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8 March 2017
Project 731641602

Mr. Keith Nowell, PG
Alameda County Health Care Services Agency
Environmental Health Department
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Subject: Environmental Site Characterization
Fuel Case No. Ro03236
3000 Broadway SPE LLC
250 and 260 30th Street
Oakland, California
Alameda County SCP Case No. RO003236
Langan Project: 731635602

Dear Mr. Nowell:

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

Sincerely yours,



Alan Chamorro
3000 Broadway SPE LLC

ENVIRONMENTAL SITE CHARACTERIZATION

250 and 260 30th Street
Oakland, California 94611

Prepared For:
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, California 94502

Prepared By:
Langan Engineering and Environmental Services, Inc.
501 14th Street, 3rd Floor
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Karianne Staehlin
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8 March 2017
750635602

LANGAN

8 March 2017

Mr. Keith Nowell, PG
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, California 94502

**Re: Additional Environmental Site Characterization
Fuel Leak Case No. RO03236
250 and 260 30th Street
Oakland, California
Langan Proposal No.: 750635602**

Dear Mr. Nowell,

On behalf of 3000 Broadway SPE LLC (Client), Langan Engineering and Environmental Services, Inc. (Langan), is pleased to submit this *Additional Environmental Site Characterization* (ESC) report summarizing the sampling activities and analytical results associated with our investigation to further evaluate impacted soil discovered during a recent geotechnical investigation at the Broadway Redevelopment project located at 3000 and 3020 Broadway; 250, 260 and 288 30th Street; and 3007 and 3009 Brook Street in Oakland, California.

We look forward to meeting with you on 15 March 2017 to further discuss this project. If you have any questions or need any information clarified, please call Joshua Graber at (510) 874-7086.

Sincerely yours,

Langan Engineering and Environmental Services, Inc.



Karianne Staehlin
Senior Staff Scientist



Dorinda Shipman, PG, CHG
Principal



Joshua Graber, CHMM
Associate

cc: Alan Chamorro – Lowe Enterprises Real Estate Group

750635602.02 JDG_ESC Report_260 30th Street

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	SITE DESCRIPTION AND PROPOSED REDEVELOPMENT	1
3.0	RECENT ENVIRONMENTAL INVESTIGATIONS	2
3.1	2016 Phase II Environmental Site Assessment	2
3.2	Request for No Further Action	3
3.3	November 2016 Geotechnical Investigation and Environmental Sampling ..	3
3.4	Floor Drain Exploration	4
4.0	ADDITIONAL ENVIRONMENTAL SAMPLING	5
5.0	FIELD INVESTIGATION	5
5.1	Soil and Groundwater Sampling	5
6.0	SUBSURFACE CONDITIONS	7
7.0	ANALYTICAL TESTING	8
8.0	LABORATORY TEST RESULTS AND EVALUATION	8
8.1	Soil Results	8
8.2	Grab-Groundwater Results	10
9.0	CONCLUSIONS	11
10.0	RECOMMENDED NEXT STEPS	12
11.0	LIMITATIONS	13

ATTACHMENTS

TABLES

Table 1	Groundwater Analytical Results for Non-Metals
Table 2	Soil Analytical Results for Non-Metals
Table 3	Soil Analytical Results for Metals

FIGURES

Figure 1	Site Location Map
Figure 2	Site Plan with Cross Section
Figure 3	Idealized Subsurface Profile A-A'
Figure 4	Site Plan with Chemical Concentrations in Soil
Figure 5	Site Plan with Chemical Concentrations in Groundwater

APPENDICES

Appendix A	Geotechnical and Environmental Boring Logs
Appendix B	Certified Laboratory Analytical Reports

**ADDITIONAL ENVIRONMENTAL SITE CHARACTERIZATION
250 and 260 30th Street
Oakland, California**

1.0 INTRODUCTION

On behalf of 3000 Broadway SPE LLC (Client), Langan Engineering and Environmental Services, Inc. (Langan) has prepared this *Additional Environmental Site Characterization* (ESC) for the property located at 250 and 260 30th Street (site) in Oakland, California (Figure 1), which are part of the larger 3000 Broadway Redevelopment project. This ESC summarizes the sampling activities and analytical results associated with our additional subsurface investigation outlined in our *Work Plan for Additional Environmental Sampling* (Work Plan) dated 5 January 2017 and approved by the Alameda County Department of Environmental Health (ACEH) in a letter dated 30 January 2017. The primary objective of our additional subsurface investigation was to further evaluate current subsurface conditions prior to redevelopment, specifically related to impacted soil encountered during a recent geotechnical investigation at boring B-16 located in the 260 30th Street property and near a floor drain system.

The site is currently in the ACEH Local Oversight Program (ACEH-LOP) with active cleanup site with case number RO03236. We believe the subsurface impacts are likely related to a nearby floor drain system, which is proposed for removal during site redevelopment.

2.0 SITE DESCRIPTION AND PROPOSED REDEVELOPMENT

The site is part of a larger redevelopment project encompassing four warehouse-like structures (250, 260, and 288 30th Streets and 3020 Broadway), including one former restaurant (3000 Broadway), and two private residential properties (3007 and 3009 Brook Street) in a fully developed mixed-use area of Oakland, commonly referred to as Auto Row (Broadway Redevelopment Site). Until recently, the warehouse-like structures were used as automobile sales, repair and service shops, a restaurant, or were vacant. Currently, only the 250 and 288 30th Street addresses are an active business (XYZ Motors). The restaurant (3000 Broadway) recently closed; the former showroom (3020 Broadway) and a former repair warehouse at 260 30th Street are vacant; and the two private residences (3007 and 3009 Brook Street) are vacant and planned for either relocation or demolition.

As shown in Figure 2, the larger development area is bound by a commercial property and asphalt parking area to the north, Brook Street to the east, 30th Street to the south, and

Broadway to the west. The site and surrounding area generally slopes to the southeast. The larger development area has an approximate high elevation of 50 feet above mean sea level (MSL) at the northwest corner along Broadway, and an approximate low elevation of 30 feet above MSL at the southeast corner near the intersection of 30th and Brook Streets.

Current development plans include the construction of a five-story, wood-frame apartment building, over a one- to two-story concrete podium with parking. The proposed development will have a single level basement along Broadway leveling out to the current grade at Brook Street, as the ground surface elevation drops. The entrance to the partial below grade parking will be along Brook Street. The partial below grade parking level will be naturally ventilated along the southern and eastern faces of the site. Mechanical ventilation will be provided on the interior parking area. All residential and commercial units are situated above the parking podium.

3.0 RECENT ENVIRONMENTAL INVESTIGATIONS

Several Investigations have been conducted at the larger 3000 Broadway Redevelopment properties (including the site) by both Langan and others, which were discussed and summarized in our recent Work Plan. Below is a brief summary of Langan's most recent investigations conducted at the site and larger 3000 Broadway Redevelopment.

3.1 2016 Phase II Environmental Site Assessment

In addition to the redevelopment site being an ACEH Local Oversight Program (ACEH-LOP) active cleanup site with case number RO03236, the 250 30th Street portion of the site is listed as a leaking underground cleanup site with case number RO0247. Case number RO0247 is related to the closed-in-place UST located in the sidewalk in front of 250 30th Street. The purpose of Langan's Phase II Environmental Site Assessment (ESA) was to determine the downgradient extent of TPH impacts in groundwater related to the closed-in-place UST in 30th Street (RO0247) and to assess the soil proposed for excavation during redevelopment.

In April 2016, Langan conducted soil sampling from a total of 12 soil borings (B-1 through B-12). Grab groundwater samples were collected from two of the borings (B-11 and B-12), to evaluate potential petroleum impacts associated with the former closed-in-place UST located in front of 250 30th Street. All previous sampling locations are shown on Figure 2.

Based on the soil and groundwater sampling conducted in April 2016, and the corresponding analytical results, Langan's Phase II ESA report concluded that low levels of contaminants are present in the subsurface in the areas investigated.

No total petroleum hydrocarbons (TPH) as gasoline (TPHg), TPH as diesel (TPHd), TPH as motor oil (TPHmo) volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), organochlorine pesticides (OCPs), or asbestos were detected above laboratory reporting limits in the composite soil samples analyzed. Of the metals analyzed only lead was detected in one composite sample from borings B-3 and B-4 (beneath the 3020 Broadway building) at elevated levels (Figure 2).

Groundwater samples collected in the area of the closed-in-place UST (B-11) indicate that residual concentrations of TPHg, TPHd, and TPHmo are present. TPHg, TPHd, or TPHmo were not detected in the groundwater sample (B-12) collected from the downgradient area, near the corner of 30th and Brook Streets, which suggests that the residual TPH is localized and has not migrated significantly away from the former UST location. With the exception of toluene at a low concentration, no other VOCs were detected in boring B-12. Analytical results associated with the groundwater samples from borings B-11 and B-12 are included in Table 1.

3.2 Request for No Further Action

As part of the April 2016 Phase II ESA, Langan evaluated groundwater downgradient of the closed-in-place UST associated with 250 30th Street. Based on the lack of significant detections in the downgradient location (boring B-12), Langan prepared a *Response to 4 November 2015 Letter and Request for No Further Action* letter for the site dated 24 October 2016. This letter summarized previous environmental work and compared the existing conditions related to the former closed-in-place UST to criteria required to achieve regulatory closure under the RWQCB *Low Threat Closure Policy* (LTCP). Based on our evaluation, we recommended the 1,000-gallon, closed-in-place UST be granted no further action (NFA) status.

3.3 November 2016 Geotechnical Investigation and Environmental Sampling

In order to obtain subsurface data for design, Langan advanced four geotechnical borings (B-13 through B-16) in November 2016 to a maximum depth of 46.5 feet below ground surface (bgs). The borings were advanced into groundwater and a groundwater sample was collected from boring B-13. The groundwater sample from boring B-13 was collected to determine if any concentrations in groundwater were migrating onto the property from upgradient, near Broadway. The groundwater sample was analyzed for TPHg, TPHd, TPHmo and VOCs. No

TPHg, TPHd or TPHmo were detected in the groundwater sample from boring B-13. Low levels of chloroform and trichloroethene (TCE) were detected at concentrations of 0.62 and 1.8 micrograms per liter ($\mu\text{g/L}$), respectively. No other VOCs were detected. Analytical results associated with the groundwater sample collected from boring B-13 are included in Table 1.

Additionally, a petroleum odor was noted and responses on a photoionization detector (PID) were detected in soil collected from boring B-16, starting at 6.0 feet bgs. Soil samples were collected from boring B-16 at depths of 6.0, 10, and 20.5 feet bgs and submitted for TPHg, TPHd, TPHmo, VOCs, and metal analyses. All sampling locations are shown on Figure 2.

Elevated concentrations of TPHg, TPHd, and TPHmo were detected in soil samples from boring B-16 collected at depths of six and ten feet bgs. Significantly lower concentrations were detected in soil from 20.5 feet bgs, which at the time was above the observed groundwater table. Concentrations of tetrachloroethene (PCE), TCE and cis-1,2-dichloroethene (cis-1,2-DCE) were also detected in soil, with the highest concentrations in the six and ten foot samples. Low levels of chromium, lead, nickel and zinc were also detected in soil samples from boring B-16 but were generally below the RWQCB's Environmental Screening Levels (ESLs). Analytical results associated with the soil samples from boring B-16 are included in Tables 2 and 3.

Langan believes the contamination observed in boring B-16 is associated with a nearby floor drain and the long historical use as an automobile service facility. The floor drain located within the 260 30th Street property appears to be connected to the same drain line as the adjacent 250 30th Street property. The approximate location of both floor drains within the 250 and 260 30th Street properties are shown on Figure 2.

3.4 Floor Drain Exploration

On 14 November 2016, Langan observed exploration activities centered around the existing floor drain located within the northwest portion of the 260 30th Street site property. Activities included removing portions of the concrete slab and ramp leading to 250 30th Street to reveal the cast iron piping leading away (north) from the floor drain toward the existing site perimeter wall, and excavating the contents of the exposed drain and some of the surrounding soil material. The exposed drain piping was traced by a private utility locator and found to run west to east ultimately joining the sanitary sewer and water cleanouts along Brook Street. The drain piping was estimated to be about 1.5 feet below the slab by the private utility locator. The drain sump was found to be constructed of concrete walls and bottom and did not have any visible holes. It should also be noted that the drain sump held water. During our exploratory activities, olfactory observations and PID readings of the material contained in the drain sump indicated

low-level contamination. The proximity and orientation of the drain and associated piping indicate that concentrations observed in boring B-16 soil may be related to the drain and/or its associated piping. Approximate locations of the floor drain sumps and the drain lines are shown on Figure 2.

4.0 ADDITIONAL ENVIRONMENTAL SAMPLING

As detailed in our Work Plan, Langan's proposed services included collecting soil, groundwater, and soil vapor samples to characterize subsurface conditions for the proposed development. Field activities, including concrete coring, drilling and sampling of soil and groundwater were initiated on 1 February 2017 and completed on 4 February 2017.

During our field activities, Langan found that groundwater levels across the site were significantly higher than previously documented in November 2016. The rise in groundwater elevation can be attributed to the recent above average precipitation in the area of the site. Due to the significant rise in groundwater, it was not feasible to collect soil vapor samples from the depth proposed in the Work Plan. Therefore, soil vapor sampling was not conducted as a part of this additional investigation.

5.0 FIELD INVESTIGATION

Prior to drilling and sampling, Langan obtained the required permits from Alameda County Public Works Agency – Water Resources (ACPWA) and the City of Oakland, and notified Underground Services Alert (USA) to locate and identify underground utilities. Langan also sub-contracted OHJ, Inc., a private underground utility locator to clear each of the individual sampling locations for underground utilities.

5.1 Soil and Groundwater Sampling

A total of 14 exploratory borings (B-17 through B-30) were drilled to a maximum depth of 28 feet below the ground surface (bgs) between 1 and 3 February 2017. Based on field observations in borings B-24 indicating the presence of soil impacts and the lack of clear soil impacts observed in boring B-17, additional borings were completed along the eastern portion of 260 30th Street parcel, which were not proposed in the Work Plan, to evaluate observed contamination in boring B-24. An additional borings were also completed in the 288 30th Street parcel at the request of the ACEH and one additional boring was completed in the 3020 Broadway parcel to determine the depth to groundwater for design purposes. The additional borings were completed following verbal approval by the ACEH.

Borings B-17 through B-26 were advanced within the 250 and 260 30th Street parcels to assess soil and groundwater impacts upgradient, around and downgradient of the floor drains located within each parcel. Two borings (B-27 and B-28) were drilled within the Brook Street right-of-way to a maximum depth of 16 feet bgs to facilitate the collection of soil and groundwater samples downgradient of the site. Due to the higher groundwater levels, a single exploratory environmental boring (B-29) was drilled to an approximate depth of 28 feet bgs within the 3020 Broadway property, to document upgradient groundwater elevation changes only. No soil or groundwater samples were collected from this boring due to the proximity of boring B-13, which had groundwater previously collected. In their 30 January 2017 Work Plan approval letter, ACEH requested that an additional boring be drilled within the 288 30th Street property, to investigate the subsurface conditions in the vicinity of former USTs. The additional boring (B-30) was drilled to an approximate depth of 24 feet bgs. All drilling was conducted by Gregg Drilling and Testing (Gregg) of Martinez, California using hydraulically-driven, direct push technology. Soil sampling was conducted using a macrocore sampler, lined with clean acetylene liners driven 48-inches into the soil. The drilling and sampling locations are shown on Figure 2.

Based on the depth of the proposed excavation associated with the proposed development and to adequately characterize subsurface conditions not proposed for excavation, sampling locations were spatially placed across the site and collected at approximately 8, 10, 15 and 20 feet bgs, except in boring B-29 which was only advanced to measure the depth to groundwater. Soil sample ends were covered with Teflon, sealed with plastic end caps, labeled, and stored on ice until delivery to the analytical laboratory.

Grab-groundwater samples were collected from all borings, except B-29. Grab-groundwater samples were collected using a clean stainless steel bailer, decontaminated after each use, and decanted into laboratory supplied containers, labeled, and stored on ice until delivery to the analytical laboratory.

All samples were delivered under chain-of-custody control to McCampbell Analytical, Inc. (McCampbell), a California Department of Public Health certified analytical laboratory in Pittsburg, California.

Soil was logged in the field by qualified field staff working under the direction of a registered geologist, following the Unified Soil Classification System (USCS). Soil was screened using a photo-ionization detector (PID). Boring logs from our additional investigation and for boring B-16 from our previous geotechnical investigation are presented in Appendix A as Figures A-1

through A-15. The material encountered was classified according to the system described on Figure A-16.

Following sample collection, each boring was properly abandoned via tremie grouting under supervision of an Alameda County inspector. The surface of each boring was completed with a cold asphalt patch.

6.0 SUBSURFACE CONDITIONS

The site is generally blanketed by medium dense clayey sand fill underlain by alternating layers of medium stiff to stiff clays and medium dense to very dense sands. An idealized subsurface profile presented as Figure 3 illustrates the approximate grade of the 30th Street sidewalk, the approximate elevation of the existing building slabs fronting 30th Street, the proposed excavation depths associated with the development, soil types and PID measurements observed in borings, and seasonal groundwater levels as measured in November 2016 and February 2017.

During our February 2017 sampling, Langan inserted 1-inch PVC temporary casings in each boring for groundwater level measurements and grab-groundwater sample collection. The temporary wells were left open overnight to allow groundwater levels to stabilize. In addition to groundwater data presented on the cross-section, a summary of rough groundwater elevation measurements and flow directions are provided below.

Groundwater at the site is anticipated to flow in the southeasterly direction towards the Glen Echo Creek, which is located over 300 feet away from the site boundary. Groundwater elevations measured in November 2016 at the site ranged from about 21 feet above mean sea level (msl) in boring B-13 located in the 3020 Broadway parcel to about 9 feet above msl in boring B-16 located in the 260 30th Street parcel. Groundwater elevations measured in February 2017 at the site were significantly higher than those observed in November 2016. February 2017 groundwater elevations ranged from about 29 feet above mean sea level (msl) in boring B-29 located in the 3020 Broadway parcel to an average of about 26 feet above msl in borings located in the 260 30th Street parcel. Above average rainfall occurred at the site between November 2016 and February 2017, which contributed to the significant rise in groundwater elevation beneath the site. Additionally, the 3007 and 3009 Brook Street properties, which are located upgradient to the northwest of the 260 30th Street parcel, have unpaved backyards. The presence of unpaved backyards in the upgradient and uphill location relative to the 260 30th Street parcel likely contributed to the greater rise in groundwater

elevation along the eastern portion of the site relative to the western portion of the site, due to rainfall infiltration and southeasterly flow towards 260 30th Street.

7.0 ANALYTICAL TESTING

The soil samples were submitted under appropriate chain-of-custody documentation to McCampbell, for some or all of the following analyses:

- TPHg, TPHd, and TPHmo by EPA Method 8021/8015;
- VOCs by EPA Method 8260;
- Polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270-SIM; and
- California Assessment Manual (CAM) 17 metals by EPA Method 6020.

The groundwater samples were submitted under appropriate chain-of-custody documentation to McCampbell for some or all of the following analyses:

- TPHg, TPHd, and TPHmo by EPA Method 8021/8015;
- VOCs by EPA Method 8260; and
- PAHs by EPA Method 8270-SIM.

8.0 LABORATORY TEST RESULTS AND EVALUATION

The laboratory analytical results are summarized in Tables 1 through 4 and are discussed in the following sections. Copies of the laboratory analytical reports are presented in Appendix B.

8.1 Soil Results

Soil analytical results for parameters other than metals are summarized in Table 2 and were compared to the San Francisco Bay Area Regional Water Quality Control Board (RWQCB) Tier 1 environmental screening levels (ESLs) summary table (RWQCB, February 2016 [Rev. 3]). In addition, the soil sampling results from the B-16 geotechnical boring are also included in Table 2. Composite soil samples analyzed for waste profiling purposes are included in previous reports.

TPHg, TPHd, and TPHmo were detected at or above the laboratory's reporting limits in eight of the 31 samples analyzed. TPHg, TPHd, and TPHmo were only detected in soil from borings B-16, B-23, B-24, B-25, and B-26, which are all located along the eastern portion of the 260 30th Street parcel, which coincides with the location of former floor hoists. Based on discussions with the former owner, the floor hoists were not subsurface and were mounted to the surface of the slab.

TPHg was detected at concentrations ranging from 2.9 milligram per kilogram (mg/kg) to 810 mg/kg. TPHd was detected at concentrations ranging from 8.1 mg/kg to 2,900 mg/kg. TPHmo was detected at concentrations ranging from 25 mg/kg to 6,100 mg/kg. Three samples (B-16-6.0, B-16-10.0, and B-26-10.0) had concentrations of petroleum hydrocarbons that exceeded one or more established Tier 1 ESLs. Two of these samples are from boring B-16 at 6.0 and 10.0 feet bgs. The third sample was from boring B-26 at an approximate depth of 10.0 feet bgs. These TPH ESL exceedances are relatively shallow and appear to be isolated. Additionally, this material would be excavated and disposed of off-site during the proposed development, therefore these petroleum impacts will not remain a long-term risk/concern to human health at the site post-development.

VOCs were detected at or above their respective laboratory reporting limits in 19 of the 31 soil samples analyzed. The VOCs detected generally consisted of chlorinated solvents (including tetrachloroethene (PCE), trichloroethene (TCE), and cis,1,2-dichloroethene (cis-1,2-DCE) and VOCs associated with petroleum products (including butyl benzene, propyl benzene, methyl benzene isomers).

The highest concentrations of chlorinated VOCs were detected near the floor drain while the highest petroleum based VOCs were detected along the eastern portion of the 260 30th Street parcel. PCE was detected in 3 of the 31 samples analyzed at concentrations ranging from 0.013 mg/kg to 2.0 mg/kg, one of which exceeded the Tier 1 ESL for PCE (0.42 mg/kg). TCE was detected in 16 of the 31 samples analyzed at concentrations ranging from 0.0074 mg/kg to 6.4 mg/kg, three of which exceed the Tier 1 ESL for TCE (0.46 mg/kg). Cis-1,2-DCE was detected in 8 of the 31 samples analyzed at concentrations ranging from 0.0063 mg/kg to 1.1 mg/kg, three of which exceed the Tier 1 ESL for cis-1,2-DCE (0.19 mg/kg). Concentrations of PCE, TCE and cis-1,2-DCE in soil are presented on Figure 4. The only other VOC exceeding Tier 1 ESLs in soil was 1,1,2,2-tetrachloroethane detected at a concentration of 0.35 mg/kg in the sample collected from B-16 at a depth of 6 feet bgs (B-16-6). Trace to low concentrations of PAHs were also detected in 4 of the 26 soil samples analyzed, none of which exceeded their respective Tier 1 ESLs, where established.

Soil analytical results for metal parameters are summarized in Table 3 and were compared to the California total threshold limit concentration (TTLC), the State of California hazardous waste criterion, and general background concentrations for Bay Area soils. All metal concentrations were below hazardous waste criteria and were within normal¹ background ranges found in the western United States, specifically the San Francisco Bay Area.

8.2 Grab-Groundwater Results

Grab-groundwater analytical results for TPH, VOCs and PAHs are summarized in Table 1 and were compared to the RWQCB Tier 1 ESLs summary table (RWQCB, February 2016 [Rev. 3]).

TPHg was detected at or above the laboratory reporting limit (50 micrograms per liter ($\mu\text{g/L}$)) in 8 of the 13 samples analyzed in February 2017 at concentrations ranging from 55 $\mu\text{g/L}$ to 1,400 $\mu\text{g/L}$, four of which exceed the Tier 1 ESL (100 $\mu\text{g/L}$). TPHd was detected at or above the laboratory reporting limits in 6 of the 13 samples analyzed in February 2017 at concentrations ranging from 200 $\mu\text{g/L}$ to 250,000 $\mu\text{g/L}$, all of which exceed the Tier 1 ESL (100 $\mu\text{g/L}$). TPHmo was detected at or above the laboratory reporting limit (250 $\mu\text{g/L}$) in 11 of the 13 samples analyzed, at concentrations ranging from 510 $\mu\text{g/L}$ to 500,000 $\mu\text{g/L}$, two of which exceed the Tier 1 ESL of 50,000 $\mu\text{g/L}$. The highest concentrations of TPH in groundwater were detected in borings B-23 and B-24, which are located along the eastern portion of the site.

VOCs were detected at or above their respective laboratory reporting limits in each of the 13 grab-groundwater samples analyzed in February 2017. TCE was detected in all 13 February 2017 groundwater samples analyzed at concentrations ranging from 1.4 $\mu\text{g/L}$ to 6,100 $\mu\text{g/L}$, 11 of which exceed the Tier 1 ESL for TCE (5.0 $\mu\text{g/L}$). Cis-1,2-DCE was detected in 12 of the 13 samples analyzed at concentrations ranging from 2.7 $\mu\text{g/L}$ to 2,200 $\mu\text{g/L}$, nine of which exceed the Tier 1 ESL for cis-1,2-DCE (6.0 $\mu\text{g/L}$). Chloroform was detected in one of the 13 samples analyzed in February 2017 at a concentration of 3.3 $\mu\text{g/L}$, which exceeds the Tier 1 ESL for chloroform (2.3 $\mu\text{g/L}$). Trace concentrations of PAHs were detected in four of the grab-groundwater samples analyzed. Benzo (a) anthracene was detected in a single sample from boring B-23-GW at a concentration of 0.64 $\mu\text{g/L}$, which exceeds the Tier 1 ESL, 0.027 $\mu\text{g/L}$. No other VOCs or PAHs exceeded their Tier 1 ESLs in groundwater samples collected in February 2017.

¹ Environmental Resources Management. *Feasibility Study, Hookston Station, Pleasant Hill, California*. Appendix A, Table A-2, "Comparison of Background Concentrations of Metals in Bay Area Soils," July 2006.

9.0 CONCLUSIONS

The site is proposed for redevelopment into a mixed-use building with a partial subsurface podium parking level. Due to the sloping nature of the site, the parking level near Brook and 30th Streets will be naturally ventilated. Mechanical ventilation of the garage will also be provided. As part of the redevelopment, a significant amount of soil will be removed and disposed of off-site. Soil beneath the 260 30th Street parcel is currently proposed for excavation to a depth of about eight feet for construction purposes. The additional soil and groundwater sampling and analysis documented herein was completed to further characterize TPH and VOC concentrations observed in boring B-16 soil, evaluate concentrations near the floor drains in the 250 and 260 30th Street parcels, and determine if over-excavation of soil during redevelopment is warranted.

Soil and groundwater samples collected as part of our February 2017 investigation were collected in general accordance with our Work Plan. Soil gas samples were not collected due to significantly higher groundwater elevations and moisture content observed at the proposed sample depths. The increase in groundwater elevation and moisture content in soil are related to the above average rainfall in the winter of 2017. Soil and groundwater analytical results collected as part of this characterization effort indicate the 260 30th Street parcel is impacted with TPH, VOCs and to a much lesser extent PAHs. TPH and VOC concentrations in soil above the RWQCB Tier 1 ESLs appear to be limited to the upper 10 feet beneath 260 30th Street.

The most significant TPH impacts in soil and/or groundwater appear to be limited to the eastern portion of 260 30th Street in borings B-16, B-20, B-23, B-24, B-25, and B-26 with concentrations diminishing within Brook Street and lower concentrations detected near the floor drain (Figures 4 and 5). Borings with the highest TPH impacts are located near former floor hoists, which were mounted on the slab, according to the former owner of the 260 30th Street parcel.

VOCs, predominantly PCE, TCE, and cis-1,2-DCE, were also detected in soil and groundwater. The highest concentrations of these compounds were detected in soil and groundwater near and downgradient of the floor drain location in borings B-18, B-20 and B-22 at the 260 30th Street parcel. Concentrations decrease downgradient towards Brook Street and are significantly lower in the cross-gradient direction to the north in borings B-19 and B-21 and to the south in boring B-26 (Figures 4 and 5). PCE, TCE and cis-1,2-DCE were not detected in the groundwater sample collected in April 2016 from boring B-12, located just north of the corner of 30th Street and Brook Street.

VOCs present in soil and groundwater pose a potential vapor intrusion to indoor air risk and appropriate risk mitigation measures will be employed in the building design. Confirmation sample results will be used to assess risk and the appropriate mitigation measures.

10.0 RECOMMENDED NEXT STEPS

Langan recommends that soil with concentrations exceeding Tier 1 ESLs be removed during construction to approximately 10 feet bgs. Additional soil screening and sampling at the 260 30th Street parcel is needed to delineate the soil volume exceeding screening criteria, and recommended for over-excavation. Additional soil and groundwater chemistry data will also be obtained to evaluate groundwater cleanup alternatives.

Langan recommends the following with respect to groundwater remediation planning.

- Complete deeper (>20 feet bgs) groundwater sampling near the floor drain and along the eastern portion of 260 30th Street;
- Install groundwater monitoring wells to collect groundwater verification samples, monitor groundwater elevations and evaluate risk management and remedial measures in the 260 30th Street parcel and downgradient within Brook Street;
- Perform groundwater sampling in the 260 30th Street parcel and Brook Street wells and downgradient within 30th Street to evaluate downgradient groundwater conditions.

Langan also recommends collecting soil gas samples in the parking lane of Brook Street to assess potential vapor intrusion risk to offsite building occupants, if possible. Langan is preparing an additional work plan that will present additional sampling locations, methodology and analytical procedures. The work plan will also present methods to evaluate vapor intrusion risk and potential mitigation measures which will be incorporated into the building design. The work plan and mitigation strategy will be submitted to the ACEH for approval prior to implementation.

Langan recommends preparing a Soil Management Plan (SMP) that presents soil and groundwater management protocols for excavation, handling and grading activities that may occur during site redevelopment. The physical area covered by the SMP will cover the area proposed for soil disturbance, transport and soil storage or stockpiling. The SMP includes measures to mitigate potential risks to the environment and to protect on-site construction workers and/or pedestrians/site visitors from potential exposure to hazardous substances that may be encountered during soil intrusive or development activities at the site.

11.0 LIMITATIONS

Descriptions of specific field activities and historical events are based on our observations and on information provided by others. The opinions and information presented in this report apply to site conditions and the information that was available at the time the work was performed and do not apply to changes of which we are not aware or have not had the opportunity to evaluate. Langan makes no guarantees or warranties with respect to the accuracy or completeness of this information.

TABLES

Table 1
Groundwater Analytical Results for Non-Metals
260 30th Street
Oakland, California

Sample ID	Date	TPHg	TPHd	TPHmo	VOCs					PAHs		
					cis- 1,2 DCE	TCE	PCE	Xylenes	All Other VOCs	2- Methyl-naphthalene	Naphthalene	All Other PAHs
(µg/L)												
B-11-GW	04/02/16	250	460	6,900	< 0.50	< 0.50	< 0.50	0.88	acetone = 15 benzene = 0.65 bromodichloromethane = 0.61 t-butyl alcohol = 12 sec-butyl benzene = 0.67 tert-butyl benzene = 0.96 chlorobenzene = 0.65 isopropylbenzene = 1.3 n-propyl benzene = 0.93	--	< 0.50	--
B-12-GW	04/16/16	< 50	< 50	< 250	< 0.50	< 0.50	< 0.50	< 0.50	toluene = 0.50	--	< 0.50	--
B-13-GW	11/03/16	< 50	< 50	< 250	< 0.50	1.8	< 0.50	< 0.50	chloroform = 0.62	--	< 0.50	--
B-17-GW	02/03/17	< 50	< 50	< 250	2.7	3.5	0.58	< 0.50	chloroform = 3.3	< 0.50	< 0.50	< 0.50
B-18-GW	02/02/17	55	200	1,200	350	2,000	< 100	< 100	ND	0.54	0.62	< 0.50
B-19-GW	02/02/17	< 50	< 100	630	4.5	41	< 1.2	< 1.2	ND	< 0.50	< 0.50	< 0.50
B-20-GW	02/02/17	75	2,400	8,600	460	4,700	< 120	< 120	ND	< 0.50	< 0.50	< 0.50
B-21-GW	02/02/17	< 50	< 100	510	19	170	< 5.0	< 5.0	ND	< 0.50	< 0.50	< 0.50
B-22-GW	02/02/17	120	< 100	680	2,200	6,100	< 120	< 120	ND	< 0.50	< 0.50	< 0.50
B-23-GW	02/03/17	250	40,000	110,000	210	470	< 12	< 12	chlorobenzene = 19	4.6	3.5	benzo (a) anthracene = 0.64 fluorene = 0.83 1-methylnaphthalene = 3.0 phenanthrene = 1.2
B-24-GW	02/02/17	1,400	250,000	500,000	1,600	590	< 50	< 50	ND	3.4	3.5	fluorene = 3.3 1-methylnaphthalene = 2.8 pyrene = 1.4
B-25-GW	02/03/17	66	5,100	18,000	29	210	< 5.0	< 5.0	ND	--	< 5.0	--
B-26-GW	02/03/17	110	770	1,300	20	63	< 2.5	< 2.5	1,2,3-trichlorobenzene = 3.7 1,2,4-trimethylbenzene = 3.1	< 0.50	0.64	ND
B-27-GW	02/03/17	59	< 100	540	4.8	48	< 1.7	9.4	ND	--	< 1.7	--
B-28-GW	02/03/17	< 50	< 100	960	37	230	< 10	< 10	ND	--	< 10	--
B-30-GW	02/04/17	< 50	< 50	< 250	< 0.5	1.4	< 0.5	< 0.5	ND	< 0.50	< 0.50	ND
Tier 1 ESL		100	100	50,000	6.0	5.0	3.0	20	Various	36*	20**	Various

Notes:

µg/L - micrograms per liter

VOCs - Volatile Organics Compounds, EPA Method 8260B

PAHs - Polycyclic aromatic hydrocarbons

TPHg - Total Petroleum Hydrocarbons as Gasoline, EPA Method 8015B

TPHd - Total Petroleum Hydrocarbons as Diesel Range, EPA Method 8015B

TPHmo - Total Petroleum Hydrocarbons as Motor Oil, EPA Method 8015B

Cis-1,2-DCE - Cis-1,2-dichloroethene

TCE - Trichloroethene

PCE - Tetrachloroethene

< 0.50 - Analyte was not detected above the laboratory reporting limit (0.50 µg/L)

ND - Not detected at or above the laboratory reporting limit(s)

-- Sample not analyzed

ESL - Environmental screening level(s)

Various - ESLs, where established, vary for each of the multiple compounds analyzed

*Direct exposure Human Health Risk Level (Table GW-1) ESL

**Groundwater Vapor Intrusion Human Health Risk Levels (Table GW-3) ESL for Residential Shallow Groundwater

Bold - Detection exceeds Tier 1 ESL

Tier 1 ESLs - San Francisco Bay Regional Water Quality Control Board's Environmental Screening Levels - *Tier 1 Groundwater*. February 2016 [Rev. 3]

Table 2
Soil Analytical Results for Non-Metals
260 30th Street
Oakland, California

Sample ID	Sample Depth	Date Sampled	TPHg	TPHd	TPHmo	VOCs				PAHs		
						cis- 1,2-DCE	TCE	PCE	All Other VOCs	2-Methyl-naphthalene	Naphthalene	All Other PAHs
B-16-6.0	6	11/03/16	810	2,900	6,100	< 0.20	< 0.20	2.0	n-butyl benzene = 0.35 1,2-dichlorobenzene = 0.53 1,1,2,2-tetrachloroethane = 0.35 1,2,4-trimethylbenzene = 1.4 1,3,5-trimethylbenzene = 0.44	0.26	0.22	benzo (a) anthracene = 0.13 fluorene = 0.13 1-methylnaphthalene = 0.21 phenanthrene = 0.38 pyrene = 0.14
B-16-10.0	10	11/03/16	460	1,600	3,600	0.29	0.29	0.059	n-butyl benzene = 0.17 sec-butyl benzene = 0.072 1,2-dichlorobenzene = 0.37 n-propyl benzene = 0.068 1,2,4-trimethylbenzene = 0.77 1,3,5-trimethylbenzene = 0.26 xylenes = 0.15	0.19	0.15	benzo (a) anthracene = 0.10 1-methylnaphthalene = 0.13 phenanthrene = 0.16
B-16-20.5	20.5	11/03/16	15	46	100	< 0.0050	0.017	0.013	1,2,4-trimethylbenzene = 0.012	< 0.010	< 0.010	< 0.010
B-17-10.0	10	02/03/17	< 1.0	< 1.0	< 5.0	< 0.0050	< 0.0050	< 0.0050	ND	< 0.010	< 0.010	< 0.010
B-18-10.0	10	02/02/17	< 1.0	< 1.0	< 5.0	1.1	6.4	< 1.0	ND	< 0.010	< 0.010	< 0.010
B-18-15.0	15	02/02/17	< 1.0	< 1.0	< 5.0	0.0063	0.025	< 0.0050	ND	< 0.010	< 0.010	< 0.010
B-18-20.0	20	02/02/17	< 1.0	< 1.0	< 5.0	< 0.0050	< 0.0050	< 0.0050	ND	< 0.010	< 0.010	< 0.010
B-19-10.0	10	02/01/17	< 1.0	< 1.0	< 5.0	< 0.0050	< 0.0050	< 0.0050	ND	< 0.010	< 0.010	< 0.010
B-20-10.0	10	02/01/17	< 1.0	< 1.0	< 5.0	0.011	0.21	< 0.010	ND	< 0.010	< 0.010	< 0.010
B-20-15.0	15	02/01/17	< 1.0	< 1.0	< 5.0	< 0.0050	0.021	< 0.0050	ND	--	< 0.0050	--
B-20-20.0	20	02/01/17	< 1.0	< 1.0	< 5.0	< 0.0050	0.0097	< 0.0050	ND	--	< 0.0050	--
B-21-10.0	10	02/02/17	< 1.0	< 1.0	< 5.0	0.065	0.50	< 0.025	ND	< 0.010	< 0.010	< 0.010
B-21-15.0	15	02/02/17	< 1.0	< 1.0	< 5.0	< 0.0050	< 0.0050	< 0.0050	ND	--	< 0.0050	--
B-22-10.0	10	02/01/17	< 1.0	< 1.0	< 5.0	0.81	5.0	< 0.33	ND	< 0.010	< 0.010	< 0.010
B-22-15.0	15	02/01/17	< 1.0	< 1.0	< 5.0	< 0.0050	< 0.0050	< 0.0050	ND	< 0.010	< 0.010	< 0.010
B-22-20.0	20	02/01/17	< 1.0	< 1.0	< 5.0	< 0.0050	< 0.0050	< 0.0050	ND	< 0.010	< 0.010	< 0.010
B-23-10.0	10	02/02/17	< 1.0	< 1.0	< 5.0	< 0.0050	< 0.0050	< 0.0050	ND	< 0.010	< 0.010	< 0.010
B-23-12.5	12.5	02/02/17	20	8.1	25	< 0.0050	< 0.0050	< 0.0050	n-butyl benzene = 0.010 sec-butyl benzene = 0.0066 1,2-dichlorobenzene = 0.0061 1,2,4-trimethylbenzene = 0.024 1,3,5-trimethylbenzene = 0.0098	--	0.0064	--
B-23-16.0	16	02/02/17	< 1.0	< 1.0	< 5.0	< 0.0050	< 0.0050	< 0.0050	ND	--	< 0.005	--
B-24-8.0	8	02/01/17	< 1.0	< 1.0	< 5.0	< 0.0050	< 0.0050	< 0.0050	ND	< 0.010	< 0.010	< 0.010
B-24-10.0	10	02/01/17	12	70	180	0.012	0.010	< 0.0050	n-butyl benzene = 0.012 sec-butyl benzene = 0.012 chlorobenzene = 0.0069 4-isopropyl toluene = 0.0080 1,2,4-trimethylbenzene = 0.0099	0.032	0.012	fluorene = 0.013 1-methylnaphthalene = 0.021 phenanthrene = 0.037 pyrene = 0.012
B-24-15.0	15	02/01/17	< 1.0	< 1.0	< 5.0	0.14	0.047	< 0.0050	ND	< 0.010	< 0.010	< 0.010
B-24-20.0	20	02/01/17	< 1.0	< 1.0	< 5.0	< 0.0050	0.030	< 0.0050	ND	< 0.010	< 0.010	< 0.010
B-25-10.0	10	02/02/17	18	33	150	< 0.0050	0.011	< 0.0050	ND	< 0.010	< 0.010	< 0.010
B-25-15.5	15.5	02/02/17	2.9	42	170	< 0.0050	0.0074	< 0.0050	ND	< 0.010	< 0.010	< 0.010
B-25-20.0	20	02/02/17	< 1.0	< 1.0	< 5.0	< 0.0050	0.0075	< 0.0050	ND	< 0.010	< 0.010	< 0.010
B-26-10.0	10	02/02/17	170	1,500	2,800	< 0.10	< 0.10	< 0.10	n-butyl benzene = 0.21 sec-butyl benzene = 0.19 4-isopropyl toluene = 0.17 n-propylbenzene = 0.12 1,2,4-trimethylbenzene = 0.67 1,3,5-methylbenzene = 0.25	0.095	0.25	fluorene = 0.020 1-methylnaphthalene = 0.058
B-26-15.0	15	02/02/17	< 1.0	< 1.0	< 5.0	< 0.0050	< 0.0050	< 0.0050	ND	< 0.010	< 0.010	< 0.010
B-27-10.0	10	02/03/17	< 1.0	< 1.0	< 5.0	< 0.0050	< 0.0050	< 0.0050	ND	< 0.010	< 0.010	< 0.010
B-28-8.0	8	02/03/17	< 1.0	< 1.0	< 5.0	< 0.0050	0.017	< 0.0050	ND	< 0.010	< 0.010	< 0.010
B-30-10.0	10	02/04/17	< 1.0	< 1.0	< 5.0	< 0.0050	< 0.0050	< 0.0050	ND	< 0.01	< 0.01	ND
Tier 1 ESL			100	230	5,100	0.19	0.46	0.42	Various	240*	3.3*	Various

Notes:
 mg/kg - milligrams per kilogram
 VOCs - Volatile organic compounds, EPA Method 8260B
 PAHs - Polycyclic aromatic hydrocarbons
 TPHg - Total Petroleum Hydrocarbons as Gasoline, EPA Method 8015B
 TPHd - Total Petroleum Hydrocarbons as Diesel Range, EPA Method 8015B
 TPHmo - Total Petroleum Hydrocarbons as Motor Oil, EPA Method 8015B
 Cis-1,2-DCE - Cis-1,2-dichloroethene
 TCE - Trichloroethene
 PCE - Tetrachloroethene
 < 1.0 - Analyte was not detected above the laboratory reporting limit (1.0 mg/kg)
 ND - Not detected at or above the laboratory reporting limit(s)
 -- - Sample not analyzed
 Various - Environmental screening levels, where established, vary for each of the multiple compounds analyzed
 * Direct exposure Human Health Risk Level (TableS-1) ESL for Residential Shallow Soil Exposure
Bold - Detection exceeds Tier 1 ESL
 Tier 1 ESLs - San Francisco Bay Regional Water Quality Control Board's Environmental Screening Levels - *Tier 1 Soil*. February 2016 [Rev. 3]

Table 3
Soil Analytical Results for Metals
260 30th Street
Oakland, California

Langan Project: 750635602
 March 2017

Lab ID	Sample ID	Sample Depth	Date Sampled	Cadmium	Chromium	Lead	Nickel	Selenium	Zinc
				(mg/kg)					
B-16-6	B-16-6	6.0	11/3/16	< 0.25	42	6.9	50	--	39
B-16-10	B-16-10	10.0	11/3/16	< 0.25	31	5.4	37	--	37
B-16-20.5	B-16-20.5	20.5	11/3/16	< 0.25	46	7.3	46	--	48
Tier 1 ESL				39	NE	80	86	390	23,000
Background [Metal] in Bay Area Soils*				0.27-3.3	10-142	4.8-65	16-144	< 0.25-7	33-282
Hazardous Waste Criteria									
TTLC			(mg/kg)	100	2,500	1,000	2,000	100	5,000
STLC			(mg/L)	1	NE	NE	20	1	250
TCLP			(mg/L)	NE	5	5	NE	NE	NE

Notes:

mg/kg - milligrams per kilogram

mg/L - milligrams per liter

< 0.25 - Analyte was not detected above the laboratory reporting limit (0.25 mg/kg)

-- - Sample not analyzed

TTLC - California Total Threshold Limit Concentration - State hazardous waste criterion

STLC - California Soluble Threshold Limit Concentration

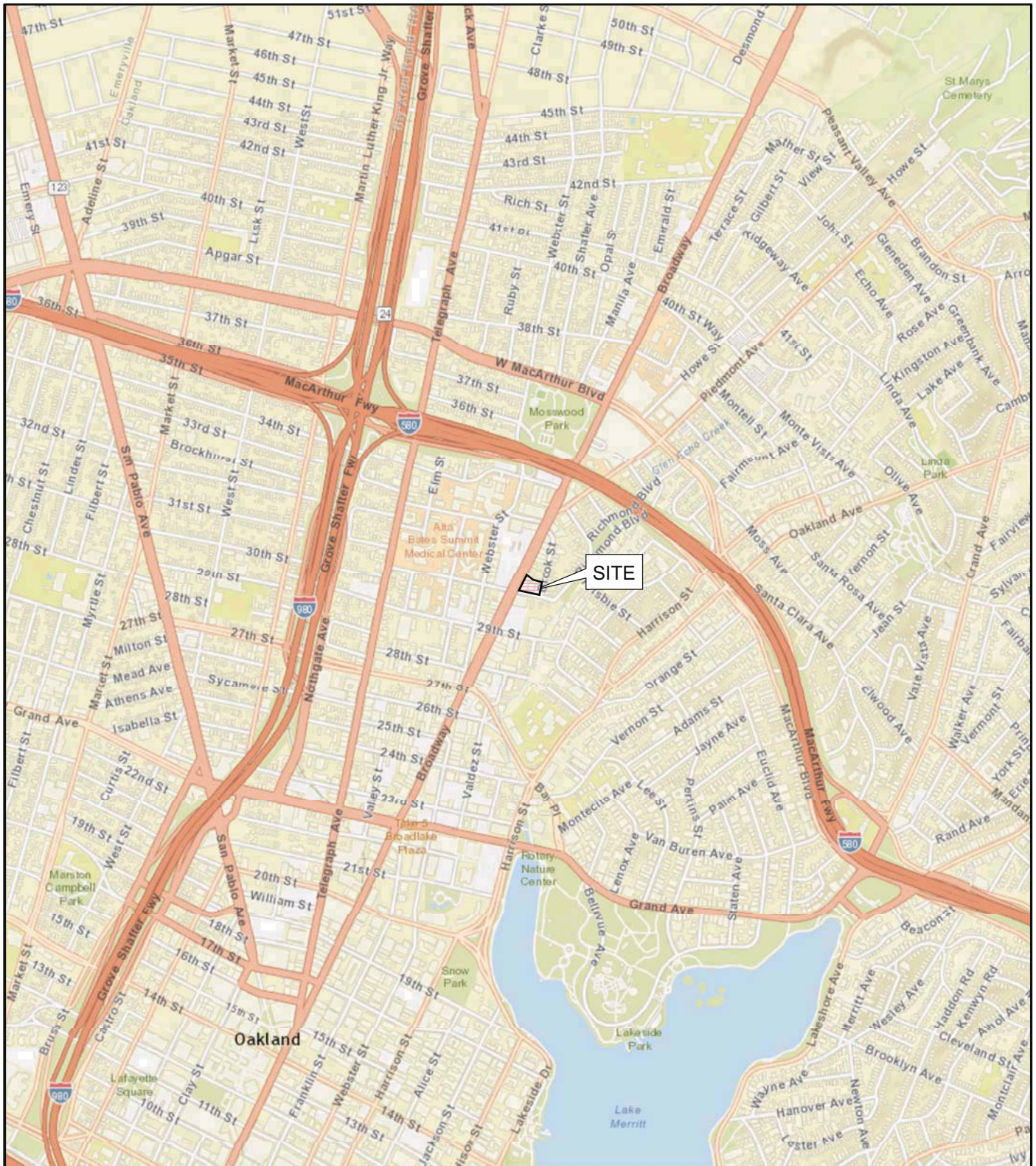
TCLP - Federal Toxicity Characteristic Leaching Procedure

*Background concentration ranges of metals in Bay Area soils, Appendix A, Table A-2 from Environmental Resources Management.

Feasibility Study, Hookston Station, Pleasant Hill, California. July 2006

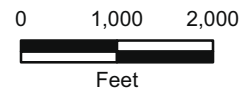
Tier 1 ESLs - San Francisco Bay Regional Water Quality Control Board's Environmental Screening Levels - *Tier 1*

FIGURES



NOTES:

World street basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online.
 Credits: Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IPC, NRCAN.



3000 BROADWAY REDEVELOPMENT
260 30TH STREET
 Oakland, California

SITE LOCATION MAP

LANGAN

Date 02/08/17






Project No. 750635602


Figure 1

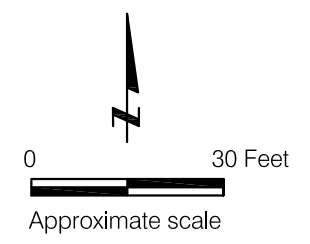
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EXPLANATION

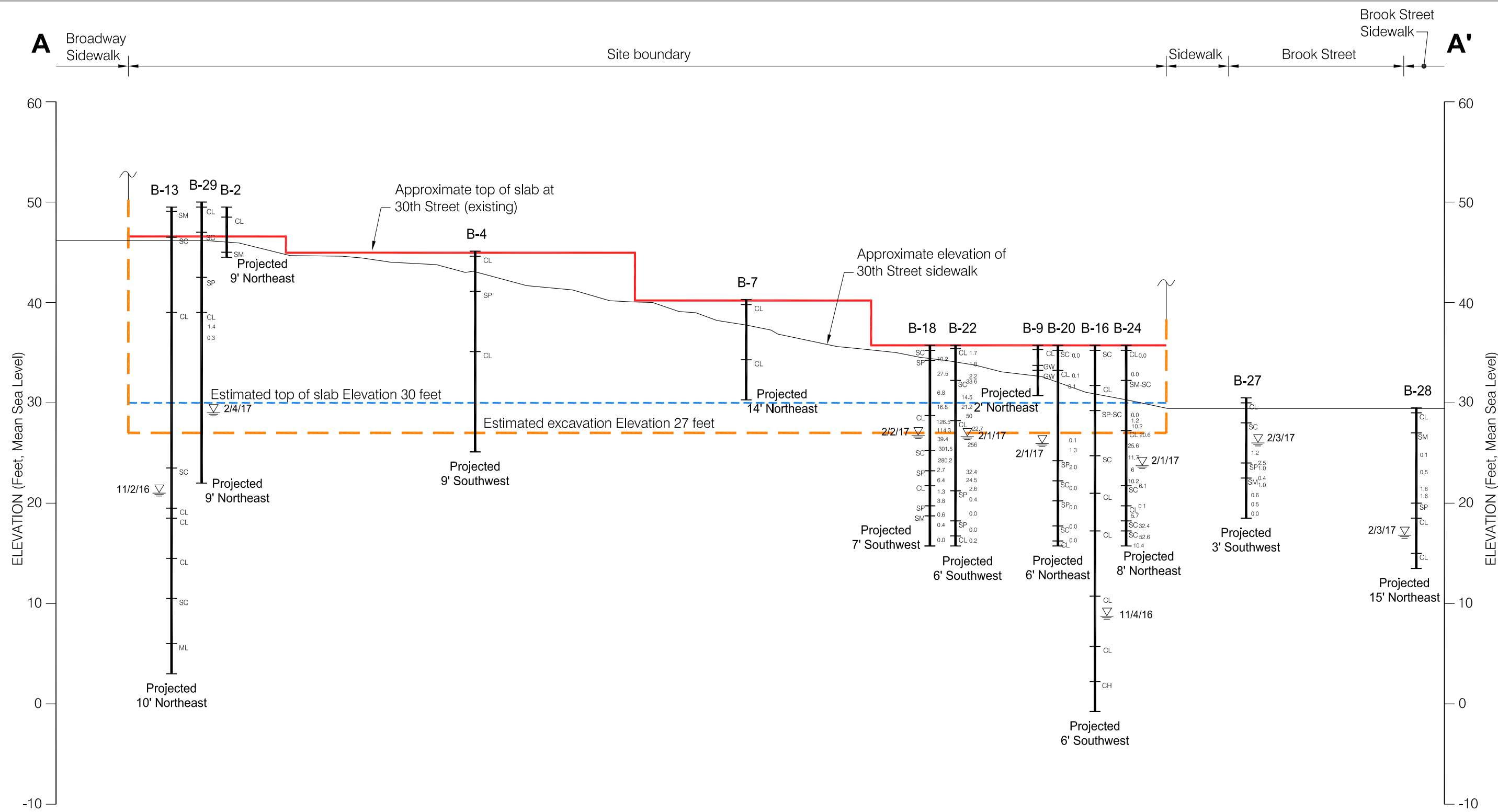
- B-18** ● Approximate location of environmental boring by Langan, February 2017
- B-13** ⊕ Approximate location of geotechnical boring by Langan, November 2016
- B-1** ● Approximate location of 5-foot boring by Langan Treadwell Rollo, April 2016
- B-3** ⊕ Approximate location of 20-foot boring by Langan Treadwell Rollo, April 2016
- B-5** ⊕ Approximate location of 15-foot boring by Langan Treadwell Rollo, April 2016
- B-7** ⊕ Approximate location of 10-foot boring by Langan Treadwell Rollo, April 2016
- B1** ⊕ Approximate location of boring by P&D Environmental, Inc., September 2014
- SB-1** ● Approximate location of boring by Faultline Associates, Inc., March 1997
-  Approximate location of abandoned in-place 1,000- gallon waste oil UST, March 1997
-  Approximate location of former USTs (350-gallon gasoline and 1,000-gallon diesel), removed in July 1992
-  Approximate location of floor drain
-  Approximate footprint of proposed 3000 Broadway Redevelopment
-  Approximate location of drain line piping

A  **A'** Idealized subsurface profile location

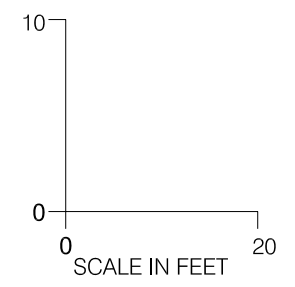


3000 BROADWAY REDEVELOPMENT		
260 30TH STREET		
Oakland, California		
SITE PLAN WITH CROSS SECTION		
Date 02/08/17	Project No. 750635602	Figure 2
		

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Notes:
 1. The above profile represents a generalized soil cross section interpreted from widely spaced borings. Soil deposits may vary in type, strength, and other important properties between points of exploration. All elevations are approximate.



**3000 AND 3020 BROADWAY; AND
 250, 260, AND 288 30TH STREET**
 Oakland, California

**IDEALIZED SUBSURFACE PROFILE
 A-A'**

Date 02/13/17	Project No. 750635602	Figure 3
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LANGAN

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Sample ID - Depth (ft bgs)	B-18-10	B-18-15	B-18-20
Date	2/2/2017	2/2/2017	2/2/2017
Chemical Name	Matrix / Units	Soil / mg/kg	
TPH gasoline	< 1.0	< 1.0	< 1.0
TPH diesel	< 1.0	< 1.0	< 1.0
TPH motor oil	< 5.0	< 5.0	< 5.0
PCE	< 1.0	<0.005	<0.005
TCE	1.1	0.025	<0.005
Cis-1,2-DCE	6.4	0.0063	<0.005

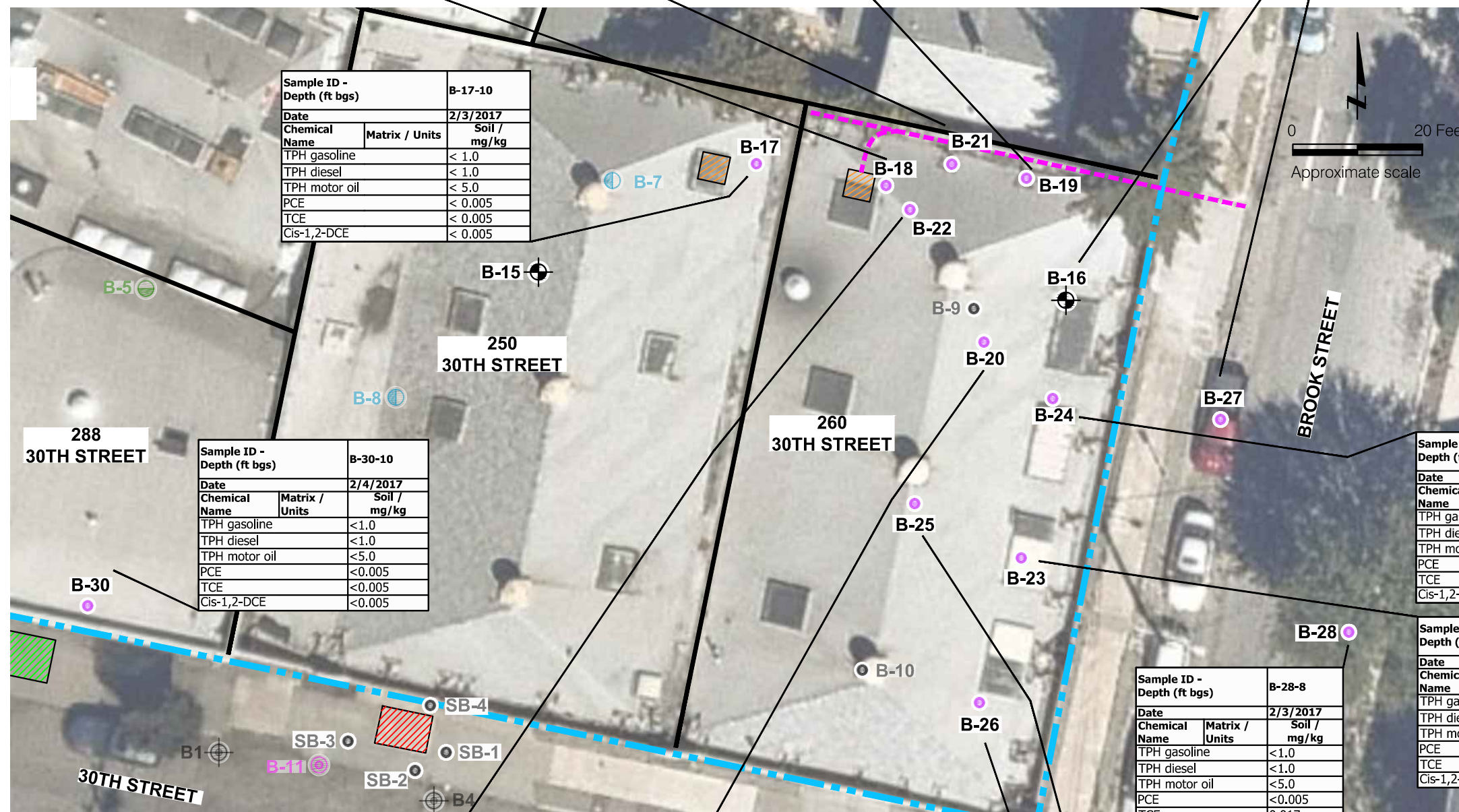
Sample ID - Depth (ft bgs)	B-21-10
Date	2/2/2017
Chemical Name	Matrix / Units
TPH gasoline	< 1.0
TPH diesel	< 1.0
TPH motor oil	< 5.0
PCE	<0.025
TCE	0.50
Cis-1,2-DCE	0.065

Sample ID - Depth (ft bgs)	B-19-10
Date	2/1/2017
Chemical Name	Matrix / Units
TPH gasoline	< 1.0
TPH diesel	< 1.0
TPH motor oil	< 5.0
PCE	< 0.005
TCE	< 0.005
Cis-1,2-DCE	< 0.005

Sample ID - Depth (ft bgs)	B-16-6	B-16-10	B-16-20.5
Date	11/3/2016	11/3/2016	11/3/2016
Chemical Name	Matrix / Units	Soil / mg/kg	
TPH gasoline	810	460	15
TPH diesel	2,900	1,600	100
TPH motor oil	6,100	3,600	100
PCE	2.0	0.059	0.013
TCE	< 0.20	0.29	0.017
Cis-1,2-DCE	< 0.20	0.29	< 0.005

Sample ID - Depth (ft bgs)	B-27-10
Date	2/3/2017
Chemical Name	Matrix / Units
TPH gasoline	<1.0
TPH diesel	<1.0
TPH motor oil	<5.0
PCE	<0.005
TCE	<0.005
Cis-1,2-DCE	<0.005

- EXPLANATION**
- B-18** ○ Approximate location of environmental boring by Langan, February 2017
 - B-13** ⊕ Approximate location of geotechnical boring by Langan, November 2016
 - B-1** ○ Approximate location of 5-foot boring by Langan Treadwell Rollo, April 2016
 - B-11** ⊕ Approximate location of 20-foot boring by Langan Treadwell Rollo, April 2016
 - B-5** ⊕ Approximate location of 15-foot boring by Langan Treadwell Rollo, April 2016
 - B-7** ⊕ Approximate location of 10-foot boring by Langan Treadwell Rollo, April 2016
 - B1** ⊕ Approximate location of boring by P&D Environmental, Inc., September 2014
 - SB-1** ○ Approximate location of boring by Faultline Associates, Inc., March 1997
 - Approximate location of abandoned in-place 1,000-gallon waste oil UST, March 1997
 - Approximate location of former USTs (350-gallon gasoline and 1,000-gallon diesel), removed in July 1992
 - Approximate location of floor drain
 - Approximate footprint of proposed 3000 Broadway Redevelopment
 - Approximate location of drain line piping



Sample ID - Depth (ft bgs)	B-17-10
Date	2/3/2017
Chemical Name	Matrix / Units
TPH gasoline	< 1.0
TPH diesel	< 1.0
TPH motor oil	< 5.0
PCE	< 0.005
TCE	< 0.005
Cis-1,2-DCE	< 0.005

Sample ID - Depth (ft bgs)	B-30-10
Date	2/4/2017
Chemical Name	Matrix / Units
TPH gasoline	<1.0
TPH diesel	<1.0
TPH motor oil	<5.0
PCE	<0.005
TCE	<0.005
Cis-1,2-DCE	<0.005

Sample ID - Depth (ft bgs)	B-24-8	B-24-10	B-24-15	B-24-20
Date	2/1/2017	2/1/2017	2/1/2017	2/1/2017
Chemical Name	Matrix / Units	Soil / mg/kg		
TPH gasoline	< 1.0	12	< 1.0	< 1.0
TPH diesel	< 1.0	70	< 1.0	< 1.0
TPH motor oil	< 5.0	180	< 5.0	< 5.0
PCE	<0.005	<0.005	<0.005	<0.005
TCE	<0.005	0.010	0.047	0.030
Cis-1,2-DCE	<0.005	0.012	0.14	<0.005

Sample ID - Depth (ft bgs)	B-23-10	B-23-12.5	B-23-16
Date	2/2/2017	2/2/2017	2/2/2017
Chemical Name	Matrix / Units	Soil / mg/kg	
TPH gasoline	<1.0	20	<1.0
TPH diesel	<1.0	8.1	<1.0
TPH motor oil	<5.0	25	<5.0
PCE	<0.005	<0.005	<0.005
TCE	<0.005	<0.005	<0.005
Cis-1,2-DCE	<0.005	<0.005	<0.005

Sample ID - Depth (ft bgs)	B-28-8
Date	2/3/2017
Chemical Name	Matrix / Units
TPH gasoline	<1.0
TPH diesel	<1.0
TPH motor oil	<5.0
PCE	<0.005
TCE	0.017
Cis-1,2-DCE	<0.005

Sample ID - Depth (ft bgs)	B-22-10	B-22-15	B-22-20
Date	2/1/2017	2/1/2017	2/1/2017
Chemical Name	Matrix / Units	Soil / mg/kg	
TPH gasoline	< 1.0	< 1.0	< 1.0
TPH diesel	< 1.0	< 1.0	< 1.0
TPH motor oil	< 5.0	< 5.0	< 5.0
PCE	<0.33	< 0.005	< 0.005
TCE	5.0	< 0.005	< 0.005
Cis-1,2-DCE	0.81	< 0.005	< 0.005

Sample ID - Depth (ft bgs)	B-20-10
Date	2/1/2017
Chemical Name	Matrix / Units
TPH gasoline	< 1.0
TPH diesel	< 1.0
TPH motor oil	< 5.0
PCE	< 0.01
TCE	0.21
Cis-1,2-DCE	0.011

Sample ID - Depth (ft bgs)	B-26-10	B-26-15
Date	2/2/2017	2/2/2017
Chemical Name	Matrix / Units	Soil / mg/kg
TPH gasoline	170	<1.0
TPH diesel	1,500	<1.0
TPH motor oil	2,800	<5.0
PCE	<0.10	<0.005
TCE	<0.10	<0.005
Cis-1,2-DCE	<0.10	<0.005

Sample ID - Depth (ft bgs)	B-25-10	B-25-15.5	B-25-20
Date	2/2/2017	2/2/2017	2/2/2017
Chemical Name	Matrix / Units	Soil / mg/kg	
TPH gasoline	18	3	<1.0
TPH diesel	33	42	<1.0
TPH motor oil	150	170	<5.0
PCE	<0.005	<0.005	<0.005
TCE	0.011	0.0074	0.0075
Cis-1,2-DCE	<0.005	<0.005	<0.005

3000 BROADWAY REDEVELOPMENT
260 30TH STREET
 Oakland, California

SITE PLAN WITH
CHEMICAL CONCENTRATIONS IN SOIL

Date 02/08/17 | Project No. 750635602 | Figure 4

LANGAN

\\langan.com\data\OAK\data6\750635602\Cadd Data - 750635602_2D-DesignFiles\Environmental\750635602-N-SF0106.dwg 3/02/17

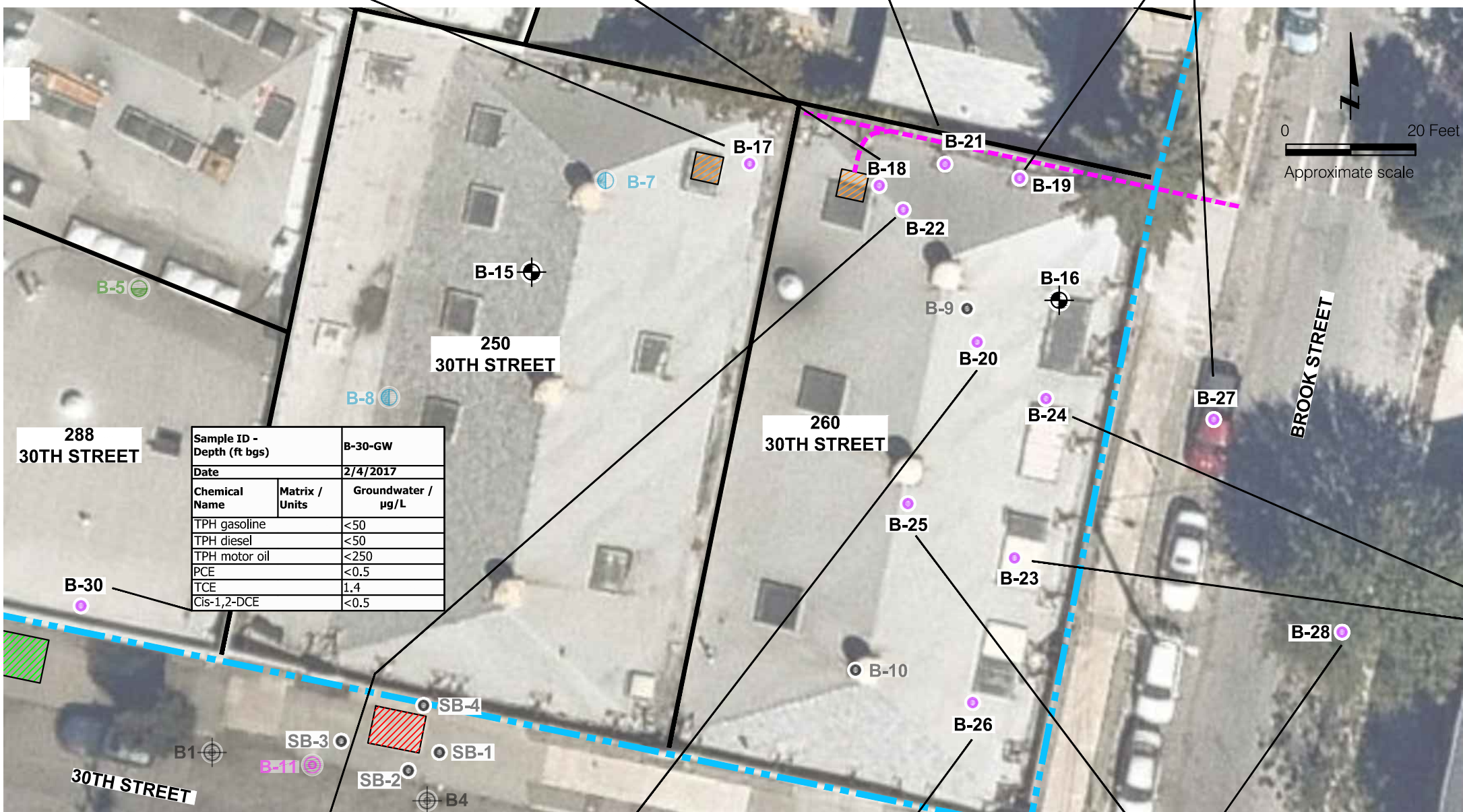
Sample ID - Depth (ft bgs)			B-17-GW		
Date			2/3/2017		
Chemical Name	Matrix / Units	Groundwater / µg/L			
TPH gasoline		<50			
TPH diesel		<50			
TPH motor oil		<250			
PCE		0.58			
TCE		3.5			
Cis-1,2-DCE		2.7			

Sample ID - Depth (ft bgs)			B-18-GW		
Date			2/2/2017		
Chemical Name	Matrix / Units	Groundwater / µg/L			
TPH gasoline		55			
TPH diesel		200			
TPH motor oil		1,200			
PCE		< 100			
TCE		2,000			
Cis-1,2-DCE		350			

Sample ID - Depth (ft bgs)			B-21-GW		
Date			2/2/2017		
Chemical Name	Matrix / Units	Groundwater / µg/L			
TPH gasoline		<50			
TPH diesel		<100			
TPH motor oil		510			
PCE		<5.0			
TCE		170			
Cis-1,2-DCE		19			

Sample ID - Depth (ft bgs)			B-19-GW		
Date			2/2/2017		
Chemical Name	Matrix / Units	Groundwater / µg/L			
TPH gasoline		<50			
TPH diesel		<100			
TPH motor oil		630			
PCE		<1.2			
TCE		41			
Cis-1,2-DCE		5			

Sample ID - Depth (ft bgs)			B-27-GW		
Date			2/3/2017		
Chemical Name	Matrix / Units	Groundwater / µg/L			
TPH gasoline		59			
TPH diesel		<100			
TPH motor oil		540			
PCE		<1.7			
TCE		48			
Cis-1,2-DCE		4.8			



Sample ID - Depth (ft bgs)			B-30-GW		
Date			2/4/2017		
Chemical Name	Matrix / Units	Groundwater / µg/L			
TPH gasoline		<50			
TPH diesel		<50			
TPH motor oil		<250			
PCE		<0.5			
TCE		1.4			
Cis-1,2-DCE		<0.5			

Sample ID - Depth (ft bgs)			B-24-GW		
Date			2/2/2017		
Chemical Name	Matrix / Units	Groundwater / µg/L			
TPH gasoline		1,400			
TPH diesel		250,000			
TPH motor oil		500,000			
PCE		<50			
TCE		590			
Cis-1,2-DCE		1,600			

Sample ID - Depth (ft bgs)			B-23-GW		
Date			2/3/2017		
Chemical Name	Matrix / Units	Groundwater / µg/L			
TPH gasoline		250			
TPH diesel		40,000			
TPH motor oil		110,000			
PCE		<12			
TCE		470			
Cis-1,2-DCE		210			

Sample ID - Depth (ft bgs)			B-22-GW		
Date			2/2/2017		
Chemical Name	Matrix / Units	Groundwater / µg/L			
TPH gasoline		120			
TPH diesel		<100			
TPH motor oil		680			
PCE		<120			
TCE		6,100			
Cis-1,2-DCE		2,200			

Sample ID - Depth (ft bgs)			B-20-GW		
Date			2/2/2017		
Chemical Name	Matrix / Units	Groundwater / µg/L			
TPH gasoline		75			
TPH diesel		2,400			
TPH motor oil		8,600			
PCE		<120			
TCE		4,700			
Cis-1,2-DCE		460			

Sample ID - Depth (ft bgs)			B-26-GW		
Date			2/3/2017		
Chemical Name	Matrix / Units	Groundwater / µg/L			
TPH gasoline		110			
TPH diesel		770			
TPH motor oil		1,300			
PCE		<2.5			
TCE		63			
Cis-1,2-DCE		20			

Sample ID - Depth (ft bgs)			B-25-GW		
Date			2/3/2017		
Chemical Name	Matrix / Units	Groundwater / µg/L			
TPH gasoline		66			
TPH diesel		5,100			
TPH motor oil		18,000			
PCE		<5.0			
TCE		210			
Cis-1,2-DCE		29			

Sample ID - Depth (ft bgs)			B-28-GW		
Date			2/3/2017		
Chemical Name	Matrix / Units	Groundwater / µg/L			
TPH gasoline		<50			
TPH diesel		<100			
TPH motor oil		960			
PCE		<10			
TCE		230			
Cis-1,2-DCE		37			

- EXPLANATION**
- B-18** ○ Approximate location of environmental boring by Langan, February 2017
 - B-13** ⊕ Approximate location of geotechnical boring by Langan, November 2016
 - B-1** ○ Approximate location of 5-foot boring by Langan Treadwell Rollo, April 2016
 - B-11** ⊕ Approximate location of 20-foot boring by Langan Treadwell Rollo, April 2016
 - B-5** ⊕ Approximate location of 15-foot boring by Langan Treadwell Rollo, April 2016
 - B-7** ⊕ Approximate location of 10-foot boring by Langan Treadwell Rollo, April 2016
 - B1** ⊕ Approximate location of boring by P&D Environmental, Inc., September 2014
 - SB-1** ○ Approximate location of boring by Faultline Associates, Inc., March 1997
 - Approximate location of abandoned in-place 1,000- gallon waste oil UST, March 1997
 - Approximate location of former USTs (350-gallon gasoline and 1,000-gallon diesel), removed in July 1992
 - Approximate location of floor drain
 - Approximate footprint of proposed 3000 Broadway Redevelopment
 - Approximate location of drain line piping

3000 BROADWAY REDEVELOPMENT
260 30TH STREET
 Oakland, California

SITE PLAN WITH
CHEMICAL CONCENTRATIONS IN GROUNDWATER

Date 02/08/17 | Project No. 750635602 | Figure 5

LANGAN

APPENDIX A
GEOTECHNICAL AND ENVIRONMENTAL BORING LOGS

PROJECT:

3000 BROADWAY
Oakland, California

Log of Boring B-16

PAGE 1 OF 2

Boring location: See Figure 2

Logged by: J. Sanglerat
Drilled By: Gregg Drilling

Date started: 11/4/16

Date finished: 11/4/16

Drilling method: Hollow Stem Auger

Hammer weight/drop: 140 lbs./30 inches

Hammer type: Safety Auto

Samplers: Sprague & Herwood (S&H), Standard Penetration Test (SPT), Shelby Tube (ST)

LABORATORY TEST DATA

DEPTH (feet)	SAMPLES				LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
	Sampler Type	Sample	Blows/ 6"	SPT N-Value ¹								
1						6 inches of concrete slab						
2					SC	CLAYEY SAND with GRAVEL (SC) yellow-brown, moist, fine- to medium-grained						
3												
4												
5	S&H		8	18	CL	CLAY with SAND (CL) yellow-brown, very stiff, moist, fine-grained sand LL = 45, PI = 25, see Figure C-2 strong hydrocarbon odor at 6.5 feet	PP		>4,500		23.9	102
6			9									
7			16									
8												
9					SP- SC	SAND with CLAY (SP-SC) yellow-brown, medium dense, moist, fine-grained						
10												
11	S&H		8	28							24.5	99
12			15		SC	CLAYEY SAND (SC) yellow-brown, medium dense, mist, fine-grained reduced hydrocarbon odor at 12 feet LL = 30, PI = 11, see Figure C-2						
13												
14												
15												
16	S&H		4	27	CL	SANDY CLAY (CL) yellow-brown to olive-gray trace orange-brown and black inclusions, very stiff, fine- to coarse-grained sand color change to gray at 18 feet, strong hydrocarbon odor LL = 40, PI = 23, see Figure C-2				58.2		
17			13									
18			26									
19												
20												
21	S&H		4	21	CL	CLAY (CL) gray, very stiff, wet, fine-grained sand strong hydrocarbon odor Triaxial Test, see Figure C-6	PP TxUU	2,100	>4,500 5,700		22.3	105
22			9									
23			21									
24												
25						no hydrocarbon odor at 24 feet, color chage to yellow-brown						
26	S&H		6	26	CL	SANDY CLAY (CL) yellow-brown, very stiff, moist to wet, fine- to medium-grained sand (11/4/16. 12:33 p.m.)	PP		2,500			
27			15									
28			20									
29												
30												

LANGANProject No.:
750635601Figure:
A-1a

TEST GEOTECH LOG 750635601-GEOTECH - 3000-BROADWAY.GPJ TR.GDT. 3/2/17

PROJECT:

3000 BROADWAY
Oakland, California

Log of Boring B-16

PAGE 2 OF 2

DEPTH (feet)	SAMPLES				LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA					
	Sampler Type	Sample	Blows/6"	SPT N-Value ¹			Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
31	S&H		8	28	CL	CLAY (CL) olive-brown, very stiff, wet, with hard silty nodules	PP	4,000				
32			14									
33			17									
34				21	CH	CLAY (CH) brown with trace black specks, very stiff, wet LL = 63, PI = 41, see Figure C-2	PP	3,000		30.2	94	
35	S&H		7									
36			14									
37			16									
38												
39												
40												
41												
42												
43												
44												
45												
46												
47												
48												
49												
50												
51												
52												
53												
54												
55												
56												
57												
58												
59												
60												

TEST GEOTECH LOG 750635601-GEOTECH - 3000-BROADWAY.GPJ TR.GDT. 3/2/17

Boring terminated at a depth of 36.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater stabilized at 27 feet at time of drilling.
PP = pocket penetrometer.

¹S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.
²Elevations based on Oakland City Datum. Elevations referenced were obtained from the ALTA Survey performed by Luk and Associates, dated 20 April 2016.

