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September 18, 2012

1211.001.02.004

Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Attention: Mr. Mark Detterman

Transmittal
Results of Additional Investigation
1650 65th Street
Emeryville, California
Fuel Leak Case No. RO0000440
Geotracker Global ID T0600100511

Dear Mr. Detterman:

Submitted herewith for your review is the *Results of Additional Investigation, 1650 65th Street, Emeryville, California* prepared by PES Environmental, Inc.

I declare, under penalty of perjury, that the information and recommendations contained in the attached document are true and correct to the best of my knowledge.

Very truly yours,

GRIFFIN CAPITAL CORPORATION

Julie A. Treinen
Managing Director, Asset Management

cc: Chris Baldassari, PES Environmental, Inc.

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PES Environmental, Inc.
Engineering & Environmental Services

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Attention: Mr. Mark Detterman

Subject: Results of Additional Investigation
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Dear Mr. Detterman:

This report has been prepared by PES Environmental, Inc. (PES) on behalf of Griffin Capital Corporation (Griffin) as agent for the fee owners to document the implementation and results of focused soil, groundwater, and sub-slab vapor investigations conducted at 1650 65th Street in Emeryville, California (the Site, Plate 1).

PES prepared work plans for the investigation activities documented herein based on requests by the Alameda County Environmental Health Department (ACEH), which included: (1) installing and sampling a new temporary groundwater monitoring well; (2) installing and sampling two sub-slab vapor probes within the Site building; and (3) collecting soil matrix samples. The groundwater and sub-slab vapor investigation work plan was approved by ACEH in a letter to Griffin dated January 6, 2012[1], and the soil matrix investigation work plan was approved by ACEH in a letter to Griffin dated February 21, 2012[2].

[1] Alameda County Environmental Health Department (ACEH), 2012a. *Request for Work Plan Addendum With Conditional Work Plan Approval; Fuel Leak Case No. RO0000440 and Geotracker ID T0600100511, Emery Bay Plaza, 1650 65th Street, Emeryville, CA 94608.* January 6.

[2] ACEH, 2012b. *Conditional Approval of Focused Source Area Work Plan Addendum; Fuel Leak Case No. RO0000440 and Geotracker ID T0600100511, Emery Bay Plaza, 1650 65th Street, Emeryville, CA 94608.* February 21.

PES implemented the approved Work Plans[3] in March and April 2012. Summary tables and figures presenting laboratory analytical results and boring logs from the investigations were transmitted to ACEH on May 21, 2012. As previously discussed with ACEH[4], PES held discussions with ACEH staff to assess the data, via telephonic meetings on May 24 and August 22, 2012. Based on these discussions, and in accordance with the approved Work Plans, PES has prepared this report to summarize and document the methods, results and conclusions of the investigation activities.

The objective of the Work Plans was to address data gaps and potential concerns previously identified in ACEH's April 1, 2011 letter to Griffin[5]. In support of that objective, the goals of the work described herein were to: (1) conduct a limited groundwater investigation in the downgradient area between monitoring wells MW-4 and MW-6; (2) collect sub-slab vapor samples to assess potential vapor intrusion concerns beneath the southeast portion of the building; and (3) collect soil samples to assess the lateral and vertical extent of residual hydrocarbons underneath the building and adjacent to the former UST.

The following sections of this report present: (1) a brief summary of Site background information; (2) the methods and procedures for the groundwater, sub-slab vapor, and soil sampling activities; and (3) the results of the investigation activities.

BACKGROUND INFORMATION

The removal of the former 2,000-gallon underground storage tank (UST)[6] in July 1987 and completion of soil remediation activities[7] for the fuel release were documented in previous reports prepared by Engineering-Science, Inc. (ES). Soil remediation activities were completed under a remedial plan approved by ACEH in 1988. Remediation activities

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[3] PES Environmental, Inc., 2011. *Work Plan for Additional Investigation, 1650 65th Street, Emeryville, California, Fuel Leak Case No. RO0000440, Geotracker Global ID T0600100511.* July 22.
PES Environmental, Inc., 2011. *Work Plan Addendum, 1650 65th Street, Emeryville, California, Fuel Leak Case No. RO0000440, Geotracker Global ID T0600100511.* November 18.
PES Environmental, Inc., 2011. *Work Plan for Focused Source Area Soil Investigation, 1650 65th Street, Emeryville, California, Fuel Leak Case No. RO0000440, Geotracker Global ID T0600100511.* December 5.
PES Environmental, Inc., 2012. *Addendum to Work Plan for Focused Source Area Soil Investigation, 1650 65th Street, Emeryville, California, Fuel Leak Case No. RO0000440, Geotracker Global ID T0600100511.* February 3.

[4] Meeting at ACEH offices between representatives of PES, Griffin, and ACEH on July 2, 2011.

[5] ACEH, 2011. *Request for Work Plan; Fuel Leak Case No. RO0000440 and Geotracker ID T0600100511, Emery Bay Plaza, 1650 65th Street, Emeryville, CA 94608.* April 1.

[6] Engineering-Science (ES), 1987. *Underground Fuel Storage Tank Site Investigation near the Southeast Corner of the Warehouse Building, 1650 65th Street Property, Emeryville, California.* September 18.

[7] ES, 1988. *Implementation of Remedial Action Plan Report for United States Postal Service Site at 1650 65th Street, Emeryville California.* April 6.

conducted by ES in February and March 1988 included: (1) excavation and disposal of contaminated soil in the vicinity of the former UST; and (2) collecting and analyzing confirmation soil samples from the excavation. At the time of these remediation activities, confirmation samples indicated that contaminant concentrations were below applicable regulatory thresholds, and backfilling of the excavation with clean soil was subsequently approved by ACEH and San Francisco Bay Regional Water Quality Control Board (RWQCB) representatives.

Groundwater monitoring was initiated in November 1989, and a groundwater remediation system was installed in December 1990 to extract and treat groundwater. Remediation via groundwater extraction continued until October 1993. An *in-situ* bioremediation pilot study program was initiated in August 1994. The *in-situ* bioremediation program continued until December 1998. At that time, ACEH approved cessation of groundwater remediation and monitoring and directed the Site be evaluated for closure. In April 2001, PES submitted a report[8] to ACEH that recommended no further groundwater monitoring on the basis of the stable and localized nature of the groundwater plume, and requested documentation of No Further Action (NFA) with respect to the former UST.

In response to the case closure request in April 2001, ACEH issued a letter to Griffin dated July 7, 2009[9]. To address technical comments in the ACEH 2009 letter, PES submitted a Work Plan on behalf of Griffin[10], which ACEH conditionally approved in a letter dated August 16, 2010. On behalf of Griffin, PES subsequently implemented the approved Work Plan scope and submitted a report to ACEH entitled *Results of Groundwater Monitoring and Preferential Pathway Study, and Request for Case Closure* dated October 25, 2010. ACEH subsequently issued the April 1, 2012 letter to Griffin. The ACEH 2011 letter included requests to submit work plans for conducting: (1) limited groundwater investigation in the area downgradient of the former UST between monitoring wells MW-4 and MW-6; (2) sub-slab vapor sampling inside the southeastern corner of the onsite building; (3) focused source area evaluation of residual contamination beneath the building. On June 2, 2011, PES, Griffin, ACEH, and representatives for the UST case at 6601/6603 Shellmound Street[11] met (i.e., Sybase and its consultant EKI) to discuss the technical comments contained in ACEH's April 1, 2012 letter. Based on the outcome of the meeting and ACEH's technical request, PES prepared the above-referenced Work Plans to address ACEH's concerns.

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[8] PES Environmental, Inc. 2001. *Groundwater Monitoring Report and Request for Closure, Emery Bay Plaza, 1650 65th Street, Emeryville, California.* April 27.

[9] ACEH, 2009. *Fuel Leak Case No. RO0000440 and Geotracker ID T0600100511, Emery Bay Plaza, 1650 65th Street, Emeryville, CA 94608*. July 7.

[10] PES Environmental, Inc., 2009. *Work Plan for Groundwater Monitoring and Preferential Pathway Study, 1650 65th Street, Emeryville, California.* October 7.

[11] This site is north of and adjacent to the subject property, is an open LUST case, and has also been requested by ACEH to perform additional investigation, including on the subject property.

Additionally, and in accordance with ACEH's request, semi-annual groundwater monitoring has been conducted at the Site since May 2011. Results of the Second Quarter 2012 groundwater monitoring (the most recent event) were submitted to ACEH in a report dated August 2, 2012[12]. The second quarter 2012 results indicate that: (1) concentrations of TPHg and BTEX in wells MW-2 and EW-1 (in the near vicinity of the former UST) continue to show a decreasing trend when compared to historical data; (2) concentrations of TPHg and BTEX in downgradient wells MW-4 and MW-6 indicate that the plume is stable or shrinking when compared to prior monitoring data; and (3) groundwater concentrations at the Site are below the RWQCB's Environmental Screening Limits (ESLs) for potential vapor intrusion concerns at commercial/industrial sites.

SUBSURFACE INVESTIGATION

The Work Plan implementation activities were performed on March 20 through 22, 2012, and April 19, 2012. The following sections describe the field methods and procedures utilized to implement the Work Plans. The approved scope of work consisted of installing a temporary well and collecting a groundwater sample (TGW-1) in the area between MW-4 and MW-6, installing and sampling two sub-slab vapor probes in the southeast corner of the building (SS-1 and SS-2), and advancing 5 soil borings for soil sampling purposes (SB-1 through SB-5). Sample locations are shown on Plate 2.

Pre-Field Activities

Pre-field activities consisted of: (1) obtaining a permit from the Alameda County Public Works Agency (ACPWA); (2) contacting Underground Service Alert more than 48 hours before beginning drilling activities; (3) retaining a private utility locator, C Cruz Sub Surface Locators Inc. of Milpitas, California, to clear the proposed boring locations of subsurface utilities and foundations; and (4) retaining and scheduling Cascade Drilling, L.P. (Cascade) of Richmond, California, a licensed drilling contractor possessing a valid C-57 water well contractor's license, to perform the temporary groundwater well installation, sub-slab vapor probe installation, and soil sampling. A copy of the ACPWA drilling permit is provided in Appendix A.

[12] PES Environmental, Inc. 2012. *Second Quarter 2012 Groundwater Monitoring Report, 1650 65th Street, Emeryville, California*. August 2.

Groundwater Sampling Methods and Procedures

In accordance with the Work Plan, on March 20, 2012, one temporary groundwater monitoring well was installed by Cascade in the first water-bearing zone, as shown on Plate 3. The boring for the temporary well was drilled using 8-inch diameter hollow-stem augers, and the temporary well was constructed using 2-inch diameter schedule 40 polyvinyl chloride (PVC) casing and screened with 0.010-inch factory-slotted PVC from approximately 6 to 16 feet below ground surface (bgs). A filterpack consisting of #2/12 Monterey Sand was placed in the annular space adjacent to the entire screened interval of the well and extended approximately 2 feet above the top of the screened interval. An approximately 2-foot thick seal consisting of bentonite chips was placed above the filter pack.

Development and sampling activities for the temporary well were performed by Confluence Environmental, Inc. (Confluence) of Sacramento, California. The well was purged to stabilize the filter pack around the well screen and to produce representative water samples from the water-bearing zone. Water quality parameters including temperature, pH, specific conductance, and turbidity were monitored during development. Well monitoring data sheets are presented in Appendix B. Following well purging, low flow sampling techniques[13] were utilized to obtain representative groundwater samples.

Upon collection of the groundwater sample, the temporary well materials were removed, the boring was reamed with an 8-inch auger to the total depth of the original boring, and the borehole was grouted in accordance with ACPWA permit requirements with oversight of an ACPWA inspector.

The groundwater sample was transported to Curtis and Tompkins Laboratory (C&T) of Berkeley, California, a California state-certified laboratory for the requested analyses, under chain-of-custody protocol and analyzed on a standard 5-day turnaround time. The sample was analyzed for: (1) total petroleum hydrocarbons (TPH) quantified as gasoline (TPHg) using U.S. EPA Method 8015M; and (2) benzene, toluene, ethylbenzene, and total xylenes (BTEX) and fuel oxygenates consisting of methyl-tertiary butyl ether (MTBE), ethyl tertiary-butyl ether (ETBE), di-isopropyl ether (DIPE), tert-butyl alcohol (TBA), ethylene dibromide (EDB), 1,2-dichloroethane (1,2-DCA), and tertiary-amyl methyl ether (TAME) using U.S. EPA Test Method 8260B.

Soil cuttings, decontamination rinsate, and excess bailed groundwater were containerized in a 55-gallon drum and stored on-site for subsequent disposal pending chemical characterization.

[13] In general accordance with EPA recommended procedures (*Low Flow [Minimal Drawdown] Groundwater Sampling Procedures,* EPA/540/S-95/504, April 1996).

Sub-Slab Vapor Sampling

To assess for potential vapor intrusion concerns within the southeast corner of the building, sub-slab vapor sampling was conducted on March 22 and April 19, 2012[14]. Additionally, to assess local air quality, background ambient air samples were also collected at each vapor sampling event.

Sub-slab vapor point installation, sample collection, and analysis was performed consistent with procedures outlined in Appendix G of the *Vapor Intrusion Guidance Document – Final* published by the California Department of Toxic Substances (DTSC) in October 2011[15], as well as DTSC's March 2010 *Advisory – Active Soil Gas Investigation*[16,17].

Sub-slab vapor probes were installed in the concrete slab inside the building. A small diameter hole (1-inch nominal diameter) was drilled through the concrete and approximately 4-inches into the base material directly beneath the slab. Each sub-slab vapor probe consisted of an approximately 6-inch long by ¼-inch outside-diameter length of stainless-steel tubing equipped with a threaded compression fitting at the top, a sand pack at the bottom opening, and a hydrated bentonite seal within the annular space. The upper annular space above the bentonite seals was grouted with anchoring cement, and the probe was completed flush with the existing slab surface. Prior to sample collection, a closed stainless steel valve was attached to the probe fitting.

A 1-liter vapor sample SUMMA canister that was batch-certified clean by a California-certified analytical laboratory was utilized to collect sub-slab soil vapor. Prior to sampling, sub-slab vapor was allowed to re-equilibrate for approximately 24 hours. Teflon sample tubing was attached to a sealed, laboratory-cleaned sampling manifold. To remove non-representative vapor from the probe prior to sample collection, approximately 50 milliliters (mL) of soil vapor was purged utilizing a 6-liter SUMMA canister. One duplicate vapor sample was collected sequentially during each sample event for field quality control purposes. The initial and final canister vacuum, start and stop time, and approximate ambient temperature were recorded during sampling. To reduce the potential for ambient air breakthrough or preferential

[14] Due to concentrations of leak detection compound exceeding quality control standards in the vapor samples collected on March 22, 2012, the sub-slab vapor probes were re-sampled on April 19, 2012.

[15] California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), 2011. *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance)*. October.

[16] California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), 2010. *Advisory – Active Soil Gas Investigation*. March.

[17] As stated in the ASGI, "The Advisory is not a regulation, nor does it impose any requirements or obligations on the regulated community. Rather, it provides a technical framework and reference for addressing soil gas sample and analysis."

vapor-stripping, a flow rate of 50 milliliters per minute (mL/min) and low vacuum of less than 100 inches of water was used.

Prior to purging and the collection of soil vapor samples, shut-in leak testing was performed. The shut-in test consisted of assembling above-ground sampling apparatus (e.g., valves, lines and fittings downstream from the top of the probe), and evacuating the lines (to a vacuum of approximately 100 inches of water), then shutting the vacuum in with closed valves on opposite ends of the sampling train. A vacuum gauge was used to assess any observable loss of vacuum (for at least one minute) prior to purging and the collection of the sub-slab vapor samples.

Following completion of the shut-in leak test and purging, a leak test was performed using 1,1-difluoroethane (1,1-DFA) as a propellant tracer in combination with a shroud box[18]. The tracer shroud box consisted of a polycarbonate box equipped with a sampling port. The bottom of the shroud box was positioned over the wellhead with the sample collection tubing passing through the bottom. Once in position, the sample train was connected to the SUMMA canisters, and the shroud box was placed over entire sample train. The shroud box was equipped with an access port to allow charging of the box (with the propellant tracer 1,1-DFA), and a 3-way valve to open the SUMMA canisters (i.e., the primary and shroud environment sample canisters) for sample collection. Prior to opening the SUMMA canisters the shroud box was charged by spraying 1,1-DFA propellant into the shroud box. The shroud box was allowed to remain in place for the duration of sampling.

Outdoor ambient air samples were also collected on March 22 and April 19, 2012. The outdoor ambient air samples were collected using a batch-certified clean 6-liter SUMMA® canister equipped with a flow restrictor and manifold.

After sampling, the SUMMA canisters were transported to the analytical laboratory under chain-of-custody protocol. Vapor samples collected on March 22, 2012 were analyzed by C&T, and vapor samples collected on April 19, 2012 were analyzed by K-Prime Inc. (K-Prime), of Santa Rosa, California. Sub-slab vapor sample analysis for BTEX was performed using EPA Method TO-15. 1,1-DFA was analyzed by EPA Method TO-3 (K-Prime) or TO-15 (C&T). Standard atmospheric gases consisting of nitrogen, oxygen, carbon dioxide, and methane were analyzed by both labs utilizing ASTM D 1946.

Soil Sampling Methods and Procedures

Borehole drilling and sampling services were conducted in accordance with California Department of Water Resource Water Well Standards (Bulletin 74-90). Sampling was

[18] Per approval granted by ACEH via telephone conversation with Chris Baldassari of PES on March 7, 2012, 1,1-DFA was used as the leak check compound.

conducted under the supervision of a California-registered geologist. Soil cores were screened with a photoionization detector (PID). Lithologic logs were prepared for each boring using the Unified Soil Classification System.

In accordance with the methods described in the approved Work Plans, five soil borings (SB1 through SB-5) were advanced to depths of between 20 and 24 feet bgs. Soil samples SB-1 and SB-2 were collected within the interior of the building, and SB-3 through SB-5 were collected at exterior locations. As shown on Plate 5, SB-3, SB-4, and SB-5 were located approximately 5 feet from the former tank excavation pit. Soil matrix samples were collected from each boring at four discrete depths, as follows: (1) two samples from within the vadose zone at approximately 4.5 and 9 feet bgs (above the zone of saturated soil); and (2) two samples from within the saturated zone at approximately 16 and 20 feet bgs. The deeper soil samples were collected in an attempt to provide vertical definition of residual petroleum hydrocarbons in soil both beneath the building and in the vicinity of the former UST. The soil samples were collected using direct-push drilling technology. In several instances sample depth intervals varied slightly due to soil recovery.

The soil samples were transported under chain-of-custody protocol to C&T for the requested analyses. The samples were analyzed for: (1) TPHg using U.S. EPA Method 8015M, (2) TPH quantified as diesel (TPHd) and motor oil (TPHmo) using U.S. EPA Method 8015M following silica gel cleanup; and (3) BTEX and fuel oxygenates using U.S. EPA Test Method 8260B.

Downhole drilling and sampling equipment was steam cleaned prior to fieldwork and between each borehole. All boreholes were backfilled with neat cement grout from the bottom of the borehole, utilizing a tremie pipe, in accordance with ACPWA requirements. ACPWA was notified of the work within the timeframe specified in the drilling permit, and a grout inspector performed on-site inspections during grouting activities.

INVESTIGATION RESULTS

Lithology

In general, subsurface soils consist of fill comprised of soft to dense clays interlayered with loose to dense well graded sands overlying native Bay Mud. Saturated soil conditions were encountered at depths generally varying between 10 to 12 feet bgs. Lithologic logs are presented in Appendix C.

Analytical Results

The groundwater, sub-slab vapor, and soil analytical results are discussed below. Laboratory analytical reports and chain-of-custody forms are presented in Appendix D.

Groundwater Analytical Results

The results for petroleum hydrocarbons and VOCs in groundwater sample TGW-1 are presented in Table 1 and on Plate 3, and summarized below:

- TPHg, BTEX, and fuel oxygenates were not detected at or above their respective laboratory reporting limits in sample TGW-1, with the exception of a very low concentration of toluene (1.2 micrograms per liter [µg/L]).

Soil Gas Analytical Results

Analytical results for the sub-slab vapor samples collected on March 22 and April 19, 2012 are summarized below and in Table 2. Sub-slab vapor results are also presented on Plate 4. Additionally, the soil gas results are compared to RWQCB ESLs for commercial/industrial land use[19] as well as the DTSC *Vapor Intrusion Guidance* indoor air screening levels.

March 22, 2012 Vapor Results

As indicated in Table 2, BTEX and methane were not detected at or above the laboratory reporting limit in vapor samples collected from SS-1 and SS-2. Oxygen was detected at 18.0 percent by volume in both SS-1 and SS-2, and carbon dioxide was detected at 0.77 and 0.22 percent by volume in samples SS-1 and SS-2, respectively. BTEX, methane, and carbon dioxide were not detected at or above the laboratory reporting limit in the sample collected at the outdoor sampling location (AA-1); oxygen was detected at 19.0 percent by volume. However, based on concentrations of the leak test tracer (1,1-DFA) in the primary vapor samples SS-1 and SS-2 (as well as the duplicate sample for SS-2), when compared to concentrations detected in the quality control samples collected inside the shrouds (SHROUD-1 and SHROUD-2, presented in Appendix D), apparent leaks were present during sampling, and may have caused dilution of the samples. Therefore, the results from samples SS-1 and SS-2 collected on March 22, 2012 are not considered reliable and the sampling was repeated on April 19.

[19] RWQCB, 2008. *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater*. Interim Final, Revised May 2008.

April 19, 2012 Vapor Results

The vapor probes were re-sampled on April 19, 2012. The laboratory analytical results for vapor samples SS-1 and SS-2 are presented in Table 2 and on Plate 4, and summarized below:

- Fuel-related VOCs (BTEX) were not detected at or above the laboratory reporting limit in either SS-1 or SS-2;
- Methane was not detected at or above the laboratory reporting limit in either sample;
- Nitrogen was detected in SS-1 and SS-2 at 78.9 and 78.9 percent by volume, respectively;
- Oxygen was detected in SS-1 and SS-2 at 19.3 and 19.5 percent by volume, respectively; and
- Carbon dioxide was detected in SS-1 and SS-2 at 1.76 and 1.63 percent by volume, respectively.

Additionally, results of the background ambient air vapor sample collected at location AA-1 on April 19, 2012 indicated that benzene and ethylbenzene were not detected at or above their respective laboratory reporting limits. Low concentrations of toluene (4.30 micrograms per cubic meter [$\mu g/m^3$]) and xylenes (5.86 $\mu g/m^3$) were reported.

The leak check compound (1,1-DFA) was detected in the shroud samples (SHROUD-1 and SHROUD-2) at concentrations of 8,800 parts per million volumetric (ppmv) and 8,560 ppmv, respectively (Appendix E). 1,1-DFA was not detected in SS-1 or SS-2. Therefore, the results of the soil gas sampling are considered representative of subsurface conditions.

Soil Analytical Results

The analytical results for soils indicate the presence of varying concentrations of medium- and heavy-fraction petroleum hydrocarbons (TPHd[20] and TPHmo), as well as TPHg and petroleum hydrocarbon-related constituents (e.g., BTEX). The results for petroleum hydrocarbons and VOCs are presented in Table 3 and Plate 5, and summarized below:

- Fuel oxygenates (TBA, MTBE, DIPE, ETBE, 1,2-DCA, TAME, and 1,2-DBA) were not detected at or above the reporting limit in any of the 20 samples;

[20] According to the analytical laboratory, hydrocarbons detected in the diesel range for 19 of 20 of the analyzed samples did not exhibit chromatographic patterns resembling the diesel standard.

- TPHmo was detected in 18 of 20 soil samples at concentrations ranging from 6.9 to 1,600 milligrams per kilogram (mg/kg);

- TPHd was detected in 20 of 20 soil samples at concentrations ranging from 1.4 mg/kg to 1,200 mg/kg;

- TPHg was detected in 16 of 20 soil samples at concentrations ranging from 0.24 to 13,000 mg/kg;

- Benzene was detected in 13 of 20 soil samples at concentrations ranging from 0.016 mg/kg to 160 mg/kg;

- Toluene was detected in 11 of 20 soil samples at concentrations ranging from 0.011 mg/kg to 240 mg/kg;

- Ethylbenzene was detected in 8 of 20 soil samples at concentrations ranging from 0.023 mg/kg to 290 mg/kg; and

- Total xylenes were detected in 14 of 20 soil samples at concentrations ranging from 0.0058 mg/kg to 1,080 mg/kg.

DISCUSSION OF FINDINGS

Groundwater

With the exception of a very low concentration of toluene (1.2 µg/L), TPHg, BTEX, and fuel oxygenates were not detected at or above the laboratory reporting limit in sample TGW-1.

Based on the results of: (1) the groundwater investigation conducted in the downgradient area between wells MW-4 and MW-6; and (2) prior groundwater monitoring events, including the recent second quarter 2012 sampling, the following inferences are made:

- The extent of groundwater impacted by residual petroleum hydrocarbons from the former UST is limited to a localized, on-site area and is restricted to the near vicinity of wells MW-2 and EW-1;

- Concentrations within the area of affected groundwater are stable or decreasing, and are below ESLs for vapor intrusion concerns at commercial/industrial sites;

- The area of affected groundwater is representative of a mature release that is likely to continue attenuating over time; and

- There appears to be no impact to downgradient offsite locations or potential eco-receptors based on the stable, localized nature of the affected on-site groundwater[21].

Sub-Slab Vapor

BTEX and methane were not detected at or above the laboratory reporting limit in the sub-slab vapor samples collected on April 19, 2012.

Additionally, oxygen levels detected in the sub-slab vapor samples from SS-1 and SS-2 (19.3 and 19.5 percent by volume, respectively) are consistent with results of PES' prior study[22] of shallow subsurface oxygen levels in the southeast corner of the building[23]. As ACEH is aware, the building was previously retrofitted with a passive methane gas collection system that consists of 24 vertical gas ventilation wells which collect methane gas from beneath the building slab and vent the gas to the atmosphere at the roof, including in the vicinity of the former UST[24]. The passive gas collection system was installed based on the potential for methane generation in the subsurface and associated hazards. The sub-slab vapor results indicate that the methane system has significantly diminished the potential for vapor intrusion to the building interior. Taken as a whole, the results indicate the absence of fuel-related VOCs (e.g., benzene) and methane under the southeast area of the building slab, and indicate that there is no current vapor intrusion concern from these constituents for the building attributable to the former tank.

Furthermore, based on groundwater data indicating: (1) observations of the stable and/or decreasing concentrations of hydrocarbon-affected groundwater in the vicinity of the former tank; and (2) the age of the former release, there does not appear to be a significant potential for increased future risk of vapor intrusion concerns as a result of the historic release.

Soil

The organic analytical results for soils indicate the presence of varying concentrations of medium- and heavy-fraction petroleum hydrocarbons, as well as lighter-fraction TPHg and petroleum hydrocarbon-related VOCs (e.g., BTEX) in soil samples.

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[21] In addition, City of Emeryville Ordinance No. 07-006 prohibits the use of groundwater for water supply purposes.

[22] PES Environmental, Inc., 2004. *Summary Report of Methane Characterization Study, The Atrium at Emery Bay Plaza, 1650 65th Street, Emeryville, California.* March 2.

[23] Specifically, as indicated in Tables 2 and 3 of the *Summary Report of Methane Characterization Study,* sample locations SG-17, 17C, and 18S (at one-foot bgs), and sample location SG-16 (at four-feet bgs) had oxygen levels above the minimum oxygen concentration required for significant attenuation of fuel vapors.

[24] PES Environmental, Inc. (PES), 2005. *Completion Report, Construction of Methane Collection, Control, and Monitoring System, The Atrium at Emery Bay Plaza, 1650 65th Street, Emeryville, California.* April 14.

In general, relatively low concentrations of TPHmo, TPHd, TPHg and BTEX were detected in shallow soil samples collected from the upper vadose zone (i.e., 4.5 feet bgs). Concentrations of TPHmo, TPHd, TPHg, and BTEX generally attenuate between 16 and 20 feet bgs at all boring locations (SB-1 through SB-5).

Focused Source Area Soil Investigation – Building Interior

As shown on Table 3 and Plate 5, borings SB-1 and SB-2 were installed at locations inside the building to assess the extent of residual petroleum hydrocarbons in soil beneath the building. While a relatively higher concentration of TPHg and fuel-related VOCs were detected within the saturated zone (approximately 13 feet bgs) in boring SB-2 (sample SB-2-13), the lateral boundary of significant concentrations of these constituents beneath the building are effectively provided by sample SB-1-14 from boring SB-1. The soil represented by sample SB-2-13 also likely represents a small area of affected soil that could not effectively be removed during the soil remediation previously conducted by ES[25] due to structural concerns.

Focused Source Area Soil Investigation – Former Tank Area

To assess the vertical and lateral extent of residual soil contamination in the tank excavation area, three soil borings (SB-3 through SB-5) were placed approximately five feet from the edge of the tank excavation pit (Plate 5). As shown in Table 3, relatively low concentrations of residual petroleum hydrocarbons were detected in the shallow soil (at 4.5 feet bgs). In deeper samples, the highest concentrations of lighter-fraction hydrocarbons (e.g., TPHg and BTEX) were detected in several samples located within the "smear zone", and include samples SB-3-9 and SB-5-9.5. It should be noted that the locations of borings SB-3, SB-4, and SB-5 were placed in close proximity to the source area and are therefore expected to have the highest concentrations of petroleum hydrocarbon residuals.

Due to the location of the exterior soil borings within the presumed maximum concentration of petroleum hydrocarbon residuals (i.e., TPHg and BTEX detected in samples from borings SB-3, SB-4, and SB-5), when compared to the low concentrations of TPHg and BTEX detected in groundwater represented by nearby wells MW-4, MW-6, MW-8, and TGW-1, can be inferred that the lateral extent of petroleum hydrocarbon residuals in soil does not extend significantly further beyond these boring locations.

[25] ES, 1988. *Implementation of Remedial Action Plan Report for United States Postal Service Site at 1650 65th Street, Emeryville California.* April 6.

RECOMMENDATIONS AND CLOSING

The requested investigation activities have been implemented in accordance with the approved Work Plans. On the basis of the results contained herein which indicate: (1) the localized and stable nature of the groundwater plume; (2) absence of fuel-related VOCs and methane as well as high oxygen levels beneath the building in the vicinity of the former tank; and (3) the effective delineation of the extent of significant petroleum hydrocarbon residuals in soil beneath the building and around the former tank area, PES recommends initiating evaluation of the Site for case closure utilizing the criteria specified in the new low-threat underground storage tank case closure policy (Policy)[26], summarized in SWRCB Resolution No. 2012-0016. Based on our recent discussions with ACEH[27], at this time it is anticipated that additional documentation to be submitted to ACEH for evaluation will include: (1) a Site conceptual model (SCM); and (2) evaluation of Site data in conformance with Policy criteria.

We trust that this is the information you require at this time. Please call either of the undersigned if you have any questions.

Yours very truly,

PES ENVIRONMENTAL, INC.

Christopher J. Baldassari, P.G.
Senior Geologist

Robert S. Creps, P.E.
Principal Engineer

[26] RWQCB, 2012. *"Water Quality Control Policy for Low-Threat Underground Storage Tank Case Closure"* from http://www.swrcb.ca.gov/ust/lt_cls_plcy.shtml. Accessed July 30, 2012.
[27] Conference call with ACEH and PES, August 22, 2012.

Attachments: Table 1 – Summary of Analytical Results for Groundwater – Petroleum Hydrocarbons and VOCs
Table 2 – Summary of Analytical Results for Sub-Slab Vapor Probes
Table 3 – Summary of Analytical Results for Soil – Petroleum Hydrocarbons and VOCs

Plate 1 – Site Location Map
Plate 2 – Soil, Groundwater, and Vapor Sampling Locations
Plate 3 – Groundwater Sampling Results
Plate 4 – Sub-Slab Vapor Sampling Results
Plate 5 – Soil Sampling Results

Appendix A – Alameda County Public Works Agency Drilling Permit
Appendix B – Well Monitoring Data Sheets
Appendix C – Lithologic Logs
Appendix D – Laboratory Analytical Report And Chain-Of-Custody Forms (Provided on CD-ROM)

cc: Julie A. Treinen, Griffin Capital Corporation

TABLES

Table 1
Summary of Analytical Results for Groundwater - Petroleum Hydrocarbons and VOCs
1650 65th Street
Emeryville, California

Sample ID	Date	TPHg (mg/L)	VOCs (µg/L)										
			Benzene	Toluene	Ethylbenzene	Xylenes	TBA	MTBE	DIPE	ETBE	1,2-DCA	TAME	1,2-DBA
TGW-1	3/21/2012	< 0.050	< 1.0	**1.2**	< 1.0	< 1.0	<20	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vapor Intrusion ESL - C/I Exposure[4]		--	1,800	530,000	170,000	160,000	--	80,000	--		690		510
Drinking Water Ceiling ESL[2]		0.1	170	40	30	20	50,000	5	--		7,000		50,000
Drinking Water ESL[3]		0.21	1	150	300	1,800	12	13	--		600		1
Non-Drinking Water Ceiling ESL[1]		5.0	20,000	400	300	5,300	50,000	1,800	--		50,000		50,000
San Francisco Bay Basin Plan [5]		--	1	150	300	1,750	--	13	--		0.5		0.5

Notes:

VOCs = Volatile Organic Compounds

-- = Not analyzed or not applicable

mg/L = Milligrams per liter

µg/L = Micrograms per liter

< 0.5 = Not detected at or above the indicated laboratory reporting limit

TPHg = Total petroleum hydrocarbons quantified as gasoline

TBA = tert-Butyl Alcohol

MTBE = Methyl tert-Butyl Ether

ETBE = Ethyl tert-butyl ether

DIPE = Diisopropyl Ether

TAME = Methyl tert-Amyl Ether

1,2-DCA = 1,2-Dichloroethane

1,2-DBA = 1,2-Dibromoethane

(1) California Regional Water Quality Control Board, San Francisco Region (RWQCB) Environmental Screening Level (ESL), Non-Drinking Water Gross Contamination Ceiling Levels

(2) RWQCB Drinking Water Ceiling Levels (Table I-1; May 2008).

(3) RWQCB Drinking Water Screening Levels (Table F-3; May 2008).

(4) RWQCB Groundwater Screening Levels for Evaluation of Potential Vapor Intrusion Concerns (Table E-1; May 2008).

(5) RWQCB San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan), December 2010.

Table 2
Summary of Analytical Results for Sub-Slab Vapor Probes
1650 65th Street
Emeryville, California

Sample Location	Sample ID	Date Collected	VOCs (µg/m3)				Major Gases (% volume)			
			Benzene	Toluene	Ethylbenzene	Xylenes	Nitrogen	Oxygen	Carbon Dioxide	Methane
AA-1	AA-1	3/22/12	<1.1	<1.1	<1.1	<1.1	--	**19.0**	<0.22	<0.22
	AA-1	4/19/12	<3.19	**4.30**	<4.34	**5.86**	--	--	--	--
SS-1	SS-1 [a]	3/22/12	<3,200	<3,200	<3,200	<3,200	--	**18.0**	**0.77**	<0.2
	SS-1 [a]	4/19/12	<3.19	<3.77	<4.34	<4.34	**78.9**	**19.3**	**1.76**	<0.100
SS-2	SS-2 [a]	3/22/12	<1,300 / <1,300	<1,300 / <1,300	<1,300 / <1,300	<1,300 / <1,300	--	**18.0**	**0.22**	<0.16
	SS-2 [a]	4/19/12	<3.19 / <3.19	<3.77 / <3.77	<4.34 / <4.34	<4.34 / <4.34	**78.9**	**19.5**	**1.63**	<0.100
Shallow Soil Vapor ESL [b]			280	180,000	3300	58,000	--	--	--	--
Subslab Soil Vapor Screening Levels [c]			2.8	1,800	32	580	--	--	--	--
Indoor Air ESLs [d]			0.14	88	1.60	29	--	--	--	--

Notes:

VOCs = Volatile Organic Compounds

µg/m^3 = Micrograms per cubic meter of air

<0.22 = Not detected at or above the indicated laboratory reporting limit

<3.19 / <3.19 = Indicates results for primary/duplicate sample

-- = Not analyzed or not applicable

[a] The samples for SS-1 and SS-2 collected on March 22, 2012 contained 1,1-difluoroethane (1,1-DFA) (the reference leak detection compound) at concentrations of 65,000 and 21,000 parts per million volumetric (ppmv) respectively; 1,1-DFA was detected in the accompanying shroud samples for SS-1 and SS-2 at concentrations of 98,000 and 2,600 ppmv, respectively. The detected concentrations indicated leaks in the sampling equipment. Therfore, the sub-slab vapor probes were resampled on April 19, 2012. 1,1-DFA was not detected at or above the laboratory reporting limit for the samples collected at SS-1 and SS-2 on April 19, 2012; 1,1-DFA was detected in the accompanying shroud samples at 8,800 and 8,560 ppmv, respectively, and indicates dilution from ambient air did not affect the samples. 1,1-DFA analyzed by EPA Method TO-3.

[b] California Regional Water Quality Control Board - San Francisco Bay Region (RWQCB) Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater (ESLs), Table E-2. Shallow Soil Gas Screening Levels for Evaluation of Potential Vapor Intrusion Concerns (volatile chemicals only), Interim Final, May 2008.

[c] Subslab soil vapor screening calculated as indoor air screening level (ESL) divided by an attenuation factor of 0.05, in accordance with the Department of Toxic Substances Control *Vapor Intrusion Guidance* (October 2011).

[d] RWQCB ESLs, Table E-2. Ambient and Indoor Air Screening Levels (volatile chemicals only), Interim Final, May 2008.

Table 3
Summary of Analytical Results for Soil - Petroleum Hydrocarbons and VOCs
1650 65th Street
Emeryville, California

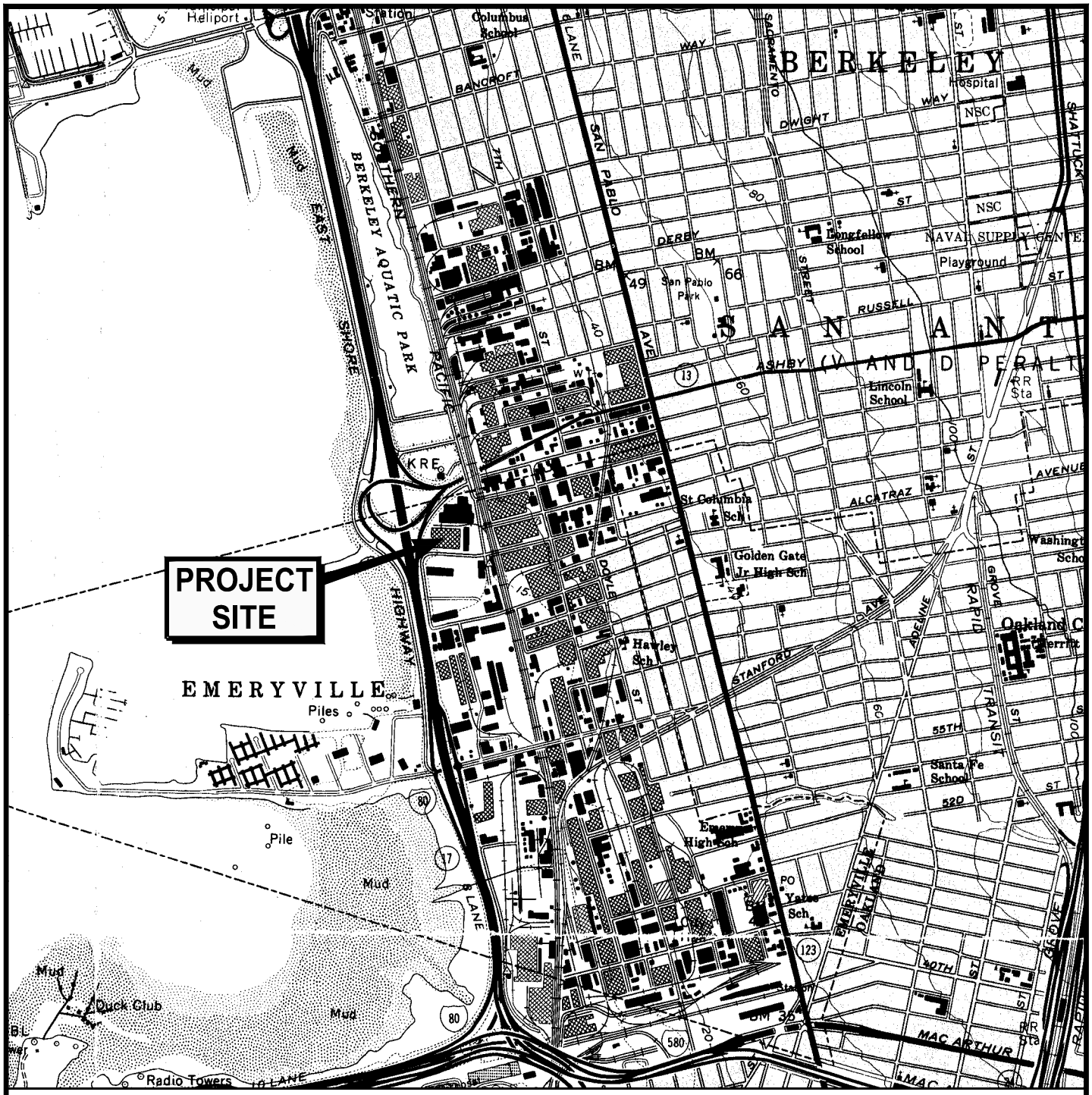
Sample ID	Sample Depth (ft bgs)	Sample Location	Date	TPHmo (mg/Kg)	TPHd (mg/Kg)	TPHg (mg/Kg)	VOCs										
							Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylenes (mg/Kg)	TBA (mg/Kg)	MTBE (mg/Kg)	DIPE (mg/Kg)	ETBE (mg/Kg)	1,2-DCA (mg/Kg)	TAME (mg/Kg)	1,2-DBA (mg/Kg)
SB-1-4.5	4.5	SB-1	3/20/2012	**110**	**9.2 Y**	<0.23	<0.0049	<0.0049	<0.0049	<0.0049	<0.097	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049
SB-1-9	9.0	SB-1	3/20/2012	**13**	**4.6 Y**	**0.91**	**0.240**	**0.015**	<0.0066	**0.0073**	<0.13	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066
SB-1-14	14.0	SB-1	3/20/2012	**510**	**140 Y**	**250**	**0.48**	**7.4**	**6.0**	**31.3**	<4.0	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
SB-1-20	20.0	SB-1	3/20/2012	**520**	**440**	**3.1 Y**	**0.056**	**0.018**	<0.0060	<0.0060	<0.120	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
SB-2-4.5	4.5	SB-2	3/20/2012	**410**	**48 Y**	**0.24**	<0.0058	<0.0058	<0.0058	<0.0058	<0.120	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058
SB-2-8.5	8.5	SB-2	3/20/2012	**280**	**27 Y**	**4.0**	**0.021**	<0.015	**0.120**	**0.367**	<0.30	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
SB-2-13	13.0	SB-2	3/20/2012	**320**	**1,200 Y**	**8,600**	**8.9**	**100**	**75**	**353**	<86.0	<4.300	<4.300	<4.300	<4.300	<4.300	<4.300
SB-2-21	21.0	SB-2	3/20/2012	**28**	**20 Y**	**3.0**	**0.029**	**0.011**	<0.0069	**0.0069**	<0.14	<0.0069	<0.0069	<0.0069	<0.0069	<0.0069	<0.0069
SB-3-4.5	4.5	SB-3	3/21/2012	**600**	**110 Y**	**22**	<0.450	<0.450	<0.450	**1.2**	<9.0	<0.450	<0.450	<0.450	<0.450	<0.450	<0.450
SB-3-9	9.0	SB-3	3/21/2012	**1,300**	**130 Y**	**7,500**	**160**	**21**	**290**	**1,080**	<320	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
SB-3-16	16.0	SB-3	3/21/2012	**110**	**42 Y**	**1.0**	**0.150**	**0.180**	**0.023**	**0.086**	<0.085	<0.0043	<0.0043	<0.0043	<0.0043	<0.0043	<0.0043
SB-3-20	20.0	SB-3	3/21/2012	**6.9**	**3.5 Y**	**2.3**	**0.016**	**0.100**	**0.059**	**0.274**	<0.085	<0.0043	<0.0043	<0.0043	<0.0043	<0.0043	<0.0043
SB-4-4.5	4.5	SB-4	3/21/2012	**620**	**99 Y**	<0.22	<0.0050	<0.0050	<0.0050	<0.0050	<0.099	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
SB-4-9	9.0	SB-4	3/21/2012	**1,600**	**970 Y**	**11**	**1.1**	<0.210	<0.210	**0.430**	<4.20	<0.210	<0.210	<0.210	<0.210	<0.210	<0.210
SB-4-16	16.0	SB-4	3/21/2012	**130**	**130 Y**	**1.8**	**0.2**	**0.1**	**0.044**	**0.176**	<0.13	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066
SB-4-20	20.0	SB-4	3/21/2012	<5.0	**1.4 Y**	<0.17	<0.0056	<0.0056	<0.0056	**0.0058**	<0.110	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056
SB-5-4.5	4.5	SB-5	3/21/2012	**20**	**4.1 Y**	**3.8**	**0.040**	<0.0063	<0.0063	**0.037**	<0.130	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
SB-5-9.5	9.5	SB-5	3/21/2012	**76**	**270 Y**	**13,000**	<15	**240**	**210**	**930**	<310.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
SB-5-16	16.0	SB-5	3/21/2012	**190**	**130 Y**	**0.81**	**0.160**	**0.037**	<0.0042	<0.0042	<0.084	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042
SB-5-20	20.0	SB-5	3/21/2012	<5.0	**2.5 Y**	<0.20	<0.0042	<0.0042	<0.0042	<0.0042	<0.085	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042
Shallow Soil ESL for C/I, Direct Exposure [(1)]				3,700	450	450	0.27	210	5	100	32,000	65	--	--	0.48	--	0.044
Deep Soil ESL for C/I, Direct Exposure [(1)]				12,000	4,200	4,200	12	650	210	420	32,000	2,800	--	--	21	--	1.7
Shallow Soil C/I ESL [(1)]				2,500	180	180	0.27	9.3	4.7	11	110	84	--	--	0.0045	--	0.00033
Deep Soil C/I ESL [(1)]				5,000	180	180	2	9.3	4.7	11	110	84	--	--	0.0045	--	0.00033

