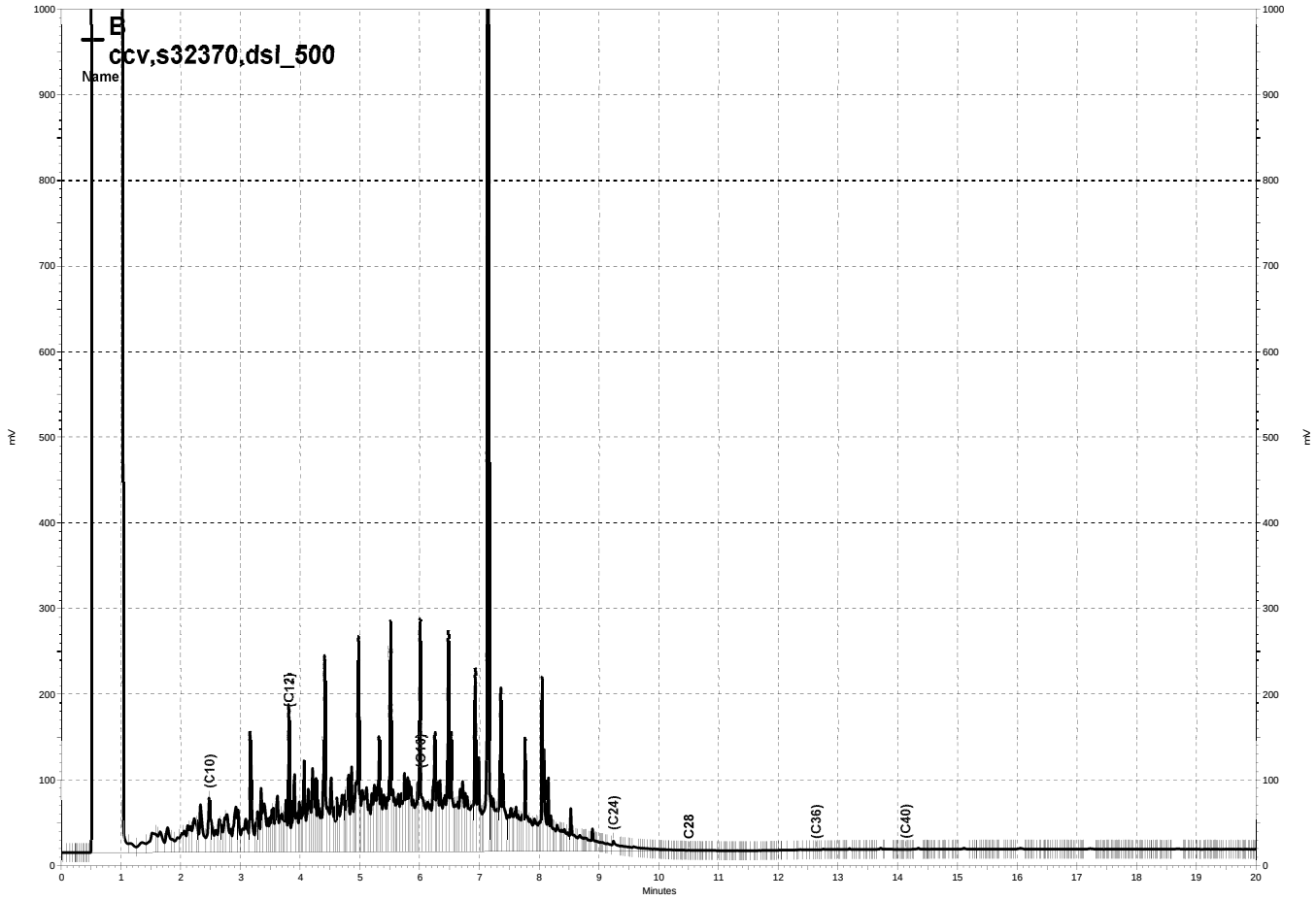

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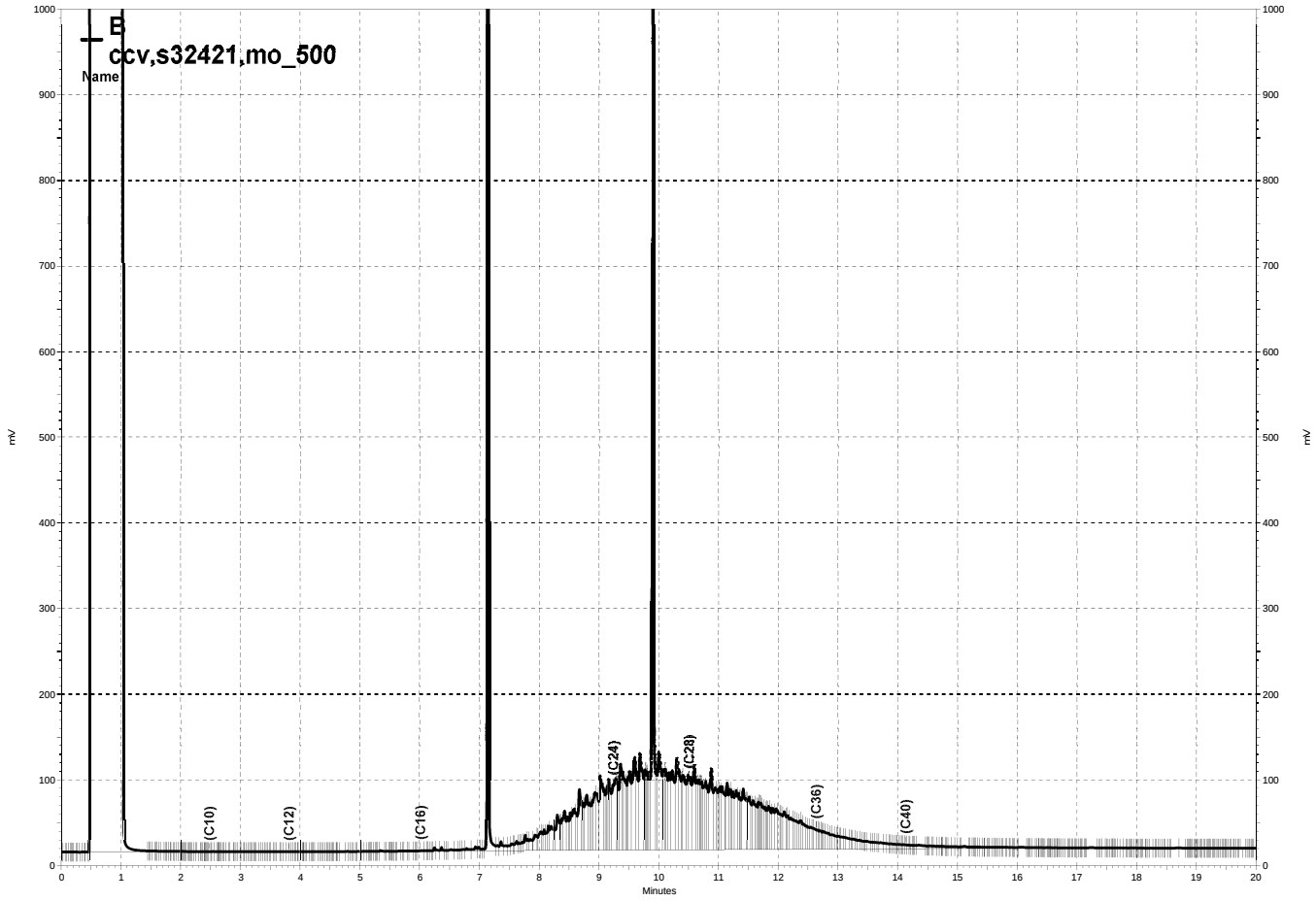

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ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	MW-01	Dil'n Fac:	1.000
Lab ID:	290750-001	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
Gasoline C7-C12	ND	50	4.0	250016	07/25/17
Freon 12	ND	1.0	0.2	250016	07/25/17
Chloromethane	ND	1.0	0.1	250016	07/25/17
Vinyl Chloride	ND	0.5	0.2	250016	07/25/17
Bromomethane	ND	1.0	0.1	250063	07/26/17
Chloroethane	ND	1.0	0.2	250016	07/25/17
Trichlorofluoromethane	ND	1.0	0.1	250016	07/25/17
Acetone	ND	10	3.3	250016	07/25/17
Freon 113	ND	2.0	0.2	250016	07/25/17
1,1-Dichloroethene	0.3 J	0.5	0.1	250016	07/25/17
Methylene Chloride	ND	10	0.1	250016	07/25/17
Carbon Disulfide	ND	0.5	0.1	250016	07/25/17
MTBE	ND	0.5	0.1	250016	07/25/17
trans-1,2-Dichloroethene	ND	0.5	0.1	250016	07/25/17
Vinyl Acetate	ND	10	0.3	250016	07/25/17
1,1-Dichloroethane	0.6	0.5	0.1	250016	07/25/17
2-Butanone	1.1 J	10	1.0	250016	07/25/17
cis-1,2-Dichloroethene	0.7	0.5	0.1	250016	07/25/17
2,2-Dichloropropane	ND	0.5	0.1	250016	07/25/17
Chloroform	ND	0.5	0.1	250016	07/25/17
Bromochloromethane	ND	0.5	0.1	250016	07/25/17
1,1,1-Trichloroethane	ND	0.5	0.1	250016	07/25/17
1,1-Dichloropropene	ND	0.5	0.1	250016	07/25/17
Carbon Tetrachloride	ND	0.5	0.1	250016	07/25/17
1,2-Dichloroethane	0.3 J	0.5	0.1	250016	07/25/17
Benzene	ND	0.5	0.1	250016	07/25/17
Trichloroethene	0.9	0.5	0.1	250016	07/25/17
1,2-Dichloropropane	ND	0.5	0.1	250016	07/25/17
Bromodichloromethane	ND	0.5	0.1	250016	07/25/17
Dibromomethane	ND	0.5	0.1	250016	07/25/17
4-Methyl-2-Pentanone	ND	10	0.1	250016	07/25/17
cis-1,3-Dichloropropene	ND	0.5	0.1	250016	07/25/17
Toluene	ND	0.5	0.1	250016	07/25/17
trans-1,3-Dichloropropene	ND	0.5	0.1	250016	07/25/17
1,1,2-Trichloroethane	ND	0.5	0.1	250016	07/25/17
2-Hexanone	ND	10	0.2	250016	07/25/17
1,3-Dichloropropane	ND	0.5	0.1	250016	07/25/17
Tetrachloroethene	ND	0.5	0.1	250016	07/25/17
Dibromochloromethane	ND	0.5	0.1	250016	07/25/17
1,2-Dibromoethane	ND	0.5	0.1	250016	07/25/17
Chlorobenzene	ND	0.5	0.1	250016	07/25/17
1,1,1,2-Tetrachloroethane	ND	0.5	0.1	250016	07/25/17
Ethylbenzene	ND	0.5	0.1	250016	07/25/17
m,p-Xylenes	ND	0.5	0.1	250016	07/25/17
o-Xylene	ND	0.5	0.1	250016	07/25/17
Styrene	ND	0.5	0.1	250016	07/25/17
Bromoform	ND	1.0	0.1	250016	07/25/17
Isopropylbenzene	ND	0.5	0.1	250016	07/25/17
1,1,2,2-Tetrachloroethane	ND	0.5	0.1	250016	07/25/17
1,2,3-Trichloropropane	ND	0.5	0.1	250016	07/25/17
Propylbenzene	ND	0.5	0.1	250016	07/25/17
Bromobenzene	ND	0.5	0.1	250016	07/25/17
1,3,5-Trimethylbenzene	ND	0.5	0.1	250016	07/25/17

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	MW-01	Dil'n Fac:	1.000
Lab ID:	290750-001	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
2-Chlorotoluene	ND	0.5	0.1	250016	07/25/17
4-Chlorotoluene	ND	0.5	0.1	250016	07/25/17
tert-Butylbenzene	ND	0.5	0.1	250016	07/25/17
1,2,4-Trimethylbenzene	ND	0.5	0.1	250016	07/25/17
sec-Butylbenzene	ND	0.5	0.1	250016	07/25/17
para-Isopropyl Toluene	ND	0.5	0.1	250016	07/25/17
1,3-Dichlorobenzene	ND	0.5	0.1	250016	07/25/17
1,4-Dichlorobenzene	ND	0.5	0.1	250016	07/25/17
n-Butylbenzene	ND	0.5	0.1	250016	07/25/17
1,2-Dichlorobenzene	ND	0.5	0.1	250016	07/25/17
1,2-Dibromo-3-Chloropropane	ND	2.0	0.3	250016	07/25/17
1,2,4-Trichlorobenzene	ND	0.5	0.1	250016	07/25/17
Hexachlorobutadiene	ND	2.0	0.3	250016	07/25/17
Naphthalene	ND	2.0	0.3	250016	07/25/17
1,2,3-Trichlorobenzene	ND	0.5	0.1	250016	07/25/17

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	105	80-120	250016	07/25/17
1,2-Dichloroethane-d4	120	73-136	250016	07/25/17
Toluene-d8	100	80-120	250016	07/25/17
Bromofluorobenzene	113	80-120	250016	07/25/17

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	MW-02	Dil'n Fac:	33.33
Lab ID:	290750-002	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
Gasoline C7-C12	9,000	1,700	130	250016	07/25/17
Freon 12	ND	33	5.0	250016	07/25/17
Chloromethane	ND	33	4.6	250016	07/25/17
Vinyl Chloride	ND	17	5.1	250016	07/25/17
Bromomethane	ND	33	3.3	250063	07/26/17
Chloroethane	ND	33	6.0	250016	07/25/17
Trichlorofluoromethane	ND	33	4.1	250016	07/25/17
Acetone	ND	330	110	250016	07/25/17
Freon 113	ND	67	5.0	250016	07/25/17
1,1-Dichloroethene	ND	17	3.3	250016	07/25/17
Methylene Chloride	ND	330	3.3	250016	07/25/17
Carbon Disulfide	ND	17	3.6	250016	07/25/17
MTBE	35	17	3.3	250016	07/25/17
trans-1,2-Dichloroethene	ND	17	4.6	250016	07/25/17
Vinyl Acetate	ND	330	8.3	250016	07/25/17
1,1-Dichloroethane	ND	17	3.9	250016	07/25/17
2-Butanone	ND	330	33	250016	07/25/17
cis-1,2-Dichloroethene	ND	17	3.4	250016	07/25/17
2,2-Dichloropropane	ND	17	4.7	250016	07/25/17
Chloroform	ND	17	3.9	250016	07/25/17
Bromochloromethane	ND	17	3.3	250016	07/25/17
1,1,1-Trichloroethane	ND	17	4.3	250016	07/25/17
1,1-Dichloropropene	ND	17	4.0	250016	07/25/17
Carbon Tetrachloride	ND	17	3.3	250016	07/25/17
1,2-Dichloroethane	ND	17	3.3	250016	07/25/17
Benzene	2,000	17	3.3	250016	07/25/17
Trichloroethene	ND	17	3.9	250016	07/25/17
1,2-Dichloropropane	ND	17	3.3	250016	07/25/17
Bromodichloromethane	ND	17	3.3	250016	07/25/17
Dibromomethane	ND	17	3.3	250016	07/25/17
4-Methyl-2-Pentanone	ND	330	3.5	250016	07/25/17
cis-1,3-Dichloropropene	ND	17	3.3	250016	07/25/17
Toluene	1,500	17	3.3	250016	07/25/17
trans-1,3-Dichloropropene	ND	17	3.3	250016	07/25/17
1,1,2-Trichloroethane	ND	17	3.5	250016	07/25/17
2-Hexanone	ND	330	5.8	250016	07/25/17
1,3-Dichloropropane	ND	17	3.3	250016	07/25/17
Tetrachloroethene	ND	17	3.3	250016	07/25/17
Dibromochloromethane	ND	17	3.3	250016	07/25/17
1,2-Dibromoethane	ND	17	3.3	250016	07/25/17
Chlorobenzene	ND	17	3.3	250016	07/25/17
1,1,1,2-Tetrachloroethane	ND	17	3.7	250016	07/25/17
Ethylbenzene	170	17	3.4	250016	07/25/17
m,p-Xylenes	480	17	4.5	250016	07/25/17
o-Xylene	210	17	4.4	250016	07/25/17
Styrene	ND	17	3.3	250016	07/25/17
Bromoform	ND	33	4.8	250016	07/25/17
Isopropylbenzene	7.9 J	17	3.3	250016	07/25/17
1,1,2,2-Tetrachloroethane	ND	17	3.3	250016	07/25/17
1,2,3-Trichloropropane	ND	17	3.7	250016	07/25/17
Propylbenzene	16 J	17	3.3	250016	07/25/17
Bromobenzene	ND	17	3.3	250016	07/25/17
1,3,5-Trimethylbenzene	34	17	4.4	250016	07/25/17

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	MW-02	Dil'n Fac:	33.33
Lab ID:	290750-002	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
2-Chlorotoluene	ND	17	5.0	250016	07/25/17
4-Chlorotoluene	ND	17	3.3	250016	07/25/17
tert-Butylbenzene	ND	17	4.1	250016	07/25/17
1,2,4-Trimethylbenzene	130	17	4.3	250016	07/25/17
sec-Butylbenzene	ND	17	3.3	250016	07/25/17
para-Isopropyl Toluene	ND	17	3.3	250016	07/25/17
1,3-Dichlorobenzene	ND	17	4.9	250016	07/25/17
1,4-Dichlorobenzene	ND	17	3.7	250016	07/25/17
n-Butylbenzene	ND	17	3.3	250016	07/25/17
1,2-Dichlorobenzene	ND	17	3.3	250016	07/25/17
1,2-Dibromo-3-Chloropropane	ND	67	11	250016	07/25/17
1,2,4-Trichlorobenzene	ND	17	4.2	250016	07/25/17
Hexachlorobutadiene	ND	67	8.3	250016	07/25/17
Naphthalene	39 J	67	8.3	250016	07/25/17
1,2,3-Trichlorobenzene	ND	17	4.2	250016	07/25/17

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	101	80-120	250016	07/25/17
1,2-Dichloroethane-d4	118	73-136	250016	07/25/17
Toluene-d8	105	80-120	250016	07/25/17
Bromofluorobenzene	100	80-120	250016	07/25/17

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	MW-02-DUP	Dil'n Fac:	33.33
Lab ID:	290750-003	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Analyzed:	07/26/17

Analyte	Result	RL	MDL	Batch#
Gasoline C7-C12	8,100	1,700	130	250016
Freon 12	ND	33	5.0	250016
Chloromethane	ND	33	4.6	250016
Vinyl Chloride	ND	17	5.1	250016
Bromomethane	ND	33	3.3	250063
Chloroethane	ND	33	6.0	250016
Trichlorofluoromethane	ND	33	4.1	250016
Acetone	ND	330	110	250016
Freon 113	ND	67	5.0	250016
1,1-Dichloroethene	ND	17	3.3	250016
Methylene Chloride	ND	330	3.3	250016
Carbon Disulfide	ND	17	3.6	250016
MTBE	31	17	3.3	250016
trans-1,2-Dichloroethene	ND	17	4.6	250016
Vinyl Acetate	ND	330	8.3	250016
1,1-Dichloroethane	ND	17	3.9	250016
2-Butanone	ND	330	33	250016
cis-1,2-Dichloroethene	ND	17	3.4	250016
2,2-Dichloropropane	ND	17	4.7	250016
Chloroform	ND	17	3.9	250016
Bromochloromethane	ND	17	3.3	250016
1,1,1-Trichloroethane	ND	17	4.3	250016
1,1-Dichloropropene	ND	17	4.0	250016
Carbon Tetrachloride	ND	17	3.3	250016
1,2-Dichloroethane	ND	17	3.3	250016
Benzene	1,900	17	3.3	250016
Trichloroethene	ND	17	3.9	250016
1,2-Dichloropropane	ND	17	3.3	250016
Bromodichloromethane	ND	17	3.3	250016
Dibromomethane	ND	17	3.3	250016
4-Methyl-2-Pentanone	ND	330	3.5	250016
cis-1,3-Dichloropropene	ND	17	3.3	250016
Toluene	1,400	17	3.3	250016
trans-1,3-Dichloropropene	ND	17	3.3	250016
1,1,2-Trichloroethane	ND	17	3.5	250016
2-Hexanone	ND	330	5.8	250016
1,3-Dichloropropane	ND	17	3.3	250016
Tetrachloroethene	ND	17	3.3	250016
Dibromochloromethane	ND	17	3.3	250016
1,2-Dibromoethane	ND	17	3.3	250016
Chlorobenzene	ND	17	3.3	250016
1,1,1,2-Tetrachloroethane	ND	17	3.7	250016
Ethylbenzene	150	17	3.4	250016
m,p-Xylenes	440	17	4.5	250016
o-Xylene	190	17	4.4	250016
Styrene	ND	17	3.3	250016
Bromoform	ND	33	4.8	250016
Isopropylbenzene	7.7 J	17	3.3	250016
1,1,2,2-Tetrachloroethane	ND	17	3.3	250016
1,2,3-Trichloropropane	ND	17	3.7	250016
Propylbenzene	15 J	17	3.3	250016
Bromobenzene	ND	17	3.3	250016
1,3,5-Trimethylbenzene	28	17	4.4	250016

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	MW-02-DUP	Dil'n Fac:	33.33
Lab ID:	290750-003	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Analyzed:	07/26/17

Analyte	Result	RL	MDL	Batch#
2-Chlorotoluene	ND	17	5.0	250016
4-Chlorotoluene	ND	17	3.3	250016
tert-Butylbenzene	ND	17	4.1	250016
1,2,4-Trimethylbenzene	120	17	4.3	250016
sec-Butylbenzene	ND	17	3.3	250016
para-Isopropyl Toluene	ND	17	3.3	250016
1,3-Dichlorobenzene	ND	17	4.9	250016
1,4-Dichlorobenzene	ND	17	3.7	250016
n-Butylbenzene	ND	17	3.3	250016
1,2-Dichlorobenzene	ND	17	3.3	250016
1,2-Dibromo-3-Chloropropane	ND	67	11	250016
1,2,4-Trichlorobenzene	ND	17	4.2	250016
Hexachlorobutadiene	ND	67	8.3	250016
Naphthalene	ND	67	8.3	250016
1,2,3-Trichlorobenzene	ND	17	4.2	250016

Surrogate	%REC	Limits	Batch#
Dibromofluoromethane	98	80-120	250016
1,2-Dichloroethane-d4	117	73-136	250016
Toluene-d8	98	80-120	250016
Bromofluorobenzene	99	80-120	250016

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	MW-04	Batch#:	250220
Lab ID:	290750-004	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Analyzed:	07/31/17
Diln Fac:	12.50		

Analyte	Result	RL	MDL
Gasoline C7-C12	3,500	630	50
Freon 12	ND	13	1.9
Chloromethane	ND	13	1.7
Vinyl Chloride	ND	6.3	1.9
Bromomethane	ND	13	3.0
Chloroethane	ND	13	2.3
Trichlorofluoromethane	ND	13	1.5
Acetone	ND	130	41
Freon 113	ND	25	1.9
1,1-Dichloroethene	ND	6.3	1.3
Methylene Chloride	ND	130	1.3
Carbon Disulfide	ND	6.3	1.4
MTBE	ND	6.3	1.3
trans-1,2-Dichloroethene	ND	6.3	1.7
Vinyl Acetate	ND	130	3.1
1,1-Dichloroethane	ND	6.3	1.5
2-Butanone	ND	130	13
cis-1,2-Dichloroethene	ND	6.3	1.3
2,2-Dichloropropane	ND	6.3	1.8
Chloroform	ND	6.3	1.5
Bromochloromethane	ND	6.3	1.3
1,1,1-Trichloroethane	ND	6.3	1.6
1,1-Dichloropropene	ND	6.3	1.5
Carbon Tetrachloride	ND	6.3	1.3
1,2-Dichloroethane	ND	6.3	1.3
Benzene	190	6.3	1.3
Trichloroethene	ND	6.3	1.5
1,2-Dichloropropane	ND	6.3	1.3
Bromodichloromethane	ND	6.3	1.3
Dibromomethane	ND	6.3	1.3
4-Methyl-2-Pentanone	ND	130	1.3
cis-1,3-Dichloropropene	ND	6.3	1.3
Toluene	24	6.3	1.3
trans-1,3-Dichloropropene	ND	6.3	1.3
1,1,2-Trichloroethane	ND	6.3	1.3
2-Hexanone	ND	130	2.2
1,3-Dichloropropane	ND	6.3	1.3
Tetrachloroethene	ND	6.3	1.3
Dibromochloromethane	ND	6.3	1.3
1,2-Dibromoethane	ND	6.3	1.3
Chlorobenzene	ND	6.3	1.3
1,1,1,2-Tetrachloroethane	ND	6.3	1.4
Ethylbenzene	260	6.3	1.3
m,p-Xylenes	29	6.3	1.7
o-Xylene	50	6.3	1.7
Styrene	ND	6.3	1.3
Bromoform	ND	13	1.8
Isopropylbenzene	27	6.3	1.3
1,1,2,2-Tetrachloroethane	ND	6.3	1.3
1,2,3-Trichloropropane	ND	6.3	1.4
Propylbenzene	67	6.3	1.3
Bromobenzene	ND	6.3	1.3

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	MW-04	Batch#:	250220
Lab ID:	290750-004	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Analyzed:	07/31/17
Diln Fac:	12.50		

Analyte	Result	RL	MDL
1,3,5-Trimethylbenzene	40	6.3	1.6
2-Chlorotoluene	ND	6.3	1.9
4-Chlorotoluene	ND	6.3	1.3
tert-Butylbenzene	ND	6.3	1.5
1,2,4-Trimethylbenzene	150	6.3	1.6
sec-Butylbenzene	5.6 J	6.3	1.3
para-Isopropyl Toluene	ND	6.3	1.3
1,3-Dichlorobenzene	ND	6.3	1.8
1,4-Dichlorobenzene	ND	6.3	1.4
n-Butylbenzene	ND	6.3	1.3
1,2-Dichlorobenzene	ND	6.3	1.3
1,2-Dibromo-3-Chloropropane	ND	25	4.1
1,2,4-Trichlorobenzene	ND	6.3	1.6
Hexachlorobutadiene	ND	25	3.1
Naphthalene	39	25	3.1
1,2,3-Trichlorobenzene	ND	6.3	1.6

Surrogate	%REC	Limits
Dibromofluoromethane	95	80-120
1,2-Dichloroethane-d4	116	73-136
Toluene-d8	99	80-120
Bromofluorobenzene	95	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	MW-03	Batch#:	250220
Lab ID:	290750-005	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Analyzed:	07/31/17
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Gasoline C7-C12	7.7 J	50	4.0
Freon 12	ND	1.0	0.2
Chloromethane	0.9 J	1.0	0.1
Vinyl Chloride	ND	0.5	0.2
Bromomethane	2.8 b	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.1
Acetone	31	10	3.3
Freon 113	ND	2.0	0.2
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	10	0.1
Carbon Disulfide	ND	0.5	0.1
MTBE	78	0.5	0.1
trans-1,2-Dichloroethene	ND	0.5	0.1
Vinyl Acetate	ND	10	0.3
1,1-Dichloroethane	ND	0.5	0.1
2-Butanone	3.4 J	10	1.0
cis-1,2-Dichloroethene	ND	0.5	0.1
2,2-Dichloropropane	ND	0.5	0.1
Chloroform	0.4 J	0.5	0.1
Bromochloromethane	ND	0.5	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
1,1-Dichloropropene	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Benzene	0.2 J	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
Dibromomethane	ND	0.5	0.1
4-Methyl-2-Pentanone	ND	10	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
Toluene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
2-Hexanone	ND	10	0.2
1,3-Dichloropropane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
1,2-Dibromoethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
1,1,1,2-Tetrachloroethane	ND	0.5	0.1
Ethylbenzene	ND	0.5	0.1
m,p-Xylenes	ND	0.5	0.1
o-Xylene	ND	0.5	0.1
Styrene	ND	0.5	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	0.5	0.1
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,2,3-Trichloropropane	ND	0.5	0.1
Propylbenzene	ND	0.5	0.1

J= Estimated value
b= See narrative
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	MW-03	Batch#:	250220
Lab ID:	290750-005	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Analyzed:	07/31/17
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Bromobenzene	ND	0.5	0.1
1,3,5-Trimethylbenzene	ND	0.5	0.1
2-Chlorotoluene	ND	0.5	0.1
4-Chlorotoluene	ND	0.5	0.1
tert-Butylbenzene	ND	0.5	0.1
1,2,4-Trimethylbenzene	ND	0.5	0.1
sec-Butylbenzene	ND	0.5	0.1
para-Isopropyl Toluene	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
n-Butylbenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1
1,2-Dibromo-3-Chloropropane	ND	2.0	0.3
1,2,4-Trichlorobenzene	ND	0.5	0.1
Hexachlorobutadiene	ND	2.0	0.3
Naphthalene	ND	2.0	0.3
1,2,3-Trichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-120
1,2-Dichloroethane-d4	111	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	100	80-120

J= Estimated value
b= See narrative
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	MW-05	Dil'n Fac:	1.000
Lab ID:	290750-006	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
Gasoline C7-C12	ND	50	4.0	250016	07/25/17
Freon 12	ND	1.0	0.2	250016	07/25/17
Chloromethane	ND	1.0	0.1	250016	07/25/17
Vinyl Chloride	ND	0.5	0.2	250016	07/25/17
Bromomethane	ND	1.0	0.1	250063	07/26/17
Chloroethane	ND	1.0	0.2	250016	07/25/17
Trichlorofluoromethane	ND	1.0	0.1	250016	07/25/17
Acetone	ND	10	3.3	250016	07/25/17
Freon 113	ND	2.0	0.2	250016	07/25/17
1,1-Dichloroethene	ND	0.5	0.1	250016	07/25/17
Methylene Chloride	ND	10	0.1	250016	07/25/17
Carbon Disulfide	ND	0.5	0.1	250016	07/25/17
MTBE	1.4	0.5	0.1	250016	07/25/17
trans-1,2-Dichloroethene	ND	0.5	0.1	250016	07/25/17
Vinyl Acetate	ND	10	0.3	250016	07/25/17
1,1-Dichloroethane	ND	0.5	0.1	250016	07/25/17
2-Butanone	ND	10	1.0	250016	07/25/17
cis-1,2-Dichloroethene	ND	0.5	0.1	250016	07/25/17
2,2-Dichloropropane	ND	0.5	0.1	250016	07/25/17
Chloroform	ND	0.5	0.1	250016	07/25/17
Bromochloromethane	ND	0.5	0.1	250016	07/25/17
1,1,1-Trichloroethane	ND	0.5	0.1	250016	07/25/17
1,1-Dichloropropene	ND	0.5	0.1	250016	07/25/17
Carbon Tetrachloride	ND	0.5	0.1	250016	07/25/17
1,2-Dichloroethane	0.8	0.5	0.1	250016	07/25/17
Benzene	ND	0.5	0.1	250016	07/25/17
Trichloroethene	0.2 J	0.5	0.1	250016	07/25/17
1,2-Dichloropropane	ND	0.5	0.1	250016	07/25/17
Bromodichloromethane	ND	0.5	0.1	250016	07/25/17
Dibromomethane	ND	0.5	0.1	250016	07/25/17
4-Methyl-2-Pentanone	ND	10	0.1	250016	07/25/17
cis-1,3-Dichloropropene	ND	0.5	0.1	250016	07/25/17
Toluene	ND	0.5	0.1	250016	07/25/17
trans-1,3-Dichloropropene	ND	0.5	0.1	250016	07/25/17
1,1,2-Trichloroethane	ND	0.5	0.1	250016	07/25/17
2-Hexanone	ND	10	0.2	250016	07/25/17
1,3-Dichloropropane	ND	0.5	0.1	250016	07/25/17
Tetrachloroethene	0.4 J	0.5	0.1	250016	07/25/17
Dibromochloromethane	ND	0.5	0.1	250016	07/25/17
1,2-Dibromoethane	ND	0.5	0.1	250016	07/25/17
Chlorobenzene	ND	0.5	0.1	250016	07/25/17
1,1,1,2-Tetrachloroethane	ND	0.5	0.1	250016	07/25/17
Ethylbenzene	ND	0.5	0.1	250016	07/25/17
m,p-Xylenes	ND	0.5	0.1	250016	07/25/17
o-Xylene	ND	0.5	0.1	250016	07/25/17
Styrene	ND	0.5	0.1	250016	07/25/17
Bromoform	ND	1.0	0.1	250016	07/25/17
Isopropylbenzene	ND	0.5	0.1	250016	07/25/17
1,1,2,2-Tetrachloroethane	ND	0.5	0.1	250016	07/25/17
1,2,3-Trichloropropane	ND	0.5	0.1	250016	07/25/17
Propylbenzene	ND	0.5	0.1	250016	07/25/17
Bromobenzene	ND	0.5	0.1	250016	07/25/17
1,3,5-Trimethylbenzene	ND	0.5	0.1	250016	07/25/17

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	MW-05	Dil'n Fac:	1.000
Lab ID:	290750-006	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
2-Chlorotoluene	ND	0.5	0.1	250016	07/25/17
4-Chlorotoluene	ND	0.5	0.1	250016	07/25/17
tert-Butylbenzene	ND	0.5	0.1	250016	07/25/17
1,2,4-Trimethylbenzene	ND	0.5	0.1	250016	07/25/17
sec-Butylbenzene	ND	0.5	0.1	250016	07/25/17
para-Isopropyl Toluene	ND	0.5	0.1	250016	07/25/17
1,3-Dichlorobenzene	ND	0.5	0.1	250016	07/25/17
1,4-Dichlorobenzene	ND	0.5	0.1	250016	07/25/17
n-Butylbenzene	ND	0.5	0.1	250016	07/25/17
1,2-Dichlorobenzene	ND	0.5	0.1	250016	07/25/17
1,2-Dibromo-3-Chloropropane	ND	2.0	0.3	250016	07/25/17
1,2,4-Trichlorobenzene	ND	0.5	0.1	250016	07/25/17
Hexachlorobutadiene	ND	2.0	0.3	250016	07/25/17
Naphthalene	ND	2.0	0.3	250016	07/25/17
1,2,3-Trichlorobenzene	ND	0.5	0.1	250016	07/25/17

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	99	80-120	250016	07/25/17
1,2-Dichloroethane-d4	120	73-136	250016	07/25/17
Toluene-d8	99	80-120	250016	07/25/17
Bromofluorobenzene	104	80-120	250016	07/25/17

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	TB-071917	Diln Fac:	1.000
Lab ID:	290750-010	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
Gasoline C7-C12	ND	50	4.0	250016	07/25/17
Freon 12	ND	1.0	0.2	250016	07/25/17
Chloromethane	ND	1.0	0.1	250016	07/25/17
Vinyl Chloride	ND	0.5	0.2	250016	07/25/17
Bromomethane	ND	1.0	0.1	250063	07/26/17
Chloroethane	ND	1.0	0.2	250016	07/25/17
Trichlorofluoromethane	ND	1.0	0.1	250016	07/25/17
Acetone	ND	10	3.3	250016	07/25/17
Freon 113	ND	2.0	0.2	250016	07/25/17
1,1-Dichloroethene	ND	0.5	0.1	250016	07/25/17
Methylene Chloride	ND	10	0.1	250016	07/25/17
Carbon Disulfide	ND	0.5	0.1	250016	07/25/17
MTBE	ND	0.5	0.1	250016	07/25/17
trans-1,2-Dichloroethene	ND	0.5	0.1	250016	07/25/17
Vinyl Acetate	ND	10	0.3	250016	07/25/17
1,1-Dichloroethane	ND	0.5	0.1	250016	07/25/17
2-Butanone	ND	10	1.0	250016	07/25/17
cis-1,2-Dichloroethene	ND	0.5	0.1	250016	07/25/17
2,2-Dichloropropane	ND	0.5	0.1	250016	07/25/17
Chloroform	ND	0.5	0.1	250016	07/25/17
Bromochloromethane	ND	0.5	0.1	250016	07/25/17
1,1,1-Trichloroethane	ND	0.5	0.1	250016	07/25/17
1,1-Dichloropropene	ND	0.5	0.1	250016	07/25/17
Carbon Tetrachloride	ND	0.5	0.1	250016	07/25/17
1,2-Dichloroethane	ND	0.5	0.1	250016	07/25/17
Benzene	ND	0.5	0.1	250016	07/25/17
Trichloroethene	ND	0.5	0.1	250016	07/25/17
1,2-Dichloropropane	ND	0.5	0.1	250016	07/25/17
Bromodichloromethane	ND	0.5	0.1	250016	07/25/17
Dibromomethane	ND	0.5	0.1	250016	07/25/17
4-Methyl-2-Pentanone	ND	10	0.1	250016	07/25/17
cis-1,3-Dichloropropene	ND	0.5	0.1	250016	07/25/17
Toluene	ND	0.5	0.1	250016	07/25/17
trans-1,3-Dichloropropene	ND	0.5	0.1	250016	07/25/17
1,1,2-Trichloroethane	ND	0.5	0.1	250016	07/25/17
2-Hexanone	ND	10	0.2	250016	07/25/17
1,3-Dichloropropane	ND	0.5	0.1	250016	07/25/17

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	TB-071917	Diln Fac:	1.000
Lab ID:	290750-010	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
Tetrachloroethene	ND	0.5	0.1	250016	07/25/17
Dibromochloromethane	ND	0.5	0.1	250016	07/25/17
1,2-Dibromoethane	ND	0.5	0.1	250016	07/25/17
Chlorobenzene	ND	0.5	0.1	250016	07/25/17
1,1,1,2-Tetrachloroethane	ND	0.5	0.1	250016	07/25/17
Ethylbenzene	ND	0.5	0.1	250016	07/25/17
m,p-Xylenes	ND	0.5	0.1	250016	07/25/17
o-Xylene	ND	0.5	0.1	250016	07/25/17
Styrene	ND	0.5	0.1	250016	07/25/17
Bromoform	ND	1.0	0.1	250016	07/25/17
Isopropylbenzene	ND	0.5	0.1	250016	07/25/17
1,1,2,2-Tetrachloroethane	ND	0.5	0.1	250016	07/25/17
1,2,3-Trichloropropane	ND	0.5	0.1	250016	07/25/17
Propylbenzene	ND	0.5	0.1	250016	07/25/17
Bromobenzene	ND	0.5	0.1	250016	07/25/17
1,3,5-Trimethylbenzene	ND	0.5	0.1	250016	07/25/17
2-Chlorotoluene	ND	0.5	0.1	250016	07/25/17
4-Chlorotoluene	ND	0.5	0.1	250016	07/25/17
tert-Butylbenzene	ND	0.5	0.1	250016	07/25/17
1,2,4-Trimethylbenzene	ND	0.5	0.1	250016	07/25/17
sec-Butylbenzene	ND	0.5	0.1	250016	07/25/17
para-Isopropyl Toluene	ND	0.5	0.1	250016	07/25/17
1,3-Dichlorobenzene	ND	0.5	0.1	250016	07/25/17
1,4-Dichlorobenzene	ND	0.5	0.1	250016	07/25/17
n-Butylbenzene	ND	0.5	0.1	250016	07/25/17
1,2-Dichlorobenzene	ND	0.5	0.1	250016	07/25/17
1,2-Dibromo-3-Chloropropane	ND	2.0	0.3	250016	07/25/17
1,2,4-Trichlorobenzene	ND	0.5	0.1	250016	07/25/17
Hexachlorobutadiene	ND	2.0	0.3	250016	07/25/17
Naphthalene	ND	2.0	0.3	250016	07/25/17
1,2,3-Trichlorobenzene	ND	0.5	0.1	250016	07/25/17

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	106	80-120	250016	07/25/17
1,2-Dichloroethane-d4	115	73-136	250016	07/25/17
Toluene-d8	101	80-120	250016	07/25/17
Bromofluorobenzene	104	80-120	250016	07/25/17

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	250016
Units:	ug/L	Analyzed:	07/25/17
Diln Fac:	1.000		

Type: BS Lab ID: QC894482

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	15.00	16.15	108	66-127
Benzene	15.00	15.30	102	78-123
Trichloroethene	15.00	15.73	105	75-120
Toluene	15.00	15.81	105	80-120
Chlorobenzene	15.00	14.95	100	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	110	80-120
1,2-Dichloroethane-d4	128	73-136
Toluene-d8	99	80-120
Bromofluorobenzene	97	80-120

Type: BSD Lab ID: QC894483

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	15.00	16.47	110	66-127	2	20
Benzene	15.00	15.55	104	78-123	2	20
Trichloroethene	15.00	16.31	109	75-120	4	20
Toluene	15.00	16.32	109	80-120	3	20
Chlorobenzene	15.00	15.36	102	80-120	3	20

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-120
1,2-Dichloroethane-d4	116	73-136
Toluene-d8	100	80-120
Bromofluorobenzene	101	80-120

RPD= Relative Percent Difference

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	250016
Units:	ug/L	Analyzed:	07/25/17
Diln Fac:	1.000		