LANGAN

Project No.:
750635601

Figure:
A-1b

PROJECT: **3000 BROADWAY REDEVELOPMENT**
260 30TH STREET
 Oakland, California

Log of Boring B-17

Boring location: See Site Plan, Figure 2

Logged by: K. Staehlin

Date started: 2/3/17

Date finished: 2/3/17

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Continuous

DEPTH (feet)	SAMPLES				PID (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (inches)			
1					0.1		6-inch-thick concrete slab
2				42/42	0.3		CLAYEY SAND (SC)
3					0.1		orange-brown, medium dense to dense, moist, brick debris, no odor
4						SC	increasing sand and moisture
5					0.1		
6				20/48	0.0		
7					0.0		
8					0.6		
9					0.3	SP	GRAVELLY SAND (SP)
10	B-17-10.0	•		48/48	0.2		red-brown to orange-brown, dry to moist, subangular gravel less than 0.75 inches in diameter, no odor
11					0.0		SILTY CLAY (CL)
12					0.0		light gray-brown with orange mottling, medium stiff, moist, no odor
13					1.1		(02/03/17, 10:00 a.m.)
14				48/48	0.5	CL	
15	B-17-15.0	•			0.2		increasing sand content
16					0.0		
17					0.0		SAND (SP)
18				48/48	0.0	SP	brown, loose to medium dense, wet to saturated, no odor
19					0.0		saturated from 16 to 19 feet
20	B-17-20.0	•			0.0		
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

TEST ENVIRONMENTAL INCHES 750635602.GPJ T&R.GDT 3/2/17

Boring terminated at a depth of 20 feet below ground surface.
 Boring backfilled with grout.
 Groundwater encountered at 12.1 feet below ground surface during drilling.



Project No.: 750635602

Figure: A-2

PROJECT: **3000 BROADWAY REDEVELOPMENT**
260 30TH STREET
 Oakland, California

Log of Boring B-18

Boring location: See Site Plan, Figure 2

Logged by: K. Staehlin

Date started: 2/2/17

Date finished: 2/2/17

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Continuous

DEPTH (feet)	SAMPLES				PID (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (inches)			
1							6-inch-thick concrete slab
2				42/42	10.2	SC	CLAYEY SAND (SC) light brown with orange and dark brown mottling, loose to medium dense, dry to moist, brick debris, no odor
3					27.5	SP	GRAVELLY SAND (SP) red-brown, loose to medium dense, moist, subangular gravel less than 1.25 inches in diameter, brick debris, trace organics, no odor
4					6.8		
5				36/48	16.8		
6					126.5		
7					114.3	CL	SILTY CLAY (CL) light gray, medium stiff to stiff, moist, very slight odor
8	B-18-8.0	•					hydrocarbon odor at 9 feet bgs (02/03/17, 10:52 a.m.)
9				48/48	39.4		
10	B-18-10.0	•			301.5		
11					280.2	SC	CLAYEY SAND (SC) gray with some orange mottling, medium dense to dense, moist, weak hydrocarbon odor
12					2.7		increasing sand content
13				48/48	6.4	SP	SAND with GRAVEL (SP) brown, saturated, medium dense, subangular gravel less than 0.5 inches in diameter, no odor
14					1.3		dark brown at 13 feet bgs
15	B-18-15.0	•			3.8	CL	orange-brown, increasing fines 13.5 feet bgs
16					0.6	SP	SILTY CLAY (CL) gray-brown, stiff, moist, no odor
17				48/48	0.4	SM	GRAVELLY SAND (SP) dark brown, loose to medium dense, subangular gravel less than 0.5 inch in diameter, no odor
18					0.0		SILTY SAND (SM) light brown to gray-brown, dense, moist, no odor
19	B-18-20.0	•					
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

TEST ENVIRONMENTAL INCHES 750635602.GPJ T&R.GDT 3/2/17

Boring terminated at a depth of 20 feet below ground surface.
 Boring backfilled with grout.
 Groundwater encountered at 9.15 feet below ground surface on 02/03/17, after drilling.



Project No.: 750635602

Figure: A-3

PROJECT: **3000 BROADWAY REDEVELOPMENT**
260 30TH STREET
 Oakland, California

Log of Boring B-19
 PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: K. Staehlin

Date started: 2/1/17

Date finished: 2/1/17

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Continuous

DEPTH (feet)	SAMPLES				PID (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (inches)			
1		X			0.0	SC	6-inch-thick concrete slab
2							CLAYEY SAND (SC) orange-brown, loose to medium dense, moist, subangular gravel less than 0.75 inches in diameter, brick and gravel debris, no odor
3							
4				48/48	0.0		SANDY CLAY (CL) light gray-brown with orange mottling, medium stiff, moist, no odor
5					0.0		
6							
7						CL	
8	B-19-8.0	•		48/48	0.0		
9							▼ (02/02/17, 7:18 a.m.)
10	B-19-10.0	•			0.0		
11							
12				48/48			SAND (SP) orange-brown to brown, medium dense to dense, wet to saturated, no odor
13							
14					0.0		
15	B-19-15.0	•					
16				48/48	0.0	SP	
17							
18					0.0		
19							
20	B-19-20.0	•		48/48			
21							
22	B-19-22.0	•			0.0	CL	CLAY (CL) gray-brown, stiff, moist, no odor dark brown at 21.75 feet bgs
23							
24							
25							
26							
27							
28							
29							
30							

TEST ENVIRONMENTAL INCHES 750635602.GPJ T&R.GDT 3/2/17

Boring terminated at a depth of 22 feet below ground surface.
 Boring backfilled with grout.
 Groundwater encountered at 9.15 feet below ground surface on 02/02/17, after drilling.

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Project No.: 750635602 Figure: A-4

PROJECT: **3000 BROADWAY REDEVELOPMENT**
260 30TH STREET
 Oakland, California

Log of Boring B-20

PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: K. Staehlin

Date started: 2/1/17

Date finished: 2/1/17

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Continuous

DEPTH (feet)	SAMPLES				PID (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (inches)			
1					0.0	SC	6-inch-thick concrete slab
2				42/42			CLAYEY SAND (SC) red-brown to orange-brown, loose to medium dense, moist, subangular gravel less than 0.75 inches in diameter, brick debris, no odor
3					0.1		SANDY CLAY (CL) light brown with orange mottling, medium stiff, moist, no odor
4					0.1		
5							
6				48/48		CL	
7							
8	B-20-8.0	•			0.1		
9							▼ (02/02/17, 7:23 a.m.)
10	B-20-10.0	•		48/48	1.3		
11							
12					2.0	SP	SAND (SP) orange-brown to brown, medium dense, wet to saturated, no odor
13							
14				48/48	0.0	SC	CLAYEY SAND (SC) orange-brown to light brown, medium dense, moist, no odor
15	B-20-15.0	•					
16					0.0	SP	SAND (SP) orange-brown to light brown, loose to medium dense, wet to saturated, no odor
17							
18				48/48	0.0	SC	CLAYEY SAND (SC) light brown, dense to very dense, moist, no odor
19					0.0	CL	CLAY (CL) light gray-brown to brown, stiff to very stiff, moist, no odor
20	B-20-20.0	•					
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

TEST ENVIRONMENTAL INCHES 750635602.GPJ T&R.GDT 3/2/17

Boring terminated at a depth of 20 feet below ground surface.
 Boring backfilled with grout.
 Groundwater encountered at 9.17 feet below ground surface on 02/02/17, after drilling.



Project No.: 750635602

Figure: A-5

PROJECT: **3000 BROADWAY REDEVELOPMENT**
260 30TH STREET
 Oakland, California

Log of Boring B-21

Boring location: See Site Plan, Figure 2

Logged by: K. Staehlin

Date started: 2/2/17

Date finished: 2/2/17

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Continuous

DEPTH (feet)	SAMPLES				PID (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (inches)			
1					0.0		6-inch-thick concrete slab
2					0.0		CLAYEY SAND with GRAVEL (SC) brown with orange mottling, medium dense, moist, subangular gravel less than 1 inch in diameter, brick debris, trace organics, no odor
3				36/42	0.0		
4					0.0	SC	
5					4.1		
6				48/48	17.2		
7							SILTY CLAY (CL) light gray-brown with orange mottling, medium stiff, moist, very slight hydrocarbon odor (02/03/17, 10:40 a.m.)
8	B-21-8.0	•			22.6		
9					7.3	CL ▼	
10	B-21-10.0	•		48/48			increasing sand content
11							CLAYEY SAND (SC) light gray-brown with orange mottling, medium dense to dense, moist, no odor wet at 12 feet bgs
12					15.8		
13					0.3	SC	
14							increasing sand content
15	B-21-15.0	•		34/48	0.2		
16					0.0	SP	SAND with CLAY (SP) brown, loose to medium dense, wet to saturated, no odor saturated from 15.5 to 17 feet bgs.
17							CLAYEY SAND (SC) light gray, dense, moist, no odor
18				48/48	0.4	SC	
19					0.2		
20	B-21-20.0	•					
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

TEST ENVIRONMENTAL INCHES 750635602.GPJ T&R.GDT 3/2/17

Boring terminated at a depth of 20 feet below ground surface.
 Boring backfilled with grout.
 Groundwater encountered at 9.1 feet below ground surface on
 02/03/17, after drilling.



Project No.: 750635602

Figure: A-6

PROJECT: **3000 BROADWAY REDEVELOPMENT**
260 30TH STREET
 Oakland, California

Log of Boring B-22

Boring location: See Site Plan, Figure 2

Logged by: K. Staehlin

Date started: 2/1/17

Date finished: 2/1/17

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Continuous

DEPTH (feet)	SAMPLES				PID (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (inches)			
1					1.7		6-inch-thick concrete slab
2				42/42	1.8	CL	SANDY CLAY (CL) brown, soft, moist, trace organics, no odor red-brown to orange-brown
3					2.2		
4					33.6		
5					14.5	SC	CLAYEY SAND with GRAVEL (SC) red-brown to orange-brown, loose to medium dense, subangular gravel less than 1 inch in diameter, trace organics, gravel and brick debris, no odor
6				36/48	21.2		
7					50		
8	B-22-8.0	•			22.7		SILTY CLAY (CL) light gray-brown with orange mottling, stiff, moist, no odor (02/02/17, 7:21 a.m.)
9							▼
10	B-22-10.0	•		48/48	256	CL	
11							
12					32.4		
13					24.5		
14				48/48	2.6		
15	B-22-15.0	•			0.4	SP	GRAVELLY SAND (SP) black, medium dense, wet, no odor brown at 14.5 feet bgs
16					0.0	SP	SAND with CLAY (SP) brown, medium dense, wet, no odor
17					0.0	SP	SAND (SP) brown, loose to medium dense, saturated, no odor
18				48/48	0.0	SP	
19					0.0	SP	
20	B-22-20.0	•			0.2	CL	SANDY CLAY (CL) brown, soft, moist, no odor
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

TEST ENVIRONMENTAL INCHES 750635602.GPJ T&R.GDT 3/2/17

Boring terminated at a depth of 20 feet below ground surface.
 Boring backfilled with grout.
 Groundwater encountered at 9 feet below ground surface on 02/02/17, after drilling.



Project No.: 750635602

Figure: A-7

PROJECT: **3000 BROADWAY REDEVELOPMENT**
260 30TH STREET
 Oakland, California

Log of Boring B-23

Boring location: See Site Plan, Figure 2

Logged by: K. Staehlin

Date started: 2/2/17

Date finished: 2/2/17

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Continuous

DEPTH (feet)	SAMPLES				PID (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (inches)			
1					0.0	SM	6-inch-thick concrete slab
2				36/42	0.1	SC	SILTY SAND (SM) dark brown, loose to medium dense, dry to moist, no odor
3							CLAYEY SAND with GRAVEL (SC) light brown, medium dense, moist, subangular gravel less than 0.75 inches in diameter, no odor
4					0.2		orange-brown at 3 feet bgs
5				48/48	1.8	CL	CLAY (CL) light brown, medium stiff, moist, very slight hydrocarbon odor
6							blue-green
7							
8	B-23-8.0	•			1.9		
9					0.8		increasing sand content (02/03/17, 9:04 a.m.)
10	B-23-10.0	•		38/48			
11					2.0	SM	SILTY SAND (SM) blue-green, loose to medium dense, moist, no odor
12	B-23-12.5	•			3.2		
13							SAND with CLAY (SP) blue-green, loose to medium dense, saturated, weak hydrocarbon odor
14				48/48	13.8	SP	orange-brown, medium dense to dense, moist, no odor
15					0.2		
16	B-23-16.0	•			0.1		
17					2.0	SP	SAND (SP) brown to orange -brown, loose to medium dense, saturated, slight hydrocarbon odor
18				48/48	1.8	CL	SANDY CLAY (CL) gray-brown, stiff to very stiff, moist, no odor
19					0.7		brown
20	B-23-20.0	•					
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

TEST ENVIRONMENTAL INCHES 750635602.GPJ T&R.GDT 3/2/17

Boring terminated at a depth of 20 feet below ground surface.
 Boring backfilled with grout.
 Groundwater encountered at 9.6 feet below ground surface on 02/03/17, after drilling.



Project No.: 750635602

Figure: A-8

PROJECT: **3000 BROADWAY REDEVELOPMENT**
260 30TH STREET
 Oakland, California

Log of Boring B-24

Boring location: See Site Plan, Figure 2

Logged by: K. Staehlin

Date started: 2/1/17

Date finished: 2/1/17

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Continuous

DEPTH (feet)	SAMPLES				PID (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (inches)			
1					0.0		6-inch-thick concrete slab
2				38/42		CL	SANDY CLAY with GRAVEL (CL) red-brown to orange-brown, medium stiff, moist, subangular gravel less than 0.75 inches in diameter, trace brick debris and organics, no odor
3					0.0		
4							CLAYEY SILTY SAND (SM-SC) light brown, medium dense, moist, no odor
5							
6				30/48	0.0	SM-SC	
7					1.2		olive-gray and hydrocarbon odor, trace organics
8	B-25-8.0	•			10.2		
9					20.6		
10	B-25-10.0	•		48/48	25.6	CL	▼ SILTY CLAY (CL) olive-gray, stiff to very stiff, moist, trace organics, weak to moderate odor (02/02/17, 7:27 a.m.)
11					11.7		
12					66		
13					10.2		
14				48/48	6.1		
15	B-25-15.0	•				SC	CLAYEY SAND with GRAVEL (SC) light brown, medium dense to dense, moist, subangular gravel less than 0.5 inches in diameter, no odor
16					0.1		
17					5.7	CL	SILTY CLAY (CL) olive-gray, stiff, moist, weak hydrocarbon odor brown
18				48/48	32.4	SC	GRAVELLY SAND with CLAY (SC) brown, loose to medium dense, wet, weak hydrocarbon odor
19					52.6	SC	CLAYEY SAND (SC) brown to light brown, dense, moist, weak hydrocarbon odor
20	B-25-20.0	•			10.4		
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

TEST ENVIRONMENTAL INCHES 750635602.GPJ T&R.GDT 3/2/17

Boring terminated at a depth of 20 feet below ground surface.
 Boring backfilled with grout.
 Groundwater encountered at 9.65 feet below ground surface on 02/02/17, after drilling.



Project No.: 750635602

Figure: A-9

PROJECT: **3000 BROADWAY REDEVELOPMENT**
260 30TH STREET
 Oakland, California

Log of Boring B-25

Boring location: See Site Plan, Figure 2

Logged by: K. Staehlin

Date started: 2/2/17

Date finished: 2/2/17

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Continuous

DEPTH (feet)	SAMPLES				PID (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (inches)			
1					0.0	SM	6-inch-thick concrete slab
2				42/42			SILTY SAND (SM) dark brown, loose to medium dense, dry to moist, brick debris, no odor
3				0.1			CLAYEY SAND (SC) orange-brown, medium dense, moist, subangular gravel less than 1.5 inches in diameter, brick debris, no odor
4				0.1		SC	
5					0.0		
6				24/48			
7					0.0		
8	B-25-8.0	•			5.6		CLAY (CL) light gray-brown, medium stiff, moist, no odor
9							▼ slight hydrocarbon odor from 9 to 13.5 feet bgs (02/03/17, 9:36 a.m.)
10	B-25-10.0	•		48/48	34.2		
11							
12					3.3		
13					10.1	CL	
14				48/48			
15	B-25-15.5	•			1.4		dark brown
16					0.3		
17					16.6		
18				48/48			
19					1.1		SANDY CLAY (CL) brown, stiff, moist, no odor
20	B-25-20.0	•			1.8	CL	
21					0.2		
22				48/48			
23					0.1	CL	CLAY (CL) dark brown with orange mottling, very stiff to hard, moist, no odor
24					0.0		
25							
26							
27							
28							
29							
30							

TEST ENVIRONMENTAL INCHES 750635602.GPJ T&R.GDT 3/2/17

Boring terminated at a depth of 24 feet below ground surface.
 Boring backfilled with grout.
 Groundwater encountered at 9.45 feet below ground surface on 02/03/17, after drilling.



Project No.: 750635602

Figure: A-10

PROJECT: **3000 BROADWAY REDEVELOPMENT**
260 30TH STREET
 Oakland, California

Log of Boring B-26

Boring location: See Site Plan, Figure 2

Logged by: K. Staehlin

Date started: 2/2/17

Date finished: 2/2/17

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Continuous

DEPTH (feet)	SAMPLES				PID (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (inches)			
1					0.0	SM	6-inch-thick concrete slab
2				36/48	0.2	SC	SILTY SAND (SM) dark brown, loose to medium dense, dry to moist, brick debris, no odor
3					0.1		CLAYEY SAND with GRAVEL (SC) orange-brown, medium dense, moist, subangular gravel less than 1 inch in diameter, brick debris, no odor
4					2.1		CLAY (CL) light brown with blue and green mottling, medium stiff, moist, no odor
5				48/48	4.2	CL	blue-green, hydrocarbon odor
6					7.6		
7					75.4		
8	B-26-8.0	•					
9					43.6		
10	B-26-10.0	•		48/48	8.8	SM	▼ SILTY SAND (SM) blue-green, medium dense to dense, moist, weak hydrocarbon odor (02/03/17, 9:19 a.m.)
11					4.3		
12					44.2		orange-brown, no odor
13					1.1		
14				48/48	1.6	CL	CLAY (CL) brown, medium stiff to stiff, moist, no odor
15	B-26-15.0	•			1.2		saturated from 16 to 17 feet bgs
16					4.1		
17					2.3	SC	CLAYEY SAND (SC) brown, medium dense to dense, moist, hydrocarbon odor from 16.5 to 17.5 feet bgs
18				48/48			
19					1.1	CL	CLAY (CL) brown, stiff to very stiff, moist, no odor
20	B-26-20.0	•					
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

TEST ENVIRONMENTAL INCHES 750635602.GPJ T&R.GDT 3/2/17

Boring terminated at a depth of 20 feet below ground surface.
 Boring backfilled with grout.
 Groundwater encountered at 9.85 feet below ground surface on 02/03/17, after drilling.



Project No.: 750635602

Figure: A-11

PROJECT: 3000 BROADWAY REDEVELOPMENT
260 30TH STREET
Oakland, California

Log of Boring B-27

Boring location: See Site Plan, Figure 2

Logged by: K. Staehlin

Date started: 2/3/17

Date finished: 2/3/17

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Continuous

DEPTH (feet)	SAMPLES				PID (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (inches)			
1							6-inch asphalt concrete over aggregate base
2						CL	CLAY (CL) gray-brown, soft to medium stiff, moist, no odor
3							SAND with CLAY (SC) light gray-brown with orange mottling, medium dense, moist, no odor
4						SC	(02/03/17, 11:51 a.m.)
5							
6					1.2		
7				36/36	2.5		
8	B-27-8.0	•			1.0	SP	GRAVELLY SAND (SP) orange-brown to red-brown, medium dense, moist, brick debris, no odor
9					0.4		
10	B-27-10.0	•			1.0		SILTY SAND (SM) brown, dense, moist to wet, no odor
11				48/48	0.6	SM	
12					0.5		
13					0.0		
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

TEST ENVIRONMENTAL INCHES 750635602.GPJ T&R.GDT 3/2/17

Boring terminated at a depth of 12 feet below ground surface.
Boring backfilled with grout.
Groundwater encountered at 4.09 feet below ground surface during drilling.



Project No.: 750635602

Figure: A-12

PROJECT: **3000 BROADWAY REDEVELOPMENT**
260 30TH STREET
 Oakland, California

Log of Boring B-28
 PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: K. Staehlin

Date started: 2/3/17

Date finished: 2/3/17

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Continuous

DEPTH (feet)	SAMPLES				PID (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (inches)			
1							6-inch-thick concrete slab
2						CL	CLAY (CL) gray-brown, medium stiff, moist, no odor
3							SILTY SAND (SM) light brown, medium dense, moist, slight hydrocarbon odor
4							
5					0.1		∇ (02/03/17, 11:40 a.m.)
6						SM	blue-green
7			36/36		0.5		
8	B-28-8.0	•			1.6		
9					1.6		
10			48/48			SP	SAND with CLAY (SP) light gray-brown, dense, moist, no odor
11							
12	B-28-12.0	•				CL	CLAY (CL) dark brown, stiff, moist, no odor
13							
14			4/48				
15						CL	SANDY CLAY (CL) orange-brown, stiff, moist, no odor
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

TEST ENVIRONMENTAL INCHES 750635602.GPJ T&R.GDT 3/2/17

Boring terminated at a depth of 16 feet below ground surface.
 Boring backfilled with grout.
 Groundwater encountered at 4.8 feet below ground surface during drilling.

LANGAN

Project No.: 750635602 Figure: A-13

PROJECT: **3000 BROADWAY REDEVELOPMENT**
260 30TH STREET
 Oakland, California

Log of Boring B-29

Boring location: See Site Plan, Figure 2

Logged by: K. Staehlin

Date started: 2/4/17

Date finished: 2/4/17

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Continuous

DEPTH (feet)	SAMPLES				PID (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (inches)			
1					0.0		6-inch-thick concrete slab
2					0.0	SM	SILTY SAND (SM) dark brown, medium dense, moist, no odor
3				36/42	0.0		orange-brown
4					0.0		CLAYEY SAND (SC) orange-brown, dense, moist, no odor
5					0.0	SC	
6				48/48	0.0		
7					0.0		
8	B-29-8.0	•			0.0		brown
9					0.0	SP	SAND with GRAVEL (SP) orange-brown, loose to medium dense, moist, subangular gravel less than 1 inch in diameter, brick debris, no odor
10	B-29-10.0	•		48/48	0.0		increasing fines
11							
12					0.0		CLAY (CL) light brown with orange mottling, stiff to very stiff, moist, no odor
13					1.4		
14				48/48	0.3		brown
15	B-29-15.0	•			0.0		
16					0.0		
17					0.0		
18				48/48	0.0		
19					0.0	CL	▼ (02/06/17)
20	B-29-20.0	•			0.0		
21					0.0		
22				48/48	0.0		
23					0.0		increasing sand content
24	B-29-24.0	•			0.0		
25					0.0		
26				36/48	0.0		
27					0.0		
28					0.0		
29							
30							

TEST ENVIRONMENTAL INCHES 750635602.GPJ T&R.GDT 3/2/17

Boring terminated at a depth of 28 feet below ground surface.
 Boring backfilled with grout.
 Groundwater encountered at 19.8 feet below ground surface during drilling.



Project No.:
750635602

Figure:
A-14

PROJECT: **3000 BROADWAY REDEVELOPMENT**
260 30TH STREET
 Oakland, California

Log of Boring B-30

Boring location: See Site Plan, Figure 2

Logged by: K. Staehlin

Date started: 2/4/17

Date finished: 2/4/17

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Continuous

DEPTH (feet)	SAMPLES				PID (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (inches)			
1					0.1	CL	6-inch-thick concrete slab
2				42/42	0.2	CL	SANDY CLAY (CL) dark brown, soft to medium stiff, moist, subangular gravel less than 0.75 inches in diameter, no odor
3					0.0	SP	SAND with GRAVEL (SP) red-brown to orange-brown, loose to medium dense, dry to moist, subangular gravel less than 1.25 inches in diameter, brick debris, no odor
4					0.1		
5							
6				48/48	0.0		
7							SILTY CLAY (CL) light brown, medium stiff to stiff, moist, no odor
8	B-30-8.0	•			0.0	CL	
9					0.0		
10	B-30-10.0	•		48/48	0.0	SM	SILTY SAND with CLAY (SM) light brown, dense, moist, no odor
11							
12							
13							
14				48/48	0.0	CL	SILTY CLAY (CL) light gray-brown with orange mottling, stiff to very stiff, moist, no odor
15	B-30-15.0	•			0.0	CL	∇ (02/04/17, 10:01 a.m.)
16					0.0		
17							increasing sand content
18				32/48	0.1		
19					0.0		SAND (SP) brown to orange-brown, medium dense, moist, no odor
20	B-30-20.0	•			0.0	SP	
21							increasing fines
22				30/48			
23					0.0		
24							
25							
26							
27							
28							
29							
30							

TEST ENVIRONMENTAL INCHES 750635602.GPJ T&R.GDT 3/2/17

Boring terminated at a depth of 24 feet below ground surface.
 Boring backfilled with grout.
 Groundwater encountered at 15.2 feet below ground surface during drilling.



Project No.: 750635602

Figure: A-15

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions	Symbols	Typical Names
Coarse-Grained Soils <small>(more than half of soil > no. 200 sieve size)</small>	Gravels <small>(More than half of coarse fraction > no. 4 sieve size)</small>	GW Well-graded gravels or gravel-sand mixtures, little or no fines
		GP Poorly-graded gravels or gravel-sand mixtures, little or no fines
		GM Silty gravels, gravel-sand-silt mixtures
		GC Clayey gravels, gravel-sand-clay mixtures
	Sands <small>(More than half of coarse fraction < no. 4 sieve size)</small>	SW Well-graded sands or gravelly sands, little or no fines
		SP Poorly-graded sands or gravelly sands, little or no fines
		SM Silty sands, sand-silt mixtures
Fine -Grained Soils <small>(more than half of soil < no. 200 sieve size)</small>	Silts and Clays <small>LL = < 50</small>	ML Inorganic silts and clayey silts of low plasticity, sandy silts, gravelly silts
		CL Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
		OL Organic silts and organic silt-clays of low plasticity
	Silts and Clays <small>LL = > 50</small>	MH Inorganic silts of high plasticity
		CH Inorganic clays of high plasticity, fat clays
		OH Organic silts and clays of high plasticity
Highly Organic Soils	PT	Peat and other highly organic soils

SAMPLE DESIGNATIONS/SYMBOLS

GRAIN SIZE CHART		
Classification	Range of Grain Sizes	
	U.S. Standard Sieve Size	Grain Size in Millimeters
Boulders	Above 12"	Above 305
Cobbles	12" to 3"	305 to 76.2
Gravel coarse fine	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.76 76.2 to 19.1 19.1 to 4.76
Sand coarse medium fine	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.76 to 0.075 4.76 to 2.00 2.00 to 0.420 0.420 to 0.075
Silt and Clay	Below No. 200	Below 0.075

- Sample taken with Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter. Darkened area indicates soil recovered
- Classification sample taken with Standard Penetration Test sampler
- Undisturbed sample taken with thin-walled tube
- Disturbed sample
- Sampling attempted with no recovery
- Core sample
- Analytical laboratory sample
- Sample taken with Direct Push or Drive sampler

- Unstabilized groundwater level
- Stabilized groundwater level

SAMPLER TYPE

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> C Core barrel CA California split-barrel sampler with 2.5-inch outside diameter and a 1.93-inch inside diameter D&M Dames & Moore piston sampler using 2.5-inch outside diameter, thin-walled tube O Osterberg piston sampler using 3.0-inch outside diameter, thin-walled Shelby tube | <ul style="list-style-type: none"> PT Pitcher tube sampler using 3.0-inch outside diameter, thin-walled Shelby tube S&H Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter SPT Standard Penetration Test (SPT) split-barrel sampler with a 2.0-inch outside diameter and a 1.5-inch inside diameter ST Shelby Tube (3.0-inch outside diameter, thin-walled tube) advanced with hydraulic pressure |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**3000 BROADWAY REDEVELOPMENT
260 30TH STREET
Oakland, California**

CLASSIFICATION CHART

LANGAN

APPENDIX B
CERTIFIED ANALYTICAL AND CHAIN-OF-CUSTODY REPORTS



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1702155 B **Amended:** 02/15/2017

Report Created for: Langan

501 14th Street, 3rd Floor
Oakland, CA 94612

Project Contact: Josh Graber

Project P.O.:

Project Name: 750635602; 260 30th Street

Project Received: 02/02/2017

Analytical Report reviewed & approved for release on 02/14/2017 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702155

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702155

Analytical Qualifiers

S	surrogate spike recovery outside accepted recovery limits
a3	sample diluted due to high organic content.
b1	aqueous sample that contains greater than ~1 vol. % sediment
c4	surrogate recovery outside of the control limits due to coelution with another peak(s) / cluttered chromatogram.
c7	surrogate value diluted out of range
d6	one to a few isolated non-target peaks present in the TPH(g) chromatogram
e2	diesel range compounds are significant; no recognizable pattern
e4	gasoline range compounds are significant.
e7	oil range compounds are significant
i1	results are reported on a dry weight basis

Quality Control Qualifiers

F1	MS/MSD recovery and/or RPD is out of acceptance criteria; LCS validates the prep batch.
F2	LCS/LCSD recovery and/or RPD is out of acceptance criteria.
F3	the surrogate standard recovery and/or RPD is outside of acceptance limits.



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-15.0	1702155-012A	Soil	02/01/2017 11:48	GC18	133853

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/09/2017 00:40
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/09/2017 00:40
Benzene	ND	0.0050	1	02/09/2017 00:40
Bromobenzene	ND	0.0050	1	02/09/2017 00:40
Bromochloromethane	ND	0.0050	1	02/09/2017 00:40
Bromodichloromethane	ND	0.0050	1	02/09/2017 00:40
Bromoform	ND	0.0050	1	02/09/2017 00:40
Bromomethane	ND	0.0050	1	02/09/2017 00:40
2-Butanone (MEK)	ND	0.020	1	02/09/2017 00:40
t-Butyl alcohol (TBA)	ND	0.050	1	02/09/2017 00:40
n-Butyl benzene	ND	0.0050	1	02/09/2017 00:40
sec-Butyl benzene	ND	0.0050	1	02/09/2017 00:40
tert-Butyl benzene	ND	0.0050	1	02/09/2017 00:40
Carbon Disulfide	ND	0.0050	1	02/09/2017 00:40
Carbon Tetrachloride	ND	0.0050	1	02/09/2017 00:40
Chlorobenzene	ND	0.0050	1	02/09/2017 00:40
Chloroethane	ND	0.0050	1	02/09/2017 00:40
Chloroform	ND	0.0050	1	02/09/2017 00:40
Chloromethane	ND	0.0050	1	02/09/2017 00:40
2-Chlorotoluene	ND	0.0050	1	02/09/2017 00:40
4-Chlorotoluene	ND	0.0050	1	02/09/2017 00:40
Dibromochloromethane	ND	0.0050	1	02/09/2017 00:40
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/09/2017 00:40
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/09/2017 00:40
Dibromomethane	ND	0.0050	1	02/09/2017 00:40
1,2-Dichlorobenzene	ND	0.0050	1	02/09/2017 00:40
1,3-Dichlorobenzene	ND	0.0050	1	02/09/2017 00:40
1,4-Dichlorobenzene	ND	0.0050	1	02/09/2017 00:40
Dichlorodifluoromethane	ND	0.0050	1	02/09/2017 00:40
1,1-Dichloroethane	ND	0.0050	1	02/09/2017 00:40
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/09/2017 00:40
1,1-Dichloroethene	ND	0.0050	1	02/09/2017 00:40
cis-1,2-Dichloroethene	ND	0.0050	1	02/09/2017 00:40
trans-1,2-Dichloroethene	ND	0.0050	1	02/09/2017 00:40
1,2-Dichloropropane	ND	0.0050	1	02/09/2017 00:40
1,3-Dichloropropane	ND	0.0050	1	02/09/2017 00:40
2,2-Dichloropropane	ND	0.0050	1	02/09/2017 00:40

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-15.0	1702155-012A	Soil	02/01/2017 11:48	GC18	133853

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/09/2017 00:40
cis-1,3-Dichloropropene	ND	0.0050	1	02/09/2017 00:40
trans-1,3-Dichloropropene	ND	0.0050	1	02/09/2017 00:40
Diisopropyl ether (DIPE)	ND	0.0050	1	02/09/2017 00:40
Ethylbenzene	ND	0.0050	1	02/09/2017 00:40
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/09/2017 00:40
Freon 113	ND	0.0050	1	02/09/2017 00:40
Hexachlorobutadiene	ND	0.0050	1	02/09/2017 00:40
Hexachloroethane	ND	0.0050	1	02/09/2017 00:40
2-Hexanone	ND	0.0050	1	02/09/2017 00:40
Isopropylbenzene	ND	0.0050	1	02/09/2017 00:40
4-Isopropyl toluene	ND	0.0050	1	02/09/2017 00:40
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/09/2017 00:40
Methylene chloride	ND	0.0050	1	02/09/2017 00:40
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/09/2017 00:40
Naphthalene	ND	0.0050	1	02/09/2017 00:40
n-Propyl benzene	ND	0.0050	1	02/09/2017 00:40
Styrene	ND	0.0050	1	02/09/2017 00:40
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/09/2017 00:40
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/09/2017 00:40
Tetrachloroethene	ND	0.0050	1	02/09/2017 00:40
Toluene	ND	0.0050	1	02/09/2017 00:40
1,2,3-Trichlorobenzene	ND	0.0050	1	02/09/2017 00:40
1,2,4-Trichlorobenzene	ND	0.0050	1	02/09/2017 00:40
1,1,1-Trichloroethane	ND	0.0050	1	02/09/2017 00:40
1,1,2-Trichloroethane	ND	0.0050	1	02/09/2017 00:40
Trichloroethene	0.021	0.0050	1	02/09/2017 00:40
Trichlorofluoromethane	ND	0.0050	1	02/09/2017 00:40
1,2,3-Trichloropropane	ND	0.0050	1	02/09/2017 00:40
1,2,4-Trimethylbenzene	ND	0.0050	1	02/09/2017 00:40
1,3,5-Trimethylbenzene	ND	0.0050	1	02/09/2017 00:40
Vinyl Chloride	ND	0.0050	1	02/09/2017 00:40
Xylenes, Total	ND	0.0050	1	02/09/2017 00:40

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-15.0	1702155-012A	Soil	02/01/2017 11:48	GC18	133853

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	99	70-130		02/09/2017 00:40
Toluene-d8	111	70-130		02/09/2017 00:40
4-BFB	106	70-130		02/09/2017 00:40
Benzene-d6	91	60-140		02/09/2017 00:40
Ethylbenzene-d10	100	60-140		02/09/2017 00:40
1,2-DCB-d4	78	60-140		02/09/2017 00:40

Analyst(s): HK



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-20.0	1702155-013A	Soil	02/01/2017 12:02	GC18	133899

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/09/2017 01:19
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/09/2017 01:19
Benzene	ND	0.0050	1	02/09/2017 01:19
Bromobenzene	ND	0.0050	1	02/09/2017 01:19
Bromochloromethane	ND	0.0050	1	02/09/2017 01:19
Bromodichloromethane	ND	0.0050	1	02/09/2017 01:19
Bromoform	ND	0.0050	1	02/09/2017 01:19
Bromomethane	ND	0.0050	1	02/09/2017 01:19
2-Butanone (MEK)	ND	0.020	1	02/09/2017 01:19
t-Butyl alcohol (TBA)	ND	0.050	1	02/09/2017 01:19
n-Butyl benzene	ND	0.0050	1	02/09/2017 01:19
sec-Butyl benzene	ND	0.0050	1	02/09/2017 01:19
tert-Butyl benzene	ND	0.0050	1	02/09/2017 01:19
Carbon Disulfide	ND	0.0050	1	02/09/2017 01:19
Carbon Tetrachloride	ND	0.0050	1	02/09/2017 01:19
Chlorobenzene	ND	0.0050	1	02/09/2017 01:19
Chloroethane	ND	0.0050	1	02/09/2017 01:19
Chloroform	ND	0.0050	1	02/09/2017 01:19
Chloromethane	ND	0.0050	1	02/09/2017 01:19
2-Chlorotoluene	ND	0.0050	1	02/09/2017 01:19
4-Chlorotoluene	ND	0.0050	1	02/09/2017 01:19
Dibromochloromethane	ND	0.0050	1	02/09/2017 01:19
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/09/2017 01:19
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/09/2017 01:19
Dibromomethane	ND	0.0050	1	02/09/2017 01:19
1,2-Dichlorobenzene	ND	0.0050	1	02/09/2017 01:19
1,3-Dichlorobenzene	ND	0.0050	1	02/09/2017 01:19
1,4-Dichlorobenzene	ND	0.0050	1	02/09/2017 01:19
Dichlorodifluoromethane	ND	0.0050	1	02/09/2017 01:19
1,1-Dichloroethane	ND	0.0050	1	02/09/2017 01:19
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/09/2017 01:19
1,1-Dichloroethene	ND	0.0050	1	02/09/2017 01:19
cis-1,2-Dichloroethene	ND	0.0050	1	02/09/2017 01:19
trans-1,2-Dichloroethene	ND	0.0050	1	02/09/2017 01:19
1,2-Dichloropropane	ND	0.0050	1	02/09/2017 01:19
1,3-Dichloropropane	ND	0.0050	1	02/09/2017 01:19
2,2-Dichloropropane	ND	0.0050	1	02/09/2017 01:19

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-20.0	1702155-013A	Soil	02/01/2017 12:02	GC18	133899

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/09/2017 01:19
cis-1,3-Dichloropropene	ND	0.0050	1	02/09/2017 01:19
trans-1,3-Dichloropropene	ND	0.0050	1	02/09/2017 01:19
Diisopropyl ether (DIPE)	ND	0.0050	1	02/09/2017 01:19
Ethylbenzene	ND	0.0050	1	02/09/2017 01:19
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/09/2017 01:19
Freon 113	ND	0.0050	1	02/09/2017 01:19
Hexachlorobutadiene	ND	0.0050	1	02/09/2017 01:19
Hexachloroethane	ND	0.0050	1	02/09/2017 01:19
2-Hexanone	ND	0.0050	1	02/09/2017 01:19
Isopropylbenzene	ND	0.0050	1	02/09/2017 01:19
4-Isopropyl toluene	ND	0.0050	1	02/09/2017 01:19
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/09/2017 01:19
Methylene chloride	ND	0.0050	1	02/09/2017 01:19
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/09/2017 01:19
Naphthalene	ND	0.0050	1	02/09/2017 01:19
n-Propyl benzene	ND	0.0050	1	02/09/2017 01:19
Styrene	ND	0.0050	1	02/09/2017 01:19
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/09/2017 01:19
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/09/2017 01:19
Tetrachloroethene	ND	0.0050	1	02/09/2017 01:19
Toluene	ND	0.0050	1	02/09/2017 01:19
1,2,3-Trichlorobenzene	ND	0.0050	1	02/09/2017 01:19
1,2,4-Trichlorobenzene	ND	0.0050	1	02/09/2017 01:19
1,1,1-Trichloroethane	ND	0.0050	1	02/09/2017 01:19
1,1,2-Trichloroethane	ND	0.0050	1	02/09/2017 01:19
Trichloroethene	0.0097	0.0050	1	02/09/2017 01:19
Trichlorofluoromethane	ND	0.0050	1	02/09/2017 01:19
1,2,3-Trichloropropane	ND	0.0050	1	02/09/2017 01:19
1,2,4-Trimethylbenzene	ND	0.0050	1	02/09/2017 01:19
1,3,5-Trimethylbenzene	ND	0.0050	1	02/09/2017 01:19
Vinyl Chloride	ND	0.0050	1	02/09/2017 01:19
Xylenes, Total	ND	0.0050	1	02/09/2017 01:19

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-20.0	1702155-013A	Soil	02/01/2017 12:02	GC18	133899

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	99	70-130		02/09/2017 01:19
Toluene-d8	112	70-130		02/09/2017 01:19
4-BFB	106	70-130		02/09/2017 01:19
Benzene-d6	98	60-140		02/09/2017 01:19
Ethylbenzene-d10	109	60-140		02/09/2017 01:19
1,2-DCB-d4	83	60-140		02/09/2017 01:19

Analyst(s): HK



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/8/17-2/13/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-15.0	1702155-012A	Soil	02/01/2017 11:48	GC19	134069

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/13/2017 16:13
MTBE	---	0.050	1	02/13/2017 16:13
Benzene	---	0.0050	1	02/13/2017 16:13
Toluene	---	0.0050	1	02/13/2017 16:13
Ethylbenzene	---	0.0050	1	02/13/2017 16:13
Xylenes	---	0.015	1	02/13/2017 16:13

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	87	69-117	02/13/2017 16:13

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-20.0	1702155-013A	Soil	02/01/2017 12:02	GC19	133897

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/10/2017 10:20
MTBE	---	0.050	1	02/10/2017 10:20
Benzene	---	0.0050	1	02/10/2017 10:20
Toluene	---	0.0050	1	02/10/2017 10:20
Ethylbenzene	---	0.0050	1	02/10/2017 10:20
Xylenes	---	0.015	1	02/10/2017 10:20

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	86	69-117	02/10/2017 10:20

Analyst(s): IA



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-15.0	1702155-012A	Soil	02/01/2017 11:48	GC6A	133851

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/09/2017 13:53
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/09/2017 13:53

Surrogates	REC (%)	Limits	Date Analyzed
C9	99	72-114	02/09/2017 13:53

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-20.0	1702155-013A	Soil	02/01/2017 12:02	GC9a	133851

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/09/2017 14:01
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/09/2017 14:01

Surrogates	REC (%)	Limits	Date Analyzed
C9	101	72-114	02/09/2017 14:01

Analyst(s): TK



Quality Control Report

Client: Langan
Date Prepared: 2/7/17
Date Analyzed: 2/8/17 - 2/9/17
Instrument: GC10, GC16, GC28
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133853
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133853
 1702452-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0404	0.0050	0.050	-	81	53-116
Benzene	ND	0.0435	0.0050	0.050	-	87	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.156	0.050	0.20	-	78	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0464	0.0050	0.050	-	93	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0427	0.0040	0.050	-	85	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0419	0.0040	0.050	-	84	58-135
1,1-Dichloroethene	ND	0.0372	0.0050	0.050	-	74	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-

(Cont.)



Quality Control Report

Client: Langan
Date Prepared: 2/7/17
Date Analyzed: 2/8/17 - 2/9/17
Instrument: GC10, GC16, GC28
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133853
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133853
 1702452-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
Diisopropyl ether (DIPE)	ND	0.0421	0.0050	0.050	-	84	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0423	0.0050	0.050	-	85	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0407	0.0050	0.050	-	81	58-122
Methylene chloride	ND	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0485	0.0050	0.050	-	97	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0435	0.0050	0.050	-	87	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-

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Quality Control Report

Client: Langan
Date Prepared: 2/7/17
Date Analyzed: 2/8/17 - 2/9/17
Instrument: GC10, GC16, GC28
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133853
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133853
 1702452-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.121	0.120		0.12	97	96	70-130
Toluene-d8	0.1481	0.149		0.12	118	119	70-130
4-BFB	0.01318	0.0140		0.012	105	112	70-130
Benzene-d6	0.09491	0.0974		0.10	95	97	60-140
Ethylbenzene-d10	0.1107	0.114		0.10	111	114	60-140
1,2-DCB-d4	0.09016	0.0936		0.10	90	94	60-140

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0268	0.0284	0.050	ND	54	57	53-116	5.81	20
Benzene	0.0360	0.0378	0.050	ND	72	76	63-137	4.92	20
t-Butyl alcohol (TBA)	0.0827	0.0894	0.20	ND	41	45	41-135	7.82	20
Chlorobenzene	0.0373	0.0394	0.050	ND	75,F1	79	77-121	5.39	20
1,2-Dibromoethane (EDB)	0.0347	0.0343	0.050	ND	69	69	67-119	0	20
1,2-Dichloroethane (1,2-DCA)	0.0308	0.0324	0.050	ND	62	65	58-135	5.08	20
1,1-Dichloroethene	0.0317	0.0343	0.050	ND	63	69	42-145	7.99	20
Diisopropyl ether (DIPE)	0.0327	0.0344	0.050	ND	65	69	52-129	4.84	20
Ethyl tert-butyl ether (ETBE)	0.0306	0.0319	0.050	ND	61	64	53-125	4.05	20
Methyl-t-butyl ether (MTBE)	0.0283	0.0304	0.050	ND	57,F1	61	58-122	7.20	20
Toluene	0.0411	0.0426	0.050	ND	82	85	76-130	3.46	20
Trichloroethene	0.0359	0.0378	0.050	ND	72	76	72-132	5.26	20
Surrogate Recovery									
Dibromofluoromethane	0.110	0.111	0.12		88	89	70-130	0.756	20
Toluene-d8	0.137	0.134	0.12		110	107	70-130	2.29	20
4-BFB	0.0131	0.0145	0.012		105	116	70-130	9.83	20
Benzene-d6	0.0774	0.0806	0.10		77	81	60-140	4.05	20
Ethylbenzene-d10	0.0837	0.0927	0.10		84	93	60-140	10.2	20
1,2-DCB-d4	0.0687	0.0704	0.10		69	70	60-140	2.38	20



Quality Control Report

Client: Langan
Date Prepared: 2/8/17
Date Analyzed: 2/8/17 - 2/9/17
Instrument: GC10
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133899
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133899
 1702155-013AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0408	0.0050	0.050	-	82	53-116
Benzene	ND	0.0425	0.0050	0.050	-	85	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.182	0.050	0.20	-	91	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0461	0.0050	0.050	-	92	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0443	0.0040	0.050	-	89	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0405	0.0040	0.050	-	81	58-135
1,1-Dichloroethene	ND	0.0403	0.0050	0.050	-	81	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-

(Cont.)



Quality Control Report

Client: Langan
Date Prepared: 2/8/17
Date Analyzed: 2/8/17 - 2/9/17
Instrument: GC10
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133899
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133899
 1702155-013AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
Diisopropyl ether (DIPE)	ND	0.0410	0.0050	0.050	-	82	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0425	0.0050	0.050	-	85	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0420	0.0050	0.050	-	84	58-122
Methylene chloride	ND	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0497	0.0050	0.050	-	99	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0437	0.0050	0.050	-	87	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-

(Cont.)

NELAP 4033ORELAP

QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/8/17
Date Analyzed: 2/8/17 - 2/9/17
Instrument: GC10
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133899
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133899
 1702155-013AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.1174	0.120		0.12	94	96	70-130
Toluene-d8	0.159	0.151		0.12	127	121	70-130
4-BFB	0.01388	0.0144		0.012	111	115	70-130
Benzene-d6	0.101	0.0903		0.10	101	90	60-140
Ethylbenzene-d10	0.1305	0.113		0.10	131	113	60-140
1,2-DCB-d4	0.09579	0.0884		0.10	96	88	60-140

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0385	0.0523	0.050	ND	77	105	53-116	30.3,F1	20
Benzene	0.0381	0.0535	0.050	ND	76	107	63-137	33.7,F1	20
t-Butyl alcohol (TBA)	0.165	0.217	0.20	ND	83	109	41-135	27.3,F1	20
Chlorobenzene	0.0446	0.0589	0.050	ND	89	118	77-121	27.6,F1	20
1,2-Dibromoethane (EDB)	0.0432	0.0575	0.050	ND	86	115	67-119	28.3,F1	20
1,2-Dichloroethane (1,2-DCA)	0.0377	0.0510	0.050	ND	75	102	58-135	30.2,F1	20
1,1-Dichloroethene	0.0314	0.0508	0.050	ND	63	102	42-145	47.1,F1	20
Diisopropyl ether (DIPE)	0.0361	0.0506	0.050	ND	72	101	52-129	33.4,F1	20
Ethyl tert-butyl ether (ETBE)	0.0383	0.0536	0.050	ND	77	107	53-125	33.3,F1	20
Methyl-t-butyl ether (MTBE)	0.0374	0.0522	0.050	ND	75	104	58-122	33.1,F1	20
Toluene	0.0461	0.0628	0.050	ND	92	125	76-130	30.6,F1	20
Trichloroethene	0.0570	0.0749	0.050	0.009669	95	130	72-132	27,F1	20
Surrogate Recovery									
Dibromofluoromethane	0.122	0.120	0.12		98	96	70-130	2.15	20
Toluene-d8	0.149	0.150	0.12		120	120	70-130	0	20
4-BFB	0.0149	0.0142	0.012		119	114	70-130	4.80	20
Benzene-d6	0.0937	0.0939	0.10		94	94	60-140	0	20
Ethylbenzene-d10	0.116	0.120	0.10		116	120	60-140	3.18	20
1,2-DCB-d4	0.0922	0.0960	0.10		92	96	60-140	4.08	20



Quality Control Report

Client: Langan
Date Prepared: 2/8/17
Date Analyzed: 2/9/17
Instrument: GC19
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133897
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-133897
 1702249-006AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	0.736	0.40	0.60	-	123, F2	89-118
MTBE	ND	0.109	0.050	0.10	-	109	68-116
Benzene	ND	0.118	0.0050	0.10	-	118	85-118
Toluene	ND	0.124	0.0050	0.10	-	124, F2	87-121
Ethylbenzene	ND	0.118	0.0050	0.10	-	118	91-124
Xylenes	ND	0.337	0.015	0.30	-	112	92-126
Surrogate Recovery							
2-Fluorotoluene	0.09856	0.0994		0.10	99	99	88-119

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	NR	NR		0.43	NR	NR	-	NR	
MTBE	NR	NR		ND	NR	NR	-	NR	
Benzene	NR	NR		ND	NR	NR	-	NR	
Toluene	NR	NR		0.0064	NR	NR	-	NR	
Ethylbenzene	NR	NR		0.0053	NR	NR	-	NR	
Xylenes	NR	NR		0.056	NR	NR	-	NR	
Surrogate Recovery									
2-Fluorotoluene	NR	NR			NR	NR	-	NR	



Quality Control Report

Client: Langan
Date Prepared: 2/13/17
Date Analyzed: 2/13/17 - 2/14/17
Instrument: GC19
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 134069
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-134069

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	0.612	0.40	0.60	-	102	89-118
MTBE	ND	0.112	0.050	0.10	-	112	68-116
Benzene	ND	0.124	0.0050	0.10	-	124, F2	85-118
Toluene	ND	0.123	0.0050	0.10	-	123, F2	87-121
Ethylbenzene	ND	0.118	0.0050	0.10	-	118	91-124
Xylenes	ND	0.336	0.015	0.30	-	112	92-126
Surrogate Recovery							
2-Fluorotoluene	0.09446	0.0972		0.10	94	97	88-119



Quality Control Report

Client: Langan
Date Prepared: 2/7/17
Date Analyzed: 2/8/17
Instrument: GC6A
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133851
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg
Sample ID: MB/LCS-133851
 1702452-001AMS/MSD

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	43.6	1.0	40	-	109	91-127
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	24.59	24.6		25	98	99	74-110

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	42.8	42.7	40	ND	107	107	74-143	0	30
Surrogate Recovery									
C9	24.8	24.7	25		99	99	72-114	0	30



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1702155 **B** ClientCode: TWRK

WaterTrax
 WriteOn
 EDF
 Excel
 Fax
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Josh Graber
Langan
501 14th Street, 3rd Floor
Oakland, CA 94612
(415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc/3rd Party: kstaehlin@langan.com;
PO:
ProjectNo: 750635602; 260 30th Street

Bill to:

Accounts Payable
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursoft.com

Requested TAT:

3 days;

Date Received: **02/02/2017**

Date Logged: **02/02/2017**

Date Add-On: **02/08/2017**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1702155-012	B-20-15.0	Soil	2/1/2017 11:48	<input type="checkbox"/>	A	A	A										
1702155-013	B-20-20.0	Soil	2/1/2017 12:02	<input type="checkbox"/>	A	A	A										

Test Legend:

1	8260B_S	2	G-MBTX_S	3	TPH(DMO)_S	4	
5		6		7		8	
9		10		11		12	

Prepared by: Jena Alfaro

Add-On Prepared By: Briana Cutino

Comments: Samples 3&4 taken off hold and set up for G/DMO/8260/PAH 2/6/17 72hr RUSH. Sample 010 comp into workorder 1702218; samples 12 & 13 taken off hold for 8260/G/DMO 3DTAT 2/8/17 ;

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days). Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: LANGAN

Project: 750635602; 260 30th Street

Work Order: 1702155

Client Contact: Josh Graber

QC Level: LEVEL 2

Contact's Email: jdgraber@treadwellrollo.com

Comments: Samples 3&4 taken off hold and set up for G/DMO/8260/PAH
2/6/17 72hr RUSH. Sample 010 comp into workorder 1702218;

Date Logged: 2/2/2017

Date Add-On: 2/8/2017

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1702155-012A	B-20-15.0	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm SW8260B (VOCs)	1	Acetate Liner	2/1/2017 11:48	3 days		<input type="checkbox"/>	
							3 days		<input type="checkbox"/>	
1702155-013A	B-20-20.0	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm SW8260B (VOCs)	1	Acetate Liner	2/1/2017 12:02	3 days		<input type="checkbox"/>	
							3 days		<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

PHASE I 1702155

PLEASE C.C. ANNIE S. AT KSTAEHLIN@LANGAN.COM

10287

LANGAN

CHAIN OF CUSTODY RECORD

RUSH Page 1 of 2

- 555 Montgomery Street, Suite 1300, San Francisco, CA 94111
- 501 14th Street, Third Floor, Oakland CA 94612
- 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
- 4030 Moorpark Ave. Suite 210, San Jose, CA 95117-1849

Site Name: 260 30TH STREET
 Job Number: 750035002
 Project Manager/Contact: JOSH GRABER
 Samplers: KSS
 Recorder (Signature Required): [Signature]

Turnaround Time <u>72-Hour</u>

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix				No. Containers & Preservative				Analysis Requested											Silica gel clean-up	Hold	Remarks			
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH ^{g/d, mo}	VOCs	PAHs	CM-17	TPH ^{g/d, mo}	VOCs											
B-18-8.0	2/2/17	0946		X																								
B-18-10.0	↓	0955		X																								
B-18-15.0	↓	1005		X																								
B-18-20.0	2/2/17	1016		X																								
B-19-8.0	2/1/17	1023		X																								
B-19-10.0	↓	1025		X																								
B-19-15.0	↓	1046		X																								
B-19-20.0		1110		X																								
B-19-22.0		1115		X																								
B-20-8.0		1130		X																								
B-20-10.0		1140		X																								
B-20-15.0	↓	1148		X																								
B-20-20.0	2/1/17	1202		X																								

Relinquished by: (Signature) <u>[Signature]</u>	Date: _____	Time _____	Received by: (Signature) <u>[Signature]</u>	Date: <u>2-2-17</u>	Time: <u>1330</u>
Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>2-2-17</u>	Time: <u>1640</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>2/2/17</u>	Time: <u>1640</u>
Relinquished by: (Signature) _____	Date: _____	Time _____	Received by Lab: (Signature) <u>[Signature]</u>	Date: _____	Time _____

Sent to Laboratory (Name): MCCAMPBELL ANALYTICAL

Laboratory Comments/Notes: _____

Method of Shipment: Lab courier Fed Ex Airborne UPS
 Hand Carried Private Courier (Co. Name)

*** added 2/8/17 3DAT**



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1702155 A

Report Created for: Langan

501 14th Street, 3rd Floor
Oakland, CA 94612

Project Contact: Josh Graber

Project P.O.:

Project Name: 750635602; 260 30th Street

Project Received: 02/02/2017

Analytical Report reviewed & approved for release on 02/09/2017 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702155

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702155

Analytical Qualifiers

S	surrogate spike recovery outside accepted recovery limits
a3	sample diluted due to high organic content.
b1	aqueous sample that contains greater than ~1 vol. % sediment
c4	surrogate recovery outside of the control limits due to coelution with another peak(s) / cluttered chromatogram.
c7	surrogate value diluted out of range
d6	one to a few isolated non-target peaks present in the TPH(g) chromatogram
e2	diesel range compounds are significant; no recognizable pattern
e4	gasoline range compounds are significant.
e7	oil range compounds are significant
i1	results are reported on a dry weight basis

Quality Control Qualifiers

F2	LCS/LCSD recovery and/or RPD is out of acceptance criteria.
F3	the surrogate standard recovery and/or RPD is outside of acceptance limits.



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-15.0	1702155-003A	Soil	02/02/2017 10:05	GC16	133759

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/08/2017 03:18
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/08/2017 03:18
Benzene	ND	0.0050	1	02/08/2017 03:18
Bromobenzene	ND	0.0050	1	02/08/2017 03:18
Bromochloromethane	ND	0.0050	1	02/08/2017 03:18
Bromodichloromethane	ND	0.0050	1	02/08/2017 03:18
Bromoform	ND	0.0050	1	02/08/2017 03:18
Bromomethane	ND	0.0050	1	02/08/2017 03:18
2-Butanone (MEK)	ND	0.020	1	02/08/2017 03:18
t-Butyl alcohol (TBA)	ND	0.050	1	02/08/2017 03:18
n-Butyl benzene	ND	0.0050	1	02/08/2017 03:18
sec-Butyl benzene	ND	0.0050	1	02/08/2017 03:18
tert-Butyl benzene	ND	0.0050	1	02/08/2017 03:18
Carbon Disulfide	ND	0.0050	1	02/08/2017 03:18
Carbon Tetrachloride	ND	0.0050	1	02/08/2017 03:18
Chlorobenzene	ND	0.0050	1	02/08/2017 03:18
Chloroethane	ND	0.0050	1	02/08/2017 03:18
Chloroform	ND	0.0050	1	02/08/2017 03:18
Chloromethane	ND	0.0050	1	02/08/2017 03:18
2-Chlorotoluene	ND	0.0050	1	02/08/2017 03:18
4-Chlorotoluene	ND	0.0050	1	02/08/2017 03:18
Dibromochloromethane	ND	0.0050	1	02/08/2017 03:18
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/08/2017 03:18
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/08/2017 03:18
Dibromomethane	ND	0.0050	1	02/08/2017 03:18
1,2-Dichlorobenzene	ND	0.0050	1	02/08/2017 03:18
1,3-Dichlorobenzene	ND	0.0050	1	02/08/2017 03:18
1,4-Dichlorobenzene	ND	0.0050	1	02/08/2017 03:18
Dichlorodifluoromethane	ND	0.0050	1	02/08/2017 03:18
1,1-Dichloroethane	ND	0.0050	1	02/08/2017 03:18
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/08/2017 03:18
1,1-Dichloroethene	ND	0.0050	1	02/08/2017 03:18
cis-1,2-Dichloroethene	0.0063	0.0050	1	02/08/2017 03:18
trans-1,2-Dichloroethene	ND	0.0050	1	02/08/2017 03:18
1,2-Dichloropropane	ND	0.0050	1	02/08/2017 03:18
1,3-Dichloropropane	ND	0.0050	1	02/08/2017 03:18
2,2-Dichloropropane	ND	0.0050	1	02/08/2017 03:18

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-15.0	1702155-003A	Soil	02/02/2017 10:05	GC16	133759

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/08/2017 03:18
cis-1,3-Dichloropropene	ND	0.0050	1	02/08/2017 03:18
trans-1,3-Dichloropropene	ND	0.0050	1	02/08/2017 03:18
Diisopropyl ether (DIPE)	ND	0.0050	1	02/08/2017 03:18
Ethylbenzene	ND	0.0050	1	02/08/2017 03:18
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/08/2017 03:18
Freon 113	ND	0.0050	1	02/08/2017 03:18
Hexachlorobutadiene	ND	0.0050	1	02/08/2017 03:18
Hexachloroethane	ND	0.0050	1	02/08/2017 03:18
2-Hexanone	ND	0.0050	1	02/08/2017 03:18
Isopropylbenzene	ND	0.0050	1	02/08/2017 03:18
4-Isopropyl toluene	ND	0.0050	1	02/08/2017 03:18
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/08/2017 03:18
Methylene chloride	ND	0.0050	1	02/08/2017 03:18
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/08/2017 03:18
Naphthalene	ND	0.0050	1	02/08/2017 03:18
n-Propyl benzene	ND	0.0050	1	02/08/2017 03:18
Styrene	ND	0.0050	1	02/08/2017 03:18
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/08/2017 03:18
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/08/2017 03:18
Tetrachloroethene	ND	0.0050	1	02/08/2017 03:18
Toluene	ND	0.0050	1	02/08/2017 03:18
1,2,3-Trichlorobenzene	ND	0.0050	1	02/08/2017 03:18
1,2,4-Trichlorobenzene	ND	0.0050	1	02/08/2017 03:18
1,1,1-Trichloroethane	ND	0.0050	1	02/08/2017 03:18
1,1,2-Trichloroethane	ND	0.0050	1	02/08/2017 03:18
Trichloroethene	0.025	0.0050	1	02/08/2017 03:18
Trichlorofluoromethane	ND	0.0050	1	02/08/2017 03:18
1,2,3-Trichloropropane	ND	0.0050	1	02/08/2017 03:18
1,2,4-Trimethylbenzene	ND	0.0050	1	02/08/2017 03:18
1,3,5-Trimethylbenzene	ND	0.0050	1	02/08/2017 03:18
Vinyl Chloride	ND	0.0050	1	02/08/2017 03:18
Xylenes, Total	ND	0.0050	1	02/08/2017 03:18

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-15.0	1702155-003A	Soil	02/02/2017 10:05	GC16	133759

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	90	70-130		02/08/2017 03:18
Toluene-d8	103	70-130		02/08/2017 03:18
4-BFB	106	70-130		02/08/2017 03:18
Benzene-d6	89	60-140		02/08/2017 03:18
Ethylbenzene-d10	106	60-140		02/08/2017 03:18
1,2-DCB-d4	76	60-140		02/08/2017 03:18

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-20.0	1702155-004A	Soil	02/02/2017 10:16	GC16	133759

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/08/2017 03:58
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/08/2017 03:58
Benzene	ND	0.0050	1	02/08/2017 03:58
Bromobenzene	ND	0.0050	1	02/08/2017 03:58
Bromochloromethane	ND	0.0050	1	02/08/2017 03:58
Bromodichloromethane	ND	0.0050	1	02/08/2017 03:58
Bromoform	ND	0.0050	1	02/08/2017 03:58
Bromomethane	ND	0.0050	1	02/08/2017 03:58
2-Butanone (MEK)	ND	0.020	1	02/08/2017 03:58
t-Butyl alcohol (TBA)	ND	0.050	1	02/08/2017 03:58
n-Butyl benzene	ND	0.0050	1	02/08/2017 03:58
sec-Butyl benzene	ND	0.0050	1	02/08/2017 03:58
tert-Butyl benzene	ND	0.0050	1	02/08/2017 03:58
Carbon Disulfide	ND	0.0050	1	02/08/2017 03:58
Carbon Tetrachloride	ND	0.0050	1	02/08/2017 03:58
Chlorobenzene	ND	0.0050	1	02/08/2017 03:58
Chloroethane	ND	0.0050	1	02/08/2017 03:58
Chloroform	ND	0.0050	1	02/08/2017 03:58
Chloromethane	ND	0.0050	1	02/08/2017 03:58
2-Chlorotoluene	ND	0.0050	1	02/08/2017 03:58
4-Chlorotoluene	ND	0.0050	1	02/08/2017 03:58
Dibromochloromethane	ND	0.0050	1	02/08/2017 03:58
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/08/2017 03:58
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/08/2017 03:58
Dibromomethane	ND	0.0050	1	02/08/2017 03:58
1,2-Dichlorobenzene	ND	0.0050	1	02/08/2017 03:58
1,3-Dichlorobenzene	ND	0.0050	1	02/08/2017 03:58
1,4-Dichlorobenzene	ND	0.0050	1	02/08/2017 03:58
Dichlorodifluoromethane	ND	0.0050	1	02/08/2017 03:58
1,1-Dichloroethane	ND	0.0050	1	02/08/2017 03:58
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/08/2017 03:58
1,1-Dichloroethene	ND	0.0050	1	02/08/2017 03:58
cis-1,2-Dichloroethene	ND	0.0050	1	02/08/2017 03:58
trans-1,2-Dichloroethene	ND	0.0050	1	02/08/2017 03:58
1,2-Dichloropropane	ND	0.0050	1	02/08/2017 03:58
1,3-Dichloropropane	ND	0.0050	1	02/08/2017 03:58
2,2-Dichloropropane	ND	0.0050	1	02/08/2017 03:58

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-20.0	1702155-004A	Soil	02/02/2017 10:16	GC16	133759

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/08/2017 03:58
cis-1,3-Dichloropropene	ND	0.0050	1	02/08/2017 03:58
trans-1,3-Dichloropropene	ND	0.0050	1	02/08/2017 03:58
Diisopropyl ether (DIPE)	ND	0.0050	1	02/08/2017 03:58
Ethylbenzene	ND	0.0050	1	02/08/2017 03:58
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/08/2017 03:58
Freon 113	ND	0.0050	1	02/08/2017 03:58
Hexachlorobutadiene	ND	0.0050	1	02/08/2017 03:58
Hexachloroethane	ND	0.0050	1	02/08/2017 03:58
2-Hexanone	ND	0.0050	1	02/08/2017 03:58
Isopropylbenzene	ND	0.0050	1	02/08/2017 03:58
4-Isopropyl toluene	ND	0.0050	1	02/08/2017 03:58
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/08/2017 03:58
Methylene chloride	ND	0.0050	1	02/08/2017 03:58
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/08/2017 03:58
Naphthalene	ND	0.0050	1	02/08/2017 03:58
n-Propyl benzene	ND	0.0050	1	02/08/2017 03:58
Styrene	ND	0.0050	1	02/08/2017 03:58
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/08/2017 03:58
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/08/2017 03:58
Tetrachloroethene	ND	0.0050	1	02/08/2017 03:58
Toluene	ND	0.0050	1	02/08/2017 03:58
1,2,3-Trichlorobenzene	ND	0.0050	1	02/08/2017 03:58
1,2,4-Trichlorobenzene	ND	0.0050	1	02/08/2017 03:58
1,1,1-Trichloroethane	ND	0.0050	1	02/08/2017 03:58
1,1,2-Trichloroethane	ND	0.0050	1	02/08/2017 03:58
Trichloroethene	ND	0.0050	1	02/08/2017 03:58
Trichlorofluoromethane	ND	0.0050	1	02/08/2017 03:58
1,2,3-Trichloropropane	ND	0.0050	1	02/08/2017 03:58
1,2,4-Trimethylbenzene	ND	0.0050	1	02/08/2017 03:58
1,3,5-Trimethylbenzene	ND	0.0050	1	02/08/2017 03:58
Vinyl Chloride	ND	0.0050	1	02/08/2017 03:58
Xylenes, Total	ND	0.0050	1	02/08/2017 03:58

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-20.0	1702155-004A	Soil	02/02/2017 10:16	GC16	133759

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	91		70-130	02/08/2017 03:58
Toluene-d8	103		70-130	02/08/2017 03:58
4-BFB	107		70-130	02/08/2017 03:58
Benzene-d6	86		60-140	02/08/2017 03:58
Ethylbenzene-d10	100		60-140	02/08/2017 03:58
1,2-DCB-d4	74		60-140	02/08/2017 03:58

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-15.0	1702155-003A	Soil	02/02/2017 10:05	GC35	133721

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/09/2017 03:02
Acenaphthylene	ND	0.010	1	02/09/2017 03:02
Anthracene	ND	0.010	1	02/09/2017 03:02
Benzo (a) anthracene	ND	0.010	1	02/09/2017 03:02
Benzo (a) pyrene	ND	0.010	1	02/09/2017 03:02
Benzo (b) fluoranthene	ND	0.010	1	02/09/2017 03:02
Benzo (g,h,i) perylene	ND	0.010	1	02/09/2017 03:02
Benzo (k) fluoranthene	ND	0.010	1	02/09/2017 03:02
Chrysene	ND	0.010	1	02/09/2017 03:02
Dibenzo (a,h) anthracene	ND	0.010	1	02/09/2017 03:02
Fluoranthene	ND	0.010	1	02/09/2017 03:02
Fluorene	ND	0.010	1	02/09/2017 03:02
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/09/2017 03:02
1-Methylnaphthalene	ND	0.010	1	02/09/2017 03:02
2-Methylnaphthalene	ND	0.010	1	02/09/2017 03:02
Naphthalene	ND	0.010	1	02/09/2017 03:02
Phenanthrene	ND	0.010	1	02/09/2017 03:02
Pyrene	ND	0.010	1	02/09/2017 03:02
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	98	30-130		02/09/2017 03:02
2-Fluorobiphenyl	96	30-130		02/09/2017 03:02

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-20.0	1702155-004A	Soil	02/02/2017 10:16	GC35	133721

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/09/2017 03:27
Acenaphthylene	ND	0.010	1	02/09/2017 03:27
Anthracene	ND	0.010	1	02/09/2017 03:27
Benzo (a) anthracene	ND	0.010	1	02/09/2017 03:27
Benzo (a) pyrene	ND	0.010	1	02/09/2017 03:27
Benzo (b) fluoranthene	ND	0.010	1	02/09/2017 03:27
Benzo (g,h,i) perylene	ND	0.010	1	02/09/2017 03:27
Benzo (k) fluoranthene	ND	0.010	1	02/09/2017 03:27
Chrysene	ND	0.010	1	02/09/2017 03:27
Dibenzo (a,h) anthracene	ND	0.010	1	02/09/2017 03:27
Fluoranthene	ND	0.010	1	02/09/2017 03:27
Fluorene	ND	0.010	1	02/09/2017 03:27
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/09/2017 03:27
1-Methylnaphthalene	ND	0.010	1	02/09/2017 03:27
2-Methylnaphthalene	ND	0.010	1	02/09/2017 03:27
Naphthalene	ND	0.010	1	02/09/2017 03:27
Phenanthrene	ND	0.010	1	02/09/2017 03:27
Pyrene	ND	0.010	1	02/09/2017 03:27
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	95	30-130		02/09/2017 03:27
2-Fluorobiphenyl	94	30-130		02/09/2017 03:27

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-15.0	1702155-003A	Soil	02/02/2017 10:05	GC19	133772

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/08/2017 21:04
MTBE	---	0.050	1	02/08/2017 21:04
Benzene	---	0.0050	1	02/08/2017 21:04
Toluene	---	0.0050	1	02/08/2017 21:04
Ethylbenzene	---	0.0050	1	02/08/2017 21:04
Xylenes	---	0.015	1	02/08/2017 21:04

Surrogates	REC (%)	Limits
2-Fluorotoluene	87	69-117

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-20.0	1702155-004A	Soil	02/02/2017 10:16	GC19	133772

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/09/2017 01:08
MTBE	---	0.050	1	02/09/2017 01:08
Benzene	---	0.0050	1	02/09/2017 01:08
Toluene	---	0.0050	1	02/09/2017 01:08
Ethylbenzene	---	0.0050	1	02/09/2017 01:08
Xylenes	---	0.015	1	02/09/2017 01:08

Surrogates	REC (%)	Limits
2-Fluorotoluene	85	69-117

Analyst(s): IA



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-15.0	1702155-003A	Soil	02/02/2017 10:05	GC6A	133771

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)	ND	1.0	1	02/07/2017 19:52
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/07/2017 19:52

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>	<u>Date Analyzed</u>
C9	97	72-114	02/07/2017 19:52

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-20.0	1702155-004A	Soil	02/02/2017 10:16	GC6A	133771

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)	ND	1.0	1	02/07/2017 21:10
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/07/2017 21:10

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>	<u>Date Analyzed</u>
C9	97	72-114	02/07/2017 21:10

Analyst(s): TK



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17
Instrument: GC28
Matrix: Soil
Project: 750635602; 260 30th Street


WorkOrder: 1702155
BatchID: 133759
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133759
 1702346-003AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0441	0.0050	0.050	-	88	53-116
Benzene	ND	0.0488	0.0050	0.050	-	98	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.151	0.050	0.20	-	76	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0506	0.0050	0.050	-	101	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0450	0.0040	0.050	-	90	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0447	0.0040	0.050	-	89	58-135
1,1-Dichloroethene	ND	0.0438	0.0050	0.050	-	88	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-

(Cont.)