Notes:

VOCs = Volatile Organic Compounds
mg/kg = milligrams per kilogram
ft bgs = Feet below ground surface
< 0.15 = Not detected at or above the indicated laboratory reporting limit
-- = Not analyzed or not applicable
Y = Sample exhibits chromatographic pattern that does not resemble standard.
TPHmo = Total petroleum hydrocarbons quantified as motor oil
TPHd = Total petroleum hydrocarbons quantified as diesel
TPHg = Total petroleum hydrocarbons quantified as gasoline
C/I - Commercial/Industrial Land Use
ESL = Environmental Screening Level
(1) California Regional Water Quality Control Board, San Francisco Region (RWQCB) Environmental Screening Level (ESL), May 2008)

TBA = tert-Butyl Alcohol
MTBE = Methyl tert-Butyl Ether
DIPE = Diisopropyl Ether
ETBE = Ethyl tert-Butyl Ether
TAME = Methyl tert-Amyl Ether
1,2-DCA = 1,2-Dichloroethane
1,2-DBA = 1,2-Dibromoethane

PLATES



0 2000 4000

Scale in Feet

U.S.G.S. Topo Map - Oakland West, California, 7.5-minute quadrangle. Map version1997; current as of 1993

PES Environmental, Inc.
Engineering & Environmental Services

Site Location Map
1650 65th Street
Emeryville, California

PLATE
1

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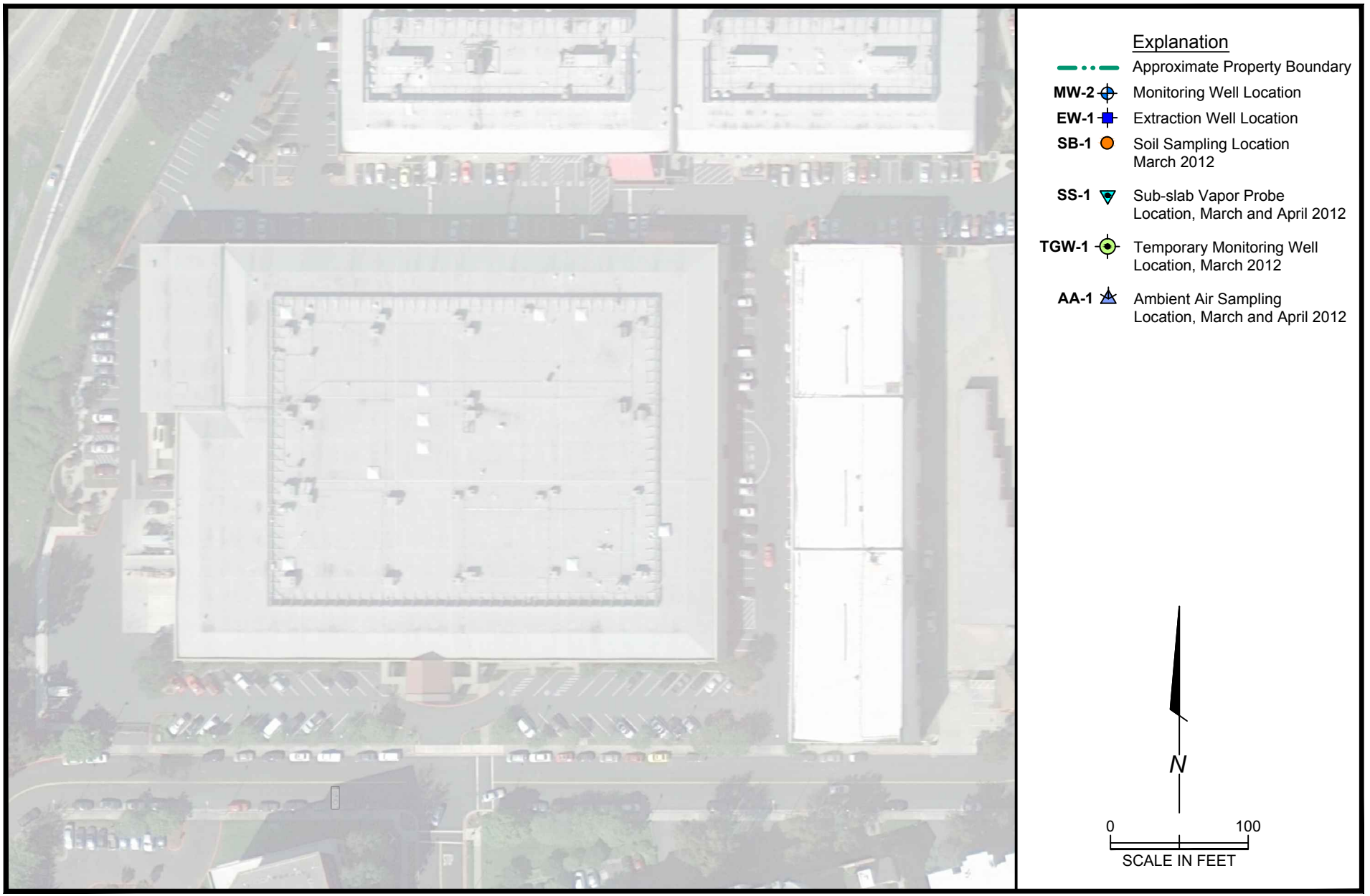
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



PES Environmental, Inc.
Engineering & Environmental Services

Soil, Groundwater, and Vapor Sampling Locations
1650 65th Street
Emeryville, California

PLATE
2

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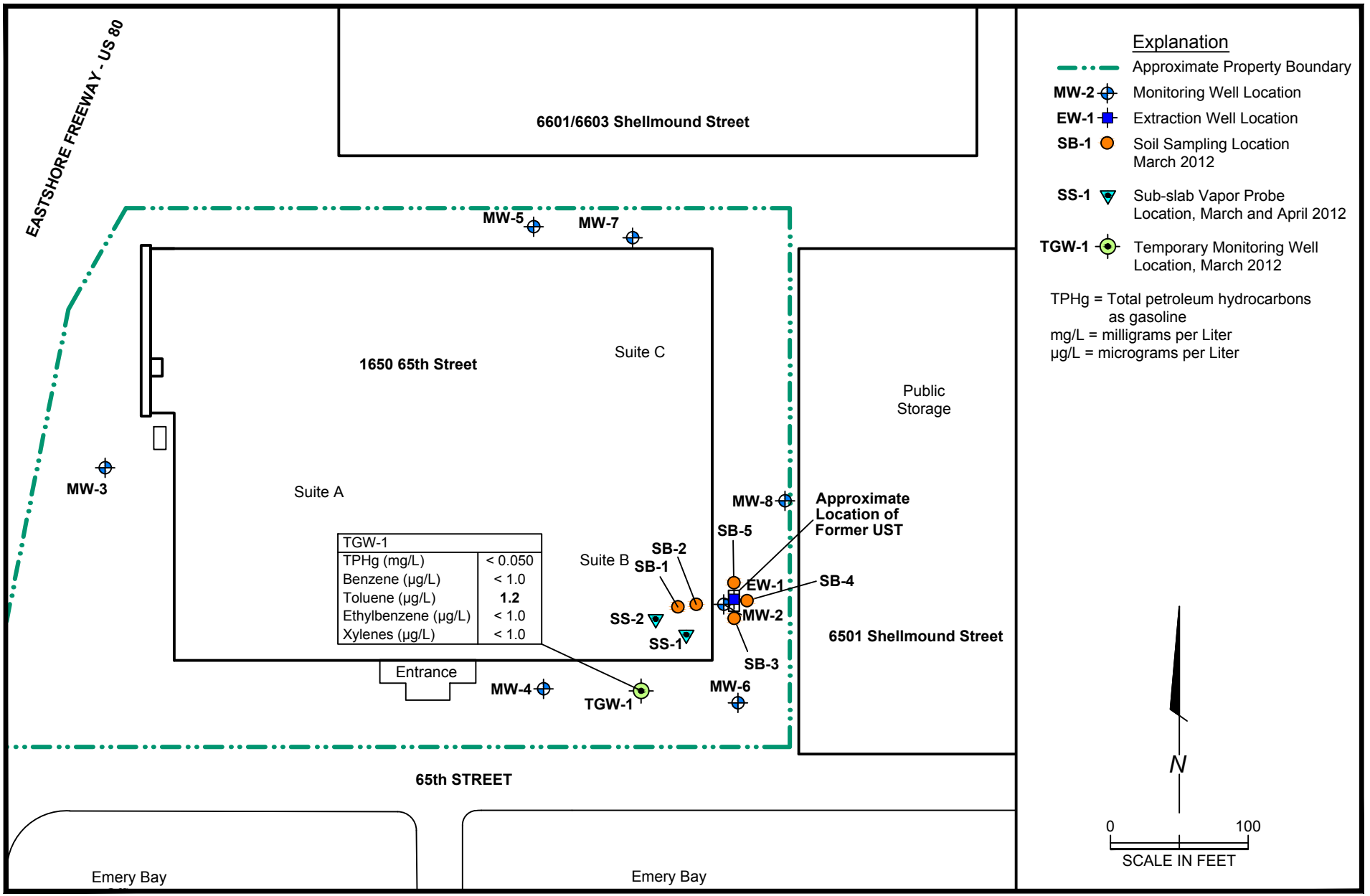

PES Environmental, Inc.
Engineering & Environmental Services

Groundwater Sampling Results
1650 65th Street
Emeryville, California

PLATE
3

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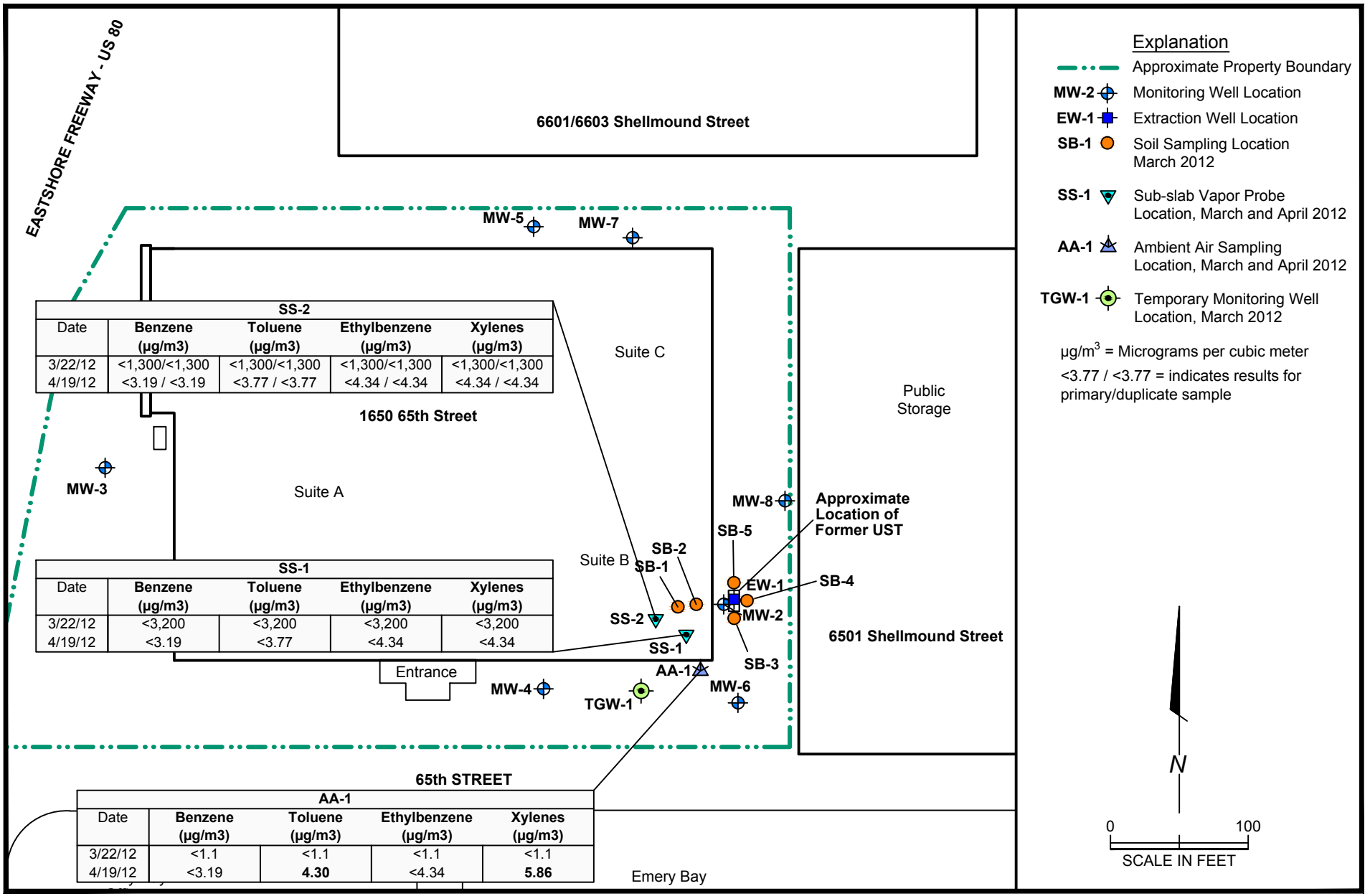
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

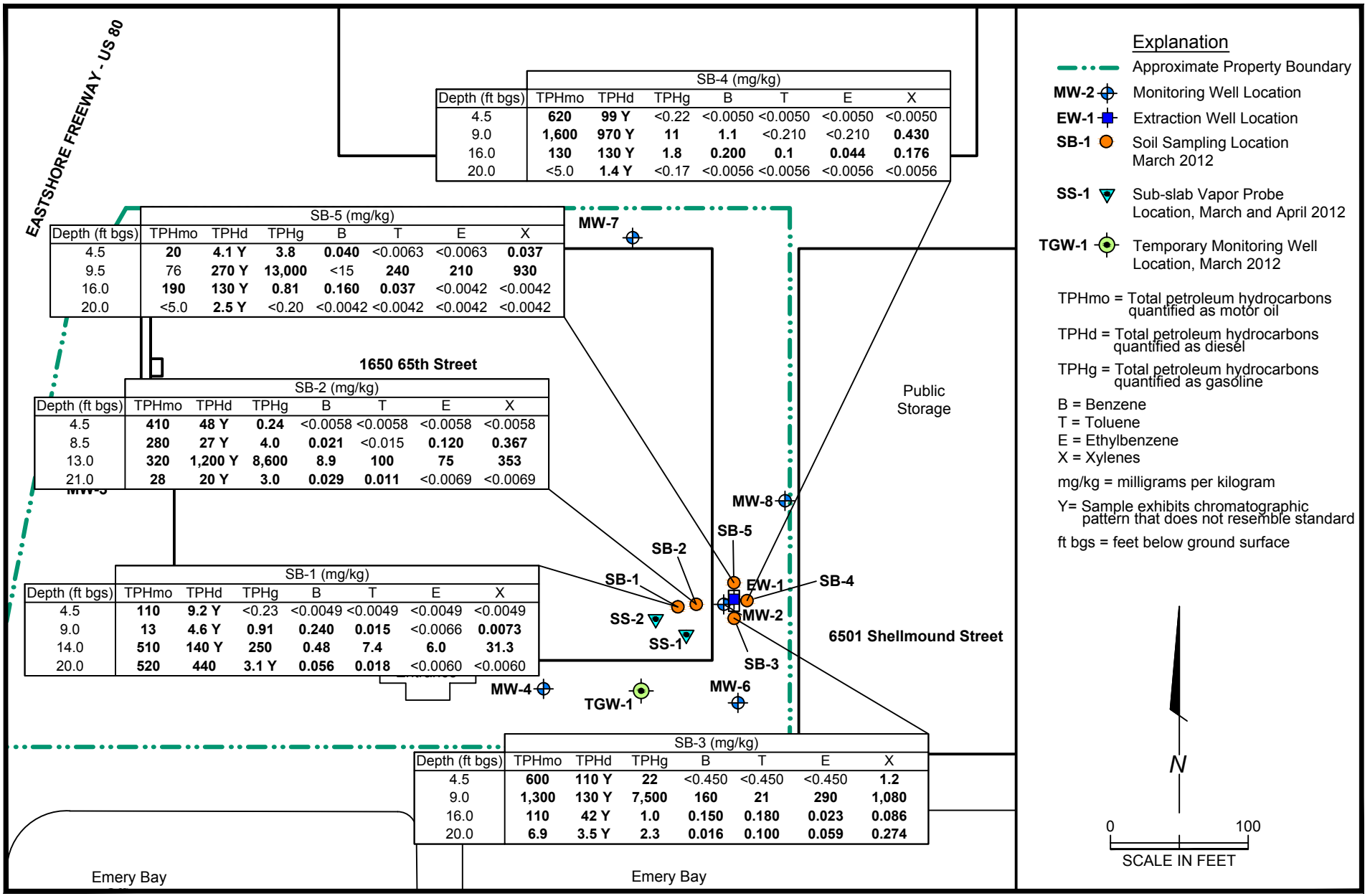


PES Environmental, Inc.
Engineering & Environmental Services

Sub-Slab Vapor Sampling Results
1650 65th Street
Emeryville, California

PLATE
4

1211.001.02.004	121100102004_4	CJB	9/12
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



SB-4 (mg/kg)

Depth (ft bgs)	TPHmo	TPHd	TPHg	B	T	E	X
4.5	**620**	**99 Y**	<0.22	<0.0050	<0.0050	<0.0050	<0.0050
9.0	**1,600**	**970 Y**	**11**	**1.1**	<0.210	<0.210	**0.430**
16.0	**130**	**130 Y**	**1.8**	**0.200**	**0.1**	**0.044**	**0.176**
20.0	<5.0	**1.4 Y**	<0.17	<0.0056	<0.0056	<0.0056	<0.0056

SB-5 (mg/kg)

Depth (ft bgs)	TPHmo	TPHd	TPHg	B	T	E	X
4.5	**20**	**4.1 Y**	**3.8**	**0.040**	<0.0063	<0.0063	**0.037**
9.5	76	**270 Y**	**13,000**	<15	**240**	**210**	**930**
16.0	**190**	**130 Y**	**0.81**	**0.160**	**0.037**	<0.0042	<0.0042
20.0	<5.0	**2.5 Y**	<0.20	<0.0042	<0.0042	<0.0042	<0.0042

SB-2 (mg/kg)

Depth (ft bgs)	TPHmo	TPHd	TPHg	B	T	E	X
4.5	**410**	**48 Y**	**0.24**	<0.0058	<0.0058	<0.0058	<0.0058
8.5	**280**	**27 Y**	**4.0**	**0.021**	<0.015	**0.120**	**0.367**
13.0	**320**	**1,200 Y**	**8,600**	**8.9**	**100**	**75**	**353**
21.0	**28**	**20 Y**	**3.0**	**0.029**	**0.011**	<0.0069	<0.0069

SB-1 (mg/kg)

Depth (ft bgs)	TPHmo	TPHd	TPHg	B	T	E	X
4.5	**110**	**9.2 Y**	<0.23	<0.0049	<0.0049	<0.0049	<0.0049
9.0	**13**	**4.6 Y**	**0.91**	**0.240**	**0.015**	<0.0066	**0.0073**
14.0	**510**	**140 Y**	**250**	**0.48**	**7.4**	**6.0**	**31.3**
20.0	**520**	**440**	**3.1 Y**	**0.056**	**0.018**	<0.0060	<0.0060

SB-3 (mg/kg)

Depth (ft bgs)	TPHmo	TPHd	TPHg	B	T	E	X
4.5	**600**	**110 Y**	**22**	<0.450	<0.450	<0.450	**1.2**
9.0	**1,300**	**130 Y**	**7,500**	**160**	**21**	**290**	**1,080**
16.0	**110**	**42 Y**	**1.0**	**0.150**	**0.180**	**0.023**	**0.086**
20.0	**6.9**	**3.5 Y**	**2.3**	**0.016**	**0.100**	**0.059**	**0.274**

Explanation

- Approximate Property Boundary
- MW-2 — Monitoring Well Location
- EW-1 — Extraction Well Location
- SB-1 — Soil Sampling Location March 2012
- SS-1 — Sub-slab Vapor Probe Location, March and April 2012
- TGW-1 — Temporary Monitoring Well Location, March 2012

TPHmo = Total petroleum hydrocarbons quantified as motor oil

TPHd = Total petroleum hydrocarbons quantified as diesel

TPHg = Total petroleum hydrocarbons quantified as gasoline

B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylenes

mg/kg = milligrams per kilogram

Y= Sample exhibits chromatographic pattern that does not resemble standard

ft bgs = feet below ground surface

PES Environmental, Inc.
Engineering & Environmental Services

Soil Sampling Results
1650 65th Street
Emeryville, California

PLATE
5

1211.001.02.004	121100102004_5	CJB	9/12
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

APPENDIX A

ALAMEDA COUNTY PUBLIC WORKS AGENCY DRILLING PERMIT

Alameda County Public Works Agency - Water Resources Well Permit

399 Elmhurst Street
Hayward, CA 94544-1395
Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 03/07/2012 By jamesy

Permit Numbers: W2012-0161
Permits Valid from 03/20/2012 to 03/22/2012

Application Id: 1330978658450 **City of Project Site:** Emeryville
Site Location: 1650 65th Street, Emeryville California
Project Start Date: 03/20/2012 **Completion Date:** 03/22/2012
Assigned Inspector: Contact Vicky Hamlin at (510) 670-5443 or vickyh@acpwa.org

Applicant: PES Environmental, Inc. - Chris Baldassari **Phone:** 415-899-1600 x256
1682 Novato Boulevard, Suite 100, Novato, CA 94947
Property Owner: Griffin Capital Corporation as agent for fee **Phone:** --
owners-Julie Treinen
2121 Rosecrans Avenue, Suite 3321, El Segundo, CA 90245
Client: ** same as Property Owner **
Contact: John Alexander **Phone:** 415-899-1600 x255
Cell: 415-250-2864

Total Due: $265.00
Receipt Number: WR2012-0074 **Total Amount Paid:** $265.00
Payer Name : Chris J Baldassari Paid By: VISA **PAID IN FULL**

Works Requesting Permits:

Borehole(s) for Investigation-Contamination Study - 6 Boreholes
Driller: Cascade Drilling LP - Lic #: 938110 - Method: DP **Work Total: $265.00**

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2012-0161	03/07/2012	06/18/2012	6	2.00 in.	30.00 ft

Specific Work Permit Conditions

1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site. The containers shall be clearly labeled to the ownership of the container and labeled hazardous or non-hazardous.

2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.

3. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.

4. Prior to any drilling activities, it shall be the applicant's responsibility to contact and coordinate an Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits or agreements required for that Federal, State, County or City, and follow all City or County Ordinances. No work shall begin until all the permits and requirements have been approved or obtained. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County an Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

5. Applicant shall contact Vicky Hamlin for an inspection time at 510-670-5443 or email to vickyh@acpwa.org at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

6. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of $500.00.

7. Permit is valid only for the purpose specified herein. No changes in construction procedures, as described on this permit application. Boreholes shall not be converted to monitoring wells, without a permit application process.

APPENDIX B

WELL MONITORING DATA SHEETS

Development Data Sheet

Job#: M1-120321	**Developer:** BM	**Client:** PES
Well ID: TGW-1	**Date:** 3/21/12	**Site:** 1650 65th St. Emeryville
Well diam: 1/4" 1" (2") 3" 4" 6" Other:	**DTW:** 8.61	**TD Before:** 15.42 **TD After:** 15.42
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other: (Bladder)	**Surge block used:** (Y) N	
Length of time surged prior to development: 10 mins		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 1 X 10 = 10 (Total Purge) Meter(s): Ultrameter

Time	Temp (°C) °F	pH	Cond (mS / µS)	Turbidity (NTU)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	DTW	Notes
813	18.5	6.8	13.40	>1000	—	1	9.10	Hard bottom, Turbid
821	18.4	6.9	12.92	>1000	—	2	10.35	Turbid, not silty
831	18.6	7.1	12.48	>1000	—	3	10.95	clearing
842	18.8	7.2	12.29	>1000	—	4	11.40	clearing but still turbid
851	18.2	7.3	13.46	>1000	—	5	12.05	clearing but still turbid
906	17.4	7.6	14.01	>1000	—	6	12.30	clearing but still turbid
921	17.5	7.7	14.42	>1000	—	7	12.35	clearing but still turbid
935	17.6	7.8	14.82	>1000	—	8	12.35	clearing but still turbid
951	17.8	7.8	14.96	>1000	—	9	12.52	clearing but still turbid
1005	18.1	7.8	15.02	>1000	—	10	12.65	clearing but still turbid
1028	18.5	7.7	15.26	>1000	—	11	12.42	clearing
1045	18.5	7.7	15.44	>1000	—	12	12.55	
1100	18.7	7.7	14.44	972	—	13	12.65	
Development finished per client								

Did well dewater? YES (NO)	Total volume removed: ~~12~~13 (gal / L)	
Sample method (if applicable): Disp Bailer / Ded. Tubing / New Tubing / Ext. Port / Other:		
Sample date:	Sample time:	DTW at sample:
Sample ID:	Lab:	Number of bottles:
Analysis:		

Purging And Sampling Data Sheet

Job#: M1-120321	**Sampler:** BM	**Client:** PES
Well ID: TGW-1	**Date:** 3/21/12	**Site:** 1650 65th. St. Emeryville
Well diam: 1/4" 1" (2") 3" 4" 6" Other:		**DTW:** 8.61 **Total Depth:** 15.42
Purge equip: ES - diam: (Bladder) Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: 3-5 Case Volume (Micro/Low-Flow) Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = _____ X _____ = _____ (Total Purge) 80%= _____

Time	Temp (°C) °F)	pH	Cond (mS /(µS))	Turbidity (NTU)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	DO (mg/l)	ORP (mv)	DTW	Notes
1128	20.1	7.0	16704	777	100	300ml	0.65	14	11.20	
1131	19.9	7.0	16771	614		600ml	0.35	-21	11.18	
1134	20.2	7.0	16729	271		900ml	0.33	-41	11.18	
1137	19.9	7.0	16815	273		1.2L	0.33	-54	11.18	
1140	20.1	7.0	16830	277		1.5L	0.33	-63	11.18	
1143	20.2	7.0	16836	280		1.8L	0.34	-70	11.18	
1146	20.1	7.0	16886	285		2.1L	0.35	-73	11.18	
1149	20.1	7.0	16877	289		2.4L	0.34	-77	11.18	
1152	20.0	7.0	16897	293		2.7L	0.36	-80	11.18	
1155	19.8	7.0	16924	295	↓	3L	0.37	-82	11.18	

Did well dewater? YES (NO)	Total volume removed: 3L (gal / L)
Sample method: Disp Bailer Ded. Tubing (New Tubing) Ext. Port Other:	
Sample date: 3/21/12 Sample time: 1155	DTW at sample: 11.18
Sample ID: TGW-1 Lab:	Number of bottles: 4
Analysis:	
Equipment blank ID @	Field blank ID @
Duplicate ID:	Pre-purge DO: Post purge DO:
$Fe2^{+}$:	Pre-purge ORP: Post purge ORP:
NAPL depth: Volume of NAPL:	Volume removed: ml

Drum Log

Site: 1650 65th St. Emeryville

Drum(s) Location On Site: Inside Building

Date		# of drums: full	# of drums: partial	# of drums: empty	total	contents (s=soil w=water m=mixed ?=unknown)	labeled (y or n)	label legible (y or n)	tech initial	Notes:
3/21/12	Arrival				0					
3/21/12	Departure		1		1	W	Y	Y	BM	
	Arrival									
	Departure									
	Arrival									
	Departure									
	Arrival									
	Departure									
	Arrival									
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	Arrival									
	Departure									
	Arrival									
	Departure									
	Arrival									
	Departure									
	Arrival									
	Departure									

Confluence Environmental, Inc

Equipment Calibration Log

Equipment make/model	Equipment ID/ serial number	Date	Time	Calibration Standards	Equipment Reading	Equipment Calibrated	Temp (°C) / °F)	Tech init.	Comments
Ultrameter	6226442	3/21/12	745	4, 7, 10 1413	4.0, 7.0, 10.0 1413	Y	10	BM	
Pro Series	#2	~~945~~	945	4, 7, 10	4.0, 7.0 10.0	Y	14	BM	
↓	↓	↓	↓	1413	1413	Y	14	BM	
↓	↓	↓	↓	100% 0	100% 0.10	Y	14	BM	
↓	↓	↓	↓	246	246	Y	14	BM	

Notes/comments:

Well Maintenance Inspection Form

Client: PES Site: 1450 65th St. Emeryville Date: 3/21/12

Job #: MH-120321 Technician: BM Page 1 of 1

Inspection Point	Well Inspected - No Corrective Action Required	Entry Indicates Deficiency: Cap non-functional	Lock non-functional	Lock missing	Bolts missing (# missing / # total tabs)	Tabs stripped (# stripped / # total tabs.)	Tabs broken (# broken / # of total tabs)	Annular seal incomplete	Apron damaged	Rim / Lid broken	Trip Hazard	Below Grade	Other (explain in notes)	Well Not Inspected (explain in notes)	Notes (Note any repairs made while on site)
TGW-1															see below

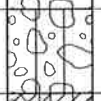
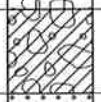
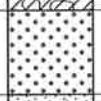
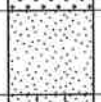
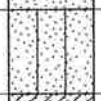
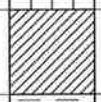
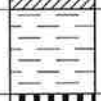
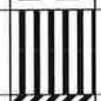
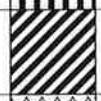
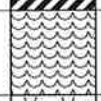
Notes: Well not completed - No wellbox, lock, apron but well is to be abandoned

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

Confluence Environmental, Inc 3308 El Camino Ave, Suite 300 #148, Sacramento CA, 95821, 916-760-7641

APPENDIX C

LITHOLOGIC LOGS

MAJOR DIVISIONS					TYPICAL NAMES
COARSE-GRAINED SOILS MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS WITH LESS THAN 15% FINES	GW		WELL-GRADED GRAVELS WITH OR WITHOUT SAND
			GP		POORLY-GRADED GRAVELS WITH OR WITHOUT SAND
		GRAVELS WITH 15% OR MORE FINES	GM		SILTY GRAVELS WITH OR WITHOUT SAND
			GC		CLAYEY GRAVELS WITH OR WITHOUT SAND
	SANDS MORE THAN HALF COARSE FRACTION IS FINER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LESS THAN 15% FINES	SW		WELL-GRADED SANDS WITH OR WITHOUT GRAVEL
			SP		POORLY-GRADED SANDS WITH OR WITHOUT GRAVEL
		SANDS WITH 15% OR MORE FINES	SM		SILTY SANDS WITH OR WITHOUT GRAVEL
			SC		CLAYEY SANDS WITH OR WITHOUT GRAVEL
FINE-GRAINED SOILS MORE THAN HALF IS FINER THAN NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50% OR LESS		ML		INORGANIC SILTS OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
			OL		ORGANIC SILTS OR CLAYS OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%		MH		INORGANIC SILTS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
			CH		INORGANIC CLAYS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
			OH		ORGANIC SILTS OR CLAYS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
HIGHLY ORGANIC SOILS			PT		PEAT AND OTHER HIGHLY ORGANIC SOILS

ABBREVIATION KEY

PID (PPM)	- Photo Ionization Detector readings in parts per million from field headspace sample screening.
BLOWS/6IN	- Blows required to drive sampler 6 inches as indicated on the logs using sample drive hammer weight of 140 pounds falling 30 inches.
(10,60,30)	- Percent gravel, percent sand, percent silt/clay
2.5YR 6/2	- Soil Color according to Munsell Soil Color Charts (1994 Revised Edition)
feet MSL	- feet above Mean Sea Level
feet BGS	- feet below ground surface

SYMBOLS KEY

- ☐ - No Soil Sample Recovered
- ⧄ - Partial Soil Sample Recovered
- ☒ - Undisturbed Soil Sample Recovered
- ■ - Soil Sample Submitted for Laboratory Analysis
- ⊞ - Hydropunch Sample
- ▽ - First Encountered Wet Soil
- ▼ - Piezometric Groundwater level

PES Environmental, Inc.
Engineering & Environmental Services

Unified Soil Classification System Chart
1650 65th Street
Emeryville, California

PLATE
C-0

1178.001.03.090	USCS Chart	CJB	9/12
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF MONITORING WELL SB-1

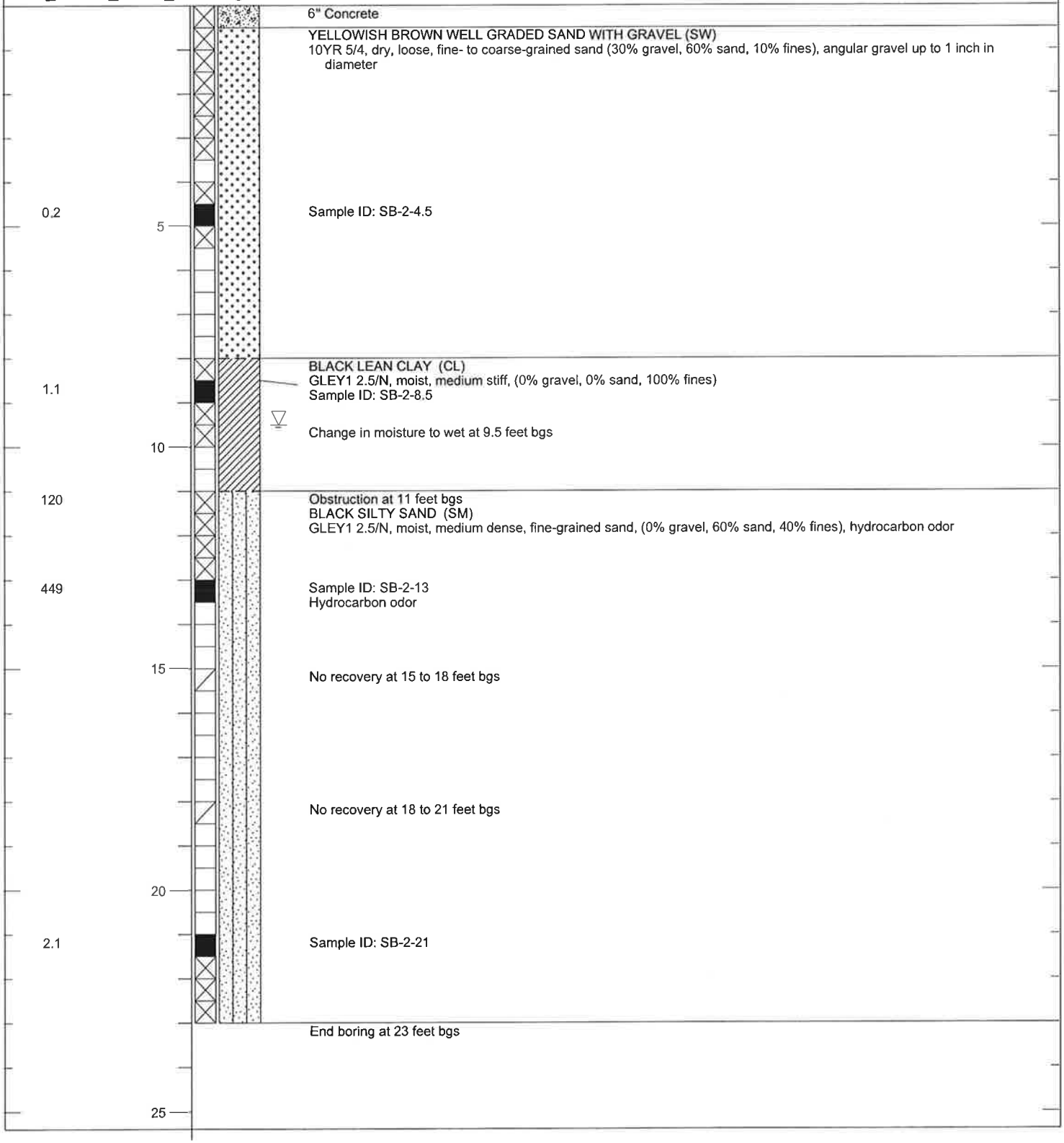
PID (ppm)	BLOWS/6"	DEPTH (FT)	GRAPHICS	MATERIALS DESCRIPTION
				6" Concrete
				YELLOWISH BROWN WELL GRADED SAND WITH GRAVEL (SW) 10YR 5/4, dry, loose, fine- to coarse-grained sand (30% gravel, 60% sand, 10% fines), angular gravel up to 1/2 inch in diameter
0.7		5		BLACK LEAN CLAY (CL) GLEY1 2.5/N, moist, medium stiff, (0% gravel, 0% sand, 100% fines) Sample ID: SB-1-4.5
				BLACK SILTY SAND (SM) GLEY1 2.5/N, moist, medium dense, fine-grained sand, (0% gravel, 60% sand, 40% fines)
1.8				Sample ID: SB-1-9
		10	▽	Change in moisture to wet at 10 feet bgs
170				Hydrocarbon odor
180				Sample ID: SB-1-14
		15		
9.8				
				BLACK LEAN CLAY WITH SAND (CL) GLEY1 2.5/N, wet, medium stiff, fine-grained sand (0% gravel, 25% sand, 75% fines)
7.4		20		Sample ID: SB-1-20 End boring at 20 feet bgs
		25		

PROJECT	1650 65th Street	REVIEWED BY	CJB
LOCATION	1650 65th Street, Emeryville CA	DIAMETER OF HOLE	2 inch
JOB NUMBER	1211.001.02.003	TOTAL DEPTH OF HOLE	20 feet
LOGGED BY	J Alexander	DATE STARTED	3/20/12
DRILL RIG	Direct Push	DATE COMPLETED	3/20/12

PLATE
C-1

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF MONITORING WELL SB-2

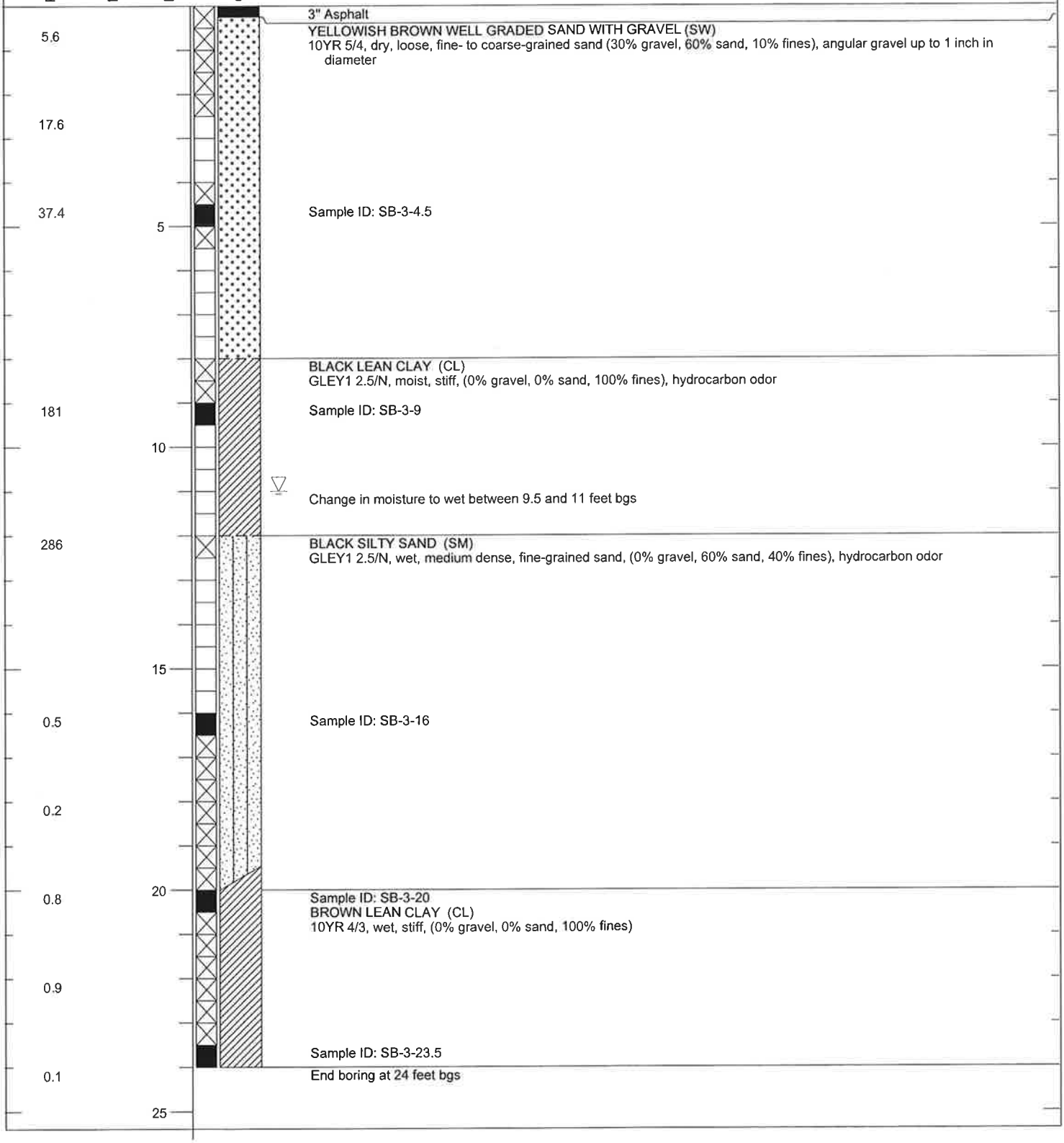


PROJECT	1650 65th Street	REVIEWED BY	CJB
LOCATION	1650 65th Street, Emeryville CA	DIAMETER OF HOLE	2 inch
JOB NUMBER	1211.001.02.003	TOTAL DEPTH OF HOLE	23 feet
LOGGED BY	J Alexander	DATE STARTED	3/20/12
DRILL RIG	Direct Push	DATE COMPLETED	3/20/12

PLATE
C-2

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF MONITORING WELL SB-3

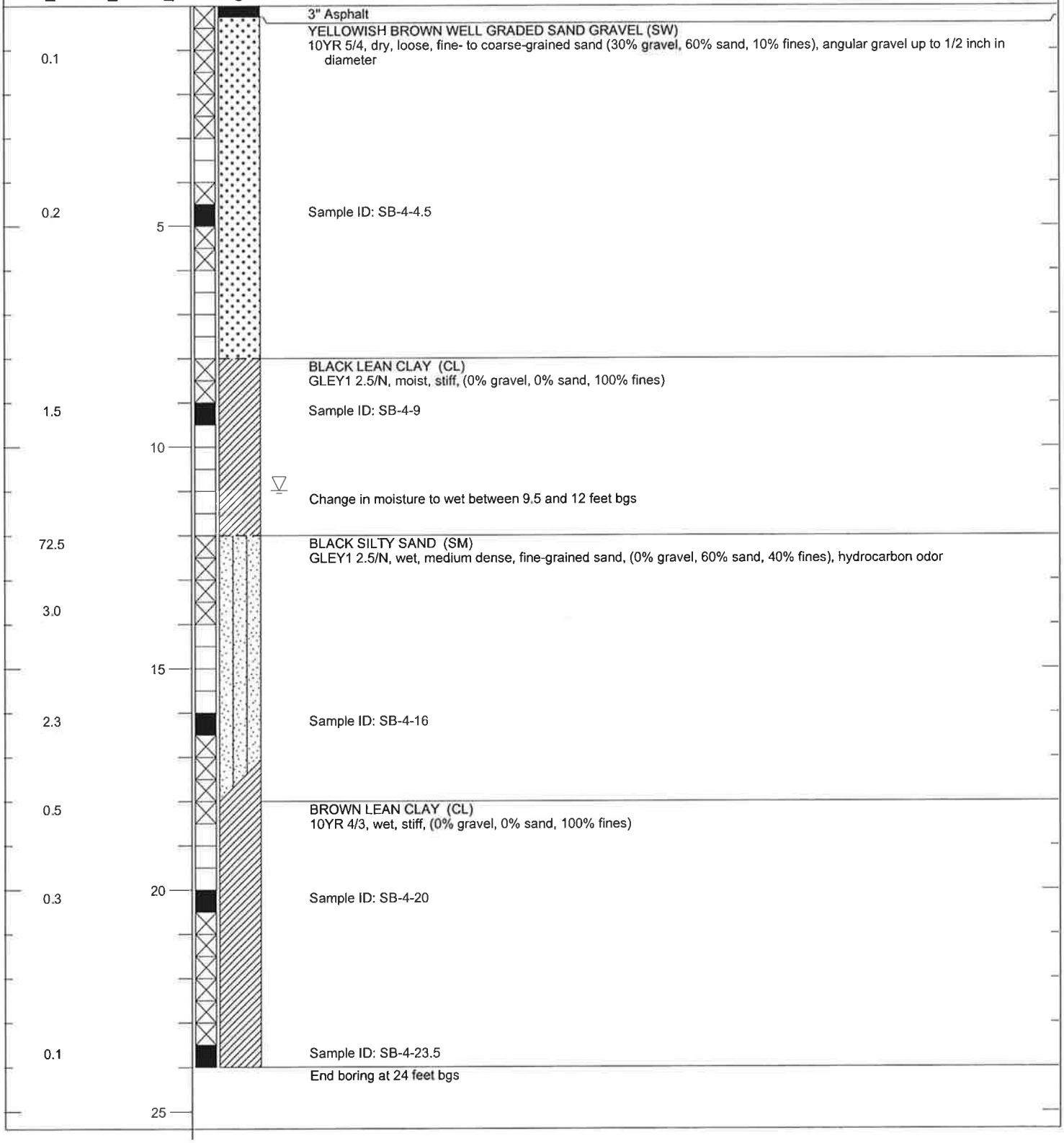


PROJECT	1650 65th Street	REVIEWED BY	CJB
LOCATION	1650 65th Street, Emeryville CA	DIAMETER OF HOLE	2 inch
JOB NUMBER	1211.001.02.003	TOTAL DEPTH OF HOLE	24 feet
LOGGED BY	J Alexander	DATE STARTED	3/21/12
DRILL RIG	Direct Push	DATE COMPLETED	3/21/12

PLATE
C-3

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF MONITORING WELL SB-4



PROJECT	1650 65th Street	REVIEWED BY	CJB
LOCATION	1650 65th Street, Emeryville CA	DIAMETER OF HOLE	2 inch
JOB NUMBER	1211.001.02.003	TOTAL DEPTH OF HOLE	24 feet
LOGGED BY	J Alexander	DATE STARTED	3/21/12
DRILL RIG	Direct Push	DATE COMPLETED	3/21/12

PLATE
C-4

PES Environmental, Inc.