Type: BS Lab ID: QC894484

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	500.0	485.4	97	70-130

Surrogate	%REC	Limits
Dibromofluoromethane	103	80-120
1,2-Dichloroethane-d4	116	73-136
Toluene-d8	98	80-120
Bromofluorobenzene	100	80-120

Type: BSD Lab ID: QC894485

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	500.0	496.1	99	70-130	2	20

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-120
1,2-Dichloroethane-d4	113	73-136
Toluene-d8	99	80-120
Bromofluorobenzene	102	80-120

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894486	Batch#:	250016
Matrix:	Water	Analyzed:	07/25/17
Units:	ug/L		

Analyte	Result	RL	MDL
Gasoline C7-C12	ND	50	4.0
Freon 12	ND	1.0	0.2
Chloromethane	ND	1.0	0.1
Vinyl Chloride	ND	0.5	0.2
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.1
Acetone	ND	10	3.3
Freon 113	ND	2.0	0.2
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	10	0.1
Carbon Disulfide	ND	0.5	0.1
MTBE	ND	0.5	0.1
trans-1,2-Dichloroethene	ND	0.5	0.1
Vinyl Acetate	ND	10	0.3
1,1-Dichloroethane	ND	0.5	0.1
2-Butanone	ND	10	1.0
cis-1,2-Dichloroethene	ND	0.5	0.1
2,2-Dichloropropane	ND	0.5	0.1
Chloroform	ND	0.5	0.1
Bromochloromethane	ND	0.5	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
1,1-Dichloropropene	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Benzene	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
Dibromomethane	ND	0.5	0.1
4-Methyl-2-Pentanone	ND	10	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
Toluene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
2-Hexanone	ND	10	0.2
1,3-Dichloropropane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
1,2-Dibromoethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
1,1,1,2-Tetrachloroethane	ND	0.5	0.1
Ethylbenzene	ND	0.5	0.1
m,p-Xylenes	ND	0.5	0.1
o-Xylene	ND	0.5	0.1
Styrene	ND	0.5	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	0.5	0.1
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,2,3-Trichloropropane	ND	0.5	0.1
Propylbenzene	ND	0.5	0.1
Bromobenzene	ND	0.5	0.1
1,3,5-Trimethylbenzene	ND	0.5	0.1

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894486	Batch#:	250016
Matrix:	Water	Analyzed:	07/25/17
Units:	ug/L		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	0.5	0.1
4-Chlorotoluene	ND	0.5	0.1
tert-Butylbenzene	ND	0.5	0.1
1,2,4-Trimethylbenzene	ND	0.5	0.1
sec-Butylbenzene	ND	0.5	0.1
para-Isopropyl Toluene	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
n-Butylbenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1
1,2-Dibromo-3-Chloropropane	ND	2.0	0.3
1,2,4-Trichlorobenzene	ND	0.5	0.1
Hexachlorobutadiene	ND	2.0	0.3
Naphthalene	ND	2.0	0.3
1,2,3-Trichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
Dibromofluoromethane	105	80-120
1,2-Dichloroethane-d4	112	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	108	80-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	250063
Units:	ug/L	Analyzed:	07/26/17
Diln Fac:	1.000		

Type: BS Lab ID: QC894652

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	12.50	13.83 b	111	66-127
Benzene	12.50	13.45	108	78-123
Trichloroethene	12.50	13.14	105	75-120
Toluene	12.50	12.08	97	80-120
Chlorobenzene	12.50	12.40	99	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	112	80-120
1,2-Dichloroethane-d4	90	73-136
Toluene-d8	89	80-120
Bromofluorobenzene	93	80-120

Type: BSD Lab ID: QC894653

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	12.50	19.09 b	153 *	66-127	32 *	20
Benzene	12.50	12.91	103	78-123	4	20
Trichloroethene	12.50	13.56	108	75-120	3	20
Toluene	12.50	10.95	88	80-120	10	20
Chlorobenzene	12.50	11.25	90	80-120	10	20

Surrogate	%REC	Limits
Dibromofluoromethane	113	80-120
1,2-Dichloroethane-d4	96	73-136
Toluene-d8	89	80-120
Bromofluorobenzene	92	80-120

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894654	Batch#:	250063
Matrix:	Water	Analyzed:	07/26/17
Units:	ug/L		

Analyte	Result	RL	MDL
Gasoline C7-C12	NA		
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.1
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.1
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.1
Acetone	ND	10	3.3
Freon 113	ND	2.0	0.1
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	10	0.1
Carbon Disulfide	ND	0.5	0.1
MTBE	ND	0.5	0.1
trans-1,2-Dichloroethene	ND	0.5	0.1
Vinyl Acetate	ND	10	0.9
1,1-Dichloroethane	ND	0.5	0.1
2-Butanone	ND	10	0.6
cis-1,2-Dichloroethene	ND	0.5	0.1
2,2-Dichloropropane	ND	0.5	0.1
Chloroform	ND	0.5	0.1
Bromochloromethane	ND	0.5	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
1,1-Dichloropropene	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Benzene	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
Dibromomethane	ND	0.5	0.1
4-Methyl-2-Pentanone	ND	10	0.4
cis-1,3-Dichloropropene	ND	0.5	0.1
Toluene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
2-Hexanone	ND	10	0.4
1,3-Dichloropropane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
1,2-Dibromoethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
1,1,1,2-Tetrachloroethane	ND	0.5	0.1
Ethylbenzene	ND	0.5	0.1
m,p-Xylenes	ND	0.5	0.1
o-Xylene	ND	0.5	0.1
Styrene	ND	0.5	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	0.5	0.1
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,2,3-Trichloropropane	ND	0.5	0.1
Propylbenzene	ND	0.5	0.1

J= Estimated value
NA= Not Analyzed
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894654	Batch#:	250063
Matrix:	Water	Analyzed:	07/26/17
Units:	ug/L		

Analyte	Result	RL	MDL
Bromobenzene	ND	0.5	0.1
1,3,5-Trimethylbenzene	ND	0.5	0.1
2-Chlorotoluene	ND	0.5	0.1
4-Chlorotoluene	ND	0.5	0.1
tert-Butylbenzene	ND	0.5	0.1
1,2,4-Trimethylbenzene	ND	0.5	0.1
sec-Butylbenzene	ND	0.5	0.1
para-Isopropyl Toluene	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
n-Butylbenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1
1,2-Dibromo-3-Chloropropane	ND	2.0	0.3
1,2,4-Trichlorobenzene	ND	0.5	0.1
Hexachlorobutadiene	ND	2.0	0.1
Naphthalene	0.1 J	2.0	0.1
1,2,3-Trichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
Dibromofluoromethane	115	80-120
1,2-Dichloroethane-d4	94	73-136
Toluene-d8	92	80-120
Bromofluorobenzene	94	80-120

J= Estimated value
NA= Not Analyzed
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	250220
Units:	ug/L	Analyzed:	07/31/17
Diln Fac:	1.000		

Type: BS Lab ID: QC895251

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	12.50	12.93	103	66-127
Benzene	12.50	12.47	100	78-123
Trichloroethene	12.50	13.35	107	75-120
Toluene	12.50	13.13	105	80-120
Chlorobenzene	12.50	12.49	100	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	106	80-120
1,2-Dichloroethane-d4	125	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	97	80-120

Type: BSD Lab ID: QC895252

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	12.50	11.90	95	66-127	8	20
Benzene	12.50	12.12	97	78-123	3	20
Trichloroethene	12.50	12.37	99	75-120	8	20
Toluene	12.50	12.37	99	80-120	6	20
Chlorobenzene	12.50	12.12	97	80-120	3	20

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-120
1,2-Dichloroethane-d4	120	73-136
Toluene-d8	98	80-120
Bromofluorobenzene	100	80-120

RPD= Relative Percent Difference

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	250220
Units:	ug/L	Analyzed:	07/31/17
Diln Fac:	1.000		

Type: BS Lab ID: QC895253

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	500.0	478.9	96	70-130

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-120
1,2-Dichloroethane-d4	112	73-136
Toluene-d8	99	80-120
Bromofluorobenzene	101	80-120

Type: BSD Lab ID: QC895254

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	500.0	489.3	98	70-130	2	20

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-120
1,2-Dichloroethane-d4	111	73-136
Toluene-d8	99	80-120
Bromofluorobenzene	98	80-120

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC895255	Batch#:	250220
Matrix:	Water	Analyzed:	07/31/17
Units:	ug/L		

Analyte	Result	RL	MDL
Gasoline C7-C12	ND	50	4.0
Freon 12	ND	1.0	0.2
Chloromethane	ND	1.0	0.1
Vinyl Chloride	ND	0.5	0.2
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.1
Acetone	ND	10	3.3
Freon 113	ND	2.0	0.2
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	10	0.1
Carbon Disulfide	ND	0.5	0.1
MTBE	ND	0.5	0.1
trans-1,2-Dichloroethene	ND	0.5	0.1
Vinyl Acetate	ND	10	0.3
1,1-Dichloroethane	ND	0.5	0.1
2-Butanone	ND	10	1.0
cis-1,2-Dichloroethene	ND	0.5	0.1
2,2-Dichloropropane	ND	0.5	0.1
Chloroform	ND	0.5	0.1
Bromochloromethane	ND	0.5	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
1,1-Dichloropropene	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Benzene	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
Dibromomethane	ND	0.5	0.1
4-Methyl-2-Pentanone	ND	10	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
Toluene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
2-Hexanone	ND	10	0.2
1,3-Dichloropropane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
1,2-Dibromoethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
1,1,1,2-Tetrachloroethane	ND	0.5	0.1
Ethylbenzene	ND	0.5	0.1
m,p-Xylenes	0.2 J	0.5	0.1
o-Xylene	ND	0.5	0.1
Styrene	ND	0.5	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	0.5	0.1
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,2,3-Trichloropropane	ND	0.5	0.1
Propylbenzene	ND	0.5	0.1
Bromobenzene	ND	0.5	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC895255	Batch#:	250220
Matrix:	Water	Analyzed:	07/31/17
Units:	ug/L		

Analyte	Result	RL	MDL
1,3,5-Trimethylbenzene	ND	0.5	0.1
2-Chlorotoluene	ND	0.5	0.1
4-Chlorotoluene	ND	0.5	0.1
tert-Butylbenzene	ND	0.5	0.1
1,2,4-Trimethylbenzene	0.2 J	0.5	0.1
sec-Butylbenzene	ND	0.5	0.1
para-Isopropyl Toluene	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
n-Butylbenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1
1,2-Dibromo-3-Chloropropane	ND	2.0	0.3
1,2,4-Trichlorobenzene	ND	0.5	0.1
Hexachlorobutadiene	ND	2.0	0.3
Naphthalene	ND	2.0	0.3
1,2,3-Trichlorobenzene	ND	0.5	0.1

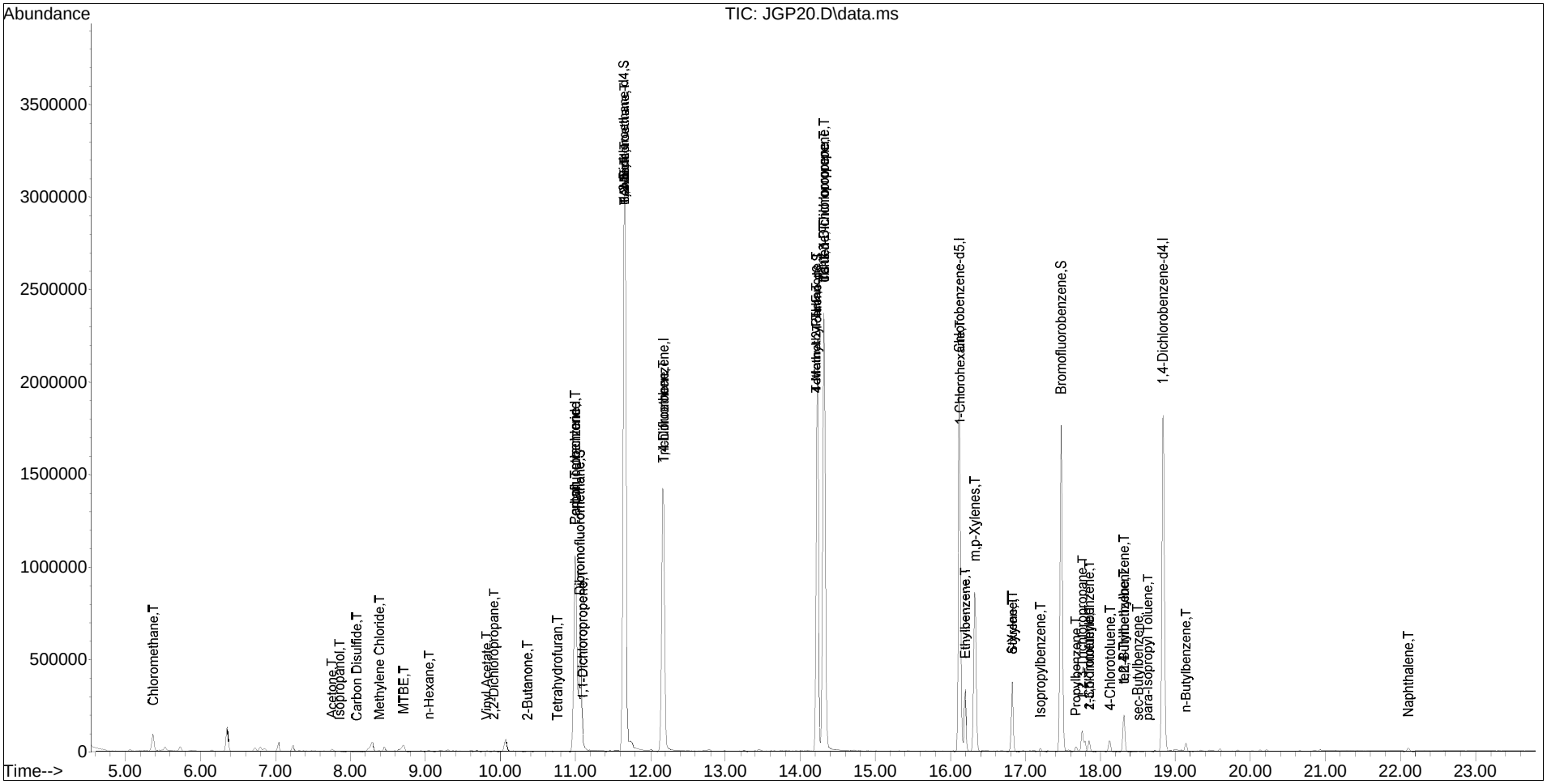
Surrogate	%REC	Limits
Dibromofluoromethane	94	80-120
1,2-Dichloroethane-d4	105	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	101	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Quantitation Report (QT Reviewed)

Data Path : G:\msvoa10\072517\
Data File : JGP20.D
Acq On : 25 Jul 2017 11:32 pm
Operator :
Sample : s,290750-002
Misc : 250016,1.5/50
ALS Vial : 21 Sample Multiplier: 1

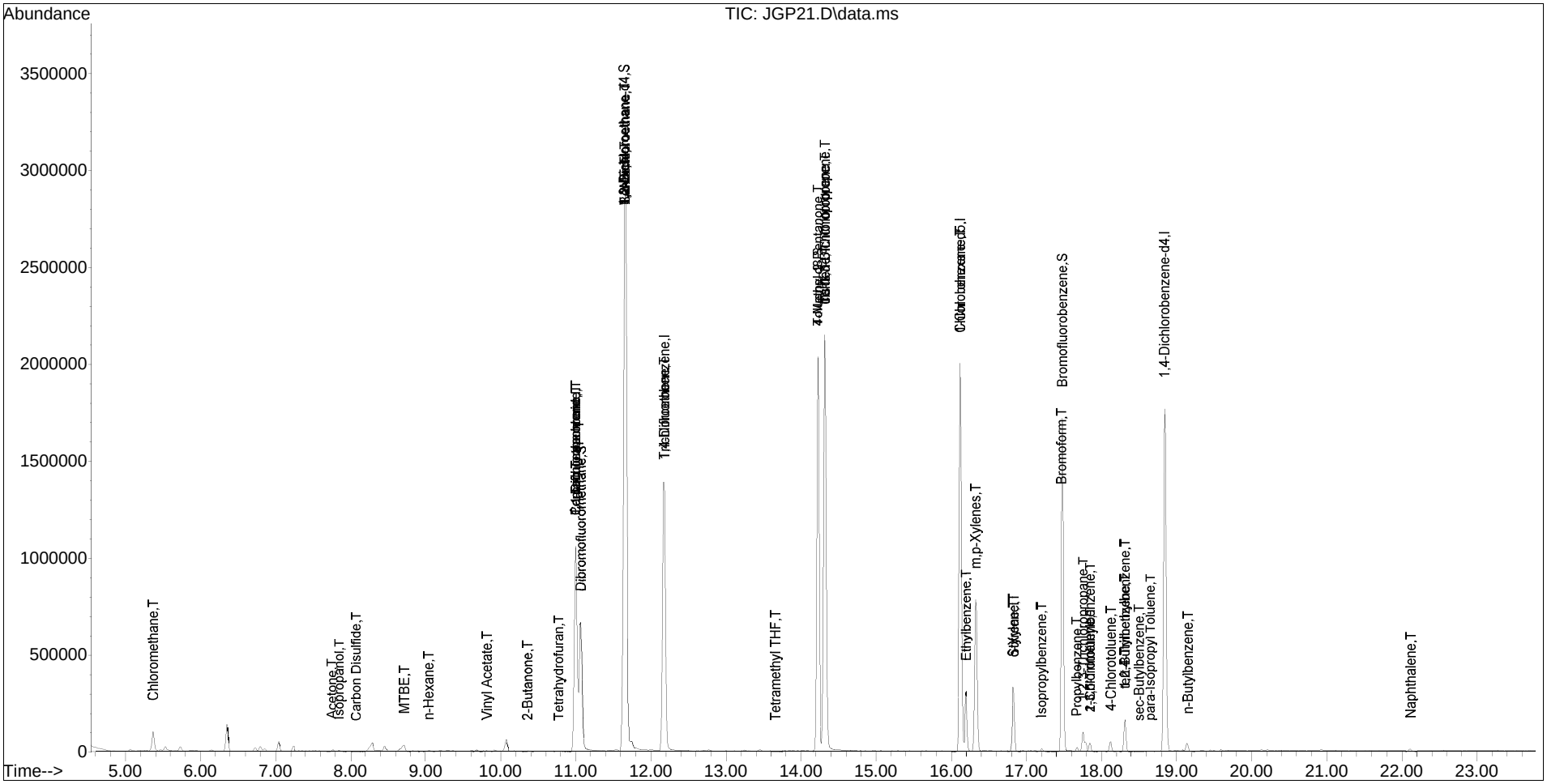
Quant Time: Aug 01 16:23:34 2017
Quant Method : G:\msvoa10\072517\8260X10W.M
Quant Title : MSVOA10 MSVOA WATER
QLast Update : Mon May 29 17:53:47 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msvoa10\072517\
Data File : JGP21.D
Acq On : 26 Jul 2017 12:11 am
Operator :
Sample : s,290750-003
Misc : 250016,1.5/50
ALS Vial : 22 Sample Multiplier: 1

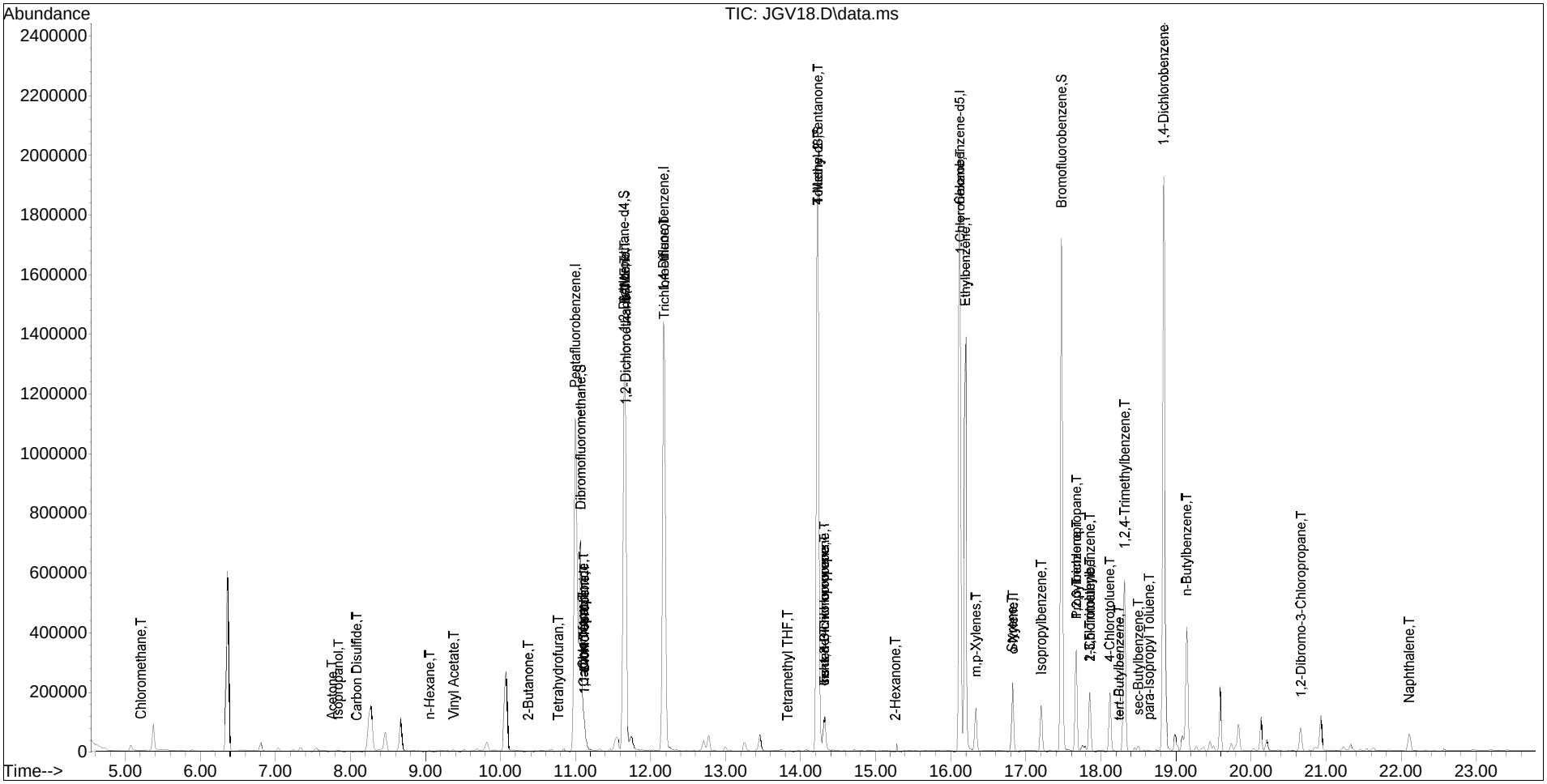
Quant Time: Aug 01 16:25:52 2017
Quant Method : G:\msvoa10\072517\8260X10W.M
Quant Title : MSVOA10 MSVOA WATER
QLast Update : Mon May 29 17:53:47 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msvoa10\073117\
Data File : JGV18.D
Acq On : 31 Jul 2017 10:31 pm
Operator :
Sample : s,290750-004
Misc : 250220,4/50
ALS Vial : 13 Sample Multiplier: 1

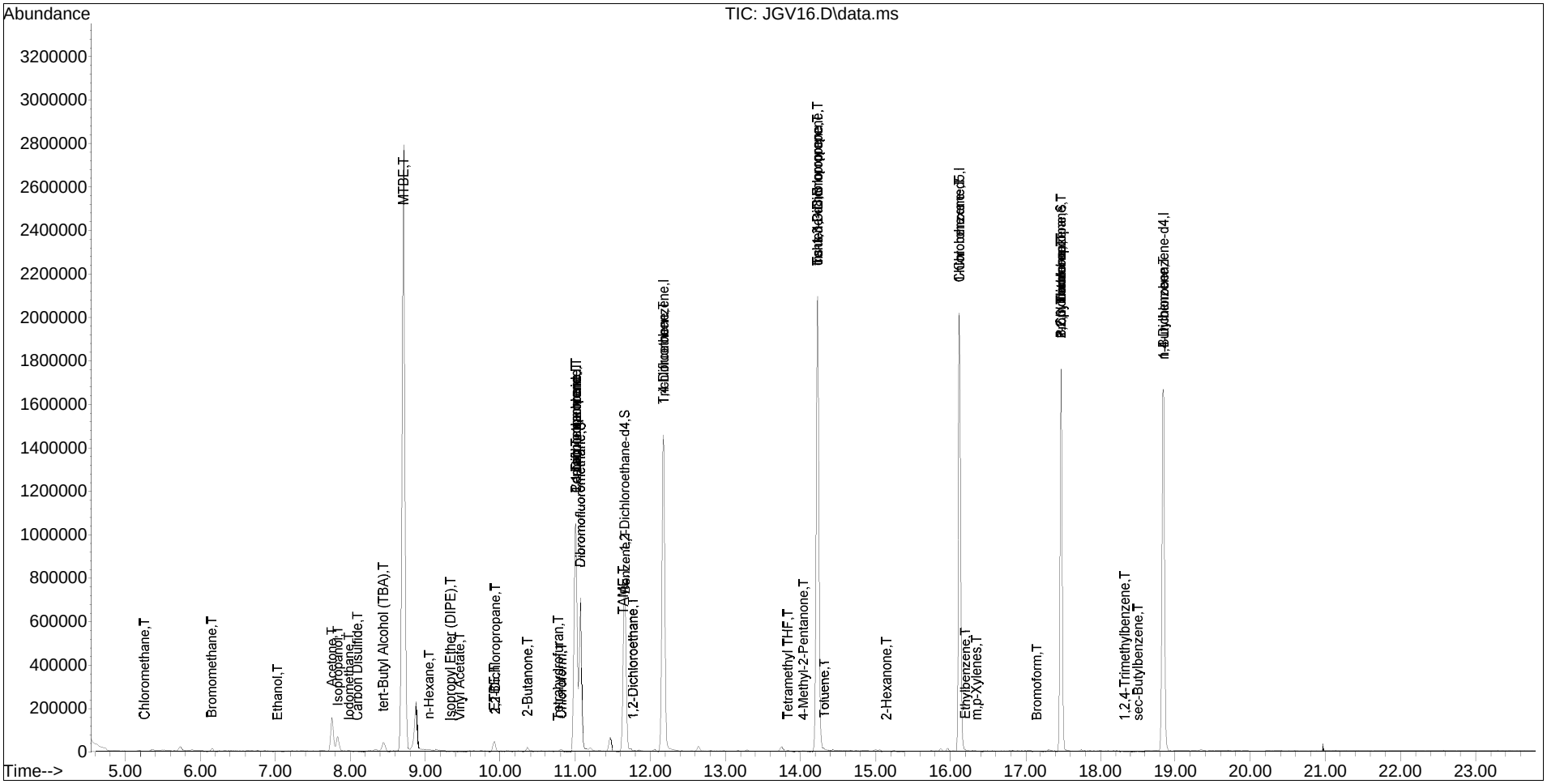
Quant Time: Aug 01 12:12:29 2017
Quant Method : C:\msdchem\1\METHODS\8260X10W.M
Quant Title : MSVOA10 MSVOA WATER
QLast Update : Mon May 29 17:53:47 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msvoa10\073117\
Data File : JGV16.D
Acq On : 31 Jul 2017 9:17 pm
Operator :
Sample : s,290750-005
Misc : 250220,1/1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 01 12:08:20 2017
Quant Method : C:\msdchem\1\METHODS\8260X10W.M
Quant Title : MSVOA10 MSVOA WATER
QLast Update : Mon May 29 17:53:47 2017
Response via : Initial Calibration



Data File: \\gcmsserver\DD\chem\MSVOA10.i\072517\JGP05TVH.D

Date : 25-JUL-2017 14:18

Client ID:

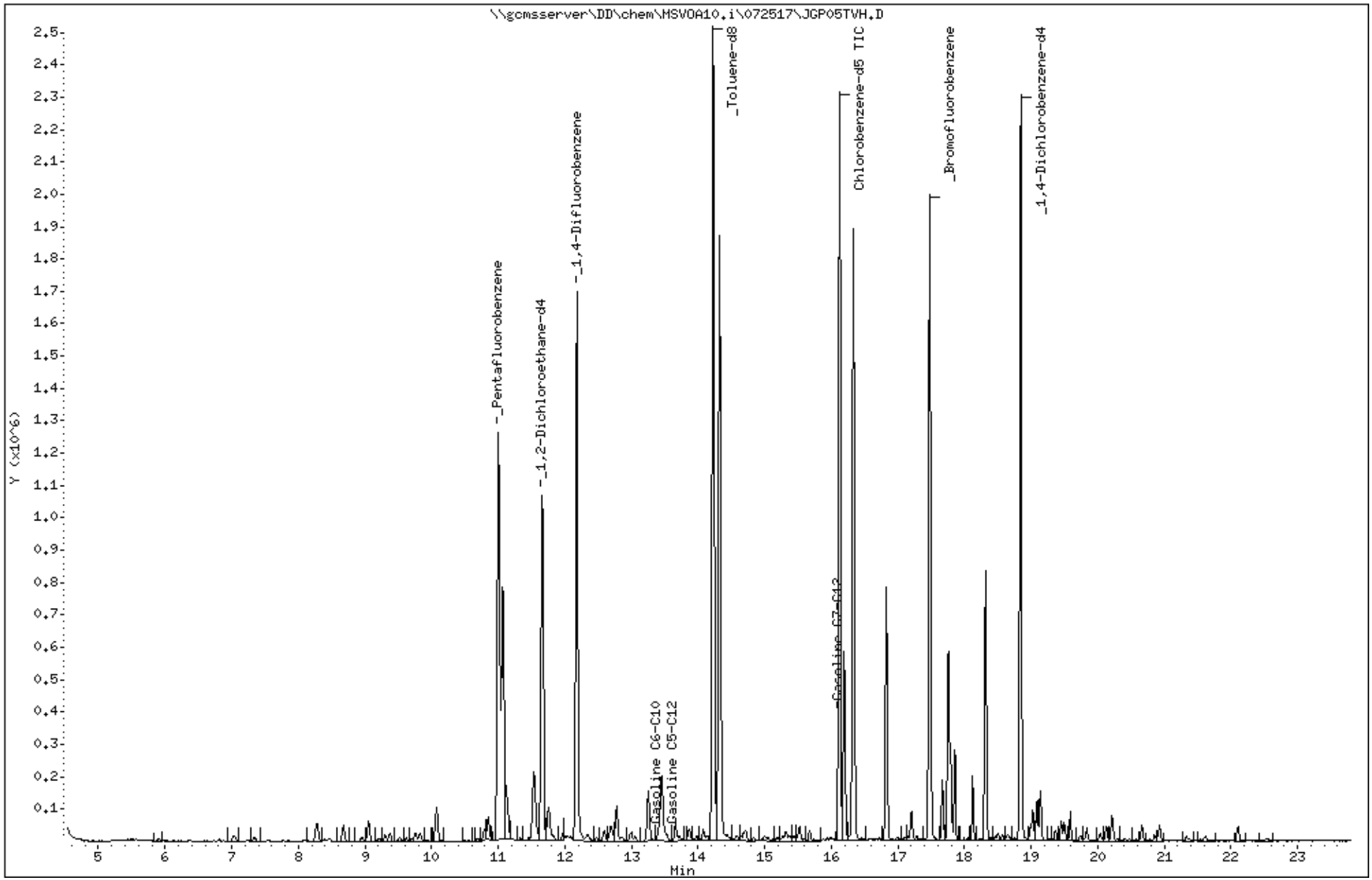
Instrument: MSVOA10.i

Sample Info: ccv/bs,qc894484,250016

Operator: VOC

Column phase:

Column diameter: 2.00



ENTHALPY ANALYTICAL

Semivolatile Organics by GC/MS

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Field ID:	MW-01	Batch#:	249976
Lab ID:	290750-001	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Prepared:	07/24/17
Diln Fac:	1.000	Analyzed:	07/25/17

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	9.4	1.4
Phenol	ND	9.4	0.96
bis(2-Chloroethyl)ether	ND	9.4	1.1
2-Chlorophenol	ND	9.4	0.77
1,3-Dichlorobenzene	ND	9.4	0.97
1,4-Dichlorobenzene	ND	9.4	0.99
Benzyl alcohol	ND	9.4	1.0
1,2-Dichlorobenzene	ND	9.4	2.0
2-Methylphenol	ND	9.4	2.0
bis(2-Chloroisopropyl) ether	ND	9.4	1.4
4-Methylphenol	ND	9.4	1.6
N-Nitroso-di-n-propylamine	ND	9.4	1.1
Hexachloroethane	ND	9.4	1.0
Nitrobenzene	ND	9.4	1.2
Isophorone	ND	9.4	1.2
2-Nitrophenol	ND	19	2.5
2,4-Dimethylphenol	ND	9.4	2.3
bis(2-Chloroethoxy)methane	ND	9.4	1.0
2,4-Dichlorophenol	ND	9.4	2.0
1,2,4-Trichlorobenzene	ND	9.4	2.1
Naphthalene	ND	9.4	1.8
4-Chloroaniline	ND	9.4	1.9
Hexachlorobutadiene	ND	9.4	2.3
4-Chloro-3-methylphenol	ND	9.4	0.99
2-Methylnaphthalene	ND	9.4	1.7
Hexachlorocyclopentadiene	ND	19	4.7
2,4,6-Trichlorophenol	ND	9.4	0.86
2,4,5-Trichlorophenol	ND	9.4	0.80
2-Chloronaphthalene	ND	9.4	1.7
2-Nitroaniline	ND	19	1.1
Dimethylphthalate	ND	9.4	1.9
Acenaphthylene	ND	9.4	1.6
2,6-Dinitrotoluene	ND	9.4	1.7
3-Nitroaniline	ND	19	1.8
Acenaphthene	ND	9.4	1.7
2,4-Dinitrophenol	ND	19	4.7
4-Nitrophenol	ND	19	4.7
Dibenzofuran	ND	9.4	1.8
2,4-Dinitrotoluene	ND	9.4	2.0
Diethylphthalate	ND	9.4	0.96
Fluorene	ND	9.4	1.7
4-Chlorophenyl-phenylether	ND	9.4	1.5
4-Nitroaniline	ND	19	2.3
4,6-Dinitro-2-methylphenol	ND	19	4.7
N-Nitrosodiphenylamine	ND	9.4	1.6
Azobenzene	ND	9.4	1.1
4-Bromophenyl-phenylether	ND	9.4	1.9
Hexachlorobenzene	ND	9.4	1.9
Pentachlorophenol	ND	19	1.8
Phenanthrene	ND	9.4	1.8
Anthracene	ND	9.4	1.7
Di-n-butylphthalate	ND	9.4	1.1
Fluoranthene	ND	9.4	1.8

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Semivolatile Organics by GC/MS

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Field ID:	MW-01	Batch#:	249976
Lab ID:	290750-001	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Prepared:	07/24/17
Diln Fac:	1.000	Analyzed:	07/25/17

Analyte	Result	RL	MDL
Pyrene	ND	9.4	1.6
Butylbenzylphthalate	ND	9.4	0.95
3,3'-Dichlorobenzidine	ND	19	0.99
Benzo(a)anthracene	ND	9.4	1.5
Chrysene	ND	9.4	1.6
bis(2-Ethylhexyl)phthalate	ND	9.4	1.7
Di-n-octylphthalate	ND	9.4	1.7
Benzo(b)fluoranthene	ND	9.4	1.6
Benzo(k)fluoranthene	ND	9.4	1.8
Benzo(a)pyrene	ND	9.4	1.5
Indeno(1,2,3-cd)pyrene	ND	9.4	1.7
Dibenz(a,h)anthracene	ND	9.4	1.7
Benzo(g,h,i)perylene	ND	9.4	1.8

Surrogate	%REC	Limits
2-Fluorophenol	58	38-120
Phenol-d5	59	36-120
2,4,6-Tribromophenol	52	41-120
Nitrobenzene-d5	65	44-120
2-Fluorobiphenyl	60	46-120
Terphenyl-d14	63	11-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Semivolatile Organics by GC/MS

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Field ID:	MW-02	Batch#:	249976
Lab ID:	290750-002	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Prepared:	07/24/17
Diln Fac:	4.000	Analyzed:	07/27/17

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	38	8.4
Phenol	5.0 J	38	3.0
bis(2-Chloroethyl)ether	ND	38	5.7
2-Chlorophenol	ND	38	3.4
1,3-Dichlorobenzene	ND	38	5.7
1,4-Dichlorobenzene	ND	38	5.8
Benzyl alcohol	ND	38	5.6
1,2-Dichlorobenzene	ND	38	5.7
2-Methylphenol	4.8 J	38	2.6
bis(2-Chloroisopropyl) ether	ND	38	5.8
4-Methylphenol	ND	38	4.4
N-Nitroso-di-n-propylamine	ND	38	4.9
Hexachloroethane	ND	38	5.5
Nitrobenzene	ND	38	4.8
Isophorone	ND	38	6.3
2-Nitrophenol	ND	75	7.7
2,4-Dimethylphenol	ND	38	2.6
bis(2-Chloroethoxy)methane	ND	38	5.1
2,4-Dichlorophenol	ND	38	3.0
1,2,4-Trichlorobenzene	ND	38	5.4
Naphthalene	29 J	38	5.1
4-Chloroaniline	ND	38	5.1
Hexachlorobutadiene	ND	38	5.3
4-Chloro-3-methylphenol	ND	38	5.8
2-Methylnaphthalene	7.0 J	38	5.0
Hexachlorocyclopentadiene	ND	75	7.5
2,4,6-Trichlorophenol	ND	38	3.6
2,4,5-Trichlorophenol	ND	38	4.2
2-Chloronaphthalene	ND	38	4.8
2-Nitroaniline	ND	75	6.0
Dimethylphthalate	ND	38	6.1
Acenaphthylene	ND	38	5.1
2,6-Dinitrotoluene	ND	38	6.4
3-Nitroaniline	ND	75	14
Acenaphthene	ND	38	5.3
2,4-Dinitrophenol	ND	75	19
4-Nitrophenol	ND	75	5.4
Dibenzofuran	ND	38	5.8
2,4-Dinitrotoluene	ND	38	5.2
Diethylphthalate	ND	38	5.8
Fluorene	ND	38	5.4
4-Chlorophenyl-phenylether	ND	38	5.1
4-Nitroaniline	ND	75	8.2
4,6-Dinitro-2-methylphenol	ND	75	6.1
N-Nitrosodiphenylamine	ND	38	4.8
Azobenzene	ND	38	5.1
4-Bromophenyl-phenylether	ND	38	5.0
Hexachlorobenzene	ND	38	5.1
Pentachlorophenol	ND	75	5.3
Phenanthrene	ND	38	5.2
Anthracene	ND	38	4.9
Di-n-butylphthalate	ND	38	5.0

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Semivolatile Organics by GC/MS

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Field ID:	MW-02	Batch#:	249976
Lab ID:	290750-002	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Prepared:	07/24/17
Diln Fac:	4.000	Analyzed:	07/27/17

Analyte	Result	RL	MDL
Fluoranthene	ND	38	5.3
Pyrene	ND	38	4.7
Butylbenzylphthalate	ND	38	4.7
3,3'-Dichlorobenzidine	ND	75	5.7
Benzo(a)anthracene	ND	38	5.0
Chrysene	ND	38	5.0
bis(2-Ethylhexyl)phthalate	ND	38	7.3
Di-n-octylphthalate	ND	38	5.4
Benzo(b)fluoranthene	ND	38	5.4
Benzo(k)fluoranthene	ND	38	5.7
Benzo(a)pyrene	ND	38	4.0
Indeno(1,2,3-cd)pyrene	ND	38	4.9
Dibenz(a,h)anthracene	ND	38	5.2
Benzo(g,h,i)perylene	ND	38	5.0

Surrogate	%REC	Limits
2-Fluorophenol	45	38-120
Phenol-d5	53	36-120
2,4,6-Tribromophenol	76	41-120
Nitrobenzene-d5	69	44-120
2-Fluorobiphenyl	64	46-120
Terphenyl-d14	57	11-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Semivolatile Organics by GC/MS

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Field ID:	MW-02-DUP	Batch#:	249976
Lab ID:	290750-003	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Prepared:	07/24/17
Diln Fac:	4.000	Analyzed:	07/27/17