NELAP 4033ORELAP

 QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17
Instrument: GC28
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133759
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133759
 1702346-003AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
Diisopropyl ether (DIPE)	ND	0.0461	0.0050	0.050	-	92	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0463	0.0050	0.050	-	93	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0440	0.0050	0.050	-	88	58-122
Methylene chloride	ND	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0546	0.0050	0.050	-	109	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0500	0.0050	0.050	-	100	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17
Instrument: GC28
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133759
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133759
 1702346-003AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.1204	0.119		0.12	96	95	70-130
Toluene-d8	0.1477	0.147		0.12	118	118	70-130
4-BFB	0.01385	0.0148		0.012	111	118	70-130
Benzene-d6	0.1073	0.116		0.10	107	116	60-140
Ethylbenzene-d10	0.122	0.134		0.10	122	134	60-140
1,2-DCB-d4	0.09386	0.106		0.10	94	106	60-140

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0407	0.0431	0.050	ND	81	86	53-116	5.74	20
Benzene	0.0452	0.0475	0.050	ND	90	95	63-137	4.94	20
t-Butyl alcohol (TBA)	0.136	0.145	0.20	ND	68	72	41-135	6.39	20
Chlorobenzene	0.0463	0.0492	0.050	ND	93	98	77-121	6.18	20
1,2-Dibromoethane (EDB)	0.0412	0.0444	0.050	ND	82	89	67-119	7.50	20
1,2-Dichloroethane (1,2-DCA)	0.0422	0.0437	0.050	ND	84	87	58-135	3.40	20
1,1-Dichloroethene	0.0415	0.0429	0.050	ND	83	86	42-145	3.39	20
Diisopropyl ether (DIPE)	0.0426	0.0452	0.050	ND	85	90	52-129	5.74	20
Ethyl tert-butyl ether (ETBE)	0.0424	0.0453	0.050	ND	85	91	53-125	6.64	20
Methyl-t-butyl ether (MTBE)	0.0410	0.0428	0.050	ND	82	86	58-122	4.37	20
Toluene	0.0490	0.0521	0.050	ND	98	104	76-130	6.18	20
Trichloroethene	0.0463	0.0492	0.050	ND	88	94	72-132	6.18	20
Surrogate Recovery									
Dibromofluoromethane	0.122	0.122	0.12		98	98	70-130	0	20
Toluene-d8	0.146	0.146	0.12		117	117	70-130	0	20
4-BFB	0.0145	0.0143	0.012		116	114	70-130	1.71	20
Benzene-d6	0.110	0.110	0.10		110	110	60-140	0	20
Ethylbenzene-d10	0.126	0.129	0.10		126	129	60-140	1.91	20
1,2-DCB-d4	0.0989	0.100	0.10		99	100	60-140	1.28	20



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17
Instrument: GC9a
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133771
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg
Sample ID: MB/LCS-133771
 1702366-022AMS/MSD

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	39.6	1.0	40	-	99	91-127
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	24.37	25.1		25	97	100	74-110

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	39.4	42.4	40	1.669	94	102	74-143	7.35	30
Surrogate Recovery									
C9	24.4	24.3	25		98	97	72-114	0.308	30



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/6/17 - 2/9/17
Instrument: GC35
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133721
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg
Sample ID: MB/LCS-133721
 1702249-010AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	-	0.010	-	-	-	-
Acenaphthylene	ND	-	0.010	-	-	-	-
Anthracene	ND	-	0.010	-	-	-	-
Benzo (a) anthracene	ND	-	0.010	-	-	-	-
Benzo (a) pyrene	ND	0.0762	0.010	0.20	-	38	23-129
Benzo (b) fluoranthene	ND	-	0.010	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.010	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.010	-	-	-	-
Chrysene	ND	0.0829	0.010	0.20	-	41	38-104
Dibenzo (a,h) anthracene	ND	-	0.010	-	-	-	-
Fluoranthene	ND	-	0.010	-	-	-	-
Fluorene	ND	-	0.010	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.010	-	-	-	-
1-Methylnaphthalene	ND	0.105	0.010	0.20	-	53, F2	59-106
2-Methylnaphthalene	ND	0.0975	0.010	0.20	-	49, F2	54-108
Naphthalene	ND	-	0.010	-	-	-	-
Phenanthrene	ND	0.0947	0.010	0.20	-	47, F2	48-107
Pyrene	ND	0.0798	0.010	0.20	-	40	40-104

Surrogate Recovery

1-Fluoronaphthalene	0.1997	0.260		0.50	40	52, F3	63-123
2-Fluorobiphenyl	0.1883	0.243		0.50	38	49, F3	55-127

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Benzo (a) pyrene	0.208	0.264	0.20	ND	101	129	9-156	23.5	30
Chrysene	0.191	0.199	0.20	ND	96	100	33-115	3.98	30
1-Methylnaphthalene	0.266	0.283	0.20	ND	131	140	13-167	6.25	30
2-Methylnaphthalene	0.237	0.276	0.20	ND	116	135	25-152	15.4	30
Phenanthrene	0.214	0.229	0.20	ND	107	115	30-138	6.93	30
Pyrene	0.221	0.228	0.20	ND	111	114	29-125	2.82	30

Surrogate Recovery

1-Fluoronaphthalene	0.531	0.542	0.50		106	108	56-153	2.19	30
2-Fluorobiphenyl	0.516	0.513	0.50		103	103	50-150	0	30



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/8/17
Instrument: GC19
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133772
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-133772
 1702414-002AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	0.589	0.40	0.60	-	98	89-118
MTBE	ND	0.0998	0.050	0.10	-	100	68-116
Benzene	ND	0.112	0.0050	0.10	-	113	85-118
Toluene	ND	0.115	0.0050	0.10	-	115	87-121
Ethylbenzene	ND	0.112	0.0050	0.10	-	112	91-124
Xylenes	ND	0.334	0.015	0.30	-	111	92-126
Surrogate Recovery							
2-Fluorotoluene	0.09804	0.104		0.10	98	104	88-119

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	NR	NR		ND	NR	NR	-	NR	
MTBE	NR	NR		ND	NR	NR	-	NR	
Benzene	NR	NR		ND	NR	NR	-	NR	
Toluene	NR	NR		ND	NR	NR	-	NR	
Ethylbenzene	NR	NR		ND	NR	NR	-	NR	
Xylenes	NR	NR		ND	NR	NR	-	NR	
Surrogate Recovery									
2-Fluorotoluene	NR	NR			NR	NR	-	NR	



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17
Instrument: GC9a
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133771
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg
Sample ID: MB/LCS-133771
 1702366-022AMS/MSD

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	39.6	1.0	40	-	99	91-127
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	24.37	25.1		25	97	100	74-110

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	39.4	42.4	40	1.669	94	102	74-143	7.35	30
Surrogate Recovery									
C9	24.4	24.3	25		98	97	72-114	0.308	30

1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262



CHAIN-OF-CUSTODY RECORD

WorkOrder: 1702155 **A** ClientCode: TWRK

WaterTrax
 WriteOn
 EDF
 Excel
 Fax
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Josh Graber
Langan
501 14th Street, 3rd Floor
Oakland, CA 94612
(415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc/3rd Party: kstaehlin@langan.com;
PO:
ProjectNo: 750635602; 260 30th Street

Bill to:

Accounts Payable
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursoft.com

Requested TAT: 3 days;

Date Received: 02/02/2017
Date Logged: 02/02/2017
Date Add-On: 02/06/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1702155-003	B-18-15.0	Soil	2/2/2017 10:05	<input type="checkbox"/>	A	A	A	A									
1702155-004	B-18-20.0	Soil	2/2/2017 10:16	<input type="checkbox"/>	A	A	A	A									

Test Legend:

1	8260B_S	2	8270_PNA_S	3	G-MBTEX_S	4	TPH(DMO)_S
5		6		7		8	
9		10		11		12	

Prepared by: Jena Alfaro
Add-On Prepared By: Briana Cutino

Comments: Samples 3&4 taken off hold and set up for G/DMO/8260/PAH 2/6/17 72hr RUSH

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: LANGAN

Project: 750635602; 260 30th Street

Work Order: 1702155

Client Contact: Josh Graber

QC Level: LEVEL 2

Contact's Email jdgraber@treadwellrollo.com

Comments: Samples 3&4 taken off hold and set up for G/DMO/8260/PAH
2/6/17 72hr RUSH

Date Logged: 2/2/2017

Date Add-On: 2/6/2017

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Collection Date & Time	TAT	Sediment Content	Hold	SubOut	
1702155-003A	B-18-15.0	Soil	Multi-Range TPH(g,d,mo) by EPA	1	Acetate Liner	2/2/2017 10:05	3 days			<input type="checkbox"/>	
			8015Bm								<input type="checkbox"/>
			SW8270C (PAHs/PNAs)							3 days	<input type="checkbox"/>
			SW8260B (VOCs)				3 days			<input type="checkbox"/>	
1702155-004A	B-18-20.0	Soil	Multi-Range TPH(g,d,mo) by EPA	1	Acetate Liner	2/2/2017 10:16	3 days			<input type="checkbox"/>	
			8015Bm								<input type="checkbox"/>
			SW8270C (PAHs/PNAs)							3 days	<input type="checkbox"/>
			SW8260B (VOCs)				3 days			<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

PHASE I 1702155

PLEASE C.C. ANNIE S. AT KSTAEHLUN@LANGAN.COM

10287

LANGAN

CHAIN OF CUSTODY RECORD

RUSH

 Page 1 of 2

- 555 Montgomery Street, Suite 1300, San Francisco, CA 94111
- 501 14th Street, Third Floor, Oakland CA 94612
- 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
- 4030 Moorpark Ave. Suite 210, San Jose, CA 95117-1849

Site Name: 260 30TH STREET
 Job Number: 750035002
 Project Manager/Contact: JOSH GRABER
 Samplers: KSS
 Recorder (Signature Required): [Signature]

Turnaround Time
72-Hour

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix & Preservative							Analysis Requested										Remarks				
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH g/d, mo	VOCS	PAHs	CAM-17	Silica gel clean-up	Hold								
B-18-8.0	2/2/17	0946		X																					
B-18-10.0	↓	0955		X																					
B-18-15.0		1005			X																				
B-18-20.0	2/2/17	1016		X																					
B-19-8.0	2/1/17	1023		X																					
B-19-10.0	↓	1025		X																					
B-19-15.0		1046			X																				
B-19-20.0	↓	1110		X																					
B-19-22.0		1115			X																				
B-20-8.0	↓	1130		X																					
B-20-10.0		1140			X																				
B-20-15.0	↓	1148		X																					
B-20-20.0		2/1/17	1202		X																				

Relinquished by: (Signature) <u>[Signature]</u>	Date: _____	Time _____	Received by: (Signature) <u>[Signature]</u>	Date: <u>2-2-17</u>	Time: <u>1330</u>
Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>2-2-17</u>	Time: <u>1640</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>2/2/17</u>	Time: <u>1640</u>
Relinquished by: (Signature) _____	Date: _____	Time _____	Received by Lab: (Signature) _____	Date: _____	Time _____

Sent to Laboratory (Name): MCCAMPBELL ANALYTICAL
 Laboratory Comments/Notes: _____
 Method of Shipment: Lab courier Fed Ex Airborne UPS
 Hand Carried Private Courier (Co. Name) _____



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1702155

Report Created for: Langan

501 14th Street, 3rd Floor
Oakland, CA 94612

Project Contact: Josh Graber

Project P.O.:

Project Name: 750635602; 260 30th Street

Project Received: 02/02/2017

Analytical Report reviewed & approved for release on 02/08/2017 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702155

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702155

Analytical Qualifiers

S	surrogate spike recovery outside accepted recovery limits
a3	sample diluted due to high organic content.
b1	aqueous sample that contains greater than ~1 vol. % sediment
c4	surrogate recovery outside of the control limits due to coelution with another peak(s) / cluttered chromatogram.
c7	surrogate value diluted out of range
d6	one to a few isolated non-target peaks present in the TPH(g) chromatogram
e2	diesel range compounds are significant; no recognizable pattern
e4	gasoline range compounds are significant.
e7	oil range compounds are significant
i1	results are reported on a dry weight basis

Quality Control Qualifiers

F2	LCS/LCSD recovery and/or RPD is out of acceptance criteria.
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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-10.0	1702155-002A	Soil	02/02/2017 09:55	GC16	133574

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	20	200	02/04/2017 14:03
tert-Amyl methyl ether (TAME)	ND	1.0	200	02/04/2017 14:03
Benzene	ND	1.0	200	02/04/2017 14:03
Bromobenzene	ND	1.0	200	02/04/2017 14:03
Bromochloromethane	ND	1.0	200	02/04/2017 14:03
Bromodichloromethane	ND	1.0	200	02/04/2017 14:03
Bromoform	ND	1.0	200	02/04/2017 14:03
Bromomethane	ND	1.0	200	02/04/2017 14:03
2-Butanone (MEK)	ND	4.0	200	02/04/2017 14:03
t-Butyl alcohol (TBA)	ND	10	200	02/04/2017 14:03
n-Butyl benzene	ND	1.0	200	02/04/2017 14:03
sec-Butyl benzene	ND	1.0	200	02/04/2017 14:03
tert-Butyl benzene	ND	1.0	200	02/04/2017 14:03
Carbon Disulfide	ND	1.0	200	02/04/2017 14:03
Carbon Tetrachloride	ND	1.0	200	02/04/2017 14:03
Chlorobenzene	ND	1.0	200	02/04/2017 14:03
Chloroethane	ND	1.0	200	02/04/2017 14:03
Chloroform	ND	1.0	200	02/04/2017 14:03
Chloromethane	ND	1.0	200	02/04/2017 14:03
2-Chlorotoluene	ND	1.0	200	02/04/2017 14:03
4-Chlorotoluene	ND	1.0	200	02/04/2017 14:03
Dibromochloromethane	ND	1.0	200	02/04/2017 14:03
1,2-Dibromo-3-chloropropane	ND	0.80	200	02/04/2017 14:03
1,2-Dibromoethane (EDB)	ND	0.80	200	02/04/2017 14:03
Dibromomethane	ND	1.0	200	02/04/2017 14:03
1,2-Dichlorobenzene	ND	1.0	200	02/04/2017 14:03
1,3-Dichlorobenzene	ND	1.0	200	02/04/2017 14:03
1,4-Dichlorobenzene	ND	1.0	200	02/04/2017 14:03
Dichlorodifluoromethane	ND	1.0	200	02/04/2017 14:03
1,1-Dichloroethane	ND	1.0	200	02/04/2017 14:03
1,2-Dichloroethane (1,2-DCA)	ND	0.80	200	02/04/2017 14:03
1,1-Dichloroethene	ND	1.0	200	02/04/2017 14:03
cis-1,2-Dichloroethene	1.1	1.0	200	02/04/2017 14:03
trans-1,2-Dichloroethene	ND	1.0	200	02/04/2017 14:03
1,2-Dichloropropane	ND	1.0	200	02/04/2017 14:03
1,3-Dichloropropane	ND	1.0	200	02/04/2017 14:03
2,2-Dichloropropane	ND	1.0	200	02/04/2017 14:03

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-10.0	1702155-002A	Soil	02/02/2017 09:55	GC16	133574

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	1.0	200	02/04/2017 14:03
cis-1,3-Dichloropropene	ND	1.0	200	02/04/2017 14:03
trans-1,3-Dichloropropene	ND	1.0	200	02/04/2017 14:03
Diisopropyl ether (DIPE)	ND	1.0	200	02/04/2017 14:03
Ethylbenzene	ND	1.0	200	02/04/2017 14:03
Ethyl tert-butyl ether (ETBE)	ND	1.0	200	02/04/2017 14:03
Freon 113	ND	1.0	200	02/04/2017 14:03
Hexachlorobutadiene	ND	1.0	200	02/04/2017 14:03
Hexachloroethane	ND	1.0	200	02/04/2017 14:03
2-Hexanone	ND	1.0	200	02/04/2017 14:03
Isopropylbenzene	ND	1.0	200	02/04/2017 14:03
4-Isopropyl toluene	ND	1.0	200	02/04/2017 14:03
Methyl-t-butyl ether (MTBE)	ND	1.0	200	02/04/2017 14:03
Methylene chloride	ND	1.0	200	02/04/2017 14:03
4-Methyl-2-pentanone (MIBK)	ND	1.0	200	02/04/2017 14:03
Naphthalene	ND	1.0	200	02/04/2017 14:03
n-Propyl benzene	ND	1.0	200	02/04/2017 14:03
Styrene	ND	1.0	200	02/04/2017 14:03
1,1,1,2-Tetrachloroethane	ND	1.0	200	02/04/2017 14:03
1,1,2,2-Tetrachloroethane	ND	1.0	200	02/04/2017 14:03
Tetrachloroethene	ND	1.0	200	02/04/2017 14:03
Toluene	ND	1.0	200	02/04/2017 14:03
1,2,3-Trichlorobenzene	ND	1.0	200	02/04/2017 14:03
1,2,4-Trichlorobenzene	ND	1.0	200	02/04/2017 14:03
1,1,1-Trichloroethane	ND	1.0	200	02/04/2017 14:03
1,1,2-Trichloroethane	ND	1.0	200	02/04/2017 14:03
Trichloroethene	6.4	1.0	200	02/04/2017 14:03
Trichlorofluoromethane	ND	1.0	200	02/04/2017 14:03
1,2,3-Trichloropropane	ND	1.0	200	02/04/2017 14:03
1,2,4-Trimethylbenzene	ND	1.0	200	02/04/2017 14:03
1,3,5-Trimethylbenzene	ND	1.0	200	02/04/2017 14:03
Vinyl Chloride	ND	1.0	200	02/04/2017 14:03
Xylenes, Total	ND	1.0	200	02/04/2017 14:03

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-10.0	1702155-002A	Soil	02/02/2017 09:55	GC16	133574

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>	
Dibromofluoromethane	95		70-130	02/04/2017 14:03
Toluene-d8	93		70-130	02/04/2017 14:03
4-BFB	98		70-130	02/04/2017 14:03
Benzene-d6	99		60-140	02/04/2017 14:03
Ethylbenzene-d10	107		60-140	02/04/2017 14:03
1,2-DCB-d4	146	S	60-140	02/04/2017 14:03

Analyst(s): KF

Analytical Comments: c7



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-19-10.0	1702155-006A	Soil	02/01/2017 10:25	GC16	133574

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/04/2017 20:03
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/04/2017 20:03
Benzene	ND	0.0050	1	02/04/2017 20:03
Bromobenzene	ND	0.0050	1	02/04/2017 20:03
Bromochloromethane	ND	0.0050	1	02/04/2017 20:03
Bromodichloromethane	ND	0.0050	1	02/04/2017 20:03
Bromoform	ND	0.0050	1	02/04/2017 20:03
Bromomethane	ND	0.0050	1	02/04/2017 20:03
2-Butanone (MEK)	ND	0.020	1	02/04/2017 20:03
t-Butyl alcohol (TBA)	ND	0.050	1	02/04/2017 20:03
n-Butyl benzene	ND	0.0050	1	02/04/2017 20:03
sec-Butyl benzene	ND	0.0050	1	02/04/2017 20:03
tert-Butyl benzene	ND	0.0050	1	02/04/2017 20:03
Carbon Disulfide	ND	0.0050	1	02/04/2017 20:03
Carbon Tetrachloride	ND	0.0050	1	02/04/2017 20:03
Chlorobenzene	ND	0.0050	1	02/04/2017 20:03
Chloroethane	ND	0.0050	1	02/04/2017 20:03
Chloroform	ND	0.0050	1	02/04/2017 20:03
Chloromethane	ND	0.0050	1	02/04/2017 20:03
2-Chlorotoluene	ND	0.0050	1	02/04/2017 20:03
4-Chlorotoluene	ND	0.0050	1	02/04/2017 20:03
Dibromochloromethane	ND	0.0050	1	02/04/2017 20:03
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/04/2017 20:03
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/04/2017 20:03
Dibromomethane	ND	0.0050	1	02/04/2017 20:03
1,2-Dichlorobenzene	ND	0.0050	1	02/04/2017 20:03
1,3-Dichlorobenzene	ND	0.0050	1	02/04/2017 20:03
1,4-Dichlorobenzene	ND	0.0050	1	02/04/2017 20:03
Dichlorodifluoromethane	ND	0.0050	1	02/04/2017 20:03
1,1-Dichloroethane	ND	0.0050	1	02/04/2017 20:03
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/04/2017 20:03
1,1-Dichloroethene	ND	0.0050	1	02/04/2017 20:03
cis-1,2-Dichloroethene	ND	0.0050	1	02/04/2017 20:03
trans-1,2-Dichloroethene	ND	0.0050	1	02/04/2017 20:03
1,2-Dichloropropane	ND	0.0050	1	02/04/2017 20:03
1,3-Dichloropropane	ND	0.0050	1	02/04/2017 20:03
2,2-Dichloropropane	ND	0.0050	1	02/04/2017 20:03

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-19-10.0	1702155-006A	Soil	02/01/2017 10:25	GC16	133574

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/04/2017 20:03
cis-1,3-Dichloropropene	ND	0.0050	1	02/04/2017 20:03
trans-1,3-Dichloropropene	ND	0.0050	1	02/04/2017 20:03
Diisopropyl ether (DIPE)	ND	0.0050	1	02/04/2017 20:03
Ethylbenzene	ND	0.0050	1	02/04/2017 20:03
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/04/2017 20:03
Freon 113	ND	0.0050	1	02/04/2017 20:03
Hexachlorobutadiene	ND	0.0050	1	02/04/2017 20:03
Hexachloroethane	ND	0.0050	1	02/04/2017 20:03
2-Hexanone	ND	0.0050	1	02/04/2017 20:03
Isopropylbenzene	ND	0.0050	1	02/04/2017 20:03
4-Isopropyl toluene	ND	0.0050	1	02/04/2017 20:03
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/04/2017 20:03
Methylene chloride	ND	0.0050	1	02/04/2017 20:03
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/04/2017 20:03
Naphthalene	ND	0.0050	1	02/04/2017 20:03
n-Propyl benzene	ND	0.0050	1	02/04/2017 20:03
Styrene	ND	0.0050	1	02/04/2017 20:03
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/04/2017 20:03
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/04/2017 20:03
Tetrachloroethene	ND	0.0050	1	02/04/2017 20:03
Toluene	ND	0.0050	1	02/04/2017 20:03
1,2,3-Trichlorobenzene	ND	0.0050	1	02/04/2017 20:03
1,2,4-Trichlorobenzene	ND	0.0050	1	02/04/2017 20:03
1,1,1-Trichloroethane	ND	0.0050	1	02/04/2017 20:03
1,1,2-Trichloroethane	ND	0.0050	1	02/04/2017 20:03
Trichloroethene	ND	0.0050	1	02/04/2017 20:03
Trichlorofluoromethane	ND	0.0050	1	02/04/2017 20:03
1,2,3-Trichloropropane	ND	0.0050	1	02/04/2017 20:03
1,2,4-Trimethylbenzene	ND	0.0050	1	02/04/2017 20:03
1,3,5-Trimethylbenzene	ND	0.0050	1	02/04/2017 20:03
Vinyl Chloride	ND	0.0050	1	02/04/2017 20:03
Xylenes, Total	ND	0.0050	1	02/04/2017 20:03

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-19-10.0	1702155-006A	Soil	02/01/2017 10:25	GC16	133574

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	90	70-130		02/04/2017 20:03
Toluene-d8	103	70-130		02/04/2017 20:03
4-BFB	111	70-130		02/04/2017 20:03
Benzene-d6	89	60-140		02/04/2017 20:03
Ethylbenzene-d10	103	60-140		02/04/2017 20:03
1,2-DCB-d4	73	60-140		02/04/2017 20:03

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-10.0	1702155-011A	Soil	02/01/2017 11:40	GC10	133574

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	2	02/06/2017 16:12
tert-Amyl methyl ether (TAME)	ND	0.010	2	02/06/2017 16:12
Benzene	ND	0.010	2	02/06/2017 16:12
Bromobenzene	ND	0.010	2	02/06/2017 16:12
Bromochloromethane	ND	0.010	2	02/06/2017 16:12
Bromodichloromethane	ND	0.010	2	02/06/2017 16:12
Bromoform	ND	0.010	2	02/06/2017 16:12
Bromomethane	ND	0.010	2	02/06/2017 16:12
2-Butanone (MEK)	ND	0.040	2	02/06/2017 16:12
t-Butyl alcohol (TBA)	ND	0.10	2	02/06/2017 16:12
n-Butyl benzene	ND	0.010	2	02/06/2017 16:12
sec-Butyl benzene	ND	0.010	2	02/06/2017 16:12
tert-Butyl benzene	ND	0.010	2	02/06/2017 16:12
Carbon Disulfide	ND	0.010	2	02/06/2017 16:12
Carbon Tetrachloride	ND	0.010	2	02/06/2017 16:12
Chlorobenzene	ND	0.010	2	02/06/2017 16:12
Chloroethane	ND	0.010	2	02/06/2017 16:12
Chloroform	ND	0.010	2	02/06/2017 16:12
Chloromethane	ND	0.010	2	02/06/2017 16:12
2-Chlorotoluene	ND	0.010	2	02/06/2017 16:12
4-Chlorotoluene	ND	0.010	2	02/06/2017 16:12
Dibromochloromethane	ND	0.010	2	02/06/2017 16:12
1,2-Dibromo-3-chloropropane	ND	0.0080	2	02/06/2017 16:12
1,2-Dibromoethane (EDB)	ND	0.0080	2	02/06/2017 16:12
Dibromomethane	ND	0.010	2	02/06/2017 16:12
1,2-Dichlorobenzene	ND	0.010	2	02/06/2017 16:12
1,3-Dichlorobenzene	ND	0.010	2	02/06/2017 16:12
1,4-Dichlorobenzene	ND	0.010	2	02/06/2017 16:12
Dichlorodifluoromethane	ND	0.010	2	02/06/2017 16:12
1,1-Dichloroethane	ND	0.010	2	02/06/2017 16:12
1,2-Dichloroethane (1,2-DCA)	ND	0.0080	2	02/06/2017 16:12
1,1-Dichloroethene	ND	0.010	2	02/06/2017 16:12
cis-1,2-Dichloroethene	0.011	0.010	2	02/06/2017 16:12
trans-1,2-Dichloroethene	ND	0.010	2	02/06/2017 16:12
1,2-Dichloropropane	ND	0.010	2	02/06/2017 16:12
1,3-Dichloropropane	ND	0.010	2	02/06/2017 16:12
2,2-Dichloropropane	ND	0.010	2	02/06/2017 16:12

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-10.0	1702155-011A	Soil	02/01/2017 11:40	GC10	133574

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.010	2	02/06/2017 16:12
cis-1,3-Dichloropropene	ND	0.010	2	02/06/2017 16:12
trans-1,3-Dichloropropene	ND	0.010	2	02/06/2017 16:12
Diisopropyl ether (DIPE)	ND	0.010	2	02/06/2017 16:12
Ethylbenzene	ND	0.010	2	02/06/2017 16:12
Ethyl tert-butyl ether (ETBE)	ND	0.010	2	02/06/2017 16:12
Freon 113	ND	0.010	2	02/06/2017 16:12
Hexachlorobutadiene	ND	0.010	2	02/06/2017 16:12
Hexachloroethane	ND	0.010	2	02/06/2017 16:12
2-Hexanone	ND	0.010	2	02/06/2017 16:12
Isopropylbenzene	ND	0.010	2	02/06/2017 16:12
4-Isopropyl toluene	ND	0.010	2	02/06/2017 16:12
Methyl-t-butyl ether (MTBE)	ND	0.010	2	02/06/2017 16:12
Methylene chloride	ND	0.010	2	02/06/2017 16:12
4-Methyl-2-pentanone (MIBK)	ND	0.010	2	02/06/2017 16:12
Naphthalene	ND	0.010	2	02/06/2017 16:12
n-Propyl benzene	ND	0.010	2	02/06/2017 16:12
Styrene	ND	0.010	2	02/06/2017 16:12
1,1,1,2-Tetrachloroethane	ND	0.010	2	02/06/2017 16:12
1,1,2,2-Tetrachloroethane	ND	0.010	2	02/06/2017 16:12
Tetrachloroethene	ND	0.010	2	02/06/2017 16:12
Toluene	ND	0.010	2	02/06/2017 16:12
1,2,3-Trichlorobenzene	ND	0.010	2	02/06/2017 16:12
1,2,4-Trichlorobenzene	ND	0.010	2	02/06/2017 16:12
1,1,1-Trichloroethane	ND	0.010	2	02/06/2017 16:12
1,1,2-Trichloroethane	ND	0.010	2	02/06/2017 16:12
Trichloroethene	0.21	0.010	2	02/06/2017 16:12
Trichlorofluoromethane	ND	0.010	2	02/06/2017 16:12
1,2,3-Trichloropropane	ND	0.010	2	02/06/2017 16:12
1,2,4-Trimethylbenzene	ND	0.010	2	02/06/2017 16:12
1,3,5-Trimethylbenzene	ND	0.010	2	02/06/2017 16:12
Vinyl Chloride	ND	0.010	2	02/06/2017 16:12
Xylenes, Total	ND	0.010	2	02/06/2017 16:12

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-10.0	1702155-011A	Soil	02/01/2017 11:40	GC10	133574

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	98	70-130		02/06/2017 16:12
Toluene-d8	112	70-130		02/06/2017 16:12
4-BFB	106	70-130		02/06/2017 16:12
Benzene-d6	74	60-140		02/06/2017 16:12
Ethylbenzene-d10	79	60-140		02/06/2017 16:12
1,2-DCB-d4	82	60-140		02/06/2017 16:12

Analyst(s): AK



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-GW	1702155-014B	Water	02/02/2017 11:00	GC28	133695

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	2000	200	02/06/2017 15:11
tert-Amyl methyl ether (TAME)	ND	100	200	02/06/2017 15:11
Benzene	ND	100	200	02/06/2017 15:11
Bromobenzene	ND	100	200	02/06/2017 15:11
Bromochloromethane	ND	100	200	02/06/2017 15:11
Bromodichloromethane	ND	100	200	02/06/2017 15:11
Bromoform	ND	100	200	02/06/2017 15:11
Bromomethane	ND	100	200	02/06/2017 15:11
2-Butanone (MEK)	ND	400	200	02/06/2017 15:11
t-Butyl alcohol (TBA)	ND	400	200	02/06/2017 15:11
n-Butyl benzene	ND	100	200	02/06/2017 15:11
sec-Butyl benzene	ND	100	200	02/06/2017 15:11
tert-Butyl benzene	ND	100	200	02/06/2017 15:11
Carbon Disulfide	ND	100	200	02/06/2017 15:11
Carbon Tetrachloride	ND	100	200	02/06/2017 15:11
Chlorobenzene	ND	100	200	02/06/2017 15:11
Chloroethane	ND	100	200	02/06/2017 15:11
Chloroform	ND	100	200	02/06/2017 15:11
Chloromethane	ND	100	200	02/06/2017 15:11
2-Chlorotoluene	ND	100	200	02/06/2017 15:11
4-Chlorotoluene	ND	100	200	02/06/2017 15:11
Dibromochloromethane	ND	100	200	02/06/2017 15:11
1,2-Dibromo-3-chloropropane	ND	40	200	02/06/2017 15:11
1,2-Dibromoethane (EDB)	ND	100	200	02/06/2017 15:11
Dibromomethane	ND	100	200	02/06/2017 15:11
1,2-Dichlorobenzene	ND	100	200	02/06/2017 15:11
1,3-Dichlorobenzene	ND	100	200	02/06/2017 15:11
1,4-Dichlorobenzene	ND	100	200	02/06/2017 15:11
Dichlorodifluoromethane	ND	100	200	02/06/2017 15:11
1,1-Dichloroethane	ND	100	200	02/06/2017 15:11
1,2-Dichloroethane (1,2-DCA)	ND	100	200	02/06/2017 15:11
1,1-Dichloroethene	ND	100	200	02/06/2017 15:11
cis-1,2-Dichloroethene	350	100	200	02/06/2017 15:11
trans-1,2-Dichloroethene	ND	100	200	02/06/2017 15:11
1,2-Dichloropropane	ND	100	200	02/06/2017 15:11
1,3-Dichloropropane	ND	100	200	02/06/2017 15:11
2,2-Dichloropropane	ND	100	200	02/06/2017 15:11

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-GW	1702155-014B	Water	02/02/2017 11:00	GC28	133695

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	100	200	02/06/2017 15:11
cis-1,3-Dichloropropene	ND	100	200	02/06/2017 15:11
trans-1,3-Dichloropropene	ND	100	200	02/06/2017 15:11
Diisopropyl ether (DIPE)	ND	100	200	02/06/2017 15:11
Ethylbenzene	ND	100	200	02/06/2017 15:11
Ethyl tert-butyl ether (ETBE)	ND	100	200	02/06/2017 15:11
Freon 113	ND	100	200	02/06/2017 15:11
Hexachlorobutadiene	ND	100	200	02/06/2017 15:11
Hexachloroethane	ND	100	200	02/06/2017 15:11
2-Hexanone	ND	100	200	02/06/2017 15:11
Isopropylbenzene	ND	100	200	02/06/2017 15:11
4-Isopropyl toluene	ND	100	200	02/06/2017 15:11
Methyl-t-butyl ether (MTBE)	ND	100	200	02/06/2017 15:11
Methylene chloride	ND	100	200	02/06/2017 15:11
4-Methyl-2-pentanone (MIBK)	ND	100	200	02/06/2017 15:11
Naphthalene	ND	100	200	02/06/2017 15:11
n-Propyl benzene	ND	100	200	02/06/2017 15:11
Styrene	ND	100	200	02/06/2017 15:11
1,1,1,2-Tetrachloroethane	ND	100	200	02/06/2017 15:11
1,1,2,2-Tetrachloroethane	ND	100	200	02/06/2017 15:11
Tetrachloroethene	ND	100	200	02/06/2017 15:11
Toluene	ND	100	200	02/06/2017 15:11
1,2,3-Trichlorobenzene	ND	100	200	02/06/2017 15:11
1,2,4-Trichlorobenzene	ND	100	200	02/06/2017 15:11
1,1,1-Trichloroethane	ND	100	200	02/06/2017 15:11
1,1,2-Trichloroethane	ND	100	200	02/06/2017 15:11
Trichloroethene	2000	100	200	02/06/2017 15:11
Trichlorofluoromethane	ND	100	200	02/06/2017 15:11
1,2,3-Trichloropropane	ND	100	200	02/06/2017 15:11
1,2,4-Trimethylbenzene	ND	100	200	02/06/2017 15:11
1,3,5-Trimethylbenzene	ND	100	200	02/06/2017 15:11
Vinyl Chloride	ND	100	200	02/06/2017 15:11
Xylenes, Total	ND	100	200	02/06/2017 15:11

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-GW	1702155-014B	Water	02/02/2017 11:00	GC28	133695

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	101		70-130	02/06/2017 15:11
Toluene-d8	107		70-130	02/06/2017 15:11
4-BFB	98		70-130	02/06/2017 15:11
<u>Analyst(s):</u> HK			<u>Analytical Comments:</u> b1	



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-19-GW	1702155-015B	Water	02/02/2017 07:32	GC28	133694

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	25	2.5	02/06/2017 15:49
tert-Amyl methyl ether (TAME)	ND	1.2	2.5	02/06/2017 15:49
Benzene	ND	1.2	2.5	02/06/2017 15:49
Bromobenzene	ND	1.2	2.5	02/06/2017 15:49
Bromochloromethane	ND	1.2	2.5	02/06/2017 15:49
Bromodichloromethane	ND	1.2	2.5	02/06/2017 15:49
Bromoform	ND	1.2	2.5	02/06/2017 15:49
Bromomethane	ND	1.2	2.5	02/06/2017 15:49
2-Butanone (MEK)	ND	5.0	2.5	02/06/2017 15:49
t-Butyl alcohol (TBA)	ND	5.0	2.5	02/06/2017 15:49
n-Butyl benzene	ND	1.2	2.5	02/06/2017 15:49
sec-Butyl benzene	ND	1.2	2.5	02/06/2017 15:49
tert-Butyl benzene	ND	1.2	2.5	02/06/2017 15:49
Carbon Disulfide	ND	1.2	2.5	02/06/2017 15:49
Carbon Tetrachloride	ND	1.2	2.5	02/06/2017 15:49
Chlorobenzene	ND	1.2	2.5	02/06/2017 15:49
Chloroethane	ND	1.2	2.5	02/06/2017 15:49
Chloroform	ND	1.2	2.5	02/06/2017 15:49
Chloromethane	ND	1.2	2.5	02/06/2017 15:49
2-Chlorotoluene	ND	1.2	2.5	02/06/2017 15:49
4-Chlorotoluene	ND	1.2	2.5	02/06/2017 15:49
Dibromochloromethane	ND	1.2	2.5	02/06/2017 15:49
1,2-Dibromo-3-chloropropane	ND	0.50	2.5	02/06/2017 15:49
1,2-Dibromoethane (EDB)	ND	1.2	2.5	02/06/2017 15:49
Dibromomethane	ND	1.2	2.5	02/06/2017 15:49
1,2-Dichlorobenzene	ND	1.2	2.5	02/06/2017 15:49
1,3-Dichlorobenzene	ND	1.2	2.5	02/06/2017 15:49
1,4-Dichlorobenzene	ND	1.2	2.5	02/06/2017 15:49
Dichlorodifluoromethane	ND	1.2	2.5	02/06/2017 15:49
1,1-Dichloroethane	ND	1.2	2.5	02/06/2017 15:49
1,2-Dichloroethane (1,2-DCA)	ND	1.2	2.5	02/06/2017 15:49
1,1-Dichloroethene	ND	1.2	2.5	02/06/2017 15:49
cis-1,2-Dichloroethene	4.5	1.2	2.5	02/06/2017 15:49
trans-1,2-Dichloroethene	ND	1.2	2.5	02/06/2017 15:49
1,2-Dichloropropane	ND	1.2	2.5	02/06/2017 15:49
1,3-Dichloropropane	ND	1.2	2.5	02/06/2017 15:49
2,2-Dichloropropane	ND	1.2	2.5	02/06/2017 15:49

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-19-GW	1702155-015B	Water	02/02/2017 07:32	GC28	133694

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	1.2	2.5	02/06/2017 15:49
cis-1,3-Dichloropropene	ND	1.2	2.5	02/06/2017 15:49
trans-1,3-Dichloropropene	ND	1.2	2.5	02/06/2017 15:49
Diisopropyl ether (DIPE)	ND	1.2	2.5	02/06/2017 15:49
Ethylbenzene	ND	1.2	2.5	02/06/2017 15:49
Ethyl tert-butyl ether (ETBE)	ND	1.2	2.5	02/06/2017 15:49
Freon 113	ND	1.2	2.5	02/06/2017 15:49
Hexachlorobutadiene	ND	1.2	2.5	02/06/2017 15:49
Hexachloroethane	ND	1.2	2.5	02/06/2017 15:49
2-Hexanone	ND	1.2	2.5	02/06/2017 15:49
Isopropylbenzene	ND	1.2	2.5	02/06/2017 15:49
4-Isopropyl toluene	ND	1.2	2.5	02/06/2017 15:49
Methyl-t-butyl ether (MTBE)	ND	1.2	2.5	02/06/2017 15:49
Methylene chloride	ND	1.2	2.5	02/06/2017 15:49
4-Methyl-2-pentanone (MIBK)	ND	1.2	2.5	02/06/2017 15:49
Naphthalene	ND	1.2	2.5	02/06/2017 15:49
n-Propyl benzene	ND	1.2	2.5	02/06/2017 15:49
Styrene	ND	1.2	2.5	02/06/2017 15:49
1,1,1,2-Tetrachloroethane	ND	1.2	2.5	02/06/2017 15:49
1,1,2,2-Tetrachloroethane	ND	1.2	2.5	02/06/2017 15:49
Tetrachloroethene	ND	1.2	2.5	02/06/2017 15:49
Toluene	ND	1.2	2.5	02/06/2017 15:49
1,2,3-Trichlorobenzene	ND	1.2	2.5	02/06/2017 15:49
1,2,4-Trichlorobenzene	ND	1.2	2.5	02/06/2017 15:49
1,1,1-Trichloroethane	ND	1.2	2.5	02/06/2017 15:49
1,1,2-Trichloroethane	ND	1.2	2.5	02/06/2017 15:49
Trichloroethene	41	1.2	2.5	02/06/2017 15:49
Trichlorofluoromethane	ND	1.2	2.5	02/06/2017 15:49
1,2,3-Trichloropropane	ND	1.2	2.5	02/06/2017 15:49
1,2,4-Trimethylbenzene	ND	1.2	2.5	02/06/2017 15:49
1,3,5-Trimethylbenzene	ND	1.2	2.5	02/06/2017 15:49
Vinyl Chloride	ND	1.2	2.5	02/06/2017 15:49
Xylenes, Total	ND	1.2	2.5	02/06/2017 15:49

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-19-GW	1702155-015B	Water	02/02/2017 07:32	GC28	133694

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	102	70-130		02/06/2017 15:49
Toluene-d8	108	70-130		02/06/2017 15:49
4-BFB	95	70-130		02/06/2017 15:49
<u>Analyst(s):</u> HK		<u>Analytical Comments:</u> b1		



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-GW	1702155-016B	Water	02/02/2017 07:42	GC28	133694

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	2500	250	02/06/2017 16:27
tert-Amyl methyl ether (TAME)	ND	120	250	02/06/2017 16:27
Benzene	ND	120	250	02/06/2017 16:27
Bromobenzene	ND	120	250	02/06/2017 16:27
Bromochloromethane	ND	120	250	02/06/2017 16:27
Bromodichloromethane	ND	120	250	02/06/2017 16:27
Bromoform	ND	120	250	02/06/2017 16:27
Bromomethane	ND	120	250	02/06/2017 16:27
2-Butanone (MEK)	ND	500	250	02/06/2017 16:27
t-Butyl alcohol (TBA)	ND	500	250	02/06/2017 16:27
n-Butyl benzene	ND	120	250	02/06/2017 16:27
sec-Butyl benzene	ND	120	250	02/06/2017 16:27
tert-Butyl benzene	ND	120	250	02/06/2017 16:27
Carbon Disulfide	ND	120	250	02/06/2017 16:27
Carbon Tetrachloride	ND	120	250	02/06/2017 16:27
Chlorobenzene	ND	120	250	02/06/2017 16:27
Chloroethane	ND	120	250	02/06/2017 16:27
Chloroform	ND	120	250	02/06/2017 16:27
Chloromethane	ND	120	250	02/06/2017 16:27
2-Chlorotoluene	ND	120	250	02/06/2017 16:27
4-Chlorotoluene	ND	120	250	02/06/2017 16:27
Dibromochloromethane	ND	120	250	02/06/2017 16:27
1,2-Dibromo-3-chloropropane	ND	50	250	02/06/2017 16:27
1,2-Dibromoethane (EDB)	ND	120	250	02/06/2017 16:27
Dibromomethane	ND	120	250	02/06/2017 16:27
1,2-Dichlorobenzene	ND	120	250	02/06/2017 16:27
1,3-Dichlorobenzene	ND	120	250	02/06/2017 16:27
1,4-Dichlorobenzene	ND	120	250	02/06/2017 16:27
Dichlorodifluoromethane	ND	120	250	02/06/2017 16:27
1,1-Dichloroethane	ND	120	250	02/06/2017 16:27
1,2-Dichloroethane (1,2-DCA)	ND	120	250	02/06/2017 16:27
1,1-Dichloroethene	ND	120	250	02/06/2017 16:27
cis-1,2-Dichloroethene	460	120	250	02/06/2017 16:27
trans-1,2-Dichloroethene	ND	120	250	02/06/2017 16:27
1,2-Dichloropropane	ND	120	250	02/06/2017 16:27
1,3-Dichloropropane	ND	120	250	02/06/2017 16:27
2,2-Dichloropropane	ND	120	250	02/06/2017 16:27

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-GW	1702155-016B	Water	02/02/2017 07:42	GC28	133694

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	120	250	02/06/2017 16:27
cis-1,3-Dichloropropene	ND	120	250	02/06/2017 16:27
trans-1,3-Dichloropropene	ND	120	250	02/06/2017 16:27
Diisopropyl ether (DIPE)	ND	120	250	02/06/2017 16:27
Ethylbenzene	ND	120	250	02/06/2017 16:27
Ethyl tert-butyl ether (ETBE)	ND	120	250	02/06/2017 16:27
Freon 113	ND	120	250	02/06/2017 16:27
Hexachlorobutadiene	ND	120	250	02/06/2017 16:27
Hexachloroethane	ND	120	250	02/06/2017 16:27
2-Hexanone	ND	120	250	02/06/2017 16:27
Isopropylbenzene	ND	120	250	02/06/2017 16:27
4-Isopropyl toluene	ND	120	250	02/06/2017 16:27
Methyl-t-butyl ether (MTBE)	ND	120	250	02/06/2017 16:27
Methylene chloride	ND	120	250	02/06/2017 16:27
4-Methyl-2-pentanone (MIBK)	ND	120	250	02/06/2017 16:27
Naphthalene	ND	120	250	02/06/2017 16:27
n-Propyl benzene	ND	120	250	02/06/2017 16:27
Styrene	ND	120	250	02/06/2017 16:27
1,1,1,2-Tetrachloroethane	ND	120	250	02/06/2017 16:27
1,1,2,2-Tetrachloroethane	ND	120	250	02/06/2017 16:27
Tetrachloroethene	ND	120	250	02/06/2017 16:27
Toluene	ND	120	250	02/06/2017 16:27
1,2,3-Trichlorobenzene	ND	120	250	02/06/2017 16:27
1,2,4-Trichlorobenzene	ND	120	250	02/06/2017 16:27
1,1,1-Trichloroethane	ND	120	250	02/06/2017 16:27
1,1,2-Trichloroethane	ND	120	250	02/06/2017 16:27
Trichloroethene	4700	120	250	02/06/2017 16:27
Trichlorofluoromethane	ND	120	250	02/06/2017 16:27
1,2,3-Trichloropropane	ND	120	250	02/06/2017 16:27
1,2,4-Trimethylbenzene	ND	120	250	02/06/2017 16:27
1,3,5-Trimethylbenzene	ND	120	250	02/06/2017 16:27
Vinyl Chloride	ND	120	250	02/06/2017 16:27
Xylenes, Total	ND	120	250	02/06/2017 16:27

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-GW	1702155-016B	Water	02/02/2017 07:42	GC28	133694

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	101	70-130		02/06/2017 16:27
Toluene-d8	107	70-130		02/06/2017 16:27
4-BFB	95	70-130		02/06/2017 16:27
<u>Analyst(s):</u> HK		<u>Analytical Comments:</u> b1		



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-10.0	1702155-002A	Soil	02/02/2017 09:55	GC35	133543

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/03/2017 16:47
Acenaphthylene	ND	0.010	1	02/03/2017 16:47
Anthracene	ND	0.010	1	02/03/2017 16:47
Benzo (a) anthracene	ND	0.010	1	02/03/2017 16:47
Benzo (a) pyrene	ND	0.010	1	02/03/2017 16:47
Benzo (b) fluoranthene	ND	0.010	1	02/03/2017 16:47
Benzo (g,h,i) perylene	ND	0.010	1	02/03/2017 16:47
Benzo (k) fluoranthene	ND	0.010	1	02/03/2017 16:47
Chrysene	ND	0.010	1	02/03/2017 16:47
Dibenzo (a,h) anthracene	ND	0.010	1	02/03/2017 16:47
Fluoranthene	ND	0.010	1	02/03/2017 16:47
Fluorene	ND	0.010	1	02/03/2017 16:47
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/03/2017 16:47
1-Methylnaphthalene	ND	0.010	1	02/03/2017 16:47
2-Methylnaphthalene	ND	0.010	1	02/03/2017 16:47
Naphthalene	ND	0.010	1	02/03/2017 16:47
Phenanthrene	ND	0.010	1	02/03/2017 16:47
Pyrene	ND	0.010	1	02/03/2017 16:47
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	68	30-130		02/03/2017 16:47
2-Fluorobiphenyl	66	30-130		02/03/2017 16:47

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-19-10.0	1702155-006A	Soil	02/01/2017 10:25	GC35	133543

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/03/2017 17:11
Acenaphthylene	ND	0.010	1	02/03/2017 17:11
Anthracene	ND	0.010	1	02/03/2017 17:11
Benzo (a) anthracene	ND	0.010	1	02/03/2017 17:11
Benzo (a) pyrene	ND	0.010	1	02/03/2017 17:11
Benzo (b) fluoranthene	ND	0.010	1	02/03/2017 17:11
Benzo (g,h,i) perylene	ND	0.010	1	02/03/2017 17:11
Benzo (k) fluoranthene	ND	0.010	1	02/03/2017 17:11
Chrysene	ND	0.010	1	02/03/2017 17:11
Dibenzo (a,h) anthracene	ND	0.010	1	02/03/2017 17:11
Fluoranthene	ND	0.010	1	02/03/2017 17:11
Fluorene	ND	0.010	1	02/03/2017 17:11
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/03/2017 17:11
1-Methylnaphthalene	ND	0.010	1	02/03/2017 17:11
2-Methylnaphthalene	ND	0.010	1	02/03/2017 17:11
Naphthalene	ND	0.010	1	02/03/2017 17:11
Phenanthrene	ND	0.010	1	02/03/2017 17:11
Pyrene	ND	0.010	1	02/03/2017 17:11
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	66	30-130		02/03/2017 17:11
2-Fluorobiphenyl	64	30-130		02/03/2017 17:11

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-10.0	1702155-011A	Soil	02/01/2017 11:40	GC35	133543

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/03/2017 17:36
Acenaphthylene	ND	0.010	1	02/03/2017 17:36
Anthracene	ND	0.010	1	02/03/2017 17:36
Benzo (a) anthracene	ND	0.010	1	02/03/2017 17:36
Benzo (a) pyrene	ND	0.010	1	02/03/2017 17:36
Benzo (b) fluoranthene	ND	0.010	1	02/03/2017 17:36
Benzo (g,h,i) perylene	ND	0.010	1	02/03/2017 17:36
Benzo (k) fluoranthene	ND	0.010	1	02/03/2017 17:36
Chrysene	ND	0.010	1	02/03/2017 17:36
Dibenzo (a,h) anthracene	ND	0.010	1	02/03/2017 17:36
Fluoranthene	ND	0.010	1	02/03/2017 17:36
Fluorene	ND	0.010	1	02/03/2017 17:36
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/03/2017 17:36
1-Methylnaphthalene	ND	0.010	1	02/03/2017 17:36
2-Methylnaphthalene	ND	0.010	1	02/03/2017 17:36
Naphthalene	ND	0.010	1	02/03/2017 17:36
Phenanthrene	ND	0.010	1	02/03/2017 17:36
Pyrene	ND	0.010	1	02/03/2017 17:36
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	67	30-130		02/03/2017 17:36
2-Fluorobiphenyl	64	30-130		02/03/2017 17:36

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-GW	1702155-014C	Water	02/02/2017 11:00	GC35	133548

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.50	1	02/07/2017 17:24
Acenaphthylene	ND	0.50	1	02/07/2017 17:24
Anthracene	ND	0.50	1	02/07/2017 17:24
Benzo (a) anthracene	ND	0.50	1	02/07/2017 17:24
Benzo (a) pyrene	ND	0.50	1	02/07/2017 17:24
Benzo (b) fluoranthene	ND	0.50	1	02/07/2017 17:24
Benzo (g,h,i) perylene	ND	0.50	1	02/07/2017 17:24
Benzo (k) fluoranthene	ND	0.50	1	02/07/2017 17:24
Chrysene	ND	0.50	1	02/07/2017 17:24
Dibenzo (a,h) anthracene	ND	0.50	1	02/07/2017 17:24
Fluoranthene	ND	0.50	1	02/07/2017 17:24
Fluorene	ND	0.50	1	02/07/2017 17:24
Indeno (1,2,3-cd) pyrene	ND	0.50	1	02/07/2017 17:24
1-Methylnaphthalene	ND	0.50	1	02/07/2017 17:24
2-Methylnaphthalene	0.54	0.50	1	02/07/2017 17:24
Naphthalene	0.62	0.50	1	02/07/2017 17:24
Phenanthrene	ND	0.50	1	02/07/2017 17:24
Pyrene	ND	0.50	1	02/07/2017 17:24
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	80	30-130		02/07/2017 17:24
2-Fluorobiphenyl	71	30-130		02/07/2017 17:24

Analyst(s): REB

Analytical Comments: b1

(Cont.)

NELAP 4033O RELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-19-GW	1702155-015C	Water	02/02/2017 07:32	GC35	133548

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.50	1	02/03/2017 20:56
Acenaphthylene	ND	0.50	1	02/03/2017 20:56
Anthracene	ND	0.50	1	02/03/2017 20:56
Benzo (a) anthracene	ND	0.50	1	02/03/2017 20:56
Benzo (a) pyrene	ND	0.50	1	02/03/2017 20:56
Benzo (b) fluoranthene	ND	0.50	1	02/03/2017 20:56
Benzo (g,h,i) perylene	ND	0.50	1	02/03/2017 20:56
Benzo (k) fluoranthene	ND	0.50	1	02/03/2017 20:56
Chrysene	ND	0.50	1	02/03/2017 20:56
Dibenzo (a,h) anthracene	ND	0.50	1	02/03/2017 20:56
Fluoranthene	ND	0.50	1	02/03/2017 20:56
Fluorene	ND	0.50	1	02/03/2017 20:56
Indeno (1,2,3-cd) pyrene	ND	0.50	1	02/03/2017 20:56
1-Methylnaphthalene	ND	0.50	1	02/03/2017 20:56
2-Methylnaphthalene	ND	0.50	1	02/03/2017 20:56
Naphthalene	ND	0.50	1	02/03/2017 20:56
Phenanthrene	ND	0.50	1	02/03/2017 20:56
Pyrene	ND	0.50	1	02/03/2017 20:56
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
1-Fluoronaphthalene	60	30-130		02/03/2017 20:56
2-Fluorobiphenyl	53	30-130		02/03/2017 20:56

Analyst(s): REB

Analytical Comments: b1



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-GW	1702155-016C	Water	02/02/2017 07:42	GC35	133548

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.50	1	02/03/2017 21:20
Acenaphthylene	ND	0.50	1	02/03/2017 21:20
Anthracene	ND	0.50	1	02/03/2017 21:20
Benzo (a) anthracene	ND	0.50	1	02/03/2017 21:20
Benzo (a) pyrene	ND	0.50	1	02/03/2017 21:20
Benzo (b) fluoranthene	ND	0.50	1	02/03/2017 21:20
Benzo (g,h,i) perylene	ND	0.50	1	02/03/2017 21:20
Benzo (k) fluoranthene	ND	0.50	1	02/03/2017 21:20
Chrysene	ND	0.50	1	02/03/2017 21:20
Dibenzo (a,h) anthracene	ND	0.50	1	02/03/2017 21:20
Fluoranthene	ND	0.50	1	02/03/2017 21:20
Fluorene	ND	0.50	1	02/03/2017 21:20
Indeno (1,2,3-cd) pyrene	ND	0.50	1	02/03/2017 21:20
1-Methylnaphthalene	ND	0.50	1	02/03/2017 21:20
2-Methylnaphthalene	ND	0.50	1	02/03/2017 21:20
Naphthalene	ND	0.50	1	02/03/2017 21:20
Phenanthrene	ND	0.50	1	02/03/2017 21:20
Pyrene	ND	0.50	1	02/03/2017 21:20

Surrogates	REC (%)	Limits	Date Analyzed
1-Fluoronaphthalene	60	30-130	02/03/2017 21:20
2-Fluorobiphenyl	53	30-130	02/03/2017 21:20

Analyst(s): REB

Analytical Comments: b1



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-10.0	1702155-002A	Soil	02/02/2017 09:55	GC19	133572

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/03/2017 08:57
MTBE	---	0.050	1	02/03/2017 08:57
Benzene	---	0.0050	1	02/03/2017 08:57
Toluene	---	0.0050	1	02/03/2017 08:57
Ethylbenzene	---	0.0050	1	02/03/2017 08:57
Xylenes	---	0.015	1	02/03/2017 08:57

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	83	69-117	02/03/2017 08:57

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-19-10.0	1702155-006A	Soil	02/01/2017 10:25	GC19	133572

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/03/2017 22:22
MTBE	---	0.050	1	02/03/2017 22:22
Benzene	---	0.0050	1	02/03/2017 22:22
Toluene	---	0.0050	1	02/03/2017 22:22
Ethylbenzene	---	0.0050	1	02/03/2017 22:22
Xylenes	---	0.015	1	02/03/2017 22:22

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	89	69-117	02/03/2017 22:22

Analyst(s): IA



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-10.0	1702155-011A	Soil	02/01/2017 11:40	GC19	133584

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/04/2017 00:55
MTBE	---	0.050	1	02/04/2017 00:55
Benzene	---	0.0050	1	02/04/2017 00:55
Toluene	---	0.0050	1	02/04/2017 00:55
Ethylbenzene	---	0.0050	1	02/04/2017 00:55
Xylenes	---	0.015	1	02/04/2017 00:55

Surrogates	REC (%)	Limits	
2-Fluorotoluene	82	69-117	02/04/2017 00:55

Analyst(s): IA



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-GW	1702155-014A	Water	02/02/2017 11:00	GC3	133618

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	55	50	1	02/03/2017 18:59
MTBE	---	5.0	1	02/03/2017 18:59
Benzene	---	0.50	1	02/03/2017 18:59
Toluene	---	0.50	1	02/03/2017 18:59
Ethylbenzene	---	0.50	1	02/03/2017 18:59
Xylenes	---	1.5	1	02/03/2017 18:59

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
aaa-TFT	2047	S	89-115	02/03/2017 18:59

Analyst(s): IA

Analytical Comments: d6,c4,b1

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-19-GW	1702155-015A	Water	02/02/2017 07:32	GC3	133618

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	50	1	02/03/2017 10:54
MTBE	---	5.0	1	02/03/2017 10:54
Benzene	---	0.50	1	02/03/2017 10:54
Toluene	---	0.50	1	02/03/2017 10:54
Ethylbenzene	---	0.50	1	02/03/2017 10:54
Xylenes	---	1.5	1	02/03/2017 10:54

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
aaa-TFT	513	S	89-115	02/03/2017 10:54

Analyst(s): IA

Analytical Comments: c4,b1



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-GW	1702155-016A	Water	02/02/2017 07:42	GC3	133618

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	75	50	1	02/03/2017 11:25
MTBE	---	10	1	02/03/2017 11:25
Benzene	---	0.50	1	02/03/2017 11:25
Toluene	---	0.50	1	02/03/2017 11:25
Ethylbenzene	---	0.50	1	02/03/2017 11:25
Xylenes	---	1.5	1	02/03/2017 11:25

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
aaa-TFT	3062	S	89-115	02/03/2017 11:25

Analyst(s): IA

Analytical Comments: d6,c4,b1



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-10.0	1702155-002A	Soil	02/02/2017 09:55	GC9a	133573

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/03/2017 14:18
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/03/2017 14:18

Surrogates	REC (%)	Limits	Date Analyzed
C9	98	72-114	02/03/2017 14:18

Analyst(s): TK **Analytical Comments:** i1

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-19-10.0	1702155-006A	Soil	02/01/2017 10:25	GC11B	133573

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/03/2017 20:17
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/03/2017 20:17

Surrogates	REC (%)	Limits	Date Analyzed
C9	103	72-114	02/03/2017 20:17

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-10.0	1702155-011A	Soil	02/01/2017 11:40	GC11B	133573

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/03/2017 21:35
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/03/2017 21:35

Surrogates	REC (%)	Limits	Date Analyzed
C9	103	72-114	02/03/2017 21:35

Analyst(s): TK



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702155
Extraction Method: SW3510C
Analytical Method: SW8015B
Unit: µg/L

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-18-GW	1702155-014A	Water	02/02/2017 11:00	GC6A	133525
<u>Analytes</u>		<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)		200	50	1	02/03/2017 06:41
TPH-Motor Oil (C18-C36)		1200	250	1	02/03/2017 06:41
<u>Surrogates</u>		<u>REC (%)</u>	<u>Limits</u>		
C9		106	72-117		02/03/2017 06:41
<u>Analyst(s):</u> TK			<u>Analytical Comments:</u> e7,e2,b1		

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-19-GW	1702155-015A	Water	02/02/2017 07:32	GC6A	133525
<u>Analytes</u>		<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)		ND	100	1	02/03/2017 04:44
TPH-Motor Oil (C18-C36)		630	500	1	02/03/2017 04:44
<u>Surrogates</u>		<u>REC (%)</u>	<u>Limits</u>		
C9		100	72-117		02/03/2017 04:44
<u>Analyst(s):</u> TK			<u>Analytical Comments:</u> e7,a3,b1		

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-20-GW	1702155-016A	Water	02/02/2017 07:42	GC9b	133525
<u>Analytes</u>		<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)		2400	50	1	02/03/2017 13:01
TPH-Motor Oil (C18-C36)		8600	250	1	02/03/2017 13:01
<u>Surrogates</u>		<u>REC (%)</u>	<u>Limits</u>		
C9		92	72-117		02/03/2017 13:01
<u>Analyst(s):</u> TK			<u>Analytical Comments:</u> e7,e2,e4,b1		



Quality Control Report

Client: Langan
Date Prepared: 2/2/17
Date Analyzed: 2/2/17 - 2/3/17
Instrument: GC10
Matrix: Soil
Project: 750635602; 260 30th Street


WorkOrder: 1702155
BatchID: 133574
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133574
 1702133-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0458	0.0050	0.050	-	92	53-116
Benzene	ND	0.0493	0.0050	0.050	-	99	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.199	0.050	0.20	-	100	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0484	0.0050	0.050	-	97	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0479	0.0040	0.050	-	96	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0473	0.0040	0.050	-	95	58-135
1,1-Dichloroethene	ND	0.0488	0.0050	0.050	-	98	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-

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NELAP 4033ORELAP

 QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/2/17
Date Analyzed: 2/2/17 - 2/3/17
Instrument: GC10
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133574
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133574
 1702133-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
Diisopropyl ether (DIPE)	ND	0.0487	0.0050	0.050	-	97	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0494	0.0050	0.050	-	99	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0485	0.0050	0.050	-	97	58-122
Methylene chloride	0.01013	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0526	0.0050	0.050	-	105	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0507	0.0050	0.050	-	101	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-



Quality Control Report

Client: Langan
Date Prepared: 2/2/17
Date Analyzed: 2/2/17 - 2/3/17
Instrument: GC10
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133574
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133574
 1702133-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.1247	0.130		0.12	100	104	70-130
Toluene-d8	0.152	0.146		0.12	122	117	70-130
4-BFB	0.01425	0.0147		0.012	114	117	70-130
Benzene-d6	0.1112	0.107		0.10	111	107	60-140
Ethylbenzene-d10	0.1402	0.126		0.10	140	126	60-140
1,2-DCB-d4	0.1021	0.0965		0.10	102	96	60-140

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0444	0.0456	0.050	ND	89	91	53-116	2.50	20
Benzene	0.0467	0.0482	0.050	ND	93	96	63-137	3.25	20
t-Butyl alcohol (TBA)	0.189	0.190	0.20	ND	95	95	41-135	0	20
Chlorobenzene	0.0459	0.0469	0.050	ND	92	94	77-121	2.13	20
1,2-Dibromoethane (EDB)	0.0450	0.0464	0.050	ND	90	93	67-119	2.87	20
1,2-Dichloroethane (1,2-DCA)	0.0444	0.0462	0.050	ND	89	93	58-135	4.19	20
1,1-Dichloroethene	0.0461	0.0465	0.050	ND	92	93	42-145	0.950	20
Diisopropyl ether (DIPE)	0.0463	0.0464	0.050	ND	93	93	52-129	0	20
Ethyl tert-butyl ether (ETBE)	0.0475	0.0485	0.050	ND	95	97	53-125	2.08	20
Methyl-t-butyl ether (MTBE)	0.0464	0.0470	0.050	ND	93	94	58-122	1.23	20
Toluene	0.0506	0.0518	0.050	ND	101	104	76-130	2.32	20
Trichloroethene	0.0489	0.0502	0.050	ND	98	100	72-132	2.65	20

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Surrogate Recovery									
Dibromofluoromethane	0.129	0.128	0.12		103	103	70-130	0	20
Toluene-d8	0.147	0.148	0.12		117	118	70-130	0.706	20
4-BFB	0.0151	0.0151	0.012		121	121	70-130	0	20
Benzene-d6	0.0993	0.103	0.10		99	103	60-140	3.34	20
Ethylbenzene-d10	0.113	0.118	0.10		113	118	60-140	4.44	20
1,2-DCB-d4	0.0909	0.0939	0.10		91	94	60-140	3.29	20



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17
Instrument: GC18
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133694
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS-133694
 1702183-001BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	10.6	0.50	10	-	106	54-140
Benzene	ND	10.4	0.50	10	-	104	47-158
Bromobenzene	ND	-	0.50	-	-	-	-
Bromochloromethane	ND	-	0.50	-	-	-	-
Bromodichloromethane	ND	-	0.50	-	-	-	-
Bromoform	ND	-	0.50	-	-	-	-
Bromomethane	ND	-	0.50	-	-	-	-
2-Butanone (MEK)	ND	-	2.0	-	-	-	-
t-Butyl alcohol (TBA)	ND	39.9	2.0	40	-	100	42-140
n-Butyl benzene	ND	-	0.50	-	-	-	-
sec-Butyl benzene	ND	-	0.50	-	-	-	-
tert-Butyl benzene	ND	-	0.50	-	-	-	-
Carbon Disulfide	ND	-	0.50	-	-	-	-
Carbon Tetrachloride	ND	-	0.50	-	-	-	-
Chlorobenzene	ND	10.5	0.50	10	-	105	43-157
Chloroethane	ND	-	0.50	-	-	-	-
Chloroform	ND	-	0.50	-	-	-	-
Chloromethane	ND	-	0.50	-	-	-	-
2-Chlorotoluene	ND	-	0.50	-	-	-	-
4-Chlorotoluene	ND	-	0.50	-	-	-	-
Dibromochloromethane	ND	-	0.50	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.20	-	-	-	-
1,2-Dibromoethane (EDB)	ND	10.3	0.50	10	-	103	44-155
Dibromomethane	ND	-	0.50	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.50	-	-	-	-
Dichlorodifluoromethane	ND	-	0.50	-	-	-	-
1,1-Dichloroethane	ND	-	0.50	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	10.0	0.50	10	-	100	66-125
1,1-Dichloroethene	ND	9.92	0.50	10	-	99	47-149
cis-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
1,2-Dichloropropane	ND	-	0.50	-	-	-	-
1,3-Dichloropropane	ND	-	0.50	-	-	-	-
2,2-Dichloropropane	ND	-	0.50	-	-	-	-

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NELAP 4033ORELAP

QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17
Instrument: GC18
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133694
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS-133694
 1702183-001BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.50	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
Diisopropyl ether (DIPE)	ND	10.6	0.50	10	-	106	57-136
Ethylbenzene	ND	-	0.50	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	11.0	0.50	10	-	109	55-137
Freon 113	ND	-	0.50	-	-	-	-
Hexachlorobutadiene	ND	-	0.50	-	-	-	-
Hexachloroethane	ND	-	0.50	-	-	-	-
2-Hexanone	ND	-	0.50	-	-	-	-
Isopropylbenzene	ND	-	0.50	-	-	-	-
4-Isopropyl toluene	ND	-	0.50	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	10.5	0.50	10	-	105	53-139
Methylene chloride	ND	-	0.50	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.50	-	-	-	-
Naphthalene	ND	-	0.50	-	-	-	-
n-Propyl benzene	ND	-	0.50	-	-	-	-
Styrene	ND	-	0.50	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
Tetrachloroethene	ND	-	0.50	-	-	-	-
Toluene	ND	10.7	0.50	10	-	107	52-137
1,2,3-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.50	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.50	-	-	-	-
Trichloroethene	ND	11.4	0.50	10	-	114	43-157
Trichlorofluoromethane	ND	-	0.50	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.50	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.50	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.50	-	-	-	-
Vinyl Chloride	ND	-	0.50	-	-	-	-
Xylenes, Total	ND	-	0.50	-	-	-	-



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17
Instrument: GC18
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133694
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS-133694
 1702183-001BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	25.48	25.8		25	102	103	70-130
Toluene-d8	26.05	26.1		25	104	105	70-130
4-BFB	2.438	2.46		2.5	98	98	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	10.6	10.6	10	ND	105	106	69-139	0.376	20
Benzene	9.88	9.73	10	ND	99	97	69-141	1.57	20
t-Butyl alcohol (TBA)	37.0	38.4	40	ND	92	96	41-152	3.96	20
Chlorobenzene	9.91	9.78	10	ND	99	98	77-120	1.24	20
1,2-Dibromoethane (EDB)	9.79	9.78	10	ND	98	98	76-135	0	20
1,2-Dichloroethane (1,2-DCA)	9.80	9.68	10	ND	98	97	73-139	1.21	20
1,1-Dichloroethene	9.99	9.86	10	ND	100	99	59-140	1.29	20
Diisopropyl ether (DIPE)	10.4	10.3	10	ND	104	103	72-140	1.12	20
Ethyl tert-butyl ether (ETBE)	10.7	10.6	10	ND	107	106	71-140	0.309	20
Methyl-t-butyl ether (MTBE)	10.1	10.0	10	ND	101	100	73-139	0.999	20
Toluene	9.91	9.78	10	ND	99	98	71-128	1.32	20
Trichloroethene	10.2	10.1	10	ND	101	99	64-132	1.53	20
Surrogate Recovery									
Dibromofluoromethane	26.4	26.5	25		106	106	73-131	0	20
Toluene-d8	25.5	25.5	25		102	102	72-117	0	20
4-BFB	2.47	2.51	2.5		99	100	74-116	1.42	20



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17
Instrument: GC16
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133695
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS-133695

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	9.93	0.50	10	-	99	54-140
Benzene	ND	9.78	0.50	10	-	98	47-158
Bromobenzene	ND	-	0.50	-	-	-	-
Bromochloromethane	ND	-	0.50	-	-	-	-
Bromodichloromethane	ND	-	0.50	-	-	-	-
Bromoform	ND	-	0.50	-	-	-	-
Bromomethane	ND	-	0.50	-	-	-	-
2-Butanone (MEK)	ND	-	2.0	-	-	-	-
t-Butyl alcohol (TBA)	ND	45.6	2.0	40	-	114	42-140
n-Butyl benzene	ND	-	0.50	-	-	-	-
sec-Butyl benzene	ND	-	0.50	-	-	-	-
tert-Butyl benzene	ND	-	0.50	-	-	-	-
Carbon Disulfide	ND	-	0.50	-	-	-	-
Carbon Tetrachloride	ND	-	0.50	-	-	-	-
Chlorobenzene	ND	9.75	0.50	10	-	97	43-157
Chloroethane	ND	-	0.50	-	-	-	-
Chloroform	ND	-	0.50	-	-	-	-
Chloromethane	ND	-	0.50	-	-	-	-
2-Chlorotoluene	ND	-	0.50	-	-	-	-
4-Chlorotoluene	ND	-	0.50	-	-	-	-
Dibromochloromethane	ND	-	0.50	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.20	-	-	-	-
1,2-Dibromoethane (EDB)	ND	10.2	0.50	10	-	102	44-155
Dibromomethane	ND	-	0.50	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.50	-	-	-	-
Dichlorodifluoromethane	ND	-	0.50	-	-	-	-
1,1-Dichloroethane	ND	-	0.50	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	9.89	0.50	10	-	99	66-125
1,1-Dichloroethene	ND	9.72	0.50	10	-	97	47-149
cis-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
1,2-Dichloropropane	ND	-	0.50	-	-	-	-
1,3-Dichloropropane	ND	-	0.50	-	-	-	-
2,2-Dichloropropane	ND	-	0.50	-	-	-	-

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NELAP 4033ORELAP

QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17
Instrument: GC16
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133695
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS-133695

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.50	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
Diisopropyl ether (DIPE)	ND	10.1	0.50	10	-	101	57-136
Ethylbenzene	ND	-	0.50	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	10.4	0.50	10	-	104	55-137
Freon 113	ND	-	0.50	-	-	-	-
Hexachlorobutadiene	ND	-	0.50	-	-	-	-
Hexachloroethane	ND	-	0.50	-	-	-	-
2-Hexanone	ND	-	0.50	-	-	-	-
Isopropylbenzene	ND	-	0.50	-	-	-	-
4-Isopropyl toluene	ND	-	0.50	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	10.3	0.50	10	-	103	53-139
Methylene chloride	ND	-	0.50	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.50	-	-	-	-
Naphthalene	ND	-	0.50	-	-	-	-
n-Propyl benzene	ND	-	0.50	-	-	-	-
Styrene	ND	-	0.50	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
Tetrachloroethene	ND	-	0.50	-	-	-	-
Toluene	ND	9.75	0.50	10	-	97	52-137
1,2,3-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.50	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.50	-	-	-	-
Trichloroethene	ND	10.2	0.50	10	-	102	43-157
Trichlorofluoromethane	ND	-	0.50	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.50	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.50	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.50	-	-	-	-
Vinyl Chloride	ND	-	0.50	-	-	-	-
Xylenes, Total	ND	-	0.50	-	-	-	-



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17
Instrument: GC16
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133695
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS-133695

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	23.56	24.1		25	94	96	70-130
Toluene-d8	23.84	23.2		25	95	93	70-130
4-BFB	2.608	2.53		2.5	104	101	70-130



Quality Control Report

Client: Langan
Date Prepared: 2/2/17
Date Analyzed: 2/2/17 - 2/3/17
Instrument: GC35
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133543
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg
Sample ID: MB/LCS-133543
 1701D78-008AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	-	0.010	-	-	-	-
Acenaphthylene	ND	-	0.010	-	-	-	-
Anthracene	ND	-	0.010	-	-	-	-
Benzo (a) anthracene	ND	-	0.010	-	-	-	-
Benzo (a) pyrene	ND	0.0907	0.010	0.20	-	45	23-129
Benzo (b) fluoranthene	ND	-	0.010	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.010	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.010	-	-	-	-
Chrysene	ND	0.0990	0.010	0.20	-	50	38-104
Dibenzo (a,h) anthracene	ND	-	0.010	-	-	-	-
Fluoranthene	ND	-	0.010	-	-	-	-
Fluorene	ND	-	0.010	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.010	-	-	-	-
1-Methylnaphthalene	ND	0.129	0.010	0.20	-	65	59-106
2-Methylnaphthalene	ND	0.124	0.010	0.20	-	62	54-108
Naphthalene	ND	-	0.010	-	-	-	-
Phenanthrene	ND	0.114	0.010	0.20	-	57	48-107
Pyrene	ND	0.0911	0.010	0.20	-	46	40-104

Surrogate Recovery

1-Fluoronaphthalene	0.3042	0.313		0.50	61	63	63-123
2-Fluorobiphenyl	0.2935	0.300		0.50	59	60	55-127

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Benzo (a) pyrene	NR	NR		0.24	NR	NR	-	NR	
Chrysene	NR	NR		0.63	NR	NR	-	NR	
1-Methylnaphthalene	NR	NR		0.62	NR	NR	-	NR	
2-Methylnaphthalene	NR	NR		0.75	NR	NR	-	NR	
Phenanthrene	NR	NR		7.7	NR	NR	-	NR	
Pyrene	NR	NR		2.1	NR	NR	-	NR	

Surrogate Recovery

1-Fluoronaphthalene	NR	NR			NR	NR	-	NR	
2-Fluorobiphenyl	NR	NR			NR	NR	-	NR	



Quality Control Report

Client: Langan
Date Prepared: 2/2/17
Date Analyzed: 2/7/17
Instrument: GC35
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133548
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L
Sample ID: MB/LCS/LCSD-133548

QC Summary Report for SW8270C

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Acenaphthene	ND	0.50	-	-	-
Acenaphthylene	ND	0.50	-	-	-
Anthracene	ND	0.50	-	-	-
Benzo (a) anthracene	ND	0.50	-	-	-
Benzo (a) pyrene	ND	0.50	-	-	-
Benzo (b) fluoranthene	ND	0.50	-	-	-
Benzo (g,h,i) perylene	ND	0.50	-	-	-
Benzo (k) fluoranthene	ND	0.50	-	-	-
Chrysene	ND	0.50	-	-	-
Dibenzo (a,h) anthracene	ND	0.50	-	-	-
Fluoranthene	ND	0.50	-	-	-
Fluorene	ND	0.50	-	-	-
Indeno (1,2,3-cd) pyrene	ND	0.50	-	-	-
1-Methylnaphthalene	ND	0.50	-	-	-
2-Methylnaphthalene	ND	0.50	-	-	-
Naphthalene	ND	0.50	-	-	-
Phenanthrene	ND	0.50	-	-	-
Pyrene	ND	0.50	-	-	-

Surrogate Recovery

1-Fluoronaphthalene	23.06		25	92	30-130
2-Fluorobiphenyl	23.43		25	94	30-130

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Benzo (a) pyrene	5.98	8.61	10	60	86	12-152	36.0,F2	25
Chrysene	6.81	8.79	10	68	88	28-116	25.3,F2	25
1-Methylnaphthalene	9.26	11.0	10	93	110	48-125	17.0	25
2-Methylnaphthalene	8.76	9.92	10	88	99	41-124	12.3	25
Phenanthrene	8.18	10.4	10	82	104	36-123	23.4	25
Pyrene	7.48	9.58	10	75	96	29-118	24.7	25

Surrogate Recovery

1-Fluoronaphthalene	18.3	22.6	25	73	91	45-129	21.3	25
2-Fluorobiphenyl	17.9	22.7	25	72	91	47-125	23.4	25



Quality Control Report

Client: Langan	WorkOrder: 1702155
Date Prepared: 2/2/17	BatchID: 133572
Date Analyzed: 2/3/17	Extraction Method: SW5030B
Instrument: GC3	Analytical Method: SW8021B/8015Bm
Matrix: Soil	Unit: mg/Kg
Project: 750635602; 260 30th Street	Sample ID: MB/LCS-133572

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	0.675	0.40	0.60	-	113	89-118
MTBE	ND	0.0866	0.050	0.10	-	87	68-116
Benzene	ND	0.0902	0.0050	0.10	-	90	85-118
Toluene	ND	0.103	0.0050	0.10	-	103	87-121
Ethylbenzene	ND	0.111	0.0050	0.10	-	111	91-124
Xylenes	ND	0.357	0.015	0.30	-	119	92-126
Surrogate Recovery							
2-Fluorotoluene	0.1089	0.109		0.10	109	109	88-119



Quality Control Report

Client: Langan
Date Prepared: 2/2/17
Date Analyzed: 2/3/17
Instrument: GC19
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133584
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-133584
 1702156-010AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	0.632	0.40	0.60	-	105	89-118
MTBE	ND	0.108	0.050	0.10	-	108	68-116
Benzene	ND	0.122	0.0050	0.10	-	122, F2	85-118
Toluene	ND	0.122	0.0050	0.10	-	122, F2	87-121
Ethylbenzene	ND	0.118	0.0050	0.10	-	118	91-124
Xylenes	ND	0.344	0.015	0.30	-	115	92-126
Surrogate Recovery							
2-Fluorotoluene	0.09976	0.102		0.10	100	102	88-119

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	NR	NR		ND	NR	NR	-	NR	
MTBE	NR	NR		ND	NR	NR	-	NR	
Benzene	NR	NR		ND	NR	NR	-	NR	
Toluene	NR	NR		ND	NR	NR	-	NR	
Ethylbenzene	NR	NR		ND	NR	NR	-	NR	
Xylenes	NR	NR		ND	NR	NR	-	NR	
Surrogate Recovery									
2-Fluorotoluene	NR	NR			NR	NR	-	NR	



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17
Instrument: GC3
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133618
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L
Sample ID: MB/LCS-133618
 1702142-001IMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	56.6	40	60	-	94	85-112
MTBE	ND	10.9	5.0	10	-	109	74-127
Benzene	ND	10.8	0.50	10	-	108	81-124
Toluene	ND	11.0	0.50	10	-	110	79-131
Ethylbenzene	ND	11.3	0.50	10	-	113	86-127
Xylenes	ND	35.4	1.5	30	-	118	87-133
Surrogate Recovery							
aaa-TFT	10.44	10.2		10	104	102	87-117

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	64.2	61.0	60	ND	107	102	85-113	5.09	20
MTBE	11.6	11.4	10	ND	117	114	73-120	2.31	20
Benzene	10.6	10.4	10	ND	106	104	84-121	2.24	20
Toluene	10.7	10.5	10	ND	107	105	86-125	2.06	20
Ethylbenzene	11.1	10.7	10	ND	110	106	93-124	3.73	20
Xylenes	35.2	34.0	30	ND	116	112	93-130	3.36	20
Surrogate Recovery									
aaa-TFT	9.75	9.82	10		97	98	89-115	0.768	20



Quality Control Report

Client: Langan
Date Prepared: 2/2/17
Date Analyzed: 2/2/17 - 2/3/17
Instrument: GC9a, GC9b
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702155
BatchID: 133573
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg
Sample ID: MB/LCS-133573
 1702134-001AMS/MSD

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	39.2	1.0	40	-	98	91-127
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	22.6	24.3		25	90	97	74-110

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	NR	NR		3.2	NR	NR	-	NR	
Surrogate Recovery									
C9	NR	NR			NR	NR	-	NR	



Quality Control Report

Client: Langan	WorkOrder: 1702155
Date Prepared: 2/1/17	BatchID: 133525
Date Analyzed: 2/2/17	Extraction Method: SW3510C
Instrument: GC9a	Analytical Method: SW8015B
Matrix: Water	Unit: µg/L
Project: 750635602; 260 30th Street	Sample ID: MB/LCS/LCSD-133525

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
TPH-Diesel (C10-C23)	ND	50	-	-	-
TPH-Motor Oil (C18-C36)	ND	250	-	-	-
Surrogate Recovery					
C9	607		625	97	74-107

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	1060	1040	1000	106	104	95-136	1.72	30
Surrogate Recovery								
C9	613	612	625	98	98	74-107	0	30

1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1702155

ClientCode: TWRK

WaterTrax
 WriteOn
 EDF
 Excel
 EQulS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Josh Graber
 Langan
 501 14th Street, 3rd Floor
 Oakland, CA 94612
 (415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
 cc/3rd Party: kstaehlin@langan.com;
 PO:
 ProjectNo: 750635602; 260 30th Street

Bill to:

Accounts Payable
 Langan
 555 Montgomery St., Suite 1300
 San Francisco, CA 94111
 Langan_InvoiceCapture@concursoft.com

Requested TAT: 3 days;

Date Received: 02/02/2017

Date Logged: 02/02/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1702155-002	B-18-10.0	Soil	2/2/2017 09:55	<input type="checkbox"/>	A		A		A		A						
1702155-006	B-19-10.0	Soil	2/1/2017 10:25	<input type="checkbox"/>	A		A		A		A						
1702155-011	B-20-10.0	Soil	2/1/2017 11:40	<input type="checkbox"/>	A		A		A		A						
1702155-014	B-18-GW	Water	2/2/2017 11:00	<input type="checkbox"/>		B		C		A		A					
1702155-015	B-19-GW	Water	2/2/2017 07:32	<input type="checkbox"/>		B		C		A		A					
1702155-016	B-20-GW	Water	2/2/2017 07:42	<input type="checkbox"/>		B		C		A		A					

Test Legend:

1	8260B_S	2	8260B_W	3	8270_PNA_S	4	8270_PNA_W
5	G-MBTX_S	6	G-MBTX_W	7	TPH(DMO)_S	8	TPH(DMO)_W
9		10		11		12	

Prepared by: Jena Alfaro

The following SampIDs: 002A, 006A, 011A contain testgroup Multi Range_S.; The following SampIDs: 014A, 015A, 016A contain testgroup Multi Range_W.