Engineering & Environmental Services

LOG OF MONITORING WELL SB-5

PID (ppm)	BLOWS/6"	DEPTH (FT)	GRAPHICS	MATERIALS DESCRIPTION
				3" Asphalt
				YELLOWISH BROWN WELL GRADED SAND WITH GRAVEL (SW)
				10YR 5/4, dry, loose, fine- to coarse-grained sand (30% gravel, 60% sand, 10% fines), angular gravel up to 1 inch in diameter
0.1				
				BLACK LEAN CLAY (CL)
0.0		5		GLEY1 2.5/N, moist, stiff, (0% gravel, 0% sand, 100% fines)
				Sample ID: SB-5-4.5
9.8				
355				Sample ID: SB-5-9.5
		10		BLACK SILTY SAND (SM)
				GLEY1 2.5/N, moist, medium dense, fine-grained sand, (0% gravel, 60% sand, 40% fines), hydrocarbon odor
837				Change in moisture to wet between 10.5 and 12 feet bgs
55.3				
		15		
1.0				Sample ID: SB-5-16
				BROWN LEAN CLAY (CL)
0.8				10YR 4/3, wet, stiff, (0% gravel, 0% sand, 100% fines)
				Change in color to brown 10YR 4/3 at 19.5 feet bgs
1.0		20		Sample ID: SB-5-20
1.5				Sample ID: SB-5-23.5
				End boring at 24 feet bgs
		25		

PROJECT	1650 65th Street	REVIEWED BY	CJB
LOCATION	1650 65th Street, Emeryville CA	DIAMETER OF HOLE	2 inch
JOB NUMBER	1211.001.02.003	TOTAL DEPTH OF HOLE	24 feet
LOGGED BY	J Alexander	DATE STARTED	3/21/12
DRILL RIG	Direct Push	DATE COMPLETED	3/21/12

PLATE

C-5

APPENDIX D

LABORATORY ANALYTICAL REPORT AND CHAIN-OF-CUSTODY FORMS (PROVIDED ON CD-ROM)


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 235103
ANALYTICAL REPORT

PES Environmental, Inc.	Project : 1211.001.02.003
1682 Novato Boulevard	Location : 1650 65th St. / Emeryville
Novato, CA 94947	Level : II

Sample ID	Lab ID
TGW-1	235103-001

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: 03/28/2012
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**235103**
Client:	**PES Environmental, Inc.**
Project:	**1211.001.02.003**
Location:	**1650 65th St. / Emeryville**
Request Date:	**03/21/12**
Samples Received:	**03/21/12**

This data package contains sample and QC results for one water sample, requested for the above referenced project on 03/21/12. The sample was received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B):
No analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B):
TGW-1 (lab # 235103-001) was diluted due to foaming. No other analytical problems were encountered.

PES Environmental, Inc.
Engineering & Environmental Services

235103

CHAIN OF CUSTODY RECORD

1682 NOVATO BOULEVARD, SUITE 100
NOVATO, CALIFORNIA 94947
(415) 899-1600 FAX (415) 899-1601

LABORATORY: C+T

JOB NUMBER: 1211.001.02.003

NAME / LOCATION: 1650 65th St. / Emeryville

PROJECT MANAGER: C. Bobbassari

SAMPLERS: Confluence Environmental Inc.

RECORDER: JA

DATE YR	MO	DY	TIME	SAMPLE NUMBER / DESIGNATION	MATRIX: Vapor	Water	Soil	Sedim't	# of Containers & Preservatives: Unpres.	EnCore	H_2SO_4	HNO_3	HCl	DEPTH IN FEET
1 2 0 3 2 1			1155	TGW-1		X							4	

ANALYSIS REQUESTED

EPA 5035/8010	EPA 5035/8021	~~EPA 5035/8260B~~ for BTEX	TPHg by ~~5035/8015M~~	TPHd by 8015M	TPHmo by 8015M	EPA 8270C	MNA Parameters (see notes)
		X	X				X Fuel Oxygenates (8260B) plus TBA, EDB, TAME, 1,2-DCA

NOTES

Turn Around Time: Standard TAT

Page 1 of 1

CHAIN OF CUSTODY RECORD

		DATE	TIME
RELINQUISHED BY: (Signature) John T. Alfonso	RECEIVED BY: (Signature)	3/21/12	1533
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE	TIME
DISPATCHED BY: (Signature) DATE TIME	RECEIVED FOR LAB BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT:			

WHITE-Laboratory COPY YELLOW-Project Office Copy PINK-Field or Office Copy

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 23503 Date Received 3/21/12 Number of coolers 1
Client PES Project 1211.001.02.003

Date Opened 3/21/12 By (print) I. CHOI (sign)
Date Logged in 3/22/12 By (print) ↓ (sign) ↓

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

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

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

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 7.0 °C

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present?_____ YES (NO)
If YES, what time were they transferred to freezer?_____
9. Did all bottles arrive unbroken/unopened?_____ (YES) (NO) ISC
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? _____ 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

_____
_____
_____
_____
_____
_____

Rev 10, 11/11

Curtis & Tompkins, Ltd.

Total Volatile Hydrocarbons

Lab #:	235103	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5030B
Project#:	1211.001.02.003	Analysis:	EPA 8015B
Field ID:	TGW-1	Batch#:	184890
Matrix:	Water	Sampled:	03/21/12
Units:	ug/L	Received:	03/21/12
Diln Fac:	1.000	Analyzed:	03/23/12

Type: SAMPLE Lab ID: 235103-001

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	82	76-121

Type: BLANK Lab ID: QC633094

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	95	76-121

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	235103	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5030B
Project#:	1211.001.02.003	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC633093	Batch#:	184890
Matrix:	Water	Analyzed:	03/23/12
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,020	102	79-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	105	76-121

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	235103	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5030B
Project#:	1211.001.02.003	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	184890
MSS Lab ID:	235111-002	Sampled:	03/21/12
Matrix:	Water	Received:	03/21/12
Units:	ug/L	Analyzed:	03/23/12
Diln Fac:	1.000		

Type: MS Lab ID: QC633095

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	12.05	2,000	1,917	95	68-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	102	76-121

Type: MSD Lab ID: QC633096

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,863	93	68-120	3	21

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	104	76-121

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235103	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5030B
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Field ID:	TGW-1	Batch#:	184883
Lab ID:	235103-001	Sampled:	03/21/12
Matrix:	Water	Received:	03/21/12
Units:	ug/L	Analyzed:	03/23/12
Diln Fac:	2.000		

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	20
MTBE	ND	1.0
Isopropyl Ether (DIPE)	ND	1.0
Ethyl tert-Butyl Ether (ETBE)	ND	1.0
1,2-Dichloroethane	ND	1.0
Benzene	ND	1.0
Methyl tert-Amyl Ether (TAME)	ND	1.0
Toluene	1.2	1.0
1,2-Dibromoethane	ND	1.0
Ethylbenzene	ND	1.0
m,p-Xylenes	ND	1.0
o-Xylene	ND	1.0

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-125
1,2-Dichloroethane-d4	110	69-145
Toluene-d8	98	80-120
Bromofluorobenzene	97	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235103	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5030B
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	184883
Units:	ug/L	Analyzed:	03/23/12
Diln Fac:	1.000		

Type: BS Lab ID: QC633065

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	187.5	183.8	98	47-136
MTBE	37.50	33.03	88	61-121
Isopropyl Ether (DIPE)	37.50	30.46	81	54-136
Ethyl tert-Butyl Ether (ETBE)	37.50	31.64	84	57-133
1,2-Dichloroethane	37.50	40.07	107	70-136
Benzene	37.50	37.58	100	80-121
Methyl tert-Amyl Ether (TAME)	37.50	32.08	86	65-120
Toluene	37.50	40.71	109	80-120
1,2-Dibromoethane	37.50	40.39	108	80-120
Ethylbenzene	37.50	42.55	113	80-120
m,p-Xylenes	75.00	83.26	111	80-121
o-Xylene	37.50	40.93	109	80-121

Surrogate	%REC	Limits
Dibromofluoromethane	96	80-125
1,2-Dichloroethane-d4	102	69-145
Toluene-d8	97	80-120
Bromofluorobenzene	94	80-120

Type: BSD Lab ID: QC633066

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	187.5	172.0	92	47-136	7	28
MTBE	37.50	35.98	96	61-121	9	20
Isopropyl Ether (DIPE)	37.50	27.11	72	54-136	12	20
Ethyl tert-Butyl Ether (ETBE)	37.50	28.97	77	57-133	9	20
1,2-Dichloroethane	37.50	39.88	106	70-136	0	20
Benzene	37.50	35.22	94	80-121	6	20
Methyl tert-Amyl Ether (TAME)	37.50	30.94	83	65-120	4	20
Toluene	37.50	38.81	103	80-120	5	20
1,2-Dibromoethane	37.50	41.92	112	80-120	4	20
Ethylbenzene	37.50	40.06	107	80-120	6	20
m,p-Xylenes	75.00	76.12	101	80-121	9	20
o-Xylene	37.50	39.34	105	80-121	4	20

Surrogate	%REC	Limits
Dibromofluoromethane	93	80-125
1,2-Dichloroethane-d4	101	69-145
Toluene-d8	99	80-120
Bromofluorobenzene	98	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235103	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5030B
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC633067	Batch#:	184883
Matrix:	Water	Analyzed:	03/23/12
Units:	ug/L		

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	10
MTBE	ND	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5
Toluene	ND	0.5
1,2-Dibromoethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-125
1,2-Dichloroethane-d4	105	69-145
Toluene-d8	98	80-120
Bromofluorobenzene	105	80-120

ND= Not Detected
RL= Reporting Limit


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 235146
ANALYTICAL REPORT

PES Environmental, Inc.	Project : 1211.001.02.003
1682 Novato Boulevard	Location : 1650 65th St. Emeryville CA
Novato, CA 94947	Level : II

Sample ID	Lab ID
AA-1	235146-001
SS-1	235146-002
SHROUD-1	235146-003
SS-2	235146-004
SHROUD-2	235146-005
DUP-1	235146-006

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: Desiree N. Tetrault Date: 04/04/2012
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**235146**
Client:	**PES Environmental, Inc.**
Project:	**1211.001.02.003**
Location:	**1650 65th St. Emeryville CA**
Request Date:	**03/23/12**
Samples Received:	**03/23/12**

This data package contains sample and QC results for six air samples, requested for the above referenced project on 03/23/12. The samples were received intact.

Volatile Organics in Air by MS (EPA TO-15):
A number of samples were diluted due to high non-target analytes. No other analytical problems were encountered.

Volatile Organics in Air GC (ASTM D1946):
No analytical problems were encountered.

PES Environmental, Inc.
Engineering & Environmental Services

CHAIN OF CUSTODY RECORD

1682 NOVATO BOULEVARD, SUITE 100
NOVATO, CALIFORNIA 94947
(415) 899-1600 FAX (415) 899-1601

LABORATORY: C+T

SAMPLERS: JA 225146

JOB NUMBER: 1211.001.02.003

NAME / LOCATION: 1650 65th St. Emeryville CA

PROJECT MANAGER: C. Baldassari

RECORDER: JA

	DATE YR	MO	DY	~~TIME~~	SAMPLE NUMBER / DESIGNATION	Container: ~~MATRIX~~ ~~Vapor~~ ~~Water~~ ~~Soil~~ ~~Sediment~~	6L SUMMA	1L SUMMA	Start Time	Initial Vac.	End Time	End Vac	~~DEPTH IN FEET~~ Canister IDs
	12	03	22			~~X~~ JA							
1	↓				AA-1		X		0835	-30	1535	-9	358
2					SS-1			X	1720	-28	1730	-5	405
3					Shroud-1			X	1720	-28	1730	-2	419
4					SS-2			X	1740	<-30	1805	-5	320
5					Shroud-2			X	1740	-28	1742	0	344
6					DUP-1			X	1740	<-30	1805	-5	397

of ~~Containers~~ & ~~Preservatives~~: ~~Unpres.~~ ~~EnCore~~ ~~H_2SO_4~~ ~~HNO_3~~ ~~HCl~~

ANALYSIS REQUESTED

Sample	EPA 5035/8010	EPA 5035/8021	EPA 5035/8260B	TPHg by 5035/8015M	TPHd by 8015M	TPHmo by 8015M	EPA 8270C	MNA Parameters (see notes)	TO-15 for BTEX	TO-15 for OFA (tracer)	Nitrogen, Oxygen, Methane, CO2
AA-1									X		X
SS-1									X	X	X
Shroud-1										X	~~X~~ JA
SS-2									X	X	X
Shroud-2										X	~~X~~ JA
DUP-1									X	~~X~~	~~X~~ JA

NOTES

Turn Around Time: Standard TAT

Page 1 of 1

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE	TIME
[signature]	LAB LOCK BOX DROP OFF	3/22/12	1840
	[signature]	3/23/12	0745

DISPATCHED BY: (Signature)	DATE	TIME	RECEIVED FOR LAB BY: (Signature)	DATE	TIME

METHOD OF SHIPMENT:

WHITE-Laboratory COPY YELLOW-Project Office Copy PINK-Field or Office Copy

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 235146 Date Received 3/23/12 Number of coolers 0
Client PES Project 211.001.02.003

Date Opened 3/23/12 By (print) I-CHOI (sign)
Date Logged in ↓ By (print) ↓ (sign) ↓

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

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

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☐ Wet ☐ Blue/Gel ☒ None Temp(°C)

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? YES (NO)
   If YES, what time were they transferred to freezer?
9. Did all bottles arrive unbroken/unopened? (YES) NO
10. Are there any missing / extra samples? YES (NO)
11. Are samples in the appropriate containers for indicated tests? (YES) NO
12. Are sample labels present, in good condition and complete? (YES) NO
13. Do the sample labels agree with custody papers? (YES) NO
14. Was sufficient amount of sample sent for tests requested? (YES) NO
15. Are the samples appropriately preserved? YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? YES NO (N/A)
17. Did you document your preservative check? 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

Rev 10, 11/11

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	235146	Location:	1650 65th St. Emeryville CA
Client:	PES Environmental, Inc.	Prep:	METHOD
Project#:	1211.001.02.003	Analysis:	EPA TO-15
Matrix:	Air	Sampled:	03/22/12
Units (V):	ppbv	Received:	03/23/12
Batch#:	185084	Analyzed:	03/30/12

Field ID: AA-1 Lab ID: 235146-001
Type: SAMPLE Diln Fac: 2.240

Analyte	Result (V)	RL	Result (M)	RL	Units (M)
Benzene	ND	1.1	ND	3.6	ug/m3
Toluene	ND	1.1	ND	4.2	ug/m3
Ethylbenzene	ND	1.1	ND	4.9	ug/m3
m,p-Xylenes	ND	1.1	ND	4.9	ug/m3
o-Xylene	ND	1.1	ND	4.9	ug/m3

Tentatively Identified Compounds	Result (M)	Units (M)
No TICs found.	ND	

Surrogate	%REC	Limits	Units (M)
Bromofluorobenzene	87	73-136	ug/m3

Field ID: SS-1 Units (M): ug/m3
Type: SAMPLE Diln Fac: 6,304
Lab ID: 235146-002

Analyte	Result (V)	RL	Result (M)	RL
Benzene	ND	3,200	ND	10,000
Toluene	ND	3,200	ND	12,000
Ethylbenzene	ND	3,200	ND	14,000
m,p-Xylenes	ND	3,200	ND	14,000
o-Xylene	ND	3,200	ND	14,000

Tentatively Identified Compounds	Result (V)	Result (M)
Ethane,1,1-difluoro	65000 J	180,000 J

Surrogate	%REC	Limits
Bromofluorobenzene	84	73-136

J= Estimated value
ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	235146	Location:	1650 65th St. Emeryville CA
Client:	PES Environmental, Inc.	Prep:	METHOD
Project#:	1211.001.02.003	Analysis:	EPA TO-15
Matrix:	Air	Sampled:	03/22/12
Units (V):	ppbv	Received:	03/23/12
Batch#:	185084	Analyzed:	03/30/12

Field ID: SHROUD-1 Units (M): ug/m3
Type: SAMPLE Diln Fac: 8,256
Lab ID: 235146-003

Analyte	Result (V)	RL	Result (M)	RL
Benzene	ND	4,100	ND	13,000
Toluene	ND	4,100	ND	16,000
Ethylbenzene	ND	4,100	ND	18,000
m,p-Xylenes	ND	4,100	ND	18,000
o-Xylene	ND	4,100	ND	18,000

Tentatively Identified Compounds	Result (V)	Result (M)
Ethane,1,1-difluoro	98000 J	260,000 J

Surrogate	%REC	Limits
Bromofluorobenzene	86	73-136

Field ID: SS-2 Units (M): ug/m3
Type: SAMPLE Diln Fac: 2,544
Lab ID: 235146-004

Analyte	Result (V)	RL	Result (M)	RL
Benzene	ND	1,300	ND	4,100
Toluene	ND	1,300	ND	4,800
Ethylbenzene	ND	1,300	ND	5,500
m,p-Xylenes	ND	1,300	ND	5,500
o-Xylene	ND	1,300	ND	5,500

Tentatively Identified Compounds	Result (V)	Result (M)
Ethane,1,1-difluoro	21000 J	58,000 J

Surrogate	%REC	Limits
Bromofluorobenzene	87	73-136

J= Estimated value
ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	235146	Location:	1650 65th St. Emeryville CA
Client:	PES Environmental, Inc.	Prep:	METHOD
Project#:	1211.001.02.003	Analysis:	EPA TO-15
Matrix:	Air	Sampled:	03/22/12
Units (V):	ppbv	Received:	03/23/12
Batch#:	185084	Analyzed:	03/30/12

Field ID: SHROUD-2 Units (M): ug/m3
Type: SAMPLE Diln Fac: 391.2
Lab ID: 235146-005

Analyte	Result (V)	RL	Result (M)	RL
Benzene	ND	200	ND	620
Toluene	ND	200	ND	740
Ethylbenzene	ND	200	ND	850
m,p-Xylenes	ND	200	ND	850
o-Xylene	ND	200	ND	850

Tentatively Identified Compounds	Result (V)	Result (M)
Ethane,1,1-difluoro	2600 J	7,000 J

Surrogate	%REC	Limits
Bromofluorobenzene	84	73-136

Field ID: DUP-1 Units (M): ug/m3
Type: SAMPLE Diln Fac: 2,624
Lab ID: 235146-006

Analyte	Result (V)	RL	Result (M)	RL
Benzene	ND	1,300	ND	4,200
Toluene	ND	1,300	ND	4,900
Ethylbenzene	ND	1,300	ND	5,700
m,p-Xylenes	ND	1,300	ND	5,700
o-Xylene	ND	1,300	ND	5,700

Tentatively Identified Compounds	Result (V)	Result (M)
Ethane,1,1-difluoro	24000 J	64,000 J

Surrogate	%REC	Limits
Bromofluorobenzene	85	73-136

J= Estimated value
ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	235146	Location:	1650 65th St. Emeryville CA
Client:	PES Environmental, Inc.	Prep:	METHOD
Project#:	1211.001.02.003	Analysis:	EPA TO-15
Matrix:	Air	Sampled:	03/22/12
Units (V):	ppbv	Received:	03/23/12
Batch#:	185084	Analyzed:	03/30/12

Type: BLANK
Lab ID: QC633822

Diln Fac: 1.000

Analyte	Result (V)	RL	Result (M)	RL	Units (M)
Benzene	ND	0.50	ND	1.6	ug/m3
Toluene	ND	0.50	ND	1.9	ug/m3
Ethylbenzene	ND	0.50	ND	2.2	ug/m3
m,p-Xylenes	ND	0.50	ND	2.2	ug/m3
o-Xylene	ND	0.50	ND	2.2	ug/m3

Tentatively Identified Compounds	Result (M)	Units (M)
No TICs found.	ND	

Surrogate	%REC	Limits	Units (M)
Bromofluorobenzene	87	70-136	ug/m3

J= Estimated value
ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	235146	Location:	1650 65th St. Emeryville CA
Client:	PES Environmental, Inc.	Prep:	METHOD
Project#:	1211.001.02.003	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	185084
Units (V):	ppbv	Analyzed:	03/30/12
Diln Fac:	1.000		

Type: BS Lab ID: QC633820

Analyte	Spiked	Result (V)	%REC	Limits
Benzene	10.00	10.25	103	70-130
Toluene	10.00	8.697	87	70-130
Ethylbenzene	10.00	8.404	84	70-130
m,p-Xylenes	20.00	18.23	91	70-130
o-Xylene	10.00	9.586	96	70-130

Surrogate	%REC	Limits
Bromofluorobenzene	107	70-136

Type: BSD Lab ID: QC633821

Analyte	Spiked	Result (V)	%REC	Limits	RPD	Lim
Benzene	10.00	10.03	100	70-130	2	20
Toluene	10.00	8.656	87	70-130	0	20
Ethylbenzene	10.00	8.086	81	70-130	4	20
m,p-Xylenes	20.00	18.01	90	70-130	1	20
o-Xylene	10.00	9.320	93	70-130	3	21

Surrogate	%REC	Limits
Bromofluorobenzene	104	70-136

RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Fixed Gas Analysis

Lab #:	235146	Location:	1650 65th St. Emeryville CA
Client:	PES Environmental, Inc.	Prep:	METHOD
Project#:	1211.001.02.003	Analysis:	ASTM D1946
Matrix:	Air	Sampled:	03/22/12
Units:	ppmv	Received:	03/23/12
Units (Mol %):	MOL %	Analyzed:	03/28/12
Batch#:	185015		

Field ID: AA-1 Lab ID: 235146-001
Type: SAMPLE Diln Fac: 2.240

Analyte	Result	RL	Result (Mol %)	RL
Carbon Monoxide	ND	2,200	ND	0.22
Carbon Dioxide	ND	2,200	ND	0.22
Oxygen	190,000	2,200	19	0.22
Methane	ND	2,200	ND	0.22

Field ID: SS-1 Lab ID: 235146-002
Type: SAMPLE Diln Fac: 1.970

Analyte	Result	RL	Result (Mol %)	RL
Carbon Monoxide	ND	2,000	ND	0.20
Carbon Dioxide	7,700	2,000	0.77	0.20
Oxygen	180,000	2,000	18	0.20
Methane	ND	2,000	ND	0.20

Field ID: SS-2 Lab ID: 235146-004
Type: SAMPLE Diln Fac: 1.590

Analyte	Result	RL	Result (Mol %)	RL
Carbon Monoxide	ND	1,600	ND	0.16
Carbon Dioxide	2,200	1,600	0.22	0.16
Oxygen	180,000	1,600	18	0.16
Methane	ND	1,600	ND	0.16

Type: BLANK Diln Fac: 1.000
Lab ID: QC633574

Analyte	Result	RL	Result (Mol %)	RL
Carbon Monoxide	ND	1,000	ND	0.10
Carbon Dioxide	ND	1,000	ND	0.10
Oxygen	ND	1,000	ND	0.10
Methane	ND	1,000	ND	0.10

ND= Not Detected
RL= Reporting Limit
Result Mol %= Result in Mole Percent

Curtis & Tompkins, Ltd.

Batch QC Report

Fixed Gas Analysis

Lab #:	235146	Location:	1650 65th St. Emeryville CA
Client:	PES Environmental, Inc.	Prep:	METHOD
Project#:	1211.001.02.003	Analysis:	ASTM D1946
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC633573	Batch#:	185015
Matrix:	Air	Analyzed:	03/28/12
Units:	ppmv		

Analyte	Spiked	Result	%REC	Limits
Carbon Monoxide	2,000	1,848	92	70-130
Carbon Dioxide	2,000	1,907	95	70-130
Oxygen	2,000	1,885	94	70-130
Methane	2,000	2,013	101	70-130

Curtis & Tompkins, Ltd.

Batch QC Report

Fixed Gas Analysis

Lab #:	235146	Location:	1650 65th St. Emeryville CA
Client:	PES Environmental, Inc.	Prep:	METHOD
Project#:	1211.001.02.003	Analysis:	ASTM D1946
Field ID:	AA-1	Units (Mol %):	MOL %
Type:	SDUP	Diln Fac:	2.240
MSS Lab ID:	235146-001	Batch#:	185015
Lab ID:	QC633575	Sampled:	03/22/12
Matrix:	Air	Received:	03/23/12
Units:	ppmv	Analyzed:	03/28/12

Analyte	MSS Result	Result	RL	Result (Mol %)	RL	RPD	Lim
Carbon Monoxide	<2,240	ND	2,240	ND	0.2240	NC	30
Carbon Dioxide	<2,240	ND	2,240	ND	0.2240	NC	30
Oxygen	192,600	185,900	2,240	18.59	0.2240	4	20
Methane	<2,240	ND	2,240	ND	0.2240	NC	30

NC= Not Calculated
ND= Not Detected
RL= Reporting Limit
RPD= Relative Percent Difference
Result Mol %= Result in Mole Percent

K PRIME, Inc.

CONSULTING ANALYTICAL CHEMISTS

3621 Westwind Blvd.
Santa Rosa CA 95403
Phone: 707 527 7574
FAX: 707 527 7879

TRANSMITTAL

DATE: 5/1/2012

TO: MR. CHRIS BALDASSARI
PES ENVIRONMENTAL, INC.
1682 NOVATO BLVD., STE 100
NOVATO, CA 94947

Phone: 415-899-1600
Fax: 415-899-1601
Email: cbaldassari@pesenv.com

ACCT: 9418
PROJ: 1211.001.02.003

FROM: Richard A. Kagel, Ph.D. RAK 5/1/2012
Laboratory Director

SUBJECT: LABORATORY RESULTS FOR YOUR PROJECT 1211.001.02.003

Enclosed please find K Prime's laboratory reports for the following samples:

SAMPLE ID	TYPE	DATE	TIME	KPI LAB #
AA-1	AIR	4/19/2012	16:30	100768
SS-1	AIR	4/19/2012	11:10	100769
SHROUD-1	AIR	4/19/2012	11:10	100770
SS-2	AIR	4/19/2012	12:44	100771
SHROUD-2	AIR	4/19/2012	12:44	100772
DUP-1	AIR	4/19/2012	12:38	100773

The above listed sample group was received on 4/20/2012 and tested as requested on the chain of custody document.

Please call me if you have any questions or need further information.
Thank you for this opportunity to be of service.

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9418
CLIENT PROJECT: 1211.001.02.003

METHOD: VOC'S IN AIR
REFERENCE: EPA METHOD TO15 (GC-MS-SCAN)

SAMPLE ID:	AA-1
LAB NO:	100768
SAMPLE TYPE:	AIR
DATE SAMPLED:	4/19/12
TIME SAMPLED:	16:30
BATCH ID:	042612A01
DATE ANALYZED:	4/26/12

		PPB (V/V)		µg/cu. m	
COMPOUND NAME	**CAS NO.**	**MRL**	**SAMPLE CONC**	**MRL**	**SAMPLE CONC**
BENZENE	71-43-2	1.00	ND	3.19	ND
TOLUENE	108-88-3	1.00	1.14	3.77	4.30
ETHYLBENZENE	100-41-4	1.00	ND	4.34	ND
XYLENE (M+P)	1330-20-7	1.00	1.35	4.34	5.86
XYLENE (O)	95-47-6	1.00	ND	4.34	ND

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
MRL - METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE
µg/cu. m VALUES ARE CALCULATED FROM PPB RESULTS USING NORMAL TEMPERATURE AND PRESSURE (NPT).

APPROVED BY: MK
DATE: 5/1/12

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9418
CLIENT PROJECT: 1211.001.02.003

METHOD: VOC'S IN AIR
REFERENCE: EPA METHOD TO15 (GC-MS-SCAN)

SAMPLE ID:	SS-1
LAB NO:	100769
SAMPLE TYPE:	AIR
DATE SAMPLED:	4/19/12
TIME SAMPLED:	11:10
BATCH ID:	042612A01
DATE ANALYZED:	4/26/12

		PPB (V/V)		µg/cu. m	
COMPOUND NAME	**CAS NO.**	**MRL**	**SAMPLE CONC**	**MRL**	**SAMPLE CONC**
BENZENE	71-43-2	1.00	ND	3.19	ND
TOLUENE	108-88-3	1.00	ND	3.77	ND
ETHYLBENZENE	100-41-4	1.00	ND	4.34	ND
XYLENE (M+P)	1330-20-7	1.00	ND	4.34	ND
XYLENE (O)	95-47-6	1.00	ND	4.34	ND

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
MRL - METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE
µg/cu. m VALUES ARE CALCULATED FROM PPB RESULTS USING NORMAL TEMPERATURE AND PRESSURE (NPT).

APPROVED BY: MMC
DATE: 5/1/12

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9418
CLIENT PROJECT: 1211.001.02.003

METHOD: VOC'S IN AIR
REFERENCE: EPA METHOD TO15 (GC-MS-SCAN)

SAMPLE ID:	SS-2
LAB NO:	100771
SAMPLE TYPE:	AIR
DATE SAMPLED:	4/19/12
TIME SAMPLED:	12:44
BATCH ID:	042612A01
DATE ANALYZED:	4/26/12

		PPB (V/V)		µg/cu. m	
COMPOUND NAME	**CAS NO.**	**MRL**	**SAMPLE CONC**	**MRL**	**SAMPLE CONC**
BENZENE	71-43-2	1.00	ND	3.19	ND
TOLUENE	108-88-3	1.00	ND	3.77	ND
ETHYLBENZENE	100-41-4	1.00	ND	4.34	ND
XYLENE (M+P)	1330-20-7	1.00	ND	4.34	ND
XYLENE (O)	95-47-6	1.00	ND	4.34	ND

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
MRL - METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE
µg/cu. m VALUES ARE CALCULATED FROM PPB RESULTS USING NORMAL TEMPERATURE AND PRESSURE (NPT).

APPROVED BY: _____
DATE: 5/1/12

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9418
CLIENT PROJECT: 1211.001.02.003

METHOD: VOC'S IN AIR
REFERENCE: EPA METHOD TO15 (GC-MS-SCAN)

SAMPLE ID:	DUP-1
LAB NO:	100773
SAMPLE TYPE:	AIR
DATE SAMPLED:	4/19/12
TIME SAMPLED:	12:38
BATCH ID:	042612A01
DATE ANALYZED:	4/26/12

		PPB (V/V)		µg/cu. m	
COMPOUND NAME	**CAS NO.**	**MRL**	**SAMPLE CONC**	**MRL**	**SAMPLE CONC**
BENZENE	71-43-2	1.00	ND	3.19	ND
TOLUENE	108-88-3	1.00	ND	3.77	ND
ETHYLBENZENE	100-41-4	1.00	ND	4.34	ND
XYLENE (M+P)	1330-20-7	1.00	ND	4.34	ND
XYLENE (O)	95-47-6	1.00	ND	4.34	ND

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
MRL - METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE
µg/cu. m VALUES ARE CALCULATED FROM PPB RESULTS USING NORMAL TEMPERATURE AND PRESSURE (NPT).

APPROVED BY: MK
DATE: 5/1/12

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9418
CLIENT PROJECT: 1211.001.02.003

BATCH ID: 042612A01

METHOD: METHANE
REFERENCE: ASTM D 1946

UNITS: %-V

SAMPLE ID	LAB NO.	SAMPLE TYPE	DATE SAMPLED	TIME SAMPLED	DATE ANALYZED	MRL	SAMPLE CONC
SS-1	100769	AIR	4/19/12	11:10	4/26/12	0.100	ND
SS-2	100771	AIR	4/19/12	12:44	4/26/12	0.100	ND

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE
MRL - METHOD REPORTING LIMIT

APPROVED BY: KMM
DATE: 5/1/12

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9418
CLIENT PROJECT: 1211.001.02.003

BATCH ID: 042612A01

METHOD: OXYGEN
REFERENCE: ASTM D 1946

UNITS: %-V

SAMPLE ID	LAB NO.	SAMPLE TYPE	DATE SAMPLED	TIME SAMPLED	DATE ANALYZED	MRL	SAMPLE CONC
SS-1	100769	AIR	4/19/12	11:10	4/26/12	1.00	19.3
SS-2	100771	AIR	4/19/12	12:44	4/26/12	1.00	19.5

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE
MRL - METHOD REPORTING LIMIT

APPROVED BY: _____
DATE: 5/1/12

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9418
CLIENT PROJECT: 1211.001.02.003

BATCH ID: 042612A02

METHOD: CARBON DIOXIDE
REFERENCE: ASTM D 1946

UNITS: %-V

SAMPLE ID	LAB NO.	SAMPLE TYPE	DATE SAMPLED	TIME SAMPLED	DATE ANALYZED	MRL	SAMPLE CONC
SS-1	100769	AIR	4/19/12	11:10	4/26/12	0.100	1.76
SS-2	100771	AIR	4/19/12	12:44	4/26/12	0.100	1.63

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE
MRL - METHOD REPORTING LIMIT

APPROVED BY: MAK
DATE: 5/1/12

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9418
CLIENT PROJECT: 1211.001.02.003

BATCH ID: 042612A01

METHOD: NITROGEN (BALANCE)
REFERENCE: ASTM D 1946

UNITS: %-V

SAMPLE ID	LAB NO.	SAMPLE TYPE	DATE SAMPLED	TIME SAMPLED	DATE ANALYZED	MRL	SAMPLE CONC
SS-1	100769	AIR	4/19/12	11:10	4/26/12	1.00	78.9
SS-2	100771	AIR	4/19/12	12:44	4/26/12	1.00	78.9

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE
MRL - METHOD REPORTING LIMIT

APPROVED BY: _____
DATE: 5/1/12

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9418
CLIENT PROJECT: 1211.001.02.003

METHOD: 1,1-DIFLUOROETHANE
REFERENCE: EPA TO 3

UNITS: PPMV

SAMPLE ID	LAB NO.	SAMPLE TYPE	DATE SAMPLED	BATCH ID	DATE ANALYZED	MRL	SAMPLE CONC
SS-1	100769	AIR	04/19/2012	042312A1	04/24/2012	10.0	ND
SHROUD-1	100770	AIR	04/19/2012	042312A1	04/24/2012	10.0	8880
SS-2	100771	AIR	04/19/2012	042312A1	04/24/2012	10.0	ND
SHROUD-2	100772	AIR	04/19/2012	042312A1	04/24/2012	10.0	8560

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE
MRL - METHOD REPORTING LIMIT

APPROVED BY: VMC
DATE: 5/1/12

K PRIME, INC.

LABORATORY METHOD BLANK REPORT

METHOD BLANK ID: B04261201
SAMPLE TYPE: AIR

BATCH ID: 042612A01
METHOD: VOC'S IN AIR
DATE ANALYZED: 4/26/12
REFERENCE: EPA METHOD TO15 (GC-MS-SCAN)

COMPOUND NAME	CAS NO.	PPB (V/V)		µg/cu. m	
		MRL	SAMPLE CONC	MRL	SAMPLE CONC
BENZENE	71-43-2	0.500	ND	1.60	ND
TOLUENE	108-88-3	0.500	ND	1.88	ND
ETHYLBENZENE	100-41-4	0.500	ND	2.17	ND
XYLENE (M+P)	1330-20-7	0.500	ND	2.17	ND
XYLENE (O)	95-47-6	0.500	ND	2.17	ND

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
MRL - METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE
µg/cu. m VALUES ARE CALCULATED FROM PPB RESULTS USING NORMAL TEMPERATURE AND PRESSURE (NPT).

K PRIME, INC.
LABORATORY QUALITY CONTROL REPORT

LAB CONTROL ID: L04261201
LAB CONTROL DUPLICATE ID: D04261201

SAMPLE TYPE: AIR
BATCH ID: 042612A01
DATE ANALYZED: 4/26/12

METHOD: VOC'S IN AIR
REFERENCE: EPA METHOD TO 15 (GC-MS-SCAN)

COMPOUND NAME	SPIKE ADDED (PPB)	REPORTING LIMIT (PPB)	SAMPLE CONC (PPB)	SPIKE CONC (PPB)	SPIKE REC (%)	REC LIMITS (%)
1,1-DICHLOROETHENE	10.0	0.500	ND	9.94	99.4	60 - 140
TRICHLOROETHENE	10.0	0.500	ND	9.35	93.5	60 - 140
BENZENE	10.0	0.500	ND	9.48	94.8	60 - 140
TOLUENE	10.0	0.500	ND	9.67	96.7	60 - 140
TETRACHLOROETHENE	10.0	0.500	ND	9.81	98.1	60 - 140

COMPOUND NAME	SPIKE ADDED (PPB)	SPIKE DUP CONC (PPB)	SPIKE DUP REC (%)	RPD (%)	QC LIMITS RPD (%)	QC LIMITS REC (%)
1,1-DICHLOROETHENE	10.0	9.71	97.1	2.34	25	60 - 140
TRICHLOROETHENE	10.0	9.35	93.5	0.000	25	60 - 140
BENZENE	10.0	9.48	94.8	0.000	25	60 - 140
TOLUENE	10.0	9.31	93.1	3.79	25	60 - 140
TETRACHLOROETHENE	10.0	9.55	95.5	2.69	25	60 - 140

NOTES:
NA - NOT APPLICABLE OR AVAILABLE
ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT

K PRIME, INC.
LABORATORY QC REPORT

METHOD: METHANE, OXYGEN, NITROGEN (BALANCE)
REFERENCE: ASTM D 1946

METHOD BLANK ID:	B04261201
SAMPLE ID:	L04261201
DUPLICATE ID:	D04261201
BATCH #:	042612A01
SAMPLE TYPE:	AIR
UNITS:	%-V
DATE ANALYZED:	4/26/12

METHOD BLANK

PARAMETER	REPORTING LIMIT	SAMPLE RESULT
METHANE	0.100	ND
OXYGEN	1.00	ND

ACCURACY (MATRIX SPIKE)

PARAMETER	SPIKE ADDED	SAMPLE RESULT	SPIKE RESULT	RECOVERY (%)	LIMITS (%)
METHANE	50.0	ND	48.1	96.2	90-110
OXYGEN	10.0	ND	9.51	95.1	90-110
NITROGEN (BALANCE)	40.0	ND	42.4	106	90-110

PRECISION (SPIKE DUPLICATE)

COMPOUND NAME	REPORTING LIMIT	SPIKE RESULT	DUPLICATE RESULT	RPD (%)	LIMITS (%)
METHANE	0.100	48.1	50.4	4.67	±10
OXYGEN	1.00	9.51	9.21	3.21	±10
NITROGEN (BALANCE)	1.00	42.4	40.4	4.83	±10

K PRIME, INC.
LABORATORY QC REPORT

METHOD: CARBON DIOXIDE
REFERENCE: ASTM D 1946

METHOD BLANK ID:	B04261202
SAMPLE ID:	L04261202
DUPLICATE ID:	D04261202
BATCH #:	042612A02
SAMPLE TYPE:	AIR
UNITS:	%-V
DATE ANALYZED:	4/26/12

METHOD BLANK

PARAMETER	REPORTING LIMIT	SAMPLE RESULT
CARBON DIOXIDE	0.0500	ND

ACCURACY (MATRIX SPIKE)

PARAMETER	SPIKE ADDED	SAMPLE RESULT	SPIKE RESULT	RECOVERY (%)	LIMITS (%)
CARBON DIOXIDE	1.00	ND	1.14	114	70-130

PRECISION (SPIKE DUPLICATE)

COMPOUND NAME	REPORTING LIMIT	SPIKE RESULT	DUPLICATE RESULT	RPD (%)	LIMITS (%)
CARBON DIOXIDE	0.0500	1.14	1.10	3.57	±20

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
NA - NOT AVAILABLE OR APPLICABLE

K PRIME, INC.
LABORATORY QC REPORT

METHOD BLANK ID: B042312A1
LAB CONTROL SAMPLE ID: L042312A1
LAB CONTROL DUPLICATE ID: D042312A1
BATCH ID: 042312A1

METHOD: 1,1-DIFLUOROETHANE
REFERENCE: EPA TO 3

SAMPLE TYPE: AIR
UNITS: PPM -V/V

METHOD BLANK

COMPOUND NAME	REPORTING LIMIT	SAMPLE CONC
1,1-DIFLUOROETHANE	10.0	ND

ACCURACY (LAB CONTROL SAMPLE)

COMPOUND NAME	EXPECTED CONC	MEASURED CONC	PERCENT RECOVERY	LIMITS (PERCENT)
1,1-DIFLUOROETHANE	10000	10100	101	60-140

PRECISION (LAB CONTROL DUPLICATE)

COMPOUND NAME	SAMPLE RESULT	DUPLICATE RESULT	RPD (PERCENT)	LIMITS (PERCENT)
1,1-DIFLUOROETHANE	10100	9670	4.4	±30

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE

PES Environmental, Inc.
Engineering & Environmental Services

1682 NOVATO BOULEVARD, SUITE 100
NOVATO, CALIFORNIA 94947
(415) 899-1600 FAX (415) 899-1601

CHAIN OF CUSTODY RECORD

LABORATORY: K Prime
JOB NUMBER: 1211.001.02.003
NAME / LOCATION: 1650 65th St. Emeryville CA
PROJECT MANAGER: C. Baldassari
SAMPLERS: JA
RECORDER: JA

DATE YR	MO	DY	~~TIME~~	SAMPLE NUMBER / DESIGNATION	Container (~~MATRIX~~): KPI #	6L SUMA	1L SUMA	Start Time	Initial Vac.	End Time	End Vac.	~~DEPTH IN FEET~~ Canister ID's
12	04	19		AA-1	100768	X		0930	<-30	1630	-14	A-702
↓	↓	↓		SS-1	100769		X	1100	-30	1110	-8	S-350
				Shroud-1	100770		X	1100	-30	1110	-6	S-651
				SS-2	100771		X	1230	-30	1244	-6	S-232
				Shroud-2	100772		X	1230	-30	1244	-6	S-520
				DUP-1	100773		X	1230	-28	1238	-6	S-112

Printed header columns crossed out: Vapor, Water, Soil, Sedim't; Unpres., En Core, H_2SO_4, HNO_3, HCl

ANALYSIS REQUESTED

Printed analysis columns (none marked): EPA 5035/8010; EPA 5035/8021; EPA 5035/8260B; TPHg by 5035/8015M; TPHd by 8015M; TPHmo by 8015M; EPA 8270C; MNA Parameters (see notes)

Sample	TO-15 for BTEX	TO-15 for DFA (tracer)	Nitrogen, Oxygen, Methane
AA-1	X	~~X~~ JA	
SS-1	X	X	X
Shroud-1		X	
SS-2	X	X	X
Shroud-2		X	
DUP-1	X		

NOTES

Turn Around Time: Standard TAT

Page 1 of 1

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE	TIME
[illegible signature]	Errol (VTC)	4/20/12	1025
Errol (VTC)	[illegible signature] KPI	4/20/12	1545

DISPATCHED BY: (Signature)	DATE	TIME	RECEIVED FOR LAB BY: (Signature)	DATE	TIME

METHOD OF SHIPMENT:

WHITE-Laboratory COPY YELLOW-Project Office Copy PINK-Field or Office Copy


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 235067
ANALYTICAL REPORT

PES Environmental, Inc.	Project : 1211-001-01
1682 Novato Boulevard	Location : 1650 65th St. / Emeryville CA
Novato, CA 94947	Level : II

Sample ID	Lab ID
SB-1-4.5	235067-001
SB-1-9	235067-002
SB-1-14	235067-003
SB-1-20	235067-004
SB-2-4.5	235067-005
SB-2-8.5	235067-006
SB-2-13	235067-007
SB-2-21	235067-008

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: 03/28/2012
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**235067**
Client:	**PES Environmental, Inc.**
Project:	**1211-001-01**
Location:	**1650 65th St. / Emeryville CA**
Request Date:	**03/20/12**
Samples Received:	**03/20/12**

This data package contains sample and QC results for eight soil samples, requested for the above referenced project on 03/20/12. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B):
No analytical problems were encountered.

TPH-Extractables by GC (EPA 8015B):
High surrogate recovery was observed for o-terphenyl in the MS for batch 184806; the parent sample was not a project sample. No other analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B):
Matrix spikes QC633005,QC633006 (batch 184869) were not reported because the parent sample was reanalyzed in another batch. High surrogate recovery was observed for 1,2-dichloroethane-d4 in the method blank for batch 184933; no target analytes were detected in the sample. SB-1-20 (lab # 235067-004), SB-2-8.5 (lab # 235067-006), and SB-2-21 (lab # 235067-008) were not diluted; the low sample weight is due to 5035 packaging. No other analytical problems were encountered.