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	38	8.4
Phenol	5.2 J	38	3.0
bis(2-Chloroethyl)ether	ND	38	5.7
2-Chlorophenol	ND	38	3.4
1,3-Dichlorobenzene	ND	38	5.7
1,4-Dichlorobenzene	ND	38	5.8
Benzyl alcohol	ND	38	5.6
1,2-Dichlorobenzene	ND	38	5.7
2-Methylphenol	5.4 J	38	2.6
bis(2-Chloroisopropyl) ether	ND	38	5.8
4-Methylphenol	4.5 J	38	4.4
N-Nitroso-di-n-propylamine	ND	38	4.9
Hexachloroethane	ND	38	5.5
Nitrobenzene	ND	38	4.8
Isophorone	ND	38	6.3
2-Nitrophenol	ND	75	7.7
2,4-Dimethylphenol	ND	38	2.6
bis(2-Chloroethoxy)methane	ND	38	5.1
2,4-Dichlorophenol	ND	38	3.0
1,2,4-Trichlorobenzene	ND	38	5.4
Naphthalene	34 J	38	5.1
4-Chloroaniline	ND	38	5.1
Hexachlorobutadiene	ND	38	5.3
4-Chloro-3-methylphenol	ND	38	5.8
2-Methylnaphthalene	8.4 J	38	5.0
Hexachlorocyclopentadiene	ND	75	7.5
2,4,6-Trichlorophenol	ND	38	3.6
2,4,5-Trichlorophenol	ND	38	4.2
2-Chloronaphthalene	ND	38	4.8
2-Nitroaniline	ND	75	6.0
Dimethylphthalate	ND	38	6.1
Acenaphthylene	ND	38	5.1
2,6-Dinitrotoluene	ND	38	6.4
3-Nitroaniline	ND	75	14
Acenaphthene	ND	38	5.3
2,4-Dinitrophenol	ND	75	19
4-Nitrophenol	ND	75	5.4
Dibenzofuran	ND	38	5.8
2,4-Dinitrotoluene	ND	38	5.2
Diethylphthalate	ND	38	5.8
Fluorene	ND	38	5.4
4-Chlorophenyl-phenylether	ND	38	5.1
4-Nitroaniline	ND	75	8.2
4,6-Dinitro-2-methylphenol	ND	75	6.1
N-Nitrosodiphenylamine	ND	38	4.8
Azobenzene	ND	38	5.1
4-Bromophenyl-phenylether	ND	38	5.0
Hexachlorobenzene	ND	38	5.1
Pentachlorophenol	ND	75	5.3
Phenanthrene	ND	38	5.2
Anthracene	ND	38	4.9
Di-n-butylphthalate	ND	38	5.0

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Semivolatile Organics by GC/MS

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Field ID:	MW-02-DUP	Batch#:	249976
Lab ID:	290750-003	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Prepared:	07/24/17
Diln Fac:	4.000	Analyzed:	07/27/17

Analyte	Result	RL	MDL
Fluoranthene	ND	38	5.3
Pyrene	ND	38	4.7
Butylbenzylphthalate	ND	38	4.7
3,3'-Dichlorobenzidine	ND	75	5.7
Benzo(a)anthracene	ND	38	5.0
Chrysene	ND	38	5.0
bis(2-Ethylhexyl)phthalate	ND	38	7.3
Di-n-octylphthalate	ND	38	5.4
Benzo(b)fluoranthene	ND	38	5.4
Benzo(k)fluoranthene	ND	38	5.7
Benzo(a)pyrene	ND	38	4.0
Indeno(1,2,3-cd)pyrene	ND	38	4.9
Dibenz(a,h)anthracene	ND	38	5.2
Benzo(g,h,i)perylene	ND	38	5.0

Surrogate	%REC	Limits
2-Fluorophenol	46	38-120
Phenol-d5	55	36-120
2,4,6-Tribromophenol	83	41-120
Nitrobenzene-d5	72	44-120
2-Fluorobiphenyl	68	46-120
Terphenyl-d14	58	11-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Semivolatile Organics by GC/MS

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Field ID:	MW-04	Batch#:	249976
Lab ID:	290750-004	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Prepared:	07/24/17
Diln Fac:	1.000	Analyzed:	07/26/17

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	9.4	1.4
Phenol	2.9 J	9.4	0.96
bis(2-Chloroethyl)ether	ND	9.4	1.1
2-Chlorophenol	ND	9.4	0.77
1,3-Dichlorobenzene	ND	9.4	0.97
1,4-Dichlorobenzene	ND	9.4	0.99
Benzyl alcohol	ND	9.4	1.0
1,2-Dichlorobenzene	ND	9.4	2.0
2-Methylphenol	ND	9.4	2.0
bis(2-Chloroisopropyl) ether	ND	9.4	1.4
4-Methylphenol	ND	9.4	1.6
N-Nitroso-di-n-propylamine	ND	9.4	1.1
Hexachloroethane	ND	9.4	1.0
Nitrobenzene	ND	9.4	1.2
Isophorone	ND	9.4	1.2
2-Nitrophenol	ND	19	2.5
2,4-Dimethylphenol	ND	9.4	2.3
bis(2-Chloroethoxy)methane	ND	9.4	1.0
2,4-Dichlorophenol	ND	9.4	2.0
1,2,4-Trichlorobenzene	ND	9.4	2.1
Naphthalene	27	9.4	1.8
4-Chloroaniline	ND	9.4	1.9
Hexachlorobutadiene	ND	9.4	2.3
4-Chloro-3-methylphenol	ND	9.4	0.99
2-Methylnaphthalene	12	9.4	1.7
Hexachlorocyclopentadiene	ND	19	4.7
2,4,6-Trichlorophenol	ND	9.4	0.86
2,4,5-Trichlorophenol	ND	9.4	0.80
2-Chloronaphthalene	ND	9.4	1.7
2-Nitroaniline	ND	19	1.1
Dimethylphthalate	ND	9.4	1.9
Acenaphthylene	ND	9.4	1.6
2,6-Dinitrotoluene	ND	9.4	1.7
3-Nitroaniline	ND	19	1.8
Acenaphthene	5.5 J	9.4	1.7
2,4-Dinitrophenol	ND	19	4.7
4-Nitrophenol	ND	19	4.7
Dibenzofuran	3.0 J	9.4	1.8
2,4-Dinitrotoluene	ND	9.4	2.0
Diethylphthalate	ND	9.4	0.96
Fluorene	5.4 J	9.4	1.7
4-Chlorophenyl-phenylether	ND	9.4	1.5
4-Nitroaniline	ND	19	2.3
4,6-Dinitro-2-methylphenol	ND	19	4.7
N-Nitrosodiphenylamine	ND	9.4	1.6
Azobenzene	ND	9.4	1.1
4-Bromophenyl-phenylether	ND	9.4	1.9
Hexachlorobenzene	ND	9.4	1.9
Pentachlorophenol	ND	19	1.8
Phenanthrene	17	9.4	1.8
Anthracene	8.8 J	9.4	1.7
Di-n-butylphthalate	ND	9.4	1.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Semivolatile Organics by GC/MS

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Field ID:	MW-04	Batch#:	249976
Lab ID:	290750-004	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Prepared:	07/24/17
Diln Fac:	1.000	Analyzed:	07/26/17

Analyte	Result	RL	MDL
Fluoranthene	15	9.4	1.8
Pyrene	11	9.4	1.6
Butylbenzylphthalate	ND	9.4	0.95
3,3'-Dichlorobenzidine	ND	19	0.99
Benzo(a)anthracene	ND	9.4	1.5
Chrysene	ND	9.4	1.6
bis(2-Ethylhexyl)phthalate	ND	9.4	1.7
Di-n-octylphthalate	ND	9.4	1.7
Benzo(b)fluoranthene	ND	9.4	1.6
Benzo(k)fluoranthene	ND	9.4	1.8
Benzo(a)pyrene	ND	9.4	1.5
Indeno(1,2,3-cd)pyrene	ND	9.4	1.7
Dibenz(a,h)anthracene	ND	9.4	1.7
Benzo(g,h,i)perylene	ND	9.4	1.8

Surrogate	%REC	Limits
2-Fluorophenol	61	38-120
Phenol-d5	58	36-120
2,4,6-Tribromophenol	64	41-120
Nitrobenzene-d5	67	44-120
2-Fluorobiphenyl	64	46-120
Terphenyl-d14	41	11-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Semivolatile Organics by GC/MS

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Field ID:	MW-03	Batch#:	249976
Lab ID:	290750-005	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Prepared:	07/24/17
Diln Fac:	1.000	Analyzed:	07/26/17

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	9.5	1.4
Phenol	ND	9.5	0.97
bis(2-Chloroethyl)ether	ND	9.5	1.2
2-Chlorophenol	ND	9.5	0.78
1,3-Dichlorobenzene	ND	9.5	0.98
1,4-Dichlorobenzene	ND	9.5	1.0
Benzyl alcohol	ND	9.5	1.1
1,2-Dichlorobenzene	ND	9.5	2.0
2-Methylphenol	ND	9.5	2.1
bis(2-Chloroisopropyl) ether	ND	9.5	1.4
4-Methylphenol	ND	9.5	1.6
N-Nitroso-di-n-propylamine	ND	9.5	1.1
Hexachloroethane	ND	9.5	1.0
Nitrobenzene	ND	9.5	1.2
Isophorone	ND	9.5	1.2
2-Nitrophenol	ND	19	2.5
2,4-Dimethylphenol	ND	9.5	2.4
bis(2-Chloroethoxy)methane	ND	9.5	1.0
2,4-Dichlorophenol	ND	9.5	2.0
1,2,4-Trichlorobenzene	ND	9.5	2.1
Naphthalene	ND	9.5	1.8
4-Chloroaniline	ND	9.5	2.0
Hexachlorobutadiene	ND	9.5	2.3
4-Chloro-3-methylphenol	ND	9.5	1.0
2-Methylnaphthalene	ND	9.5	1.7
Hexachlorocyclopentadiene	ND	19	4.8
2,4,6-Trichlorophenol	ND	9.5	0.87
2,4,5-Trichlorophenol	ND	9.5	0.81
2-Chloronaphthalene	ND	9.5	1.7
2-Nitroaniline	ND	19	1.1
Dimethylphthalate	ND	9.5	1.9
Acenaphthylene	ND	9.5	1.7
2,6-Dinitrotoluene	ND	9.5	1.7
3-Nitroaniline	ND	19	1.8
Acenaphthene	ND	9.5	1.7
2,4-Dinitrophenol	ND	19	4.8
4-Nitrophenol	ND	19	4.8
Dibenzofuran	ND	9.5	1.8
2,4-Dinitrotoluene	ND	9.5	2.0
Diethylphthalate	ND	9.5	0.97
Fluorene	ND	9.5	1.7
4-Chlorophenyl-phenylether	ND	9.5	1.5
4-Nitroaniline	ND	19	2.3
4,6-Dinitro-2-methylphenol	ND	19	4.8
N-Nitrosodiphenylamine	ND	9.5	1.6
Azobenzene	ND	9.5	1.1
4-Bromophenyl-phenylether	ND	9.5	1.9
Hexachlorobenzene	ND	9.5	1.9
Pentachlorophenol	ND	19	1.8
Phenanthrene	ND	9.5	1.8
Anthracene	ND	9.5	1.8
Di-n-butylphthalate	ND	9.5	1.1

*= Value outside of QC limits; see narrative
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Semivolatile Organics by GC/MS

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Field ID:	MW-03	Batch#:	249976
Lab ID:	290750-005	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Prepared:	07/24/17
Diln Fac:	1.000	Analyzed:	07/26/17

Analyte	Result	RL	MDL
Fluoranthene	ND	9.5	1.8
Pyrene	ND	9.5	1.6
Butylbenzylphthalate	ND	9.5	0.96
3,3'-Dichlorobenzidine	ND	19	1.0
Benzo(a)anthracene	ND	9.5	1.5
Chrysene	ND	9.5	1.6
bis(2-Ethylhexyl)phthalate	ND	9.5	1.8
Di-n-octylphthalate	ND	9.5	1.7
Benzo(b)fluoranthene	ND	9.5	1.6
Benzo(k)fluoranthene	ND	9.5	1.9
Benzo(a)pyrene	ND	9.5	1.5
Indeno(1,2,3-cd)pyrene	ND	9.5	1.7
Dibenz(a,h)anthracene	ND	9.5	1.7
Benzo(g,h,i)perylene	ND	9.5	1.8

Surrogate	%REC	Limits
2-Fluorophenol	38	38-120
Phenol-d5	40	36-120
2,4,6-Tribromophenol	23 *	41-120
Nitrobenzene-d5	70	44-120
2-Fluorobiphenyl	64	46-120
Terphenyl-d14	58	11-120

*= Value outside of QC limits; see narrative
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Semivolatile Organics by GC/MS

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Field ID:	MW-05	Batch#:	249976
Lab ID:	290750-006	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Prepared:	07/24/17
Diln Fac:	1.000	Analyzed:	07/26/17

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	9.4	1.4
Phenol	ND	9.4	0.96
bis(2-Chloroethyl)ether	ND	9.4	1.1
2-Chlorophenol	ND	9.4	0.77
1,3-Dichlorobenzene	ND	9.4	0.97
1,4-Dichlorobenzene	ND	9.4	0.99
Benzyl alcohol	ND	9.4	1.0
1,2-Dichlorobenzene	ND	9.4	2.0
2-Methylphenol	ND	9.4	2.0
bis(2-Chloroisopropyl) ether	ND	9.4	1.4
4-Methylphenol	ND	9.4	1.6
N-Nitroso-di-n-propylamine	ND	9.4	1.1
Hexachloroethane	ND	9.4	1.0
Nitrobenzene	ND	9.4	1.2
Isophorone	ND	9.4	1.2
2-Nitrophenol	ND	19	2.5
2,4-Dimethylphenol	ND	9.4	2.3
bis(2-Chloroethoxy)methane	ND	9.4	1.0
2,4-Dichlorophenol	ND	9.4	2.0
1,2,4-Trichlorobenzene	ND	9.4	2.1
Naphthalene	ND	9.4	1.8
4-Chloroaniline	ND	9.4	1.9
Hexachlorobutadiene	ND	9.4	2.3
4-Chloro-3-methylphenol	ND	9.4	0.99
2-Methylnaphthalene	ND	9.4	1.7
Hexachlorocyclopentadiene	ND	19	4.7
2,4,6-Trichlorophenol	ND	9.4	0.86
2,4,5-Trichlorophenol	ND	9.4	0.80
2-Chloronaphthalene	ND	9.4	1.7
2-Nitroaniline	ND	19	1.1
Dimethylphthalate	ND	9.4	1.9
Acenaphthylene	ND	9.4	1.6
2,6-Dinitrotoluene	ND	9.4	1.7
3-Nitroaniline	ND	19	1.8
Acenaphthene	ND	9.4	1.7
2,4-Dinitrophenol	ND	19	4.7
4-Nitrophenol	ND	19	4.7
Dibenzofuran	ND	9.4	1.8
2,4-Dinitrotoluene	ND	9.4	2.0
Diethylphthalate	ND	9.4	0.96
Fluorene	ND	9.4	1.7
4-Chlorophenyl-phenylether	ND	9.4	1.5
4-Nitroaniline	ND	19	2.3
4,6-Dinitro-2-methylphenol	ND	19	4.7
N-Nitrosodiphenylamine	ND	9.4	1.6
Azobenzene	ND	9.4	1.1
4-Bromophenyl-phenylether	ND	9.4	1.9
Hexachlorobenzene	ND	9.4	1.9
Pentachlorophenol	ND	19	1.8
Phenanthrene	ND	9.4	1.8
Anthracene	ND	9.4	1.7
Di-n-butylphthalate	ND	9.4	1.1
Fluoranthene	ND	9.4	1.8

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Semivolatile Organics by GC/MS

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Field ID:	MW-05	Batch#:	249976
Lab ID:	290750-006	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Prepared:	07/24/17
Diln Fac:	1.000	Analyzed:	07/26/17

Analyte	Result	RL	MDL
Pyrene	ND	9.4	1.6
Butylbenzylphthalate	ND	9.4	0.95
3,3'-Dichlorobenzidine	ND	19	0.99
Benzo(a)anthracene	ND	9.4	1.5
Chrysene	ND	9.4	1.6
bis(2-Ethylhexyl)phthalate	ND	9.4	1.7
Di-n-octylphthalate	ND	9.4	1.7
Benzo(b)fluoranthene	ND	9.4	1.6
Benzo(k)fluoranthene	ND	9.4	1.8
Benzo(a)pyrene	ND	9.4	1.5
Indeno(1,2,3-cd)pyrene	ND	9.4	1.7
Dibenz(a,h)anthracene	ND	9.4	1.7
Benzo(g,h,i)perylene	ND	9.4	1.8

Surrogate	%REC	Limits
2-Fluorophenol	51	38-120
Phenol-d5	56	36-120
2,4,6-Tribromophenol	65	41-120
Nitrobenzene-d5	67	44-120
2-Fluorobiphenyl	63	46-120
Terphenyl-d14	68	11-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894337	Batch#:	249976
Matrix:	Water	Prepared:	07/24/17
Units:	ug/L	Analyzed:	07/25/17

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	10	1.5
Phenol	ND	10	1.0
bis(2-Chloroethyl)ether	ND	10	1.2
2-Chlorophenol	ND	10	0.82
1,3-Dichlorobenzene	ND	10	1.0
1,4-Dichlorobenzene	ND	10	1.1
Benzyl alcohol	ND	10	1.1
1,2-Dichlorobenzene	ND	10	2.1
2-Methylphenol	ND	10	2.2
bis(2-Chloroisopropyl) ether	ND	10	1.4
4-Methylphenol	ND	10	1.7
N-Nitroso-di-n-propylamine	ND	10	1.2
Hexachloroethane	ND	10	1.1
Nitrobenzene	ND	10	1.2
Isophorone	ND	10	1.3
2-Nitrophenol	ND	20	2.6
2,4-Dimethylphenol	ND	10	2.5
bis(2-Chloroethoxy)methane	ND	10	1.1
2,4-Dichlorophenol	ND	10	2.1
1,2,4-Trichlorobenzene	ND	10	2.2
Naphthalene	ND	10	1.9
4-Chloroaniline	ND	10	2.1
Hexachlorobutadiene	ND	10	2.4
4-Chloro-3-methylphenol	ND	10	1.0
2-Methylnaphthalene	ND	10	1.8
Hexachlorocyclopentadiene	ND	20	5.0
2,4,6-Trichlorophenol	ND	10	0.92
2,4,5-Trichlorophenol	ND	10	0.85
2-Chloronaphthalene	ND	10	1.8
2-Nitroaniline	ND	20	1.2
Dimethylphthalate	ND	10	2.0
Acenaphthylene	ND	10	1.7
2,6-Dinitrotoluene	ND	10	1.8
3-Nitroaniline	ND	20	1.9
Acenaphthene	ND	10	1.8
2,4-Dinitrophenol	ND	20	5.0
4-Nitrophenol	ND	20	5.0
Dibenzofuran	ND	10	1.9
2,4-Dinitrotoluene	ND	10	2.1
Diethylphthalate	ND	10	1.0
Fluorene	ND	10	1.8
4-Chlorophenyl-phenylether	ND	10	1.6
4-Nitroaniline	ND	20	2.4
4,6-Dinitro-2-methylphenol	ND	20	5.0
N-Nitrosodiphenylamine	ND	10	1.7
Azobenzene	ND	10	1.2
4-Bromophenyl-phenylether	ND	10	2.0
Hexachlorobenzene	ND	10	2.0
Pentachlorophenol	ND	20	1.9
Phenanthrene	ND	10	1.9
Anthracene	ND	10	1.8
Di-n-butylphthalate	ND	10	1.2
Fluoranthene	ND	10	1.9

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894337	Batch#:	249976
Matrix:	Water	Prepared:	07/24/17
Units:	ug/L	Analyzed:	07/25/17

Analyte	Result	RL	MDL
Pyrene	ND	10	1.7
Butylbenzylphthalate	ND	10	1.0
3,3'-Dichlorobenzidine	ND	20	1.0
Benzo(a)anthracene	ND	10	1.6
Chrysene	ND	10	1.7
bis(2-Ethylhexyl)phthalate	ND	10	1.8
Di-n-octylphthalate	ND	10	1.8
Benzo(b)fluoranthene	ND	10	1.7
Benzo(k)fluoranthene	ND	10	2.0
Benzo(a)pyrene	ND	10	1.6
Indeno(1,2,3-cd)pyrene	ND	10	1.8
Dibenz(a,h)anthracene	ND	10	1.8
Benzo(g,h,i)perylene	ND	10	1.9

Surrogate	%REC	Limits
2-Fluorophenol	62	38-120
Phenol-d5	63	36-120
2,4,6-Tribromophenol	48	41-120
Nitrobenzene-d5	70	44-120
2-Fluorobiphenyl	62	46-120
Terphenyl-d14	68	11-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Matrix:	Water	Batch#:	249976
Units:	ug/L	Prepared:	07/24/17
Diln Fac:	1.000		

Type: BS Lab ID: QC894338

Analyte	Spiked	Result	%REC	Limits	Analyzed
Phenol	80.00	53.43	67	60-120	07/25/17
2-Chlorophenol	80.00	61.47	77	63-120	07/26/17
1,4-Dichlorobenzene	80.00	51.31	64	52-120	07/26/17
N-Nitroso-di-n-propylamine	80.00	51.25	64	40-120	07/26/17
1,2,4-Trichlorobenzene	80.00	49.17	61	52-120	07/26/17
4-Chloro-3-methylphenol	80.00	54.23	68	63-120	07/25/17
Acenaphthene	30.00	21.35	71	56-120	07/26/17
4-Nitrophenol	80.00	74.14	93	49-120	07/26/17
2,4-Dinitrotoluene	80.00	59.01	74	65-120	07/26/17
Pentachlorophenol	80.00	45.14	56	52-120	07/26/17
Pyrene	30.00	21.26	71	61-120	07/26/17

Surrogate	%REC	Limits	Analyzed
2-Fluorophenol	88	38-120	07/26/17
Phenol-d5	93	36-120	07/26/17
2,4,6-Tribromophenol	64	41-120	07/26/17
Nitrobenzene-d5	87	44-120	07/26/17
2-Fluorobiphenyl	65	46-120	07/26/17
Terphenyl-d14	69	11-120	07/26/17

Type: BSD Lab ID: QC894339

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
Phenol	80.00	56.58	71	60-120	6	28	07/25/17
2-Chlorophenol	80.00	64.03	80	63-120	4	26	07/26/17
1,4-Dichlorobenzene	80.00	52.84	66	52-120	3	27	07/26/17
N-Nitroso-di-n-propylamine	80.00	52.01	65	40-120	1	27	07/26/17
1,2,4-Trichlorobenzene	80.00	51.66	65	52-120	5	25	07/26/17
4-Chloro-3-methylphenol	80.00	57.50	72	63-120	6	23	07/25/17
Acenaphthene	30.00	23.18	77	56-120	8	24	07/26/17
4-Nitrophenol	80.00	80.40	101	49-120	8	28	07/26/17
2,4-Dinitrotoluene	80.00	62.72	78	65-120	6	24	07/26/17
Pentachlorophenol	80.00	50.01	63	52-120	10	35	07/26/17
Pyrene	30.00	22.70	76	61-120	7	24	07/26/17

Surrogate	%REC	Limits	Analyzed
2-Fluorophenol	92	38-120	07/26/17
Phenol-d5	97	36-120	07/26/17
2,4,6-Tribromophenol	69	41-120	07/26/17
Nitrobenzene-d5	92	44-120	07/26/17
2-Fluorobiphenyl	70	46-120	07/26/17
Terphenyl-d14	75	11-120	07/26/17

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

California Title 22 Metals

Lab #:	290750	Project#:	0399889.02.05
Client:	ERM	Location:	PG&E Brush Street
Field ID:	MW-01	Diln Fac:	1.000
Lab ID:	290750-001	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	2.8	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Arsenic	ND	10	1.8	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Barium	39	5.0	1.0	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	0.53	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Cadmium	0.43 J	5.0	0.33	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Chromium	ND	5.0	0.56	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	1.0	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Copper	5.1	5.0	0.88	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Lead	3.4 J	5.0	1.2	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Mercury	0.13 J	0.20	0.040	250067	07/26/17	07/26/17	METHOD	EPA 7470A
Molybdenum	ND	5.0	1.2	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Nickel	1.8 J	5.0	0.34	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Selenium	ND	10	2.8	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Silver	1.5 J	5.0	0.75	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Thallium	ND	10	1.9	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	1.0	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Zinc	ND	20	4.7	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

California Title 22 Metals

Lab #:	290750	Project#:	0399889.02.05
Client:	ERM	Location:	PG&E Brush Street
Field ID:	MW-02	Diln Fac:	1.000
Lab ID:	290750-002	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	2.8	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Arsenic	3.4 J	10	1.8	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Barium	140	5.0	1.0	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	0.53	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Cadmium	0.39 J	5.0	0.33	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Chromium	ND	5.0	0.56	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Cobalt	7.4	5.0	1.0	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Copper	4.7 J	5.0	0.88	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Lead	ND	5.0	1.2	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Mercury	0.054 J	0.20	0.040	250067	07/26/17	07/26/17	METHOD	EPA 7470A
Molybdenum	ND	5.0	1.2	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Nickel	34	5.0	0.34	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Selenium	ND	10	2.8	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Silver	4.5 J	5.0	0.75	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Thallium	ND	10	1.9	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	1.0	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Zinc	ND	20	4.7	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

California Title 22 Metals

Lab #:	290750	Project#:	0399889.02.05
Client:	ERM	Location:	PG&E Brush Street
Field ID:	MW-02-DUP	Diln Fac:	1.000
Lab ID:	290750-003	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	2.8	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Arsenic	3.4 J	10	1.8	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Barium	130	5.0	1.0	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	0.53	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Cadmium	0.38 J	5.0	0.33	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Chromium	ND	5.0	0.56	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Cobalt	7.1	5.0	1.0	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Copper	3.6 J	5.0	0.88	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Lead	ND	5.0	1.2	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Mercury	0.26	0.20	0.040	250067	07/26/17	07/26/17	METHOD	EPA 7470A
Molybdenum	ND	5.0	1.2	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Nickel	34	5.0	0.34	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Selenium	ND	10	2.8	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Silver	5.4	5.0	0.75	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Thallium	ND	10	1.9	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	1.0	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Zinc	ND	20	4.7	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

California Title 22 Metals

Lab #:	290750	Project#:	0399889.02.05
Client:	ERM	Location:	PG&E Brush Street
Field ID:	MW-04	Diln Fac:	1.000
Lab ID:	290750-004	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	2.8	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Arsenic	16	10	1.8	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Barium	110	5.0	1.0	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	0.53	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Cadmium	0.36 J	5.0	0.33	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Chromium	ND	5.0	0.56	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	1.0	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Copper	ND	5.0	0.88	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Lead	ND	5.0	1.2	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Mercury	0.11 J	0.20	0.040	250067	07/26/17	07/26/17	METHOD	EPA 7470A
Molybdenum	ND	5.0	1.2	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Nickel	4.6 J	5.0	0.34	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Selenium	ND	10	2.8	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Silver	1.1 J	5.0	0.75	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Thallium	ND	10	1.9	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	1.0	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Zinc	ND	20	4.7	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

California Title 22 Metals

Lab #:	290750	Project#:	0399889.02.05
Client:	ERM	Location:	PG&E Brush Street
Field ID:	MW-03	Diln Fac:	1.000
Lab ID:	290750-005	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	2.8	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Arsenic	10	10	1.8	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Barium	27	5.0	1.0	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	0.53	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Cadmium	0.75 J	5.0	0.33	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Chromium	260	5.0	0.56	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	1.0	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Copper	4.7 J	5.0	0.88	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Lead	6.2	5.0	1.2	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Mercury	0.18 J	0.20	0.040	250067	07/26/17	07/26/17	METHOD	EPA 7470A
Molybdenum	1.4 J	5.0	1.2	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Nickel	ND	5.0	0.34	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Selenium	ND	10	2.8	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Silver	16	5.0	0.75	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Thallium	2.8 J	10	1.9	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Vanadium	13	5.0	1.0	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Zinc	ND	20	4.7	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

California Title 22 Metals

Lab #:	290750	Project#:	0399889.02.05
Client:	ERM	Location:	PG&E Brush Street
Field ID:	MW-05	Diln Fac:	1.000
Lab ID:	290750-006	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	2.8	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Arsenic	ND	10	1.8	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Barium	35	5.0	1.0	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	0.53	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Cadmium	0.36 J	5.0	0.33	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Chromium	ND	5.0	0.56	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Cobalt	2.8 J	5.0	1.0	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Copper	3.1 J	5.0	0.88	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Lead	2.8 J	5.0	1.2	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Mercury	0.19 J	0.20	0.040	250067	07/26/17	07/26/17	METHOD	EPA 7470A
Molybdenum	ND	5.0	1.2	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Nickel	13	5.0	0.34	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Selenium	ND	10	2.8	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Silver	3.6 J	5.0	0.75	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Thallium	ND	10	1.9	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	1.0	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B
Zinc	28	20	4.7	249908	07/21/17	07/24/17	EPA 3010A	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

California Title 22 Metals

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3010A
Project#:	0399889.02.05	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894093	Batch#:	249908
Matrix:	Water	Prepared:	07/21/17
Units:	ug/L	Analyzed:	07/24/17

Analyte	Result	RL	MDL
Antimony	ND	10	2.8
Arsenic	ND	10	1.8
Barium	ND	5.0	1.0
Beryllium	ND	2.0	0.53
Cadmium	ND	5.0	0.33
Chromium	ND	5.0	0.56
Cobalt	ND	5.0	1.0
Copper	5.1 b	5.0	0.88
Lead	ND	5.0	1.2
Molybdenum	ND	5.0	1.2
Nickel	0.42 J	5.0	0.34
Selenium	ND	10	2.8
Silver	ND	5.0	0.75
Thallium	ND	10	1.9
Vanadium	ND	5.0	1.0
Zinc	ND	20	4.7

J= Estimated value
b= See narrative
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

California Title 22 Metals

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3010A
Project#:	0399889.02.05	Analysis:	EPA 6010B
Matrix:	Water	Batch#:	249908
Units:	ug/L	Prepared:	07/21/17
Diln Fac:	1.000	Analyzed:	07/24/17

Type: BS Lab ID: QC894094

Analyte	Spiked	Result	%REC	Limits
Antimony	100.0	99.06	99	73-120
Arsenic	100.0	106.2	106	78-120
Barium	100.0	102.1	102	80-120
Beryllium	100.0	101.5	101	80-120
Cadmium	100.0	101.6	102	80-120
Chromium	100.0	101.2	101	80-120
Cobalt	100.0	100.9	101	79-120
Copper	100.0	100.7	101	80-120
Lead	100.0	111.3	111	77-120
Molybdenum	100.0	106.2	106	80-120
Nickel	100.0	97.81	98	80-120
Selenium	100.0	103.1 b	103	76-120
Silver	100.0	86.45	86	80-120
Thallium	50.00	49.93	100	80-126
Vanadium	100.0	99.49	99	80-120
Zinc	100.0	103.8	104	78-120

Type: BSD Lab ID: QC894095

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	99.32	99	73-120	0	21
Arsenic	100.0	104.4	104	78-120	2	20
Barium	100.0	103.5	104	80-120	1	20
Beryllium	100.0	101.3	101	80-120	0	20
Cadmium	100.0	100.9	101	80-120	1	20
Chromium	100.0	101.5	101	80-120	0	20
Cobalt	100.0	94.46	94	79-120	7	20
Copper	100.0	100.9	101	80-120	0	20
Lead	100.0	110.1	110	77-120	1	20
Molybdenum	100.0	104.9	105	80-120	1	20
Nickel	100.0	100.6	101	80-120	3	20
Selenium	100.0	103.0 b	103	76-120	0	20
Silver	100.0	87.10	87	80-120	1	23
Thallium	50.00	49.84	100	80-126	0	20
Vanadium	100.0	99.56	100	80-120	0	20
Zinc	100.0	106.0	106	78-120	2	26

b= See narrative
RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

California Title 22 Metals

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3010A
Project#:	0399889.02.05	Analysis:	EPA 6010B
Field ID:	MW-01	Batch#:	249908
MSS Lab ID:	290750-001	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Prepared:	07/21/17
Diln Fac:	1.000	Analyzed:	07/24/17

Type: MS Lab ID: QC894096

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<2.832	100.0	99.57	100	47-135
Arsenic	<1.784	100.0	107.3	107	55-140
Barium	39.39	100.0	140.7	101	70-127
Beryllium	<0.5336	100.0	104.5	104	80-123
Cadmium	0.4329	100.0	113.7	113	78-125
Chromium	<0.5602	100.0	99.00	99	73-125
Cobalt	<1.000	100.0	103.5	104	73-126
Copper	5.114	100.0	100.9	96	70-129
Lead	3.356	100.0	107.5	104	56-127
Molybdenum	<1.190	100.0	104.4	104	74-124
Nickel	1.817	100.0	105.6	104	69-124
Selenium	<2.791	100.0	96.36 b	96	51-148
Silver	1.456	100.0	90.59	89	67-133
Thallium	<1.934	50.00	48.12	96	66-133
Vanadium	<0.9954	100.0	94.61	95	77-126
Zinc	<4.717	100.0	114.2	114	68-131

Type: MSD Lab ID: QC894097

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	100.3	100	47-135	1	49
Arsenic	100.0	108.2	108	55-140	1	46
Barium	100.0	139.9	101	70-127	1	30
Beryllium	100.0	104.2	104	80-123	0	20
Cadmium	100.0	114.0	114	78-125	0	20
Chromium	100.0	99.67	100	73-125	1	25
Cobalt	100.0	103.8	104	73-126	0	20
Copper	100.0	100.7	96	70-129	0	24
Lead	100.0	104.7	101	56-127	3	33
Molybdenum	100.0	104.9	105	74-124	0	23
Nickel	100.0	106.1	104	69-124	0	23
Selenium	100.0	96.26 b	96	51-148	0	55
Silver	100.0	90.79	89	67-133	0	29
Thallium	50.00	46.30	93	66-133	4	26
Vanadium	100.0	94.54	95	77-126	0	22
Zinc	100.0	114.7	115	68-131	0	29

b= See narrative
RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

California Title 22 Metals

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3010A
Project#:	0399889.02.05	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894098	Batch#:	249908
Matrix:	Water	Prepared:	07/21/17
Units:	ug/L	Analyzed:	07/24/17

Analyte	Result	RL	MDL
Antimony	ND	10	2.8
Arsenic	ND	10	1.8
Barium	ND	5.0	1.0
Beryllium	ND	2.0	0.53
Cadmium	ND	5.0	0.33
Chromium	ND	5.0	0.56
Cobalt	ND	5.0	1.0
Copper	4.7 J	5.0	0.88
Lead	ND	5.0	1.2
Molybdenum	ND	5.0	1.2
Nickel	1.0 J	5.0	0.34
Selenium	ND	10	2.8
Silver	ND	5.0	0.75
Thallium	ND	10	1.9
Vanadium	ND	5.0	1.0
Zinc	ND	20	4.7

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Batch QC Report

California Title 22 Metals

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	METHOD
Project#:	0399889.02.05	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	250067
Lab ID:	QC894669	Prepared:	07/26/17
Matrix:	Water	Analyzed:	07/26/17
Units:	ug/L		

Result	RL	MDL
0.042 J	0.20	0.040

J= Estimated value
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

California Title 22 Metals

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	METHOD
Project#:	0399889.02.05	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	250067
Matrix:	Water	Prepared:	07/26/17
Units:	ug/L	Analyzed:	07/26/17
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC894670	2.500	2.633	105	80-120		
BSD	QC894671	2.500	2.551	102	80-120	3	20

RPD= Relative Percent Difference

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Batch QC Report

California Title 22 Metals

Lab #:	290750	Location:	PG&E Brush Street
Client:	ERM	Prep:	METHOD
Project#:	0399889.02.05	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	250067
Field ID:	ZZZZZZZZZZ	Sampled:	07/13/17
MSS Lab ID:	290594-020	Received:	07/14/17
Matrix:	TCLP Leachate	Prepared:	07/26/17
Units:	ug/L	Analyzed:	07/26/17
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC894672	0.7583	12.50	13.70	104	63-120		
MSD	QC894673		12.50	13.29	100	63-120	3	42

RPD= Relative Percent Difference

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ANALYTICAL

Enthalpy Analytical

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 290775
ANALYTICAL REPORT

ERM	Project : 0399889.02.05
1277 Treat Blvd.	Location : PG&E Brush Street
Walnut Creek, CA 94597	Level : II

Sample ID	Lab ID
COMP-DRUM-ABC	290775-001
COMP-DRUM-EFG	290775-002
PURGE-DRUM	290775-003

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: _____ Date: 08/02/2017

Dina Ali
Project Manager
dina.ali@enthalpy.com
(510) 204-2223 Ext 13105

CA ELAP# 2896, NELAP# 4044-001

ENTHALPY ANALYTICAL

CASE NARRATIVE

Laboratory number:	**290775**
Client:	**ERM**
Project:	**0399889.02.05**
Location:	**PG&E Brush Street**
Request Date:	**07/20/17**
Samples Received:	**07/20/17**

This data package contains sample and QC results for two soil samples and one water sample, requested for the above referenced project on 07/20/17. The samples were received on ice and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B):
Gasoline C7-C12 was detected between the MDL and the RL in the method blank for batch 249858; this analyte was not detected in samples at or above the RL. No other analytical problems were encountered.

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

TPH-Extractables by GC (EPA 8015B) Soil:
High recoveries were observed for diesel C10-C24 in the MS/MSD for batch 250007; the parent sample was not a project sample, the LCS was within limits, and the associated RPD was within limits. COMP-DRUM-ABC (lab # 290775-001) 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) Water:
High response was observed for 1,1-dichloroethene in the CCV analyzed 07/26/17 12:18; affected data was qualified with "b". High recovery was observed for 1,1-dichloroethene in the BSD for batch 250063; the high recovery was not associated with any reported results. High RPD was also observed for 1,1-dichloroethene in the BS/BSD for batch 250063; the high RPD was not associated with any reported results. Naphthalene was detected between the MDL and the RL in the method blank for batch 250063; this analyte was not detected in the sample at or above the RL. No other analytical problems were encountered.

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

Semivolatile Organics by GC/MS (EPA 8270C) Water:
No analytical problems were encountered.

Semivolatile Organics by GC/MS (EPA 8270C) Soil:
No analytical problems were encountered.

Pesticides (EPA 8081A):
All samples underwent sulfur cleanup using the copper option in EPA Method

ENTHALPY ANALYTICAL

CASE NARRATIVE

Laboratory number:	**290775**
Client:	**ERM**
Project:	**0399889.02.05**
Location:	**PG&E Brush Street**
Request Date:	**07/20/17**
Samples Received:	**07/20/17**

Pesticides (EPA 8081A):
3660B. All samples underwent florisil cleanup using EPA Method 3620C. Matrix spikes QC894354,QC894355 (batch 249982) were not reported because the parent sample required a dilution that would have diluted out the spikes. Many analytes were detected between the MDL and the RL in the method blank for batch 249982; these analytes were not detected in samples at or above the RL. COMP-DRUM-ABC (lab # 290775-001) and COMP-DRUM-EFG (lab # 290775-002) were diluted due to the color of the sample extracts. No other analytical problems were encountered.

PCBs (EPA 8082):
All samples underwent sulfuric acid cleanup using EPA Method 3665A. All samples underwent sulfur cleanup using the copper option in EPA Method 3660B. COMP-DRUM-ABC (lab # 290775-001) was diluted due to the color of the sample extract. No other analytical problems were encountered.

Metals (EPA 6010B and EPA 7470A) Water:
No analytical problems were encountered.

Metals (EPA 6010B and EPA 7471A) Soil:
Responses exceeding the instrument's linear range were observed for mercury in the MS/MSD for batch 250158; affected data was qualified with "b". Chromium, copper, and nickel were detected above the RL in the method blank for batch 250037; these analytes were detected in samples at a level at least 10 times that of the blank. Zinc was detected between the MDL and the RL in the method blank for batch 250037; this analyte was detected in samples at a level at least 10 times that of the blank. No other analytical problems were encountered.

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CHAIN OF CUSTODY

290775

ENTHALPY ANALYTICAL
Formerly Curtis & Tompkins Labs
2323 Fifth Street
Berkeley, CA 94710
Phone (510) 486-0900
Fax (510) 486-0532

C&T LOGIN # 290750

Page 1 of 1

Chain of Custody # ______

Project No: 0323656

Project Name: Brush St.