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days). Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Josh Graber
Contact's Email: jdgraber@treadwellrollo.com

Project: 750635602; 260 30th Street

Work Order: 1702155
QC Level: LEVEL 2
Date Logged: 2/2/2017

Comments:

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1702155-001A	B-18-8.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/2/2017 9:46			<input checked="" type="checkbox"/>	
1702155-002A	B-18-10.0	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm	1	Acetate Liner	<input type="checkbox"/>	2/2/2017 9:55	3 days		<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>		3 days		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>		3 days		<input type="checkbox"/>	
1702155-003A	B-18-15.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/2/2017 10:05			<input checked="" type="checkbox"/>	
1702155-004A	B-18-20.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/2/2017 10:16			<input checked="" type="checkbox"/>	
1702155-005A	B-19-8.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/1/2017 10:23			<input checked="" type="checkbox"/>	
1702155-006A	B-19-10.0	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm	1	Acetate Liner	<input type="checkbox"/>	2/1/2017 10:25	3 days		<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>		3 days		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>		3 days		<input type="checkbox"/>	
1702155-007A	B-19-15.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/1/2017 10:46			<input checked="" type="checkbox"/>	
1702155-008A	B-19-20.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/1/2017 11:10			<input checked="" type="checkbox"/>	
1702155-009A	B-19-22.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/1/2017 11:15			<input checked="" type="checkbox"/>	
1702155-010A	B-20-8.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/1/2017 11:30			<input checked="" type="checkbox"/>	
1702155-011A	B-20-10.0	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm	1	Acetate Liner	<input type="checkbox"/>	2/1/2017 11:40	3 days		<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Josh Graber
Contact's Email: jdgraber@treadwellrollo.com

Project: 750635602; 260 30th Street

Comments:

Work Order: 1702155
QC Level: LEVEL 2
Date Logged: 2/2/2017

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1702155-011A	B-20-10.0	Soil	SW8270C (PAHs/PNAs)	1	Acetate Liner	<input type="checkbox"/>	2/1/2017 11:40	3 days		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>		3 days		<input type="checkbox"/>	
1702155-012A	B-20-15.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/1/2017 11:48			<input checked="" type="checkbox"/>	
1702155-013A	B-20-20.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/1/2017 12:02			<input checked="" type="checkbox"/>	
1702155-014A	B-18-GW	Water	Multi-Range TPH(g,d,mo) by EPA 8015Bm	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	<input type="checkbox"/>	2/2/2017 11:00	3 days	35%+	<input type="checkbox"/>	
1702155-014B	B-18-GW	Water	SW8260B (VOCs)	2	VOA w/ HCl	<input type="checkbox"/>	2/2/2017 11:00	3 days	35%+	<input type="checkbox"/>	
1702155-014C	B-18-GW	Water	SW8270C (PAHs/PNAs)	1	1LA	<input type="checkbox"/>	2/2/2017 11:00	3 days	35%+	<input type="checkbox"/>	
1702155-015A	B-19-GW	Water	Multi-Range TPH(g,d,mo) by EPA 8015Bm	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	<input type="checkbox"/>	2/2/2017 7:32	3 days	35%+	<input type="checkbox"/>	
1702155-015B	B-19-GW	Water	SW8260B (VOCs)	2	VOA w/ HCl	<input type="checkbox"/>	2/2/2017 7:32	3 days	35%+	<input type="checkbox"/>	
1702155-015C	B-19-GW	Water	SW8270C (PAHs/PNAs)	1	1LA	<input type="checkbox"/>	2/2/2017 7:32	3 days	35%+	<input type="checkbox"/>	
1702155-016A	B-20-GW	Water	Multi-Range TPH(g,d,mo) by EPA 8015Bm	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	<input type="checkbox"/>	2/2/2017 7:42	3 days	35%+	<input type="checkbox"/>	
1702155-016B	B-20-GW	Water	SW8260B (VOCs)	2	VOA w/ HCl	<input type="checkbox"/>	2/2/2017 7:42	3 days	35%+	<input type="checkbox"/>	
1702155-016C	B-20-GW	Water	SW8270C (PAHs/PNAs)	1	1LA	<input type="checkbox"/>	2/2/2017 7:42	3 days	35%+	<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

PHASE I 1702155

PLEASE C.C. ANNIE S. AT KSTAEHLIN@LANGAN.COM

10287

LANGAN

CHAIN OF CUSTODY RECORD

RUSH

 Page 1 of 2

- 555 Montgomery Street, Suite 1300, San Francisco, CA 94111
- 501 14th Street, Third Floor, Oakland CA 94612
- 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
- 4030 Moorpark Ave. Suite 210, San Jose, CA 95117-1849

Site Name: 260 30TH STREET
 Job Number: 750035002
 Project Manager/Contact: JOSH GRABER
 Samplers: KSS
 Recorder (Signature Required): [Signature]

Turnaround Time
72-Hour

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix							No. Containers & Preservative				Analysis Requested		Silica gel clean-up	Hold	Remarks
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH	VOCs	PAHs	CAM-17				
B-18-8.0	2/2/17	0946		X															
B-18-10.0		0955		X										X	X	X			
B-18-15.0		1005		X															
B-18-20.0	2/2/17	1016		X															
B-19-8.0	2/1/17	1023		X															
B-19-10.0		1025		X										X	X	X			
B-19-15.0		1046		X															
B-19-20.0		1110		X															
B-19-22.0		1115		X															
B-20-8.0		1130		X															
B-20-10.0		1140		X										X	X	X			
B-20-15.0		1148		X															
B-20-20.0	2/1/17	1202		X															

Relinquished by: (Signature) <u>[Signature]</u>	Date: _____	Time _____	Received by: (Signature) <u>[Signature]</u>	Date: <u>2-2-17</u>	Time: <u>1330</u>
Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>2-2-17</u>	Time: <u>1640</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>2/2/17</u>	Time: <u>1640</u>
Relinquished by: (Signature) _____	Date: _____	Time _____	Received by Lab: (Signature) _____	Date: _____	Time _____

Sent to Laboratory (Name): MCCAMPBELL ANALYTICAL
 Laboratory Comments/Notes: _____
 Method of Shipment: Lab courier Fed Ex Airborne UPS
 Hand Carried Private Courier (Co. Name) _____

PHASE I

* PLEASE C.C. ANNIE S. AT
KSTAEHLIN@LANGAN.COM *

10288

LANGAN

CHAIN OF CUSTODY RECORD

- 555 Montgomery Street. Suite 1300, San Francisco, CA 94111
- 501 14th Street, Third Floor, Oakland CA 94612
- 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
- 4030 Moorpark Ave. Suite 210, San Jose, CA 95117-1849

Site Name: 260 30TH STREET
 Job Number: 7506351002
 Project Manager/Contact: JOSH GRABER
 Samplers: KSS
 Recorder (Signature Required):

Analysis Requested

Turnaround
Time
72-HOUR

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix				No. Containers & Preservative				Analysis Requested		Silica gel clean-up	Hold	Remarks	
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH g/d, m/m	VOCs				PAHs
^{35°} B-18-GW	2/2/17	1100		X				4					X	X	X	X	
B-19-GW		0732		X				4					X	X	X	X	
B-20-GW		0742		X				4					X	X	X	X	

Relinquished by: (Signature)	Date: _____	Time _____	Received by: (Signature)	Date: <u>2-2-17</u>	Time: <u>1330</u>
Relinquished by: (Signature)	Date: <u>2-2-17</u>	Time: <u>1640</u>	Received by: (Signature)	Date: <u>2/2/17</u>	Time: <u>1640</u>
Relinquished by: (Signature) _____	Date: _____	Time _____	Received by Lab: (Signature) _____	Date _____	Time _____

Sent to Laboratory (Name): McCAMPBELL ANALYTICAL
 Laboratory Comments/Notes: _____
 Method of Shipment: Lab courier Fed Ex Airborne UPS
 Hand Carried Private Courier (Co. Name) _____



Sample Receipt Checklist

Client Name: **Langan**
 Project Name: **750635602; 260 30th Street**
 WorkOrder No: **1702155** Matrix: Soil/Water
 Carrier: Bernie Cummins (MAI Courier)

Date and Time Received: **2/2/2017 16:40**
 Date Logged: **2/2/2017**
 Received by: **Jena Alfaro**
 Logged by: **Jena Alfaro**

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
 Sample/Temp Blank temperature Temp: 5.8°C NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No
 (Ice Type: WET ICE)

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1702156 **Amended:** 02/09/2017

Report Created for: Langan

501 14th Street, 3rd Floor
Oakland, CA 94612

Project Contact: Josh Graber

Project P.O.:

Project Name: 750635602; 260 30th Street

Project Received: 02/02/2017

Analytical Report reviewed & approved for release on 02/09/2017 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702156

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702156

Analytical Qualifiers

S	surrogate spike recovery outside accepted recovery limits
a3	sample diluted due to high organic content.
b1	aqueous sample that contains greater than ~1 vol. % sediment
b6	lighter than water immiscible sheen/product is present
c2	surrogate recovery outside of the control limits due to matrix interference.
c4	surrogate recovery outside of the control limits due to coelution with another peak(s) / cluttered chromatogram.
d6	one to a few isolated non-target peaks present in the TPH(g) chromatogram
d7	strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram
e2	diesel range compounds are significant; no recognizable pattern
e7	oil range compounds are significant
e11	stoddard solvent/mineral spirit (?)

Quality Control Qualifiers

F1	MS/MSD recovery and/or RPD is out of acceptance criteria; LCS validates the prep batch.
F2	LCS/LCSD recovery and/or RPD is out of acceptance criteria.
F3	the surrogate standard recovery and/or RPD is outside of acceptance limits.



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-21-10.0	1702156-002A	Soil	02/02/2017 08:52	GC28	133574

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.50	5	02/06/2017 14:32
tert-Amyl methyl ether (TAME)	ND	0.025	5	02/06/2017 14:32
Benzene	ND	0.025	5	02/06/2017 14:32
Bromobenzene	ND	0.025	5	02/06/2017 14:32
Bromochloromethane	ND	0.025	5	02/06/2017 14:32
Bromodichloromethane	ND	0.025	5	02/06/2017 14:32
Bromoform	ND	0.025	5	02/06/2017 14:32
Bromomethane	ND	0.025	5	02/06/2017 14:32
2-Butanone (MEK)	ND	0.10	5	02/06/2017 14:32
t-Butyl alcohol (TBA)	ND	0.25	5	02/06/2017 14:32
n-Butyl benzene	ND	0.025	5	02/06/2017 14:32
sec-Butyl benzene	ND	0.025	5	02/06/2017 14:32
tert-Butyl benzene	ND	0.025	5	02/06/2017 14:32
Carbon Disulfide	ND	0.025	5	02/06/2017 14:32
Carbon Tetrachloride	ND	0.025	5	02/06/2017 14:32
Chlorobenzene	ND	0.025	5	02/06/2017 14:32
Chloroethane	ND	0.025	5	02/06/2017 14:32
Chloroform	ND	0.025	5	02/06/2017 14:32
Chloromethane	ND	0.025	5	02/06/2017 14:32
2-Chlorotoluene	ND	0.025	5	02/06/2017 14:32
4-Chlorotoluene	ND	0.025	5	02/06/2017 14:32
Dibromochloromethane	ND	0.025	5	02/06/2017 14:32
1,2-Dibromo-3-chloropropane	ND	0.020	5	02/06/2017 14:32
1,2-Dibromoethane (EDB)	ND	0.020	5	02/06/2017 14:32
Dibromomethane	ND	0.025	5	02/06/2017 14:32
1,2-Dichlorobenzene	ND	0.025	5	02/06/2017 14:32
1,3-Dichlorobenzene	ND	0.025	5	02/06/2017 14:32
1,4-Dichlorobenzene	ND	0.025	5	02/06/2017 14:32
Dichlorodifluoromethane	ND	0.025	5	02/06/2017 14:32
1,1-Dichloroethane	ND	0.025	5	02/06/2017 14:32
1,2-Dichloroethane (1,2-DCA)	ND	0.020	5	02/06/2017 14:32
1,1-Dichloroethene	ND	0.025	5	02/06/2017 14:32
cis-1,2-Dichloroethene	0.065	0.025	5	02/06/2017 14:32
trans-1,2-Dichloroethene	ND	0.025	5	02/06/2017 14:32
1,2-Dichloropropane	ND	0.025	5	02/06/2017 14:32
1,3-Dichloropropane	ND	0.025	5	02/06/2017 14:32
2,2-Dichloropropane	ND	0.025	5	02/06/2017 14:32

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-21-10.0	1702156-002A	Soil	02/02/2017 08:52	GC28	133574

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.025	5	02/06/2017 14:32
cis-1,3-Dichloropropene	ND	0.025	5	02/06/2017 14:32
trans-1,3-Dichloropropene	ND	0.025	5	02/06/2017 14:32
Diisopropyl ether (DIPE)	ND	0.025	5	02/06/2017 14:32
Ethylbenzene	ND	0.025	5	02/06/2017 14:32
Ethyl tert-butyl ether (ETBE)	ND	0.025	5	02/06/2017 14:32
Freon 113	ND	0.025	5	02/06/2017 14:32
Hexachlorobutadiene	ND	0.025	5	02/06/2017 14:32
Hexachloroethane	ND	0.025	5	02/06/2017 14:32
2-Hexanone	ND	0.025	5	02/06/2017 14:32
Isopropylbenzene	ND	0.025	5	02/06/2017 14:32
4-Isopropyl toluene	ND	0.025	5	02/06/2017 14:32
Methyl-t-butyl ether (MTBE)	ND	0.025	5	02/06/2017 14:32
Methylene chloride	ND	0.025	5	02/06/2017 14:32
4-Methyl-2-pentanone (MIBK)	ND	0.025	5	02/06/2017 14:32
Naphthalene	ND	0.025	5	02/06/2017 14:32
n-Propyl benzene	ND	0.025	5	02/06/2017 14:32
Styrene	ND	0.025	5	02/06/2017 14:32
1,1,1,2-Tetrachloroethane	ND	0.025	5	02/06/2017 14:32
1,1,2,2-Tetrachloroethane	ND	0.025	5	02/06/2017 14:32
Tetrachloroethene	ND	0.025	5	02/06/2017 14:32
Toluene	ND	0.025	5	02/06/2017 14:32
1,2,3-Trichlorobenzene	ND	0.025	5	02/06/2017 14:32
1,2,4-Trichlorobenzene	ND	0.025	5	02/06/2017 14:32
1,1,1-Trichloroethane	ND	0.025	5	02/06/2017 14:32
1,1,2-Trichloroethane	ND	0.025	5	02/06/2017 14:32
Trichloroethene	0.50	0.025	5	02/06/2017 14:32
Trichlorofluoromethane	ND	0.025	5	02/06/2017 14:32
1,2,3-Trichloropropane	ND	0.025	5	02/06/2017 14:32
1,2,4-Trimethylbenzene	ND	0.025	5	02/06/2017 14:32
1,3,5-Trimethylbenzene	ND	0.025	5	02/06/2017 14:32
Vinyl Chloride	ND	0.025	5	02/06/2017 14:32
Xylenes, Total	ND	0.025	5	02/06/2017 14:32

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-21-10.0	1702156-002A	Soil	02/02/2017 08:52	GC28	133574

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	101		70-130	02/06/2017 14:32
Toluene-d8	108		70-130	02/06/2017 14:32
4-BFB	101		70-130	02/06/2017 14:32
Benzene-d6	86		60-140	02/06/2017 14:32
Ethylbenzene-d10	91		60-140	02/06/2017 14:32
1,2-DCB-d4	90		60-140	02/06/2017 14:32

Analyst(s): HK



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-10.0	1702156-006A	Soil	02/01/2017 14:22	GC10	133574

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	6.7	67	02/06/2017 14:53
tert-Amyl methyl ether (TAME)	ND	0.33	67	02/06/2017 14:53
Benzene	ND	0.33	67	02/06/2017 14:53
Bromobenzene	ND	0.33	67	02/06/2017 14:53
Bromochloromethane	ND	0.33	67	02/06/2017 14:53
Bromodichloromethane	ND	0.33	67	02/06/2017 14:53
Bromoform	ND	0.33	67	02/06/2017 14:53
Bromomethane	ND	0.33	67	02/06/2017 14:53
2-Butanone (MEK)	ND	1.3	67	02/06/2017 14:53
t-Butyl alcohol (TBA)	ND	3.3	67	02/06/2017 14:53
n-Butyl benzene	ND	0.33	67	02/06/2017 14:53
sec-Butyl benzene	ND	0.33	67	02/06/2017 14:53
tert-Butyl benzene	ND	0.33	67	02/06/2017 14:53
Carbon Disulfide	ND	0.33	67	02/06/2017 14:53
Carbon Tetrachloride	ND	0.33	67	02/06/2017 14:53
Chlorobenzene	ND	0.33	67	02/06/2017 14:53
Chloroethane	ND	0.33	67	02/06/2017 14:53
Chloroform	ND	0.33	67	02/06/2017 14:53
Chloromethane	ND	0.33	67	02/06/2017 14:53
2-Chlorotoluene	ND	0.33	67	02/06/2017 14:53
4-Chlorotoluene	ND	0.33	67	02/06/2017 14:53
Dibromochloromethane	ND	0.33	67	02/06/2017 14:53
1,2-Dibromo-3-chloropropane	ND	0.27	67	02/06/2017 14:53
1,2-Dibromoethane (EDB)	ND	0.27	67	02/06/2017 14:53
Dibromomethane	ND	0.33	67	02/06/2017 14:53
1,2-Dichlorobenzene	ND	0.33	67	02/06/2017 14:53
1,3-Dichlorobenzene	ND	0.33	67	02/06/2017 14:53
1,4-Dichlorobenzene	ND	0.33	67	02/06/2017 14:53
Dichlorodifluoromethane	ND	0.33	67	02/06/2017 14:53
1,1-Dichloroethane	ND	0.33	67	02/06/2017 14:53
1,2-Dichloroethane (1,2-DCA)	ND	0.27	67	02/06/2017 14:53
1,1-Dichloroethene	ND	0.33	67	02/06/2017 14:53
cis-1,2-Dichloroethene	0.81	0.33	67	02/06/2017 14:53
trans-1,2-Dichloroethene	ND	0.33	67	02/06/2017 14:53
1,2-Dichloropropane	ND	0.33	67	02/06/2017 14:53
1,3-Dichloropropane	ND	0.33	67	02/06/2017 14:53
2,2-Dichloropropane	ND	0.33	67	02/06/2017 14:53

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-10.0	1702156-006A	Soil	02/01/2017 14:22	GC10	133574

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.33	67	02/06/2017 14:53
cis-1,3-Dichloropropene	ND	0.33	67	02/06/2017 14:53
trans-1,3-Dichloropropene	ND	0.33	67	02/06/2017 14:53
Diisopropyl ether (DIPE)	ND	0.33	67	02/06/2017 14:53
Ethylbenzene	ND	0.33	67	02/06/2017 14:53
Ethyl tert-butyl ether (ETBE)	ND	0.33	67	02/06/2017 14:53
Freon 113	ND	0.33	67	02/06/2017 14:53
Hexachlorobutadiene	ND	0.33	67	02/06/2017 14:53
Hexachloroethane	ND	0.33	67	02/06/2017 14:53
2-Hexanone	ND	0.33	67	02/06/2017 14:53
Isopropylbenzene	ND	0.33	67	02/06/2017 14:53
4-Isopropyl toluene	ND	0.33	67	02/06/2017 14:53
Methyl-t-butyl ether (MTBE)	ND	0.33	67	02/06/2017 14:53
Methylene chloride	ND	0.33	67	02/06/2017 14:53
4-Methyl-2-pentanone (MIBK)	ND	0.33	67	02/06/2017 14:53
Naphthalene	ND	0.33	67	02/06/2017 14:53
n-Propyl benzene	ND	0.33	67	02/06/2017 14:53
Styrene	ND	0.33	67	02/06/2017 14:53
1,1,1,2-Tetrachloroethane	ND	0.33	67	02/06/2017 14:53
1,1,2,2-Tetrachloroethane	ND	0.33	67	02/06/2017 14:53
Tetrachloroethene	ND	0.33	67	02/06/2017 14:53
Toluene	ND	0.33	67	02/06/2017 14:53
1,2,3-Trichlorobenzene	ND	0.33	67	02/06/2017 14:53
1,2,4-Trichlorobenzene	ND	0.33	67	02/06/2017 14:53
1,1,1-Trichloroethane	ND	0.33	67	02/06/2017 14:53
1,1,2-Trichloroethane	ND	0.33	67	02/06/2017 14:53
Trichloroethene	5.0	0.33	67	02/06/2017 14:53
Trichlorofluoromethane	ND	0.33	67	02/06/2017 14:53
1,2,3-Trichloropropane	ND	0.33	67	02/06/2017 14:53
1,2,4-Trimethylbenzene	ND	0.33	67	02/06/2017 14:53
1,3,5-Trimethylbenzene	ND	0.33	67	02/06/2017 14:53
Vinyl Chloride	ND	0.33	67	02/06/2017 14:53
Xylenes, Total	ND	0.33	67	02/06/2017 14:53

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-10.0	1702156-006A	Soil	02/01/2017 14:22	GC10	133574

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	103	70-130		02/06/2017 14:53
Toluene-d8	109	70-130		02/06/2017 14:53
4-BFB	103	70-130		02/06/2017 14:53
Benzene-d6	87	60-140		02/06/2017 14:53
Ethylbenzene-d10	122	60-140		02/06/2017 14:53
1,2-DCB-d4	111	60-140		02/06/2017 14:53

Analyst(s): AK



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-8.0	1702156-009A	Soil	02/01/2017 13:02	GC10	133574

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/06/2017 15:32
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/06/2017 15:32
Benzene	ND	0.0050	1	02/06/2017 15:32
Bromobenzene	ND	0.0050	1	02/06/2017 15:32
Bromochloromethane	ND	0.0050	1	02/06/2017 15:32
Bromodichloromethane	ND	0.0050	1	02/06/2017 15:32
Bromoform	ND	0.0050	1	02/06/2017 15:32
Bromomethane	ND	0.0050	1	02/06/2017 15:32
2-Butanone (MEK)	ND	0.020	1	02/06/2017 15:32
t-Butyl alcohol (TBA)	ND	0.050	1	02/06/2017 15:32
n-Butyl benzene	ND	0.0050	1	02/06/2017 15:32
sec-Butyl benzene	ND	0.0050	1	02/06/2017 15:32
tert-Butyl benzene	ND	0.0050	1	02/06/2017 15:32
Carbon Disulfide	ND	0.0050	1	02/06/2017 15:32
Carbon Tetrachloride	ND	0.0050	1	02/06/2017 15:32
Chlorobenzene	ND	0.0050	1	02/06/2017 15:32
Chloroethane	ND	0.0050	1	02/06/2017 15:32
Chloroform	ND	0.0050	1	02/06/2017 15:32
Chloromethane	ND	0.0050	1	02/06/2017 15:32
2-Chlorotoluene	ND	0.0050	1	02/06/2017 15:32
4-Chlorotoluene	ND	0.0050	1	02/06/2017 15:32
Dibromochloromethane	ND	0.0050	1	02/06/2017 15:32
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/06/2017 15:32
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/06/2017 15:32
Dibromomethane	ND	0.0050	1	02/06/2017 15:32
1,2-Dichlorobenzene	ND	0.0050	1	02/06/2017 15:32
1,3-Dichlorobenzene	ND	0.0050	1	02/06/2017 15:32
1,4-Dichlorobenzene	ND	0.0050	1	02/06/2017 15:32
Dichlorodifluoromethane	ND	0.0050	1	02/06/2017 15:32
1,1-Dichloroethane	ND	0.0050	1	02/06/2017 15:32
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/06/2017 15:32
1,1-Dichloroethene	ND	0.0050	1	02/06/2017 15:32
cis-1,2-Dichloroethene	ND	0.0050	1	02/06/2017 15:32
trans-1,2-Dichloroethene	ND	0.0050	1	02/06/2017 15:32
1,2-Dichloropropane	ND	0.0050	1	02/06/2017 15:32
1,3-Dichloropropane	ND	0.0050	1	02/06/2017 15:32
2,2-Dichloropropane	ND	0.0050	1	02/06/2017 15:32

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-8.0	1702156-009A	Soil	02/01/2017 13:02	GC10	133574

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/06/2017 15:32
cis-1,3-Dichloropropene	ND	0.0050	1	02/06/2017 15:32
trans-1,3-Dichloropropene	ND	0.0050	1	02/06/2017 15:32
Diisopropyl ether (DIPE)	ND	0.0050	1	02/06/2017 15:32
Ethylbenzene	ND	0.0050	1	02/06/2017 15:32
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/06/2017 15:32
Freon 113	ND	0.0050	1	02/06/2017 15:32
Hexachlorobutadiene	ND	0.0050	1	02/06/2017 15:32
Hexachloroethane	ND	0.0050	1	02/06/2017 15:32
2-Hexanone	ND	0.0050	1	02/06/2017 15:32
Isopropylbenzene	ND	0.0050	1	02/06/2017 15:32
4-Isopropyl toluene	ND	0.0050	1	02/06/2017 15:32
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/06/2017 15:32
Methylene chloride	ND	0.025	1	02/06/2017 15:32
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/06/2017 15:32
Naphthalene	ND	0.0050	1	02/06/2017 15:32
n-Propyl benzene	ND	0.0050	1	02/06/2017 15:32
Styrene	ND	0.0050	1	02/06/2017 15:32
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/06/2017 15:32
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/06/2017 15:32
Tetrachloroethene	ND	0.0050	1	02/06/2017 15:32
Toluene	ND	0.0050	1	02/06/2017 15:32
1,2,3-Trichlorobenzene	ND	0.0050	1	02/06/2017 15:32
1,2,4-Trichlorobenzene	ND	0.0050	1	02/06/2017 15:32
1,1,1-Trichloroethane	ND	0.0050	1	02/06/2017 15:32
1,1,2-Trichloroethane	ND	0.0050	1	02/06/2017 15:32
Trichloroethene	ND	0.0050	1	02/06/2017 15:32
Trichlorofluoromethane	ND	0.0050	1	02/06/2017 15:32
1,2,3-Trichloropropane	ND	0.0050	1	02/06/2017 15:32
1,2,4-Trimethylbenzene	ND	0.0050	1	02/06/2017 15:32
1,3,5-Trimethylbenzene	ND	0.0050	1	02/06/2017 15:32
Vinyl Chloride	ND	0.0050	1	02/06/2017 15:32
Xylenes, Total	ND	0.0050	1	02/06/2017 15:32

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-8.0	1702156-009A	Soil	02/01/2017 13:02	GC10	133574

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	97	70-130		02/06/2017 15:32
Toluene-d8	120	70-130		02/06/2017 15:32
4-BFB	110	70-130		02/06/2017 15:32
Benzene-d6	80	60-140		02/06/2017 15:32
Ethylbenzene-d10	94	60-140		02/06/2017 15:32
1,2-DCB-d4	80	60-140		02/06/2017 15:32

Analyst(s): AK



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-10.0	1702156-010A	Soil	02/01/2017 13:16	GC16	133574

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/04/2017 23:22
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/04/2017 23:22
Benzene	ND	0.0050	1	02/04/2017 23:22
Bromobenzene	ND	0.0050	1	02/04/2017 23:22
Bromochloromethane	ND	0.0050	1	02/04/2017 23:22
Bromodichloromethane	ND	0.0050	1	02/04/2017 23:22
Bromoform	ND	0.0050	1	02/04/2017 23:22
Bromomethane	ND	0.0050	1	02/04/2017 23:22
2-Butanone (MEK)	ND	0.020	1	02/04/2017 23:22
t-Butyl alcohol (TBA)	ND	0.050	1	02/04/2017 23:22
n-Butyl benzene	0.012	0.0050	1	02/04/2017 23:22
sec-Butyl benzene	0.012	0.0050	1	02/04/2017 23:22
tert-Butyl benzene	ND	0.0050	1	02/04/2017 23:22
Carbon Disulfide	ND	0.0050	1	02/04/2017 23:22
Carbon Tetrachloride	ND	0.0050	1	02/04/2017 23:22
Chlorobenzene	0.0069	0.0050	1	02/04/2017 23:22
Chloroethane	ND	0.0050	1	02/04/2017 23:22
Chloroform	ND	0.0050	1	02/04/2017 23:22
Chloromethane	ND	0.0050	1	02/04/2017 23:22
2-Chlorotoluene	ND	0.0050	1	02/04/2017 23:22
4-Chlorotoluene	ND	0.0050	1	02/04/2017 23:22
Dibromochloromethane	ND	0.0050	1	02/04/2017 23:22
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/04/2017 23:22
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/04/2017 23:22
Dibromomethane	ND	0.0050	1	02/04/2017 23:22
1,2-Dichlorobenzene	ND	0.0050	1	02/04/2017 23:22
1,3-Dichlorobenzene	ND	0.0050	1	02/04/2017 23:22
1,4-Dichlorobenzene	ND	0.0050	1	02/04/2017 23:22
Dichlorodifluoromethane	ND	0.0050	1	02/04/2017 23:22
1,1-Dichloroethane	ND	0.0050	1	02/04/2017 23:22
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/04/2017 23:22
1,1-Dichloroethene	ND	0.0050	1	02/04/2017 23:22
cis-1,2-Dichloroethene	0.012	0.0050	1	02/04/2017 23:22
trans-1,2-Dichloroethene	ND	0.0050	1	02/04/2017 23:22
1,2-Dichloropropane	ND	0.0050	1	02/04/2017 23:22
1,3-Dichloropropane	ND	0.0050	1	02/04/2017 23:22
2,2-Dichloropropane	ND	0.0050	1	02/04/2017 23:22

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-10.0	1702156-010A	Soil	02/01/2017 13:16	GC16	133574

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/04/2017 23:22
cis-1,3-Dichloropropene	ND	0.0050	1	02/04/2017 23:22
trans-1,3-Dichloropropene	ND	0.0050	1	02/04/2017 23:22
Diisopropyl ether (DIPE)	ND	0.0050	1	02/04/2017 23:22
Ethylbenzene	ND	0.0050	1	02/04/2017 23:22
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/04/2017 23:22
Freon 113	ND	0.0050	1	02/04/2017 23:22
Hexachlorobutadiene	ND	0.0050	1	02/04/2017 23:22
Hexachloroethane	ND	0.0050	1	02/04/2017 23:22
2-Hexanone	ND	0.0050	1	02/04/2017 23:22
Isopropylbenzene	ND	0.0050	1	02/04/2017 23:22
4-Isopropyl toluene	0.0080	0.0050	1	02/04/2017 23:22
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/04/2017 23:22
Methylene chloride	ND	0.0050	1	02/04/2017 23:22
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/04/2017 23:22
Naphthalene	0.0092	0.0050	1	02/04/2017 23:22
n-Propyl benzene	ND	0.0050	1	02/04/2017 23:22
Styrene	ND	0.0050	1	02/04/2017 23:22
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/04/2017 23:22
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/04/2017 23:22
Tetrachloroethene	ND	0.0050	1	02/04/2017 23:22
Toluene	ND	0.0050	1	02/04/2017 23:22
1,2,3-Trichlorobenzene	ND	0.0050	1	02/04/2017 23:22
1,2,4-Trichlorobenzene	ND	0.0050	1	02/04/2017 23:22
1,1,1-Trichloroethane	ND	0.0050	1	02/04/2017 23:22
1,1,2-Trichloroethane	ND	0.0050	1	02/04/2017 23:22
Trichloroethene	0.010	0.0050	1	02/04/2017 23:22
Trichlorofluoromethane	ND	0.0050	1	02/04/2017 23:22
1,2,3-Trichloropropane	ND	0.0050	1	02/04/2017 23:22
1,2,4-Trimethylbenzene	0.0099	0.0050	1	02/04/2017 23:22
1,3,5-Trimethylbenzene	ND	0.0050	1	02/04/2017 23:22
Vinyl Chloride	ND	0.0050	1	02/04/2017 23:22
Xylenes, Total	ND	0.0050	1	02/04/2017 23:22

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-10.0	1702156-010A	Soil	02/01/2017 13:16	GC16	133574

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	91		70-130	02/04/2017 23:22
Toluene-d8	101		70-130	02/04/2017 23:22
4-BFB	109		70-130	02/04/2017 23:22
Benzene-d6	88		60-140	02/04/2017 23:22
Ethylbenzene-d10	100		60-140	02/04/2017 23:22
1,2-DCB-d4	76		60-140	02/04/2017 23:22

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-15.0	1702156-011A	Soil	02/01/2017 13:28	GC16	133574

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/05/2017 00:01
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/05/2017 00:01
Benzene	ND	0.0050	1	02/05/2017 00:01
Bromobenzene	ND	0.0050	1	02/05/2017 00:01
Bromochloromethane	ND	0.0050	1	02/05/2017 00:01
Bromodichloromethane	ND	0.0050	1	02/05/2017 00:01
Bromoform	ND	0.0050	1	02/05/2017 00:01
Bromomethane	ND	0.0050	1	02/05/2017 00:01
2-Butanone (MEK)	ND	0.020	1	02/05/2017 00:01
t-Butyl alcohol (TBA)	ND	0.050	1	02/05/2017 00:01
n-Butyl benzene	ND	0.0050	1	02/05/2017 00:01
sec-Butyl benzene	ND	0.0050	1	02/05/2017 00:01
tert-Butyl benzene	ND	0.0050	1	02/05/2017 00:01
Carbon Disulfide	ND	0.0050	1	02/05/2017 00:01
Carbon Tetrachloride	ND	0.0050	1	02/05/2017 00:01
Chlorobenzene	ND	0.0050	1	02/05/2017 00:01
Chloroethane	ND	0.0050	1	02/05/2017 00:01
Chloroform	ND	0.0050	1	02/05/2017 00:01
Chloromethane	ND	0.0050	1	02/05/2017 00:01
2-Chlorotoluene	ND	0.0050	1	02/05/2017 00:01
4-Chlorotoluene	ND	0.0050	1	02/05/2017 00:01
Dibromochloromethane	ND	0.0050	1	02/05/2017 00:01
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/05/2017 00:01
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/05/2017 00:01
Dibromomethane	ND	0.0050	1	02/05/2017 00:01
1,2-Dichlorobenzene	ND	0.0050	1	02/05/2017 00:01
1,3-Dichlorobenzene	ND	0.0050	1	02/05/2017 00:01
1,4-Dichlorobenzene	ND	0.0050	1	02/05/2017 00:01
Dichlorodifluoromethane	ND	0.0050	1	02/05/2017 00:01
1,1-Dichloroethane	ND	0.0050	1	02/05/2017 00:01
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/05/2017 00:01
1,1-Dichloroethene	ND	0.0050	1	02/05/2017 00:01
cis-1,2-Dichloroethene	0.14	0.0050	1	02/05/2017 00:01
trans-1,2-Dichloroethene	ND	0.0050	1	02/05/2017 00:01
1,2-Dichloropropane	ND	0.0050	1	02/05/2017 00:01
1,3-Dichloropropane	ND	0.0050	1	02/05/2017 00:01
2,2-Dichloropropane	ND	0.0050	1	02/05/2017 00:01

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-15.0	1702156-011A	Soil	02/01/2017 13:28	GC16	133574

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/05/2017 00:01
cis-1,3-Dichloropropene	ND	0.0050	1	02/05/2017 00:01
trans-1,3-Dichloropropene	ND	0.0050	1	02/05/2017 00:01
Diisopropyl ether (DIPE)	ND	0.0050	1	02/05/2017 00:01
Ethylbenzene	ND	0.0050	1	02/05/2017 00:01
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/05/2017 00:01
Freon 113	ND	0.0050	1	02/05/2017 00:01
Hexachlorobutadiene	ND	0.0050	1	02/05/2017 00:01
Hexachloroethane	ND	0.0050	1	02/05/2017 00:01
2-Hexanone	ND	0.0050	1	02/05/2017 00:01
Isopropylbenzene	ND	0.0050	1	02/05/2017 00:01
4-Isopropyl toluene	ND	0.0050	1	02/05/2017 00:01
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/05/2017 00:01
Methylene chloride	ND	0.0050	1	02/05/2017 00:01
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/05/2017 00:01
Naphthalene	ND	0.0050	1	02/05/2017 00:01
n-Propyl benzene	ND	0.0050	1	02/05/2017 00:01
Styrene	ND	0.0050	1	02/05/2017 00:01
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/05/2017 00:01
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/05/2017 00:01
Tetrachloroethene	ND	0.0050	1	02/05/2017 00:01
Toluene	ND	0.0050	1	02/05/2017 00:01
1,2,3-Trichlorobenzene	ND	0.0050	1	02/05/2017 00:01
1,2,4-Trichlorobenzene	ND	0.0050	1	02/05/2017 00:01
1,1,1-Trichloroethane	ND	0.0050	1	02/05/2017 00:01
1,1,2-Trichloroethane	ND	0.0050	1	02/05/2017 00:01
Trichloroethene	0.047	0.0050	1	02/05/2017 00:01
Trichlorofluoromethane	ND	0.0050	1	02/05/2017 00:01
1,2,3-Trichloropropane	ND	0.0050	1	02/05/2017 00:01
1,2,4-Trimethylbenzene	ND	0.0050	1	02/05/2017 00:01
1,3,5-Trimethylbenzene	ND	0.0050	1	02/05/2017 00:01
Vinyl Chloride	ND	0.0050	1	02/05/2017 00:01
Xylenes, Total	ND	0.0050	1	02/05/2017 00:01

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-15.0	1702156-011A	Soil	02/01/2017 13:28	GC16	133574

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	92		70-130	02/05/2017 00:01
Toluene-d8	103		70-130	02/05/2017 00:01
4-BFB	112		70-130	02/05/2017 00:01
Benzene-d6	86		60-140	02/05/2017 00:01
Ethylbenzene-d10	99		60-140	02/05/2017 00:01
1,2-DCB-d4	73		60-140	02/05/2017 00:01

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-20.0	1702156-012A	Soil	02/01/2017 13:51	GC16	133586

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/05/2017 00:42
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/05/2017 00:42
Benzene	ND	0.0050	1	02/05/2017 00:42
Bromobenzene	ND	0.0050	1	02/05/2017 00:42
Bromochloromethane	ND	0.0050	1	02/05/2017 00:42
Bromodichloromethane	ND	0.0050	1	02/05/2017 00:42
Bromoform	ND	0.0050	1	02/05/2017 00:42
Bromomethane	ND	0.0050	1	02/05/2017 00:42
2-Butanone (MEK)	ND	0.020	1	02/05/2017 00:42
t-Butyl alcohol (TBA)	ND	0.050	1	02/05/2017 00:42
n-Butyl benzene	ND	0.0050	1	02/05/2017 00:42
sec-Butyl benzene	ND	0.0050	1	02/05/2017 00:42
tert-Butyl benzene	ND	0.0050	1	02/05/2017 00:42
Carbon Disulfide	ND	0.0050	1	02/05/2017 00:42
Carbon Tetrachloride	ND	0.0050	1	02/05/2017 00:42
Chlorobenzene	ND	0.0050	1	02/05/2017 00:42
Chloroethane	ND	0.0050	1	02/05/2017 00:42
Chloroform	ND	0.0050	1	02/05/2017 00:42
Chloromethane	ND	0.0050	1	02/05/2017 00:42
2-Chlorotoluene	ND	0.0050	1	02/05/2017 00:42
4-Chlorotoluene	ND	0.0050	1	02/05/2017 00:42
Dibromochloromethane	ND	0.0050	1	02/05/2017 00:42
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/05/2017 00:42
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/05/2017 00:42
Dibromomethane	ND	0.0050	1	02/05/2017 00:42
1,2-Dichlorobenzene	ND	0.0050	1	02/05/2017 00:42
1,3-Dichlorobenzene	ND	0.0050	1	02/05/2017 00:42
1,4-Dichlorobenzene	ND	0.0050	1	02/05/2017 00:42
Dichlorodifluoromethane	ND	0.0050	1	02/05/2017 00:42
1,1-Dichloroethane	ND	0.0050	1	02/05/2017 00:42
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/05/2017 00:42
1,1-Dichloroethene	ND	0.0050	1	02/05/2017 00:42
cis-1,2-Dichloroethene	ND	0.0050	1	02/05/2017 00:42
trans-1,2-Dichloroethene	ND	0.0050	1	02/05/2017 00:42
1,2-Dichloropropane	ND	0.0050	1	02/05/2017 00:42
1,3-Dichloropropane	ND	0.0050	1	02/05/2017 00:42
2,2-Dichloropropane	ND	0.0050	1	02/05/2017 00:42

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-20.0	1702156-012A	Soil	02/01/2017 13:51	GC16	133586

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/05/2017 00:42
cis-1,3-Dichloropropene	ND	0.0050	1	02/05/2017 00:42
trans-1,3-Dichloropropene	ND	0.0050	1	02/05/2017 00:42
Diisopropyl ether (DIPE)	ND	0.0050	1	02/05/2017 00:42
Ethylbenzene	ND	0.0050	1	02/05/2017 00:42
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/05/2017 00:42
Freon 113	ND	0.0050	1	02/05/2017 00:42
Hexachlorobutadiene	ND	0.0050	1	02/05/2017 00:42
Hexachloroethane	ND	0.0050	1	02/05/2017 00:42
2-Hexanone	ND	0.0050	1	02/05/2017 00:42
Isopropylbenzene	ND	0.0050	1	02/05/2017 00:42
4-Isopropyl toluene	ND	0.0050	1	02/05/2017 00:42
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/05/2017 00:42
Methylene chloride	ND	0.0050	1	02/05/2017 00:42
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/05/2017 00:42
Naphthalene	ND	0.0050	1	02/05/2017 00:42
n-Propyl benzene	ND	0.0050	1	02/05/2017 00:42
Styrene	ND	0.0050	1	02/05/2017 00:42
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/05/2017 00:42
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/05/2017 00:42
Tetrachloroethene	ND	0.0050	1	02/05/2017 00:42
Toluene	ND	0.0050	1	02/05/2017 00:42
1,2,3-Trichlorobenzene	ND	0.0050	1	02/05/2017 00:42
1,2,4-Trichlorobenzene	ND	0.0050	1	02/05/2017 00:42
1,1,1-Trichloroethane	ND	0.0050	1	02/05/2017 00:42
1,1,2-Trichloroethane	ND	0.0050	1	02/05/2017 00:42
Trichloroethene	0.030	0.0050	1	02/05/2017 00:42
Trichlorofluoromethane	ND	0.0050	1	02/05/2017 00:42
1,2,3-Trichloropropane	ND	0.0050	1	02/05/2017 00:42
1,2,4-Trimethylbenzene	ND	0.0050	1	02/05/2017 00:42
1,3,5-Trimethylbenzene	ND	0.0050	1	02/05/2017 00:42
Vinyl Chloride	ND	0.0050	1	02/05/2017 00:42
Xylenes, Total	ND	0.0050	1	02/05/2017 00:42

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-20.0	1702156-012A	Soil	02/01/2017 13:51	GC16	133586

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	92	70-130		02/05/2017 00:42
Toluene-d8	103	70-130		02/05/2017 00:42
4-BFB	109	70-130		02/05/2017 00:42
Benzene-d6	90	60-140		02/05/2017 00:42
Ethylbenzene-d10	105	60-140		02/05/2017 00:42
1,2-DCB-d4	76	60-140		02/05/2017 00:42

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/4/17-2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-21-GW	1702156-013B	Water	02/02/2017 10:45	GC16	133695

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	100	10	02/04/2017 14:43
tert-Amyl methyl ether (TAME)	ND	5.0	10	02/04/2017 14:43
Benzene	ND	5.0	10	02/04/2017 14:43
Bromobenzene	ND	5.0	10	02/04/2017 14:43
Bromochloromethane	ND	5.0	10	02/04/2017 14:43
Bromodichloromethane	ND	5.0	10	02/04/2017 14:43
Bromoform	ND	5.0	10	02/04/2017 14:43
Bromomethane	ND	5.0	10	02/04/2017 14:43
2-Butanone (MEK)	ND	20	10	02/04/2017 14:43
t-Butyl alcohol (TBA)	ND	20	10	02/04/2017 14:43
n-Butyl benzene	ND	5.0	10	02/04/2017 14:43
sec-Butyl benzene	ND	5.0	10	02/04/2017 14:43
tert-Butyl benzene	ND	5.0	10	02/04/2017 14:43
Carbon Disulfide	ND	5.0	10	02/04/2017 14:43
Carbon Tetrachloride	ND	5.0	10	02/04/2017 14:43
Chlorobenzene	ND	5.0	10	02/04/2017 14:43
Chloroethane	ND	5.0	10	02/04/2017 14:43
Chloroform	ND	5.0	10	02/04/2017 14:43
Chloromethane	ND	5.0	10	02/04/2017 14:43
2-Chlorotoluene	ND	5.0	10	02/04/2017 14:43
4-Chlorotoluene	ND	5.0	10	02/04/2017 14:43
Dibromochloromethane	ND	5.0	10	02/04/2017 14:43
1,2-Dibromo-3-chloropropane	ND	2.0	10	02/04/2017 14:43
1,2-Dibromoethane (EDB)	ND	5.0	10	02/04/2017 14:43
Dibromomethane	ND	5.0	10	02/04/2017 14:43
1,2-Dichlorobenzene	ND	5.0	10	02/04/2017 14:43
1,3-Dichlorobenzene	ND	5.0	10	02/04/2017 14:43
1,4-Dichlorobenzene	ND	5.0	10	02/04/2017 14:43
Dichlorodifluoromethane	ND	5.0	10	02/04/2017 14:43
1,1-Dichloroethane	ND	5.0	10	02/04/2017 14:43
1,2-Dichloroethane (1,2-DCA)	ND	5.0	10	02/04/2017 14:43
1,1-Dichloroethene	ND	5.0	10	02/04/2017 14:43
cis-1,2-Dichloroethene	19	5.0	10	02/04/2017 14:43
trans-1,2-Dichloroethene	ND	5.0	10	02/04/2017 14:43
1,2-Dichloropropane	ND	5.0	10	02/04/2017 14:43
1,3-Dichloropropane	ND	5.0	10	02/04/2017 14:43
2,2-Dichloropropane	ND	5.0	10	02/04/2017 14:43

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/4/17-2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-21-GW	1702156-013B	Water	02/02/2017 10:45	GC16	133695

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	5.0	10	02/04/2017 14:43
cis-1,3-Dichloropropene	ND	5.0	10	02/04/2017 14:43
trans-1,3-Dichloropropene	ND	5.0	10	02/04/2017 14:43
Diisopropyl ether (DIPE)	ND	5.0	10	02/04/2017 14:43
Ethylbenzene	ND	5.0	10	02/04/2017 14:43
Ethyl tert-butyl ether (ETBE)	ND	5.0	10	02/04/2017 14:43
Freon 113	ND	5.0	10	02/04/2017 14:43
Hexachlorobutadiene	ND	5.0	10	02/04/2017 14:43
Hexachloroethane	ND	5.0	10	02/04/2017 14:43
2-Hexanone	ND	5.0	10	02/04/2017 14:43
Isopropylbenzene	ND	5.0	10	02/04/2017 14:43
4-Isopropyl toluene	ND	5.0	10	02/04/2017 14:43
Methyl-t-butyl ether (MTBE)	ND	5.0	10	02/04/2017 14:43
Methylene chloride	ND	5.0	10	02/04/2017 14:43
4-Methyl-2-pentanone (MIBK)	ND	5.0	10	02/04/2017 14:43
Naphthalene	ND	5.0	10	02/04/2017 14:43
n-Propyl benzene	ND	5.0	10	02/04/2017 14:43
Styrene	ND	5.0	10	02/04/2017 14:43
1,1,1,2-Tetrachloroethane	ND	5.0	10	02/04/2017 14:43
1,1,2,2-Tetrachloroethane	ND	5.0	10	02/04/2017 14:43
Tetrachloroethene	ND	5.0	10	02/04/2017 14:43
Toluene	ND	5.0	10	02/04/2017 14:43
1,2,3-Trichlorobenzene	ND	5.0	10	02/04/2017 14:43
1,2,4-Trichlorobenzene	ND	5.0	10	02/04/2017 14:43
1,1,1-Trichloroethane	ND	5.0	10	02/04/2017 14:43
1,1,2-Trichloroethane	ND	5.0	10	02/04/2017 14:43
Trichloroethene	170	5.0	10	02/04/2017 14:43
Trichlorofluoromethane	ND	5.0	10	02/04/2017 14:43
1,2,3-Trichloropropane	ND	5.0	10	02/04/2017 14:43
1,2,4-Trimethylbenzene	ND	5.0	10	02/04/2017 14:43
1,3,5-Trimethylbenzene	ND	5.0	10	02/04/2017 14:43
Vinyl Chloride	ND	5.0	10	02/04/2017 14:43
Xylenes, Total	ND	5.0	10	02/04/2017 14:43

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/4/17-2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-21-GW	1702156-013B	Water	02/02/2017 10:45	GC16	133695

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	96	70-130		02/04/2017 14:43
Toluene-d8	93	70-130		02/04/2017 14:43
4-BFB	97	70-130		02/04/2017 14:43
<u>Analyst(s):</u> KF		<u>Analytical Comments:</u> b1		



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/4/17-2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-GW	1702156-014B	Water	02/02/2017 07:51	GC18	133695

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	2500	250	02/06/2017 12:44
tert-Amyl methyl ether (TAME)	ND	120	250	02/06/2017 12:44
Benzene	ND	120	250	02/06/2017 12:44
Bromobenzene	ND	120	250	02/06/2017 12:44
Bromochloromethane	ND	120	250	02/06/2017 12:44
Bromodichloromethane	ND	120	250	02/06/2017 12:44
Bromoform	ND	120	250	02/06/2017 12:44
Bromomethane	ND	120	250	02/06/2017 12:44
2-Butanone (MEK)	ND	500	250	02/06/2017 12:44
t-Butyl alcohol (TBA)	ND	500	250	02/06/2017 12:44
n-Butyl benzene	ND	120	250	02/06/2017 12:44
sec-Butyl benzene	ND	120	250	02/06/2017 12:44
tert-Butyl benzene	ND	120	250	02/06/2017 12:44
Carbon Disulfide	ND	120	250	02/06/2017 12:44
Carbon Tetrachloride	ND	120	250	02/06/2017 12:44
Chlorobenzene	ND	120	250	02/06/2017 12:44
Chloroethane	ND	120	250	02/06/2017 12:44
Chloroform	ND	120	250	02/06/2017 12:44
Chloromethane	ND	120	250	02/06/2017 12:44
2-Chlorotoluene	ND	120	250	02/06/2017 12:44
4-Chlorotoluene	ND	120	250	02/06/2017 12:44
Dibromochloromethane	ND	120	250	02/06/2017 12:44
1,2-Dibromo-3-chloropropane	ND	50	250	02/06/2017 12:44
1,2-Dibromoethane (EDB)	ND	120	250	02/06/2017 12:44
Dibromomethane	ND	120	250	02/06/2017 12:44
1,2-Dichlorobenzene	ND	120	250	02/06/2017 12:44
1,3-Dichlorobenzene	ND	120	250	02/06/2017 12:44
1,4-Dichlorobenzene	ND	120	250	02/06/2017 12:44
Dichlorodifluoromethane	ND	120	250	02/06/2017 12:44
1,1-Dichloroethane	ND	120	250	02/06/2017 12:44
1,2-Dichloroethane (1,2-DCA)	ND	120	250	02/06/2017 12:44
1,1-Dichloroethene	ND	120	250	02/06/2017 12:44
cis-1,2-Dichloroethene	2200	120	250	02/06/2017 12:44
trans-1,2-Dichloroethene	ND	120	250	02/06/2017 12:44
1,2-Dichloropropane	ND	120	250	02/06/2017 12:44
1,3-Dichloropropane	ND	120	250	02/06/2017 12:44
2,2-Dichloropropane	ND	120	250	02/06/2017 12:44

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/4/17-2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-GW	1702156-014B	Water	02/02/2017 07:51	GC18	133695

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	120	250	02/06/2017 12:44
cis-1,3-Dichloropropene	ND	120	250	02/06/2017 12:44
trans-1,3-Dichloropropene	ND	120	250	02/06/2017 12:44
Diisopropyl ether (DIPE)	ND	120	250	02/06/2017 12:44
Ethylbenzene	ND	120	250	02/06/2017 12:44
Ethyl tert-butyl ether (ETBE)	ND	120	250	02/06/2017 12:44
Freon 113	ND	120	250	02/06/2017 12:44
Hexachlorobutadiene	ND	120	250	02/06/2017 12:44
Hexachloroethane	ND	120	250	02/06/2017 12:44
2-Hexanone	ND	120	250	02/06/2017 12:44
Isopropylbenzene	ND	120	250	02/06/2017 12:44
4-Isopropyl toluene	ND	120	250	02/06/2017 12:44
Methyl-t-butyl ether (MTBE)	ND	120	250	02/06/2017 12:44
Methylene chloride	ND	120	250	02/06/2017 12:44
4-Methyl-2-pentanone (MIBK)	ND	120	250	02/06/2017 12:44
Naphthalene	ND	120	250	02/06/2017 12:44
n-Propyl benzene	ND	120	250	02/06/2017 12:44
Styrene	ND	120	250	02/06/2017 12:44
1,1,1,2-Tetrachloroethane	ND	120	250	02/06/2017 12:44
1,1,2,2-Tetrachloroethane	ND	120	250	02/06/2017 12:44
Tetrachloroethene	ND	120	250	02/06/2017 12:44
Toluene	ND	120	250	02/06/2017 12:44
1,2,3-Trichlorobenzene	ND	120	250	02/06/2017 12:44
1,2,4-Trichlorobenzene	ND	120	250	02/06/2017 12:44
1,1,1-Trichloroethane	ND	120	250	02/06/2017 12:44
1,1,2-Trichloroethane	ND	120	250	02/06/2017 12:44
Trichloroethene	6100	120	250	02/06/2017 12:44
Trichlorofluoromethane	ND	120	250	02/06/2017 12:44
1,2,3-Trichloropropane	ND	120	250	02/06/2017 12:44
1,2,4-Trimethylbenzene	ND	120	250	02/06/2017 12:44
1,3,5-Trimethylbenzene	ND	120	250	02/06/2017 12:44
Vinyl Chloride	ND	120	250	02/06/2017 12:44
Xylenes, Total	ND	120	250	02/06/2017 12:44

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/4/17-2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-GW	1702156-014B	Water	02/02/2017 07:51	GC18	133695

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	102	70-130		02/06/2017 12:44
Toluene-d8	104	70-130		02/06/2017 12:44
4-BFB	97	70-130		02/06/2017 12:44
<u>Analyst(s):</u> AK	<u>Analytical Comments:</u> b1			



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/4/17-2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-GW	1702156-015B	Water	02/02/2017 08:04	GC18	133694

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	1000	100	02/06/2017 13:23
tert-Amyl methyl ether (TAME)	ND	50	100	02/06/2017 13:23
Benzene	ND	50	100	02/06/2017 13:23
Bromobenzene	ND	50	100	02/06/2017 13:23
Bromochloromethane	ND	50	100	02/06/2017 13:23
Bromodichloromethane	ND	50	100	02/06/2017 13:23
Bromoform	ND	50	100	02/06/2017 13:23
Bromomethane	ND	50	100	02/06/2017 13:23
2-Butanone (MEK)	ND	200	100	02/06/2017 13:23
t-Butyl alcohol (TBA)	ND	200	100	02/06/2017 13:23
n-Butyl benzene	ND	50	100	02/06/2017 13:23
sec-Butyl benzene	ND	50	100	02/06/2017 13:23
tert-Butyl benzene	ND	50	100	02/06/2017 13:23
Carbon Disulfide	ND	50	100	02/06/2017 13:23
Carbon Tetrachloride	ND	50	100	02/06/2017 13:23
Chlorobenzene	ND	50	100	02/06/2017 13:23
Chloroethane	ND	50	100	02/06/2017 13:23
Chloroform	ND	50	100	02/06/2017 13:23
Chloromethane	ND	50	100	02/06/2017 13:23
2-Chlorotoluene	ND	50	100	02/06/2017 13:23
4-Chlorotoluene	ND	50	100	02/06/2017 13:23
Dibromochloromethane	ND	50	100	02/06/2017 13:23
1,2-Dibromo-3-chloropropane	ND	20	100	02/06/2017 13:23
1,2-Dibromoethane (EDB)	ND	50	100	02/06/2017 13:23
Dibromomethane	ND	50	100	02/06/2017 13:23
1,2-Dichlorobenzene	ND	50	100	02/06/2017 13:23
1,3-Dichlorobenzene	ND	50	100	02/06/2017 13:23
1,4-Dichlorobenzene	ND	50	100	02/06/2017 13:23
Dichlorodifluoromethane	ND	50	100	02/06/2017 13:23
1,1-Dichloroethane	ND	50	100	02/06/2017 13:23
1,2-Dichloroethane (1,2-DCA)	ND	50	100	02/06/2017 13:23
1,1-Dichloroethene	ND	50	100	02/06/2017 13:23
cis-1,2-Dichloroethene	1600	50	100	02/06/2017 13:23
trans-1,2-Dichloroethene	ND	50	100	02/06/2017 13:23
1,2-Dichloropropane	ND	50	100	02/06/2017 13:23
1,3-Dichloropropane	ND	50	100	02/06/2017 13:23
2,2-Dichloropropane	ND	50	100	02/06/2017 13:23

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Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/4/17-2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-GW	1702156-015B	Water	02/02/2017 08:04	GC18	133694

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	50	100	02/06/2017 13:23
cis-1,3-Dichloropropene	ND	50	100	02/06/2017 13:23
trans-1,3-Dichloropropene	ND	50	100	02/06/2017 13:23
Diisopropyl ether (DIPE)	ND	50	100	02/06/2017 13:23
Ethylbenzene	ND	50	100	02/06/2017 13:23
Ethyl tert-butyl ether (ETBE)	ND	50	100	02/06/2017 13:23
Freon 113	ND	50	100	02/06/2017 13:23
Hexachlorobutadiene	ND	50	100	02/06/2017 13:23
Hexachloroethane	ND	50	100	02/06/2017 13:23
2-Hexanone	ND	50	100	02/06/2017 13:23
Isopropylbenzene	ND	50	100	02/06/2017 13:23
4-Isopropyl toluene	ND	50	100	02/06/2017 13:23
Methyl-t-butyl ether (MTBE)	ND	50	100	02/06/2017 13:23
Methylene chloride	ND	50	100	02/06/2017 13:23
4-Methyl-2-pentanone (MIBK)	ND	50	100	02/06/2017 13:23
Naphthalene	ND	50	100	02/06/2017 13:23
n-Propyl benzene	ND	50	100	02/06/2017 13:23
Styrene	ND	50	100	02/06/2017 13:23
1,1,1,2-Tetrachloroethane	ND	50	100	02/06/2017 13:23
1,1,2,2-Tetrachloroethane	ND	50	100	02/06/2017 13:23
Tetrachloroethene	ND	50	100	02/06/2017 13:23
Toluene	ND	50	100	02/06/2017 13:23
1,2,3-Trichlorobenzene	ND	50	100	02/06/2017 13:23
1,2,4-Trichlorobenzene	ND	50	100	02/06/2017 13:23
1,1,1-Trichloroethane	ND	50	100	02/06/2017 13:23
1,1,2-Trichloroethane	ND	50	100	02/06/2017 13:23
Trichloroethene	590	50	100	02/06/2017 13:23
Trichlorofluoromethane	ND	50	100	02/06/2017 13:23
1,2,3-Trichloropropane	ND	50	100	02/06/2017 13:23
1,2,4-Trimethylbenzene	ND	50	100	02/06/2017 13:23
1,3,5-Trimethylbenzene	ND	50	100	02/06/2017 13:23
Vinyl Chloride	ND	50	100	02/06/2017 13:23
Xylenes, Total	ND	50	100	02/06/2017 13:23

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/4/17-2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-GW	1702156-015B	Water	02/02/2017 08:04	GC18	133694

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	103	70-130		02/06/2017 13:23
Toluene-d8	102	70-130		02/06/2017 13:23
4-BFB	104	70-130		02/06/2017 13:23
<u>Analyst(s):</u> AK	<u>Analytical Comments:</u> b1			



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-21-10.0	1702156-002A	Soil	02/02/2017 08:52	GC35	133543

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/03/2017 18:01
Acenaphthylene	ND	0.010	1	02/03/2017 18:01
Anthracene	ND	0.010	1	02/03/2017 18:01
Benzo (a) anthracene	ND	0.010	1	02/03/2017 18:01
Benzo (a) pyrene	ND	0.010	1	02/03/2017 18:01
Benzo (b) fluoranthene	ND	0.010	1	02/03/2017 18:01
Benzo (g,h,i) perylene	ND	0.010	1	02/03/2017 18:01
Benzo (k) fluoranthene	ND	0.010	1	02/03/2017 18:01
Chrysene	ND	0.010	1	02/03/2017 18:01
Dibenzo (a,h) anthracene	ND	0.010	1	02/03/2017 18:01
Fluoranthene	ND	0.010	1	02/03/2017 18:01
Fluorene	ND	0.010	1	02/03/2017 18:01
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/03/2017 18:01
1-Methylnaphthalene	ND	0.010	1	02/03/2017 18:01
2-Methylnaphthalene	ND	0.010	1	02/03/2017 18:01
Naphthalene	ND	0.010	1	02/03/2017 18:01
Phenanthrene	ND	0.010	1	02/03/2017 18:01
Pyrene	ND	0.010	1	02/03/2017 18:01
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	67	30-130		02/03/2017 18:01
2-Fluorobiphenyl	65	30-130		02/03/2017 18:01

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-10.0	1702156-006A	Soil	02/01/2017 14:22	GC35	133543

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/03/2017 18:26
Acenaphthylene	ND	0.010	1	02/03/2017 18:26
Anthracene	ND	0.010	1	02/03/2017 18:26
Benzo (a) anthracene	ND	0.010	1	02/03/2017 18:26
Benzo (a) pyrene	ND	0.010	1	02/03/2017 18:26
Benzo (b) fluoranthene	ND	0.010	1	02/03/2017 18:26
Benzo (g,h,i) perylene	ND	0.010	1	02/03/2017 18:26
Benzo (k) fluoranthene	ND	0.010	1	02/03/2017 18:26
Chrysene	ND	0.010	1	02/03/2017 18:26
Dibenzo (a,h) anthracene	ND	0.010	1	02/03/2017 18:26
Fluoranthene	ND	0.010	1	02/03/2017 18:26
Fluorene	ND	0.010	1	02/03/2017 18:26
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/03/2017 18:26
1-Methylnaphthalene	ND	0.010	1	02/03/2017 18:26
2-Methylnaphthalene	ND	0.010	1	02/03/2017 18:26
Naphthalene	ND	0.010	1	02/03/2017 18:26
Phenanthrene	ND	0.010	1	02/03/2017 18:26
Pyrene	ND	0.010	1	02/03/2017 18:26
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
1-Fluoronaphthalene	67	30-130		02/03/2017 18:26
2-Fluorobiphenyl	64	30-130		02/03/2017 18:26

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-8.0	1702156-009A	Soil	02/01/2017 13:02	GC35	133543

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/03/2017 18:51
Acenaphthylene	ND	0.010	1	02/03/2017 18:51
Anthracene	ND	0.010	1	02/03/2017 18:51
Benzo (a) anthracene	ND	0.010	1	02/03/2017 18:51
Benzo (a) pyrene	ND	0.010	1	02/03/2017 18:51
Benzo (b) fluoranthene	ND	0.010	1	02/03/2017 18:51
Benzo (g,h,i) perylene	ND	0.010	1	02/03/2017 18:51
Benzo (k) fluoranthene	ND	0.010	1	02/03/2017 18:51
Chrysene	ND	0.010	1	02/03/2017 18:51
Dibenzo (a,h) anthracene	ND	0.010	1	02/03/2017 18:51
Fluoranthene	ND	0.010	1	02/03/2017 18:51
Fluorene	ND	0.010	1	02/03/2017 18:51
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/03/2017 18:51
1-Methylnaphthalene	ND	0.010	1	02/03/2017 18:51
2-Methylnaphthalene	ND	0.010	1	02/03/2017 18:51
Naphthalene	ND	0.010	1	02/03/2017 18:51
Phenanthrene	ND	0.010	1	02/03/2017 18:51
Pyrene	ND	0.010	1	02/03/2017 18:51
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	67	30-130		02/03/2017 18:51
2-Fluorobiphenyl	65	30-130		02/03/2017 18:51

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-10.0	1702156-010A	Soil	02/01/2017 13:16	GC35	133543

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/08/2017 20:47
Acenaphthylene	ND	0.010	1	02/08/2017 20:47
Anthracene	ND	0.010	1	02/08/2017 20:47
Benzo (a) anthracene	ND	0.010	1	02/08/2017 20:47
Benzo (a) pyrene	ND	0.010	1	02/08/2017 20:47
Benzo (b) fluoranthene	ND	0.010	1	02/08/2017 20:47
Benzo (g,h,i) perylene	ND	0.010	1	02/08/2017 20:47
Benzo (k) fluoranthene	ND	0.010	1	02/08/2017 20:47
Chrysene	ND	0.010	1	02/08/2017 20:47
Dibenzo (a,h) anthracene	ND	0.010	1	02/08/2017 20:47
Fluoranthene	ND	0.010	1	02/08/2017 20:47
Fluorene	0.013	0.010	1	02/08/2017 20:47
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/08/2017 20:47
1-Methylnaphthalene	0.021	0.010	1	02/08/2017 20:47
2-Methylnaphthalene	0.032	0.010	1	02/08/2017 20:47
Naphthalene	0.012	0.010	1	02/08/2017 20:47
Phenanthrene	0.037	0.010	1	02/08/2017 20:47
Pyrene	0.012	0.010	1	02/08/2017 20:47
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	100	30-130		02/08/2017 20:47
2-Fluorobiphenyl	96	30-130		02/08/2017 20:47

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-15.0	1702156-011A	Soil	02/01/2017 13:28	GC35	133543

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/07/2017 16:59
Acenaphthylene	ND	0.010	1	02/07/2017 16:59
Anthracene	ND	0.010	1	02/07/2017 16:59
Benzo (a) anthracene	ND	0.010	1	02/07/2017 16:59
Benzo (a) pyrene	ND	0.010	1	02/07/2017 16:59
Benzo (b) fluoranthene	ND	0.010	1	02/07/2017 16:59
Benzo (g,h,i) perylene	ND	0.010	1	02/07/2017 16:59
Benzo (k) fluoranthene	ND	0.010	1	02/07/2017 16:59
Chrysene	ND	0.010	1	02/07/2017 16:59
Dibenzo (a,h) anthracene	ND	0.010	1	02/07/2017 16:59
Fluoranthene	ND	0.010	1	02/07/2017 16:59
Fluorene	ND	0.010	1	02/07/2017 16:59
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/07/2017 16:59
1-Methylnaphthalene	ND	0.010	1	02/07/2017 16:59
2-Methylnaphthalene	ND	0.010	1	02/07/2017 16:59
Naphthalene	ND	0.010	1	02/07/2017 16:59
Phenanthrene	ND	0.010	1	02/07/2017 16:59
Pyrene	ND	0.010	1	02/07/2017 16:59
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	98	30-130		02/07/2017 16:59
2-Fluorobiphenyl	96	30-130		02/07/2017 16:59

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-20.0	1702156-012A	Soil	02/01/2017 13:51	GC35	133543

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/06/2017 15:00
Acenaphthylene	ND	0.010	1	02/06/2017 15:00
Anthracene	ND	0.010	1	02/06/2017 15:00
Benzo (a) anthracene	ND	0.010	1	02/06/2017 15:00
Benzo (a) pyrene	ND	0.010	1	02/06/2017 15:00
Benzo (b) fluoranthene	ND	0.010	1	02/06/2017 15:00
Benzo (g,h,i) perylene	ND	0.010	1	02/06/2017 15:00
Benzo (k) fluoranthene	ND	0.010	1	02/06/2017 15:00
Chrysene	ND	0.010	1	02/06/2017 15:00
Dibenzo (a,h) anthracene	ND	0.010	1	02/06/2017 15:00
Fluoranthene	ND	0.010	1	02/06/2017 15:00
Fluorene	ND	0.010	1	02/06/2017 15:00
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/06/2017 15:00
1-Methylnaphthalene	ND	0.010	1	02/06/2017 15:00
2-Methylnaphthalene	ND	0.010	1	02/06/2017 15:00
Naphthalene	ND	0.010	1	02/06/2017 15:00
Phenanthrene	ND	0.010	1	02/06/2017 15:00
Pyrene	ND	0.010	1	02/06/2017 15:00
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	61	30-130		02/06/2017 15:00
2-Fluorobiphenyl	59	30-130		02/06/2017 15:00

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-21-GW	1702156-013C	Water	02/02/2017 10:45	GC35	133548

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.50	1	02/07/2017 17:49
Acenaphthylene	ND	0.50	1	02/07/2017 17:49
Anthracene	ND	0.50	1	02/07/2017 17:49
Benzo (a) anthracene	ND	0.50	1	02/07/2017 17:49
Benzo (a) pyrene	ND	0.50	1	02/07/2017 17:49
Benzo (b) fluoranthene	ND	0.50	1	02/07/2017 17:49
Benzo (g,h,i) perylene	ND	0.50	1	02/07/2017 17:49
Benzo (k) fluoranthene	ND	0.50	1	02/07/2017 17:49
Chrysene	ND	0.50	1	02/07/2017 17:49
Dibenzo (a,h) anthracene	ND	0.50	1	02/07/2017 17:49
Fluoranthene	ND	0.50	1	02/07/2017 17:49
Fluorene	ND	0.50	1	02/07/2017 17:49
Indeno (1,2,3-cd) pyrene	ND	0.50	1	02/07/2017 17:49
1-Methylnaphthalene	ND	0.50	1	02/07/2017 17:49
2-Methylnaphthalene	ND	0.50	1	02/07/2017 17:49
Naphthalene	ND	0.50	1	02/07/2017 17:49
Phenanthrene	ND	0.50	1	02/07/2017 17:49
Pyrene	ND	0.50	1	02/07/2017 17:49

Surrogates	REC (%)	Limits	Date Analyzed
1-Fluoronaphthalene	84	30-130	02/07/2017 17:49
2-Fluorobiphenyl	78	30-130	02/07/2017 17:49

Analyst(s): REB

Analytical Comments: b1

(Cont.)

NELAP 4033O RELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-GW	1702156-014C	Water	02/02/2017 07:51	GC35	133548

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.50	1	02/07/2017 18:14
Acenaphthylene	ND	0.50	1	02/07/2017 18:14
Anthracene	ND	0.50	1	02/07/2017 18:14
Benzo (a) anthracene	ND	0.50	1	02/07/2017 18:14
Benzo (a) pyrene	ND	0.50	1	02/07/2017 18:14
Benzo (b) fluoranthene	ND	0.50	1	02/07/2017 18:14
Benzo (g,h,i) perylene	ND	0.50	1	02/07/2017 18:14
Benzo (k) fluoranthene	ND	0.50	1	02/07/2017 18:14
Chrysene	ND	0.50	1	02/07/2017 18:14
Dibenzo (a,h) anthracene	ND	0.50	1	02/07/2017 18:14
Fluoranthene	ND	0.50	1	02/07/2017 18:14
Fluorene	ND	0.50	1	02/07/2017 18:14
Indeno (1,2,3-cd) pyrene	ND	0.50	1	02/07/2017 18:14
1-Methylnaphthalene	ND	0.50	1	02/07/2017 18:14
2-Methylnaphthalene	ND	0.50	1	02/07/2017 18:14
Naphthalene	ND	0.50	1	02/07/2017 18:14
Phenanthrene	ND	0.50	1	02/07/2017 18:14
Pyrene	ND	0.50	1	02/07/2017 18:14

Surrogates	REC (%)	Limits	Date Analyzed
1-Fluoronaphthalene	85	30-130	02/07/2017 18:14
2-Fluorobiphenyl	73	30-130	02/07/2017 18:14

Analyst(s): REB

Analytical Comments: b1



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-GW	1702156-015C	Water	02/02/2017 08:04	GC35	133548

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	1.0	2	02/08/2017 14:10
Acenaphthylene	ND	1.0	2	02/08/2017 14:10
Anthracene	ND	1.0	2	02/08/2017 14:10
Benzo (a) anthracene	ND	1.0	2	02/08/2017 14:10
Benzo (a) pyrene	ND	1.0	2	02/08/2017 14:10
Benzo (b) fluoranthene	ND	1.0	2	02/08/2017 14:10
Benzo (g,h,i) perylene	ND	1.0	2	02/08/2017 14:10
Benzo (k) fluoranthene	ND	1.0	2	02/08/2017 14:10
Chrysene	ND	1.0	2	02/08/2017 14:10
Dibenzo (a,h) anthracene	ND	1.0	2	02/08/2017 14:10
Fluoranthene	ND	1.0	2	02/08/2017 14:10
Fluorene	3.3	1.0	2	02/08/2017 14:10
Indeno (1,2,3-cd) pyrene	ND	1.0	2	02/08/2017 14:10
1-Methylnaphthalene	2.8	1.0	2	02/08/2017 14:10
2-Methylnaphthalene	3.4	1.0	2	02/08/2017 14:10
Naphthalene	3.5	1.0	2	02/08/2017 14:10
Phenanthrene	ND	1.0	2	02/08/2017 14:10
Pyrene	1.4	1.0	2	02/08/2017 14:10

Surrogates	REC (%)	Limits	Date Analyzed
1-Fluoronaphthalene	74	30-130	02/08/2017 14:10
2-Fluorobiphenyl	53	30-130	02/08/2017 14:10

Analyst(s): REB

Analytical Comments: b1



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-21-10.0	1702156-002A	Soil	02/02/2017 08:52	GC19	133584

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/04/2017 02:27
MTBE	---	0.050	1	02/04/2017 02:27
Benzene	---	0.0050	1	02/04/2017 02:27
Toluene	---	0.0050	1	02/04/2017 02:27
Ethylbenzene	---	0.0050	1	02/04/2017 02:27
Xylenes	---	0.015	1	02/04/2017 02:27

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	83	69-117	02/04/2017 02:27

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-10.0	1702156-006A	Soil	02/01/2017 14:22	GC19	133584

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/04/2017 02:58
MTBE	---	0.050	1	02/04/2017 02:58
Benzene	---	0.0050	1	02/04/2017 02:58
Toluene	---	0.0050	1	02/04/2017 02:58
Ethylbenzene	---	0.0050	1	02/04/2017 02:58
Xylenes	---	0.015	1	02/04/2017 02:58

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	82	69-117	02/04/2017 02:58

Analyst(s): IA



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-8.0	1702156-009A	Soil	02/01/2017 13:02	GC19	133584

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/04/2017 03:29
MTBE	---	0.050	1	02/04/2017 03:29
Benzene	---	0.0050	1	02/04/2017 03:29
Toluene	---	0.0050	1	02/04/2017 03:29
Ethylbenzene	---	0.0050	1	02/04/2017 03:29
Xylenes	---	0.015	1	02/04/2017 03:29

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	78	69-117	02/04/2017 03:29

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-10.0	1702156-010A	Soil	02/01/2017 13:16	GC19	133584

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	12	1.0	1	02/04/2017 03:59
MTBE	---	0.050	1	02/04/2017 03:59
Benzene	---	0.0050	1	02/04/2017 03:59
Toluene	---	0.0050	1	02/04/2017 03:59
Ethylbenzene	---	0.0050	1	02/04/2017 03:59
Xylenes	---	0.015	1	02/04/2017 03:59

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	85	69-117	02/04/2017 03:59

Analyst(s): IA

Analytical Comments: d7



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-15.0	1702156-011A	Soil	02/01/2017 13:28	GC19	133584

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/04/2017 04:30
MTBE	---	0.050	1	02/04/2017 04:30
Benzene	---	0.0050	1	02/04/2017 04:30
Toluene	---	0.0050	1	02/04/2017 04:30
Ethylbenzene	---	0.0050	1	02/04/2017 04:30
Xylenes	---	0.015	1	02/04/2017 04:30
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	84	69-117		02/04/2017 04:30

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-20.0	1702156-012A	Soil	02/01/2017 13:51	GC19	133584

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/04/2017 05:01
MTBE	---	0.050	1	02/04/2017 05:01
Benzene	---	0.0050	1	02/04/2017 05:01
Toluene	---	0.0050	1	02/04/2017 05:01
Ethylbenzene	---	0.0050	1	02/04/2017 05:01
Xylenes	---	0.015	1	02/04/2017 05:01
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	85	69-117		02/04/2017 05:01

Analyst(s): IA



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-21-GW	1702156-013A	Water	02/02/2017 10:45	GC3	133618

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	50	1	02/03/2017 12:26
MTBE	---	5.0	1	02/03/2017 12:26
Benzene	---	0.50	1	02/03/2017 12:26
Toluene	---	0.50	1	02/03/2017 12:26
Ethylbenzene	---	0.50	1	02/03/2017 12:26
Xylenes	---	1.5	1	02/03/2017 12:26

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
aaa-TFT	934	S	89-115	02/03/2017 12:26

Analyst(s): IA

Analytical Comments: c4,b1

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-GW	1702156-014A	Water	02/02/2017 07:51	GC3	133618

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	120	50	1	02/03/2017 11:55
MTBE	---	30	1	02/03/2017 11:55
Benzene	---	0.50	1	02/03/2017 11:55
Toluene	---	0.50	1	02/03/2017 11:55
Ethylbenzene	---	0.50	1	02/03/2017 11:55
Xylenes	---	1.5	1	02/03/2017 11:55

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
aaa-TFT	3367	S	89-115	02/03/2017 11:55

Analyst(s): IA

Analytical Comments: d6,c4,b1



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-GW	1702156-015A	Water	02/02/2017 08:04	GC12	133702

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	1400	500	10	02/03/2017 15:13
MTBE	---	50	10	02/03/2017 15:13
Benzene	---	5.0	10	02/03/2017 15:13
Toluene	---	5.0	10	02/03/2017 15:13
Ethylbenzene	---	5.0	10	02/03/2017 15:13
Xylenes	---	15	10	02/03/2017 15:13

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
aaa-TFT	603	S	89-115	02/03/2017 15:13

Analyst(s): IA

Analytical Comments: d7,d6,c4,b6,b1



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-21-10.0	1702156-002A	Soil	02/02/2017 08:52	GC9b	133573

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/04/2017 09:56
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/04/2017 09:56

Surrogates	REC (%)	Limits	Date Analyzed
C9	90	72-114	02/04/2017 09:56

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-10.0	1702156-006A	Soil	02/01/2017 14:22	GC9b	133573

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/04/2017 11:14
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/04/2017 11:14

Surrogates	REC (%)	Limits	Date Analyzed
C9	89	72-114	02/04/2017 11:14

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-8.0	1702156-009A	Soil	02/01/2017 13:02	GC9b	133573

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/04/2017 08:38
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/04/2017 08:38

Surrogates	REC (%)	Limits	Date Analyzed
C9	90	72-114	02/04/2017 08:38

Analyst(s): TK



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-10.0	1702156-010A	Soil	02/01/2017 13:16	GC9b	133585

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	70	1.0	1	02/03/2017 20:59
TPH-Motor Oil (C18-C36)	180	5.0	1	02/03/2017 20:59

Surrogates	REC (%)	Limits	Date Analyzed
C9	90	72-114	02/03/2017 20:59

Analyst(s): TK **Analytical Comments:** e7,e2,e11

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-15.0	1702156-011A	Soil	02/01/2017 13:28	GC9b	133585

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/04/2017 04:06
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/04/2017 04:06

Surrogates	REC (%)	Limits	Date Analyzed
C9	90	72-114	02/04/2017 04:06

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-20.0	1702156-012A	Soil	02/01/2017 13:51	GC9b	133585

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/04/2017 07:20
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/04/2017 07:20

Surrogates	REC (%)	Limits	Date Analyzed
C9	90	72-114	02/04/2017 07:20

Analyst(s): TK



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/2/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW3510C
Analytical Method: SW8015B
Unit: µg/L

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-21-GW	1702156-013A	Water	02/02/2017 10:45	GC6A	133525

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	100	1	02/03/2017 15:16
TPH-Motor Oil (C18-C36)	510	500	1	02/03/2017 15:16

Surrogates	REC (%)	Limits	Date Analyzed
C9	100	72-117	02/03/2017 15:16

Analyst(s): TK **Analytical Comments:** e7,a3,b1

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-GW	1702156-014A	Water	02/02/2017 07:51	GC9a	133525

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	100	1	02/03/2017 10:25
TPH-Motor Oil (C18-C36)	680	500	1	02/03/2017 10:25

Surrogates	REC (%)	Limits	Date Analyzed
C9	97	72-117	02/03/2017 10:25

Analyst(s): TK **Analytical Comments:** e7,a3,b1

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-24-GW	1702156-015A	Water	02/02/2017 08:04	GC11B	133525

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	250,000	20,000	200	02/07/2017 04:20
TPH-Motor Oil (C18-C36)	500,000	100,000	200	02/07/2017 04:20

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
C9	250	S	72-117	02/07/2017 04:20

Analyst(s): TK **Analytical Comments:** e7,e2,e11,c2,b6,b1



Quality Control Report

Client: Langan
Date Prepared: 2/2/17
Date Analyzed: 2/2/17 - 2/3/17
Instrument: GC10
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133574
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133574
 1702133-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0458	0.0050	0.050	-	92	53-116
Benzene	ND	0.0493	0.0050	0.050	-	99	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.199	0.050	0.20	-	100	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0484	0.0050	0.050	-	97	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0479	0.0040	0.050	-	96	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0473	0.0040	0.050	-	95	58-135
1,1-Dichloroethene	ND	0.0488	0.0050	0.050	-	98	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-

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NELAP 4033ORELAP

QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/2/17
Date Analyzed: 2/2/17 - 2/3/17
Instrument: GC10
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133574
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133574
 1702133-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
Diisopropyl ether (DIPE)	ND	0.0487	0.0050	0.050	-	97	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0494	0.0050	0.050	-	99	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0485	0.0050	0.050	-	97	58-122
Methylene chloride	0.01013	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0526	0.0050	0.050	-	105	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0507	0.0050	0.050	-	101	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-

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NELAP 4033ORELAP

QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/2/17
Date Analyzed: 2/2/17 - 2/3/17
Instrument: GC10
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133574
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133574
 1702133-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.1247	0.130		0.12	100	104	70-130
Toluene-d8	0.152	0.146		0.12	122	117	70-130
4-BFB	0.01425	0.0147		0.012	114	117	70-130
Benzene-d6	0.1112	0.107		0.10	111	107	60-140
Ethylbenzene-d10	0.1402	0.126		0.10	140	126	60-140
1,2-DCB-d4	0.1021	0.0965		0.10	102	96	60-140