PES Environmental, Inc.
Engineering & Environmental Services

CHAIN OF CUSTODY RECORD

235067

1682 NOVATO BOULEVARD, SUITE 100
NOVATO, CALIFORNIA 94947
(415) 899-1600 FAX (415) 899-1601

LABORATORY: C+T
SAMPLERS: JA
JOB NUMBER: 1211.001.
NAME / LOCATION: 1650 65th St. / Emeryville CA
PROJECT MANAGER: C. Baldassari
RECORDER: JA

	DATE YR	MO	DY	TIME	SAMPLE NUMBER / DESIGNATION	MATRIX: Vapor	Water	Soil	Sedim't	# of Containers & Preservatives: Unpres.	EnCore	H_2SO_4	HNO_3	HCl	$MeOH$-VOA	unpres-VOA	DEPTH IN FEET	ANALYSIS REQUESTED: EPA 5035/8010	EPA 5035/8021	EPA 5035/8260B for BTEX	TPHg by 5030/8015B	TPHd by 8015M	TPHmo by 8015B w/ silica gel	EPA 8270C	MNA Parameters (see notes)
1	12	03	20	1255	SB-1-4.5		X	X								4				X	X			X	
2				1310	SB-1-9		X	X								4				X	X			X	
3				1325	SB-1-14		X	X								4				X	X			X	
4				1340	SB-1-20		JA	X								4				X	X			X	
5				1430	SB-2-4.5			X								4				X	X			X	
6				1445	SB-2-8.5			X								4				X	X			X	
7				1500	SB-2-13			X								4				X	X			X	
8				1510	SB-2-21			X								4				X	X			X	

Final Oxygenates (8260B) for MTBE, ETBE, DIPE, TBA, EDB, TAME, 1,2-DCA

NOTES

Turn Around Time: Standard TAT

Page 1 of 1

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE 3/29/12	TIME 1630
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE	TIME
DISPATCHED BY: (Signature) DATE TIME	RECEIVED FOR LAB BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT:			

WHITE-Laboratory COPY YELLOW-Project Office Copy PINK-Field or Office Copy

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 235067 Date Received 3/20/12 Number of coolers 1
Client PES Project 1211.001.

Date Opened 3/20/12 By (print) J.CHOY (sign)
Date Logged in ↓ By (print) ↓ (sign) ↓

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

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

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

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 4.5

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? (YES) NO
If YES, what time were they transferred to freezer? 1730 March 20, 2012
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~~ SC
16. Did you check preservatives for all bottles for each sample? YES NO (N/A)
17. Did you document your preservative check? 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~~ SC
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

Rev 10, 11/11

Curtis & Tompkins, Ltd.

Gasoline by GC/FID (5035 Prep)

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211-001-01	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	03/20/12
Units:	mg/Kg	Received:	03/20/12
Basis:	as received		

Field ID:	SB-1-4.5	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	184805
Lab ID:	235067-001	Analyzed:	03/22/12

Analyte	Result	RL
Gasoline C7-C12	ND	0.23

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	95	61-136

Field ID:	SB-1-9	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	184805
Lab ID:	235067-002	Analyzed:	03/22/12

Analyte	Result	RL
Gasoline C7-C12	0.91	0.33

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	94	61-136

Field ID:	SB-1-14	Diln Fac:	33.33
Type:	SAMPLE	Batch#:	184872
Lab ID:	235067-003	Analyzed:	03/22/12

Analyte	Result	RL
Gasoline C7-C12	250	5.3

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	95	61-136

Field ID:	SB-1-20	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	184872
Lab ID:	235067-004	Analyzed:	03/23/12

Analyte	Result	RL
Gasoline C7-C12	3.1 Y	0.20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	120	61-136

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID (5035 Prep)

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211-001-01	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	03/20/12
Units:	mg/Kg	Received:	03/20/12
Basis:	as received		

Field ID:	SB-2-4.5	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	184872
Lab ID:	235067-005	Analyzed:	03/23/12

Analyte	Result	RL
Gasoline C7-C12	0.24	0.17

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	92	61-136

Field ID:	SB-2-8.5	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	184805
Lab ID:	235067-006	Analyzed:	03/22/12

Analyte	Result	RL
Gasoline C7-C12	4.0	0.27

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	94	61-136

Field ID:	SB-2-13	Diln Fac:	2,000
Type:	SAMPLE	Batch#:	184872
Lab ID:	235067-007	Analyzed:	03/23/12

Analyte	Result	RL
Gasoline C7-C12	8,600	340

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	98	61-136

Field ID:	SB-2-21	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	184805
Lab ID:	235067-008	Analyzed:	03/22/12

Analyte	Result	RL
Gasoline C7-C12	3.0	0.15

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	116	61-136

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Gasoline by GC/FID (5035 Prep)

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211-001-01	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	03/20/12
Units:	mg/Kg	Received:	03/20/12
Basis:	as received		

Type:	BLANK	Batch#:	184805
Lab ID:	QC632741	Analyzed:	03/21/12
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	0.20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	89	61-136

Type:	BLANK	Batch#:	184872
Lab ID:	QC633016	Analyzed:	03/22/12
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	0.20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	93	61-136

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211-001-01	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC632740	Batch#:	184805
Matrix:	Soil	Analyzed:	03/21/12
Units:	mg/Kg		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1.000	0.9996	100	79-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	94	61-136

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5030B
Project#:	1211-001-01	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	235082-001	Batch#:	184805
Matrix:	Soil	Sampled:	03/21/12
Units:	mg/Kg	Received:	03/21/12
Basis:	as received	Analyzed:	03/22/12

Type: MS Lab ID: QC632820

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	<0.05077	10.99	9.151	83	31-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	93	61-136

Type: MSD Lab ID: QC632821

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	9.709	9.273	96	31-120	14	57

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	95	61-136

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211-001-01	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC633015	Batch#:	184872
Matrix:	Soil	Analyzed:	03/22/12
Units:	mg/Kg		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2.000	2.180	109	79-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	96	61-136

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5030B
Project#:	1211-001-01	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	235054-005	Batch#:	184872
Matrix:	Soil	Sampled:	03/20/12
Units:	mg/Kg	Received:	03/20/12
Basis:	as received	Analyzed:	03/23/12

Type: MS Lab ID: QC633017

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	0.05885	10.31	8.431	81	31-120

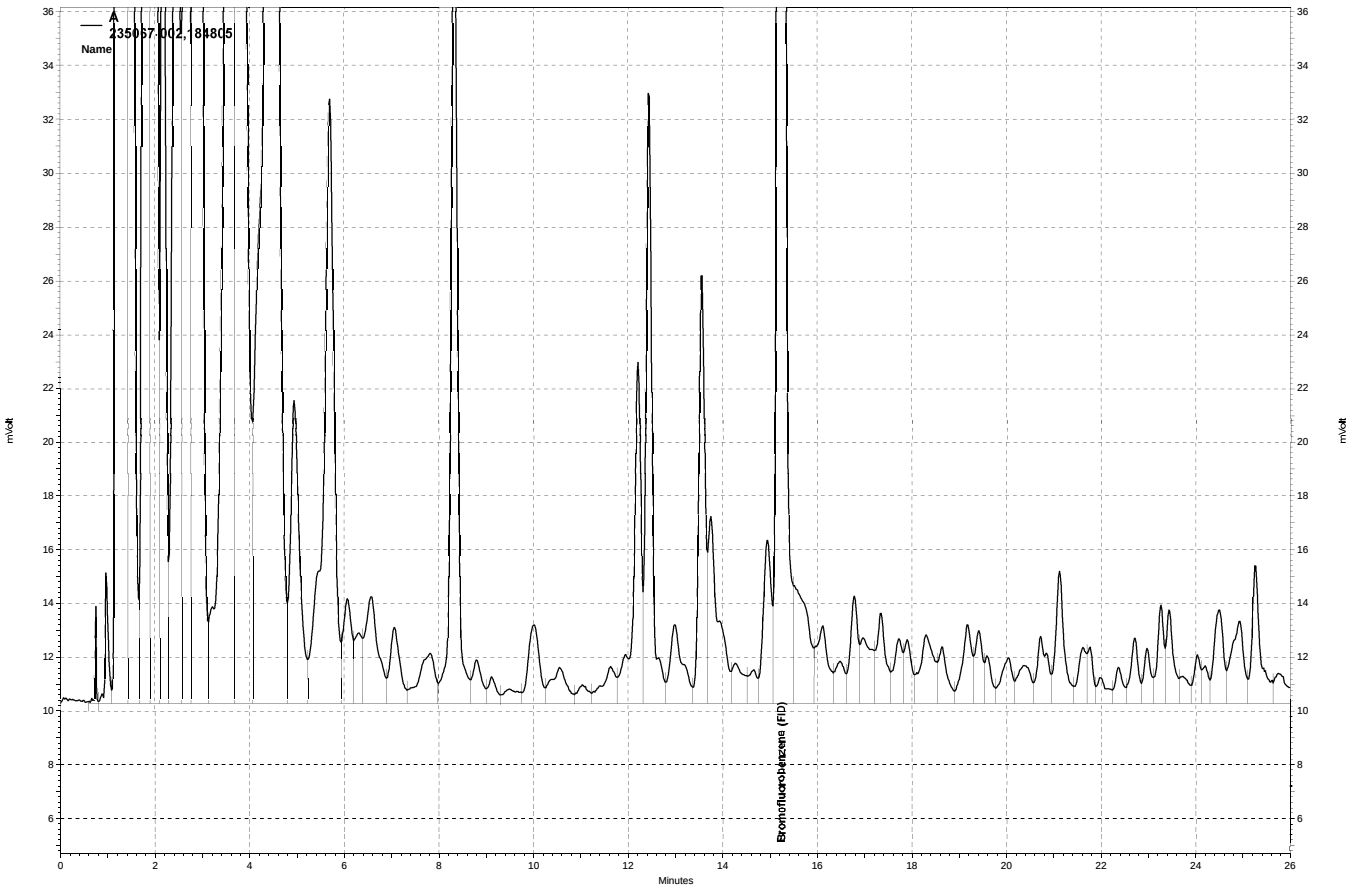
Surrogate	%REC	Limits
Bromofluorobenzene (FID)	90	61-136

Type: MSD Lab ID: QC633018

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	11.11	8.707	78	31-120	4	57

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	90	61-136

RPD= Relative Percent Difference



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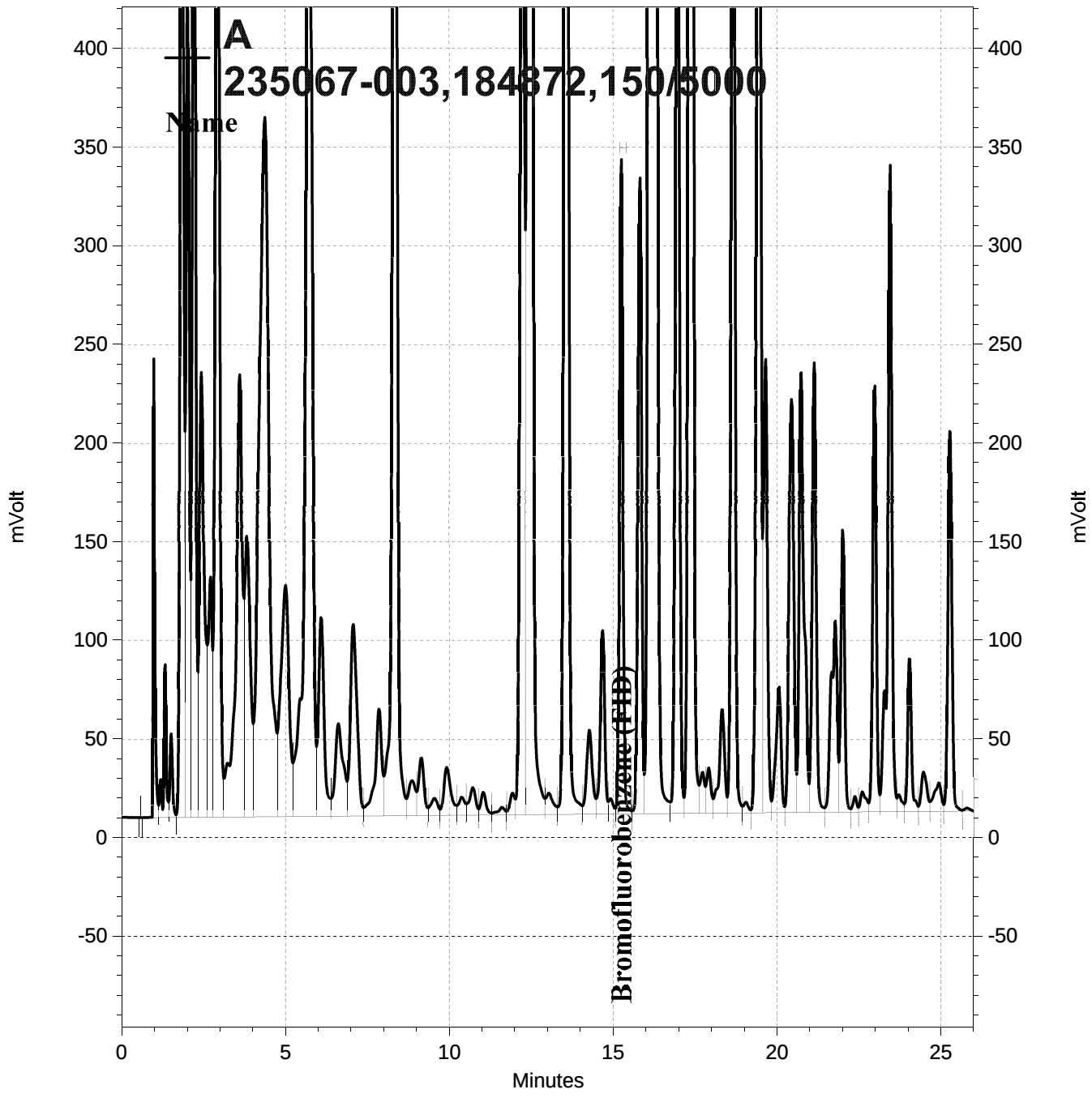

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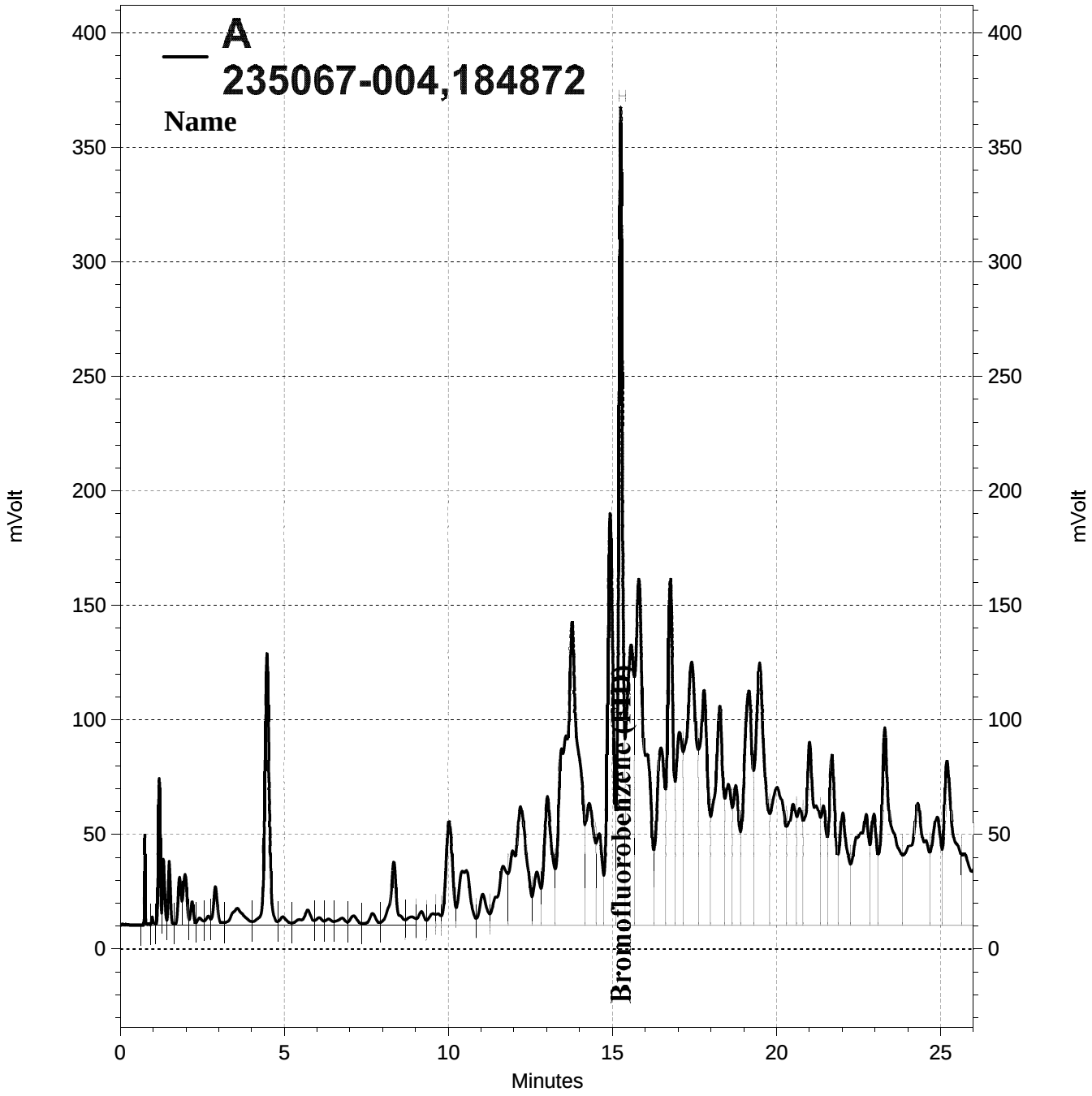

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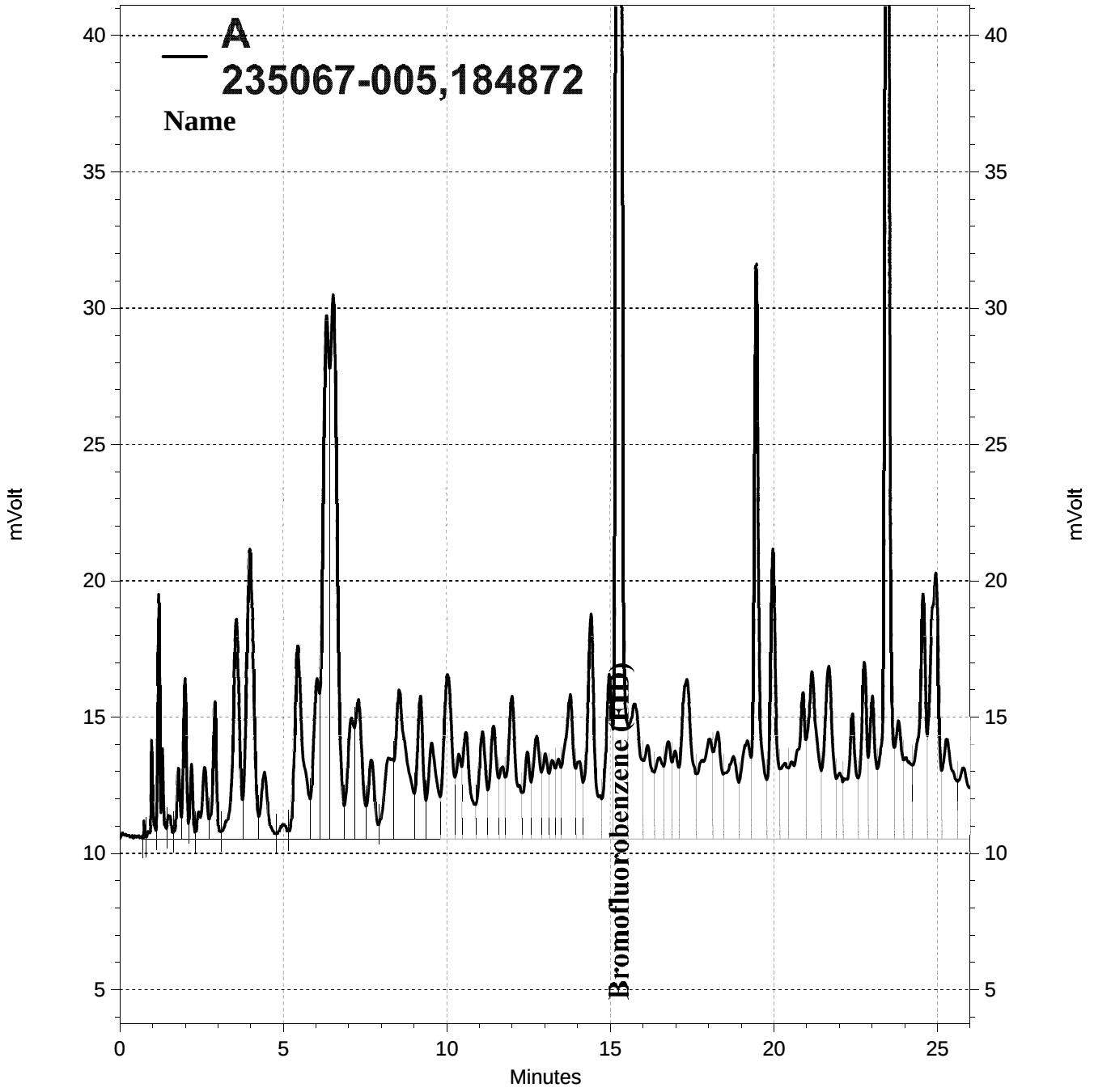

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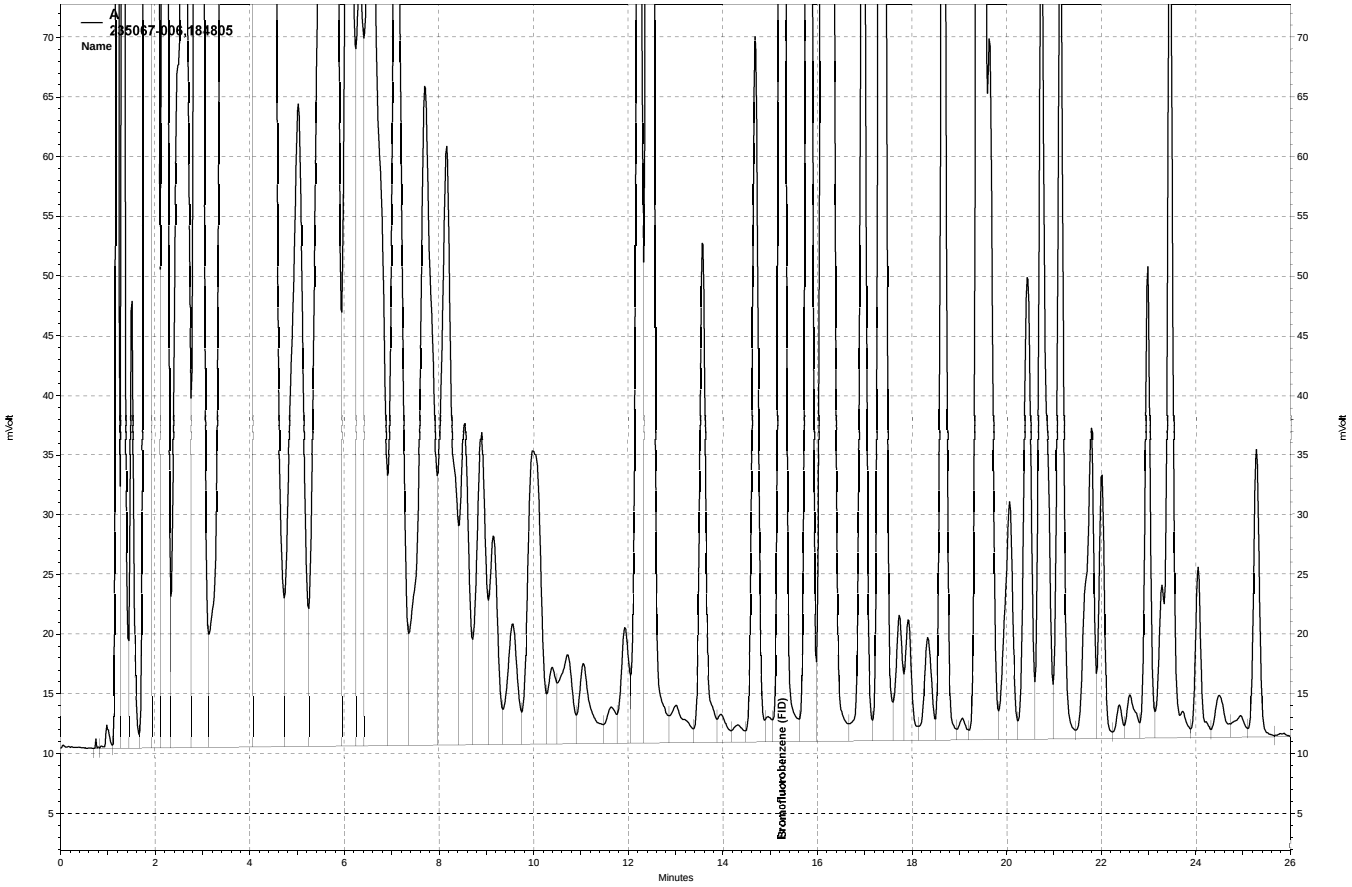

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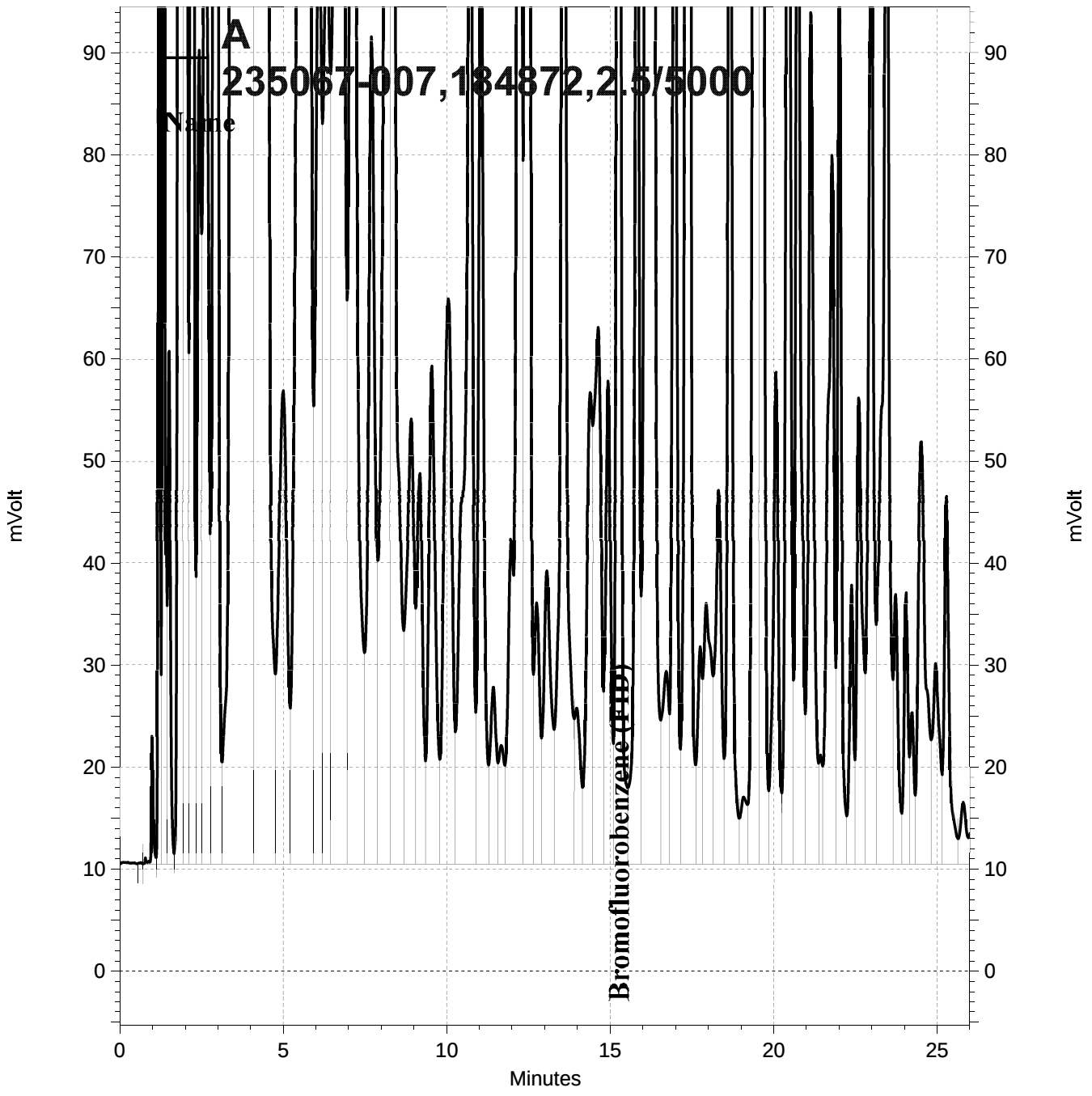

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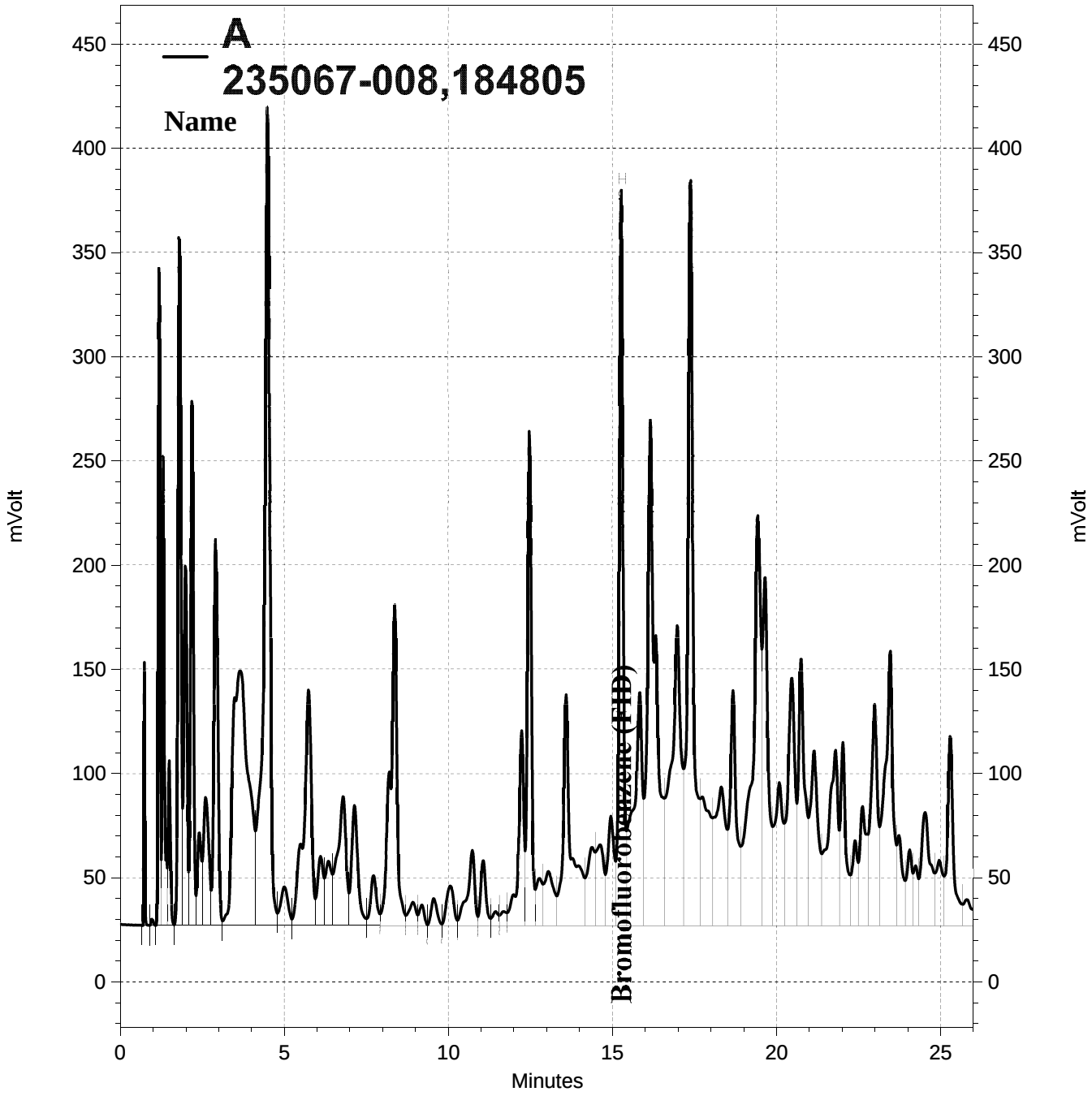

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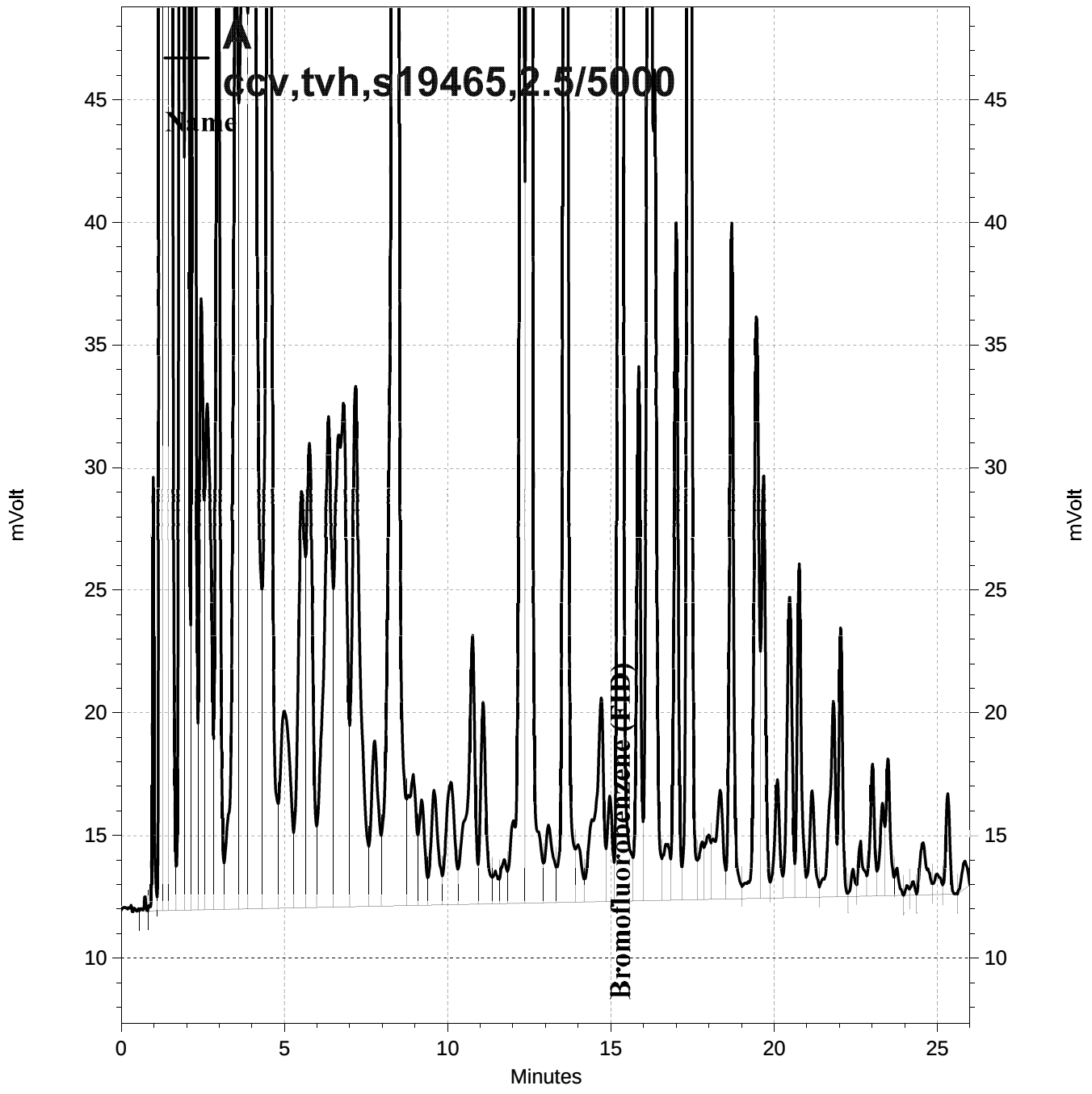

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Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	SHAKER TABLE
Project#:	1211-001-01	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	03/20/12
Units:	mg/Kg	Received:	03/20/12
Basis:	as received	Prepared:	03/21/12
Batch#:	184806		

Field ID:	SB-1-4.5	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	03/22/12
Lab ID:	235067-001	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	9.2 Y	1.0
Motor Oil C24-C36	110	5.0

Surrogate	%REC	Limits
o-Terphenyl	99	49-128

Field ID:	SB-1-9	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	03/22/12
Lab ID:	235067-002	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	4.6 Y	0.99
Motor Oil C24-C36	13	5.0

Surrogate	%REC	Limits
o-Terphenyl	113	49-128

Field ID:	SB-1-14	Diln Fac:	5.000
Type:	SAMPLE	Analyzed:	03/23/12
Lab ID:	235067-003	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	140 Y	5.0
Motor Oil C24-C36	510	25

Surrogate	%REC	Limits
o-Terphenyl	116	49-128

Field ID:	SB-1-20	Diln Fac:	5.000
Type:	SAMPLE	Analyzed:	03/26/12
Lab ID:	235067-004	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	440	5.0
Motor Oil C24-C36	520	25

Surrogate	%REC	Limits
o-Terphenyl	115	49-128

Y= Sample exhibits chromatographic pattern which does not resemble standard
DO= Diluted Out
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	SHAKER TABLE
Project#:	1211-001-01	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	03/20/12
Units:	mg/Kg	Received:	03/20/12
Basis:	as received	Prepared:	03/21/12
Batch#:	184806		

Field ID:	SB-2-4.5	Diln Fac:	5.000
Type:	SAMPLE	Analyzed:	03/23/12
Lab ID:	235067-005	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	48 Y	5.0
Motor Oil C24-C36	410	25

Surrogate	%REC	Limits
o-Terphenyl	74	49-128

Field ID:	SB-2-8.5	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	03/22/12
Lab ID:	235067-006	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	27 Y	0.99
Motor Oil C24-C36	280	5.0

Surrogate	%REC	Limits
o-Terphenyl	103	49-128

Field ID:	SB-2-13	Diln Fac:	10.00
Type:	SAMPLE	Analyzed:	03/23/12
Lab ID:	235067-007	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	1,200 Y	10
Motor Oil C24-C36	320	50

Surrogate	%REC	Limits
o-Terphenyl	DO	49-128

Field ID:	SB-2-21	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	03/22/12
Lab ID:	235067-008	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	20 Y	1.0
Motor Oil C24-C36	28	5.0

Surrogate	%REC	Limits
o-Terphenyl	100	49-128

Y= Sample exhibits chromatographic pattern which does not resemble standard
DO= Diluted Out
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	SHAKER TABLE
Project#:	1211-001-01	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	03/20/12
Units:	mg/Kg	Received:	03/20/12
Basis:	as received	Prepared:	03/21/12
Batch#:	184806		

Type:	BLANK	Analyzed:	03/22/12
Lab ID:	QC632742	Cleanup Method:	EPA 3630C
Diln Fac:	1.000		

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

Surrogate	%REC	Limits
o-Terphenyl	119	49-128

Y= Sample exhibits chromatographic pattern which does not resemble standard
DO= Diluted Out
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	SHAKER TABLE
Project#:	1211-001-01	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC632743	Batch#:	184806
Matrix:	Soil	Prepared:	03/21/12
Units:	mg/Kg	Analyzed:	03/22/12

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	49.57	45.53	92	47-132

Surrogate	%REC	Limits
o-Terphenyl	117	49-128

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	SHAKER TABLE
Project#:	1211-001-01	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	184806
MSS Lab ID:	235023-001	Sampled:	03/15/12
Matrix:	Soil	Received:	03/16/12
Units:	mg/Kg	Prepared:	03/21/12
Basis:	as received	Analyzed:	03/22/12
Diln Fac:	1.000		

Type: MS Cleanup Method: EPA 3630C
Lab ID: QC632744

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	0.4449	49.62	28.64	57	32-143

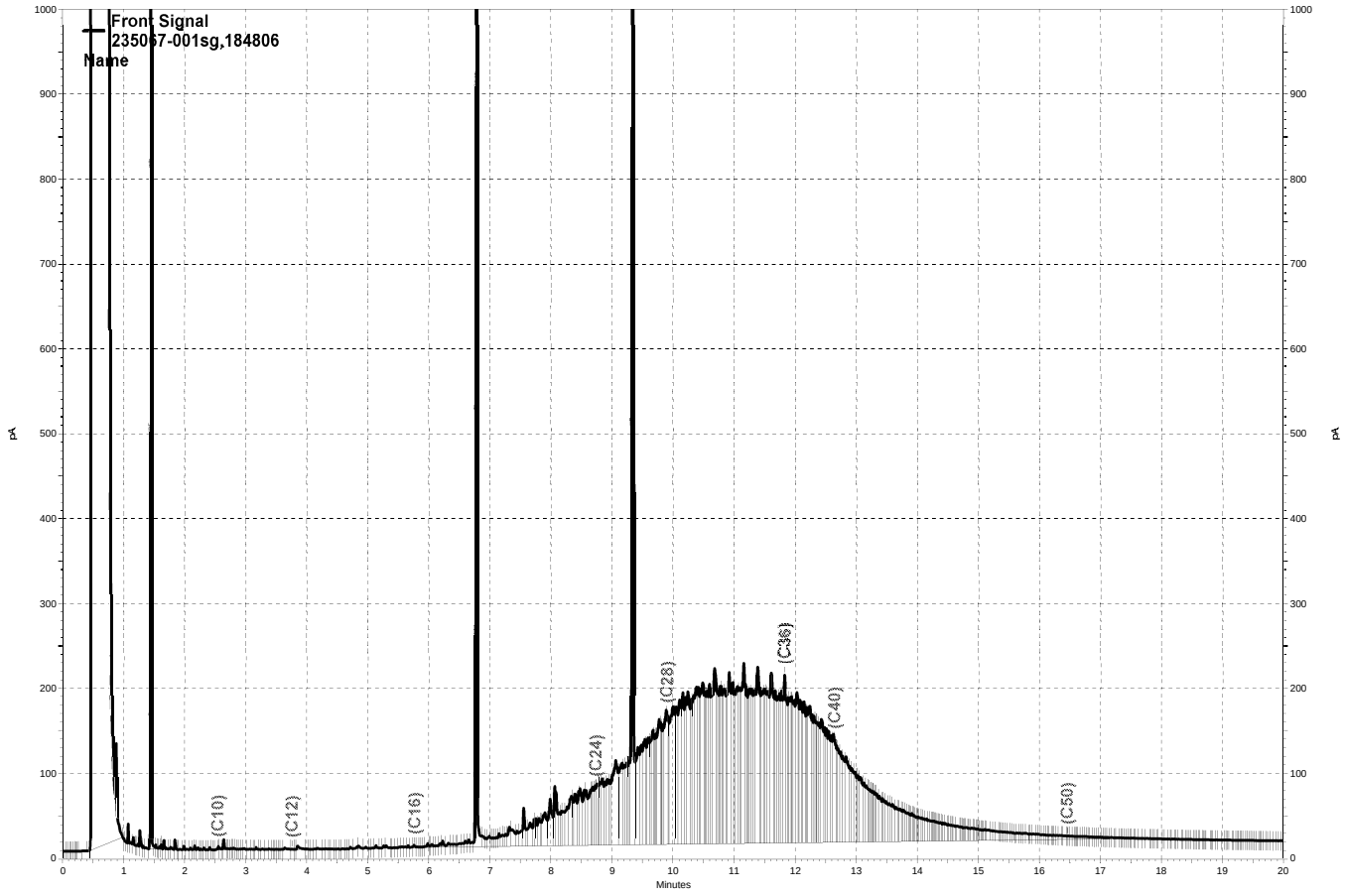
Surrogate	%REC	Limits
o-Terphenyl	132 *	49-128