Project P. O. No: 0323656

EDD Format: Report Level ☒ II ☐ III ☐ IV

Turnaround Time: ☐ RUSH ☒ Standard

Sampler: Hilary Whitney / Anthony Billecci

Report To: John Lucio / Doug Moberg

Company: ERM

Telephone: (925)

Email: doug.moberg@erm.com

Lab No.	Sample ID.	Date Collected	Time Collected	Water	Solid	# of Containers	HCl	H2SO4	HNO3	NaOH	None	VOCs & TPHg by 8260B	TPH d/mo by 8015M w/silica gel	SVOCs by 8270C	CA Title 22 Metals 6010/7000 (*)	Pesticides by 8081	PCBs by 8082
	MW-01	7/19/17	12:55	X		9	4		1		9	X	X	X	X		
	MW-02	↑	14:05	X		9	4		1		4	X	X	X	X		
	MW-02-DUP		14:10	X		9	4		1		4	X	X	X	X		
	MW-04		15:20	X		9	4		1		4	X	X	X	X		
	MW-03		17:05	X		8	3		1		4	X	X	X	X		
	MW-05		16:05	X		9	4		1		4	X	X	X	X		
	COMP-DRUM-ABC		1455		X	2					2	X	X	X	X	X	X
	COMP-DRUM-EFG	↓	1456		X	2					2	X	X	X	X	X	X
	PURGE-DRUM	7/19/17	1530	X		9	4		1		4	X	X	X	X		
	TB-071917	7/19/17	–	X		3	3					X					

Notes:
also email hilary.whitney@erm.com and anthony.billecci@erm.com
(*) water samples were filtered in field for metals

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
[signature]	7/19/17	18:30	RC	7/19/17	1830

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 290750 Date Received 7-19-17 Number of coolers 2
Client ERM Project 0323656

Date Opened 7-19-17 By (print) MS (sign)
Date Logged in ↓ By (print) MS (sign)
Date Labelled ↓ By (print) MS (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) 4.2, 1.9

☐ 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# 0180871) (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 Nacsit to samples 2-6 MS 7.19.17 2047 (#11988)
20) 1/4 VOAs received w/ bubble sample 2 1/4" sample 6

Rev 13, 6/01/16

Curtis & Tompkins Sample Preservation for 290750

Sample	pH: <2	>9	>12	Other
-001a	[ ]	[ ]	[ ]	
b	[ ]	[ ]	[ ]	
c	[ ]	[ ]	[ ]	
d	[X]	[ ]	[ ]	
e	[X]	[ ]	[ ]	
f	[ ]	[ ]	[ ]	
g	[ ]	[ ]	[ ]	
h	[ ]	[ ]	[ ]	
i	[ ]	[ ]	[ ]	
-002a	[ ]	[ ]	[ ]	
b	[ ]	[ ]	[ ]	
c	[ ]	[ ]	[ ]	
d	[ ]	[ ]	[ ]	
e	[X]	[ ]	[ ]	
f	[ ]	[ ]	[ ]	
g	[ ]	[ ]	[ ]	
h	[ ]	[ ]	[ ]	
i	[ ]	[ ]	[ ]	
-003a	[ ]	[ ]	[ ]	
b	[ ]	[ ]	[ ]	
c	[ ]	[ ]	[ ]	
d	[ ]	[ ]	[ ]	
e	[X]	[ ]	[ ]	
f	[ ]	[ ]	[ ]	
g	[ ]	[ ]	[ ]	
h	[ ]	[ ]	[ ]	
i	[ ]	[ ]	[ ]	
-004a	[ ]	[ ]	[ ]	
b	[ ]	[ ]	[ ]	
c	[ ]	[ ]	[ ]	
d	[ ]	[ ]	[ ]	

Sample	pH: <2	>9	>12	Other
e	[X]	[ ]	[ ]	
f	[ ]	[ ]	[ ]	
g	[ ]	[ ]	[ ]	
h	[ ]	[ ]	[ ]	
i	[ ]	[ ]	[ ]	
-005a	[ ]	[ ]	[ ]	
b	[ ]	[ ]	[ ]	
c	[ ]	[ ]	[ ]	
d	[X]	[ ]	[ ]	
e	[ ]	[ ]	[ ]	
f	[ ]	[ ]	[ ]	
g	[ ]	[ ]	[ ]	
h	[ ]	[ ]	[ ]	
-006a	[ ]	[ ]	[ ]	
b	[ ]	[ ]	[ ]	
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d	[ ]	[ ]	[ ]	
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f	[ ]	[ ]	[ ]	
g	[ ]	[ ]	[ ]	
h	[ ]	[ ]	[ ]	
i	[ ]	[ ]	[ ]	
-009a	[ ]	[ ]	[ ]	
b	[ ]	[ ]	[ ]	
c	[ ]	[ ]	[ ]	
d	[ ]	[ ]	[ ]	
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f	[ ]	[ ]	[ ]	
g	[ ]	[ ]	[ ]	
h	[ ]	[ ]	[ ]	
i	[ ]	[ ]	[ ]	

Analyst: MS
Date: 7.20.17

ENTHALPY ANALYTICAL

Detections Summary for 290775

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

Client : ERM
Project : 0399889.02.05
Location : PG&E Brush Street

Client Sample ID : COMP-DRUM-ABC Laboratory Sample ID : 290775-001

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	0.37	J	1.1	0.082	mg/Kg	As Recd	1.000	EPA 8015B	EPA 5030B
Diesel C10-C24	11	Y	10	3.1	mg/Kg	As Recd	10.00	EPA 8015B	EPA 3550B
Motor Oil C24-C36	38	J	50	15	mg/Kg	As Recd	10.00	EPA 8015B	EPA 3550B
Acenaphthylene	21	J	68	8.6	ug/Kg	As Recd	1.000	EPA 8270C	EPA 3550B
Phenanthrene	39	J	68	9.7	ug/Kg	As Recd	1.000	EPA 8270C	EPA 3550B
Anthracene	13	J	68	12	ug/Kg	As Recd	1.000	EPA 8270C	EPA 3550B
Fluoranthene	110		68	8.8	ug/Kg	As Recd	1.000	EPA 8270C	EPA 3550B
Pyrene	180		68	9.5	ug/Kg	As Recd	1.000	EPA 8270C	EPA 3550B
Benzo(a)anthracene	79		68	8.7	ug/Kg	As Recd	1.000	EPA 8270C	EPA 3550B
Chrysene	81		68	12	ug/Kg	As Recd	1.000	EPA 8270C	EPA 3550B
Benzo(b)fluoranthene	75		68	12	ug/Kg	As Recd	1.000	EPA 8270C	EPA 3550B
Benzo(k)fluoranthene	23	J	68	8.8	ug/Kg	As Recd	1.000	EPA 8270C	EPA 3550B
Benzo(a)pyrene	78		68	8.8	ug/Kg	As Recd	1.000	EPA 8270C	EPA 3550B
Indeno(1,2,3-cd)pyrene	23	J	68	12	ug/Kg	As Recd	1.000	EPA 8270C	EPA 3550B
Benzo(g,h,i)perylene	29	J	68	8.8	ug/Kg	As Recd	1.000	EPA 8270C	EPA 3550B
Heptachlor	16	C,J	84	11	ug/Kg	As Recd	100.0	EPA 8081A	EPA 3550B
Heptachlor epoxide	18	J	84	11	ug/Kg	As Recd	100.0	EPA 8081A	EPA 3550B
4,4'-DDD	24	C,J	160	22	ug/Kg	As Recd	100.0	EPA 8081A	EPA 3550B
4,4'-DDT	58	C,J	160	16	ug/Kg	As Recd	100.0	EPA 8081A	EPA 3550B
alpha-Chlordane	19	J	84	8.9	ug/Kg	As Recd	100.0	EPA 8081A	EPA 3550B
gamma-Chlordane	20	J	84	8.6	ug/Kg	As Recd	100.0	EPA 8081A	EPA 3550B
Antimony	0.52	J	2.0	0.13	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Arsenic	2.0		1.5	0.20	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Barium	65		0.25	0.029	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Beryllium	0.27		0.099	0.020	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cadmium	0.35		0.25	0.050	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Chromium	40		0.25	0.050	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cobalt	9.2		0.25	0.050	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Copper	26		0.25	0.055	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Lead	87		0.99	0.13	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Mercury	0.10		0.018	0.0053	mg/Kg	As Recd	1.000	EPA 7471A	METHOD
Nickel	31		0.25	0.068	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Vanadium	28		0.25	0.050	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Zinc	62		0.99	0.20	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B

ENTHALPY ANALYTICAL

Client Sample ID : COMP-DRUM-EFG Laboratory Sample ID : 290775-002

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	0.70	J	1.0	0.074	mg/Kg	As Recd	1.000	EPA 8015B	EPA 5030B
Diesel C10-C24	4.2	Y	0.99	0.30	mg/Kg	As Recd	1.000	EPA 8015B	EPA 3550B
Motor Oil C24-C36	13		5.0	1.5	mg/Kg	As Recd	1.000	EPA 8015B	EPA 3550B
Heptachlor	32	C,J	170	23	ug/Kg	As Recd	200.0	EPA 8081A	EPA 3550B
Heptachlor epoxide	52	J	170	26	ug/Kg	As Recd	200.0	EPA 8081A	EPA 3550B
Endosulfan I	55	J	170	19	ug/Kg	As Recd	200.0	EPA 8081A	EPA 3550B
4,4'-DDD	86	C,J	330	34	ug/Kg	As Recd	200.0	EPA 8081A	EPA 3550B
Endrin aldehyde	81	J	330	46	ug/Kg	As Recd	200.0	EPA 8081A	EPA 3550B
4,4'-DDT	72	J	330	32	ug/Kg	As Recd	200.0	EPA 8081A	EPA 3550B
alpha-Chlordane	46	J	170	24	ug/Kg	As Recd	200.0	EPA 8081A	EPA 3550B
gamma-Chlordane	53	J	170	30	ug/Kg	As Recd	200.0	EPA 8081A	EPA 3550B
Antimony	0.83	J	2.0	0.13	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Arsenic	2.2		1.5	0.20	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Barium	93		0.25	0.029	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Beryllium	0.31		0.10	0.020	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cadmium	0.47		0.25	0.050	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Chromium	41		0.25	0.050	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Cobalt	6.8		0.25	0.050	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Copper	44		0.25	0.056	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Lead	100		1.0	0.13	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Mercury	0.015	J	0.018	0.0054	mg/Kg	As Recd	1.000	EPA 7471A	METHOD
Molybdenum	0.12	J	0.25	0.055	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Nickel	31		0.25	0.069	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Vanadium	28		0.25	0.050	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B
Zinc	110		1.0	0.20	mg/Kg	As Recd	1.000	EPA 6010B	EPA 3050B

Client Sample ID : PURGE-DRUM Laboratory Sample ID : 290775-003

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	35	J,Y	50	16	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Carbon Disulfide	0.2	J	0.5	0.1	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
MTBE	30		0.5	0.1	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
4-Methyl-2-Pentanone	1.6	J	10	0.1	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Barium	19		5.0	1.0	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Copper	1.2	J	5.0	0.88	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Molybdenum	1.5	J	5.0	1.2	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Nickel	5.5		5.0	0.34	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Silver	0.81	J	5.0	0.75	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A
Zinc	5.9	J	20	4.7	ug/L	TOTAL	1.000	EPA 6010B	EPA 3010A

C = Presence confirmed, but RPD between columns exceeds 40%
J = Estimated value
Y = Sample exhibits chromatographic pattern which does not resemble standard

ENTHALPY ANALYTICAL

Total Volatile Hydrocarbons

Lab #:	290775	Location:	Brush St.
Client:	ERM	Prep:	EPA 5030B
Project#:	0323656	Analysis:	EPA 8015B
Matrix:	Soil	Batch#:	249858
Units:	mg/Kg	Sampled:	07/19/17
Basis:	as received	Received:	07/20/17
Diln Fac:	1.000		

Field ID: COMP-DRUM-ABC
Type: SAMPLE
Lab ID: 290775-001
Analyzed: 07/21/17

Analyte	Result	RL	MDL
Gasoline C7-C12	0.37 J	1.1	0.082

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	103	70-138

Field ID: COMP-DRUM-EFG
Type: SAMPLE
Lab ID: 290775-002
Analyzed: 07/21/17

Analyte	Result	RL	MDL
Gasoline C7-C12	0.70 J	1.0	0.074

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	113	70-138

Type: BLANK
Lab ID: QC893907
Analyzed: 07/20/17

Analyte	Result	RL	MDL
Gasoline C7-C12	0.26 J	1.0	0.074

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	81	70-138

J= Estimated value
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	290775	Location:	Brush St.
Client:	ERM	Prep:	EPA 5030B
Project#:	0323656	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC893904	Batch#:	249858
Matrix:	Soil	Analyzed:	07/20/17
Units:	mg/Kg		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1.000	0.9934	99	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	91	70-138

ENTHALPY ANALYTICAL

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	290775	Location:	Brush St.
Client:	ERM	Prep:	EPA 5030B
Project#:	0323656	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	290705-001	Batch#:	249858
Matrix:	Soil	Sampled:	07/19/17
Units:	mg/Kg	Received:	07/19/17
Basis:	as received	Analyzed:	07/20/17

Type: MS Lab ID: QC893905

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	0.2395	9.901	7.125	70	49-120

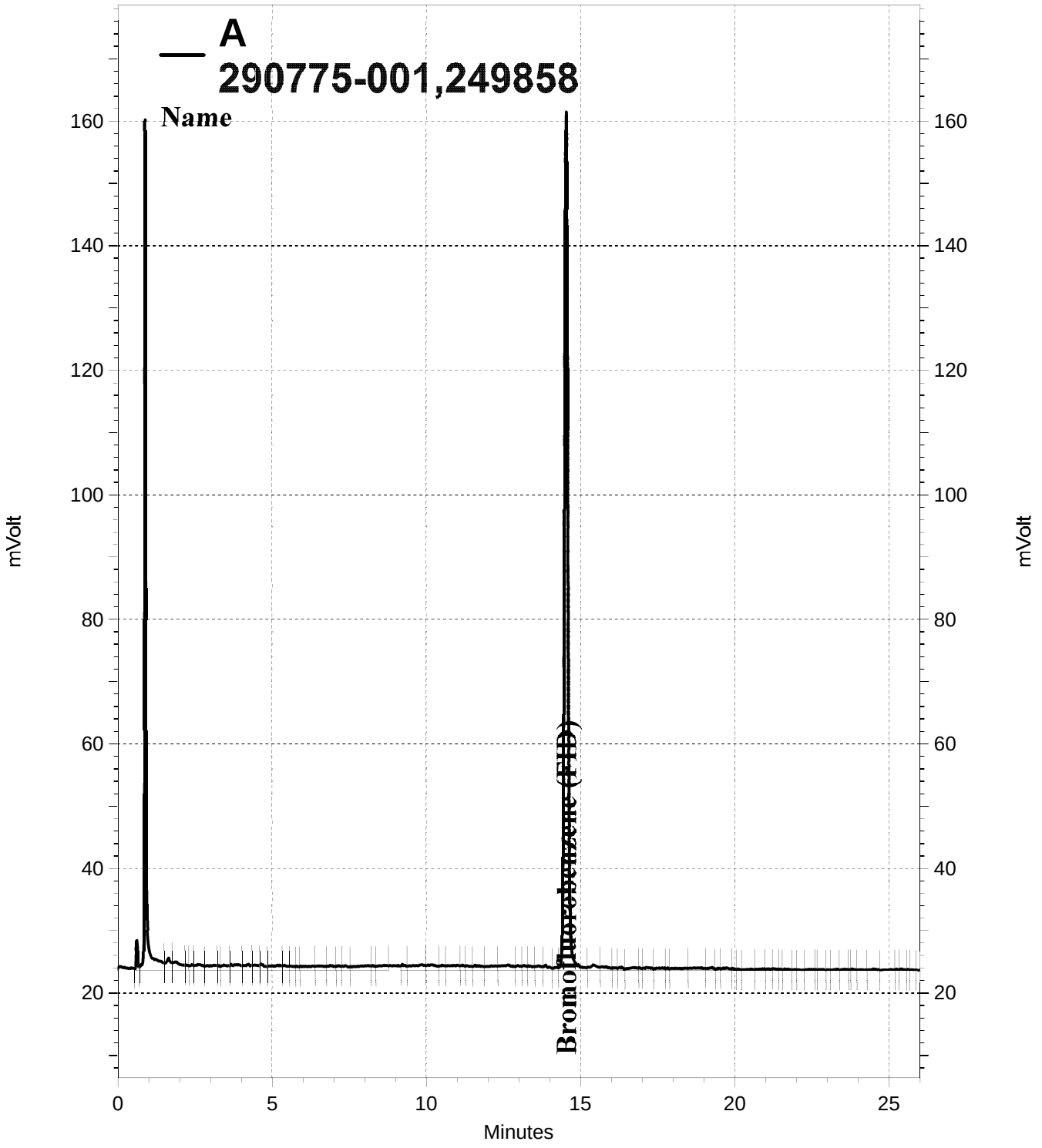
Surrogate	%REC	Limits
Bromofluorobenzene (FID)	86	70-138

Type: MSD Lab ID: QC893906

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	10.42	8.083	75	49-120	8	32

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	104	70-138

RPD= Relative Percent Difference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mVolt
mVolt
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140
120
100
80
60
40
20
0
5
10
15
20
25
Minutes
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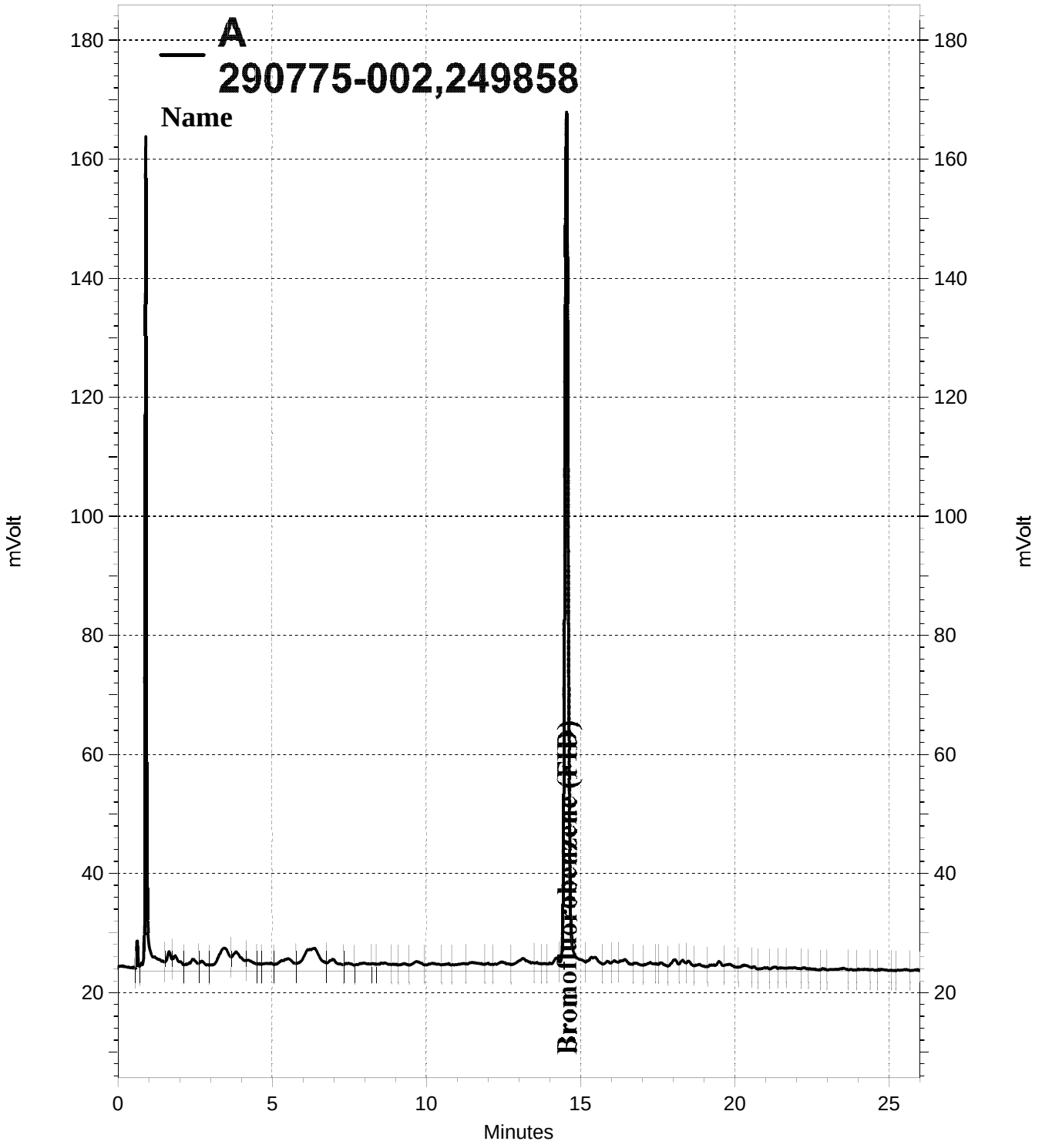
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mVolt
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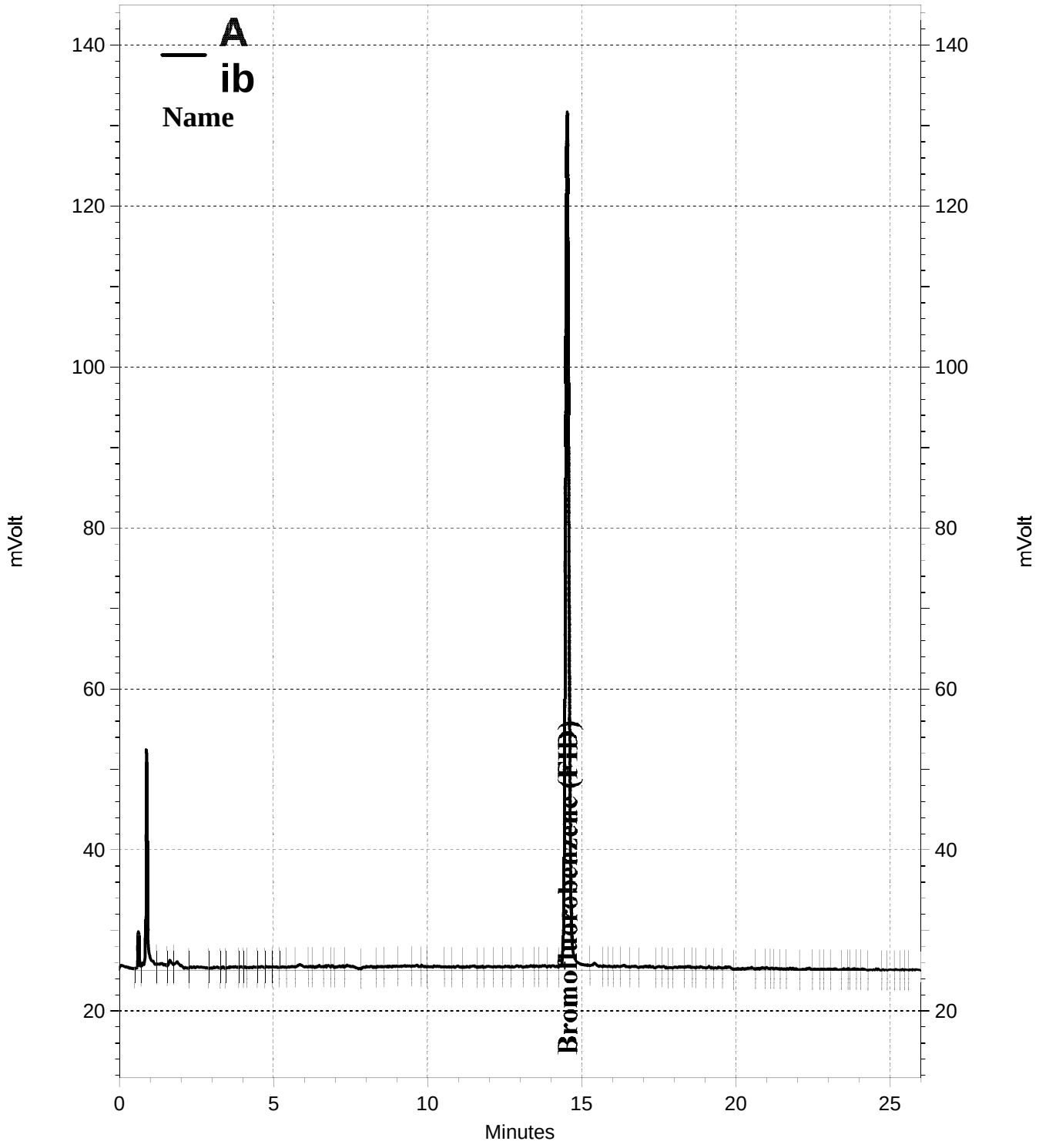
A
ib
Name
140
120
100
80
60
40
20
mVolt
0
5
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15
20
25
Minutes
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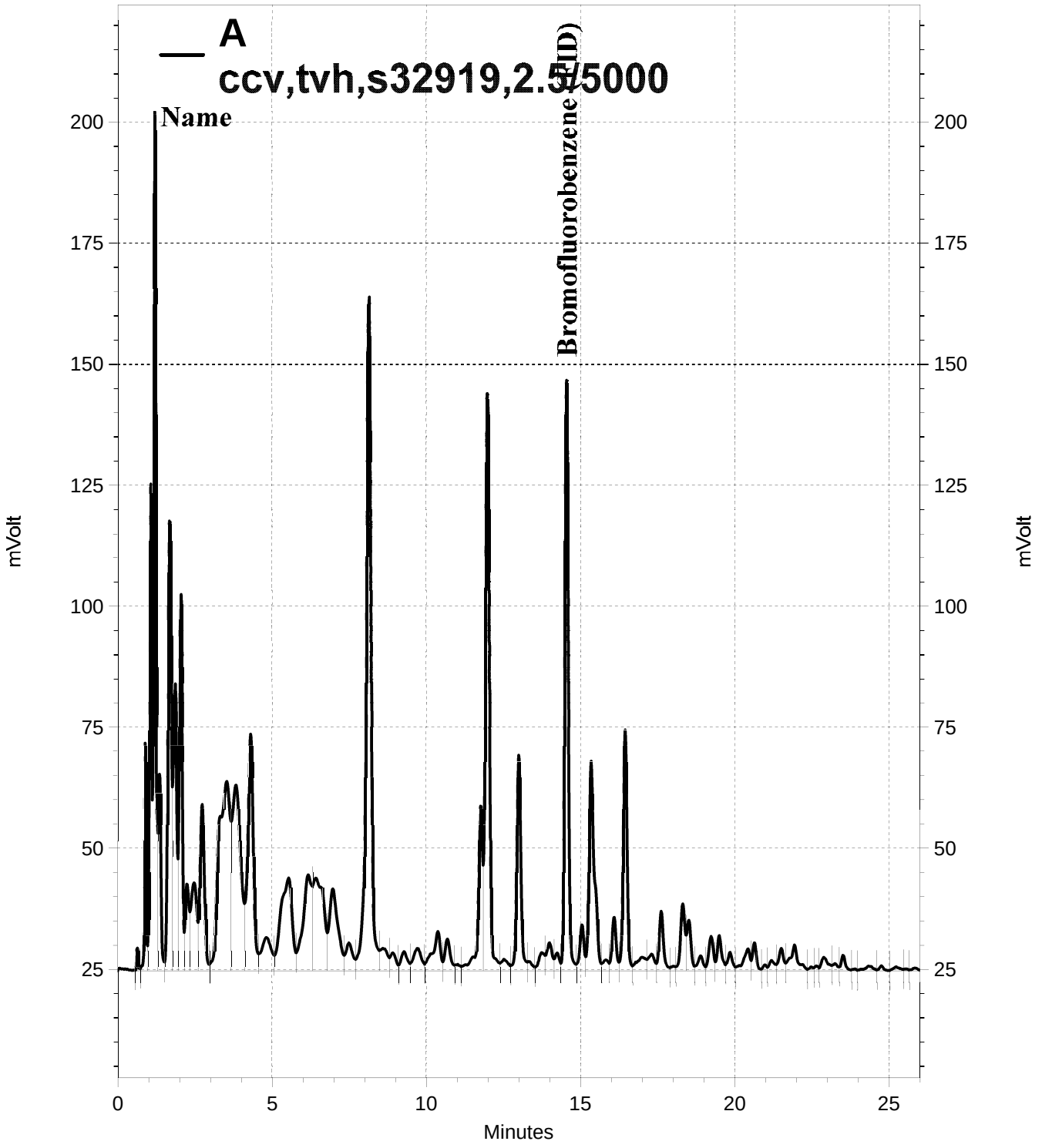
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mVolt
mVolt
200
175
150
125
100
75
50
25
0
5
10
15
20
25
Minutes
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ENTHALPY ANALYTICAL

Total Extractable Hydrocarbons

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8015B
Field ID:	PURGE-DRUM	Batch#:	249924
Matrix:	Water	Sampled:	07/19/17
Units:	ug/L	Received:	07/20/17
Diln Fac:	1.000	Prepared:	07/21/17

Type:	SAMPLE	Analyzed:	07/26/17
Lab ID:	290775-003	Cleanup Method:	EPA 3630C

Analyte	Result	RL	MDL
Diesel C10-C24	35 J Y	50	16
Motor Oil C24-C36	ND	300	96

Surrogate	%REC	Limits
o-Terphenyl	97	52-138

Type:	BLANK	Analyzed:	07/24/17
Lab ID:	QC894154	Cleanup Method:	EPA 3630C

Analyte	Result	RL	MDL
Diesel C10-C24	ND	50	16
Motor Oil C24-C36	ND	300	96

Surrogate	%REC	Limits
o-Terphenyl	109	52-138

J= Estimated value
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	249924
Units:	ug/L	Prepared:	07/21/17
Diln Fac:	1.000	Analyzed:	07/24/17

Type: BS Lab ID: QC894155

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,445	98	52-124

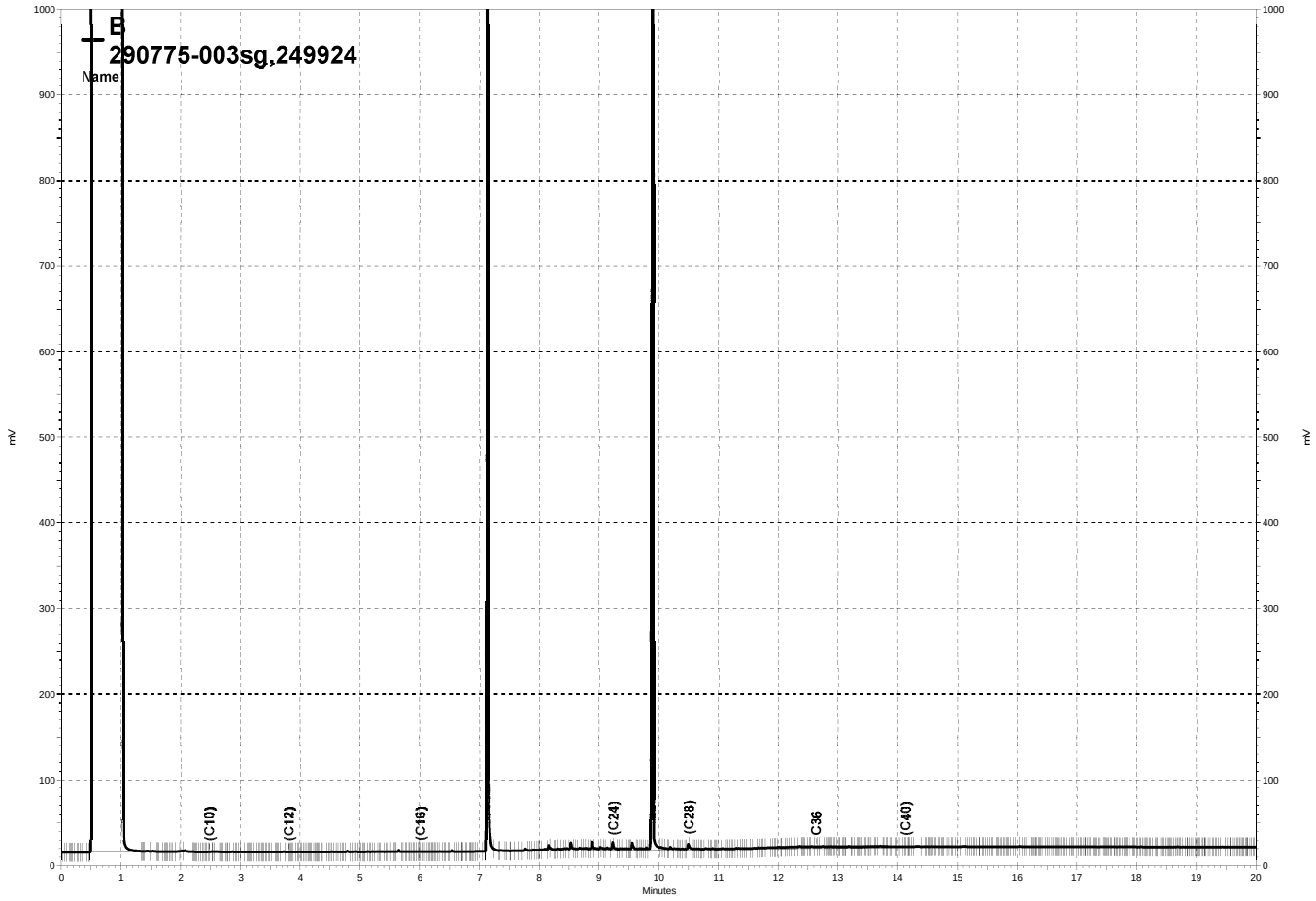
Surrogate	%REC	Limits
o-Terphenyl	103	52-138

Type: BSD Lab ID: QC894156

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,628	105	52-124	7	34

Surrogate	%REC	Limits
o-Terphenyl	111	52-138

RPD= Relative Percent Difference



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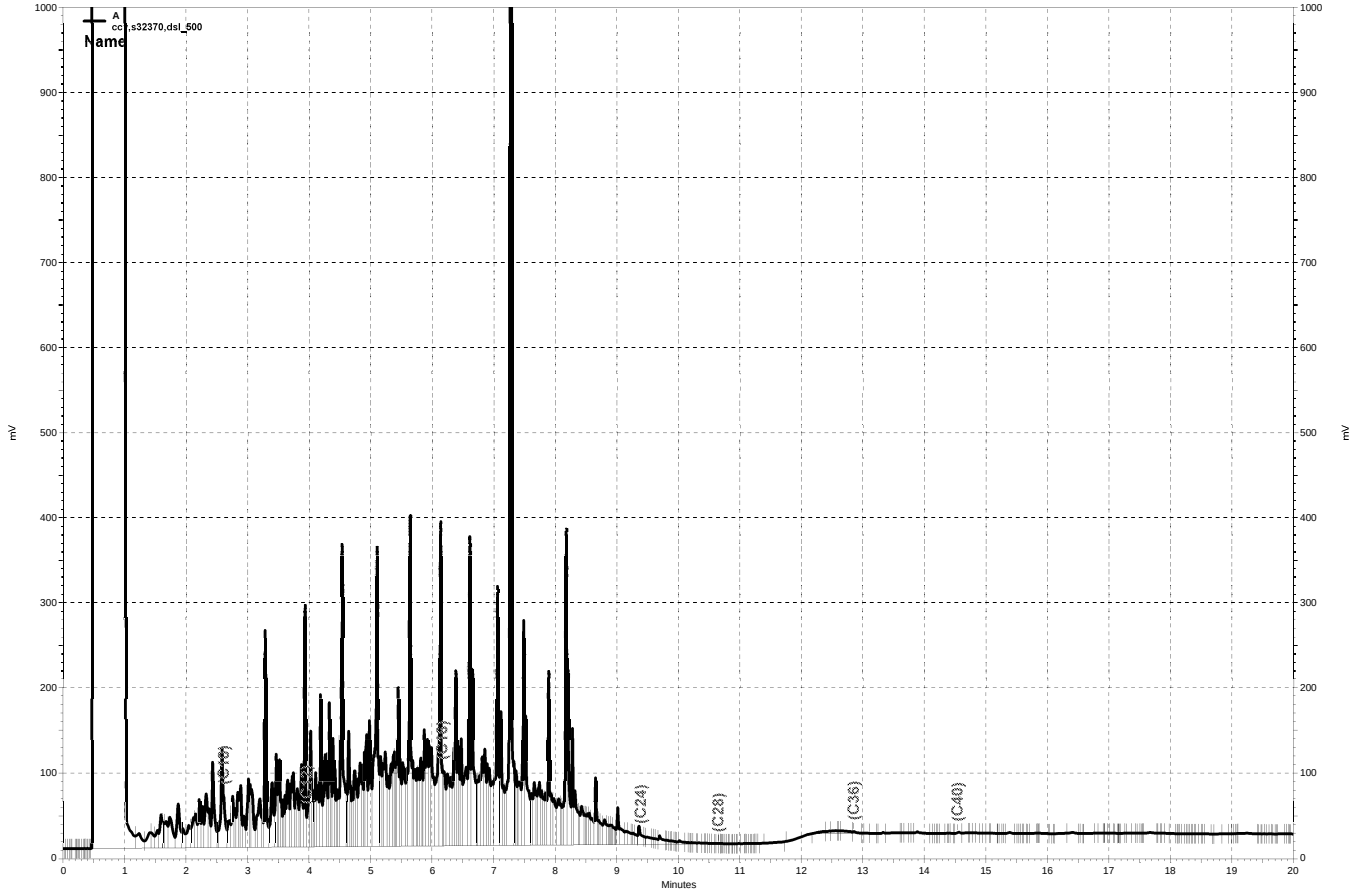

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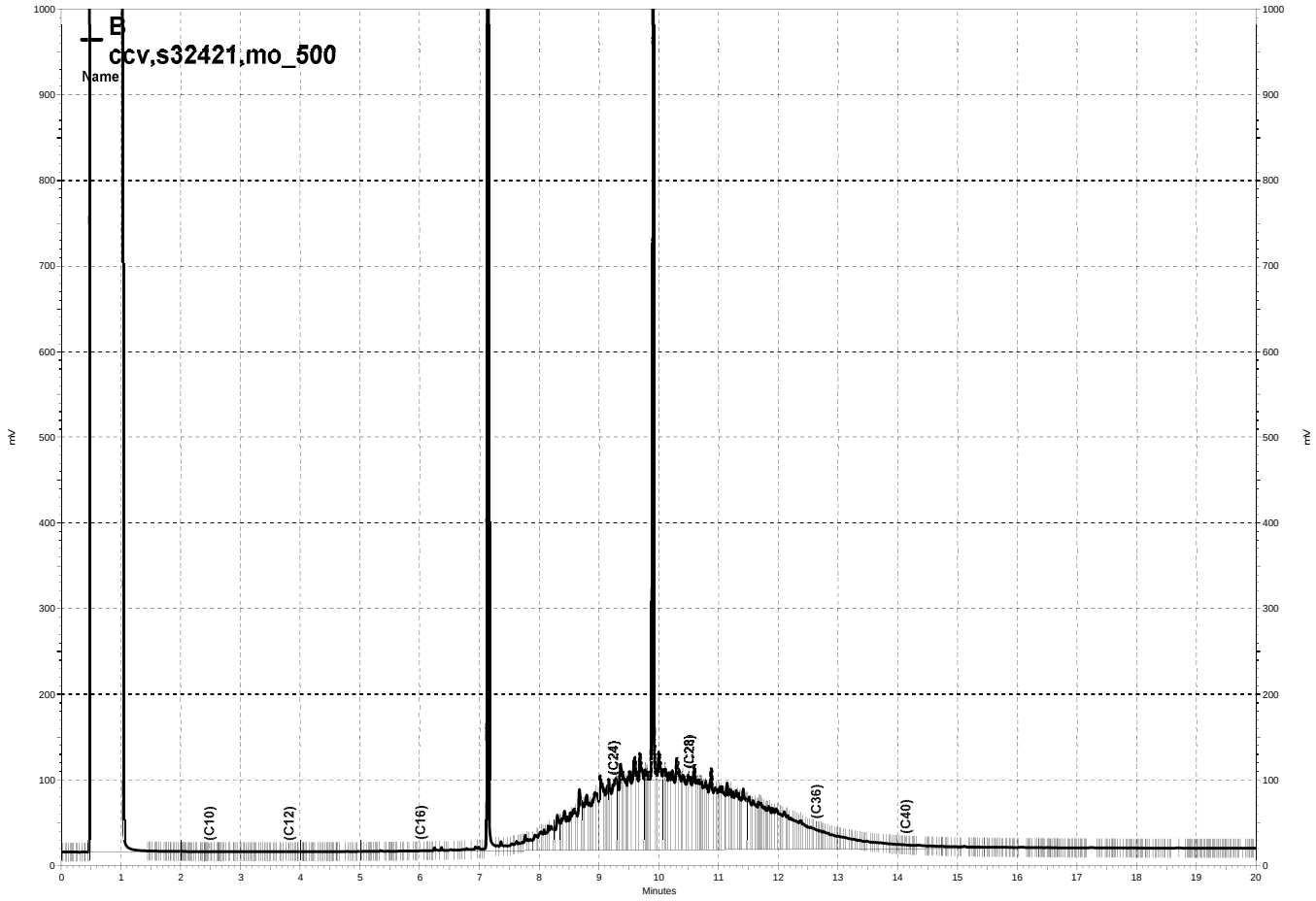

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ENTHALPY ANALYTICAL

Total Extractable Hydrocarbons

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3550B
Project#:	0399889.02.05	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	07/19/17
Units:	mg/Kg	Received:	07/20/17
Basis:	as received	Prepared:	07/25/17
Batch#:	250007	Analyzed:	07/27/17

Field ID: COMP-DRUM-ABC
Type: SAMPLE
Lab ID: 290775-001
Diln Fac: 10.00
Cleanup Method: EPA 3630C

Analyte	Result	RL	MDL
Diesel C10-C24	11 Y	10	3.1
Motor Oil C24-C36	38 J	50	15

Surrogate	%REC	Limits
o-Terphenyl	DO	58-136

Field ID: COMP-DRUM-EFG
Type: SAMPLE
Lab ID: 290775-002
Diln Fac: 1.000
Cleanup Method: EPA 3630C