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0444	0.0456	0.050	ND	89	91	53-116	2.50	20
Benzene	0.0467	0.0482	0.050	ND	93	96	63-137	3.25	20
t-Butyl alcohol (TBA)	0.189	0.190	0.20	ND	95	95	41-135	0	20
Chlorobenzene	0.0459	0.0469	0.050	ND	92	94	77-121	2.13	20
1,2-Dibromoethane (EDB)	0.0450	0.0464	0.050	ND	90	93	67-119	2.87	20
1,2-Dichloroethane (1,2-DCA)	0.0444	0.0462	0.050	ND	89	93	58-135	4.19	20
1,1-Dichloroethene	0.0461	0.0465	0.050	ND	92	93	42-145	0.950	20
Diisopropyl ether (DIPE)	0.0463	0.0464	0.050	ND	93	93	52-129	0	20
Ethyl tert-butyl ether (ETBE)	0.0475	0.0485	0.050	ND	95	97	53-125	2.08	20
Methyl-t-butyl ether (MTBE)	0.0464	0.0470	0.050	ND	93	94	58-122	1.23	20
Toluene	0.0506	0.0518	0.050	ND	101	104	76-130	2.32	20
Trichloroethene	0.0489	0.0502	0.050	ND	98	100	72-132	2.65	20

Surrogate Recovery									
Dibromofluoromethane	0.129	0.128	0.12		103	103	70-130	0	20
Toluene-d8	0.147	0.148	0.12		117	118	70-130	0.706	20
4-BFB	0.0151	0.0151	0.012		121	121	70-130	0	20
Benzene-d6	0.0993	0.103	0.10		99	103	60-140	3.34	20
Ethylbenzene-d10	0.113	0.118	0.10		113	118	60-140	4.44	20
1,2-DCB-d4	0.0909	0.0939	0.10		91	94	60-140	3.29	20



Quality Control Report

Client: Langan
Date Prepared: 2/2/17
Date Analyzed: 2/4/17 - 2/5/17
Instrument: GC16
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133586
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133586
 1702156-012AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0370	0.0050	0.050	-	74	53-116
Benzene	ND	0.0428	0.0050	0.050	-	86	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.156	0.050	0.20	-	78	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0439	0.0050	0.050	-	88	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0415	0.0040	0.050	-	83	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0430	0.0040	0.050	-	86	58-135
1,1-Dichloroethene	ND	0.0418	0.0050	0.050	-	84	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-

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NELAP 4033ORELAP

QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/2/17
Date Analyzed: 2/4/17 - 2/5/17
Instrument: GC16
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133586
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133586
 1702156-012AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
Diisopropyl ether (DIPE)	ND	0.0412	0.0050	0.050	-	82	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0410	0.0050	0.050	-	82	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0403	0.0050	0.050	-	81	58-122
Methylene chloride	ND	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0467	0.0050	0.050	-	93	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0430	0.0050	0.050	-	86	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-



Quality Control Report

Client: Langan
Date Prepared: 2/2/17
Date Analyzed: 2/4/17 - 2/5/17
Instrument: GC16
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133586
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133586
 1702156-012AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.1119	0.115		0.12	90	92	70-130
Toluene-d8	0.1347	0.128		0.12	108	103	70-130
4-BFB	0.01491	0.0133		0.012	119	106	70-130
Benzene-d6	0.1019	0.0941		0.10	102	94	60-140
Ethylbenzene-d10	0.1227	0.106		0.10	123	106	60-140
1,2-DCB-d4	0.08664	0.0811		0.10	87	81	60-140

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0359	0.0364	0.050	ND	72	73	53-116	1.35	20
Benzene	0.0394	0.0398	0.050	ND	79	80	63-137	1.07	20
t-Butyl alcohol (TBA)	0.152	0.157	0.20	ND	76	78	41-135	2.97	20
Chlorobenzene	0.0407	0.0418	0.050	ND	81	84	77-121	2.47	20
1,2-Dibromoethane (EDB)	0.0395	0.0397	0.050	ND	79	79	67-119	0	20
1,2-Dichloroethane (1,2-DCA)	0.0406	0.0412	0.050	ND	81	82	58-135	1.25	20
1,1-Dichloroethene	0.0401	0.0396	0.050	ND	80	79	42-145	1.20	20
Diisopropyl ether (DIPE)	0.0392	0.0394	0.050	ND	78	79	52-129	0.574	20
Ethyl tert-butyl ether (ETBE)	0.0395	0.0398	0.050	ND	79	80	53-125	0.934	20
Methyl-t-butyl ether (MTBE)	0.0389	0.0395	0.050	ND	78	79	58-122	1.49	20
Toluene	0.0432	0.0435	0.050	ND	86	87	76-130	0.634	20
Trichloroethene	0.104	0.0846	0.050	0.02990	149,F1	110	72-132	20.9,F1	20
Surrogate Recovery									
Dibromofluoromethane	0.117	0.116	0.12		93	93	70-130	0	20
Toluene-d8	0.126	0.126	0.12		101	101	70-130	0	20
4-BFB	0.0138	0.0139	0.012		110	111	70-130	1.08	20
Benzene-d6	0.0862	0.0864	0.10		86	86	60-140	0	20
Ethylbenzene-d10	0.0980	0.0989	0.10		98	99	60-140	0.949	20
1,2-DCB-d4	0.0799	0.0796	0.10		80	80	60-140	0	20



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17
Instrument: GC18
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133694
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS/LCSD-133694
 1702183-001BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Acetone	ND	10	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.50	-	-	-
Benzene	ND	0.50	-	-	-
Bromobenzene	ND	0.50	-	-	-
Bromochloromethane	ND	0.50	-	-	-
Bromodichloromethane	ND	0.50	-	-	-
Bromoform	ND	0.50	-	-	-
Bromomethane	ND	0.50	-	-	-
2-Butanone (MEK)	ND	2.0	-	-	-
t-Butyl alcohol (TBA)	ND	2.0	-	-	-
n-Butyl benzene	ND	0.50	-	-	-
sec-Butyl benzene	ND	0.50	-	-	-
tert-Butyl benzene	ND	0.50	-	-	-
Carbon Disulfide	ND	0.50	-	-	-
Carbon Tetrachloride	ND	0.50	-	-	-
Chlorobenzene	ND	0.50	-	-	-
Chloroethane	ND	0.50	-	-	-
Chloroform	ND	0.50	-	-	-
Chloromethane	ND	0.50	-	-	-
2-Chlorotoluene	ND	0.50	-	-	-
4-Chlorotoluene	ND	0.50	-	-	-
Dibromochloromethane	ND	0.50	-	-	-
1,2-Dibromo-3-chloropropane	ND	0.20	-	-	-
1,2-Dibromoethane (EDB)	ND	0.50	-	-	-
Dibromomethane	ND	0.50	-	-	-
1,2-Dichlorobenzene	ND	0.50	-	-	-
1,3-Dichlorobenzene	ND	0.50	-	-	-
1,4-Dichlorobenzene	ND	0.50	-	-	-
Dichlorodifluoromethane	ND	0.50	-	-	-
1,1-Dichloroethane	ND	0.50	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.50	-	-	-
1,1-Dichloroethene	ND	0.50	-	-	-
cis-1,2-Dichloroethene	ND	0.50	-	-	-
trans-1,2-Dichloroethene	ND	0.50	-	-	-
1,2-Dichloropropane	ND	0.50	-	-	-
1,3-Dichloropropane	ND	0.50	-	-	-
2,2-Dichloropropane	ND	0.50	-	-	-
1,1-Dichloropropene	ND	0.50	-	-	-
cis-1,3-Dichloropropene	ND	0.50	-	-	-

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NELAP 4033ORELAP

QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17
Instrument: GC18
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133694
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS/LCSD-133694
 1702183-001BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
trans-1,3-Dichloropropene	ND	0.50	-	-	-
Diisopropyl ether (DIPE)	ND	0.50	-	-	-
Ethylbenzene	ND	0.50	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.50	-	-	-
Freon 113	ND	0.50	-	-	-
Hexachlorobutadiene	ND	0.50	-	-	-
Hexachloroethane	ND	0.50	-	-	-
2-Hexanone	ND	0.50	-	-	-
Isopropylbenzene	ND	0.50	-	-	-
4-Isopropyl toluene	ND	0.50	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.50	-	-	-
Methylene chloride	ND	0.50	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	0.50	-	-	-
Naphthalene	ND	0.50	-	-	-
n-Propyl benzene	ND	0.50	-	-	-
Styrene	ND	0.50	-	-	-
1,1,1,2-Tetrachloroethane	ND	0.50	-	-	-
1,1,2,2-Tetrachloroethane	ND	0.50	-	-	-
Tetrachloroethene	ND	0.50	-	-	-
Toluene	ND	0.50	-	-	-
1,2,3-Trichlorobenzene	ND	0.50	-	-	-
1,2,4-Trichlorobenzene	ND	0.50	-	-	-
1,1,1-Trichloroethane	ND	0.50	-	-	-
1,1,2-Trichloroethane	ND	0.50	-	-	-
Trichloroethene	ND	0.50	-	-	-
Trichlorofluoromethane	ND	0.50	-	-	-
1,2,3-Trichloropropane	ND	0.50	-	-	-
1,2,4-Trimethylbenzene	ND	0.50	-	-	-
1,3,5-Trimethylbenzene	ND	0.50	-	-	-
Vinyl Chloride	ND	0.50	-	-	-
Xylenes, Total	ND	0.50	-	-	-

Surrogate Recovery

Dibromofluoromethane	25.48		25	102	70-130
Toluene-d8	26.05		25	104	70-130
4-BFB	2.438		2.5	98	70-130



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17
Instrument: GC18
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133694
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS/LCSD-133694
 1702183-001BMS/MSD

QC Summary Report for SW8260B

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	10.6	11.2	10	106	112	54-140	4.91	20
Benzene	10.4	10.4	10	104	104	47-158	0	20
t-Butyl alcohol (TBA)	39.9	37.0	40	100	93	42-140	7.51	20
Chlorobenzene	10.5	10.6	10	105	106	43-157	1.38	20
1,2-Dibromoethane (EDB)	10.3	10.2	10	103	102	44-155	0.662	20
1,2-Dichloroethane (1,2-DCA)	10.0	9.99	10	100	100	66-125	0	20
1,1-Dichloroethene	9.92	10.9	10	99	109	47-149	9.52	20
Diisopropyl ether (DIPE)	10.6	10.5	10	106	105	57-136	0.589	20
Ethyl tert-butyl ether (ETBE)	11.0	10.7	10	109	107	55-137	2.04	20
Methyl-t-butyl ether (MTBE)	10.5	10.2	10	105	102	53-139	2.02	20
Toluene	10.7	10.8	10	107	108	52-137	0.938	20
Trichloroethene	11.4	10.9	10	114	109	43-157	4.94	20

Surrogate Recovery

Dibromofluoromethane	25.8	25.6	25	103	102	70-130	0.953	20
Toluene-d8	26.1	26.1	25	105	104	70-130	0.257	20
4-BFB	2.46	2.48	2.5	98	99	70-130	0.854	20

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	10.6	10.6	10	ND	105	106	69-139	0.376	20
Benzene	9.88	9.73	10	ND	99	97	69-141	1.57	20
t-Butyl alcohol (TBA)	37.0	38.4	40	ND	92	96	41-152	3.96	20
Chlorobenzene	9.91	9.78	10	ND	99	98	77-120	1.24	20
1,2-Dibromoethane (EDB)	9.79	9.78	10	ND	98	98	76-135	0	20
1,2-Dichloroethane (1,2-DCA)	9.80	9.68	10	ND	98	97	73-139	1.21	20
1,1-Dichloroethene	9.99	9.86	10	ND	100	99	59-140	1.29	20
Diisopropyl ether (DIPE)	10.4	10.3	10	ND	104	103	72-140	1.12	20
Ethyl tert-butyl ether (ETBE)	10.7	10.6	10	ND	107	106	71-140	0.309	20
Methyl-t-butyl ether (MTBE)	10.1	10.0	10	ND	101	100	73-139	0.999	20
Toluene	9.91	9.78	10	ND	99	98	71-128	1.32	20
Trichloroethene	10.2	10.1	10	ND	101	99	64-132	1.53	20

Surrogate Recovery

Dibromofluoromethane	26.4	26.5	25		106	106	73-131	0	20
Toluene-d8	25.5	25.5	25		102	102	72-117	0	20
4-BFB	2.47	2.51	2.5		99	100	74-116	1.42	20



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17
Instrument: GC16
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133695
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS/LCSD-133695

QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Acetone	ND	10	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.50	-	-	-
Benzene	ND	0.50	-	-	-
Bromobenzene	ND	0.50	-	-	-
Bromochloromethane	ND	0.50	-	-	-
Bromodichloromethane	ND	0.50	-	-	-
Bromoform	ND	0.50	-	-	-
Bromomethane	ND	0.50	-	-	-
2-Butanone (MEK)	ND	2.0	-	-	-
t-Butyl alcohol (TBA)	ND	2.0	-	-	-
n-Butyl benzene	ND	0.50	-	-	-
sec-Butyl benzene	ND	0.50	-	-	-
tert-Butyl benzene	ND	0.50	-	-	-
Carbon Disulfide	ND	0.50	-	-	-
Carbon Tetrachloride	ND	0.50	-	-	-
Chlorobenzene	ND	0.50	-	-	-
Chloroethane	ND	0.50	-	-	-
Chloroform	ND	0.50	-	-	-
Chloromethane	ND	0.50	-	-	-
2-Chlorotoluene	ND	0.50	-	-	-
4-Chlorotoluene	ND	0.50	-	-	-
Dibromochloromethane	ND	0.50	-	-	-
1,2-Dibromo-3-chloropropane	ND	0.20	-	-	-
1,2-Dibromoethane (EDB)	ND	0.50	-	-	-
Dibromomethane	ND	0.50	-	-	-
1,2-Dichlorobenzene	ND	0.50	-	-	-
1,3-Dichlorobenzene	ND	0.50	-	-	-
1,4-Dichlorobenzene	ND	0.50	-	-	-
Dichlorodifluoromethane	ND	0.50	-	-	-
1,1-Dichloroethane	ND	0.50	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.50	-	-	-
1,1-Dichloroethene	ND	0.50	-	-	-
cis-1,2-Dichloroethene	ND	0.50	-	-	-
trans-1,2-Dichloroethene	ND	0.50	-	-	-
1,2-Dichloropropane	ND	0.50	-	-	-
1,3-Dichloropropane	ND	0.50	-	-	-
2,2-Dichloropropane	ND	0.50	-	-	-
1,1-Dichloropropene	ND	0.50	-	-	-
cis-1,3-Dichloropropene	ND	0.50	-	-	-

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NELAP 4033ORELAP

QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17
Instrument: GC16
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133695
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS/LCSD-133695

QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
trans-1,3-Dichloropropene	ND	0.50	-	-	-
Diisopropyl ether (DIPE)	ND	0.50	-	-	-
Ethylbenzene	ND	0.50	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.50	-	-	-
Freon 113	ND	0.50	-	-	-
Hexachlorobutadiene	ND	0.50	-	-	-
Hexachloroethane	ND	0.50	-	-	-
2-Hexanone	ND	0.50	-	-	-
Isopropylbenzene	ND	0.50	-	-	-
4-Isopropyl toluene	ND	0.50	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.50	-	-	-
Methylene chloride	ND	0.50	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	0.50	-	-	-
Naphthalene	ND	0.50	-	-	-
n-Propyl benzene	ND	0.50	-	-	-
Styrene	ND	0.50	-	-	-
1,1,1,2-Tetrachloroethane	ND	0.50	-	-	-
1,1,2,2-Tetrachloroethane	ND	0.50	-	-	-
Tetrachloroethene	ND	0.50	-	-	-
Toluene	ND	0.50	-	-	-
1,2,3-Trichlorobenzene	ND	0.50	-	-	-
1,2,4-Trichlorobenzene	ND	0.50	-	-	-
1,1,1-Trichloroethane	ND	0.50	-	-	-
1,1,2-Trichloroethane	ND	0.50	-	-	-
Trichloroethene	ND	0.50	-	-	-
Trichlorofluoromethane	ND	0.50	-	-	-
1,2,3-Trichloropropane	ND	0.50	-	-	-
1,2,4-Trimethylbenzene	ND	0.50	-	-	-
1,3,5-Trimethylbenzene	ND	0.50	-	-	-
Vinyl Chloride	ND	0.50	-	-	-
Xylenes, Total	ND	0.50	-	-	-
Surrogate Recovery					
Dibromofluoromethane	23.56		25	94	70-130
Toluene-d8	23.84		25	95	70-130
4-BFB	2.608		2.5	104	70-130



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17
Instrument: GC16
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133695
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS/LCSD-133695

QC Summary Report for SW8260B

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	9.93	10.2	10	99	101	54-140	2.20	20
Benzene	9.78	9.90	10	98	99	47-158	1.17	20
t-Butyl alcohol (TBA)	45.6	53.8	40	114	135	42-140	16.6	20
Chlorobenzene	9.75	9.89	10	97	99	43-157	1.48	20
1,2-Dibromoethane (EDB)	10.2	10.5	10	102	105	44-155	3.00	20
1,2-Dichloroethane (1,2-DCA)	9.89	9.86	10	99	99	66-125	0	20
1,1-Dichloroethene	9.72	9.86	10	97	99	47-149	1.38	20
Diisopropyl ether (DIPE)	10.1	10.2	10	101	102	57-136	1.48	20
Ethyl tert-butyl ether (ETBE)	10.4	10.6	10	104	105	55-137	1.51	20
Methyl-t-butyl ether (MTBE)	10.3	10.5	10	103	105	53-139	2.49	20
Toluene	9.75	9.86	10	97	99	52-137	1.15	20
Trichloroethene	10.2	10.2	10	102	102	43-157	0	20
Surrogate Recovery								
Dibromofluoromethane	24.1	24.2	25	96	97	70-130	0.706	20
Toluene-d8	23.2	23.3	25	93	93	70-130	0	20
4-BFB	2.53	2.52	2.5	101	101	70-130	0	20



Quality Control Report

Client: Langan
Date Prepared: 2/2/17
Date Analyzed: 2/2/17 - 2/3/17
Instrument: GC35
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133543
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg
Sample ID: MB/LCS-133543
 1701D78-008AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	-	0.010	-	-	-	-
Acenaphthylene	ND	-	0.010	-	-	-	-
Anthracene	ND	-	0.010	-	-	-	-
Benzo (a) anthracene	ND	-	0.010	-	-	-	-
Benzo (a) pyrene	ND	0.0907	0.010	0.20	-	45	23-129
Benzo (b) fluoranthene	ND	-	0.010	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.010	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.010	-	-	-	-
Chrysene	ND	0.0990	0.010	0.20	-	50	38-104
Dibenzo (a,h) anthracene	ND	-	0.010	-	-	-	-
Fluoranthene	ND	-	0.010	-	-	-	-
Fluorene	ND	-	0.010	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.010	-	-	-	-
1-Methylnaphthalene	ND	0.129	0.010	0.20	-	65	59-106
2-Methylnaphthalene	ND	0.124	0.010	0.20	-	62	54-108
Naphthalene	ND	-	0.010	-	-	-	-
Phenanthrene	ND	0.114	0.010	0.20	-	57	48-107
Pyrene	ND	0.0911	0.010	0.20	-	46	40-104

Surrogate Recovery

1-Fluoronaphthalene	0.3042	0.313		0.50	61	63	63-123
2-Fluorobiphenyl	0.2935	0.300		0.50	59	60	55-127

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Benzo (a) pyrene	NR	NR		0.24	NR	NR	-	NR	
Chrysene	NR	NR		0.63	NR	NR	-	NR	
1-Methylnaphthalene	NR	NR		0.62	NR	NR	-	NR	
2-Methylnaphthalene	NR	NR		0.75	NR	NR	-	NR	
Phenanthrene	NR	NR		7.7	NR	NR	-	NR	
Pyrene	NR	NR		2.1	NR	NR	-	NR	

Surrogate Recovery

1-Fluoronaphthalene	NR	NR			NR	NR	-	NR	
2-Fluorobiphenyl	NR	NR			NR	NR	-	NR	



Quality Control Report

Client: Langan
Date Prepared: 2/2/17
Date Analyzed: 2/7/17
Instrument: GC35
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133548
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L
Sample ID: MB/LCS/LCSD-133548

QC Summary Report for SW8270C

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Acenaphthene	ND	0.50	-	-	-
Acenaphthylene	ND	0.50	-	-	-
Anthracene	ND	0.50	-	-	-
Benzo (a) anthracene	ND	0.50	-	-	-
Benzo (a) pyrene	ND	0.50	-	-	-
Benzo (b) fluoranthene	ND	0.50	-	-	-
Benzo (g,h,i) perylene	ND	0.50	-	-	-
Benzo (k) fluoranthene	ND	0.50	-	-	-
Chrysene	ND	0.50	-	-	-
Dibenzo (a,h) anthracene	ND	0.50	-	-	-
Fluoranthene	ND	0.50	-	-	-
Fluorene	ND	0.50	-	-	-
Indeno (1,2,3-cd) pyrene	ND	0.50	-	-	-
1-Methylnaphthalene	ND	0.50	-	-	-
2-Methylnaphthalene	ND	0.50	-	-	-
Naphthalene	ND	0.50	-	-	-
Phenanthrene	ND	0.50	-	-	-
Pyrene	ND	0.50	-	-	-

Surrogate Recovery

1-Fluoronaphthalene	23.06		25	92	30-130
2-Fluorobiphenyl	23.43		25	94	30-130

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Benzo (a) pyrene	5.98	8.61	10	60	86	12-152	36.0,F2	25
Chrysene	6.81	8.79	10	68	88	28-116	25.3,F2	25
1-Methylnaphthalene	9.26	11.0	10	93	110	48-125	17.0	25
2-Methylnaphthalene	8.76	9.92	10	88	99	41-124	12.3	25
Phenanthrene	8.18	10.4	10	82	104	36-123	23.4	25
Pyrene	7.48	9.58	10	75	96	29-118	24.7	25

Surrogate Recovery

1-Fluoronaphthalene	18.3	22.6	25	73	91	45-129	21.3	25
2-Fluorobiphenyl	17.9	22.7	25	72	91	47-125	23.4	25



Quality Control Report

Client: Langan
Date Prepared: 2/2/17
Date Analyzed: 2/3/17
Instrument: GC19
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133584
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-133584
 1702156-010AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	0.632	0.40	0.60	-	105	89-118
MTBE	ND	0.108	0.050	0.10	-	108	68-116
Benzene	ND	0.122	0.0050	0.10	-	122, F2	85-118
Toluene	ND	0.122	0.0050	0.10	-	122, F2	87-121
Ethylbenzene	ND	0.118	0.0050	0.10	-	118	91-124
Xylenes	ND	0.344	0.015	0.30	-	115	92-126
Surrogate Recovery							
2-Fluorotoluene	0.09976	0.102		0.10	100	102	88-119

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	NR	NR		ND	NR	NR	-	NR	
MTBE	NR	NR		ND	NR	NR	-	NR	
Benzene	NR	NR		ND	NR	NR	-	NR	
Toluene	NR	NR		ND	NR	NR	-	NR	
Ethylbenzene	NR	NR		ND	NR	NR	-	NR	
Xylenes	NR	NR		ND	NR	NR	-	NR	
Surrogate Recovery									
2-Fluorotoluene	NR	NR			NR	NR	-	NR	



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17
Instrument: GC3
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133618
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L
Sample ID: MB/LCS-133618
 1702142-001IMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	56.6	40	60	-	94	85-112
MTBE	ND	10.9	5.0	10	-	109	74-127
Benzene	ND	10.8	0.50	10	-	108	81-124
Toluene	ND	11.0	0.50	10	-	110	79-131
Ethylbenzene	ND	11.3	0.50	10	-	113	86-127
Xylenes	ND	35.4	1.5	30	-	118	87-133
Surrogate Recovery							
aaa-TFT	10.44	10.2		10	104	102	87-117

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	64.2	61.0	60	ND	107	102	85-113	5.09	20
MTBE	11.6	11.4	10	ND	117	114	73-120	2.31	20
Benzene	10.6	10.4	10	ND	106	104	84-121	2.24	20
Toluene	10.7	10.5	10	ND	107	105	86-125	2.06	20
Ethylbenzene	11.1	10.7	10	ND	110	106	93-124	3.73	20
Xylenes	35.2	34.0	30	ND	116	112	93-130	3.36	20
Surrogate Recovery									
aaa-TFT	9.75	9.82	10		97	98	89-115	0.768	20



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17
Instrument: GC12
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133702
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L
Sample ID: MB/LCS-133702
 1702094-017AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	56.7	40	60	-	95	85-112
MTBE	ND	9.47	5.0	10	-	95	74-127
Benzene	ND	10.3	0.50	10	-	103	81-124
Toluene	ND	10.3	0.50	10	-	103	79-131
Ethylbenzene	ND	10.1	0.50	10	-	101	86-127
Xylenes	ND	30.3	1.5	30	-	101	87-133
Surrogate Recovery							
aaa-TFT	9.69	9.83		10	97	98	87-117

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	56.8	57.0	60	ND	95	95	85-113	0	20
MTBE	9.46	9.44	10	ND	95	94	73-120	0.171	20
Benzene	10.4	10.3	10	ND	104	103	84-121	0.262	20
Toluene	10.4	10.4	10	ND	104	104	86-125	0	20
Ethylbenzene	10.2	10.2	10	ND	102	102	93-124	0	20
Xylenes	30.4	30.2	30	ND	101	101	93-130	0	20
Surrogate Recovery									
aaa-TFT	9.82	9.81	10		98	98	89-115	0	20



Quality Control Report

Client: Langan
Date Prepared: 2/2/17
Date Analyzed: 2/2/17 - 2/3/17
Instrument: GC9a, GC9b
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133573
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg
Sample ID: MB/LCS-133573
 1702134-001AMS/MSD

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	39.2	1.0	40	-	98	91-127
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	22.6	24.3		25	90	97	74-110

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	NR	NR		3.2	NR	NR	-	NR	
Surrogate Recovery									
C9	NR	NR			NR	NR	-	NR	



Quality Control Report

Client: Langan
Date Prepared: 2/2/17
Date Analyzed: 2/3/17
Instrument: GC9a, GC9b
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133585
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg
Sample ID: MB/LCS-133585
 1702156-010AMS/MSD

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	45.5	1.0	40	-	114	91-127
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	22.36	24.4		25	89	98	74-110

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	NR	NR	40	69.67	NR	NR	74-143	NR	30
Surrogate Recovery									
C9	22.6	22.5	25		90	90	72-114	0	30



Quality Control Report

Client: Langan	WorkOrder: 1702156
Date Prepared: 2/1/17	BatchID: 133525
Date Analyzed: 2/2/17	Extraction Method: SW3510C
Instrument: GC9a	Analytical Method: SW8015B
Matrix: Water	Unit: µg/L
Project: 750635602; 260 30th Street	Sample ID: MB/LCS/LCSD-133525

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
TPH-Diesel (C10-C23)	ND	50	-	-	-
TPH-Motor Oil (C18-C36)	ND	250	-	-	-
Surrogate Recovery					
C9	607		625	97	74-107

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	1060	1040	1000	106	104	95-136	1.72	30
Surrogate Recovery								
C9	613	612	625	98	98	74-107	0	30

1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1702156

ClientCode: TWRK

WaterTrax
 WriteOn
 EDF
 Excel
 EQUS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Josh Graber
 Langan
 501 14th Street, 3rd Floor
 Oakland, CA 94612
 (415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
 cc/3rd Party: kstaehlin@langan.com;
 PO:
 ProjectNo: 750635602; 260 30th Street

Bill to:

Accounts Payable
 Langan
 555 Montgomery St., Suite 1300
 San Francisco, CA 94111
 Langan_InvoiceCapture@concur.soluio

Requested TAT: 3 days;

Date Received: 02/02/2017

Date Logged: 02/02/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1702156-002	B-21-10.0	Soil	2/2/2017 08:52	<input type="checkbox"/>	A		A		A		A					
1702156-006	B-22-10.0	Soil	2/1/2017 14:22	<input type="checkbox"/>	A		A		A		A					
1702156-009	B-24-8.0	Soil	2/1/2017 13:02	<input type="checkbox"/>	A		A		A		A					
1702156-010	B-24-10.0	Soil	2/1/2017 13:16	<input type="checkbox"/>	A		A		A		A					
1702156-011	B-24-15.0	Soil	2/1/2017 13:28	<input type="checkbox"/>	A		A		A		A					
1702156-012	B-24-20.0	Soil	2/1/2017 13:51	<input type="checkbox"/>	A		A		A		A					
1702156-013	B-21-GW	Water	2/2/2017 10:45	<input type="checkbox"/>		B		C		A		A				
1702156-014	B-22-GW	Water	2/2/2017 07:51	<input type="checkbox"/>		B		C		A		A				
1702156-015	B-24-GW	Water	2/2/2017 08:04	<input type="checkbox"/>		B		C		A		A				

Test Legend:

1	8260B_S	2	8260B_W	3	8270_PNA_S	4	8270_PNA_W
5	G-MBTX_S	6	G-MBTX_W	7	TPH(DMO)_S	8	TPH(DMO)_W
9		10		11		12	

Prepared by: Jena Alfaro

The following SampIDs: 002A, 006A, 009A, 010A, 011A, 012A contain testgroup Multi Range_S.; The following SampIDs: 013A, 014A, 015A contain testgroup Multi Range_W.

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days). Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Josh Graber
Contact's Email: jdgraber@treadwellrollo.com

Project: 750635602; 260 30th Street

Work Order: 1702156
QC Level: LEVEL 2
Date Logged: 2/2/2017

Comments:

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1702156-001A	B-21-8.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/2/2017 8:45			<input checked="" type="checkbox"/>	
1702156-002A	B-21-10.0	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm	1	Acetate Liner	<input type="checkbox"/>	2/2/2017 8:52	3 days		<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>		3 days		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>		3 days		<input type="checkbox"/>	
1702156-003A	B-21-15.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/2/2017 9:19			<input checked="" type="checkbox"/>	
1702156-004A	B-21-20	Soil		1	Acetate Liner	<input type="checkbox"/>	2/2/2017 9:25			<input checked="" type="checkbox"/>	
1702156-005A	B-22-8.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/1/2017 14:11			<input checked="" type="checkbox"/>	
1702156-006A	B-22-10.0	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm	1	Acetate Liner	<input type="checkbox"/>	2/1/2017 14:22	3 days		<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>		3 days		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>		3 days		<input type="checkbox"/>	
1702156-007A	B-22-15.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/1/2017 15:16			<input checked="" type="checkbox"/>	
1702156-008A	B-22-20.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/1/2017 15:26			<input checked="" type="checkbox"/>	
1702156-009A	B-24-8.0	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm	1	Acetate Liner	<input type="checkbox"/>	2/1/2017 13:02	3 days		<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>		3 days		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>		3 days		<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Josh Graber
Contact's Email: jdgraber@treadwellrollo.com

Project: 750635602; 260 30th Street

Work Order: 1702156
QC Level: LEVEL 2
Date Logged: 2/2/2017

Comments:

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut	
1702156-010A	B-24-10.0	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm	1	Acetate Liner	<input type="checkbox"/>	2/1/2017 13:16	3 days			<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>					3 days	<input type="checkbox"/>
			SW8260B (VOCs)			<input type="checkbox"/>					3 days	<input type="checkbox"/>
1702156-011A	B-24-15.0	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm	1	Acetate Liner	<input type="checkbox"/>	2/1/2017 13:28	3 days			<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>					3 days	<input type="checkbox"/>
			SW8260B (VOCs)			<input type="checkbox"/>					3 days	<input type="checkbox"/>
1702156-012A	B-24-20.0	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm	1	Acetate Liner	<input type="checkbox"/>	2/1/2017 13:51	3 days			<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>					3 days	<input type="checkbox"/>
			SW8260B (VOCs)			<input type="checkbox"/>					3 days	<input type="checkbox"/>
1702156-013A	B-21-GW	Water	Multi-Range TPH(g,d,mo) by EPA 8015Bm	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	<input type="checkbox"/>	2/2/2017 10:45	3 days	35%+		<input type="checkbox"/>	
1702156-013B	B-21-GW	Water	SW8260B (VOCs)	2	VOA w/ HCl	<input type="checkbox"/>	2/2/2017 10:45	3 days	35%+		<input type="checkbox"/>	
1702156-013C	B-21-GW	Water	SW8270C (PAHs/PNAs)	1	ILA	<input type="checkbox"/>	2/2/2017 10:45	3 days	35%+		<input type="checkbox"/>	
1702156-014A	B-22-GW	Water	Multi-Range TPH(g,d,mo) by EPA 8015Bm	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	<input type="checkbox"/>	2/2/2017 7:51	3 days	35%+		<input type="checkbox"/>	
1702156-014B	B-22-GW	Water	SW8260B (VOCs)	2	VOA w/ HCl	<input type="checkbox"/>	2/2/2017 7:51	3 days	35%+		<input type="checkbox"/>	
1702156-014C	B-22-GW	Water	SW8270C (PAHs/PNAs)	1	ILA	<input type="checkbox"/>	2/2/2017 7:51	3 days	35%+		<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Josh Graber
Contact's Email: jdgraber@treadwellrollo.com

Project: 750635602; 260 30th Street

Work Order: 1702156
QC Level: LEVEL 2
Date Logged: 2/2/2017

Comments:

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1702156-015A	B-24-GW	Water	Multi-Range TPH(g,d,mo) by EPA 8015Bm	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	<input type="checkbox"/>	2/2/2017 8:04	3 days	35%+	<input type="checkbox"/>	
1702156-015B	B-24-GW	Water	SW8260B (VOCs)	2	VOA w/ HCl	<input type="checkbox"/>	2/2/2017 8:04	3 days	35%+	<input type="checkbox"/>	
1702156-015C	B-24-GW	Water	SW8270C (PAHs/PNAs)	1	ILA	<input type="checkbox"/>	2/2/2017 8:04	3 days	35%+	<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).
- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

PHASE II

1702156

*PLEASE C.C. ANNIE S. AT * 10289
KSTAEHLIN@LANGAN.COM

LANGAN

CHAIN OF CUSTODY RECORD

- 555 Montgomery Street, Suite 1300, San Francisco, CA 94111
- 501 14th Street, Third Floor, Oakland CA 94612
- 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
- 4030 Moorpark Ave. Suite 210, San Jose, CA 95117-1849

RUSH

Site Name: 260 30TH STREET
 Job Number: 750635602
 Project Manager/Contact: JOH GRABER
 Samplers: KSS
 Recorder (Signature Required): [Signature]

Turnaround Time
72-HOUR

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix & Preservative								Analysis Requested				Silica gel clean-up	Hold	Remarks					
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH g/d, mg	VOCS	PAHs	CAM-17								
B-21-8.0	2/2/17	0845		X																			
B-21-10.0		0852		X									X	X	X								
B-21-15.0		0919		X																			
B-21-20	2/2/17	0925		X																			
B-22-8.0	2/1/17	1411		X																			
B-22-10.0		1422		X									X	X	X								
B-22-15.0		1516		X																			
B-22-20.0		1526		X																			
B-24-8.0		1302		X									X	X	X								
B-24-10.0		1316		X									X	X	X								
B-24-15.0		1328		X									X	X	X								
B-24-20.0	2/1/17	1351		X									X	X	X								

Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>2-2-17</u>	Time: <u>1640</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>2-2-17</u>	Time: <u>1330</u>
Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>2-2-17</u>	Time: <u>1640</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>2/2/17</u>	Time: <u>1640</u>
Relinquished by: (Signature) _____	Date: _____	Time: _____	Received by Lab: (Signature) _____	Date: _____	Time: _____

Sent to Laboratory (Name): McCAMPBELL ANALYTICAL
 Laboratory Comments/Notes: _____
 Method of Shipment: Lab courier Fed Ex Airborne UPS
 Hand Carried Private Courier (Co. Name) _____

PHASE II

* PLEASE C.C. ANNE S. *
AT KSTAEHLINK@LANGAN.COM 10291

LANGAN

CHAIN OF CUSTODY RECORD

- 555 Montgomery Street. Suite 1300, San Francisco, CA 94111
- 501 14th Street, Third Floor, Oakland CA 94612
- 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
- 4030 Moorpark Ave. Suite 210, San Jose, CA 95117-1849

Site Name: 260 30TH STREET
 Job Number: 750635602
 Project Manager/Contact: JOSH GRABER
 Samplers: KSS
 Recorder (Signature Required): [Signature]

Turnaround Time <u>72-HOUR</u>

Analysis Requested

No. Containers
& Preservative

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix				No. Containers & Preservative				TPH and/or VOCs PAHs	Silica gel clean-up	Hold	Remarks	
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice					
<u>B-21-GW</u>	<u>2/2/17</u>	<u>1045</u>		<input checked="" type="checkbox"/>				<u>4</u>								
<u>B-22-GW</u>		<u>0751</u>		<input checked="" type="checkbox"/>				<u>4</u>								
<u>B-24-GW</u>		<u>0804</u>		<input checked="" type="checkbox"/>				<u>4</u>								

Relinquished by: (Signature)	Date:	Time	Received by: (Signature)	Date	Time
<u>[Signature]</u>	<u>2-2-17</u>	<u>1640</u>	<u>[Signature]</u>	<u>2-2-17</u>	<u>1330</u>
Relinquished by: (Signature)	Date:	Time	Received by: (Signature)	Date	Time
<u>[Signature]</u>	<u>2-2-17</u>	<u>1045</u>	<u>[Signature]</u>	<u>2/2/17</u>	<u>1040</u>
Relinquished by: (Signature)	Date:	Time	Received by Lab: (Signature)	Date	Time

Sent to Laboratory (Name): McCAMPBELL ANALYTICAL
 Laboratory Comments/Notes: _____

Method of Shipment Lab courier Fed Ex Airborne UPS
 Hand Carried Private Courier (Co. Name) _____



Sample Receipt Checklist

Client Name: **Langan**
 Project Name: **750635602; 260 30th Street**

Date and Time Received: **2/2/2017 16:40**
 Date Logged: **2/2/2017**
 Received by: **Jena Alfaro**
 Logged by: **Jena Alfaro**

WorkOrder No: **1702156** Matrix: Soil/Water
 Carrier: Bernie Cummins (MAI Courier)

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
 Sample/Temp Blank temperature Temp: 5.8°C NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No
 (Ice Type: WET ICE)

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1702156 A

Report Created for: Langan

501 14th Street, 3rd Floor
Oakland, CA 94612

Project Contact: Josh Graber

Project P.O.:

Project Name: 750635602; 260 30th Street

Project Received: 02/02/2017

Analytical Report reviewed & approved for release on 02/09/2017 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702156

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702156

Analytical Qualifiers

S	surrogate spike recovery outside accepted recovery limits
a3	sample diluted due to high organic content.
b1	aqueous sample that contains greater than ~1 vol. % sediment
b6	lighter than water immiscible sheen/product is present
c2	surrogate recovery outside of the control limits due to matrix interference.
c4	surrogate recovery outside of the control limits due to coelution with another peak(s) / cluttered chromatogram.
d6	one to a few isolated non-target peaks present in the TPH(g) chromatogram
d7	strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram
e2	diesel range compounds are significant; no recognizable pattern
e7	oil range compounds are significant
e11	stoddard solvent/mineral spirit (?)

Quality Control Qualifiers

F1	MS/MSD recovery and/or RPD is out of acceptance criteria; LCS validates the prep batch.
F2	LCS/LCSD recovery and/or RPD is out of acceptance criteria.
F3	the surrogate standard recovery and/or RPD is outside of acceptance limits.



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-15.0	1702156-007A	Soil	02/01/2017 15:16	GC28	133781

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/07/2017 23:13
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/07/2017 23:13
Benzene	ND	0.0050	1	02/07/2017 23:13
Bromobenzene	ND	0.0050	1	02/07/2017 23:13
Bromochloromethane	ND	0.0050	1	02/07/2017 23:13
Bromodichloromethane	ND	0.0050	1	02/07/2017 23:13
Bromoform	ND	0.0050	1	02/07/2017 23:13
Bromomethane	ND	0.0050	1	02/07/2017 23:13
2-Butanone (MEK)	ND	0.020	1	02/07/2017 23:13
t-Butyl alcohol (TBA)	ND	0.050	1	02/07/2017 23:13
n-Butyl benzene	ND	0.0050	1	02/07/2017 23:13
sec-Butyl benzene	ND	0.0050	1	02/07/2017 23:13
tert-Butyl benzene	ND	0.0050	1	02/07/2017 23:13
Carbon Disulfide	ND	0.0050	1	02/07/2017 23:13
Carbon Tetrachloride	ND	0.0050	1	02/07/2017 23:13
Chlorobenzene	ND	0.0050	1	02/07/2017 23:13
Chloroethane	ND	0.0050	1	02/07/2017 23:13
Chloroform	ND	0.0050	1	02/07/2017 23:13
Chloromethane	ND	0.0050	1	02/07/2017 23:13
2-Chlorotoluene	ND	0.0050	1	02/07/2017 23:13
4-Chlorotoluene	ND	0.0050	1	02/07/2017 23:13
Dibromochloromethane	ND	0.0050	1	02/07/2017 23:13
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/07/2017 23:13
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/07/2017 23:13
Dibromomethane	ND	0.0050	1	02/07/2017 23:13
1,2-Dichlorobenzene	ND	0.0050	1	02/07/2017 23:13
1,3-Dichlorobenzene	ND	0.0050	1	02/07/2017 23:13
1,4-Dichlorobenzene	ND	0.0050	1	02/07/2017 23:13
Dichlorodifluoromethane	ND	0.0050	1	02/07/2017 23:13
1,1-Dichloroethane	ND	0.0050	1	02/07/2017 23:13
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/07/2017 23:13
1,1-Dichloroethene	ND	0.0050	1	02/07/2017 23:13
cis-1,2-Dichloroethene	ND	0.0050	1	02/07/2017 23:13
trans-1,2-Dichloroethene	ND	0.0050	1	02/07/2017 23:13
1,2-Dichloropropane	ND	0.0050	1	02/07/2017 23:13
1,3-Dichloropropane	ND	0.0050	1	02/07/2017 23:13
2,2-Dichloropropane	ND	0.0050	1	02/07/2017 23:13

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-15.0	1702156-007A	Soil	02/01/2017 15:16	GC28	133781

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/07/2017 23:13
cis-1,3-Dichloropropene	ND	0.0050	1	02/07/2017 23:13
trans-1,3-Dichloropropene	ND	0.0050	1	02/07/2017 23:13
Diisopropyl ether (DIPE)	ND	0.0050	1	02/07/2017 23:13
Ethylbenzene	ND	0.0050	1	02/07/2017 23:13
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/07/2017 23:13
Freon 113	ND	0.0050	1	02/07/2017 23:13
Hexachlorobutadiene	ND	0.0050	1	02/07/2017 23:13
Hexachloroethane	ND	0.0050	1	02/07/2017 23:13
2-Hexanone	ND	0.0050	1	02/07/2017 23:13
Isopropylbenzene	ND	0.0050	1	02/07/2017 23:13
4-Isopropyl toluene	ND	0.0050	1	02/07/2017 23:13
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/07/2017 23:13
Methylene chloride	ND	0.0050	1	02/07/2017 23:13
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/07/2017 23:13
Naphthalene	ND	0.0050	1	02/07/2017 23:13
n-Propyl benzene	ND	0.0050	1	02/07/2017 23:13
Styrene	ND	0.0050	1	02/07/2017 23:13
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/07/2017 23:13
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/07/2017 23:13
Tetrachloroethene	ND	0.0050	1	02/07/2017 23:13
Toluene	ND	0.0050	1	02/07/2017 23:13
1,2,3-Trichlorobenzene	ND	0.0050	1	02/07/2017 23:13
1,2,4-Trichlorobenzene	ND	0.0050	1	02/07/2017 23:13
1,1,1-Trichloroethane	ND	0.0050	1	02/07/2017 23:13
1,1,2-Trichloroethane	ND	0.0050	1	02/07/2017 23:13
Trichloroethene	ND	0.0050	1	02/07/2017 23:13
Trichlorofluoromethane	ND	0.0050	1	02/07/2017 23:13
1,2,3-Trichloropropane	ND	0.0050	1	02/07/2017 23:13
1,2,4-Trimethylbenzene	ND	0.0050	1	02/07/2017 23:13
1,3,5-Trimethylbenzene	ND	0.0050	1	02/07/2017 23:13
Vinyl Chloride	ND	0.0050	1	02/07/2017 23:13
Xylenes, Total	ND	0.0050	1	02/07/2017 23:13

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-15.0	1702156-007A	Soil	02/01/2017 15:16	GC28	133781

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	98		70-130	02/07/2017 23:13
Toluene-d8	116		70-130	02/07/2017 23:13
4-BFB	107		70-130	02/07/2017 23:13
Benzene-d6	91		60-140	02/07/2017 23:13
Ethylbenzene-d10	106		60-140	02/07/2017 23:13
1,2-DCB-d4	85		60-140	02/07/2017 23:13

Analyst(s): HK



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-20.0	1702156-008A	Soil	02/01/2017 15:26	GC10	133781
Analytes	Result	RL	DF	Date Analyzed	
Acetone	ND	0.10	1	02/07/2017 23:13	
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/07/2017 23:13	
Benzene	ND	0.0050	1	02/07/2017 23:13	
Bromobenzene	ND	0.0050	1	02/07/2017 23:13	
Bromochloromethane	ND	0.0050	1	02/07/2017 23:13	
Bromodichloromethane	ND	0.0050	1	02/07/2017 23:13	
Bromoform	ND	0.0050	1	02/07/2017 23:13	
Bromomethane	ND	0.0050	1	02/07/2017 23:13	
2-Butanone (MEK)	ND	0.020	1	02/07/2017 23:13	
t-Butyl alcohol (TBA)	ND	0.050	1	02/07/2017 23:13	
n-Butyl benzene	ND	0.0050	1	02/07/2017 23:13	
sec-Butyl benzene	ND	0.0050	1	02/07/2017 23:13	
tert-Butyl benzene	ND	0.0050	1	02/07/2017 23:13	
Carbon Disulfide	ND	0.0050	1	02/07/2017 23:13	
Carbon Tetrachloride	ND	0.0050	1	02/07/2017 23:13	
Chlorobenzene	ND	0.0050	1	02/07/2017 23:13	
Chloroethane	ND	0.0050	1	02/07/2017 23:13	
Chloroform	ND	0.0050	1	02/07/2017 23:13	
Chloromethane	ND	0.0050	1	02/07/2017 23:13	
2-Chlorotoluene	ND	0.0050	1	02/07/2017 23:13	
4-Chlorotoluene	ND	0.0050	1	02/07/2017 23:13	
Dibromochloromethane	ND	0.0050	1	02/07/2017 23:13	
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/07/2017 23:13	
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/07/2017 23:13	
Dibromomethane	ND	0.0050	1	02/07/2017 23:13	
1,2-Dichlorobenzene	ND	0.0050	1	02/07/2017 23:13	
1,3-Dichlorobenzene	ND	0.0050	1	02/07/2017 23:13	
1,4-Dichlorobenzene	ND	0.0050	1	02/07/2017 23:13	
Dichlorodifluoromethane	ND	0.0050	1	02/07/2017 23:13	
1,1-Dichloroethane	ND	0.0050	1	02/07/2017 23:13	
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/07/2017 23:13	
1,1-Dichloroethene	ND	0.0050	1	02/07/2017 23:13	
cis-1,2-Dichloroethene	ND	0.0050	1	02/07/2017 23:13	
trans-1,2-Dichloroethene	ND	0.0050	1	02/07/2017 23:13	
1,2-Dichloropropane	ND	0.0050	1	02/07/2017 23:13	
1,3-Dichloropropane	ND	0.0050	1	02/07/2017 23:13	
2,2-Dichloropropane	ND	0.0050	1	02/07/2017 23:13	

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-20.0	1702156-008A	Soil	02/01/2017 15:26	GC10	133781

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/07/2017 23:13
cis-1,3-Dichloropropene	ND	0.0050	1	02/07/2017 23:13
trans-1,3-Dichloropropene	ND	0.0050	1	02/07/2017 23:13
Diisopropyl ether (DIPE)	ND	0.0050	1	02/07/2017 23:13
Ethylbenzene	ND	0.0050	1	02/07/2017 23:13
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/07/2017 23:13
Freon 113	ND	0.0050	1	02/07/2017 23:13
Hexachlorobutadiene	ND	0.0050	1	02/07/2017 23:13
Hexachloroethane	ND	0.0050	1	02/07/2017 23:13
2-Hexanone	ND	0.0050	1	02/07/2017 23:13
Isopropylbenzene	ND	0.0050	1	02/07/2017 23:13
4-Isopropyl toluene	ND	0.0050	1	02/07/2017 23:13
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/07/2017 23:13
Methylene chloride	ND	0.0050	1	02/07/2017 23:13
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/07/2017 23:13
Naphthalene	ND	0.0050	1	02/07/2017 23:13
n-Propyl benzene	ND	0.0050	1	02/07/2017 23:13
Styrene	ND	0.0050	1	02/07/2017 23:13
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/07/2017 23:13
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/07/2017 23:13
Tetrachloroethene	ND	0.0050	1	02/07/2017 23:13
Toluene	ND	0.0050	1	02/07/2017 23:13
1,2,3-Trichlorobenzene	ND	0.0050	1	02/07/2017 23:13
1,2,4-Trichlorobenzene	ND	0.0050	1	02/07/2017 23:13
1,1,1-Trichloroethane	ND	0.0050	1	02/07/2017 23:13
1,1,2-Trichloroethane	ND	0.0050	1	02/07/2017 23:13
Trichloroethene	ND	0.0050	1	02/07/2017 23:13
Trichlorofluoromethane	ND	0.0050	1	02/07/2017 23:13
1,2,3-Trichloropropane	ND	0.0050	1	02/07/2017 23:13
1,2,4-Trimethylbenzene	ND	0.0050	1	02/07/2017 23:13
1,3,5-Trimethylbenzene	ND	0.0050	1	02/07/2017 23:13
Vinyl Chloride	ND	0.0050	1	02/07/2017 23:13
Xylenes, Total	ND	0.0050	1	02/07/2017 23:13

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-20.0	1702156-008A	Soil	02/01/2017 15:26	GC10	133781

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	95		70-130	02/07/2017 23:13
Toluene-d8	123		70-130	02/07/2017 23:13
4-BFB	113		70-130	02/07/2017 23:13
Benzene-d6	88		60-140	02/07/2017 23:13
Ethylbenzene-d10	113		60-140	02/07/2017 23:13
1,2-DCB-d4	90		60-140	02/07/2017 23:13

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-15.0	1702156-007A	Soil	02/01/2017 15:16	GC35	133721

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/09/2017 03:52
Acenaphthylene	ND	0.010	1	02/09/2017 03:52
Anthracene	ND	0.010	1	02/09/2017 03:52
Benzo (a) anthracene	ND	0.010	1	02/09/2017 03:52
Benzo (a) pyrene	ND	0.010	1	02/09/2017 03:52
Benzo (b) fluoranthene	ND	0.010	1	02/09/2017 03:52
Benzo (g,h,i) perylene	ND	0.010	1	02/09/2017 03:52
Benzo (k) fluoranthene	ND	0.010	1	02/09/2017 03:52
Chrysene	ND	0.010	1	02/09/2017 03:52
Dibenzo (a,h) anthracene	ND	0.010	1	02/09/2017 03:52
Fluoranthene	ND	0.010	1	02/09/2017 03:52
Fluorene	ND	0.010	1	02/09/2017 03:52
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/09/2017 03:52
1-Methylnaphthalene	ND	0.010	1	02/09/2017 03:52
2-Methylnaphthalene	ND	0.010	1	02/09/2017 03:52
Naphthalene	ND	0.010	1	02/09/2017 03:52
Phenanthrene	ND	0.010	1	02/09/2017 03:52
Pyrene	ND	0.010	1	02/09/2017 03:52
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	96	30-130		02/09/2017 03:52
2-Fluorobiphenyl	95	30-130		02/09/2017 03:52

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-20.0	1702156-008A	Soil	02/01/2017 15:26	GC35	133721

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/09/2017 04:17
Acenaphthylene	ND	0.010	1	02/09/2017 04:17
Anthracene	ND	0.010	1	02/09/2017 04:17
Benzo (a) anthracene	ND	0.010	1	02/09/2017 04:17
Benzo (a) pyrene	ND	0.010	1	02/09/2017 04:17
Benzo (b) fluoranthene	ND	0.010	1	02/09/2017 04:17
Benzo (g,h,i) perylene	ND	0.010	1	02/09/2017 04:17
Benzo (k) fluoranthene	ND	0.010	1	02/09/2017 04:17
Chrysene	ND	0.010	1	02/09/2017 04:17
Dibenzo (a,h) anthracene	ND	0.010	1	02/09/2017 04:17
Fluoranthene	ND	0.010	1	02/09/2017 04:17
Fluorene	ND	0.010	1	02/09/2017 04:17
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/09/2017 04:17
1-Methylnaphthalene	ND	0.010	1	02/09/2017 04:17
2-Methylnaphthalene	ND	0.010	1	02/09/2017 04:17
Naphthalene	ND	0.010	1	02/09/2017 04:17
Phenanthrene	ND	0.010	1	02/09/2017 04:17
Pyrene	ND	0.010	1	02/09/2017 04:17
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	94	30-130		02/09/2017 04:17
2-Fluorobiphenyl	93	30-130		02/09/2017 04:17

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-15.0	1702156-007A	Soil	02/01/2017 15:16	GC19	133772

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/09/2017 01:39
MTBE	---	0.050	1	02/09/2017 01:39
Benzene	---	0.0050	1	02/09/2017 01:39
Toluene	---	0.0050	1	02/09/2017 01:39
Ethylbenzene	---	0.0050	1	02/09/2017 01:39
Xylenes	---	0.015	1	02/09/2017 01:39

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	87	69-117	02/09/2017 01:39

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-20.0	1702156-008A	Soil	02/01/2017 15:26	GC19	133772

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/09/2017 02:10
MTBE	---	0.050	1	02/09/2017 02:10
Benzene	---	0.0050	1	02/09/2017 02:10
Toluene	---	0.0050	1	02/09/2017 02:10
Ethylbenzene	---	0.0050	1	02/09/2017 02:10
Xylenes	---	0.015	1	02/09/2017 02:10

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	90	69-117	02/09/2017 02:10

Analyst(s): IA



Analytical Report

Client: Langan
Date Received: 2/2/17 16:40
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702156
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-15.0	1702156-007A	Soil	02/01/2017 15:16	GC6A	133771

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/07/2017 22:28
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/07/2017 22:28

Surrogates	REC (%)	Limits	Date Analyzed
C9	98	72-114	02/07/2017 22:28

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-22-20.0	1702156-008A	Soil	02/01/2017 15:26	GC6A	133771

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/07/2017 23:45
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/07/2017 23:45

Surrogates	REC (%)	Limits	Date Analyzed
C9	98	72-114	02/07/2017 23:45

Analyst(s): TK



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17 - 2/8/17
Instrument: GC16, GC28
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133781
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133781
 1702156-007AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0387	0.0050	0.050	-	77	53-116
Benzene	ND	0.0446	0.0050	0.050	-	89	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.161	0.050	0.20	-	80	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0456	0.0050	0.050	-	91	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0437	0.0040	0.050	-	87	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0411	0.0040	0.050	-	82	58-135
1,1-Dichloroethene	ND	0.0424	0.0050	0.050	-	85	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17 - 2/8/17
Instrument: GC16, GC28
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133781
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133781
 1702156-007AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
Diisopropyl ether (DIPE)	ND	0.0434	0.0050	0.050	-	87	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0429	0.0050	0.050	-	86	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0418	0.0050	0.050	-	84	58-122
Methylene chloride	ND	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0489	0.0050	0.050	-	98	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0444	0.0050	0.050	-	89	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17 - 2/8/17
Instrument: GC16, GC28
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133781
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133781
 1702156-007AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.1132	0.115		0.12	91	92	70-130
Toluene-d8	0.1318	0.130		0.12	105	104	70-130
4-BFB	0.01411	0.0133		0.012	113	106	70-130
Benzene-d6	0.0999	0.0948		0.10	100	95	60-140
Ethylbenzene-d10	0.1202	0.110		0.10	120	110	60-140
1,2-DCB-d4	0.08315	0.0826		0.10	83	83	60-140

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0366	0.0359	0.050	ND	73	72	53-116	1.79	20
Benzene	0.0392	0.0391	0.050	ND	78	78	63-137	0	20
t-Butyl alcohol (TBA)	0.132	0.126	0.20	ND	66	63	41-135	4.72	20
Chlorobenzene	0.0405	0.0402	0.050	ND	81	80	77-121	0.784	20
1,2-Dibromoethane (EDB)	0.0374	0.0367	0.050	ND	75	73	67-119	2.01	20
1,2-Dichloroethane (1,2-DCA)	0.0377	0.0369	0.050	ND	75	74	58-135	2.05	20
1,1-Dichloroethene	0.0362	0.0363	0.050	ND	72	73	42-145	0.394	20
Diisopropyl ether (DIPE)	0.0383	0.0374	0.050	ND	77	75	52-129	2.23	20
Ethyl tert-butyl ether (ETBE)	0.0384	0.0376	0.050	ND	77	75	53-125	2.19	20
Methyl-t-butyl ether (MTBE)	0.0373	0.0365	0.050	ND	75	73	58-122	2.08	20
Toluene	0.0417	0.0416	0.050	ND	83	83	76-130	0	20
Trichloroethene	0.0434	0.0410	0.050	ND	87	82	72-132	5.66	20

Surrogate Recovery									
Dibromofluoromethane	0.124	0.123	0.12		99	98	70-130	0.901	20
Toluene-d8	0.144	0.143	0.12		116	114	70-130	1.25	20
4-BFB	0.0142	0.0139	0.012		114	111	70-130	2.50	20
Benzene-d6	0.0896	0.0894	0.10		90	89	60-140	0.248	20
Ethylbenzene-d10	0.103	0.103	0.10		103	103	60-140	0	20
1,2-DCB-d4	0.0878	0.0889	0.10		88	89	60-140	1.22	20



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/6/17 - 2/9/17
Instrument: GC35
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133721
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg
Sample ID: MB/LCS-133721
 1702249-010AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	-	0.010	-	-	-	-
Acenaphthylene	ND	-	0.010	-	-	-	-
Anthracene	ND	-	0.010	-	-	-	-
Benzo (a) anthracene	ND	-	0.010	-	-	-	-
Benzo (a) pyrene	ND	0.0762	0.010	0.20	-	38	23-129
Benzo (b) fluoranthene	ND	-	0.010	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.010	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.010	-	-	-	-
Chrysene	ND	0.0829	0.010	0.20	-	41	38-104
Dibenzo (a,h) anthracene	ND	-	0.010	-	-	-	-
Fluoranthene	ND	-	0.010	-	-	-	-
Fluorene	ND	-	0.010	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.010	-	-	-	-
1-Methylnaphthalene	ND	0.105	0.010	0.20	-	53, F2	59-106
2-Methylnaphthalene	ND	0.0975	0.010	0.20	-	49, F2	54-108
Naphthalene	ND	-	0.010	-	-	-	-
Phenanthrene	ND	0.0947	0.010	0.20	-	47, F2	48-107
Pyrene	ND	0.0798	0.010	0.20	-	40	40-104

Surrogate Recovery

1-Fluoronaphthalene	0.1997	0.260		0.50	40	52, F3	63-123
2-Fluorobiphenyl	0.1883	0.243		0.50	38	49, F3	55-127

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Benzo (a) pyrene	0.208	0.264	0.20	ND	101	129	9-156	23.5	30
Chrysene	0.191	0.199	0.20	ND	96	100	33-115	3.98	30
1-Methylnaphthalene	0.266	0.283	0.20	ND	131	140	13-167	6.25	30
2-Methylnaphthalene	0.237	0.276	0.20	ND	116	135	25-152	15.4	30
Phenanthrene	0.214	0.229	0.20	ND	107	115	30-138	6.93	30
Pyrene	0.221	0.228	0.20	ND	111	114	29-125	2.82	30

Surrogate Recovery

1-Fluoronaphthalene	0.531	0.542	0.50		106	108	56-153	2.19	30
2-Fluorobiphenyl	0.516	0.513	0.50		103	103	50-150	0	30



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/8/17
Instrument: GC19
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133772
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-133772
 1702414-002AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	0.589	0.40	0.60	-	98	89-118
MTBE	ND	0.0998	0.050	0.10	-	100	68-116
Benzene	ND	0.112	0.0050	0.10	-	113	85-118
Toluene	ND	0.115	0.0050	0.10	-	115	87-121
Ethylbenzene	ND	0.112	0.0050	0.10	-	112	91-124
Xylenes	ND	0.334	0.015	0.30	-	111	92-126
Surrogate Recovery							
2-Fluorotoluene	0.09804	0.104		0.10	98	104	88-119

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	NR	NR		ND	NR	NR	-	NR	
MTBE	NR	NR		ND	NR	NR	-	NR	
Benzene	NR	NR		ND	NR	NR	-	NR	
Toluene	NR	NR		ND	NR	NR	-	NR	
Ethylbenzene	NR	NR		ND	NR	NR	-	NR	
Xylenes	NR	NR		ND	NR	NR	-	NR	
Surrogate Recovery									
2-Fluorotoluene	NR	NR			NR	NR	-	NR	



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17
Instrument: GC9a
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702156
BatchID: 133771
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg
Sample ID: MB/LCS-133771
 1702366-022AMS/MSD

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	39.6	1.0	40	-	99	91-127
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	24.37	25.1		25	97	100	74-110

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	39.4	42.4	40	1.669	94	102	74-143	7.35	30
Surrogate Recovery									
C9	24.4	24.3	25		98	97	72-114	0.308	30



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1702156 **A** ClientCode: TWRK

WaterTrax
 WriteOn
 EDF
 Excel
 Fax
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Josh Graber
Langan
501 14th Street, 3rd Floor
Oakland, CA 94612
(415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc/3rd Party: kstaehlin@langan.com;
PO:
ProjectNo: 750635602; 260 30th Street

Bill to:

Accounts Payable
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursoft.com

Requested TAT: 3 days;

Date Received: 02/02/2017
Date Logged: 02/02/2017
Date Add-On: 02/06/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1702156-007	B-22-15.0	Soil	2/1/2017 15:16	<input type="checkbox"/>	A	A	A	A									
1702156-008	B-22-20.0	Soil	2/1/2017 15:26	<input type="checkbox"/>	A	A	A	A									

Test Legend:

1	8260B_S	2	8270_PNA_S	3	G-MBTEX_S	4	TPH(DMO)_S
5		6		7		8	
9		10		11		12	

Prepared by: Jena Alfaro
Add-On Prepared By: Briana Cutino

Comments: Samples 7&8 taken off hold and set up for G/DMO/8260/PAH 2/6/17 72hr RUSH

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: LANGAN

Project: 750635602; 260 30th Street

Work Order: 1702156

Client Contact: Josh Graber

QC Level: LEVEL 2

Contact's Email: jdgraber@treadwellrollo.com

Comments: Samples 7&8 taken off hold and set up for G/DMO/8260/PAH
2/6/17 72hr RUSH

Date Logged: 2/2/2017

Date Add-On: 2/6/2017

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1702156-007A	B-22-15.0	Soil	Multi-Range TPH(g,d,mo) by EPA	1	Acetate Liner	2/1/2017 15:16	3 days		<input type="checkbox"/>	
			8015Bm							
			SW8270C (PAHs/PNAs)							
			SW8260B (VOCs)				3 days		<input type="checkbox"/>	
1702156-008A	B-22-20.0	Soil	Multi-Range TPH(g,d,mo) by EPA	1	Acetate Liner	2/1/2017 15:26	3 days		<input type="checkbox"/>	
			8015Bm							
			SW8270C (PAHs/PNAs)							
			SW8260B (VOCs)				3 days		<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

PHASE II

1702156

*PLEASE C.C. ANNIE S. AT * 10289
KSTAEHLIN@LANGAN.COM

LANGAN

CHAIN OF CUSTODY RECORD

Page 1 of 2

- 555 Montgomery Street, Suite 1300, San Francisco, CA 94111
- 501 14th Street, Third Floor, Oakland CA 94612
- 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
- 4030 Moorpark Ave. Suite 210, San Jose, CA 95117-1849

RUSH

Site Name: 260 30TH STREET
 Job Number: 750635602
 Project Manager/Contact: JOH GRABER
 Samplers: KSS
 Recorder (Signature Required): [Signature]

Turnaround Time <u>72-HOUR</u>

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix & Preservative								Analysis Requested		Silica gel clean-up	Hold	Remarks
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH g/d, mg	VOCS			
B-21-8.0	2/2/17	0845		X										(X)(X) add 2-6-17 SDA/	X	
B-21-10.0		0852		X										X		
B-21-15.0		0919		X										X		
B-21-20	2/2/17	0925		X										X		
B-22-8.0	2/1/17	1411		X										X		
B-22-10.0		1422		X										X		
B-22-15.0		1516		X										(X)(X) add 2-6-17 SDA/	X	
B-22-20.0		1526		X										(X)(X)	X	
B-24-8.0		1302		X										X		
B-24-10.0		1316		X										X		
B-24-15.0		1328		X										X		
B-24-20.0	2/1/17	1351		X										X		

Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>2-2-17</u>	Time: <u>1640</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>2-2-17</u>	Time: <u>1330</u>
Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>2-2-17</u>	Time: <u>1640</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>2/2/17</u>	Time: <u>1640</u>
Relinquished by: (Signature) _____	Date: _____	Time: _____	Received by Lab: (Signature) _____	Date: _____	Time: _____

Sent to Laboratory (Name): McCAMPBELL ANALYTICAL

Laboratory Comments/Notes: _____

Method of Shipment: Lab courier Fed Ex Airborne UPS
 Hand Carried Private Courier (Co. Name) _____



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1702156 B

Report Created for: Langan

501 14th Street, 3rd Floor
Oakland, CA 94612

Project Contact: Josh Graber

Project P.O.:

Project Name: 750635602; 260 30th Street

Project Received: 02/02/2017

Analytical Report reviewed & approved for release on 02/14/2017 by:

Angela Rydelius,
Laboratory Manager

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McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1702249

Report Created for: Langan

501 14th Street, 3rd Floor
Oakland, CA 94612

Project Contact: Josh Graber

Project P.O.:

Project Name: 750635602; 260 30th Street

Project Received: 02/03/2017

Analytical Report reviewed & approved for release on 02/09/2017 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702249

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702249

Analytical Qualifiers

S surrogate spike recovery outside accepted recovery limits
c2 surrogate recovery outside of the control limits due to matrix interference.
d7 strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram
e2 diesel range compounds are significant; no recognizable pattern
e7 oil range compounds are significant
e11 stoddard solvent/mineral spirit (?)

Quality Control Qualifiers

F2 LCS/LCSD recovery and/or RPD is out of acceptance criteria.
F3 the surrogate standard recovery and/or RPD is outside of acceptance limits.



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17-2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-17-10.0	1702249-001A	Soil	02/03/2017 08:07	GC10	133664

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/04/2017 05:51
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/04/2017 05:51
Benzene	ND	0.0050	1	02/04/2017 05:51
Bromobenzene	ND	0.0050	1	02/04/2017 05:51
Bromochloromethane	ND	0.0050	1	02/04/2017 05:51
Bromodichloromethane	ND	0.0050	1	02/04/2017 05:51
Bromoform	ND	0.0050	1	02/04/2017 05:51
Bromomethane	ND	0.0050	1	02/04/2017 05:51
2-Butanone (MEK)	ND	0.020	1	02/04/2017 05:51
t-Butyl alcohol (TBA)	ND	0.050	1	02/04/2017 05:51
n-Butyl benzene	ND	0.0050	1	02/04/2017 05:51
sec-Butyl benzene	ND	0.0050	1	02/04/2017 05:51
tert-Butyl benzene	ND	0.0050	1	02/04/2017 05:51
Carbon Disulfide	ND	0.0050	1	02/04/2017 05:51
Carbon Tetrachloride	ND	0.0050	1	02/04/2017 05:51
Chlorobenzene	ND	0.0050	1	02/04/2017 05:51
Chloroethane	ND	0.0050	1	02/04/2017 05:51
Chloroform	ND	0.0050	1	02/04/2017 05:51
Chloromethane	ND	0.0050	1	02/04/2017 05:51
2-Chlorotoluene	ND	0.0050	1	02/04/2017 05:51
4-Chlorotoluene	ND	0.0050	1	02/04/2017 05:51
Dibromochloromethane	ND	0.0050	1	02/04/2017 05:51
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/04/2017 05:51
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/04/2017 05:51
Dibromomethane	ND	0.0050	1	02/04/2017 05:51
1,2-Dichlorobenzene	ND	0.0050	1	02/04/2017 05:51
1,3-Dichlorobenzene	ND	0.0050	1	02/04/2017 05:51
1,4-Dichlorobenzene	ND	0.0050	1	02/04/2017 05:51
Dichlorodifluoromethane	ND	0.0050	1	02/04/2017 05:51
1,1-Dichloroethane	ND	0.0050	1	02/04/2017 05:51
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/04/2017 05:51
1,1-Dichloroethene	ND	0.0050	1	02/04/2017 05:51
cis-1,2-Dichloroethene	ND	0.0050	1	02/04/2017 05:51
trans-1,2-Dichloroethene	ND	0.0050	1	02/04/2017 05:51
1,2-Dichloropropane	ND	0.0050	1	02/04/2017 05:51
1,3-Dichloropropane	ND	0.0050	1	02/04/2017 05:51
2,2-Dichloropropane	ND	0.0050	1	02/04/2017 05:51

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17-2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-17-10.0	1702249-001A	Soil	02/03/2017 08:07	GC10	133664

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/04/2017 05:51
cis-1,3-Dichloropropene	ND	0.0050	1	02/04/2017 05:51
trans-1,3-Dichloropropene	ND	0.0050	1	02/04/2017 05:51
Diisopropyl ether (DIPE)	ND	0.0050	1	02/04/2017 05:51
Ethylbenzene	ND	0.0050	1	02/04/2017 05:51
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/04/2017 05:51
Freon 113	ND	0.0050	1	02/04/2017 05:51
Hexachlorobutadiene	ND	0.0050	1	02/04/2017 05:51
Hexachloroethane	ND	0.0050	1	02/04/2017 05:51
2-Hexanone	ND	0.0050	1	02/04/2017 05:51
Isopropylbenzene	ND	0.0050	1	02/04/2017 05:51
4-Isopropyl toluene	ND	0.0050	1	02/04/2017 05:51
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/04/2017 05:51
Methylene chloride	ND	0.0050	1	02/04/2017 05:51
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/04/2017 05:51
Naphthalene	ND	0.0050	1	02/04/2017 05:51
n-Propyl benzene	ND	0.0050	1	02/04/2017 05:51
Styrene	ND	0.0050	1	02/04/2017 05:51
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/04/2017 05:51
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/04/2017 05:51
Tetrachloroethene	ND	0.0050	1	02/04/2017 05:51
Toluene	ND	0.0050	1	02/04/2017 05:51
1,2,3-Trichlorobenzene	ND	0.0050	1	02/04/2017 05:51
1,2,4-Trichlorobenzene	ND	0.0050	1	02/04/2017 05:51
1,1,1-Trichloroethane	ND	0.0050	1	02/04/2017 05:51
1,1,2-Trichloroethane	ND	0.0050	1	02/04/2017 05:51
Trichloroethene	ND	0.0050	1	02/04/2017 05:51
Trichlorofluoromethane	ND	0.0050	1	02/04/2017 05:51
1,2,3-Trichloropropane	ND	0.0050	1	02/04/2017 05:51
1,2,4-Trimethylbenzene	ND	0.0050	1	02/04/2017 05:51
1,3,5-Trimethylbenzene	ND	0.0050	1	02/04/2017 05:51
Vinyl Chloride	ND	0.0050	1	02/04/2017 05:51
Xylenes, Total	ND	0.0050	1	02/04/2017 05:51

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17-2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-17-10.0	1702249-001A	Soil	02/03/2017 08:07	GC10	133664

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	96	70-130		02/04/2017 05:51
Toluene-d8	122	70-130		02/04/2017 05:51
4-BFB	107	70-130		02/04/2017 05:51
Benzene-d6	94	60-140		02/04/2017 05:51
Ethylbenzene-d10	117	60-140		02/04/2017 05:51
1,2-DCB-d4	91	60-140		02/04/2017 05:51

Analyst(s): AK



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17-2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-10.0	1702249-005A	Soil	02/02/2017 13:25	GC18	133664

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/05/2017 00:29
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/05/2017 00:29
Benzene	ND	0.0050	1	02/05/2017 00:29
Bromobenzene	ND	0.0050	1	02/05/2017 00:29
Bromochloromethane	ND	0.0050	1	02/05/2017 00:29
Bromodichloromethane	ND	0.0050	1	02/05/2017 00:29
Bromoform	ND	0.0050	1	02/05/2017 00:29
Bromomethane	ND	0.0050	1	02/05/2017 00:29
2-Butanone (MEK)	ND	0.020	1	02/05/2017 00:29
t-Butyl alcohol (TBA)	ND	0.050	1	02/05/2017 00:29
n-Butyl benzene	ND	0.0050	1	02/05/2017 00:29
sec-Butyl benzene	ND	0.0050	1	02/05/2017 00:29
tert-Butyl benzene	ND	0.0050	1	02/05/2017 00:29
Carbon Disulfide	ND	0.0050	1	02/05/2017 00:29
Carbon Tetrachloride	ND	0.0050	1	02/05/2017 00:29
Chlorobenzene	ND	0.0050	1	02/05/2017 00:29
Chloroethane	ND	0.0050	1	02/05/2017 00:29
Chloroform	ND	0.0050	1	02/05/2017 00:29
Chloromethane	ND	0.0050	1	02/05/2017 00:29
2-Chlorotoluene	ND	0.0050	1	02/05/2017 00:29
4-Chlorotoluene	ND	0.0050	1	02/05/2017 00:29
Dibromochloromethane	ND	0.0050	1	02/05/2017 00:29
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/05/2017 00:29
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/05/2017 00:29
Dibromomethane	ND	0.0050	1	02/05/2017 00:29
1,2-Dichlorobenzene	ND	0.0050	1	02/05/2017 00:29
1,3-Dichlorobenzene	ND	0.0050	1	02/05/2017 00:29
1,4-Dichlorobenzene	ND	0.0050	1	02/05/2017 00:29
Dichlorodifluoromethane	ND	0.0050	1	02/05/2017 00:29
1,1-Dichloroethane	ND	0.0050	1	02/05/2017 00:29
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/05/2017 00:29
1,1-Dichloroethene	ND	0.0050	1	02/05/2017 00:29
cis-1,2-Dichloroethene	ND	0.0050	1	02/05/2017 00:29
trans-1,2-Dichloroethene	ND	0.0050	1	02/05/2017 00:29
1,2-Dichloropropane	ND	0.0050	1	02/05/2017 00:29
1,3-Dichloropropane	ND	0.0050	1	02/05/2017 00:29
2,2-Dichloropropane	ND	0.0050	1	02/05/2017 00:29

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17-2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-10.0	1702249-005A	Soil	02/02/2017 13:25	GC18	133664

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/05/2017 00:29
cis-1,3-Dichloropropene	ND	0.0050	1	02/05/2017 00:29
trans-1,3-Dichloropropene	ND	0.0050	1	02/05/2017 00:29
Diisopropyl ether (DIPE)	ND	0.0050	1	02/05/2017 00:29
Ethylbenzene	ND	0.0050	1	02/05/2017 00:29
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/05/2017 00:29
Freon 113	ND	0.0050	1	02/05/2017 00:29
Hexachlorobutadiene	ND	0.0050	1	02/05/2017 00:29
Hexachloroethane	ND	0.0050	1	02/05/2017 00:29
2-Hexanone	ND	0.0050	1	02/05/2017 00:29
Isopropylbenzene	ND	0.0050	1	02/05/2017 00:29
4-Isopropyl toluene	ND	0.0050	1	02/05/2017 00:29
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/05/2017 00:29
Methylene chloride	ND	0.0050	1	02/05/2017 00:29
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/05/2017 00:29
Naphthalene	ND	0.0050	1	02/05/2017 00:29
n-Propyl benzene	ND	0.0050	1	02/05/2017 00:29
Styrene	ND	0.0050	1	02/05/2017 00:29
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/05/2017 00:29
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/05/2017 00:29
Tetrachloroethene	ND	0.0050	1	02/05/2017 00:29
Toluene	ND	0.0050	1	02/05/2017 00:29
1,2,3-Trichlorobenzene	ND	0.0050	1	02/05/2017 00:29
1,2,4-Trichlorobenzene	ND	0.0050	1	02/05/2017 00:29
1,1,1-Trichloroethane	ND	0.0050	1	02/05/2017 00:29
1,1,2-Trichloroethane	ND	0.0050	1	02/05/2017 00:29
Trichloroethene	ND	0.0050	1	02/05/2017 00:29
Trichlorofluoromethane	ND	0.0050	1	02/05/2017 00:29
1,2,3-Trichloropropane	ND	0.0050	1	02/05/2017 00:29
1,2,4-Trimethylbenzene	ND	0.0050	1	02/05/2017 00:29
1,3,5-Trimethylbenzene	ND	0.0050	1	02/05/2017 00:29
Vinyl Chloride	ND	0.0050	1	02/05/2017 00:29
Xylenes, Total	ND	0.0050	1	02/05/2017 00:29

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17-2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-10.0	1702249-005A	Soil	02/02/2017 13:25	GC18	133664

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	100	70-130		02/05/2017 00:29
Toluene-d8	113	70-130		02/05/2017 00:29
4-BFB	103	70-130		02/05/2017 00:29
Benzene-d6	94	60-140		02/05/2017 00:29
Ethylbenzene-d10	106	60-140		02/05/2017 00:29
1,2-DCB-d4	83	60-140		02/05/2017 00:29

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17-2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-10.0	1702249-010A	Soil	02/02/2017 14:51	GC28	133664

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/04/2017 12:07
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/04/2017 12:07
Benzene	ND	0.0050	1	02/04/2017 12:07
Bromobenzene	ND	0.0050	1	02/04/2017 12:07
Bromochloromethane	ND	0.0050	1	02/04/2017 12:07
Bromodichloromethane	ND	0.0050	1	02/04/2017 12:07
Bromoform	ND	0.0050	1	02/04/2017 12:07
Bromomethane	ND	0.0050	1	02/04/2017 12:07
2-Butanone (MEK)	ND	0.020	1	02/04/2017 12:07
t-Butyl alcohol (TBA)	ND	0.050	1	02/04/2017 12:07
n-Butyl benzene	ND	0.0050	1	02/04/2017 12:07
sec-Butyl benzene	ND	0.0050	1	02/04/2017 12:07
tert-Butyl benzene	ND	0.0050	1	02/04/2017 12:07
Carbon Disulfide	ND	0.0050	1	02/04/2017 12:07
Carbon Tetrachloride	ND	0.0050	1	02/04/2017 12:07
Chlorobenzene	ND	0.0050	1	02/04/2017 12:07
Chloroethane	ND	0.0050	1	02/04/2017 12:07
Chloroform	ND	0.0050	1	02/04/2017 12:07
Chloromethane	ND	0.0050	1	02/04/2017 12:07
2-Chlorotoluene	ND	0.0050	1	02/04/2017 12:07
4-Chlorotoluene	ND	0.0050	1	02/04/2017 12:07
Dibromochloromethane	ND	0.0050	1	02/04/2017 12:07
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/04/2017 12:07
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/04/2017 12:07
Dibromomethane	ND	0.0050	1	02/04/2017 12:07
1,2-Dichlorobenzene	ND	0.0050	1	02/04/2017 12:07
1,3-Dichlorobenzene	ND	0.0050	1	02/04/2017 12:07
1,4-Dichlorobenzene	ND	0.0050	1	02/04/2017 12:07
Dichlorodifluoromethane	ND	0.0050	1	02/04/2017 12:07
1,1-Dichloroethane	ND	0.0050	1	02/04/2017 12:07
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/04/2017 12:07
1,1-Dichloroethene	ND	0.0050	1	02/04/2017 12:07
cis-1,2-Dichloroethene	ND	0.0050	1	02/04/2017 12:07
trans-1,2-Dichloroethene	ND	0.0050	1	02/04/2017 12:07
1,2-Dichloropropane	ND	0.0050	1	02/04/2017 12:07
1,3-Dichloropropane	ND	0.0050	1	02/04/2017 12:07
2,2-Dichloropropane	ND	0.0050	1	02/04/2017 12:07