Type: MSD Cleanup Method: EPA 3630C
Lab ID: QC632745

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	50.18	31.29	61	32-143	8	54

Surrogate	%REC	Limits
o-Terphenyl	70	49-128

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



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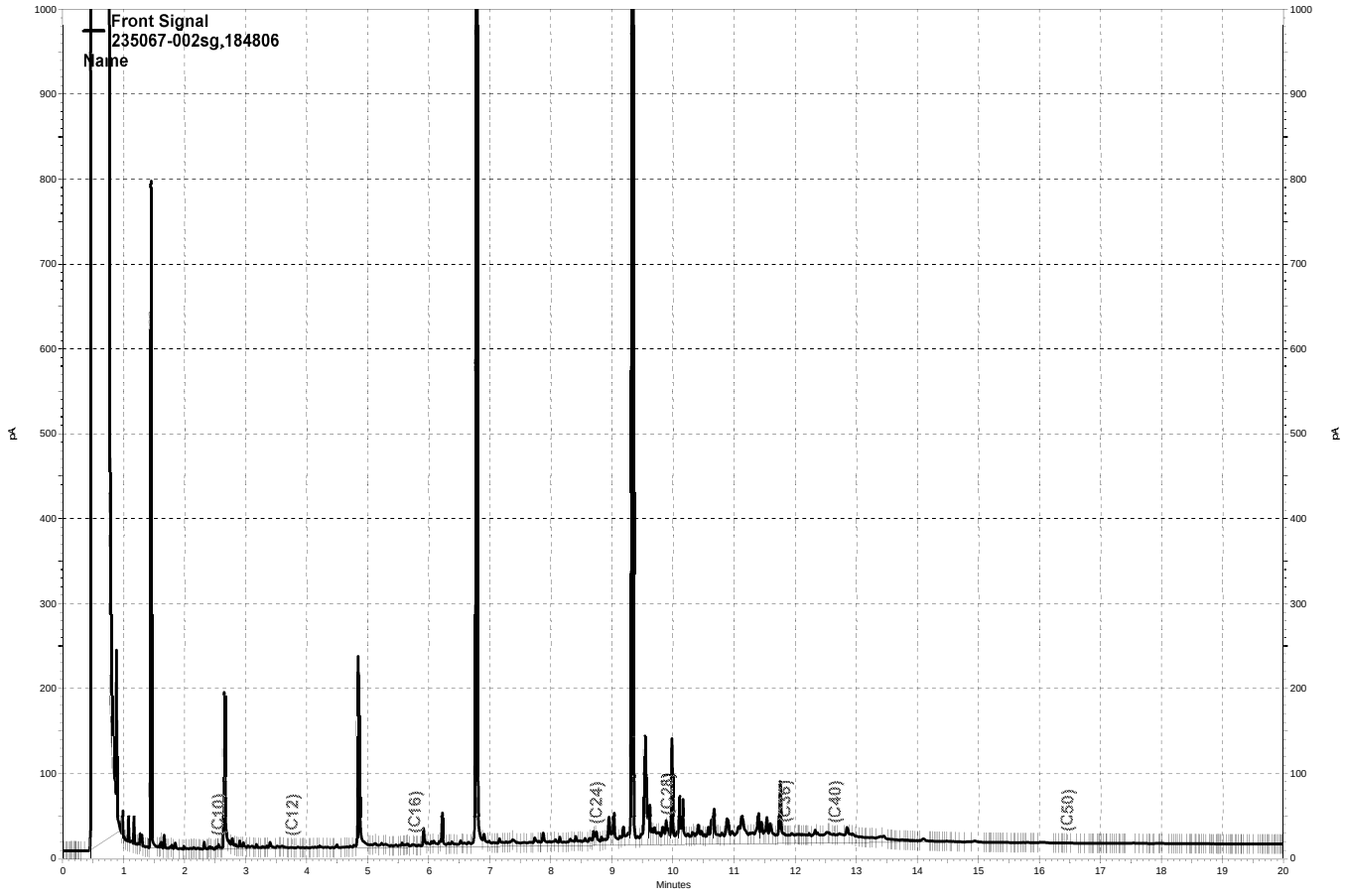

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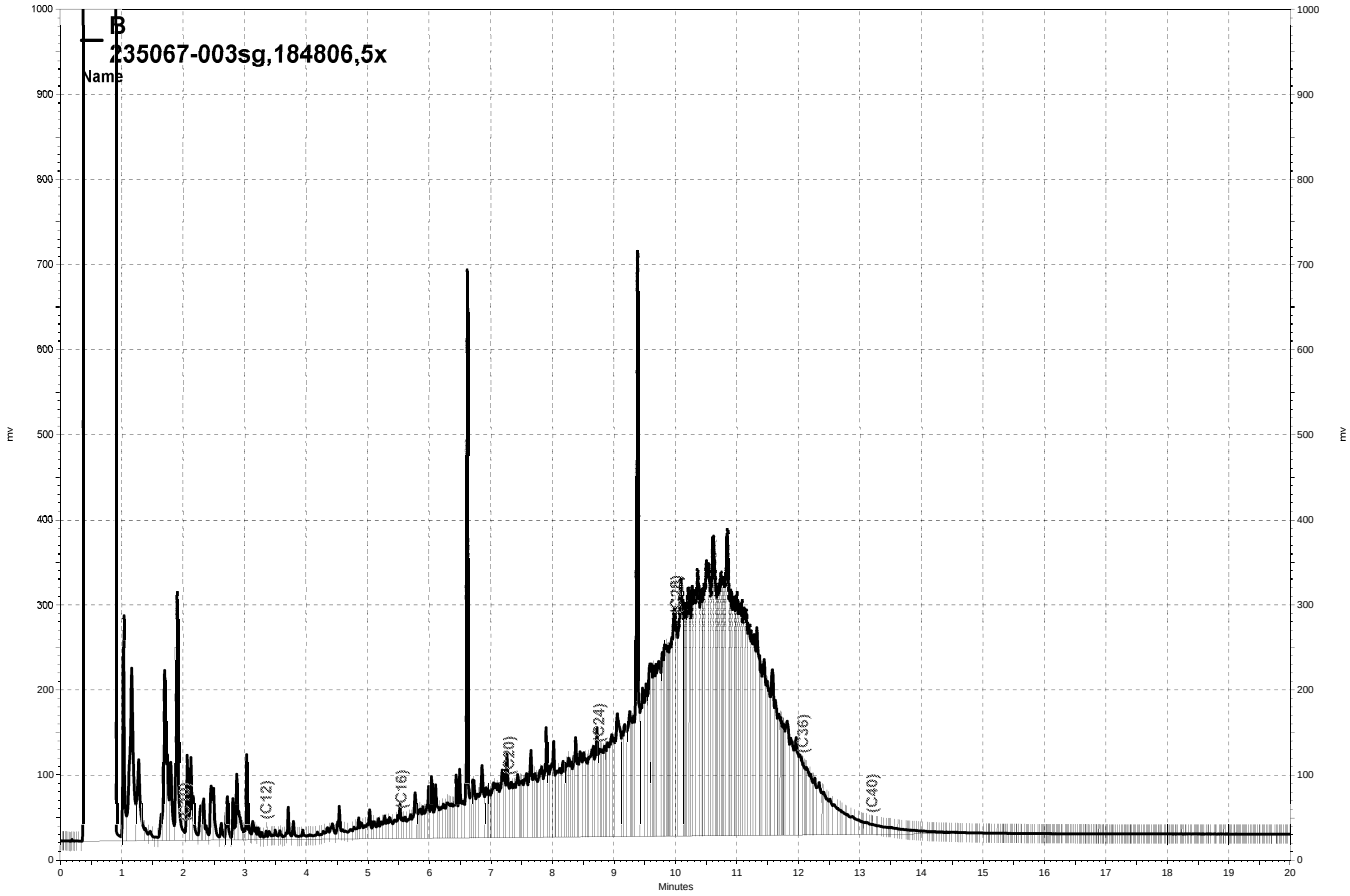

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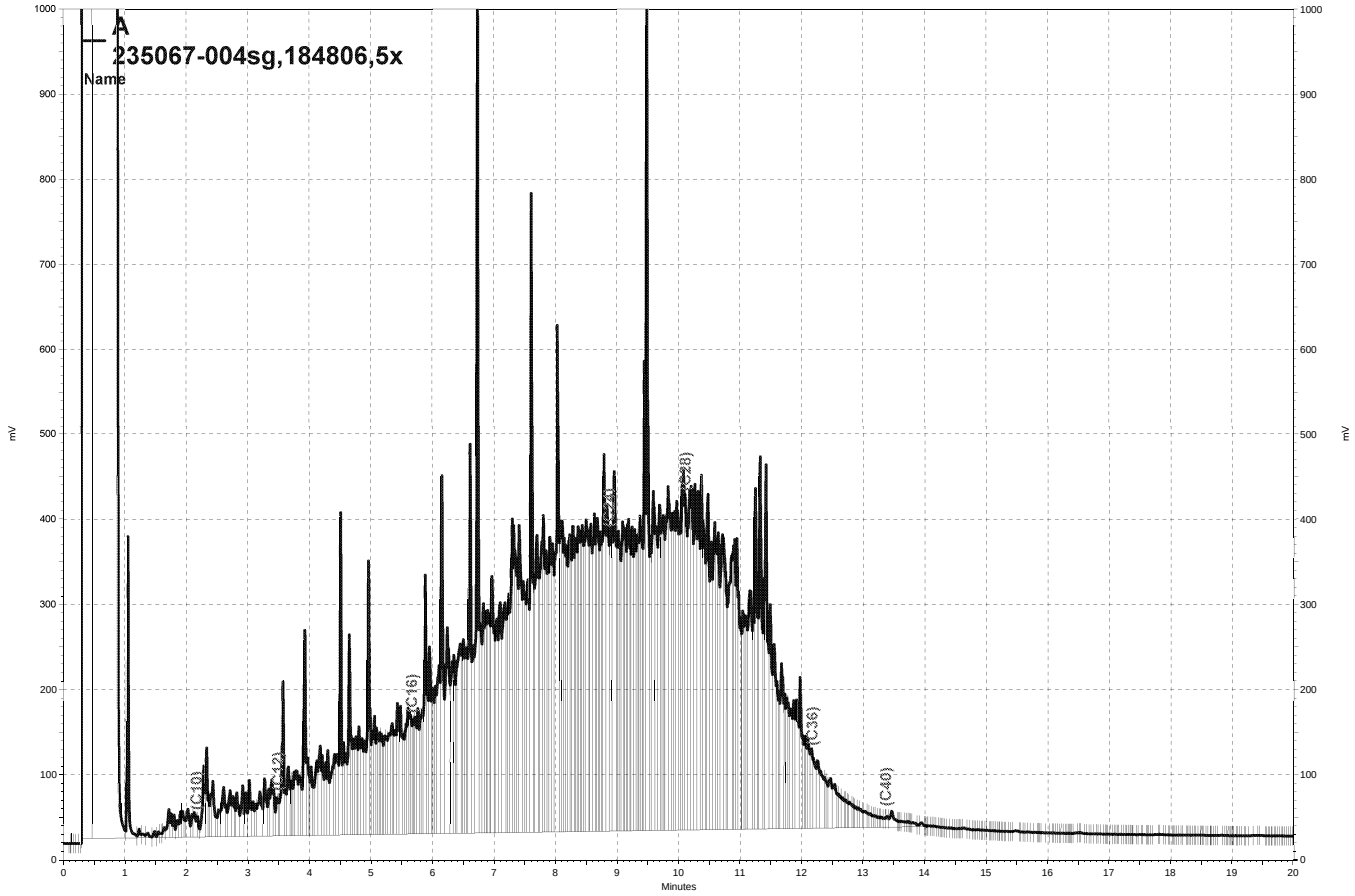

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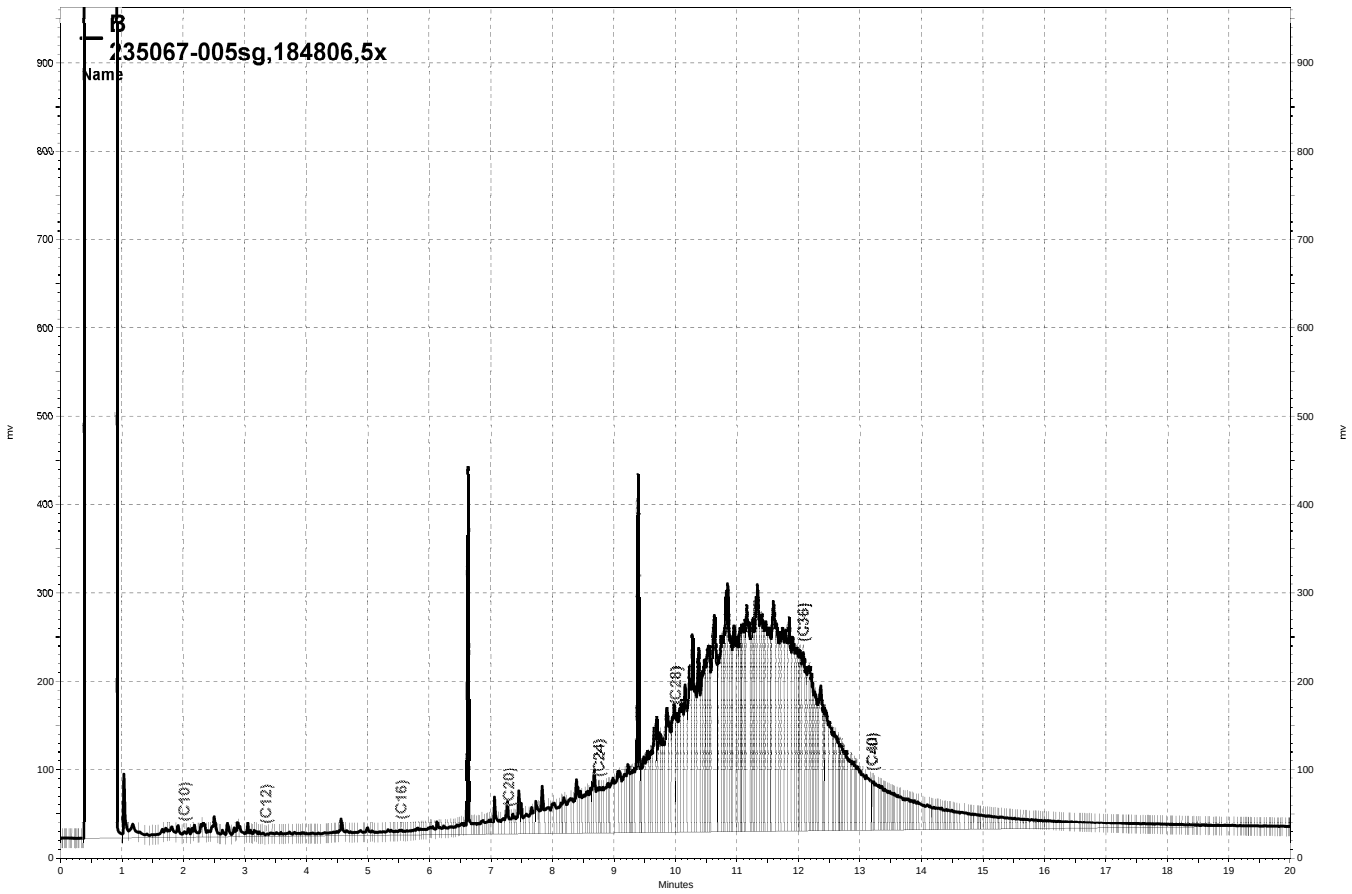

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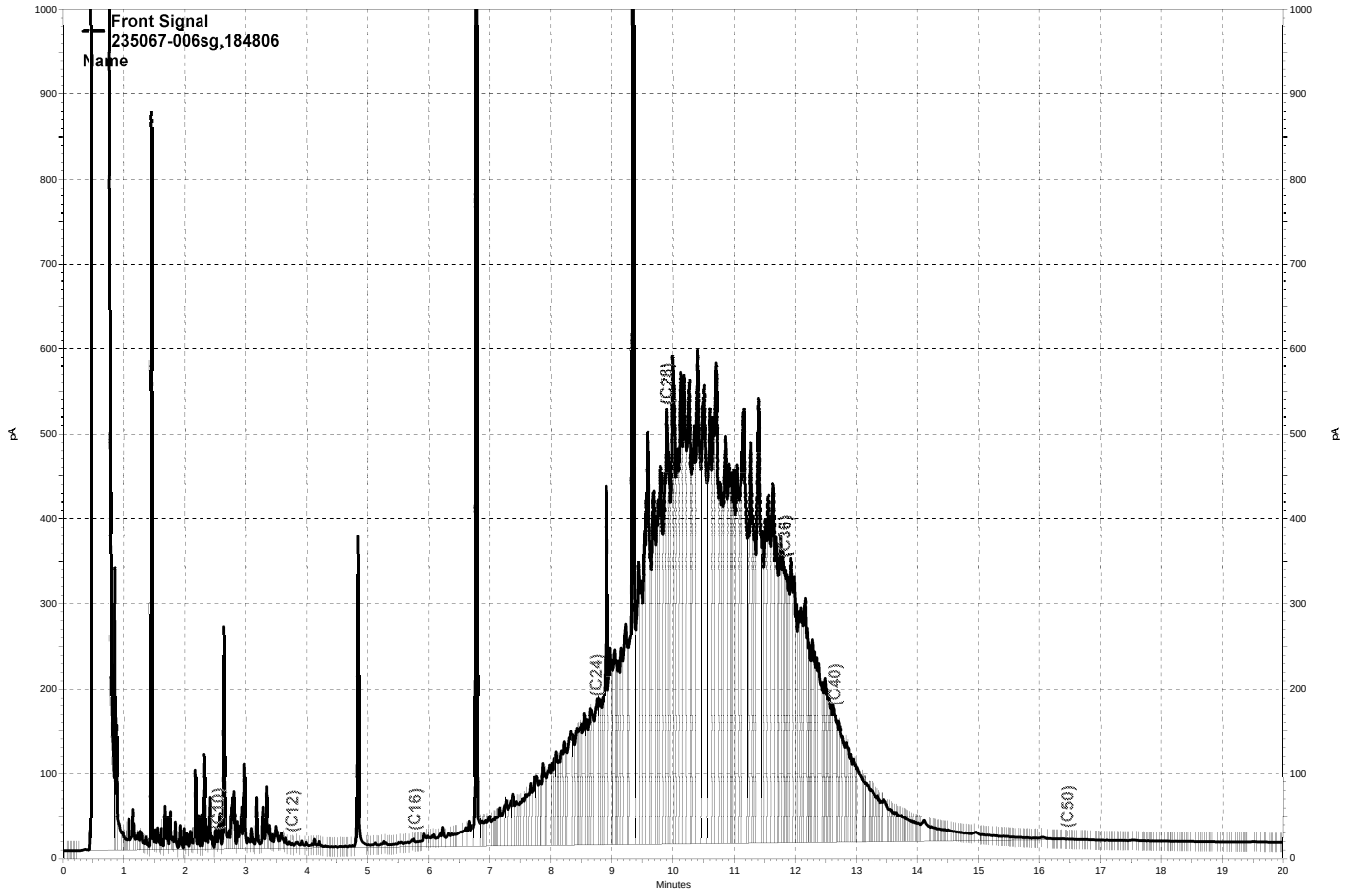

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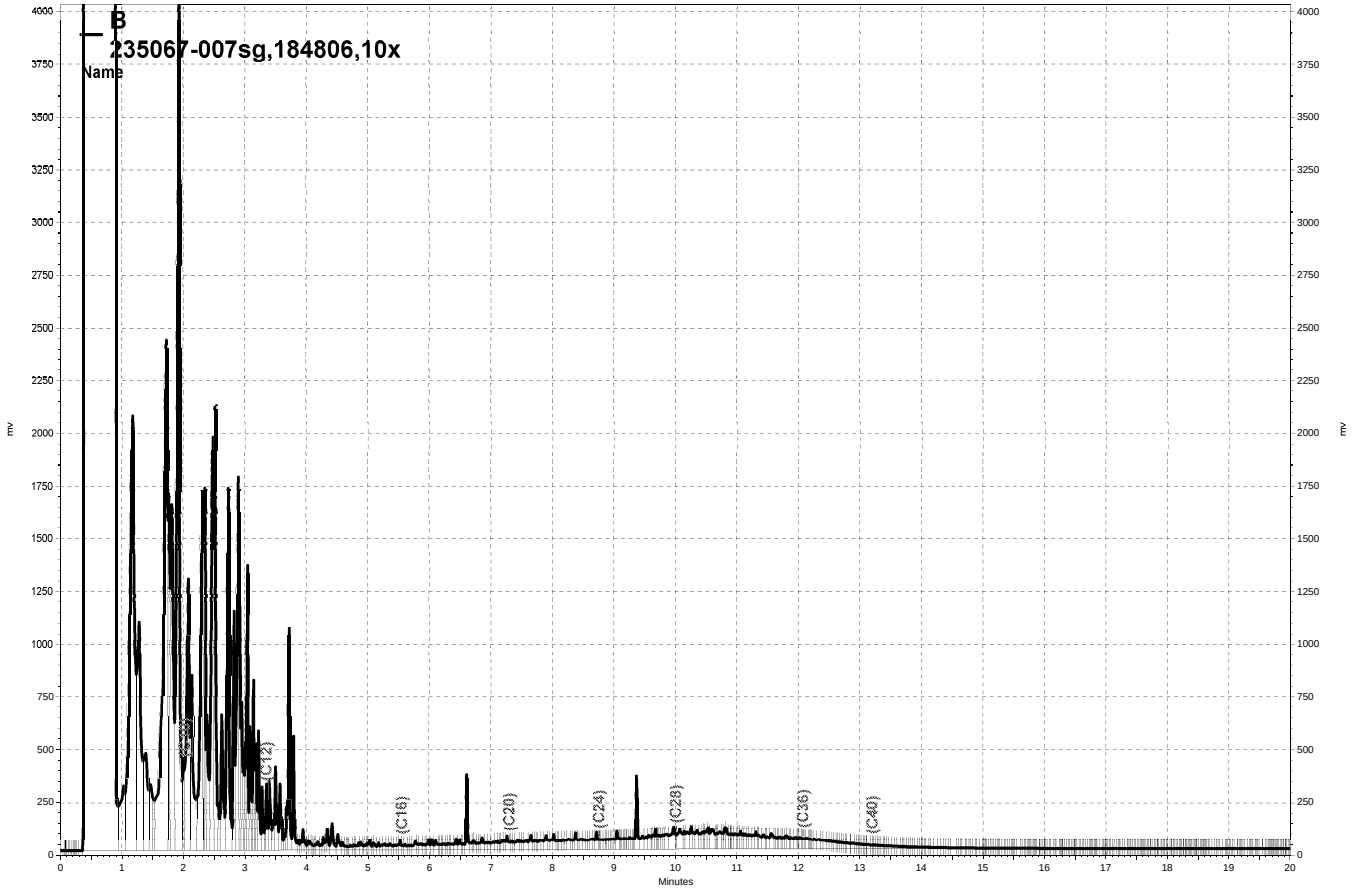

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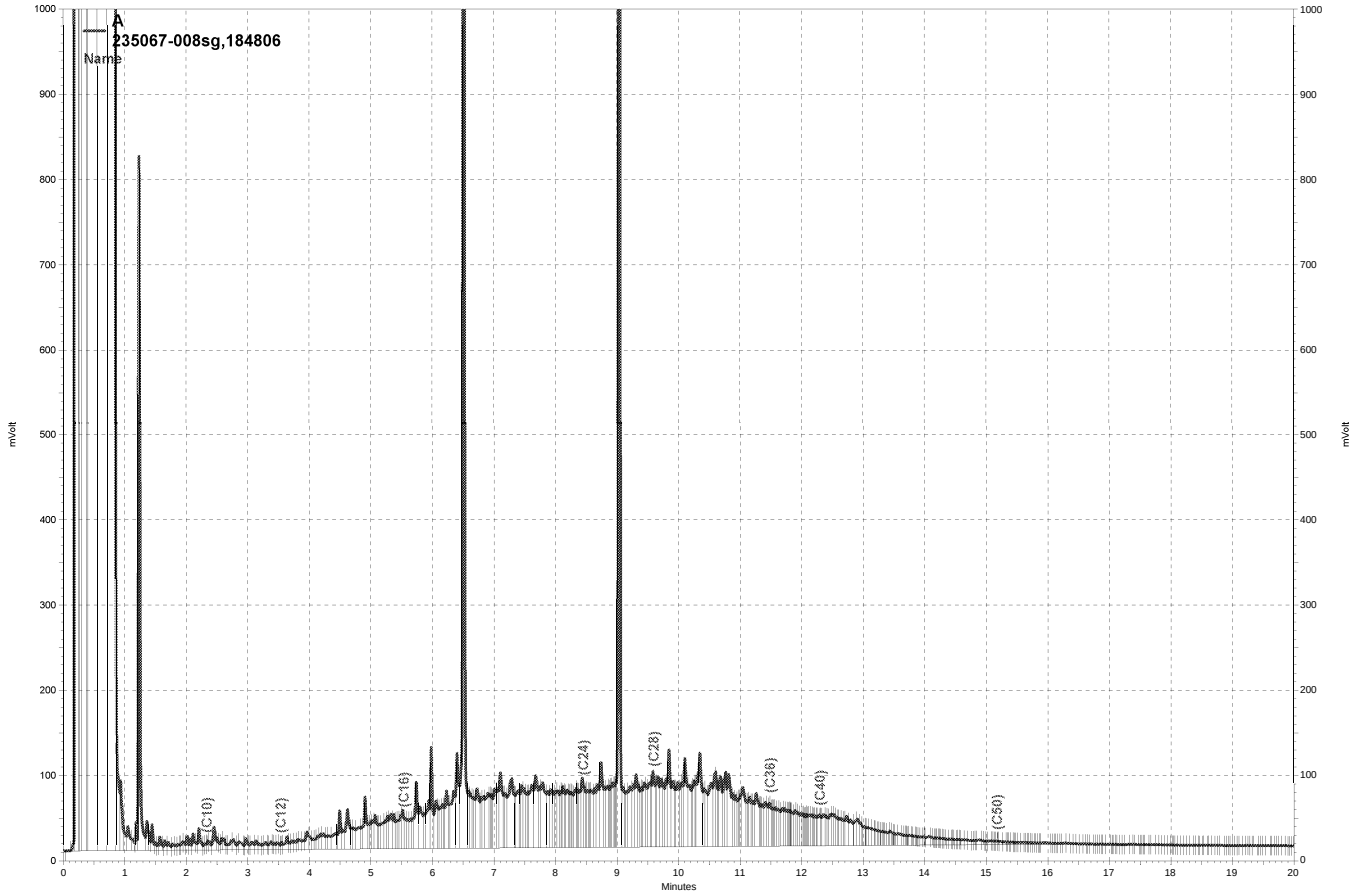

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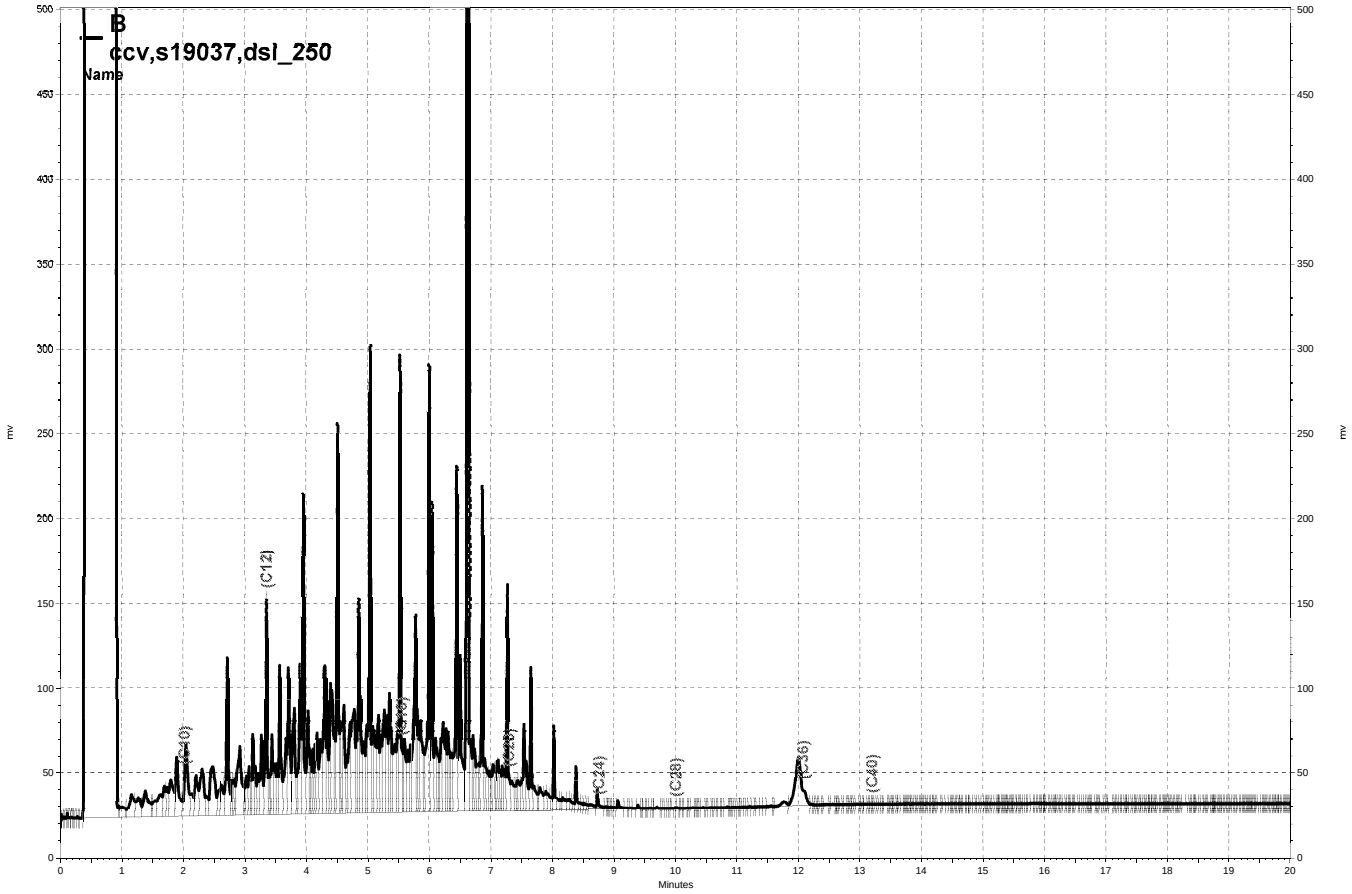

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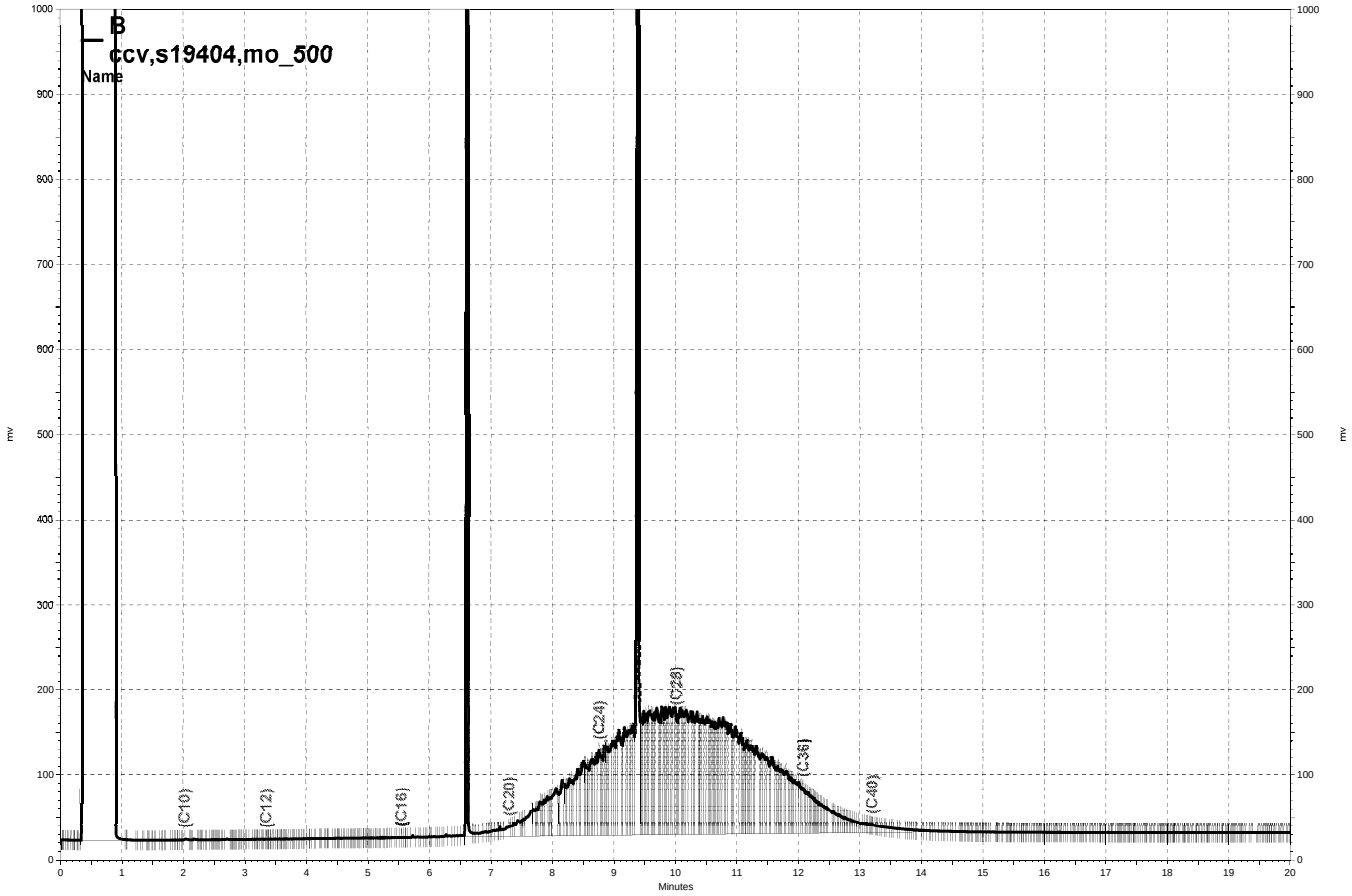

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Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211-001-01	Analysis:	EPA 8260B
Field ID:	SB-1-4.5	Diln Fac:	0.9747
Lab ID:	235067-001	Batch#:	184869
Matrix:	Soil	Sampled:	03/20/12
Units:	ug/Kg	Received:	03/20/12
Basis:	as received	Analyzed:	03/22/12

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	97
MTBE	ND	4.9
Isopropyl Ether (DIPE)	ND	4.9
Ethyl tert-Butyl Ether (ETBE)	ND	4.9
1,2-Dichloroethane	ND	4.9
Benzene	ND	4.9
Methyl tert-Amyl Ether (TAME)	ND	4.9
Toluene	ND	4.9
1,2-Dibromoethane	ND	4.9
Ethylbenzene	ND	4.9
m,p-Xylenes	ND	4.9
o-Xylene	ND	4.9

Surrogate	%REC	Limits
Dibromofluoromethane	85	74-133
1,2-Dichloroethane-d4	80	74-136
Toluene-d8	99	80-120
Bromofluorobenzene	103	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211-001-01	Analysis:	EPA 8260B
Field ID:	SB-1-9	Diln Fac:	1.323
Lab ID:	235067-002	Batch#:	184869
Matrix:	Soil	Sampled:	03/20/12
Units:	ug/Kg	Received:	03/20/12
Basis:	as received	Analyzed:	03/22/12

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	130
MTBE	ND	6.6
Isopropyl Ether (DIPE)	ND	6.6
Ethyl tert-Butyl Ether (ETBE)	ND	6.6
1,2-Dichloroethane	ND	6.6
Benzene	240	6.6
Methyl tert-Amyl Ether (TAME)	ND	6.6
Toluene	15	6.6
1,2-Dibromoethane	ND	6.6
Ethylbenzene	ND	6.6
m,p-Xylenes	7.3	6.6
o-Xylene	ND	6.6

Surrogate	%REC	Limits
Dibromofluoromethane	86	74-133
1,2-Dichloroethane-d4	80	74-136
Toluene-d8	98	80-120
Bromofluorobenzene	108	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211-001-01	Analysis:	EPA 8260B
Field ID:	SB-1-14	Basis:	as received
Lab ID:	235067-003	Sampled:	03/20/12
Matrix:	Soil	Received:	03/20/12
Units:	ug/Kg		

Analyte	Result	RL	Diln Fac	Batch#	Analyzed
tert-Butyl Alcohol (TBA)	ND	4,000	39.68	184895	03/23/12
MTBE	ND	200	39.68	184895	03/23/12
Isopropyl Ether (DIPE)	ND	200	39.68	184895	03/23/12
Ethyl tert-Butyl Ether (ETBE)	ND	200	39.68	184895	03/23/12
1,2-Dichloroethane	ND	200	39.68	184895	03/23/12
Benzene	480	200	39.68	184895	03/23/12
Methyl tert-Amyl Ether (TAME)	ND	200	39.68	184895	03/23/12
Toluene	7,400	200	39.68	184895	03/23/12
1,2-Dibromoethane	ND	200	39.68	184895	03/23/12
Ethylbenzene	6,000	200	39.68	184895	03/23/12
m,p-Xylenes	23,000	400	79.37	184933	03/26/12
o-Xylene	8,300	400	79.37	184933	03/26/12

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed
Dibromofluoromethane	102	74-133	39.68	184895	03/23/12
1,2-Dichloroethane-d4	104	74-136	39.68	184895	03/23/12
Toluene-d8	94	80-120	39.68	184895	03/23/12
Bromofluorobenzene	107	77-130	39.68	184895	03/23/12

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211-001-01	Analysis:	EPA 8260B
Field ID:	SB-1-20	Diln Fac:	1.202
Lab ID:	235067-004	Batch#:	184933
Matrix:	Soil	Sampled:	03/20/12
Units:	ug/Kg	Received:	03/20/12
Basis:	as received	Analyzed:	03/26/12

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	120
MTBE	ND	6.0
Isopropyl Ether (DIPE)	ND	6.0
Ethyl tert-Butyl Ether (ETBE)	ND	6.0
1,2-Dichloroethane	ND	6.0
Benzene	56	6.0
Methyl tert-Amyl Ether (TAME)	ND	6.0
Toluene	18	6.0
1,2-Dibromoethane	ND	6.0
Ethylbenzene	ND	6.0
m,p-Xylenes	ND	6.0
o-Xylene	ND	6.0

Surrogate	%REC	Limits
Dibromofluoromethane	105	74-133
1,2-Dichloroethane-d4	121	74-136
Toluene-d8	98	80-120
Bromofluorobenzene	130	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211-001-01	Analysis:	EPA 8260B
Field ID:	SB-2-4.5	Diln Fac:	1.160
Lab ID:	235067-005	Batch#:	184933
Matrix:	Soil	Sampled:	03/20/12
Units:	ug/Kg	Received:	03/20/12
Basis:	as received	Analyzed:	03/26/12

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	120
MTBE	ND	5.8
Isopropyl Ether (DIPE)	ND	5.8
Ethyl tert-Butyl Ether (ETBE)	ND	5.8
1,2-Dichloroethane	ND	5.8
Benzene	ND	5.8
Methyl tert-Amyl Ether (TAME)	ND	5.8
Toluene	ND	5.8
1,2-Dibromoethane	ND	5.8
Ethylbenzene	ND	5.8
m,p-Xylenes	ND	5.8
o-Xylene	ND	5.8

Surrogate	%REC	Limits
Dibromofluoromethane	94	74-133
1,2-Dichloroethane-d4	104	74-136
Toluene-d8	98	80-120
Bromofluorobenzene	99	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211-001-01	Analysis:	EPA 8260B
Field ID:	SB-2-8.5	Diln Fac:	2.994
Lab ID:	235067-006	Batch#:	184933
Matrix:	Soil	Sampled:	03/20/12
Units:	ug/Kg	Received:	03/20/12
Basis:	as received	Analyzed:	03/26/12

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	300
MTBE	ND	15
Isopropyl Ether (DIPE)	ND	15
Ethyl tert-Butyl Ether (ETBE)	ND	15
1,2-Dichloroethane	ND	15
Benzene	21	15
Methyl tert-Amyl Ether (TAME)	ND	15
Toluene	ND	15
1,2-Dibromoethane	ND	15
Ethylbenzene	120	15
m,p-Xylenes	330	15
o-Xylene	37	15

Surrogate	%REC	Limits
Dibromofluoromethane	85	74-133
1,2-Dichloroethane-d4	93	74-136
Toluene-d8	100	80-120
Bromofluorobenzene	101	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211-001-01	Analysis:	EPA 8260B
Field ID:	SB-2-13	Diln Fac:	856.2
Lab ID:	235067-007	Batch#:	184933
Matrix:	Soil	Sampled:	03/20/12
Units:	ug/Kg	Received:	03/20/12
Basis:	as received	Analyzed:	03/26/12

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	86,000
MTBE	ND	4,300
Isopropyl Ether (DIPE)	ND	4,300
Ethyl tert-Butyl Ether (ETBE)	ND	4,300
1,2-Dichloroethane	ND	4,300
Benzene	8,900	4,300
Methyl tert-Amyl Ether (TAME)	ND	4,300
Toluene	100,000	4,300
1,2-Dibromoethane	ND	4,300
Ethylbenzene	75,000	4,300
m,p-Xylenes	260,000	4,300
o-Xylene	93,000	4,300

Surrogate	%REC	Limits
Dibromofluoromethane	80	74-133
1,2-Dichloroethane-d4	85	74-136
Toluene-d8	97	80-120
Bromofluorobenzene	97	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211-001-01	Analysis:	EPA 8260B
Field ID:	SB-2-21	Diln Fac:	1.374
Lab ID:	235067-008	Batch#:	184933
Matrix:	Soil	Sampled:	03/20/12
Units:	ug/Kg	Received:	03/20/12
Basis:	as received	Analyzed:	03/26/12

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	140
MTBE	ND	6.9
Isopropyl Ether (DIPE)	ND	6.9
Ethyl tert-Butyl Ether (ETBE)	ND	6.9
1,2-Dichloroethane	ND	6.9
Benzene	29	6.9
Methyl tert-Amyl Ether (TAME)	ND	6.9
Toluene	11	6.9
1,2-Dibromoethane	ND	6.9
Ethylbenzene	ND	6.9
m,p-Xylenes	ND	6.9
o-Xylene	6.9	6.9

Surrogate	%REC	Limits
Dibromofluoromethane	87	74-133
1,2-Dichloroethane-d4	90	74-136
Toluene-d8	102	80-120
Bromofluorobenzene	103	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211-001-01	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC633003	Batch#:	184869
Matrix:	Soil	Analyzed:	03/22/12
Units:	ug/Kg		

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	100
MTBE	ND	5.0
Isopropyl Ether (DIPE)	ND	5.0
Ethyl tert-Butyl Ether (ETBE)	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Methyl tert-Amyl Ether (TAME)	ND	5.0
Toluene	ND	5.0
1,2-Dibromoethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	87	74-133
1,2-Dichloroethane-d4	80	74-136
Toluene-d8	96	80-120
Bromofluorobenzene	98	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211-001-01	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC633004	Batch#:	184869
Matrix:	Soil	Analyzed:	03/22/12
Units:	ug/Kg		

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	100.0	108.1	108	46-135
MTBE	20.00	20.02	100	62-120
Isopropyl Ether (DIPE)	20.00	18.78	94	59-120
Ethyl tert-Butyl Ether (ETBE)	20.00	19.06	95	64-120
1,2-Dichloroethane	20.00	15.73	79	74-126
Benzene	20.00	19.24	96	78-125
Methyl tert-Amyl Ether (TAME)	20.00	16.81	84	68-120
Toluene	20.00	19.88	99	79-120
1,2-Dibromoethane	20.00	21.20	106	77-120
Ethylbenzene	20.00	18.84	94	80-120
m,p-Xylenes	40.00	38.30	96	80-120
o-Xylene	20.00	18.09	90	79-120

Surrogate	%REC	Limits
Dibromofluoromethane	102	74-133
1,2-Dichloroethane-d4	74	74-136
Toluene-d8	95	80-120
Bromofluorobenzene	89	77-130

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211-001-01	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC633113	Batch#:	184895
Matrix:	Soil	Analyzed:	03/23/12
Units:	ug/Kg		

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	125.0	129.2	103	46-135
MTBE	25.00	23.46	94	62-120
Isopropyl Ether (DIPE)	25.00	23.14	93	59-120
Ethyl tert-Butyl Ether (ETBE)	25.00	23.58	94	64-120
1,2-Dichloroethane	25.00	23.69	95	74-126
Benzene	25.00	24.77	99	78-125
Methyl tert-Amyl Ether (TAME)	25.00	22.24	89	68-120
Toluene	25.00	24.36	97	79-120
1,2-Dibromoethane	25.00	22.43	90	77-120
Ethylbenzene	25.00	25.28	101	80-120
m,p-Xylenes	50.00	49.25	99	80-120
o-Xylene	25.00	23.60	94	79-120

Surrogate	%REC	Limits
Dibromofluoromethane	103	74-133
1,2-Dichloroethane-d4	101	74-136
Toluene-d8	100	80-120
Bromofluorobenzene	104	77-130

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211-001-01	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC633114	Batch#:	184895
Matrix:	Soil	Analyzed:	03/23/12
Units:	ug/Kg		

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	100
MTBE	ND	5.0
Isopropyl Ether (DIPE)	ND	5.0
Ethyl tert-Butyl Ether (ETBE)	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Methyl tert-Amyl Ether (TAME)	ND	5.0
Toluene	ND	5.0
1,2-Dibromoethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	101	74-133
1,2-Dichloroethane-d4	101	74-136
Toluene-d8	102	80-120
Bromofluorobenzene	103	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5030B
Project#:	1211-001-01	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	184895
MSS Lab ID:	235072-001	Sampled:	03/19/12
Matrix:	Soil	Received:	03/21/12
Units:	ug/Kg	Analyzed:	03/23/12
Basis:	as received		

Type: MS Diln Fac: 0.9901
Lab ID: QC633172

Analyte	MSS Result	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	<15.02	247.5	250.2	101	44-128
MTBE	<1.452	49.50	45.13	91	51-120
Isopropyl Ether (DIPE)	<1.239	49.50	42.49	86	50-120
Ethyl tert-Butyl Ether (ETBE)	<0.9337	49.50	40.93	83	55-120
1,2-Dichloroethane	<0.8977	49.50	40.72	82	55-121
Benzene	<0.9314	49.50	42.46	86	58-122
Methyl tert-Amyl Ether (TAME)	<0.6082	49.50	41.45	84	55-120
Toluene	<1.257	49.50	41.74	84	54-120
1,2-Dibromoethane	<0.5777	49.50	41.10	83	52-120
Ethylbenzene	<1.156	49.50	42.82	86	47-120
m,p-Xylenes	<0.5930	99.01	79.14	80	47-120
o-Xylene	<1.083	49.50	37.62	76	47-120

Surrogate	%REC	Limits
Dibromofluoromethane	103	74-133
1,2-Dichloroethane-d4	100	74-136
Toluene-d8	100	80-120
Bromofluorobenzene	102	77-130

Type: MSD Diln Fac: 0.9823
Lab ID: QC633173

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	245.6	276.5	113	44-128	11	39
MTBE	49.12	48.34	98	51-120	8	32
Isopropyl Ether (DIPE)	49.12	45.92	93	50-120	9	32
Ethyl tert-Butyl Ether (ETBE)	49.12	44.23	90	55-120	9	32
1,2-Dichloroethane	49.12	40.68	83	55-121	1	33
Benzene	49.12	42.62	87	58-122	1	37
Methyl tert-Amyl Ether (TAME)	49.12	44.91	91	55-120	9	34
Toluene	49.12	42.60	87	54-120	3	35
1,2-Dibromoethane	49.12	42.84	87	52-120	5	35
Ethylbenzene	49.12	42.57	87	47-120	0	40
m,p-Xylenes	98.23	80.11	82	47-120	2	40
o-Xylene	49.12	39.44	80	47-120	5	40

Surrogate	%REC	Limits
Dibromofluoromethane	103	74-133
1,2-Dichloroethane-d4	103	74-136
Toluene-d8	100	80-120
Bromofluorobenzene	103	77-130

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211-001-01	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC633258	Batch#:	184933
Matrix:	Soil	Analyzed:	03/26/12
Units:	ug/Kg		

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	100
MTBE	ND	5.0
Isopropyl Ether (DIPE)	ND	5.0
Ethyl tert-Butyl Ether (ETBE)	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Methyl tert-Amyl Ether (TAME)	ND	5.0
Toluene	ND	5.0
1,2-Dibromoethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	123	74-133
1,2-Dichloroethane-d4	144 *	74-136
Toluene-d8	103	80-120
Bromofluorobenzene	103	77-130

*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211-001-01	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC633259	Batch#:	184933
Matrix:	Soil	Analyzed:	03/26/12
Units:	ug/Kg		

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	100.0	104.4	104	46-135
MTBE	20.00	20.36	102	62-120
Isopropyl Ether (DIPE)	20.00	16.24	81	59-120
Ethyl tert-Butyl Ether (ETBE)	20.00	16.72	84	64-120
1,2-Dichloroethane	20.00	22.45	112	74-126
Benzene	20.00	20.11	101	78-125
Methyl tert-Amyl Ether (TAME)	20.00	16.06	80	68-120
Toluene	20.00	18.88	94	79-120
1,2-Dibromoethane	20.00	18.28	91	77-120
Ethylbenzene	20.00	20.69	103	80-120
m,p-Xylenes	40.00	40.48	101	80-120
o-Xylene	20.00	17.94	90	79-120

Surrogate	%REC	Limits
Dibromofluoromethane	110	74-133
1,2-Dichloroethane-d4	128	74-136
Toluene-d8	103	80-120
Bromofluorobenzene	104	77-130

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235067	Location:	1650 65th St. / Emeryville CA
Client:	PES Environmental, Inc.	Prep:	EPA 5030B
Project#:	1211-001-01	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Basis:	as received
MSS Lab ID:	235112-001	Batch#:	184933
Matrix:	Soil	Sampled:	03/21/12
Units:	ug/Kg	Received:	03/22/12

Type:	MS	Diln Fac:	0.9524
Lab ID:	QC633260	Analyzed:	03/27/12

Analyte	MSS Result	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	<17.52	238.1	236.9	100	44-128
MTBE	<0.9815	47.62	45.87	96	51-120
Isopropyl Ether (DIPE)	<1.421	47.62	37.25	78	50-120
Ethyl tert-Butyl Ether (ETBE)	<0.5643	47.62	40.10	84	55-120
1,2-Dichloroethane	<0.6877	47.62	53.44	112	55-121
Benzene	<0.6753	47.62	48.81	102	58-122
Methyl tert-Amyl Ether (TAME)	<0.5661	47.62	39.42	83	55-120
Toluene	<0.4545	47.62	47.36	99	54-120
1,2-Dibromoethane	<0.4819	47.62	44.64	94	52-120
Ethylbenzene	<0.5979	47.62	49.35	104	47-120
m,p-Xylenes	<1.290	95.24	90.66	95	47-120
o-Xylene	<0.6645	47.62	41.48	87	47-120

Surrogate	%REC	Limits
Dibromofluoromethane	107	74-133
1,2-Dichloroethane-d4	122	74-136
Toluene-d8	102	80-120
Bromofluorobenzene	102	77-130

Type:	MSD	Diln Fac:	0.9690
Lab ID:	QC633261	Analyzed:	03/28/12

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	242.2	260.2	107	44-128	8	39
MTBE	48.45	48.68	100	51-120	4	32
Isopropyl Ether (DIPE)	48.45	39.03	81	50-120	3	32
Ethyl tert-Butyl Ether (ETBE)	48.45	41.02	85	55-120	1	32
1,2-Dichloroethane	48.45	53.25	110	55-121	2	33
Benzene	48.45	49.88	103	58-122	0	37
Methyl tert-Amyl Ether (TAME)	48.45	42.09	87	55-120	5	34
Toluene	48.45	47.40	98	54-120	2	35
1,2-Dibromoethane	48.45	45.05	93	52-120	1	35
Ethylbenzene	48.45	50.18	104	47-120	0	40
m,p-Xylenes	96.90	94.43	97	47-120	2	40
o-Xylene	48.45	42.05	87	47-120	0	40

Surrogate	%REC	Limits
Dibromofluoromethane	102	74-133
1,2-Dichloroethane-d4	117	74-136
Toluene-d8	98	80-120
Bromofluorobenzene	103	77-130

RPD= Relative Percent Difference


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 235104
ANALYTICAL REPORT

PES Environmental, Inc.
1682 Novato Boulevard
Novato, CA 94947

Project : 1211.001.02.003
Location : 1650 65th St. / Emeryville
Level : II

Sample ID	Lab ID
SB-3-4.5	235104-001
SB-3-9	235104-002
SB-3-16	235104-003
SB-3-20	235104-004
SB-3-23.5	235104-005
SB-4-4.5	235104-006
SB-4-9	235104-007
SB-4-16	235104-008
SB-4-20	235104-009
SB-4-23.5	235104-010
SB-5-4.5	235104-011
SB-5-9.5	235104-012
SB-5-16	235104-013
SB-5-20	235104-014
SB-5-23.5	235104-015

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: 03/29/2012
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**235104**
Client:	**PES Environmental, Inc.**
Project:	**1211.001.02.003**
Location:	**1650 65th St. / Emeryville**
Request Date:	**03/21/12**
Samples Received:	**03/21/12**

This data package contains sample and QC results for twelve soil samples, requested for the above referenced project on 03/21/12. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B):
Matrix spikes were not performed for this analysis in batch 184873 due to insufficient sample amount. No other analytical problems were encountered.

TPH-Extractables by GC (EPA 8015B):
A number of samples were diluted due to the dark and viscous nature of the sample extracts. No other analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B):
SB-5-4.5 (lab # 235104-011) was not diluted; the low sample weight is due to 5035 packaging. No other analytical problems were encountered.

PES Environmental, Inc.
Engineering & Environmental Services

CHAIN OF CUSTODY RECORD

1682 NOVATO BOULEVARD, SUITE 100
NOVATO, CALIFORNIA 94947
(415) 899-1600 FAX (415) 899-1601

LABORATORY: C+T

SAMPLERS: JA 235104

JOB NUMBER: 121.001.02.003

NAME / LOCATION: 1650 65th St/Emeryville CA

PROJECT MANAGER: C. Baldassari

RECORDER: JA

	DATE YR	MO	DY	TIME	SAMPLE NUMBER / DESIGNATION	MATRIX: Vapor	Water	Soil	Sedim't	# of Containers & Preservatives: Unpres.	EnCore	H_2SO_4	HNO_3	HCl	MeOH-VOA	MTBE-VOA	DEPTH IN FEET	ANALYSIS REQUESTED: EPA 5035/8010	EPA 5035/8021	EPA 5035/8260B for BTEX	TPHg by 5035/8015B	TPHd by 8015B	TPHmo by 8015B w/ silica Gel	EPA 8270C	MNA Parameters (see notes)	Fuel Oxygenates (8260B) + MTBE, ETBE, DIPE, TBA, EDB, TAME, 1,2-DCA
1	12	03	21	0850	SB-3-4.5			X							1	4				X	X					
2				0900	SB-3-9			X							1	4				X	X					
3				0910	SB-3-16			X							1	4				X	X					
4				0920	SB-3-20				X						1	4				X	X					
5				0930	SB-3-23.5				X						1	4				X	X					
6				1040	SB-4-4.5				X						1	4				X	X					
7				1050	SB-4-9				X						1	4				X	X					
8				1100	SB-4-16				X						1	4				X	X					
9				1110	SB-4-20				X						1	4				X	X					
10				1120	SB-4-23.5				X						1	4				X	X					
11				1230	SB-5-4.5				X						1	4				X	X					
12				1240	SB-5-9.5				X						1	4				X	X					

HOLD

HOLD

NOTES

Turn Around Time: Standard TAT

Page 1 of 2

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)		RECEIVED BY: (Signature)		DATE 3/21/12	TIME 1533
RELINQUISHED BY: (Signature)		RECEIVED BY: (Signature)		DATE	TIME
RELINQUISHED BY: (Signature)		RECEIVED BY: (Signature)		DATE	TIME
RELINQUISHED BY: (Signature)		RECEIVED BY: (Signature)		DATE	TIME
DISPATCHED BY: (Signature)	DATE / TIME	RECEIVED FOR LAB BY: (Signature)		DATE	TIME
METHOD OF SHIPMENT:					

WHITE-Laboratory COPY YELLOW-Project Office Copy PINK-Field or Office Copy

PES Environmental, Inc.
Engineering & Environmental Services

1682 NOVATO BOULEVARD, SUITE 100
NOVATO, CALIFORNIA 94947
(415) 899-1600 FAX (415) 899-1601

CHAIN OF CUSTODY RECORD

235104

LABORATORY: C+T

SAMPLERS: JA

JOB NUMBER:

NAME / LOCATION: 1650 65th / Emeryville CA

PROJECT MANAGER: C. Baldassari

RECORDER: JA

	YR	MO	DY	TIME	SAMPLE NUMBER / DESIGNATION	Vapor	Water	Soil	Sedim't	Unpres.	EnCore	H_2SO_4	HNO_3	HCl	DEPTH IN FEET	EPA 5035/8010	EPA 5035/8021	EPA ~~5035~~ 8260B for BTEX	TPHg by ~~5035~~ 8015B	TPHd by 8015M	TPHmo by 8015B w/ silica gel	EPA 8270C	MNA Parameters (see notes)	Fuel Oxygenates (8260B) → MTBE, ETBE, DIPE → TBA, EDB, TAME → 1,2-DCA
13	12	03	21	1250	SB-5-16													X	X		X			X
14				1300	SB-5-20													X	X		X			X
15				1310	SB-5-23.5											HOLD								

NOTES

Turn Around Time: Standard TAT

Page 2 of 2

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE	TIME
[signature]	[signature]	3/21/12	15:33

DISPATCHED BY: (Signature)	DATE	TIME	RECEIVED FOR LAB BY: (Signature)	DATE	TIME

METHOD OF SHIPMENT:

WHITE-Laboratory COPY YELLOW-Project Office Copy PINK-Field or Office Copy

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 235104 Date Received 3/21/12 Number of coolers 1
Client PES Project 1211.001.02.003

Date Opened 3/21/12 By (print) I. CHOY (sign) [signature]
Date Logged in 3/22/12 By (print) ↓ (sign) ↓

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

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

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

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 7.0 °C

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? ____ (YES) NO
If YES, what time were they transferred to freezer? 1700 March 21, 2012
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? ____ 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
12)-014: 1 of 4 terracores preserved in UPBN HAS NO SAMPLE LABEL ID, DATE OR TIME

Rev 10, 11/11

Curtis & Tompkins, Ltd.

Gasoline by GC/FID (5035 Prep)

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	03/21/12
Units:	mg/Kg	Received:	03/21/12
Basis:	as received		

Field ID:	SB-3-4.5	Diln Fac:	25.00
Type:	SAMPLE	Batch#:	184911
Lab ID:	235104-001	Analyzed:	03/24/12

Analyte	Result	RL
Gasoline C7-C12	22	9.0

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	89	61-136

Field ID:	SB-3-9	Diln Fac:	5,000
Type:	SAMPLE	Batch#:	184938
Lab ID:	235104-002	Analyzed:	03/26/12

Analyte	Result	RL
Gasoline C7-C12	7,500	790

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	93	61-136

Field ID:	SB-3-16	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	184911
Lab ID:	235104-003	Analyzed:	03/24/12

Analyte	Result	RL
Gasoline C7-C12	1.0	0.19

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	89	61-136

Field ID:	SB-3-20	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	184873
Lab ID:	235104-004	Analyzed:	03/23/12

Analyte	Result	RL
Gasoline C7-C12	2.3	0.19

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	93	61-136

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID (5035 Prep)

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	03/21/12
Units:	mg/Kg	Received:	03/21/12
Basis:	as received		

Field ID:	SB-4-4.5	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	184873
Lab ID:	235104-006	Analyzed:	03/23/12

Analyte	Result	RL
Gasoline C7-C12	ND	0.22

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	72	61-136

Field ID:	SB-4-9	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	184873
Lab ID:	235104-007	Analyzed:	03/23/12

Analyte	Result	RL
Gasoline C7-C12	11	0.58

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	91	61-136

Field ID:	SB-4-16	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	184873
Lab ID:	235104-008	Analyzed:	03/23/12

Analyte	Result	RL
Gasoline C7-C12	1.8	0.18

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	77	61-136

Field ID:	SB-4-20	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	184873
Lab ID:	235104-009	Analyzed:	03/23/12

Analyte	Result	RL
Gasoline C7-C12	ND	0.17

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	96	61-136

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID (5035 Prep)

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	03/21/12
Units:	mg/Kg	Received:	03/21/12
Basis:	as received		

Field ID:	SB-5-4.5	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	184873
Lab ID:	235104-011	Analyzed:	03/23/12

Analyte	Result	RL
Gasoline C7-C12	3.8	0.40

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	82	61-136

Field ID:	SB-5-9.5	Diln Fac:	10,000
Type:	SAMPLE	Batch#:	184938
Lab ID:	235104-012	Analyzed:	03/26/12

Analyte	Result	RL
Gasoline C7-C12	13,000	1,800

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	93	61-136

Field ID:	SB-5-16	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	184938
Lab ID:	235104-013	Analyzed:	03/26/12

Analyte	Result	RL
Gasoline C7-C12	0.81	0.21

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	81	61-136

Field ID:	SB-5-20	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	184911
Lab ID:	235104-014	Analyzed:	03/24/12

Analyte	Result	RL
Gasoline C7-C12	ND	0.20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	92	61-136

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID (5035 Prep)

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	03/21/12
Units:	mg/Kg	Received:	03/21/12
Basis:	as received		

Type:	BLANK	Batch#:	184873
Lab ID:	QC633023	Analyzed:	03/22/12
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	0.20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	89	61-136

Type:	BLANK	Batch#:	184911
Lab ID:	QC633182	Analyzed:	03/23/12
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	0.20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	91	61-136

Type:	BLANK	Batch#:	184938
Lab ID:	QC633278	Analyzed:	03/26/12
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	0.20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	85	61-136

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8015B
Matrix:	Soil	Diln Fac:	1.000
Units:	mg/Kg	Batch#:	184873

Type: BS Analyzed: 03/22/12
Lab ID: QC633021

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1.000	1.008	101	79-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	96	61-136

Type: BSD Analyzed: 03/23/12
Lab ID: QC633022

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	3.000	2.943	98	79-120	3	22

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	99	61-136

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC633181	Batch#:	184911
Matrix:	Soil	Analyzed:	03/23/12
Units:	mg/Kg		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1.000	0.9979	100	79-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	92	61-136

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5030B
Project#:	1211.001.02.003	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	235119-001	Batch#:	184911
Matrix:	Soil	Sampled:	03/21/12
Units:	mg/Kg	Received:	03/22/12
Basis:	as received	Analyzed:	03/24/12

Type: MS Lab ID: QC633183

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	0.09541	9.174	5.030	54	31-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	94	61-136

Type: MSD Lab ID: QC633184

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	9.804	6.222	62	31-120	15	57

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	94	61-136

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC633277	Batch#:	184938
Matrix:	Soil	Analyzed:	03/26/12
Units:	mg/Kg		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1.000	0.9725	97	79-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	93	61-136

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5030B
Project#:	1211.001.02.003	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	235160-001	Batch#:	184938
Matrix:	Soil	Sampled:	03/26/12
Units:	mg/Kg	Received:	03/26/12
Basis:	as received	Analyzed:	03/26/12

Type: MS Lab ID: QC633281

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	0.7159	10.10	7.614	68	31-120

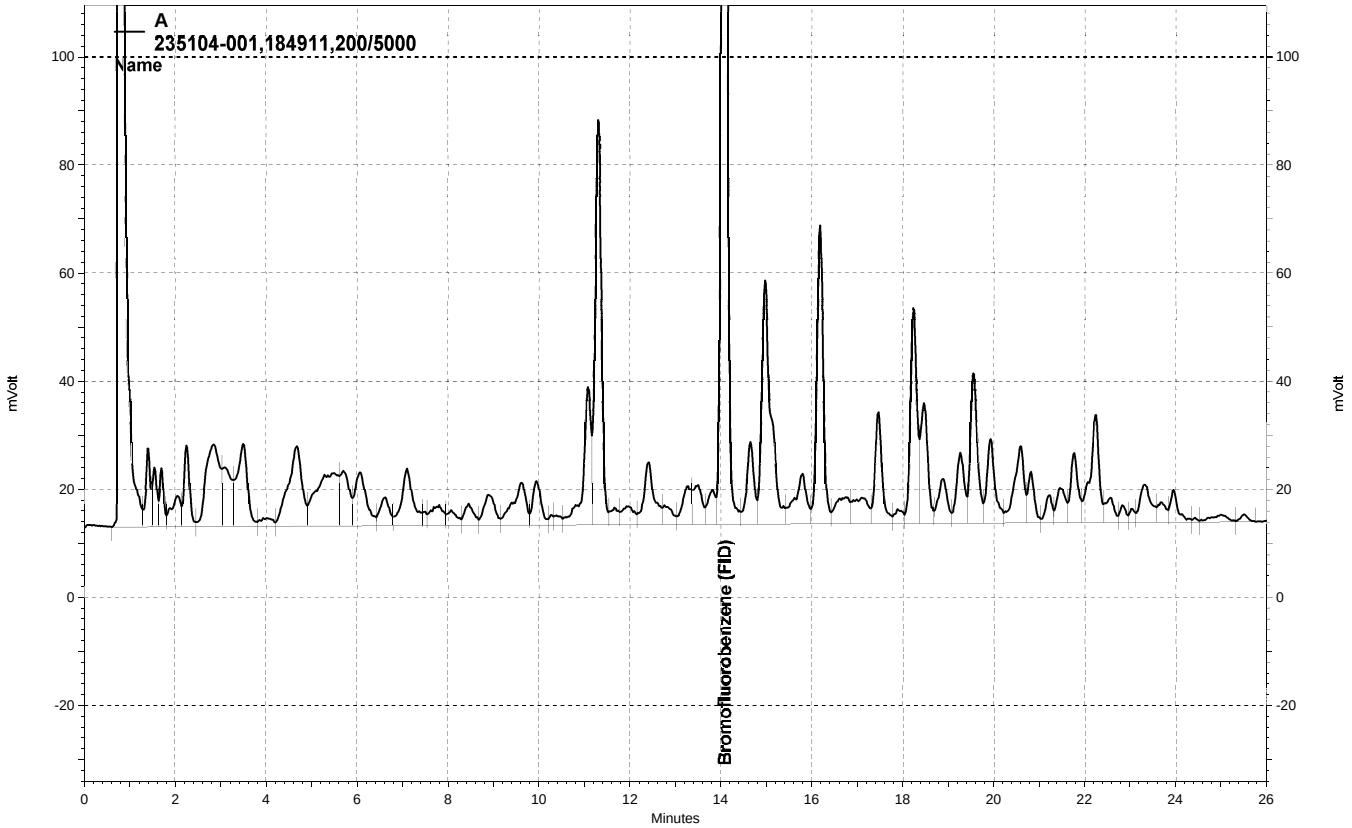
Surrogate	%REC	Limits
Bromofluorobenzene (FID)	97	61-136

Type: MSD Lab ID: QC633282

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	10.53	8.030	69	31-120	1	57

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	97	61-136

RPD= Relative Percent Difference



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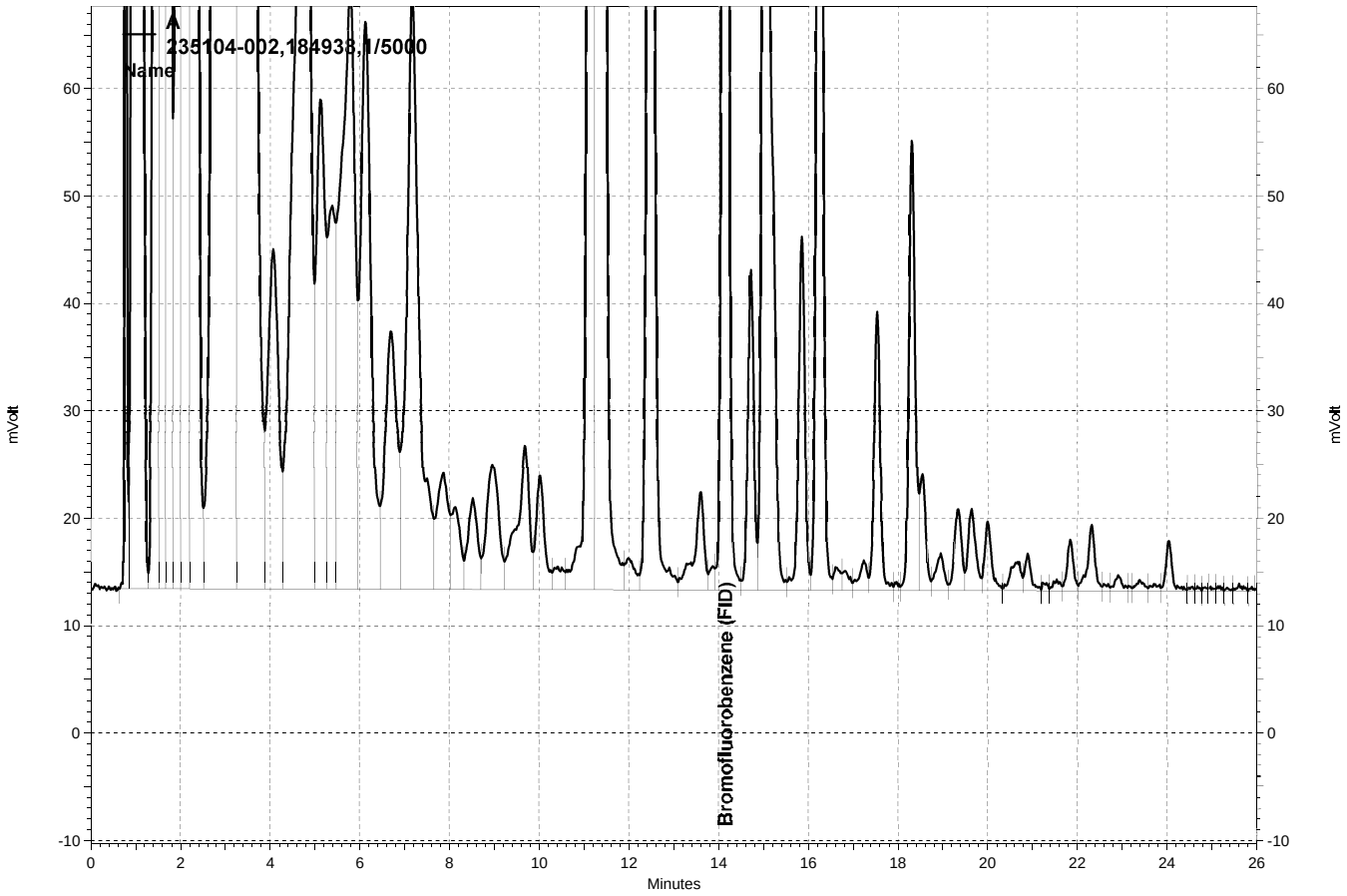

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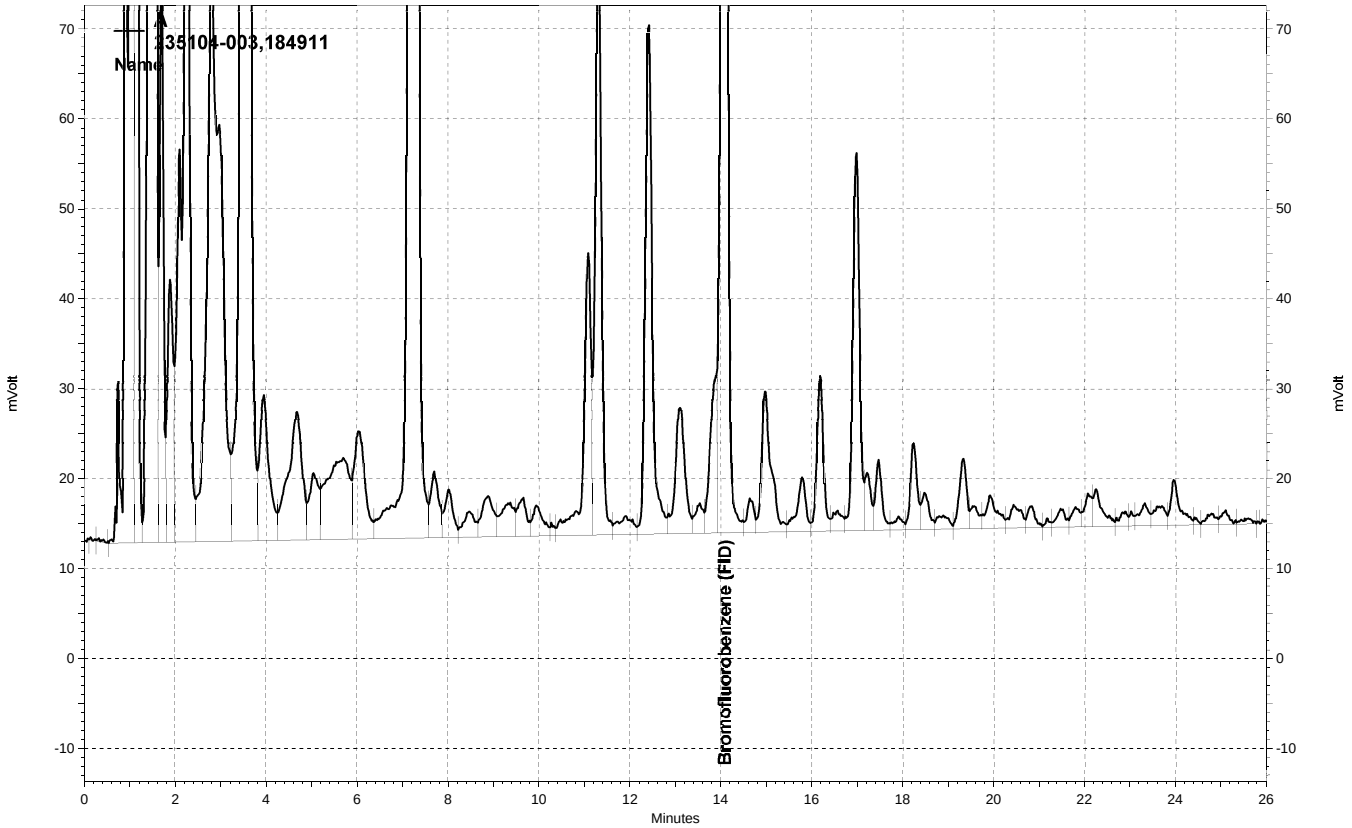

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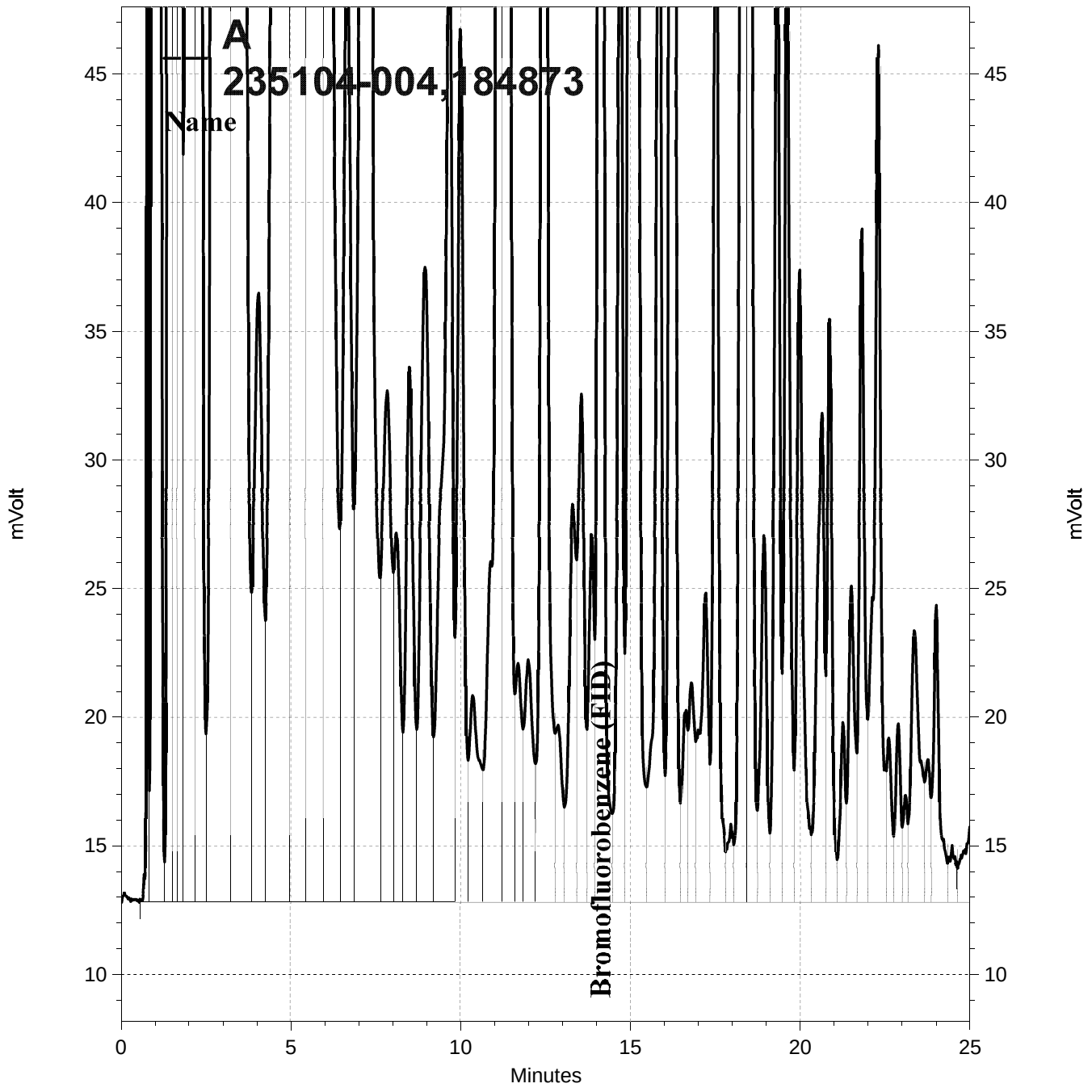
A
235104-004,184873
Name
Bromofluorobenzene (FID)
mVolt
mVolt
Minutes
45
40
35
30
25
20
15
10
0
5
10
15
20
25
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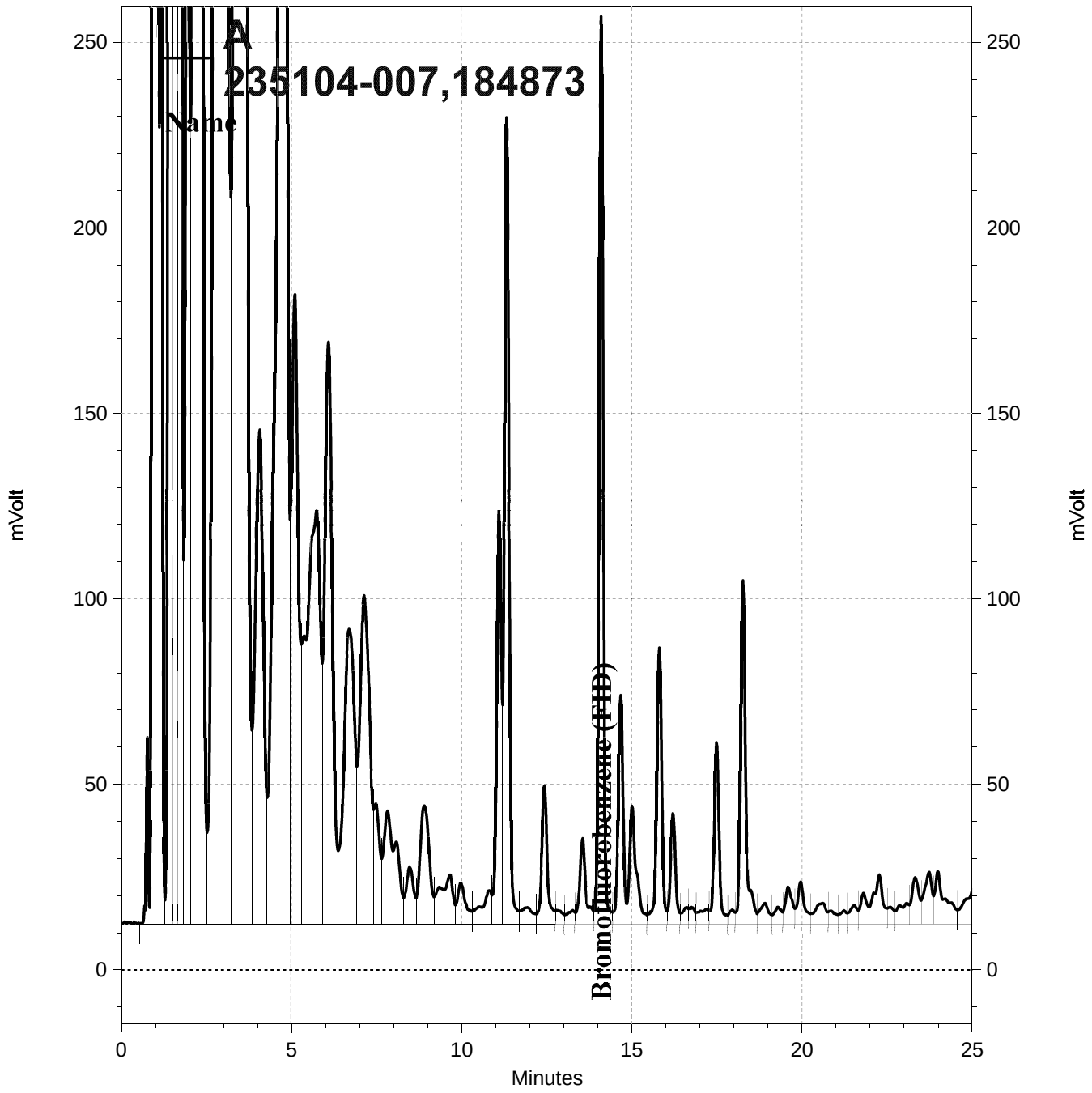
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Bromofluorobenzene (FID)
mVolt
mVolt
Minutes
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100
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200
250
0
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15
20
25
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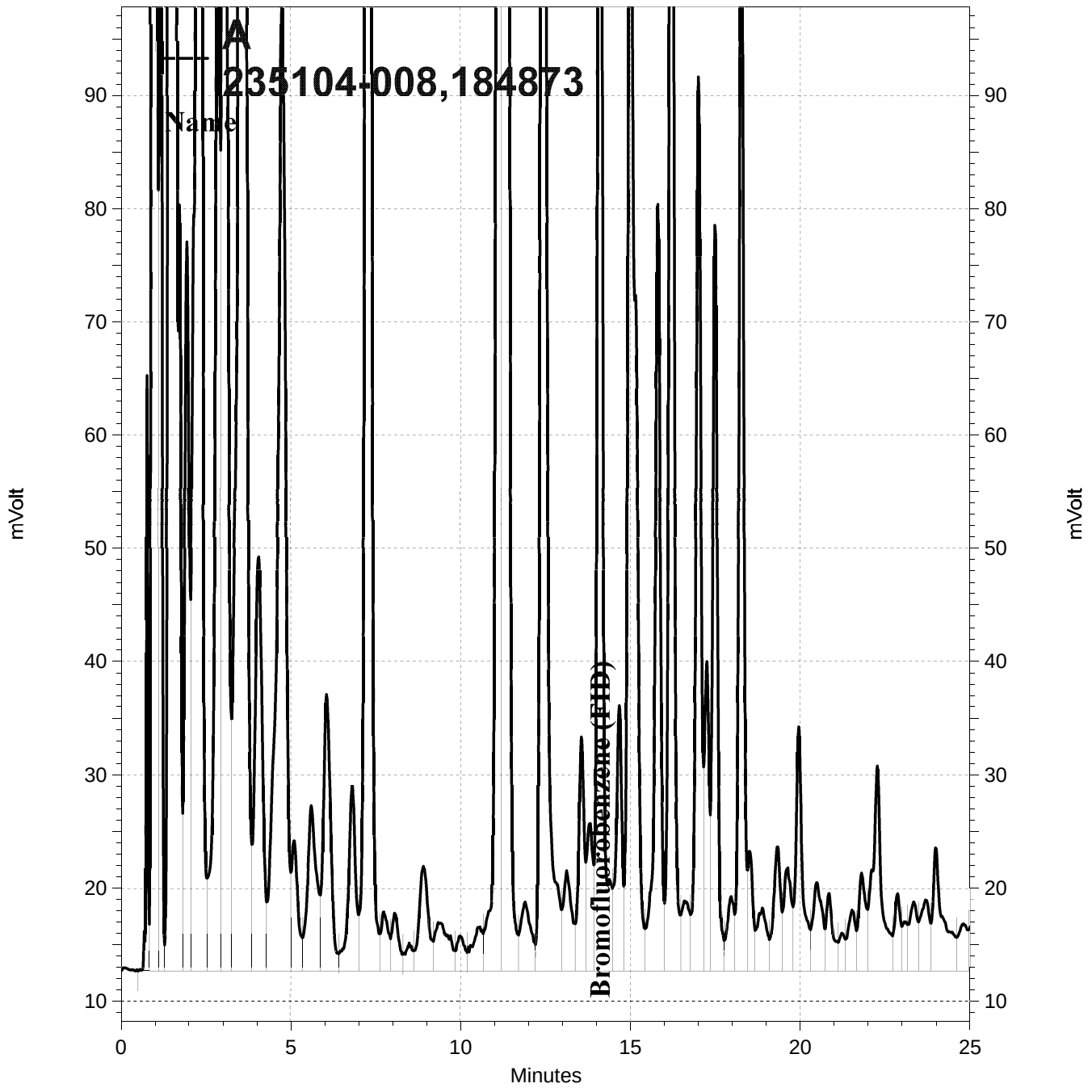
A
235104-008,184873
Name
Bromofluorobenzene (FID)
mVolt
mVolt
Minutes
0
5
10
15
20
25
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20
30
40
50
60
70
80
90
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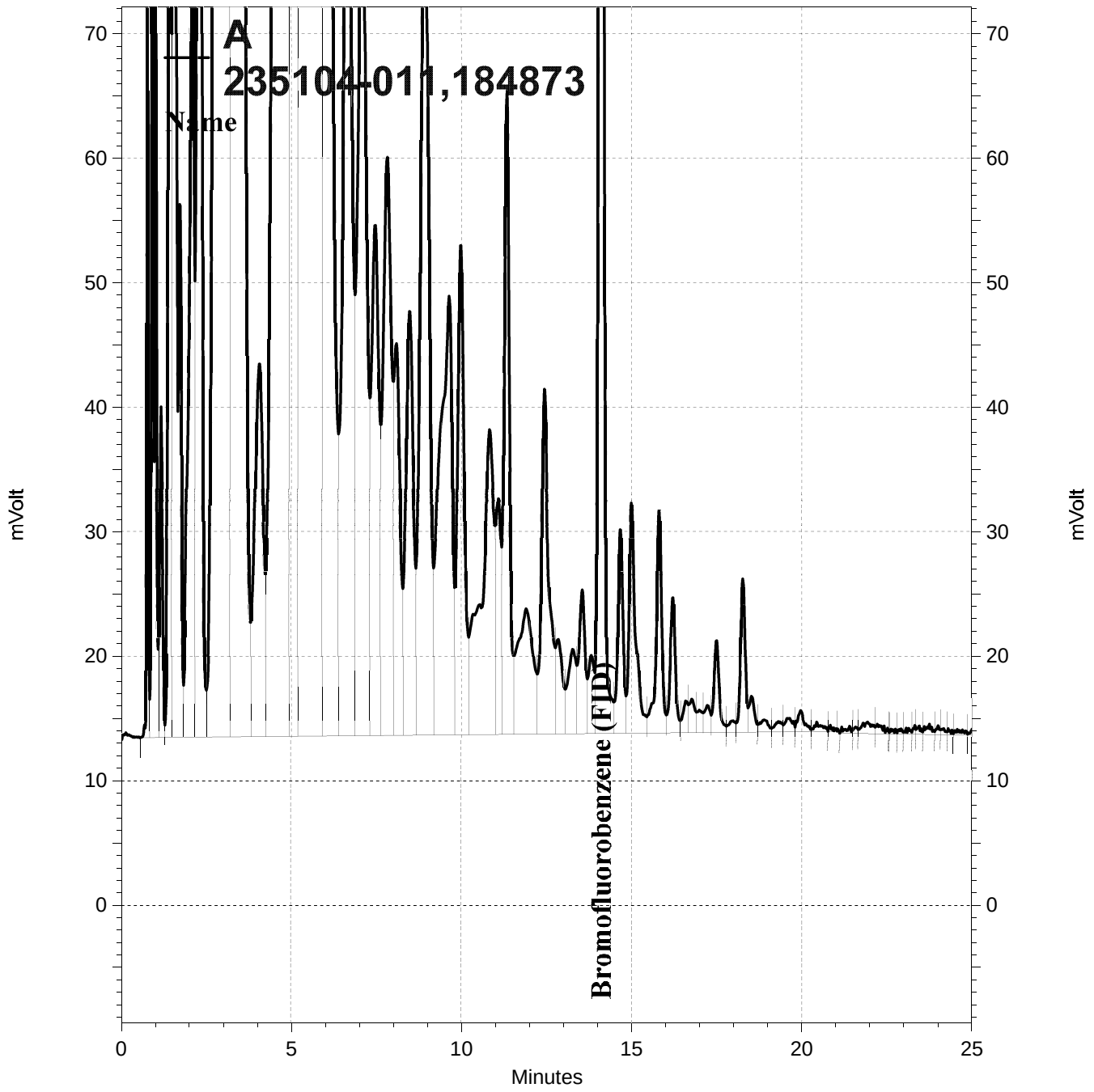

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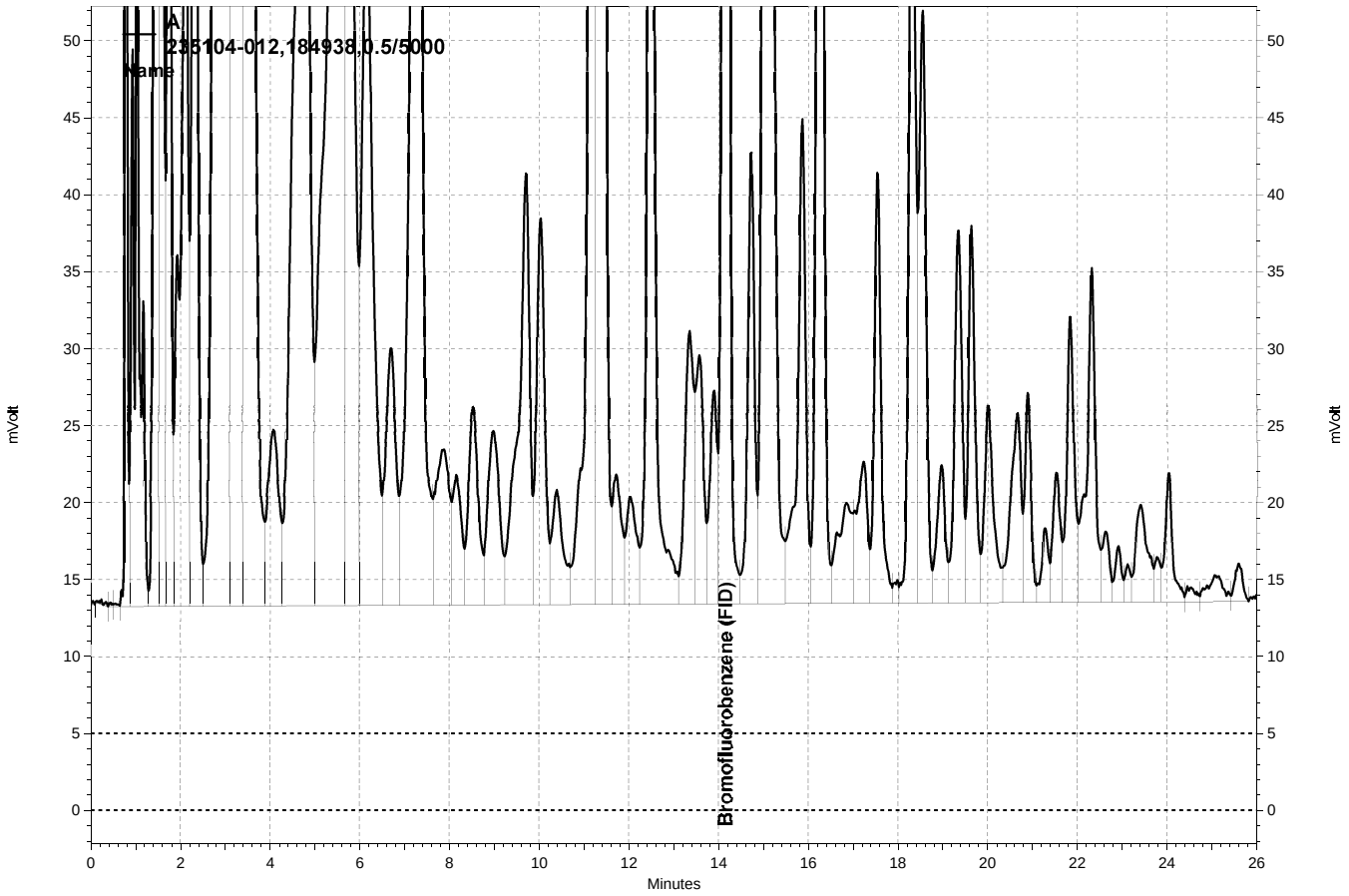