Analyte	Result	RL	MDL
Diesel C10-C24	4.2 Y	0.99	0.30
Motor Oil C24-C36	13	5.0	1.5

Surrogate	%REC	Limits
o-Terphenyl	76	58-136

Type: BLANK
Lab ID: QC894450
Diln Fac: 1.000
Cleanup Method: EPA 3630C

Analyte	Result	RL	MDL
Diesel C10-C24	ND	1.0	0.31
Motor Oil C24-C36	ND	5.0	1.5

Surrogate	%REC	Limits
o-Terphenyl	106	58-136

J= Estimated value
Y= Sample exhibits chromatographic pattern which does not resemble standard
DO= Diluted Out
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3550B
Project#:	0399889.02.05	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC894451	Batch#:	250007
Matrix:	Soil	Prepared:	07/25/17
Units:	mg/Kg	Analyzed:	07/27/17

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	50.40	56.58	112	56-135

Surrogate	%REC	Limits
o-Terphenyl	117	58-136

ENTHALPY ANALYTICAL

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3550B
Project#:	0399889.02.05	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	250007
MSS Lab ID:	290853-004	Sampled:	07/24/17
Matrix:	Soil	Received:	07/24/17
Units:	mg/Kg	Prepared:	07/25/17
Basis:	as received	Analyzed:	07/26/17
Diln Fac:	5.000		

Type: MS Lab ID: QC894452

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	73.71	50.00	164.0	180 *	35-143

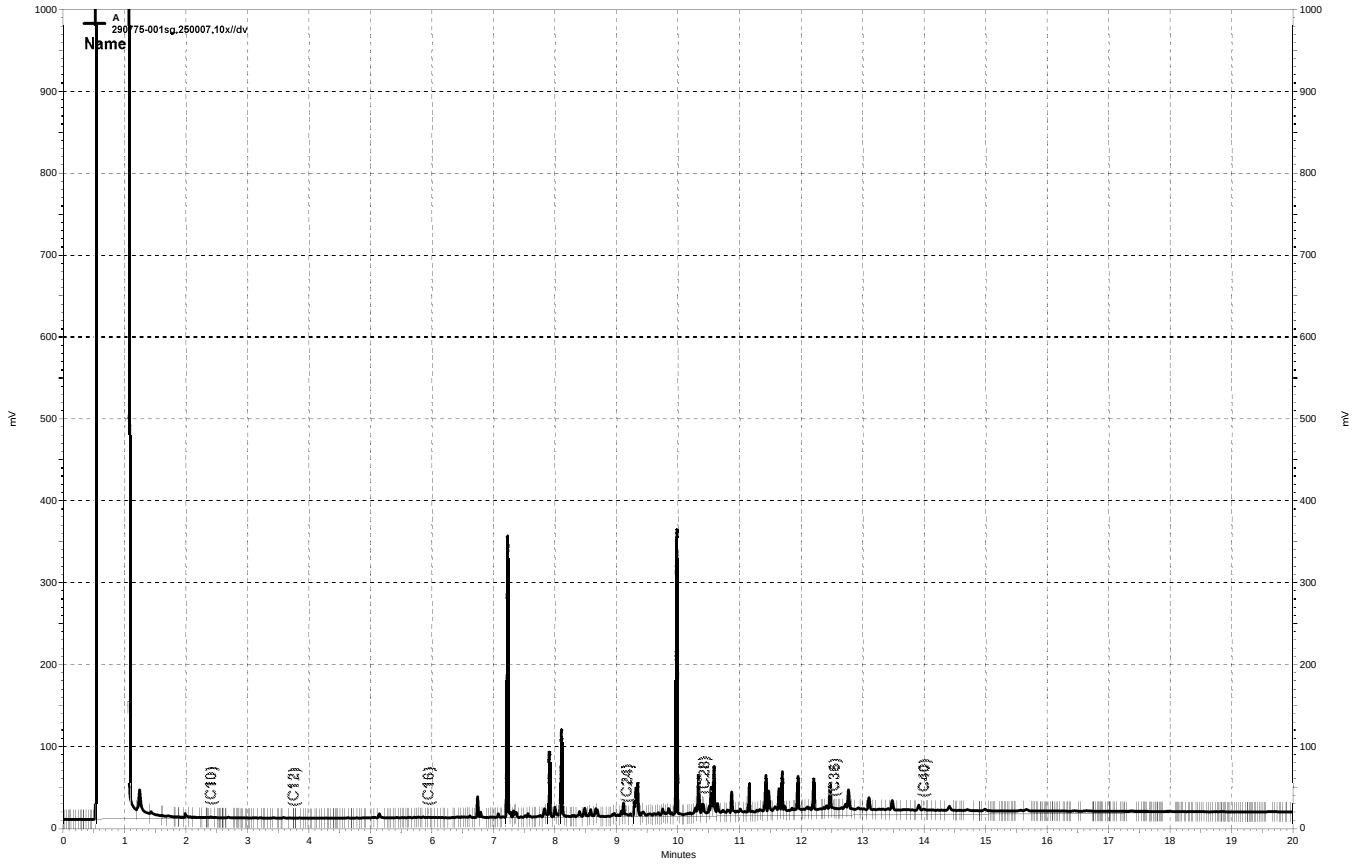
Surrogate	%REC	Limits
o-Terphenyl	120	58-136

Type: MSD Lab ID: QC894453

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	50.10	165.1	182 *	35-143	1	59

Surrogate	%REC	Limits
o-Terphenyl	117	58-136

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference



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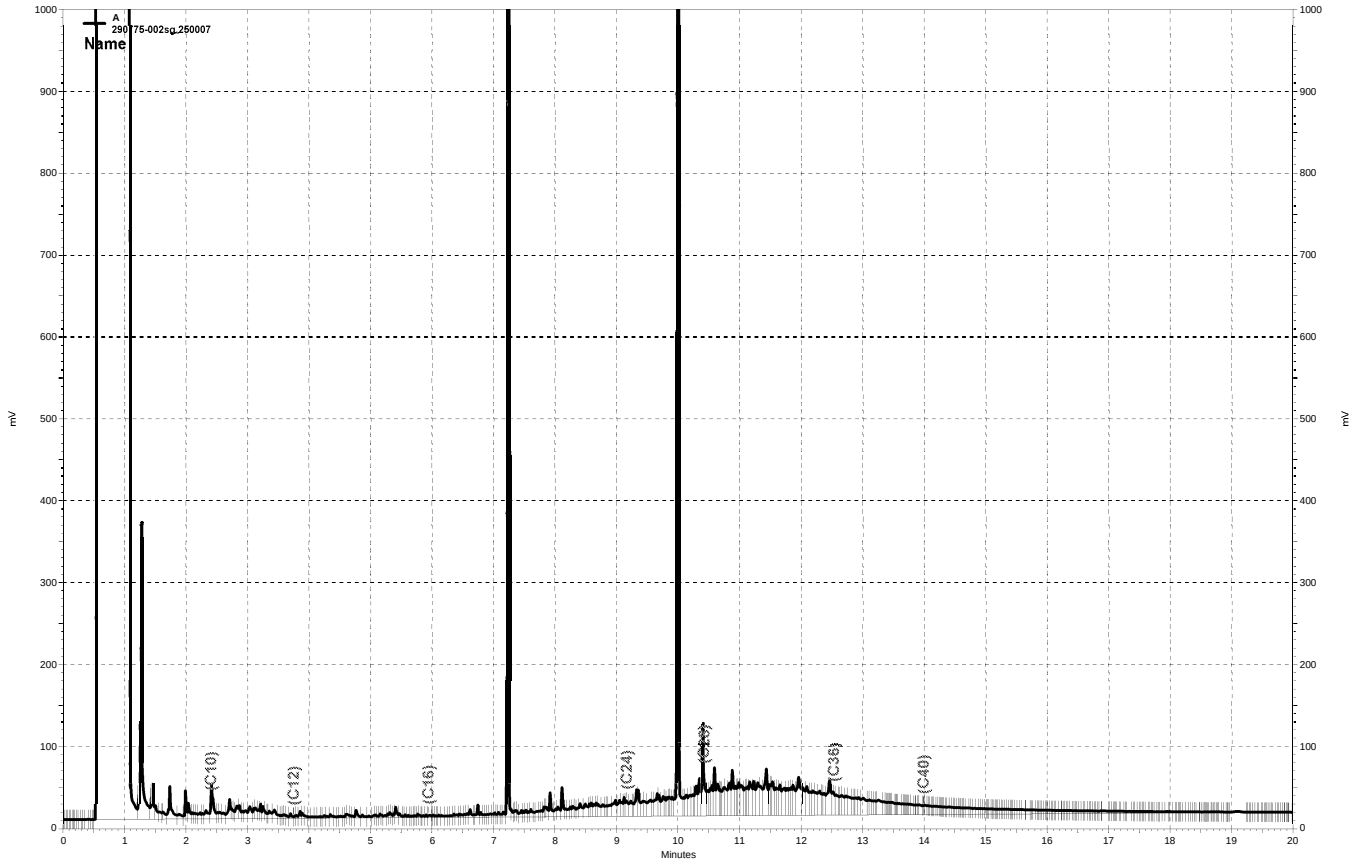

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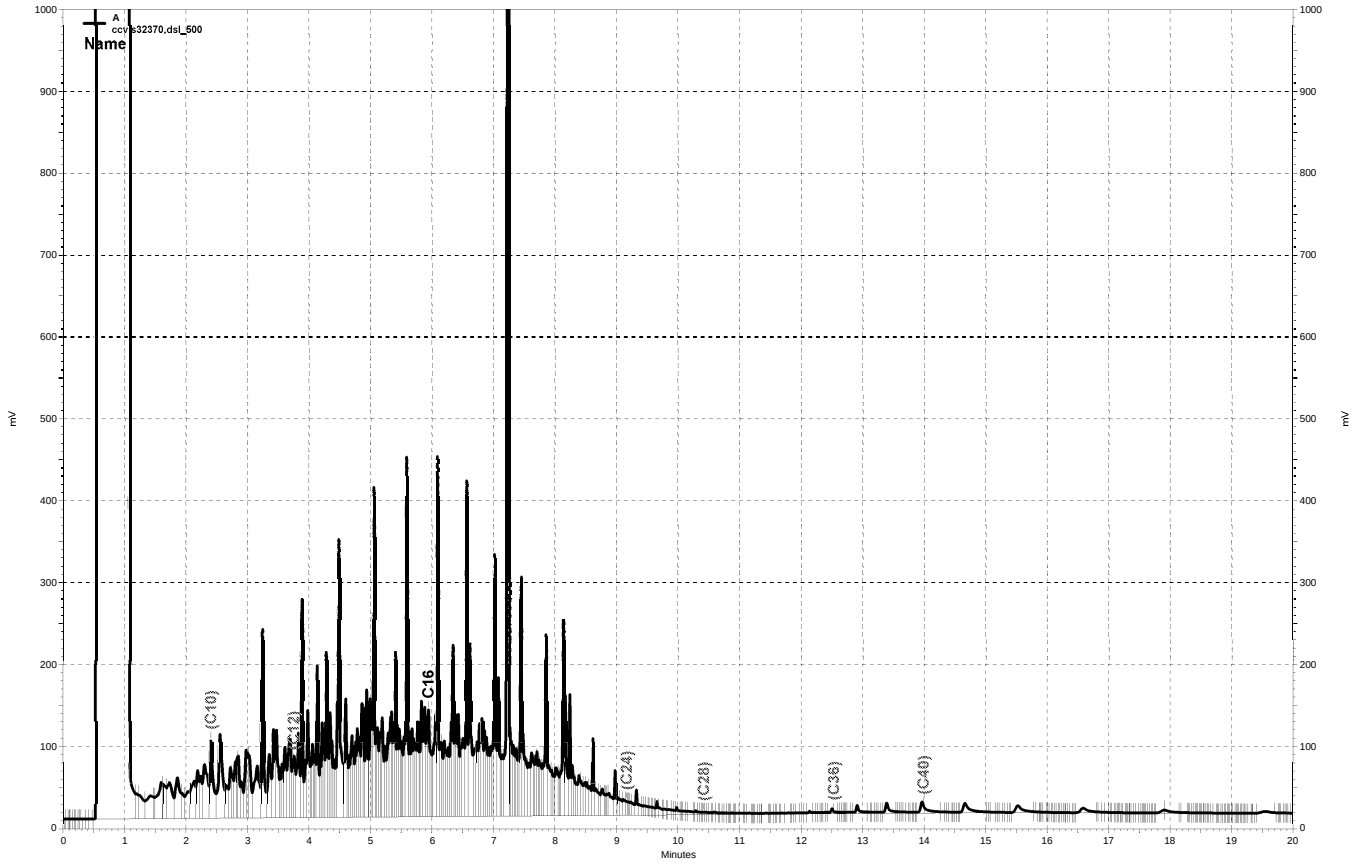

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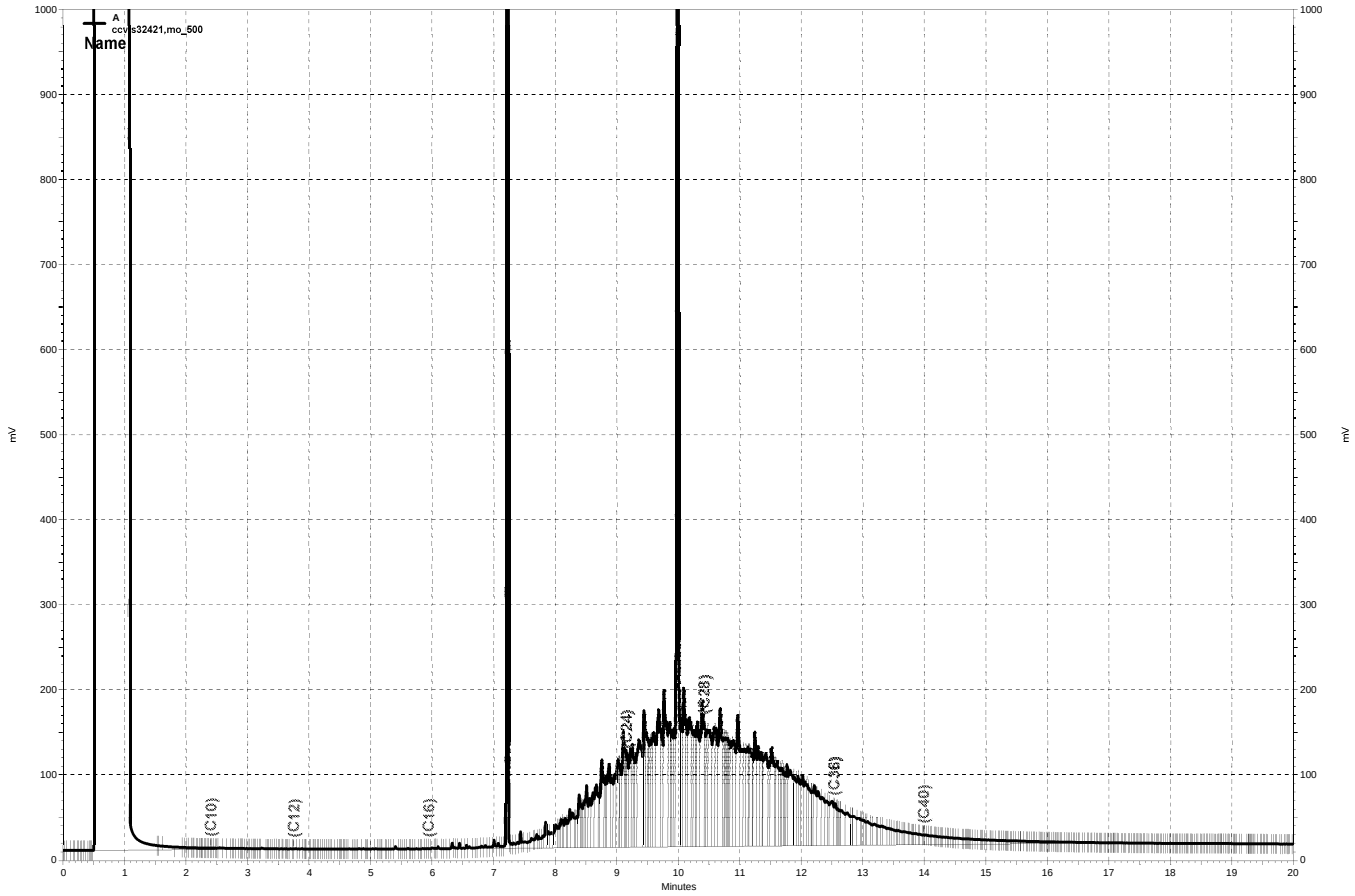

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ENTHALPY ANALYTICAL

Curtis & Tompkins Laboratories Analytical Report

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	PURGE-DRUM	Dil'n Fac:	1.000
Lab ID:	290775-003	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
Gasoline C7-C12	ND	50	4.0	250016	07/25/17
Freon 12	ND	1.0	0.2	250016	07/25/17
Chloromethane	ND	1.0	0.1	250016	07/25/17
Vinyl Chloride	ND	0.5	0.2	250016	07/25/17
Bromomethane	ND	1.0	0.1	250063	07/26/17
Chloroethane	ND	1.0	0.2	250016	07/25/17
Trichlorofluoromethane	ND	1.0	0.1	250016	07/25/17
Acetone	ND	10	3.3	250016	07/25/17
Freon 113	ND	2.0	0.2	250016	07/25/17
1,1-Dichloroethene	ND	0.5	0.1	250016	07/25/17
Methylene Chloride	ND	10	0.1	250016	07/25/17
Carbon Disulfide	0.2 J	0.5	0.1	250016	07/25/17
MTBE	30	0.5	0.1	250016	07/25/17
trans-1,2-Dichloroethene	ND	0.5	0.1	250016	07/25/17
Vinyl Acetate	ND	10	0.3	250016	07/25/17
1,1-Dichloroethane	ND	0.5	0.1	250016	07/25/17
2-Butanone	ND	10	1.0	250016	07/25/17
cis-1,2-Dichloroethene	ND	0.5	0.1	250016	07/25/17
2,2-Dichloropropane	ND	0.5	0.1	250016	07/25/17
Chloroform	ND	0.5	0.1	250016	07/25/17
Bromochloromethane	ND	0.5	0.1	250016	07/25/17
1,1,1-Trichloroethane	ND	0.5	0.1	250016	07/25/17
1,1-Dichloropropene	ND	0.5	0.1	250016	07/25/17
Carbon Tetrachloride	ND	0.5	0.1	250016	07/25/17
1,2-Dichloroethane	ND	0.5	0.1	250016	07/25/17
Benzene	ND	0.5	0.1	250016	07/25/17
Trichloroethene	ND	0.5	0.1	250016	07/25/17
1,2-Dichloropropane	ND	0.5	0.1	250016	07/25/17
Bromodichloromethane	ND	0.5	0.1	250016	07/25/17
Dibromomethane	ND	0.5	0.1	250016	07/25/17
4-Methyl-2-Pentanone	1.6 J	10	0.1	250016	07/25/17
cis-1,3-Dichloropropene	ND	0.5	0.1	250016	07/25/17
Toluene	ND	0.5	0.1	250016	07/25/17
trans-1,3-Dichloropropene	ND	0.5	0.1	250016	07/25/17
1,1,2-Trichloroethane	ND	0.5	0.1	250016	07/25/17
2-Hexanone	ND	10	0.2	250016	07/25/17
1,3-Dichloropropane	ND	0.5	0.1	250016	07/25/17
Tetrachloroethene	ND	0.5	0.1	250016	07/25/17
Dibromochloromethane	ND	0.5	0.1	250016	07/25/17
1,2-Dibromoethane	ND	0.5	0.1	250016	07/25/17
Chlorobenzene	ND	0.5	0.1	250016	07/25/17
1,1,1,2-Tetrachloroethane	ND	0.5	0.1	250016	07/25/17
Ethylbenzene	ND	0.5	0.1	250016	07/25/17
m,p-Xylenes	ND	0.5	0.1	250016	07/25/17
o-Xylene	ND	0.5	0.1	250016	07/25/17
Styrene	ND	0.5	0.1	250016	07/25/17
Bromoform	ND	1.0	0.1	250016	07/25/17
Isopropylbenzene	ND	0.5	0.1	250016	07/25/17
1,1,2,2-Tetrachloroethane	ND	0.5	0.1	250016	07/25/17
1,2,3-Trichloropropane	ND	0.5	0.1	250016	07/25/17
Propylbenzene	ND	0.5	0.1	250016	07/25/17
Bromobenzene	ND	0.5	0.1	250016	07/25/17
1,3,5-Trimethylbenzene	ND	0.5	0.1	250016	07/25/17

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Curtis & Tompkins Laboratories Analytical Report

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	PURGE-DRUM	Dil'n Fac:	1.000
Lab ID:	290775-003	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
2-Chlorotoluene	ND	0.5	0.1	250016	07/25/17
4-Chlorotoluene	ND	0.5	0.1	250016	07/25/17
tert-Butylbenzene	ND	0.5	0.1	250016	07/25/17
1,2,4-Trimethylbenzene	ND	0.5	0.1	250016	07/25/17
sec-Butylbenzene	ND	0.5	0.1	250016	07/25/17
para-Isopropyl Toluene	ND	0.5	0.1	250016	07/25/17
1,3-Dichlorobenzene	ND	0.5	0.1	250016	07/25/17
1,4-Dichlorobenzene	ND	0.5	0.1	250016	07/25/17
n-Butylbenzene	ND	0.5	0.1	250016	07/25/17
1,2-Dichlorobenzene	ND	0.5	0.1	250016	07/25/17
1,2-Dibromo-3-Chloropropane	ND	2.0	0.3	250016	07/25/17
1,2,4-Trichlorobenzene	ND	0.5	0.1	250016	07/25/17
Hexachlorobutadiene	ND	2.0	0.3	250016	07/25/17
Naphthalene	ND	2.0	0.3	250016	07/25/17
1,2,3-Trichlorobenzene	ND	0.5	0.1	250016	07/25/17

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	99	80-120	250016	07/25/17
1,2-Dichloroethane-d4	123	73-136	250016	07/25/17
Toluene-d8	102	80-120	250016	07/25/17
Bromofluorobenzene	102	80-120	250016	07/25/17

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	250016
Units:	ug/L	Analyzed:	07/25/17
Diln Fac:	1.000		

Type: BS Lab ID: QC894482

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	15.00	16.15	108	66-127
Benzene	15.00	15.30	102	78-123
Trichloroethene	15.00	15.73	105	75-120
Toluene	15.00	15.81	105	80-120
Chlorobenzene	15.00	14.95	100	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	110	80-120
1,2-Dichloroethane-d4	128	73-136
Toluene-d8	99	80-120
Bromofluorobenzene	97	80-120

Type: BSD Lab ID: QC894483

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	15.00	16.47	110	66-127	2	20
Benzene	15.00	15.55	104	78-123	2	20
Trichloroethene	15.00	16.31	109	75-120	4	20
Toluene	15.00	16.32	109	80-120	3	20
Chlorobenzene	15.00	15.36	102	80-120	3	20

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-120
1,2-Dichloroethane-d4	116	73-136
Toluene-d8	100	80-120
Bromofluorobenzene	101	80-120

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	250016
Units:	ug/L	Analyzed:	07/25/17
Diln Fac:	1.000		

Type: BS Lab ID: QC894484

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	500.0	485.4	97	70-130

Surrogate	%REC	Limits
Dibromofluoromethane	103	80-120
1,2-Dichloroethane-d4	116	73-136
Toluene-d8	98	80-120
Bromofluorobenzene	100	80-120

Type: BSD Lab ID: QC894485

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	500.0	496.1	99	70-130	2	20

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-120
1,2-Dichloroethane-d4	113	73-136
Toluene-d8	99	80-120
Bromofluorobenzene	102	80-120

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894486	Batch#:	250016
Matrix:	Water	Analyzed:	07/25/17
Units:	ug/L		

Analyte	Result	RL	MDL
Gasoline C7-C12	ND	50	4.0
Freon 12	ND	1.0	0.2
Chloromethane	ND	1.0	0.1
Vinyl Chloride	ND	0.5	0.2
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.1
Acetone	ND	10	3.3
Freon 113	ND	2.0	0.2
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	10	0.1
Carbon Disulfide	ND	0.5	0.1
MTBE	ND	0.5	0.1
trans-1,2-Dichloroethene	ND	0.5	0.1
Vinyl Acetate	ND	10	0.3
1,1-Dichloroethane	ND	0.5	0.1
2-Butanone	ND	10	1.0
cis-1,2-Dichloroethene	ND	0.5	0.1
2,2-Dichloropropane	ND	0.5	0.1
Chloroform	ND	0.5	0.1
Bromochloromethane	ND	0.5	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
1,1-Dichloropropene	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Benzene	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
Dibromomethane	ND	0.5	0.1
4-Methyl-2-Pentanone	ND	10	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
Toluene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
2-Hexanone	ND	10	0.2
1,3-Dichloropropane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
1,2-Dibromoethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
1,1,1,2-Tetrachloroethane	ND	0.5	0.1
Ethylbenzene	ND	0.5	0.1
m,p-Xylenes	ND	0.5	0.1
o-Xylene	ND	0.5	0.1
Styrene	ND	0.5	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	0.5	0.1
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,2,3-Trichloropropane	ND	0.5	0.1
Propylbenzene	ND	0.5	0.1
Bromobenzene	ND	0.5	0.1
1,3,5-Trimethylbenzene	ND	0.5	0.1

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894486	Batch#:	250016
Matrix:	Water	Analyzed:	07/25/17
Units:	ug/L		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	0.5	0.1
4-Chlorotoluene	ND	0.5	0.1
tert-Butylbenzene	ND	0.5	0.1
1,2,4-Trimethylbenzene	ND	0.5	0.1
sec-Butylbenzene	ND	0.5	0.1
para-Isopropyl Toluene	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
n-Butylbenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1
1,2-Dibromo-3-Chloropropane	ND	2.0	0.3
1,2,4-Trichlorobenzene	ND	0.5	0.1
Hexachlorobutadiene	ND	2.0	0.3
Naphthalene	ND	2.0	0.3
1,2,3-Trichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
Dibromofluoromethane	105	80-120
1,2-Dichloroethane-d4	112	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	108	80-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	250063
Units:	ug/L	Analyzed:	07/26/17
Diln Fac:	1.000		

Type: BS Lab ID: QC894652

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	12.50	13.83 b	111	66-127
Benzene	12.50	13.45	108	78-123
Trichloroethene	12.50	13.14	105	75-120
Toluene	12.50	12.08	97	80-120
Chlorobenzene	12.50	12.40	99	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	112	80-120
1,2-Dichloroethane-d4	90	73-136
Toluene-d8	89	80-120
Bromofluorobenzene	93	80-120

Type: BSD Lab ID: QC894653

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	12.50	19.09 b	153 *	66-127	32 *	20
Benzene	12.50	12.91	103	78-123	4	20
Trichloroethene	12.50	13.56	108	75-120	3	20
Toluene	12.50	10.95	88	80-120	10	20
Chlorobenzene	12.50	11.25	90	80-120	10	20

Surrogate	%REC	Limits
Dibromofluoromethane	113	80-120
1,2-Dichloroethane-d4	96	73-136
Toluene-d8	89	80-120
Bromofluorobenzene	92	80-120

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894654	Batch#:	250063
Matrix:	Water	Analyzed:	07/26/17
Units:	ug/L		

Analyte	Result	RL	MDL
Gasoline C7-C12	NA		
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.1
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.1
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.1
Acetone	ND	10	3.3
Freon 113	ND	2.0	0.1
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	10	0.1
Carbon Disulfide	ND	0.5	0.1
MTBE	ND	0.5	0.1
trans-1,2-Dichloroethene	ND	0.5	0.1
Vinyl Acetate	ND	10	0.9
1,1-Dichloroethane	ND	0.5	0.1
2-Butanone	ND	10	0.6
cis-1,2-Dichloroethene	ND	0.5	0.1
2,2-Dichloropropane	ND	0.5	0.1
Chloroform	ND	0.5	0.1
Bromochloromethane	ND	0.5	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
1,1-Dichloropropene	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Benzene	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
Dibromomethane	ND	0.5	0.1
4-Methyl-2-Pentanone	ND	10	0.4
cis-1,3-Dichloropropene	ND	0.5	0.1
Toluene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
2-Hexanone	ND	10	0.4
1,3-Dichloropropane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
1,2-Dibromoethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
1,1,1,2-Tetrachloroethane	ND	0.5	0.1
Ethylbenzene	ND	0.5	0.1
m,p-Xylenes	ND	0.5	0.1
o-Xylene	ND	0.5	0.1
Styrene	ND	0.5	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	0.5	0.1
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,2,3-Trichloropropane	ND	0.5	0.1
Propylbenzene	ND	0.5	0.1

J= Estimated value
NA= Not Analyzed
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894654	Batch#:	250063
Matrix:	Water	Analyzed:	07/26/17
Units:	ug/L		

Analyte	Result	RL	MDL
Bromobenzene	ND	0.5	0.1
1,3,5-Trimethylbenzene	ND	0.5	0.1
2-Chlorotoluene	ND	0.5	0.1
4-Chlorotoluene	ND	0.5	0.1
tert-Butylbenzene	ND	0.5	0.1
1,2,4-Trimethylbenzene	ND	0.5	0.1
sec-Butylbenzene	ND	0.5	0.1
para-Isopropyl Toluene	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
n-Butylbenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1
1,2-Dibromo-3-Chloropropane	ND	2.0	0.3
1,2,4-Trichlorobenzene	ND	0.5	0.1
Hexachlorobutadiene	ND	2.0	0.1
Naphthalene	0.1 J	2.0	0.1
1,2,3-Trichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
Dibromofluoromethane	115	80-120
1,2-Dichloroethane-d4	94	73-136
Toluene-d8	92	80-120
Bromofluorobenzene	94	80-120

J= Estimated value
NA= Not Analyzed
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Purgeable Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	COMP-DRUM-ABC	Dil'n Fac:	0.9259
Lab ID:	290775-001	Batch#:	250195
Matrix:	Soil	Sampled:	07/19/17
Units:	ug/Kg	Received:	07/20/17
Basis:	as received	Analyzed:	07/30/17

Analyte	Result	RL	MDL
Freon 12	ND	9.3	0.7
Chloromethane	ND	9.3	0.7
Vinyl Chloride	ND	9.3	0.7
Bromomethane	ND	9.3	1.2
Chloroethane	ND	9.3	0.3
Trichlorofluoromethane	ND	4.6	0.6
Acetone	ND	19	2.7
Freon 113	ND	4.6	0.6
1,1-Dichloroethene	ND	4.6	0.5
Methylene Chloride	ND	19	1.1
Carbon Disulfide	ND	4.6	0.9
MTBE	ND	4.6	0.3
trans-1,2-Dichloroethene	ND	4.6	0.6
Vinyl Acetate	ND	46	0.5
1,1-Dichloroethane	ND	4.6	0.2
2-Butanone	ND	9.3	1.2
cis-1,2-Dichloroethene	ND	4.6	0.3
2,2-Dichloropropane	ND	4.6	0.6
Chloroform	ND	4.6	0.2
Bromochloromethane	ND	4.6	0.2
1,1,1-Trichloroethane	ND	4.6	0.6
1,1-Dichloropropene	ND	4.6	0.6
Carbon Tetrachloride	ND	4.6	0.7
1,2-Dichloroethane	ND	4.6	0.2
Benzene	ND	4.6	0.5
Trichloroethene	ND	4.6	0.6
1,2-Dichloropropane	ND	4.6	0.2
Bromodichloromethane	ND	4.6	0.3
Dibromomethane	ND	4.6	0.3
4-Methyl-2-Pentanone	ND	9.3	0.7
cis-1,3-Dichloropropene	ND	4.6	0.2
Toluene	ND	4.6	0.5
trans-1,3-Dichloropropene	ND	4.6	0.2
1,1,2-Trichloroethane	ND	4.6	0.3
2-Hexanone	ND	9.3	1.0
1,3-Dichloropropane	ND	4.6	0.2
Tetrachloroethene	ND	4.6	0.6
Dibromochloromethane	ND	4.6	0.3
1,2-Dibromoethane	ND	4.6	0.2
Chlorobenzene	ND	4.6	0.3
1,1,1,2-Tetrachloroethane	ND	4.6	0.5
Ethylbenzene	ND	4.6	0.5
m,p-Xylenes	ND	4.6	0.6
o-Xylene	ND	4.6	0.5
Styrene	ND	4.6	0.2
Bromoform	ND	4.6	0.3
Isopropylbenzene	ND	4.6	0.4
1,1,2,2-Tetrachloroethane	ND	4.6	0.2
1,2,3-Trichloropropane	ND	4.6	0.5
Propylbenzene	ND	4.6	0.5
Bromobenzene	ND	4.6	0.5
1,3,5-Trimethylbenzene	ND	4.6	0.4
2-Chlorotoluene	ND	4.6	0.7

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Purgeable Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	COMP-DRUM-ABC	Dil'n Fac:	0.9259
Lab ID:	290775-001	Batch#:	250195
Matrix:	Soil	Sampled:	07/19/17
Units:	ug/Kg	Received:	07/20/17
Basis:	as received	Analyzed:	07/30/17

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	4.6	0.5
tert-Butylbenzene	ND	4.6	0.4
1,2,4-Trimethylbenzene	ND	4.6	0.5
sec-Butylbenzene	ND	4.6	0.4
para-Isopropyl Toluene	ND	4.6	0.4
1,3-Dichlorobenzene	ND	4.6	0.6
1,4-Dichlorobenzene	ND	4.6	0.5
n-Butylbenzene	ND	4.6	0.6
1,2-Dichlorobenzene	ND	4.6	0.4
1,2-Dibromo-3-Chloropropane	ND	4.6	0.9
1,2,4-Trichlorobenzene	ND	4.6	0.4
Hexachlorobutadiene	ND	4.6	0.5
Naphthalene	ND	4.6	0.9
1,2,3-Trichlorobenzene	ND	4.6	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-128
1,2-Dichloroethane-d4	102	80-136
Toluene-d8	100	80-120
Bromofluorobenzene	102	80-132

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Purgeable Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	COMP-DRUM-EFG	Dil'n Fac:	0.9785
Lab ID:	290775-002	Batch#:	250206
Matrix:	Soil	Sampled:	07/19/17
Units:	ug/Kg	Received:	07/20/17
Basis:	as received	Analyzed:	07/31/17

Analyte	Result	RL	MDL
Freon 12	ND	9.8	0.7
Chloromethane	ND	9.8	0.7
Vinyl Chloride	ND	9.8	0.7
Bromomethane	ND	9.8	1.2
Chloroethane	ND	9.8	0.3
Trichlorofluoromethane	ND	4.9	0.6
Acetone	ND	20	2.8
Freon 113	ND	4.9	0.6
1,1-Dichloroethene	ND	4.9	0.6
Methylene Chloride	ND	20	1.1
Carbon Disulfide	ND	4.9	0.9
MTBE	ND	4.9	0.3
trans-1,2-Dichloroethene	ND	4.9	0.6
Vinyl Acetate	ND	49	0.5
1,1-Dichloroethane	ND	4.9	0.2
2-Butanone	ND	9.8	1.3
cis-1,2-Dichloroethene	ND	4.9	0.3
2,2-Dichloropropane	ND	4.9	0.7
Chloroform	ND	4.9	0.2
Bromochloromethane	ND	4.9	0.3
1,1,1-Trichloroethane	ND	4.9	0.6
1,1-Dichloropropene	ND	4.9	0.6
Carbon Tetrachloride	ND	4.9	0.7
1,2-Dichloroethane	ND	4.9	0.2
Benzene	ND	4.9	0.5
Trichloroethene	ND	4.9	0.6
1,2-Dichloropropane	ND	4.9	0.2
Bromodichloromethane	ND	4.9	0.3
Dibromomethane	ND	4.9	0.3
4-Methyl-2-Pentanone	ND	9.8	0.7
cis-1,3-Dichloropropene	ND	4.9	0.3
Toluene	ND	4.9	0.5
trans-1,3-Dichloropropene	ND	4.9	0.3
1,1,2-Trichloroethane	ND	4.9	0.3
2-Hexanone	ND	9.8	1.1
1,3-Dichloropropane	ND	4.9	0.2
Tetrachloroethene	ND	4.9	0.6
Dibromochloromethane	ND	4.9	0.3
1,2-Dibromoethane	ND	4.9	0.3
Chlorobenzene	ND	4.9	0.3
1,1,1,2-Tetrachloroethane	ND	4.9	0.5
Ethylbenzene	ND	4.9	0.5
m,p-Xylenes	ND	4.9	0.7
o-Xylene	ND	4.9	0.5
Styrene	ND	4.9	0.2
Bromoform	ND	4.9	0.3
Isopropylbenzene	ND	4.9	0.4
1,1,2,2-Tetrachloroethane	ND	4.9	0.2
1,2,3-Trichloropropane	ND	4.9	0.5
Propylbenzene	ND	4.9	0.5
Bromobenzene	ND	4.9	0.5
1,3,5-Trimethylbenzene	ND	4.9	0.5
2-Chlorotoluene	ND	4.9	0.7

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Purgeable Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	COMP-DRUM-EFG	Dil'n Fac:	0.9785
Lab ID:	290775-002	Batch#:	250206
Matrix:	Soil	Sampled:	07/19/17
Units:	ug/Kg	Received:	07/20/17
Basis:	as received	Analyzed:	07/31/17

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	4.9	0.5
tert-Butylbenzene	ND	4.9	0.5
1,2,4-Trimethylbenzene	ND	4.9	0.6
sec-Butylbenzene	ND	4.9	0.4
para-Isopropyl Toluene	ND	4.9	0.5
1,3-Dichlorobenzene	ND	4.9	0.6
1,4-Dichlorobenzene	ND	4.9	0.5
n-Butylbenzene	ND	4.9	0.6
1,2-Dichlorobenzene	ND	4.9	0.4
1,2-Dibromo-3-Chloropropane	ND	4.9	1.0
1,2,4-Trichlorobenzene	ND	4.9	0.5
Hexachlorobutadiene	ND	4.9	0.5
Naphthalene	ND	4.9	1.0
1,2,3-Trichlorobenzene	ND	4.9	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-128
1,2-Dichloroethane-d4	93	80-136
Toluene-d8	99	80-120
Bromofluorobenzene	94	80-132

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Matrix:	Soil	Batch#:	250195
Units:	ug/Kg	Analyzed:	07/30/17
Diln Fac:	1.000		

Type: BS Lab ID: QC895166

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	12.50	10.81	86	65-127
Benzene	12.50	11.48	92	75-124
Trichloroethene	12.50	11.00	88	76-122
Toluene	12.50	11.61	93	77-120
Chlorobenzene	12.50	11.82	95	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-128
1,2-Dichloroethane-d4	98	80-136
Toluene-d8	103	80-120
Bromofluorobenzene	99	80-132

Type: BSD Lab ID: QC895167

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	12.50	11.52	92	65-127	6	28
Benzene	12.50	12.70	102	75-124	10	25
Trichloroethene	12.50	11.88	95	76-122	8	26
Toluene	12.50	12.55	100	77-120	8	25
Chlorobenzene	12.50	12.82	103	80-120	8	24

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-128
1,2-Dichloroethane-d4	96	80-136
Toluene-d8	100	80-120
Bromofluorobenzene	97	80-132

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC895168	Batch#:	250195
Matrix:	Soil	Analyzed:	07/30/17
Units:	ug/Kg		

Analyte	Result	RL	MDL
Freon 12	ND	10	0.7
Chloromethane	ND	10	0.8
Vinyl Chloride	ND	10	0.7
Bromomethane	ND	10	1.3
Chloroethane	ND	10	0.3
Trichlorofluoromethane	ND	5.0	0.7
Acetone	ND	20	2.9
Freon 113	ND	5.0	0.7
1,1-Dichloroethene	ND	5.0	0.6
Methylene Chloride	ND	20	1.2
Carbon Disulfide	ND	5.0	1.0
MTBE	ND	5.0	0.3
trans-1,2-Dichloroethene	ND	5.0	0.6
Vinyl Acetate	ND	50	0.5
1,1-Dichloroethane	ND	5.0	0.2
2-Butanone	ND	10	1.3
cis-1,2-Dichloroethene	ND	5.0	0.3
2,2-Dichloropropane	ND	5.0	0.7
Chloroform	ND	5.0	0.2
Bromochloromethane	ND	5.0	0.3
1,1,1-Trichloroethane	ND	5.0	0.6
1,1-Dichloropropene	ND	5.0	0.6
Carbon Tetrachloride	ND	5.0	0.7
1,2-Dichloroethane	ND	5.0	0.2
Benzene	ND	5.0	0.5
Trichloroethene	ND	5.0	0.6
1,2-Dichloropropane	ND	5.0	0.2
Bromodichloromethane	ND	5.0	0.3
Dibromomethane	ND	5.0	0.4
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	5.0	0.3
Toluene	ND	5.0	0.6
trans-1,3-Dichloropropene	ND	5.0	0.3
1,1,2-Trichloroethane	ND	5.0	0.4
2-Hexanone	ND	10	1.1
1,3-Dichloropropane	ND	5.0	0.2
Tetrachloroethene	ND	5.0	0.6
Dibromochloromethane	ND	5.0	0.3
1,2-Dibromoethane	ND	5.0	0.3
Chlorobenzene	ND	5.0	0.4
1,1,1,2-Tetrachloroethane	ND	5.0	0.5
Ethylbenzene	ND	5.0	0.5
m,p-Xylenes	ND	5.0	0.7
o-Xylene	ND	5.0	0.5
Styrene	ND	5.0	0.2
Bromoform	ND	5.0	0.3
Isopropylbenzene	ND	5.0	0.5
1,1,2,2-Tetrachloroethane	ND	5.0	0.2
1,2,3-Trichloropropane	ND	5.0	0.5
Propylbenzene	ND	5.0	0.5
Bromobenzene	ND	5.0	0.5
1,3,5-Trimethylbenzene	ND	5.0	0.5
2-Chlorotoluene	ND	5.0	0.7

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC895168	Batch#:	250195
Matrix:	Soil	Analyzed:	07/30/17
Units:	ug/Kg		

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	5.0	0.5
tert-Butylbenzene	ND	5.0	0.5
1,2,4-Trimethylbenzene	ND	5.0	0.6
sec-Butylbenzene	ND	5.0	0.4
para-Isopropyl Toluene	ND	5.0	0.5
1,3-Dichlorobenzene	ND	5.0	0.7
1,4-Dichlorobenzene	ND	5.0	0.5
n-Butylbenzene	ND	5.0	0.6
1,2-Dichlorobenzene	ND	5.0	0.4
1,2-Dibromo-3-Chloropropane	ND	5.0	1.0
1,2,4-Trichlorobenzene	ND	5.0	0.5
Hexachlorobutadiene	ND	5.0	0.5
Naphthalene	ND	5.0	1.0
1,2,3-Trichlorobenzene	ND	5.0	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-128
1,2-Dichloroethane-d4	97	80-136
Toluene-d8	101	80-120
Bromofluorobenzene	100	80-132

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Basis:	as received
MSS Lab ID:	291076-001	Batch#:	250195
Matrix:	Soil	Sampled:	07/28/17
Units:	ug/Kg	Received:	07/28/17

Type: MS Diln Fac: 0.9940
Lab ID: QC895181 Analyzed: 07/30/17

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.5653	49.70	52.98	107	65-131
Benzene	<0.5044	49.70	46.73	94	68-123
Trichloroethene	<0.6096	49.70	48.67	98	60-136
Toluene	<0.5421	49.70	45.48	92	64-120
Chlorobenzene	<0.3401	49.70	43.68	88	59-120

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-128
1,2-Dichloroethane-d4	100	80-136
Toluene-d8	99	80-120
Bromofluorobenzene	95	80-132

Type: MSD Diln Fac: 0.9709
Lab ID: QC895182 Analyzed: 07/31/17

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	48.54	51.08	105	65-131	1	33
Benzene	48.54	48.87	101	68-123	7	30
Trichloroethene	48.54	49.59	102	60-136	4	34
Toluene	48.54	47.62	98	64-120	7	31
Chlorobenzene	48.54	47.70	98	59-120	11	33

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-128
1,2-Dichloroethane-d4	96	80-136
Toluene-d8	99	80-120
Bromofluorobenzene	97	80-132

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Matrix:	Soil	Batch#:	250206
Units:	ug/Kg	Analyzed:	07/31/17
Diln Fac:	1.000		

Type: BS Lab ID: QC895202

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	25.15	101	65-127
Benzene	25.00	26.12	104	75-124
Trichloroethene	25.00	25.49	102	76-122
Toluene	25.00	25.36	101	77-120
Chlorobenzene	25.00	26.19	105	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-128
1,2-Dichloroethane-d4	93	80-136
Toluene-d8	99	80-120
Bromofluorobenzene	98	80-132

Type: BSD Lab ID: QC895203

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	24.59	98	65-127	2	28
Benzene	25.00	25.28	101	75-124	3	25
Trichloroethene	25.00	24.30	97	76-122	5	26
Toluene	25.00	24.11	96	77-120	5	25
Chlorobenzene	25.00	24.43	98	80-120	7	24

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-128
1,2-Dichloroethane-d4	94	80-136
Toluene-d8	101	80-120
Bromofluorobenzene	97	80-132

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Type:	BLANK	Dil'n Fac:	1.000
Lab ID:	QC895204	Batch#:	250206
Matrix:	Soil	Analyzed:	07/31/17
Units:	ug/Kg		

Analyte	Result	RL	MDL
Freon 12	ND	10	0.7
Chloromethane	ND	10	0.8
Vinyl Chloride	ND	10	0.7
Bromomethane	ND	10	1.3
Chloroethane	ND	10	0.3
Trichlorofluoromethane	ND	5.0	0.7
Acetone	ND	20	2.9
Freon 113	ND	5.0	0.7
1,1-Dichloroethene	ND	5.0	0.6
Methylene Chloride	ND	20	1.2
Carbon Disulfide	ND	5.0	1.0
MTBE	ND	5.0	0.3
trans-1,2-Dichloroethene	ND	5.0	0.6
Vinyl Acetate	ND	50	0.5
1,1-Dichloroethane	ND	5.0	0.2
2-Butanone	ND	10	1.3
cis-1,2-Dichloroethene	ND	5.0	0.3
2,2-Dichloropropane	ND	5.0	0.7
Chloroform	ND	5.0	0.2
Bromochloromethane	ND	5.0	0.3
1,1,1-Trichloroethane	ND	5.0	0.6
1,1-Dichloropropene	ND	5.0	0.6
Carbon Tetrachloride	ND	5.0	0.7
1,2-Dichloroethane	ND	5.0	0.2
Benzene	ND	5.0	0.5
Trichloroethene	ND	5.0	0.6
1,2-Dichloropropane	ND	5.0	0.2
Bromodichloromethane	ND	5.0	0.3
Dibromomethane	ND	5.0	0.4
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	5.0	0.3
Toluene	ND	5.0	0.6
trans-1,3-Dichloropropene	ND	5.0	0.3
1,1,2-Trichloroethane	ND	5.0	0.4
2-Hexanone	ND	10	1.1
1,3-Dichloropropane	ND	5.0	0.2
Tetrachloroethene	ND	5.0	0.6
Dibromochloromethane	ND	5.0	0.3
1,2-Dibromoethane	ND	5.0	0.3
Chlorobenzene	ND	5.0	0.4
1,1,1,2-Tetrachloroethane	ND	5.0	0.5
Ethylbenzene	ND	5.0	0.5
m,p-Xylenes	ND	5.0	0.7
o-Xylene	ND	5.0	0.5
Styrene	ND	5.0	0.2
Bromoform	ND	5.0	0.3
Isopropylbenzene	ND	5.0	0.5
1,1,2,2-Tetrachloroethane	ND	5.0	0.2
1,2,3-Trichloropropane	ND	5.0	0.5
Propylbenzene	ND	5.0	0.5
Bromobenzene	ND	5.0	0.5
1,3,5-Trimethylbenzene	ND	5.0	0.5
2-Chlorotoluene	ND	5.0	0.7

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC895204	Batch#:	250206
Matrix:	Soil	Analyzed:	07/31/17
Units:	ug/Kg		

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	5.0	0.5
tert-Butylbenzene	ND	5.0	0.5
1,2,4-Trimethylbenzene	ND	5.0	0.6
sec-Butylbenzene	ND	5.0	0.4
para-Isopropyl Toluene	ND	5.0	0.5
1,3-Dichlorobenzene	ND	5.0	0.7
1,4-Dichlorobenzene	ND	5.0	0.5
n-Butylbenzene	ND	5.0	0.6
1,2-Dichlorobenzene	ND	5.0	0.4
1,2-Dibromo-3-Chloropropane	ND	5.0	1.0
1,2,4-Trichlorobenzene	ND	5.0	0.5
Hexachlorobutadiene	ND	5.0	0.5
Naphthalene	ND	5.0	1.0
1,2,3-Trichlorobenzene	ND	5.0	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-128
1,2-Dichloroethane-d4	97	80-136
Toluene-d8	100	80-120
Bromofluorobenzene	101	80-132

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 5030B
Project#:	0399889.02.05	Analysis:	EPA 8260B
Field ID:	COMP-DRUM-EFG	Batch#:	250206
MSS Lab ID:	290775-002	Sampled:	07/19/17
Matrix:	Soil	Received:	07/20/17
Units:	ug/Kg	Analyzed:	07/31/17
Basis:	as received		

Type: MS Diln Fac: 0.9823
Lab ID: QC895348

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.5730	49.12	50.38	103	65-131
Benzene	<0.5113	49.12	47.15	96	68-123
Trichloroethene	<0.6179	49.12	47.13	96	60-136
Toluene	<0.5496	49.12	46.48	95	64-120
Chlorobenzene	<0.3448	49.12	45.85	93	59-120

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-128
1,2-Dichloroethane-d4	92	80-136
Toluene-d8	99	80-120
Bromofluorobenzene	95	80-132

Type: MSD Diln Fac: 0.9804
Lab ID: QC895349

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	49.02	44.83	91	65-131	11	33
Benzene	49.02	42.85	87	68-123	9	30
Trichloroethene	49.02	42.07	86	60-136	11	34
Toluene	49.02	41.83	85	64-120	10	31
Chlorobenzene	49.02	40.92	83	59-120	11	33

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-128
1,2-Dichloroethane-d4	91	80-136
Toluene-d8	98	80-120
Bromofluorobenzene	95	80-132

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Semivolatile Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Field ID:	PURGE-DRUM	Batch#:	249976
Lab ID:	290775-003	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Prepared:	07/24/17
Diln Fac:	1.000	Analyzed:	07/27/17

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	9.5	2.1
Phenol	ND	9.5	0.77
bis(2-Chloroethyl)ether	ND	9.5	1.4
2-Chlorophenol	ND	9.5	0.87
1,3-Dichlorobenzene	ND	9.5	1.4
1,4-Dichlorobenzene	ND	9.5	1.5
Benzyl alcohol	ND	9.5	1.4
1,2-Dichlorobenzene	ND	9.5	1.4
2-Methylphenol	ND	9.5	0.67
bis(2-Chloroisopropyl) ether	ND	9.5	1.5
4-Methylphenol	ND	9.5	1.1
N-Nitroso-di-n-propylamine	ND	9.5	1.2
Hexachloroethane	ND	9.5	1.4
Nitrobenzene	ND	9.5	1.2
Isophorone	ND	9.5	1.6
2-Nitrophenol	ND	19	1.9
2,4-Dimethylphenol	ND	9.5	0.67
bis(2-Chloroethoxy)methane	ND	9.5	1.3
2,4-Dichlorophenol	ND	9.5	0.76
1,2,4-Trichlorobenzene	ND	9.5	1.4
Naphthalene	ND	9.5	1.3
4-Chloroaniline	ND	9.5	1.3
Hexachlorobutadiene	ND	9.5	1.3
4-Chloro-3-methylphenol	ND	9.5	1.5
2-Methylnaphthalene	ND	9.5	1.3
1-Methylnaphthalene	ND	9.5	1.2
Hexachlorocyclopentadiene	ND	19	1.9
2,4,6-Trichlorophenol	ND	9.5	0.90
2,4,5-Trichlorophenol	ND	9.5	1.1
2-Chloronaphthalene	ND	9.5	1.2
2-Nitroaniline	ND	19	1.5
Dimethylphthalate	ND	9.5	1.5
Acenaphthylene	ND	9.5	1.3
2,6-Dinitrotoluene	ND	9.5	1.6
3-Nitroaniline	ND	19	3.6
Acenaphthene	ND	9.5	1.3
2,4-Dinitrophenol	ND	19	4.8
4-Nitrophenol	ND	19	1.4
Dibenzofuran	ND	9.5	1.5
2,4-Dinitrotoluene	ND	9.5	1.3
Diethylphthalate	ND	9.5	1.5
Fluorene	ND	9.5	1.4
4-Chlorophenyl-phenylether	ND	9.5	1.3
4-Nitroaniline	ND	19	2.1
4,6-Dinitro-2-methylphenol	ND	19	1.6
N-Nitrosodiphenylamine	ND	9.5	1.2
Azobenzene	ND	9.5	1.3
4-Bromophenyl-phenylether	ND	9.5	1.3
Hexachlorobenzene	ND	9.5	1.3
Pentachlorophenol	ND	19	1.3
Phenanthrene	ND	9.5	1.3
Anthracene	ND	9.5	1.2
Di-n-butylphthalate	ND	9.5	1.3

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Semivolatile Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Field ID:	PURGE-DRUM	Batch#:	249976
Lab ID:	290775-003	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L	Prepared:	07/24/17
Diln Fac:	1.000	Analyzed:	07/27/17

Analyte	Result	RL	MDL
Fluoranthene	ND	9.5	1.3
Pyrene	ND	9.5	1.2
Butylbenzylphthalate	ND	9.5	1.2
3,3'-Dichlorobenzidine	ND	19	1.4
Benzo(a)anthracene	ND	9.5	1.3
Chrysene	ND	9.5	1.3
bis(2-Ethylhexyl)phthalate	ND	9.5	1.8
Di-n-octylphthalate	ND	9.5	1.4
Benzo(b)fluoranthene	ND	9.5	1.4
Benzo(k)fluoranthene	ND	9.5	1.4
Benzo(a)pyrene	ND	9.5	1.0
Indeno(1,2,3-cd)pyrene	ND	9.5	1.2
Dibenz(a,h)anthracene	ND	9.5	1.3
Benzo(g,h,i)perylene	ND	9.5	1.3

Surrogate	%REC	Limits
2-Fluorophenol	53	38-120
Phenol-d5	54	36-120
2,4,6-Tribromophenol	62	41-120
Nitrobenzene-d5	64	44-120
2-Fluorobiphenyl	63	46-120
Terphenyl-d14	44	11-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894337	Batch#:	249976
Matrix:	Water	Prepared:	07/24/17
Units:	ug/L	Analyzed:	07/25/17

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	10	1.5
Phenol	ND	10	1.0
bis(2-Chloroethyl)ether	ND	10	1.2
2-Chlorophenol	ND	10	0.82
1,3-Dichlorobenzene	ND	10	1.0
1,4-Dichlorobenzene	ND	10	1.1
Benzyl alcohol	ND	10	1.1
1,2-Dichlorobenzene	ND	10	2.1
2-Methylphenol	ND	10	2.2
bis(2-Chloroisopropyl) ether	ND	10	1.4
4-Methylphenol	ND	10	1.7
N-Nitroso-di-n-propylamine	ND	10	1.2
Hexachloroethane	ND	10	1.1
Nitrobenzene	ND	10	1.2
Isophorone	ND	10	1.3
2-Nitrophenol	ND	20	2.6
2,4-Dimethylphenol	ND	10	2.5
bis(2-Chloroethoxy)methane	ND	10	1.1
2,4-Dichlorophenol	ND	10	2.1
1,2,4-Trichlorobenzene	ND	10	2.2
Naphthalene	ND	10	1.9
4-Chloroaniline	ND	10	2.1
Hexachlorobutadiene	ND	10	2.4
4-Chloro-3-methylphenol	ND	10	1.0
2-Methylnaphthalene	ND	10	1.8
1-Methylnaphthalene	ND	10	2.0
Hexachlorocyclopentadiene	ND	20	5.0
2,4,6-Trichlorophenol	ND	10	0.92
2,4,5-Trichlorophenol	ND	10	0.85
2-Chloronaphthalene	ND	10	1.8
2-Nitroaniline	ND	20	1.2
Dimethylphthalate	ND	10	2.0
Acenaphthylene	ND	10	1.7
2,6-Dinitrotoluene	ND	10	1.8
3-Nitroaniline	ND	20	1.9
Acenaphthene	ND	10	1.8
2,4-Dinitrophenol	ND	20	5.0
4-Nitrophenol	ND	20	5.0
Dibenzofuran	ND	10	1.9
2,4-Dinitrotoluene	ND	10	2.1
Diethylphthalate	ND	10	1.0
Fluorene	ND	10	1.8
4-Chlorophenyl-phenylether	ND	10	1.6
4-Nitroaniline	ND	20	2.4
4,6-Dinitro-2-methylphenol	ND	20	5.0
N-Nitrosodiphenylamine	ND	10	1.7
Azobenzene	ND	10	1.2
4-Bromophenyl-phenylether	ND	10	2.0
Hexachlorobenzene	ND	10	2.0
Pentachlorophenol	ND	20	1.9
Phenanthrene	ND	10	1.9
Anthracene	ND	10	1.8
Di-n-butylphthalate	ND	10	1.2

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894337	Batch#:	249976
Matrix:	Water	Prepared:	07/24/17
Units:	ug/L	Analyzed:	07/25/17

Analyte	Result	RL	MDL
Fluoranthene	ND	10	1.9
Pyrene	ND	10	1.7
Butylbenzylphthalate	ND	10	1.0
3,3'-Dichlorobenzidine	ND	20	1.0
Benzo(a)anthracene	ND	10	1.6
Chrysene	ND	10	1.7
bis(2-Ethylhexyl)phthalate	ND	10	1.8
Di-n-octylphthalate	ND	10	1.8
Benzo(b)fluoranthene	ND	10	1.7
Benzo(k)fluoranthene	ND	10	2.0
Benzo(a)pyrene	ND	10	1.6
Indeno(1,2,3-cd)pyrene	ND	10	1.8
Dibenz(a,h)anthracene	ND	10	1.8
Benzo(g,h,i)perylene	ND	10	1.9

Surrogate	%REC	Limits
2-Fluorophenol	62	38-120
Phenol-d5	63	36-120
2,4,6-Tribromophenol	48	41-120
Nitrobenzene-d5	70	44-120
2-Fluorobiphenyl	62	46-120
Terphenyl-d14	68	11-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3520C
Project#:	0399889.02.05	Analysis:	EPA 8270C
Matrix:	Water	Batch#:	249976
Units:	ug/L	Prepared:	07/24/17
Diln Fac:	1.000		

Type: BS Lab ID: QC894338

Analyte	Spiked	Result	%REC	Limits	Analyzed
Phenol	80.00	53.43	67	60-120	07/25/17
2-Chlorophenol	80.00	61.47	77	63-120	07/26/17
1,4-Dichlorobenzene	80.00	51.31	64	52-120	07/26/17
N-Nitroso-di-n-propylamine	80.00	51.25	64	40-120	07/26/17
1,2,4-Trichlorobenzene	80.00	49.17	61	52-120	07/26/17
4-Chloro-3-methylphenol	80.00	54.23	68	63-120	07/25/17
Acenaphthene	30.00	21.35	71	56-120	07/26/17
4-Nitrophenol	80.00	74.14	93	49-120	07/26/17
2,4-Dinitrotoluene	80.00	59.01	74	65-120	07/26/17
Pentachlorophenol	80.00	45.14	56	52-120	07/26/17
Pyrene	30.00	21.26	71	61-120	07/26/17

Surrogate	%REC	Limits	Analyzed
2-Fluorophenol	88	38-120	07/26/17
Phenol-d5	93	36-120	07/26/17
2,4,6-Tribromophenol	64	41-120	07/26/17
Nitrobenzene-d5	87	44-120	07/26/17
2-Fluorobiphenyl	65	46-120	07/26/17
Terphenyl-d14	69	11-120	07/26/17

Type: BSD Lab ID: QC894339

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
Phenol	80.00	56.58	71	60-120	6	28	07/25/17
2-Chlorophenol	80.00	64.03	80	63-120	4	26	07/26/17
1,4-Dichlorobenzene	80.00	52.84	66	52-120	3	27	07/26/17
N-Nitroso-di-n-propylamine	80.00	52.01	65	40-120	1	27	07/26/17
1,2,4-Trichlorobenzene	80.00	51.66	65	52-120	5	25	07/26/17
4-Chloro-3-methylphenol	80.00	57.50	72	63-120	6	23	07/25/17
Acenaphthene	30.00	23.18	77	56-120	8	24	07/26/17
4-Nitrophenol	80.00	80.40	101	49-120	8	28	07/26/17
2,4-Dinitrotoluene	80.00	62.72	78	65-120	6	24	07/26/17
Pentachlorophenol	80.00	50.01	63	52-120	10	35	07/26/17
Pyrene	30.00	22.70	76	61-120	7	24	07/26/17

Surrogate	%REC	Limits	Analyzed
2-Fluorophenol	92	38-120	07/26/17
Phenol-d5	97	36-120	07/26/17
2,4,6-Tribromophenol	69	41-120	07/26/17
Nitrobenzene-d5	92	44-120	07/26/17
2-Fluorobiphenyl	70	46-120	07/26/17
Terphenyl-d14	75	11-120	07/26/17

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Semivolatile Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3550B
Project#:	0399889.02.05	Analysis:	EPA 8270C
Field ID:	COMP-DRUM-ABC	Batch#:	250003
Lab ID:	290775-001	Sampled:	07/19/17
Matrix:	Soil	Received:	07/20/17
Units:	ug/Kg	Prepared:	07/25/17
Basis:	as received	Analyzed:	07/28/17
Diln Fac:	1.000		

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	340	34
Phenol	ND	340	18
bis(2-Chloroethyl)ether	ND	340	13
2-Chlorophenol	ND	340	17
1,3-Dichlorobenzene	ND	340	12
1,4-Dichlorobenzene	ND	340	10
Benzyl alcohol	ND	340	16
1,2-Dichlorobenzene	ND	340	9.6
2-Methylphenol	ND	340	16
bis(2-Chloroisopropyl) ether	ND	340	19
4-Methylphenol	ND	340	18
N-Nitroso-di-n-propylamine	ND	340	34
Hexachloroethane	ND	340	12
Nitrobenzene	ND	340	12
Isophorone	ND	340	11
2-Nitrophenol	ND	680	10
2,4-Dimethylphenol	ND	340	14
Benzoic acid	ND	1,700	510
bis(2-Chloroethoxy)methane	ND	340	12
2,4-Dichlorophenol	ND	340	13
1,2,4-Trichlorobenzene	ND	340	9.8
Naphthalene	ND	68	8.9
4-Chloroaniline	ND	340	34
Hexachlorobutadiene	ND	340	62
4-Chloro-3-methylphenol	ND	340	15
2-Methylnaphthalene	ND	68	10
1-Methylnaphthalene	ND	68	12
Hexachlorocyclopentadiene	ND	680	61
2,4,6-Trichlorophenol	ND	340	14
2,4,5-Trichlorophenol	ND	340	8.9
2-Chloronaphthalene	ND	340	56
2-Nitroaniline	ND	680	34
Dimethylphthalate	ND	340	9.5
Acenaphthylene	21 J	68	8.6
2,6-Dinitrotoluene	ND	340	8.9
3-Nitroaniline	ND	680	34
Acenaphthene	ND	68	12
2,4-Dinitrophenol	ND	680	160
4-Nitrophenol	ND	680	70
Dibenzofuran	ND	340	8.9
2,4-Dinitrotoluene	ND	340	9.8
Diethylphthalate	ND	340	8.6
Fluorene	ND	68	9.0
4-Chlorophenyl-phenylether	ND	340	9.9
4-Nitroaniline	ND	680	34
4,6-Dinitro-2-methylphenol	ND	680	43
N-Nitrosodiphenylamine	ND	340	57
Azobenzene	ND	340	12
4-Bromophenyl-phenylether	ND	340	60
Hexachlorobenzene	ND	340	12
Pentachlorophenol	ND	680	150

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Semivolatile Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3550B
Project#:	0399889.02.05	Analysis:	EPA 8270C
Field ID:	COMP-DRUM-ABC	Batch#:	250003
Lab ID:	290775-001	Sampled:	07/19/17
Matrix:	Soil	Received:	07/20/17
Units:	ug/Kg	Prepared:	07/25/17
Basis:	as received	Analyzed:	07/28/17
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Phenanthrene	39 J	68	9.7
Anthracene	13 J	68	12
Di-n-butylphthalate	ND	340	12
Fluoranthene	110	68	8.8
Pyrene	180	68	9.5
Butylbenzylphthalate	ND	340	12
3,3'-Dichlorobenzidine	ND	680	44
Benzo(a)anthracene	79	68	8.7
Chrysene	81	68	12
bis(2-Ethylhexyl)phthalate	ND	340	8.9
Di-n-octylphthalate	ND	340	8.6
Benzo(b)fluoranthene	75	68	12
Benzo(k)fluoranthene	23 J	68	8.8
Benzo(a)pyrene	78	68	8.8
Indeno(1,2,3-cd)pyrene	23 J	68	12
Dibenz(a,h)anthracene	ND	68	12
Benzo(g,h,i)perylene	29 J	68	8.8

Surrogate	%REC	Limits
2-Fluorophenol	91	28-120
Phenol-d5	91	29-120
2,4,6-Tribromophenol	58	26-120
Nitrobenzene-d5	71	38-120
2-Fluorobiphenyl	77	41-120
Terphenyl-d14	75	43-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Semivolatile Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3550B
Project#:	0399889.02.05	Analysis:	EPA 8270C
Field ID:	COMP-DRUM-EFG	Batch#:	250003
Lab ID:	290775-002	Sampled:	07/19/17
Matrix:	Soil	Received:	07/20/17
Units:	ug/Kg	Prepared:	07/25/17
Basis:	as received	Analyzed:	07/27/17
Diln Fac:	1.000		

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	340	71
Phenol	ND	340	47
bis(2-Chloroethyl)ether	ND	340	54
2-Chlorophenol	ND	340	55
1,3-Dichlorobenzene	ND	340	38
1,4-Dichlorobenzene	ND	340	15
Benzyl alcohol	ND	340	51
1,2-Dichlorobenzene	ND	340	34
2-Methylphenol	ND	340	63
bis(2-Chloroisopropyl) ether	ND	340	84
4-Methylphenol	ND	340	52
N-Nitroso-di-n-propylamine	ND	340	50
Hexachloroethane	ND	340	26
Nitrobenzene	ND	340	15
Isophorone	ND	340	9.8
2-Nitrophenol	ND	670	10
2,4-Dimethylphenol	ND	340	14
Benzoic acid	ND	1,700	250
bis(2-Chloroethoxy)methane	ND	340	11
2,4-Dichlorophenol	ND	340	13
1,2,4-Trichlorobenzene	ND	340	13
Naphthalene	ND	67	13
4-Chloroaniline	ND	340	17
Hexachlorobutadiene	ND	340	14
4-Chloro-3-methylphenol	ND	340	14
2-Methylnaphthalene	ND	67	11
1-Methylnaphthalene	ND	67	13
Hexachlorocyclopentadiene	ND	670	22
2,4,6-Trichlorophenol	ND	340	14
2,4,5-Trichlorophenol	ND	340	13
2-Chloronaphthalene	ND	340	10
2-Nitroaniline	ND	670	11
Dimethylphthalate	ND	340	13
Acenaphthylene	ND	67	13
2,6-Dinitrotoluene	ND	340	13
3-Nitroaniline	ND	670	8.2
Acenaphthene	ND	67	11
2,4-Dinitrophenol	ND	670	160
4-Nitrophenol	ND	670	52
Dibenzofuran	ND	340	14
2,4-Dinitrotoluene	ND	340	9.9
Diethylphthalate	ND	340	14
Fluorene	ND	170	12
4-Chlorophenyl-phenylether	ND	340	13
4-Nitroaniline	ND	670	22
4,6-Dinitro-2-methylphenol	ND	670	70
N-Nitrosodiphenylamine	ND	340	14
Azobenzene	ND	340	42
4-Bromophenyl-phenylether	ND	340	13
Hexachlorobenzene	ND	340	14
Pentachlorophenol	ND	670	62
Phenanthrene	ND	67	15

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Semivolatile Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3550B
Project#:	0399889.02.05	Analysis:	EPA 8270C
Field ID:	COMP-DRUM-EFG	Batch#:	250003
Lab ID:	290775-002	Sampled:	07/19/17
Matrix:	Soil	Received:	07/20/17
Units:	ug/Kg	Prepared:	07/25/17
Basis:	as received	Analyzed:	07/27/17
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Anthracene	ND	67	12
Di-n-butylphthalate	ND	340	15
Fluoranthene	ND	340	13
Pyrene	ND	340	12
Butylbenzylphthalate	ND	340	11
3,3'-Dichlorobenzidine	ND	670	11
Benzo(a)anthracene	ND	67	12
Chrysene	ND	67	15
bis(2-Ethylhexyl)phthalate	ND	340	81
Di-n-octylphthalate	ND	340	17
Benzo(b)fluoranthene	ND	67	14
Benzo(k)fluoranthene	ND	67	18
Benzo(a)pyrene	ND	67	16
Indeno(1,2,3-cd)pyrene	ND	67	15
Dibenz(a,h)anthracene	ND	67	15
Benzo(g,h,i)perylene	ND	67	13

Surrogate	%REC	Limits
2-Fluorophenol	58	28-120
Phenol-d5	63	29-120
2,4,6-Tribromophenol	66	26-120
Nitrobenzene-d5	74	38-120
2-Fluorobiphenyl	80	41-120
Terphenyl-d14	58	43-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3550B
Project#:	0399889.02.05	Analysis:	EPA 8270C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894440	Batch#:	250003
Matrix:	Soil	Prepared:	07/25/17
Units:	ug/Kg	Analyzed:	07/25/17

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	340	33
Phenol	ND	340	17
bis(2-Chloroethyl)ether	ND	340	13
2-Chlorophenol	ND	340	17
1,3-Dichlorobenzene	ND	340	12
1,4-Dichlorobenzene	ND	340	10
Benzyl alcohol	ND	340	16
1,2-Dichlorobenzene	ND	340	9.5
2-Methylphenol	ND	340	15
bis(2-Chloroisopropyl) ether	ND	340	18
4-Methylphenol	ND	340	18
N-Nitroso-di-n-propylamine	ND	340	33
Hexachloroethane	ND	340	12
Nitrobenzene	ND	340	12
Isophorone	ND	340	11
2-Nitrophenol	ND	670	10
2,4-Dimethylphenol	ND	340	14
Benzoic acid	ND	1,700	500
bis(2-Chloroethoxy)methane	ND	340	12
2,4-Dichlorophenol	ND	340	13
1,2,4-Trichlorobenzene	ND	340	9.7
Naphthalene	ND	67	8.8
4-Chloroaniline	ND	340	33
Hexachlorobutadiene	ND	340	61
4-Chloro-3-methylphenol	ND	340	15
2-Methylnaphthalene	ND	67	9.9
1-Methylnaphthalene	ND	67	12
Hexachlorocyclopentadiene	ND	670	61
2,4,6-Trichlorophenol	ND	340	14
2,4,5-Trichlorophenol	ND	340	8.8
2-Chloronaphthalene	ND	340	56
2-Nitroaniline	ND	670	33
Dimethylphthalate	ND	340	9.4
Acenaphthylene	ND	67	8.6
2,6-Dinitrotoluene	ND	340	8.8
3-Nitroaniline	ND	670	33
Acenaphthene	ND	67	12
2,4-Dinitrophenol	ND	670	160
4-Nitrophenol	ND	670	69
Dibenzofuran	ND	340	8.8
2,4-Dinitrotoluene	ND	340	9.7
Diethylphthalate	ND	340	8.5
Fluorene	ND	67	9.0
4-Chlorophenyl-phenylether	ND	340	9.8
4-Nitroaniline	ND	670	33
4,6-Dinitro-2-methylphenol	ND	670	42
N-Nitrosodiphenylamine	ND	340	56
Azobenzene	ND	340	12
4-Bromophenyl-phenylether	ND	340	59
Hexachlorobenzene	ND	340	12
Pentachlorophenol	ND	670	150
Phenanthrene	ND	67	9.6
Anthracene	ND	67	12

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3550B
Project#:	0399889.02.05	Analysis:	EPA 8270C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894440	Batch#:	250003
Matrix:	Soil	Prepared:	07/25/17
Units:	ug/Kg	Analyzed:	07/25/17

Analyte	Result	RL	MDL
Di-n-butylphthalate	ND	340	12
Fluoranthene	ND	67	8.7
Pyrene	ND	67	9.4
Butylbenzylphthalate	ND	340	12
3,3'-Dichlorobenzidine	ND	670	43
Benzo(a)anthracene	ND	67	8.7
Chrysene	ND	67	12
bis(2-Ethylhexyl)phthalate	ND	340	8.8
Di-n-octylphthalate	ND	340	8.5
Benzo(b)fluoranthene	ND	67	12
Benzo(k)fluoranthene	ND	67	8.7
Benzo(a)pyrene	ND	67	8.7
Indeno(1,2,3-cd)pyrene	ND	67	12
Dibenz(a,h)anthracene	ND	67	12
Benzo(g,h,i)perylene	ND	67	8.7

Surrogate	%REC	Limits
2-Fluorophenol	91	28-120
Phenol-d5	91	29-120
2,4,6-Tribromophenol	55	26-120
Nitrobenzene-d5	95	38-120
2-Fluorobiphenyl	86	41-120
Terphenyl-d14	84	43-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3550B
Project#:	0399889.02.05	Analysis:	EPA 8270C
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC894441	Batch#:	250003
Matrix:	Soil	Prepared:	07/25/17
Units:	ug/Kg	Analyzed:	07/25/17

Analyte	Spiked	Result	%REC	Limits
Phenol	2,707	1,549	57	45-120
2-Chlorophenol	2,707	1,638	60	55-120
1,4-Dichlorobenzene	2,707	2,074	77	58-120
N-Nitroso-di-n-propylamine	2,707	1,657	61	29-122
1,2,4-Trichlorobenzene	2,707	2,171	80	61-120
4-Chloro-3-methylphenol	2,707	3,020	112	56-131
Acenaphthene	1,015	789.7	78	57-120
4-Nitrophenol	2,707	2,276	84	42-120
2,4-Dinitrotoluene	2,707	2,285	84	58-120
Pentachlorophenol	2,707	1,564	58	23-120
Pyrene	1,015	820.6	81	58-121

Surrogate	%REC	Limits
2-Fluorophenol	65	28-120
Phenol-d5	55	29-120
2,4,6-Tribromophenol	78	26-120
Nitrobenzene-d5	85	38-120
2-Fluorobiphenyl	73	41-120
Terphenyl-d14	77	43-120

ENTHALPY ANALYTICAL

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3550B
Project#:	0399889.02.05	Analysis:	EPA 8270C
Field ID:	ZZZZZZZZZZ	Batch#:	250003
MSS Lab ID:	290826-001	Sampled:	07/21/17
Matrix:	Soil	Received:	07/24/17
Units:	ug/Kg	Prepared:	07/25/17
Basis:	as received	Analyzed:	07/25/17
Diln Fac:	1.000		

Type: MS Lab ID: QC894442

Analyte	MSS Result	Spiked	Result	%REC	Limits
Phenol	28.45	2,643	1,478	55	41-120
2-Chlorophenol	<16.63	2,643	1,623	61	48-120
1,4-Dichlorobenzene	<10.22	2,643	2,164	82	46-120
N-Nitroso-di-n-propylamine	<33.38	2,643	1,702	64	29-120
1,2,4-Trichlorobenzene	<9.765	2,643	2,239	85	53-120
4-Chloro-3-methylphenol	<14.86	2,643	3,074	116	52-123
Acenaphthene	<12.14	991.1	790.2	80	48-120
4-Nitrophenol	<69.47	2,643	2,283	86	35-120
2,4-Dinitrotoluene	23.88	2,643	2,315	87	54-120
Pentachlorophenol	<149.9	2,643	1,320	50	13-120
Pyrene	<9.460	991.1	802.2	81	50-125

Surrogate	%REC	Limits
2-Fluorophenol	66	28-120
Phenol-d5	52	29-120
2,4,6-Tribromophenol	79	26-120
Nitrobenzene-d5	86	38-120
2-Fluorobiphenyl	70	41-120
Terphenyl-d14	77	43-120

Type: MSD Lab ID: QC894443

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Phenol	2,685	1,510	55	41-120	1	47
2-Chlorophenol	2,685	1,716	64	48-120	4	51
1,4-Dichlorobenzene	2,685	2,129	79	46-120	3	45
N-Nitroso-di-n-propylamine	2,685	1,745	65	29-120	1	62
1,2,4-Trichlorobenzene	2,685	2,290	85	53-120	1	43
4-Chloro-3-methylphenol	2,685	3,057	114	52-123	2	38
Acenaphthene	1,007	817.3	81	48-120	2	50
4-Nitrophenol	2,685	2,409	90	35-120	4	52
2,4-Dinitrotoluene	2,685	2,448	90	54-120	4	47
Pentachlorophenol	2,685	1,305	49	13-120	3	72
Pyrene	1,007	856.3	85	50-125	5	50

Surrogate	%REC	Limits
2-Fluorophenol	69	28-120
Phenol-d5	52	29-120
2,4,6-Tribromophenol	79	26-120
Nitrobenzene-d5	87	38-120
2-Fluorobiphenyl	70	41-120
Terphenyl-d14	80	43-120

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Organochlorine Pesticides

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3550B
Project#:	0399889.02.05	Analysis:	EPA 8081A
Field ID:	COMP-DRUM-ABC	Batch#:	249982
Lab ID:	290775-001	Sampled:	07/19/17
Matrix:	Soil	Received:	07/20/17
Units:	ug/Kg	Prepared:	07/24/17
Basis:	as received	Analyzed:	07/26/17
Diln Fac:	100.0		

Analyte	Result	RL	MDL
alpha-BHC	ND	84	13
beta-BHC	ND	84	18
gamma-BHC	ND	84	11
delta-BHC	ND	84	13
Heptachlor	16 C J	84	11
Aldrin	ND	84	11
Heptachlor epoxide	18 J	84	11
Endosulfan I	ND	84	9.5
Dieldrin	ND	84	18
4,4'-DDE	ND	160	16
Endrin	ND	160	21
Endosulfan II	ND	160	24
Endosulfan sulfate	ND	160	16
4,4'-DDD	24 C J	160	22
Endrin aldehyde	ND	160	23
4,4'-DDT	58 C J	160	16
alpha-Chlordane	19 J	84	8.9
gamma-Chlordane	20 J	84	8.6
Methoxychlor	ND	840	130
Toxaphene	ND	3,000	660

Surrogate	%REC	Limits
TCMX	DO	39-127
Decachlorobiphenyl	DO	39-133

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
DO= Diluted Out
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Organochlorine Pesticides

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3550B
Project#:	0399889.02.05	Analysis:	EPA 8081A
Field ID:	COMP-DRUM-EFG	Batch#:	249982
Lab ID:	290775-002	Sampled:	07/19/17
Matrix:	Soil	Received:	07/20/17
Units:	ug/Kg	Prepared:	07/24/17
Basis:	as received	Analyzed:	07/26/17
Diln Fac:	200.0		

Analyte	Result	RL	MDL
alpha-BHC	ND	170	26
beta-BHC	ND	170	37
gamma-BHC	ND	170	22
delta-BHC	ND	170	27
Heptachlor	32 C J	170	23
Aldrin	ND	170	22
Heptachlor epoxide	52 J	170	26
Endosulfan I	55 J	170	19
Dieldrin	ND	170	36
4,4'-DDE	ND	330	33
Endrin	ND	330	42
Endosulfan II	ND	330	48
Endosulfan sulfate	ND	330	33
4,4'-DDD	86 C J	330	34
Endrin aldehyde	81 J	330	46
4,4'-DDT	72 J	330	32
alpha-Chlordane	46 J	170	24
gamma-Chlordane	53 J	170	30
Methoxychlor	ND	1,700	260
Toxaphene	ND	6,000	1,300

Surrogate	%REC	Limits
TCMX	DO	39-127
Decachlorobiphenyl	DO	39-133

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
DO= Diluted Out
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Organochlorine Pesticides

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3550B
Project#:	0399889.02.05	Analysis:	EPA 8081A
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894352	Batch#:	249982
Matrix:	Soil	Prepared:	07/24/17
Units:	ug/Kg	Analyzed:	07/25/17

Analyte	Result	RL	MDL
alpha-BHC	0.26 J	0.86	0.13
beta-BHC	ND	0.86	0.19
gamma-BHC	0.58 C J	0.86	0.15
delta-BHC	0.24 C J	0.86	0.13
Heptachlor	ND	0.86	0.11
Aldrin	0.14 C J	0.86	0.11
Heptachlor epoxide	0.21 J	0.86	0.11
Endosulfan I	0.30 J	0.86	0.097
Dieldrin	ND	0.86	0.18
4,4'-DDE	ND	1.7	0.17
Endrin	ND	1.7	0.21
Endosulfan II	0.41 J	1.7	0.24
Endosulfan sulfate	0.76 C J	1.7	0.17
4,4'-DDD	0.47 J	1.7	0.23
Endrin aldehyde	0.51 J	1.7	0.23
4,4'-DDT	0.58 J	1.7	0.16
alpha-Chlordane	ND	0.86	0.091
gamma-Chlordane	0.19 J	0.86	0.088
Methoxychlor	ND	8.6	1.3
Toxaphene	ND	30	6.7

Surrogate	%REC	Limits
TCMX	99	39-127
Decachlorobiphenyl	89	39-133

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Organochlorine Pesticides

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3550B
Project#:	0399889.02.05	Analysis:	EPA 8081A
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC894353	Batch#:	249982
Matrix:	Soil	Prepared:	07/24/17
Units:	ug/Kg	Analyzed:	07/25/17

Analyte	Spiked	Result	%REC	Limits
gamma-BHC	6.700	6.623 #	99	43-127
Heptachlor	6.700	6.636 #	99	42-128
Aldrin	6.700	6.670 #	100	43-127
Dieldrin	6.700	6.545 #	98	49-135
Endrin	6.700	7.291 #	109	38-143
4,4'-DDT	6.700	5.597 #	84	42-135

Surrogate	%REC	Limits
TCMX	109	39-127
Decachlorobiphenyl	100	39-133

#= CCV drift outside limits; average CCV drift within limits per method requirements

ENTHALPY ANALYTICAL

Polychlorinated Biphenyls (PCBs)

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3550B
Project#:	0399889.02.05	Analysis:	EPA 8082
Matrix:	Soil	Sampled:	07/19/17
Units:	ug/Kg	Received:	07/20/17
Basis:	as received	Prepared:	07/24/17
Batch#:	249950		

Field ID:	COMP-DRUM-ABC	Diln Fac:	5.000
Type:	SAMPLE	Analyzed:	07/25/17
Lab ID:	290775-001		

Analyte	Result	RL	MDL
Aroclor-1016	ND	17	5.9
Aroclor-1221	ND	34	16
Aroclor-1232	ND	17	7.8
Aroclor-1242	ND	17	7.2
Aroclor-1248	ND	17	7.7
Aroclor-1254	ND	17	6.1
Aroclor-1260	ND	17	3.9

Surrogate	%REC	Limits
Decachlorobiphenyl	86	38-158

Field ID:	COMP-DRUM-EFG	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	07/25/17
Lab ID:	290775-002		

Analyte	Result	RL	MDL
Aroclor-1016	ND	4.9	1.2
Aroclor-1221	ND	9.7	3.2
Aroclor-1232	ND	4.9	1.6
Aroclor-1242	ND	4.9	1.4
Aroclor-1248	ND	4.9	1.5
Aroclor-1254	ND	4.9	1.2
Aroclor-1260	ND	4.9	0.78

Surrogate	%REC	Limits
Decachlorobiphenyl	157	38-158

Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894242	Analyzed:	07/24/17

Analyte	Result	RL	MDL
Aroclor-1016	ND	4.7	1.2
Aroclor-1221	ND	9.5	3.2
Aroclor-1232	ND	4.7	1.5
Aroclor-1242	ND	4.7	1.4
Aroclor-1248	ND	4.7	1.5
Aroclor-1254	ND	4.7	1.2
Aroclor-1260	ND	4.7	0.77

Surrogate	%REC	Limits
Decachlorobiphenyl	121	38-158

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3550B
Project#:	0399889.02.05	Analysis:	EPA 8082
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC894243	Batch#:	249950
Matrix:	Soil	Prepared:	07/24/17
Units:	ug/Kg	Analyzed:	07/24/17

Analyte	Spiked	Result	%REC	Limits
Aroclor-1016	82.70	94.14	114	61-152
Aroclor-1260	82.70	95.86	116	62-158

Surrogate	%REC	Limits
Decachlorobiphenyl	107	38-158

ENTHALPY ANALYTICAL

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3550B
Project#:	0399889.02.05	Analysis:	EPA 8082
Field ID:	ZZZZZZZZZZ	Batch#:	249950
MSS Lab ID:	290757-001	Sampled:	07/20/17
Matrix:	Soil	Received:	07/20/17
Units:	ug/Kg	Prepared:	07/24/17
Basis:	as received	Analyzed:	07/24/17
Diln Fac:	10.00		

Type: MS Lab ID: QC894244

Analyte	MSS Result	Spiked	Result	%REC	Limits
Aroclor-1016	<11.77	83.25	129.0	155	56-167
Aroclor-1260	<7.698	83.25	128.3	154	46-167

Surrogate	%REC	Limits
Decachlorobiphenyl	100	38-158

Type: MSD Lab ID: QC894245

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aroclor-1016	83.70	138.9	166	56-167	7	50
Aroclor-1260	83.70	101.3	121	46-167	24	39

Surrogate	%REC	Limits
Decachlorobiphenyl	75	38-158

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

California Title 22 Metals

Lab #:	290775	Project#:	0399889.02.05
Client:	ERM	Location:	PG&E Brush Street
Field ID:	PURGE-DRUM	Diln Fac:	1.000
Lab ID:	290775-003	Sampled:	07/19/17
Matrix:	Water	Received:	07/20/17
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	2.8	250062	07/26/17	07/27/17	EPA 3010A	EPA 6010B
Arsenic	ND	10	1.8	250062	07/26/17	07/27/17	EPA 3010A	EPA 6010B
Barium	19	5.0	1.0	250062	07/26/17	07/27/17	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	0.53	250062	07/26/17	07/27/17	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	0.33	250062	07/26/17	07/27/17	EPA 3010A	EPA 6010B
Chromium	ND	5.0	0.56	250062	07/26/17	07/27/17	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	1.0	250062	07/26/17	07/28/17	EPA 3010A	EPA 6010B
Copper	1.2 J	5.0	0.88	250062	07/26/17	07/27/17	EPA 3010A	EPA 6010B
Lead	ND	5.0	1.2	250062	07/26/17	07/27/17	EPA 3010A	EPA 6010B
Mercury	ND	0.20	0.040	250125	07/27/17	07/27/17	METHOD	EPA 7470A
Molybdenum	1.5 J	5.0	1.2	250062	07/26/17	07/27/17	EPA 3010A	EPA 6010B
Nickel	5.5	5.0	0.34	250062	07/26/17	07/27/17	EPA 3010A	EPA 6010B
Selenium	ND	10	2.8	250062	07/26/17	07/27/17	EPA 3010A	EPA 6010B
Silver	0.81 J	5.0	0.75	250062	07/26/17	07/27/17	EPA 3010A	EPA 6010B
Thallium	ND	10	1.9	250062	07/26/17	07/27/17	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	1.0	250062	07/26/17	07/27/17	EPA 3010A	EPA 6010B
Zinc	5.9 J	20	4.7	250062	07/26/17	07/27/17	EPA 3010A	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

California Title 22 Metals

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3010A
Project#:	0399889.02.05	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894645	Batch#:	250062
Matrix:	Water	Prepared:	07/26/17
Units:	ug/L	Analyzed:	07/27/17

Analyte	Result	RL	MDL
Antimony	ND	10	2.8
Arsenic	ND	10	1.8
Barium	ND	5.0	1.0
Beryllium	ND	2.0	0.53
Cadmium	ND	5.0	0.33
Chromium	ND	5.0	0.56
Cobalt	ND	5.0	1.0
Copper	ND	5.0	0.88
Lead	ND	5.0	1.2
Molybdenum	ND	5.0	1.2
Nickel	ND	5.0	0.34
Selenium	ND	10	2.8
Silver	ND	5.0	0.75
Thallium	ND	10	1.9
Vanadium	ND	5.0	1.0
Zinc	ND	20	4.7

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

California Title 22 Metals

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3010A
Project#:	0399889.02.05	Analysis:	EPA 6010B
Matrix:	Water	Batch#:	250062
Units:	ug/L	Prepared:	07/26/17
Diln Fac:	1.000	Analyzed:	07/27/17

Type: BS Lab ID: QC894646

Analyte	Spiked	Result	%REC	Limits
Antimony	100.0	105.5	106	73-120
Arsenic	100.0	99.51	100	78-120
Barium	100.0	98.19	98	80-120
Beryllium	100.0	100.3	100	80-120
Cadmium	100.0	98.45	98	80-120
Chromium	100.0	102.1	102	80-120
Cobalt	100.0	90.60	91	79-120
Copper	100.0	101.2	101	80-120
Lead	100.0	104.9	105	77-120
Molybdenum	100.0	101.9	102	80-120
Nickel	100.0	97.83	98	80-120
Selenium	100.0	103.7	104	76-120
Silver	100.0	89.75	90	80-120
Thallium	50.00	46.92	94	80-126
Vanadium	100.0	99.37	99	80-120
Zinc	100.0	116.6	117	78-120

Type: BSD Lab ID: QC894647

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	105.7	106	73-120	0	21
Arsenic	100.0	98.02	98	78-120	2	20
Barium	100.0	97.74	98	80-120	0	20
Beryllium	100.0	100.8	101	80-120	0	20
Cadmium	100.0	98.66	99	80-120	0	20
Chromium	100.0	102.4	102	80-120	0	20
Cobalt	100.0	87.33	87	79-120	4	20
Copper	100.0	101.8	102	80-120	1	20
Lead	100.0	106.9	107	77-120	2	20
Molybdenum	100.0	101.6	102	80-120	0	20
Nickel	100.0	100.2	100	80-120	2	20
Selenium	100.0	97.77	98	76-120	6	20
Silver	100.0	89.75	90	80-120	0	23
Thallium	50.00	46.32	93	80-126	1	20
Vanadium	100.0	100.1	100	80-120	1	20
Zinc	100.0	107.1	107	78-120	9	26

RPD= Relative Percent Difference

Batch QC Report

California Title 22 Metals

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	METHOD
Project#:	0399889.02.05	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	250125
Lab ID:	QC894895	Prepared:	07/27/17
Matrix:	Water	Analyzed:	07/27/17
Units:	ug/L		

Result	RL	MDL
ND	0.20	0.040

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Batch QC Report

California Title 22 Metals

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	METHOD
Project#:	0399889.02.05	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	250125
Matrix:	Water	Prepared:	07/27/17
Units:	ug/L	Analyzed:	07/27/17
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC894896	2.500	2.547	102	80-120		
BSD	QC894897	2.500	2.585	103	80-120	1	20

RPD= Relative Percent Difference

Batch QC Report

California Title 22 Metals

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	METHOD
Project#:	0399889.02.05	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	250125
Field ID:	ZZZZZZZZZZ	Sampled:	07/17/17
MSS Lab ID:	290708-006	Received:	07/19/17
Matrix:	Water	Prepared:	07/27/17
Units:	ug/L	Analyzed:	07/27/17
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC894898	<0.04000	2.500	2.544	102	63-120		
MSD	QC894899		2.500	2.542	102	63-120	0	42

RPD= Relative Percent Difference

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California Title 22 Metals

Lab #:	290775	Project#:	0399889.02.05
Client:	ERM	Location:	PG&E Brush Street
Field ID:	COMP-DRUM-ABC	Basis:	as received
Lab ID:	290775-001	Diln Fac:	1.000
Matrix:	Soil	Sampled:	07/19/17
Units:	mg/Kg	Received:	07/20/17

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.52 J	2.0	0.13	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Arsenic	2.0	1.5	0.20	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Barium	65	0.25	0.029	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Beryllium	0.27	0.099	0.020	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Cadmium	0.35	0.25	0.050	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Chromium	40	0.25	0.050	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Cobalt	9.2	0.25	0.050	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Copper	26	0.25	0.055	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Lead	87	0.99	0.13	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Mercury	0.10	0.018	0.0053	250158	07/28/17	07/28/17	METHOD	EPA 7471A
Molybdenum	ND	0.25	0.055	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Nickel	31	0.25	0.068	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Selenium	ND	2.0	0.22	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Silver	ND	0.25	0.050	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Thallium	ND	0.50	0.15	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Vanadium	28	0.25	0.050	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Zinc	62	0.99	0.20	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

California Title 22 Metals

Lab #:	290775	Project#:	0399889.02.05
Client:	ERM	Location:	PG&E Brush Street
Field ID:	COMP-DRUM-EFG	Basis:	as received
Lab ID:	290775-002	Diln Fac:	1.000
Matrix:	Soil	Sampled:	07/19/17
Units:	mg/Kg	Received:	07/20/17

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.83 J	2.0	0.13	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Arsenic	2.2	1.5	0.20	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Barium	93	0.25	0.029	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Beryllium	0.31	0.10	0.020	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Cadmium	0.47	0.25	0.050	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Chromium	41	0.25	0.050	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Cobalt	6.8	0.25	0.050	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Copper	44	0.25	0.056	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Lead	100	1.0	0.13	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Mercury	0.015 J	0.018	0.0054	250158	07/28/17	07/28/17	METHOD	EPA 7471A
Molybdenum	0.12 J	0.25	0.055	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Nickel	31	0.25	0.069	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Selenium	ND	2.0	0.22	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Silver	ND	0.25	0.050	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Thallium	ND	0.50	0.15	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Vanadium	28	0.25	0.050	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B
Zinc	110	1.0	0.20	250037	07/26/17	07/26/17	EPA 3050B	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

California Title 22 Metals

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3050B
Project#:	0399889.02.05	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC894560	Batch#:	250037
Matrix:	Soil	Prepared:	07/26/17
Units:	mg/Kg	Analyzed:	07/26/17

Analyte	Result	RL	MDL
Antimony	ND	2.0	0.14
Arsenic	ND	1.5	0.21
Barium	ND	0.26	0.031
Beryllium	ND	0.10	0.021
Cadmium	ND	0.26	0.052
Chromium	0.38 b	0.26	0.052
Cobalt	ND	0.26	0.052
Copper	0.35 b	0.26	0.058
Lead	ND	1.0	0.13
Molybdenum	ND	0.26	0.058
Nickel	0.32 b	0.26	0.072
Selenium	ND	2.0	0.23
Silver	ND	0.26	0.052
Thallium	ND	0.52	0.16
Vanadium	ND	0.26	0.052
Zinc	0.31 J	1.0	0.21

J= Estimated value
b= See narrative
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

California Title 22 Metals

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3050B
Project#:	0399889.02.05	Analysis:	EPA 6010B
Matrix:	Soil	Batch#:	250037
Units:	mg/Kg	Prepared:	07/26/17
Diln Fac:	1.000	Analyzed:	07/26/17

Type: BS Lab ID: QC894561

Analyte	Spiked	Result	%REC	Limits
Antimony	50.00	46.30	93	80-120
Arsenic	50.00	51.40	103	80-120
Barium	50.00	49.41	99	80-120
Beryllium	25.00	25.67	103	80-120
Cadmium	50.00	48.94	98	80-120
Chromium	50.00	51.58	103	80-120
Cobalt	50.00	48.75	97	80-120
Copper	50.00	49.36	99	80-120
Lead	50.00	46.53	93	80-120
Molybdenum	50.00	46.29	93	80-120
Nickel	50.00	49.16	98	80-120
Selenium	50.00	49.95	100	80-120
Silver	5.000	4.397	88	80-120
Thallium	50.00	50.45	101	80-120
Vanadium	50.00	51.82	104	80-120
Zinc	50.00	49.96	100	80-120

Type: BSD Lab ID: QC894562

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	53.19	48.84	92	80-120	1	20
Arsenic	53.19	54.41	102	80-120	0	20
Barium	53.19	52.21	98	80-120	1	20
Beryllium	26.60	26.82	101	80-120	2	20
Cadmium	53.19	52.13	98	80-120	0	20
Chromium	53.19	55.19	104	80-120	1	20
Cobalt	53.19	50.38	95	80-120	3	20
Copper	53.19	52.60	99	80-120	0	20
Lead	53.19	50.21	94	80-120	1	20
Molybdenum	53.19	49.67	93	80-120	1	20
Nickel	53.19	52.46	99	80-120	0	20
Selenium	53.19	52.90	99	80-120	0	20
Silver	5.319	4.649	87	80-120	1	20
Thallium	53.19	53.57	101	80-120	0	20
Vanadium	53.19	55.38	104	80-120	0	20
Zinc	53.19	53.32	100	80-120	0	20

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

California Title 22 Metals

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	EPA 3050B
Project#:	0399889.02.05	Analysis:	EPA 6010B
Field ID:	ZZZZZZZZZZ	Batch#:	250037
MSS Lab ID:	290911-001	Sampled:	07/25/17
Matrix:	Soil	Received:	07/25/17
Units:	mg/Kg	Prepared:	07/26/17
Basis:	as received	Analyzed:	07/26/17
Diln Fac:	1.000		

Type: MS Lab ID: QC894563

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	0.3592	46.73	27.14	57	1-120
Arsenic	2.789	46.73	47.14	95	69-129
Barium	100.4	46.73	127.2	57	43-156
Beryllium	0.3972	23.36	23.72	100	80-120
Cadmium	0.2637	46.73	46.55	99	73-122
Chromium	38.23	46.73	82.23	94	63-135
Cobalt	11.05	46.73	53.32	90	66-121
Copper	35.43	46.73	87.36	111	72-133
Lead	3.575	46.73	42.67	84	50-131
Molybdenum	0.1865	46.73	39.71	85	67-120
Nickel	40.51	46.73	85.61	97	56-135
Selenium	<0.2043	46.73	44.03	94	57-123
Silver	<0.04545	4.673	2.794	60	34-136
Thallium	<0.1369	46.73	40.57	87	57-121
Vanadium	32.72	46.73	79.73	101	70-131
Zinc	25.73	46.73	70.13	95	48-143

Type: MSD Lab ID: QC894564

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	45.45	27.10	59	1-120	3	43
Arsenic	45.45	47.04	97	69-129	2	30
Barium	45.45	135.0	76	43-156	7	40
Beryllium	22.73	23.00	99	80-120	0	20
Cadmium	45.45	44.97	98	73-122	1	28
Chromium	45.45	68.12	66	63-135	17	34
Cobalt	45.45	54.68	96	66-121	5	30
Copper	45.45	83.57	106	72-133	3	40
Lead	45.45	41.61	84	50-131	0	48
Molybdenum	45.45	38.16	84	67-120	1	20
Nickel	45.45	76.46	79	56-135	10	33
Selenium	45.45	42.61	94	57-123	1	29
Silver	4.545	2.774	61	34-136	2	39
Thallium	45.45	39.50	87	57-121	0	23
Vanadium	45.45	78.35	100	70-131	0	28
Zinc	45.45	66.48	90	48-143	4	33

RPD= Relative Percent Difference

Batch QC Report

California Title 22 Metals

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	METHOD
Project#:	0399889.02.05	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	250158
Lab ID:	QC895025	Prepared:	07/28/17
Matrix:	Soil	Analyzed:	07/28/17
Units:	mg/Kg		

Result	RL	MDL
ND	0.018	0.0054

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Batch QC Report

California Title 22 Metals

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	METHOD
Project#:	0399889.02.05	Analysis:	EPA 7471A
Analyte:	Mercury	Batch#:	250158
Matrix:	Soil	Prepared:	07/28/17
Units:	mg/Kg	Analyzed:	07/28/17
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC895026	0.2119	0.2185	103	79-129		
BSD	QC895027	0.2049	0.2101	103	79-129	1	40

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

California Title 22 Metals

Lab #:	290775	Location:	PG&E Brush Street
Client:	ERM	Prep:	METHOD
Project#:	0399889.02.05	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	250158
MSS Lab ID:	290708-007	Sampled:	07/17/17
Matrix:	Soil	Received:	07/19/17
Units:	mg/Kg	Prepared:	07/28/17
Basis:	as received	Analyzed:	07/28/17

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC895028	0.7082	0.2193	0.9654 >LR b	117	63-149		
MSD	QC895029		0.2193	0.9931 >LR b	130	63-149	NC	69

b= See narrative
NC= Not Calculated
>LR= Response exceeds instrument's linear range
RPD= Relative Percent Difference

Memorandum

Environmental Resources Management

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To: John Lucio

From: Shanna Bauer

Date: August 9, 2017

Subject: Data Review of PG&E Brush Street Groundwater and Soil Samples Collected July 2017

Project Number: 0399889.07.03

Data Package: Enthalpy Analytical Packages 290750 and 290775

The quality of the data was assessed and any necessary qualifiers were applied following the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review,* January 2017, and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review,* January 2017.

SAMPLE RECEIPT EVALUATION

Several samples were received with air bubbles in the VOA vials. Samples were not qualified if at least 1 of the 4 vials was received without bubbles. No samples required qualification. Samples with air bubbles are presented in Table 1.

HOLDING TIME AND PRESERVATION EVALUATION

The samples were prepared and analyzed within the method prescribed time period from the date of collection. The sample shipments were received at the laboratory within the method prescribed temperature and preservation requirements with limited exceptions. Multiple samples were received with pH>2. The pH was adjusted upon receipt; therefore, qualifiers were not required. The affected samples are presented in Table 1.

BLANK EVALUATION

The method and trip blank sample results were nondetected for each of the target analytes, with several exceptions. Several analytes were detected in various method blanks. Associated results were qualified as non-detect (U) if the result was within 5 times the blank results as

adjusted for dilution for organic analytes. Associated inorganic results were qualified as estimated detected with high bias (J+) if sample results were detected at concentrations greater than the reporting limits but less than ten times the method blank concentration and as non-detect (U) for sample results less than reporting limits and less than ten times the method blank concentrations as adjusted for dilution. The blank detections and associated qualified data are listed in Table 2.

BLANK SPIKE EVALUATION

The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) recoveries were within the laboratory's limits of acceptance with limited exceptions. Lab reports 290750 and 290775 had high LCSD recovery of 1,1-dichloroethene. The LCS/LCSD relative percent difference (RPD) was greater than acceptance limits. The LCS recovery was within limits; therefore, no qualifiers were required. LCS/LCSD recoveries are presented in Table 3.

MATRIX SPIKE EVALUATION

The matrix spike (MS) and matrix spike duplicate (MSD) recoveries were within the laboratory's limits of acceptance with limited exceptions. Diesel C10-C24 had high MS/MSD recovery in lab package 290775. The parent sample was not associated with the site; therefore, no qualifiers were required for MS/MSD performance. MS/MSD recoveries are presented in Table 3.

SURROGATE SPIKE EVALUATION

The surrogate recoveries were within acceptable limits with limited exceptions. MW-03 had low surrogate recovery of 2,4,6-tribromophenol in method 8270C. However, data are only qualified if two acid or two base semivolatile surrogates are outside limits. The surrogates for sample COMP-DRUM-ABC were diluted out and no qualifiers were required. Surrogate recoveries outside of acceptance limits are presented in Table 4.

CALIBRATION VERIFICATION EVALUATION

Continuing calibration verification (CCV) recoveries were within laboratory acceptance limits, with limited exceptions. Bromomethane, 1,1-dichloroethene, and selenium were recovered above acceptance limits in laboratory package 290750. MW-03 was qualified as estimated with high bias (J+) for bromomethane for high CCV recovery. All other analytes were reported as non-detect in associated samples. 1,1-Dichloroethene was recovered above acceptance limits in laboratory package 290775. Associated samples were reported as nondetected; therefore, qualifiers were not required. CCV outliers are presented in Table 5.

COLUMN PRECISION EVALUATION

The compound presence for several pesticides in report 290775 was confirmed; however, the relative percent difference (RPD) between the columns exceeded 40%. The detected results with high column RPD were qualified as estimated (J). The RPD exceedances and associated qualifiers are presented in Table 6.

TPH EVALUATION

The laboratory noted that the sample chromatograms for diesel C10-C24 analysis did not resemble the diesel standard in several samples. ERM qualified the affected sample as tentatively identified and estimated (NJ) as shown in Table 7.

DUPLICATE EVALUATION

One sample was submitted in duplicate. ERM calculated the relative percent difference (RPD) between detected results. The USEPA has not established control criteria for field duplicate samples. The field duplicate RPDs are presented in Table 8.

OVERALL ASSESSMENT

No samples required rejection. All data, including qualified data, can be used for decision-making purposes; however, the limitations indicated by the applied qualifiers should be considered when using the data. The quality of the data generated during this investigation is acceptable for the preparation of technically defensible documents.

Table 1
Samples with Exceeded Preservation Requirements
PG&E Brush Street Groundwater and Soil Samples Collected July 2017
PG&E
Oakland, California

Lab Package	Sample ID	Analysis Method	Preservation Issue	Preservation Limits	Comments	ERM Qualifier
290750	MW-02	8260B	>1 ml headspace	<1 ml	1/4 vials	--
	MW-05	8260B	>1 ml headspace	<1 ml	1/4 vials	--
	MW-02	6010B	pH > 2	pH < 2	pH adjusted	--
	MW-02-DUP	6010B	pH > 2	pH < 2	pH adjusted	--
	MW-04	6010B	pH > 2	pH < 2	pH adjusted	--
	MW-03	6010B	pH > 2	pH < 2	pH adjusted	--
	MW-05	6010B	pH > 2	pH < 2	pH adjusted	--

Key:
ml = Milliliter

Table 2
Blank and Associated Suspect Sample Detections
PG&E Brush Street Groundwater and Soil Samples Collected July 2017
PG&E
Oakland, California

Lab Package	Blank ID	Associated Samples	Detected Compound	Reported Concentration	Report Limit	Units	ERM Qualifier
290750	BLANK QC894654	--	Naphthalene	0.1	2	ug/L	--
290750	BLANK QC895255	--	m,p-Xylenes	0.2	0.5	ug/L	--
		--	1,2,4-Trimethylbenzene	0.2	0.5	ug/L	--
290750	BLANK QC894093	see below	Copper	5.1	5.0	ug/L	--
		see below	Nickel	0.42	5.0	ug/L	--
		MW-01	Copper	5.1	5.0	ug/L	5.1 J+
		MW-01	Nickel	1.8	5.0	ug/L	<5.0 (U)
		MW-02	Copper	4.7	5.0	ug/L	<5.0 (U)
		MW-02-DUP	Copper	3.6	5.0	ug/L	<5.0 (U)
		MW-04	Nickel	4.6	5.0	ug/L	<5.0 (U)
		MW-03	Copper	4.7	5.0	ug/L	<5.0 (U)
		MW-05	Copper	2.8	5.0	ug/L	<5.0 (U)
290750	BLANK QC894098	--	Copper	4.7	5.0	ug/L	--
		--	Nickel	1.0	5.0	ug/L	--
290750	BLANK QC894669	see below	Mercury	0.042	0.2	ug/L	--
		MW-01	Mercury	0.13	0.2	ug/L	<0.20 (U)
		MW-02	Mercury	0.054	0.2	ug/L	<0.20 (U)
		MW-02-DUP	Mercury	0.26	0.2	ug/L	<0.20 (U)
		MW-04	Mercury	0.11	0.2	ug/L	<0.20 (U)
		MW-03	Mercury	0.18	0.2	ug/L	<0.20 (U)
		MW-05	Mercury	0.19	0.2	ug/L	<0.20 (U)
290775	BLANK QC893907	see below	Gasoline C7-C12	0.26	1	ug/L	--
		COMP-DRUM-ABC	Gasoline C7-C12	0.37	1	ug/L	<1.0 (U)
		COMP-DRUM-EFG	Gasoline C7-C12	0.7	1	ug/L	<1.0 (U)
290775	BLANK QC894654	--	Naphthalene	0.1	2	ug/L	--
290775	BLANK QC894352	--	alpha-BHC	0.26	0.86	ug/Kg	--
		--	gamma-BHC	0.58	0.86	ug/Kg	--
		--	delta-BHC	0.24	0.86	ug/Kg	--
		--	Aldrin	0.14	0.86	ug/Kg	--
		see below	Heptachlor epoxide	0.21	0.86	ug/Kg	--
		see below	Endosulfan I	0.3	0.86	ug/Kg	--
		--	Endosulfan II	0.41	1.7	ug/Kg	--
		--	Endosulfan sulfate	0.76	1.7	ug/Kg	--
		see below	4,4'-DDD	0.47	1.7	ug/Kg	--
		see below	Endrin aldehyde	0.51	1.7	ug/Kg	--
		see below	4,4'-DDT	0.58	1.7	ug/Kg	--
		see below	gamma-Chlordane	0.19	0.86	ug/Kg	--
		COMP-DRUM-ABC	Heptachlor epoxide	18	84	ug/Kg	<84 (U)
		COMP-DRUM-ABC	4,4'-DDD	24	160	ug/Kg	<160 (U)
		COMP-DRUM-ABC	4,4'-DDT	58	160	ug/Kg	<160 (U)
		COMP-DRUM-ABC	gamma-Chlordane	20	84	ug/Kg	<84 (U)
		COMP-DRUM-EFG	Heptachlor epoxide	52	170	ug/Kg	<170 (U)
		COMP-DRUM-EFG	Endosulfan I	55	170	ug/Kg	<170 (U)
		COMP-DRUM-EFG	4,4'-DDD	86	330	ug/Kg	<330 (U)
		COMP-DRUM-EFG	Endrin aldehyde	81	330	ug/Kg	<330 (U)
		COMP-DRUM-EFG	4,4'-DDT	72	330	ug/Kg	<330 (U)
		COMP-DRUM-EFG	gamma-Chlordane	53	170	ug/Kg	<170 (U)
290775	BLANK QC894560	--	Chromium	0.38	0.26	ug/Kg	--
		--	Copper	0.35	0.26	ug/Kg	--
		--	Nickel	0.32	0.26	ug/Kg	--
		--	Zinc	0.31	1	ug/Kg	--

Key:
U = Nondetected
J+ = Estimated with high bias
µg/L = Micrograms per liter
ug/Kg = Micrograms per Kilogram

Table 3
Spike Recoveries Outside of Acceptable Limits
PG&E Brush Street Groundwater and Soil Samples Collected July 2017
PG&E
Oakland, California

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Result	ERM Qualifier
LCS/LCSD									
290750	BS/BSD	--	1,1-Dichloroethene	111/153	66-127	32	20	--	--
290775	BS/BSD	--	1,1-Dichloroethene	111/153	66-127	32	20	--	--
MS/MSD									
290775	MS/MSD	None	Diesel C10-C24	180/182	35-143	1	59	--	--

Key:
RPD = Relative percent difference
ND = Nondetected

Table 4
Surrogate Recovery Results out of Acceptable Limits
PG&E Brush Street Groundwater and Soil Samples Collected July 2017
PG&E
Oakland, California

Lab Package	Sample ID	Method	Surrogate	Recovery (%)	Limit (%)	Affected Analytes	ERM Qualifier
290750	MW-03	8270C	2,4,6-Tribromophenol	23	41-120	--	--
290775	COMP-DRUM-ABC	8015	o-Terphenyl	DO	58-136	--	--
	COMP-DRUM-ABC	8081	TCMX	DO	39-127	--	--
	COMP-DRUM-ABC	8081	Decachlorobiphenyl	DO	39-133	--	--
	COMP-DRUM-EFG	8081	TCMX	DO	39-127	--	--
	COMP-DRUM-EFG	8081	Decachlorobiphenyl	DO	39-133	--	--

Key:
DO = surrogate was diluted out; no qualifier required

Table 5
Calibration Verification Recoveries Outside of Acceptable Limits
PG&E Brush Street Groundwater and Soil Samples Collected July 2017
PG&E
Oakland, California

Lab Package	Sample ID	Compound	CCV Recovery	Reported Concentration	Units	ERM Qualifier
290750	MW-03	Bromomethane	High	2.8	ug/L	J+
	--	1,1-Dichloroethene	High	All ND	ug/L	--
	--	Selenium	High	All ND	ug/L	--
290775	--	1,1-Dichloroethene	High	All ND	ug/L	--

Key:
CCV = Continuing calibration verification
High = CCV above maximum acceptable limit
µg/L = Micrograms per liter
J+ = Estimated with high bias
ND = Nondetected

Table 6
Column Relative Percent Difference Outside of Acceptable Limits
PG&E Brush Street Groundwater and Soil Samples Collected July 2017
PG&E
Oakland, California

Lab Package	Sample ID	Compound	Column RPD*	Reported Concentration	Units	ERM Qualifier
290775	COMP-DRUM-ABC	Heptachlor	>40%	16	ug/Kg	J
		4,4'-DDD	>40%	24	ug/Kg	J
		4.4-DDT	>40%	58	ug/Kg	J
290775	COMP-DRUM-EFG	Heptachlor	>40%	32	ug/Kg	J
		4,4'-DDD	>40%	86	ug/Kg	J

Data Package Reviewed: 289025

Key:
RPD = Relative percent difference
ug/Kg = micrograms per Kilogram
* = Compound presence confirmed, but RPD between columns exceeds 40%
J = Estimated concentration

Table 7
Suspect TPH Results
PG&E Brush Street Groundwater and Soil Samples Collected July 2017
PG&E
Oakland, California

Lab Package	Sample ID	Compound	Reported Concentration	ERM Qualifier	Notes
290750	MW-02	Diesel C10-C24	300	NJ	Sample exhibits chromatographic pattern which does not resemble the standard.
	MW-02-DUP	Diesel C10-C24	390	NJ	Sample exhibits chromatographic pattern which does not resemble the standard.
	MW-04	Diesel C10-C24	850	NJ	Sample exhibits chromatographic pattern which does not resemble the standard.
290775	COMP-DRUM-ABC	Diesel C10-C24	11	NJ	Sample exhibits chromatographic pattern which does not resemble the standard.
	COMP-DRUM-EFG	Diesel C10-C24	4.2	NJ	Sample exhibits chromatographic pattern which does not resemble the standard.
	PURGE-DRUM	Diesel C10-C24	35	NJ	Sample exhibits chromatographic pattern which does not resemble the standard.

Key:
NJ = Estimated value - chromatogram did not resemble the standard hydrocarbon pattern

Table 8
Field Duplicate Results and Calculated Relative Percent Differences
PG&E Brush Street Groundwater and Soil Samples Collected July 2017
PG&E
Oakland, California

Lab Package	Sample ID	Compound	Concentration				Report Limit	Units	RPD (%)	Qualifier
			Sample		Duplicate					
290750	MW-02 / MW-02-DUP	Diesel C10-C24	300		390		50	ug/L	26	--
		Gasoline C7-C12	9000		8100		1700	ug/L	11	--
		MTBE	35		31		17	ug/L	12	--
		Benzene	2000		1900		17	ug/L	5	--
		Toluene	1500		1400		17	ug/L	7	--
		Ethylbenzene	170		150		17	ug/L	13	--
		m,p-Xylenes	480		440		17	ug/L	9	--
		o-Xylene	210		190		17	ug/L	10	--
		Isopropylbenzene	7.9	J	7.7	J	17	ug/L	3	--
		Propylbenzene	16	J	15	J	17	ug/L	6	--
		1,3,5-Trimethylbenzene	34		28		17	ug/L	19	--
		1,2,4-Trimethylbenzene	130		120		17	ug/L	8	--
		Naphthalene	39	J	ND		67	ug/L	NC	--
		Phenol	5.0	J	5.2	J	38	ug/L	4	--
		2-Methylphenol	4.8	J	5.4	J	38	ug/L	12	--
		4-Methylphenol	ND		4.5	J	38	ug/L	NC	--
		Naphthalene	29	J	34		38	ug/L	16	--
		2-Methylnaphthalene	7.0	J	8.4	J	38	ug/L	18	--
		Arsenic	3.4	J	3.4	J	10	ug/L	0	--
		Barium	140		130		5.0	ug/L	7	--
		Cadmium	0.39	J	0.38	J	5.0	ug/L	3	--
		Cobalt	7.4		7.1		5.0	ug/L	4	--
		Copper	4.7	J	3.6	J	5.0	ug/L	27	--
		Mercury	0.054	J	0.26		0.2	ug/L	131	--
		Nickel	34		34		5.0	ug/L	0	--
		Silver	4.5	J	5.4		5.0	ug/L	18	--

Key:
µg/L = Micrograms per liter
RPD = Relative percent difference
J = Estimated concentration
ND = Nondetected
NC = Not calculated

Appendix D
Field Sheets

PG&E Brush Street
MONITORING WELL SAMPLING FORM
ERM-West, Inc.

Date: 5/3/17
Set up time: 0800
Weather: sunny 60s
Sampler: KB

WELL ID: MW-01

Well Location: See site map
Casing Diameter: 4"

Screened Interval: 4-16'
Construction Depth: 16.5'

Purge Method: Peri Pump
Purge Start Time: 830
Discharge Rate: 0.2 gal/min
Purge End Time: 1118
Sample Method: Peri Pump

Depth to Water: 4.50'
Total Measured Depth: 14.91
Height of Water Column: 10.41
Volume of one casing: 6.79

Purge calculations: (height of water column) 10.41 ft. x (conv. factor) 0.653 x 3 = 20.40 gallons

Well Diameter Inches	0.5	0.75	1	2	3	(4)	5	6	7	8
Conversion factor (gal/ft)	0.010	0.023	0.041	0.163	0.367	(0.653)	1.020	1.469	1.999	2.611

Time	Gallons	Temp.	pH	EC	Water Clarity/Turbidity	WATER level
0906	5	18.6	7.31	0.679	Clear / 1.3 NTU	5.00
0950	10	18.9	6.91	0.641	Clear / 0.5 NTU	5.00
1036	15	19.7	6.81	0642	Clear / 0.1 NTU	5.10
1116	20	20.4	7.45	0.646	Clear / 0.7 NTU	5.00

ANALYSES REQUIRED	SAMPLE TIME	CONTAINERS REQUIRED	FILTRATION?
TPH-g/VOCs	1130	(6) 40mL HCl VOAs	no
TPH-d/-mo		(2) 500 ml ambers	No
Title 22 metals-Fe Mn		250 mL HNO3 poly	yes
SVOCs		(2) 1L ambers	No
Pesticides		(2) 1L ambers	No
PCBs		(2) 1L ambers	No

QA/QC Samples Collected: QA/QC Sample ID: No

FIELD OBSERVATIONS:
Headspace PID/FID:
Well condition/ repairs needed:
Pump previously used at well/site:
Disposal method of purge water:
Decontamination procedure:
Other notes:

Sampler Signature(s) : KB

Nitrate, sulfate, alkalinity 1130 (1) L poly No
Methane (3) RSK vials HCl pres No

PG&E Brush Street
MONITORING WELL SAMPLING FORM
ERM-West, Inc.

Date: 5/4/17
Set up time: 1330
Weather: Sunny 60s
Sampler: KB

WELL ID: MW-02

Well Location: See site map
Casing Diameter: 2"

Screened Interval: 4-15'
Construction Depth: 15.5'

Purge Method: Peri Pump
Purge Start Time: 1345
Discharge Rate: 0.2 gal/min
Purge End Time: 1508
Sample Method: Peri Pump

Depth to Water: 4.85
Total Measured Depth: 14.35
Height of Water Column: 9.5
Volume of one casing: 1.55

Purge calculations: (height of water column) 9.5 ft. x (conv. factor) 0.163 x 3 = 4.65 gallons

Well Diameter Inches	0.5	0.75	1	2	3	4	5	6	7	8
Conversion factor (gal/ft)	0.010	0.023	0.041	0.163	0.367	0.653	1.020	1.469	1.999	2.611

Time	Gallons	Temp.	pH	EC	Water Clarity/Turbidity	Water Level
1404	1.5	21.6	6.88	1.666	Clear / 60.4	8.80
1418	3	20.6	6.75	1.435	Clear / 28.4	6.30
1430	4.5	20.3	6.80	1.385	Clear / 5.9	6.45

TPH-g / VOCs

ANALYSES REQUIRED	SAMPLE TIME	CONTAINERS REQUIRED	FILTRATION?
TPH-d, AMO	1430	(6) 40 mL HCl VOAs	NO
SVOCs		(2) 500mL Ambers	NO
TPH 22 MetA (Mn, Fe		250mL HNO3 Poly	yes
SVOCs		(2) 1L Ambers	NO
Pesticides		(2) 1L Ambers	NO
PCBs		(2) 1L Ambers	NO
Nitrate, Sulfate, Alkalinity		(1) 1L Poly	NO
		(3) Risk Vials HCl Pres	NO

QA/QC Samples Collected: Methane

QA/QC Sample ID:

FIELD OBSERVATIONS:
Headspace PID/FID:
Well condition/ repairs needed:
Pump previously used at well/site:
Disposal method of purge water:
Decontamination procedure:
Other notes:

Sampler Signature(s) :

KB

PG&E Brush Street
MONITORING WELL SAMPLING FORM
ERM-West, Inc.

Date: 5/4/17
Set up time: 1030
Weather: Sunny 60s
Sampler: KB

WELL ID: MW-03

Well Location: See site map
Casing Diameter: 2"

Screened Interval: 4-15'
Construction Depth: 15.5'

Purge Method: Peri Pump
Purge Start Time: 1030
Discharge Rate: 0.2 gal/min
Purge End Time: 1200
Sample Method: Peri Pump

Depth to Water: 3.95
Total Measured Depth: 14.43
Height of Water Column: 10.48
Volume of one casing: 1.68

Purge calculations: (height of water column) 10.48 ft. x (conv. factor) 0.163 x 3 = 5.12 gallons

Well Diameter Inches	0.5	0.75	1	(2)	3	4	5	6	7	8
Conversion factor (gal/ft)	0.010	0.023	0.041	(0.163)	0.367	0.653	1.020	1.469	1.999	2.611

Time	Gallons	Temp.	pH	EC	Water Clarity/Turbidity	WATER level
1039	1.5	20	6.19	1.628	clear / 31.1	5.15
1049	3	19.9	6.19	1.570	clear / 30.4	5.67
1103	4.5	19.8	6.16	1.55	clear / 21.3	6.25

ANALYSES REQUIRED	SAMPLE TIME	CONTAINERS REQUIRED	FILTRATION?
TPH-g / VOCs	1100	(6) 40 mL HCl VOA's	NO
TPH-d / -mo		(2) 500mL Ambers	NO
Title 22 met (Mn, Fe)		250mL HNO_3 Poly	YES
SVOCs		(2) 1L Ambers	NO
Pesticides		(2) 1L Ambers	NO
PCBs		(2) 1L Ambers	NO
Nitrate, Sulfate, Alkalinity		(1) 1L Poly	NO
Methane		(3) Risk VIALS HCl pres.	NO

QA/QC Samples Collected:

QA/QC Sample ID:

FIELD OBSERVATIONS:
Headspace PID/FID:
Well condition/ repairs needed:
Pump previously used at well/site:
Disposal method of purge water:
Decontamination procedure:
Other notes: Bench test sample collected @ MW-03 @ 1145 for shipment to Peroxychem. (2) 1L poly containers

Sampler Signature(s):

PG&E Brush Street
MONITORING WELL SAMPLING FORM
ERM-West, Inc.

Date: 5/14/12
Set up time: 1230
Weather: Sunny 60s-70s
Sampler: SM, KB

WELL ID: MW-04

Well Location: See site map
Casing Diameter: 2"

Screened Interval: 4-15'
Construction Depth: 15.5'

Purge Method: Peri Pump
Purge Start Time: 1230
Discharge Rate: 0.2 gal/min
Purge End Time:
Sample Method: Peri Pump

Depth to Water: 5.02
Total Measured Depth: 14.40
Height of Water Column: 9.38
Volume of one casing: 1.53

Purge calculations: (height of water column) 9.38 ft. x (conv. factor) 0.163 x 3 = 4.58 gallons

Well Diameter Inches	0.5	0.75	1	2	3	4	5	6	7	8
Conversion factor (gal/ft)	0.010	0.023	0.041	0.163	0.367	0.653	1.020	1.469	1.999	2.611

Time	Gallons	Temp.	pH	EC	Water Clarity/Turbidity	water level
1245	1.5	22.5	6.70	0.86	clear-murky / 65.0	8.75
1252	3	20.6	6.72	0.927	murky / 64.2	9.00
1305	4.5	20.1	6.75	1.314	murky / 80.0	6.25

ANALYSES REQUIRED	SAMPLE TIME	CONTAINERS REQUIRED	FILTRATION?
~~TPH~~ g / VOCs		(6) 40ml HCl VOAs	NO
TPH-d / -mo	1300	(2) 500ml Ambers	NO
SVOCs		(2) 1L Ambers	NO
Title 22 met (Mn, Fe)		250ml HNO_3 Poly	yes
Pesticides		(2) 1L Ambers	NO
PCBs		(2) 1L Ambers	NO

QA/QC Samples Collected:

QA/QC Sample ID:

FIELD OBSERVATIONS:
Headspace PID/FID:
Well condition/ repairs needed:
Pump previously used at well/site:
Disposal method of purge water:
Decontamination procedure:
Other notes:

Sampler Signature(s) :

Analyses	Container	Filter
Nitrate, Sulfate, Alkalinity	(1) L Poly	no
Methane 1300	(3) Pink VOAs HCl Pres.	no

PG&E Brush Street
MONITORING WELL SAMPLING FORM
ERM-West, Inc.

Date: 5/4/17
Set up time: 0800
Weather: sunny
Sampler:

WELL ID: MW-05

Well Location: See site map
Casing Diameter: 2 in.

Screened Interval: 4-15'
Construction Depth: 15.5'

Purge Method: peri pump
Purge Start Time: 0810
Discharge Rate: 0.2 gal/min
Purge End Time: 1010
Sample Method: peri pump

Depth to Water: 5.30
Total Measured Depth: 14.40
Height of Water Column: 9.10
Volume of one casing: 1.48

Purge calculations: (height of water column) 9.10 ft. x (conv. factor) 0.163 x 3 = 4.44 gallons

Well Diameter Inches	0.5	0.75	1	(2)	3	4	5	6	7	8
Conversion factor (gal/ft)	0.010	0.023	0.041	(0.163)	0.367	0.653	1.020	1.469	1.999	2.611

Time	Gallons	Temp.°C	pH	EC .45 µS/cm	Water Clarity/Turbidity	(water level)
0818	1.5	17.9	7.00	1410	clear / 88.4	6.26
0826	3.0	17.9	6.77	1.090	clear / 22.8	6.45
840	4.5	17.9	6.80	1.017	clear / 7.5	5.80

ANALYSES REQUIRED	SAMPLE TIME	CONTAINERS REQUIRED	FILTRATION?
TPH-g/VOCs	840	(6) 40mL HCl VOAs	No
TPH-d/-mo		(2) 500ml Ambers	No
SVOCs		(2) 1L ambers	No
Title 22 met. (+Mn, Fe)		250mL HNO3 poly	Yes
Pesticides		(2) 1L amber	No
PCBs		(2) 1L amber	No

QA/QC Samples Collected: MW-05-DUP (0940)
QA/QC Sample ID:

FIELD OBSERVATIONS:
Headspace PID/FID:
Well condition/ repairs needed:
Pump previously used at well/site:
Disposal method of purge water:
Decontamination procedure:
Other notes: DUP collected @ 940

Sampler Signature(s):

Analyses	Container	Filter
Nitrate, sulfate, alkalinity	(1) L poly	No
Methane	(3) RSK vials HCl pres.	No

CHAIN OF CUSTODY

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Page 1 of 1
Chain of Custody # ______

Project No: 0399889.02.03
Project Name: PG&E Brush Street
Project P. O. No:
EDD Format: geotracker EQ Report Level ☐ II ☐ III ☐ IV
Turnaround Time: ☐ RUSH ______ ☒ Standard

Sampler: S Martin SM, K Brennan KB
Report To: John Lucio
Company: ERM
Telephone: 925-946-0455
Email: john.lucio@erm.com

Lab No.	Sample ID.	Date Collected	Time Collected	Water	Solid			# of Containers	HCl	H2SO4	HNO3	NaOH	None	TPH-g/VOCs 8260B	TPH-d/-mo 8015M	SVOCs 8270C	TTLC 22 Metals (+Mn, Fe) (6010/7000 series)	Pesticides 8081	PCBs 8082	Nitrate 300, Sulfate 300, Alkalinity (SM 2320B)	Methane (RSK-175)
	MW-05	05/04/17	0840	X				19	X		X		X	X	X	X	X	X	X	X	X
	MW-05-DUP	05/04/17	0940	X				19	X		X		X	X	X	X	X	X	X	X	X
	MW-03	05/04/17	1100	X				19	X		X		X	X	X	X	X	X	X	X	X
	MW-04	05/04/17	1300	X				19	X		X		X	X	X	X	X	X	X	X	X
	Trip Blank	05/04/17	1400	X				3	X					X							
	MW-02	05/04/17	1430	X				19	X		X		X	X	X	X	X	X	X	X	X

Notes: Metals samples field filtered

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
[signature]	5/4/17	1505	[signature]	5/4	1505

Date:
Job #: 0323656
Measured by:

Ground Water Elevations
PG&E Brush Street
Oakland, California

Well	Date	Time	Total Depth (ft-bmp)	Depth to Groundwater (ft-bmp)	Screen Interval (ft-bmp)	Depth to Water Before sampling (ft-bmp)	Depth to Water After Sampling (ft-bmp)	Functional Well Lock?	Notes
MW-1	7/18/2017	0902	15.89	5.21	4-16'	—	—	(Y) N	
MW-2	7/18/2017	0931	14.31	5.51	4-15'	—	—	(Y) N	
MW-3	7/18/2017	0936	14.21	4.72	4-15'	—	—	(Y) N	
MW-4	7/18/2017	0934	14.36	5.71	4-15'	—	—	(Y) N	
MW-5	7/18/2017	0936	14.35	5.96	4-15'	—	—	(Y) N	

1 set - WCS
1 set.

PG&E Brush Street
MONITORING WELL SAMPLING FORM
ERM-West, Inc.

Date: 7/19/17
Set up time: 9:30
Weather: sunny 70°F
Sampler: HW / AB

WELL ID: MW-01

Well Location: See site map
Casing Diameter: 4"

Screened Interval: 4-16'
Construction Depth: 16.5'

Purge Method: Low-Flow
Purge Start Time: 9:45:00
Discharge Rate: 0.7 gal/min
Purge End Time: 12:54
Sample Method: Low-Flow

Depth to Water: 5.21'
Total Measured Depth: 15.89'
Height of Water Column: 10.68'
Volume of one casing:

Purge calculations: (height of water column) 10.68 ft. x (conv. factor) 0.653 x 3 = 20.9 gallons

Well Diameter Inches	0.5	0.75	1	2	3	4	5	6	7	8
Conversion factor (gal/ft)	0.010	0.023	0.041	0.163	0.367	0.653	1.020	1.469	1.999	2.611

uS/cm

Time	Gallons	Temp.°C	pH	EC	Water Clarity/Turbidity	ORP (mV)
9:48	0.5	21.6	6.97	898	clear	140.3
10:20	~~4.5~~ 5.0	20.8	6.88	850	clear	126.8
11:14	~~8.0~~ 8.0	20.6	6.84	760	clear	108.5
11:43	~~12.0~~ 12.0	20.6	6.80	736	clear	81.0
12:35	16.0	20.6	6.80	707	clear	67.3
12:54	20.0	20.7	6.72	706	clear	68.7

ANALYSES REQUIRED	SAMPLE TIME	CONTAINERS REQUIRED	FILTRATION?
TPH-G & VOCs	12:55	40mL VOAs (4)	N
TPH-D & TPH-mo. w/SG		500mL Ambers (2)	N
SVOCs		1L Amber (2)	N
Title 22 metals		500mL Poly (1)	Y

QA/QC Samples Collected: NONE
QA/QC Sample ID: N/A

FIELD OBSERVATIONS:
Headspace PID/FID: –
Well condition/ repairs needed: NONE. good condition
Pump previously used at well/site: yes. Geosc used new tubing
Disposal method of purge water: drum onsite
Decontamination procedure: Alconox + DI water
Other notes:
9:46:30 took to fill up 1/2L YSI & tubing.
Resumed 10:04 1.5 gallons purged.

Sampler Signature(s):

PG&E Brush Street
MONITORING WELL SAMPLING FORM
ERM-West, Inc.

Date: 7/19/17
Set up time: 1:20
Weather: sunny
Sampler: HW / AB

WELL ID: MW-02

Well Location: See site map
Casing Diameter: 2"

Screened Interval: 4-15'
Construction Depth: 15.5'

Purge Method: Low flow
Purge Start Time: ~~13:24~~ 13:24
Discharge Rate: 0.15 gal/min
Purge End Time: 14:03
Sample Method: Low flow

Depth to Water: 5.51'
Total Measured Depth: 14.31'
Height of Water Column: 8.8'
Volume of one casing:

Purge calculations: (height of water column) 8.8 ft. x (conv. factor) 1.43 x 3 = 4.3 gallons

Well Diameter Inches	0.5	0.75	1	2	3	4	5	6	7	8
Conversion factor (gal/ft)	0.010	0.023	0.041	0.163	0.367	0.653	1.020	1.469	1.999	2.611

Time	Gallons	Temp.	pH	EC (SPC-us/cm)	DO (mg/L)	Water Clarity/Turbidity	ORP
1:28:30	1	23.0	6.58	1989	1.04	clear/yellow	-122.2
1:33:00	1.5	22.7	6.58	1849	0.87		-138.9
1:37:30	2	22.6	6.58	1794	0.84	clear yellowish	-140.2
1:42:00	2.5	22.4	6.57	1698	0.79	clear	-136
1:52:00	3	22.3	6.57	1668	0.79	clear	-130.9
2:01:00	4	22.3	6.58	1641	0.77	clear	-130.3

ANALYSES REQUIRED	SAMPLE TIME	CONTAINERS REQUIRED	FILTRATION?
TPH-G & VOCs	~~14:05~~ 14:05	4 x 40ml VOAs	N
TPH-D w/SG	" "	2 x 500ml Amber	N
SVOC		2 x 1L Amber	N
6010 - Metals		1 x 500ml poly	Y

QA/QC Samples Collected: 14:10

QA/QC Sample ID: MW-02-DUP

FIELD OBSERVATIONS:
Headspace PID/FID: -
Well condition/ repairs needed: No. good condition
Pump previously used at well/site: yes - MW-01 prior. replaced tubing.
Disposal method of purge water: drum onsite
Decontamination procedure: Alconox + DI water
Other notes:

Sampler Signature(s) :

0323656

PG&E Brush Street
MONITORING WELL SAMPLING FORM
ERM-West, Inc.

Date: 7/19/17
Set up time: ~~0800~~ 1645
Weather: sunny, 70°F
Sampler: HW / AB

WELL ID: MW-~~11~~03 HW 7/19/17

Well Location: See site map
Casing Diameter: 2 in.

Screened Interval: 4-15'
Construction Depth: 15.5'

Purge Method: Low Flow
Purge Start Time: 4:44:30
Discharge Rate: 0.3 gal/min
Purge End Time: 17:04
Sample Method: low-flow

Depth to Water: 5.96
Total Measured Depth: 14.21
Height of Water Column: 8.25'
Volume of one casing: 1.34

Purge calculations: (height of water column) 8.25 ft. x (conv. factor) 1.34 x 3 = 4.03 gallons

Well Diameter Inches	0.5	0.75	1	2	3	4	5	6	7	8
Conversion factor (gal/ft)	0.010	0.023	0.041	0.163	0.367	0.653	1.020	1.469	1.999	2.611

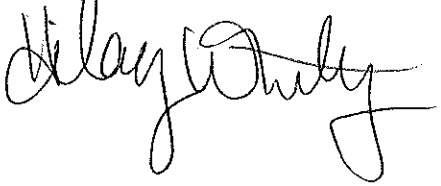
Time	Gallons	Temp.	pH	EC	DO (mg/L)	Water Clarity/Turbidity	ORP
4:49:00	1	22.0	12.22	9652	33.09	clear, no odor	4.0
4:53:30	2	22.3	12.12	9417	31.46	clear, no odor	24.5
4:58:00	3	22.3	12.02	9144	32.03	clear, no odor	36.1
5:02:30	4	22.1	11.98	8724	32.27	clear, no odor	43.5

ANALYSES REQUIRED	SAMPLE TIME	CONTAINERS REQUIRED	FILTRATION?
TPHg & VOCs	17:05	4 x 40ml VOAs	N
TPH d/mo w/SG		2x 500ml Ambers	N
SVOCs		2 x 1L Amber	N
Title 22 Metals		1 x 500ml poly	Y

QA/QC Samples Collected: NONE
QA/QC Sample ID: N/A

FIELD OBSERVATIONS:
Headspace PID/FID: —
Well condition/ repairs needed: good condition
Pump previously used at well/site: yes, used new tubing
Disposal method of purge water: drum onsite
Decontamination procedure: Alconox + DI water
Other notes:

Sampler Signature(s):



PG&E Brush Street
MONITORING WELL SAMPLING FORM
ERM-West, Inc.

Date: 7/19/17
Set up time:
Weather: sunny, 70°-80°F
Sampler: Hilary Whitney / Anthony Billecci

WELL ID: MW-04

Well Location: See site map
Casing Diameter: 2"

Screened Interval: 4-15'
Construction Depth: 15.5'

Purge Method: low-flow
Purge Start Time: 15:00
Discharge Rate: 0.28 gal/min
Purge End Time: 15:20
Sample Method: low-flow

Depth to Water: 5.71
Total Measured Depth: 14.36
Height of Water Column: 8.65
Volume of one casing:

Purge calculations: (height of water column)_____ft. x (conv. factor) 1.41 x 3 = 4.23 gallons

Well Diameter Inches	0.5	0.75	1	2	3	4	5	6	7	8
Conversion factor (gal/ft)	0.010	0.023	0.041	0.163	0.367	0.653	1.020	1.469	1.999	2.611

Time	Gallons	Temp.	pH	EC	DO (mg/L)	Water Clarity/Turbidity	
15:04:30	1	23.6	6.57	849	0.95	clear, hydrocarbon smell	-161.1
15:09:00	2	23.2	6.52	833	0.82		-171.9
15:13:30	3	23.1	6.52	832	0.81	clear	-172.8
15:18:00	4	23.0	6.51	819	0.78	" "	-172.5
15:20:00	4.5	23.0	6.51	819	0.78	" "	-172.4

ANALYSES REQUIRED	SAMPLE TIME	CONTAINERS REQUIRED	FILTRATION?
TPH-g & VOCs	15:20	4 x 40ml VOA	N
TPH d/mo w/ SG		2 x 500ml Amber	N
SVOCs		2 x 1L Amber	N
Title 22 Metals		1 x 500ml poly	Y

QA/QC Samples Collected: NONE
QA/QC Sample ID: NONE

FIELD OBSERVATIONS:
Headspace PID/FID: -
Well condition/ repairs needed: good condition
Pump previously used at well/site: yes, new tubing
Disposal method of purge water: drum onsite
Decontamination procedure: Alconox + DI water
Other notes:

Sampler Signature(s) :

Hilary Whitney

PG&E Brush Street
MONITORING WELL SAMPLING FORM
ERM-West, Inc.

Date: 7/19/17
Set up time: 15 30
Weather: sunny 80°F
Sampler: HW / A. B.

HW 7/19/17

WELL ID: MW-~~MM~~05

Well Location: See site map
Casing Diameter: 2"

Screened Interval: 4-15'
Construction Depth: 15.5'

Purge Method: Low flow
Purge Start Time: 3:49:30
Discharge Rate: 0.25 gal/min
Purge End Time: 16:14
Sample Method: Low flow

Depth to Water: 4.72'
Total Measured Depth: 14.35'
Height of Water Column: 9.63'
Volume of one casing:

Purge calculations: (height of water column) 9.63 ft. x (conv. factor) 1.56 x 3 = 4.7 gallons

Well Diameter Inches	0.5	0.75	1	~~2~~	3	4	5	6	7	8
Conversion factor (gal/ft)	0.010	0.023	0.041	0.163	0.367	0.653	1.020	1.469	1.999	2.611

Time	Gallons	Temp.	pH	EC	DO	Water Clarity/Turbidity	ORP
3:59:00	1	21.3	6.56	1481	0.95	clear	42.1
3:59:30	2	21.0	6.57	1465	0.94	" "	41.6
4:04:00	3	20.7	6.63	1399	0.86	" "	37.5
4:09:30	4	20.6	6.64	1353	0.86	" "	37.2
4:14:00	5	20.6	6.62	1329	0.85	" "	43.3

ANALYSES REQUIRED	SAMPLE TIME	CONTAINERS REQUIRED	FILTRATION?
TPHg & VOCs	16:15	4x 40ml VOAs	N
TPHd/mo w/ SG		2 x 500ml Ambers	N
SVOCs		2x 1 L Ambers	N
Metals (Title 22)		1 X 500ml Poly	Y

QA/QC Samples Collected: NONE
QA/QC Sample ID: N/A

FIELD OBSERVATIONS:
Headspace PID/FID: -
Well condition/ repairs needed: good condition
Pump previously used at well/site: yes, used new tubing
Disposal method of purge water: drum onsite
Decontamination procedure: Alconox + DI water
Other notes:

Sampler Signature(s) :

Appendix E
Metals Treatability Bench Test

9 June 2017

Arun Chemburkar, P.E.
ERM West, Inc.
1277 Treat Blvd., #500
Walnut Creek, CA
94597

Subject: Bench-scale Treatability Study Results for PG&E Brush Street Site, Oakland CA

Dear Mr. Chemburkar:

A bench-scale treatability study was conducted to evaluate ability of PeroxyChem's MetaFix® reagents to reduce soluble cobalt and nickel concentrations in a soil/groundwater matrix collected from the PG&E Brush Street Site in Oakland, California (the Site). The objective was to compare the efficacy of the two MetaFix reagents, and two dosages, for reducing the aqueous concentration of cobalt and nickel in groundwater at the Site.

Baseline Characterization of Soil and Groundwater Samples

The following soil and groundwater samples were received in early May 2017 and submitted for determination of baseline pH and metals concentrations:

- MW-03-11.0 – 12.0 (soil)
- MW-03-12.0 – 13.0 (soil)
- MW-03-13.0 – 14.0 (soil)
- MW-03-14.0 – 15.0 (soil)
- MW-3 (groundwater)

The four soil samples were blended, homogenized, and sieved (2.0 mm) to create a single soil sample for use in the treatability testing and given the designation MW-03 soil. A subsample of the MW-03 soil was submitted for total compositional metals analysis. The total compositional metals analysis is a simplified soil digestion procedure. The procedure is based on the SW-846 Method 3050B; however, 6N HNO_3/4N HCl (Aqua Regia, slightly diluted) is used rather than additions of concentrated acid as in the SW-846 method. Furthermore, in the compositional procedure, the samples are heated, and the total digestion time is 3 hours. The results are presented in Table 1.

In addition, a baseline leachable metals assay was conducted by mixing 50 g of the MW-03 soil with 200 mL of Madison WI city water, shaking overnight, filtering (0.45 µm, glass fiber) and then determining metals concentrations in the filtrate. The purpose of this assay was to ensure that aqueous phase metals concentrations in an untreated soil/water matrix were adequately high to enable determination of MetaFix reagent performance. The results are presented in Table 1.

Treatability Study Set-up

Based on the observed baseline pH, total heavy metals concentrations, leachable metals in the untreated soil, and consultation with ERM, testing was conducted on mixed groundwater/soil samples prepared by adding 200 mL of MW-3 groundwater to 50 g of the <2.0 mm fraction of the MW-03 soil in amber glass reaction vessels. The soil samples had previously received the specified mass (0.5% or 1.0% w/w) of the appropriate MetaFix reagent (I-7A or I-7AC). The reaction vessels were then sealed with Teflon® lined lids, and tumbled continuously during a 7 day reaction period. Upon completion of the reaction period, samples were filtered (0.45 µm glass fiber) and analyzed for metals by ICP.

Filtering of water samples prior to their submission for metals analyses is conducted to make the test more representative of flowing groundwater in the aquifer. This approach is used in preparation of both the control and MetaFix treated samples for analysis because the batch test methodology employed in this work (i.e., tumbling a soil/groundwater mixture) results in suspension of fine particulate material that would not be present in flowing groundwater. Use of a 0.45 µm glass fiber filter is considered standard practice in metals treatment work because the pore size small enough to remove most suspended particulate and the glass fiber filter composition ensures that colloidal organic particles will not be adsorbed.

Results

Substantial reductions in leachable metals were observed in response to each MetaFix® treatment. A positive dosage response was also observed. The results of the baseline soil analysis, the baseline leaching assay, and the MetaFix treatability testing are presented in Table 1.

Table 1. Influence of MetaFix treatments on soluble concentrations of cobalt, chromium, and nickel.

Sample ID	Reagent	Dose (wt %)	Soil pH	Extract pH	Cobalt			Chromium			Nickel		
					Total (µg/kg)	Leachable (µg/L)	Reduction (%)	Total (µg/kg)	Leachable (µg/L)	Reduction (%)	Total (µg/kg)	Leachable (µg/L)	Reduction (%)
Baseline Soil													
untreated soil	--	--	4.86	--	9,100	--	--	66,000	--	--	43,000	--	--
City of Madison Water Extraction (40 g soil, reagent, 200 mL groundwater, 0.45 µm filter, 24-hour reaction)													
baseline leaching	--	--	--	6.26	--	72	--	--	<5	--	--	160	--
Groundwater Extraction (25 g soil, reagent, 100 mL groundwater, 0.45 µm filter, 1-week reaction)													
untreated control	--	--	--	6.31	--	85	--	--	<5	--	--	190	--
I-7A low	I-7A	0.50	--	6.36	--	24	71.8	--	<5	N/A	--	110	42.1
I-7A high	I-7A	1.00	--	6.38	--	<10	94.1	--	<5	N/A	--	<12	96.8
I-7AC low	I-7AC	0.50	--	6.73	--	15	82.4	--	<5	N/A	--	58	69.5
I-7AC high	I-7AC	1.00	--	6.95	--	<10	94.1	--	<5	N/A	--	20	89.5

Notes:

1. Reductions in leachable metals are relative to the untreated control. When result is below the laboratory reporting limit (RL) they are calculated using 1/2 the RL

For cobalt, soluble concentrations were reduced by 71.8% and 82.4% in response to the lower (0.5% w/w) dosages of MetaFix I-7A and I-7AC, respectively. Soluble cobalt concentrations were reduced to below the method detection limit when the soil/groundwater mixture received the higher (1.0% w/w) dosage of either MetaFix I-7A and I-7AC.

For nickel, soluble concentrations were reduced by 42.1% and 69.5% in response to the lower (0.5% w/w) dosage of MetaFix I-7A and I-7AC, respectively. The soluble nickel concentration was reduced to below the method detection limit when the soil/groundwater mixture received the higher (1.0% w/w) dosage of either MetaFix I-7A. Somewhat less effective removal of soluble nickel was observed in response to the high (1.0% w/w) dosage of MetaFix I-7AC.

The results presented here indicate that MetaFix treatment would provide an effective approach to treatment of cobalt and nickel in groundwater at the Site. The results indicate that the I-7A MetaFix formulation is the most effective in treatment of nickel and that the higher (1.0% w/w) dosage is more effective than the lower (0.5% w/w) dosage of this reagent.

If you have questions regarding these results, please contact me at 949-514-1068.

Sincerely,

Alan Seech, Ph.D.
Senior Manager – Technology Applications
PeroxyChem Environmental Solutions

Copy: Stacey Telesz – PeroxyChem

Appendix F
Soil Physical Properties
Laboratory Report

8100 Secura Way • Santa Fe Springs, CA 90670
Telephone (562) 347-2500 • Fax (562) 907-3610

May 17, 2017

Doug Moberg
ERM-West, Inc.
1277 Treat Blvd., Suite 500
Walnut Creek, CA 94597

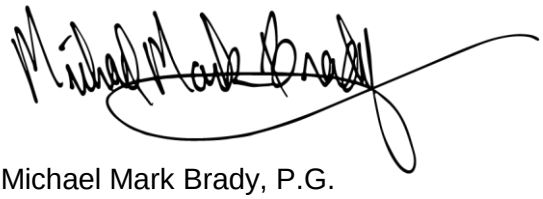
Re: PTS File No: 47239
Physical Properties Data
B&E Brush Street; 0399889.02.03

Dear Mr. Moberg:

Please find enclosed report for Physical Properties analyses conducted upon samples received from your B&E Brush Street; 0399889.02.03 project. All analyses were performed by applicable ASTM, EPA, or API methodologies. The samples are currently in storage and will be retained for thirty days past completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples.

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please give me a call at (562) 347-2502.

Sincerely,
PTS Laboratories, Inc.



Michael Mark Brady, P.G.
Laboratory Director

Encl.

Project Name: B&E Brush Street
Project Number: 0399889.02.03

PTS File No: 47239
Client: ERM-West, Inc.

TEST PROGRAM - 20170503

CORE ID	Depth ft.	Core Recovery ft.	Hydraulic Conductivity Pkg.	TOC/foc Walkley-Black	Vapor Transport Package			Comments
		Plugs:	Vert. 1.5"	Grab	Various			
Date Received: 20170503								
MW-01-7.0-8.0	**7.0-8.0**	**0.95**	**X**	**X**				
GSB-3-1.5-3.5	**1.5-3.5**	**1.70**			**X**			
TOTALS:	**3 Cores**	**2.65**	**1**	**1**	**1**			**3**

Laboratory Test Program Notes
Contaminant identification: _____

Standard TAT for basic analysis is 10-15 business days.

Hydraulic Conductivity Package – Saturated Zone: Native-state permeability to water, total and air-filled porosity, grain and bulk density, moisture content, total pore fluid (water only) saturation.

Vapor Transport Package (Johnson-Ettinger): Input parameters for Johnson-Ettinger Model; Air permeability (native + specific); porosity (total, effective, air-filled, water-filled), volumetric air and water, moisture content, intrinsic permeability/hydraulic conductivity, grain density, dry bulk density, TOC/foc, soil classification USDA/USCS (grain size + Atterberg limits).

PTS File No: 47239
Client: ERM-West, Inc.
Report Date: 05/17/17

PTS Laboratories

PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

Project Name: B&E Brush Street
Project No: 0399889.02.03

			METHODS:	API RP40/ ASTM D2216		API RP 40		API RP 40			Mod. ASTM D425	API RP40
				MOISTURE CONTENT,		DENSITY		POROSITY, (2)				TOTAL PORE FLUID
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	% weight	cm^3/cm^3	DRY BULK, g/cm^3	GRAIN, g/cm^3	TOTAL, cm^3/cm^3	AIR-FILLED, cm^3/cm^3	WATER-FILLED, cm^3/cm^3	EFFECTIVE, cm^3/cm^3	SATURATIONS (3), % Pv
GSB-3-1.5-3.5	2.55	V	20170509	15.3	0.271	1.76	2.64	0.331	0.061	0.271	0.174	81.7

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids; Effective = drainage porosity.

(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 47239
Client: ERM-West, Inc.
Report Date: 05/17/17

AIR PERMEABILITY DATA - VAPOR TRANSPORT PACKAGE

Project Name: B&E Brush Street
Project No: 0399889.02.03

			METHODS:	API RP40	
				25 PSI CONFINING PRESSURE	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	EFFECTIVE PERMEABILITY TO AIR (2), millidarcy	SPECIFIC PERMEABILITY TO AIR (3), millidarcy
GSB-3-1.5-3.5	2.55	V	20170509	2.00	362

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Specific = No pore fluids in place.
Air = Nitrogen gas.

PTS Laboratories

PTS File No: 47239
Client: ERM-West, Inc.
Report Date: 05/17/17

HYDRAULIC CONDUCTIVITY DATA - VAPOR TRANSPORT PACKAGE

Project Name: B&E Brush Street
Project No: 0399889.02.03

METHODS: **API RP40 / EPA 9100**

SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	25 PSI CONFINING STRESS		
				EFFECTIVE PERMEABILITY TO WATER (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO WATER (3), cm^2
GSB-3-1.5-3.5	2.4	V	20170515	14.8	1.49E-05	1.46E-10

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Effective (Native) = With as-received pore fluids in place.

(3) Permeability to water and hydraulic conductivity measured at saturated conditions.
Water = filtered Laboratory Fresh (tap) or Site water.

PTS Laboratories

PTS File No: 47239
Client: ERM-West, Inc.
Report Date: 05/17/17

SOIL CLASSIFICATION DATA - VAPOR TRANSPORT PACKAGE

ATTERBERG LIMITS DATA - FINE FRACTION < No. 40 SIEVE

Project Name: B&E Brush Street
Project No: 0399889.02.03

		METHODS:	ASTM D4318			ASTM D4318	ASTM D2487	USDA
			ATTERBERG LIMITS (1)			USCS / PLASTICITY	USCS	USDA
SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	CHART SYMBOL (Fines: <#40 Sieve)	CLASSIFICATION, Group Symbol: Name	SOIL TEXTURE SCHEME (2)
GSB-3-1.5-3.5	2.8	20170511	19.8	Non-Plastic		NP	SM: Silty sand	sandy loam

(1) Silt assumed as fine fraction for NON-PLASTIC (NP) samples.
(2) Sand considered to be >No. 200 sieve for USDA SOIL TEXTURE SCHEME.
USCS: Unified Soil Classification System
USDA: US Department of Agriculture
SCS: Soil Conservation Service

PTS File No: 47239
Client: ERM-West, Inc.
Report Date: 05/17/17

PTS Laboratories

PHYSICAL PROPERTIES DATA - HYDRAULIC CONDUCTIVITY PACKAGE

Project Name: B&E Brush Street
Project No: 0399889.02.03

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40	API RP 40; EPA 9100	
									25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DENSITY		POROSITY, %Vb (2)		TOTAL PORE FLUID SATURATIONS (3), % Pv	EFFECTIVE (4,5) PERMEABILITY TO WATER, millidarcy	HYDRAULIC CONDUCTIVITY (4,5), cm/s
				DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR-FILLED			
MW-01-7.0-8.0	7.85	V	16.8	1.74	2.68	35.2	6.0	82.8	2.80	2.85E-06

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
(4) Effective (Native) = With as-received pore fluids in place.
(5) Permeability to water and hydraulic conductivity measured at saturated conditions.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected
Water = filtered Laboratory Fresh (tap) or Site water.

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: B&E Brush Street
PROJECT NO: 0399889.02.03

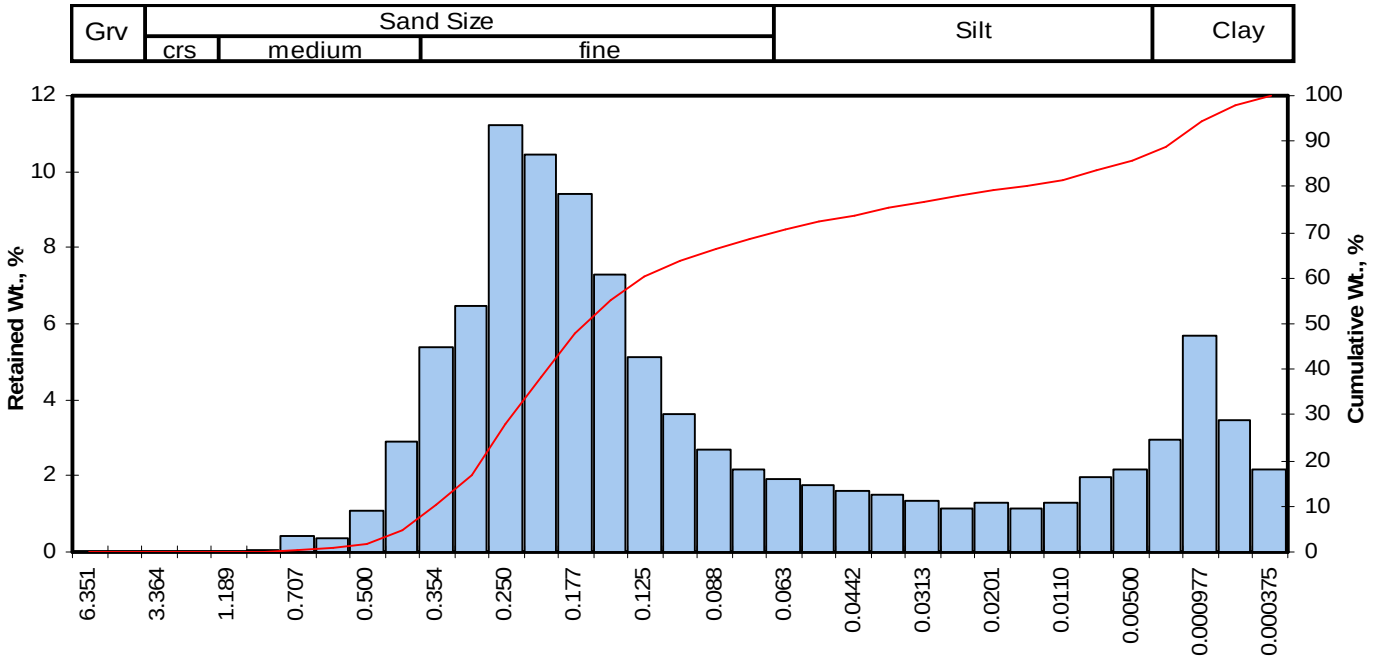
Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
GSB-3-1.5-3.5	2.65	Fine sand	0.167	0.00	0.00	4.77	63.83	17.18	14.22	31.40

(1) Based on Mean from Trask

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	ERM-West, Inc.	**PTS File No:**	47239
Project:	B&E Brush Street	**Sample ID:**	GSB-3-1.5-3.5
Project No:	0399889.02.03	**Depth, ft:**	2.65



Particle Size, mm

Opening		Phi of	U.S.	Sample Weight,	Increment Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.03	0.03	0.03
0.0278	0.707	0.50	25	0.40	0.40	0.43
0.0234	0.595	0.75	30	0.38	0.38	0.81
0.0197	0.500	1.00	35	1.06	1.06	1.87
0.0166	0.420	1.25	40	2.89	2.90	4.77
0.0139	0.354	1.50	45	5.38	5.40	10.17
0.0117	0.297	1.75	50	6.45	6.47	16.64
0.0098	0.250	2.00	60	11.20	11.23	27.87
0.0083	0.210	2.25	70	10.40	10.43	38.30
0.0070	0.177	2.50	80	9.38	9.41	47.70
0.0059	0.149	2.75	100	7.29	7.31	55.01
0.0049	0.125	3.00	120	5.12	5.13	60.15
0.0041	0.105	3.25	140	3.60	3.61	63.76
0.0035	0.088	3.50	170	2.67	2.68	66.44
0.0029	0.074	3.75	200	2.16	2.17	68.60
0.0025	0.063	4.00	230	1.90	1.91	70.51
0.0021	0.053	4.25	270	1.76	1.76	72.27
0.00174	0.0442	4.50	325	1.62	1.62	73.90
0.00146	0.0372	4.75	400	1.48	1.48	75.38
0.00123	0.0313	5.00	450	1.33	1.33	76.71
0.000986	0.0250	5.32	500	1.16	1.16	77.88
0.000790	0.0201	5.64	635	1.27	1.27	79.15
0.000615	0.0156	6.00		1.15	1.15	80.30
0.000435	0.0110	6.50		1.29	1.29	81.60
0.000308	0.00781	7.00		1.98	1.99	83.58
0.000197	0.00500	7.65		2.19	2.20	85.78
0.000077	0.00195	9.00		2.94	2.95	88.73
0.000038	0.000977	10.00		5.66	5.68	94.40
0.000019	0.000488	11.00		3.43	3.44	97.84
0.000015	0.000375	11.38		2.15	2.16	100.00
TOTALS				**99.70**	**100.00**	**100.00**

Cumulative Weight Percent greater than

Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	1.26	0.0164	0.417
10	1.49	0.0140	0.355
16	1.73	0.0119	0.302
25	1.94	0.0103	0.261
40	2.30	0.0080	0.204
50	2.58	0.0066	0.167
60	2.99	0.0049	0.126
75	4.69	0.0015	0.039
84	7.12	0.0003	0.007
90	9.22	0.0001	0.002
95	10.17	0.0000	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	2.58	2.58	2.58
Median, in.	0.0066	0.0066	0.0066
Median, mm	0.167	0.167	0.167
Mean, phi	2.74	4.42	3.81
Mean, in.	0.0059	0.0018	0.0028
Mean, mm	0.150	0.047	0.071
Sorting	2.593	2.698	2.700
Skewness	0.602	0.684	0.694
Kurtosis	0.314	0.651	1.328

Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	4.77
Fine Sand	200	63.83
Silt	>0.005 mm	17.18
Clay	<0.005 mm	14.22
	Total	**100**

Phone: (562) 907-3607
Fax: (562) 907-3610

PTS Laboratories

PTS File No: 47239
Client: ERM-West, Inc.
Report Date: 05/17/17

ORGANIC CARBON DATA - TOC (foc)

(Methodology: Walkley-Black)

Project Name: B&E Brush Street
Project No: 0399889.02.03

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
MW-01-7.0-8.0	7.8	20170517	1100	SOIL	590	5.90E-04
GSB-3-1.5-3.5	2.55	20170517	1100	SOIL	13500	1.35E-02
Blank	N/A	20170517	1100	BLANK	ND	ND
SRM D093-542	N/A	20170517	1100	SRM	6400	6.40E-03
				Reporting Limit:	100	1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance Acceptance Limits, mg/kg Lower	Upper
SRM D093-542	114	75-125	5590	4193	6988

ND = Not Detected

47239

Environmental Resources Management

CHAIN OF CUSTODY RECORD

NO: 5044

1277 Treat Boulevard, Suite 500 • Walnut Creek, CA • 94597 • (925) 946-0455 • FAX (925) 946-9968

PROJECT #	PROJECT NAME
0399889.02.03	Bi-Fi Brush Street

SAMPLER: (PRINT NAME)	(SIGNATURE)
S. Martin	

RECEIVING LABORATORY: PTS Laboratories

SAMPLER I.D.	DATE	TIME	COMP	GRAB	SAMPLING METHOD	PRESERVATIVE	ICY (Y/N)	SAMPLING VOLUME	# OF CONTAINERS	MATRIX: SOIL	MATRIX: WATER	MATRIX: GAS	REQUESTED PARAMETERS: Hydraulic conductivity package (saturated zone)	REQUESTED PARAMETERS: TOC	REQUESTED PARAMETERS: Vapor transport package (unsaturated zone)
MW-01-7.0-8.0	4/26/17	0920		X	DP	No	No	2x12"	1	X			X	X	
SB-3-1.5-3.5	4/28/17	1230		X	DP	No	No	2x24"	2	X					X

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
	5/1/17	1035	PTS LABS	5/3/17	1235
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME

FIELD REMARKS: Standard TAT
Recv. 71°F

REMARKS ON SAMPLE RECEIPT
☐ BOTTLE INTACT ☐ CUSTODY SEALS ☐ CHILLED
☐ PRESERVED ☐ SEALS INTACT ☐ SEE REMARKS

ERM REMARKS

SEND REPORT TO:
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John.lucio@erm.com

WHITE - LABORATORY COPY CANARY - FIELD COPY PINK - DATABASE GOLD - PROJECT FILE erm.chembarcar@erm.