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17-2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-10.0	1702249-010A	Soil	02/02/2017 14:51	GC28	133664

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/04/2017 12:07
cis-1,3-Dichloropropene	ND	0.0050	1	02/04/2017 12:07
trans-1,3-Dichloropropene	ND	0.0050	1	02/04/2017 12:07
Diisopropyl ether (DIPE)	ND	0.0050	1	02/04/2017 12:07
Ethylbenzene	ND	0.0050	1	02/04/2017 12:07
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/04/2017 12:07
Freon 113	ND	0.0050	1	02/04/2017 12:07
Hexachlorobutadiene	ND	0.0050	1	02/04/2017 12:07
Hexachloroethane	ND	0.0050	1	02/04/2017 12:07
2-Hexanone	ND	0.0050	1	02/04/2017 12:07
Isopropylbenzene	ND	0.0050	1	02/04/2017 12:07
4-Isopropyl toluene	ND	0.0050	1	02/04/2017 12:07
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/04/2017 12:07
Methylene chloride	ND	0.0050	1	02/04/2017 12:07
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/04/2017 12:07
Naphthalene	ND	0.0050	1	02/04/2017 12:07
n-Propyl benzene	ND	0.0050	1	02/04/2017 12:07
Styrene	ND	0.0050	1	02/04/2017 12:07
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/04/2017 12:07
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/04/2017 12:07
Tetrachloroethene	ND	0.0050	1	02/04/2017 12:07
Toluene	ND	0.0050	1	02/04/2017 12:07
1,2,3-Trichlorobenzene	ND	0.0050	1	02/04/2017 12:07
1,2,4-Trichlorobenzene	ND	0.0050	1	02/04/2017 12:07
1,1,1-Trichloroethane	ND	0.0050	1	02/04/2017 12:07
1,1,2-Trichloroethane	ND	0.0050	1	02/04/2017 12:07
Trichloroethene	0.011	0.0050	1	02/04/2017 12:07
Trichlorofluoromethane	ND	0.0050	1	02/04/2017 12:07
1,2,3-Trichloropropane	ND	0.0050	1	02/04/2017 12:07
1,2,4-Trimethylbenzene	ND	0.0050	1	02/04/2017 12:07
1,3,5-Trimethylbenzene	ND	0.0050	1	02/04/2017 12:07
Vinyl Chloride	ND	0.0050	1	02/04/2017 12:07
Xylenes, Total	ND	0.0050	1	02/04/2017 12:07

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17-2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-10.0	1702249-010A	Soil	02/02/2017 14:51	GC28	133664

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	97	70-130		02/04/2017 12:07
Toluene-d8	114	70-130		02/04/2017 12:07
4-BFB	108	70-130		02/04/2017 12:07
Benzene-d6	107	60-140		02/04/2017 12:07
Ethylbenzene-d10	127	60-140		02/04/2017 12:07
1,2-DCB-d4	97	60-140		02/04/2017 12:07

Analyst(s): HK



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17-2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-26-10.0	1702249-014A	Soil	02/02/2017 14:14	GC28	133664

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	2.0	20	02/04/2017 12:45
tert-Amyl methyl ether (TAME)	ND	0.10	20	02/04/2017 12:45
Benzene	ND	0.10	20	02/04/2017 12:45
Bromobenzene	ND	0.10	20	02/04/2017 12:45
Bromochloromethane	ND	0.10	20	02/04/2017 12:45
Bromodichloromethane	ND	0.10	20	02/04/2017 12:45
Bromoform	ND	0.10	20	02/04/2017 12:45
Bromomethane	ND	0.10	20	02/04/2017 12:45
2-Butanone (MEK)	ND	0.40	20	02/04/2017 12:45
t-Butyl alcohol (TBA)	ND	1.0	20	02/04/2017 12:45
n-Butyl benzene	0.21	0.10	20	02/04/2017 12:45
sec-Butyl benzene	0.19	0.10	20	02/04/2017 12:45
tert-Butyl benzene	ND	0.10	20	02/04/2017 12:45
Carbon Disulfide	ND	0.10	20	02/04/2017 12:45
Carbon Tetrachloride	ND	0.10	20	02/04/2017 12:45
Chlorobenzene	ND	0.10	20	02/04/2017 12:45
Chloroethane	ND	0.10	20	02/04/2017 12:45
Chloroform	ND	0.10	20	02/04/2017 12:45
Chloromethane	ND	0.10	20	02/04/2017 12:45
2-Chlorotoluene	ND	0.10	20	02/04/2017 12:45
4-Chlorotoluene	ND	0.10	20	02/04/2017 12:45
Dibromochloromethane	ND	0.10	20	02/04/2017 12:45
1,2-Dibromo-3-chloropropane	ND	0.080	20	02/04/2017 12:45
1,2-Dibromoethane (EDB)	ND	0.080	20	02/04/2017 12:45
Dibromomethane	ND	0.10	20	02/04/2017 12:45
1,2-Dichlorobenzene	ND	0.10	20	02/04/2017 12:45
1,3-Dichlorobenzene	ND	0.10	20	02/04/2017 12:45
1,4-Dichlorobenzene	ND	0.10	20	02/04/2017 12:45
Dichlorodifluoromethane	ND	0.10	20	02/04/2017 12:45
1,1-Dichloroethane	ND	0.10	20	02/04/2017 12:45
1,2-Dichloroethane (1,2-DCA)	ND	0.080	20	02/04/2017 12:45
1,1-Dichloroethene	ND	0.10	20	02/04/2017 12:45
cis-1,2-Dichloroethene	ND	0.10	20	02/04/2017 12:45
trans-1,2-Dichloroethene	ND	0.10	20	02/04/2017 12:45
1,2-Dichloropropane	ND	0.10	20	02/04/2017 12:45
1,3-Dichloropropane	ND	0.10	20	02/04/2017 12:45
2,2-Dichloropropane	ND	0.10	20	02/04/2017 12:45

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Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17-2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-26-10.0	1702249-014A	Soil	02/02/2017 14:14	GC28	133664

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.10	20	02/04/2017 12:45
cis-1,3-Dichloropropene	ND	0.10	20	02/04/2017 12:45
trans-1,3-Dichloropropene	ND	0.10	20	02/04/2017 12:45
Diisopropyl ether (DIPE)	ND	0.10	20	02/04/2017 12:45
Ethylbenzene	ND	0.10	20	02/04/2017 12:45
Ethyl tert-butyl ether (ETBE)	ND	0.10	20	02/04/2017 12:45
Freon 113	ND	0.10	20	02/04/2017 12:45
Hexachlorobutadiene	ND	0.10	20	02/04/2017 12:45
Hexachloroethane	ND	0.10	20	02/04/2017 12:45
2-Hexanone	ND	0.10	20	02/04/2017 12:45
Isopropylbenzene	ND	0.10	20	02/04/2017 12:45
4-Isopropyl toluene	0.17	0.10	20	02/04/2017 12:45
Methyl-t-butyl ether (MTBE)	ND	0.10	20	02/04/2017 12:45
Methylene chloride	ND	0.10	20	02/04/2017 12:45
4-Methyl-2-pentanone (MIBK)	ND	0.10	20	02/04/2017 12:45
Naphthalene	0.25	0.10	20	02/04/2017 12:45
n-Propyl benzene	0.12	0.10	20	02/04/2017 12:45
Styrene	ND	0.10	20	02/04/2017 12:45
1,1,1,2-Tetrachloroethane	ND	0.10	20	02/04/2017 12:45
1,1,2,2-Tetrachloroethane	ND	0.10	20	02/04/2017 12:45
Tetrachloroethene	ND	0.10	20	02/04/2017 12:45
Toluene	ND	0.10	20	02/04/2017 12:45
1,2,3-Trichlorobenzene	ND	0.10	20	02/04/2017 12:45
1,2,4-Trichlorobenzene	ND	0.10	20	02/04/2017 12:45
1,1,1-Trichloroethane	ND	0.10	20	02/04/2017 12:45
1,1,2-Trichloroethane	ND	0.10	20	02/04/2017 12:45
Trichloroethene	ND	0.10	20	02/04/2017 12:45
Trichlorofluoromethane	ND	0.10	20	02/04/2017 12:45
1,2,3-Trichloropropane	ND	0.10	20	02/04/2017 12:45
1,2,4-Trimethylbenzene	0.67	0.10	20	02/04/2017 12:45
1,3,5-Trimethylbenzene	0.25	0.10	20	02/04/2017 12:45
Vinyl Chloride	ND	0.10	20	02/04/2017 12:45
Xylenes, Total	ND	0.10	20	02/04/2017 12:45

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Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17-2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-26-10.0	1702249-014A	Soil	02/02/2017 14:14	GC28	133664

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	102	70-130		02/04/2017 12:45
Toluene-d8	108	70-130		02/04/2017 12:45
4-BFB	120	70-130		02/04/2017 12:45
Benzene-d6	93	60-140		02/04/2017 12:45
Ethylbenzene-d10	105	60-140		02/04/2017 12:45
1,2-DCB-d4	113	60-140		02/04/2017 12:45

Analyst(s): HK



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17-2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-27-10.0	1702249-018A	Soil	02/03/2017 11:07	GC16	133781

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/07/2017 20:32
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/07/2017 20:32
Benzene	ND	0.0050	1	02/07/2017 20:32
Bromobenzene	ND	0.0050	1	02/07/2017 20:32
Bromochloromethane	ND	0.0050	1	02/07/2017 20:32
Bromodichloromethane	ND	0.0050	1	02/07/2017 20:32
Bromoform	ND	0.0050	1	02/07/2017 20:32
Bromomethane	ND	0.0050	1	02/07/2017 20:32
2-Butanone (MEK)	ND	0.020	1	02/07/2017 20:32
t-Butyl alcohol (TBA)	ND	0.050	1	02/07/2017 20:32
n-Butyl benzene	ND	0.0050	1	02/07/2017 20:32
sec-Butyl benzene	ND	0.0050	1	02/07/2017 20:32
tert-Butyl benzene	ND	0.0050	1	02/07/2017 20:32
Carbon Disulfide	ND	0.0050	1	02/07/2017 20:32
Carbon Tetrachloride	ND	0.0050	1	02/07/2017 20:32
Chlorobenzene	ND	0.0050	1	02/07/2017 20:32
Chloroethane	ND	0.0050	1	02/07/2017 20:32
Chloroform	ND	0.0050	1	02/07/2017 20:32
Chloromethane	ND	0.0050	1	02/07/2017 20:32
2-Chlorotoluene	ND	0.0050	1	02/07/2017 20:32
4-Chlorotoluene	ND	0.0050	1	02/07/2017 20:32
Dibromochloromethane	ND	0.0050	1	02/07/2017 20:32
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/07/2017 20:32
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/07/2017 20:32
Dibromomethane	ND	0.0050	1	02/07/2017 20:32
1,2-Dichlorobenzene	ND	0.0050	1	02/07/2017 20:32
1,3-Dichlorobenzene	ND	0.0050	1	02/07/2017 20:32
1,4-Dichlorobenzene	ND	0.0050	1	02/07/2017 20:32
Dichlorodifluoromethane	ND	0.0050	1	02/07/2017 20:32
1,1-Dichloroethane	ND	0.0050	1	02/07/2017 20:32
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/07/2017 20:32
1,1-Dichloroethene	ND	0.0050	1	02/07/2017 20:32
cis-1,2-Dichloroethene	ND	0.0050	1	02/07/2017 20:32
trans-1,2-Dichloroethene	ND	0.0050	1	02/07/2017 20:32
1,2-Dichloropropane	ND	0.0050	1	02/07/2017 20:32
1,3-Dichloropropane	ND	0.0050	1	02/07/2017 20:32
2,2-Dichloropropane	ND	0.0050	1	02/07/2017 20:32

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Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17-2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-27-10.0	1702249-018A	Soil	02/03/2017 11:07	GC16	133781

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/07/2017 20:32
cis-1,3-Dichloropropene	ND	0.0050	1	02/07/2017 20:32
trans-1,3-Dichloropropene	ND	0.0050	1	02/07/2017 20:32
Diisopropyl ether (DIPE)	ND	0.0050	1	02/07/2017 20:32
Ethylbenzene	ND	0.0050	1	02/07/2017 20:32
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/07/2017 20:32
Freon 113	ND	0.0050	1	02/07/2017 20:32
Hexachlorobutadiene	ND	0.0050	1	02/07/2017 20:32
Hexachloroethane	ND	0.0050	1	02/07/2017 20:32
2-Hexanone	ND	0.0050	1	02/07/2017 20:32
Isopropylbenzene	ND	0.0050	1	02/07/2017 20:32
4-Isopropyl toluene	ND	0.0050	1	02/07/2017 20:32
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/07/2017 20:32
Methylene chloride	ND	0.0050	1	02/07/2017 20:32
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/07/2017 20:32
Naphthalene	ND	0.0050	1	02/07/2017 20:32
n-Propyl benzene	ND	0.0050	1	02/07/2017 20:32
Styrene	ND	0.0050	1	02/07/2017 20:32
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/07/2017 20:32
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/07/2017 20:32
Tetrachloroethene	ND	0.0050	1	02/07/2017 20:32
Toluene	ND	0.0050	1	02/07/2017 20:32
1,2,3-Trichlorobenzene	ND	0.0050	1	02/07/2017 20:32
1,2,4-Trichlorobenzene	ND	0.0050	1	02/07/2017 20:32
1,1,1-Trichloroethane	ND	0.0050	1	02/07/2017 20:32
1,1,2-Trichloroethane	ND	0.0050	1	02/07/2017 20:32
Trichloroethene	ND	0.0050	1	02/07/2017 20:32
Trichlorofluoromethane	ND	0.0050	1	02/07/2017 20:32
1,2,3-Trichloropropane	ND	0.0050	1	02/07/2017 20:32
1,2,4-Trimethylbenzene	ND	0.0050	1	02/07/2017 20:32
1,3,5-Trimethylbenzene	ND	0.0050	1	02/07/2017 20:32
Vinyl Chloride	ND	0.0050	1	02/07/2017 20:32
Xylenes, Total	ND	0.0050	1	02/07/2017 20:32

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Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17-2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-27-10.0	1702249-018A	Soil	02/03/2017 11:07	GC16	133781

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	90		70-130	02/07/2017 20:32
Toluene-d8	104		70-130	02/07/2017 20:32
4-BFB	106		70-130	02/07/2017 20:32
Benzene-d6	85		60-140	02/07/2017 20:32
Ethylbenzene-d10	101		60-140	02/07/2017 20:32
1,2-DCB-d4	74		60-140	02/07/2017 20:32

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17-2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-28-8.0	1702249-019A	Soil	02/03/2017 08:42	GC28	133664

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/04/2017 14:00
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/04/2017 14:00
Benzene	ND	0.0050	1	02/04/2017 14:00
Bromobenzene	ND	0.0050	1	02/04/2017 14:00
Bromochloromethane	ND	0.0050	1	02/04/2017 14:00
Bromodichloromethane	ND	0.0050	1	02/04/2017 14:00
Bromoform	ND	0.0050	1	02/04/2017 14:00
Bromomethane	ND	0.0050	1	02/04/2017 14:00
2-Butanone (MEK)	ND	0.020	1	02/04/2017 14:00
t-Butyl alcohol (TBA)	ND	0.050	1	02/04/2017 14:00
n-Butyl benzene	ND	0.0050	1	02/04/2017 14:00
sec-Butyl benzene	ND	0.0050	1	02/04/2017 14:00
tert-Butyl benzene	ND	0.0050	1	02/04/2017 14:00
Carbon Disulfide	ND	0.0050	1	02/04/2017 14:00
Carbon Tetrachloride	ND	0.0050	1	02/04/2017 14:00
Chlorobenzene	ND	0.0050	1	02/04/2017 14:00
Chloroethane	ND	0.0050	1	02/04/2017 14:00
Chloroform	ND	0.0050	1	02/04/2017 14:00
Chloromethane	ND	0.0050	1	02/04/2017 14:00
2-Chlorotoluene	ND	0.0050	1	02/04/2017 14:00
4-Chlorotoluene	ND	0.0050	1	02/04/2017 14:00
Dibromochloromethane	ND	0.0050	1	02/04/2017 14:00
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/04/2017 14:00
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/04/2017 14:00
Dibromomethane	ND	0.0050	1	02/04/2017 14:00
1,2-Dichlorobenzene	ND	0.0050	1	02/04/2017 14:00
1,3-Dichlorobenzene	ND	0.0050	1	02/04/2017 14:00
1,4-Dichlorobenzene	ND	0.0050	1	02/04/2017 14:00
Dichlorodifluoromethane	ND	0.0050	1	02/04/2017 14:00
1,1-Dichloroethane	ND	0.0050	1	02/04/2017 14:00
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/04/2017 14:00
1,1-Dichloroethene	ND	0.0050	1	02/04/2017 14:00
cis-1,2-Dichloroethene	ND	0.0050	1	02/04/2017 14:00
trans-1,2-Dichloroethene	ND	0.0050	1	02/04/2017 14:00
1,2-Dichloropropane	ND	0.0050	1	02/04/2017 14:00
1,3-Dichloropropane	ND	0.0050	1	02/04/2017 14:00
2,2-Dichloropropane	ND	0.0050	1	02/04/2017 14:00

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Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17-2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-28-8.0	1702249-019A	Soil	02/03/2017 08:42	GC28	133664

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/04/2017 14:00
cis-1,3-Dichloropropene	ND	0.0050	1	02/04/2017 14:00
trans-1,3-Dichloropropene	ND	0.0050	1	02/04/2017 14:00
Diisopropyl ether (DIPE)	ND	0.0050	1	02/04/2017 14:00
Ethylbenzene	ND	0.0050	1	02/04/2017 14:00
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/04/2017 14:00
Freon 113	ND	0.0050	1	02/04/2017 14:00
Hexachlorobutadiene	ND	0.0050	1	02/04/2017 14:00
Hexachloroethane	ND	0.0050	1	02/04/2017 14:00
2-Hexanone	ND	0.0050	1	02/04/2017 14:00
Isopropylbenzene	ND	0.0050	1	02/04/2017 14:00
4-Isopropyl toluene	ND	0.0050	1	02/04/2017 14:00
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/04/2017 14:00
Methylene chloride	ND	0.025	1	02/04/2017 14:00
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/04/2017 14:00
Naphthalene	ND	0.0050	1	02/04/2017 14:00
n-Propyl benzene	ND	0.0050	1	02/04/2017 14:00
Styrene	ND	0.0050	1	02/04/2017 14:00
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/04/2017 14:00
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/04/2017 14:00
Tetrachloroethene	ND	0.0050	1	02/04/2017 14:00
Toluene	ND	0.0050	1	02/04/2017 14:00
1,2,3-Trichlorobenzene	ND	0.0050	1	02/04/2017 14:00
1,2,4-Trichlorobenzene	ND	0.0050	1	02/04/2017 14:00
1,1,1-Trichloroethane	ND	0.0050	1	02/04/2017 14:00
1,1,2-Trichloroethane	ND	0.0050	1	02/04/2017 14:00
Trichloroethene	0.017	0.0050	1	02/04/2017 14:00
Trichlorofluoromethane	ND	0.0050	1	02/04/2017 14:00
1,2,3-Trichloropropane	ND	0.0050	1	02/04/2017 14:00
1,2,4-Trimethylbenzene	ND	0.0050	1	02/04/2017 14:00
1,3,5-Trimethylbenzene	ND	0.0050	1	02/04/2017 14:00
Vinyl Chloride	ND	0.0050	1	02/04/2017 14:00
Xylenes, Total	ND	0.0050	1	02/04/2017 14:00

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17-2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-28-8.0	1702249-019A	Soil	02/03/2017 08:42	GC28	133664

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	98	70-130		02/04/2017 14:00
Toluene-d8	117	70-130		02/04/2017 14:00
4-BFB	116	70-130		02/04/2017 14:00
Benzene-d6	99	60-140		02/04/2017 14:00
Ethylbenzene-d10	108	60-140		02/04/2017 14:00
1,2-DCB-d4	86	60-140		02/04/2017 14:00

Analyst(s): HK



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-17-10.0	1702249-001A	Soil	02/03/2017 08:07	GC35	133721

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/08/2017 22:02
Acenaphthylene	ND	0.010	1	02/08/2017 22:02
Anthracene	ND	0.010	1	02/08/2017 22:02
Benzo (a) anthracene	ND	0.010	1	02/08/2017 22:02
Benzo (a) pyrene	ND	0.010	1	02/08/2017 22:02
Benzo (b) fluoranthene	ND	0.010	1	02/08/2017 22:02
Benzo (g,h,i) perylene	ND	0.010	1	02/08/2017 22:02
Benzo (k) fluoranthene	ND	0.010	1	02/08/2017 22:02
Chrysene	ND	0.010	1	02/08/2017 22:02
Dibenzo (a,h) anthracene	ND	0.010	1	02/08/2017 22:02
Fluoranthene	ND	0.010	1	02/08/2017 22:02
Fluorene	ND	0.010	1	02/08/2017 22:02
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/08/2017 22:02
1-Methylnaphthalene	ND	0.010	1	02/08/2017 22:02
2-Methylnaphthalene	ND	0.010	1	02/08/2017 22:02
Naphthalene	ND	0.010	1	02/08/2017 22:02
Phenanthrene	ND	0.010	1	02/08/2017 22:02
Pyrene	ND	0.010	1	02/08/2017 22:02
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	95	30-130		02/08/2017 22:02
2-Fluorobiphenyl	97	30-130		02/08/2017 22:02

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-10.0	1702249-005A	Soil	02/02/2017 13:25	GC35	133721

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/07/2017 22:22
Acenaphthylene	ND	0.010	1	02/07/2017 22:22
Anthracene	ND	0.010	1	02/07/2017 22:22
Benzo (a) anthracene	ND	0.010	1	02/07/2017 22:22
Benzo (a) pyrene	ND	0.010	1	02/07/2017 22:22
Benzo (b) fluoranthene	ND	0.010	1	02/07/2017 22:22
Benzo (g,h,i) perylene	ND	0.010	1	02/07/2017 22:22
Benzo (k) fluoranthene	ND	0.010	1	02/07/2017 22:22
Chrysene	ND	0.010	1	02/07/2017 22:22
Dibenzo (a,h) anthracene	ND	0.010	1	02/07/2017 22:22
Fluoranthene	ND	0.010	1	02/07/2017 22:22
Fluorene	ND	0.010	1	02/07/2017 22:22
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/07/2017 22:22
1-Methylnaphthalene	ND	0.010	1	02/07/2017 22:22
2-Methylnaphthalene	ND	0.010	1	02/07/2017 22:22
Naphthalene	ND	0.010	1	02/07/2017 22:22
Phenanthrene	ND	0.010	1	02/07/2017 22:22
Pyrene	ND	0.010	1	02/07/2017 22:22
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	112	30-130		02/07/2017 22:22
2-Fluorobiphenyl	115	30-130		02/07/2017 22:22

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-10.0	1702249-010A	Soil	02/02/2017 14:51	GC35	133721

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/08/2017 21:12
Acenaphthylene	ND	0.010	1	02/08/2017 21:12
Anthracene	ND	0.010	1	02/08/2017 21:12
Benzo (a) anthracene	ND	0.010	1	02/08/2017 21:12
Benzo (a) pyrene	ND	0.010	1	02/08/2017 21:12
Benzo (b) fluoranthene	ND	0.010	1	02/08/2017 21:12
Benzo (g,h,i) perylene	ND	0.010	1	02/08/2017 21:12
Benzo (k) fluoranthene	ND	0.010	1	02/08/2017 21:12
Chrysene	ND	0.010	1	02/08/2017 21:12
Dibenzo (a,h) anthracene	ND	0.010	1	02/08/2017 21:12
Fluoranthene	ND	0.010	1	02/08/2017 21:12
Fluorene	ND	0.010	1	02/08/2017 21:12
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/08/2017 21:12
1-Methylnaphthalene	ND	0.010	1	02/08/2017 21:12
2-Methylnaphthalene	ND	0.010	1	02/08/2017 21:12
Naphthalene	ND	0.010	1	02/08/2017 21:12
Phenanthrene	ND	0.010	1	02/08/2017 21:12
Pyrene	ND	0.010	1	02/08/2017 21:12
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	101	30-130		02/08/2017 21:12
2-Fluorobiphenyl	100	30-130		02/08/2017 21:12

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-26-10.0	1702249-014A	Soil	02/02/2017 14:14	GC35	133721

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.020	2	02/09/2017 14:47
Acenaphthylene	ND	0.020	2	02/09/2017 14:47
Anthracene	ND	0.020	2	02/09/2017 14:47
Benzo (a) anthracene	ND	0.020	2	02/09/2017 14:47
Benzo (a) pyrene	ND	0.020	2	02/09/2017 14:47
Benzo (b) fluoranthene	ND	0.020	2	02/09/2017 14:47
Benzo (g,h,i) perylene	ND	0.020	2	02/09/2017 14:47
Benzo (k) fluoranthene	ND	0.020	2	02/09/2017 14:47
Chrysene	ND	0.020	2	02/09/2017 14:47
Dibenzo (a,h) anthracene	ND	0.020	2	02/09/2017 14:47
Fluoranthene	ND	0.020	2	02/09/2017 14:47
Fluorene	0.020	0.020	2	02/09/2017 14:47
Indeno (1,2,3-cd) pyrene	ND	0.020	2	02/09/2017 14:47
1-Methylnaphthalene	0.058	0.020	2	02/09/2017 14:47
2-Methylnaphthalene	0.095	0.020	2	02/09/2017 14:47
Naphthalene	0.16	0.020	2	02/09/2017 14:47
Phenanthrene	ND	0.020	2	02/09/2017 14:47
Pyrene	ND	0.020	2	02/09/2017 14:47
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	115	30-130		02/09/2017 14:47
2-Fluorobiphenyl	103	30-130		02/09/2017 14:47

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-27-10.0	1702249-018A	Soil	02/03/2017 11:07	GC35	133721

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/08/2017 23:17
Acenaphthylene	ND	0.010	1	02/08/2017 23:17
Anthracene	ND	0.010	1	02/08/2017 23:17
Benzo (a) anthracene	ND	0.010	1	02/08/2017 23:17
Benzo (a) pyrene	ND	0.010	1	02/08/2017 23:17
Benzo (b) fluoranthene	ND	0.010	1	02/08/2017 23:17
Benzo (g,h,i) perylene	ND	0.010	1	02/08/2017 23:17
Benzo (k) fluoranthene	ND	0.010	1	02/08/2017 23:17
Chrysene	ND	0.010	1	02/08/2017 23:17
Dibenzo (a,h) anthracene	ND	0.010	1	02/08/2017 23:17
Fluoranthene	ND	0.010	1	02/08/2017 23:17
Fluorene	ND	0.010	1	02/08/2017 23:17
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/08/2017 23:17
1-Methylnaphthalene	ND	0.010	1	02/08/2017 23:17
2-Methylnaphthalene	ND	0.010	1	02/08/2017 23:17
Naphthalene	ND	0.010	1	02/08/2017 23:17
Phenanthrene	ND	0.010	1	02/08/2017 23:17
Pyrene	ND	0.010	1	02/08/2017 23:17
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	109	30-130		02/08/2017 23:17
2-Fluorobiphenyl	109	30-130		02/08/2017 23:17

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-28-8.0	1702249-019A	Soil	02/03/2017 08:42	GC35	133721

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/08/2017 23:42
Acenaphthylene	ND	0.010	1	02/08/2017 23:42
Anthracene	ND	0.010	1	02/08/2017 23:42
Benzo (a) anthracene	ND	0.010	1	02/08/2017 23:42
Benzo (a) pyrene	ND	0.010	1	02/08/2017 23:42
Benzo (b) fluoranthene	ND	0.010	1	02/08/2017 23:42
Benzo (g,h,i) perylene	ND	0.010	1	02/08/2017 23:42
Benzo (k) fluoranthene	ND	0.010	1	02/08/2017 23:42
Chrysene	ND	0.010	1	02/08/2017 23:42
Dibenzo (a,h) anthracene	ND	0.010	1	02/08/2017 23:42
Fluoranthene	ND	0.010	1	02/08/2017 23:42
Fluorene	ND	0.010	1	02/08/2017 23:42
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/08/2017 23:42
1-Methylnaphthalene	ND	0.010	1	02/08/2017 23:42
2-Methylnaphthalene	ND	0.010	1	02/08/2017 23:42
Naphthalene	ND	0.010	1	02/08/2017 23:42
Phenanthrene	ND	0.010	1	02/08/2017 23:42
Pyrene	ND	0.010	1	02/08/2017 23:42
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	109	30-130		02/08/2017 23:42
2-Fluorobiphenyl	110	30-130		02/08/2017 23:42

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-17-10.0	1702249-001A	Soil	02/03/2017 08:07	GC7	133663

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/04/2017 19:05
MTBE	---	0.050	1	02/04/2017 19:05
Benzene	---	0.0050	1	02/04/2017 19:05
Toluene	---	0.0050	1	02/04/2017 19:05
Ethylbenzene	---	0.0050	1	02/04/2017 19:05
Xylenes	---	0.015	1	02/04/2017 19:05

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	81	69-117	02/04/2017 19:05

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-10.0	1702249-005A	Soil	02/02/2017 13:25	GC7	133663

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/04/2017 17:05
MTBE	---	0.050	1	02/04/2017 17:05
Benzene	---	0.0050	1	02/04/2017 17:05
Toluene	---	0.0050	1	02/04/2017 17:05
Ethylbenzene	---	0.0050	1	02/04/2017 17:05
Xylenes	---	0.015	1	02/04/2017 17:05

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	78	69-117	02/04/2017 17:05

Analyst(s): IA



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-10.0	1702249-010A	Soil	02/02/2017 14:51	GC7	133663

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	18	1.0	1	02/04/2017 19:35
MTBE	---	0.050	1	02/04/2017 19:35
Benzene	---	0.0050	1	02/04/2017 19:35
Toluene	---	0.0050	1	02/04/2017 19:35
Ethylbenzene	---	0.0050	1	02/04/2017 19:35
Xylenes	---	0.015	1	02/04/2017 19:35

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	88	69-117	02/04/2017 19:35

Analyst(s): IA Analytical Comments: d7

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-26-10.0	1702249-014A	Soil	02/02/2017 14:14	GC3	133663

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	170	33	33	02/06/2017 13:30
MTBE	---	1.7	33	02/06/2017 13:30
Benzene	---	0.17	33	02/06/2017 13:30
Toluene	---	0.17	33	02/06/2017 13:30
Ethylbenzene	---	0.17	33	02/06/2017 13:30
Xylenes	---	0.50	33	02/06/2017 13:30

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	74	69-117	02/06/2017 13:30

Analyst(s): IA Analytical Comments: d7



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-27-10.0	1702249-018A	Soil	02/03/2017 11:07	GC7	133663

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/04/2017 18:05
MTBE	---	0.050	1	02/04/2017 18:05
Benzene	---	0.0050	1	02/04/2017 18:05
Toluene	---	0.0050	1	02/04/2017 18:05
Ethylbenzene	---	0.0050	1	02/04/2017 18:05
Xylenes	---	0.015	1	02/04/2017 18:05

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	82	69-117	02/04/2017 18:05

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-28-8.0	1702249-019A	Soil	02/03/2017 08:42	GC7	133663

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/04/2017 18:35
MTBE	---	0.050	1	02/04/2017 18:35
Benzene	---	0.0050	1	02/04/2017 18:35
Toluene	---	0.0050	1	02/04/2017 18:35
Ethylbenzene	---	0.0050	1	02/04/2017 18:35
Xylenes	---	0.015	1	02/04/2017 18:35

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	79	69-117	02/04/2017 18:35

Analyst(s): IA



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-17-10.0	1702249-001A	Soil	02/03/2017 08:07	GC6B	133656

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/04/2017 02:31
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/04/2017 02:31

Surrogates	REC (%)	Limits	Date Analyzed
C9	107	72-114	02/04/2017 02:31

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-10.0	1702249-005A	Soil	02/02/2017 13:25	GC6B	133656

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/03/2017 23:56
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/03/2017 23:56

Surrogates	REC (%)	Limits	Date Analyzed
C9	106	72-114	02/03/2017 23:56

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-10.0	1702249-010A	Soil	02/02/2017 14:51	GC6B	133656

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	33	1.0	1	02/04/2017 01:14
TPH-Motor Oil (C18-C36)	150	5.0	1	02/04/2017 01:14

Surrogates	REC (%)	Limits	Date Analyzed
C9	107	72-114	02/04/2017 01:14

Analyst(s): TK

Analytical Comments: e7,e2,e11

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-26-10.0	1702249-014A	Soil	02/02/2017 14:14	GC11A	133656

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	1500	200	200	02/06/2017 16:30
TPH-Motor Oil (C18-C36)	2800	1000	200	02/06/2017 16:30

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
C9	125	S	72-114	02/06/2017 16:30

Analyst(s): TK **Analytical Comments:** e7,e2,e11,c2

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-27-10.0	1702249-018A	Soil	02/03/2017 11:07	GC6B	133656

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/04/2017 07:42
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/04/2017 07:42

Surrogates	REC (%)	Limits	Date Analyzed
C9	107	72-114	02/04/2017 07:42

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-28-8.0	1702249-019A	Soil	02/03/2017 08:42	GC6A	133656

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/04/2017 03:49
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/04/2017 03:49

Surrogates	REC (%)	Limits	Date Analyzed
C9	100	72-114	02/04/2017 03:49

Analyst(s): TK



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17 - 2/5/17
Instrument: GC18
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133664
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133664
 1702249-005AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0472	0.0050	0.050	-	94	53-116
Benzene	ND	0.0499	0.0050	0.050	-	100	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.222	0.050	0.20	-	111	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0518	0.0050	0.050	-	104	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0486	0.0040	0.050	-	97	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0471	0.0040	0.050	-	94	58-135
1,1-Dichloroethene	ND	0.0502	0.0050	0.050	-	100	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-

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NELAP 4033ORELAP

QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17 - 2/5/17
Instrument: GC18
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133664
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133664
 1702249-005AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
Diisopropyl ether (DIPE)	ND	0.0493	0.0050	0.050	-	99	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0495	0.0050	0.050	-	99	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0481	0.0050	0.050	-	96	58-122
Methylene chloride	ND	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0566	0.0050	0.050	-	113	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0516	0.0050	0.050	-	103	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-

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NELAP 4033ORELAP

QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17 - 2/5/17
Instrument: GC18
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133664
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133664
 1702249-005AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.1248	0.125		0.12	100	100	70-130
Toluene-d8	0.1396	0.143		0.12	112	114	70-130
4-BFB	0.01371	0.0130		0.012	110	104	70-130
Benzene-d6	0.1051	0.110		0.10	105	110	60-140
Ethylbenzene-d10	0.117	0.124		0.10	117	124	60-140
1,2-DCB-d4	0.08677	0.101		0.10	87	101	60-140

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0394	0.0418	0.050	ND	79	84	53-116	6.07	20
Benzene	0.0428	0.0444	0.050	ND	86	89	63-137	3.79	20
t-Butyl alcohol (TBA)	0.182	0.195	0.20	ND	91	98	41-135	6.70	20
Chlorobenzene	0.0442	0.0456	0.050	ND	88	91	77-121	3.19	20
1,2-Dibromoethane (EDB)	0.0414	0.0430	0.050	ND	83	86	67-119	3.82	20
1,2-Dichloroethane (1,2-DCA)	0.0399	0.0419	0.050	ND	80	84	58-135	5.05	20
1,1-Dichloroethene	0.0419	0.0431	0.050	ND	84	86	42-145	2.91	20
Diisopropyl ether (DIPE)	0.0425	0.0447	0.050	ND	85	89	52-129	5.06	20
Ethyl tert-butyl ether (ETBE)	0.0419	0.0444	0.050	ND	84	89	53-125	5.86	20
Methyl-t-butyl ether (MTBE)	0.0400	0.0427	0.050	ND	80	85	58-122	6.45	20
Toluene	0.0470	0.0494	0.050	ND	94	99	76-130	5.05	20
Trichloroethene	0.0460	0.0483	0.050	ND	92	97	72-132	5.01	20

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Surrogate Recovery									
Dibromofluoromethane	0.126	0.126	0.12		101	101	70-130	0	20
Toluene-d8	0.140	0.142	0.12		112	113	70-130	1.08	20
4-BFB	0.0124	0.0128	0.012		99	103	70-130	3.74	20
Benzene-d6	0.0921	0.0953	0.10		92	95	60-140	3.46	20
Ethylbenzene-d10	0.104	0.107	0.10		104	107	60-140	3.44	20
1,2-DCB-d4	0.0866	0.0904	0.10		87	90	60-140	4.23	20



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17 - 2/8/17
Instrument: GC16, GC28
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133781
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133781
 1702156-007AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0387	0.0050	0.050	-	77	53-116
Benzene	ND	0.0446	0.0050	0.050	-	89	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.161	0.050	0.20	-	80	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0456	0.0050	0.050	-	91	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0437	0.0040	0.050	-	87	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0411	0.0040	0.050	-	82	58-135
1,1-Dichloroethene	ND	0.0424	0.0050	0.050	-	85	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-

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NELAP 4033ORELAP

QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17 - 2/8/17
Instrument: GC16, GC28
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133781
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133781
 1702156-007AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
Diisopropyl ether (DIPE)	ND	0.0434	0.0050	0.050	-	87	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0429	0.0050	0.050	-	86	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0418	0.0050	0.050	-	84	58-122
Methylene chloride	ND	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0489	0.0050	0.050	-	98	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0444	0.0050	0.050	-	89	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17 - 2/8/17
Instrument: GC16, GC28
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133781
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133781
 1702156-007AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.1132	0.115		0.12	91	92	70-130
Toluene-d8	0.1318	0.130		0.12	105	104	70-130
4-BFB	0.01411	0.0133		0.012	113	106	70-130
Benzene-d6	0.0999	0.0948		0.10	100	95	60-140
Ethylbenzene-d10	0.1202	0.110		0.10	120	110	60-140
1,2-DCB-d4	0.08315	0.0826		0.10	83	83	60-140

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0366	0.0359	0.050	ND	73	72	53-116	1.79	20
Benzene	0.0392	0.0391	0.050	ND	78	78	63-137	0	20
t-Butyl alcohol (TBA)	0.132	0.126	0.20	ND	66	63	41-135	4.72	20
Chlorobenzene	0.0405	0.0402	0.050	ND	81	80	77-121	0.784	20
1,2-Dibromoethane (EDB)	0.0374	0.0367	0.050	ND	75	73	67-119	2.01	20
1,2-Dichloroethane (1,2-DCA)	0.0377	0.0369	0.050	ND	75	74	58-135	2.05	20
1,1-Dichloroethene	0.0362	0.0363	0.050	ND	72	73	42-145	0.394	20
Diisopropyl ether (DIPE)	0.0383	0.0374	0.050	ND	77	75	52-129	2.23	20
Ethyl tert-butyl ether (ETBE)	0.0384	0.0376	0.050	ND	77	75	53-125	2.19	20
Methyl-t-butyl ether (MTBE)	0.0373	0.0365	0.050	ND	75	73	58-122	2.08	20
Toluene	0.0417	0.0416	0.050	ND	83	83	76-130	0	20
Trichloroethene	0.0434	0.0410	0.050	ND	87	82	72-132	5.66	20
Surrogate Recovery									
Dibromofluoromethane	0.124	0.123	0.12		99	98	70-130	0.901	20
Toluene-d8	0.144	0.143	0.12		116	114	70-130	1.25	20
4-BFB	0.0142	0.0139	0.012		114	111	70-130	2.50	20
Benzene-d6	0.0896	0.0894	0.10		90	89	60-140	0.248	20
Ethylbenzene-d10	0.103	0.103	0.10		103	103	60-140	0	20
1,2-DCB-d4	0.0878	0.0889	0.10		88	89	60-140	1.22	20



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/6/17 - 2/9/17
Instrument: GC35
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133721
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg
Sample ID: MB/LCS-133721
 1702249-010AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	-	0.010	-	-	-	-
Acenaphthylene	ND	-	0.010	-	-	-	-
Anthracene	ND	-	0.010	-	-	-	-
Benzo (a) anthracene	ND	-	0.010	-	-	-	-
Benzo (a) pyrene	ND	0.0762	0.010	0.20	-	38	23-129
Benzo (b) fluoranthene	ND	-	0.010	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.010	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.010	-	-	-	-
Chrysene	ND	0.0829	0.010	0.20	-	41	38-104
Dibenzo (a,h) anthracene	ND	-	0.010	-	-	-	-
Fluoranthene	ND	-	0.010	-	-	-	-
Fluorene	ND	-	0.010	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.010	-	-	-	-
1-Methylnaphthalene	ND	0.105	0.010	0.20	-	53, F2	59-106
2-Methylnaphthalene	ND	0.0975	0.010	0.20	-	49, F2	54-108
Naphthalene	ND	-	0.010	-	-	-	-
Phenanthrene	ND	0.0947	0.010	0.20	-	47, F2	48-107
Pyrene	ND	0.0798	0.010	0.20	-	40	40-104

Surrogate Recovery

1-Fluoronaphthalene	0.1997	0.260		0.50	40	52, F3	63-123
2-Fluorobiphenyl	0.1883	0.243		0.50	38	49, F3	55-127

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Benzo (a) pyrene	0.208	0.264	0.20	ND	101	129	9-156	23.5	30
Chrysene	0.191	0.199	0.20	ND	96	100	33-115	3.98	30
1-Methylnaphthalene	0.266	0.283	0.20	ND	131	140	13-167	6.25	30
2-Methylnaphthalene	0.237	0.276	0.20	ND	116	135	25-152	15.4	30
Phenanthrene	0.214	0.229	0.20	ND	107	115	30-138	6.93	30
Pyrene	0.221	0.228	0.20	ND	111	114	29-125	2.82	30

Surrogate Recovery

1-Fluoronaphthalene	0.531	0.542	0.50		106	108	56-153	2.19	30
2-Fluorobiphenyl	0.516	0.513	0.50		103	103	50-150	0	30



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/4/17
Instrument: GC7
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133663
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-133663
 1702254-001AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	0.653	0.40	0.60	-	109	89-118
MTBE	ND	0.0877	0.050	0.10	-	88	68-116
Benzene	ND	0.110	0.0050	0.10	-	111	85-118
Toluene	ND	0.111	0.0050	0.10	-	111	87-121
Ethylbenzene	ND	0.115	0.0050	0.10	-	115	91-124
Xylenes	ND	0.357	0.015	0.30	-	119	92-126
Surrogate Recovery							
2-Fluorotoluene	0.09243	0.0903		0.10	92	90	88-119

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	NR	NR		ND	NR	NR	-	NR	
MTBE	NR	NR		ND	NR	NR	-	NR	
Benzene	NR	NR		ND	NR	NR	-	NR	
Toluene	NR	NR		ND	NR	NR	-	NR	
Ethylbenzene	NR	NR		ND	NR	NR	-	NR	
Xylenes	NR	NR		ND	NR	NR	-	NR	
Surrogate Recovery									
2-Fluorotoluene	NR	NR			NR	NR	-	NR	



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17 - 2/4/17
Instrument: GC6A, GC9a, GC9b
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133656
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg
Sample ID: MB/LCS-133656
 1702032-003AMS/MSD

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	39.7	1.0	40	-	99	91-127
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	22.34	24.4		25	89	97	74-110

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	41.6	41.6	40	ND	102	102	74-143	0	30
Surrogate Recovery									
C9	25.2	24.9	25		101	100	72-114	0.917	30



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17
Instrument: GC9a
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133771
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg
Sample ID: MB/LCS-133771
 1702366-022AMS/MSD

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	39.6	1.0	40	-	99	91-127
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	24.37	25.1		25	97	100	74-110

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	39.4	42.4	40	1.669	94	102	74-143	7.35	30
Surrogate Recovery									
C9	24.4	24.3	25		98	97	72-114	0.308	30

1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1702249

ClientCode: TWRK

WaterTrax WriteOn EDF Excel EQUIS Email HardCopy ThirdParty J-flag

Report to:

Josh Graber
Langan
501 14th Street, 3rd Floor
Oakland, CA 94612
(415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc/3rd Party: kstaehlin@langan.com;
PO:
ProjectNo: 750635602; 260 30th Street

Bill to:

Accounts Payable
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursoft.com

**Requested TATs: 3 days;
4 days;**

Date Received: 02/03/2017

Date Logged: 02/03/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1702249-001	B-17-10.0	Soil	2/3/2017 08:07	<input type="checkbox"/>	A	A	A	A									
1702249-003	B-17-20.0	Soil	2/3/2017 08:35	<input checked="" type="checkbox"/>	A	A											
1702249-005	B-23-10.0	Soil	2/2/2017 13:25	<input type="checkbox"/>	A	A	A	A									
1702249-010	B-25-10.0	Soil	2/2/2017 14:51	<input type="checkbox"/>	A	A	A	A									
1702249-011	B-25-15.5	Soil	2/2/2017 15:02	<input type="checkbox"/>	A	A	A	A									
1702249-012	B-25-20.0	Soil	2/2/2017 15:05	<input type="checkbox"/>	A	A	A	A									
1702249-014	B-26-10.0	Soil	2/2/2017 14:14	<input type="checkbox"/>	A	A	A	A									
1702249-015	B-26-15.0	Soil	2/2/2017 14:25	<input type="checkbox"/>	A	A	A	A									
1702249-018	B-27-10.0	Soil	2/3/2017 11:07	<input type="checkbox"/>	A	A	A	A									
1702249-019	B-28-8.0	Soil	2/3/2017 08:42	<input type="checkbox"/>	A	A	A	A									

Test Legend:

1	8260B_S	2	8270_PNA_S	3	G-MBTEX_S	4	TPH(DMO)_S
5		6		7		8	
9		10		11		12	

Prepared by: Briana Cutino

The following SampleIDs: 001A, 005A, 010A, 011A, 012A, 014A, 015A, 018A, 019A contain testgroup Multi Range_S.

Comments: Samples 11&12&15 taken off hold and set up for G/DMO/8260/PAH 2/6/17 72hr RUSH. Sample 009,013 comp into workorder 1702218;

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Josh Graber
Contact's Email: jdgraber@treadwellrollo.com

Project: 750635602; 260 30th Street

Work Order: 1702249
QC Level: LEVEL 2
Date Logged: 2/3/2017

Comments: Samples 11&12&15 taken off hold and set up for G/DMO/8260/PAH 2/6/17 72hr RUSH. Sample 009,013 comp into workorder 1702218.

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1702249-001A	B-17-10.0	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm	1	Acetate Liner	<input type="checkbox"/>	2/3/2017 8:07	3 days		<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>		4 days		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>		3 days		<input type="checkbox"/>	
1702249-002A	B-17-15.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/3/2017 8:30			<input checked="" type="checkbox"/>	
1702249-003A	B-17-20.0	Soil	SW8270C (PAHs/PNAs)	1	Acetate Liner	<input type="checkbox"/>	2/3/2017 8:35	3 days		<input checked="" type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>		3 days		<input checked="" type="checkbox"/>	
1702249-004A	B-23-8.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/2/2017 13:17			<input checked="" type="checkbox"/>	
1702249-005A	B-23-10.0	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm	1	Acetate Liner	<input type="checkbox"/>	2/2/2017 13:25	3 days		<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>		4 days		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>		3 days		<input type="checkbox"/>	
1702249-006A	B-23-12.5	Soil		1	Acetate Liner	<input type="checkbox"/>	2/2/2017 13:44			<input type="checkbox"/>	
1702249-007A	B-23-16.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/2/2017 13:48			<input checked="" type="checkbox"/>	
1702249-008A	B-23-20.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/2/2017 13:53			<input checked="" type="checkbox"/>	
1702249-009A	B-25-8.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/2/2017 14:47			<input checked="" type="checkbox"/>	
1702249-010A	B-25-10.0	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm	1	Acetate Liner	<input type="checkbox"/>	2/2/2017 14:51	3 days		<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).
- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Josh Graber
Contact's Email: jdgraber@treadwellrollo.com

Project: 750635602; 260 30th Street

Work Order: 1702249
QC Level: LEVEL 2
Date Logged: 2/3/2017

Comments: Samples 11&12&15 taken off hold and set up for G/DMO/8260/PAH 2/6/17 72hr RUSH. Sample 009,013 comp into workorder 1702249.

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1702249-010A	B-25-10.0	Soil	SW8270C (PAHs/PNAs)	1	Acetate Liner	<input type="checkbox"/>	2/2/2017 14:51	4 days		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>		3 days			
1702249-011A	B-25-15.5	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm	1	Acetate Liner	<input type="checkbox"/>	2/2/2017 15:02	3 days		<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>		3 days			
			SW8260B (VOCs)			<input type="checkbox"/>		3 days			
1702249-012A	B-25-20.0	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm	1	Acetate Liner	<input type="checkbox"/>	2/2/2017 15:05	3 days		<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>		3 days			
			SW8260B (VOCs)			<input type="checkbox"/>		3 days			
1702249-013A	B-26-8.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/2/2017 14:08			<input checked="" type="checkbox"/>	
1702249-014A	B-26-10.0	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm	1	Acetate Liner	<input type="checkbox"/>	2/2/2017 14:14	3 days		<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>		4 days			
			SW8260B (VOCs)			<input type="checkbox"/>		3 days			
1702249-015A	B-26-15.0	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm	1	Acetate Liner	<input type="checkbox"/>	2/2/2017 14:25	3 days		<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>		3 days			
			SW8260B (VOCs)			<input type="checkbox"/>		3 days			

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).
 - MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Josh Graber
Contact's Email: jdgraber@treadwellrollo.com

Project: 750635602; 260 30th Street

Work Order: 1702249
QC Level: LEVEL 2
Date Logged: 2/3/2017

Comments: Samples 11&12&15 taken off hold and set up for G/DMO/8260/PAH 2/6/17 72hr RUSH. Sample 009,013 comp into workorder 1702249.

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1702249-016A	B-26-20.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/2/2017 14:27			<input checked="" type="checkbox"/>	
1702249-017A	B-27-8.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/3/2017 10:54			<input checked="" type="checkbox"/>	
1702249-018A	B-27-10.0	Soil	Multi-Range TPH(g,d,m) by EPA 8015Bm	1	Acetate Liner	<input type="checkbox"/>	2/3/2017 11:07	3 days		<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>		4 days	<input type="checkbox"/>		
			SW8260B (VOCs)			<input type="checkbox"/>		3 days	<input type="checkbox"/>		
1702249-019A	B-28-8.0	Soil	Multi-Range TPH(g,d,m) by EPA 8015Bm	1	Acetate Liner	<input type="checkbox"/>	2/3/2017 8:42	3 days		<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>		4 days	<input type="checkbox"/>		
			SW8260B (VOCs)			<input type="checkbox"/>		3 days	<input type="checkbox"/>		
1702249-020A	B-28-12.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/3/2017 8:47			<input checked="" type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).
- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

* PLEASE C.C. ANNIE S. *
 AT KSTAEHLIN@LANGAN.COM 10292

LANGAN

CHAIN OF CUSTODY RECORD

Page 1 of 2

- 555 Montgomery Street, Suite 1300, San Francisco, CA 94111
- 501 14th Street, Third Floor, Oakland CA 94612
- 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
- 4030 Moorpark Ave. Suite 210, San Jose, CA 95117-1849

Site Name: 260 30TH STREET
 Job Number: 750635602
 Project Manager/Contact: JOH GRABER
 Samplers: KSS
 Recorder (Signature Required): [Signature]

Turnaround
Time
72-Hour

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix & Preservative								Analysis Requested										Remarks						
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH g/d, m	VOCs	PAHs	CAM-17	Silica gel clean-up	Hold											
B-17-10.0	2/3/17	0807		X																								
B-17-15.0	2/3/17	0830		X																								
B-17-20.0	2/3/17	0835		X																								
B-23-8.0	2/2/17	1317		X																								
B-23-10.0		1325		X																								
B-23-12.5		1344		X																								
B-23-16.0		1348		X																								
B-23-20.0		1353		X																								
B-25-8.0		1447		X																								
B-25-10.0		1451		X																								
B-25-15.5		1502		X																								
B-25-20.0		1505		X																								
B-26-8.0		1408		X																								
B-26-10.0	2/3/17	1414		X																								

Relinquished by: (Signature) <u>[Signature]</u>	Date: _____	Time: _____	Received by: (Signature) <u>[Signature]</u>	Date: <u>2-3-17</u>	Time: <u>1300</u>
Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>2-3-17</u>	Time: <u>1650</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>2/3/17</u>	Time: <u>1650</u>
Relinquished by: (Signature) _____	Date: _____	Time: _____	Received by Lab: (Signature) _____	Date: _____	Time: _____

Sent to Laboratory (Name): MCCAMPBELL ANALYTICAL

Method of Shipment: Lab courier Fed Ex Airborne UPS
 Hand Carried Private Courier (Co. Name) _____

LANGAN

CHAIN OF CUSTODY RECORD

- 555 Montgomery Street, Suite 1300, San Francisco, CA 94111
- 501 14th Street, Third Floor, Oakland CA 94612
- 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
- 4030 Moorpark Ave. Suite 210, San Jose, CA 95117-1849

Site Name: 200 30TH STREET
 Job Number: 750035602
 Project Manager/Contact: JOSH GRABER
 Samplers: KSS
 Recorder (Signature Required): [Signature]

Turnaround Time
72-HOUR

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix & Preservative								Analysis Requested										Remarks			
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH	VOCS	PAHs	CAM-17	Silica gel clean-up	Hold								
B-26-15.0	2/2/17	1425		<input checked="" type="checkbox"/>																					
B-26-20.0	2/2/17	1427		<input checked="" type="checkbox"/>																					
B-27-8.0	2/3/17	1054		<input checked="" type="checkbox"/>																					
B-27-10.0	↙	1107		<input checked="" type="checkbox"/>																					
B-28-8.0	↙	0842		<input checked="" type="checkbox"/>																					
B-28-12.0	2/3/17	0847		<input checked="" type="checkbox"/>																					
Relinquished by: (Signature) <u>[Signature]</u>				Date:	Time	Received by: (Signature) <u>[Signature]</u>				Date:	Time														
Relinquished by: (Signature) <u>[Signature]</u>				Date:	Time	Received by: (Signature) <u>[Signature]</u>				Date:	Time														
Relinquished by: (Signature) <u>[Signature]</u>				Date:	Time	Received by Lab: (Signature) <u>[Signature]</u>				Date:	Time														
Sent to Laboratory (Name): <u>McCAMPBELL ANALYTICAL</u>						Method of Shipment <input checked="" type="checkbox"/> Lab courier <input type="checkbox"/> Fed Ex <input type="checkbox"/> Airborne <input type="checkbox"/> UPS																			
Laboratory Comments/Notes:						<input type="checkbox"/> Hand Carried <input type="checkbox"/> Private Courier (Co. Name)																			



Sample Receipt Checklist

Client Name: **Langan**
 Project Name: **750635602; 260 30th Street**
 WorkOrder No: **1702249** Matrix: Soil
 Carrier: Bernie Cummins (MAI Courier)

Date and Time Received: **2/3/2017 16:50**
 Date Logged: **2/3/2017**
 Received by: **Briana Cutino**
 Logged by: **Briana Cutino**

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
 Sample/Temp Blank temperature Temp: 3.6°C NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No
 (Ice Type: WET ICE)

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1702249 A

Report Created for: Langan

501 14th Street, 3rd Floor
Oakland, CA 94612

Project Contact: Josh Graber

Project P.O.:

Project Name: 750635602; 260 30th Street

Project Received: 02/03/2017

Analytical Report reviewed & approved for release on 02/09/2017 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702249

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702249

Analytical Qualifiers

S surrogate spike recovery outside accepted recovery limits
c2 surrogate recovery outside of the control limits due to matrix interference.
d7 strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram
e2 diesel range compounds are significant; no recognizable pattern
e7 oil range compounds are significant
e11 stoddard solvent/mineral spirit (?)

Quality Control Qualifiers

F2 LCS/LCSD recovery and/or RPD is out of acceptance criteria.
F3 the surrogate standard recovery and/or RPD is outside of acceptance limits.



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-15.5	1702249-011A	Soil	02/02/2017 15:02	GC16	133781

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/08/2017 01:18
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/08/2017 01:18
Benzene	ND	0.0050	1	02/08/2017 01:18
Bromobenzene	ND	0.0050	1	02/08/2017 01:18
Bromochloromethane	ND	0.0050	1	02/08/2017 01:18
Bromodichloromethane	ND	0.0050	1	02/08/2017 01:18
Bromoform	ND	0.0050	1	02/08/2017 01:18
Bromomethane	ND	0.0050	1	02/08/2017 01:18
2-Butanone (MEK)	ND	0.020	1	02/08/2017 01:18
t-Butyl alcohol (TBA)	ND	0.050	1	02/08/2017 01:18
n-Butyl benzene	ND	0.0050	1	02/08/2017 01:18
sec-Butyl benzene	ND	0.0050	1	02/08/2017 01:18
tert-Butyl benzene	ND	0.0050	1	02/08/2017 01:18
Carbon Disulfide	ND	0.0050	1	02/08/2017 01:18
Carbon Tetrachloride	ND	0.0050	1	02/08/2017 01:18
Chlorobenzene	ND	0.0050	1	02/08/2017 01:18
Chloroethane	ND	0.0050	1	02/08/2017 01:18
Chloroform	ND	0.0050	1	02/08/2017 01:18
Chloromethane	ND	0.0050	1	02/08/2017 01:18
2-Chlorotoluene	ND	0.0050	1	02/08/2017 01:18
4-Chlorotoluene	ND	0.0050	1	02/08/2017 01:18
Dibromochloromethane	ND	0.0050	1	02/08/2017 01:18
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/08/2017 01:18
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/08/2017 01:18
Dibromomethane	ND	0.0050	1	02/08/2017 01:18
1,2-Dichlorobenzene	ND	0.0050	1	02/08/2017 01:18
1,3-Dichlorobenzene	ND	0.0050	1	02/08/2017 01:18
1,4-Dichlorobenzene	ND	0.0050	1	02/08/2017 01:18
Dichlorodifluoromethane	ND	0.0050	1	02/08/2017 01:18
1,1-Dichloroethane	ND	0.0050	1	02/08/2017 01:18
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/08/2017 01:18
1,1-Dichloroethene	ND	0.0050	1	02/08/2017 01:18
cis-1,2-Dichloroethene	ND	0.0050	1	02/08/2017 01:18
trans-1,2-Dichloroethene	ND	0.0050	1	02/08/2017 01:18
1,2-Dichloropropane	ND	0.0050	1	02/08/2017 01:18
1,3-Dichloropropane	ND	0.0050	1	02/08/2017 01:18
2,2-Dichloropropane	ND	0.0050	1	02/08/2017 01:18

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-15.5	1702249-011A	Soil	02/02/2017 15:02	GC16	133781

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/08/2017 01:18
cis-1,3-Dichloropropene	ND	0.0050	1	02/08/2017 01:18
trans-1,3-Dichloropropene	ND	0.0050	1	02/08/2017 01:18
Diisopropyl ether (DIPE)	ND	0.0050	1	02/08/2017 01:18
Ethylbenzene	ND	0.0050	1	02/08/2017 01:18
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/08/2017 01:18
Freon 113	ND	0.0050	1	02/08/2017 01:18
Hexachlorobutadiene	ND	0.0050	1	02/08/2017 01:18
Hexachloroethane	ND	0.0050	1	02/08/2017 01:18
2-Hexanone	ND	0.0050	1	02/08/2017 01:18
Isopropylbenzene	ND	0.0050	1	02/08/2017 01:18
4-Isopropyl toluene	ND	0.0050	1	02/08/2017 01:18
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/08/2017 01:18
Methylene chloride	ND	0.0050	1	02/08/2017 01:18
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/08/2017 01:18
Naphthalene	ND	0.0050	1	02/08/2017 01:18
n-Propyl benzene	ND	0.0050	1	02/08/2017 01:18
Styrene	ND	0.0050	1	02/08/2017 01:18
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/08/2017 01:18
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/08/2017 01:18
Tetrachloroethene	ND	0.0050	1	02/08/2017 01:18
Toluene	ND	0.0050	1	02/08/2017 01:18
1,2,3-Trichlorobenzene	ND	0.0050	1	02/08/2017 01:18
1,2,4-Trichlorobenzene	ND	0.0050	1	02/08/2017 01:18
1,1,1-Trichloroethane	ND	0.0050	1	02/08/2017 01:18
1,1,2-Trichloroethane	ND	0.0050	1	02/08/2017 01:18
Trichloroethene	0.0074	0.0050	1	02/08/2017 01:18
Trichlorofluoromethane	ND	0.0050	1	02/08/2017 01:18
1,2,3-Trichloropropane	ND	0.0050	1	02/08/2017 01:18
1,2,4-Trimethylbenzene	ND	0.0050	1	02/08/2017 01:18
1,3,5-Trimethylbenzene	ND	0.0050	1	02/08/2017 01:18
Vinyl Chloride	ND	0.0050	1	02/08/2017 01:18
Xylenes, Total	ND	0.0050	1	02/08/2017 01:18

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-15.5	1702249-011A	Soil	02/02/2017 15:02	GC16	133781

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	91		70-130	02/08/2017 01:18
Toluene-d8	103		70-130	02/08/2017 01:18
4-BFB	103		70-130	02/08/2017 01:18
Benzene-d6	89		60-140	02/08/2017 01:18
Ethylbenzene-d10	104		60-140	02/08/2017 01:18
1,2-DCB-d4	77		60-140	02/08/2017 01:18

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-20.0	1702249-012A	Soil	02/02/2017 15:05	GC16	133781

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/08/2017 01:58
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/08/2017 01:58
Benzene	ND	0.0050	1	02/08/2017 01:58
Bromobenzene	ND	0.0050	1	02/08/2017 01:58
Bromochloromethane	ND	0.0050	1	02/08/2017 01:58
Bromodichloromethane	ND	0.0050	1	02/08/2017 01:58
Bromoform	ND	0.0050	1	02/08/2017 01:58
Bromomethane	ND	0.0050	1	02/08/2017 01:58
2-Butanone (MEK)	ND	0.020	1	02/08/2017 01:58
t-Butyl alcohol (TBA)	ND	0.050	1	02/08/2017 01:58
n-Butyl benzene	ND	0.0050	1	02/08/2017 01:58
sec-Butyl benzene	ND	0.0050	1	02/08/2017 01:58
tert-Butyl benzene	ND	0.0050	1	02/08/2017 01:58
Carbon Disulfide	ND	0.0050	1	02/08/2017 01:58
Carbon Tetrachloride	ND	0.0050	1	02/08/2017 01:58
Chlorobenzene	ND	0.0050	1	02/08/2017 01:58
Chloroethane	ND	0.0050	1	02/08/2017 01:58
Chloroform	ND	0.0050	1	02/08/2017 01:58
Chloromethane	ND	0.0050	1	02/08/2017 01:58
2-Chlorotoluene	ND	0.0050	1	02/08/2017 01:58
4-Chlorotoluene	ND	0.0050	1	02/08/2017 01:58
Dibromochloromethane	ND	0.0050	1	02/08/2017 01:58
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/08/2017 01:58
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/08/2017 01:58
Dibromomethane	ND	0.0050	1	02/08/2017 01:58
1,2-Dichlorobenzene	ND	0.0050	1	02/08/2017 01:58
1,3-Dichlorobenzene	ND	0.0050	1	02/08/2017 01:58
1,4-Dichlorobenzene	ND	0.0050	1	02/08/2017 01:58
Dichlorodifluoromethane	ND	0.0050	1	02/08/2017 01:58
1,1-Dichloroethane	ND	0.0050	1	02/08/2017 01:58
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/08/2017 01:58
1,1-Dichloroethene	ND	0.0050	1	02/08/2017 01:58
cis-1,2-Dichloroethene	ND	0.0050	1	02/08/2017 01:58
trans-1,2-Dichloroethene	ND	0.0050	1	02/08/2017 01:58
1,2-Dichloropropane	ND	0.0050	1	02/08/2017 01:58
1,3-Dichloropropane	ND	0.0050	1	02/08/2017 01:58
2,2-Dichloropropane	ND	0.0050	1	02/08/2017 01:58

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Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-20.0	1702249-012A	Soil	02/02/2017 15:05	GC16	133781

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/08/2017 01:58
cis-1,3-Dichloropropene	ND	0.0050	1	02/08/2017 01:58
trans-1,3-Dichloropropene	ND	0.0050	1	02/08/2017 01:58
Diisopropyl ether (DIPE)	ND	0.0050	1	02/08/2017 01:58
Ethylbenzene	ND	0.0050	1	02/08/2017 01:58
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/08/2017 01:58
Freon 113	ND	0.0050	1	02/08/2017 01:58
Hexachlorobutadiene	ND	0.0050	1	02/08/2017 01:58
Hexachloroethane	ND	0.0050	1	02/08/2017 01:58
2-Hexanone	ND	0.0050	1	02/08/2017 01:58
Isopropylbenzene	ND	0.0050	1	02/08/2017 01:58
4-Isopropyl toluene	ND	0.0050	1	02/08/2017 01:58
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/08/2017 01:58
Methylene chloride	ND	0.0050	1	02/08/2017 01:58
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/08/2017 01:58
Naphthalene	ND	0.0050	1	02/08/2017 01:58
n-Propyl benzene	ND	0.0050	1	02/08/2017 01:58
Styrene	ND	0.0050	1	02/08/2017 01:58
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/08/2017 01:58
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/08/2017 01:58
Tetrachloroethene	ND	0.0050	1	02/08/2017 01:58
Toluene	ND	0.0050	1	02/08/2017 01:58
1,2,3-Trichlorobenzene	ND	0.0050	1	02/08/2017 01:58
1,2,4-Trichlorobenzene	ND	0.0050	1	02/08/2017 01:58
1,1,1-Trichloroethane	ND	0.0050	1	02/08/2017 01:58
1,1,2-Trichloroethane	ND	0.0050	1	02/08/2017 01:58
Trichloroethene	0.0075	0.0050	1	02/08/2017 01:58
Trichlorofluoromethane	ND	0.0050	1	02/08/2017 01:58
1,2,3-Trichloropropane	ND	0.0050	1	02/08/2017 01:58
1,2,4-Trimethylbenzene	ND	0.0050	1	02/08/2017 01:58
1,3,5-Trimethylbenzene	ND	0.0050	1	02/08/2017 01:58
Vinyl Chloride	ND	0.0050	1	02/08/2017 01:58
Xylenes, Total	ND	0.0050	1	02/08/2017 01:58

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-20.0	1702249-012A	Soil	02/02/2017 15:05	GC16	133781

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	91	70-130		02/08/2017 01:58
Toluene-d8	104	70-130		02/08/2017 01:58
4-BFB	109	70-130		02/08/2017 01:58
Benzene-d6	87	60-140		02/08/2017 01:58
Ethylbenzene-d10	102	60-140		02/08/2017 01:58
1,2-DCB-d4	74	60-140		02/08/2017 01:58

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-26-15.0	1702249-015A	Soil	02/02/2017 14:25	GC16	133781

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/08/2017 02:38
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/08/2017 02:38
Benzene	ND	0.0050	1	02/08/2017 02:38
Bromobenzene	ND	0.0050	1	02/08/2017 02:38
Bromochloromethane	ND	0.0050	1	02/08/2017 02:38
Bromodichloromethane	ND	0.0050	1	02/08/2017 02:38
Bromoform	ND	0.0050	1	02/08/2017 02:38
Bromomethane	ND	0.0050	1	02/08/2017 02:38
2-Butanone (MEK)	ND	0.020	1	02/08/2017 02:38
t-Butyl alcohol (TBA)	ND	0.050	1	02/08/2017 02:38
n-Butyl benzene	ND	0.0050	1	02/08/2017 02:38
sec-Butyl benzene	ND	0.0050	1	02/08/2017 02:38
tert-Butyl benzene	ND	0.0050	1	02/08/2017 02:38
Carbon Disulfide	ND	0.0050	1	02/08/2017 02:38
Carbon Tetrachloride	ND	0.0050	1	02/08/2017 02:38
Chlorobenzene	ND	0.0050	1	02/08/2017 02:38
Chloroethane	ND	0.0050	1	02/08/2017 02:38
Chloroform	ND	0.0050	1	02/08/2017 02:38
Chloromethane	ND	0.0050	1	02/08/2017 02:38
2-Chlorotoluene	ND	0.0050	1	02/08/2017 02:38
4-Chlorotoluene	ND	0.0050	1	02/08/2017 02:38
Dibromochloromethane	ND	0.0050	1	02/08/2017 02:38
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/08/2017 02:38
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/08/2017 02:38
Dibromomethane	ND	0.0050	1	02/08/2017 02:38
1,2-Dichlorobenzene	ND	0.0050	1	02/08/2017 02:38
1,3-Dichlorobenzene	ND	0.0050	1	02/08/2017 02:38
1,4-Dichlorobenzene	ND	0.0050	1	02/08/2017 02:38
Dichlorodifluoromethane	ND	0.0050	1	02/08/2017 02:38
1,1-Dichloroethane	ND	0.0050	1	02/08/2017 02:38
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/08/2017 02:38
1,1-Dichloroethene	ND	0.0050	1	02/08/2017 02:38
cis-1,2-Dichloroethene	ND	0.0050	1	02/08/2017 02:38
trans-1,2-Dichloroethene	ND	0.0050	1	02/08/2017 02:38
1,2-Dichloropropane	ND	0.0050	1	02/08/2017 02:38
1,3-Dichloropropane	ND	0.0050	1	02/08/2017 02:38
2,2-Dichloropropane	ND	0.0050	1	02/08/2017 02:38

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Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-26-15.0	1702249-015A	Soil	02/02/2017 14:25	GC16	133781

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/08/2017 02:38
cis-1,3-Dichloropropene	ND	0.0050	1	02/08/2017 02:38
trans-1,3-Dichloropropene	ND	0.0050	1	02/08/2017 02:38
Diisopropyl ether (DIPE)	ND	0.0050	1	02/08/2017 02:38
Ethylbenzene	ND	0.0050	1	02/08/2017 02:38
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/08/2017 02:38
Freon 113	ND	0.0050	1	02/08/2017 02:38
Hexachlorobutadiene	ND	0.0050	1	02/08/2017 02:38
Hexachloroethane	ND	0.0050	1	02/08/2017 02:38
2-Hexanone	ND	0.0050	1	02/08/2017 02:38
Isopropylbenzene	ND	0.0050	1	02/08/2017 02:38
4-Isopropyl toluene	ND	0.0050	1	02/08/2017 02:38
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/08/2017 02:38
Methylene chloride	ND	0.0050	1	02/08/2017 02:38
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/08/2017 02:38
Naphthalene	ND	0.0050	1	02/08/2017 02:38
n-Propyl benzene	ND	0.0050	1	02/08/2017 02:38
Styrene	ND	0.0050	1	02/08/2017 02:38
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/08/2017 02:38
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/08/2017 02:38
Tetrachloroethene	ND	0.0050	1	02/08/2017 02:38
Toluene	ND	0.0050	1	02/08/2017 02:38
1,2,3-Trichlorobenzene	ND	0.0050	1	02/08/2017 02:38
1,2,4-Trichlorobenzene	ND	0.0050	1	02/08/2017 02:38
1,1,1-Trichloroethane	ND	0.0050	1	02/08/2017 02:38
1,1,2-Trichloroethane	ND	0.0050	1	02/08/2017 02:38
Trichloroethene	ND	0.0050	1	02/08/2017 02:38
Trichlorofluoromethane	ND	0.0050	1	02/08/2017 02:38
1,2,3-Trichloropropane	ND	0.0050	1	02/08/2017 02:38
1,2,4-Trimethylbenzene	ND	0.0050	1	02/08/2017 02:38
1,3,5-Trimethylbenzene	ND	0.0050	1	02/08/2017 02:38
Vinyl Chloride	ND	0.0050	1	02/08/2017 02:38
Xylenes, Total	ND	0.0050	1	02/08/2017 02:38

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-26-15.0	1702249-015A	Soil	02/02/2017 14:25	GC16	133781

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	91	70-130		02/08/2017 02:38
Toluene-d8	103	70-130		02/08/2017 02:38
4-BFB	106	70-130		02/08/2017 02:38
Benzene-d6	92	60-140		02/08/2017 02:38
Ethylbenzene-d10	108	60-140		02/08/2017 02:38
1,2-DCB-d4	78	60-140		02/08/2017 02:38

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-15.5	1702249-011A	Soil	02/02/2017 15:02	GC35	133888

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/09/2017 05:57
Acenaphthylene	ND	0.010	1	02/09/2017 05:57
Anthracene	ND	0.010	1	02/09/2017 05:57
Benzo (a) anthracene	ND	0.010	1	02/09/2017 05:57
Benzo (a) pyrene	ND	0.010	1	02/09/2017 05:57
Benzo (b) fluoranthene	ND	0.010	1	02/09/2017 05:57
Benzo (g,h,i) perylene	ND	0.010	1	02/09/2017 05:57
Benzo (k) fluoranthene	ND	0.010	1	02/09/2017 05:57
Chrysene	ND	0.010	1	02/09/2017 05:57
Dibenzo (a,h) anthracene	ND	0.010	1	02/09/2017 05:57
Fluoranthene	ND	0.010	1	02/09/2017 05:57
Fluorene	ND	0.010	1	02/09/2017 05:57
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/09/2017 05:57
1-Methylnaphthalene	ND	0.010	1	02/09/2017 05:57
2-Methylnaphthalene	ND	0.010	1	02/09/2017 05:57
Naphthalene	ND	0.010	1	02/09/2017 05:57
Phenanthrene	ND	0.010	1	02/09/2017 05:57
Pyrene	ND	0.010	1	02/09/2017 05:57

Surrogates	REC (%)	Limits	Date Analyzed
1-Fluoronaphthalene	96	30-130	02/09/2017 05:57
2-Fluorobiphenyl	94	30-130	02/09/2017 05:57

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-20.0	1702249-012A	Soil	02/02/2017 15:05	GC35	133888

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/09/2017 06:22
Acenaphthylene	ND	0.010	1	02/09/2017 06:22
Anthracene	ND	0.010	1	02/09/2017 06:22
Benzo (a) anthracene	ND	0.010	1	02/09/2017 06:22
Benzo (a) pyrene	ND	0.010	1	02/09/2017 06:22
Benzo (b) fluoranthene	ND	0.010	1	02/09/2017 06:22
Benzo (g,h,i) perylene	ND	0.010	1	02/09/2017 06:22
Benzo (k) fluoranthene	ND	0.010	1	02/09/2017 06:22
Chrysene	ND	0.010	1	02/09/2017 06:22
Dibenzo (a,h) anthracene	ND	0.010	1	02/09/2017 06:22
Fluoranthene	ND	0.010	1	02/09/2017 06:22
Fluorene	ND	0.010	1	02/09/2017 06:22
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/09/2017 06:22
1-Methylnaphthalene	ND	0.010	1	02/09/2017 06:22
2-Methylnaphthalene	ND	0.010	1	02/09/2017 06:22
Naphthalene	ND	0.010	1	02/09/2017 06:22
Phenanthrene	ND	0.010	1	02/09/2017 06:22
Pyrene	ND	0.010	1	02/09/2017 06:22
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	97	30-130		02/09/2017 06:22
2-Fluorobiphenyl	98	30-130		02/09/2017 06:22

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-26-15.0	1702249-015A	Soil	02/02/2017 14:25	GC35	133888

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/09/2017 06:48
Acenaphthylene	ND	0.010	1	02/09/2017 06:48
Anthracene	ND	0.010	1	02/09/2017 06:48
Benzo (a) anthracene	ND	0.010	1	02/09/2017 06:48
Benzo (a) pyrene	ND	0.010	1	02/09/2017 06:48
Benzo (b) fluoranthene	ND	0.010	1	02/09/2017 06:48
Benzo (g,h,i) perylene	ND	0.010	1	02/09/2017 06:48
Benzo (k) fluoranthene	ND	0.010	1	02/09/2017 06:48
Chrysene	ND	0.010	1	02/09/2017 06:48
Dibenzo (a,h) anthracene	ND	0.010	1	02/09/2017 06:48
Fluoranthene	ND	0.010	1	02/09/2017 06:48
Fluorene	ND	0.010	1	02/09/2017 06:48
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/09/2017 06:48
1-Methylnaphthalene	ND	0.010	1	02/09/2017 06:48
2-Methylnaphthalene	ND	0.010	1	02/09/2017 06:48
Naphthalene	ND	0.010	1	02/09/2017 06:48
Phenanthrene	ND	0.010	1	02/09/2017 06:48
Pyrene	ND	0.010	1	02/09/2017 06:48
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	98	30-130		02/09/2017 06:48
2-Fluorobiphenyl	97	30-130		02/09/2017 06:48

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-15.5	1702249-011A	Soil	02/02/2017 15:02	GC19	133772

Analytes	Result	RL	DF	Date Analyzed	
TPH(g) (C6-C12)	2.9	1.0	1	02/09/2017 00:38	
MTBE	---	0.050	1	02/09/2017 00:38	
Benzene	---	0.0050	1	02/09/2017 00:38	
Toluene	---	0.0050	1	02/09/2017 00:38	
Ethylbenzene	---	0.0050	1	02/09/2017 00:38	
Xylenes	---	0.015	1	02/09/2017 00:38	
Surrogates	REC (%)	Limits			
2-Fluorotoluene	85	69-117		02/09/2017 00:38	
Analyst(s): IA		Analytical Comments: d7			

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-20.0	1702249-012A	Soil	02/02/2017 15:05	GC19	133772

Analytes	Result	RL	DF	Date Analyzed	
TPH(g) (C6-C12)	ND	1.0	1	02/08/2017 23:06	
MTBE	---	0.050	1	02/08/2017 23:06	
Benzene	---	0.0050	1	02/08/2017 23:06	
Toluene	---	0.0050	1	02/08/2017 23:06	
Ethylbenzene	---	0.0050	1	02/08/2017 23:06	
Xylenes	---	0.015	1	02/08/2017 23:06	
Surrogates	REC (%)	Limits			
2-Fluorotoluene	85	69-117		02/08/2017 23:06	
Analyst(s): IA					



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-26-15.0	1702249-015A	Soil	02/02/2017 14:25	GC19	133772

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/09/2017 00:07
MTBE	---	0.050	1	02/09/2017 00:07
Benzene	---	0.0050	1	02/09/2017 00:07
Toluene	---	0.0050	1	02/09/2017 00:07
Ethylbenzene	---	0.0050	1	02/09/2017 00:07
Xylenes	---	0.015	1	02/09/2017 00:07

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	87	69-117	02/09/2017 00:07

Analyst(s): IA



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-15.5	1702249-011A	Soil	02/02/2017 15:02	GC11B	133771

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	42	1.0	1	02/07/2017 18:27
TPH-Motor Oil (C18-C36)	170	5.0	1	02/07/2017 18:27

Surrogates	REC (%)	Limits	Date Analyzed
C9	102	72-114	02/07/2017 18:27

Analyst(s): TK Analytical Comments: e7,e2

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-20.0	1702249-012A	Soil	02/02/2017 15:05	GC11B	133771

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/07/2017 19:46
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/07/2017 19:46

Surrogates	REC (%)	Limits	Date Analyzed
C9	103	72-114	02/07/2017 19:46

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-26-15.0	1702249-015A	Soil	02/02/2017 14:25	GC11B	133771

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/07/2017 21:04
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/07/2017 21:04

Surrogates	REC (%)	Limits	Date Analyzed
C9	103	72-114	02/07/2017 21:04

Analyst(s): TK



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17 - 2/8/17
Instrument: GC16, GC28
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133781
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133781
 1702156-007AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0387	0.0050	0.050	-	77	53-116
Benzene	ND	0.0446	0.0050	0.050	-	89	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.161	0.050	0.20	-	80	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0456	0.0050	0.050	-	91	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0437	0.0040	0.050	-	87	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0411	0.0040	0.050	-	82	58-135
1,1-Dichloroethene	ND	0.0424	0.0050	0.050	-	85	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-

(Cont.)