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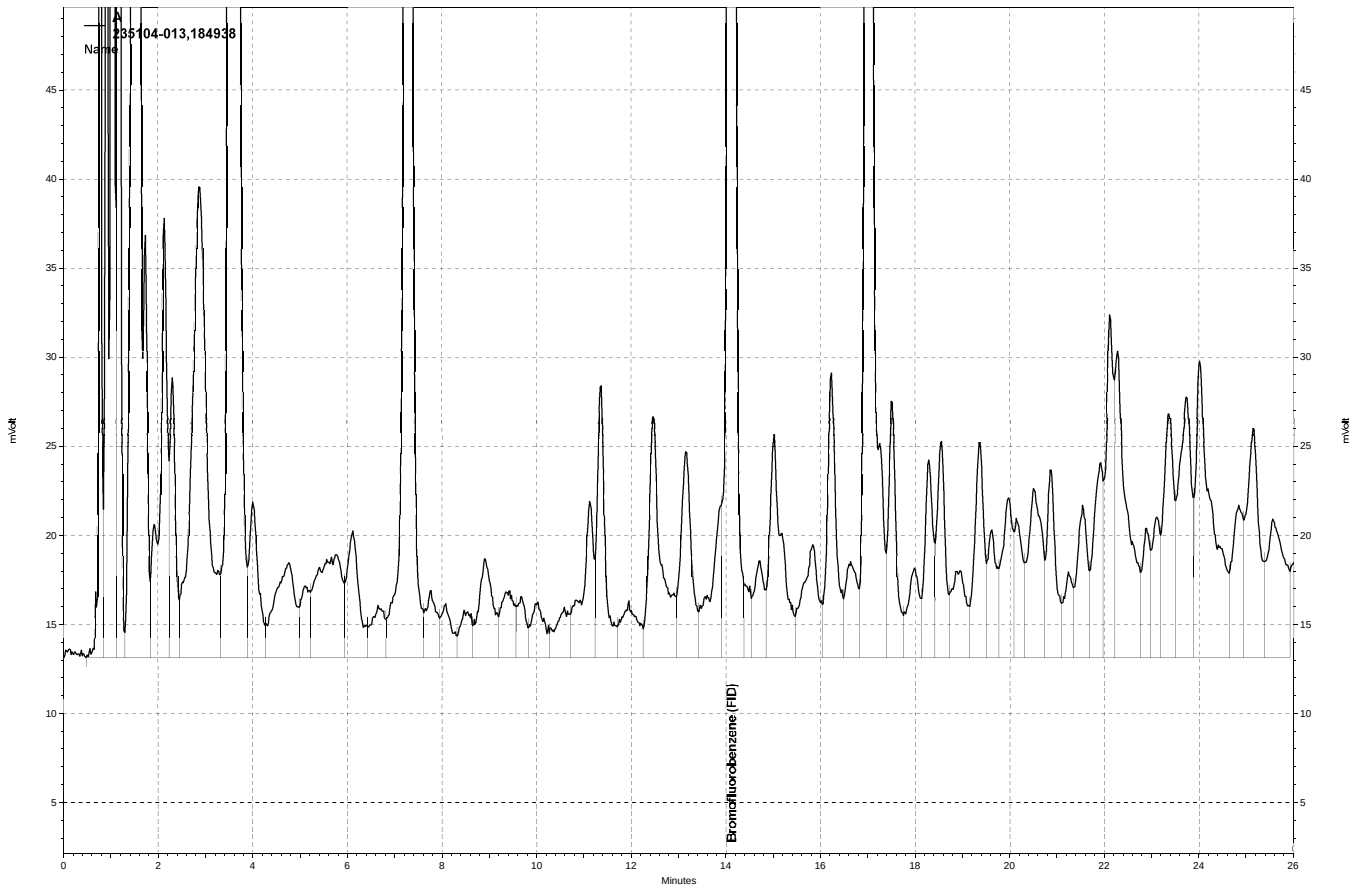

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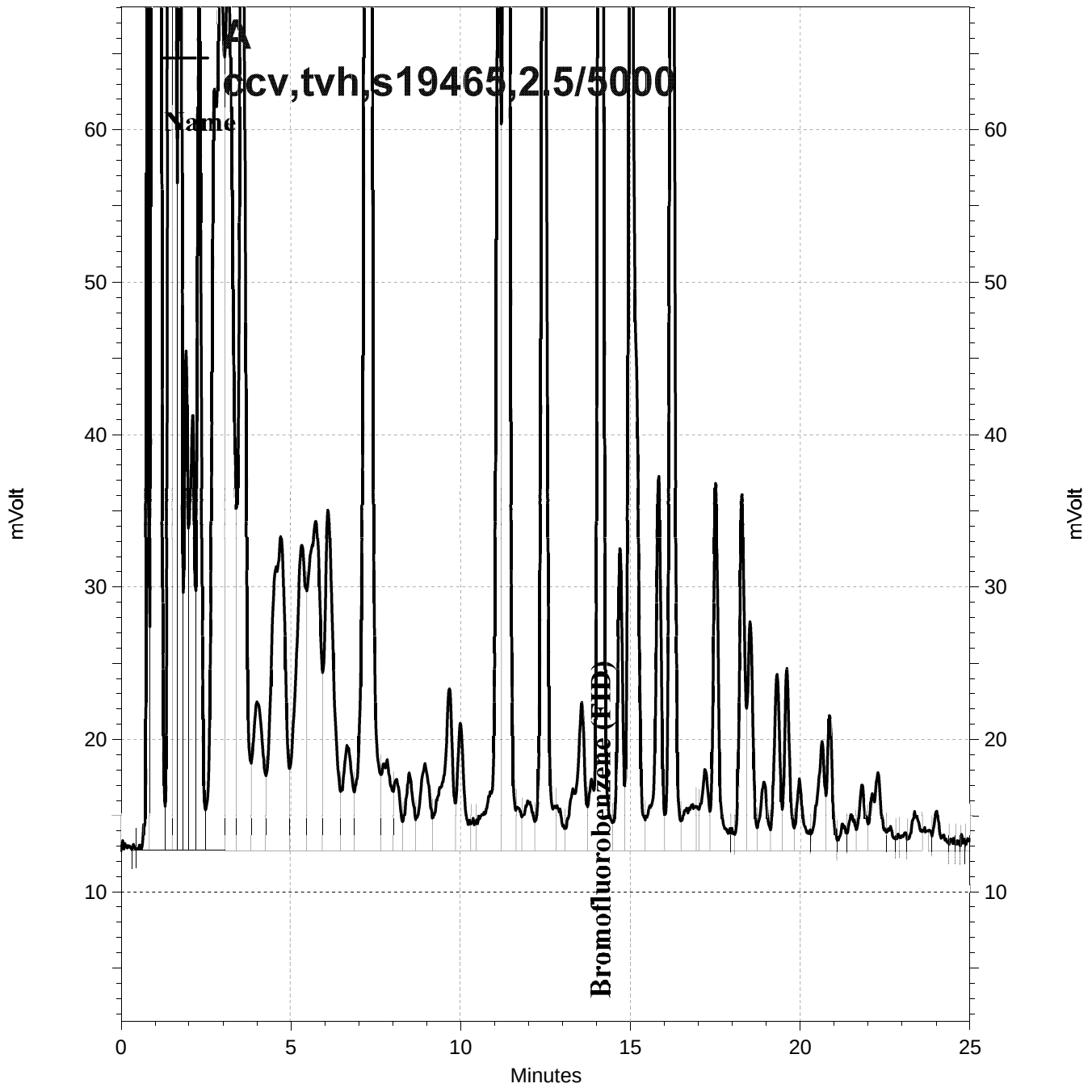
A
ccv,tvh,s19465,2.5/5000
Name
Bromofluorobenzene (FID)
mVolt
mVolt
Minutes
0
5
10
15
20
25
10
20
30
40
50
60
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Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 3550B
Project#:	1211.001.02.003	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	03/21/12
Units:	mg/Kg	Received:	03/21/12
Basis:	as received	Prepared:	03/22/12
Batch#:	184838		

Field ID:	SB-3-4.5	Diln Fac:	10.00
Type:	SAMPLE	Analyzed:	03/23/12
Lab ID:	235104-001	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	110 Y	10
Motor Oil C24-C36	600	50

Surrogate	%REC	Limits
o-Terphenyl	DO	49-128

Field ID:	SB-3-9	Diln Fac:	10.00
Type:	SAMPLE	Analyzed:	03/23/12
Lab ID:	235104-002	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	130 Y	20
Motor Oil C24-C36	1,300	100

Surrogate	%REC	Limits
o-Terphenyl	DO	49-128

Field ID:	SB-3-16	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	03/23/12
Lab ID:	235104-003	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	42 Y	1.0
Motor Oil C24-C36	110	5.0

Surrogate	%REC	Limits
o-Terphenyl	105	49-128

Field ID:	SB-3-20	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	03/23/12
Lab ID:	235104-004	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	3.5 Y	1.0
Motor Oil C24-C36	6.9	5.0

Surrogate	%REC	Limits
o-Terphenyl	114	49-128

Y= Sample exhibits chromatographic pattern which does not resemble standard
DO= Diluted Out
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 3550B
Project#:	1211.001.02.003	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	03/21/12
Units:	mg/Kg	Received:	03/21/12
Basis:	as received	Prepared:	03/22/12
Batch#:	184838		

Field ID:	SB-4-4.5	Diln Fac:	10.00
Type:	SAMPLE	Analyzed:	03/23/12
Lab ID:	235104-006	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	99 Y	10
Motor Oil C24-C36	620	50

Surrogate	%REC	Limits
o-Terphenyl	DO	49-128

Field ID:	SB-4-9	Diln Fac:	10.00
Type:	SAMPLE	Analyzed:	03/23/12
Lab ID:	235104-007	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	970 Y	10
Motor Oil C24-C36	1,600	50

Surrogate	%REC	Limits
o-Terphenyl	DO	49-128

Field ID:	SB-4-16	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	03/23/12
Lab ID:	235104-008	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	130 Y	1.0
Motor Oil C24-C36	130	5.0

Surrogate	%REC	Limits
o-Terphenyl	122	49-128

Field ID:	SB-4-20	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	03/23/12
Lab ID:	235104-009	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	1.4 Y	1.0
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
o-Terphenyl	102	49-128

Y= Sample exhibits chromatographic pattern which does not resemble standard
DO= Diluted Out
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 3550B
Project#:	1211.001.02.003	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	03/21/12
Units:	mg/Kg	Received:	03/21/12
Basis:	as received	Prepared:	03/22/12
Batch#:	184838		

Field ID:	SB-5-4.5	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	03/23/12
Lab ID:	235104-011	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	4.1 Y	1.0
Motor Oil C24-C36	20	5.0

Surrogate	%REC	Limits
o-Terphenyl	89	49-128

Field ID:	SB-5-9.5	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	03/23/12
Lab ID:	235104-012	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	270 Y	1.0
Motor Oil C24-C36	76	5.0

Surrogate	%REC	Limits
o-Terphenyl	96	49-128

Field ID:	SB-5-16	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	03/23/12
Lab ID:	235104-013	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	130 Y	1.0
Motor Oil C24-C36	190	5.0

Surrogate	%REC	Limits
o-Terphenyl	115	49-128

Field ID:	SB-5-20	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	03/23/12
Lab ID:	235104-014	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	2.5 Y	0.99
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
o-Terphenyl	97	49-128

Y= Sample exhibits chromatographic pattern which does not resemble standard
DO= Diluted Out
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 3550B
Project#:	1211.001.02.003	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	03/21/12
Units:	mg/Kg	Received:	03/21/12
Basis:	as received	Prepared:	03/22/12
Batch#:	184838		

Type:	BLANK	Analyzed:	03/22/12
Lab ID:	QC632890	Cleanup Method:	EPA 3630C
Diln Fac:	1.000		

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

Surrogate	%REC	Limits
o-Terphenyl	105	49-128

Y= Sample exhibits chromatographic pattern which does not resemble standard
DO= Diluted Out
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 3550B
Project#:	1211.001.02.003	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC632891	Batch#:	184838
Matrix:	Soil	Prepared:	03/22/12
Units:	mg/Kg	Analyzed:	03/22/12

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	50.17	39.93	80	47-132

Surrogate	%REC	Limits
o-Terphenyl	97	49-128

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 3550B
Project#:	1211.001.02.003	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	184838
MSS Lab ID:	235094-001	Sampled:	03/21/12
Matrix:	Soil	Received:	03/21/12
Units:	mg/Kg	Prepared:	03/22/12
Basis:	as received	Analyzed:	03/22/12
Diln Fac:	1.000		

Type: MS Cleanup Method: EPA 3630C
Lab ID: QC632892

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	0.3833	50.49	32.97	65	32-143

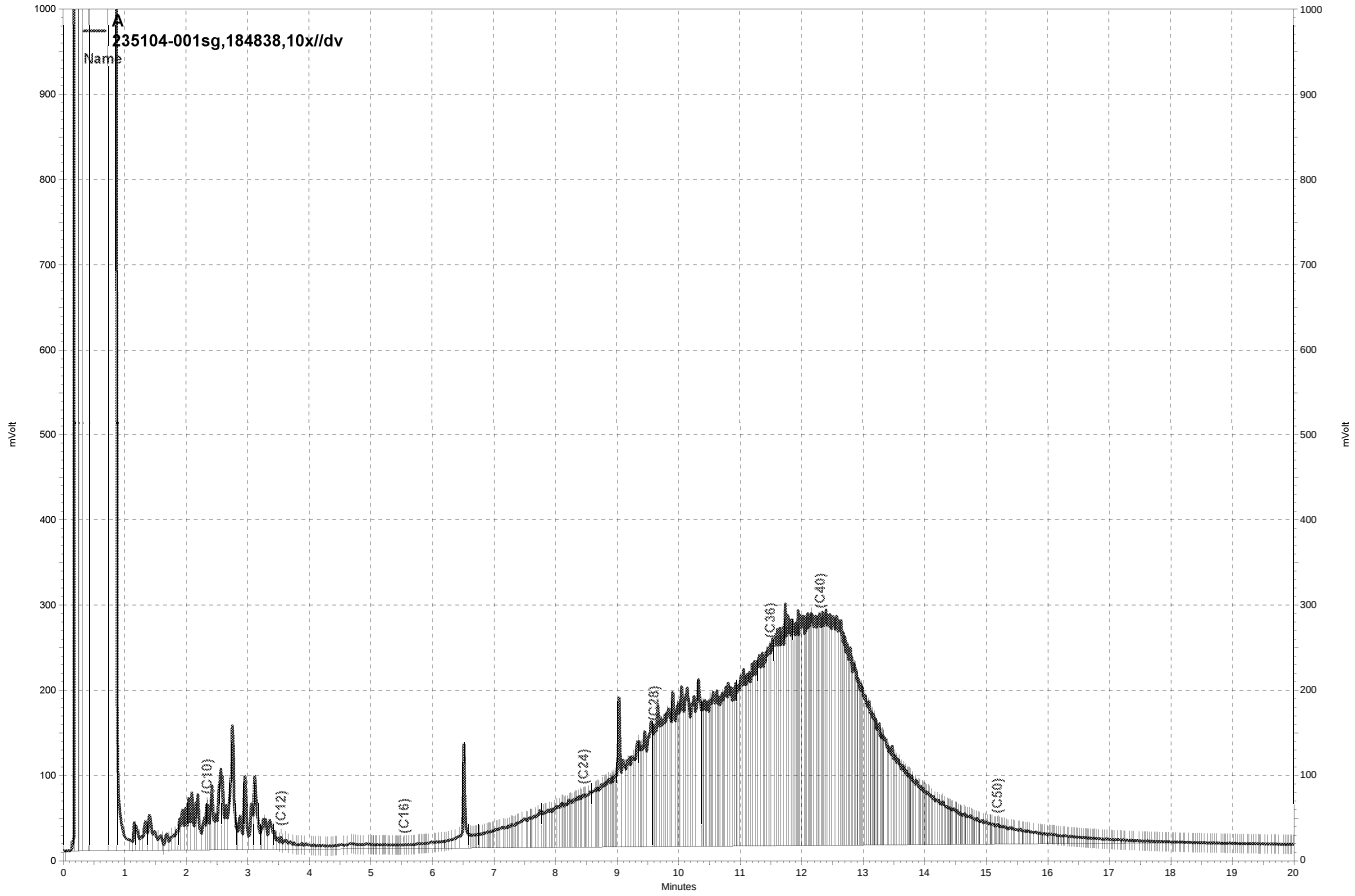
Surrogate	%REC	Limits
o-Terphenyl	78	49-128

Type: MSD Cleanup Method: EPA 3630C
Lab ID: QC632893

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	49.91	40.37	80	32-143	21	54

Surrogate	%REC	Limits
o-Terphenyl	101	49-128

RPD= Relative Percent Difference



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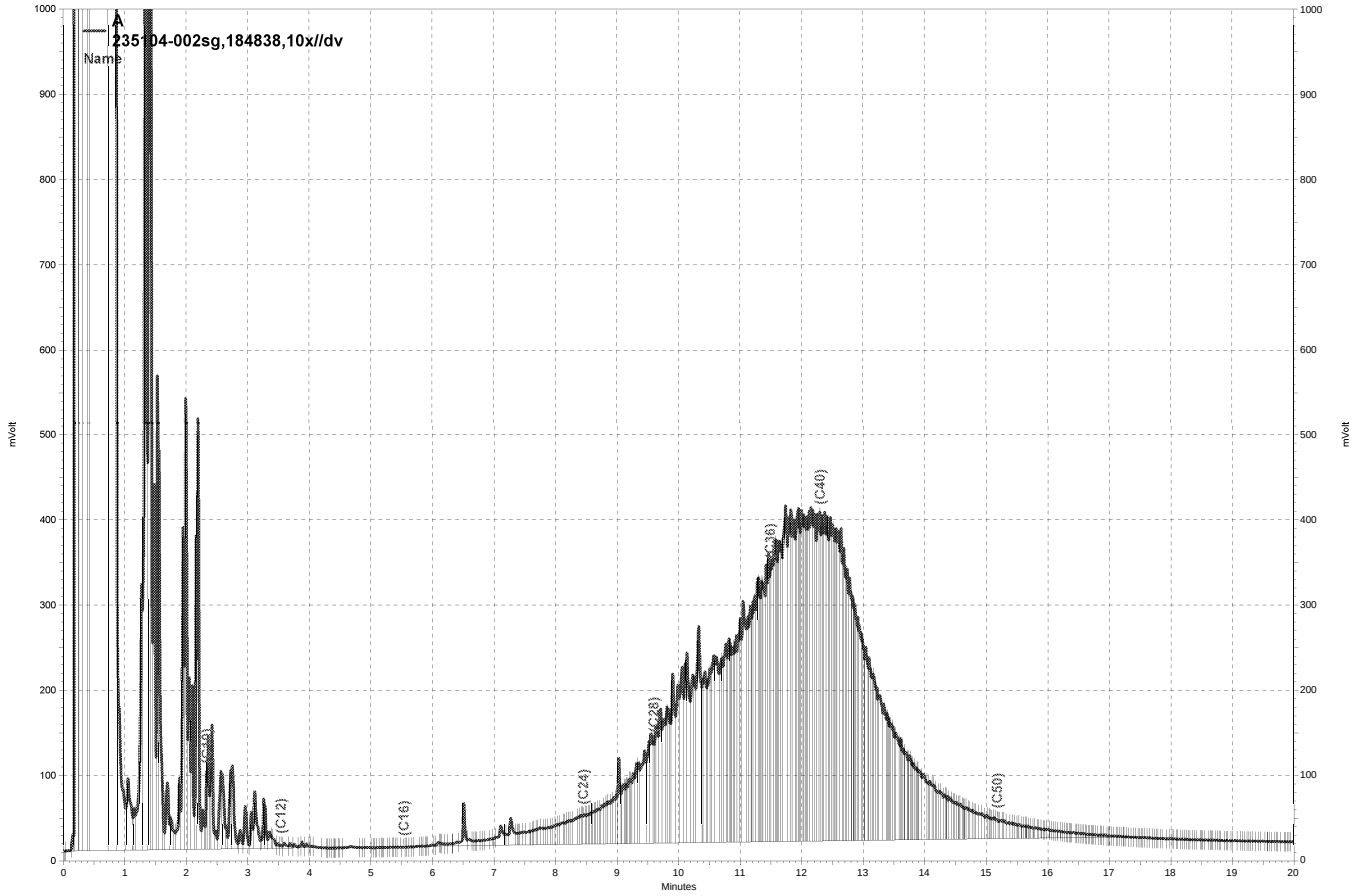

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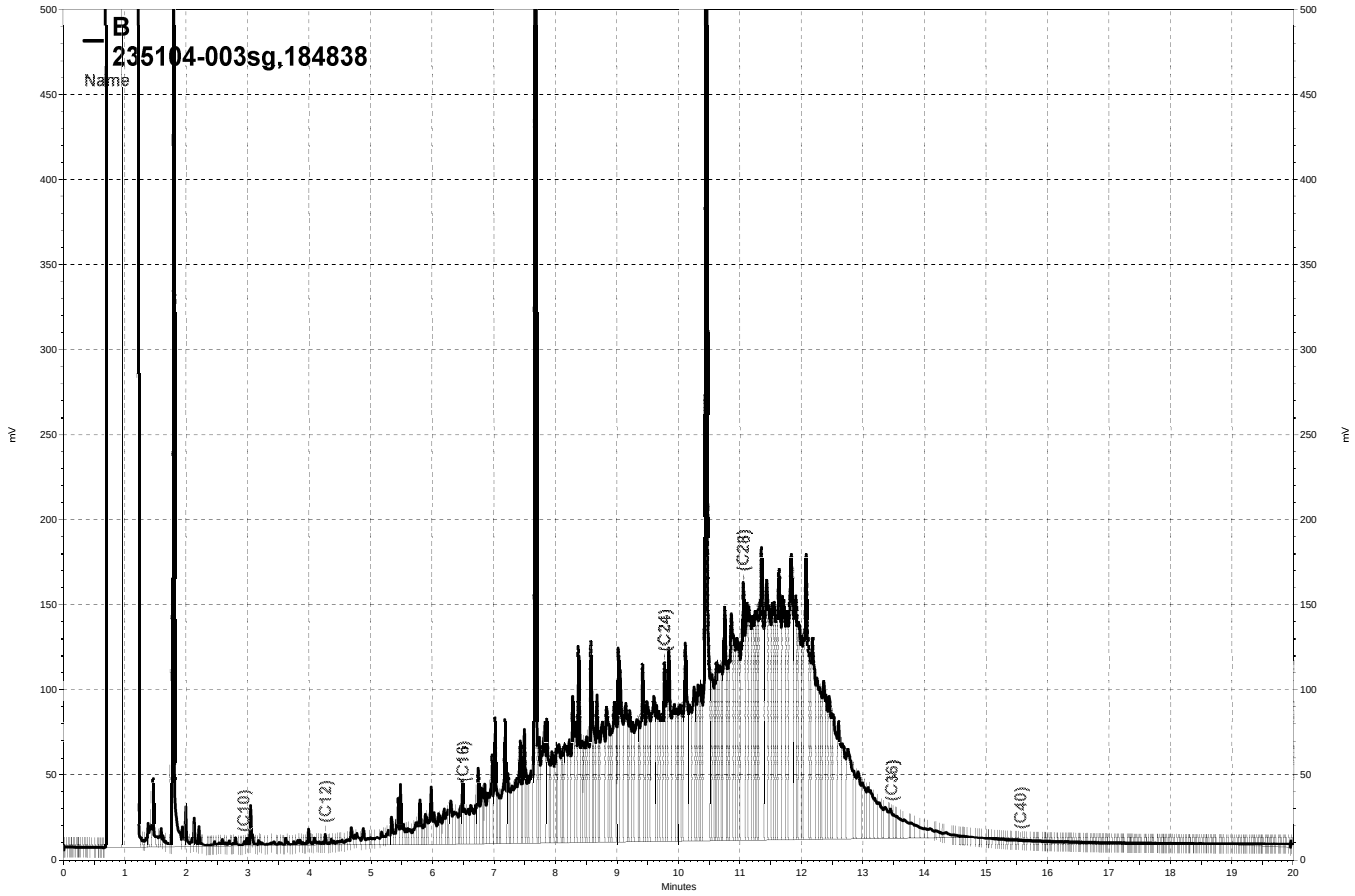

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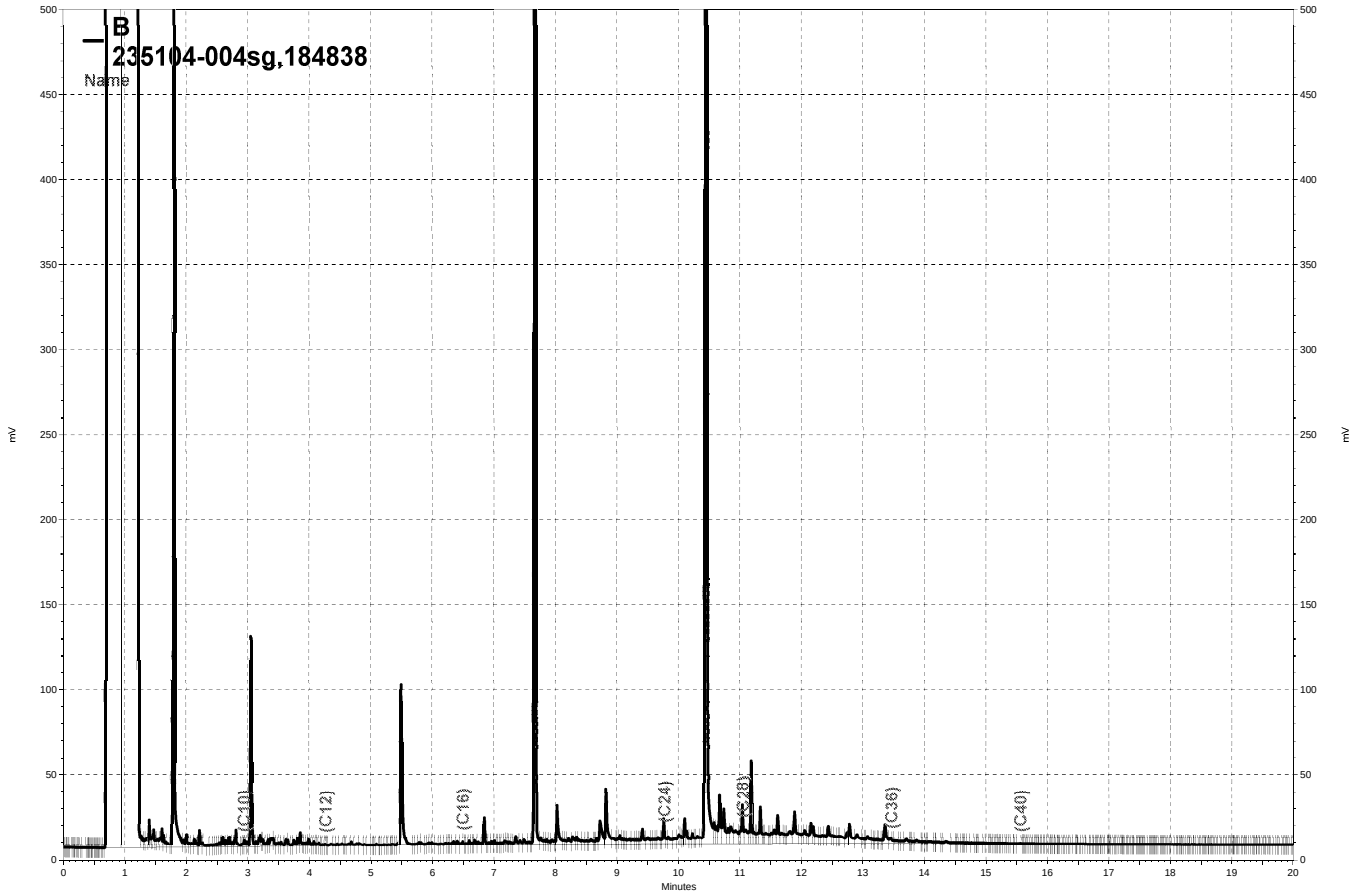

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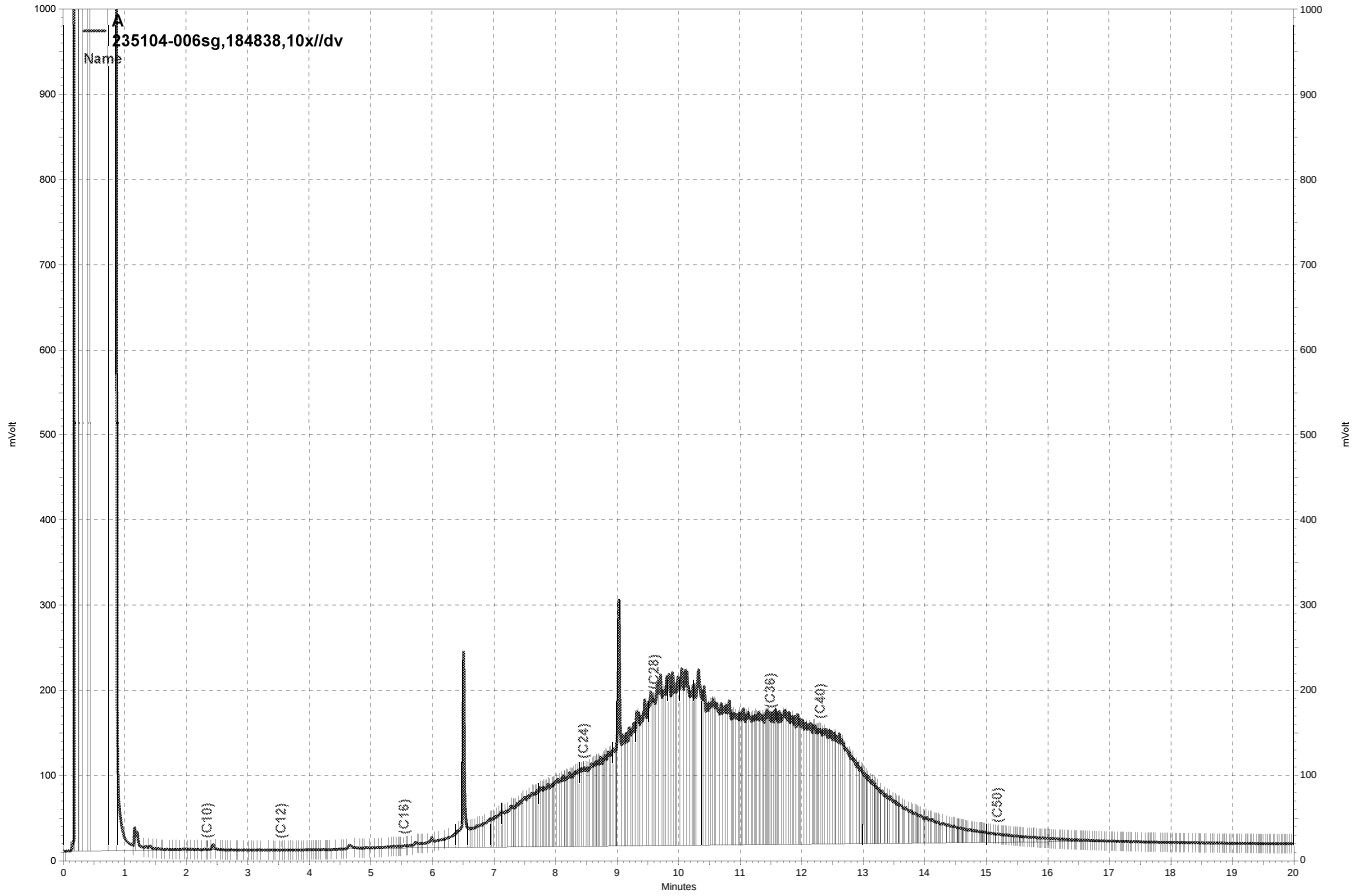

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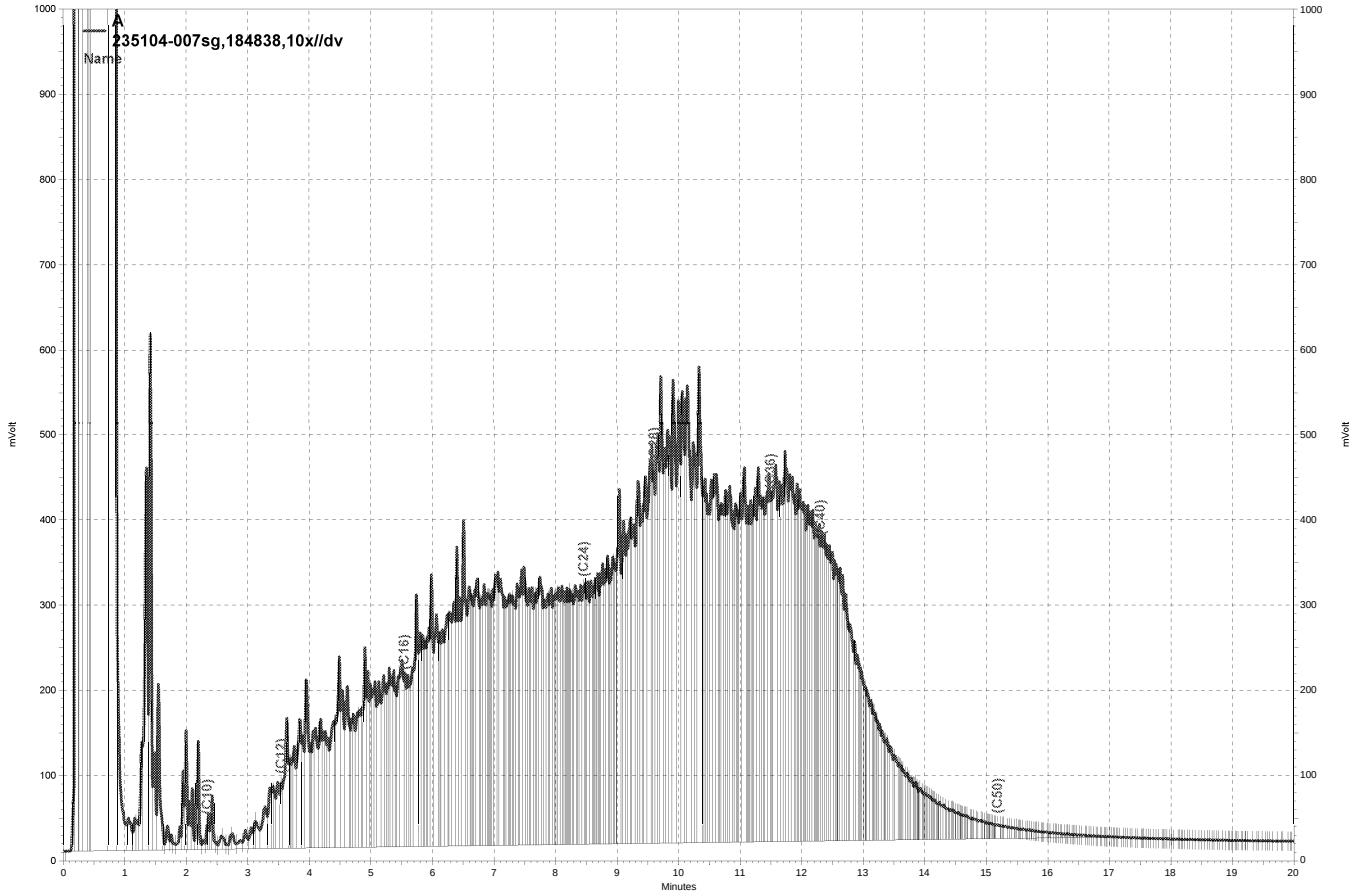

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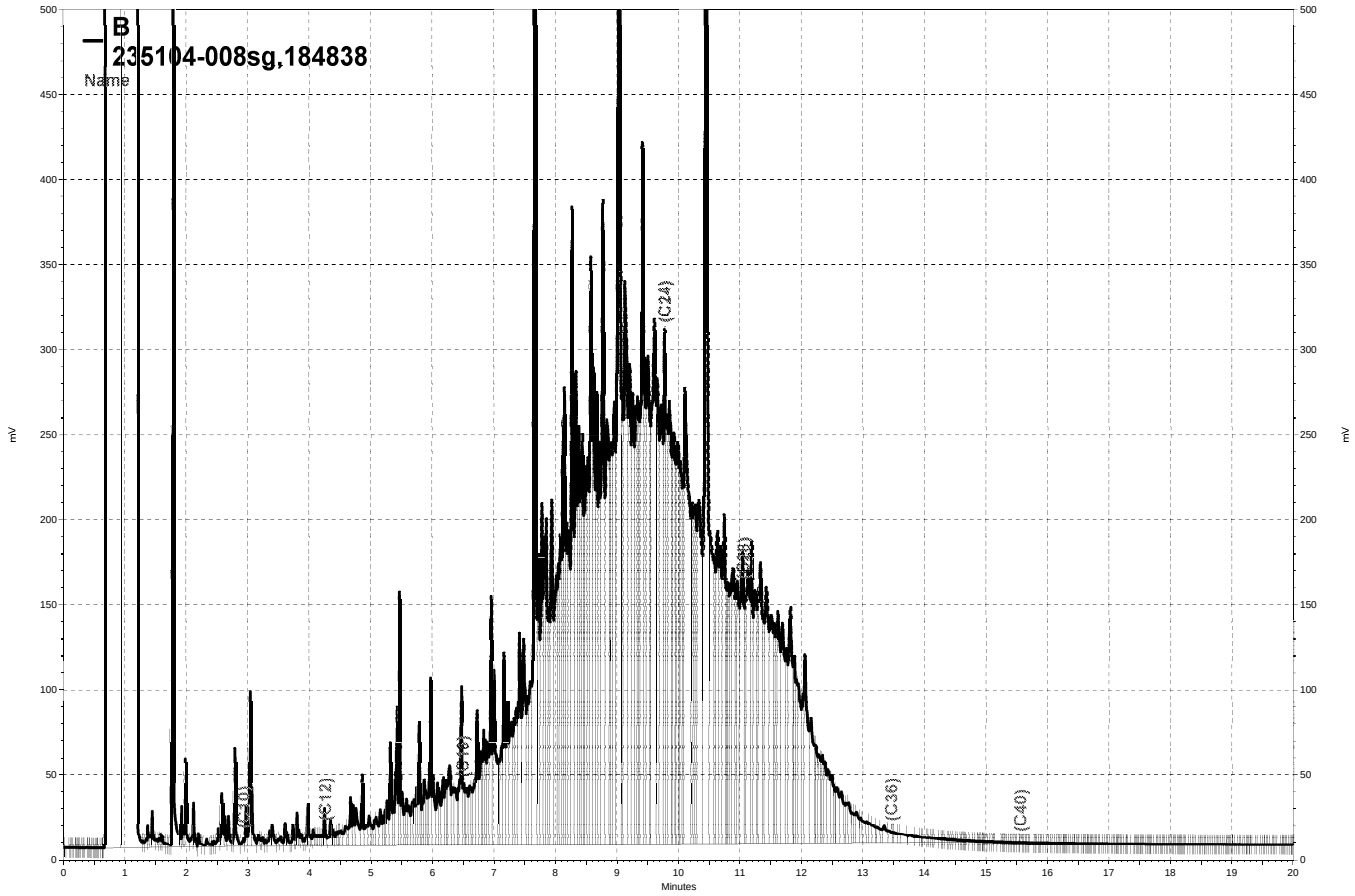

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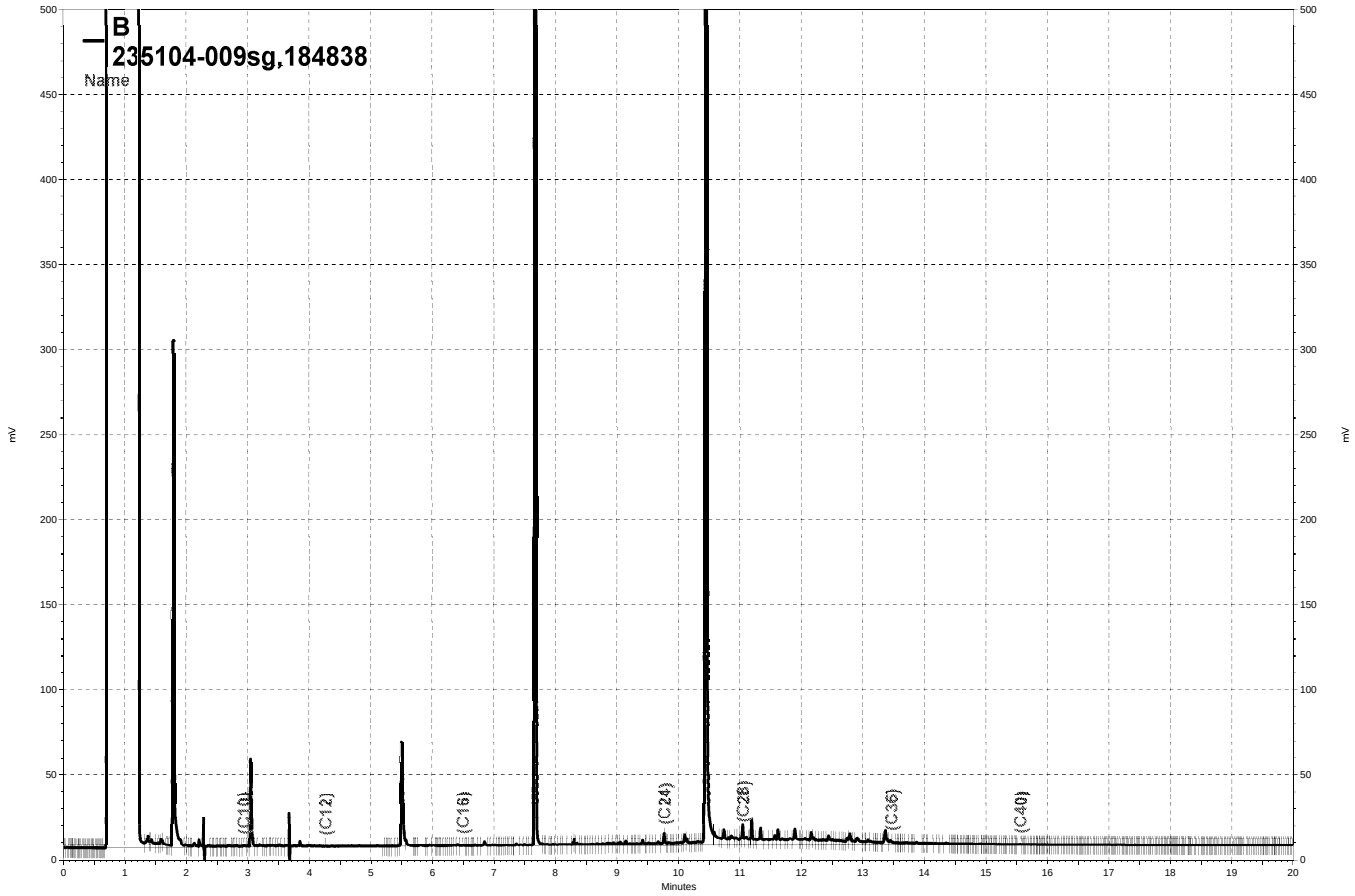

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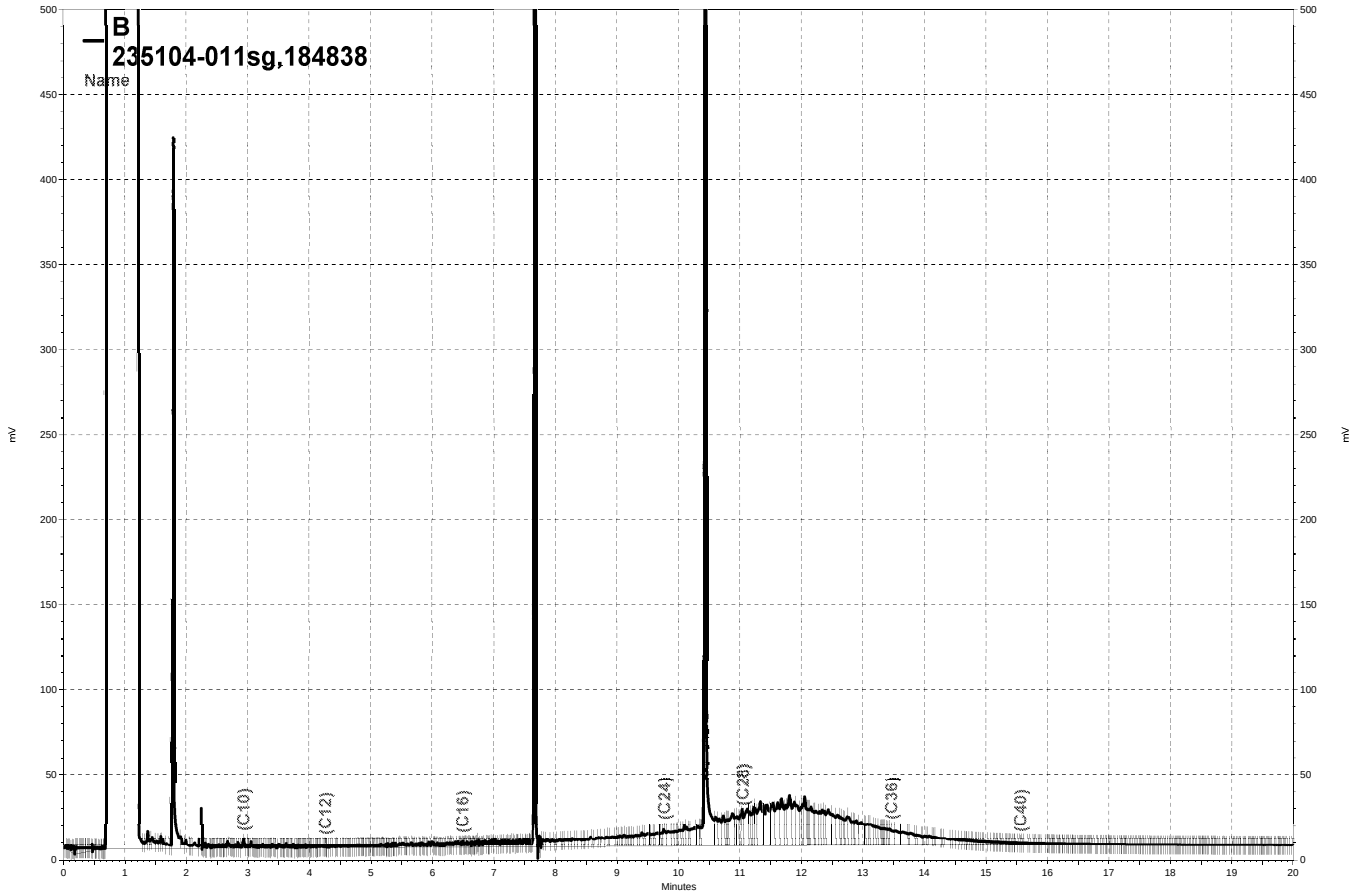

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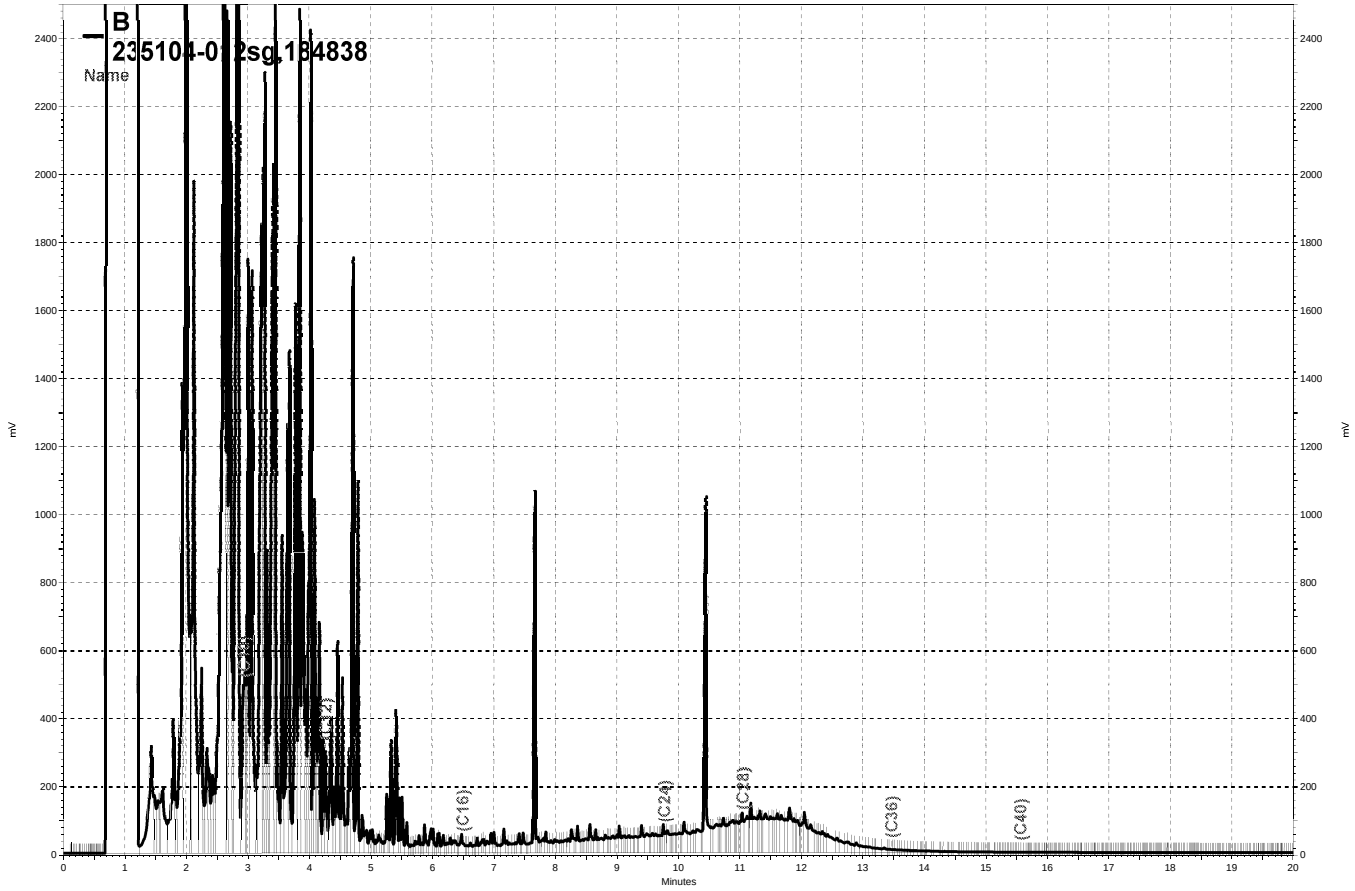

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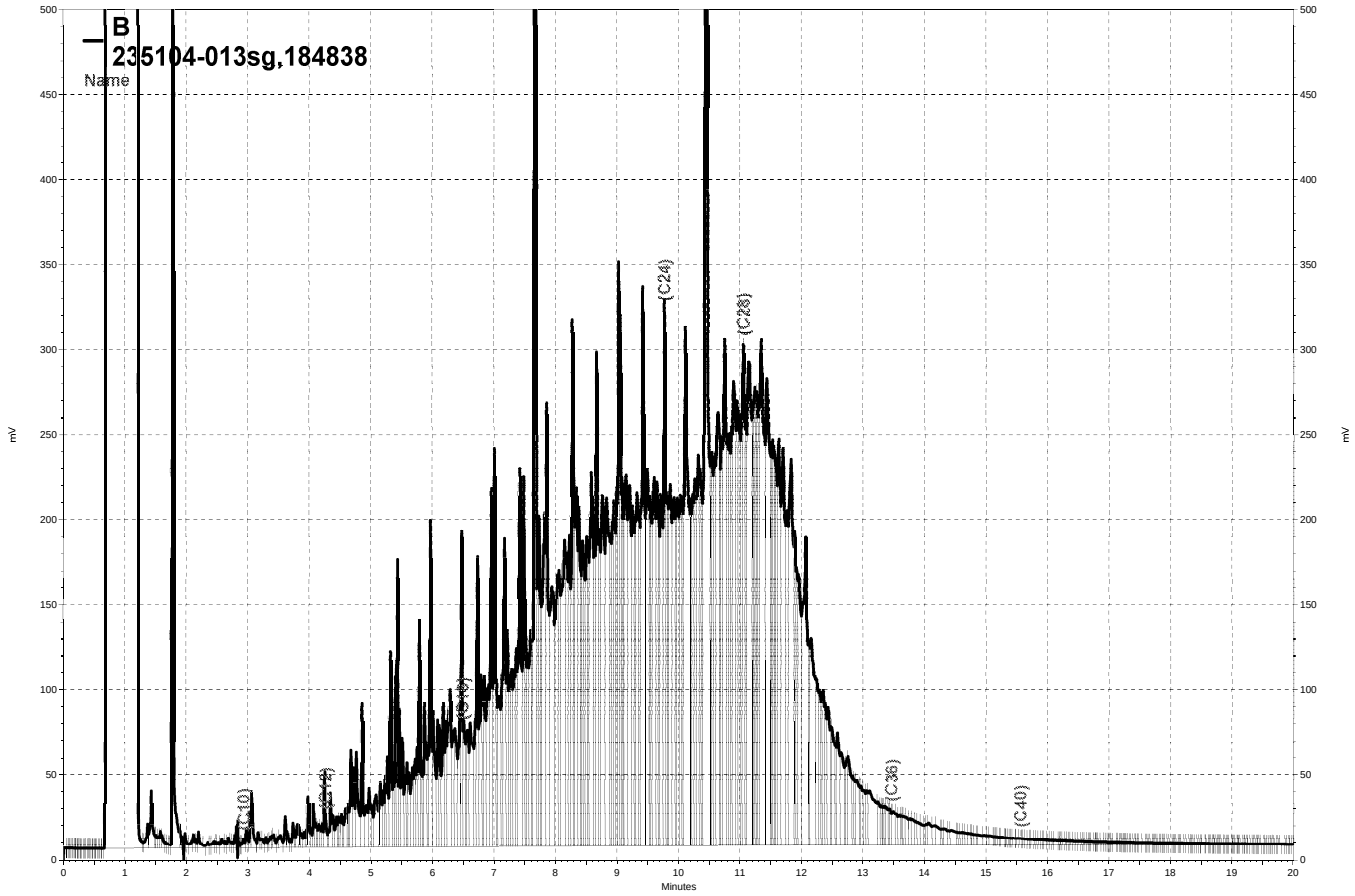

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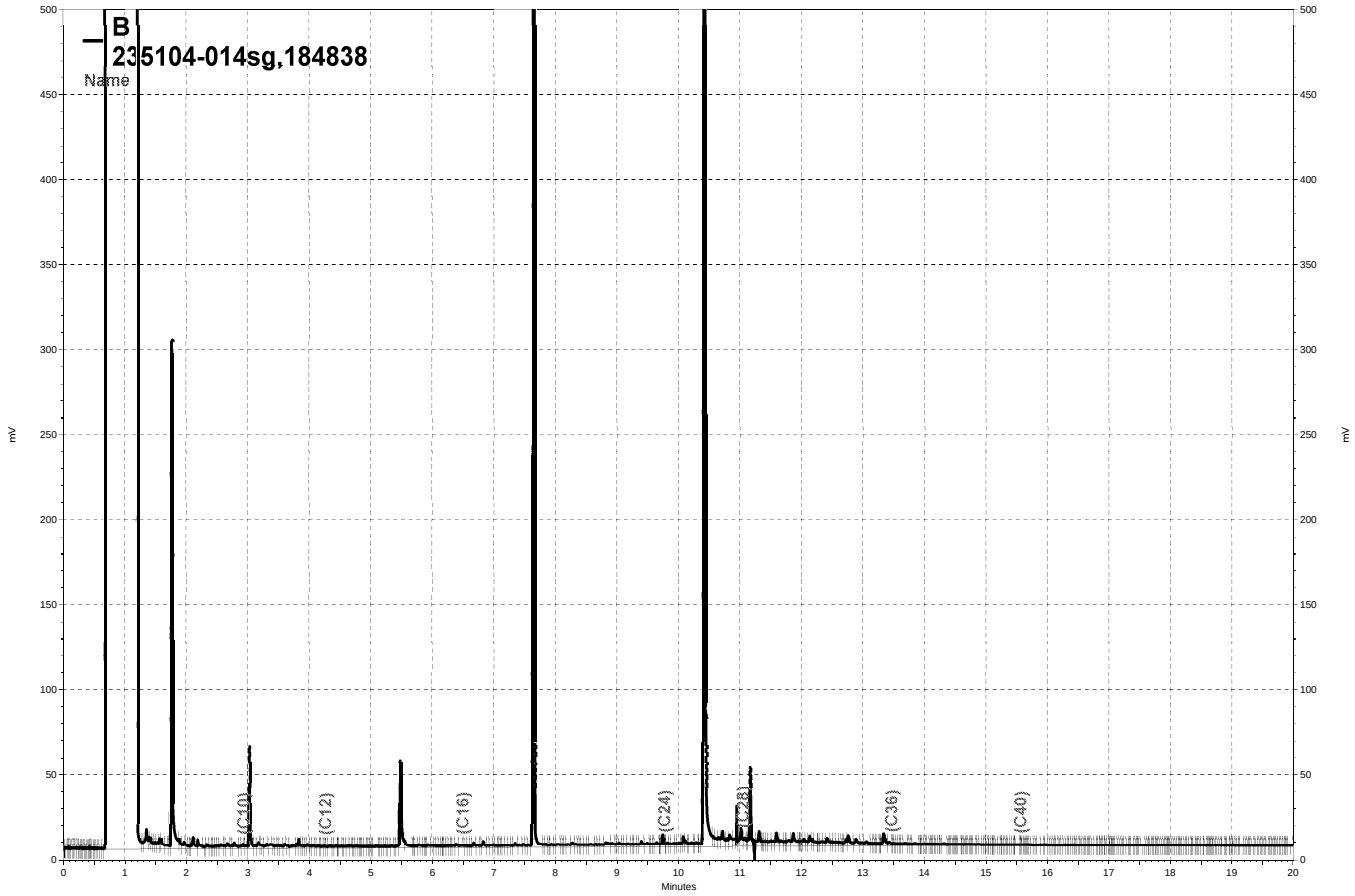

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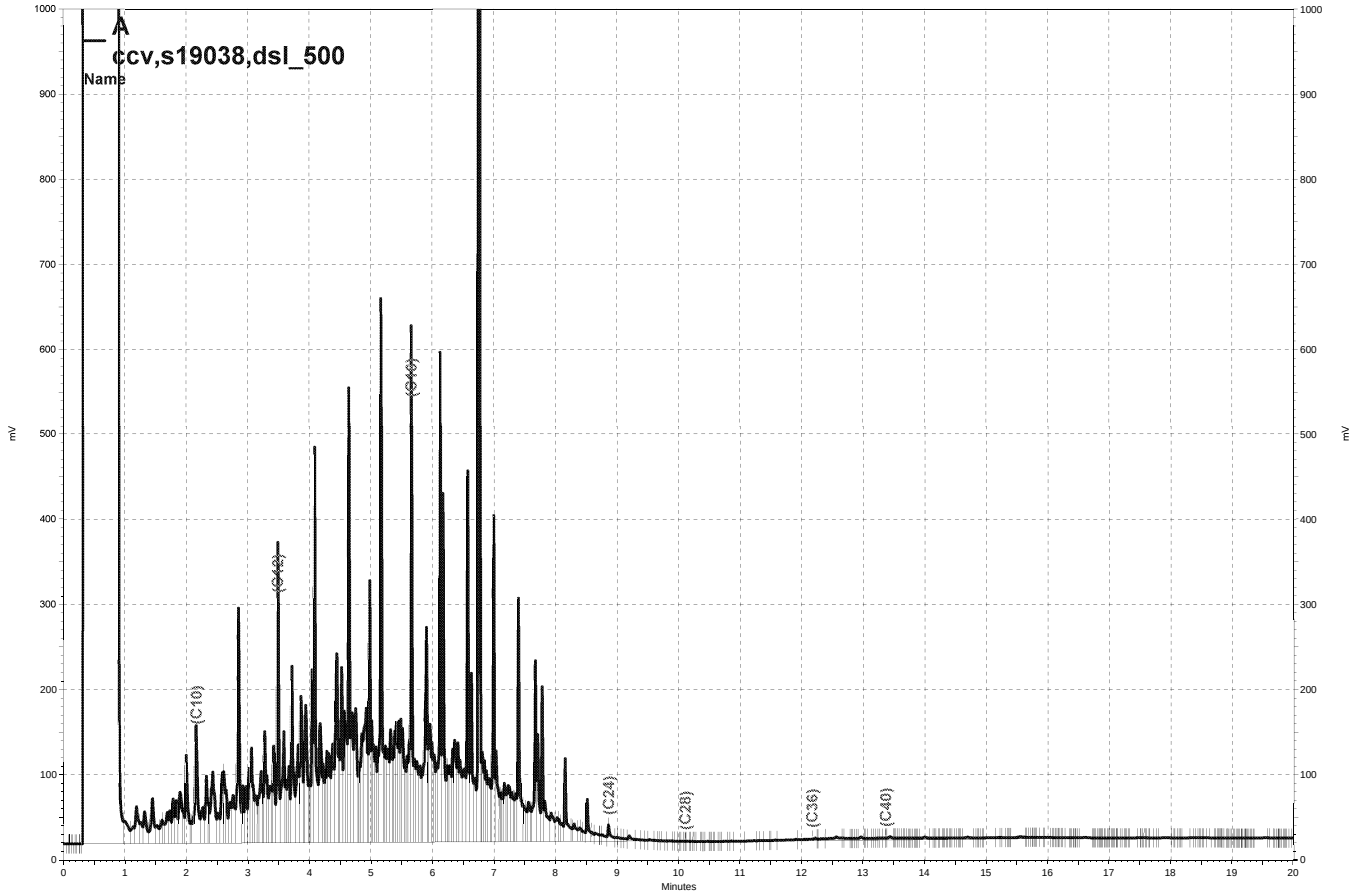

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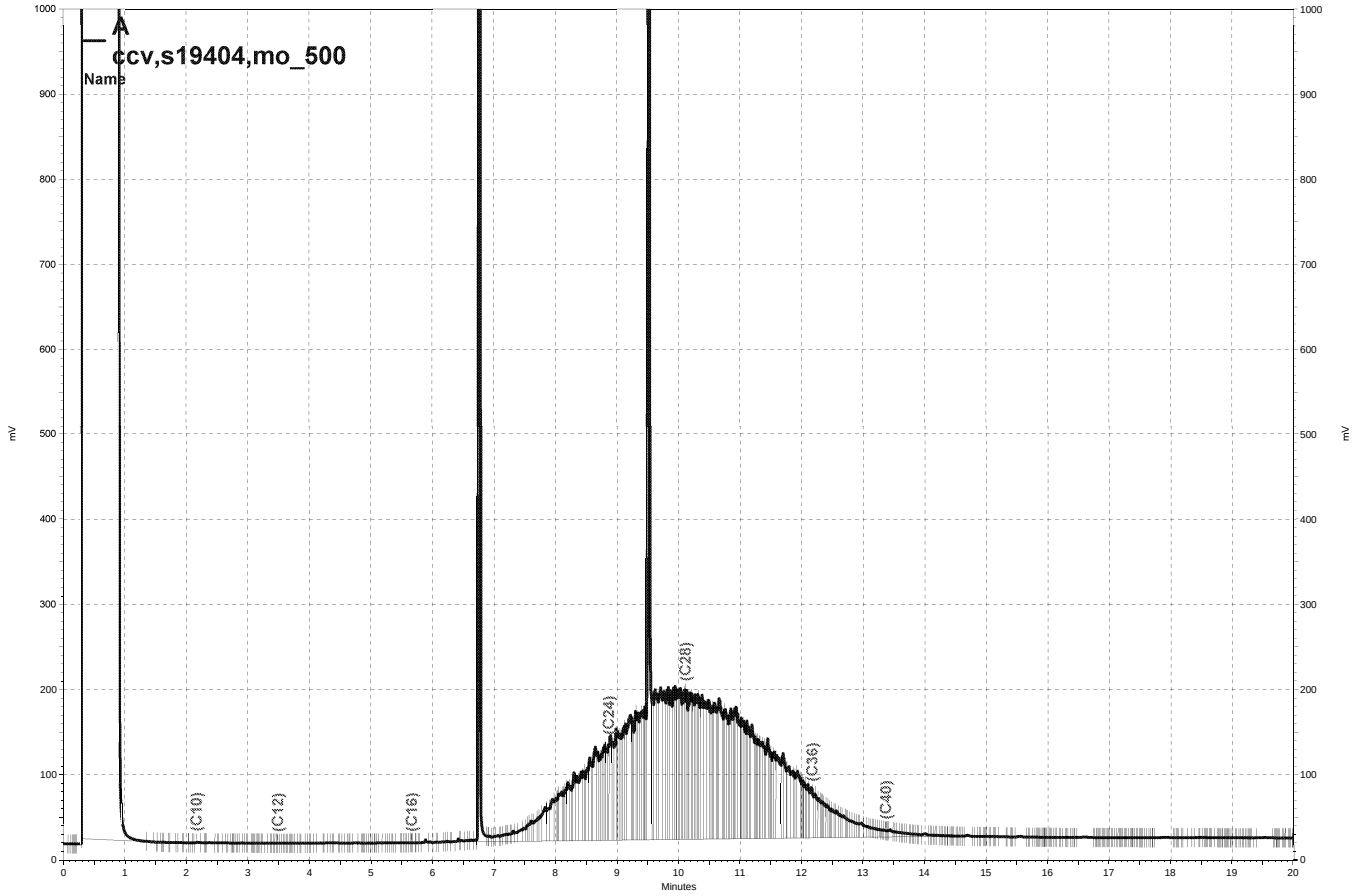

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Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Field ID:	SB-3-4.5	Diln Fac:	89.61
Lab ID:	235104-001	Batch#:	184962
Matrix:	Soil	Sampled:	03/21/12
Units:	ug/Kg	Received:	03/21/12
Basis:	as received	Analyzed:	03/27/12

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	9,000
MTBE	ND	450
Isopropyl Ether (DIPE)	ND	450
Ethyl tert-Butyl Ether (ETBE)	ND	450
1,2-Dichloroethane	ND	450
Benzene	ND	450
Methyl tert-Amyl Ether (TAME)	ND	450
Toluene	ND	450
1,2-Dibromoethane	ND	450
Ethylbenzene	ND	450
m,p-Xylenes	1,200	450
o-Xylene	ND	450

Surrogate	%REC	Limits
Dibromofluoromethane	105	74-133
1,2-Dichloroethane-d4	108	74-136
Toluene-d8	109	80-120
Bromofluorobenzene	99	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Field ID:	SB-3-9	Diln Fac:	3,180
Lab ID:	235104-002	Batch#:	185009
Matrix:	Soil	Sampled:	03/21/12
Units:	ug/Kg	Received:	03/21/12
Basis:	as received	Analyzed:	03/28/12

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	320,000
MTBE	ND	16,000
Isopropyl Ether (DIPE)	ND	16,000
Ethyl tert-Butyl Ether (ETBE)	ND	16,000
1,2-Dichloroethane	ND	16,000
Benzene	160,000	16,000
Methyl tert-Amyl Ether (TAME)	ND	16,000
Toluene	21,000	16,000
1,2-Dibromoethane	ND	16,000
Ethylbenzene	290,000	16,000
m,p-Xylenes	800,000	16,000
o-Xylene	280,000	16,000

Surrogate	%REC	Limits
Dibromofluoromethane	100	74-133
1,2-Dichloroethane-d4	98	74-136
Toluene-d8	100	80-120
Bromofluorobenzene	99	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Field ID:	SB-3-16	Basis:	as received
Lab ID:	235104-003	Sampled:	03/21/12
Matrix:	Soil	Received:	03/21/12
Units:	ug/Kg		

Analyte	Result	RL	Diln Fac	Batch#	Analyzed
tert-Butyl Alcohol (TBA)	ND	85	0.8503	185009	03/28/12
MTBE	ND	4.3	0.8503	185009	03/28/12
Isopropyl Ether (DIPE)	ND	4.3	0.8503	185009	03/28/12
Ethyl tert-Butyl Ether (ETBE)	ND	4.3	0.8503	185009	03/28/12
1,2-Dichloroethane	ND	4.3	0.8503	185009	03/28/12
Benzene	150	4.3	0.8503	185009	03/28/12
Methyl tert-Amyl Ether (TAME)	ND	4.3	0.8503	185009	03/28/12
Toluene	180	4.4	0.8803	184932	03/27/12
1,2-Dibromoethane	ND	4.3	0.8503	185009	03/28/12
Ethylbenzene	23	4.3	0.8503	185009	03/28/12
m,p-Xylenes	54	4.3	0.8503	185009	03/28/12
o-Xylene	32	4.3	0.8503	185009	03/28/12

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed
Dibromofluoromethane	99	74-133	0.8503	185009	03/28/12
1,2-Dichloroethane-d4	105	74-136	0.8503	185009	03/28/12
Toluene-d8	108	80-120	0.8503	185009	03/28/12
Bromofluorobenzene	128	77-130	0.8503	185009	03/28/12

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Field ID:	SB-3-20	Diln Fac:	0.8547
Lab ID:	235104-004	Batch#:	185009
Matrix:	Soil	Sampled:	03/21/12
Units:	ug/Kg	Received:	03/21/12
Basis:	as received	Analyzed:	03/28/12

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	85
MTBE	ND	4.3
Isopropyl Ether (DIPE)	ND	4.3
Ethyl tert-Butyl Ether (ETBE)	ND	4.3
1,2-Dichloroethane	ND	4.3
Benzene	16	4.3
Methyl tert-Amyl Ether (TAME)	ND	4.3
Toluene	100	4.3
1,2-Dibromoethane	ND	4.3
Ethylbenzene	59	4.3
m,p-Xylenes	200	4.3
o-Xylene	74	4.3

Surrogate	%REC	Limits
Dibromofluoromethane	102	74-133
1,2-Dichloroethane-d4	108	74-136
Toluene-d8	102	80-120
Bromofluorobenzene	103	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Field ID:	SB-4-4.5	Diln Fac:	0.9901
Lab ID:	235104-006	Batch#:	184932
Matrix:	Soil	Sampled:	03/21/12
Units:	ug/Kg	Received:	03/21/12
Basis:	as received	Analyzed:	03/27/12

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	99
MTBE	ND	5.0
Isopropyl Ether (DIPE)	ND	5.0
Ethyl tert-Butyl Ether (ETBE)	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Methyl tert-Amyl Ether (TAME)	ND	5.0
Toluene	ND	5.0
1,2-Dibromoethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	110	74-133
1,2-Dichloroethane-d4	107	74-136
Toluene-d8	104	80-120
Bromofluorobenzene	125	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Field ID:	SB-4-9	Diln Fac:	41.95
Lab ID:	235104-007	Batch#:	185009
Matrix:	Soil	Sampled:	03/21/12
Units:	ug/Kg	Received:	03/21/12
Basis:	as received	Analyzed:	03/28/12

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	4,200
MTBE	ND	210
Isopropyl Ether (DIPE)	ND	210
Ethyl tert-Butyl Ether (ETBE)	ND	210
1,2-Dichloroethane	ND	210
Benzene	1,100	210
Methyl tert-Amyl Ether (TAME)	ND	210
Toluene	ND	210
1,2-Dibromoethane	ND	210
Ethylbenzene	ND	210
m,p-Xylenes	430	210
o-Xylene	ND	210

Surrogate	%REC	Limits
Dibromofluoromethane	102	74-133
1,2-Dichloroethane-d4	96	74-136
Toluene-d8	98	80-120
Bromofluorobenzene	100	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Field ID:	SB-4-16	Diln Fac:	1.319
Lab ID:	235104-008	Batch#:	184932
Matrix:	Soil	Sampled:	03/21/12
Units:	ug/Kg	Received:	03/21/12
Basis:	as received	Analyzed:	03/27/12

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	130
MTBE	ND	6.6
Isopropyl Ether (DIPE)	ND	6.6
Ethyl tert-Butyl Ether (ETBE)	ND	6.6
1,2-Dichloroethane	ND	6.6
Benzene	200	6.6
Methyl tert-Amyl Ether (TAME)	ND	6.6
Toluene	100	6.6
1,2-Dibromoethane	ND	6.6
Ethylbenzene	44	6.6
m,p-Xylenes	99	6.6
o-Xylene	77	6.6

Surrogate	%REC	Limits
Dibromofluoromethane	105	74-133
1,2-Dichloroethane-d4	99	74-136
Toluene-d8	103	80-120
Bromofluorobenzene	117	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Field ID:	SB-4-20	Diln Fac:	1.119
Lab ID:	235104-009	Batch#:	184932
Matrix:	Soil	Sampled:	03/21/12
Units:	ug/Kg	Received:	03/21/12
Basis:	as received	Analyzed:	03/27/12

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	110
MTBE	ND	5.6
Isopropyl Ether (DIPE)	ND	5.6
Ethyl tert-Butyl Ether (ETBE)	ND	5.6
1,2-Dichloroethane	ND	5.6
Benzene	ND	5.6
Methyl tert-Amyl Ether (TAME)	ND	5.6
Toluene	ND	5.6
1,2-Dibromoethane	ND	5.6
Ethylbenzene	ND	5.6
m,p-Xylenes	5.8	5.6
o-Xylene	ND	5.6

Surrogate	%REC	Limits
Dibromofluoromethane	98	74-133
1,2-Dichloroethane-d4	97	74-136
Toluene-d8	99	80-120
Bromofluorobenzene	105	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Field ID:	SB-5-4.5	Diln Fac:	1.259
Lab ID:	235104-011	Batch#:	184932
Matrix:	Soil	Sampled:	03/21/12
Units:	ug/Kg	Received:	03/21/12
Basis:	as received	Analyzed:	03/27/12

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	130
MTBE	ND	6.3
Isopropyl Ether (DIPE)	ND	6.3
Ethyl tert-Butyl Ether (ETBE)	ND	6.3
1,2-Dichloroethane	ND	6.3
Benzene	40	6.3
Methyl tert-Amyl Ether (TAME)	ND	6.3
Toluene	ND	6.3
1,2-Dibromoethane	ND	6.3
Ethylbenzene	ND	6.3
m,p-Xylenes	25	6.3
o-Xylene	12	6.3

Surrogate	%REC	Limits
Dibromofluoromethane	104	74-133
1,2-Dichloroethane-d4	117	74-136
Toluene-d8	101	80-120
Bromofluorobenzene	126	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Field ID:	SB-5-9.5	Diln Fac:	3,064
Lab ID:	235104-012	Batch#:	185009
Matrix:	Soil	Sampled:	03/21/12
Units:	ug/Kg	Received:	03/21/12
Basis:	as received	Analyzed:	03/28/12

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	310,000
MTBE	ND	15,000
Isopropyl Ether (DIPE)	ND	15,000
Ethyl tert-Butyl Ether (ETBE)	ND	15,000
1,2-Dichloroethane	ND	15,000
Benzene	ND	15,000
Methyl tert-Amyl Ether (TAME)	ND	15,000
Toluene	240,000	15,000
1,2-Dibromoethane	ND	15,000
Ethylbenzene	210,000	15,000
m,p-Xylenes	690,000	15,000
o-Xylene	240,000	15,000

Surrogate	%REC	Limits
Dibromofluoromethane	102	74-133
1,2-Dichloroethane-d4	99	74-136
Toluene-d8	99	80-120
Bromofluorobenzene	101	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Field ID:	SB-5-16	Diln Fac:	0.8432
Lab ID:	235104-013	Batch#:	184932
Matrix:	Soil	Sampled:	03/21/12
Units:	ug/Kg	Received:	03/21/12
Basis:	as received	Analyzed:	03/27/12

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	84
MTBE	ND	4.2
Isopropyl Ether (DIPE)	ND	4.2
Ethyl tert-Butyl Ether (ETBE)	ND	4.2
1,2-Dichloroethane	ND	4.2
Benzene	160	4.2
Methyl tert-Amyl Ether (TAME)	ND	4.2
Toluene	37	4.2
1,2-Dibromoethane	ND	4.2
Ethylbenzene	ND	4.2
m,p-Xylenes	ND	4.2
o-Xylene	ND	4.2

Surrogate	%REC	Limits
Dibromofluoromethane	80	74-133
1,2-Dichloroethane-d4	107	74-136
Toluene-d8	105	80-120
Bromofluorobenzene	121	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Field ID:	SB-5-20	Diln Fac:	0.8319
Lab ID:	235104-014	Batch#:	184932
Matrix:	Soil	Sampled:	03/21/12
Units:	ug/Kg	Received:	03/21/12
Basis:	as received	Analyzed:	03/27/12

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	83
MTBE	ND	4.2
Isopropyl Ether (DIPE)	ND	4.2
Ethyl tert-Butyl Ether (ETBE)	ND	4.2
1,2-Dichloroethane	ND	4.2
Benzene	ND	4.2
Methyl tert-Amyl Ether (TAME)	ND	4.2
Toluene	ND	4.2
1,2-Dibromoethane	ND	4.2
Ethylbenzene	ND	4.2
m,p-Xylenes	ND	4.2
o-Xylene	ND	4.2

Surrogate	%REC	Limits
Dibromofluoromethane	106	74-133
1,2-Dichloroethane-d4	113	74-136
Toluene-d8	100	80-120
Bromofluorobenzene	110	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC633254	Batch#:	184932
Matrix:	Soil	Analyzed:	03/27/12
Units:	ug/Kg		

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	100
MTBE	ND	5.0
Isopropyl Ether (DIPE)	ND	5.0
Ethyl tert-Butyl Ether (ETBE)	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Methyl tert-Amyl Ether (TAME)	ND	5.0
Toluene	ND	5.0
1,2-Dibromoethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	101	74-133
1,2-Dichloroethane-d4	97	74-136
Toluene-d8	101	80-120
Bromofluorobenzene	108	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC633255	Batch#:	184932
Matrix:	Soil	Analyzed:	03/27/12
Units:	ug/Kg		

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	100.0	79.25	79	46-135
MTBE	20.00	17.22	86	62-120
Isopropyl Ether (DIPE)	20.00	15.79	79	59-120
Ethyl tert-Butyl Ether (ETBE)	20.00	16.36	82	64-120
1,2-Dichloroethane	20.00	17.74	89	74-126
Benzene	20.00	19.44	97	78-125
Methyl tert-Amyl Ether (TAME)	20.00	16.58	83	68-120
Toluene	20.00	19.27	96	79-120
1,2-Dibromoethane	20.00	19.22	96	77-120
Ethylbenzene	20.00	19.06	95	80-120
m,p-Xylenes	40.00	36.42	91	80-120
o-Xylene	20.00	16.93	85	79-120

Surrogate	%REC	Limits
Dibromofluoromethane	97	74-133
1,2-Dichloroethane-d4	89	74-136
Toluene-d8	99	80-120
Bromofluorobenzene	100	77-130

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5030B
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Basis:	as received
MSS Lab ID:	235119-001	Batch#:	184932
Matrix:	Soil	Sampled:	03/21/12
Units:	ug/Kg	Received:	03/22/12

Type:	MS	Diln Fac:	0.9634
Lab ID:	QC633256	Analyzed:	03/27/12

Analyte	MSS Result	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	<1.691	240.8	221.2	92	44-128
MTBE	<0.1407	48.17	42.24	88	51-120
Isopropyl Ether (DIPE)	<0.1841	48.17	38.14	79	50-120
Ethyl tert-Butyl Ether (ETBE)	<0.1353	48.17	38.51	80	55-120
1,2-Dichloroethane	<0.3146	48.17	35.91	75	55-121
Benzene	<0.3995	48.17	40.36	84	58-122
Methyl tert-Amyl Ether (TAME)	<0.2108	48.17	35.88	74	55-120
Toluene	<0.2902	48.17	34.75	72	54-120
1,2-Dibromoethane	<0.1946	48.17	36.52	76	52-120
Ethylbenzene	<0.3472	48.17	27.35	57	47-120
m,p-Xylenes	<0.8297	96.34	49.55	51	47-120
o-Xylene	0.2978	48.17	22.91	47	47-120

Surrogate	%REC	Limits
Dibromofluoromethane	101	74-133
1,2-Dichloroethane-d4	88	74-136
Toluene-d8	99	80-120
Bromofluorobenzene	105	77-130

Type:	MSD	Diln Fac:	0.9901
Lab ID:	QC633257	Analyzed:	03/28/12

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	247.5	259.4	105	44-128	13	39
MTBE	49.50	48.78	99	51-120	12	32
Isopropyl Ether (DIPE)	49.50	45.01	91	50-120	14	32
Ethyl tert-Butyl Ether (ETBE)	49.50	44.55	90	55-120	12	32
1,2-Dichloroethane	49.50	42.64	86	55-121	14	33
Benzene	49.50	46.87	95	58-122	12	37
Methyl tert-Amyl Ether (TAME)	49.50	42.47	86	55-120	14	34
Toluene	49.50	39.91	81	54-120	11	35
1,2-Dibromoethane	49.50	41.41	84	52-120	10	35
Ethylbenzene	49.50	31.55	64	47-120	12	40
m,p-Xylenes	99.01	57.53	58	47-120	12	40
o-Xylene	49.50	27.64	55	47-120	16	40

Surrogate	%REC	Limits
Dibromofluoromethane	105	74-133
1,2-Dichloroethane-d4	93	74-136
Toluene-d8	98	80-120
Bromofluorobenzene	108	77-130

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC633363	Batch#:	184962
Matrix:	Soil	Analyzed:	03/27/12
Units:	ug/Kg		

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	100.0	101.0	101	46-135
MTBE	20.00	20.00	100	62-120
Isopropyl Ether (DIPE)	20.00	21.05	105	59-120
Ethyl tert-Butyl Ether (ETBE)	20.00	19.45	97	64-120
1,2-Dichloroethane	20.00	19.40	97	74-126
Benzene	20.00	21.17	106	78-125
Methyl tert-Amyl Ether (TAME)	20.00	17.87	89	68-120
Toluene	20.00	20.66	103	79-120
1,2-Dibromoethane	20.00	19.34	97	77-120
Ethylbenzene	20.00	22.03	110	80-120
m,p-Xylenes	40.00	39.93	100	80-120
o-Xylene	20.00	19.38	97	79-120

Surrogate	%REC	Limits
Dibromofluoromethane	103	74-133
1,2-Dichloroethane-d4	96	74-136
Toluene-d8	106	80-120
Bromofluorobenzene	105	77-130

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC633364	Batch#:	184962
Matrix:	Soil	Analyzed:	03/27/12
Units:	ug/Kg		

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	100
MTBE	ND	5.0
Isopropyl Ether (DIPE)	ND	5.0
Ethyl tert-Butyl Ether (ETBE)	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Methyl tert-Amyl Ether (TAME)	ND	5.0
Toluene	ND	5.0
1,2-Dibromoethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	100	74-133
1,2-Dichloroethane-d4	98	74-136
Toluene-d8	104	80-120
Bromofluorobenzene	104	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5030B
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	184962
MSS Lab ID:	235125-001	Sampled:	03/22/12
Matrix:	Soil	Received:	03/22/12
Units:	ug/Kg	Analyzed:	03/27/12
Basis:	as received		

Type: MS Diln Fac: 0.9597
Lab ID: QC633451

Analyte	MSS Result	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	<14.88	239.9	224.3	93	44-128
MTBE	<1.438	47.98	37.50	78	51-120
Isopropyl Ether (DIPE)	<1.227	47.98	39.04	81	50-120
Ethyl tert-Butyl Ether (ETBE)	<0.9248	47.98	34.49	72	55-120
1,2-Dichloroethane	<0.8891	47.98	38.60	80	55-121
Benzene	<0.9225	47.98	39.69	83	58-122
Methyl tert-Amyl Ether (TAME)	<0.6024	47.98	32.54	68	55-120
Toluene	<1.245	47.98	38.37	80	54-120
1,2-Dibromoethane	<0.5722	47.98	35.37	74	52-120
Ethylbenzene	<1.145	47.98	36.08	75	47-120
m,p-Xylenes	<0.5873	95.97	61.56	64	47-120
o-Xylene	<1.073	47.98	31.72	66	47-120

Surrogate	%REC	Limits
Dibromofluoromethane	103	74-133
1,2-Dichloroethane-d4	104	74-136
Toluene-d8	103	80-120
Bromofluorobenzene	103	77-130

Type: MSD Diln Fac: 0.9634
Lab ID: QC633452

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	240.8	259.4	108	44-128	14	39
MTBE	48.17	39.81	83	51-120	6	32
Isopropyl Ether (DIPE)	48.17	39.41	82	50-120	1	32
Ethyl tert-Butyl Ether (ETBE)	48.17	39.11	81	55-120	12	32
1,2-Dichloroethane	48.17	41.91	87	55-121	8	33
Benzene	48.17	43.98	91	58-122	10	37
Methyl tert-Amyl Ether (TAME)	48.17	36.87	77	55-120	12	34
Toluene	48.17	40.67	84	54-120	5	35
1,2-Dibromoethane	48.17	37.03	77	52-120	4	35
Ethylbenzene	48.17	38.89	81	47-120	7	40
m,p-Xylenes	96.34	70.57	73	47-120	13	40
o-Xylene	48.17	34.34	71	47-120	8	40

Surrogate	%REC	Limits
Dibromofluoromethane	106	74-133
1,2-Dichloroethane-d4	103	74-136
Toluene-d8	100	80-120
Bromofluorobenzene	106	77-130

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC633457	Batch#:	184932
Matrix:	Soil	Analyzed:	03/27/12
Units:	ug/Kg		

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	100
MTBE	ND	5.0
Isopropyl Ether (DIPE)	ND	5.0
Ethyl tert-Butyl Ether (ETBE)	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Methyl tert-Amyl Ether (TAME)	ND	5.0
Toluene	ND	5.0
1,2-Dibromoethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	103	74-133
1,2-Dichloroethane-d4	103	74-136
Toluene-d8	100	80-120
Bromofluorobenzene	111	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC633551	Batch#:	185009
Matrix:	Soil	Analyzed:	03/28/12
Units:	ug/Kg		

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	100
MTBE	ND	5.0
Isopropyl Ether (DIPE)	ND	5.0
Ethyl tert-Butyl Ether (ETBE)	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Methyl tert-Amyl Ether (TAME)	ND	5.0
Toluene	ND	5.0
1,2-Dibromoethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	103	74-133
1,2-Dichloroethane-d4	99	74-136
Toluene-d8	101	80-120
Bromofluorobenzene	101	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5035
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC633552	Batch#:	185009
Matrix:	Soil	Analyzed:	03/28/12
Units:	ug/Kg		

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	100.0	121.0	121	46-135
MTBE	20.00	20.60	103	62-120
Isopropyl Ether (DIPE)	20.00	19.93	100	59-120
Ethyl tert-Butyl Ether (ETBE)	20.00	20.50	102	64-120
1,2-Dichloroethane	20.00	21.49	107	74-126
Benzene	20.00	21.92	110	78-125
Methyl tert-Amyl Ether (TAME)	20.00	19.35	97	68-120
Toluene	20.00	21.33	107	79-120
1,2-Dibromoethane	20.00	21.11	106	77-120
Ethylbenzene	20.00	21.72	109	80-120
m,p-Xylenes	40.00	40.38	101	80-120
o-Xylene	20.00	19.23	96	79-120

Surrogate	%REC	Limits
Dibromofluoromethane	104	74-133
1,2-Dichloroethane-d4	108	74-136
Toluene-d8	103	80-120
Bromofluorobenzene	104	77-130

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	235104	Location:	1650 65th St. / Emeryville
Client:	PES Environmental, Inc.	Prep:	EPA 5030B
Project#:	1211.001.02.003	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	185009
MSS Lab ID:	235170-009	Sampled:	03/26/12
Matrix:	Soil	Received:	03/26/12
Units:	ug/Kg	Analyzed:	03/29/12
Basis:	as received		

Type: MS Diln Fac: 0.9328
Lab ID: QC633594

Analyte	MSS Result	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	<14.85	233.2	229.3	98	44-128
MTBE	<1.436	46.64	39.37	84	51-120
Isopropyl Ether (DIPE)	<1.225	46.64	40.69	87	50-120
Ethyl tert-Butyl Ether (ETBE)	<0.9230	46.64	37.29	80	55-120
1,2-Dichloroethane	<0.8874	46.64	39.25	84	55-121
Benzene	<0.9208	46.64	44.40	95	58-122
Methyl tert-Amyl Ether (TAME)	<0.6012	46.64	39.32	84	55-120
Toluene	<1.242	46.64	41.49	89	54-120
1,2-Dibromoethane	<0.5711	46.64	38.43	82	52-120
Ethylbenzene	<1.143	46.64	42.79	92	47-120
m,p-Xylenes	<0.5862	93.28	79.75	85	47-120
o-Xylene	<1.070	46.64	37.53	80	47-120

Surrogate	%REC	Limits
Dibromofluoromethane	103	74-133
1,2-Dichloroethane-d4	100	74-136
Toluene-d8	100	80-120
Bromofluorobenzene	97	77-130

Type: MSD Diln Fac: 0.9921
Lab ID: QC633595

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	248.0	261.1	105	44-128	7	39
MTBE	49.60	43.99	89	51-120	5	32
Isopropyl Ether (DIPE)	49.60	45.26	91	50-120	4	32
Ethyl tert-Butyl Ether (ETBE)	49.60	40.65	82	55-120	2	32
1,2-Dichloroethane	49.60	44.16	89	55-121	6	33
Benzene	49.60	50.42	102	58-122	7	37
Methyl tert-Amyl Ether (TAME)	49.60	44.11	89	55-120	5	34
Toluene	49.60	46.28	93	54-120	5	35
1,2-Dibromoethane	49.60	43.12	87	52-120	5	35
Ethylbenzene	49.60	47.53	96	47-120	4	40
m,p-Xylenes	99.21	87.49	88	47-120	3	40
o-Xylene	49.60	43.73	88	47-120	9	40

Surrogate	%REC	Limits
Dibromofluoromethane	102	74-133
1,2-Dichloroethane-d4	101	74-136
Toluene-d8	98	80-120
Bromofluorobenzene	104	77-130

RPD= Relative Percent Difference