NELAP 4033ORELAP

 QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17 - 2/8/17
Instrument: GC16, GC28
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133781
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133781
 1702156-007AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
Diisopropyl ether (DIPE)	ND	0.0434	0.0050	0.050	-	87	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0429	0.0050	0.050	-	86	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0418	0.0050	0.050	-	84	58-122
Methylene chloride	ND	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0489	0.0050	0.050	-	98	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0444	0.0050	0.050	-	89	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17 - 2/8/17
Instrument: GC16, GC28
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133781
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133781
 1702156-007AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.1132	0.115		0.12	91	92	70-130
Toluene-d8	0.1318	0.130		0.12	105	104	70-130
4-BFB	0.01411	0.0133		0.012	113	106	70-130
Benzene-d6	0.0999	0.0948		0.10	100	95	60-140
Ethylbenzene-d10	0.1202	0.110		0.10	120	110	60-140
1,2-DCB-d4	0.08315	0.0826		0.10	83	83	60-140

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0366	0.0359	0.050	ND	73	72	53-116	1.79	20
Benzene	0.0392	0.0391	0.050	ND	78	78	63-137	0	20
t-Butyl alcohol (TBA)	0.132	0.126	0.20	ND	66	63	41-135	4.72	20
Chlorobenzene	0.0405	0.0402	0.050	ND	81	80	77-121	0.784	20
1,2-Dibromoethane (EDB)	0.0374	0.0367	0.050	ND	75	73	67-119	2.01	20
1,2-Dichloroethane (1,2-DCA)	0.0377	0.0369	0.050	ND	75	74	58-135	2.05	20
1,1-Dichloroethene	0.0362	0.0363	0.050	ND	72	73	42-145	0.394	20
Diisopropyl ether (DIPE)	0.0383	0.0374	0.050	ND	77	75	52-129	2.23	20
Ethyl tert-butyl ether (ETBE)	0.0384	0.0376	0.050	ND	77	75	53-125	2.19	20
Methyl-t-butyl ether (MTBE)	0.0373	0.0365	0.050	ND	75	73	58-122	2.08	20
Toluene	0.0417	0.0416	0.050	ND	83	83	76-130	0	20
Trichloroethene	0.0434	0.0410	0.050	ND	87	82	72-132	5.66	20
Surrogate Recovery									
Dibromofluoromethane	0.124	0.123	0.12		99	98	70-130	0.901	20
Toluene-d8	0.144	0.143	0.12		116	114	70-130	1.25	20
4-BFB	0.0142	0.0139	0.012		114	111	70-130	2.50	20
Benzene-d6	0.0896	0.0894	0.10		90	89	60-140	0.248	20
Ethylbenzene-d10	0.103	0.103	0.10		103	103	60-140	0	20
1,2-DCB-d4	0.0878	0.0889	0.10		88	89	60-140	1.22	20



Quality Control Report

Client: Langan
Date Prepared: 2/8/17
Date Analyzed: 2/9/17
Instrument: GC35
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133888
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg
Sample ID: MB/LCS-133888
 1702218-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	-	0.010	-	-	-	-
Acenaphthylene	ND	-	0.010	-	-	-	-
Anthracene	ND	-	0.010	-	-	-	-
Benzo (a) anthracene	ND	-	0.010	-	-	-	-
Benzo (a) pyrene	ND	0.146	0.010	0.20	-	73	23-129
Benzo (b) fluoranthene	ND	-	0.010	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.010	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.010	-	-	-	-
Chrysene	ND	0.140	0.010	0.20	-	70	38-104
Dibenzo (a,h) anthracene	ND	-	0.010	-	-	-	-
Fluoranthene	ND	-	0.010	-	-	-	-
Fluorene	ND	-	0.010	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.010	-	-	-	-
1-Methylnaphthalene	ND	0.192	0.010	0.20	-	96	59-106
2-Methylnaphthalene	ND	0.185	0.010	0.20	-	93	54-108
Naphthalene	ND	-	0.010	-	-	-	-
Phenanthrene	ND	0.160	0.010	0.20	-	80	48-107
Pyrene	ND	0.151	0.010	0.20	-	75	40-104

Surrogate Recovery

1-Fluoronaphthalene	0.4056	0.439		0.50	81	88	63-123
2-Fluorobiphenyl	0.4011	0.428		0.50	80	86	55-127

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Benzo (a) pyrene	0.197	0.250	0.20	ND	99	125	9-156	23.5	30
Chrysene	0.156	0.156	0.20	ND	78	78	33-115	0	30
1-Methylnaphthalene	0.219	0.220	0.20	ND	109	110	13-167	0.477	30
2-Methylnaphthalene	0.209	0.211	0.20	ND	103	104	25-152	0.807	30
Phenanthrene	0.174	0.174	0.20	ND	87	87	30-138	0	30
Pyrene	0.186	0.179	0.20	ND	93	90	29-125	3.65	30

Surrogate Recovery

1-Fluoronaphthalene	0.479	0.459	0.50		96	92	56-153	4.38	30
2-Fluorobiphenyl	0.464	0.438	0.50		93	88	50-150	5.66	30



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/8/17
Instrument: GC19
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133772
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-133772
 1702414-002AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	0.589	0.40	0.60	-	98	89-118
MTBE	ND	0.0998	0.050	0.10	-	100	68-116
Benzene	ND	0.112	0.0050	0.10	-	113	85-118
Toluene	ND	0.115	0.0050	0.10	-	115	87-121
Ethylbenzene	ND	0.112	0.0050	0.10	-	112	91-124
Xylenes	ND	0.334	0.015	0.30	-	111	92-126
Surrogate Recovery							
2-Fluorotoluene	0.09804	0.104		0.10	98	104	88-119

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	NR	NR		ND	NR	NR	-	NR	
MTBE	NR	NR		ND	NR	NR	-	NR	
Benzene	NR	NR		ND	NR	NR	-	NR	
Toluene	NR	NR		ND	NR	NR	-	NR	
Ethylbenzene	NR	NR		ND	NR	NR	-	NR	
Xylenes	NR	NR		ND	NR	NR	-	NR	
Surrogate Recovery									
2-Fluorotoluene	NR	NR			NR	NR	-	NR	



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17
Instrument: GC9a
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133771
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg
Sample ID: MB/LCS-133771
 1702366-022AMS/MSD

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	39.6	1.0	40	-	99	91-127
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	24.37	25.1		25	97	100	74-110

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	39.4	42.4	40	1.669	94	102	74-143	7.35	30
Surrogate Recovery									
C9	24.4	24.3	25		98	97	72-114	0.308	30



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1702249 **A** ClientCode: TWRK

WaterTrax
 WriteOn
 EDF
 Excel
 Fax
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:
 Josh Graber
 Langan
 501 14th Street, 3rd Floor
 Oakland, CA 94612
 (415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
 cc/3rd Party: kstaehlin@langan.com;
 PO:
 ProjectNo: 750635602; 260 30th Street

Bill to:
 Accounts Payable
 Langan
 555 Montgomery St., Suite 1300
 San Francisco, CA 94111
 Langan_InvoiceCapture@concursolutio

Requested TAT: 3 days;

Date Received: 02/03/2017
Date Logged: 02/03/2017
Date Add-On: 02/06/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1702249-011	B-25-15.5	Soil	2/2/2017 15:02	<input type="checkbox"/>	A	A	A	A									
1702249-012	B-25-20.0	Soil	2/2/2017 15:05	<input type="checkbox"/>	A	A	A	A									
1702249-015	B-26-15.0	Soil	2/2/2017 14:25	<input type="checkbox"/>	A	A	A	A									

Test Legend:

1	8260B_S	2	8270_PNA_S	3	G-MBTEX_S	4	TPH(DMO)_S
5		6		7		8	
9		10		11		12	

Prepared by: Briana Cutino
Add-On Prepared By: Briana Cutino

Comments: Samples 11&12&15 taken off hold and set up for G/DMO/8260/PAH 2/6/17 72hr RUSH

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days). Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: LANGAN

Project: 750635602; 260 30th Street

Work Order: 1702249

Client Contact: Josh Graber

QC Level: LEVEL 2

Contact's Email: jdgraber@treadwellrollo.com

Comments: Samples 11&12&15 taken off hold and set up for G/DMO/8260/PAH 2/6/17 72hr RUSH. Sample 009,013 comp
Date modified: 1702218

Date Logged: 2/3/2017

Date Add-On: 2/6/2017

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1702249-011A	B-25-15.5	Soil	Multi-Range TPH(g,d,mo) by EPA	1	Acetate Liner	2/2/2017 15:02	3 days			<input type="checkbox"/>
			8015Bm							
			SW8270C (PAHs/PNAs)							
			SW8260B (VOCs)				3 days			<input type="checkbox"/>
1702249-012A	B-25-20.0	Soil	Multi-Range TPH(g,d,mo) by EPA	1	Acetate Liner	2/2/2017 15:05	3 days			<input type="checkbox"/>
			8015Bm							
			SW8270C (PAHs/PNAs)							
			SW8260B (VOCs)				3 days			<input type="checkbox"/>
1702249-015A	B-26-15.0	Soil	Multi-Range TPH(g,d,mo) by EPA	1	Acetate Liner	2/2/2017 14:25	3 days			<input type="checkbox"/>
			8015Bm							
			SW8270C (PAHs/PNAs)							
			SW8260B (VOCs)				3 days			<input type="checkbox"/>

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

LANGAN

CHAIN OF CUSTODY RECORD

- 555 Montgomery Street, Suite 1300, San Francisco, CA 94111
- 501 14th Street, Third Floor, Oakland CA 94612
- 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
- 4030 Moorpark Ave. Suite 210, San Jose, CA 95117-1849

Site Name: 260 30TH STREET
 Job Number: 7506351602
 Project Manager/Contact: JOSH GRABER
 Samplers: KSS
 Recorder (Signature Required): [Signature]

Turnaround Time <u>72-HOUR</u>

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix & Preservative								Analysis Requested		Silica gel clean-up	Hold	Remarks					
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH/dipno	VOCs				PAHs	CAM-17			
B-26-15.0	2/2/17	1425		X											(X)(X)	2-6-17	3DAY				
B-26-20.0	2/2/17	1427		X																	
B-27-8.0	2/3/17	1054		X																	
B-27-10.0	S	1107		X																	
B-28-8.0	S	0842		X																	
B-28-12.0	2/3/17	0847		X																	

Relinquished by: (Signature) <u>[Signature]</u>	Date: _____	Time _____	Received by: (Signature) <u>[Signature]</u>	Date: <u>2-3-17</u>	Time: <u>1300</u>
Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>2-3-17</u>	Time: <u>1650</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>2/3/17</u>	Time: <u>1650</u>
Relinquished by: (Signature) _____	Date: _____	Time _____	Received by Lab: (Signature) _____	Date _____	Time _____

Sent to Laboratory (Name): McCAMPBELL ANALYTICAL

Laboratory Comments/Notes: _____

Method of Shipment: Lab courier Fed Ex Airborne UPS
 Hand Carried Private Courier (Co. Name) _____



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1702249 B

Report Created for: Langan

501 14th Street, 3rd Floor
Oakland, CA 94612

Project Contact: Josh Graber

Project P.O.:

Project Name: 750635602; 260 30th Street

Project Received: 02/03/2017

Analytical Report reviewed & approved for release on 02/10/2017 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702249

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702249

Analytical Qualifiers

S surrogate spike recovery outside accepted recovery limits
c2 surrogate recovery outside of the control limits due to matrix interference.
d7 strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram
e2 diesel range compounds are significant; no recognizable pattern
e4 gasoline range compounds are significant.
e7 oil range compounds are significant
e11 stoddard solvent/mineral spirit (?)

Quality Control Qualifiers

F1 MS/MSD recovery and/or RPD is out of acceptance criteria; LCS validates the prep batch.
F2 LCS/LCSD recovery and/or RPD is out of acceptance criteria.
F3 the surrogate standard recovery and/or RPD is outside of acceptance limits.



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-12.5	1702249-006A	Soil	02/02/2017 13:44	GC18	133899

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/08/2017 23:23
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/08/2017 23:23
Benzene	ND	0.0050	1	02/08/2017 23:23
Bromobenzene	ND	0.0050	1	02/08/2017 23:23
Bromochloromethane	ND	0.0050	1	02/08/2017 23:23
Bromodichloromethane	ND	0.0050	1	02/08/2017 23:23
Bromoform	ND	0.0050	1	02/08/2017 23:23
Bromomethane	ND	0.0050	1	02/08/2017 23:23
2-Butanone (MEK)	ND	0.020	1	02/08/2017 23:23
t-Butyl alcohol (TBA)	ND	0.050	1	02/08/2017 23:23
n-Butyl benzene	0.010	0.0050	1	02/08/2017 23:23
sec-Butyl benzene	0.0066	0.0050	1	02/08/2017 23:23
tert-Butyl benzene	ND	0.0050	1	02/08/2017 23:23
Carbon Disulfide	ND	0.0050	1	02/08/2017 23:23
Carbon Tetrachloride	ND	0.0050	1	02/08/2017 23:23
Chlorobenzene	ND	0.0050	1	02/08/2017 23:23
Chloroethane	ND	0.0050	1	02/08/2017 23:23
Chloroform	ND	0.0050	1	02/08/2017 23:23
Chloromethane	ND	0.0050	1	02/08/2017 23:23
2-Chlorotoluene	ND	0.0050	1	02/08/2017 23:23
4-Chlorotoluene	ND	0.0050	1	02/08/2017 23:23
Dibromochloromethane	ND	0.0050	1	02/08/2017 23:23
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/08/2017 23:23
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/08/2017 23:23
Dibromomethane	ND	0.0050	1	02/08/2017 23:23
1,2-Dichlorobenzene	0.0061	0.0050	1	02/08/2017 23:23
1,3-Dichlorobenzene	ND	0.0050	1	02/08/2017 23:23
1,4-Dichlorobenzene	ND	0.0050	1	02/08/2017 23:23
Dichlorodifluoromethane	ND	0.0050	1	02/08/2017 23:23
1,1-Dichloroethane	ND	0.0050	1	02/08/2017 23:23
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/08/2017 23:23
1,1-Dichloroethene	ND	0.0050	1	02/08/2017 23:23
cis-1,2-Dichloroethene	ND	0.0050	1	02/08/2017 23:23
trans-1,2-Dichloroethene	ND	0.0050	1	02/08/2017 23:23
1,2-Dichloropropane	ND	0.0050	1	02/08/2017 23:23
1,3-Dichloropropane	ND	0.0050	1	02/08/2017 23:23
2,2-Dichloropropane	ND	0.0050	1	02/08/2017 23:23

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-12.5	1702249-006A	Soil	02/02/2017 13:44	GC18	133899
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
1,1-Dichloropropene	ND		0.0050	1	02/08/2017 23:23
cis-1,3-Dichloropropene	ND		0.0050	1	02/08/2017 23:23
trans-1,3-Dichloropropene	ND		0.0050	1	02/08/2017 23:23
Diisopropyl ether (DIPE)	ND		0.0050	1	02/08/2017 23:23
Ethylbenzene	ND		0.0050	1	02/08/2017 23:23
Ethyl tert-butyl ether (ETBE)	ND		0.0050	1	02/08/2017 23:23
Freon 113	ND		0.0050	1	02/08/2017 23:23
Hexachlorobutadiene	ND		0.0050	1	02/08/2017 23:23
Hexachloroethane	ND		0.0050	1	02/08/2017 23:23
2-Hexanone	ND		0.0050	1	02/08/2017 23:23
Isopropylbenzene	ND		0.0050	1	02/08/2017 23:23
4-Isopropyl toluene	ND		0.0050	1	02/08/2017 23:23
Methyl-t-butyl ether (MTBE)	ND		0.0050	1	02/08/2017 23:23
Methylene chloride	ND		0.0050	1	02/08/2017 23:23
4-Methyl-2-pentanone (MIBK)	ND		0.0050	1	02/08/2017 23:23
Naphthalene	0.0064		0.0050	1	02/08/2017 23:23
n-Propyl benzene	ND		0.0050	1	02/08/2017 23:23
Styrene	ND		0.0050	1	02/08/2017 23:23
1,1,1,2-Tetrachloroethane	ND		0.0050	1	02/08/2017 23:23
1,1,2,2-Tetrachloroethane	ND		0.0050	1	02/08/2017 23:23
Tetrachloroethene	ND		0.0050	1	02/08/2017 23:23
Toluene	ND		0.0050	1	02/08/2017 23:23
1,2,3-Trichlorobenzene	ND		0.0050	1	02/08/2017 23:23
1,2,4-Trichlorobenzene	ND		0.0050	1	02/08/2017 23:23
1,1,1-Trichloroethane	ND		0.0050	1	02/08/2017 23:23
1,1,2-Trichloroethane	ND		0.0050	1	02/08/2017 23:23
Trichloroethene	ND		0.0050	1	02/08/2017 23:23
Trichlorofluoromethane	ND		0.0050	1	02/08/2017 23:23
1,2,3-Trichloropropane	ND		0.0050	1	02/08/2017 23:23
1,2,4-Trimethylbenzene	0.024		0.0050	1	02/08/2017 23:23
1,3,5-Trimethylbenzene	0.0098		0.0050	1	02/08/2017 23:23
Vinyl Chloride	ND		0.0050	1	02/08/2017 23:23
Xylenes, Total	ND		0.0050	1	02/08/2017 23:23

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-12.5	1702249-006A	Soil	02/02/2017 13:44	GC18	133899

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	99	70-130		02/08/2017 23:23
Toluene-d8	112	70-130		02/08/2017 23:23
4-BFB	102	70-130		02/08/2017 23:23
Benzene-d6	91	60-140		02/08/2017 23:23
Ethylbenzene-d10	101	60-140		02/08/2017 23:23
1,2-DCB-d4	83	60-140		02/08/2017 23:23

Analyst(s): HK



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-16.0	1702249-007A	Soil	02/02/2017 13:48	GC18	133899

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/09/2017 00:02
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/09/2017 00:02
Benzene	ND	0.0050	1	02/09/2017 00:02
Bromobenzene	ND	0.0050	1	02/09/2017 00:02
Bromochloromethane	ND	0.0050	1	02/09/2017 00:02
Bromodichloromethane	ND	0.0050	1	02/09/2017 00:02
Bromoform	ND	0.0050	1	02/09/2017 00:02
Bromomethane	ND	0.0050	1	02/09/2017 00:02
2-Butanone (MEK)	ND	0.020	1	02/09/2017 00:02
t-Butyl alcohol (TBA)	ND	0.050	1	02/09/2017 00:02
n-Butyl benzene	ND	0.0050	1	02/09/2017 00:02
sec-Butyl benzene	ND	0.0050	1	02/09/2017 00:02
tert-Butyl benzene	ND	0.0050	1	02/09/2017 00:02
Carbon Disulfide	ND	0.0050	1	02/09/2017 00:02
Carbon Tetrachloride	ND	0.0050	1	02/09/2017 00:02
Chlorobenzene	ND	0.0050	1	02/09/2017 00:02
Chloroethane	ND	0.0050	1	02/09/2017 00:02
Chloroform	ND	0.0050	1	02/09/2017 00:02
Chloromethane	ND	0.0050	1	02/09/2017 00:02
2-Chlorotoluene	ND	0.0050	1	02/09/2017 00:02
4-Chlorotoluene	ND	0.0050	1	02/09/2017 00:02
Dibromochloromethane	ND	0.0050	1	02/09/2017 00:02
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/09/2017 00:02
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/09/2017 00:02
Dibromomethane	ND	0.0050	1	02/09/2017 00:02
1,2-Dichlorobenzene	ND	0.0050	1	02/09/2017 00:02
1,3-Dichlorobenzene	ND	0.0050	1	02/09/2017 00:02
1,4-Dichlorobenzene	ND	0.0050	1	02/09/2017 00:02
Dichlorodifluoromethane	ND	0.0050	1	02/09/2017 00:02
1,1-Dichloroethane	ND	0.0050	1	02/09/2017 00:02
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/09/2017 00:02
1,1-Dichloroethene	ND	0.0050	1	02/09/2017 00:02
cis-1,2-Dichloroethene	ND	0.0050	1	02/09/2017 00:02
trans-1,2-Dichloroethene	ND	0.0050	1	02/09/2017 00:02
1,2-Dichloropropane	ND	0.0050	1	02/09/2017 00:02
1,3-Dichloropropane	ND	0.0050	1	02/09/2017 00:02
2,2-Dichloropropane	ND	0.0050	1	02/09/2017 00:02

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-16.0	1702249-007A	Soil	02/02/2017 13:48	GC18	133899

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/09/2017 00:02
cis-1,3-Dichloropropene	ND	0.0050	1	02/09/2017 00:02
trans-1,3-Dichloropropene	ND	0.0050	1	02/09/2017 00:02
Diisopropyl ether (DIPE)	ND	0.0050	1	02/09/2017 00:02
Ethylbenzene	ND	0.0050	1	02/09/2017 00:02
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/09/2017 00:02
Freon 113	ND	0.0050	1	02/09/2017 00:02
Hexachlorobutadiene	ND	0.0050	1	02/09/2017 00:02
Hexachloroethane	ND	0.0050	1	02/09/2017 00:02
2-Hexanone	ND	0.0050	1	02/09/2017 00:02
Isopropylbenzene	ND	0.0050	1	02/09/2017 00:02
4-Isopropyl toluene	ND	0.0050	1	02/09/2017 00:02
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/09/2017 00:02
Methylene chloride	ND	0.0050	1	02/09/2017 00:02
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/09/2017 00:02
Naphthalene	ND	0.0050	1	02/09/2017 00:02
n-Propyl benzene	ND	0.0050	1	02/09/2017 00:02
Styrene	ND	0.0050	1	02/09/2017 00:02
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/09/2017 00:02
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/09/2017 00:02
Tetrachloroethene	ND	0.0050	1	02/09/2017 00:02
Toluene	ND	0.0050	1	02/09/2017 00:02
1,2,3-Trichlorobenzene	ND	0.0050	1	02/09/2017 00:02
1,2,4-Trichlorobenzene	ND	0.0050	1	02/09/2017 00:02
1,1,1-Trichloroethane	ND	0.0050	1	02/09/2017 00:02
1,1,2-Trichloroethane	ND	0.0050	1	02/09/2017 00:02
Trichloroethene	ND	0.0050	1	02/09/2017 00:02
Trichlorofluoromethane	ND	0.0050	1	02/09/2017 00:02
1,2,3-Trichloropropane	ND	0.0050	1	02/09/2017 00:02
1,2,4-Trimethylbenzene	ND	0.0050	1	02/09/2017 00:02
1,3,5-Trimethylbenzene	ND	0.0050	1	02/09/2017 00:02
Vinyl Chloride	ND	0.0050	1	02/09/2017 00:02
Xylenes, Total	ND	0.0050	1	02/09/2017 00:02

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-16.0	1702249-007A	Soil	02/02/2017 13:48	GC18	133899

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	99		70-130	02/09/2017 00:02
Toluene-d8	112		70-130	02/09/2017 00:02
4-BFB	104		70-130	02/09/2017 00:02
Benzene-d6	89		60-140	02/09/2017 00:02
Ethylbenzene-d10	99		60-140	02/09/2017 00:02
1,2-DCB-d4	78		60-140	02/09/2017 00:02

Analyst(s): HK



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-12.5	1702249-006A	Soil	02/02/2017 13:44	GC19	133897

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	20	1.0	1	02/09/2017 15:44
MTBE	---	0.050	1	02/09/2017 15:44
Benzene	---	0.0050	1	02/09/2017 15:44
Toluene	---	0.0050	1	02/09/2017 15:44
Ethylbenzene	---	0.0050	1	02/09/2017 15:44
Xylenes	---	0.015	1	02/09/2017 15:44

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	81	69-117	02/09/2017 15:44

Analyst(s): IA **Analytical Comments:** d7

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-16.0	1702249-007A	Soil	02/02/2017 13:48	GC19	133897

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/09/2017 16:15
MTBE	---	0.050	1	02/09/2017 16:15
Benzene	---	0.0050	1	02/09/2017 16:15
Toluene	---	0.0050	1	02/09/2017 16:15
Ethylbenzene	---	0.0050	1	02/09/2017 16:15
Xylenes	---	0.015	1	02/09/2017 16:15

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	85	69-117	02/09/2017 16:15

Analyst(s): IA



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702249
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-12.5	1702249-006A	Soil	02/02/2017 13:44	GC9b	133851

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	8.1	1.0	1	02/09/2017 12:17
TPH-Motor Oil (C18-C36)	25	5.0	1	02/09/2017 12:17

Surrogates	REC (%)	Limits	Date Analyzed
C9	90	72-114	02/09/2017 12:17

Analyst(s): TK Analytical Comments: e7,e2,e4

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-16.0	1702249-007A	Soil	02/02/2017 13:48	GC9b	133851

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/09/2017 12:56
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/09/2017 12:56

Surrogates	REC (%)	Limits	Date Analyzed
C9	90	72-114	02/09/2017 12:56

Analyst(s): TK



Quality Control Report

Client: Langan
Date Prepared: 2/8/17
Date Analyzed: 2/8/17 - 2/9/17
Instrument: GC10
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133899
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133899
 1702155-013AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0408	0.0050	0.050	-	82	53-116
Benzene	ND	0.0425	0.0050	0.050	-	85	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.182	0.050	0.20	-	91	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0461	0.0050	0.050	-	92	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0443	0.0040	0.050	-	89	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0405	0.0040	0.050	-	81	58-135
1,1-Dichloroethene	ND	0.0403	0.0050	0.050	-	81	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-

(Cont.)

NELAP 4033ORELAP

 QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/8/17
Date Analyzed: 2/8/17 - 2/9/17
Instrument: GC10
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133899
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133899
 1702155-013AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
Diisopropyl ether (DIPE)	ND	0.0410	0.0050	0.050	-	82	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0425	0.0050	0.050	-	85	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0420	0.0050	0.050	-	84	58-122
Methylene chloride	ND	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0497	0.0050	0.050	-	99	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0437	0.0050	0.050	-	87	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-

(Cont.)

NELAP 4033ORELAP

 QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/8/17
Date Analyzed: 2/8/17 - 2/9/17
Instrument: GC10
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133899
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133899
 1702155-013AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.1174	0.120		0.12	94	96	70-130
Toluene-d8	0.159	0.151		0.12	127	121	70-130
4-BFB	0.01388	0.0144		0.012	111	115	70-130
Benzene-d6	0.101	0.0903		0.10	101	90	60-140
Ethylbenzene-d10	0.1305	0.113		0.10	131	113	60-140
1,2-DCB-d4	0.09579	0.0884		0.10	96	88	60-140

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0385	0.0523	0.050	ND	77	105	53-116	30.3,F1	20
Benzene	0.0381	0.0535	0.050	ND	76	107	63-137	33.7,F1	20
t-Butyl alcohol (TBA)	0.165	0.217	0.20	ND	83	109	41-135	27.3,F1	20
Chlorobenzene	0.0446	0.0589	0.050	ND	89	118	77-121	27.6,F1	20
1,2-Dibromoethane (EDB)	0.0432	0.0575	0.050	ND	86	115	67-119	28.3,F1	20
1,2-Dichloroethane (1,2-DCA)	0.0377	0.0510	0.050	ND	75	102	58-135	30.2,F1	20
1,1-Dichloroethene	0.0314	0.0508	0.050	ND	63	102	42-145	47.1,F1	20
Diisopropyl ether (DIPE)	0.0361	0.0506	0.050	ND	72	101	52-129	33.4,F1	20
Ethyl tert-butyl ether (ETBE)	0.0383	0.0536	0.050	ND	77	107	53-125	33.3,F1	20
Methyl-t-butyl ether (MTBE)	0.0374	0.0522	0.050	ND	75	104	58-122	33.1,F1	20
Toluene	0.0461	0.0628	0.050	ND	92	125	76-130	30.6,F1	20
Trichloroethene	0.0570	0.0749	0.050	0.009669	95	130	72-132	27,F1	20

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Surrogate Recovery									
Dibromofluoromethane	0.122	0.120	0.12		98	96	70-130	2.15	20
Toluene-d8	0.149	0.150	0.12		120	120	70-130	0	20
4-BFB	0.0149	0.0142	0.012		119	114	70-130	4.80	20
Benzene-d6	0.0937	0.0939	0.10		94	94	60-140	0	20
Ethylbenzene-d10	0.116	0.120	0.10		116	120	60-140	3.18	20
1,2-DCB-d4	0.0922	0.0960	0.10		92	96	60-140	4.08	20



Quality Control Report

Client: Langan
Date Prepared: 2/8/17
Date Analyzed: 2/9/17
Instrument: GC19
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133897
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-133897
 1702249-006AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	0.736	0.40	0.60	-	123, F2	89-118
MTBE	ND	0.109	0.050	0.10	-	109	68-116
Benzene	ND	0.118	0.0050	0.10	-	118	85-118
Toluene	ND	0.124	0.0050	0.10	-	124, F2	87-121
Ethylbenzene	ND	0.118	0.0050	0.10	-	118	91-124
Xylenes	ND	0.337	0.015	0.30	-	112	92-126
Surrogate Recovery							
2-Fluorotoluene	0.09856	0.0994		0.10	99	99	88-119

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	NR	NR		0.43	NR	NR	-	NR	
MTBE	NR	NR		ND	NR	NR	-	NR	
Benzene	NR	NR		ND	NR	NR	-	NR	
Toluene	NR	NR		0.0064	NR	NR	-	NR	
Ethylbenzene	NR	NR		0.0053	NR	NR	-	NR	
Xylenes	NR	NR		0.056	NR	NR	-	NR	
Surrogate Recovery									
2-Fluorotoluene	NR	NR			NR	NR	-	NR	



Quality Control Report

Client: Langan
Date Prepared: 2/7/17
Date Analyzed: 2/8/17
Instrument: GC6A
Matrix: Soil
Project: 750635602; 260 30th Street

WorkOrder: 1702249
BatchID: 133851
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg
Sample ID: MB/LCS-133851
 1702452-001AMS/MSD

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	43.6	1.0	40	-	109	91-127
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	24.59	24.6		25	98	99	74-110

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	42.8	42.7	40	ND	107	107	74-143	0	30
Surrogate Recovery									
C9	24.8	24.7	25		99	99	72-114	0	30



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1702249 **B** ClientCode: TWRK

WaterTrax
 WriteOn
 EDF
 Excel
 Fax
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Josh Graber
Langan
501 14th Street, 3rd Floor
Oakland, CA 94612
(415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc/3rd Party: kstaehlin@langan.com;
PO:
ProjectNo: 750635602; 260 30th Street

Bill to:

Accounts Payable
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursolutio

Requested TAT: 3 days;

Date Received: 02/03/2017
Date Logged: 02/03/2017
Date Add-On: 02/08/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1702249-006	B-23-12.5	Soil	2/2/2017 13:44	<input type="checkbox"/>	A	A	A										
1702249-007	B-23-16.0	Soil	2/2/2017 13:48	<input type="checkbox"/>	A	A	A										

Test Legend:

1	8260B_S	2	G-MBTEX_S	3	TPH(DMO)_S	4	
5		6		7		8	
9		10		11		12	

Prepared by: Briana Cutino
Add-On Prepared By: Briana Cutino

Comments: Samples 11&12&15 taken off hold and set up for G/DMO/8260/PAH 2/6/17 72hr RUSH. Sample 009,013 comp into workorder 1702218;

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: LANGAN

Project: 750635602; 260 30th Street

Work Order: 1702249

Client Contact: Josh Graber

QC Level: LEVEL 2

Contact's Email: jdgraber@treadwellrollo.com

Comments: Samples 11&12&15 taken off hold and set up for G/DMO/8260/PAH 2/6/17 72hr RUSH. Sample 009,013 comp

Date Logged: 2/3/2017

Date Add-On: 2/8/2017

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1702249-006A	B-23-12.5	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm SW8260B (VOCs)	1	Acetate Liner	2/2/2017 13:44	3 days		<input type="checkbox"/>	
							3 days		<input type="checkbox"/>	
1702249-007A	B-23-16.0	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm SW8260B (VOCs)	1	Acetate Liner	2/2/2017 13:48	3 days		<input type="checkbox"/>	
							3 days		<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

* PLEASE C.C. ANNIE S. *
 AT KSTAEHLING@LANGAN.COM 10292

LANGAN

CHAIN OF CUSTODY RECORD

Page 1 of 2

- 555 Montgomery Street, Suite 1300, San Francisco, CA 94111
- 501 14th Street, Third Floor, Oakland CA 94612
- 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
- 4030 Moorpark Ave. Suite 210, San Jose, CA 95117-1849

Site Name: 260 30TH STREET
 Job Number: 750635602
 Project Manager/Contact: JOH GRABER
 Samplers: KSS
 Recorder (Signature Required): [Signature]

Turnaround Time
72-Hour

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix & Preservative							Analysis Requested										Remarks				
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH g/d, m	VOCs	PAHs	CAM-17	TPH g/d, m	VOCs	Silica gel clean-up	Hold						
B-17-10.0	2/3/17	0807		X																					
B-17-15.0	2/3/17	0830		X																					
B-17-20.0	2/3/17	0835		X																					
B-23-8.0	2/2/17	1317		X																					
B-23-10.0		1325		X																					
B-23-12.5		1344		X																					
B-23-16.0		1348		X																					
B-23-20.0		1353		X																					
B-25-8.0		1447		X																					
B-25-10.0		1451		X																					
B-25-15.5		1502		X																					
B-25-20.0		1505		X																					
B-26-8.0		1408		X																					
B-26-10.0	2/2/17	1414		X																					

Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>2-3-17</u>	Time: <u>1650</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>2-3-17</u>	Time: <u>1300</u>
Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>2-3-17</u>	Time: <u>1650</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>2/3/17</u>	Time: <u>1650</u>
Relinquished by: (Signature) <u>[Signature]</u>	Date:	Time:	Received by Lab: (Signature) <u>[Signature]</u>	Date:	Time:

Sent to Laboratory (Name): MCCAMPBELL ANALYTICAL
 Laboratory Comments/Notes:
 Method of Shipment: Lab courier Fed Ex Airborne UPS
 Hand Carried Private Courier (Co. Name)

White Copy - Original Yellow Copy - Laboratory Pink Copy - Field
 * added 2/8/17
 COC Number: 3DFAT



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1702251

Report Created for: Langan

501 14th Street, 3rd Floor
Oakland, CA 94612

Project Contact: Josh Graber

Project P.O.:

Project Name: 750635602; 260 30th Street

Project Received: 02/03/2017

Analytical Report reviewed & approved for release on 02/09/2017 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702251

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702251

Analytical Qualifiers

S surrogate spike recovery outside accepted recovery limits
c2 surrogate recovery outside of the control limits due to matrix interference.
c4 surrogate recovery outside of the control limits due to coelution with another peak(s) / cluttered chromatogram.
c11 The surrogate recovery is above the upper control limit. The target analyte(s) were Not Detected (ND); therefore, the data has been reported.
d6 one to a few isolated non-target peaks present in the TPH(g) chromatogram
d7 strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram
e2 diesel range compounds are significant; no recognizable pattern
e7 oil range compounds are significant

Quality Control Qualifiers

F3 the surrogate standard recovery and/or RPD is outside of acceptance limits.



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-17-GW	1702251-001B	Water	02/03/2017 10:02	GC10	133798

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	10	1	02/07/2017 16:57
tert-Amyl methyl ether (TAME)	ND	0.50	1	02/07/2017 16:57
Benzene	ND	0.50	1	02/07/2017 16:57
Bromobenzene	ND	0.50	1	02/07/2017 16:57
Bromochloromethane	ND	0.50	1	02/07/2017 16:57
Bromodichloromethane	ND	0.50	1	02/07/2017 16:57
Bromoform	ND	0.50	1	02/07/2017 16:57
Bromomethane	ND	0.50	1	02/07/2017 16:57
2-Butanone (MEK)	ND	2.0	1	02/07/2017 16:57
t-Butyl alcohol (TBA)	ND	2.0	1	02/07/2017 16:57
n-Butyl benzene	ND	0.50	1	02/07/2017 16:57
sec-Butyl benzene	ND	0.50	1	02/07/2017 16:57
tert-Butyl benzene	ND	0.50	1	02/07/2017 16:57
Carbon Disulfide	ND	0.50	1	02/07/2017 16:57
Carbon Tetrachloride	ND	0.50	1	02/07/2017 16:57
Chlorobenzene	ND	0.50	1	02/07/2017 16:57
Chloroethane	ND	0.50	1	02/07/2017 16:57
Chloroform	3.3	0.50	1	02/07/2017 16:57
Chloromethane	ND	0.50	1	02/07/2017 16:57
2-Chlorotoluene	ND	0.50	1	02/07/2017 16:57
4-Chlorotoluene	ND	0.50	1	02/07/2017 16:57
Dibromochloromethane	ND	0.50	1	02/07/2017 16:57
1,2-Dibromo-3-chloropropane	ND	0.20	1	02/07/2017 16:57
1,2-Dibromoethane (EDB)	ND	0.50	1	02/07/2017 16:57
Dibromomethane	ND	0.50	1	02/07/2017 16:57
1,2-Dichlorobenzene	ND	0.50	1	02/07/2017 16:57
1,3-Dichlorobenzene	ND	0.50	1	02/07/2017 16:57
1,4-Dichlorobenzene	ND	0.50	1	02/07/2017 16:57
Dichlorodifluoromethane	ND	0.50	1	02/07/2017 16:57
1,1-Dichloroethane	ND	0.50	1	02/07/2017 16:57
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	02/07/2017 16:57
1,1-Dichloroethene	ND	0.50	1	02/07/2017 16:57
cis-1,2-Dichloroethene	2.7	0.50	1	02/07/2017 16:57
trans-1,2-Dichloroethene	ND	0.50	1	02/07/2017 16:57
1,2-Dichloropropane	ND	0.50	1	02/07/2017 16:57
1,3-Dichloropropane	ND	0.50	1	02/07/2017 16:57
2,2-Dichloropropane	ND	0.50	1	02/07/2017 16:57

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Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-17-GW	1702251-001B	Water	02/03/2017 10:02	GC10	133798

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.50	1	02/07/2017 16:57
cis-1,3-Dichloropropene	ND	0.50	1	02/07/2017 16:57
trans-1,3-Dichloropropene	ND	0.50	1	02/07/2017 16:57
Diisopropyl ether (DIPE)	ND	0.50	1	02/07/2017 16:57
Ethylbenzene	ND	0.50	1	02/07/2017 16:57
Ethyl tert-butyl ether (ETBE)	ND	0.50	1	02/07/2017 16:57
Freon 113	ND	0.50	1	02/07/2017 16:57
Hexachlorobutadiene	ND	0.50	1	02/07/2017 16:57
Hexachloroethane	ND	0.50	1	02/07/2017 16:57
2-Hexanone	ND	0.50	1	02/07/2017 16:57
Isopropylbenzene	ND	0.50	1	02/07/2017 16:57
4-Isopropyl toluene	ND	0.50	1	02/07/2017 16:57
Methyl-t-butyl ether (MTBE)	ND	0.50	1	02/07/2017 16:57
Methylene chloride	ND	0.50	1	02/07/2017 16:57
4-Methyl-2-pentanone (MIBK)	ND	0.50	1	02/07/2017 16:57
Naphthalene	ND	0.50	1	02/07/2017 16:57
n-Propyl benzene	ND	0.50	1	02/07/2017 16:57
Styrene	ND	0.50	1	02/07/2017 16:57
1,1,1,2-Tetrachloroethane	ND	0.50	1	02/07/2017 16:57
1,1,2,2-Tetrachloroethane	ND	0.50	1	02/07/2017 16:57
Tetrachloroethene	0.58	0.50	1	02/07/2017 16:57
Toluene	ND	0.50	1	02/07/2017 16:57
1,2,3-Trichlorobenzene	ND	0.50	1	02/07/2017 16:57
1,2,4-Trichlorobenzene	ND	0.50	1	02/07/2017 16:57
1,1,1-Trichloroethane	ND	0.50	1	02/07/2017 16:57
1,1,2-Trichloroethane	ND	0.50	1	02/07/2017 16:57
Trichloroethene	3.5	0.50	1	02/07/2017 16:57
Trichlorofluoromethane	ND	0.50	1	02/07/2017 16:57
1,2,3-Trichloropropane	ND	0.50	1	02/07/2017 16:57
1,2,4-Trimethylbenzene	ND	0.50	1	02/07/2017 16:57
1,3,5-Trimethylbenzene	ND	0.50	1	02/07/2017 16:57
Vinyl Chloride	ND	0.50	1	02/07/2017 16:57
Xylenes, Total	ND	0.50	1	02/07/2017 16:57

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-17-GW	1702251-001B	Water	02/03/2017 10:02	GC10	133798

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	98		70-130	02/07/2017 16:57
Toluene-d8	112		70-130	02/07/2017 16:57
4-BFB	112		70-130	02/07/2017 16:57

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-GW	1702251-002B	Water	02/03/2017 09:13	GC10	133798

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	250	25	02/07/2017 17:38
tert-Amyl methyl ether (TAME)	ND	12	25	02/07/2017 17:38
Benzene	ND	12	25	02/07/2017 17:38
Bromobenzene	ND	12	25	02/07/2017 17:38
Bromochloromethane	ND	12	25	02/07/2017 17:38
Bromodichloromethane	ND	12	25	02/07/2017 17:38
Bromoform	ND	12	25	02/07/2017 17:38
Bromomethane	ND	12	25	02/07/2017 17:38
2-Butanone (MEK)	ND	50	25	02/07/2017 17:38
t-Butyl alcohol (TBA)	ND	50	25	02/07/2017 17:38
n-Butyl benzene	ND	12	25	02/07/2017 17:38
sec-Butyl benzene	ND	12	25	02/07/2017 17:38
tert-Butyl benzene	ND	12	25	02/07/2017 17:38
Carbon Disulfide	ND	12	25	02/07/2017 17:38
Carbon Tetrachloride	ND	12	25	02/07/2017 17:38
Chlorobenzene	19	12	25	02/07/2017 17:38
Chloroethane	ND	12	25	02/07/2017 17:38
Chloroform	ND	12	25	02/07/2017 17:38
Chloromethane	ND	12	25	02/07/2017 17:38
2-Chlorotoluene	ND	12	25	02/07/2017 17:38
4-Chlorotoluene	ND	12	25	02/07/2017 17:38
Dibromochloromethane	ND	12	25	02/07/2017 17:38
1,2-Dibromo-3-chloropropane	ND	5.0	25	02/07/2017 17:38
1,2-Dibromoethane (EDB)	ND	12	25	02/07/2017 17:38
Dibromomethane	ND	12	25	02/07/2017 17:38
1,2-Dichlorobenzene	ND	12	25	02/07/2017 17:38
1,3-Dichlorobenzene	ND	12	25	02/07/2017 17:38
1,4-Dichlorobenzene	ND	12	25	02/07/2017 17:38
Dichlorodifluoromethane	ND	12	25	02/07/2017 17:38
1,1-Dichloroethane	ND	12	25	02/07/2017 17:38
1,2-Dichloroethane (1,2-DCA)	ND	12	25	02/07/2017 17:38
1,1-Dichloroethene	ND	12	25	02/07/2017 17:38
cis-1,2-Dichloroethene	210	12	25	02/07/2017 17:38
trans-1,2-Dichloroethene	ND	12	25	02/07/2017 17:38
1,2-Dichloropropane	ND	12	25	02/07/2017 17:38
1,3-Dichloropropane	ND	12	25	02/07/2017 17:38
2,2-Dichloropropane	ND	12	25	02/07/2017 17:38

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Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-GW	1702251-002B	Water	02/03/2017 09:13	GC10	133798

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	12	25	02/07/2017 17:38
cis-1,3-Dichloropropene	ND	12	25	02/07/2017 17:38
trans-1,3-Dichloropropene	ND	12	25	02/07/2017 17:38
Diisopropyl ether (DIPE)	ND	12	25	02/07/2017 17:38
Ethylbenzene	ND	12	25	02/07/2017 17:38
Ethyl tert-butyl ether (ETBE)	ND	12	25	02/07/2017 17:38
Freon 113	ND	12	25	02/07/2017 17:38
Hexachlorobutadiene	ND	12	25	02/07/2017 17:38
Hexachloroethane	ND	12	25	02/07/2017 17:38
2-Hexanone	ND	12	25	02/07/2017 17:38
Isopropylbenzene	ND	12	25	02/07/2017 17:38
4-Isopropyl toluene	ND	12	25	02/07/2017 17:38
Methyl-t-butyl ether (MTBE)	ND	12	25	02/07/2017 17:38
Methylene chloride	ND	12	25	02/07/2017 17:38
4-Methyl-2-pentanone (MIBK)	ND	12	25	02/07/2017 17:38
Naphthalene	ND	12	25	02/07/2017 17:38
n-Propyl benzene	ND	12	25	02/07/2017 17:38
Styrene	ND	12	25	02/07/2017 17:38
1,1,1,2-Tetrachloroethane	ND	12	25	02/07/2017 17:38
1,1,2,2-Tetrachloroethane	ND	12	25	02/07/2017 17:38
Tetrachloroethene	ND	12	25	02/07/2017 17:38
Toluene	ND	12	25	02/07/2017 17:38
1,2,3-Trichlorobenzene	ND	12	25	02/07/2017 17:38
1,2,4-Trichlorobenzene	ND	12	25	02/07/2017 17:38
1,1,1-Trichloroethane	ND	12	25	02/07/2017 17:38
1,1,2-Trichloroethane	ND	12	25	02/07/2017 17:38
Trichloroethene	470	12	25	02/07/2017 17:38
Trichlorofluoromethane	ND	12	25	02/07/2017 17:38
1,2,3-Trichloropropane	ND	12	25	02/07/2017 17:38
1,2,4-Trimethylbenzene	ND	12	25	02/07/2017 17:38
1,3,5-Trimethylbenzene	ND	12	25	02/07/2017 17:38
Vinyl Chloride	ND	12	25	02/07/2017 17:38
Xylenes, Total	ND	12	25	02/07/2017 17:38

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/7/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-GW	1702251-002B	Water	02/03/2017 09:13	GC10	133798

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	99	70-130		02/07/2017 17:38
Toluene-d8	111	70-130		02/07/2017 17:38
4-BFB	111	70-130		02/07/2017 17:38

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-17-GW	1702251-001C	Water	02/03/2017 10:02	GC35	133722

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.50	1	02/08/2017 00:01
Acenaphthylene	ND	0.50	1	02/08/2017 00:01
Anthracene	ND	0.50	1	02/08/2017 00:01
Benzo (a) anthracene	ND	0.50	1	02/08/2017 00:01
Benzo (a) pyrene	ND	0.50	1	02/08/2017 00:01
Benzo (b) fluoranthene	ND	0.50	1	02/08/2017 00:01
Benzo (g,h,i) perylene	ND	0.50	1	02/08/2017 00:01
Benzo (k) fluoranthene	ND	0.50	1	02/08/2017 00:01
Chrysene	ND	0.50	1	02/08/2017 00:01
Dibenzo (a,h) anthracene	ND	0.50	1	02/08/2017 00:01
Fluoranthene	ND	0.50	1	02/08/2017 00:01
Fluorene	ND	0.50	1	02/08/2017 00:01
Indeno (1,2,3-cd) pyrene	ND	0.50	1	02/08/2017 00:01
1-Methylnaphthalene	ND	0.50	1	02/08/2017 00:01
2-Methylnaphthalene	ND	0.50	1	02/08/2017 00:01
Naphthalene	ND	0.50	1	02/08/2017 00:01
Phenanthrene	ND	0.50	1	02/08/2017 00:01
Pyrene	ND	0.50	1	02/08/2017 00:01

Surrogates	REC (%)	Limits	Date Analyzed
1-Fluoronaphthalene	92	30-130	02/08/2017 00:01
2-Fluorobiphenyl	83	30-130	02/08/2017 00:01

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/6/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-GW	1702251-002C	Water	02/03/2017 09:13	GC35	133722

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.50	1	02/09/2017 16:22
Acenaphthylene	ND	0.50	1	02/09/2017 16:22
Anthracene	ND	0.50	1	02/09/2017 16:22
Benzo (a) anthracene	0.64	0.50	1	02/09/2017 16:22
Benzo (a) pyrene	ND	0.50	1	02/09/2017 16:22
Benzo (b) fluoranthene	ND	0.50	1	02/09/2017 16:22
Benzo (g,h,i) perylene	ND	0.50	1	02/09/2017 16:22
Benzo (k) fluoranthene	ND	0.50	1	02/09/2017 16:22
Chrysene	ND	0.50	1	02/09/2017 16:22
Dibenzo (a,h) anthracene	ND	0.50	1	02/09/2017 16:22
Fluoranthene	ND	0.50	1	02/09/2017 16:22
Fluorene	0.83	0.50	1	02/09/2017 16:22
Indeno (1,2,3-cd) pyrene	ND	0.50	1	02/09/2017 16:22
1-Methylnaphthalene	3.0	0.50	1	02/09/2017 16:22
2-Methylnaphthalene	4.6	0.50	1	02/09/2017 16:22
Naphthalene	3.5	0.50	1	02/09/2017 16:22
Phenanthrene	1.2	0.50	1	02/09/2017 16:22
Pyrene	ND	0.50	1	02/09/2017 16:22

Surrogates	REC (%)	Limits	Date Analyzed
1-Fluoronaphthalene	97	30-130	02/09/2017 16:22
2-Fluorobiphenyl	89	30-130	02/09/2017 16:22

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/4/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-17-GW	1702251-001A	Water	02/03/2017 10:02	GC3	133706

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	50	1	02/04/2017 10:12
MTBE	---	5.0	1	02/04/2017 10:12
Benzene	---	0.50	1	02/04/2017 10:12
Toluene	---	0.50	1	02/04/2017 10:12
Ethylbenzene	---	0.50	1	02/04/2017 10:12
Xylenes	---	1.5	1	02/04/2017 10:12

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
aaa-TFT	127	S	89-115	02/04/2017 10:12

Analyst(s): IA

Analytical Comments: c11

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-GW	1702251-002A	Water	02/03/2017 09:13	GC3	133751

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	250	50	1	02/04/2017 22:22
MTBE	---	5.0	1	02/04/2017 22:22
Benzene	---	0.50	1	02/04/2017 22:22
Toluene	---	0.50	1	02/04/2017 22:22
Ethylbenzene	---	0.50	1	02/04/2017 22:22
Xylenes	---	1.5	1	02/04/2017 22:22

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
aaa-TFT	1058	S	89-115	02/04/2017 22:22

Analyst(s): IA

Analytical Comments: d6,d7,c4



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/3/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW3510C
Analytical Method: SW8015B
Unit: µg/L

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-17-GW	1702251-001A	Water	02/03/2017 10:02	GC6B	133606

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	50	1	02/04/2017 03:49
TPH-Motor Oil (C18-C36)	ND	250	1	02/04/2017 03:49

Surrogates	REC (%)	Limits	Date Analyzed
C9	105	72-117	02/04/2017 03:49

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-23-GW	1702251-002A	Water	02/03/2017 09:13	GC11A	133606

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	40,000	15,000	100	02/06/2017 19:13
TPH-Motor Oil (C18-C36)	110,000	75,000	100	02/06/2017 19:13

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
C9	145	S	72-117	02/06/2017 19:13

Analyst(s): TK

Analytical Comments: e7,e2,c2



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/6/17
Instrument: GC18
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702251
BatchID: 133798
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS-133798

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	10.4	0.50	10	-	104	54-140
Benzene	ND	10.2	0.50	10	-	102	47-158
Bromobenzene	ND	-	0.50	-	-	-	-
Bromochloromethane	ND	-	0.50	-	-	-	-
Bromodichloromethane	ND	-	0.50	-	-	-	-
Bromoform	ND	-	0.50	-	-	-	-
Bromomethane	ND	-	0.50	-	-	-	-
2-Butanone (MEK)	ND	-	2.0	-	-	-	-
t-Butyl alcohol (TBA)	ND	37.2	2.0	40	-	93	42-140
n-Butyl benzene	ND	-	0.50	-	-	-	-
sec-Butyl benzene	ND	-	0.50	-	-	-	-
tert-Butyl benzene	ND	-	0.50	-	-	-	-
Carbon Disulfide	ND	-	0.50	-	-	-	-
Carbon Tetrachloride	ND	-	0.50	-	-	-	-
Chlorobenzene	ND	10.4	0.50	10	-	103	43-157
Chloroethane	ND	-	0.50	-	-	-	-
Chloroform	ND	-	0.50	-	-	-	-
Chloromethane	ND	-	0.50	-	-	-	-
2-Chlorotoluene	ND	-	0.50	-	-	-	-
4-Chlorotoluene	ND	-	0.50	-	-	-	-
Dibromochloromethane	ND	-	0.50	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.20	-	-	-	-
1,2-Dibromoethane (EDB)	ND	10.1	0.50	10	-	101	44-155
Dibromomethane	ND	-	0.50	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.50	-	-	-	-
Dichlorodifluoromethane	ND	-	0.50	-	-	-	-
1,1-Dichloroethane	ND	-	0.50	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	9.79	0.50	10	-	98	66-125
1,1-Dichloroethene	ND	10.6	0.50	10	-	106	47-149
cis-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
1,2-Dichloropropane	ND	-	0.50	-	-	-	-
1,3-Dichloropropane	ND	-	0.50	-	-	-	-
2,2-Dichloropropane	ND	-	0.50	-	-	-	-

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NELAP 4033ORELAP

QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/6/17
Instrument: GC18
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702251
BatchID: 133798
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS-133798

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.50	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
Diisopropyl ether (DIPE)	ND	10.4	0.50	10	-	104	57-136
Ethylbenzene	ND	-	0.50	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	10.5	0.50	10	-	105	55-137
Freon 113	ND	-	0.50	-	-	-	-
Hexachlorobutadiene	ND	-	0.50	-	-	-	-
Hexachloroethane	ND	-	0.50	-	-	-	-
2-Hexanone	ND	-	0.50	-	-	-	-
Isopropylbenzene	ND	-	0.50	-	-	-	-
4-Isopropyl toluene	ND	-	0.50	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	9.87	0.50	10	-	99	53-139
Methylene chloride	ND	-	0.50	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.50	-	-	-	-
Naphthalene	ND	-	0.50	-	-	-	-
n-Propyl benzene	ND	-	0.50	-	-	-	-
Styrene	ND	-	0.50	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
Tetrachloroethene	ND	-	0.50	-	-	-	-
Toluene	ND	10.5	0.50	10	-	105	52-137
1,2,3-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.50	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.50	-	-	-	-
Trichloroethene	ND	10.5	0.50	10	-	105	43-157
Trichlorofluoromethane	ND	-	0.50	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.50	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.50	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.50	-	-	-	-
Vinyl Chloride	ND	-	0.50	-	-	-	-
Xylenes, Total	ND	-	0.50	-	-	-	-



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/6/17
Instrument: GC18
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702251
BatchID: 133798
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS-133798

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	25.91	25.7		25	104	103	70-130
Toluene-d8	25.38	26.1		25	102	104	70-130
4-BFB	2.596	2.53		2.5	104	101	70-130



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17 - 2/8/17
Instrument: GC35
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702251
BatchID: 133722
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L
Sample ID: MB/LCS/LCSD-133722

QC Summary Report for SW8270C

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Acenaphthene	ND	0.50	-	-	-
Acenaphthylene	ND	0.50	-	-	-
Anthracene	ND	0.50	-	-	-
Benzo (a) anthracene	ND	0.50	-	-	-
Benzo (a) pyrene	ND	0.50	-	-	-
Benzo (b) fluoranthene	ND	0.50	-	-	-
Benzo (g,h,i) perylene	ND	0.50	-	-	-
Benzo (k) fluoranthene	ND	0.50	-	-	-
Chrysene	ND	0.50	-	-	-
Dibenzo (a,h) anthracene	ND	0.50	-	-	-
Fluoranthene	ND	0.50	-	-	-
Fluorene	ND	0.50	-	-	-
Indeno (1,2,3-cd) pyrene	ND	0.50	-	-	-
1-Methylnaphthalene	ND	0.50	-	-	-
2-Methylnaphthalene	ND	0.50	-	-	-
Naphthalene	ND	0.50	-	-	-
Phenanthrene	ND	0.50	-	-	-
Pyrene	ND	0.50	-	-	-

Surrogate Recovery

1-Fluoronaphthalene	8.602		25	34	30-130
2-Fluorobiphenyl	8.375		25	33	30-130

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Benzo (a) pyrene	8.02	6.97	10	80	70	12-152	14.1	25
Chrysene	7.29	7.77	10	73	78	28-116	6.36	25
1-Methylnaphthalene	11.2	10.4	10	112	104	48-125	7.64	25
2-Methylnaphthalene	10.1	9.22	10	101	92	41-124	9.29	25
Phenanthrene	8.67	9.10	10	87	91	36-123	4.83	25
Pyrene	7.98	8.59	10	80	86	29-118	7.32	25

Surrogate Recovery

1-Fluoronaphthalene	22.0	22.7	25	88	91	45-129	2.98	25
2-Fluorobiphenyl	21.1	22.0	25	84	88	47-125	4.33	25



Quality Control Report

Client: Langan
Date Prepared: 2/3/17
Date Analyzed: 2/3/17
Instrument: GC3
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702251
BatchID: 133706
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L
Sample ID: MB/LCS-133706
 1702168-005AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	59.8	40	60	-	100	85-112
MTBE	ND	10.9	5.0	10	-	109	74-127
Benzene	ND	10.1	0.50	10	-	101	81-124
Toluene	ND	10.3	0.50	10	-	103	79-131
Ethylbenzene	ND	10.5	0.50	10	-	105	86-127
Xylenes	ND	33.0	1.5	30	-	110	87-133
Surrogate Recovery							
aaa-TFT	10.42	10.3		10	104	103	87-117

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	59.6	61.4	60	ND	99	102	85-113	2.94	20
MTBE	10.3	11.4	10	ND	103	114	73-120	10.4	20
Benzene	10.2	9.98	10	ND	102	100	84-121	2.26	20
Toluene	10.4	10.1	10	ND	104	101	86-125	3.18	20
Ethylbenzene	10.7	10.5	10	ND	107	105	93-124	1.88	20
Xylenes	33.6	33.2	30	ND	111	109	93-130	1.22	20
Surrogate Recovery									
aaa-TFT	11.0	10.3	10		110	103	89-115	6.91	20



Quality Control Report

Client: Langan
Date Prepared: 2/4/17
Date Analyzed: 2/4/17
Instrument: GC3
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702251
BatchID: 133751
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L
Sample ID: MB/LCS-133751
 1702300-001AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	60.3	40	60	-	101	85-112
MTBE	ND	10.6	5.0	10	-	106	74-127
Benzene	ND	10.6	0.50	10	-	106	81-124
Toluene	ND	10.8	0.50	10	-	107	79-131
Ethylbenzene	ND	10.7	0.50	10	-	107	86-127
Xylenes	ND	33.5	1.5	30	-	112	87-133
Surrogate Recovery							
aaa-TFT	11.86	10.5		10	119,F3	105	87-117

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	59.6	61.0	60	ND	99	102	85-113	2.38	20
MTBE	10.2	9.50	10	ND	102	95	73-120	7.20	20
Benzene	10.4	10.0	10	ND	104	100	84-121	3.18	20
Toluene	10.6	10.2	10	ND	105	102	86-125	3.57	20
Ethylbenzene	10.8	10.6	10	ND	108	106	93-124	1.67	20
Xylenes	33.7	33.2	30	ND	112	111	93-130	1.30	20
Surrogate Recovery									
aaa-TFT	10.3	10.4	10		103	104	89-115	1.35	20



Quality Control Report

Client: Langan	WorkOrder: 1702251
Date Prepared: 2/2/17	BatchID: 133606
Date Analyzed: 2/3/17	Extraction Method: SW3510C
Instrument: GC6A, GC9a	Analytical Method: SW8015B
Matrix: Water	Unit: µg/L
Project: 750635602; 260 30th Street	Sample ID: MB/LCS/LCSD-133606

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
TPH-Diesel (C10-C23)	ND	50	-	-	-
TPH-Motor Oil (C18-C36)	ND	250	-	-	-

Surrogate Recovery

C9	608		625	97	74-107
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Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	1050	1020	1000	105	102	95-136	3.03	30
Surrogate Recovery								
C9	611	608	625	98	97	74-107	0.496	30



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1702251

ClientCode: TWRK

WaterTrax
 WriteOn
 EDF
 Excel
 EQuIS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Josh Graber
 Langan
 501 14th Street, 3rd Floor
 Oakland, CA 94612
 (415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
 cc/3rd Party: kstaehlin@langan.com;
 PO:
 ProjectNo: 750635602; 260 30th Street

Bill to:

Accounts Payable
 Langan
 555 Montgomery St., Suite 1300
 San Francisco, CA 94111
 Langan_InvoiceCapture@concur.solu.io

Requested TAT: 3 days;

Date Received: 02/03/2017

Date Logged: 02/03/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1702251-001	B-17-GW	Water	2/3/2017 10:02	<input type="checkbox"/>	B	C	A	A									
1702251-002	B-23-GW	Water	2/3/2017 09:13	<input type="checkbox"/>	B	C	A	A									

Test Legend:

1	8260B_W	2	8270_PNA_W	3	G-MBTX_W	4	TPH(DMO)_W
5		6		7		8	
9		10		11		12	

Prepared by: Briana Cutino

The following SampIDs: 001A, 002A contain testgroup Multi Range_W.

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days). Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Josh Graber
Contact's Email: jdgraber@treadwellrollo.com

Project: 750635602; 260 30th Street

Work Order: 1702251
QC Level: LEVEL 2
Date Logged: 2/3/2017

Comments:

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1702251-001A	B-17-GW	Water	Multi-Range TPH(g,d,mo) by EPA 8015Bm	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	<input type="checkbox"/>	2/3/2017 10:02	3 days	Trace	<input type="checkbox"/>	
1702251-001B	B-17-GW	Water	SW8260B (VOCs)	2	VOA w/ HCl	<input type="checkbox"/>	2/3/2017 10:02	3 days	Trace	<input type="checkbox"/>	
1702251-001C	B-17-GW	Water	SW8270C (PAHs/PNAs)	1	ILA	<input type="checkbox"/>	2/3/2017 10:02	3 days	Trace	<input type="checkbox"/>	
1702251-002A	B-23-GW	Water	Multi-Range TPH(g,d,mo) by EPA 8015Bm	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	<input type="checkbox"/>	2/3/2017 9:13	3 days	Trace	<input type="checkbox"/>	
1702251-002B	B-23-GW	Water	SW8260B (VOCs)	2	VOA w/ HCl	<input type="checkbox"/>	2/3/2017 9:13	3 days	Trace	<input type="checkbox"/>	
1702251-002C	B-23-GW	Water	SW8270C (PAHs/PNAs)	1	ILA	<input type="checkbox"/>	2/3/2017 9:13	3 days	Trace	<input type="checkbox"/>	
1702251-003A	B-25-GW	Water		1	2 VOAs w/HCL + 2-aVOAs (multi-range)	<input type="checkbox"/>	2/3/2017 9:38		Trace	<input checked="" type="checkbox"/>	
1702251-004A	B-26-GW	Water		1	2 VOAs w/HCL + 2-aVOAs (multi-range)	<input type="checkbox"/>	2/3/2017 9:22		Trace	<input checked="" type="checkbox"/>	
1702251-005A	B-27-GW	Water		1	2 VOAs w/HCL + 2-aVOAs (multi-range)	<input type="checkbox"/>	2/3/2017 12:10		Trace	<input checked="" type="checkbox"/>	
1702251-006A	B-28-GW	Water		1	2 VOAs w/HCL + 2-aVOAs (multi-range)	<input type="checkbox"/>	2/3/2017 12:00		Trace	<input checked="" type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).
- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

* PLEASE C.C. ANNIE S. *
 AT KSTAEHLING@LANGAN.COM 10286

1702251

LANGAN

CHAIN OF CUSTODY RECORD

- 555 Montgomery Street, Suite 1300, San Francisco, CA 94111
- 501 14th Street, Third Floor, Oakland CA 94612
- 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
- 4030 Moorpark Ave. Suite 210, San Jose, CA 95117-1849

Site Name: 260 30TH STREET
 Job Number: 750635602
 Project Manager/Contact: JOSH GRABER
 Samplers: KSS
 Recorder (Signature Required): [Signature]

Turnaround Time
72 HOUR

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix				No. Containers & Preservative				Analysis Requested										Silica gel clean-up	Hold	Remarks		
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH _{total}	TPH _{gas}	VOCS	PAHs											
B-17-GW	2/3/17	1002			X			4			3	X	X	X	X	X	X	X	X	X	X	X	X	X		
B-23-GW		0913			X			4			3	X	X	X	X	X	X	X	X	X	X	X	X	X		
B-25-GW		0938			X			4			3	X	X	X	X	X	X	X	X	X	X	X	X	X		
B-26-GW		0922			X			4			3	X	X	X	X	X	X	X	X	X	X	X	X	X		
B-27-GW		1210			X			4			3	X	X	X	X	X	X	X	X	X	X	X	X	X		
B-28-GW	2/3/17	1200			X			4			3	X	X	X	X	X	X	X	X	X	X	X	X	X		

Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>2-3-17</u>	Time: <u>1650</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>2-3-17</u>	Time: <u>1300</u>
Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>2-3-17</u>	Time: <u>1650</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>2/3/17</u>	Time: <u>1050</u>
Relinquished by: (Signature)	Date:	Time:	Received by Lab: (Signature)	Date:	Time:

Sent to Laboratory (Name): MCCAMPBELL ANALYTICAL
 Laboratory Comments/Notes:

Method of Shipment: Lab courier Fed Ex Airborne UPS
 Hand Carried Private Courier (Co. Name)



Sample Receipt Checklist

Client Name: **Langan**
 Project Name: **750635602; 260 30th Street**

Date and Time Received: **2/3/2017 16:50**
 Date Logged: **2/3/2017**
 Received by: **Briana Cutino**
 Logged by: **Briana Cutino**

WorkOrder No: **1702251** Matrix: Water
 Carrier: Bernie Cummins (MAI Courier)

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
 Sample/Temp Blank temperature Temp: 2°C NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No
 (Ice Type: WET ICE)

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1702251 A

Report Created for: Langan

501 14th Street, 3rd Floor
Oakland, CA 94612

Project Contact: Josh Graber

Project P.O.:

Project Name: 750635602; 260 30th Street

Project Received: 02/03/2017

Analytical Report reviewed & approved for release on 02/13/2017 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702251

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702251

Analytical Qualifiers

S	surrogate spike recovery outside accepted recovery limits
a3	sample diluted due to high organic content.
b6	lighter than water immiscible sheen/product is present
c2	surrogate recovery outside of the control limits due to matrix interference.
c4	surrogate recovery outside of the control limits due to coelution with another peak(s) / cluttered chromatogram.
c11	The surrogate recovery is above the upper control limit. The target analyte(s) were Not Detected (ND); therefore, the data has been reported.
d6	one to a few isolated non-target peaks present in the TPH(g) chromatogram
d7	strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram
e2	diesel range compounds are significant; no recognizable pattern
e7	oil range compounds are significant
e11	stoddard solvent/mineral spirit (?)

Quality Control Qualifiers

F2	LCS/LCSD recovery and/or RPD is out of acceptance criteria.
F3	the surrogate standard recovery and/or RPD is outside of acceptance limits.



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/9/17-2/10/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-GW	1702251-003B	Water	02/03/2017 09:38	GC18	133984

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	100	10	02/09/2017 15:07
tert-Amyl methyl ether (TAME)	ND	5.0	10	02/09/2017 15:07
Benzene	ND	5.0	10	02/09/2017 15:07
Bromobenzene	ND	5.0	10	02/09/2017 15:07
Bromochloromethane	ND	5.0	10	02/09/2017 15:07
Bromodichloromethane	ND	5.0	10	02/09/2017 15:07
Bromoform	ND	5.0	10	02/09/2017 15:07
Bromomethane	ND	5.0	10	02/09/2017 15:07
2-Butanone (MEK)	ND	20	10	02/09/2017 15:07
t-Butyl alcohol (TBA)	ND	20	10	02/09/2017 15:07
n-Butyl benzene	ND	5.0	10	02/09/2017 15:07
sec-Butyl benzene	ND	5.0	10	02/09/2017 15:07
tert-Butyl benzene	ND	5.0	10	02/09/2017 15:07
Carbon Disulfide	ND	5.0	10	02/09/2017 15:07
Carbon Tetrachloride	ND	5.0	10	02/09/2017 15:07
Chlorobenzene	ND	5.0	10	02/09/2017 15:07
Chloroethane	ND	5.0	10	02/09/2017 15:07
Chloroform	ND	5.0	10	02/09/2017 15:07
Chloromethane	ND	5.0	10	02/09/2017 15:07
2-Chlorotoluene	ND	5.0	10	02/09/2017 15:07
4-Chlorotoluene	ND	5.0	10	02/09/2017 15:07
Dibromochloromethane	ND	5.0	10	02/09/2017 15:07
1,2-Dibromo-3-chloropropane	ND	2.0	10	02/09/2017 15:07
1,2-Dibromoethane (EDB)	ND	5.0	10	02/09/2017 15:07
Dibromomethane	ND	5.0	10	02/09/2017 15:07
1,2-Dichlorobenzene	ND	5.0	10	02/09/2017 15:07
1,3-Dichlorobenzene	ND	5.0	10	02/09/2017 15:07
1,4-Dichlorobenzene	ND	5.0	10	02/09/2017 15:07
Dichlorodifluoromethane	ND	5.0	10	02/09/2017 15:07
1,1-Dichloroethane	ND	5.0	10	02/09/2017 15:07
1,2-Dichloroethane (1,2-DCA)	ND	5.0	10	02/09/2017 15:07
1,1-Dichloroethene	ND	5.0	10	02/09/2017 15:07
cis-1,2-Dichloroethene	29	5.0	10	02/09/2017 15:07
trans-1,2-Dichloroethene	ND	5.0	10	02/09/2017 15:07
1,2-Dichloropropane	ND	5.0	10	02/09/2017 15:07
1,3-Dichloropropane	ND	5.0	10	02/09/2017 15:07
2,2-Dichloropropane	ND	5.0	10	02/09/2017 15:07

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/9/17-2/10/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-GW	1702251-003B	Water	02/03/2017 09:38	GC18	133984

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	5.0	10	02/09/2017 15:07
cis-1,3-Dichloropropene	ND	5.0	10	02/09/2017 15:07
trans-1,3-Dichloropropene	ND	5.0	10	02/09/2017 15:07
Diisopropyl ether (DIPE)	ND	5.0	10	02/09/2017 15:07
Ethylbenzene	ND	5.0	10	02/09/2017 15:07
Ethyl tert-butyl ether (ETBE)	ND	5.0	10	02/09/2017 15:07
Freon 113	ND	5.0	10	02/09/2017 15:07
Hexachlorobutadiene	ND	5.0	10	02/09/2017 15:07
Hexachloroethane	ND	5.0	10	02/09/2017 15:07
2-Hexanone	ND	5.0	10	02/09/2017 15:07
Isopropylbenzene	ND	5.0	10	02/09/2017 15:07
4-Isopropyl toluene	ND	5.0	10	02/09/2017 15:07
Methyl-t-butyl ether (MTBE)	ND	5.0	10	02/09/2017 15:07
Methylene chloride	ND	5.0	10	02/09/2017 15:07
4-Methyl-2-pentanone (MIBK)	ND	5.0	10	02/09/2017 15:07
Naphthalene	ND	5.0	10	02/09/2017 15:07
n-Propyl benzene	ND	5.0	10	02/09/2017 15:07
Styrene	ND	5.0	10	02/09/2017 15:07
1,1,1,2-Tetrachloroethane	ND	5.0	10	02/09/2017 15:07
1,1,2,2-Tetrachloroethane	ND	5.0	10	02/09/2017 15:07
Tetrachloroethene	ND	5.0	10	02/09/2017 15:07
Toluene	ND	5.0	10	02/09/2017 15:07
1,2,3-Trichlorobenzene	ND	5.0	10	02/09/2017 15:07
1,2,4-Trichlorobenzene	ND	5.0	10	02/09/2017 15:07
1,1,1-Trichloroethane	ND	5.0	10	02/09/2017 15:07
1,1,2-Trichloroethane	ND	5.0	10	02/09/2017 15:07
Trichloroethene	210	5.0	10	02/09/2017 15:07
Trichlorofluoromethane	ND	5.0	10	02/09/2017 15:07
1,2,3-Trichloropropane	ND	5.0	10	02/09/2017 15:07
1,2,4-Trimethylbenzene	ND	5.0	10	02/09/2017 15:07
1,3,5-Trimethylbenzene	ND	5.0	10	02/09/2017 15:07
Vinyl Chloride	ND	5.0	10	02/09/2017 15:07
Xylenes, Total	ND	5.0	10	02/09/2017 15:07

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/9/17-2/10/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-GW	1702251-003B	Water	02/03/2017 09:38	GC18	133984

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	106	70-130		02/09/2017 15:07
Toluene-d8	103	70-130		02/09/2017 15:07
4-BFB	99	70-130		02/09/2017 15:07

Analyst(s): HK



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/9/17-2/10/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-26-GW	1702251-004B	Water	02/03/2017 09:22	GC10	133984

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	50	5	02/10/2017 13:52
tert-Amyl methyl ether (TAME)	ND	2.5	5	02/10/2017 13:52
Benzene	ND	2.5	5	02/10/2017 13:52
Bromobenzene	ND	2.5	5	02/10/2017 13:52
Bromochloromethane	ND	2.5	5	02/10/2017 13:52
Bromodichloromethane	ND	2.5	5	02/10/2017 13:52
Bromoform	ND	2.5	5	02/10/2017 13:52
Bromomethane	ND	2.5	5	02/10/2017 13:52
2-Butanone (MEK)	ND	10	5	02/10/2017 13:52
t-Butyl alcohol (TBA)	ND	10	5	02/10/2017 13:52
n-Butyl benzene	ND	2.5	5	02/10/2017 13:52
sec-Butyl benzene	ND	2.5	5	02/10/2017 13:52
tert-Butyl benzene	ND	2.5	5	02/10/2017 13:52
Carbon Disulfide	ND	2.5	5	02/10/2017 13:52
Carbon Tetrachloride	ND	2.5	5	02/10/2017 13:52
Chlorobenzene	ND	2.5	5	02/10/2017 13:52
Chloroethane	ND	2.5	5	02/10/2017 13:52
Chloroform	ND	2.5	5	02/10/2017 13:52
Chloromethane	ND	2.5	5	02/10/2017 13:52
2-Chlorotoluene	ND	2.5	5	02/10/2017 13:52
4-Chlorotoluene	ND	2.5	5	02/10/2017 13:52
Dibromochloromethane	ND	2.5	5	02/10/2017 13:52
1,2-Dibromo-3-chloropropane	ND	1.0	5	02/10/2017 13:52
1,2-Dibromoethane (EDB)	ND	2.5	5	02/10/2017 13:52
Dibromomethane	ND	2.5	5	02/10/2017 13:52
1,2-Dichlorobenzene	ND	2.5	5	02/10/2017 13:52
1,3-Dichlorobenzene	ND	2.5	5	02/10/2017 13:52
1,4-Dichlorobenzene	ND	2.5	5	02/10/2017 13:52
Dichlorodifluoromethane	ND	2.5	5	02/10/2017 13:52
1,1-Dichloroethane	ND	2.5	5	02/10/2017 13:52
1,2-Dichloroethane (1,2-DCA)	ND	2.5	5	02/10/2017 13:52
1,1-Dichloroethene	ND	2.5	5	02/10/2017 13:52
cis-1,2-Dichloroethene	20	2.5	5	02/10/2017 13:52
trans-1,2-Dichloroethene	ND	2.5	5	02/10/2017 13:52
1,2-Dichloropropane	ND	2.5	5	02/10/2017 13:52
1,3-Dichloropropane	ND	2.5	5	02/10/2017 13:52
2,2-Dichloropropane	ND	2.5	5	02/10/2017 13:52

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Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/9/17-2/10/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-26-GW	1702251-004B	Water	02/03/2017 09:22	GC10	133984

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	2.5	5	02/10/2017 13:52
cis-1,3-Dichloropropene	ND	2.5	5	02/10/2017 13:52
trans-1,3-Dichloropropene	ND	2.5	5	02/10/2017 13:52
Diisopropyl ether (DIPE)	ND	2.5	5	02/10/2017 13:52
Ethylbenzene	ND	2.5	5	02/10/2017 13:52
Ethyl tert-butyl ether (ETBE)	ND	2.5	5	02/10/2017 13:52
Freon 113	ND	2.5	5	02/10/2017 13:52
Hexachlorobutadiene	ND	2.5	5	02/10/2017 13:52
Hexachloroethane	ND	2.5	5	02/10/2017 13:52
2-Hexanone	ND	2.5	5	02/10/2017 13:52
Isopropylbenzene	ND	2.5	5	02/10/2017 13:52
4-Isopropyl toluene	ND	2.5	5	02/10/2017 13:52
Methyl-t-butyl ether (MTBE)	ND	2.5	5	02/10/2017 13:52
Methylene chloride	ND	2.5	5	02/10/2017 13:52
4-Methyl-2-pentanone (MIBK)	ND	2.5	5	02/10/2017 13:52
Naphthalene	ND	2.5	5	02/10/2017 13:52
n-Propyl benzene	ND	2.5	5	02/10/2017 13:52
Styrene	ND	2.5	5	02/10/2017 13:52
1,1,1,2-Tetrachloroethane	ND	2.5	5	02/10/2017 13:52
1,1,2,2-Tetrachloroethane	ND	2.5	5	02/10/2017 13:52
Tetrachloroethene	ND	2.5	5	02/10/2017 13:52
Toluene	ND	2.5	5	02/10/2017 13:52
1,2,3-Trichlorobenzene	3.7	2.5	5	02/10/2017 13:52
1,2,4-Trichlorobenzene	ND	2.5	5	02/10/2017 13:52
1,1,1-Trichloroethane	ND	2.5	5	02/10/2017 13:52
1,1,2-Trichloroethane	ND	2.5	5	02/10/2017 13:52
Trichloroethene	63	2.5	5	02/10/2017 13:52
Trichlorofluoromethane	ND	2.5	5	02/10/2017 13:52
1,2,3-Trichloropropane	ND	2.5	5	02/10/2017 13:52
1,2,4-Trimethylbenzene	3.1	2.5	5	02/10/2017 13:52
1,3,5-Trimethylbenzene	ND	2.5	5	02/10/2017 13:52
Vinyl Chloride	ND	2.5	5	02/10/2017 13:52
Xylenes, Total	ND	2.5	5	02/10/2017 13:52

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Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/9/17-2/10/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-26-GW	1702251-004B	Water	02/03/2017 09:22	GC10	133984

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	100	70-130		02/10/2017 13:52
Toluene-d8	110	70-130		02/10/2017 13:52
4-BFB	118	70-130		02/10/2017 13:52

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/9/17-2/10/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-27-GW	1702251-005B	Water	02/03/2017 12:10	GC10	133984

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	33	3.3	02/10/2017 14:34
tert-Amyl methyl ether (TAME)	ND	1.7	3.3	02/10/2017 14:34
Benzene	ND	1.7	3.3	02/10/2017 14:34
Bromobenzene	ND	1.7	3.3	02/10/2017 14:34
Bromochloromethane	ND	1.7	3.3	02/10/2017 14:34
Bromodichloromethane	ND	1.7	3.3	02/10/2017 14:34
Bromoform	ND	1.7	3.3	02/10/2017 14:34
Bromomethane	ND	1.7	3.3	02/10/2017 14:34
2-Butanone (MEK)	ND	6.7	3.3	02/10/2017 14:34
t-Butyl alcohol (TBA)	ND	6.7	3.3	02/10/2017 14:34
n-Butyl benzene	ND	1.7	3.3	02/10/2017 14:34
sec-Butyl benzene	ND	1.7	3.3	02/10/2017 14:34
tert-Butyl benzene	ND	1.7	3.3	02/10/2017 14:34
Carbon Disulfide	ND	1.7	3.3	02/10/2017 14:34
Carbon Tetrachloride	ND	1.7	3.3	02/10/2017 14:34
Chlorobenzene	ND	1.7	3.3	02/10/2017 14:34
Chloroethane	ND	1.7	3.3	02/10/2017 14:34
Chloroform	ND	1.7	3.3	02/10/2017 14:34
Chloromethane	ND	1.7	3.3	02/10/2017 14:34
2-Chlorotoluene	ND	1.7	3.3	02/10/2017 14:34
4-Chlorotoluene	ND	1.7	3.3	02/10/2017 14:34
Dibromochloromethane	ND	1.7	3.3	02/10/2017 14:34
1,2-Dibromo-3-chloropropane	ND	0.67	3.3	02/10/2017 14:34
1,2-Dibromoethane (EDB)	ND	1.7	3.3	02/10/2017 14:34
Dibromomethane	ND	1.7	3.3	02/10/2017 14:34
1,2-Dichlorobenzene	ND	1.7	3.3	02/10/2017 14:34
1,3-Dichlorobenzene	ND	1.7	3.3	02/10/2017 14:34
1,4-Dichlorobenzene	ND	1.7	3.3	02/10/2017 14:34
Dichlorodifluoromethane	ND	1.7	3.3	02/10/2017 14:34
1,1-Dichloroethane	ND	1.7	3.3	02/10/2017 14:34
1,2-Dichloroethane (1,2-DCA)	ND	1.7	3.3	02/10/2017 14:34
1,1-Dichloroethene	ND	1.7	3.3	02/10/2017 14:34
cis-1,2-Dichloroethene	4.8	1.7	3.3	02/10/2017 14:34
trans-1,2-Dichloroethene	ND	1.7	3.3	02/10/2017 14:34
1,2-Dichloropropane	ND	1.7	3.3	02/10/2017 14:34
1,3-Dichloropropane	ND	1.7	3.3	02/10/2017 14:34
2,2-Dichloropropane	ND	1.7	3.3	02/10/2017 14:34

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/9/17-2/10/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-27-GW	1702251-005B	Water	02/03/2017 12:10	GC10	133984

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	1.7	3.3	02/10/2017 14:34
cis-1,3-Dichloropropene	ND	1.7	3.3	02/10/2017 14:34
trans-1,3-Dichloropropene	ND	1.7	3.3	02/10/2017 14:34
Diisopropyl ether (DIPE)	ND	1.7	3.3	02/10/2017 14:34
Ethylbenzene	ND	1.7	3.3	02/10/2017 14:34
Ethyl tert-butyl ether (ETBE)	ND	1.7	3.3	02/10/2017 14:34
Freon 113	ND	1.7	3.3	02/10/2017 14:34
Hexachlorobutadiene	ND	1.7	3.3	02/10/2017 14:34
Hexachloroethane	ND	1.7	3.3	02/10/2017 14:34
2-Hexanone	ND	1.7	3.3	02/10/2017 14:34
Isopropylbenzene	ND	1.7	3.3	02/10/2017 14:34
4-Isopropyl toluene	ND	1.7	3.3	02/10/2017 14:34
Methyl-t-butyl ether (MTBE)	ND	1.7	3.3	02/10/2017 14:34
Methylene chloride	ND	1.7	3.3	02/10/2017 14:34
4-Methyl-2-pentanone (MIBK)	ND	1.7	3.3	02/10/2017 14:34
Naphthalene	ND	1.7	3.3	02/10/2017 14:34
n-Propyl benzene	ND	1.7	3.3	02/10/2017 14:34
Styrene	ND	1.7	3.3	02/10/2017 14:34
1,1,1,2-Tetrachloroethane	ND	1.7	3.3	02/10/2017 14:34
1,1,2,2-Tetrachloroethane	ND	1.7	3.3	02/10/2017 14:34
Tetrachloroethene	ND	1.7	3.3	02/10/2017 14:34
Toluene	ND	1.7	3.3	02/10/2017 14:34
1,2,3-Trichlorobenzene	ND	1.7	3.3	02/10/2017 14:34
1,2,4-Trichlorobenzene	ND	1.7	3.3	02/10/2017 14:34
1,1,1-Trichloroethane	ND	1.7	3.3	02/10/2017 14:34
1,1,2-Trichloroethane	ND	1.7	3.3	02/10/2017 14:34
Trichloroethene	48	1.7	3.3	02/10/2017 14:34
Trichlorofluoromethane	ND	1.7	3.3	02/10/2017 14:34
1,2,3-Trichloropropane	ND	1.7	3.3	02/10/2017 14:34
1,2,4-Trimethylbenzene	ND	1.7	3.3	02/10/2017 14:34
1,3,5-Trimethylbenzene	ND	1.7	3.3	02/10/2017 14:34
Vinyl Chloride	ND	1.7	3.3	02/10/2017 14:34
Xylenes, Total	9.4	1.7	3.3	02/10/2017 14:34

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/9/17-2/10/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-27-GW	1702251-005B	Water	02/03/2017 12:10	GC10	133984

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	99	70-130		02/10/2017 14:34
Toluene-d8	109	70-130		02/10/2017 14:34
4-BFB	117	70-130		02/10/2017 14:34

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/9/17-2/10/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-28-GW	1702251-006B	Water	02/03/2017 12:00	GC10	133984

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	200	20	02/10/2017 15:14
tert-Amyl methyl ether (TAME)	ND	10	20	02/10/2017 15:14
Benzene	ND	10	20	02/10/2017 15:14
Bromobenzene	ND	10	20	02/10/2017 15:14
Bromochloromethane	ND	10	20	02/10/2017 15:14
Bromodichloromethane	ND	10	20	02/10/2017 15:14
Bromoform	ND	10	20	02/10/2017 15:14
Bromomethane	ND	10	20	02/10/2017 15:14
2-Butanone (MEK)	ND	40	20	02/10/2017 15:14
t-Butyl alcohol (TBA)	ND	40	20	02/10/2017 15:14
n-Butyl benzene	ND	10	20	02/10/2017 15:14
sec-Butyl benzene	ND	10	20	02/10/2017 15:14
tert-Butyl benzene	ND	10	20	02/10/2017 15:14
Carbon Disulfide	ND	10	20	02/10/2017 15:14
Carbon Tetrachloride	ND	10	20	02/10/2017 15:14
Chlorobenzene	ND	10	20	02/10/2017 15:14
Chloroethane	ND	10	20	02/10/2017 15:14
Chloroform	ND	10	20	02/10/2017 15:14
Chloromethane	ND	10	20	02/10/2017 15:14
2-Chlorotoluene	ND	10	20	02/10/2017 15:14
4-Chlorotoluene	ND	10	20	02/10/2017 15:14
Dibromochloromethane	ND	10	20	02/10/2017 15:14
1,2-Dibromo-3-chloropropane	ND	4.0	20	02/10/2017 15:14
1,2-Dibromoethane (EDB)	ND	10	20	02/10/2017 15:14
Dibromomethane	ND	10	20	02/10/2017 15:14
1,2-Dichlorobenzene	ND	10	20	02/10/2017 15:14
1,3-Dichlorobenzene	ND	10	20	02/10/2017 15:14
1,4-Dichlorobenzene	ND	10	20	02/10/2017 15:14
Dichlorodifluoromethane	ND	10	20	02/10/2017 15:14
1,1-Dichloroethane	ND	10	20	02/10/2017 15:14
1,2-Dichloroethane (1,2-DCA)	ND	10	20	02/10/2017 15:14
1,1-Dichloroethene	ND	10	20	02/10/2017 15:14
cis-1,2-Dichloroethene	37	10	20	02/10/2017 15:14
trans-1,2-Dichloroethene	ND	10	20	02/10/2017 15:14
1,2-Dichloropropane	ND	10	20	02/10/2017 15:14
1,3-Dichloropropane	ND	10	20	02/10/2017 15:14
2,2-Dichloropropane	ND	10	20	02/10/2017 15:14

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Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/9/17-2/10/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-28-GW	1702251-006B	Water	02/03/2017 12:00	GC10	133984

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	10	20	02/10/2017 15:14
cis-1,3-Dichloropropene	ND	10	20	02/10/2017 15:14
trans-1,3-Dichloropropene	ND	10	20	02/10/2017 15:14
Diisopropyl ether (DIPE)	ND	10	20	02/10/2017 15:14
Ethylbenzene	ND	10	20	02/10/2017 15:14
Ethyl tert-butyl ether (ETBE)	ND	10	20	02/10/2017 15:14
Freon 113	ND	10	20	02/10/2017 15:14
Hexachlorobutadiene	ND	10	20	02/10/2017 15:14
Hexachloroethane	ND	10	20	02/10/2017 15:14
2-Hexanone	ND	10	20	02/10/2017 15:14
Isopropylbenzene	ND	10	20	02/10/2017 15:14
4-Isopropyl toluene	ND	10	20	02/10/2017 15:14
Methyl-t-butyl ether (MTBE)	ND	10	20	02/10/2017 15:14
Methylene chloride	ND	10	20	02/10/2017 15:14
4-Methyl-2-pentanone (MIBK)	ND	10	20	02/10/2017 15:14
Naphthalene	ND	10	20	02/10/2017 15:14
n-Propyl benzene	ND	10	20	02/10/2017 15:14
Styrene	ND	10	20	02/10/2017 15:14
1,1,1,2-Tetrachloroethane	ND	10	20	02/10/2017 15:14
1,1,2,2-Tetrachloroethane	ND	10	20	02/10/2017 15:14
Tetrachloroethene	ND	10	20	02/10/2017 15:14
Toluene	ND	10	20	02/10/2017 15:14
1,2,3-Trichlorobenzene	ND	10	20	02/10/2017 15:14
1,2,4-Trichlorobenzene	ND	10	20	02/10/2017 15:14
1,1,1-Trichloroethane	ND	10	20	02/10/2017 15:14
1,1,2-Trichloroethane	ND	10	20	02/10/2017 15:14
Trichloroethene	230	10	20	02/10/2017 15:14
Trichlorofluoromethane	ND	10	20	02/10/2017 15:14
1,2,3-Trichloropropane	ND	10	20	02/10/2017 15:14
1,2,4-Trimethylbenzene	ND	10	20	02/10/2017 15:14
1,3,5-Trimethylbenzene	ND	10	20	02/10/2017 15:14
Vinyl Chloride	ND	10	20	02/10/2017 15:14
Xylenes, Total	ND	10	20	02/10/2017 15:14

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/9/17-2/10/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-28-GW	1702251-006B	Water	02/03/2017 12:00	GC10	133984

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	100	70-130		02/10/2017 15:14
Toluene-d8	109	70-130		02/10/2017 15:14
4-BFB	115	70-130		02/10/2017 15:14

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/9/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-GW	1702251-003A	Water	02/03/2017 09:38	GC3	133946

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	66	50	1	02/09/2017 06:54
MTBE	---	5.0	1	02/09/2017 06:54
Benzene	---	0.50	1	02/09/2017 06:54
Toluene	---	0.50	1	02/09/2017 06:54
Ethylbenzene	---	0.50	1	02/09/2017 06:54
Xylenes	---	1.5	1	02/09/2017 06:54

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
aaa-TFT	804	S	89-115	02/09/2017 06:54

Analyst(s): IA Analytical Comments: d6,c4

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-26-GW	1702251-004A	Water	02/03/2017 09:22	GC3	133946

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	110	50	1	02/09/2017 07:24
MTBE	---	5.0	1	02/09/2017 07:24
Benzene	---	0.50	1	02/09/2017 07:24
Toluene	---	0.50	1	02/09/2017 07:24
Ethylbenzene	---	0.50	1	02/09/2017 07:24
Xylenes	---	1.5	1	02/09/2017 07:24

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
aaa-TFT	522	S	89-115	02/09/2017 07:24

Analyst(s): IA Analytical Comments: d6,c4



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/9/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-27-GW	1702251-005A	Water	02/03/2017 12:10	GC3	133946

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	59	50	1	02/09/2017 07:55
MTBE	---	5.0	1	02/09/2017 07:55
Benzene	---	0.50	1	02/09/2017 07:55
Toluene	---	0.50	1	02/09/2017 07:55
Ethylbenzene	---	0.50	1	02/09/2017 07:55
Xylenes	---	1.5	1	02/09/2017 07:55

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
aaa-TFT	485	S	89-115	02/09/2017 07:55

Analyst(s): IA

Analytical Comments: d6,c4

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-28-GW	1702251-006A	Water	02/03/2017 12:00	GC3	133946

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	50	1	02/09/2017 08:25
MTBE	---	5.0	1	02/09/2017 08:25
Benzene	---	0.50	1	02/09/2017 08:25
Toluene	---	0.50	1	02/09/2017 08:25
Ethylbenzene	---	0.50	1	02/09/2017 08:25
Xylenes	---	1.5	1	02/09/2017 08:25

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
aaa-TFT	882	S	89-115	02/09/2017 08:25

Analyst(s): IA

Analytical Comments: d6,c4



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW3510C
Analytical Method: SW8015B
Unit: µg/L

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-25-GW	1702251-003A	Water	02/03/2017 09:38	GC6A	133837

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	5100	2500	50	02/09/2017 12:35
TPH-Motor Oil (C18-C36)	18,000	12,000	50	02/09/2017 12:35

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
C9	134	S	72-117	02/09/2017 12:35

Analyst(s): TK Analytical Comments: e7,e2,b6,c2

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-26-GW	1702251-004A	Water	02/03/2017 09:22	GC6A	133837

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	770	50	1	02/09/2017 09:21
TPH-Motor Oil (C18-C36)	1300	250	1	02/09/2017 09:21

Surrogates	REC (%)	Limits	Date Analyzed
C9	98	72-117	02/09/2017 09:21

Analyst(s): TK Analytical Comments: e7,e2,e11

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-27-GW	1702251-005A	Water	02/03/2017 12:10	GC6A	133837

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	100	1	02/09/2017 11:17
TPH-Motor Oil (C18-C36)	540	500	1	02/09/2017 11:17

Surrogates	REC (%)	Limits	Date Analyzed
C9	102	72-117	02/09/2017 11:17

Analyst(s): TK Analytical Comments: e7,a3

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/8/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW3510C
Analytical Method: SW8015B
Unit: µg/L

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-28-GW	1702251-006A	Water	02/03/2017 12:00	GC6A	133837

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	100	1	02/09/2017 23:04
TPH-Motor Oil (C18-C36)	960	500	1	02/09/2017 23:04

Surrogates	REC (%)	Limits	Date Analyzed
C9	101	72-117	02/09/2017 23:04

Analyst(s): TK **Analytical Comments:** e7,a3



Quality Control Report

Client: Langan
Date Prepared: 2/9/17
Date Analyzed: 2/9/17
Instrument: GC18
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702251
BatchID: 133984
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS/LCSD-133984

QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Acetone	ND	10	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.50	-	-	-
Benzene	ND	0.50	-	-	-
Bromobenzene	ND	0.50	-	-	-
Bromochloromethane	ND	0.50	-	-	-
Bromodichloromethane	ND	0.50	-	-	-
Bromoform	ND	0.50	-	-	-
Bromomethane	ND	0.50	-	-	-
2-Butanone (MEK)	ND	2.0	-	-	-
t-Butyl alcohol (TBA)	ND	2.0	-	-	-
n-Butyl benzene	ND	0.50	-	-	-
sec-Butyl benzene	ND	0.50	-	-	-
tert-Butyl benzene	ND	0.50	-	-	-
Carbon Disulfide	ND	0.50	-	-	-
Carbon Tetrachloride	ND	0.50	-	-	-
Chlorobenzene	ND	0.50	-	-	-
Chloroethane	ND	0.50	-	-	-
Chloroform	ND	0.50	-	-	-
Chloromethane	ND	0.50	-	-	-
2-Chlorotoluene	ND	0.50	-	-	-
4-Chlorotoluene	ND	0.50	-	-	-
Dibromochloromethane	ND	0.50	-	-	-
1,2-Dibromo-3-chloropropane	ND	0.20	-	-	-
1,2-Dibromoethane (EDB)	ND	0.50	-	-	-
Dibromomethane	ND	0.50	-	-	-
1,2-Dichlorobenzene	ND	0.50	-	-	-
1,3-Dichlorobenzene	ND	0.50	-	-	-
1,4-Dichlorobenzene	ND	0.50	-	-	-
Dichlorodifluoromethane	ND	0.50	-	-	-
1,1-Dichloroethane	ND	0.50	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.50	-	-	-
1,1-Dichloroethene	ND	0.50	-	-	-
cis-1,2-Dichloroethene	ND	0.50	-	-	-
trans-1,2-Dichloroethene	ND	0.50	-	-	-
1,2-Dichloropropane	ND	0.50	-	-	-
1,3-Dichloropropane	ND	0.50	-	-	-
2,2-Dichloropropane	ND	0.50	-	-	-
1,1-Dichloropropene	ND	0.50	-	-	-
cis-1,3-Dichloropropene	ND	0.50	-	-	-

(Cont.)

NELAP 4033ORELAP

QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/9/17
Date Analyzed: 2/9/17
Instrument: GC18
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702251
BatchID: 133984
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS/LCSD-133984

QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
trans-1,3-Dichloropropene	ND	0.50	-	-	-
Diisopropyl ether (DIPE)	ND	0.50	-	-	-
Ethylbenzene	ND	0.50	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.50	-	-	-
Freon 113	ND	0.50	-	-	-
Hexachlorobutadiene	ND	0.50	-	-	-
Hexachloroethane	ND	0.50	-	-	-
2-Hexanone	ND	0.50	-	-	-
Isopropylbenzene	ND	0.50	-	-	-
4-Isopropyl toluene	ND	0.50	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.50	-	-	-
Methylene chloride	ND	0.50	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	0.50	-	-	-
Naphthalene	ND	0.50	-	-	-
n-Propyl benzene	ND	0.50	-	-	-
Styrene	ND	0.50	-	-	-
1,1,1,2-Tetrachloroethane	ND	0.50	-	-	-
1,1,2,2-Tetrachloroethane	ND	0.50	-	-	-
Tetrachloroethene	ND	0.50	-	-	-
Toluene	ND	0.50	-	-	-
1,2,3-Trichlorobenzene	ND	0.50	-	-	-
1,2,4-Trichlorobenzene	ND	0.50	-	-	-
1,1,1-Trichloroethane	ND	0.50	-	-	-
1,1,2-Trichloroethane	ND	0.50	-	-	-
Trichloroethene	ND	0.50	-	-	-
Trichlorofluoromethane	ND	0.50	-	-	-
1,2,3-Trichloropropane	ND	0.50	-	-	-
1,2,4-Trimethylbenzene	ND	0.50	-	-	-
1,3,5-Trimethylbenzene	ND	0.50	-	-	-
Vinyl Chloride	ND	0.50	-	-	-
Xylenes, Total	ND	0.50	-	-	-

Surrogate Recovery

Dibromofluoromethane	26.13		25	105	70-130
Toluene-d8	25.65		25	103	70-130
4-BFB	2.57		2.5	103	70-130



Quality Control Report

Client: Langan
Date Prepared: 2/9/17
Date Analyzed: 2/9/17
Instrument: GC18
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702251
BatchID: 133984
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS/LCSD-133984

QC Summary Report for SW8260B

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	10.5	11.6	10	105	116	54-140	9.59	20
Benzene	10.8	10.4	10	108	104	47-158	3.81	20
t-Butyl alcohol (TBA)	39.4	49.7	40	99	124	42-140	23.1,F2	20
Chlorobenzene	11.1	10.6	10	111	106	43-157	4.37	20
1,2-Dibromoethane (EDB)	10.2	11.1	10	102	111	44-155	8.22	20
1,2-Dichloroethane (1,2-DCA)	10.1	10.6	10	101	106	66-125	4.41	20
1,1-Dichloroethene	11.2	10.7	10	113	107	47-149	5.33	20
Diisopropyl ether (DIPE)	11.0	11.4	10	111	114	57-136	3.50	20
Ethyl tert-butyl ether (ETBE)	10.8	11.6	10	108	116	55-137	7.31	20
Methyl-t-butyl ether (MTBE)	9.96	11.3	10	100	113	53-139	12.3	20
Toluene	11.0	10.5	10	110	105	52-137	4.27	20
Trichloroethene	11.2	10.7	10	112	107	43-157	4.81	20
Surrogate Recovery								
Dibromofluoromethane	26.0	26.6	25	104	107	70-130	2.46	20
Toluene-d8	25.7	25.6	25	103	103	70-130	0	20
4-BFB	2.66	2.59	2.5	107	104	70-130	2.69	20



Quality Control Report

Client: Langan
Date Prepared: 2/8/17 - 2/9/17
Date Analyzed: 2/8/17 - 2/9/17
Instrument: GC3
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702251
BatchID: 133946
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L
Sample ID: MB/LCS-133946
 1702478-001DMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	64.1	40	60	-	107	85-112
MTBE	ND	10.6	5.0	10	-	107	74-127
Benzene	ND	10.6	0.50	10	-	106	81-124
Toluene	ND	10.9	0.50	10	-	109	79-131
Ethylbenzene	ND	11.0	0.50	10	-	110	86-127
Xylenes	ND	34.3	1.5	30	-	114	87-133
Surrogate Recovery							
aaa-TFT	10.39	10.1		10	104	101	87-117

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	61.8	63.5	60	ND	103	106	85-113	2.82	20
MTBE	10.5	10.4	10	ND	105	104	73-120	1.42	20
Benzene	10.4	10.7	10	ND	104	107	84-121	2.96	20
Toluene	10.6	11.0	10	ND	106	110	86-125	3.06	20
Ethylbenzene	10.9	11.3	10	ND	109	113	93-124	3.70	20
Xylenes	34.0	35.4	30	ND	114	118	93-130	3.74	20
Surrogate Recovery									
aaa-TFT	10.2	10.3	10		102	103	89-115	1.35	20



Quality Control Report

Client: Langan	WorkOrder: 1702251
Date Prepared: 2/7/17	BatchID: 133837
Date Analyzed: 2/8/17	Extraction Method: SW3510C
Instrument: GC9b	Analytical Method: SW8015B
Matrix: Water	Unit: µg/L
Project: 750635602; 260 30th Street	Sample ID: MB/LCS/LCSD-133837

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
TPH-Diesel (C10-C23)	ND	50	-	-	-
TPH-Motor Oil (C18-C36)	ND	250	-	-	-
Surrogate Recovery					
C9	562.2		625	90	74-107

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	969	970	1000	97	97	95-136	0	30
Surrogate Recovery								
C9	563	569	625	90	91	74-107	1.14	30



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1702251 **A** ClientCode: TWRK

WaterTrax
 WriteOn
 EDF
 Excel
 Fax
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Josh Graber
Langan
501 14th Street, 3rd Floor
Oakland, CA 94612
(415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc/3rd Party: kstaehlin@langan.com;
PO:
ProjectNo: 750635602; 260 30th Street

Bill to:

Accounts Payable
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursolutio

Requested TAT: 3 days;

Date Received: 02/03/2017
Date Logged: 02/03/2017
Date Add-On: 02/08/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1702251-003	B-25-GW	Water	2/3/2017 09:38	<input type="checkbox"/>	B	A	A										
1702251-004	B-26-GW	Water	2/3/2017 09:22	<input type="checkbox"/>	B	A	A										
1702251-005	B-27-GW	Water	2/3/2017 12:10	<input type="checkbox"/>	B	A	A										
1702251-006	B-28-GW	Water	2/3/2017 12:00	<input type="checkbox"/>	B	A	A										

Test Legend:

1	8260B_W	2	G-MBTEX_W	3	TPH(DMO)_W	4	
5		6		7		8	
9		10		11		12	

Prepared by: Briana Cutino
Add-On Prepared By: Briana Cutino

Comments: samples 3,4,5,6 taken off hold for G/DMO/8260 3DTAT 2/8/17;

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: LANGAN

Project: 750635602; 260 30th Street

Work Order: 1702251

Client Contact: Josh Graber

QC Level: LEVEL 2

Contact's Email: jdgraber@treadwellrollo.com

Comments: samples 3,4,5,6 taken off hold for G/DMO/8260 3DTAT 2/8/17;

Date Logged: 2/3/2017

Date Add-On: 2/8/2017

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1702251-003A	B-25-GW	Water	Multi-Range TPH(g,d,mo) by EPA 8015Bm	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	2/3/2017 9:38	3 days	Trace	<input type="checkbox"/>	
1702251-003B	B-25-GW	Water	SW8260B (VOCs)	2	VOA w/ HCL	2/3/2017 9:38	3 days	Trace	<input type="checkbox"/>	
1702251-004A	B-26-GW	Water	Multi-Range TPH(g,d,mo) by EPA 8015Bm	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	2/3/2017 9:22	3 days	Trace	<input type="checkbox"/>	
1702251-004B	B-26-GW	Water	SW8260B (VOCs)	2	VOA w/ HCL	2/3/2017 9:22	3 days	Trace	<input type="checkbox"/>	
1702251-005A	B-27-GW	Water	Multi-Range TPH(g,d,mo) by EPA 8015Bm	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	2/3/2017 12:10	3 days	Trace	<input type="checkbox"/>	
1702251-005B	B-27-GW	Water	SW8260B (VOCs)	2	VOA w/ HCL	2/3/2017 12:10	3 days	Trace	<input type="checkbox"/>	
1702251-006A	B-28-GW	Water	Multi-Range TPH(g,d,mo) by EPA 8015Bm	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	2/3/2017 12:00	3 days	Trace	<input type="checkbox"/>	
1702251-006B	B-28-GW	Water	SW8260B (VOCs)	2	VOA w/ HCL	2/3/2017 12:00	3 days		<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

* PLEASE C.C. ANNIE S. *
 AT KSTAEHLING@LANGAN.COM 10286

LANGAN

RUSH

CHAIN OF CUSTODY RECORD

- 555 Montgomery Street, Suite 1300, San Francisco, CA 94111
- 501 14th Street, Third Floor, Oakland CA 94612
- 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
- 4030 Moorpark Ave. Suite 210, San Jose, CA 95117-1849

1702251

Site Name: 260 30TH STREET
 Job Number: 750635602
 Project Manager/Contact: JOSH GRABER
 Samplers: KSS
 Recorder (Signature Required): [Signature]

Turnaround Time
72-HOUR

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix				No. Containers & Preservative				Analysis Requested										Silica gel clean-up	Hold	Remarks				
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH _{total}	TPH _{d,m}	VOCS	PAHs	TPH _{d,m}	VOCS											
B-17-GW	2/3/17	1002			X			4			3	X	X	X														
B-23-GW		0913			X			4			3	X	X	X														
B-25-GW		0938			X			4			3	X	X	X										X				
B-26-GW		0922			X			4			3	X	X	X									X					
B-27-GW		1210			X			4			3	X	X	X									X					
B-28-GW	2/3/17	1200			X			4			3	X	X	X									X					

Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>2-3-17</u>	Time: <u>1650</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>2-3-17</u>	Time: <u>1300</u>
Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>2-3-17</u>	Time: <u>1650</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>2/3/17</u>	Time: <u>1050</u>
Relinquished by: (Signature) _____	Date: _____	Time: _____	Received by Lab: (Signature) _____	Date: _____	Time: _____

Sent to Laboratory (Name): MCCAMPBELL ANALYTICAL
 Laboratory Comments/Notes: _____
 Method of Shipment: Lab courier Fed Ex Airborne UPS
 Hand Carried Private Courier (Co. Name) _____

* added 2/8/17
 COC Number: 3PTAT



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1702251 B **Amended:** 02/16/2017

Report Created for: Langan

501 14th Street, 3rd Floor
Oakland, CA 94612

Project Contact: Josh Graber

Project P.O.:

Project Name: 750635602; 260 30th Street

Project Received: 02/03/2017

Analytical Report reviewed & approved for release on 02/16/2017 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702251

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 750635602; 260 30th Street
WorkOrder: 1702251

Analytical Qualifiers

S	surrogate spike recovery outside accepted recovery limits
a3	sample diluted due to high organic content.
b6	lighter than water immiscible sheen/product is present
c2	surrogate recovery outside of the control limits due to matrix interference.
c4	surrogate recovery outside of the control limits due to coelution with another peak(s) / cluttered chromatogram.
c11	The surrogate recovery is above the upper control limit. The target analyte(s) were Not Detected (ND); therefore, the data has been reported.
d6	one to a few isolated non-target peaks present in the TPH(g) chromatogram
d7	strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram
e2	diesel range compounds are significant; no recognizable pattern
e7	oil range compounds are significant
e11	stoddard solvent/mineral spirit (?)

Quality Control Qualifiers

F2	LCS/LCSD recovery and/or RPD is out of acceptance criteria.
F3	the surrogate standard recovery and/or RPD is outside of acceptance limits.



Analytical Report

Client: Langan
Date Received: 2/3/17 16:50
Date Prepared: 2/10/17
Project: 750635602; 260 30th Street

WorkOrder: 1702251
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-26-GW	1702251-004C	Water	02/03/2017 09:22	GC35	134024

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.50	1	02/13/2017 11:46
Acenaphthylene	ND	0.50	1	02/13/2017 11:46
Anthracene	ND	0.50	1	02/13/2017 11:46
Benzo (a) anthracene	ND	0.50	1	02/13/2017 11:46
Benzo (a) pyrene	ND	0.50	1	02/13/2017 11:46
Benzo (b) fluoranthene	ND	0.50	1	02/13/2017 11:46
Benzo (g,h,i) perylene	ND	0.50	1	02/13/2017 11:46
Benzo (k) fluoranthene	ND	0.50	1	02/13/2017 11:46
Chrysene	ND	0.50	1	02/13/2017 11:46
Dibenzo (a,h) anthracene	ND	0.50	1	02/13/2017 11:46
Fluoranthene	ND	0.50	1	02/13/2017 11:46
Fluorene	ND	0.50	1	02/13/2017 11:46
Indeno (1,2,3-cd) pyrene	ND	0.50	1	02/13/2017 11:46
1-Methylnaphthalene	ND	0.50	1	02/13/2017 11:46
2-Methylnaphthalene	ND	0.50	1	02/13/2017 11:46
Naphthalene	0.64	0.50	1	02/13/2017 11:46
Phenanthrene	ND	0.50	1	02/13/2017 11:46
Pyrene	ND	0.50	1	02/13/2017 11:46
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	86	30-130		02/13/2017 11:46
2-Fluorobiphenyl	82	30-130		02/13/2017 11:46

Analyst(s): REB



Quality Control Report

Client: Langan
Date Prepared: 2/10/17
Date Analyzed: 2/10/17 - 2/13/17
Instrument: GC35
Matrix: Water
Project: 750635602; 260 30th Street

WorkOrder: 1702251
BatchID: 134024
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L
Sample ID: MB/LCS/LCSD-134024

QC Summary Report for SW8270C

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Acenaphthene	ND	0.50	-	-	-
Acenaphthylene	ND	0.50	-	-	-
Anthracene	ND	0.50	-	-	-
Benzo (a) anthracene	ND	0.50	-	-	-
Benzo (a) pyrene	ND	0.50	-	-	-
Benzo (b) fluoranthene	ND	0.50	-	-	-
Benzo (g,h,i) perylene	ND	0.50	-	-	-
Benzo (k) fluoranthene	ND	0.50	-	-	-
Chrysene	ND	0.50	-	-	-
Dibenzo (a,h) anthracene	ND	0.50	-	-	-
Fluoranthene	ND	0.50	-	-	-
Fluorene	ND	0.50	-	-	-
Indeno (1,2,3-cd) pyrene	ND	0.50	-	-	-
1-Methylnaphthalene	ND	0.50	-	-	-
2-Methylnaphthalene	ND	0.50	-	-	-
Naphthalene	ND	0.50	-	-	-
Phenanthrene	ND	0.50	-	-	-
Pyrene	ND	0.50	-	-	-

Surrogate Recovery

1-Fluoronaphthalene	21.51		25	86	30-130
2-Fluorobiphenyl	20.38		25	82	30-130

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Benzo (a) pyrene	6.91	7.22	10	69	72	12-152	4.41	25
Chrysene	7.26	7.12	10	73	71	28-116	1.95	25
1-Methylnaphthalene	10.2	9.89	10	102	99	48-125	2.61	25
2-Methylnaphthalene	9.65	9.40	10	97	94	41-124	2.70	25
Phenanthrene	8.89	8.38	10	89	84	36-123	5.85	25
Pyrene	7.87	7.55	10	79	76	29-118	4.12	25

Surrogate Recovery

1-Fluoronaphthalene	23.3	21.4	25	93	86	45-129	8.54	25
2-Fluorobiphenyl	22.5	20.2	25	90	81	47-125	10.7	25



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1702251 **B** ClientCode: TWRK

WaterTrax
 WriteOn
 EDF
 Excel
 Fax
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:
 Josh Graber
 Langan
 501 14th Street, 3rd Floor
 Oakland, CA 94612
 (415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
 cc/3rd Party: kstaehlin@langan.com;
 PO:
 ProjectNo: 750635602; 260 30th Street

Bill to:
 Accounts Payable
 Langan
 555 Montgomery St., Suite 1300
 San Francisco, CA 94111
 Langan_InvoiceCapture@concursoft.com

Requested TAT: 5 days;

Date Received: 02/03/2017
Date Logged: 02/03/2017
Date Add-On: 02/10/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1702251-004	B-26-GW	Water	2/3/2017 09:22	<input type="checkbox"/>	C												

Test Legend:

1	8270_PNA_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Briana Cutino
Add-On Prepared By: Jena Alfaro

Comments: samples 3,4,5,6 taken off hold for G/DMO/8260 3DTAT 2/8/17; PNAs added 2/10/17 5D TAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days). Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: LANGAN

Project: 750635602; 260 30th Street

Work Order: 1702251

Client Contact: Josh Graber

QC Level: LEVEL 2

Contact's Email: jdgraber@treadwellrollo.com

Comments: samples 3,4,5,6 taken off hold for G/DMO/8260 3DTAT 2/8/17;
PNAs added 2/10/17 5D TAT

Date Logged: 2/3/2017

Date Add-On: 2/10/2017

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1702251-004C	B-26-GW	Water	SW8270C (PAHs/PNAs)	1	1LA	2/3/2017 9:22	5 days	Trace	<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

* PLEASE C.C. ANNIE S. *
 AT KSTAEHLING@LANGAN.COM 10286

LANGAN

RUSH CHAIN OF CUSTODY RECORD

- 555 Montgomery Street, Suite 1300, San Francisco, CA 94111
- 501 14th Street, Third Floor, Oakland CA 94612
- 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
- 4030 Moorpark Ave. Suite 210, San Jose, CA 95117-1849

1702251

Site Name: 260 30TH STREET
 Job Number: 750635602
 Project Manager/Contact: JOSH GRABER
 Samplers: KSS
 Recorder (Signature Required): [Signature]

Turnaround Time
72 HOUR

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix				No. Containers & Preservative				Analysis Requested		Silica gel clean-up	Hold	Remarks	
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH	VOCS				PAHs
B-17-GW	2/3/17	1002		X				4			3	X	X				
B-23-GW		0913		X				4			3	X	X				
B-25-GW		0938		X				4			3	X	X				
B-26-GW		0922		X				4			3	X	X	X			
B-27-GW		1210		X				4			3	X	X				
B-28-GW	2/3/17	1200		X				4			3	X	X				

Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>2-3-17</u>	Time: <u>1650</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>2-3-17</u>	Time: <u>1300</u>
Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>2-3-17</u>	Time: <u>1650</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>2/3/17</u>	Time: <u>11050</u>
Relinquished by: (Signature) _____	Date: _____	Time: _____	Received by Lab: (Signature) _____	Date: _____	Time: _____

Sent to Laboratory (Name): McCAMPBELL ANALYTICAL

Method of Shipment: Lab courier Fed Ex Airborne UPS
 Hand Carried Private Courier (Co. Name) _____

* Added 2/8/17
 COC Number: 3PTAT



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1702361

Report Created for: Langan

501 14th Street, 3rd Floor
Oakland, CA 94612

Project Contact: Josh Graber

Project P.O.:

Project Name: 250635602; 260 30th Street

Project Received: 02/06/2017

Analytical Report reviewed & approved for release on 02/09/2017 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 250635602; 260 30th Street
WorkOrder: 1702361

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Analytical Qualifiers

b1 aqueous sample that contains greater than ~1 vol. % sediment



Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 250635602; 260 30th Street
WorkOrder: 1702361

Quality Control Qualifiers

F1 MS/MSD recovery and/or RPD is out of acceptance criteria; LCS validates the prep batch.
F2 LCS/LCSD recovery and/or RPD is out of acceptance criteria.
F3 the surrogate standard recovery and/or RPD is outside of acceptance limits.



Analytical Report

Client: Langan
Date Received: 2/6/17 15:20
Date Prepared: 2/6/17
Project: 250635602; 260 30th Street

WorkOrder: 1702361
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B30-10.0	1702361-007A	Soil	02/04/2017 09:25	GC10	133759

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/07/2017 23:55
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/07/2017 23:55
Benzene	ND	0.0050	1	02/07/2017 23:55
Bromobenzene	ND	0.0050	1	02/07/2017 23:55
Bromochloromethane	ND	0.0050	1	02/07/2017 23:55
Bromodichloromethane	ND	0.0050	1	02/07/2017 23:55
Bromoform	ND	0.0050	1	02/07/2017 23:55
Bromomethane	ND	0.0050	1	02/07/2017 23:55
2-Butanone (MEK)	ND	0.020	1	02/07/2017 23:55
t-Butyl alcohol (TBA)	ND	0.050	1	02/07/2017 23:55
n-Butyl benzene	ND	0.0050	1	02/07/2017 23:55
sec-Butyl benzene	ND	0.0050	1	02/07/2017 23:55
tert-Butyl benzene	ND	0.0050	1	02/07/2017 23:55
Carbon Disulfide	ND	0.0050	1	02/07/2017 23:55
Carbon Tetrachloride	ND	0.0050	1	02/07/2017 23:55
Chlorobenzene	ND	0.0050	1	02/07/2017 23:55
Chloroethane	ND	0.0050	1	02/07/2017 23:55
Chloroform	ND	0.0050	1	02/07/2017 23:55
Chloromethane	ND	0.0050	1	02/07/2017 23:55
2-Chlorotoluene	ND	0.0050	1	02/07/2017 23:55
4-Chlorotoluene	ND	0.0050	1	02/07/2017 23:55
Dibromochloromethane	ND	0.0050	1	02/07/2017 23:55
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/07/2017 23:55
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/07/2017 23:55
Dibromomethane	ND	0.0050	1	02/07/2017 23:55
1,2-Dichlorobenzene	ND	0.0050	1	02/07/2017 23:55
1,3-Dichlorobenzene	ND	0.0050	1	02/07/2017 23:55
1,4-Dichlorobenzene	ND	0.0050	1	02/07/2017 23:55
Dichlorodifluoromethane	ND	0.0050	1	02/07/2017 23:55
1,1-Dichloroethane	ND	0.0050	1	02/07/2017 23:55
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/07/2017 23:55
1,1-Dichloroethene	ND	0.0050	1	02/07/2017 23:55
cis-1,2-Dichloroethene	ND	0.0050	1	02/07/2017 23:55
trans-1,2-Dichloroethene	ND	0.0050	1	02/07/2017 23:55
1,2-Dichloropropane	ND	0.0050	1	02/07/2017 23:55
1,3-Dichloropropane	ND	0.0050	1	02/07/2017 23:55
2,2-Dichloropropane	ND	0.0050	1	02/07/2017 23:55

(Cont.)



Analytical Report

Client: Langan
Date Received: 2/6/17 15:20
Date Prepared: 2/6/17
Project: 250635602; 260 30th Street

WorkOrder: 1702361
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B30-10.0	1702361-007A	Soil	02/04/2017 09:25	GC10	133759

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/07/2017 23:55
cis-1,3-Dichloropropene	ND	0.0050	1	02/07/2017 23:55
trans-1,3-Dichloropropene	ND	0.0050	1	02/07/2017 23:55
Diisopropyl ether (DIPE)	ND	0.0050	1	02/07/2017 23:55
Ethylbenzene	ND	0.0050	1	02/07/2017 23:55
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/07/2017 23:55
Freon 113	ND	0.0050	1	02/07/2017 23:55
Hexachlorobutadiene	ND	0.0050	1	02/07/2017 23:55
Hexachloroethane	ND	0.0050	1	02/07/2017 23:55
2-Hexanone	ND	0.0050	1	02/07/2017 23:55
Isopropylbenzene	ND	0.0050	1	02/07/2017 23:55
4-Isopropyl toluene	ND	0.0050	1	02/07/2017 23:55
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/07/2017 23:55
Methylene chloride	ND	0.0050	1	02/07/2017 23:55
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/07/2017 23:55
Naphthalene	ND	0.0050	1	02/07/2017 23:55
n-Propyl benzene	ND	0.0050	1	02/07/2017 23:55
Styrene	ND	0.0050	1	02/07/2017 23:55
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/07/2017 23:55
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/07/2017 23:55
Tetrachloroethene	ND	0.0050	1	02/07/2017 23:55
Toluene	ND	0.0050	1	02/07/2017 23:55
1,2,3-Trichlorobenzene	ND	0.0050	1	02/07/2017 23:55
1,2,4-Trichlorobenzene	ND	0.0050	1	02/07/2017 23:55
1,1,1-Trichloroethane	ND	0.0050	1	02/07/2017 23:55
1,1,2-Trichloroethane	ND	0.0050	1	02/07/2017 23:55
Trichloroethene	ND	0.0050	1	02/07/2017 23:55
Trichlorofluoromethane	ND	0.0050	1	02/07/2017 23:55
1,2,3-Trichloropropane	ND	0.0050	1	02/07/2017 23:55
1,2,4-Trimethylbenzene	ND	0.0050	1	02/07/2017 23:55
1,3,5-Trimethylbenzene	ND	0.0050	1	02/07/2017 23:55
Vinyl Chloride	ND	0.0050	1	02/07/2017 23:55
Xylenes, Total	ND	0.0050	1	02/07/2017 23:55

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/6/17 15:20
Date Prepared: 2/6/17
Project: 250635602; 260 30th Street

WorkOrder: 1702361
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B30-10.0	1702361-007A	Soil	02/04/2017 09:25	GC10	133759

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	96		70-130	02/07/2017 23:55
Toluene-d8	122		70-130	02/07/2017 23:55
4-BFB	111		70-130	02/07/2017 23:55
Benzene-d6	86		60-140	02/07/2017 23:55
Ethylbenzene-d10	108		60-140	02/07/2017 23:55
1,2-DCB-d4	88		60-140	02/07/2017 23:55

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 2/6/17 15:20
Date Prepared: 2/7/17
Project: 250635602; 260 30th Street

WorkOrder: 1702361
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-30-GW	1702361-010B	Water	02/04/2017 10:15	GC18	133866

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	10	1	02/07/2017 16:36
tert-Amyl methyl ether (TAME)	ND	0.50	1	02/07/2017 16:36
Benzene	ND	0.50	1	02/07/2017 16:36
Bromobenzene	ND	0.50	1	02/07/2017 16:36
Bromochloromethane	ND	0.50	1	02/07/2017 16:36
Bromodichloromethane	ND	0.50	1	02/07/2017 16:36
Bromoform	ND	0.50	1	02/07/2017 16:36
Bromomethane	ND	0.50	1	02/07/2017 16:36
2-Butanone (MEK)	ND	2.0	1	02/07/2017 16:36
t-Butyl alcohol (TBA)	ND	2.0	1	02/07/2017 16:36
n-Butyl benzene	ND	0.50	1	02/07/2017 16:36
sec-Butyl benzene	ND	0.50	1	02/07/2017 16:36
tert-Butyl benzene	ND	0.50	1	02/07/2017 16:36
Carbon Disulfide	ND	0.50	1	02/07/2017 16:36
Carbon Tetrachloride	ND	0.50	1	02/07/2017 16:36
Chlorobenzene	ND	0.50	1	02/07/2017 16:36
Chloroethane	ND	0.50	1	02/07/2017 16:36
Chloroform	ND	0.50	1	02/07/2017 16:36
Chloromethane	ND	0.50	1	02/07/2017 16:36
2-Chlorotoluene	ND	0.50	1	02/07/2017 16:36
4-Chlorotoluene	ND	0.50	1	02/07/2017 16:36
Dibromochloromethane	ND	0.50	1	02/07/2017 16:36
1,2-Dibromo-3-chloropropane	ND	0.20	1	02/07/2017 16:36
1,2-Dibromoethane (EDB)	ND	0.50	1	02/07/2017 16:36
Dibromomethane	ND	0.50	1	02/07/2017 16:36
1,2-Dichlorobenzene	ND	0.50	1	02/07/2017 16:36
1,3-Dichlorobenzene	ND	0.50	1	02/07/2017 16:36
1,4-Dichlorobenzene	ND	0.50	1	02/07/2017 16:36
Dichlorodifluoromethane	ND	0.50	1	02/07/2017 16:36
1,1-Dichloroethane	ND	0.50	1	02/07/2017 16:36
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	02/07/2017 16:36
1,1-Dichloroethene	ND	0.50	1	02/07/2017 16:36
cis-1,2-Dichloroethene	ND	0.50	1	02/07/2017 16:36
trans-1,2-Dichloroethene	ND	0.50	1	02/07/2017 16:36
1,2-Dichloropropane	ND	0.50	1	02/07/2017 16:36
1,3-Dichloropropane	ND	0.50	1	02/07/2017 16:36
2,2-Dichloropropane	ND	0.50	1	02/07/2017 16:36

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/6/17 15:20
Date Prepared: 2/7/17
Project: 250635602; 260 30th Street

WorkOrder: 1702361
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-30-GW	1702361-010B	Water	02/04/2017 10:15	GC18	133866

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.50	1	02/07/2017 16:36
cis-1,3-Dichloropropene	ND	0.50	1	02/07/2017 16:36
trans-1,3-Dichloropropene	ND	0.50	1	02/07/2017 16:36
Diisopropyl ether (DIPE)	ND	0.50	1	02/07/2017 16:36
Ethylbenzene	ND	0.50	1	02/07/2017 16:36
Ethyl tert-butyl ether (ETBE)	ND	0.50	1	02/07/2017 16:36
Freon 113	ND	0.50	1	02/07/2017 16:36
Hexachlorobutadiene	ND	0.50	1	02/07/2017 16:36
Hexachloroethane	ND	0.50	1	02/07/2017 16:36
2-Hexanone	ND	0.50	1	02/07/2017 16:36
Isopropylbenzene	ND	0.50	1	02/07/2017 16:36
4-Isopropyl toluene	ND	0.50	1	02/07/2017 16:36
Methyl-t-butyl ether (MTBE)	ND	0.50	1	02/07/2017 16:36
Methylene chloride	ND	0.50	1	02/07/2017 16:36
4-Methyl-2-pentanone (MIBK)	ND	0.50	1	02/07/2017 16:36
Naphthalene	ND	0.50	1	02/07/2017 16:36
n-Propyl benzene	ND	0.50	1	02/07/2017 16:36
Styrene	ND	0.50	1	02/07/2017 16:36
1,1,1,2-Tetrachloroethane	ND	0.50	1	02/07/2017 16:36
1,1,2,2-Tetrachloroethane	ND	0.50	1	02/07/2017 16:36
Tetrachloroethene	ND	0.50	1	02/07/2017 16:36
Toluene	ND	0.50	1	02/07/2017 16:36
1,2,3-Trichlorobenzene	ND	0.50	1	02/07/2017 16:36
1,2,4-Trichlorobenzene	ND	0.50	1	02/07/2017 16:36
1,1,1-Trichloroethane	ND	0.50	1	02/07/2017 16:36
1,1,2-Trichloroethane	ND	0.50	1	02/07/2017 16:36
Trichloroethene	1.4	0.50	1	02/07/2017 16:36
Trichlorofluoromethane	ND	0.50	1	02/07/2017 16:36
1,2,3-Trichloropropane	ND	0.50	1	02/07/2017 16:36
1,2,4-Trimethylbenzene	ND	0.50	1	02/07/2017 16:36
1,3,5-Trimethylbenzene	ND	0.50	1	02/07/2017 16:36
Vinyl Chloride	ND	0.50	1	02/07/2017 16:36
Xylenes, Total	ND	0.50	1	02/07/2017 16:36

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Langan
Date Received: 2/6/17 15:20
Date Prepared: 2/7/17
Project: 250635602; 260 30th Street

WorkOrder: 1702361
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-30-GW	1702361-010B	Water	02/04/2017 10:15	GC18	133866

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	104	70-130		02/07/2017 16:36
Toluene-d8	102	70-130		02/07/2017 16:36
4-BFB	98	70-130		02/07/2017 16:36
Analyst(s): JEM	Analytical Comments: b1			



Analytical Report

Client: Langan
Date Received: 2/6/17 15:20
Date Prepared: 2/7/17
Project: 250635602; 260 30th Street

WorkOrder: 1702361
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B30-10.0	1702361-007A	Soil	02/04/2017 09:25	GC35	133721

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/09/2017 04:42
Acenaphthylene	ND	0.010	1	02/09/2017 04:42
Anthracene	ND	0.010	1	02/09/2017 04:42
Benzo (a) anthracene	ND	0.010	1	02/09/2017 04:42
Benzo (a) pyrene	ND	0.010	1	02/09/2017 04:42
Benzo (b) fluoranthene	ND	0.010	1	02/09/2017 04:42
Benzo (g,h,i) perylene	ND	0.010	1	02/09/2017 04:42
Benzo (k) fluoranthene	ND	0.010	1	02/09/2017 04:42
Chrysene	ND	0.010	1	02/09/2017 04:42
Dibenzo (a,h) anthracene	ND	0.010	1	02/09/2017 04:42
Fluoranthene	ND	0.010	1	02/09/2017 04:42
Fluorene	ND	0.010	1	02/09/2017 04:42
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/09/2017 04:42
1-Methylnaphthalene	ND	0.010	1	02/09/2017 04:42
2-Methylnaphthalene	ND	0.010	1	02/09/2017 04:42
Naphthalene	ND	0.010	1	02/09/2017 04:42
Phenanthrene	ND	0.010	1	02/09/2017 04:42
Pyrene	ND	0.010	1	02/09/2017 04:42
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	94	30-130		02/09/2017 04:42
2-Fluorobiphenyl	94	30-130		02/09/2017 04:42

Analyst(s): REB



Analytical Report

Client: Langan
Date Received: 2/6/17 15:20
Date Prepared: 2/7/17
Project: 250635602; 260 30th Street

WorkOrder: 1702361
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-30-GW	1702361-010C	Water	02/04/2017 10:15	GC35	133722

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.50	1	02/07/2017 21:57
Acenaphthylene	ND	0.50	1	02/07/2017 21:57
Anthracene	ND	0.50	1	02/07/2017 21:57
Benzo (a) anthracene	ND	0.50	1	02/07/2017 21:57
Benzo (a) pyrene	ND	0.50	1	02/07/2017 21:57
Benzo (b) fluoranthene	ND	0.50	1	02/07/2017 21:57
Benzo (g,h,i) perylene	ND	0.50	1	02/07/2017 21:57
Benzo (k) fluoranthene	ND	0.50	1	02/07/2017 21:57
Chrysene	ND	0.50	1	02/07/2017 21:57
Dibenzo (a,h) anthracene	ND	0.50	1	02/07/2017 21:57
Fluoranthene	ND	0.50	1	02/07/2017 21:57
Fluorene	ND	0.50	1	02/07/2017 21:57
Indeno (1,2,3-cd) pyrene	ND	0.50	1	02/07/2017 21:57
1-Methylnaphthalene	ND	0.50	1	02/07/2017 21:57
2-Methylnaphthalene	ND	0.50	1	02/07/2017 21:57
Naphthalene	ND	0.50	1	02/07/2017 21:57
Phenanthrene	ND	0.50	1	02/07/2017 21:57
Pyrene	ND	0.50	1	02/07/2017 21:57
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	95	30-130		02/07/2017 21:57
2-Fluorobiphenyl	95	30-130		02/07/2017 21:57

Analyst(s): REB

Analytical Comments: b1



Analytical Report

Client: Langan
Date Received: 2/6/17 15:20
Date Prepared: 2/6/17
Project: 250635602; 260 30th Street

WorkOrder: 1702361
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B30-10.0	1702361-007A	Soil	02/04/2017 09:25	GC19	133772

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/08/2017 23:37
MTBE	---	0.050	1	02/08/2017 23:37
Benzene	---	0.0050	1	02/08/2017 23:37
Toluene	---	0.0050	1	02/08/2017 23:37
Ethylbenzene	---	0.0050	1	02/08/2017 23:37
Xylenes	---	0.015	1	02/08/2017 23:37

Surrogates	REC (%)	Limits	
2-Fluorotoluene	85	69-117	02/08/2017 23:37

Analyst(s): IA



Analytical Report

Client: Langan
Date Received: 2/6/17 15:20
Date Prepared: 2/7/17
Project: 250635602; 260 30th Street

WorkOrder: 1702361
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-30-GW	1702361-010A	Water	02/04/2017 10:15	GC12	133858

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	50	1	02/07/2017 15:31
MTBE	---	5.0	1	02/07/2017 15:31
Benzene	---	0.50	1	02/07/2017 15:31
Toluene	---	0.50	1	02/07/2017 15:31
Ethylbenzene	---	0.50	1	02/07/2017 15:31
Xylenes	---	1.5	1	02/07/2017 15:31

Surrogates	REC (%)	Limits	Date Analyzed
aaa-TFT	115	89-115	02/07/2017 15:31

Analyst(s): IA

Analytical Comments: b1



Analytical Report

Client: Langan
Date Received: 2/6/17 15:20
Date Prepared: 2/6/17
Project: 250635602; 260 30th Street

WorkOrder: 1702361
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B30-10.0	1702361-007A	Soil	02/04/2017 09:25	GC9b	133771

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/07/2017 15:20
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/07/2017 15:20

Surrogates	REC (%)	Limits	Date Analyzed
C9	89	72-114	02/07/2017 15:20

Analyst(s): TK



Analytical Report

Client: Langan
Date Received: 2/6/17 15:20
Date Prepared: 2/6/17
Project: 250635602; 260 30th Street

WorkOrder: 1702361
Extraction Method: SW3510C
Analytical Method: SW8015B
Unit: µg/L

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-30-GW	1702361-010A	Water	02/04/2017 10:15	GC9b	133749

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	50	1	02/07/2017 15:59
TPH-Motor Oil (C18-C36)	ND	250	1	02/07/2017 15:59

Surrogates	REC (%)	Limits	Date Analyzed
C9	89	72-117	02/07/2017 15:59

Analyst(s): TK **Analytical Comments:** b1



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17
Instrument: GC28
Matrix: Soil
Project: 250635602; 260 30th Street

WorkOrder: 1702361
BatchID: 133759
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133759
 1702346-003AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0441	0.0050	0.050	-	88	53-116
Benzene	ND	0.0488	0.0050	0.050	-	98	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.151	0.050	0.20	-	76	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0506	0.0050	0.050	-	101	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0450	0.0040	0.050	-	90	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0447	0.0040	0.050	-	89	58-135
1,1-Dichloroethene	ND	0.0438	0.0050	0.050	-	88	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-

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NELAP 4033ORELAP

 QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17
Instrument: GC28
Matrix: Soil
Project: 250635602; 260 30th Street

WorkOrder: 1702361
BatchID: 133759
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133759
 1702346-003AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
Diisopropyl ether (DIPE)	ND	0.0461	0.0050	0.050	-	92	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0463	0.0050	0.050	-	93	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0440	0.0050	0.050	-	88	58-122
Methylene chloride	ND	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0546	0.0050	0.050	-	109	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0500	0.0050	0.050	-	100	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17
Instrument: GC28
Matrix: Soil
Project: 250635602; 260 30th Street

WorkOrder: 1702361
BatchID: 133759
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-133759
 1702346-003AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.1204	0.119		0.12	96	95	70-130
Toluene-d8	0.1477	0.147		0.12	118	118	70-130
4-BFB	0.01385	0.0148		0.012	111	118	70-130
Benzene-d6	0.1073	0.116		0.10	107	116	60-140
Ethylbenzene-d10	0.122	0.134		0.10	122	134	60-140
1,2-DCB-d4	0.09386	0.106		0.10	94	106	60-140

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0407	0.0431	0.050	ND	81	86	53-116	5.74	20
Benzene	0.0452	0.0475	0.050	ND	90	95	63-137	4.94	20
t-Butyl alcohol (TBA)	0.136	0.145	0.20	ND	68	72	41-135	6.39	20
Chlorobenzene	0.0463	0.0492	0.050	ND	93	98	77-121	6.18	20
1,2-Dibromoethane (EDB)	0.0412	0.0444	0.050	ND	82	89	67-119	7.50	20
1,2-Dichloroethane (1,2-DCA)	0.0422	0.0437	0.050	ND	84	87	58-135	3.40	20
1,1-Dichloroethene	0.0415	0.0429	0.050	ND	83	86	42-145	3.39	20
Diisopropyl ether (DIPE)	0.0426	0.0452	0.050	ND	85	90	52-129	5.74	20
Ethyl tert-butyl ether (ETBE)	0.0424	0.0453	0.050	ND	85	91	53-125	6.64	20
Methyl-t-butyl ether (MTBE)	0.0410	0.0428	0.050	ND	82	86	58-122	4.37	20
Toluene	0.0490	0.0521	0.050	ND	98	104	76-130	6.18	20
Trichloroethene	0.0463	0.0492	0.050	ND	88	94	72-132	6.18	20

Surrogate Recovery									
Dibromofluoromethane	0.122	0.122	0.12		98	98	70-130	0	20
Toluene-d8	0.146	0.146	0.12		117	117	70-130	0	20
4-BFB	0.0145	0.0143	0.012		116	114	70-130	1.71	20
Benzene-d6	0.110	0.110	0.10		110	110	60-140	0	20
Ethylbenzene-d10	0.126	0.129	0.10		126	129	60-140	1.91	20
1,2-DCB-d4	0.0989	0.100	0.10		99	100	60-140	1.28	20



Quality Control Report

Client: Langan
Date Prepared: 2/7/17
Date Analyzed: 2/7/17
Instrument: GC18
Matrix: Water
Project: 250635602; 260 30th Street

WorkOrder: 1702361
BatchID: 133866
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS-133866
 1702365-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	11.3	0.50	10	-	113	54-140
Benzene	ND	10.6	0.50	10	-	106	47-158
Bromobenzene	ND	-	0.50	-	-	-	-
Bromochloromethane	ND	-	0.50	-	-	-	-
Bromodichloromethane	ND	-	0.50	-	-	-	-
Bromoform	ND	-	0.50	-	-	-	-
Bromomethane	ND	-	0.50	-	-	-	-
2-Butanone (MEK)	ND	-	2.0	-	-	-	-
t-Butyl alcohol (TBA)	ND	42.0	2.0	40	-	105	42-140
n-Butyl benzene	ND	-	0.50	-	-	-	-
sec-Butyl benzene	ND	-	0.50	-	-	-	-
tert-Butyl benzene	ND	-	0.50	-	-	-	-
Carbon Disulfide	ND	-	0.50	-	-	-	-
Carbon Tetrachloride	ND	-	0.50	-	-	-	-
Chlorobenzene	ND	10.9	0.50	10	-	109	43-157
Chloroethane	ND	-	0.50	-	-	-	-
Chloroform	ND	-	0.50	-	-	-	-
Chloromethane	ND	-	0.50	-	-	-	-
2-Chlorotoluene	ND	-	0.50	-	-	-	-
4-Chlorotoluene	ND	-	0.50	-	-	-	-
Dibromochloromethane	ND	-	0.50	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.20	-	-	-	-
1,2-Dibromoethane (EDB)	ND	10.9	0.50	10	-	109	44-155
Dibromomethane	ND	-	0.50	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.50	-	-	-	-
Dichlorodifluoromethane	ND	-	0.50	-	-	-	-
1,1-Dichloroethane	ND	-	0.50	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	10.4	0.50	10	-	104	66-125
1,1-Dichloroethene	ND	10.9	0.50	10	-	109	47-149
cis-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
1,2-Dichloropropane	ND	-	0.50	-	-	-	-
1,3-Dichloropropane	ND	-	0.50	-	-	-	-
2,2-Dichloropropane	ND	-	0.50	-	-	-	-

(Cont.)

NELAP 4033ORELAP

 QA/QC Officer



Quality Control Report

Client: Langan
Date Prepared: 2/7/17
Date Analyzed: 2/7/17
Instrument: GC18
Matrix: Water
Project: 250635602; 260 30th Street

WorkOrder: 1702361
BatchID: 133866
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS-133866
 1702365-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.50	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
Diisopropyl ether (DIPE)	ND	11.2	0.50	10	-	112	57-136
Ethylbenzene	ND	-	0.50	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	11.3	0.50	10	-	113	55-137
Freon 113	ND	-	0.50	-	-	-	-
Hexachlorobutadiene	ND	-	0.50	-	-	-	-
Hexachloroethane	ND	-	0.50	-	-	-	-
2-Hexanone	ND	-	0.50	-	-	-	-
Isopropylbenzene	ND	-	0.50	-	-	-	-
4-Isopropyl toluene	ND	-	0.50	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	10.8	0.50	10	-	108	53-139
Methylene chloride	ND	-	0.50	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.50	-	-	-	-
Naphthalene	ND	-	0.50	-	-	-	-
n-Propyl benzene	ND	-	0.50	-	-	-	-
Styrene	ND	-	0.50	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
Tetrachloroethene	ND	-	0.50	-	-	-	-
Toluene	ND	10.8	0.50	10	-	108	52-137
1,2,3-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.50	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.50	-	-	-	-
Trichloroethene	ND	10.9	0.50	10	-	109	43-157
Trichlorofluoromethane	ND	-	0.50	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.50	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.50	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.50	-	-	-	-
Vinyl Chloride	ND	-	0.50	-	-	-	-
Xylenes, Total	ND	-	0.50	-	-	-	-



Quality Control Report

Client: Langan
Date Prepared: 2/7/17
Date Analyzed: 2/7/17
Instrument: GC18
Matrix: Water
Project: 250635602; 260 30th Street

WorkOrder: 1702361
BatchID: 133866
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS-133866
 1702365-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	26.07	26.2		25	104	105	70-130
Toluene-d8	25.32	25.7		25	101	103	70-130
4-BFB	2.511	2.57		2.5	100	103	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	10.8	10.6	10	ND	108	106	69-139	2.36	20
Benzene	9.72	9.52	10	ND	97	95	69-141	2.06	20
t-Butyl alcohol (TBA)	46.1	41.9	40	ND	115	105	41-152	9.45	20
Chlorobenzene	10.1	9.80	10	ND	101	98	77-120	2.76	20
1,2-Dibromoethane (EDB)	10.5	10.2	10	ND	105	102	76-135	2.60	20
1,2-Dichloroethane (1,2-DCA)	9.84	9.63	10	ND	98	96	73-139	2.13	20
1,1-Dichloroethene	9.88	9.69	10	ND	99	97	59-140	1.92	20
Diisopropyl ether (DIPE)	10.4	10.2	10	ND	104	102	72-140	1.80	20
Ethyl tert-butyl ether (ETBE)	10.7	10.5	10	ND	107	105	71-140	1.63	20
Methyl-t-butyl ether (MTBE)	10.5	10.3	10	ND	105	103	73-139	1.55	20
Toluene	9.97	9.75	10	ND	100	98	71-128	2.21	20
Trichloroethene	9.95	9.67	10	ND	99	97	64-132	2.84	20
Surrogate Recovery									
Dibromofluoromethane	25.9	26.0	25		104	104	73-131	0	20
Toluene-d8	25.9	25.9	25		104	104	72-117	0	20
4-BFB	2.59	2.53	2.5		104	101	74-116	2.43	20



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/6/17 - 2/9/17
Instrument: GC35
Matrix: Soil
Project: 250635602; 260 30th Street

WorkOrder: 1702361
BatchID: 133721
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg
Sample ID: MB/LCS-133721
 1702249-010AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	-	0.010	-	-	-	-
Acenaphthylene	ND	-	0.010	-	-	-	-
Anthracene	ND	-	0.010	-	-	-	-
Benzo (a) anthracene	ND	-	0.010	-	-	-	-
Benzo (a) pyrene	ND	0.0762	0.010	0.20	-	38	23-129
Benzo (b) fluoranthene	ND	-	0.010	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.010	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.010	-	-	-	-
Chrysene	ND	0.0829	0.010	0.20	-	41	38-104
Dibenzo (a,h) anthracene	ND	-	0.010	-	-	-	-
Fluoranthene	ND	-	0.010	-	-	-	-
Fluorene	ND	-	0.010	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.010	-	-	-	-
1-Methylnaphthalene	ND	0.105	0.010	0.20	-	53, F2	59-106
2-Methylnaphthalene	ND	0.0975	0.010	0.20	-	49, F2	54-108
Naphthalene	ND	-	0.010	-	-	-	-
Phenanthrene	ND	0.0947	0.010	0.20	-	47, F2	48-107
Pyrene	ND	0.0798	0.010	0.20	-	40	40-104

Surrogate Recovery

1-Fluoronaphthalene	0.1997	0.260		0.50	40	52, F3	63-123
2-Fluorobiphenyl	0.1883	0.243		0.50	38	49, F3	55-127

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Benzo (a) pyrene	0.208	0.264	0.20	ND	101	129	9-156	23.5	30
Chrysene	0.191	0.199	0.20	ND	96	100	33-115	3.98	30
1-Methylnaphthalene	0.266	0.283	0.20	ND	131	140	13-167	6.25	30
2-Methylnaphthalene	0.237	0.276	0.20	ND	116	135	25-152	15.4	30
Phenanthrene	0.214	0.229	0.20	ND	107	115	30-138	6.93	30
Pyrene	0.221	0.228	0.20	ND	111	114	29-125	2.82	30

Surrogate Recovery

1-Fluoronaphthalene	0.531	0.542	0.50		106	108	56-153	2.19	30
2-Fluorobiphenyl	0.516	0.513	0.50		103	103	50-150	0	30



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17 - 2/8/17
Instrument: GC35
Matrix: Water
Project: 250635602; 260 30th Street

WorkOrder: 1702361
BatchID: 133722
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L
Sample ID: MB/LCS/LCSD-133722

QC Summary Report for SW8270C

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Acenaphthene	ND	0.50	-	-	-
Acenaphthylene	ND	0.50	-	-	-
Anthracene	ND	0.50	-	-	-
Benzo (a) anthracene	ND	0.50	-	-	-
Benzo (a) pyrene	ND	0.50	-	-	-
Benzo (b) fluoranthene	ND	0.50	-	-	-
Benzo (g,h,i) perylene	ND	0.50	-	-	-
Benzo (k) fluoranthene	ND	0.50	-	-	-
Chrysene	ND	0.50	-	-	-
Dibenzo (a,h) anthracene	ND	0.50	-	-	-
Fluoranthene	ND	0.50	-	-	-
Fluorene	ND	0.50	-	-	-
Indeno (1,2,3-cd) pyrene	ND	0.50	-	-	-
1-Methylnaphthalene	ND	0.50	-	-	-
2-Methylnaphthalene	ND	0.50	-	-	-
Naphthalene	ND	0.50	-	-	-
Phenanthrene	ND	0.50	-	-	-
Pyrene	ND	0.50	-	-	-

Surrogate Recovery

1-Fluoronaphthalene	8.602		25	34	30-130
2-Fluorobiphenyl	8.375		25	33	30-130

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Benzo (a) pyrene	8.02	6.97	10	80	70	12-152	14.1	25
Chrysene	7.29	7.77	10	73	78	28-116	6.36	25
1-Methylnaphthalene	11.2	10.4	10	112	104	48-125	7.64	25
2-Methylnaphthalene	10.1	9.22	10	101	92	41-124	9.29	25
Phenanthrene	8.67	9.10	10	87	91	36-123	4.83	25
Pyrene	7.98	8.59	10	80	86	29-118	7.32	25

Surrogate Recovery

1-Fluoronaphthalene	22.0	22.7	25	88	91	45-129	2.98	25
2-Fluorobiphenyl	21.1	22.0	25	84	88	47-125	4.33	25



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/8/17
Instrument: GC19
Matrix: Soil
Project: 250635602; 260 30th Street

WorkOrder: 1702361
BatchID: 133772
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-133772
 1702414-002AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	0.589	0.40	0.60	-	98	89-118
MTBE	ND	0.0998	0.050	0.10	-	100	68-116
Benzene	ND	0.112	0.0050	0.10	-	113	85-118
Toluene	ND	0.115	0.0050	0.10	-	115	87-121
Ethylbenzene	ND	0.112	0.0050	0.10	-	112	91-124
Xylenes	ND	0.334	0.015	0.30	-	111	92-126
Surrogate Recovery							
2-Fluorotoluene	0.09804	0.104		0.10	98	104	88-119

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	NR	NR		ND	NR	NR	-	NR	
MTBE	NR	NR		ND	NR	NR	-	NR	
Benzene	NR	NR		ND	NR	NR	-	NR	
Toluene	NR	NR		ND	NR	NR	-	NR	
Ethylbenzene	NR	NR		ND	NR	NR	-	NR	
Xylenes	NR	NR		ND	NR	NR	-	NR	
Surrogate Recovery									
2-Fluorotoluene	NR	NR			NR	NR	-	NR	



Quality Control Report

Client: Langan
Date Prepared: 2/7/17
Date Analyzed: 2/7/17
Instrument: GC12
Matrix: Water
Project: 250635602; 260 30th Street

WorkOrder: 1702361
BatchID: 133858
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L
Sample ID: MB/LCS-133858
 1702361-010AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	53.5	40	60	-	89	85-112
MTBE	ND	10.5	5.0	10	-	105	74-127
Benzene	ND	10.1	0.50	10	-	101	81-124
Toluene	ND	10.2	0.50	10	-	102	79-131
Ethylbenzene	ND	9.97	0.50	10	-	100	86-127
Xylenes	ND	28.4	1.5	30	-	95	87-133
Surrogate Recovery							
aaa-TFT	9.94	9.86		10	99	99	87-117

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	52.9	52.4	60	ND	88	87	85-113	0.840	20
MTBE	10.6	10.1	10	ND	106	101	73-120	4.84	20
Benzene	10.3	9.89	10	ND	102	98	84-121	3.64	20
Toluene	10.4	9.98	10	ND	104	100	86-125	3.72	20
Ethylbenzene	10.1	9.69	10	ND	101	97	93-124	3.76	20
Xylenes	28.5	27.5	30	ND	95	92,F1	93-130	3.67	20
Surrogate Recovery									
aaa-TFT	10.0	9.97	10		100	100	89-115	0	20



Quality Control Report

Client: Langan
Date Prepared: 2/6/17
Date Analyzed: 2/7/17
Instrument: GC9a
Matrix: Soil
Project: 250635602; 260 30th Street

WorkOrder: 1702361
BatchID: 133771
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg
Sample ID: MB/LCS-133771
 1702366-022AMS/MSD

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	39.6	1.0	40	-	99	91-127
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	24.37	25.1		25	97	100	74-110

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	39.4	42.4	40	1.669	94	102	74-143	7.35	30
Surrogate Recovery									
C9	24.4	24.3	25		98	97	72-114	0.308	30



Quality Control Report

Client: Langan	WorkOrder: 1702361
Date Prepared: 2/6/17	BatchID: 133749
Date Analyzed: 2/7/17	Extraction Method: SW3510C
Instrument: GC9a	Analytical Method: SW8015B
Matrix: Water	Unit: µg/L
Project: 250635602; 260 30th Street	Sample ID: MB/LCS/LCSD-133749

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
TPH-Diesel (C10-C23)	ND	50	-	-	-
TPH-Motor Oil (C18-C36)	ND	250	-	-	-
Surrogate Recovery					
C9	608		625	97	74-107

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	1050	1080	1000	105	108	95-136	2.68	30
Surrogate Recovery								
C9	612	617	625	98	99	74-107	0.715	30



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1702361

ClientCode: TWRK

WaterTrax
 WriteOn
 EDF
 Excel
 EQulS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Josh Graber
 Langan
 501 14th Street, 3rd Floor
 Oakland, CA 94612
 (415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
 cc/3rd Party: kstaehlin@langan.com;
 PO:
 ProjectNo: 250635602; 260 30th Street

Bill to:

Accounts Payable
 Langan
 555 Montgomery St., Suite 1300
 San Francisco, CA 94111
 Langan_InvoiceCapture@conkursolutio

Requested TAT: 3 days;

Date Received: 02/06/2017

Date Logged: 02/06/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1702361-007	B30-10.0	Soil	2/4/2017 09:25	<input type="checkbox"/>	A		A		A		A					
1702361-010	B-30-GW	Water	2/4/2017 10:15	<input type="checkbox"/>		B		C		A		A				

Test Legend:

1	8260B_S	2	8260B_W	3	8270_PNA_S	4	8270_PNA_W
5	G-MBTEx_S	6	G-MBTEx_W	7	TPH(DMO)_S	8	TPH(DMO)_W
9		10		11		12	

Prepared by: Agustina Venegas

The following SampID: 007A contains testgroup Multi Range_S.; The following SampID: 010A contains testgroup Multi Range_W.

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days). Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Josh Graber
Contact's Email: jdgraber@treadwellrollo.com

Project: 250635602; 260 30th Street

Comments:

Work Order: 1702361
QC Level: LEVEL 2
Date Logged: 2/6/2017

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1702361-001A	B-29-8.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/4/2017 7:54			<input checked="" type="checkbox"/>	
1702361-002A	B-29-10.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/4/2017 8:08			<input checked="" type="checkbox"/>	
1702361-003A	B-29-15.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/4/2017 8:12			<input checked="" type="checkbox"/>	
1702361-004A	B-29-20.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/4/2017 8:16			<input checked="" type="checkbox"/>	
1702361-005A	B-29-24.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/4/2017 8:25			<input checked="" type="checkbox"/>	
1702361-006A	B-30-8.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/4/2017 9:19			<input checked="" type="checkbox"/>	
1702361-007A	B30-10.0	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm SW8270C (PAHs/PNAs) SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/4/2017 9:25	3 days		<input type="checkbox"/>	
						<input type="checkbox"/>		3 days		<input type="checkbox"/>	
						<input type="checkbox"/>		3 days		<input type="checkbox"/>	
1702361-008A	B-30-15.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/4/2017 9:35			<input checked="" type="checkbox"/>	
1702361-009A	B-30-20.0	Soil		1	Acetate Liner	<input type="checkbox"/>	2/4/2017 9:41			<input checked="" type="checkbox"/>	
1702361-010A	B-30-GW	Water	Multi-Range TPH(g,d,mo) by EPA 8015Bm	4	mult	<input type="checkbox"/>	2/4/2017 10:15	3 days	2%+	<input type="checkbox"/>	
1702361-010B	B-30-GW	Water	SW8260B (VOCs)	2	VOA w/ HCl	<input type="checkbox"/>	2/4/2017 10:15	3 days	2%+	<input type="checkbox"/>	
1702361-010C	B-30-GW	Water	SW8270C (PAHs/PNAs)	1	ILA	<input type="checkbox"/>	2/4/2017 10:15	3 days	2%+	<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

1702361

* PLEASE C.C. ANNIE S. * 10294
AT KSTAEHLIN@LANGAN.COM

LANGAN

CHAIN OF CUSTODY RECORD **RUSH**

- 555 Montgomery Street, Suite 1300, San Francisco, CA 94111
- 501 14th Street, Third Floor, Oakland CA 94612
- 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
- 4030 Moorpark Ave. Suite 210, San Jose, CA 95117-1849

Site Name: 260 30TH STREET
 Job Number: 750635402
 Project Manager/Contact: JOSH GRABER
 Samplers: KSS
 Recorder (Signature Required): [Signature]

Turnaround Time
72-Hour

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix								No. Containers & Preservative				Analysis Requested		Silica gel clean-up	Hold	Remarks
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH	VOCs	PAHs	CAM-17					
B-29-8.0	2/4/17	0754		X															X	*SAMPLING PLACED ON HOLD PER KSS 2/6/17
B-29-10.0	}	0808		X															X	
B-29-15.0		0812		X															X	
B-29-20.0		0816		X															X	
B-29-24.0		0825		X															X	
B-30-8.0	}	0919		X															X	
B-30-10.0		0925		X															X	
B-30-15.0		0935		X															X	
B-30-20.0		0941		X															X	
+2 B-30-GW	2/4/17	1015			X				4			3							X	

Relinquished by: (Signature) [Signature] Date: 2-6-17 Time: 1035
 Received by: (Signature) [Signature] Date: 2-6-17 Time: 1035

Relinquished by: (Signature) [Signature] Date: 2-6-17 Time: 1520
 Received by: (Signature) [Signature] Date: 2/6/17 Time: 1520

Sent to Laboratory (Name): MCCAMPBELL ANALYTICAL
 Laboratory Comments/Notes:
 Method of Shipment: Lab courier Fed Ex Airborne UPS
 Hand Carried Private Courier (Co. Name)



Sample Receipt Checklist

Client Name: **Langan**
 Project Name: **250635602; 260 30th Street**

Date and Time Received: **2/6/2017 15:20**
 Date Logged: **2/6/2017**
 Received by: **Agustina Venegas**
 Logged by: **Agustina Venegas**

WorkOrder No: **1702361** Matrix: Soil/Water
 Carrier: Bernie Cummins (MAI Courier)

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
 Sample/Temp Blank temperature Temp: 7.6°C NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No
 (Ice Type: WET ICE)

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments: