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17 May 2017
Project 731641603

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

**Subject:** **Soil and Groundwater Management Plan**
**Cleanup Case No. RO03236**
**3000 Broadway SPE LLC**
**3000 and 3020 Broadway, 3007 and 3009 Brook Street,**
**250, 260 and 288 30th Street**
**Oakland, California**
**Langan Project: 731635603**

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
Sr. Vice President
3000 Broadway SPE LLC

# SOIL AND GROUNDWATER MANAGEMENT PLAN
# 3000 BROADWAY REDEVELOPMENT
## 3000 and 3020 Broadway; 3007 and 3009 Brook Street; and 250, 260, and 288 30th Street
## Oakland, California

***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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**Senior Staff Scientist**

**Joshua Graber, CHMM**
**Associate**

**Dorinda Shipman, PG, CHG**
**Principal**

**17 May 2017**
**Project No. 750635603**

LANGAN

Technical Excellence
Practical Experience
Client Responsiveness

17 May 2017

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

**Subject:** **Soil and Groundwater Management Plan**
**3000 Broadway Redevelopment:**
**3000 and 3020 Broadway; 3007 and 3009 Brook Street; and**
**250, 260, 288 30th Street**
**Oakland, California**
**Langan Project: 750635603**
**ACEH RO3236**

Dear Mr. Nowell:

On behalf of 3000 Broadway SPE LLC, Langan Engineering and Environmental Services, Inc. (Langan) has prepared the attached Soil and Groundwater Management Plan (SGMP) for the 3000 Broadway Redevelopment for your review and approval. The Broadway Redevelopment encompasses the properties located at 3000 and 3020 Broadway; 3007 and 3009 Brook Street; and 250, 260, and 288 30th Street (site) in Oakland, California. The SGMP has been prepared to address soil and groundwater management practices and procedures to be employed during the construction of the 3000 Broadway Redevelopment, based on the results of investigation activities conducted at the site and based on current site development plans prepared by BDE Architecture dated 16 January 2017.

If you have any questions or require additional information, please call.

Sincerely yours,
**Langan Engineering and Environmental Services, Inc.**

Karianne Staehlin
Senior Staff Scientist

Joshua Graber, CHMM
Associate

Dorinda Shipman, PG, CHG
Principal

750635603.01 JDG_SGMP Report

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**SOIL AND GROUNDWATER MANAGEMENT PLAN**
**3000 BROADWAY REDEVELOPMENT**
**3000 and 3020 Broadway; 3007 and 3009 Brook Street; and 250, 260, and 288 30th Street**
**Oakland, California**

## 1.0 INTRODUCTION

Langan Engineering and Environmental Services, Inc. (Langan) has prepared this Soil and Groundwater Management Plan (SGMP) on behalf of 3000 Broadway SPE LLC (Client), in support of the 3000 Broadway Redevelopment project located at 3000 and 3020 Broadway; 3007 and 3009 Brook Street; and 250, 260, and 288 30th Street (site) in Oakland, California (Figure 1). This SGMP has been prepared to address soil and groundwater management practices and procedures to be employed during construction of the 3000 Broadway Redevelopment, based on the results of investigation activities conducted at the site and based on site development plans prepared by BDE Architecture dated 16 January 2017.

The purpose of this SGMP is to describe site conditions associated with past property use and specifically proposed excavation activities to mitigate soil and groundwater impacts currently present in the subsurface at the site. The SGMP also describes measures that will be implemented during development activities to mitigate potential risks to the environment and to protect on-site construction workers and/or pedestrians, site visitors, and off-site receptors from potential exposure to hazardous substances present at the site. Site development activities related to soil and groundwater impacts may include, but are not limited to, shoring, soil excavation and off-site disposal, construction dewatering and treatment, and soil handling and grading activities.

Current development plans for the site 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. A maximum excavation depth of approximately 18 feet is expected along Broadway and a minimum excavation of seven to eight feet along Brook Street is expected.

This SGMP has been prepared to satisfy applicable federal, state, and local regulations. This SGMP will also provide guidelines for the contractor to prepare site-specific documents for health and safety measures to be employed during redevelopment activities to protect site workers, the public and the environment.

### 1.1 Objective

This SGMP presents procedures and protocols for the identification, handling, management, and disposal of site soil and groundwater impacted with hazardous materials, which will be encountered during construction of the 3000 Broadway Redevelopment. The procedures and protocols described herein have been designed to facilitate compliance with applicable federal, state, and local laws and regulations regarding hazardous and industrial waste management. This SGMP does not address hazardous materials that may be encountered in existing structures, such as asbestos-containing materials or lead-based paint. Asbestos and lead-based paint abatement will be evaluated and managed consistent with all applicable laws and under separate work plans, prior to building demolition.

## 2.0 SITE DESCRIPTION AND BACKGROUND

The approximately 0.81-acre site consists of four warehouse-like structures (3000 and 3020 Broadway, and 250, 260, and 288 30th Streets) 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. Until recently, the warehouse-like structures were utilized as automobile sales, repair and service shops, a restaurant, or were vacant. Currently, only the 288 30th Street address is an active business (XYZ Motors). The restaurant (3000 Broadway) recently closed; the former showroom (3020 Broadway) is vacant; and the two private residences (3007 and 3009 Brook Street) are vacant and planned for either relocation or demolition.

As show in Figure 2, the site 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 site 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 corner of 30th and Brook Streets.

Current development plans for the site 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. A maximum excavation depth of approximately 18 feet is expected along Broadway and a minimum excavation of approximately seven to eight feet (from current ground surface) along Brook Street is expected for construction purposes. Additional soil is proposed for removal to a maximum depth of 18 feet below current ground surface from the 260 30th Street property to address total petroleum hydrocarbon (TPH) and volatile organic compound (VOC) impacts.

## 2.1 Points of Contact and Project Responsibilities

This section defines the roles of the parties involved in the 3000 Broadway Redevelopment project and provides contact information for each person or entity. 3000 Broadway SPE LLC is the current site owner, and will be responsible for implementation of the procedures and protocols outlined in this document. The primary contact for the owner will be Mr. Paul Gryfakis of Lowe Enterprises Real Estate Group (Lowe), representing the site owner. The primary lead oversight agency for approval of this SGMP is the ACEH. The general contractor, selected by 3000 Broadway SPE LLC to implement the SGMP, is Johnstone Moyer, Inc. (JMI). 3000 Broadway SPE LLC's environmental consultant for administration of this SGMP is Langan. The demolition and excavation contractors have not been selected for the project as of the date of publication of this SGMP. The certified industrial hygienist (CIH) responsible for preparing the project specific Health and Safety Plan (HASP) is Acumen Industrial Hygiene (Acumen). Contact information for each of these parties is listed below.

**Points of Contact**

| Role | Company | Contact | Telephone Number |
|---|---|---|---|
| Owner | 3000 Broadway SPE LLC | Paul Gryfakis | (415) 385-6434 |
| Owner's Representative | Lowe Enterprises Real Estate Group | Paul Gryfakis<br>Alan Chamorro | (415) 385-6431<br>(415) 758-0990 |
| Lead Oversight Agency | ACEH | Keith Nowell | (510) 567-6764 |
| General Contractor | Johnstone Moyer, Inc. | Will Johnstone | (650) 570-6161 |
| Environmental Consultant for SGMP | Langan | Joshua Graber | (510) 874-7086 |
| Demolition Contractor | To be determined | To be determined | To be determined |
| Excavation Contractor | To be determined | To be determined | To be determined |
| Certified Industrial Hygienist | Acumen Industrial Hygiene | Paul Spillane | (415) 242-6060 |

## 2.2 Historical Information

Historical site information was presented in the following Phase I Environmental Site Assessment (ESAs) previously prepared by Langan Treadwell Rollo (currently Langan) in 2016.

1. Langan Treadwell Rollo, *Phase I Environmental Site Assessment, 3000 and 3020 Broadway; 3007 and 3009 Brook Street; and 250, 260, and 288 30th Street, Oakland, California* dated 25 April 2016.

Langan Treadwell Rollo's (currently Langan) previous Phase I ESA identified three recognized environmental conditions (RECs) directly associated with the site. The identified RECs were associated with historical land-use of the site property; including the presence of underground storage tanks (USTs), open regulatory fuel leak cases associated with former USTs, and the presence of petroleum hydrocarbon and VOC concentrations previously detected within the site's subsurface, including soil and groundwater, all of which are summarized below:

The 250 30th Street on-site property has a documented history of on-site contamination associated with a leaking underground storage tank (LUST), which has since been abandoned in-place. The abandoned in-place LUST is presently located within the sidewalk in front of the 250 30th Street on-site property, and is being evaluated for closure. Based on the September

1997 Underground Storage Tank Closure Report conducted by Faultline Associates, Inc. (Faultline), one 1,000-gallon waste oil UST was maintained for an unspecified period of time, before being abandoned in-place in March 1997, via pressure grouting. This on-site property remains open for site assessment and is identified as Regional Water Quality Control Board (RWQCB) and Alameda County Environmental Health Department's (ACEH) Local Oversight Program (LOP) case numbers 01-2411 and RO247, respectively. However, Langan issued a detailed closure request dated 24 October 2016 to ACEH recommending no further action (NFA). Based on our continued correspondence with ACEH, ACEH has indicated that our request for closure is currently under review and will be approved in the near future. The abandoned in-place UST will be removed during redevelopment activities.

Two previously undocumented USTs (350 gallon gasoline and 1,000 gallon diesel) were removed from beneath the 30th Street sidewalk, adjacent to the site's 288 30th Street property in July 1992. UST case closure was granted by the City of Oakland Fire Department/Hazardous Materials Management Program (OFD/HMMP) in a letter dated 7 June 2000.

Additionally, the site is currently open for assessment in the ACEH LOP and is associated with active cleanup program case number RO3236. Case number RO3236 was opened in November 2016, following the discovery of TPH and VOC impacts in soil during a geotechnical investigation related to building design. Based on subsurface investigations conducted from February 2017 to April 2017, we believe the impacts are related to the site's historical use as an automotive repair station, and specifically a nearby floor drain system, located within the 260 30th Street property. The floor drain system is proposed for removal along with impacted soil and groundwater during site development, as described in this SGMP.

## 2.3 Site-Specific Geology and Hydrogeology

The observations of site lithology and groundwater are summarized below and are presented on two cross-sections of the site (Figures 3 and 4).

### 2.3.1 Geology

Recent environmental and geotechnical investigations conducted by Langan indicate that the soil profiles vary from east to west across the site. The site is blanketed by medium dense clayey sand underlain by very stiff to hard clay, sandy clay and clay with sand in the eastern portion of the site. Beneath the western portion of the site, the site is blanketed by medium stiff to stiff sandy clay underlain by alternating layers of stiff clays and medium dense to very

dense sands. Environmental and geotechnical borings logs prepared by Langan are provided in Appendix A.

Idealized subsurface profiles, presented as Figure 3 and Figure 4, illustrate the approximate grade of the 30th Street sidewalk and the current 260 30th Street slab grade; the approximate elevation of the existing building slabs fronting 30th and Brook Streets; the proposed excavation depths associated with current development plans and the proposed over-excavation depths associated with soil and groundwater impacts; soil types observed and trichloroethene (TCE) concentrations reported in soil borings; and seasonal groundwater levels as measured in November 2016, and February and April 2017.

#### 2.3.2 Hydrogeology

Groundwater at the site is anticipated to flow in the southeasterly direction towards the Glen Echo Creek, which is located over 300 feet southeast from the site boundary. Groundwater elevations measured in November 2016 at the site ranged from approximately 21 feet above MSL in boring B-13 located at the 3020 Broadway site property to approximately 9 feet above MSL in boring B-16 located at the 260 30th Street site property. Groundwater elevations measured in February 2017 at the site were significantly higher than those observed in November 2016. February 2017 groundwater elevations ranged from approximately 29 feet above MSL in boring B-29 located at the 3020 Broadway site property to an average of approximately 26 feet above MSL in borings located at the 260 30th Street site property. 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 site properties, which are located upgradient to the northwest of the 260 30th Street site properties, have unpaved backyards. The presence of unpaved backyards in the upgradient and uphill location relative to the 260 30th Street site property 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 the 260 30th Street site property.

### 2.4 Surrounding Land Use & Sensitive Ecosystems

The surrounding land use is a mixture of residential and commercial development in a fully developed area of Oakland, commonly referred to as Auto Row. The site and adjacent properties have a well-documented history of heavy commercial use, including automotive sales and repairs, USTs, and LUSTs.

The RWQCB's Water Quality Control Plan for the San Francisco Bay Basin Plan (Basin Plan) designates groundwater in the site vicinity as having beneficial uses which include domestic and municipal supply. However, the East Bay Municipal Utility District (EBMUD) provides inhabitants of this area with potable drinking water and therefore, the exposure pathway of ingestion of groundwater is not complete.

The site lies within the Santa Clara Valley East Bay Plain groundwater sub-basin of the Santa Clara Valley groundwater basin (Figure 2-10 of Basin Plan). In addition to domestic and municipal water supply, the existing and potential beneficial uses for groundwater include industrial process, industrial service, and agricultural water supply (Table 2-2 of Basin Plan).

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 nearest site boundary.

## 3.0 RECENT ENVIRONMENTAL SUBSURFACE INVESTIGATION AND REPORTS

Langan recently conducted the following subsurface investigations and produced the following reports directly associated with the site:

2. Langan Treadwell Rollo, *Phase II Environmental Site Assessment, 3000 and 3020 Broadway, and 250, 260 and 288 30th Street, Oakland, California* dated 27 April 2016;

3. Langan Engineering and Environmental Services, Inc., *Work Plan for Additional Environmental Sampling, 260 30th Street, Oakland, California* dated 5 January 2017;

4. Langan Engineering and Environmental Services, Inc., *Environmental Site Characterization, 250 and 260 30th Street, Oakland, California* dated 8 March 2017; and

5. Langan Engineering and Environmental Services, Inc., *Work Plan for Additional Environmental Sampling and Monitoring, 260 30th Street, Oakland, California* dated 17 March 2017.

6. Langan Engineering and Environmental Services, Inc., *Feasibility Study and Corrective Action Plan, 3000 Broadway Redevelopment, Oakland, California* dated 2 May 2017.

Between April 2016 and April 2017, Langan performed multiple subsurface investigations at the site which included the sampling of soil, groundwater, and soil vapor, in addition to the

installation of groundwater monitoring wells. The analytical results and general findings of our environmental investigations are summarized below.

Previous soil, groundwater, and soil vapor sampling locations performed by Langan are presented on Figure 2. Boring logs from our previous environmental and geotechnical investigations, borings B-1 through B-45, are presented in Appendix A as Figures A-1 through A-45. The material encountered was classified according to the system described on Figure A-46. The laboratory analytical results and field parameters are presented in Tables 1 through 9 and are discussed in the following sections. Copies of the most recent laboratory analytical reports are presented in Appendix B. Laboratory analytical reports associated with previous investigations can be found in previous reports.

### 3.1 April 2016 Phase II Environmental Site Assessment

In April 2016, Langan conducted soil sampling at the site from a total of ten soil borings (B-1 through B-10). Grab groundwater samples were collected from two additional 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.

Soil 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. Select samples were composited in the lab and submitted for analyses to characterize the shallow site material for future off-haul and disposal.

The soil analytical results for parameters other than metals, from the site characterization soil samples, are presented in Table 1. The soil analytical results for metal parameters, from the site characterization soil samples, are presented in Table 2. No TPH as gasoline (TPHg), TPH as diesel (TPHd), TPH as motor oil (TPHmo), VOCs, semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), organochlorine pesticides (OCPs), or asbestos were detected above laboratory reporting limits in any of the 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 site property) at elevated levels.

Grab-groundwater analytical results for TPH, VOCs, and polycyclic aromatic hydrocarbons (PAHs) are presented in Table 3. Groundwater samples collected in the area of the closed-in-place UST (B-11-GW) indicated that residual concentrations of TPHg, TPHd, and TPHmo were present. TPHg, TPHd, or TPHmo were not detected in the groundwater sample collected from

the downgradient area (B-12-GW), located near 30th and Brook Streets, which suggested that the residual TPH is localized and has not migrated significantly away from the former UST location. With the exception of toluene, detected at a low concentration, no other VOCs were detected in the boring B-12 grab-groundwater sample (B-12-GW).

### 3.2 November 2016 Geotechnical Investigation and Environmental Sampling

In order to obtain more subsurface data for building design purposes, Langan advanced four geotechnical borings (B-13 through B-16) in November 2016 to a maximum depth of 46.5 feet below the current surface grade (bgs). The borings were advanced into groundwater and a groundwater sample was collected from the upgradient portion of the site from boring B-13 (B-13-GW). The groundwater sample was collected to determine if groundwater migrating onto the property near Broadway contained concentrations of contaminants. The B-13-GW grab-groundwater sample was analyzed for TPHg, TPHd, TPHmo, and VOCs. Grab-groundwater analytical results for sample B-13-GW are presented in Table 3. No TPHg, TPHd, or TPHmo were detected in the groundwater sample. Very low levels of chloroform and trichloroethene (TCE) were detected at concentrations of 0.62 and 1.8 micrograms per liter (µg/L), respectively. No other VOCs were detected.

Additionally, a petroleum odor was noted and responses on a photoionization detector (PID) were detected in soil collected from geotechnical boring B-16, starting at approximately six feet bgs. Soil samples were collected from boring B-16 at approximate depths of 6, 10, and 20.5 feet bgs and submitted for TPHg, TPHd, TPHmo, VOCs, and leaking underground fuel tank (LUFT) 5 metals analyses.

The soil analytical results for TPH, VOCs, and PAHs detected in boring B-16 are presented in Table 4. The soil analytical results for metal parameters are presented in Table 2. Elevated concentrations of TPHg, TPHd, and TPHmo were detected in soil samples from boring B-16 collected at depths of 6 and 10 feet bgs. Significantly lower concentrations were detected in soil from 20.5 feet bgs, which was above the observed groundwater table, at the time. Low 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 6- and 10- foot samples. All metal concentrations detected in the soil samples analyzed were within normal background concentrations for Bay Area soils.

Langan believed that the source of this contamination may be 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 site property is likely connected to the same drain line as the adjacent 250 30th Street site property. The approximate location of both floor drains within the 250 and 260 30th Street site properties are also shown on Figure 2.

### 3.3 Floor Drain Exploration

On 14 November 2016, Langan oversaw 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 join the sanitary sewer and water cleanout conduits running east to west, which sloped to the east towards Brook Street. The drain piping was estimated to be approximately 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. 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 supported the conclusion that the impacts observed in boring B-16 were most likely related to the drain and its associated piping.

### 3.4 February 2017 Soil and Groundwater Sampling

A total of 14 exploratory borings (B-17 through B-30) were drilled to a maximum depth of 28 feet bgs in February 2017. Borings B-17 through B-26 were advanced within the 250 and 260 30th Street site properties to assess soil and groundwater impacts upgradient, around, and downgradient of the floor drains located within each respective property. 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. Grab-groundwater samples were collected from all borings, except B-29.

Grab-groundwater analytical results for TPH, VOCs, and PAHs are presented in Table 3. The soil analytical results for TPH, VOCs, and PAHs are presented in Table 4. Soil and groundwater analytical results collected as part of this characterization effort indicated that the 260 30th Street site property is impacted with TPH, VOCs, and to a much lesser extent PAHs. TPH and VOC concentrations in soil which exceed the RWQCB Tier 1 ESLs appeared to be generally limited to the upper ten feet beneath the 260 30th Street site property.

The most significant TPH impacts in soil and/or groundwater appeared 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.

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 site property. 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.

### 3.5 March and April 2017 Additional Sampling and Monitoring

Based on the analytical results of our February 2017 soil and groundwater sampling, conducted at the 250 and 260 30th Street site properties, which were summarized in our *Environmental Site Characterization* report dated 8 March 2017, additional sampling and monitoring activities were proposed in our *Work Plan for Additional Environmental Sampling and Monitoring* dated 17 March 2017. The results of our April 2017 investigation were also summarized in our *Feasibility Study and Corrective Action Plan, 3000 Broadway Redevelopment, Oakland, California* dated 2 May 2017.

On 25 March 2017, four borings (MIP-1 through MIP-4) were advanced to a maximum depth of 24.5 feet bgs using membrane interface probe (MIP) technology. MIP technology is an in-situ logging tool used for the detection and relative measurement of petroleum hydrocarbon

compounds, VOCs, and PAHs within the soil subsurface. The primary purpose of the MIP borings was to determine the vertical distribution of volatile contaminants. The continuously logged data from the MIP locations helped to establish discrete shallow and deep groundwater sampling intervals and aid in the installation of groundwater monitoring wells. The MIP data and results collected by Gregg Drilling & Testing, Inc. of Martinez, California are summarized in their *High Resolution Site Characterization (HRSC) Investigation* report dated 29 March 2017. A copy of the HRSC report is provided in Appendix C.

From late March to mid April 2017, a total of six exploratory borings (B-31 through B-36) were drilled to a maximum depth of 20 feet bgs. Grab-groundwater samples were collected from borings B-31, B-34, B-35, and B-36. Borings B-31 through B-35 were advanced within the 260 30th Street site property to further delineate soil and groundwater impacts downgradient and crossgradient of the floor drain located within the 260 30th Street site property. Boring B-36 was drilled within the 30th Street right-of-way, to a maximum depth of 16 feet bgs, for both soil and grab-groundwater sampling to assess off-site and downgradient subsurface conditions.

The soil analytical results for TPH, VOCs, and PAHs are presented in Table 4. TPH and VOC concentrations in soil which exceed the RWQCB Tier 1 ESLs generally appear to be limited to the upper 10 feet beneath the 260 30th Street site property, with the exception of one boring (B-33), which had TPH and VOC detections in excess of the Tier 1 ESL at 13.5 and 17.5 feet bgs. Trace concentrations of TPH and VOCs were detected in the soil sample collected from 20 feet bgs in boring B-33, and were below Tier 1 ESLs. Therefore, the most significant TPH and VOC impacts in soil appear to be limited to the northern and eastern portions of 260 30th Street site in borings B-32 and B-33. All soil samples with TPH and VOC concentrations which exceed the RWQCB Tier 1 ESLs is proposed for excavation and off-site disposal.

Grab-groundwater analytical results for TPH, VOCs, and PAHs are presented in Table 3. TPH and VOCs, predominantly PCE, TCE, and cis-1,2-DCE, were also detected in groundwater. Concentrations of these compounds, which exceed the RWQCB Tier 1 ESLs, were detected in groundwater near and cross-gradient of the floor drain location in borings B-31and B-34 at the 260 30th Street site property. Boring B-36 was advanced downgradient of the site within the 30th street right-of-way. TPHg and TCE were the only compounds detected above Tier 1 ESLs in boring B-36 and were detected at significantly lower concentrations than on site. Concentrations generally decrease downgradient towards Brook and 30th Streets and in the cross-gradient direction to the south.

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. Because Langan suspected that the significant rise in groundwater elevations beneath the site may have exacerbated the site's existing subsurface contamination, Langan proposed collecting two deeper groundwater samples to compare analytical data from the previous shallower grab-groundwater samples. Deep grab-groundwater borings GGW-1 and GGW-2 were advanced within the 260 30th Street property to evaluate the vertical extent of groundwater contamination (Figure 2). Deep groundwater borings were advanced with dual tube direct push technology, to prevent cross-contamination from shallower soil and groundwater. Borings GGW-1 and GGW-2 were proposed to extend to a depth of 28 feet bgs using the dual-tube sampling system; however, borings GGW-1 and GGW-2 hit refusal due to dense drilling conditions at depths of 22 and 19 feet bgs, respectively. Five feet of one-inch screened PVC well casing, pre-packed with sand, was inserted into GGW-1 from 17 to 22 feet bgs to facilitate the collection of deeper grab-groundwater samples and the outer casing was pulled up to 17 feet bgs. The boring was left overnight to allow water to equilibrate; however, sufficient groundwater was not present to sample the next day. The lack of groundwater at that depth interval can be related to the tight clay that was observed at that depth in boring GGW-1.

Due to refusal at a depth of 19 feet bgs in boring GGW-2 and the proximity to the shallow groundwater sampling interval, groundwater sampling was not performed via the dual-tube system in GGW-2. In an effort to collect a deeper sample from GGW-2, hollow stem augers were used to drill to a depth of 29 feet bgs. Five feet of one-inch screened PVC well casing, pre-packed with sand, was inserted through the hollow stem augers in boring GGW-2 from 24 to 29 feet bgs to facilitate the collection of deeper grab-groundwater samples. Once the casing was in place, the hollow stem augers were pulled up to a depth of 24 feet bgs and a groundwater sample was collected.

Grab-groundwater analytical results for TPH, VOCs, and PAHs are presented in Table 3 and indicate that the most significant groundwater impacts at the site are limited to shallow groundwater (i.e. 18 feet or less).

Two 18-foot groundwater monitoring wells (GW-1 and GW-2) were installed within the 260 30th Street property in late March 2017, which were screened from 8 to 18 feet bgs. Subsequent to well development, the groundwater monitoring wells were sampled in early April 2017. Groundwater analytical results for TPH, VOCs, and PAHs are presented in Table 5 and were compared to RWQCB Tier 1 ESLs. Groundwater analytical results for metals are

presented in Table 6. Groundwater analytical results for geochemical and biodegradation parameters, which may be used in future remedial planning, are presented in Table 7. The groundwater quality parameters observed in the field during low-flow sampling and prior to collecting the respective groundwater samples are presented in Table 8.

Cis- 1,2-DCE and TCE, both VOCs, were detected in the groundwater samples analyzed collected from monitoring wells GW-1 and GW-2 at concentrations which exceed the established Tier 1 ESLs of 6.0 µg/L and 5.0 µg/L, respectively. Cis-1,2-DCE was detected in samples GW-1 and GW-2 at concentrations of 170 µg/L and 300 µg/L, respectively. TCE was detected in samples GW-1 and GW-2 at concentrations of 1,200 µg/L and 2,400 µg/L, respectively. Low levels of TPHg were detected in GW-1 and GW-2, at concentrations of 67 and 130 µg/L, respectively. TPHd, TPHmo, and PAHs were not detected in the groundwater monitoring well samples analyzed.

Two temporary soil vapor wells (SV-1 and SV-2) were installed to an approximate depth of five feet bgs along the eastern side of the Brook Street right-of-way, north of the intersection of Brook and 30th Streets. Soil vapor samples were collected to determine if vapor intrusion is a concern to off-site downgradient properties. Soil vapor analytical results for VOCs and methane are presented in Table 9 and were compared to RWQCB Tier 1 ESLs, where established. No VOCs were detected above Tier 1 ESLs in the samples analyzed.

In April 2017, nine additional borings (B-37 through B-45) were advanced for soil sampling to further characterize the soil proposed for excavation for construction purposes for future off-haul and disposal. Five soil borings (B-37 through B-41) were advanced to 20 feet bgs along the Broadway warehouse buildings, with a limited access track-mounted drill rig. Four soil borings (B-42 through B-45) were hand augered to a maximum depth of eight feet bgs within the Brook Street residential properties. Soil samples were composited in the lab and submitted for analysis. The soil analytical results for parameters other than metals, from the site characterization soil samples, are presented in Table 1. The soil analytical results for metal parameters, from the site characterization soil samples, are presented in Table 2. Trace concentrations of TPHmo and organochlorine pesticides (OCPs) were detected in one of the soil samples analyzed, which were well below their established ESLs. No TPHg, TPHd, VOCs, SVOCs, polychlorinated biphenyls (PCBs), or asbestos were detected above laboratory reporting limits in any of the soil samples analyzed. Of the metals analyzed only lead was detected in the shallowest composite samples from borings B-42 and B-44 (beneath the two residential properties) at elevated/hazardous levels.

## 4.0 SUMMARY AND APPROACH

Observations during site investigations indicate the site is blanketed by medium dense clayey sand underlain by very stiff to hard clay, sandy clay and clay with sand in the eastern portion of the site. Beneath the western portion of the site, the site is blanketed by medium stiff to stiff sandy clay underlain by alternating layers of stiff clays and medium dense to very dense sands. Groundwater at the site is anticipated to flow in the southeasterly direction towards the Glen Echo Creek, which is located over 300 feet southeast from the site boundary. Recent groundwater elevations measured in February and April 2017 at the site ranged from approximately 29 feet above MSL in boring B-29 located at the 3020 Broadway site property to an average of approximately 26 feet above MSL in borings located at the 260 30th Street site property.

The soil sample analytical results, collectively provided in Tables 1, 2, and 4, indicate that some of the soil material underlying the north-central portion of the site contains elevated total and soluble lead concentrations exceeding State of California hazardous waste levels, specifically near borings B-3, B-4, B-42, and B-44 within the upper four to six feet. The approximate location and extent of site soil material which have been identified as hazardous and proposed for excavation and off-site disposal during development activities are shown on Figure 5. Additional soil sampling will likely be performed, to supplement existing data, following building demolition to determine if all areas illustrated on Figure 5 as hazardous are indeed hazardous.

Additionally TPH, VOC, and PAH contamination in soil has also been identified within the southeast portion of the site, specifically the north and eastern portions of the 260 30th Street site property. In general, the presence of clay appears to have limited the vertical migration of contaminants to the upper 18 feet at the 260 30th Street property, with only trace concentrations detected below 18 feet. The TPH contamination is predominantly limited to the eastern portion of the 260 30th Street site property. The TPH impacts in this area are generally contained within the top 10 feet, with some areas (i.e. boring B-33) containing impacts up to 18 feet bgs in soil. The VOC and PAH contamination is believed to be primarily associated with a nearby floor drain system, located within the 260 30th Street site property, which is proposed for removal during site redevelopment.

The proposed excavation plan is discussed in more detail in Section 6.7.

## 5.0 NOTIFICATIONS

The General Contractor (JMI) will notify Langan at least two weeks prior to conducting intrusive Site work, including subsurface demolition and/or soil excavation. JMI will notify Langan, and Langan will notify the ACEH of dust or odor complaints from nearby businesses, residents, or passersby, if any. The General Contractor will inform Langan if unexpected conditions or features are observed during site work, that suggest the potential presence of petroleum or hazardous materials in soil or groundwater at the site, in areas or quantities, or at concentrations that are likely to be inconsistent with the previous analytical results and impacts at the site, which would warrant Langan oversight.

## 6.0 RECOMMENDATIONS FOR ENVIRONMENTAL MANAGEMENT

The results of our environmental investigation at the site indicate that TPH, heavy metals, VOCs, and to a much lesser extent PAHs were detected in soil and groundwater. Elevated metals concentrations are limited to the north-central portion of the site while TPH, VOC and PAH concentrations are generally limited to the 260 30$^{th}$ Street property. The presence of these compounds poses soil and groundwater management and potential health and safety (H&S) issues to be addressed as part of the site development activities. The soil and groundwater management objectives for the site are to minimize exposure of construction workers at the site, nearby residents and/or pedestrians, and future users of the site, to constituents in soil and groundwater.

The procedures in this SGMP are designed to meet ACEH requirements relating to the soil and groundwater impacts at the site. In addition, the procedures in this SGMP are intended to facilitate compliance with applicable federal, state, and local laws and regulations, applicable to earth work activities at the site as a result of the reported petroleum or hazardous substance concentrations in soil or groundwater. Before intrusive earthwork begins at the site, an on-site pre-field meeting will be conducted between Langan and the General Contractor to review the former location of the USTs, the current location of the closed-in-place UST, and the locations of previously identified areas of contamination beneath the 260 30$^{th}$ Street property. The meeting will also include a discussion of the site-specific health and safety plans and the typical observations associated with petroleum and VOC-impacted soil and groundwater (i.e., staining or odor).

## 6.1 Health and Safety Measures

The General Contractor will be responsible for establishing and maintaining proper health and safety procedures to minimize worker and public exposure to site contaminants during construction.

The general public will be protected through the following measures:

- The site, project areas and stockpile/soil bin staging areas will be fenced to restrict access;
- During earthwork activities, barriers and/or plastic sheeting will be placed around the construction area to prevent potentially contaminated soil from contacting or migrating to non-contaminated areas or areas outside of the working limits;
- Exposed soil at the construction site will be watered or misted (typically at least twice a day) to prevent visible dust from migrating off-site;
- Soil stockpiles and/or soil bins will be located within secured portions of the site;
- Soil should be placed directly in bins and the bins should be covered and secured when not in use. If stockpiling is proposed, the soil should be placed entirely on plastic sheeting, covered and secured when not in use. Stockpiles should also be covered and secured if and when the following situations arise:
    - High winds, which create visible dust;
    - Significant rain events, which cause runoff from the stockpile; and
    - At the end of each work day.
- Berms or barriers will be placed around stockpile perimeters to prevent off-site migration of soil;
- Water will be misted or sprayed during the loading of soil onto trucks for off haul to minimize visible dust migrating off-site;
- Trucks transporting contaminated soil will be covered with a tarpaulin or other cover;
- The wheels of the trucks exiting the site will be cleaned prior to entering public streets; and
- Public streets will be swept daily if soil is visible; excavation and loading activities will be suspended if winds exceed 20 miles per hour.

The fence will be posted with requirements of the safe drinking water and toxic enforcement act (Proposition 65).

## 6.2 Health and Safety of Personnel

Potential health risk to on-site construction workers and the public from implementation of the corrective actions will be addressed by developing and implementing a health and safety program. The General Contractor will be responsible for establishing and maintaining proper health and safety procedures to minimize worker and public exposure to site contaminants during construction. It is the General Contractor's responsibility to communicate the site information, including this SGMP, to its subcontractors. As part of its health and safety program, the General Contractor will prepare a site-specific HASP and identify a Health and Safety Officer, as outlined in the subsections, below.

## 6.3 Health and Safety Issues

On the basis of our experience on similar sites, there are potential health and safety risks associated with the TPH, heavy metals, and VOCs detected at the site for construction workers, nearby residents and/or pedestrians, and future users of the site. The routes of potential exposure to the petroleum hydrocarbons and metals could be through three pathways: 1) dermal (skin) contact with the soil; 2) inhalation of dusts; and 3) ingestion of the soil.

The most likely potential for human exposure to the petroleum hydrocarbons and metals in the soil will be during soil excavation operations. Because on-site materials contain concentrations of TPH, heavy metals (specifically lead), and VOCs in excess of the Proposition 65 guidelines, we recommend that proper health and safety procedures, as well as warning requirements, be implemented during construction. The General Contractor will be responsible for establishing and maintaining proper health and safety procedures to minimize worker and public exposure to site contaminants during construction.

### 6.3.1 Site-Specific Health and Safety Plan

The General Contractor will be responsible for the preparation of a site-specific HASP signed by a certified industrial hygienist (CIH). This HASP will be prepared by Acumen and the purpose of the HASP will be to establish procedures to address potential chemical and physical hazards to field personnel and off-site receptors that may result from excavation of impacted soils at the site. The HASP plan will describe the health and safety requirements, i.e. trained in accordance

with Section 1910.120 of 29 Code of Federal Regulations (HazWoper training), specific personal hygiene, and monitoring equipment that will be used during construction to protect and verify the health and safety of construction workers and the general public from exposure to constituents in the soil. In addition, emergency response actions will be described in the HASP. The General Contractor is responsible for verifying that on-site project personnel have read and will adhere to the procedures established in the HASP. A copy of the plan will be kept on-site during field activities. The HASP will be reviewed and updated as necessary during implementation of the soil excavation.

#### 6.3.2 Health and Safety Officer

The site health and safety officer (HASO) identified by the CIH in the HASP will be on site at all times during excavation activities to oversee implementation of the HASP and to ensure that all health and safety measures are maintained. The HASO will have authority to direct and stop (if necessary) all construction activities in order to ensure compliance with the HASP.

### 6.4 General Soil Handling Procedures

The soil handling procedures described in this section are intended to support compliance with federal, state, and local requirements, reduce the potential for off-Site migration, and reduce the potential for exposure by construction workers, nearby residents and workers, and pedestrians, to constituents in site soil and groundwater.

### 6.5 Demolition

Broadway SPE LLC (owner) plans to demolish the existing warehouse buildings and the residential buildings will either be relocated or demolished. Demolition will include removal of all above structures and the buildings concrete slabs. Langan will be available during the buildings concrete slab removal activities to oversee any handling or excavation of potential petroleum-impacted soil, if required.

### 6.6 Utility Line Construction

The planned utility line construction is located along 30th and Brook Streets, which are directly adjacent to the site to the south and east, respectively. Soil samples previously collected in Brook Street did not have concentrations of contaminants detected above Tier 1 ESLs.

## 6.7 Soil Management

The proposed construction activities will disturb soil during the mass excavation, site grading, the construction of new foundations, and utility lines. During all excavation activities, dust control measures will be implemented to reduce potential exposure. These measures may include moisture-conditioning the soil and covering the exposed soil and stockpiles with weighed down plastic sheeting to prevent exposure of the soil.

The site's HASP (prepared by Acumen) will contain additional dust monitoring, action levels, dust control measures, and work stoppage provisions that will be followed during construction activities in addition to those described in this SGMP.

### 6.7.1 Excavation Plan

The proposed redevelopment of the site will incorporate about 18 feet of soil removal along Broadway and up to eight feet of soil removal along Brook Street for construction purposes. Over-excavation is proposed beneath the 260 30$^{th}$ Street property to remove concentrations of contaminants above Tier 1 ESLs, as discussed below.

The majority of soil proposed for excavation has been pre-characterized by extensive soil sampling and analyses, incorporating methods typically required by landfills. The top four to six feet of soil material located near borings B-3, B-4, B-42, and B-44 that exceeds State of California hazardous waste criteria for lead will be disposed of as State of California Class I (non-RCRA), at an accepting landfill facility. The majority of the site, outside of the 260 30th Street property, is not significantly impacted with contaminants and will be excavated for construction purposes and disposed off-site at an accepting landfill or receiving facility.

The remaining extent of soil material impacted with TPH and/or VOCs is located beneath the 260 30th Street property. Langan reviewed all soil and groundwater data and PID and MIP readings collected during site investigation to determine the extent of soil proposed for over-excavation beneath the 260 30th Street property. Conservatively, all soil exceeding Tier 1 ESLs and in some cases soil with detections below Tier 1 ESLs is proposed for excavation.

The approximate location and extent of site soil proposed for over-excavation and off-site disposal during development activities at the 260 30th Street property is shown on Figure 6. The excavation plan for the 260 30th Street property ranges from 8 to 18 feet bgs (from existing slab elevation). About eight feet of soil is required for removal for construction purposes. The deepest portion of the over-excavation includes the floor drain, monitoring wells

GW-1 and GW-2 (screened to 18 feet bgs) and extends almost all the way to the eastern site boundary (Figure 6). Monitoring wells GW-1 and GW-2 will be entirely excavated from this area.

The 260 30th Street property over-excavation also includes proposed excavation depths of 15, 12.5, and 10 feet bgs to remove impacted soil. The proposed excavation depths are shallower in the southerly direction, as contamination levels diminish. The proposed construction excavation (to a depth of eight feet) and over-excavation depths (ranging in depth from 10 to 18 feet) along with TCE data in soil are also illustrated on two cross-sections included as Figures 3 and 4. The locations of the cross-sections are illustrated on Figure 2. The remainder of the site outside of the 260 30th Street property will be excavated based on the construction plan.

Petroleum hydrocarbons, VOCs (specifically TCE and cis- 1,2-DCE), and to a much lesser extent PAHs exceed ESLs in site groundwater. In order to facilitate the described over-excavation within the 260 30th Street property and remove impacted groundwater, construction dewatering is proposed. Based on the presence of petroleum hydrocarbons, VOCs and PAHs, groundwater will require treatment prior to discharge, as discussed in Section 6.8 below.

Subsequent to over-excavation activities, clean fill material and/or controlled density fill will be used to bring the site elevations back up to proposed construction grade.

### 6.7.2 Soil Segregation and Disposal

The results of Langan's previous subsurface investigations indicate that soil material underlies the site with elevated levels of petroleum hydrocarbons and VOCs, and hazardous concentrations of heavy metals (specifically lead) and will need to be disposed off-site at both Class I and Class II regulated landfills. Before any excavation activities begin at the site, Langan shall be provided documentation from the excavation contractor that the soil from the site redevelopment project containing State of California hazardous waste has been accepted by the landfill facility. The excavation contractor shall be responsible for tracking the disposition of soil removed from the site.

Based on the limited area of the site and the characterization of soil that has been completed, at this time it is anticipated that soil excavated during the construction activities will be directly loaded into trucks for off-site disposal; if necessary, other means for disposal of soils include use of bins for containing soil prior to transport and off-site disposal. If needed, additional soil samples will be tested for analysis typically required by regulated landfills.

If soil stockpiling of suspected contaminated soil is to be performed, the excavation contractor shall establish appropriate soil stockpile locations on the site to properly segregate, cover, control dust, profile, and manage the excavated soil. At a minimum, stockpiled soils will be placed on top of one layer of 10-mil polyethylene sheeting (or equivalent), such as Visqueen. When stockpiled soil is not actively being handled, top sheeting will be adequately secured so that all surface areas are covered. All stockpiling activities must be in compliance with this SGMP and the site specific Erosion Control Plan, prepared by others.

### 6.7.3 Soil Disposition

The contractor will establish appropriate off-site soil disposal locations and direct truck loading scheduling and/or soil stockpile locations on the site to properly segregate, cover, moisture control, and profile the excavated soil. Soil profiling criteria will ultimately depend on the acceptance criteria of the facilities receiving the soil. These procedures will be established by the excavation contractor and coordinated with the proposed facilities prior to initiating soil excavation. Langan shall be provided documentation from the excavation contractor that the soils from the site redevelopment project to the proposed acceptance facilities have been approved. The contractor, on behalf of the owner, will be responsible for tracking final soil dispositions. Any excavated soil considered State of California (non-RCRA) hazardous material will be tracked using the Uniform Hazardous Waste Manifest System (USEPA Form 8700-22), as applicable. Soil not considered hazardous material will be tracked using non-hazardous bills of lading. These two systems will be used to comply with appropriate state and local requirements. All manifest and bills of lading will be provided to Langan during the excavation activities.

The contractor will arrange for transportation of all wastes off-site to the appropriate disposal facility using a permitted, licensed, and insured transportation company. Transporters of hazardous material must meet the requirements of 40 CFR 263 and 22 CCR 66263. All trucks transporting bulk hazardous material will be properly lined and covered with compatible materials.

Prior to off-site disposal of soil characterized as a hazardous waste, an appropriate USEPA Generator Identification Number will be recorded on the hazardous waste manifests used to document transport of hazardous material off-site. The hazardous waste transporter, disposal facility, and U.S. Department of Transportation (DOT) waste description required for each manifest will be determined on a case-by-case basis. A description of the number of containers

being shipped, the type of container, and the total quantity of waste being shipped will also be included on each manifest.

The excavation contractor will be responsible for accurate completion of the hazardous waste manifests and non-hazardous bills of lading. Records of all wastes shipped off-site will be maintained by the owner and will be made available for inspection on request. The final destination of wastes transported off-site will be documented in the Site Completion Report (Section 7.0).

The following records will be kept by the owner for the indicated length of time:

1. Copies of uniform hazardous waste manifests signed by the designated waste disposal facility will be retained for at least five years from the date the waste was accepted by the initial transporter.
2. All records pertaining to the characterization of hazardous or non-hazardous waste will be retained for a minimum of three years.

### 6.7.4 Stockpile Sampling

If needed, chemical testing of any stockpiled soil will be performed to profile the soil for disposal. Soil profiling criteria depends on the proposed landfill location or off-site receiving facility. These procedures shall be established by the excavation contractor and coordinated with the proposed landfills prior to initiating soil excavation. Langan shall be provided documentation from the excavation contractor that the soils from the site to the proposed acceptance facilities have been approved. Typical soil profiling requirements for landfills are one four-point composite sample per 250 - 500 cubic yards to be disposed. If soil samples are required for analysis, the samples shall be collected using a hand-driven sampler with an inside diameter of two inches, lined with a clean stainless steel tube, and driven into the soil. The ends of the sample tube shall be covered with Teflon and sealed with plastic end caps, and placed into an ice-chilled cooler until delivery under chain-of-custody protocol to a California-certified analytical laboratory. The soil samples collected from the stockpile shall be identified by using a progressive numbering sequence with the date and time of the sample collection and the location. All appropriate regulatory sampling methods, holding times, and detection limits shall be followed.

### 6.7.5 Remedial Action Goals

Remedial action goals for the site are included for chemicals of potential concern (COPC) for soil and groundwater. Based on the recent soil results, the COPCs in soil at the site are TPHg, TPHd, TPHmo, total lead, and cis- 1,2-DCE, TCE, and PCE. The selected remedial action goals for the COPCs in soils are the RWQCB February 2016 (Rev. 3) Tier 1 ESLs.

The cleanup goals selected for soils (in milligrams per kilogram - mg/kg) at the site are the following:

| COPC | Cleanup Level (mg/kg) |
|---|---|
| TPHg | 100 |
| TPHd | 230 |
| TPHmo | 5,100 |
| Total lead | 80 |
| Cis- 1,2-DCE | 0.19 |
| TCE | 0.46 |
| PCE | 0.42 |

Based on the most recent groundwater analytical results, the COPCs in groundwater at the site are TPHg, TPHd, TPHmo, and cis- 1,2-DCE, TCE, and PCE (all VOCs). The selected remedial action goals for the COPCs in groundwater are the RWQCB February 2016 (Rev. 3) direct exposure human health risk levels for MCL priority (Table GW-1). The cleanup goals selected for groundwater (in micrograms per liter - ug/L) at the site are the following:

| COPC | Cleanup Level (µg/L) |
|---|---|
| TPHg | 220 |
| TPHd | 150 |
| TPHmo | -- |
| Cis- 1,2-DCE | 6.0 |
| TCE | 5.0 |
| PCE | 5.0 |

### 6.7.6 Perimeter and Excavation Base Sampling

A significant number of soil and groundwater samples have been collected to delineate impacts at the site, prepare for excavation, and pre-characterize soil for off-site disposal. The soil sampling and analyses conducted are presented in this SGMP (Tables 1, 2 and 4). Soil containing concentrations of COPCs above Tier 1 ESLs is proposed for excavation and off-site disposal. Soil samples proposed for off-site disposal (containing concentrations above Tier 1

ESLs) and soil samples proposed to remain on-site are illustrated by highlighting on Table 4. Soil samples that are proposed to remain on-site (i.e. contain concentrations below the Tier 1 ESL) will act as excavation base samples, where existing samples are within two feet of the bottom of the excavation. Additional verification samples may be required from the bottom of the excavation within the 260 30th Street property, where existing samples do not exist near the bottom of the proposed excavation. Verification samples comprised of existing in-place soil samples and future confirmation samples will be collected on an approximate spacing of 50 foot centers from the 260 30th Street property.

Subsequent to all excavation and over-excavation activities outside of the 260 30th Street property, verification soil samples will be collected from the bottom of the excavation to document soil concentrations to be left in place and verify that the vertical extent of the removal action meets the remedial action goals. Verification samples will be analyzed for COPCs only. Because no significant impacts were observed outside of the 260 30th Street property the proposed verification sampling protocols differ from those to be implemented on the 260 30th Street property. Soil verification samples outside of the 260 30th Street property will generally be collected in following manner:

1. Bottom verification samples will be collected on grids covering every approximately 5,625 square feet (75 foot by 75 foot grid). Additional bottom samples will be collected in locations of staining or odorous soils or locations of elevated PID readings;

2. Additional samples would be collected at the discretion of the Langan's field personnel. Should additional excavation be necessary, excavation in sidewalls would be performed by extending the excavation a minimum of one foot into the sidewall, three feet to either side of the original sample that exceeded the cleanup goal and to the full depth of the excavation. Additional verification samples would be collected as follows: one sample would be collected directly behind the original sample in the new sidewall at the same depth and lateral location and one sample would be collected from the center of the base of the new excavation. The locations of selected samples could be adjusted by the field geologist based on field conditions, such as stained or odorous soils;

3. Additional excavations in the base of excavations would be performed by excavating a minimum of six additional inches below the base area represented by the sample exceeding the cleanup goal. One verification sample would be collected from the new excavation base; and

4. Excavation boundaries and excavation depths measured across the excavations will be recorded.

### 6.8 Groundwater Management

Available information indicates the current depth to groundwater beneath the site is at a historical high and ranges from approximately eight to 18 feet bgs. Construction dewatering will likely be needed in the southeast portion of 260 30th Street to facilitate over-excavation and soil removal for off-site disposal. Based on groundwater analytical results, the discharge water will likely contain TPH and VOCs that may require treatment prior to discharge.

Discharge may be permitted under an East Bay Mud (EBMUD) Special Discharge Permit. Per permit requirements, prior to discharge, groundwater samples will be analyzed for the following parameters:

- VOCs by EPA 8260B;
- SVOCs by EPA 8270C;
- pH;
- TPHg, TPHd, TPHmo EPA 8015M;
- CAM17 Total Metals by EPA 6010B/7400;
- PCBs by EPA 8081A/8082; and
- Oil and Grease by EPA 1664 HEM-SGT.

We will review the groundwater results and the planned dewatering approach to assess the need for treatment prior to discharge. The groundwater analytical results and proposed treatment plan (if necessary) will be discussed with EBMUD.

Langan will prepare discharge reports and provide field records (water quality measurements, flow rates, discharge volumes) and laboratory results to EBMUD, as needed and as specified in the EBMUD Special Discharge Permit. A permit will be obtained from EBMUD prior to any groundwater discharge.

If the water is to be discharged into the storm drain, then a discharge permit will be obtained (e.g., a National Pollutant Discharge Elimination System (NPDES) permit for discharge to the storm drain.

## 6.9 Vapor Mitigation System

Based on current development plans and recent groundwater elevations, a waterproofing membrane/vapor barrier will be installed beneath the proposed development. The waterproofing membrane will be compatible with contaminants present in the subsurface and will therefore, also function as a vapor barrier. In addition to the waterproofing membrane/vapor barrier, a system of pipes, gravel, air intakes and risers are currently being designed for installation beneath the 260 30th Street property, which will serve as a passive soil vapor mitigation system.

Langan is currently recommending a vapor mitigation system for the building, based on TPH and VOC concentrations detected in site groundwater.

## 6.10 Dust Control Plan

Prior to initiating construction activities, a site specific dust control plan will be prepared on behalf of the General Contractor and will be implemented to reduce potential exposure and off-site dust migration. This document will contain measures to protect construction workers and the public, including dust monitoring, action levels, dust control measures, and work stoppage provisions that will be followed during construction activities.

During excavation and subsurface demolition activities, a dust control plan will be implemented through implementation of engineering controls, to minimize generation of dust and the potential off-site migration of chemicals in site soil. Dust control measures at a minimum will include:

- Covering soil stockpiles with plastic sheeting;
- Watering uncovered ground surface at the site; use of water will be limited to prevent runoff;
- Misting or spraying of soil during excavation and loading;
- Emplacement of gravel and/or rubble plates on site access roads as feasible;
- Trucks hauling soil from the site will be covered;
- Visible dust will be monitored during excavation and subsurface demolition;
- The soil drop height from an excavator's bucket onto soil piles or into transport trucks will be minimized;
- Windbreaks will be deployed as necessary;
- If necessary, the area of excavation may be limited to reduce dust generation;

- Site vehicle speed limits;
- Street sweeping;
- Termination of excavation if winds exceed 25 mph; and
- Addition of soil stabilizers and other responses as needed.

The site-specific dust control plan will, at a minimum, include some or all of the following procedures: site fencing; wetting soil; analysis of wind direction; dust monitors at the work zone and at the site perimeter and appropriate record keeping, visible inspection; and establishing a hotline for community response.

If dust monitoring is required by ACEH, the dust monitors shall be capable of continuous, real-time monitoring, data-logging, and data transmission, measurement of air-borne particulates 10 micrometers in size (PM-10) or less, measurement of a 15-minute time-weighted average (TWA), a detection limit range of between 1 microgram per cubic meter (µg/$m^3$) and 400,000 µg/$m^3$ and be able to trigger visual and/or remote alarms consisting of a flashing light, or similar, to alert on-site monitoring and/or contractor personnel an action level has been exceeded. The remote alarm, if used, will consist of a text message, email, phone message, or similar, to alert off-site monitoring personnel an action level has been exceeded. The public will be notified as necessary and the General Contractor will take appropriate corrective actions.

Except in the case of heavy fog or precipitation events, the dust monitors will be set up on a daily basis, for the first week of each new, potential dust-generating activity conducted at the site (e.g., one week of dust monitoring at the start of grading, one week of dust monitoring at the start of excavation, etc.). The dust monitors will be set up by dust monitoring personnel at the start of each work-day prior to the start of the dust generating activity, and taken down at the conclusion of each work-day. Additionally, dust monitoring personnel will be present on-site to monitor field conditions and consult with contractor personnel on suitable dust suppression measures at:

1. The start of each new dust-generating activity, and for one to two days thereafter depending on the observed site conditions.
2. The day after an exceedance of the daily average action level, if any.
3. The day of and/or the day after an exceedance of the 15-minute TWA action level, if any.
4. The day of and/or the day after visual observation of fugitive dust, if any.
5. The day of and/or the day after neighbor complaints of dust, if any.

If required, two dust monitors will be placed at the site perimeter; one at an upwind location and one at a downwind location. Wind direction will be evaluated based on a wind sock or flag located at the site as well as a weather forecasting and reporting website. Dust monitor locations will be re-located in the case of significant changes in the wind direction. The locations of the dust monitors will be recorded in dedicated field logs.

Action levels for analytes in dust will be calculated for the site and presented in the site specific Dust Control Plan. If the daily average from perimeter monitoring exceeds the California Air Resources Board (CARB) standard of 50 µg/$m^3$ or the 15-minute TWA, additional dust control measures will be implemented. The daily average will be calculated over a 24 hour period based on the continuous dust monitoring data collected over the course of the work day. Visual and/or remote alarms on the perimeter dust monitors will be set to trigger if the 15 minute TWA is exceeded. Baseline dust conditions for the day may be either measurements collected from the upwind dust monitoring location prior to the start of the work day or as continuous monitoring data over an 8-hour period collected one to two days before the start of construction activities and extrapolated over the remainder of the 24 hour period.

If dust levels exceed the action levels listed above or if visible dust is observed, additional engineering controls will be immediately implemented by the General Contractor to minimize fugitive dust. If necessary, work will cease until conditions can be controlled so three consecutive measurements are below the established action levels. Visible emissions shall not be allowed to migrate off-site at any time.

### 6.11 Odor Control

When needed, odor suppression measures will be implemented by the General Contractor to minimize odor during excavation activities. The means to be considered for minimization of odors during excavation activities includes, but are not limited to: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; (c) limiting soil excavation or loading to times when meteorological conditions are conducive to conducting operations (e.g., the predominant wind direction does not direct vapors or odors toward a sensitive receptor); (d) use of foams to cover exposed odorous soil and rock material; (e) use of chemical odorants in spray or misting systems (i.e. Simple Green, ODEX, or Biosolve); and, (e) use of staff to monitor odors in surrounding area.

### 6.12 Storm Water Pollution Controls

Storm water pollution controls will be implemented to minimize storm water runoff and sediment transport from the site. An Erosion Control Plan has been prepared by others and will be implemented by the General Contractor for earthwork–related activities. The Erosion Control Plan identifies Best Management Practices (BMPs) for the proposed construction activities and will include protocols (i.e., earth dikes and drainage swales) to control storm water contact with, or runoff from impacted soil, during wet weather conditions.

### 6.13 Contingency Procedures for Unknown/Unexpected Conditions

The following tasks should be implemented during soil excavation if unknown historical subsurface features and/or unanticipated hazardous materials are encountered. Such materials may include unaccounted for underground storage tanks (USTs) and associated product lines, sumps, and/or vaults, former monitoring wells, and soil with significant petroleum hydrocarbon odors and/or stains**:**

- Stop work in the area where the suspect material is encountered and cover with plastic sheets;
- Notify the General Contractor's site safety officer and site superintendent. The General Contractor will request that Langan conduct a site inspection and will consult with the Langan regarding appropriate follow-up actions in the suspect area. Langan will notify the ACEH and certified unified program agency (CUPA) (if needed) of site conditions that indicate a material threat to human health or the environment;
- Review the existing health and safety plan for revisions, if necessary, and have appropriately trained personnel on-site to work with the affected materials, once directed by the General Contractor;

If necessary, notifications will be performed, permits will be in place prior to subsurface feature removals, and permit conditions will be followed.

If a UST, product line, sump, or vault is found, ACEH and ACEH CUPA will be notified and a licensed tank removal contractor will properly remove and dispose of the UST. Proper permits and notifications should be in place prior to removal of the UST. If soil staining is observed, the affected soil will be placed in a stockpile on plastic sheets and covered with plastic sheets. Langan will complete soil sampling and analysis tasks for UST closure in accordance with ACEH and the ACEH CUPA guidelines. Langan will collect and analyze soil samples to determine disposal of the material, the extent of the unexpected area of apparent petroleum impacted

soil, and that impacted material has been appropriately removed. Soil samples collected from beneath fuel pipelines, if any, will be collected beneath joints and elbows and at a frequency of one sample per 20 linear feet.

## 7.0 CONSTRUCTION COMPLETION REPORT

A Construction Completion Report (CCR) will be prepared that summarizes the soil and groundwater management activities and any subsequent investigative and removal activities that were completed during redevelopment and submitted to ACEH.

The CCR will present a chronology of the construction events, a summary of analytical data, a copy of all manifests from the site, and a description of all soil and groundwater management activities at the site. The report will also contain laboratory analytical results and figures, as appropriate, to provide detail regarding the amount and type of contamination encountered during various activities. The report will also summarize any residual contaminants that were left on the site after completion of redevelopment activities and document that soil handling procedures were implemented in accordance with this SGMP. We will discuss the report with ACEH as appropriate and respond to questions as needed.

## 8.0 MODIFICATIONS TO THE SGMP

There may be a need to modify the SGMP as site conditions and/or building plans change. Additionally, as implementation of the SGMP proceeds, 3000 Broadway SPE LLC (owner) and ACEH may request revised provisions of the SGMP, including those related to the soil and/or groundwater at specified locations within the site. Such requests for modification will be included in amendments to the SGMP.

## 9.0 LIMITATIONS

This SGMP has been prepared on behalf of 3000 Broadway SPE LLC and is specific to the 3000 Broadway Redevelopment (site) project. All conclusions and recommendations in this report concerning the site are the professional opinions of the Langan personnel involved with the project, and this report should not be considered a legal interpretation of existing environmental regulations. Opinions presented herein apply to site conditions existing at the time of our assessment, and cannot necessarily be taken to apply to site changes or conditions of which we are not aware and have not had the opportunity to evaluate. This SGMP does not address hazardous materials that may be encountered in aboveground structures, such as asbestos-containing materials or lead-based paint.

# TABLES

**Table 1**
**Soil Analytical Results for Non-Metals**
**Composited for Site Characterization**
**3000 Broadway Redevelopment**
**Oakland, California**

| Lab Sample ID | Sample ID | Date Sampled | TPHg | TPHd | TPHmo | VOCs | PAHs | SVOCs | OCPs/PCBs | Asbestos |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | (mg/kg) | | | | | | | (%) |
| B1-1, 3 & B2-1, 3 | B-1-1<br>B-1-3<br>B-2-1<br>B-2-3 | 4/1/16 | < 1.0 | < 1.0 | < 5.0 | ND | -- | -- | -- | -- |
| B3-2.5, 5 & B4-2.5, 5 | B-3-2.5<br>B-3-5<br>B-4-2.5<br>B-4-5 | 4/1/16 | < 1.0 | < 1.0 | < 5.0 | ND | -- | ND | ND | ND |
| B3-7.5, 10 & B4-7, 10.5 | B-3-7.5<br>B-3-10<br>B-4-7<br>B-4-10.5 | 4/1/16 | < 1.0 | < 1.0 | < 5.0 | ND | -- | ND | ND | -- |
| B3-12.5, 15 & B4-12.5, 15 | B3-12.5<br>B3-15<br>B4-12.5<br>B4-15 | 4/1/16 | < 1.0 | < 1.0 | < 5.0 | ND | -- | -- | -- | -- |
| B3-17.5, 20 & B4-17.5, 20 | B-3-17.5<br>B-3-20<br>B-4-17.5<br>B-4-20 | 4/1/16 | < 1.0 | < 1.0 | < 5.0 | -- | -- | -- | -- | -- |
| B5-2.5, 5 & B6-2.5, 5 | B-5-2.5<br>B-5-5<br>B-6-2.5<br>B-6-5 | 4/2/16 | < 1.0 | < 1.0 | < 5.0 | ND | -- | ND | ND | -- |
| B5-7.5, 10 & B6-7.5, 10 | B-5-7.5<br>B-5-10<br>B-6-7.5<br>B-6-10 | 4/2/16 | < 1.0 | < 1.0 | < 5.0 | ND | -- | ND | ND | ND |
| B5-12.5, 15 & B6-12.5, 15 | B-5-12.5<br>B-5-15<br>B-6-12.5<br>B-6-15 | 4/2/16 | < 1.0 | < 1.0 | < 5.0 | ND | -- | -- | -- | -- |
| B7-2 & B8-2 | B-7-2<br>B-8-2 | 4/2/16 | < 1.0 | < 1.0 | < 5.0 | ND | -- | ND | ND | -- |
| B7-4 & B8-4 | B-7-4<br>B-8-4 | 4/2/16 | < 1.0 | < 1.0 | < 5.0 | ND | -- | -- | ND | -- |
| B7-6 & B8-6 | B-7-6<br>B-8-6 | 4/2/16 | < 1.0 | < 1.0 | < 5.0 | ND | -- | -- | ND | -- |
| B7-8 & B8-8 | B-7-8<br>B-8-8 | 4/2/16 | < 1.0 | < 1.0 | < 5.0 | ND | -- | -- | -- | -- |
| B7-10 & B8-10 | B-7-10<br>B-8-10 | 4/2/16 | < 1.0 | < 1.0 | < 5.0 | -- | -- | -- | -- | -- |
| B9-1, 3 & B10-1, 3 | B-9-1<br>B-9-3<br>B-10-1<br>B-10-3 | 4/1/16 | < 1.0 | < 1.0 | < 5.0 | ND | -- | ND | ND | -- |
| B9-5 & B10-5 | B-9-5<br>B-10-5 | 4/1/16 | < 1.0 | < 1.0 | < 5.0 | -- | -- | -- | -- | -- |
| B-37-5.0,10.0, 38-5.0,10.0 | B-37-5.0 | 4/17/17 | < 1.0 | < 1.0 | < 5.0 | ND | < 0.0050 | -- | ND | -- |
| | B-37-10.0 | | | | | -- | | | | -- |
| | B-38-5.0 | | | | | -- | | | | -- |
| | B-38-10.0 | | | | | ND | | | | -- |
| B-37, 38-15.0 | B-37-15.0 | 4/17/17 | < 1.0 | < 1.0 | < 5.0 | -- | < 0.0050 | -- | ND | -- |
| | B-38-15.0 | | | | | -- | | | | -- |
| B-37, 28-20.0 | B-37-20.0 | 4/17/17 | < 1.0 | < 1.0 | < 5.0 | -- | < 0.0050 | -- | ND | -- |
| | B-38-20.0 | | | | | -- | | | | -- |
| B-39-1.5,3.0,5.0 | B-39-1.5 | 4/17/17 | < 1.0 | < 1.0 | < 5.0 | -- | < 0.0050 | -- | ND | -- |
| | B-39.3.0 | | | | | -- | | | | ND |
| | B-39.5.0 | | | | | -- | | | | -- |
| B-39-10.0,15.0,20.0 | B-39-10.0 | 4/17/17 | < 1.0 | < 1.0 | < 5.0 | -- | < 0.0050 | -- | ND | -- |
| | B-39-15.0 | | | | | ND | | | | -- |
| | B-39-20.0 | | | | | -- | | | | -- |
| B-40-1.5,3.0 | B-40-1.5 | 4/17/17 | < 1.0 | < 1.0 | < 5.0 | -- | < 0.0050 | -- | ND | -- |
| | B-40-3.0 | | | | | ND | | | | -- |
| B-40-5.0, 41-5.0,7.5 | B-40-5.0 | 4/17/17 | < 1.0 | < 1.0 | < 5.0 | -- | < 0.0050 | -- | ND | -- |
| | B-41-5.0 | | | | | -- | | | | ND |
| | B-41-7.5 | | | | | ND | | | | -- |
| B-40, 41-10.0 | B-40-10.0 | 4/17/17 | < 1.0 | < 1.0 | < 5.0 | -- | < 0.0050 | -- | ND | -- |
| | B-41-10.0 | | | | | -- | | | | -- |
| B-40, 41-15.0 | B-40-15.0 | 4/17/17 | < 1.0 | < 1.0 | < 5.0 | -- | < 0.0050 | -- | ND | -- |
| | B-41-15.0 | | | | | -- | | | | -- |
| B-40, 41-20.0 | B-40-20.0 | 4/17/17 | < 1.0 | < 1.0 | < 5.0 | -- | < 0.0050 | -- | ND | -- |
| | B-41-20.0 | | | | | -- | | | | -- |
| B-42-1.0,3.0, 44-1.0,3.0 | B-42-1.0 | 4/11/17 | < 1.0 | < 1.0 | 5.8 | -- | ND | -- | p,p-DDE = 0.0011<br>p,p-DDT = 0.0022 | -- |
| | B-42-3.0 | | | | | -- | | | | ND |
| | B-44-1.0 | | | | | -- | | | | -- |
| | B-44-3.0 | | | | | ND | | | | -- |
| B-42,44 - 5.0, 8.0 | B-42-5.0 | 4/11/17 | < 1.0 | < 1.0 | < 5.0 | -- | ND | -- | ND | -- |
| | B-42-8.0 | | | | | ND | | | | -- |
| | B-44-5.0 | | | | | -- | | | | -- |
| | B-44-8.0 | | | | | -- | | | | -- |
| B-43,45 - 3.0, 5.0 | B-43-3.0 | 4/11/17 | < 1.0 | < 1.0 | < 5.0 | -- | ND | -- | ND | -- |
| | B-43-5.0 | | | | | ND | | | | -- |
| | B-45-3.0 | | | | | -- | | | | ND |
| | B-45-5.0 | | | | | -- | | | | -- |
| B-45-1.0 | B-45-1.0 | 4/11/17 | -- | -- | -- | ND | -- | -- | -- | -- |
| Tier 1 ESL | | | 100 | 230 | 5,100 | Various | Various | Various | Various | -- |

Notes:
mg/kg - Milligrams per kilogram
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
VOCs - Volatile Organic Compounds, EPA Method 8260
SVOCs - Semi Volatile Organic Compounds, EPA Method SW8270C
OCPs - Organochlorine Pesticides
PCBs - Polychlorinated Biphenyls, EPA Method 8081
p,p-DDE - Dichlorodiphenyldichloroethylene
p,p-DDT - Dichlorodiphenyltrichloroethane
< 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 - ESLs, where established, vary for each of the multiple compounds analyzed
Tier 1 ESLs - San Francisco Bay Regional Water Quality Control Board's Environmental Screening Levels - *Tier 1 Soil.* February 2016 [Rev. 3]

**Table 2**
**Soil Analytical Results for Metals**
**Composited for Site Characterization**
**3000 Broadway Redevelopment**
**Oakland, California**

| Lab Sample ID | Sample ID | Date Sampled | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | STLC Chromium | Cobalt | Copper | Lead | STLC Lead | TCLP Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (mg/kg) | | | | | | (mg/L) | (mg/kg) | | | (mg/L) | | (mg/kg) | | | | | | | |
| B1-1, 3 & B2-1, 3 | B1-1<br>B1-3<br>B2-1<br>B2-3 | 4/1/16 | < 0.50 | 2.7 | 120 | < 0.50 | < 0.25 | 36 | -- | 4.9 | 11 | 7.5 | -- | 0.28 | < 0.050 | < 0.50 | 26 | < 0.50 | < 0.50 | < 0.50 | 30 | 20 |
| B3-2.5, 5 & B4-2.5, 5 | B3-2.5<br>B3-5<br>B4-2.5<br>B4-5 | 4/1/16 | 2.7 | 4.5 | 150 | 0.5 | < 0.25 | 63 | 0.1 | 12 | 19 | 270 | **100** | 0.28 | 0.15 | 2.1 | 38 | < 0.50 | < 0.50 | < 0.50 | 34 | 64 |
| B3-7.5, 10 & B4-7, 10.5 | B3-7.5<br>B3-10<br>B4-7<br>B4-10.5 | 4/1/16 | < 0.50 | 6.1 | 140 | 0.53 | < 0.25 | 44 | -- | 10 | 19 | 6.4 | -- | -- | 0.05 | < 0.50 | 63 | < 0.50 | < 0.50 | < 0.50 | 38 | 44 |
| B3-12.5, 15 & B4-12, 15 | B3-12.5<br>B3-15<br>B4-12<br>B4-15 | 4/1/16 | 0.52 | 5.3 | 290 | 0.57 | < 0.25 | 54 | < 0.10 | 11 | 26 | 19 | -- | -- | < 0.050 | 0.55 | 95 | < 0.50 | < 0.50 | < 0.50 | 42 | 88 |
| B3-17.5, 20 & B4-17.5, 20 | B3-17.5<br>B3-20<br>B4-17.5<br>B4-20 | 4/1/16 | < 0.50 | 3.1 | 140 | 0.76 | < 0.25 | 53 | < 0.10 | 12 | 22 | 10 | -- | -- | < 0.050 | < 0.50 | 58 | < 0.50 | < 0.50 | < 0.50 | 43 | 60 |
| B5-2.5, 5 & B6-2.5, 5 | B5-2.5<br>B5-5<br>B6-2.5<br>B6-5 | 4/2/16 | < 0.50 | 4.2 | 110 | < 0.50 | < 0.25 | 52 | < 0.10 | 8.8 | 14 | 7.6 | -- | -- | < 0.050 | < 0.50 | 44 | < 0.50 | < 0.50 | < 0.50 | 38 | 27 |
| B5-7.5, 10 & B6-7.5, 10 | B5-7.5<br>B5-10<br>B6-7.5<br>B6-10 | 4/2/15 | 0.54 | 4.6 | 160 | 0.62 | < 0.25 | 60 | < 0.10 | 12 | 27 | 7.8 | -- | -- | < 0.050 | < 0.50 | 89 | < 0.50 | < 0.50 | < 0.50 | 47 | 62 |
| B5-12.5, 15 & B6-12.5, 15 | B5-12.5<br>B5-15<br>B6-12.5<br>B6-15 | 4/2/15 | < 0.50 | 2.6 | 130 | 0.61 | < 0.25 | 56 | < 0.10 | 12 | 25 | 7.1 | -- | -- | 0.081 | < 0.50 | 75 | < 0.50 | < 0.50 | < 0.50 | 40 | 60 |
| B7-2 & B8-2 | B7-2<br>B8-2 | 4/2/16 | < 0.50 | 3.8 | 200 | 1.0 | < 0.25 | 59 | < 0.10 | 11 | 23 | 6.9 | -- | -- | < 0.050 | < 0.50 | 140 | < 0.50 | < 0.50 | < 0.50 | 41 | 46 |
| B7-4 & B8-4 | B7-4<br>B8-4 | 4/2/16 | < 0.50 | 4.1 | 120 | 0.69 | < 0.25 | 65 | < 0.10 | 7.6 | 22 | 6.2 | -- | -- | < 0.050 | < 0.50 | 75 | < 0.50 | < 0.50 | < 0.50 | 45 | 47 |
| B7-6 & B8-6 | B7-6<br>B8-6 | 4/2/16 | < 0.50 | 4.3 | 140 | 0.60 | < 0.25 | 58 | < 0.10 | 8.6 | 23 | 6.7 | -- | -- | < 0.050 | < 0.50 | 70 | < 0.50 | < 0.50 | < 0.50 | 46 | 51 |
| B7-8 & B8-8 | B7-8<br>B8-8 | 4/2/16 | -- | -- | -- | -- | < 0.25 | 63 | < 0.10 | -- | -- | 6.6 | -- | -- | -- | -- | 72 | -- | -- | -- | -- | 52 |
| B7-10 & B8-10 | B7-10<br>B8-10 | 4/2/16 | < 0.50 | 2.2 | 130 | < 0.50 | < 0.25 | 52 | < 0.10 | 9.6 | 18 | 5.7 | -- | -- | < 0.050 | < 0.50 | 62 | < 0.50 | < 0.50 | < 0.50 | 37 | 49 |
| B9-1, 3 & B10-1, 3 | B9-1<br>B9-3<br>B10-1<br>B10-3 | 4/1/16 | < 0.50 | 5.0 | 180 | 0.55 | < 0.25 | 45 | -- | 15 | 17 | 7.0 | -- | -- | 0.057 | < 0.50 | 47 | < 0.50 | < 0.50 | < 0.50 | 39 | 34 |
| B9-5 & B10-5 | B9-5<br>B10-5 | 4/1/16 | -- | -- | -- | -- | < 0.25 | 55 | < 0.10 | -- | -- | 7.4 | -- | -- | -- | -- | 71 | -- | -- | -- | -- | 48 |
| B-16-6 | B-16-6 | 11/3/16 | -- | -- | -- | -- | < 0.25 | 42 | -- | -- | -- | 6.9 | -- | -- | -- | -- | 50 | -- | -- | -- | -- | 39 |
| B-16-10 | B-16-10 | 11/3/16 | -- | -- | -- | -- | < 0.25 | 31 | -- | -- | -- | 5.4 | -- | -- | -- | -- | 37 | -- | -- | -- | -- | 37 |
| B-16-20.5 | B-16-20.5 | 11/3/16 | -- | -- | -- | -- | < 0.25 | 46 | -- | -- | -- | 7.3 | -- | -- | -- | -- | 46 | -- | -- | -- | -- | 48 |



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**Table 2**
**Soil Analytical Results for Metals**
**Composited for Site Characterization**
**3000 Broadway Redevelopment**
**Oakland, California**

| Lab Sample ID | Sample ID | Date Sampled | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | STLC Chromium | Cobalt | Copper | Lead | STLC Lead | TCLP Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (mg/kg) | | | | | | (mg/L) | (mg/kg) | | | (mg/L) | | (mg/kg) | | | | | | | |
| B-37-5.0,10.0, 38-5.0,10.0 | B-37-5.0 | 4/17/17 | < 0.50 | 5.3 | 170 | 0.63 | < 0.25 | 50 | < 0.10 | 13 | 16 | 17 | -- | -- | 0.066 | < 0.50 | 58 | < 0.50 | < 0.50 | < 0.50 | 41 | 30 |
| | B-37-10.0 | | | | | | | | | | | | | | | | | | | | | |
| | B-38-5.0 | | | | | | | | | | | | | | | | | | | | | |
| | B-38-10.0 | | | | | | | | | | | | | | | | | | | | | |
| B-37, 38-15.0 | B-37-15.0 | 4/17/17 | 0.51 | 4.5 | 170 | 0.63 | < 0.25 | 61 | < 0.10 | 13 | 28 | 7.7 | -- | -- | < 0.050 | < 0.50 | 92 | < 0.50 | < 0.50 | < 0.50 | 42 | 64 |
| | B-38-15.0 | | | | | | | | | | | | | | | | | | | | | |
| B-37, 28-20.0 | B-37-20.0 | 4/17/17 | < 0.50 | 4.7 | 150 | < 0.50 | < 0.25 | 53 | < 0.10 | 12 | 22 | 7.1 | -- | -- | < 0.050 | < 0.50 | 83 | < 0.50 | < 0.50 | < 0.50 | 37 | 52 |
| | B-38-20.0 | | | | | | | | | | | | | | | | | | | | | |
| B-39-1.5,3.0,5.0 | B-39-1.5 | 4/17/17 | < 0.50 | 3.2 | 190 | < 0.50 | < 0.25 | 33 | -- | 7.6 | 11 | 20 | -- | -- | < 0.050 | < 0.50 | 31 | < 0.50 | < 0.50 | < 0.50 | 29 | 59 |
| | B-39.3.0 | | | | | | | | | | | | | | | | | | | | | |
| | B-39.5.0 | | | | | | | | | | | | | | | | | | | | | |
| B-39-10.0,15.0,20.0 | B-39-10.0 | 4/17/17 | 0.51 | 6.0 | 340 | 0.66 | < 0.25 | 58 | < 0.10 | 16 | 28 | 11 | -- | -- | 0.053 | < 0.50 | 100 | < 0.50 | < 0.50 | < 0.50 | 44 | 63 |
| | B-39-15.0 | | | | | | | | | | | | | | | | | | | | | |
| | B-39-20.0 | | | | | | | | | | | | | | | | | | | | | |
| B-40-1.5,3.0 | B-40-1.5 | 4/17/17 | < 0.50 | 3.8 | 180 | < 0.50 | < 0.25 | 34 | -- | 26 | 13 | 13 | -- | -- | < 0.050 | 0.51 | 33 | < 0.50 | < 0.50 | < 0.50 | 34 | 23 |
| | B-40-3.0 | | | | | | | | | | | | | | | | | | | | | |
| B-40-5.0,41-5.0,7.5 | B-40-5.0 | 4/17/17 | < 0.50 | 5.6 | 150 | 0.68 | < 0.25 | 57 | < 0.10 | 17 | 20 | 8.0 | -- | -- | 0.073 | < 0.50 | 61 | < 0.50 | < 0.50 | < 0.50 | 53 | 32 |
| | B-41-5.0 | | | | | | | | | | | | | | | | | | | | | |
| | B-41-7.5 | | | | | | | | | | | | | | | | | | | | | |
| B-40, 41-10.0 | B-40-10.0 | 4/17/17 | < 0.50 | 5.2 | 140 | 0.56 | < 0.25 | 54 | < 0.10 | 21 | 20 | 8.2 | -- | -- | 0.055 | < 0.50 | 77 | < 0.50 | < 0.50 | < 0.50 | 43 | 38 |
| | B-41-10.0 | | | | | | | | | | | | | | | | | | | | | |
| B-40, 41-15.0 | B-40-15.0 | 4/17/17 | 0.54 | 5.0 | 180 | 0.67 | < 0.25 | 62 | < 0.10 | 15 | 32 | 9.6 | -- | -- | < 0.050 | < 0.50 | 110 | < 0.50 | < 0.50 | < 0.50 | 45 | 71 |
| | B-41-15.0 | | | | | | | | | | | | | | | | | | | | | |
| B-40, 41-20.0 | B-40-20.0 | 4/17/17 | < 0.50 | 3.9 | 120 | < 0.50 | < 0.25 | 47 | -- | 9.2 | 17 | 6.3 | -- | -- | < 0.050 | < 0.50 | 68 | < 0.50 | < 0.50 | < 0.50 | 31 | 43 |
| | B-41-20.0 | | | | | | | | | | | | | | | | | | | | | |
| B-42-1.0,3.0, 44-1.0,3.0 | B-42-1.0 | 4/11/17 | 1.4 | 7.8 | 240 | < 0.50 | 0.38 | 32 | -- | 11 | 33 | 190 | **7.8** | < 0.10 | 0.25 | 0.71 | 36 | < 0.50 | < 0.50 | < 0.50 | 29 | 180 |
| | B-42-3.0 | | | | | | | | | | | | | | | | | | | | | |
| | B-44-1.0 | | | | | | | | | | | | | | | | | | | | | |
| | B-44-3.0 | | | | | | | | | | | | | | | | | | | | | |
| B-42,44 - 5.0, 8.0 | B-42-5.0 | 4/11/17 | < 0.50 | 3.3 | 150 | 0.50 | < 0.25 | 40 | -- | 12 | 12 | 6.2 | -- | -- | < 0.050 | < 0.50 | 38 | < 0.50 | < 0.50 | < 0.50 | 34 | 26 |
| | B-42-8.0 | | | | | | | | | | | | | | | | | | | | | |
| | B-44-5.0 | | | | | | | | | | | | | | | | | | | | | |
| | B-44-8.0 | | | | | | | | | | | | | | | | | | | | | |



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**Table 2**
**Soil Analytical Results for Metals**
**Composited for Site Characterization**
**3000 Broadway Redevelopment**
**Oakland, California**

| Lab Sample ID | Sample ID | Date Sampled | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | STLC Chromium | Cobalt | Copper | Lead | STLC Lead | TCLP Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (mg/kg) | | | | | | (mg/L) | (mg/kg) | | | (mg/L) | | (mg/kg) | | | | | | | |
| B-43,45 - 3.0, 5.0 | B-43-3.0<br>B-43-5.0<br>B-45-3.0<br>B-45-5.0 | 4/11/17 | < 0.50 | 3.3 | 140 | 0.64 | < 0.25 | 40 | -- | 4.4 | 12 | 7.8 | -- | -- | < 0.050 | < 0.50 | 38 | < 0.50 | < 0.50 | < 0.50 | 32 | 22 |
| Background [Metal] in Bay Area Soils* | | | 1.5-7.1 | 1.2-31 | 41-411 | 0.29-1.1 | 0.27-3.3 | 10-142 | -- | 6.5-25.5 | 5.4-100 | 4.8-65 | -- | -- | 0.07-0.6 | 0.33-11.4 | 16-144 | < 0.25-7 | 0.2-2.2 | < 0.25-42.5 | 22-90 | 33-282 |
| Hazardous Waste Criteria | | | | | | | | | | | | | | | | | | | | | | |
| TTLC | | (mg/kg) | 500 | 500 | 10,000 | 75 | 100 | 2,500 | -- | 8,000 | 2,500 | 1,000 | -- | -- | 20 | 3,500 | 2,000 | 100 | 500 | 700 | 2,400 | 5,000 |
| STLC | | (mg/L) | 15 | 5 | 100 | 0.75 | 1 | -- | 5 | 80 | 25 | -- | 5 | -- | 0.2 | 350 | 20 | 1 | 5 | 7 | 24 | 250 |
| TCLP | | (mg/L) | -- | -- | -- | -- | -- | 5 | -- | -- | -- | 5 | -- | 5 | -- | -- | -- | -- | -- | -- | -- | -- |
| Tier 1 ESL | | (mg/kg) | 31 | 0.067 | 3,000 | 42 | 39 | -- | -- | 23 | 3,100 | 80 | -- | -- | 13 | 390 | 86 | 390 | 390 | 0.78 | 390 | 23,000 |

Notes:
mg/kg - Milligrams per kilogram
mg/L - Milligrams per liter
< 0.5 - Analyte was not detected above the laboratory reporting limit (0.5 mg/kg).
TTLC - California Total Threshold Limit Concentration - State hazardous waste criterion
STLC - California Soluble Threshold Limit Concentration
TCLP - Federal Toxicity Characteristic Leaching Procedure
-- - Not Applicable / Sample not analyzed
Values in **bold** exceed the State of California Class I (non-RCRA) hazardous waste criteria
'*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 Soil.* February 2016 [Rev. 3]

**Table 3**
**Grab-Groundwater Analytical Results for Non-Metals**
**3000 Broadway Redevelopment**
**Oakland, California**

| Sample ID | Date Sampled | 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<br>benzene = 0.65<br>bromodichloromethane = 0.61<br>t-butyl alcohol = 12<br>sec-butyl benzene = 0.67<br>tert-butyl benzene = 0.96<br>chlorobenzene = 0.65<br>isopropylbenzene = 1.3<br>n-propyl benzene = 0.93 | -- | < 0.50 | -- |
| B-12-GW | 04/09/16 | < 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**<br>fluorene = 0.83<br>1-methylnaphthalene = 3.0<br>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<br>1-methylnaphthalene = 2.8<br>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<br>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 |
| B-31-GW | 03/29/17 | < 50 | **110** | 870 | **72** | **68** | < 1.7 | < 1.7 | chloroform = 1.8 | < 0.0500 | 0.0632 | ND |
| B-34-GW | 03/29/17 | < 50 | **140** | 700 | **26** | **160** | < 2.5 | < 2.5 | **chloroform = 2.9** | < 0.0500 | 0.0735 | ND |
| B-35-GW | 03/29/17 | < 50 | **140** | 1,100 | 1.0 | 4.3 | < 0.50 | < 0.50 | **vinyl chloride = 0.79** | < 0.0500 | < 0.0500 | ND |
| B-36-GW | 04/11/17 | < 50 | **120** | 580 | 4.7 | **28** | < 0.50 | < 0.50 | methyl t-butyl ether = 1.6 | < 0.500 | < 0.500 | ND |
| GGW-2 | 03/30/17 | < 50 | **150** | 420 | < 0.5 | **5.2** | < 0.50 | < 0.50 | ND | < 0.50 | < 0.50 | < 0.50 |
| 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, EPA Method 8310
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]



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**Table 4**
**Soil Analytical Results for Non-Metals**
**3000 Broadway Redevelopment**
**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 |
| | | | (mg/kg) | | | | | | | | | |
| B-16-6.0 | 6 | 11/03/16 | **810** | **2,900** | **6,100** | < 0.20 | < 0.20 | **2.0** | n-butyl benzene = 0.35<br>1,2-dichlorobenzene = 0.53<br>**1,1,2,2-tetrachloroethane = 0.35**<br>1,2,4-trimethylbenzene = 1.4<br>1,3,5-trimethylbenzene = 0.44 | 0.26 | 0.22 | benzo (a) anthracene = 0.13<br>fluorene = 0.13<br>1-methylnaphthalene = 0.21<br>phenanthrene = 0.38<br>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<br>sec-butyl benzene = 0.072<br>1,2-dichlorobenzene = 0.37<br>n-propyl benzene = 0.068<br>1,2,4-trimethylbenzene = 0.77<br>1,3,5-trimethylbenzene = 0.26<br>xylenes = 0.15 | 0.19 | 0.15 | benzo (a) anthracene = 0.10<br>1-methylnaphthalene = 0.13<br>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<br>sec-butyl benzene = 0.0066<br>1,2-dichlorobenzene = 0.0061<br>1,2,4-trimethylbenzene = 0.024<br>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<br>sec-butyl benzene = 0.012<br>chlorobenzene = 0.0069<br>4-isopropyl toluene = 0.0080<br>1,2,4-trimethylbenzene = 0.0099 | 0.032 | 0.012 | fluorene = 0.013<br>1-methylnapthalene = 0.021<br>phenanthrene = 0.037<br>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<br>sec-butyl benzene = 0.19<br>4-isopropyl toluene = 0.17<br>n-propylbenzene = 0.12<br>1,2,4-trimethylbenzene = 0.67<br>1,3,5-methylbenzene = 0.25 | 0.095 | 0.25 | fluorene = 0.020<br>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 |
| B-31-12.5 | 12.5 | 3/29/17 | < 1.0 | < 1.0 | < 5.0 | < 0.0050 | < 0.0050 | < 0.0050 | ND | -- | -- | -- |
| B-31-15.0 | 15 | 3/29/17 | < 1.0 | < 1.0 | < 5.0 | < 0.0050 | < 0.0050 | < 0.0050 | ND | -- | -- | -- |
| B-32-10.0 | 10 | 3/29/17 | < 1.0 | < 1.0 | < 5.0 | **0.51** | **5.2** | < 0.5 | ND | -- | -- | -- |
| B-32-12.5 | 12.5 | 3/29/17 | < 1.0 | < 1.0 | < 5.0 | 0.04 | 0.28 | < 0.020 | ND | -- | -- | -- |
| B-32-15.0 | 15 | 3/29/17 | < 1.0 | < 1.0 | < 5.0 | < 0.0050 | 0.011 | < 0.0050 | ND | -- | -- | -- |
| B-32-20.0 | 20 | 3/29/17 | -- | -- | -- | < 0.0050 | < 0.0050 | < 0.0050 | ND | -- | -- | -- |
| B-33-13.5 | 13.5 | 3/25/17 | **1,200** | **1,100** | 2,900 | < 1.0 | **19** | **4.6** | 1,2-dibromo-3-chloropropane = 0.85<br>1,2,4-trimethylbenzene = 1.4 | 0.28 | 0.14 | fluorene = 0.057<br>1-methylnaphthalene = 0.28<br>phenanthrene = 0.15 |
| B-33-17.5 | 17.5 | 3/25/17 | **420** | **250** | 810 | < 0.33 | **4.3** | **1.5** | 1,2,4-trimethylbenzene = 0.35 | 0.17 | 0.081 | 1-methylnaphthalene = 0.15<br>phenanthrene = 0.060 |
| B-33-20.0 | 20 | 3/25/17 | < 1.0 | < 1.0 | < 5.0 | < 0.0050 | 0.0098 | < 0.0050 | ND | < 0.0050 | < 0.0050 | ND |
| B-34-8.0 | 8 | 3/29/17 | < 1.0 | < 1.0 | < 5.0 | 0.027 | 0.39 | < 0.020 | ND | -- | -- | -- |
| B-34-12.5 | 12.5 | 3/29/17 | < 1.0 | < 1.0 | < 5.0 | 0.011 | 0.043 | < 0.0050 | ND | -- | -- | -- |
| B-34-15.0 | 15 | 3/29/17 | < 1.0 | < 1.0 | < 5.0 | < 0.0050 | < 0.0050 | < 0.0050 | ND | -- | -- | -- |
| B-35-10.0 | 10 | 3/29/17 | < 1.0 | 1.5 | 6.6 | < 0.0050 | < 0.0050 | < 0.0050 | ND | -- | -- | -- |
| B-36-2.5 | 2.5 | 4/11/17 | < 1.0 | < 1.0 | < 5.0 | < 0.0050 | < 0.0050 | < 0.0050 | ND | -- | -- | -- |
| B-36-8.0 | 8 | 4/11/17 | < 1.0 | < 1.0 | < 5.0 | < 0.0050 | < 0.0050 | < 0.0050 | ND | -- | -- | -- |
| B-36-12.0 | 12 | 4/11/17 | < 1.0 | < 1.0 | < 5.0 | < 0.0050 | < 0.0050 | < 0.0050 | 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, EPA Method 8310
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]
Soil material proposed for over-excavation and off-site disposal



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# Table 5
## Groundwater Analytical Results for Non-Metals
## 3000 Broadway Redevelopment
## Oakland, Califorina

| Sample ID | Date Sampled | TPHg | TPHd | TPHmo | VOCs | | | | | PAHs | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | cis- 1,2 DCE | TCE | PCE | Xylenes | All Other VOCs | 2-Methyl-naphthalene | Naphth-alene | All Other PAHs |
| | | (µg/L) | | | | | | | | | | |
| GW-1 | 04/05/17 | 67 | < 50 | < 250 | **170** | **1,200** | < 25 | < 25 | ND | < 0.0500 | < 0.0590 | ND |
| GW-2 | 04/05/17 | **130** | 56 | < 250 | **300** | **2,400** | < 50 | < 50 | ND | < 0.0500 | < 0.0500 | 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, EPA Method 8310

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

< 50 - Analyte was not detected above the laboratory reporting limit (50 µg/L)

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

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]



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**Table 6**
**Groundwater Analytical Results for Metals**
**3000 Broadway Redevelopment**
**Oakland, California**

| Sample ID | Date Sampled | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Copper | Iron | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (µg/L) | | | | | | | | | | | | | | | | | |
| GW-1 | 04/05/17 | < 0.50 | 3.1 | 55 | < 0.50 | < 0.25 | 3.1 | 0.65 | < 2.0 | 280 | < 0.50 | < 0.050 | 0.59 | 3.1 | < 0.50 | < 0.19 | < 0.50 | 4.7 | < 15 |
| GW-2 | 04/05/17 | < 0.50 | 4.1 | 22 | < 0.50 | < 0.25 | 3.5 | < 0.50 | < 2.0 | 74 | < 0.50 | < 0.050 | 2.1 | 1.6 | 0.83 | < 0.19 | < 0.50 | 4.8 | < 15 |
| Tier 1 ESL | | 6.0 | 10 | 1000 | 2.7 | 0.25 | 50 | 3.0 | 3.1 | NE | 2.5 | 0.051 | 100 | 8.2 | 5.0 | 0.19 | 2.0 | 19 | 81 |

Notes:
µg/L - Micrograms per liter
< 0.50 - Analyte was not detected above the laboratory reporting limit (0.50 µg/L)
Tier 1 ESLs - San Francisco Bay Regional Water Quality Control Board's Environmental Screening Levels - *Tier 1 Groundwater.* February 2016 [Rev. 3]



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**Table 7**
**Geochemical and Biodegredation Parameters in Groundwater**
**3000 Broadway Redevelopment**
**Oakland, California**

| Well Number and Screened Interval (Feet bgs) | Date Sampled | Geochemical Parameters | | | | | | | | | | | | | | Dissolved Gasses | | | Dechlorination Parameters | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | -- | SM4500H+B | SM5220 D-1997 | SM3500-Fe B4c | EPA Method 300.1 | | | | | | | SM 2320B | | | EPA RSK 175 | | | SiREM Gene-Trac/ Microbial Insights CENSUS | | | | |
| | | pH | | COD | Iron III | Chloride | Nitrate | | Nitrite | | Sulfate | Sulfite | Alkalinity | | | Total Alkalinity | Methane | Ethane | Ethene | *DHC* | tceA | BAV1 | VCR | *DHBt* |
| | | Field Parameters | Laboratory | | | | (as N) | (as $NO_3^-$) | (as N) | (as $NO_2^-$) | | | (as $HCO_3^-$) | (as $CO_3^{2-}$) | (as $OH^-$) | | | | | | | | | |
| | | at 18.5°C | at 25°C | (mg $O_2$/L) | (µg/L) | (mg/L) | | | | | | | (mg/L) | | | (mg CaCO3/L) | (µg/L) | | | (cells/mL) | | | | |
| GW-1 (8-18) | 4/5/2017 | 6.91 | 6.72 | < 10 | 280 | 65 | 13 | 59 | < 0.10 | < 0.33 | 72 | < 1.0 | 193 | < 1.0 | < 1.0 | 193 | 0.30 | 0.036 | 0.034 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 12.1 |
| GW-2 (8-18) | 4/5/2011 | 7.14 | 6.95 | < 10 | 74 | 59 | 12 | 54 | < 0.10 | < 0.33 | 73 | < 0.10 | 194 | < 1.0 | < 1.0 | 194 | 8.2 | 0.025 | 0.042 | 3.6 | < 0.5 | 0.8 | 1.2 | 540 |

Notes:
COD - Chemical oxygen demand
mg $O_2$/L - Milligrams of oxygen per liter
µg/L - Micrograms per liter
mg/L - Milligrams per liter
mg CaCO3/L - Milligrams of calcium carbonate per liter
cells/mL - Cells per milliliter

# Table 8
## Field Parameter Results in Groundwater
## 3000 Broadway Redevelopment
## Oakland, California

| Well Number and Screened Interval (Feet bgs) | Date | Time | Depth to Water (from TOC) | Temperature (°C) | Conductivity (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| GW-1 (8-18) | 4/5/2017 | 9:20 | 11.78 | 17.12 | 0.913 | 6.32 | 173 | 28.94 | 59.9 | Clear; no odor |
| | | 9:25 | -- | 17.54 | 0.915 | 6.14 | 207 | 22.04 | 55.5 | |
| | | 9:30 | 12.37 | 17.66 | 0.920 | 6.97 | 220 | 19.41 | 28.7 | |
| | | 9:35 | -- | 17.75 | 0.896 | 6.96 | 230 | 18.09 | 29.3 | |
| | | 9:40 | -- | 17.85 | 0.874 | 6.96 | 238 | 17.05 | 28.4 | |
| | | 9:45 | 12.44 | 18.02 | 0.871 | 6.94 | 245 | 16.00 | 26.0 | |
| | | 9:50 | -- | 18.13 | 0.868 | 6.94 | 248 | 15.89 | 30.4 | |
| | | 9:55 | -- | 18.17 | 0.860 | 6.94 | 252 | 15.77 | 23.9 | |
| | | 10:00 | -- | 18.29 | 0.857 | 6.92 | 255 | 15.49 | 24.1 | |
| | | 10:05 | 12.57 | 18.34 | 0.853 | 6.92 | 257 | 15.28 | 22.3 | |
| | | 10:10 | -- | 18.36 | 0.849 | 6.91 | 258 | 15.12 | 20.9 | |
| | | 10:12 | 12.03 | Sample GW-1 Collected | | | | | | |
| GW-2 (8-18) | 4/5/2017 | 10:50 | 12.05 | 18.91 | 0.881 | 7.01 | 243 | 21.68 | 8.4 | Clear; slight hydrocarbon odor |
| | | 10:55 | -- | 18.95 | 0.879 | 7.26 | 245 | 18.76 | 8.1 | |
| | | 11:00 | -- | 18.96 | 0.886 | 7.31 | 249 | 17.48 | 8.3 | |
| | | 11:05 | 13.55 | 18.95 | 0.889 | 7.3 | 252 | 17.00 | 7.4 | |
| | | 11:10 | -- | 18.97 | 0.900 | 7.27 | 255 | 16.5 | 7.5 | |
| | | 11:15 | -- | 18.98 | 0.902 | 7.25 | 257 | 16.35 | 7.6 | |
| | | 11:20 | -- | 19.01 | 0.897 | 7.23 | 259 | 16.15 | 7.5 | |
| | | 11:25 | -- | 19.03 | 0.889 | 7.18 | 262 | 16.10 | 7.0 | |
| | | 11:30 | -- | 19.04 | 0.886 | 7.16 | 263 | 16.02 | 6.9 | |
| | | 11:35 | 14.32 | 19.06 | 0.884 | 7.14 | 264 | 15.94 | 6.9 | |
| | | 11:40 | -- | 19.05 | 0.882 | 7.14 | 265 | 15.92 | 6.6 | |
| | | 11:42 | 14.25 | Sample GW-2 Collected | | | | | | |

Notes:
TOC - Top of well casing
mS/cm - Millisiemens per centimeter
ORP - Oxidation-reduction potential
mV - Millivolts
DO - Dissolved oxygen
mg/L - Milligrams per liter
NTU - Nephelometric turbidity unit
-- - Not measured



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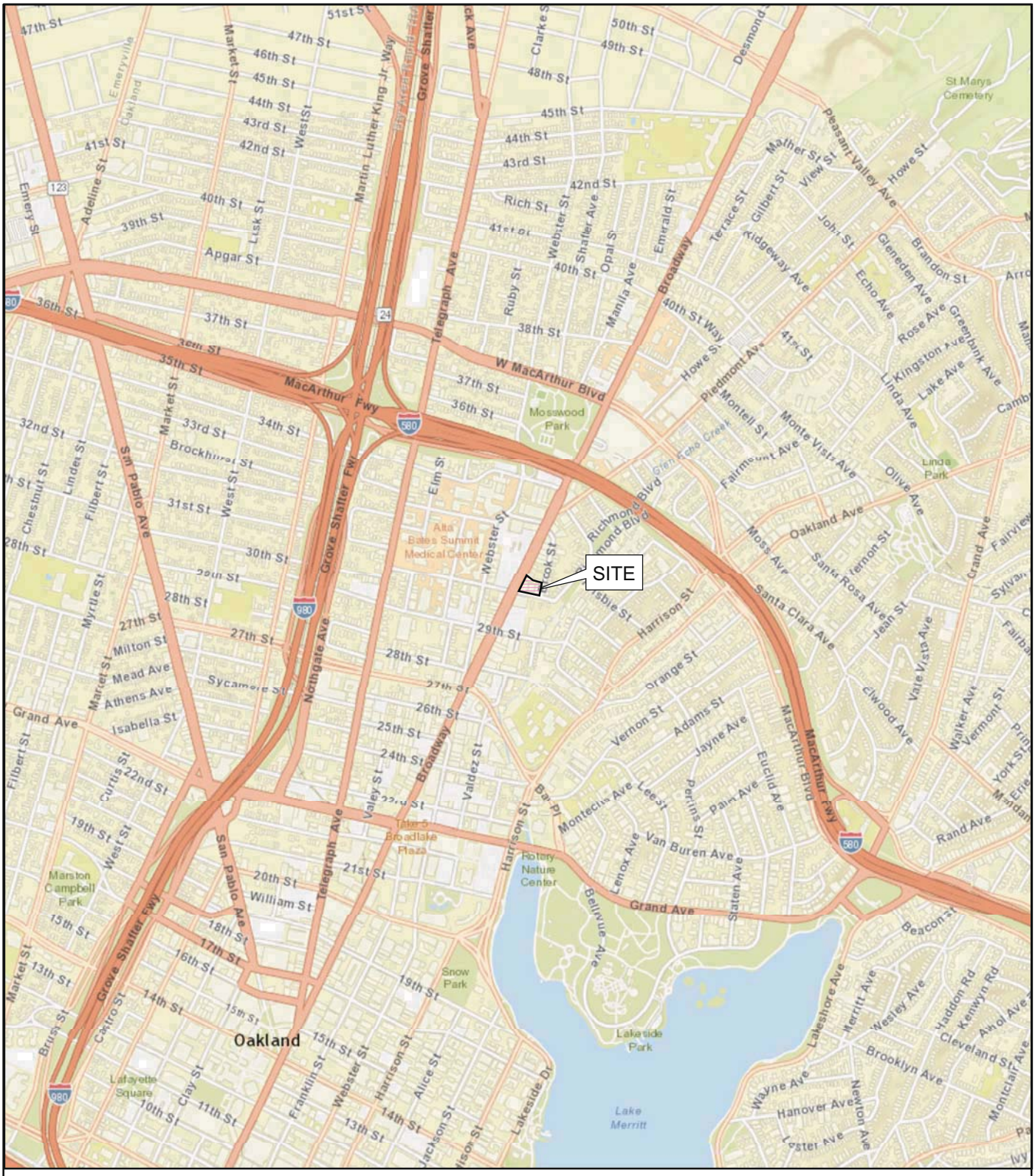
# Table 9
## Volatile Organic Compound Analytical Results in Vapor
## 3000 Broadway Redevelopment
## Oakland, California

| Sample ID | Date Sampled | Depth | Acetone | Benzene | 2-Butanone (MEK) | Chloroform | cis- 1,2-DCE | Ethylbenzene | Naphthalene | Toluene | TCE | 1,2,4-Trimethyl-benzene | PCE | Vinyl Chloride | Xylenes | All Other VOCs | Methane | Helium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (feet) | ($\mu g/m^3$) | | | | | | | | | | | | | | %v | |
| SV-1 | 04/11/17 | 5.0 | 46.8 | 22.6 | 14.0 | < 4.88 | < 3.97 | < 4.34 | < 5.24 | 22.5 | < 5.37 | < 4.92 | < 6.78 | < 2.56 | < 8.68 | ND | 0.00239 | < 0.100 |
| SV-2 | 04/11/17 | 5.0 | 44.3 | 18.2 | 13.3 | < 4.88 | 41.0 | 6.17 | < 5.24 | 26.5 | 98.3 | 9.14 | < 6.78 | < 2.56 | 25.22 | ND | 0.00366 | < 0.150 |
| Tier 1 ESLs | | | 15,000,000 | 48 | 2,600,000 | 61 | 4,200 | 560 | 41 | 160,000 | 240 | NE | 240 | 4.7 | 52,000 | Various | 1.25* | -- |

Notes:
MEK - Methyl ethyl ketone
VOCs - Volatile organic compounds
Cis-1,2-DCE - Cis-1,2-dichloroethene
TCE - Trichloroethene
PCE - Tetrachloroethene
$\mu g/m^3$- Micrograms per cubic meter
%v - Percent by volume
< 4.88 - Analyte was not detected above the laboratory reporting limit (4.88 $\mu g/m^3$)
NE - Environmental screening level not established
Various - Analysis of multiple compounds with various Tier 1 ESLs
***** - No Tier 1 ESL for methane. 5% is the Lower Explosive Limit (LEL) for methane and 25% of the LEL is standard for the comparison of analytical data (1.25%)
-- - Not applicable
Tier 1 ESLs - RWQCB Environmental Sub-slab and Soil Gas Screening Levels based on a generic conceptual site model designed for use at most sites. The Tier 1 ESL summary table is generally derived from the most conservative ESL for each compound (February 2016 [Rev.3])

# FIGURES




**NOTES:**

0 1,000 2,000

Feet

N W E S

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**
Oakland, California

# SITE LOCATION MAP

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| Date 05/09/17 | Project No. 750635603 | Figure 1 |
|---|---|---|

## EXPLANATION

- GGW-1 — Approximate location of deep grab groundwater sample by Langan, March 2017
- GW-1 — Approximate location of groundwater monitoring well
- SV-1 — Approximate location of soil gas sample by Langan, April 2017
- MIP-1 — Approximate location of MIP by Langan, March 2017
- B-31 — Approximate location of soil and/or groundwater boring by Langan, March and April 2017
- B-37 — Approximate location of soil sampling boring for composite characterization, 20 feet bgs max. by Langan, April 2017
- B-42 — Approximate location of boring for composite characterization, 8 feet bgs max. by Langan, April 2017
- B-17 — 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
- 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**
Oakland, California

**SITE PLAN WITH SAMPLING LOCATIONS AND CROSS SECTIONS**

| Date 05/09/17 | Project No. 750635603 | Figure 2 |
|---|---|---|

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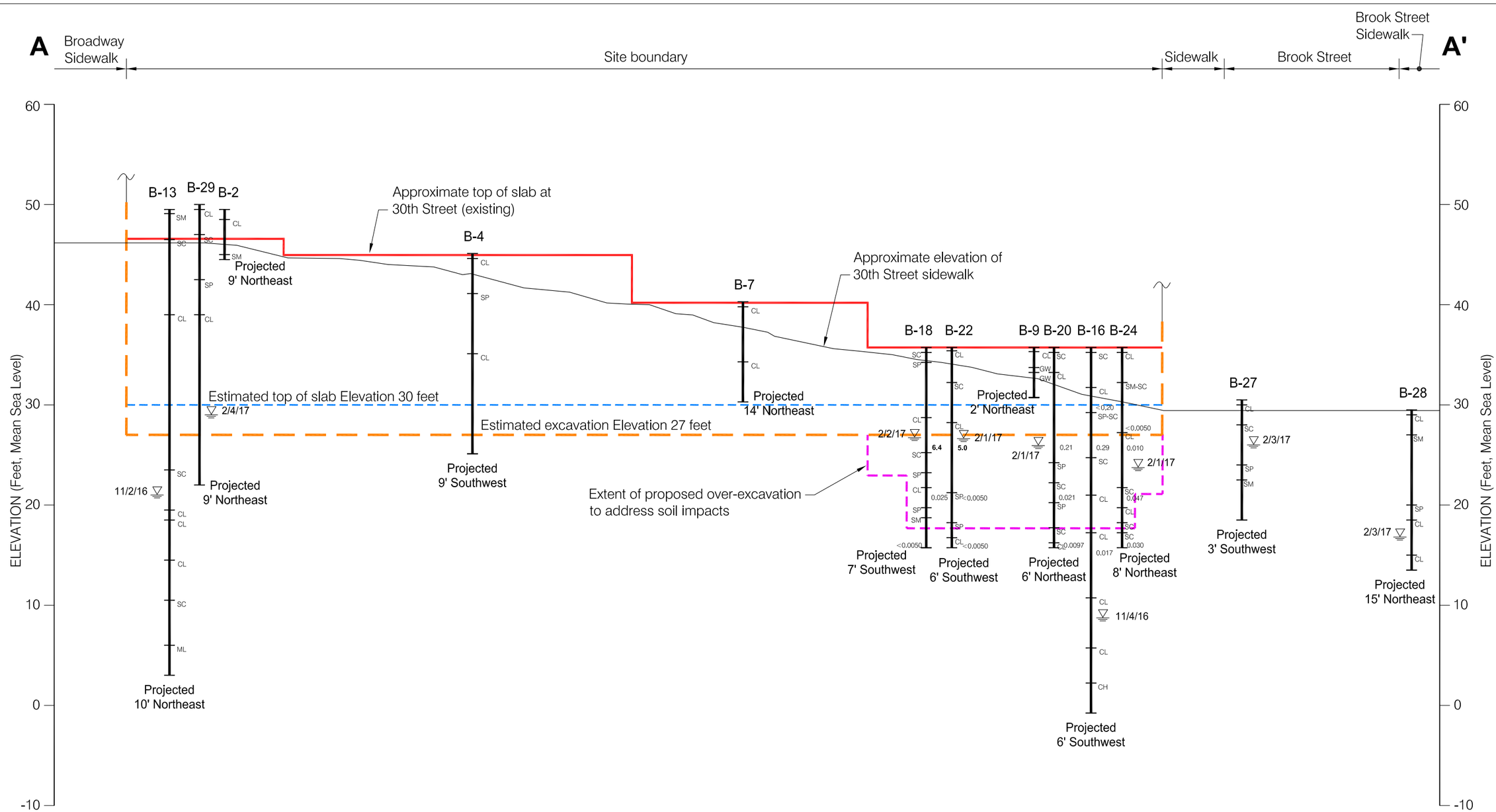


## EXPLANATION

0.025 Trichloroethene (TCE) concentrations detected in soil, reported in milligrams per kilogram (mg/kg)

**6.4** TCE concentration detected in soil, reported in mg/kg, which is equal to or exceeds the Tier 1 ESL of 5.0 mg/kg

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.

10
0
0 20
SCALE IN FEET

**3000 BROADWAY REDEVELOPMENT**
Oakland, California

**IDEALIZED SUBSURFACE PROFILE A-A'**

Date 04/24/17 | Project No. 750635603 | Figure 3

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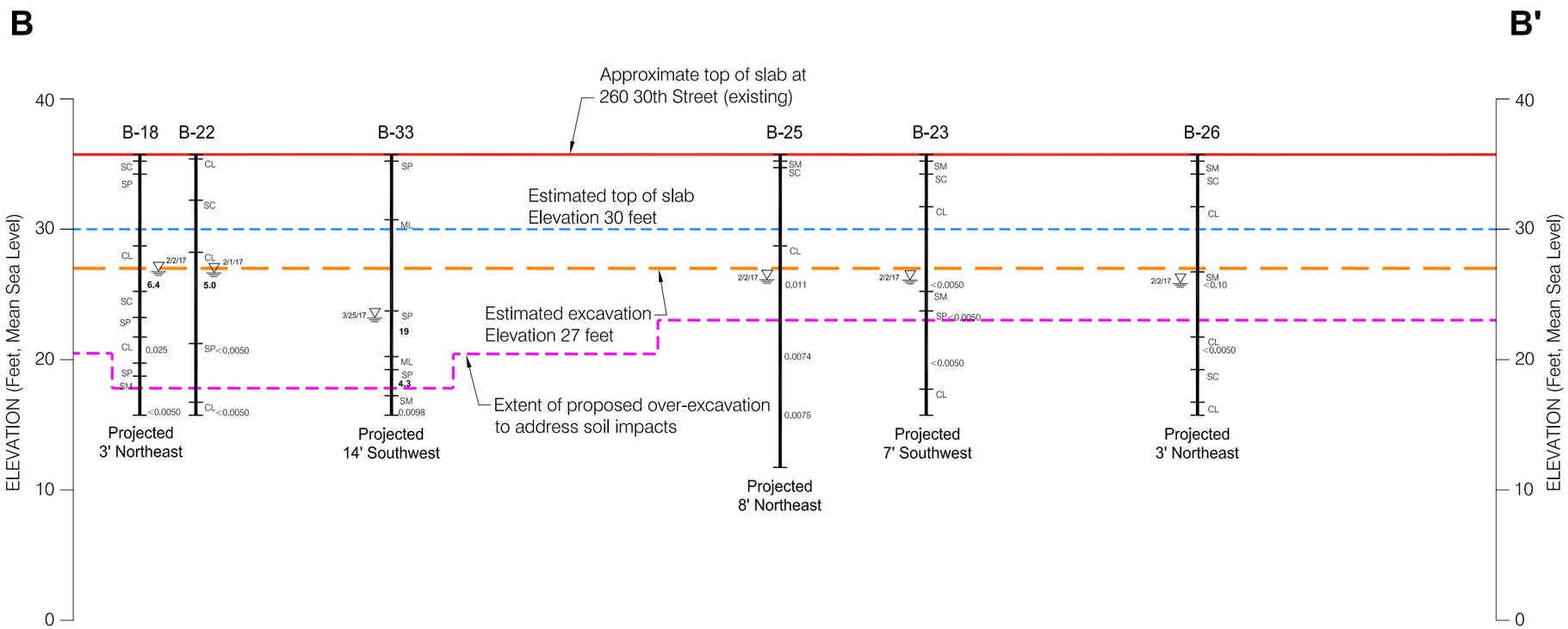


**EXPLANATION**

0.025 Trichloroethene (TCE) concentrations detected in soil, reported in milligrams per kilogram (mg/kg)

**6.4** TCE concentration detected in soil, reported in mg/kg, which is equal to or exceeds the Tier 1 ESL of 5.0 mg/kg

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.

10
0
0 10
SCALE IN FEET

**3000 BROADWAY REDEVELOPMENT**
Oakland, California

**IDEALIZED SUBSURFACE PROFILE**
**B-B'**

| Date 04/24/17 | Project No. 750635603 | Figure 4 |
|---|---|---|

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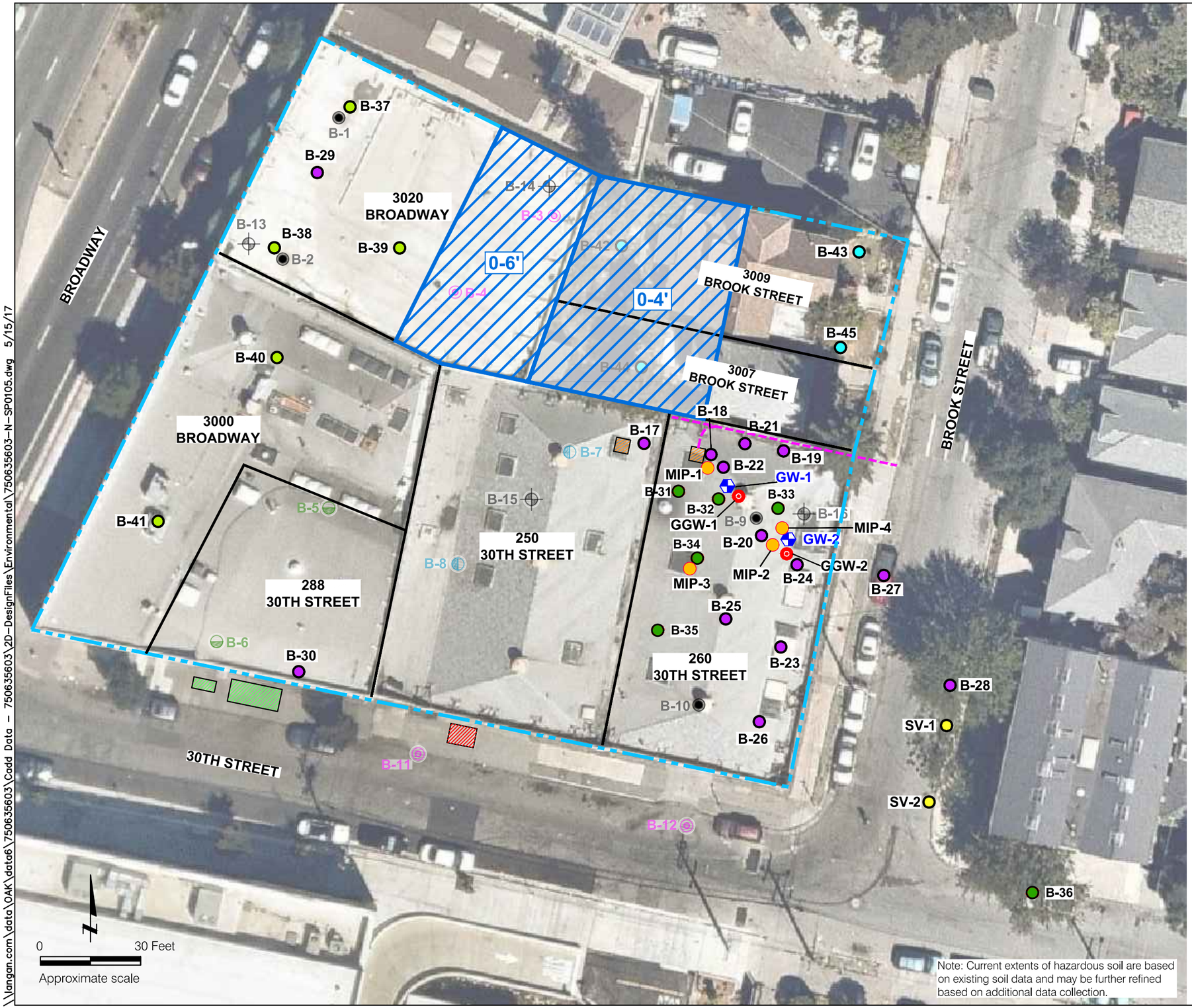


## EXPLANATION

- **GGW-1** — Approximate location of deep grab groundwater sample by Langan, March 2017
- **GW-1** — Approximate location of groundwater monitoring well
- **SV-1** — Approximate location of soil gas sample by Langan, April 2017
- **MIP-1** — Approximate location of MIP by Langan, March 2017
- **B-31** — Approximate location of soil and/or groundwater boring by Langan, March and April 2017
- **B-37** — Approximate location of soil sampling boring for composite characterization, 20 feet bgs max. by Langan, April 2017
- **B-42** — Approximate location of boring for composite characterization, 8 feet bgs max. by Langan, April 2017
- **B-17** — 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
- 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
- **0-6'** — Approximate location and extent of State of California Class I Hazardous Material, with depth of material to be excavated (feet below ground surface)

**3000 BROADWAY REDEVELOPMENT**
Oakland, California

**SITE PLAN WITH APPROXIMATE EXTENT OF STATE OF CALIFORNIA CLASS I HAZARDOUS MATERIAL**

| Date 05/09/17 | Project No. 750635603 | Figure 5 |
|---|---|---|

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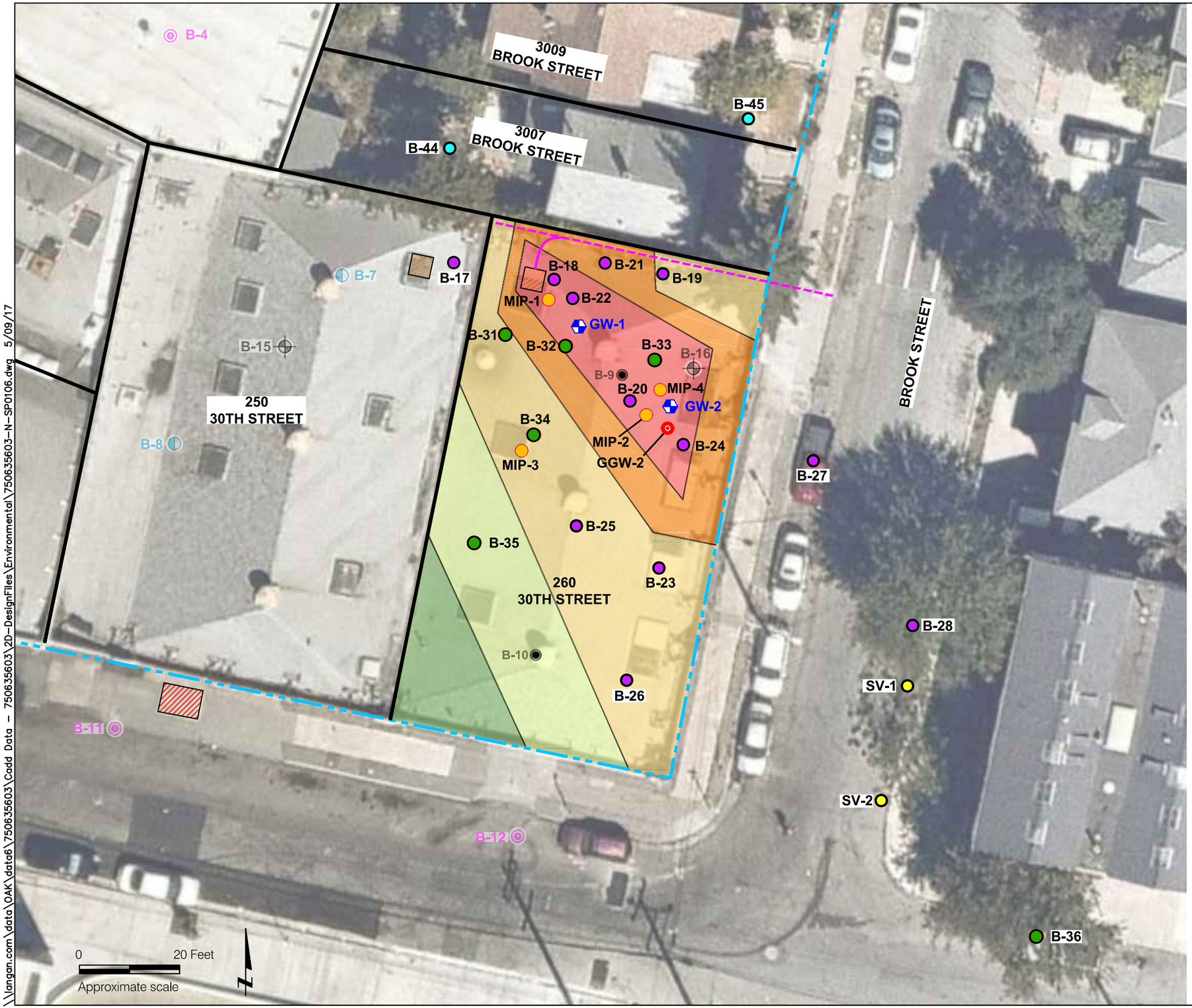


## EXPLANATION

- GGW-2 — Approximate location of deep grab groundwater sample by Langan, March 2017
- GW-1 — Approximate location of groundwater monitoring well
- SV-1 — Approximate location of soil gas sample by Langan, April 2017
- MIP-1 — Approximate location of MIP by Langan, March 2017
- B-31 — Approximate location of soil and/or groundwater boring by Langan, March and April 2017
- B-44 — Approximate location of boring for composite characterization, 8 feet bgs max. by Langan, April 2017
- B-17 — Approximate location of environmental boring by Langan, February 2017
- B-15 — Approximate location of geotechnical boring by Langan, November 2016
- B-9 — Approximate location of 5-foot boring by Langan Treadwell Rollo, April 2016
- B-4 — Approximate location of 20-foot boring by Langan Treadwell Rollo, April 2016
- B-7 — Approximate location of 10-foot boring by Langan Treadwell Rollo, April 2016
- Approximate area proposed to be over excavated to a maximum depth of 18 feet bgs
- Approximate area proposed to be over excavated to a maximum depth of 15 feet bgs
- Approximate area proposed to be over excavated to a maximum depth of 12.5 feet bgs
- Approximate area proposed to be over excavated to a maximum depth of 10 feet bgs
- Approximate area proposed to be over excavated to a maximum depth of 8 feet bgs
- Approximate location of abandoned in-place 1,000-gallon waste oil UST, March 1997
- Approximate location of floor drain
- Approximate footprint of proposed 3000 Broadway Redevelopment
- Approximate location of drain line piping

**3000 BROADWAY REDEVELOPMENT**
Oakland, California

**SITE PLAN WITH APPROXIMATE EXTENT OF SOIL PROPOSED FOR EXCAVATION**

| Date 05/09/17 | Project No. 750635603 | Figure 6 |
|---|---|---|

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# APPENDIX A
# ENVIRONMENTAL AND GEOTECHNICAL BORING LOGS

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-1



Boring location: See Site Plan, Figure 2
Logged by: N. Tu
Date started: 4/1/16 Date finished: 4/1/16
Drilling method: Hand Auger
Hammer weight/drop: NA Hammer type: NA
Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|
| 1 | HA | ☒ | | 0.0 | | 1 inch tile |
| | | | | | SC | 7 inches concrete |
| 2 | | | | | | CLAYEY SAND with GRAVEL (SC) |
| 3 | HA | ☒ | | 0.0 | CL | 5 percent gravel, 60 percent sand, 35 percent fines, brown, medium dense, dry, subrounded up to 1/2-inch, slightly plastic, no odor FILL |
| 4 | | | | | | SANDY CLAY (CL) |
| 5 | HA | ☒ | | 0.0 | GM | 35 percent sand, 65 percent fines, brown, medium stiff, dry, subangular up to 1/2-inch, slightly plastic, no odor |
| 6 | | | | | | GRAVEL-SAND-SILT (GM) |
| 7 | | | | | | 35 percent gravel, 40 percent sand, 25 percent fines, tan, loose to medium dense, dry, subrounded to subangular up to 1-inch, no odor |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |
| 17 | | | | | | |
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| 20 | | | | | | |
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| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | | | | | |

| LABORATORY TEST DATA | | | | | |
|---|---|---|---|---|---|
| Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
| | | | | | |

Boring terminated at a depth of 5 feet below ground surface.
Boring backfilled with grout.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603
Figure: A-1

TEST GEOTECH LOG 750635601 - 3000 - BROAWAY B-1 TO B-11.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-2



Boring location: See Site Plan, Figure 2
Logged by: N. Tu
Date started: 4/1/16 Date finished: 4/1/16
Drilling method: Hand Auger
Hammer weight/drop: NA Hammer type: NA
Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|
| 0 | | | | | | 1 inch tile |
| 1 | HA | ☒ | | 0.0 | | 7 inches concrete |
| 2 | | | | | CL | SANDY CLAY with GRAVEL (CL0<br>10 percent gravel, 20 percent sand, 70 percent fines, brown, medium stiff, dry, subrounded up to 1/2-inch, slightly plastic to plastic, no odor — FILL |
| 3 | HA | ☒ | | 0.0 | | |
| 4 | | | | | | |
| 5 | HA | ☒ | | 0.0 | SM | SILTY SAND with GRAVEL (SM)<br>15 percent gravel, 55 percent sand, 30 percent fines, brown, medium dense, dry, subrounded up to 1/2-inch, no odor |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
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| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | | | | | |

LABORATORY TEST DATA

| Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|
| | | | | | |

Boring terminated at a depth of 5 feet below ground surface.
Boring backfilled with grout.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603
Figure: A-2

TEST GEOTECH LOG 750635601 - 3000 - BROAWAY B-1 TO B-11.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-3



Boring location: See Site Plan, Figure 2
Logged by: N. Tu
Date started: 4/1/16 Date finished: 4/1/16
Drilled By: Gregg Drilling Co.
Drilling method: Direct Push
Hammer weight/drop: NA Hammer type: NA
Samplers: Direct Push

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 6 inches concrete | | | | | | |
| 1 | | | | | SM | SILTY SAND with GRAVEL (SM)<br>5 percent gravel, 70 percent sand, 25 percent fines, brown, loose, dry, subrounded up to 1-inch, no odor | | | | | | |
| 2 | HA | | | 0.0 | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | FILL | | | | | | |
| 5 | HA | | | 0.0 | SW | GRAVELY SAND with CLAY (SW)<br>40 percent gravel, 50 percent sand, 10 percent fines, brown, medium dense, dry, subangular up to 1/2-inch, non plastic, no odor | | | | | | |
| 6 | DP | | | 0.0 | | | | | | | | |
| 7 | | | | | | | | | | | | |
| 8 | | | | | CL | SANDY CLAY (CL)<br>15 percent sand, 85 percent fines, brown, stiff to very stiff, dry to moist, plastic, no odor | | | | | | |
| 9 | DP<br>ALS | | | 0.0<br>0.0 | | | | | | | | |
| 10 | ALS | | | 0.0 | | | | | | | | |
| 11 | | | | | | | | | | | | |
| 12 | DP<br>ALS | | | 0.0<br>0.0 | CL | CLAY (CL)<br>100 percent fines, brown, very stiff, dry to moist, plastic, no odor | | | | | | |
| 13 | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | |
| 15 | DP<br>ALS | | | 0.0<br>0.0 | | | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | 0.0 | | | | | | | | |
| 18 | DP<br>ALS | | | 0.0 | | | | | | | | |
| 19 | | | | | | | | | | | | |
| 20 | DP<br>ALS | | | 0.0<br>0.0 | | | | | | | | |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

Boring terminated at a depth of 20 feet below ground surface.
Boring backfilled with grout.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603
Figure: A-3

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-4



Boring location: See Site Plan, Figure 2
Logged by: N. Tu
Date started: 4/1/16 Date finished: 4/1/16
Drilled By: Gregg Drilling Co.
Drilling method: Direct Push
Hammer weight/drop: NA Hammer type: NA
Samplers: Direct Push

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 6 inches concrete | | | | | | |
| 1 | | | | | CL | SANDY CLAY with GRAVEL (CL)<br>10 percent gravel, 25 percent sand, 55 percent fines, brown, medium stiff, dry, subrounded to subangular up to 1/2-inch, slightly plastic, no odor | | | | | | |
| 2 | HA | | | 0.0 | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | SP | GRAVELLY SAND (SP)<br>35 percent gravel, 60 percent sand, 5 percent fines, light brown, loose to medium dense, dry, subangular up to 1-inch, no odor<br>FILL | | | | | | |
| 5 | HA | | | 0.0 | | | | | | | | |
| 6 | DP | | | 0.0 | | | | | | | | |
| 7 | ALS | | | 0.0 | | | | | | | | |
| 8 | | | | 0.0 | | | | | | | | |
| 9 | DP | | | | | | | | | | | |
| 10 | ALS | | | 0.0 | CL | CLAY (CL)<br>100 percent fines, light brown, stiff to very stiff, dry to moist, plastic, no odor | | | | | | |
| 11 | DP | | | 0.0 | | | | | | | | |
| 12 | ALS | | | 0.0 | | | | | | | | |
| 13 | | | | | | moist at 13 feet | | | | | | |
| 14 | | | | | | | | | | | | |
| 15 | DP<br>ALS | | | 0.0<br>0.0 | | | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | ALS | | | 0.0 | | | | | | | | |
| 18 | DP | | | 0.0 | | | | | | | | |
| 19 | | | | | | | | | | | | |
| 20 | ALS | | | | | | | | | | | |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | |
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| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

Boring terminated at a depth of 20 feet below ground surface.
Boring backfilled with grout.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603
Figure: A-4

TEST GEOTECH LOG 750635601 - 3000 - BROADWAY B-1 TO B-11.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-5



Boring location: See Site Plan, Figure 2
Logged by: N. Tu
Date started: 4/2/16 Date finished: 4/2/16
Drilled By: Gregg Drilling Co.
Drilling method: Direct Push
Hammer weight/drop: NA Hammer type: NA
Samplers: Direct Push

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|
| 0 | | | | | | 6 inches concrete |
| 1 | | | | | SM | SILTY SAND with GRAVEL (SM)<br>15 percent gravel, 55 percent sand, 25 percent fines, light brown, loose, dry, suabangular up to 2 1/2 inches, no odor |
| 2 | HA | | | 0.0 | GW | FILL |
| 3 | | | | | SC | SANDY GRAVEL (GW)<br>80 percent gravel, 20 percent sand, brown/ gray, loose, dry, subangular up to 4 inches, no odor |
| 4 | DP | | | 0.0 | | |
| 5 | ALS | | | 0.0 | | CLAYEY SAND with GRAVEL (SC)<br>15 percent gravel, 65 percent sand, 20 percent fines, brown, medium dense, dry, subangular up to 1/4-inch, no odor<br>few brick fragments at 2.5 feet to 3 feet |
| 6 | | | | | | |
| 7 | DP | | | 0.0 | | |
| 8 | ALS | | | 0.0 | | CLAY (CL)<br>100 percent fines, light brown to brown, stiff to very stiff, moist, plastic, no odor |
| 9 | | | | | CL | |
| 10 | DP | | | 0.0 | | |
| 11 | ALS | | | 0.0 | | |
| 12 | ALS | | | 0.0 | | |
| 13 | DP | | | 0.0 | | |
| 14 | | | | | | |
| 15 | ALS | | | 0.0 | | |
| 16 | | | | | | |
| 17 | | | | | | |
| 18 | | | | | | |
| 19 | | | | | | |
| 20 | | | | | | |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | | | | | |

LABORATORY TEST DATA

| Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|
| | | | | | |

Boring terminated at a depth of 15 feet below ground surface.
Boring backfilled with grout.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603
Figure: A-5

TEST GEOTECH LOG 750635601 - 3000 - BROADWAY B-1 TO B-11.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-6



Boring location: See Site Plan, Figure 2
Logged by: N. Tu
Date started: 4/2/16 Date finished: 4/2/16
Drilled By: Gregg Drilling Co.
Drilling method: Direct Push
Hammer weight/drop: NA Hammer type: NA
Samplers: Direct Push

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | 6 inches concrete | | | | | | |
| 1 | | | | | CL | SANDY CLAY (CL)<br>20 percent sand, 80 percent fines, brown, medium stiff, dry, slightly plastic, no odor | | | | | | |
| 2 | HA | | | 0.0 | SC | CLAYEY SAND with GRAVEL (SC)<br>10 percent gravel, 70 percent sand, 25 percent fines, brown, medium dense, dry, subangular up to 1/2-inch, slightly plastic, no odor | | | | | | |
| 3 | DP | | | 0.0 | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | ALS | | | 0.0 | SM | SILTY SAND with GRAVEL (SM)<br>20 percent gravel, 55 percent sand, 25 percent fines, brown, medium dense, dry, subangular up to 1/2-inch, no odor<br>gravel later at 3 feet<br>fill with brick at 3 feet | | | | | | |
| 6 | DP | | | 0.0 | | | | | | | | |
| 7 | ALS | | | 0.0 | CL | SANDY CLAY (CL)<br>30 percent sand, 70 percent fines, brown, medium stiff, moist, slightly plastic, no odor | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | |
| 10 | ALS<br>DP | | | 0.0<br>0.0 | | | | | | | | |
| 11 | | | | | CL | CLAY (CL)<br>100 percent fines, brown, stiff to very stiff, mist, plastic, no odor | | | | | | |
| 12 | ALS | | | 0.0 | | | | | | | | |
| 13 | | | | | | | | | | | | |
| 14 | DP | | | 0.0 | | | | | | | | |
| 15 | ALS | | | 0.0 | | | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | |
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| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

FILL

Boring terminated at a depth of 15 feet below ground surface.
Boring backfilled with grout.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603
Figure: A-6

TEST GEOTECH LOG 750635601 - 3000 - BROAWAY B-1 TO B-11.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-7



Boring location: See Site Plan, Figure 2
Logged by: N. Tu
Date started: 4/2/16 Date finished: 4/2/16
Drilled By: Gregg Drilling Co.
Drilling method: Direct Push
Hammer weight/drop: NA Hammer type: NA
Samplers: Direct Push

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | 6 inches concrete | | | | | | |
| 1 | | | | | CL | SANDY CLAY (CL)<br>30 percent sand, 70 percent fines, tan, medium stiff, dry, slightly plastic, no odor | | | | | | |
| 2 | HA | | | 0.0 | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | HA | | | 0.0 | | | | | | | | |
| 5 | | | | | | | | | | | | |
| 6 | HA | | | 0.0 | | | | | | | | |
| 7 | DP | | | 0.0 | CL | SANDY CLAY (CL)<br>40 percent sand, 60 percent fines, light brown, soft, dry to moist, slightly plastic, no odor | | | | | | |
| 8 | ALS | | | 0.0 | | moist at 8 feet | | | | | | |
| 9 | DP | | | 0.0 | | | | | | | | |
| 10 | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | |
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| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with grout.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603
Figure: A-7

TEST GEOTECH LOG 750635601 - 3000 - BROADWAY B-1 TO B-11.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-8



Boring location: See Site Plan, Figure 2
Logged by: N. Tu
Date started: 4/2/16 Date finished: 4/2/16
Drilled By: Gregg Drilling Co.
Drilling method: Direct Push
Hammer weight/drop: NA Hammer type: NA
Samplers: Direct Push

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|
| | | | | | | 6 inches concrete |
| 1 | | | | | CL | SANDY CLAY (CL)<br>15 percent sand, 85 percent fines, brown, stiff, dry, slightly plastic, no odor |
| 2 | HA | | | 0.0 | | |
| 3 | | | | | GC | GRAVEL with CLAY (GC)<br>45 percent gravel, 10 percent sand, 45 percent fines, light brown to brown, loose, medium stiff, dry, subangular up to 1-inch, slightly plastic, no odor |
| 4 | DP | | | 0.0 | | |
| | ALS | | | 0.0 | | |
| 5 | | | | | CL | SANDY CLAY with GRAVEL (CL)<br>10 percent gravel, 20 percent sand, 70 percent fines, brown, stiff to very stiff, subangular up to 1/2-inch |
| 6 | ALS | | | 0.0 | | |
| | DP | | | 0.0 | | |
| 7 | ALS | | | 0.0 | | |
| 8 | | | | | CL | CLAY (CL)<br>100 percent fines, brown, stiff to very stiff, moist, plastic, no odor |
| | DP | | | 0.0 | | |
| 9 | | | | | | |
| 10 | ALS | | | 0.0 | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |
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| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | | | | | |

LABORATORY TEST DATA

| Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|
| | | | | | |

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with grout.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603
Figure: A-8

TEST GEOTECH LOG 750635601 - 3000 - BROADWAY B-1 TO B-11.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-9



Boring location: See Site Plan, Figure 2
Logged by: N. Tu
Date started: 4/1/16 Date finished: 4/1/16
Drilling method: Hand Auger
Hammer weight/drop: NA Hammer type: NA
Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|
| 0 | | | | | | 5 inches concrete |
| 1 | HA | ☒ | | 0.0 | CL | SANDY CLAY with GRAVEL (CL) 10 percent gravel, 30 percent sand, 60 percent fines, light brown, medium stiff, dry, subangular up to 1/2-inch, slightly plastic to plastic, no odor |
| 2 | | | | | GW | |
| 3 | HA | ☒ | | 0.0 | | SANDY GRAVEL (GW) 80 percent gravel, 20 percent sand, light brown, loose, dry, subrounded to subangular up to 2 inches, no odor |
| 4 | | | | | GW | |
| 5 | HA | ☒ | | 0.0 | | SANDY CLAY (GW) 30 percent sand, 70 percent fines, light brown, medium stiff, dry, plastic, no odor |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
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| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | | | | | |

FILL

LABORATORY TEST DATA

| Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|
| | | | | | |

Boring terminated at a depth of 5 feet below ground surface.
Boring backfilled with grout.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603
Figure: A-9

TEST GEOTECH LOG 750635601 - 3000 - BROADWAY B-1 TO B-11.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-10



Boring location: See Site Plan, Figure 2 | Logged by: N. Tu

Date started: 4/1/16 | Date finished: 4/1/16

Drilling method: Hand Auger

Hammer weight/drop: NA | Hammer type: NA

Samplers: Continuous

LABORATORY TEST DATA

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | HA | ☒ | | 0.0 | | 4 inches concrete | | | | | | |
| 1 | | | | | SM | SILTY SAND with GRAVEL (SM)<br>5 percent gravel, 65 percent sand, 30 percent fines, brown, medium dense, dry, subrounded up to 1/4-inch, no odor | | | | | | |
| 3 | HA | ☒ | | 0.0 | | FILL | | | | | | |
| 4 | | | | | SP | | | | | | | |
| 5 | HA | ☒ | | 0.0 | | gravel later at 2.5 feet | | | | | | |
| 6 | | | | | | GRAVELLY SAND with SILT (SP)<br>40 percent gravel, 50 percent sand, 10 percent fines, light brown, loose, dry, subangular up to 2 1/2 inches, no odor | | | | | | |
| 7–30 | | | | | | | | | | | | |

Boring terminated at a depth of 5 feet below ground surface.
Boring backfilled with grout.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603 | Figure: A-10

TEST GEOTECH LOG 750635601 - 3000 - BROAWAY B-1 TO B-11.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-11



Boring location: See Site Plan, Figure 2
Logged by: N. Tu
Date started: 4/2/16 Date finished: 4/2/16
Drilled By: Gregg Drilling Co.
Drilling method: Direct Push
Hammer weight/drop: NA Hammer type: NA
Samplers: Direct Push

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|
| 0 | | | | | SP | 3 inches Asphalt |
| 1 | | | | | | GRAVELLY SAND with SILT (SP) |
| 2 | | | | | | 35 percent gravel, 50 percent sand, 15 percent fines, dark brown, medium dense, dry, subangular up to 1/2-inch, no odor |
| 3 | | | | | | some clay |
| 4 | | | | | | SANDY CLAY (CL) |
| 5 | | | | | | 35 percent sand, 65 percent fines, light brown, medium stiff, dry to moist, slightly plastic to plastic, no odor |
| 6 | | | | | CL | |
| 7 | DP | | | 0.0 | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | DP | | | 0.0 | | |
| 11 | | | | | | SANDY CLAY (CL) |
| 12 | | | | | CL | 25 percent sand, 75 percent fines, grayish-brown, stiff, wet, plastic, no odor |
| 13 | | | | | | |
| 14 | DP | | | 0.0 | | CLAY (CL) |
| 15 | | | | | | 100 percent fines, brown, stiff, wet, slightly plastic to plastic, no odor. |
| 16 | | | | | | |
| 17 | | | | | CL | |
| 18 | DP | | | 0.0 | | |
| 19 | | | | | | |
| 20 | | | | | | |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | | | | | |

LABORATORY TEST DATA

| Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|
| | | | | | |

Boring terminated at a depth of 20 feet below ground surface.
Boring backfilled with grout.
Groundwater encountered 10.7 feet.

LANGAN

Project No.: 750635603
Figure: A-11

TEST GEOTECH LOG 750635601 - 3000 - BROADWAY B-1 TO B-11.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-12



Boring location: See Figure 2
Logged by: Abraham Eng
Date started: 4/16/16 Date finished: 4/16/16
Drilled By: Exploration Geoservices, Inc.
Drilling method: Hollow Stem Auger
Hammer weight/drop: 140 lbs./30 inches Hammer type: Downhole
Samplers: Standard Penetration Test (SPT), Shelby Tube (ST)

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Ground Surface Elevation: 32 feet[2] | | | | | | |
| 0 | | | | | | 2.5 inches asphalt aoncrete (AC) | | | | | | |
| 1 | | | | | | 4 inches aggregate base (AB) | | | | | | |
| 2 | | | | | | CLAYEY SAND (SC)<br>light brown, medium dense, moist, fine-grained, pockets of SANDY CLAY (CL), olive-brown, very stiff, moist, fine-grained sand | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | |
| 7 | | | | | SC | | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | |
| 10 | SPT | | 7<br>10<br>14 | 24 | | LL = 34, PI = 16, see Figure C-1 | | | | | 23.6 | |
| 11 | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | |
| 14 | | | | | | CLAY with SAND (CL)<br>dark brown, very stiff to hard, moist, fine-grained sand | | | | | | |
| 15 | SPT | | 7<br>10<br>20 | 30 | CL | LL = 40, PI = 23, see Figure C-1 | | | | | 23.1 | |
| 16 | | | | | | ▽ (4/16/16, 11:20 A.M.) | | | | | | |
| 17 | | | | | | | | | | | | |
| 18 | | | | | | SANDY CLAY (CL)<br>green-gray, hard, wet, fine-grained sand | | | | | | |
| 19 | | | | | | | | | | | | |
| 20 | SPT | | 9<br>13<br>20 | 33 | CL | LL = 37, PI = 18, see Figure C-1 | | | | | 22.1 | |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | |
| 23 | | | | | | CLAY with SAND (CL)<br>green-gray, hard, wet, fine-grained sand | | | | | | |
| 24 | | | | | | | | | | | | |
| 25 | SPT | | 9<br>13<br>21 | 34 | CL | LL = 38, PI = 17, see Figure C-1 | | | | | 26.4 | |
| 26 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

LANGAN

Project No.: 750635603 Figure: A-12a

TEST GEOTECH LOG 750635601-GEOTECH - 3000-BROADWAY B-12 TO B-16.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-12



| DEPTH (feet) | Sampler Type | Sample | Blows/ 6" | SPT N-Value[1] | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31 | SPT | | 7<br>11<br>15 | 26 | CL | CLAY with SAND (CL) (continued)<br>very stiff | | | | | | |
| 32 | | | | | | | | | | | | |
| 33 | | | | | | CLAY (CL)<br>green-gray, hard, wet | | | | | | |
| 34 | | | | | CL | | | | | | | |
| 35 | | | 11 | | | LL = 46, PI = 25, see Figure C-1 | | | | | | |
| 36 | SPT | | 17<br>24 | 41 | | | | | | | 29.5 | |
| 37 | | | | | | | | | | | | |
| 38 | | | | | | | | | | | | |
| 39 | | | | | | | | | | | | |
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| 58 | | | | | | | | | | | | |
| 59 | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | |

LABORATORY TEST DATA

Boring terminated at a depth of 36.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater stabilized at 17 feet at time of drilling.

[1] SPT blow counts for the last two increments were converted to SPT N-Values using a factor of 1.0 to account for sampler type and hammer energy.
[2] Elevations 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.: 750635603
Figure: A-12b

TEST GEOTECH LOG 750635601-GEOTECH - 3000-BROADWAY B-12 TO B-16.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-13



Boring location: See Figure 2
Logged by: J. Sanglerat
Drilled By: Gregg Drilling
Date started: 11/2/16 Date finished: 11/2/16
Drilling method: Hollow Stem Auger
Hammer weight/drop: 140 lbs./30 inches Hammer type: Safety Auto
Samplers: Sprague & Henwood (S&H), Standard Penetration Test (SPT), Shelby Tube (ST)

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | 1 inch tile | | | | | | |
| | | | | | | 4 inches concrete slab | | | | | | |
| 2 | | | | | SC | CLAYEY SAND with GRAVEL (SC)<br>dark brown, moist, fine- to medium-grained sand, fine subangular gravel | | | | | | |
| 4 | | | | | | CLAYEY SAND with GRAVEL (SC)<br>light brown to yellow-brown, medium dense, moist, fine- to medium-grained, fine subangular gravel | | | | | | |
| 5 | SPT | | 8<br>11<br>9 | 24 | | FILL | | | | | | |
| 7 | | | | | SC | | | | | | | |
| 10 | S&H | | 13<br>12<br>12 | 17 | | CLAY (CL)<br>light brown to yellow-brown mottling, very stiff, moist, fine-grained, with trace sand | | | | | | |
| 15 | ST | | 800 psi | | | trace silt<br>Consolidation Test, see Figure C-4 | | | | | 22.9 | 100 |
| 17 | | | | | | | PP | | 3,500 | | | |
| 18 | | | | | CL | | | | | | | |
| 20 | | | | | | olive-gray with gray mottling, medium stiff, trace sand | PP | | 3,500 | | | |
| 21 | S&H | | 3<br>4<br>5 | 6 | | Triaxial Test, see Figure C-6 | TxUU | 2,100 | 2,850 | | 25.4 | 100 |
| 25 | | | | | | | | | | | | |
| 26 | S&H | | 12<br>18<br>25 | 30 | | very stiff, with orange-brown mottling, and trace organic rootlets | PP | | 3,500 | | 22.8 | 103 |
| 27 | | | | | | CLAYEY SAND (SC)<br>yellow-brown, medium dense to dense, moist, fine-grained | | | | | | |
| 28 | | | | | SC | ▽ (11/2/16, 9:45 a.m.) | | | | | | |
| 30 | | | | | | | | | | | | |

LANGAN

Project No.: 750635603 Figure: A-13a

TEST GEOTECH LOG 750635601-GEOTECH - 3000-BROADWAY B-12 TO B-16.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-13



| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: 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 | | 5<br>12<br>17 | 20 | CL | CLAY (CL)<br>olive-gray with dark gray mottling, very stiff, wet | PP | | 4,000 | | 22.1 | 105 |
| 32 | | | | | | CLAY with SAND (CL)<br>gray-brown, very stiff, wet, fine-grained sand<br>LL = 41, PI = 23, see Figure C-2 | | | | | | |
| 33 | | | | | CL | | | | | | | |
| 34 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | |
| 36 | S&H | | 10<br>20<br>26 | 32 | | CLAY (CL)<br>olive-gray with trace gray mottling, hard, wet | | | | | | |
| 37 | | | | | CL | | | | | | | |
| 38 | | | | | | | | | | | | |
| 39 | | | | | | | | | | | | |
| 40 | | | 20 | | | CLAYEY SAND with trace GRAVEL (SC)<br>gray-brown, dense, wet, fine- to medium-grained, fine subangular gravel | | | | | 15.8 | 117 |
| 41 | S&H | | 31<br>33 | 45 | SC | | PP | | 3,500 | | | |
| 42 | | | | | | | | | | | | |
| 43 | | | | | | | | | | | | |
| 44 | | | | | | SILT (ML)<br>olive-gray to brown, hard, wet | | | | | | |
| 45 | | | 9 | | ML | | | | | | | |
| 46 | S&H | | 18<br>35 | 37 | | | | | | 43.1 | 21.5 | 106 |
| 47 | | | | | | | | | | | | |
| 48 | | | | | | | | | | | | |
| 49 | | | | | | | | | | | | |
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| 58 | | | | | | | | | | | | |
| 59 | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | |

Boring terminated at a depth of 46.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater stabilized at 28.5 feet at time of drilling.
PP = pocket penetrometer.

[1] S&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.
[2] Elevations 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.: 750635603
Figure: A-13b

TEST GEOTECH LOG 750635601-GEOTECH - 3000-BROADWAY B-12 TO B-16.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-14



Boring location: See Figure 2
Logged by: J. Sanglerat
Drilled By: Gregg Drilling
Date started: 11/3/16 Date finished: 11/4/16
Drilling method: Hollow Stem Auger
Hammer weight/drop: 140 lbs./30 inches Hammer type: Safety Auto
Samplers: Sprague & Henwood (S&H), Standard Penetration Test (SPT), Shelby Tube (ST)

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | 4 inches concrete slab | | | | | | |
| 1–5 | | | | | SC | CLAYEY SAND with GRAVEL (SC)<br>dark brown, moist, fine- to medium-grained, fine subangular gravel<br>FILL | | | | | | |
| 5 | SPT | | 7<br>5<br>6 | 13 | CL | SANDY CLAY (CL)<br>yellow-brown with black mottling, stiff, moist, fine-grained sand | | | | | | |
| 10 | S&H | | 10<br>14<br>20 | 24 | CL | CLAY (CL)<br>yellow-brown, very stiff, mist, trace fine-grained sand | | | | | | |
| 15 | S&H | | 11<br>17<br>20 | 26 | CL | olive-brown with trace black mottling | | | | | 25.9 | 100 |
| 20 | ST | | 250 psi | | CL | Triaxial Test, see Figure C-6 | TxUU<br>PP | 2,000 | 3,600<br>4,500 | | 25.7 | 96 |
| 25 | S&H | | 6<br>12<br>21 | 23 | CL | ▽ SANDY CLAY (CL)<br>yellow-brown, very stiff, wet, fine-grained sand<br>LL = 33, PI = 17, see Figure C-2<br>(11/3/16, 3:15 p.m.) | PP | | 3,000 | 57.9 | | |
| 30 | | | | | | | | | | | | |

LANGAN

Project No.: 750635603
Figure: A-14a

TEST GEOTECH LOG 750635601-GEOTECH - 3000-BROADWAY B-12 TO B-16.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-14



| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft[2] | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31 | S&H | | 5<br>13<br>20 | 23 | CL | CLAY with SAND (CL)<br>olive-gray, very stiff, wet, fine-grained sand | PP | | 3,500 | | | |
| 32 | | | | | | | | | | | | |
| 33 | | | | | | | | | | | | |
| 34 | | | | | | | | | | | | |
| 35 | | | 6 | | | | | | | | | |
| 36 | S&H | | 11<br>25 | 31 | | olive-gray to gray, hard | PP | | >4,500 | | | |
| 37 | | | | | | | | | | | | |
| 38 | | | | | | | | | | | | |
| 39 | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | |
| 41 | | | | | | | | | | | | |
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| 59 | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | |

Boring terminated at a depth of 36.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater stabilized at 26.5 feet at time of drilling.
PP = pocket penetrometer.

[1] S&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.
[2] Elevations 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.: 750635603
Figure: A-14b

TEST GEOTECH LOG 750635601-GEOTECH - 3000-BROADWAY B-12 TO B-16.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-15



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 & Henwood (S&H), Standard Penetration Test (SPT), Shelby Tube (ST)

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | 4 inches of concrete slab | | | | | | |
| 1–4 | | | | | SC | CLAYEY SAND with GRAVEL (SC)<br>yellow-brown, moist, fine-grained, fine subangular gravel<br>FILL | | | | | | |
| 5–6 | S&H | | 9<br>11<br>12 | 16 | | SANDY CLAY (CL)<br>yellow-brown with trace black inclusions, very stiff, moist, medium-grained<br>Consolidation Test, see Figure C-5 | PP | | 1,250 | | 30.8 | 89 |
| 7–9 | | | | | | | | | | | | |
| 10–11 | S&H | | 3<br>5<br>9 | 10 | CL | olive-gray with trace black mottling, stiff, moist, fine- to medium-grained sand | PP | | 2,500 to 3,000 | | | |
| 12–14 | | | | | | | | | | | | |
| 15–16 | ST | | 200 psi | | | SANDY CLAY (CL)<br>olive-gray, moist, medium-grained sand, fine subangular gravel<br>Particle Size Analysis, see Figure C-3 | PP | | 1,500 | 59.9 | 22.9 | 104 |
| 17–18 | | | | | CL | | | | | | | |
| 19–20 | | | | | | | | | | | | |
| 21 | S&H | | 8<br>33<br>31 | 45 | SC | lense of CLAYEY SAND (SC)<br>olive-gray, medium-grained, dense, moist | PP | | 4,000 | | | |
| 22–23 | | | | | CL | CLAY with trace SAND (CL)<br>olive-gray, hard, mist, fine- to medium-grained sand | | | | | | |
| 24–25 | | | | | | | | | | | | |
| 26 | S&H | | 4<br>8<br>15 | 16 | CL | CLAY with trace SAND and SILT (CL)<br>olive-gray to dark gray, very stiff, moist, fine-grained sand | | | | | | |
| 27–28 | | | | | | | | | | | | |
| 29 | | | | | SP-SC | SAND with CLAY (SP-SC)<br>olive-gray, medium dense, moist, fine-grained | | | | | | |
| 30 | | | | | | | | | | | | |

LANGAN

Project No.: 750635603
Figure: A-15a

TEST GEOTECH LOG 750635601-GEOTECH - 3000-BROADWAY B-12 TO B-16.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-15



| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft[2] | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31 | S&H | | 8<br>19<br>18 | 26 | | SAND with CLAY (SP-SC) (continued) | | | | | | |
| 32 | | | | | SC | CLAYEY SAND (SC)<br>olive-gray with yellow-brown mottling, very stiff, moist, fine-grained<br>LL = 36, PI = 17, see Figure C-2 | | | | 45.6 | 20.4 | 108 |
| 33 | | | | | | | | | | | | |
| 34 | | | | | | | | | | | | |
| 35 | | | 6 | | | CLAY (CL)<br>olive-gray with brown mottling, wet, very stiff, trace fine-grained sand | | | | | | |
| 36 | S&H | | 15<br>23 | 27 | CL | | | | | | | |
| 37 | | | | | | | | | | | | |
| 38 | | | | | | | | | | | | |
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| 57 | | | | | | | | | | | | |
| 58 | | | | | | | | | | | | |
| 59 | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | |

Boring terminated at a depth of 36.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at 32.5 feet (not stabilized).
PP = pocket penetrometer.

[1] S&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.
[2] Elevations 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.: 750635603
Figure: A-15b

TEST GEOTECH LOG 750635601-GEOTECH - 3000-BROADWAY B-12 TO B-16.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-16



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 & Henwood (S&H), Standard Penetration Test (SPT), Shelby Tube (ST)

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | 6 inches of concrete slab | | | | | | |
| 1 | | | | | SC | CLAYEY SAND with GRAVEL (SC)<br>yellow-brown, moist, fine- to medium-grained<br>FILL | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | S&H | | 8<br>9<br>16 | 18 | CL | CLAY with SAND (CL)<br>yellow-brown, very stiff, moist, fine-grained sand<br>LL = 45, PI = 25, see Figure C-2<br>strong hydrocarbon odor at 6.5 feet | PP | | >4,500 | | 23.9 | 102 |
| 6 | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | |
| 8 | | | | | SP-SC | SAND with CLAY (SP-SC)<br>yellow-brown, medium dense, moist, fine-grained | | | | | | |
| 9 | | | | | | | | | | | | |
| 10 | S&H | | 8<br>15<br>25 | 28 | | | | | | | 24.5 | 99 |
| 11 | | | | | | | | | | | | |
| 12 | | | | | SC | CLAYEY SAND (SC)<br>yellow-brown, medium dense, mist, fine-grained<br>reduced hydrocarbon odor at 12 feet<br>LL = 30, PI = 11, see Figure C-2 | | | | | | |
| 13 | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | |
| 15 | S&H | | 4<br>13<br>26 | 27 | CL | SANDY CLAY (CL)<br>yellow-brown to olive-gray trace orange-brown and black inclusions, very stiff, fine- to coarse-grained sand<br>color change to gray at 18 feet, strong hydrocarbon odor<br>LL = 40, PI = 23, see Figure C-2 | | | | 58.2 | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | |
| 19 | | | | | | CLAY (CL)<br>gray, very stiff, wet, fine-grained sand | | | | | | |
| 20 | S&H | | 4<br>9<br>21 | 21 | | strong hydrocarbon odor<br>Triaxial Test, see Figure C-6 | PP<br>TxUU | 2,100 | >4,500<br>5,700 | | 22.3 | 105 |
| 21 | | | | | | | | | | | | |
| 22 | | | | | CL | | | | | | | |
| 23 | | | | | | | | | | | | |
| 24 | | | | | | no hydrocarbon odor at 24 feet, color chage to yellow-brown | | | | | | |
| 25 | S&H | | 6<br>15<br>20 | 26 | | SANDY CLAY (CL)<br>yellow-brown, very stiff, moist to wet, fine- to medium-grained sand<br>(11/4/16. 12:33 p.m.) | PP | | 2,500 | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | | CL | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

LANGAN

Project No.: 750635603 Figure: A-16a

TEST GEOTECH LOG 750635601-GEOTECH - 3000-BROADWAY B-12 TO B-16.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-16



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

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.

[1] S&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.
[2] Elevations 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.: 750635603
Figure: A-16b

TEST GEOTECH LOG 750635601-GEOTECH - 3000-BROADWAY B-12 TO B-16.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
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
Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 6-inch-thick concrete slab | | | | | | |
| 1 | | | | 0.1 | | CLAYEY SAND (SC)<br>orange-brown, medium dense to dense, moist, brick debris, no odor | | | | | | |
| 2 | DP | | | | | | | | | | | |
| 3 | | | | 0.3 | | | | | | | | |
| 4 | | | | 0.1 | | increasing sand and moisture | | | | | | |
| 5 | | | | 0.1 | SC | | | | | | | |
| 6 | DP | | | 0.0 | | | | | | | | |
| 7 | | | | | | | | | | | | |
| 8 | | | | 0.0 | | | | | | | | |
| 9 | | | | 0.6 | | GRAVELLY SAND (SP)<br>red-brown to orange-brown, dry to moist, subangular gravel less than 0.75 inches in diameter, no odor | | | | | | |
| 10 | DP | | | 0.3 | SP | | | | | | | |
| 11 | | | | 0.2 | | | | | | | | |
| 12 | | | | 0.0 | | SILTY CLAY (CL)<br>light gray-brown with orange mottling, medium stiff, moist, no odor<br>(02/03/17, 10:00 a.m.) | | | | | | |
| 13 | | | | 0.0<br>1.1 | | | | | | | | |
| 14 | DP | | | 0.5 | CL | | | | | | | |
| 15 | | | | 0.2 | | increasing sand content | | | | | | |
| 16 | | | | 0.0 | | | | | | | | |
| 17 | | | | 0.0 | | SAND (SP)<br>brown, loose to medium dense, wet to saturated, no odor | | | | | | |
| 18 | DP | | | | SP | saturated from 16 to 19 feet | | | | | | |
| 19 | | | | 0.0 | | | | | | | | |
| 20 | | | | 0.0 | | | | | | | | |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

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.

LANGAN

Project No.: 750635603
Figure: A-17

TEST GEOTECH LOG 750635602 - 3000 - BROADWAY B-17 TO B-30.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
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
Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 6-inch-thick concrete slab | | | | | | |
| 1 | | | | 10.2 | SC | CLAYEY SAND (SC)<br>light brown with orange and dark brown mottling, loose to medium dense, dry to moist, brick debris, no odor | | | | | | |
| 2 | DP | | | | | | | | | | | |
| 3 | | | | 27.5 | SP | GRAVELLY SAND (SP)<br>red-brown, loose to medium dense, moist, subangular gravel less than 1.25 inches in diameter, brick debris, trace organics, no odor | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | | | | 6.8 | | | | | | | | |
| 6 | DP | | | | | | | | | | | |
| 7 | | | | 16.8 | | | | | | | | |
| 8 | | | | 126.5 | CL | SILTY CLAY (CL)<br>light gray, medium stiff to stiff, moist, very slight odor | | | | | | |
| 9 | | | | 114.3 | | hydrocarbon odor at 9 feet bgs (02/03/17, 10:52 a.m.) | | | | | | |
| 10 | DP | | | 39.4 | | | | | | | | |
| 11 | | | | 301.5 | SC | CLAYEY SAND (SC)<br>gray with some orange mottling, medium dense to dense, moist, weak hydrocarbon odor | | | | | | |
| 12 | | | | 280.2 | | increasing sand content | | | | | | |
| 13 | | | | 2.7 | SP | SAND with GRAVEL (SP)<br>brown, saturated, medium dense, subangular gravel less than 0.5 inches in diameter, no odor | | | | | | |
| 14 | DP | | | 6.4 | | dark brown at 13 feet bgs | | | | | | |
| 15 | | | | 1.3 | CL | orange-brown, increasing fines 13.5 feet bgs | | | | | | |
| 16 | | | | 3.8 | | SILTY CLAY (CL)<br>gray-brown, stiff, moist, no odor | | | | | | |
| 17 | | | | 0.6 | SP | GRAVELLY SAND (SP)<br>dark brown, loose to medium dense, subangular gravel less than 0.5 inch in diameter, no odor | | | | | | |
| 18 | DP | | | 0.4 | | | | | | | | |
| 19 | | | | | SM | SILTY SAND (SM)<br>light brown to gray-brown, dense, moist, no odor | | | | | | |
| 20 | | | | 0.0 | | | | | | | | |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

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.

LANGAN

Project No.: 750635603
Figure: A-18

TEST GEOTECH LOG 750635602 - 3000 - BROADWAY B-17 TO B-30.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-19



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
Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|
| 0 | | | | | | 6-inch-thick concrete slab |
| 1 | HA | | | 0.0 | SC | CLAYEY SAND (SC)<br>orange-brown, loose to medium dense, moist, subangular gravel less than 0.75 inches in diameter, brick and gravel debris, no odor |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | DP | | | 0.0 | CL | SANDY CLAY (CL)<br>light gray-brown with orange mottling, medium stiff, moist, no odor |
| 5 | | | | 0.0 | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | DP | | | 0.0 | | |
| 9 | | | | | | ▼ (02/02/17, 7:18 a.m.) |
| 10 | | | | 0.0 | | |
| 11 | | | | | | |
| 12 | DP | | | | SP | SAND (SP)<br>orange-brown to brown, medium dense to dense, wet to saturated, no odor |
| 13 | | | | | | |
| 14 | | | | 0.0 | | |
| 15 | | | | | | |
| 16 | DP | | | 0.0 | | |
| 17 | | | | | | |
| 18 | | | | 0.0 | | |
| 19 | | | | | | |
| 20 | DP | | | | | |
| 21 | | | | 0.0 | CL | CLAY (CL)<br>gray-brown, stiff, moist, no odor<br>dark brown at 21.75 feet bgs |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | | | | | |

LABORATORY TEST DATA

| Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|
| | | | | | |

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.

LANGAN

Project No.: 750635603
Figure: A-19

TEST GEOTECH LOG 750635602 - 3000 - BROADWAY B-17 TO B-30.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-20



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
Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 6-inch-thick concrete slab | | | | | | |
| 1 | | | | 0.0 | SC | CLAYEY SAND (SC)<br>red-brown to orange-brown, loose to medium dense, moist, subangular gravel less than 0.75 inches in diameter, brick debris, no odor | | | | | | |
| 2 | DP | | | | | | | | | | | |
| 3 | | | | 0.1 | | SANDY CLAY (CL)<br>light brown with orange mottling, medium stiff, moist, no odor | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | | | | 0.1 | | | | | | | | |
| 6 | DP | | | | | | | | | | | |
| 7 | | | | | CL | | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | | | | 0.1 | | ▼ (02/02/17, 7:23 a.m.) | | | | | | |
| 10 | DP | | | 1.3 | | | | | | | | |
| 11 | | | | | | | | | | | | |
| 12 | | | | 2.0 | SP | SAND (SP)<br>orange-brown to brown, medium dense, wet to saturated, no odor | | | | | | |
| 13 | | | | | | | | | | | | |
| 14 | DP | | | 0.0 | SC | CLAYEY SAND (SC)<br>orange-brown to light brown, medium dense, moist, no odor | | | | | | |
| 15 | | | | | | | | | | | | |
| 16 | | | | 0.0 | SP | SAND (SP)<br>orange-brown to light brown, loose to medium dense, wet to saturated, no odor | | | | | | |
| 17 | | | | | | | | | | | | |
| 18 | DP | | | 0.0 | SC | CLAYEY SAND (SC)<br>light brown, dense to very dense, moist, no odor | | | | | | |
| 19 | | | | | | | | | | | | |
| 20 | | | | 0.0 | CL | CLAY (CL)<br>light gray-brown to brown, stiff to very stiff, moist, no odor | | | | | | |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

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.

LANGAN

Project No.: 750635603
Figure: A-20

TEST GEOTECH LOG 750635602 - 3000 - BROADWAY B-17 TO B-30.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
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
Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 6-inch-thick concrete slab | | | | | | |
| 1 | | | | 0.0 | SC | CLAYEY SAND with GRAVEL (SC)<br>brown with orange mottling, medium dense, moist, subangular gravel less than 1 inch in diameter, brick debris, trace organics, no odor | | | | | | |
| 2 | DP | | | 0.0 | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | 0.0 | | | | | | | | |
| 5 | | | | 4.1 | | | | | | | | |
| 6 | DP | | | | | | | | | | | |
| 7 | | | | 17.2 | | | | | | | | |
| 8 | | | | 22.6 | CL | SILTY CLAY (CL)<br>light gray-brown with orange mottling, medium stiff, moist, very slight hydrocarbon odor | | | | | | |
| 9 | | | | 7.3 | | ▼ (02/03/17, 10:40 a.m.) | | | | | | |
| 10 | DP | | | | | increasing sand content | | | | | | |
| 11 | | | | | SC | CLAYEY SAND (SC)<br>light gray-brown with orange mottling, medium dense to dense, moist, no odor | | | | | | |
| 12 | | | | 15.8 | | | | | | | | |
| 13 | | | | 0.3 | | wet at 12 feet bgs | | | | | | |
| 14 | DP | | | 0.2 | | increasing sand content | | | | | | |
| 15 | | | | | | | | | | | | |
| 16 | | | | 0.0 | SP | SAND with CLAY (SP)<br>brown, loose to medium dense, wet to saturated, no odor | | | | | | |
| 17 | | | | | | saturated from 15.5 to 17 feet bgs. | | | | | | |
| 18 | DP | | | 0.4 | SC | CLAYEY SAND (SC)<br>light gray, dense, moist, no odor | | | | | | |
| 19 | | | | | | | | | | | | |
| 20 | | | | 0.2 | | | | | | | | |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

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.

LANGAN

Project No.: 750635603
Figure: A-21

TEST GEOTECH LOG 750635602 - 3000 - BROADWAY B-17 TO B-30.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
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
Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 6-inch-thick concrete slab | | | | | | |
| 1 | | | | 1.7 | CL | SANDY CLAY (CL)<br>brown, soft, moist, trace organics, no odor | | | | | | |
| 2 | DP | | | 1.8 | | red-brown to orange-brown | | | | | | |
| 3 | | | | 2.2 | | | | | | | | |
| 4 | | | | 33.6 | SC | CLAYEY SAND with GRAVEL (SC)<br>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 | | | | | | |
| 5 | | | | 14.5 | | | | | | | | |
| 6 | DP | | | 21.2 | | | | | | | | |
| 7 | | | | 50 | | | | | | | | |
| 8 | | | | | CL | SILTY CLAY (CL)<br>light gray-brown with orange mottling, stiff, moist, no odor<br>(02/02/17, 7:21 a.m.) | | | | | | |
| 9 | | | | 22.7 | | ▼ | | | | | | |
| 10 | DP | | | 256 | | | | | | | | |
| 11 | | | | | | | | | | | | |
| 12 | | | | 32.4 | | | | | | | | |
| 13 | | | | 24.5 | | | | | | | | |
| 14 | DP | | | 2.6 | | | | | | | | |
| 15 | | | | | SP | GRAVELLY SAND (SP)<br>black, medium dense, wet, no odor<br>brown at 14.5 feet bgs | | | | | | |
| 16 | | | | 0.4 | | | | | | | | |
| 17 | | | | 0.0 | SP | SAND with CLAY (SP)<br>brown, medium dense, wet, no odor | | | | | | |
| 18 | DP | | | | SP | SAND (SP)<br>brown, loose to medium dense, saturated, no odor | | | | | | |
| 19 | | | | 0.0 | | | | | | | | |
| 20 | | | | 0.2 | CL | SANDY CLAY (CL)<br>brown, soft, moist, no odor | | | | | | |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

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.

LANGAN

Project No.: 750635603
Figure: A-22

TEST GEOTECH LOG 750635602 - 3000 - BROADWAY B-17 TO B-30.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
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
Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | 6-inch-thick concrete slab | | | | | | |
| 1 | | | | 0.0 | SM | SILTY SAND (SM)<br>dark brown, loose to medium dense, dry to moist, no odor | | | | | | |
| 2 | DP | | | 0.1 | SC | CLAYEY SAND with GRAVEL (SC)<br>light brown, medium dense, moist, subangular gravel less than 0.75 inches in diameter, no odor | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | 0.2 | | orange-brown at 3 feet bgs | | | | | | |
| 5 | | | | | CL | CLAY (CL)<br>light brown, medium stiff, moist, very slight hydrocarbon odor | | | | | | |
| 6 | DP | | | 1.8 | | blue-green | | | | | | |
| 7 | | | | | | | | | | | | |
| 8 | | | | 1.9 | | | | | | | | |
| 9 | | | | 0.8 | | increasing sand content<br>▼ (02/03/17, 9:04 a.m.) | | | | | | |
| 10 | DP | | | | | | | | | | | |
| 11 | | | | 2.0 | SM | SILTY SAND (SM)<br>blue-green, loose to medium dense, moist, no odor | | | | | | |
| 12 | | | | 3.2 | | | | | | | | |
| 13 | | | | | SP | SAND with CLAY (SP)<br>blue-green, loose to medium dense, saturated, weak hydrocarbon odor | | | | | | |
| 14 | DP | | | 13.8 | | orange-brown, medium dense to dense, moist, no odor | | | | | | |
| 15 | | | | 0.2 | | | | | | | | |
| 16 | | | | 0.1 | | | | | | | | |
| 17 | | | | 2.0 | SP | SAND (SP)<br>brown to orange -brown, loose to medium dense, saturated, slight hydrocarbon odor | | | | | | |
| 18 | DP | | | | | | | | | | | |
| 19 | | | | 1.8 | CL | SANDY CLAY (CL)<br>gray-brown, stiff to very stiff, moist, no odor | | | | | | |
| 20 | | | | 0.7 | | brown | | | | | | |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

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.

LANGAN

Project No.: 750635603
Figure: A-23

PROJECT: **3000 BROADWAY REDEVELOPMENT**
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

Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | 6-inch-thick concrete slab | | | | | | |
| 1 | | | | 0.0 | CL | SANDY CLAY with GRAVEL (CL)<br>red-brown to orange-brown, medium stiff, moist, subangular gravel less than 0.75 inches in diameter, trace brick debris and organics, no odor | | | | | | |
| 2 | DP | | | | | | | | | | | |
| 3 | | | | 0.0 | | | | | | | | |
| 4 | | | | | SM-SC | CLAYEY SILTY SAND (SM-SC)<br>light brown, medium dense, moist, no odor | | | | | | |
| 5 | | | | | | | | | | | | |
| 6 | DP | | | 0.0 | | | | | | | | |
| 7 | | | | 1.2 | | olive-gray and hydrocarbon odor, trace organics | | | | | | |
| 8 | | | | 10.2 | | | | | | | | |
| 9 | | | | 20.6 | CL | SILTY CLAY (CL)<br>olive-gray, stiff to very stiff, moist, trace organics, weak to moderate odor<br>(02/02/17, 7:27 a.m.) | | | | | | |
| 10 | DP | | | 25.6 | | | | | | | | |
| 11 | | | | 11.7 | | | | | | | | |
| 12 | | | | 66 | | | | | | | | |
| 13 | | | | 10.2 | | | | | | | | |
| 14 | DP | | | 6.1 | | | | | | | | |
| 15 | | | | | SC | CLAYEY SAND with GRAVEL (SC)<br>ligth 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)<br>olive-gray, stiff, moist, weak hydrocarbon odor | | | | | | |
| 18 | DP | | | 32.4 | SC | brown<br>GRAVELLY SAND with CLAY (SC) | | | | | | |
| 19 | | | | 52.6 | SC | brown, loose to medium dense, wet, weak hydrocarbon odor | | | | | | |
| 20 | | | | 10.4 | | CLAYEY SAND (SC)<br>brown to light brown, dense, moist, weak hydrocarbon odor | | | | | | |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

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.

LANGAN

Project No.: 750635603 | Figure: A-24

TEST GEOTECH LOG 750635602 - 3000 - BROADWAY B-17 TO B-30.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
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
Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|
| 0 | | | | | | 6-inch-thick concrete slab |
| 1 | | | | 0.0 | SM | SILTY SAND (SM)<br>dark brown, loose to medium dense, dry to moist, brick debris, no odor |
| 2 | DP | | | | | |
| 3 | | | | 0.1 | | CLAYEY SAND (SC)<br>orange-brown, medium dense, moist, subangular gravel less than 1.5 inches in diameter, brick debris, no odor |
| 4 | | | | 0.1 | SC | |
| 5 | | | | | | |
| 6 | DP | | | 0.0 | | |
| 7 | | | | | | |
| 8 | | | | 0.0 | | CLAY (CL)<br>light gray-brown, medium stiff, moist, no odor |
| 9 | | | | 5.6 | | slight hydrocarbon odor from 9 to 13.5 feet bgs<br>▼ (02/03/17, 9:36 a.m.) |
| 10 | DP | | | 34.2 | | |
| 11 | | | | | | |
| 12 | | | | 3.3 | | |
| 13 | | | | 10.1 | CL | |
| 14 | DP | | | | | |
| 15 | | | | 1.4 | | dark brown |
| 16 | | | | 0.3 | | |
| 17 | | | | 16.6 | | |
| 18 | DP | | | 1.1 | | |
| 19 | | | | | | SANDY CLAY (CL)<br>brown, stiff, moist, no odor |
| 20 | | | | 1.8 | CL | |
| 21 | | | | 0.2 | | |
| 22 | DP | | | | | |
| 23 | | | | 0.1 | CL | CLAY (CL)<br>dark brown with orange mottling, very stiff to hard, moist, no odor |
| 24 | | | | 0.0 | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | | | | | |

LABORATORY TEST DATA

| Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|
| | | | | | |

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.

LANGAN

Project No.: 750635603
Figure: A-25

TEST GEOTECH LOG 750635602 - 3000 - BROADWAY B-17 TO B-30.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
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

Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 6-inch-thick concrete slab | | | | | | |
| 1 | | | | 0.0 | SM | SILTY SAND (SM)<br>dark brown, loose to medium dense, dry to moist, brick debris, no odor | | | | | | |
| 2 | DP | | | | | | | | | | | |
| 3 | | | | 0.2 | SC | CLAYEY SAND with GRAVEL (SC)<br>orange-brown, medium dense, moist, subangular gravel less than 1 inch in diameter, brick debris, no odor | | | | | | |
| 4 | | | | 0.1 | | | | | | | | |
| 5 | | | | 2.1 | CL | CLAY (CL)<br>light brown with blue and green mottling, medium stiff, moist, no odor | | | | | | |
| 6 | DP | | | 4.2 | | blue-green, hydrocarbon odor | | | | | | |
| 7 | | | | | | | | | | | | |
| 8 | | | | 7.6 | | | | | | | | |
| 9 | | | | 75.4 | | | | | | | | |
| 10 | DP | | | | SM | SILTY SAND (SM)<br>▼ blue-green, medium dense to dense, moist, weak hydrocarbon odor<br>(02/03/17, 9:19 a.m.) | | | | | | |
| 11 | | | | 43.6<br>8.8 | | | | | | | | |
| 12 | | | | 4.3 | | | | | | | | |
| 13 | | | | 44.2 | | orange-brown, no odor | | | | | | |
| 14 | DP | | | 1.1 | | | | | | | | |
| 15 | | | | 1.6 | CL | CLAY (CL)<br>brown, medium stiff to stiff, moist, no odor | | | | | | |
| 16 | | | | 1.2 | | saturated from 16 to 17 feet bgs | | | | | | |
| 17 | | | | 4.1 | SC | CLAYEY SAND (SC)<br>brown, medium dense to dense, moist, hydrocarbon odor from 16.5 to 17.5 feet bgs | | | | | | |
| 18 | DP | | | 2.3 | | | | | | | | |
| 19 | | | | | CL | CLAY (CL)<br>brown, stiff to very stiff, moist, no odor | | | | | | |
| 20 | | | | 1.1 | | | | | | | | |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

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.

LANGAN

Project No.: 750635603 | Figure: A-26

TEST GEOTECH LOG 750635602 - 3000 - BROADWAY B-17 TO B-30.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
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
Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | 6-inch asphalt concrete over aggregate base | | | | | | |
| 1 | | | | | CL | CLAY (CL)<br>gray-brown, soft to medium stiff, moist, no odor | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | HA | | | | SC | SAND with CLAY (SC)<br>light gray-brown with orange mottling, medium dense, moist, no odor<br>(02/03/17, 11:51 a.m.) | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | | | | 1.2 | | | | | | | | |
| 6 | | | | 2.5 | | | | | | | | |
| 7 | DP | | | 1.0 | SP | GRAVELLY SAND (SP)<br>orange-brown to red-brown, medium dense, moist, brick debris, no odor | | | | | | |
| 8 | | | | 0.4 | | | | | | | | |
| 9 | | | | 1.0 | SM | SILTY SAND (SM)<br>brown, dense, moist to wet, no odor | | | | | | |
| 10 | DP | | | 0.6 | | | | | | | | |
| 11 | | | | 0.5 | | | | | | | | |
| 12 | | | | 0.0 | | | | | | | | |
| 13 | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | |
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| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

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.

LANGAN

Project No.: 750635603
Figure: A-27

TEST GEOTECH LOG 750635602 - 3000 - BROADWAY B-17 TO B-30.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-28



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
Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 6-inch-thick concrete slab | | | | | | |
| 1 | | | | | CL | CLAY (CL)<br>gray-brown, medium stiff, moist, no odor | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | HA | | | | | SILTY SAND (SM)<br>light brown, medium dense, moist, slight hydrocarbon odor | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | | | | 0.1 | | ▽ (02/03/17, 11:40 a.m.) | | | | | | |
| 6 | | | | | SM | | | | | | | |
| 7 | DP | | | 0.5 | | blue-green | | | | | | |
| 8 | | | | 1.6 | | | | | | | | |
| 9 | | | | 1.6 | | | | | | | | |
| 10 | DP | | | | SP | SAND with CLAY (SP)<br>light gray-brown, dense, moist, no odor | | | | | | |
| 11 | | | | | | | | | | | | |
| 12 | | | | | | CLAY (CL)<br>dark brown, stiff, moist, no odor | | | | | | |
| 13 | | | | | CL | | | | | | | |
| 14 | DP | | | | | | | | | | | |
| 15 | | | | | CL | SANDY CLAY (CL)<br>orange-brown, stiff, moist, no odor | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | |
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| 25 | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

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.: 750635603
Figure: A-28

TEST GEOTECH LOG 750635602 - 3000 - BROADWAY B-17 TO B-30.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
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
Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | 6-inch-thick concrete slab | | | | | | |
| 1 | | | | 0.0 | SM | SILTY SAND (SM)<br>dark brown, medium dense, moist, no odor | | | | | | |
| 2 | DP | | | 0.0 | | orange-brown | | | | | | |
| 3 | | | | 0.0 | SC | CLAYEY SAND (SC)<br>orange-brown, dense, moist, no odor | | | | | | |
| 4 | | | | 0.0 | | | | | | | | |
| 5 | | | | | | | | | | | | |
| 6 | DP | | | 0.0 | | | | | | | | |
| 7 | | | | 0.0 | | | | | | | | |
| 8 | | | | 0.0 | SP | brown<br>SAND with GRAVEL (SP)<br>orange-brown, loose to medium dense, moist, subangular gravel less than 1 inch in diameter, brick debris, no odor<br>increasing fines | | | | | | |
| 9 | | | | 0.0 | | | | | | | | |
| 10 | DP | | | 0.0 | | | | | | | | |
| 11 | | | | | CL | CLAY (CL)<br>light brown with orange mottling, stiff to very stiff, moist, no odor | | | | | | |
| 12 | | | | 0.0 | | | | | | | | |
| 13 | | | | 1.4 | | | | | | | | |
| 14 | DP | | | 0.3 | | brown | | | | | | |
| 15 | | | | | | | | | | | | |
| 16 | | | | 0.0 | | | | | | | | |
| 17 | | | | 0.0 | | | | | | | | |
| 18 | DP | | | 0.0 | | | | | | | | |
| 19 | | | | 0.0 | | | | | | | | |
| 20 | | | | 0.0 | | ▼ (02/06/17) | | | | | | |
| 21 | | | | | | | | | | | | |
| 22 | DP | | | 0.0 | | increasing sand content | | | | | | |
| 23 | | | | | | | | | | | | |
| 24 | | | | 0.0 | | | | | | | | |
| 25 | | | | 0.0 | | | | | | | | |
| 26 | DP | | | | | | | | | | | |
| 27 | | | | 0.0 | | | | | | | | |
| 28 | | | | 0.0 | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

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.

LANGAN

Project No.: 750635603
Figure: A-29

TEST GEOTECH LOG 750635602 - 3000 - BROADWAY B-17 TO B-30.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
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
Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 6-inch-thick concrete slab | | | | | | |
| 1 | | | | 0.1 | CL | SANDY CLAY (CL)<br>dark brown, soft to medium stiff, moist, subangular gravel less than 0.75 inches in diameter, no odor | | | | | | |
| 2 | DP | | | | | | | | | | | |
| 3 | | | | 0.2 | | | | | | | | |
| 4 | | | | 0.0 | SP | brown with orange mottling at 0.75 feet bgs<br>SAND with GRAVEL (SP)<br>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 | | | | | | |
| 5 | | | | 0.1 | | | | | | | | |
| 6 | DP | | | 0.0 | | | | | | | | |
| 7 | | | | | CL | SILTY CLAY (CL)<br>light brown, medium stiff to stiff, moist, no odor | | | | | | |
| 8 | | | | 0.0 | | | | | | | | |
| 9 | | | | 0.0 | | | | | | | | |
| 10 | DP | | | | SM | SILTY SAND with CLAY (SM)<br>light brown, dense, moist, no odor | | | | | | |
| 11 | | | | 0.0 | | | | | | | | |
| 12 | | | | | | | | | | | | |
| 13 | | | | | CL | SILTY CLAY (CL)<br>light gray-brown with orange mottling, stiff to very stiff, moist, no odor | | | | | | |
| 14 | DP | | | 0.0 | | | | | | | | |
| 15 | | | | 0.0 | | ▽ (02/04/17, 10:01 a.m.) | | | | | | |
| 16 | | | | 0.0 | | | | | | | | |
| 17 | | | | | | increasing sand content | | | | | | |
| 18 | DP | | | 0.1 | | | | | | | | |
| 19 | | | | 0.0 | SP | SAND (SP)<br>brown to orange-brown, medium dense, moist, no odor | | | | | | |
| 20 | | | | 0.0 | | | | | | | | |
| 21 | | | | | | | | | | | | |
| 22 | DP | | | | | increasing fines | | | | | | |
| 23 | | | | 0.0 | | | | | | | | |
| 24 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

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.

LANGAN

Project No.: 750635603
Figure: A-30

TEST GEOTECH LOG 750635602 - 3000 - BROADWAY B-17 TO B-30.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-31



Boring location: See Figure 2 | Logged by: K. Staehlin

Date started: 3/29/17 | Date finished: 3/29/17

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|
| | | | | | | 4 - 6-inch-thick concrete slab |
| 1 | | | | 1.3 | CL | SANDY CLAY (CL)<br>brown, soft to medium stiff, moist, no odor |
| 2 | | | | 1.8 | | SAND with SILT and GRAVEL (SM)<br>orange-brown to red-brown, medium dense, moist, trace brick and metal debris, no odor |
| 3 | DP | | | | | |
| 4 | | | | 7.2 | | |
| 5 | | | | 21.1 | | |
| 6 | | | | | SM | |
| 7 | | | | | | |
| 8 | DP | | | | | ▽ (03/29/17, intial at 8.5 ft, stabilized at 8.6 ft at 3:00 p.m.) |
| 9 | | | | | | ROCK OBSTRUCTION |
| 10 | | | | 31.1 | | |
| 11 | | | | 31.4 | SP-SM | SILTY SAND/SAND (SP-SM)<br>gray-brown with orange mottling, medium dense, moist to wet, no odor |
| 12 | | | | 5.7 | | |
| 13 | DP | | | 2.3 | | dense |
| 14 | | | | 0.6<br>0.0 | | |
| 15 | | | | 0.3 | CL | SANDY CLAY (CL)<br>brown, stiff to very stiff, moist, no odor |
| 16 | | | | 0.6 | | |
| 17 | | | | 0.3 | | increasing sand |
| 18 | DP | | | 0.5 | | |
| 19 | | | | 0.2 | SP | SAND with SILT (SP) |
| 20 | | | | 0.3 | | gray-brown, dense to very dense, moist, no odor |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | | | | | |

LABORATORY TEST DATA

| Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|
| | | | | | |

Boring terminated at a depth of 20 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at 8.6 feet below ground surface during drilling.

LANGAN

Project No.: 750635603 | Figure: A-31

TEST GEOTECH LOG 750635603 - 3000 - BROADWAY B-31 TO B-36 3000 BROADWAY REDEVEL 260 20TH ST.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-32



Boring location: See Figure 2 | Logged by: K. Staehlin

Date started: 3/29/17 | Date finished: 3/29/17

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|
| | | | | | | 4 - 6-inch-thick concrete slab |
| 1 | | | | 14.8 | CL | SANDY CLAY (CL)<br>brown, soft, moist, no odor |
| 2 | | | | | | |
| 3 | DP | | | 71.2 | SM | SILTY SAND with GRAVEL (SM)<br>brown to red-brown, medium dense, moist, subangular gravel less than 0.5 inches in diameter, weak odor |
| 4 | | | | | | |
| 5 | | | | 202 | | |
| 6 | | | | 276 | | |
| 7 | | | | 214 | CL | SANDY CLAY (CL)<br>light brown to gray with orange mottling, soft to medium stiff, moist, weak odor |
| 8 | DP | | | 362 | | |
| 9 | | | | 628 | | increasing sand |
| 10 | | | | 330 | SP-SM | SILTY SAND/SAND (SP-SM)<br>orange-brown with gray mottling, medium dense to dense, moist no to weak odor |
| 11 | | | | 178 | | |
| 12 | | | | 187 | | |
| 13 | DP | | | 5.4 | | |
| 14 | | | | 2.8 | CL | CLAY (CL)<br>stiff |
| 15 | | | | 1.0 | | |
| 16 | | | | 0.2 | SM | SILTY SAND (SM)<br>light gray-brown with orange mottling, dense to very dense, moist, no odor<br>light brown/olive |
| 17 | | | | | | |
| 18 | DP | | | 0.8 | | |
| 19 | | | | | | |
| 20 | | | | 0.6 | | |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | | | | | |

LABORATORY TEST DATA

| Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|
| | | | | | |

Boring terminated at a depth of 20 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603 | Figure: A-32

TEST GEOTECH LOG 750635603 - 3000 - BROADWAY B-31 TO B-36 3000 BROADWAY REDEVEL 260 20TH ST.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-33



Boring location: See Figure 2 | Logged by: K. Staehlin

Date started: 3/25/17 | Date finished: 3/25/17

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 4 - 6-inch-thick concrete slab | | | | | | |
| 1 | | | | | | GRAVELLY SAND (SP) | | | | | | |
| 2 | DP | | | 1.4 | SP | brown to orange-brown, medium dense, moist, subangular gravel less than 0.5 inches in diameter, no odor | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | 1.7 | | increasing fines | | | | | | |
| 5 | | | | 0.0 | | SANDY SILT (ML) | | | | | | |
| 6 | DP | | | 0.0 | | gray-brown with orange mottling, medium stiff, moist, no odor | | | | | | |
| 7 | | | | | | | | | | | | |
| 8 | | | | 0.0 | ML | | | | | | | |
| 9 | | | | 4.1 | | | | | | | | |
| 10 | DP | | | 17.2<br>26.8<br>78.3 | | | | | | | | |
| 11 | | | | | | | | | | | | |
| 12 | | | | 82.5 | | wet | | | | | | |
| 13 | | | | 162<br>724 | SP | (03/25/17)<br>SAND (SP)<br>dark gray, medium dense, wet, medium to strong hydrocarbon odor | | | | | | |
| 14 | DP | | | 486 | | orange-brown, increasing fines | | | | | | |
| 15 | | | | 16 | | | | | | | | |
| 16 | | | | 70 | ML | SANDY SILT (ML)<br>orange-brown, medium stiff to stiff, wet, weak odor | | | | | | |
| 17 | | | | 205<br>213 | SP | SAND with CLAY (SP) | | | | | | |
| 18 | DP | | | 140 | | dark gray , medium dense to dense, wet to saturated, medium to strong hydrocarbon odor | | | | | | |
| 19 | | | | 32.8 | SM | SILTY SAND (SM) | | | | | | |
| 20 | | | | 9.3 | | orange-brown to gray, dense, moist, no to weak hydrocarbon odor | | | | | | |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

Boring terminated at a depth of 20 feet below ground surface.
Boring backfilled with cement grout.
Groundwater at approximately at 12.5 feet below ground surface during drilling.

LANGAN

Project No.: 750635603 | Figure: A-33

TEST GEOTECH LOG 750635603 - 3000 - BROADWAY B-31 TO B-36 3000 BROADWAY REDEVEL 260 20TH ST.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-34



Boring location: See Figure 2
Logged by: K. Staehlin
Date started: 3/29/17 Date finished: 3/29/17
Drilling method: Direct Push
Hammer weight/drop: NA Hammer type: NA
Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|
| 0 | | | | | | 4 - 6-inch-thick concrete slab |
| 1 | | | | 2.0 | CL | SANDY CLAY (CL)<br>brown, soft to medium stiff, moist, no odor |
| 2 | | | | 1.2 | | |
| 3 | DP | | | | SM | SAND with SILT and GRAVEL (SM)<br>orange-brown to red-brown, medium dense to dense, subangular gravel less than 1.5 inches in diameter, no odor |
| 4 | | | | 20.8 | | |
| 5 | | | | 10.3 | | |
| 6 | | | | 15.4 | CL | SANDY CLAY (CL)<br>light brown to gray with orange mottling, soft to medium stiff, moist, no odor |
| 7 | | | | | | |
| 8 | DP | | | 8.8 | | ▼ (03/29/17, 2:49 p.m.) |
| 9 | | | | | | |
| 10 | | | | 5.0 | | |
| 11 | | | | 19.4<br>14.2 | SM | SILTY SAND (SM)<br>orange-brown with gray mottling, medium dense to dense, moist, no odor |
| 12 | DP | | | 16.2 | | |
| 13 | | | | 2.4 | | |
| 14 | | | | 0.0 | CL | CLAY (CL)<br>stiff |
| 15 | | | | 0.4 | | |
| 16 | | | | 0.4 | ML | SANDY SILT (ML)<br>brown with orange and gray mottling, dense to very dense, moist, no odor |
| 17 | DP | | | 0.9 | | |
| 18 | | | | 1.1 | | ▽ gray-brown/olive, very dense (03/29/17) |
| 19 | | | | 0.1 | | |
| 20 | | | | 0.2 | | |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | | | | | |

LABORATORY TEST DATA

| Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|
| | | | | | |

Boring terminated at a depth of 20 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at 8.8 feet below ground surface during drilling.

LANGAN

Project No.: 750635603
Figure: A-34

TEST GEOTECH LOG 750635603 - 3000 - BROADWAY B-31 TO B-36 3000 BROADWAY REDEVEL 260 20TH ST.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-35



Boring location: See Figure 2 | Logged by: K. Staehlin

Date started: 3/29/17 | Date finished: 3/29/17

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION | LABORATORY TEST DATA: Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 4 - 6-inch-thick concrete slab | | | | | | |
| 1 | | | | 0.7 | | SILTY SAND (SM)<br>brown, medium dense to dense, moist, subangular gravel less than 2 inches in diameter | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | DP | | | 1.4 | | gravel and brick debris from 3 to 4.5 feet | | | | | | |
| 4 | | | | | SM | orange-brown | | | | | | |
| 5 | | | | 1.4 | | | | | | | | |
| 6 | | | | 1.3 | | gray-brown, soft, moist to wet, increasing fines | | | | | | |
| 7 | | | | 1.6 | | | | | | | | |
| 8 | DP | | | 2.0<br>2.5 | | CLAY (CL)<br>light brown, very stiff to stiff, moist to wet, no odor | | | | | | |
| 9 | | | | 1.4 | | ▽ (03/29/17, initial at 8.9 ft, stabilized at 8.98 ft 2:37 p.m.) | | | | | | |
| 10 | | | | 0.7 | CL | medium stiff, increasing sand | | | | | | |
| 11 | | | | 0.8 | | | | | | | | |
| 12 | | | | | | very stiff | | | | | | |
| 13 | DP | | | 0.5<br>0.0 | | | | | | | | |
| 14 | | | | 0.0 | | | | | | | | |
| 15 | | | | 0.3 | ML | SANDY SILT (ML)<br>orange-brown to brown, dense, moist, no odor | | | | | | |
| 16 | | | | 0.1 | | | | | | | | |
| 17 | | | | 0.2 | | SANDY CLAY (CL)<br>brown, stiff to very stiff, moist, no odor | | | | | | |
| 18 | DP | | | 0.2 | CL | gray-brown/olive | | | | | | |
| 19 | | | | 0.0 | | | | | | | | |
| 20 | | | | 0.2 | | | | | | | | |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

Boring terminated at a depth of 20 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at 8.98 feet below ground surface during drilling.

LANGAN

Project No.: 750635603 | Figure: A-35

TEST GEOTECH LOG 750635603 - 3000 - BROADWAY B-31 TO B-36 3000 BROADWAY REDEVEL 260 20TH ST.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-36



Boring location: See Figure 2
Logged by: K. Staehlin
Date started: 4/11/17 Date finished: 4/11/17
Drilling method: Direct Push
Hammer weight/drop: NA Hammer type: NA
Samplers: Continuous

| DEPTH (feet) | SAMPLES: Sampler Type | SAMPLES: Sample | SAMPLES: Blows/ 6" | SAMPLES: SPT N-Value[1] | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|
| 0 | | | | | | 6 inches asphalt concrete (AC) over aggregate base (AB) |
| 1 | | | | | SP-SC | SAND with SILT and CLAY (SP-SC) |
| 2 | DP | | | 0.0 | | dark brown with orange mottling, loose to medium dense, moist, trace organics and brick debris, no odor |
| 3 | | | | | | |
| 4 | | | | 0.1 | ML | CLAYEY SILT (ML) |
| 5 | | | | | | dark brown with orange mottling, soft, moist, trace organics ad brick debris, no odor |
| 6 | DP | | | 0.1 | | medium stiff to stiff<br>increasing sand<br>(04/11/17, initial at 5.2 ft, stabilized at 5.75 ft) |
| 7 | | | | | | SILTY SAND with CLAY (SM) |
| 8 | | | | 0.0 | SM | brown with orange mottling, medium dense, moist, no odor |
| 9 | | | | 2.2 | | gray-brown to olive, increasing clay |
| 10 | DP | | | 6.0 | | |
| 11 | | | | 7.1 | ML | SANDY SILT (ML)<br>olive to blue-green, medium stiff, moist, no odor |
| 12 | | | | 8.0 | | SILTY SAND with CLAY (SM)<br>brown, medium dense, wet to saturated, no odor |
| 13 | | | | 4.4 | | |
| 14 | DP | | | 0.2 | SM | gray-brown with orange mottling |
| 15 | | | | | | |
| 16 | | | | 0.0 | | |
| 17 | | | | | | |
| 18 | | | | | | |
| 19 | | | | | | |
| 20 | | | | | | |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | | | | | |

LABORATORY TEST DATA

| Type of Strength Test | Confining Pressure Lbs/Sq Ft | Shear Strength Lbs/Sq Ft | Fines % | Natural Moisture Content, % | Dry Density Lbs/Cu Ft |
|---|---|---|---|---|---|
| | | | | | |

Boring terminated at a depth of 16 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at 5.75 feet below ground surface during drilling.

LANGAN

Project No.: 750635603
Figure: A-36

TEST GEOTECH LOG 750635603 - 3000 - BROADWAY B-31 TO B-36 3000 BROADWAY REDEVEL 260 20TH ST.GPJ TR.GDT 5/9/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-37



Boring location: See Figure 2 | Logged by: K. Staehlin

Date started: 4/17/17 | Date finished: 4/17/17

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Continuous

| DEPTH (feet) | SAMPLES: Sample ID | Sample | Blow Count | Recovery (Inches) | PID (ppm) | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 0 | | | | | | | 6-inch-thick concrete slab |
| 1–4 | B-37-3.0 | | | 36/48 | | ML | SANDY SILT with CLAY (ML)<br>dark brown, soft to medium stiff, moist, no odor<br>orange-brown, medium stiff |
| 5–8 | B-37-5.0 | | | 48/48 | | SC | CLAYEY SAND with GRAVEL (SC)<br>orange-brown to red-brown, moist, subangular gravel less than 2 inches in diameter, no odor |
| 9–12 | B-37-10.0 | | | 48/48 | | CL | CLAY (CL)<br>light brown to gray-brown, medium stiff to stiff, moist, no odor |
| 13–16 | B-37-15.0 | | | 48/48 | | CL | very stiff |
| 17–20 | B-37-20.0 | | | 48/48 | | CL | |
| 21–30 | | | | | | | |

Boring terminated at a depth of 20 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603 | Figure: A-37

TEST ENVIRONMENTAL INCHES 750635603 - 3000 - BROADWAY B-31 TO B-45.GPJ T&R.GDT 4/19/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-38



Boring location: See Figure 2 | Logged by: K. Staehlin

Date started: 4/17/17 | Date finished: 4/17/17

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Continuous

| DEPTH (feet) | SAMPLES: Sample ID | Sample | Blow Count | Recovery (Inches) | PID (ppm) | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 0 | | | | | | | 6-inch-thick concrete slab |
| 1–5 | B-38-3.0, B-38-5.0 | | | 30/48 | | ML | SANDY SILT with CLAY (ML)<br>dark brown, soft, moist, no odor<br>orange-brown, increasing sand |
| 6–8 | | | | 48/48 | | SC | CLAYEY SAND with GRAVEL (SC)<br>orange-brown to red-brown, moist, subangular gravel less than 1.5 inches in diameter, no odor |
| 9–11 | B-38-10.0 | | | 48/48 | | ML | GRAVELLY SILT with SAND and GRAVEL (ML)<br>dark brown to brown, soft to medium stiff, moist, subangular gravel less than 2 inches in diameter, no odor<br>orange brown (9.5' bgs)<br>moist to wet |
| 12–18 | B-38-15.0 | | | 48/48<br>48/48 | | CL | CLAY (CL)<br>light brown, medium stiff to stiff, moist, no odor<br>very stiff |
| 19–30 | B-38-20.0 | | | | | | |

Boring terminated at a depth of 20 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603 | Figure: A-38

TEST ENVIRONMENTAL INCHES 750635603 - 3000 - BROADWAY B-31 TO B-45.GPJ T&R.GDT 4/19/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-39



Boring location: See Figure 2 | Logged by: K. Staehlin

Date started: 4/17/17 | Date finished: 4/17/17

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Continuous

| DEPTH (feet) | SAMPLES: Sample ID | Sample | Blow Count | Recovery (Inches) | PID (ppm) | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|---|
| | | | | | | | 6-inch-thick concrete slab |
| 1 | B-39-1.5 | | | | | ML | SANDY SILT with CLAY (ML)<br>dark brown, medium stiff, moist, trace brick debris, no odor |
| 2 | | | | 36/48 | | | |
| 3 | B-39-3.0 | | | | | | orange brown |
| 4 | | | | | | | |
| 5 | B-39-5.0 | | | | | CL | SANDY CLAY (CL)<br>orange-brown to gray-brown, medium stiff to stiff, moist, no odor |
| 6 | | | | 48/48 | | | |
| 7 | | | | | | | |
| 8 | | | | | | SC | CLAYEY SAND with GRAVEL (SC)<br>brown, medium dense to dense, moist, subangular gravel less than 1.5 inches in diameter, trace brick debris, no odor |
| 9 | | | | | | | |
| 10 | B-39-10.0 | | | 48/48 | | CL | CLAY (CL)<br>light brown, stiff, moist, no odor |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | 48/48 | | | very stiff, orange and gray-brown mottling |
| 15 | B-39-15.0 | | | | | | miscellaneous fill from 14.75 to 15.5' |
| 16 | | | | | | | soft to medium stiff |
| 17 | | | | | | | |
| 18 | | | | 48/48 | | | very stiff |
| 19 | | | | | | | |
| 20 | B-39-20.0 | | | | | | |
| 21 | | | | | | | |
| 22 | | | | | | | |
| 23 | | | | | | | |
| 24 | | | | | | | |
| 25 | | | | | | | |
| 26 | | | | | | | |
| 27 | | | | | | | |
| 28 | | | | | | | |
| 29 | | | | | | | |
| 30 | | | | | | | |

Boring terminated at a depth of 20 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603 | Figure: A-39

TEST ENVIRONMENTAL INCHES 750635603 - 3000 - BROADWAY B-31 TO B-45.GPJ T&R.GDT 4/19/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-40



Boring location: See Figure 2 | Logged by: K. Staehlin

Date started: 4/17/17 | Date finished: 4/17/17

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Continuous

| DEPTH (feet) | Sample ID | Sample | Blow Count | Recovery (Inches) | PID (ppm) | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|---|
| | | | | | | | 6-inch-thick concrete slab |
| 1 | B-40-1.5 | | | | 0.3 | ML | SANDY SILT with CLAY and GRAVEL (ML)<br>dark brown, soft, moist, subangular gravel less than 0.5 inches in diameter, no odor |
| 2 | | | | 36/48 | | | |
| 3 | B-40-3.0 | | | | 1.0 | | orange-brown, medium stiff |
| 4 | | | | | 0.7 | | stiff |
| 5 | B-40-5.0 | | | | 0.5 | SW | GRAVELLY SAND with CLAY (SW)<br>orange-brown to red-brown, loose to medium dense, moist, subangular gravel less than 2 inches in diameter, no odor |
| 6 | | | | 48/48 | 1.0 | | |
| 7 | | | | | | | |
| 8 | | | | | 0.5 | | dense, increasing fines |
| 9 | | | | | 1.0 | | |
| 10 | B-40-10.0 | | | 48/48 | 1.8 | CL | CLAY (CL)<br>light brown, medium stiff, moist to wet, no odor |
| 11 | | | | | 1.0 | | |
| 12 | | | | | 0.8 | | stiff |
| 13 | | | | | | | |
| 14 | | | | 48/48 | 1.4 | | |
| 15 | B-40-15.0 | | | | | | |
| 16 | | | | | 1.6 | | |
| 17 | | | | | 0.8 | | soft to medium stiff |
| 18 | | | | 48/48 | 0.4 | | |
| 19 | | | | | 0.2 | | stiff |
| 20 | B-40-20.0 | | | | 0.0 | | |
| 21 | | | | | | | |
| 22 | | | | | | | |
| 23 | | | | | | | |
| 24 | | | | | | | |
| 25 | | | | | | | |
| 26 | | | | | | | |
| 27 | | | | | | | |
| 28 | | | | | | | |
| 29 | | | | | | | |
| 30 | | | | | | | |

Boring terminated at a depth of 20 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603 | Figure: A-40

TEST ENVIRONMENTAL INCHES 750635603 - 3000 - BROADWAY B-31 TO B-45.GPJ T&R.GDT 4/19/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-41



Boring location: See Figure 2 | Logged by: K. Staehlin

Date started: 4/17/17 | Date finished: 4/17/17

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Continuous

| DEPTH (feet) | Sample ID | Sample | Blow Count | Recovery (Inches) | PID (ppm) | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 0 | | | | | | | 6-inch-thick concrete slab |
| 1–5 | B-41-3.0, B-41-5.0 | | | 10/48 | | ML | SANDY SILT with CLAY and GRAVEL (ML)<br>dark brown, soft, moist, subangular gravel less than 1.5 inches in diameter, no odor<br>orange-brown<br>medium stiff<br>stiff |
| 6–8 | B-41-7.5 | | | 48/48 | | SM | SILTY SAND with GRAVEL (SM)<br>orange-brown, medium dense, moist, subangular gravel less than 2 inches in diameter, no odor |
| 9–10 | B-41-10.0 | | | 48/48 | | SP | SAND with CLAY and GRAVEL (SP)<br>orange-brown to red-brown, medium dense, moist to wet, subangular gravel less than 0.5 inches in diameter, no odor |
| 11–12 | | | | | | SC | CLAYEY SAND with GRAVEL (SC)<br>red-brown to orange-brown, medium dense to dense, moist to wet, subangular gravel less than 0.5 inches in diameter, no odor |
| 13–15 | B-41-15.0 | | | 48/48 | | CL | CLAY (CL)<br>light brown, medium stiff to stiff, moist, no odor |
| 16–18 | | | | 48/48 | | CL | very stiff |
| 19–20 | B-41-20.0 | | | | | | |
| 21–30 | | | | | | | |

Boring terminated at a depth of 20 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603 | Figure: A-41

TEST ENVIRONMENTAL INCHES 750635603 - 3000 - BROADWAY B-31 TO B-45.GPJ T&R.GDT 4/19/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-42



Boring location: See Figure 2 | Logged by: K. Staehlin

Date started: 4/11/17 | Date finished: 4/11/17

Drilling method: Hand Auger

Hammer weight/drop: NA | Hammer type: NA

Sampler: Continuous

| DEPTH (feet) | SAMPLES: Sample ID | Sample | Blow Count | Recovery (Inches) | PID (ppm) | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 1 | B-42-1.0 | | | | 0.2 | SM | SILTY SAND with CLAY (SM)<br>dark brown, loose, moist, trace organics, no odor |
| 2 | | | | | | | |
| 3 | B-42-3.0 | | | | 0.3 | ML | SILT with SAND and CLAY (ML)<br>brown to orange-brown, soft to medium stiff, moist, trace organics, no odor |
| 4 | | | | | | | |
| 5 | B-42-5.0 | | | | 0.0 | SM | SILTY SAND with CLAY (SM)<br>orange-brown, medium dense to dense, moist, no odor |
| 6 | | | | | 0.0 | | |
| 7 | | | | | | | |
| 8 | B-42-8.0 | | | | 0.0 | | |
| 9 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
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Boring terminated at a depth of 8 feet below ground surface.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603 | Figure: A-42

TEST ENVIRONMENTAL INCHES 750635603 - 3000 - BROADWAY B-31 TO B-45.GPJ T&R.GDT 4/19/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-43



Boring location: See Figure 2 | Logged by: K. Staehlin

Date started: 4/11/17 | Date finished: 4/11/17

Drilling method: Hand Auger

Hammer weight/drop: NA | Hammer type: NA

Sampler: Continuous

| DEPTH (feet) | SAMPLES: Sample ID | Sample | Blow Count | Recovery (Inches) | PID (ppm) | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 1 | B-43-1.0 | | | 0.1 | | SM | SILTY SAND with CLAY (SM)<br>dark brown, loose, moist, trace organics, no odor |
| 2 | | | | | | | |
| 3 | B-43-3.0 | | | 0.0 | | ML | SILT with SAND and CLAY (ML)<br>orange-brown to brown, soft to medium stiff, moist, trace organics, no odor |
| 4 | | | | | | SC | CLAYEY SAND (SC)<br>brown with orange and white mottling, medium dense to dense, moist, no odor |
| 5 | B-43-5.0 | | | 0.0 | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |
| 9 | | | | | | | |
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| 28 | | | | | | | |
| 29 | | | | | | | |
| 30 | | | | | | | |

Boring terminated at a depth of 5 feet below ground surface.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603 | Figure: A-43

TEST ENVIRONMENTAL INCHES 750635603 - 3000 - BROADWAY B-31 TO B-45.GPJ T&R.GDT 4/19/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-44



Boring location: See Figure 2 | Logged by: K. Staehlin

Date started: 4/11/17 | Date finished: 4/11/17

Drilling method: Hand Auger

Hammer weight/drop: NA | Hammer type: NA

Sampler: Continuous

| DEPTH (feet) | SAMPLES: Sample ID | Sample | Blow Count | Recovery (Inches) | PID (ppm) | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 1 | B-44-1.0 | | | | 0.0 | SM | SILTY SAND with CLAY (SM)<br>dark brown, loose, moist, trace organics, no odor |
| 2 | | | | | | | |
| 3 | B-44-3.0 | | | | 0.2 | ML | SILT with SAND and CLAY (ML)<br>brown to orange-brown, soft to medium stiff, moist, trace organics, no odor |
| 4 | | | | | | | |
| 5 | B-44-5.0 | | | | 0.0 | SM | SILTY SAND with CLAY (SM)<br>orange-brown, medium dense to dense, moist, trace organics, no odor<br>increasing sand content |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | B-44-8.0 | | | | 0.0 | | |
| 9 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
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| 27 | | | | | | | |
| 28 | | | | | | | |
| 29 | | | | | | | |
| 30 | | | | | | | |

Boring terminated at a depth of 8 feet below ground surface.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603 | Figure: A-44

TEST ENVIRONMENTAL INCHES 750635603 - 3000 - BROADWAY B-31 TO B-45.GPJ T&R.GDT 4/19/17

PROJECT: **3000 BROADWAY REDEVELOPMENT**
Oakland, California

# Log of Boring B-45



Boring location: See Figure 2 | Logged by: K. Staehlin

Date started: 4/11/17 | Date finished: 4/11/17

Drilling method: Hand Auger

Hammer weight/drop: NA | Hammer type: NA

Sampler: Continuous

| DEPTH (feet) | SAMPLES: Sample ID | Sample | Blow Count | Recovery (Inches) | PID (ppm) | LITHOLOGY | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 1 | B-45-1.0 | | | | 0.0 | SM | SILTY SAND with CLAY (SM)<br>dark brown, loose, moist, trace organics, no odor |
| 2 | | | | | | | |
| 3 | B-45-3.0 | | | | 0.0 | ML | SILT with SAND and CLAY (ML)<br>orange-brown to brown, soft to medium stiff, moist, trace organics, no odor |
| 4 | | | | | | SC | CLAYEY SAND (SC)<br>brown to orange-brown, medium dense to dense, moist, trace organics, no odor |
| 5 | B-45-5.0 | | | | 0.0 | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |
| 9 | | | | | | | |
| 10 | | | | | | | |
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| 27 | | | | | | | |
| 28 | | | | | | | |
| 29 | | | | | | | |
| 30 | | | | | | | |

Boring terminated at a depth of 5 feet below ground surface.
Groundwater not encountered during drilling.

LANGAN

Project No.: 750635603 | Figure: A-45

TEST ENVIRONMENTAL INCHES 750635603 - 3000 - BROADWAY B-31 TO B-45.GPJ T&R.GDT 4/19/17

## UNIFIED SOIL CLASSIFICATION SYSTEM

| Major Divisions | | Symbols | Typical Names |
|---|---|---|---|
| Coarse-Grained Soils (more than half of soil > no. 200 sieve size) | Gravels (More than half of coarse fraction > no. 4 sieve size) | 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 (More than half of coarse fraction < no. 4 sieve size) | 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 |
| | | SC | Clayey sands, sand-clay mixtures |
| Fine -Grained Soils (more than half of soil < no. 200 sieve size) | Silts and Clays LL = < 50 | 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 LL = > 50 | 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 |

## 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 | 3" to No. 4 | 76.2 to 4.76 |
| coarse | 3" to 3/4" | 76.2 to 19.1 |
| fine | 3/4" to No. 4 | 19.1 to 4.76 |
| Sand | No. 4 to No. 200 | 4.76 to 0.075 |
| coarse | No. 4 to No. 10 | 4.76 to 2.00 |
| medium | No. 10 to No. 40 | 2.00 to 0.420 |
| fine | No. 40 to No. 200 | 0.420 to 0.075 |
| Silt and Clay | Below No. 200 | Below 0.075 |

Unstabilized groundwater level

Stabilized groundwater level

## SAMPLE DESIGNATIONS/SYMBOLS

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

## SAMPLER TYPE

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

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**
Oakland, California

**CLASSIFICATION CHART**

LANGAN

Date 05/09/17 | Project No. 750635603 | Figure B-46

# APPENDIX B
# CERTIFIED ANALYTICAL AND CHAIN-OF-CUSTODY RECORDS

McCampbell Analytical, Inc.

*"When Quality Counts"*

# Analytical Report

**WorkOrder:** 1703E11

**Report Created for:** Langan

555 Montgomery St., Suite 1300
San Francisco, CA 94111

**Project Contact:** Josh Graber
**Project P.O.:**
**Project Name:** 750635603; 260 30th Street

**Project Received:** 03/27/2017

Analytical Report reviewed & approved for release on 04/03/2017 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.***

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Glossary of Terms & Qualifier Definitions

**Client:** Langan
**Project:** 750635603; 260 30th Street
**WorkOrder:** 1703E11

## 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) |

McCampbell Analytical, Inc.
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# Glossary of Terms & Qualifier Definitions

**Client:** Langan
**Project:** 750635603; 260 30th Street
**WorkOrder:** 1703E11

## Analytical Qualifiers

| | |
|---|---|
| S | surrogate spike recovery outside accepted recovery limits |
| a2 | sample diluted due to cluttered chromatogram |
| a4 | reporting limits raised due to the sample's matrix prohibiting a full volume extraction. |
| 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. |
| c7 | surrogate value diluted out of range |
| 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 (?) |

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Received:** | 3/27/17 16:10 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/28/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-33-13.5** | **1703E11-002A** | **Soil** | **03/25/2017 13:12** | **GC16** | **136315** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 20 | 200 | 03/28/2017 20:22 |
| tert-Amyl methyl ether (TAME) | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Benzene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Bromobenzene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Bromochloromethane | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Bromodichloromethane | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Bromoform | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Bromomethane | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 2-Butanone (MEK) | ND | 4.0 | 200 | 03/28/2017 20:22 |
| t-Butyl alcohol (TBA) | ND | 10 | 200 | 03/28/2017 20:22 |
| n-Butyl benzene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| sec-Butyl benzene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| tert-Butyl benzene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Carbon Disulfide | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Carbon Tetrachloride | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Chlorobenzene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Chloroethane | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Chloroform | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Chloromethane | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 2-Chlorotoluene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 4-Chlorotoluene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Dibromochloromethane | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 1,2-Dibromo-3-chloropropane | **0.85** | 0.80 | 200 | 03/28/2017 20:22 |
| 1,2-Dibromoethane (EDB) | ND | 0.80 | 200 | 03/28/2017 20:22 |
| Dibromomethane | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 1,2-Dichlorobenzene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 1,3-Dichlorobenzene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 1,4-Dichlorobenzene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Dichlorodifluoromethane | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 1,1-Dichloroethane | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.80 | 200 | 03/28/2017 20:22 |
| 1,1-Dichloroethene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| cis-1,2-Dichloroethene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| trans-1,2-Dichloroethene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 1,2-Dichloropropane | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 1,3-Dichloropropane | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 2,2-Dichloropropane | ND | 1.0 | 200 | 03/28/2017 20:22 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Received:** | 3/27/17 16:10 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/28/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-33-13.5** | **1703E11-002A** | **Soil** | **03/25/2017 13:12** | **GC16** | **136315** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| cis-1,3-Dichloropropene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| trans-1,3-Dichloropropene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Diisopropyl ether (DIPE) | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Ethylbenzene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Ethyl tert-butyl ether (ETBE) | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Freon 113 | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Hexachlorobutadiene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Hexachloroethane | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 2-Hexanone | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Isopropylbenzene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 4-Isopropyl toluene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Methyl-t-butyl ether (MTBE) | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Methylene chloride | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 4-Methyl-2-pentanone (MIBK) | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Naphthalene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| n-Propyl benzene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Styrene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 1,1,2,2-Tetrachloroethane | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Tetrachloroethene | **4.6** | 1.0 | 200 | 03/28/2017 20:22 |
| Toluene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 1,2,3-Trichlorobenzene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 1,2,4-Trichlorobenzene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 1,1,1-Trichloroethane | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 1,1,2-Trichloroethane | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Trichloroethene | **19** | 1.0 | 200 | 03/28/2017 20:22 |
| Trichlorofluoromethane | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 1,2,3-Trichloropropane | ND | 1.0 | 200 | 03/28/2017 20:22 |
| 1,2,4-Trimethylbenzene | **1.4** | 1.0 | 200 | 03/28/2017 20:22 |
| 1,3,5-Trimethylbenzene | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Vinyl Chloride | ND | 1.0 | 200 | 03/28/2017 20:22 |
| Xylenes, Total | ND | 1.0 | 200 | 03/28/2017 20:22 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Received:** | 3/27/17 16:10 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/28/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-33-13.5** | **1703E11-002A** | **Soil** | **03/25/2017 13:12** | **GC16** | **136315** |

| Analytes | Result | | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Surrogates | REC (%) | Qualifiers | Limits | | |
| Dibromofluoromethane | 90 | | 70-130 | | 03/28/2017 20:22 |
| Toluene-d8 | 97 | | 70-130 | | 03/28/2017 20:22 |
| 4-BFB | 105 | | 70-130 | | 03/28/2017 20:22 |
| Benzene-d6 | 0 | S | 60-140 | | 03/28/2017 20:22 |
| Ethylbenzene-d10 | 0 | S | 60-140 | | 03/28/2017 20:22 |
| 1,2-DCB-d4 | 106 | | 60-140 | | 03/28/2017 20:22 |

Analyst(s): JEM  Analytical Comments: c7

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Received:** | 3/27/17 16:10 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/28/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-33-17.5 | 1703E11-004A | Soil | 03/25/2017 13:26 | GC18 | 136315 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 6.7 | 67 | 03/31/2017 19:42 |
| tert-Amyl methyl ether (TAME) | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Benzene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Bromobenzene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Bromochloromethane | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Bromodichloromethane | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Bromoform | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Bromomethane | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 2-Butanone (MEK) | ND | 1.3 | 67 | 03/31/2017 19:42 |
| t-Butyl alcohol (TBA) | ND | 3.3 | 67 | 03/31/2017 19:42 |
| n-Butyl benzene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| sec-Butyl benzene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| tert-Butyl benzene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Carbon Disulfide | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Carbon Tetrachloride | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Chlorobenzene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Chloroethane | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Chloroform | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Chloromethane | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 2-Chlorotoluene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 4-Chlorotoluene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Dibromochloromethane | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 1,2-Dibromo-3-chloropropane | ND | 0.27 | 67 | 03/31/2017 19:42 |
| 1,2-Dibromoethane (EDB) | ND | 0.27 | 67 | 03/31/2017 19:42 |
| Dibromomethane | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 1,2-Dichlorobenzene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 1,3-Dichlorobenzene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 1,4-Dichlorobenzene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Dichlorodifluoromethane | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 1,1-Dichloroethane | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.27 | 67 | 03/31/2017 19:42 |
| 1,1-Dichloroethene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| cis-1,2-Dichloroethene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| trans-1,2-Dichloroethene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 1,2-Dichloropropane | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 1,3-Dichloropropane | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 2,2-Dichloropropane | ND | 0.33 | 67 | 03/31/2017 19:42 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Received:** | 3/27/17 16:10 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/28/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-33-17.5** | **1703E11-004A** | **Soil** | **03/25/2017 13:26** | **GC18** | **136315** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| cis-1,3-Dichloropropene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| trans-1,3-Dichloropropene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Diisopropyl ether (DIPE) | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Ethylbenzene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Freon 113 | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Hexachlorobutadiene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Hexachloroethane | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 2-Hexanone | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Isopropylbenzene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 4-Isopropyl toluene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Methyl-t-butyl ether (MTBE) | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Methylene chloride | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Naphthalene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| n-Propyl benzene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Styrene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 1,1,1,2-Tetrachloroethane | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 1,1,2,2-Tetrachloroethane | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Tetrachloroethene | **1.5** | 0.33 | 67 | 03/31/2017 19:42 |
| Toluene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 1,2,3-Trichlorobenzene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 1,2,4-Trichlorobenzene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 1,1,1-Trichloroethane | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 1,1,2-Trichloroethane | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Trichloroethene | **4.3** | 0.33 | 67 | 03/31/2017 19:42 |
| Trichlorofluoromethane | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 1,2,3-Trichloropropane | ND | 0.33 | 67 | 03/31/2017 19:42 |
| 1,2,4-Trimethylbenzene | **0.35** | 0.33 | 67 | 03/31/2017 19:42 |
| 1,3,5-Trimethylbenzene | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Vinyl Chloride | ND | 0.33 | 67 | 03/31/2017 19:42 |
| Xylenes, Total | ND | 0.33 | 67 | 03/31/2017 19:42 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Received:** | 3/27/17 16:10 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/28/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-33-17.5** | **1703E11-004A** | **Soil** | **03/25/2017 13:26** | **GC18** | **136315** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 102 | 70-130 | | 03/31/2017 19:42 |
| Toluene-d8 | 97 | 70-130 | | 03/31/2017 19:42 |
| 4-BFB | 92 | 70-130 | | 03/31/2017 19:42 |
| Benzene-d6 | 68 | 60-140 | | 03/31/2017 19:42 |
| Ethylbenzene-d10 | 78 | 60-140 | | 03/31/2017 19:42 |
| 1,2-DCB-d4 | 84 | 60-140 | | 03/31/2017 19:42 |

Analyst(s): AK

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Received:** | 3/27/17 16:10 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/28/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-33-20.0 | 1703E11-005A | Soil | 03/25/2017 13:30 | GC10 | 136315 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 04/02/2017 03:41 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Benzene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Bromobenzene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Bromochloromethane | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Bromodichloromethane | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Bromoform | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Bromomethane | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 04/02/2017 03:41 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 04/02/2017 03:41 |
| n-Butyl benzene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Carbon Disulfide | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Chlorobenzene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Chloroethane | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Chloroform | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Chloromethane | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Dibromochloromethane | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 04/02/2017 03:41 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 04/02/2017 03:41 |
| Dibromomethane | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 04/02/2017 03:41 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 04/02/2017 03:41 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Received:** | 3/27/17 16:10 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/28/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-33-20.0** | **1703E11-005A** | **Soil** | **03/25/2017 13:30** | **GC10** | **136315** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Ethylbenzene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Freon 113 | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Hexachloroethane | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 2-Hexanone | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Isopropylbenzene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Methylene chloride | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Naphthalene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| n-Propyl benzene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Styrene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Tetrachloroethene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Toluene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Trichloroethene | **0.0098** | 0.0050 | 1 | 04/02/2017 03:41 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Vinyl Chloride | ND | 0.0050 | 1 | 04/02/2017 03:41 |
| Xylenes, Total | ND | 0.0050 | 1 | 04/02/2017 03:41 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Received:** | 3/27/17 16:10 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/28/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-33-20.0** | **1703E11-005A** | **Soil** | **03/25/2017 13:30** | **GC10** | **136315** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 85 | 70-130 | | 04/02/2017 03:41 |
| Toluene-d8 | 101 | 70-130 | | 04/02/2017 03:41 |
| 4-BFB | 77 | 70-130 | | 04/02/2017 03:41 |
| Benzene-d6 | 75 | 60-140 | | 04/02/2017 03:41 |
| Ethylbenzene-d10 | 90 | 60-140 | | 04/02/2017 03:41 |
| 1,2-DCB-d4 | 74 | 60-140 | | 04/02/2017 03:41 |

Analyst(s): KF

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Received:** | 3/27/17 16:10 | **Extraction Method:** | SW3550C |
| **Date Prepared:** | 3/29/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-33-13.5** | **1703E11-002A** | **Soil** | **03/25/2017 13:12** | **HPLC4** | **136407** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.050 | 1 | 03/30/2017 11:31 |
| Acenaphthylene | ND | 0.050 | 1 | 03/30/2017 11:31 |
| Anthracene | ND | 0.25 | 5 | 03/30/2017 13:43 |
| Benzo (a) anthracene | ND | 0.25 | 5 | 03/30/2017 13:43 |
| Benzo (a) pyrene | ND | 0.25 | 5 | 03/30/2017 13:43 |
| Benzo (b) fluoranthene | ND | 0.25 | 5 | 03/30/2017 13:43 |
| Benzo (g,h,i) perylene | ND | 0.25 | 5 | 03/30/2017 13:43 |
| Benzo (k) fluoranthene | ND | 0.25 | 5 | 03/30/2017 13:43 |
| Chrysene | ND | 0.25 | 5 | 03/30/2017 13:43 |
| Dibenzo (a,h) anthracene | ND | 0.25 | 5 | 03/30/2017 13:43 |
| Fluoranthene | ND | 0.25 | 5 | 03/30/2017 13:43 |
| Fluorene | **0.057** | 0.050 | 1 | 03/30/2017 11:31 |
| Indeno (1,2,3-cd) pyrene | ND | 0.25 | 5 | 03/30/2017 13:43 |
| 1-Methylnaphthalene | **0.28** | 0.050 | 1 | 03/30/2017 11:31 |
| 2-Methylnaphthalene | **0.28** | 0.050 | 1 | 03/30/2017 11:31 |
| Naphthalene | **0.14** | 0.050 | 1 | 03/30/2017 11:31 |
| Phenanthrene | **0.15** | 0.050 | 1 | 03/30/2017 11:31 |
| Pyrene | ND | 0.25 | 5 | 03/30/2017 13:43 |

| Surrogates | REC (%) | Qualifiers | Limits | |
|---|---|---|---|---|
| Decafluorobiphenyl | 144 | S | 70-130 | 03/30/2017 11:31 |
| 4,4-Dichlorobiphenyl | 244 | S | 70-130 | 03/30/2017 11:31 |

Analyst(s): BBO  Analytical Comments: a4,a2

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Received:** | 3/27/17 16:10 | **Extraction Method:** | SW3550C |
| **Date Prepared:** | 3/29/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-33-17.5** | **1703E11-004A** | **Soil** | **03/25/2017 13:26** | **HPLC4** | **136407** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.050 | 1 | 03/30/2017 12:15 |
| Acenaphthylene | ND | 0.050 | 1 | 03/30/2017 12:15 |
| Anthracene | ND | 0.25 | 5 | 03/30/2017 14:27 |
| Benzo (a) anthracene | ND | 0.25 | 5 | 03/30/2017 14:27 |
| Benzo (a) pyrene | ND | 0.25 | 5 | 03/30/2017 14:27 |
| Benzo (b) fluoranthene | ND | 0.25 | 5 | 03/30/2017 14:27 |
| Benzo (g,h,i) perylene | ND | 0.25 | 5 | 03/30/2017 14:27 |
| Benzo (k) fluoranthene | ND | 0.25 | 5 | 03/30/2017 14:27 |
| Chrysene | ND | 0.25 | 5 | 03/30/2017 14:27 |
| Dibenzo (a,h) anthracene | ND | 0.25 | 5 | 03/30/2017 14:27 |
| Fluoranthene | ND | 0.25 | 5 | 03/30/2017 14:27 |
| Fluorene | ND | 0.050 | 1 | 03/30/2017 12:15 |
| Indeno (1,2,3-cd) pyrene | ND | 0.25 | 5 | 03/30/2017 14:27 |
| 1-Methylnaphthalene | **0.15** | 0.050 | 1 | 03/30/2017 12:15 |
| 2-Methylnaphthalene | **0.17** | 0.050 | 1 | 03/30/2017 12:15 |
| Naphthalene | **0.081** | 0.050 | 1 | 03/30/2017 12:15 |
| Phenanthrene | **0.060** | 0.050 | 1 | 03/30/2017 12:15 |
| Pyrene | ND | 0.25 | 5 | 03/30/2017 14:27 |

| Surrogates | REC (%) | Qualifiers | Limits | |
|---|---|---|---|---|
| Decafluorobiphenyl | 106 | | 70-130 | 03/30/2017 12:15 |
| 4,4-Dichlorobiphenyl | 157 | S | 70-130 | 03/30/2017 12:15 |

Analyst(s): BBO  Analytical Comments: a4,a2

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Received:** | 3/27/17 16:10 | **Extraction Method:** | SW3550C |
| **Date Prepared:** | 3/29/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-33-20.0 | 1703E11-005A | Soil | 03/25/2017 13:30 | HPLC4 | 136407 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.0050 | 1 | 03/29/2017 19:54 |
| Acenaphthylene | ND | 0.0050 | 1 | 03/29/2017 19:54 |
| Anthracene | ND | 0.0050 | 1 | 03/29/2017 19:54 |
| Benzo (a) anthracene | ND | 0.0050 | 1 | 03/29/2017 19:54 |
| Benzo (a) pyrene | ND | 0.0050 | 1 | 03/29/2017 19:54 |
| Benzo (b) fluoranthene | ND | 0.0050 | 1 | 03/29/2017 19:54 |
| Benzo (g,h,i) perylene | ND | 0.0050 | 1 | 03/29/2017 19:54 |
| Benzo (k) fluoranthene | ND | 0.0050 | 1 | 03/29/2017 19:54 |
| Chrysene | ND | 0.0050 | 1 | 03/29/2017 19:54 |
| Dibenzo (a,h) anthracene | ND | 0.0050 | 1 | 03/29/2017 19:54 |
| Fluoranthene | ND | 0.0050 | 1 | 03/29/2017 19:54 |
| Fluorene | ND | 0.0050 | 1 | 03/29/2017 19:54 |
| Indeno (1,2,3-cd) pyrene | ND | 0.0050 | 1 | 03/29/2017 19:54 |
| 1-Methylnaphthalene | ND | 0.0050 | 1 | 03/29/2017 19:54 |
| 2-Methylnaphthalene | ND | 0.0050 | 1 | 03/29/2017 19:54 |
| Naphthalene | ND | 0.0050 | 1 | 03/29/2017 19:54 |
| Phenanthrene | ND | 0.0050 | 1 | 03/29/2017 19:54 |
| Pyrene | ND | 0.0050 | 1 | 03/29/2017 19:54 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 83 | 70-130 | 03/29/2017 19:54 |
| 4,4-Dichlorobiphenyl | 74 | 70-130 | 03/29/2017 19:54 |

Analyst(s): BBO

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Received:** | 3/27/17 16:10 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/28/17 | **Analytical Method:** | SW8021B/8015Bm |
| **Project:** | 750635603; 260 30th Street | **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-33-13.5 | 1703E11-002A | Soil | 03/25/2017 13:12 | GC19 | 136314 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | **1200** | 200 | 200 | 03/30/2017 22:11 |
| MTBE | --- | 10 | 200 | 03/30/2017 22:11 |
| Benzene | --- | 1.0 | 200 | 03/30/2017 22:11 |
| Toluene | --- | 1.0 | 200 | 03/30/2017 22:11 |
| Ethylbenzene | --- | 1.0 | 200 | 03/30/2017 22:11 |
| Xylenes | --- | 3.0 | 200 | 03/30/2017 22:11 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 116 | 62-126 | 03/30/2017 22:11 |

Analyst(s): IA  Analytical Comments: d7

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-33-17.5 | 1703E11-004A | Soil | 03/25/2017 13:26 | GC19 | 136314 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | **420** | 200 | 200 | 03/30/2017 14:23 |
| MTBE | --- | 10 | 200 | 03/30/2017 14:23 |
| Benzene | --- | 1.0 | 200 | 03/30/2017 14:23 |
| Toluene | --- | 1.0 | 200 | 03/30/2017 14:23 |
| Ethylbenzene | --- | 1.0 | 200 | 03/30/2017 14:23 |
| Xylenes | --- | 3.0 | 200 | 03/30/2017 14:23 |

| Surrogates | REC (%) | Qualifiers | Limits | |
|---|---|---|---|---|
| 2-Fluorotoluene | 179 | S | 62-126 | 03/30/2017 14:23 |

Analyst(s): IA  Analytical Comments: d7,c4

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Received:** | 3/27/17 16:10 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/28/17 | **Analytical Method:** | SW8021B/8015Bm |
| **Project:** | 750635603; 260 30th Street | **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-33-20.0 | 1703E11-005A | Soil | 03/25/2017 13:30 | GC19 | 136314 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 04/01/2017 18:51 |
| MTBE | --- | 0.050 | 1 | 04/01/2017 18:51 |
| Benzene | --- | 0.0050 | 1 | 04/01/2017 18:51 |
| Toluene | --- | 0.0050 | 1 | 04/01/2017 18:51 |
| Ethylbenzene | --- | 0.0050 | 1 | 04/01/2017 18:51 |
| Xylenes | --- | 0.015 | 1 | 04/01/2017 18:51 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 78 | 62-126 | 04/01/2017 18:51 |

Analyst(s): LT

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Received:** | 3/27/17 16:10 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 3/28/17 | **Analytical Method:** | SW8015B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/Kg |

## Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-33-13.5** | **1703E11-002A** | **Soil** | **03/25/2017 13:12** | **GC6A** | **136313** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | **1100** | 10 | 10 | 03/31/2017 02:32 |
| TPH-Motor Oil (C18-C36) | **2900** | 50 | 10 | 03/31/2017 02:32 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C26 | 96 | 70-130 | 03/31/2017 02:32 |

Analyst(s): TK  Analytical Comments: e7,e2,e11

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-33-17.5** | **1703E11-004A** | **Soil** | **03/25/2017 13:26** | **GC6A** | **136313** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | **250** | 100 | 100 | 03/31/2017 00:36 |
| TPH-Motor Oil (C18-C36) | **810** | 500 | 100 | 03/31/2017 00:36 |

| Surrogates | REC (%) | Qualifiers | Limits | |
|---|---|---|---|---|
| C9 | 124 | S | 78-109 | 03/31/2017 00:36 |

Analyst(s): TK  Analytical Comments: e7,e2,e11,c2

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-33-20.0** | **1703E11-005A** | **Soil** | **03/25/2017 13:30** | **GC9a** | **136313** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 03/28/2017 15:04 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 03/28/2017 15:04 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 100 | 78-109 | 03/28/2017 15:04 |

Analyst(s): TK

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Prepared:** | 3/28/17 | **BatchID:** | 136315 |
| **Date Analyzed:** | 3/28/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC18 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136315<br>1703E11-002AMS/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 | 0.0384 | 0.0050 | 0.050 | - | 77 | 53-116 |
| Benzene | ND | 0.0469 | 0.0050 | 0.050 | - | 94 | 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 | 0.137 | 0.050 | 0.20 | - | 69 | 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 | 0.0480 | 0.0050 | 0.050 | - | 96 | 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 | 0.0436 | 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 | 0.0436 | 0.0040 | 0.050 | - | 87 | 58-135 |
| 1,1-Dichloroethene | ND | 0.0439 | 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.)*

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QA/QC Officer

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Prepared:** | 3/28/17 | **BatchID:** | 136315 |
| **Date Analyzed:** | 3/28/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC18 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136315<br>1703E11-002AMS/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 | 0.0444 | 0.0050 | 0.050 | - | 89 | 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 | 0.0416 | 0.0050 | 0.050 | - | 83 | 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 | 0.0491 | 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 | 0.0476 | 0.0050 | 0.050 | - | 95 | 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

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Prepared:** | 3/28/17 | **BatchID:** | 136315 |
| **Date Analyzed:** | 3/28/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC18 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136315<br>1703E11-002AMS/MSD |

## QC Summary Report for SW8260B

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | | | |
| Dibromofluoromethane | 0.1223 | 0.124 | | 0.12 | 98 | 99 | 70-130 |
| Toluene-d8 | 0.1357 | 0.135 | | 0.12 | 109 | 108 | 70-130 |
| 4-BFB | 0.01277 | 0.0126 | | 0.012 | 102 | 101 | 70-130 |
| Benzene-d6 | 0.08919 | 0.0858 | | 0.10 | 89 | 86 | 60-140 |
| Ethylbenzene-d10 | 0.1053 | 0.101 | | 0.10 | 105 | 101 | 60-140 |
| 1,2-DCB-d4 | 0.07716 | 0.0811 | | 0.10 | 77 | 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) | NR | NR | | ND<1 | NR | NR | - | NR | - |
| Benzene | NR | NR | | ND<1 | NR | NR | - | NR | - |
| t-Butyl alcohol (TBA) | NR | NR | | ND<10 | NR | NR | - | NR | - |
| Chlorobenzene | NR | NR | | ND<1 | NR | NR | - | NR | - |
| 1,2-Dibromoethane (EDB) | NR | NR | | ND<0.8 | NR | NR | - | NR | - |
| 1,2-Dichloroethane (1,2-DCA) | NR | NR | | ND<0.8 | NR | NR | - | NR | - |
| 1,1-Dichloroethene | NR | NR | | ND<1 | NR | NR | - | NR | - |
| Diisopropyl ether (DIPE) | NR | NR | | ND<1 | NR | NR | - | NR | - |
| Ethyl tert-butyl ether (ETBE) | NR | NR | | ND<1 | NR | NR | - | NR | - |
| Methyl-t-butyl ether (MTBE) | NR | NR | | ND<1 | NR | NR | - | NR | - |
| Toluene | NR | NR | | ND<1 | NR | NR | - | NR | - |
| Trichloroethene | NR | NR | | 19 | NR | NR | - | NR | - |
| **Surrogate Recovery** | | | | | | | | | |
| Dibromofluoromethane | NR | NR | | | NR | NR | - | NR | - |
| Toluene-d8 | NR | NR | | | NR | NR | - | NR | - |
| 4-BFB | NR | NR | | | NR | NR | - | NR | - |
| Benzene-d6 | NR | NR | | | NR | NR | - | NR | - |
| Ethylbenzene-d10 | NR | NR | | | NR | NR | - | NR | - |
| 1,2-DCB-d4 | NR | NR | | | NR | NR | - | NR | - |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Prepared:** | 3/29/17 | **BatchID:** | 136407 |
| **Date Analyzed:** | 3/29/17 | **Extraction Method:** | SW3550C |
| **Instrument:** | HPLC4 | **Analytical Method:** | SW8310 |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136407<br>1703E11-005AMS/MSD |

## QC Summary Report for SW8310

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | - | 0.0050 | - | - | - | - |
| Acenaphthylene | ND | - | 0.0050 | - | - | - | - |
| Anthracene | ND | - | 0.0050 | - | - | - | - |
| Benzo (a) anthracene | ND | 0.0130 | 0.0050 | 0.015 | - | 87 | 70-130 |
| Benzo (a) pyrene | ND | 0.0126 | 0.0050 | 0.015 | - | 84 | 70-130 |
| Benzo (b) fluoranthene | ND | - | 0.0050 | - | - | - | - |
| Benzo (g,h,i) perylene | ND | - | 0.0050 | - | - | - | - |
| Benzo (k) fluoranthene | ND | - | 0.0050 | - | - | - | - |
| Chrysene | ND | 0.0140 | 0.0050 | 0.015 | - | 93 | 70-130 |
| Dibenzo (a,h) anthracene | ND | - | 0.0050 | - | - | - | - |
| Fluoranthene | ND | - | 0.0050 | - | - | - | - |
| Fluorene | ND | - | 0.0050 | - | - | - | - |
| Indeno (1,2,3-cd) pyrene | ND | - | 0.0050 | - | - | - | - |
| 1-Methylnaphthalene | ND | 0.0127 | 0.0050 | 0.015 | - | 85 | 70-130 |
| 2-Methylnaphthalene | ND | 0.0123 | 0.0050 | 0.015 | - | 82 | 70-130 |
| Naphthalene | ND | - | 0.0050 | - | - | - | - |
| Phenanthrene | ND | 0.0138 | 0.0050 | 0.015 | - | 92 | 70-130 |
| Pyrene | ND | 0.0144 | 0.0050 | 0.015 | - | 96 | 70-130 |
| **Surrogate Recovery** | | | | | | | |
| Decafluorobiphenyl | 0.7498 | 0.697 | | 1 | 75 | 70 | 70-130 |
| 4,4-Dichlorobiphenyl | 0.3913 | 0.467 | | 0.50 | 78 | 93 | 70-130 |

*(Cont.)*

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Prepared:** | 3/29/17 | **BatchID:** | 136407 |
| **Date Analyzed:** | 3/29/17 | **Extraction Method:** | SW3550C |
| **Instrument:** | HPLC4 | **Analytical Method:** | SW8310 |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136407<br>1703E11-005AMS/MSD |

## QC Summary Report for SW8310

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Benzo (a) anthracene | 0.0131 | 0.0131 | 0.015 | ND | 88 | 88 | 70-130 | 0 | 30 |
| Benzo (a) pyrene | 0.0111 | 0.0114 | 0.015 | ND | 74 | 76 | 70-130 | 2.48 | 30 |
| Chrysene | 0.0140 | 0.0140 | 0.015 | ND | 94 | 93 | 70-130 | 0.320 | 30 |
| 1-Methylnaphthalene | 0.0136 | 0.0136 | 0.015 | ND | 90 | 91 | 70-130 | 0.267 | 30 |
| 2-Methylnaphthalene | 0.0132 | 0.0130 | 0.015 | ND | 88 | 87 | 70-130 | 1.26 | 30 |
| Phenanthrene | 0.0145 | 0.0140 | 0.015 | ND | 97 | 94 | 70-130 | 3.25 | 30 |
| Pyrene | 0.0157 | 0.0152 | 0.015 | ND | 105 | 101 | 70-130 | 3.40 | 30 |
| **Surrogate Recovery** | | | | | | | | | |
| Decafluorobiphenyl | 0.710 | 0.770 | 1 | | 71 | 77 | 70-130 | 8.06 | 30 |
| 4,4-Dichlorobiphenyl | 0.575 | 0.512 | 0.50 | | 115 | 102 | 70-130 | 11.6 | 30 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Prepared:** | 3/28/17 | **BatchID:** | 136314 |
| **Date Analyzed:** | 3/29/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC19 | **Analytical Method:** | SW8021B/8015Bm |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136314<br>1703E11-004AMS/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 | 0.581 | 0.40 | 0.60 | - | 97 | 82-118 |
| MTBE | ND | 0.111 | 0.050 | 0.10 | - | 111 | 61-119 |
| Benzene | ND | 0.118 | 0.0050 | 0.10 | - | 118 | 77-128 |
| Toluene | ND | 0.122 | 0.0050 | 0.10 | - | 122 | 74-132 |
| Ethylbenzene | ND | 0.122 | 0.0050 | 0.10 | - | 122 | 84-127 |
| Xylenes | ND | 0.345 | 0.015 | 0.30 | - | 115 | 86-129 |
| **Surrogate Recovery** | | | | | | | |
| 2-Fluorotoluene | 0.09476 | 0.102 | | 0.10 | 95 | 102 | 75-134 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| TPH(btex) | NR | NR | | ND<80 | NR | NR | - | NR | - |
| MTBE | NR | NR | | ND<10 | NR | NR | - | NR | - |
| Benzene | NR | NR | | ND<1 | NR | NR | - | NR | - |
| Toluene | NR | NR | | ND<1 | NR | NR | - | NR | - |
| Ethylbenzene | NR | NR | | ND<1 | NR | NR | - | NR | - |
| Xylenes | NR | NR | | ND<3 | NR | NR | - | NR | - |
| **Surrogate Recovery** | | | | | | | | | |
| 2-Fluorotoluene | NR | NR | | | NR | NR | - | NR | - |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703E11 |
| **Date Prepared:** | 3/28/17 | **BatchID:** | 136313 |
| **Date Analyzed:** | 3/28/17 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC9b | **Analytical Method:** | SW8015B |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136313<br>1703E11-004AMS/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 | 39.5 | 1.0 | 40 | - | 99 | 79-133 |
| TPH-Motor Oil (C18-C36) | ND | - | 5.0 | - | - | - | - |
| **Surrogate Recovery** | | | | | | | |
| C9 | 25.02 | 25.1 | | 25 | 100 | 100 | 77-109 |

| 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 | | 250 | NR | NR | - | NR | - |
| **Surrogate Recovery** | | | | | | | | | |
| C9 | NR | NR | | | NR | NR | - | NR | - |

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QA/QC Officer

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# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1703E11** **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

**Report to:**
Josh Graber
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc/3rd Party: kstaehlin@langan.com;
PO:
ProjectNo: 750635603; 260 30th Street

**Bill to:**
Accounts Payable
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursolutio

**Requested TAT:** 5 days;

***Date Received:*** **03/27/2017**
***Date Logged:*** **03/28/2017**

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1703E11-002 | B-33-13.5 | Soil | 3/25/2017 13:12 | ☐ | A | A | A | A | | | | | | | | |
| 1703E11-004 | B-33-17.5 | Soil | 3/25/2017 13:26 | ☐ | A | A | A | A | | | | | | | | |
| 1703E11-005 | B-33-20.0 | Soil | 3/25/2017 13:30 | ☐ | A | A | A | A | | | | | | | | |

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 8260B_S | 2 | 8310_S | 3 | G-MBTEX_S | 4 | TPH(DMO)_S |
| 5 | | 6 | | 7 | | 8 | |
| 9 | | 10 | | 11 | | 12 | |

**Prepared by: Maria Venegas**

The following SampIDs: 002A, 004A, 005A contain testgroup Multi Range_S.

**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.

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# WORK ORDER SUMMARY

**Client Name:** LANGAN **Project:** 750635603; 260 30th Street **Work Order:** 1703E11
**Client Contact:** Josh Graber **QC Level:** LEVEL 2
**Contact's Email:** jdgraber@treadwellrollo.com **Comments:** **Date Logged:** 3/28/2017

☐ 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1703E11-001A | B-33-8.0 | Soil | | 1 | Acetate Liner | ☐ | 3/25/2017 12:50 | | | ☑ | |
| 1703E11-002A | B-33-13.5 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 1 | Acetate Liner | ☐ | 3/25/2017 13:12 | 5 days | | ☐ | |
| | | | SW8310 (PAHs/PNAs) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8260B (VOCs) | | | ☐ | | 5 days | | ☐ | |
| 1703E11-003A | B-33-16.0 | Soil | | 1 | Acetate Liner | ☐ | 3/25/2017 13:19 | | | ☑ | |
| 1703E11-004A | B-33-17.5 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 1 | Acetate Liner | ☐ | 3/25/2017 13:26 | 5 days | | ☐ | |
| | | | SW8310 (PAHs/PNAs) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8260B (VOCs) | | | ☐ | | 5 days | | ☐ | |
| 1703E11-005A | B-33-20.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 1 | Acetate Liner | ☐ | 3/25/2017 13:30 | 5 days | | ☐ | |
| | | | SW8310 (PAHs/PNAs) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8260B (VOCs) | | | ☐ | | 5 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.**

1703E11

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

10313

# LANGAN

# CHAIN OF CUSTODY RECORD




- [X] 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: 750635603

Project Manager\Contact: JOSHUA GRABER

Samplers: KARIANNE STAEHLIN

Recorder (Signature Required): [signature]

Turnaround Time: STANDARD

| Field Sample Identification No. | Date | Time | Lab Sample No. | Matrix: Soil | Water | Air | Other | No. Containers & Preservative: HCL | $H_2SO_4$ | $HNO_3$ | Ice | Analysis Requested: TPH g,d,mo | VOCs | PAHs (8310) | Silica gel clean-up | Hold | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-33-8.0 | 3/25/17 | 1250 | | X | | | | | | | X | | | | | X | |
| B-33-13.5 | " | 1312 | | X | | | | | | | X | | X | X | | | |
| B-33-16.0 | " | 1319 | | X | | | | | | | X | | | | | X | |
| B-33-17.5 | " | 1326 | | X | | | | | | | X | | X | X | | | |
| B-33-20.0 | 3/25/17 | 1330 | | X | | | | | | | X | | X | X | | | |

CEN° 3.4
GOOD CONDITION
HEAD SPACE ABSENT
DECHLORINATED IN LAB
APPROPRIATE CONTAINERS
pH ADJUSTED IN LAB

| | | | | |
|---|---|---|---|---|
| Relinquished by: (Signature) [signature] | Date: | Time | Received by: (Signature) [signature] | Date 3-27-17 Time 1100 |
| Relinquished by: (Signature) [signature] | Date: 3-27-17 | Time 1610 | Received by: (Signature) [signature] | Date 3/27/17 Time 1610 |
| Relinquished by: (Signature) | Date: | Time | Received by Lab: (Signature) | Date Time |

Sent to Laboratory (Name): MCCAMPBELL ANALYTICAL

Laboratory Comments/Notes:

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

White Copy - Original  Yellow Copy - Laboratory  Pink Copy - Field  COC Number:

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# Sample Receipt Checklist

| | | | |
|---|---|---|---|
| Client Name: | **Langan** | Date and Time Received | **3/27/2017 16:10** |
| Project Name: | **750635603; 260 30th Street** | Date Logged: | **3/28/2017** |
| | | Received by: | Maria Venegas |
| WorkOrder №: | **1703E11** Matrix: Soil | Logged by: | Maria Venegas |
| 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: 3.4°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:

# McCampbell Analytical, Inc.

*"When Quality Counts"*

# Analytical Report

**WorkOrder:** 1703F87 A

**Report Created for:** Langan

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

**Project Contact:** Josh Graber
**Project P.O.:**
**Project Name:** 750635603; 260 30th Street

**Project Received:** 03/30/2017

Analytical Report reviewed & approved for release on 04/13/2017 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.***

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CA ELAP 1644 ♦ NELAP 4033ORELAP

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# Glossary of Terms & Qualifier Definitions

**Client:** Langan
**Project:** 750635603; 260 30th Street
**WorkOrder:** 1703F87

## 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) |

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# Glossary of Terms & Qualifier Definitions

**Client:** Langan
**Project:** 750635603; 260 30th Street
**WorkOrder:** 1703F87

## Analytical Qualifiers

| | |
|---|---|
| S | surrogate spike recovery outside accepted recovery limits |
| 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 |
| e2 | diesel range compounds are significant; no recognizable pattern |
| e4 | gasoline range compounds are significant. |
| e7 | oil range compounds are significant |

## 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. |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/10/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-32-20.0 | 1703F87-009A | Soil | 03/29/2017 08:48 | GC18 | 137049 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 04/12/2017 17:58 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Benzene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Bromobenzene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Bromochloromethane | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Bromodichloromethane | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Bromoform | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Bromomethane | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 04/12/2017 17:58 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 04/12/2017 17:58 |
| n-Butyl benzene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Carbon Disulfide | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Chlorobenzene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Chloroethane | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Chloroform | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Chloromethane | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Dibromochloromethane | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 04/12/2017 17:58 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 04/12/2017 17:58 |
| Dibromomethane | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 04/12/2017 17:58 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 04/12/2017 17:58 |

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/10/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-32-20.0 | 1703F87-009A | Soil | 03/29/2017 08:48 | GC18 | 137049 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Ethylbenzene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Freon 113 | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Hexachloroethane | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 2-Hexanone | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Isopropylbenzene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Methylene chloride | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Naphthalene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| n-Propyl benzene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Styrene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Tetrachloroethene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Toluene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Trichloroethene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Vinyl Chloride | ND | 0.0050 | 1 | 04/12/2017 17:58 |
| Xylenes, Total | ND | 0.0050 | 1 | 04/12/2017 17:58 |

*(Cont.)*

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Angela Rydelius, Lab Manager

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/10/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-32-20.0** | **1703F87-009A** | **Soil** | **03/29/2017 08:48** | **GC18** | **137049** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 99 | 70-130 | | 04/12/2017 17:58 |
| Toluene-d8 | 104 | 70-130 | | 04/12/2017 17:58 |
| 4-BFB | 95 | 70-130 | | 04/12/2017 17:58 |
| Benzene-d6 | 83 | 60-140 | | 04/12/2017 17:58 |
| Ethylbenzene-d10 | 92 | 60-140 | | 04/12/2017 17:58 |
| 1,2-DCB-d4 | 72 | 60-140 | | 04/12/2017 17:58 |

Analyst(s): AK

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 4/10/17 | **BatchID:** | 137049 |
| **Date Analyzed:** | 4/11/17 - 4/12/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16, GC18 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137049 |

## 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 | 0.0391 | 0.0050 | 0.050 | - | 78 | 53-116 |
| Benzene | ND | 0.0495 | 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 | 0.144 | 0.050 | 0.20 | - | 72 | 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 | 0.0485 | 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 | 0.0441 | 0.0040 | 0.050 | - | 88 | 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 | 0.0448 | 0.0040 | 0.050 | - | 90 | 58-135 |
| 1,1-Dichloroethene | ND | 0.0490 | 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 | - | - | - | - |

*(Cont.)*

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QA/QC Officer

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 4/10/17 | **BatchID:** | 137049 |
| **Date Analyzed:** | 4/11/17 - 4/12/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16, GC18 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137049 |

## 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 | 0.0459 | 0.0050 | 0.050 | - | 92 | 52-129 |
| Ethylbenzene | ND | - | 0.0050 | - | - | - | - |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0438 | 0.0050 | 0.050 | - | 88 | 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 | 0.0425 | 0.0050 | 0.050 | - | 85 | 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 | 0.0496 | 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 | 0.0505 | 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 | - | - | - | - |

*(Cont.)*

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QA/QC Officer

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 4/10/17 | **BatchID:** | 137049 |
| **Date Analyzed:** | 4/11/17 - 4/12/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16, GC18 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137049 |

## QC Summary Report for SW8260B

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | | | |
| Dibromofluoromethane | 0.1074 | 0.125 | | 0.12 | 86 | 100 | 70-130 |
| Toluene-d8 | 0.1312 | 0.131 | | 0.12 | 105 | 105 | 70-130 |
| 4-BFB | 0.01178 | 0.0134 | | 0.012 | 94 | 107 | 70-130 |
| Benzene-d6 | 0.09094 | 0.0945 | | 0.10 | 91 | 95 | 60-140 |
| Ethylbenzene-d10 | 0.1062 | 0.106 | | 0.10 | 106 | 106 | 60-140 |
| 1,2-DCB-d4 | 0.07366 | 0.0839 | | 0.10 | 74 | 84 | 60-140 |

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Pittsburg, CA 94565-1701
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1703F87 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: 750635603; 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:*** **03/30/2017**
***Date Logged:*** **03/30/2017**
***Date Add-On:*** **04/10/2017**

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1703F87-009 | B-32-20.0 | Soil | 3/29/2017 08:48 | ☐ | A | | | | | | | | | | | |

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 8260B_S | 2 | | 3 | | 4 | |
| 5 | | 6 | | 7 | | 8 | |
| 9 | | 10 | | 11 | | 12 | |

**Prepared by: Alexandra Iniguez**

**Add-On Prepared By: Agustina Venegas**

**Comments:** 009 Taken off hold, set up for 8260 on a 72R Rush 4/10/17

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.

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# WORK ORDER SUMMARY

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

**Project:** 750635603; 260 30th Street
**Comments:** 009 Taken off hold, set up for 8260 on a 72R Rush 4/10/17

**Work Order:** 1703F87
**QC Level:** LEVEL 2
**Date Logged:** 3/30/2017
**Date Add-On:** 4/10/2017

| Lab ID | Client ID | Matrix | Test Name | Containers /Composites | Bottle & Preservative | Collection Date & Time | TAT | Sediment Content | Hold | SubOut |
|---|---|---|---|---|---|---|---|---|---|---|
| 1703F87-009A | B-32-20.0 | Soil | SW8260B (VOCs) | 1 | Acetate Liner | 3/29/2017 8:48 | 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.**

RUSH * PLEASE C.C. ANNIE S. AT KSTAEHLIN@LANGAN.COM * 10433

# LANGAN

## CHAIN OF CUSTODY RECORD

1703787

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: 960 30TH STREET
Job Number: 750635603
Project Manager\Contact: JOSH GRABER
Samplers: KARIANNE STAEHLIN
Recorder (Signature Required):

Turnaround Time: 72-HOUR

| Field Sample Identification No. | Date | Time | Lab Sample No. | Matrix: Soil | Water | Air | Other | No. Containers & Preservative: HCL | $H_2SO_4$ | $HNO_3$ | Ice | Analysis Requested: TPH 8015 d,mo | VOCs | PAHs (8310) | Silica gel clean-up | Hold | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-31-5.0 | 3/29/17 | 1138 | | X | | | | | | | X | | | | | X | * TAKEN OFF HOLD & PLACED ON A 72 HR 4/10/17 |
| B-31-12.5 | | 1155 | | X | | | | | | | X | X | X | | | | |
| B-31-15.0 | | 1200 | | X | | | | | | | X | X | X | | | | |
| B-31-20.0 | | 1219 | | X | | | | | | | X | | | | | X | |
| B-32-8.0 | | 0806 | | X | | | | | | | X | | | | | X | |
| B-32-10.0 | | 0810 | | X | | | | | | | X | X | X | | | | |
| B-32-12.5 | | 0830 | | X | | | | | | | X | X | X | | | | |
| B-32-15.0 | | 0835 | | X | | | | | | | X | X | X | | | | |
| B-32-20.0 | | 0848 | | X | | | | | | | X | | X | | | X | |
| B-34-5.0 | | 0900 | | X | | | | | | | X | | | | | X | |
| B-34-8.0 | | 0911 | | X | | | | | | | X | X | X | | | | |
| B-34-12.5 | | 0920 | | X | | | | | | | X | X | X | | | | |
| B-34-15.0 | | 0925 | | X | | | | | | | X | X | X | | | | |
| B-34-20.0 | 3/29/17 | 0934 | | X | | | | | | | X | | | | | X | |

| | | | |
|---|---|---|---|
| Relinquished by: (Signature) | Date: | Time | Received by: (Signature) / Date 3-30-17 / Time 1235 |
| Relinquished by: (Signature) | Date: 3-30-17 | Time 1420 | Received by: (Signature) / Date 3/30/17 / Time 1420 |
| Relinquished by: (Signature) | Date: | Time | Received by Lab: (Signature) / Date / Time |

Sent to Laboratory (Name): McCAMPBELL ANALYTICAL
Laboratory Comments/Notes:

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

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COC Number: 5.2 wet ice

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# Analytical Report

**WorkOrder:** 1703F87

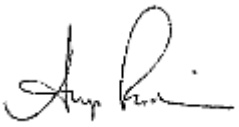
**Report Created for:** Langan

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

**Project Contact:** Josh Graber
**Project P.O.:**
**Project Name:** 750635603; 260 30th Street

**Project Received:** 03/30/2017

Analytical Report reviewed & approved for release on 04/05/2017 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.***

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# Glossary of Terms & Qualifier Definitions

**Client:** Langan
**Project:** 750635603; 260 30th Street
**WorkOrder:** 1703F87

## 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) |

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# Glossary of Terms & Qualifier Definitions

**Client:** Langan
**Project:** 750635603; 260 30th Street
**WorkOrder:** 1703F87

## Analytical Qualifiers

| | |
|---|---|
| S | surrogate spike recovery outside accepted recovery limits |
| 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 |
| e2 | diesel range compounds are significant; no recognizable pattern |
| e4 | gasoline range compounds are significant. |
| e7 | oil range compounds are significant |

## 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. |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-31-12.5 | 1703F87-002A | Soil | 03/29/2017 11:55 | GC10 | 136565 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 04/01/2017 14:33 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Benzene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Bromobenzene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Bromochloromethane | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Bromodichloromethane | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Bromoform | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Bromomethane | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 04/01/2017 14:33 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 04/01/2017 14:33 |
| n-Butyl benzene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Carbon Disulfide | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Chlorobenzene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Chloroethane | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Chloroform | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Chloromethane | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Dibromochloromethane | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 04/01/2017 14:33 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 04/01/2017 14:33 |
| Dibromomethane | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 04/01/2017 14:33 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 04/01/2017 14:33 |

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-31-12.5 | 1703F87-002A | Soil | 03/29/2017 11:55 | GC10 | 136565 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Ethylbenzene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Freon 113 | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Hexachloroethane | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 2-Hexanone | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Isopropylbenzene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Methylene chloride | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Naphthalene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| n-Propyl benzene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Styrene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Tetrachloroethene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Toluene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Trichloroethene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Vinyl Chloride | ND | 0.0050 | 1 | 04/01/2017 14:33 |
| Xylenes, Total | ND | 0.0050 | 1 | 04/01/2017 14:33 |

*(Cont.)*

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Angela Rydelius, Lab Manager

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-31-12.5** | **1703F87-002A** | **Soil** | **03/29/2017 11:55** | **GC10** | **136565** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 85 | 70-130 | | 04/01/2017 14:33 |
| Toluene-d8 | 106 | 70-130 | | 04/01/2017 14:33 |
| 4-BFB | 75 | 70-130 | | 04/01/2017 14:33 |
| Benzene-d6 | 84 | 60-140 | | 04/01/2017 14:33 |
| Ethylbenzene-d10 | 99 | 60-140 | | 04/01/2017 14:33 |
| 1,2-DCB-d4 | 71 | 60-140 | | 04/01/2017 14:33 |

Analyst(s): KF

*(Cont.)*

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Angela Rydelius, Lab Manager

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-31-15.0 | 1703F87-003A | Soil | 03/29/2017 12:00 | GC18 | 136485 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 03/31/2017 15:47 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Benzene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Bromobenzene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Bromochloromethane | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Bromodichloromethane | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Bromoform | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Bromomethane | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 03/31/2017 15:47 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 03/31/2017 15:47 |
| n-Butyl benzene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Carbon Disulfide | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Chlorobenzene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Chloroethane | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Chloroform | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Chloromethane | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Dibromochloromethane | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 03/31/2017 15:47 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 03/31/2017 15:47 |
| Dibromomethane | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 03/31/2017 15:47 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 03/31/2017 15:47 |

*(Cont.)*

NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-31-15.0 | 1703F87-003A | Soil | 03/29/2017 12:00 | GC18 | 136485 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Ethylbenzene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Freon 113 | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Hexachloroethane | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 2-Hexanone | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Isopropylbenzene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Methylene chloride | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Naphthalene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| n-Propyl benzene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Styrene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Tetrachloroethene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Toluene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Trichloroethene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Vinyl Chloride | ND | 0.0050 | 1 | 03/31/2017 15:47 |
| Xylenes, Total | ND | 0.0050 | 1 | 03/31/2017 15:47 |

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-31-15.0** | **1703F87-003A** | **Soil** | **03/29/2017 12:00** | **GC18** | **136485** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 96 | 70-130 | | 03/31/2017 15:47 |
| Toluene-d8 | 106 | 70-130 | | 03/31/2017 15:47 |
| 4-BFB | 95 | 70-130 | | 03/31/2017 15:47 |
| Benzene-d6 | 82 | 60-140 | | 03/31/2017 15:47 |
| Ethylbenzene-d10 | 96 | 60-140 | | 03/31/2017 15:47 |
| 1,2-DCB-d4 | 80 | 60-140 | | 03/31/2017 15:47 |

Analyst(s): AK

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-32-10.0** | **1703F87-006A** | **Soil** | **03/29/2017 08:10** | **GC10** | **136485** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 10 | 100 | 04/01/2017 15:51 |
| tert-Amyl methyl ether (TAME) | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Benzene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Bromobenzene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Bromochloromethane | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Bromodichloromethane | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Bromoform | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Bromomethane | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 2-Butanone (MEK) | ND | 2.0 | 100 | 04/01/2017 15:51 |
| t-Butyl alcohol (TBA) | ND | 5.0 | 100 | 04/01/2017 15:51 |
| n-Butyl benzene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| sec-Butyl benzene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| tert-Butyl benzene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Carbon Disulfide | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Carbon Tetrachloride | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Chlorobenzene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Chloroethane | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Chloroform | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Chloromethane | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 2-Chlorotoluene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 4-Chlorotoluene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Dibromochloromethane | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 1,2-Dibromo-3-chloropropane | ND | 0.40 | 100 | 04/01/2017 15:51 |
| 1,2-Dibromoethane (EDB) | ND | 0.40 | 100 | 04/01/2017 15:51 |
| Dibromomethane | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 1,2-Dichlorobenzene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 1,3-Dichlorobenzene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 1,4-Dichlorobenzene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Dichlorodifluoromethane | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 1,1-Dichloroethane | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.40 | 100 | 04/01/2017 15:51 |
| 1,1-Dichloroethene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| cis-1,2-Dichloroethene | **0.51** | 0.50 | 100 | 04/01/2017 15:51 |
| trans-1,2-Dichloroethene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 1,2-Dichloropropane | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 1,3-Dichloropropane | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 2,2-Dichloropropane | ND | 0.50 | 100 | 04/01/2017 15:51 |

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-32-10.0** | **1703F87-006A** | **Soil** | **03/29/2017 08:10** | **GC10** | **136485** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| cis-1,3-Dichloropropene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| trans-1,3-Dichloropropene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Diisopropyl ether (DIPE) | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Ethylbenzene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Freon 113 | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Hexachlorobutadiene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Hexachloroethane | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 2-Hexanone | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Isopropylbenzene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 4-Isopropyl toluene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Methyl-t-butyl ether (MTBE) | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Methylene chloride | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Naphthalene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| n-Propyl benzene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Styrene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 1,1,1,2-Tetrachloroethane | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 1,1,2,2-Tetrachloroethane | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Tetrachloroethene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Toluene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 1,2,3-Trichlorobenzene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 1,2,4-Trichlorobenzene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 1,1,1-Trichloroethane | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 1,1,2-Trichloroethane | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Trichloroethene | **5.2** | 0.50 | 100 | 04/01/2017 15:51 |
| Trichlorofluoromethane | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 1,2,3-Trichloropropane | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 1,2,4-Trimethylbenzene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| 1,3,5-Trimethylbenzene | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Vinyl Chloride | ND | 0.50 | 100 | 04/01/2017 15:51 |
| Xylenes, Total | ND | 0.50 | 100 | 04/01/2017 15:51 |

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-32-10.0** | **1703F87-006A** | **Soil** | **03/29/2017 08:10** | **GC10** | **136485** |

| Analytes | Result | | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Surrogates | REC (%) | Qualifiers | Limits | | |
| Dibromofluoromethane | 86 | | 70-130 | | 04/01/2017 15:51 |
| Toluene-d8 | 96 | | 70-130 | | 04/01/2017 15:51 |
| 4-BFB | 70 | | 70-130 | | 04/01/2017 15:51 |
| Benzene-d6 | 0 | S | 60-140 | | 04/01/2017 15:51 |
| Ethylbenzene-d10 | 0 | S | 60-140 | | 04/01/2017 15:51 |
| 1,2-DCB-d4 | 0 | S | 60-140 | | 04/01/2017 15:51 |

Analyst(s): KF  Analytical Comments: c7

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-32-12.5 | 1703F87-007A | Soil | 03/29/2017 08:30 | GC10 | 136485 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.40 | 4 | 04/01/2017 20:32 |
| tert-Amyl methyl ether (TAME) | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Benzene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Bromobenzene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Bromochloromethane | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Bromodichloromethane | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Bromoform | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Bromomethane | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 2-Butanone (MEK) | ND | 0.080 | 4 | 04/01/2017 20:32 |
| t-Butyl alcohol (TBA) | ND | 0.20 | 4 | 04/01/2017 20:32 |
| n-Butyl benzene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| sec-Butyl benzene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| tert-Butyl benzene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Carbon Disulfide | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Carbon Tetrachloride | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Chlorobenzene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Chloroethane | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Chloroform | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Chloromethane | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 2-Chlorotoluene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 4-Chlorotoluene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Dibromochloromethane | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 1,2-Dibromo-3-chloropropane | ND | 0.016 | 4 | 04/01/2017 20:32 |
| 1,2-Dibromoethane (EDB) | ND | 0.016 | 4 | 04/01/2017 20:32 |
| Dibromomethane | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 1,2-Dichlorobenzene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 1,3-Dichlorobenzene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 1,4-Dichlorobenzene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Dichlorodifluoromethane | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 1,1-Dichloroethane | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.016 | 4 | 04/01/2017 20:32 |
| 1,1-Dichloroethene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| cis-1,2-Dichloroethene | **0.040** | 0.020 | 4 | 04/01/2017 20:32 |
| trans-1,2-Dichloroethene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 1,2-Dichloropropane | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 1,3-Dichloropropane | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 2,2-Dichloropropane | ND | 0.020 | 4 | 04/01/2017 20:32 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-32-12.5** | **1703F87-007A** | **Soil** | **03/29/2017 08:30** | **GC10** | **136485** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| cis-1,3-Dichloropropene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| trans-1,3-Dichloropropene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Diisopropyl ether (DIPE) | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Ethylbenzene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Freon 113 | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Hexachlorobutadiene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Hexachloroethane | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 2-Hexanone | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Isopropylbenzene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 4-Isopropyl toluene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Methyl-t-butyl ether (MTBE) | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Methylene chloride | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Naphthalene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| n-Propyl benzene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Styrene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 1,1,1,2-Tetrachloroethane | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 1,1,2,2-Tetrachloroethane | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Tetrachloroethene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Toluene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 1,2,3-Trichlorobenzene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 1,2,4-Trichlorobenzene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 1,1,1-Trichloroethane | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 1,1,2-Trichloroethane | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Trichloroethene | **0.28** | 0.020 | 4 | 04/01/2017 20:32 |
| Trichlorofluoromethane | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 1,2,3-Trichloropropane | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 1,2,4-Trimethylbenzene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| 1,3,5-Trimethylbenzene | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Vinyl Chloride | ND | 0.020 | 4 | 04/01/2017 20:32 |
| Xylenes, Total | ND | 0.020 | 4 | 04/01/2017 20:32 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-32-12.5** | **1703F87-007A** | **Soil** | **03/29/2017 08:30** | **GC10** | **136485** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 86 | 70-130 | | 04/01/2017 20:32 |
| Toluene-d8 | 98 | 70-130 | | 04/01/2017 20:32 |
| 4-BFB | 71 | 70-130 | | 04/01/2017 20:32 |
| Benzene-d6 | 70 | 60-140 | | 04/01/2017 20:32 |
| Ethylbenzene-d10 | 72 | 60-140 | | 04/01/2017 20:32 |
| 1,2-DCB-d4 | 66 | 60-140 | | 04/01/2017 20:32 |

Analyst(s): KF

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-32-15.0 | 1703F87-008A | Soil | 03/29/2017 08:35 | GC10 | 136485 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 04/01/2017 21:11 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Benzene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Bromobenzene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Bromochloromethane | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Bromodichloromethane | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Bromoform | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Bromomethane | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 04/01/2017 21:11 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 04/01/2017 21:11 |
| n-Butyl benzene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Carbon Disulfide | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Chlorobenzene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Chloroethane | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Chloroform | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Chloromethane | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Dibromochloromethane | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 04/01/2017 21:11 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 04/01/2017 21:11 |
| Dibromomethane | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 04/01/2017 21:11 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 04/01/2017 21:11 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-32-15.0** | **1703F87-008A** | **Soil** | **03/29/2017 08:35** | **GC10** | **136485** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Ethylbenzene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Freon 113 | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Hexachloroethane | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 2-Hexanone | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Isopropylbenzene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Methylene chloride | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Naphthalene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| n-Propyl benzene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Styrene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Tetrachloroethene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Toluene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Trichloroethene | **0.011** | 0.0050 | 1 | 04/01/2017 21:11 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Vinyl Chloride | ND | 0.0050 | 1 | 04/01/2017 21:11 |
| Xylenes, Total | ND | 0.0050 | 1 | 04/01/2017 21:11 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-32-15.0** | **1703F87-008A** | **Soil** | **03/29/2017 08:35** | **GC10** | **136485** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 85 | 70-130 | | 04/01/2017 21:11 |
| Toluene-d8 | 106 | 70-130 | | 04/01/2017 21:11 |
| 4-BFB | 74 | 70-130 | | 04/01/2017 21:11 |
| Benzene-d6 | 74 | 60-140 | | 04/01/2017 21:11 |
| Ethylbenzene-d10 | 91 | 60-140 | | 04/01/2017 21:11 |
| 1,2-DCB-d4 | 69 | 60-140 | | 04/01/2017 21:11 |

Analyst(s): KF

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-34-8.0 | 1703F87-011A | Soil | 03/29/2017 09:11 | GC10 | 136485 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.40 | 4 | 04/01/2017 21:50 |
| tert-Amyl methyl ether (TAME) | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Benzene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Bromobenzene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Bromochloromethane | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Bromodichloromethane | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Bromoform | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Bromomethane | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 2-Butanone (MEK) | ND | 0.080 | 4 | 04/01/2017 21:50 |
| t-Butyl alcohol (TBA) | ND | 0.20 | 4 | 04/01/2017 21:50 |
| n-Butyl benzene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| sec-Butyl benzene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| tert-Butyl benzene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Carbon Disulfide | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Carbon Tetrachloride | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Chlorobenzene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Chloroethane | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Chloroform | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Chloromethane | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 2-Chlorotoluene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 4-Chlorotoluene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Dibromochloromethane | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 1,2-Dibromo-3-chloropropane | ND | 0.016 | 4 | 04/01/2017 21:50 |
| 1,2-Dibromoethane (EDB) | ND | 0.016 | 4 | 04/01/2017 21:50 |
| Dibromomethane | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 1,2-Dichlorobenzene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 1,3-Dichlorobenzene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 1,4-Dichlorobenzene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Dichlorodifluoromethane | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 1,1-Dichloroethane | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.016 | 4 | 04/01/2017 21:50 |
| 1,1-Dichloroethene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| cis-1,2-Dichloroethene | **0.027** | 0.020 | 4 | 04/01/2017 21:50 |
| trans-1,2-Dichloroethene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 1,2-Dichloropropane | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 1,3-Dichloropropane | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 2,2-Dichloropropane | ND | 0.020 | 4 | 04/01/2017 21:50 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-34-8.0** | **1703F87-011A** | **Soil** | **03/29/2017 09:11** | **GC10** | **136485** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| cis-1,3-Dichloropropene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| trans-1,3-Dichloropropene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Diisopropyl ether (DIPE) | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Ethylbenzene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Freon 113 | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Hexachlorobutadiene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Hexachloroethane | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 2-Hexanone | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Isopropylbenzene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 4-Isopropyl toluene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Methyl-t-butyl ether (MTBE) | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Methylene chloride | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Naphthalene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| n-Propyl benzene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Styrene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 1,1,1,2-Tetrachloroethane | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 1,1,2,2-Tetrachloroethane | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Tetrachloroethene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Toluene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 1,2,3-Trichlorobenzene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 1,2,4-Trichlorobenzene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 1,1,1-Trichloroethane | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 1,1,2-Trichloroethane | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Trichloroethene | **0.39** | 0.020 | 4 | 04/01/2017 21:50 |
| Trichlorofluoromethane | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 1,2,3-Trichloropropane | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 1,2,4-Trimethylbenzene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| 1,3,5-Trimethylbenzene | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Vinyl Chloride | ND | 0.020 | 4 | 04/01/2017 21:50 |
| Xylenes, Total | ND | 0.020 | 4 | 04/01/2017 21:50 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-34-8.0** | **1703F87-011A** | **Soil** | **03/29/2017 09:11** | **GC10** | **136485** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 86 | 70-130 | | 04/01/2017 21:50 |
| Toluene-d8 | 93 | 70-130 | | 04/01/2017 21:50 |
| 4-BFB | 72 | 70-130 | | 04/01/2017 21:50 |
| Benzene-d6 | 66 | 60-140 | | 04/01/2017 21:50 |
| Ethylbenzene-d10 | 72 | 60-140 | | 04/01/2017 21:50 |
| 1,2-DCB-d4 | 71 | 60-140 | | 04/01/2017 21:50 |

Analyst(s): KF

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-34-12.5** | **1703F87-012A** | **Soil** | **03/29/2017 09:20** | **GC18** | **136485** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 04/01/2017 06:03 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Benzene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Bromobenzene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Bromochloromethane | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Bromodichloromethane | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Bromoform | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Bromomethane | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 04/01/2017 06:03 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 04/01/2017 06:03 |
| n-Butyl benzene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Carbon Disulfide | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Chlorobenzene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Chloroethane | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Chloroform | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Chloromethane | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Dibromochloromethane | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 04/01/2017 06:03 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 04/01/2017 06:03 |
| Dibromomethane | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 04/01/2017 06:03 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| cis-1,2-Dichloroethene | **0.011** | 0.0050 | 1 | 04/01/2017 06:03 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 04/01/2017 06:03 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-34-12.5** | **1703F87-012A** | **Soil** | **03/29/2017 09:20** | **GC18** | **136485** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Ethylbenzene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Freon 113 | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Hexachloroethane | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 2-Hexanone | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Isopropylbenzene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Methylene chloride | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Naphthalene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| n-Propyl benzene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Styrene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Tetrachloroethene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Toluene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Trichloroethene | **0.043** | 0.0050 | 1 | 04/01/2017 06:03 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Vinyl Chloride | ND | 0.0050 | 1 | 04/01/2017 06:03 |
| Xylenes, Total | ND | 0.0050 | 1 | 04/01/2017 06:03 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-34-12.5** | **1703F87-012A** | **Soil** | **03/29/2017 09:20** | **GC18** | **136485** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 101 | 70-130 | | 04/01/2017 06:03 |
| Toluene-d8 | 105 | 70-130 | | 04/01/2017 06:03 |
| 4-BFB | 89 | 70-130 | | 04/01/2017 06:03 |
| Benzene-d6 | 79 | 60-140 | | 04/01/2017 06:03 |
| Ethylbenzene-d10 | 87 | 60-140 | | 04/01/2017 06:03 |
| 1,2-DCB-d4 | 70 | 60-140 | | 04/01/2017 06:03 |

Analyst(s): AK

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-34-15.0 | 1703F87-013A | Soil | 03/29/2017 09:25 | GC10 | 136485 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 04/01/2017 04:28 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Benzene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Bromobenzene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Bromochloromethane | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Bromodichloromethane | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Bromoform | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Bromomethane | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 04/01/2017 04:28 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 04/01/2017 04:28 |
| n-Butyl benzene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Carbon Disulfide | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Chlorobenzene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Chloroethane | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Chloroform | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Chloromethane | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Dibromochloromethane | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 04/01/2017 04:28 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 04/01/2017 04:28 |
| Dibromomethane | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 04/01/2017 04:28 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 04/01/2017 04:28 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-34-15.0 | 1703F87-013A | Soil | 03/29/2017 09:25 | GC10 | 136485 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Ethylbenzene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Freon 113 | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Hexachloroethane | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 2-Hexanone | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Isopropylbenzene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Methylene chloride | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Naphthalene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| n-Propyl benzene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Styrene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Tetrachloroethene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Toluene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Trichloroethene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Vinyl Chloride | ND | 0.0050 | 1 | 04/01/2017 04:28 |
| Xylenes, Total | ND | 0.0050 | 1 | 04/01/2017 04:28 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-34-15.0** | **1703F87-013A** | **Soil** | **03/29/2017 09:25** | **GC10** | **136485** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 86 | 70-130 | | 04/01/2017 04:28 |
| Toluene-d8 | 103 | 70-130 | | 04/01/2017 04:28 |
| 4-BFB | 76 | 70-130 | | 04/01/2017 04:28 |
| Benzene-d6 | 83 | 60-140 | | 04/01/2017 04:28 |
| Ethylbenzene-d10 | 95 | 60-140 | | 04/01/2017 04:28 |
| 1,2-DCB-d4 | 71 | 60-140 | | 04/01/2017 04:28 |

Analyst(s): AK

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-35-10.0 | 1703F87-016A | Soil | 03/29/2017 10:12 | GC10 | 136565 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 04/01/2017 15:12 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Benzene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Bromobenzene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Bromochloromethane | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Bromodichloromethane | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Bromoform | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Bromomethane | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 04/01/2017 15:12 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 04/01/2017 15:12 |
| n-Butyl benzene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Carbon Disulfide | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Chlorobenzene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Chloroethane | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Chloroform | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Chloromethane | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Dibromochloromethane | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 04/01/2017 15:12 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 04/01/2017 15:12 |
| Dibromomethane | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 04/01/2017 15:12 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 04/01/2017 15:12 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-35-10.0 | 1703F87-016A | Soil | 03/29/2017 10:12 | GC10 | 136565 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Ethylbenzene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Freon 113 | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Hexachloroethane | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 2-Hexanone | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Isopropylbenzene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Methylene chloride | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Naphthalene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| n-Propyl benzene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Styrene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Tetrachloroethene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Toluene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Trichloroethene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Vinyl Chloride | ND | 0.0050 | 1 | 04/01/2017 15:12 |
| Xylenes, Total | ND | 0.0050 | 1 | 04/01/2017 15:12 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17-4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-35-10.0** | **1703F87-016A** | **Soil** | **03/29/2017 10:12** | **GC10** | **136565** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 84 | 70-130 | | 04/01/2017 15:12 |
| Toluene-d8 | 108 | 70-130 | | 04/01/2017 15:12 |
| 4-BFB | 75 | 70-130 | | 04/01/2017 15:12 |
| Benzene-d6 | 89 | 60-140 | | 04/01/2017 15:12 |
| Ethylbenzene-d10 | 107 | 60-140 | | 04/01/2017 15:12 |
| 1,2-DCB-d4 | 74 | 60-140 | | 04/01/2017 15:12 |

Analyst(s): KF

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-31-GW** | **1703F87-020B** | **Water** | **03/29/2017 15:05** | **GC18** | **136542** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 33 | 3.3 | 04/01/2017 03:28 |
| tert-Amyl methyl ether (TAME) | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Benzene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Bromobenzene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Bromochloromethane | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Bromodichloromethane | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Bromoform | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Bromomethane | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 2-Butanone (MEK) | ND | 6.7 | 3.3 | 04/01/2017 03:28 |
| t-Butyl alcohol (TBA) | ND | 6.7 | 3.3 | 04/01/2017 03:28 |
| n-Butyl benzene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| sec-Butyl benzene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| tert-Butyl benzene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Carbon Disulfide | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Carbon Tetrachloride | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Chlorobenzene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Chloroethane | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Chloroform | **1.8** | 1.7 | 3.3 | 04/01/2017 03:28 |
| Chloromethane | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 2-Chlorotoluene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 4-Chlorotoluene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Dibromochloromethane | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 1,2-Dibromo-3-chloropropane | ND | 0.67 | 3.3 | 04/01/2017 03:28 |
| 1,2-Dibromoethane (EDB) | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Dibromomethane | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 1,2-Dichlorobenzene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 1,3-Dichlorobenzene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 1,4-Dichlorobenzene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Dichlorodifluoromethane | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 1,1-Dichloroethane | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 1,1-Dichloroethene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| cis-1,2-Dichloroethene | **72** | 1.7 | 3.3 | 04/01/2017 03:28 |
| trans-1,2-Dichloroethene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 1,2-Dichloropropane | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 1,3-Dichloropropane | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 2,2-Dichloropropane | ND | 1.7 | 3.3 | 04/01/2017 03:28 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-31-GW** | **1703F87-020B** | **Water** | **03/29/2017 15:05** | **GC18** | **136542** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| cis-1,3-Dichloropropene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| trans-1,3-Dichloropropene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Diisopropyl ether (DIPE) | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Ethylbenzene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Ethyl tert-butyl ether (ETBE) | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Freon 113 | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Hexachlorobutadiene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Hexachloroethane | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 2-Hexanone | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Isopropylbenzene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 4-Isopropyl toluene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Methyl-t-butyl ether (MTBE) | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Methylene chloride | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 4-Methyl-2-pentanone (MIBK) | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Naphthalene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| n-Propyl benzene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Styrene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 1,1,1,2-Tetrachloroethane | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 1,1,2,2-Tetrachloroethane | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Tetrachloroethene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Toluene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 1,2,3-Trichlorobenzene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 1,2,4-Trichlorobenzene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 1,1,1-Trichloroethane | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 1,1,2-Trichloroethane | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Trichloroethene | **68** | 1.7 | 3.3 | 04/01/2017 03:28 |
| Trichlorofluoromethane | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 1,2,3-Trichloropropane | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 1,2,4-Trimethylbenzene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| 1,3,5-Trimethylbenzene | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Vinyl Chloride | ND | 1.7 | 3.3 | 04/01/2017 03:28 |
| Xylenes, Total | ND | 1.7 | 3.3 | 04/01/2017 03:28 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-31-GW** | **1703F87-020B** | **Water** | **03/29/2017 15:05** | **GC18** | **136542** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 107 | 70-130 | | 04/01/2017 03:28 |
| Toluene-d8 | 96 | 70-130 | | 04/01/2017 03:28 |
| 4-BFB | 82 | 70-130 | | 04/01/2017 03:28 |

Analyst(s): AK  Analytical Comments: b1

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-34-GW** | **1703F87-021B** | **Water** | **03/29/2017 14:50** | **GC18** | **136542** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 50 | 5 | 04/01/2017 04:07 |
| tert-Amyl methyl ether (TAME) | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Benzene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Bromobenzene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Bromochloromethane | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Bromodichloromethane | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Bromoform | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Bromomethane | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 2-Butanone (MEK) | ND | 10 | 5 | 04/01/2017 04:07 |
| t-Butyl alcohol (TBA) | ND | 10 | 5 | 04/01/2017 04:07 |
| n-Butyl benzene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| sec-Butyl benzene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| tert-Butyl benzene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Carbon Disulfide | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Carbon Tetrachloride | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Chlorobenzene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Chloroethane | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Chloroform | **2.9** | 2.5 | 5 | 04/01/2017 04:07 |
| Chloromethane | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 2-Chlorotoluene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 4-Chlorotoluene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Dibromochloromethane | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 1,2-Dibromo-3-chloropropane | ND | 1.0 | 5 | 04/01/2017 04:07 |
| 1,2-Dibromoethane (EDB) | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Dibromomethane | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 1,2-Dichlorobenzene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 1,3-Dichlorobenzene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 1,4-Dichlorobenzene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Dichlorodifluoromethane | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 1,1-Dichloroethane | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 1,1-Dichloroethene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| cis-1,2-Dichloroethene | **26** | 2.5 | 5 | 04/01/2017 04:07 |
| trans-1,2-Dichloroethene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 1,2-Dichloropropane | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 1,3-Dichloropropane | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 2,2-Dichloropropane | ND | 2.5 | 5 | 04/01/2017 04:07 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-34-GW** | **1703F87-021B** | **Water** | **03/29/2017 14:50** | **GC18** | **136542** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| cis-1,3-Dichloropropene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| trans-1,3-Dichloropropene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Diisopropyl ether (DIPE) | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Ethylbenzene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Ethyl tert-butyl ether (ETBE) | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Freon 113 | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Hexachlorobutadiene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Hexachloroethane | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 2-Hexanone | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Isopropylbenzene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 4-Isopropyl toluene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Methyl-t-butyl ether (MTBE) | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Methylene chloride | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 4-Methyl-2-pentanone (MIBK) | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Naphthalene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| n-Propyl benzene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Styrene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 1,1,1,2-Tetrachloroethane | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 1,1,2,2-Tetrachloroethane | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Tetrachloroethene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Toluene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 1,2,3-Trichlorobenzene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 1,2,4-Trichlorobenzene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 1,1,1-Trichloroethane | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 1,1,2-Trichloroethane | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Trichloroethene | **160** | 2.5 | 5 | 04/01/2017 04:07 |
| Trichlorofluoromethane | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 1,2,3-Trichloropropane | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 1,2,4-Trimethylbenzene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| 1,3,5-Trimethylbenzene | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Vinyl Chloride | ND | 2.5 | 5 | 04/01/2017 04:07 |
| Xylenes, Total | ND | 2.5 | 5 | 04/01/2017 04:07 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-34-GW** | **1703F87-021B** | **Water** | **03/29/2017 14:50** | **GC18** | **136542** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 107 | 70-130 | | 04/01/2017 04:07 |
| Toluene-d8 | 95 | 70-130 | | 04/01/2017 04:07 |
| 4-BFB | 83 | 70-130 | | 04/01/2017 04:07 |

Analyst(s): AK  Analytical Comments: b1

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-35-GW** | **1703F87-022B** | **Water** | **03/29/2017 14:40** | **GC18** | **136542** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 10 | 1 | 04/01/2017 04:45 |
| tert-Amyl methyl ether (TAME) | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Benzene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Bromobenzene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Bromochloromethane | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Bromodichloromethane | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Bromoform | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Bromomethane | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 2-Butanone (MEK) | ND | 2.0 | 1 | 04/01/2017 04:45 |
| t-Butyl alcohol (TBA) | ND | 2.0 | 1 | 04/01/2017 04:45 |
| n-Butyl benzene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| sec-Butyl benzene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| tert-Butyl benzene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Carbon Disulfide | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Carbon Tetrachloride | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Chlorobenzene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Chloroethane | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Chloroform | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Chloromethane | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 2-Chlorotoluene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 4-Chlorotoluene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Dibromochloromethane | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 1,2-Dibromo-3-chloropropane | ND | 0.20 | 1 | 04/01/2017 04:45 |
| 1,2-Dibromoethane (EDB) | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Dibromomethane | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 1,2-Dichlorobenzene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 1,3-Dichlorobenzene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 1,4-Dichlorobenzene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Dichlorodifluoromethane | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 1,1-Dichloroethane | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 1,1-Dichloroethene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| cis-1,2-Dichloroethene | **1.0** | 0.50 | 1 | 04/01/2017 04:45 |
| trans-1,2-Dichloroethene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 1,2-Dichloropropane | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 1,3-Dichloropropane | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 2,2-Dichloropropane | ND | 0.50 | 1 | 04/01/2017 04:45 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-35-GW** | **1703F87-022B** | **Water** | **03/29/2017 14:40** | **GC18** | **136542** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| cis-1,3-Dichloropropene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| trans-1,3-Dichloropropene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Diisopropyl ether (DIPE) | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Ethylbenzene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Freon 113 | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Hexachlorobutadiene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Hexachloroethane | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 2-Hexanone | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Isopropylbenzene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 4-Isopropyl toluene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Methyl-t-butyl ether (MTBE) | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Methylene chloride | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Naphthalene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| n-Propyl benzene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Styrene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 1,1,1,2-Tetrachloroethane | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 1,1,2,2-Tetrachloroethane | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Tetrachloroethene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Toluene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 1,2,3-Trichlorobenzene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 1,2,4-Trichlorobenzene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 1,1,1-Trichloroethane | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 1,1,2-Trichloroethane | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Trichloroethene | **4.3** | 0.50 | 1 | 04/01/2017 04:45 |
| Trichlorofluoromethane | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 1,2,3-Trichloropropane | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 1,2,4-Trimethylbenzene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| 1,3,5-Trimethylbenzene | ND | 0.50 | 1 | 04/01/2017 04:45 |
| Vinyl Chloride | **0.79** | 0.50 | 1 | 04/01/2017 04:45 |
| Xylenes, Total | ND | 0.50 | 1 | 04/01/2017 04:45 |

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-35-GW** | **1703F87-022B** | **Water** | **03/29/2017 14:40** | **GC18** | **136542** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 106 | 70-130 | | 04/01/2017 04:45 |
| Toluene-d8 | 96 | 70-130 | | 04/01/2017 04:45 |
| 4-BFB | 85 | 70-130 | | 04/01/2017 04:45 |

Analyst(s): AK  Analytical Comments: b1

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW3510C |
| **Date Prepared:** | 4/4/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 260 30th Street | **Unit:** | µg/L |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-31-GW** | **1703F87-020C** | **Water** | **03/29/2017 15:05** | **HPLC4** | **136711** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.0500 | 1 | 04/04/2017 15:27 |
| Acenaphthylene | ND | 0.0500 | 1 | 04/04/2017 15:27 |
| Anthracene | ND | 0.0500 | 1 | 04/04/2017 15:27 |
| Benzo (a) anthracene | ND | 0.0250 | 1 | 04/04/2017 15:27 |
| Benzo (a) pyrene | ND | 0.0500 | 1 | 04/04/2017 15:27 |
| Benzo (b) fluoranthene | ND | 0.0250 | 1 | 04/04/2017 15:27 |
| Benzo (k) fluoranthene | ND | 0.0250 | 1 | 04/04/2017 15:27 |
| Benzo (g,h,i) perylene | ND | 0.0500 | 1 | 04/04/2017 15:27 |
| Chrysene | ND | 0.0500 | 1 | 04/04/2017 15:27 |
| Dibenzo (a,h) anthracene | ND | 0.0500 | 1 | 04/04/2017 15:27 |
| Fluoranthene | ND | 0.0500 | 1 | 04/04/2017 15:27 |
| Fluorene | ND | 0.0500 | 1 | 04/04/2017 15:27 |
| Indeno (1,2,3-cd) pyrene | ND | 0.0250 | 1 | 04/04/2017 15:27 |
| 1-Methylnaphthalene | ND | 0.0500 | 1 | 04/04/2017 15:27 |
| 2-Methylnaphthalene | ND | 0.0500 | 1 | 04/04/2017 15:27 |
| Naphthalene | **0.0632** | 0.0500 | 1 | 04/04/2017 15:27 |
| Phenanthrene | ND | 0.0500 | 1 | 04/04/2017 15:27 |
| Pyrene | ND | 0.0500 | 1 | 04/04/2017 15:27 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 87 | 70-130 | 04/04/2017 15:27 |
| | 0 | 0-0 | 04/04/2017 15:27 |

Analyst(s): BBO

Analytical Comments: b1

*(Cont.)*

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW3510C |
| **Date Prepared:** | 4/4/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 260 30th Street | **Unit:** | µg/L |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-34-GW** | **1703F87-021C** | **Water** | **03/29/2017 14:50** | **HPLC4** | **136711** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.0500 | 1 | 04/04/2017 17:39 |
| Acenaphthylene | ND | 0.0500 | 1 | 04/04/2017 17:39 |
| Anthracene | ND | 0.0500 | 1 | 04/04/2017 17:39 |
| Benzo (a) anthracene | ND | 0.0250 | 1 | 04/04/2017 17:39 |
| Benzo (a) pyrene | ND | 0.0500 | 1 | 04/04/2017 17:39 |
| Benzo (b) fluoranthene | ND | 0.0250 | 1 | 04/04/2017 17:39 |
| Benzo (k) fluoranthene | ND | 0.0250 | 1 | 04/04/2017 17:39 |
| Benzo (g,h,i) perylene | ND | 0.0500 | 1 | 04/04/2017 17:39 |
| Chrysene | ND | 0.0500 | 1 | 04/04/2017 17:39 |
| Dibenzo (a,h) anthracene | ND | 0.0500 | 1 | 04/04/2017 17:39 |
| Fluoranthene | ND | 0.0500 | 1 | 04/04/2017 17:39 |
| Fluorene | ND | 0.0500 | 1 | 04/04/2017 17:39 |
| Indeno (1,2,3-cd) pyrene | ND | 0.0250 | 1 | 04/04/2017 17:39 |
| 1-Methylnaphthalene | ND | 0.0500 | 1 | 04/04/2017 17:39 |
| 2-Methylnaphthalene | ND | 0.0500 | 1 | 04/04/2017 17:39 |
| Naphthalene | **0.0735** | 0.0500 | 1 | 04/04/2017 17:39 |
| Phenanthrene | ND | 0.0500 | 1 | 04/04/2017 17:39 |
| Pyrene | ND | 0.0500 | 1 | 04/04/2017 17:39 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 93 | 70-130 | 04/04/2017 17:39 |
| 4,4-Dichlorobiphenyl | 79 | 70-130 | 04/04/2017 17:39 |

Analyst(s): BBO  Analytical Comments: b1

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW3510C |
| **Date Prepared:** | 4/4/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 260 30th Street | **Unit:** | µg/L |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-35-GW | 1703F87-022C | Water | 03/29/2017 14:40 | HPLC4 | 136711 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.0500 | 1 | 04/04/2017 18:23 |
| Acenaphthylene | ND | 0.0500 | 1 | 04/04/2017 18:23 |
| Anthracene | ND | 0.0500 | 1 | 04/04/2017 18:23 |
| Benzo (a) anthracene | ND | 0.0250 | 1 | 04/04/2017 18:23 |
| Benzo (a) pyrene | ND | 0.0500 | 1 | 04/04/2017 18:23 |
| Benzo (b) fluoranthene | ND | 0.0250 | 1 | 04/04/2017 18:23 |
| Benzo (k) fluoranthene | ND | 0.0250 | 1 | 04/04/2017 18:23 |
| Benzo (g,h,i) perylene | ND | 0.0500 | 1 | 04/04/2017 18:23 |
| Chrysene | ND | 0.0500 | 1 | 04/04/2017 18:23 |
| Dibenzo (a,h) anthracene | ND | 0.0500 | 1 | 04/04/2017 18:23 |
| Fluoranthene | ND | 0.0500 | 1 | 04/04/2017 18:23 |
| Fluorene | ND | 0.0500 | 1 | 04/04/2017 18:23 |
| Indeno (1,2,3-cd) pyrene | ND | 0.0250 | 1 | 04/04/2017 18:23 |
| 1-Methylnaphthalene | ND | 0.0500 | 1 | 04/04/2017 18:23 |
| 2-Methylnaphthalene | ND | 0.0500 | 1 | 04/04/2017 18:23 |
| Naphthalene | ND | 0.0500 | 1 | 04/04/2017 18:23 |
| Phenanthrene | ND | 0.0500 | 1 | 04/04/2017 18:23 |
| Pyrene | ND | 0.0500 | 1 | 04/04/2017 18:23 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 84 | 70-130 | 04/04/2017 18:23 |
| 4,4-Dichlorobiphenyl | 74 | 70-130 | 04/04/2017 18:23 |

Analyst(s): BBO  Analytical Comments: b1

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17 | **Analytical Method:** | SW8021B/8015Bm |
| **Project:** | 750635603; 260 30th Street | **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-31-12.5 | 1703F87-002A | Soil | 03/29/2017 11:55 | GC19 | 136448 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 03/31/2017 08:18 |
| MTBE | --- | 0.050 | 1 | 03/31/2017 08:18 |
| Benzene | --- | 0.0050 | 1 | 03/31/2017 08:18 |
| Toluene | --- | 0.0050 | 1 | 03/31/2017 08:18 |
| Ethylbenzene | --- | 0.0050 | 1 | 03/31/2017 08:18 |
| Xylenes | --- | 0.015 | 1 | 03/31/2017 08:18 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 84 | 62-126 | 03/31/2017 08:18 |

Analyst(s): IA

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-31-15.0 | 1703F87-003A | Soil | 03/29/2017 12:00 | GC19 | 136448 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 03/31/2017 08:49 |
| MTBE | --- | 0.050 | 1 | 03/31/2017 08:49 |
| Benzene | --- | 0.0050 | 1 | 03/31/2017 08:49 |
| Toluene | --- | 0.0050 | 1 | 03/31/2017 08:49 |
| Ethylbenzene | --- | 0.0050 | 1 | 03/31/2017 08:49 |
| Xylenes | --- | 0.015 | 1 | 03/31/2017 08:49 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 78 | 62-126 | 03/31/2017 08:49 |

Analyst(s): IA

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17 | **Analytical Method:** | SW8021B/8015Bm |
| **Project:** | 750635603; 260 30th Street | **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-32-10.0 | 1703F87-006A | Soil | 03/29/2017 08:10 | GC19 | 136448 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 03/31/2017 09:50 |
| MTBE | --- | 0.050 | 1 | 03/31/2017 09:50 |
| Benzene | --- | 0.0050 | 1 | 03/31/2017 09:50 |
| Toluene | --- | 0.0050 | 1 | 03/31/2017 09:50 |
| Ethylbenzene | --- | 0.0050 | 1 | 03/31/2017 09:50 |
| Xylenes | --- | 0.015 | 1 | 03/31/2017 09:50 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 80 | 62-126 | 03/31/2017 09:50 |

Analyst(s): IA

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-32-12.5 | 1703F87-007A | Soil | 03/29/2017 08:30 | GC19 | 136448 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 03/31/2017 10:20 |
| MTBE | --- | 0.050 | 1 | 03/31/2017 10:20 |
| Benzene | --- | 0.0050 | 1 | 03/31/2017 10:20 |
| Toluene | --- | 0.0050 | 1 | 03/31/2017 10:20 |
| Ethylbenzene | --- | 0.0050 | 1 | 03/31/2017 10:20 |
| Xylenes | --- | 0.015 | 1 | 03/31/2017 10:20 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 81 | 62-126 | 03/31/2017 10:20 |

Analyst(s): IA

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17 | **Analytical Method:** | SW8021B/8015Bm |
| **Project:** | 750635603; 260 30th Street | **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-32-15.0 | 1703F87-008A | Soil | 03/29/2017 08:35 | GC19 | 136521 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 03/31/2017 10:51 |
| MTBE | --- | 0.050 | 1 | 03/31/2017 10:51 |
| Benzene | --- | 0.0050 | 1 | 03/31/2017 10:51 |
| Toluene | --- | 0.0050 | 1 | 03/31/2017 10:51 |
| Ethylbenzene | --- | 0.0050 | 1 | 03/31/2017 10:51 |
| Xylenes | --- | 0.015 | 1 | 03/31/2017 10:51 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 86 | 62-126 | 03/31/2017 10:51 |

Analyst(s): IA

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-34-8.0 | 1703F87-011A | Soil | 03/29/2017 09:11 | GC19 | 136521 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 03/31/2017 17:06 |
| MTBE | --- | 0.050 | 1 | 03/31/2017 17:06 |
| Benzene | --- | 0.0050 | 1 | 03/31/2017 17:06 |
| Toluene | --- | 0.0050 | 1 | 03/31/2017 17:06 |
| Ethylbenzene | --- | 0.0050 | 1 | 03/31/2017 17:06 |
| Xylenes | --- | 0.015 | 1 | 03/31/2017 17:06 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 82 | 62-126 | 03/31/2017 17:06 |

Analyst(s): IA

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17 | **Analytical Method:** | SW8021B/8015Bm |
| **Project:** | 750635603; 260 30th Street | **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-34-12.5 | 1703F87-012A | Soil | 03/29/2017 09:20 | GC19 | 136521 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 03/31/2017 17:37 |
| MTBE | --- | 0.050 | 1 | 03/31/2017 17:37 |
| Benzene | --- | 0.0050 | 1 | 03/31/2017 17:37 |
| Toluene | --- | 0.0050 | 1 | 03/31/2017 17:37 |
| Ethylbenzene | --- | 0.0050 | 1 | 03/31/2017 17:37 |
| Xylenes | --- | 0.015 | 1 | 03/31/2017 17:37 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 79 | 62-126 | 03/31/2017 17:37 |

Analyst(s): IA

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-34-15.0 | 1703F87-013A | Soil | 03/29/2017 09:25 | GC19 | 136521 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 04/01/2017 17:48 |
| MTBE | --- | 0.050 | 1 | 04/01/2017 17:48 |
| Benzene | --- | 0.0050 | 1 | 04/01/2017 17:48 |
| Toluene | --- | 0.0050 | 1 | 04/01/2017 17:48 |
| Ethylbenzene | --- | 0.0050 | 1 | 04/01/2017 17:48 |
| Xylenes | --- | 0.015 | 1 | 04/01/2017 17:48 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 84 | 62-126 | 04/01/2017 17:48 |

Analyst(s): LT

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/30/17 | **Analytical Method:** | SW8021B/8015Bm |
| **Project:** | 750635603; 260 30th Street | **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-35-10.0** | **1703F87-016A** | **Soil** | **03/29/2017 10:12** | **GC19** | **136521** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 03/31/2017 19:09 |
| MTBE | --- | 0.050 | 1 | 03/31/2017 19:09 |
| Benzene | --- | 0.0050 | 1 | 03/31/2017 19:09 |
| Toluene | --- | 0.0050 | 1 | 03/31/2017 19:09 |
| Ethylbenzene | --- | 0.0050 | 1 | 03/31/2017 19:09 |
| Xylenes | --- | 0.015 | 1 | 03/31/2017 19:09 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 87 | 62-126 | 03/31/2017 19:09 |

Analyst(s): IA

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# Analytical Report

**Client:** Langan
**Date Received:** 3/30/17 14:20
**Date Prepared:** 3/31/17
**Project:** 750635603; 260 30th Street

**WorkOrder:** 1703F87
**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-31-GW | 1703F87-020A | Water | 03/29/2017 15:05 | GC3 | 136723 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 50 | 1 | 03/31/2017 21:17 |
| MTBE | --- | 5.0 | 1 | 03/31/2017 21:17 |
| Benzene | --- | 0.50 | 1 | 03/31/2017 21:17 |
| Toluene | --- | 0.50 | 1 | 03/31/2017 21:17 |
| Ethylbenzene | --- | 0.50 | 1 | 03/31/2017 21:17 |
| Xylenes | --- | 1.5 | 1 | 03/31/2017 21:17 |

| Surrogates | REC (%) | Qualifiers | Limits | |
|---|---|---|---|---|
| aaa-TFT | 557 | S | 89-115 | 03/31/2017 21:17 |

Analyst(s): HD
Analytical Comments: c4,b1

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-34-GW | 1703F87-021A | Water | 03/29/2017 14:50 | GC3 | 136723 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 50 | 1 | 03/31/2017 22:17 |
| MTBE | --- | 5.0 | 1 | 03/31/2017 22:17 |
| Benzene | --- | 0.50 | 1 | 03/31/2017 22:17 |
| Toluene | --- | 0.50 | 1 | 03/31/2017 22:17 |
| Ethylbenzene | --- | 0.50 | 1 | 03/31/2017 22:17 |
| Xylenes | --- | 1.5 | 1 | 03/31/2017 22:17 |

| Surrogates | REC (%) | Qualifiers | Limits | |
|---|---|---|---|---|
| aaa-TFT | 752 | S | 89-115 | 03/31/2017 22:17 |

Analyst(s): HD
Analytical Comments: c4,b1

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 3/31/17 | **Analytical Method:** | SW8021B/8015Bm |
| **Project:** | 750635603; 260 30th Street | **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-35-GW** | **1703F87-022A** | **Water** | **03/29/2017 14:40** | **GC3** | **136613** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 50 | 1 | 03/31/2017 13:33 |
| MTBE | --- | 5.0 | 1 | 03/31/2017 13:33 |
| Benzene | --- | 0.50 | 1 | 03/31/2017 13:33 |
| Toluene | --- | 0.50 | 1 | 03/31/2017 13:33 |
| Ethylbenzene | --- | 0.50 | 1 | 03/31/2017 13:33 |
| Xylenes | --- | 1.5 | 1 | 03/31/2017 13:33 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| aaa-TFT | 115 | 70-130 | 03/31/2017 13:33 |

Analyst(s): IA  Analytical Comments: b1

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 3/30/17 | **Analytical Method:** | SW8015B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/Kg |

## Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-31-12.5 | 1703F87-002A | Soil | 03/29/2017 11:55 | GC9b | 136449 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 03/31/2017 10:52 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 03/31/2017 10:52 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 102 | 78-109 | 03/31/2017 10:52 |

Analyst(s): TK

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-31-15.0 | 1703F87-003A | Soil | 03/29/2017 12:00 | GC9b | 136449 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 03/31/2017 07:38 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 03/31/2017 07:38 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 102 | 78-109 | 03/31/2017 07:38 |

Analyst(s): TK

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-32-10.0 | 1703F87-006A | Soil | 03/29/2017 08:10 | GC6A | 136449 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 03/31/2017 10:18 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 03/31/2017 10:18 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 95 | 78-109 | 03/31/2017 10:18 |

Analyst(s): TK

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 3/30/17 | **Analytical Method:** | SW8015B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/Kg |

## Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-32-12.5 | 1703F87-007A | Soil | 03/29/2017 08:30 | GC6A | 136449 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 03/31/2017 11:35 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 03/31/2017 11:35 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 97 | 78-109 | 03/31/2017 11:35 |

Analyst(s): TK

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-32-15.0 | 1703F87-008A | Soil | 03/29/2017 08:35 | GC9b | 136449 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 03/31/2017 06:20 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 03/31/2017 06:20 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 101 | 78-109 | 03/31/2017 06:20 |

Analyst(s): TK

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-34-8.0 | 1703F87-011A | Soil | 03/29/2017 09:11 | GC6A | 136449 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 03/31/2017 10:56 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 03/31/2017 10:56 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 96 | 78-109 | 03/31/2017 10:56 |

Analyst(s): TK

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 3/30/17 | **Analytical Method:** | SW8015B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/Kg |

## Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-34-12.5** | **1703F87-012A** | **Soil** | **03/29/2017 09:20** | **GC6A** | **136449** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 03/31/2017 09:39 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 03/31/2017 09:39 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 96 | 78-109 | 03/31/2017 09:39 |

Analyst(s): TK

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-34-15.0** | **1703F87-013A** | **Soil** | **03/29/2017 09:25** | **GC9b** | **136449** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 03/31/2017 10:13 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 03/31/2017 10:13 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 102 | 78-109 | 03/31/2017 10:13 |

Analyst(s): TK

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-35-10.0** | **1703F87-016A** | **Soil** | **03/29/2017 10:12** | **GC9a** | **136519** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | **1.5** | 1.0 | 1 | 03/31/2017 03:45 |
| TPH-Motor Oil (C18-C36) | **6.6** | 5.0 | 1 | 03/31/2017 03:45 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 105 | 78-109 | 03/31/2017 03:45 |

Analyst(s): TK Analytical Comments: e7,e2

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Received:** | 3/30/17 14:20 | **Extraction Method:** | SW3510C |
| **Date Prepared:** | 3/30/17 | **Analytical Method:** | SW8015B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | µg/L |

## Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-31-GW** | **1703F87-020A** | **Water** | **03/29/2017 15:05** | **GC9b** | **136511** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | **110** | 50 | 1 | 03/31/2017 05:03 |
| TPH-Motor Oil (C18-C36) | **870** | 250 | 1 | 03/31/2017 05:03 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 104 | 66-138 | 03/31/2017 05:03 |

Analyst(s): TK  Analytical Comments: e7,e2,e4,b1

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-34-GW** | **1703F87-021A** | **Water** | **03/29/2017 14:50** | **GC9b** | **136511** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | **140** | 50 | 1 | 03/31/2017 03:45 |
| TPH-Motor Oil (C18-C36) | **700** | 250 | 1 | 03/31/2017 03:45 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 104 | 66-138 | 03/31/2017 03:45 |

Analyst(s): TK  Analytical Comments: e7,e2,e4,b1

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-35-GW** | **1703F87-022A** | **Water** | **03/29/2017 14:40** | **GC9b** | **136511** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | **140** | 50 | 1 | 03/31/2017 00:31 |
| TPH-Motor Oil (C18-C36) | **1100** | 250 | 1 | 03/31/2017 00:31 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 102 | 66-138 | 03/31/2017 00:31 |

Analyst(s): TK  Analytical Comments: e7,e2,b1

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 3/30/17 | **BatchID:** | 136485 |
| **Date Analyzed:** | 3/30/17 - 3/31/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136485<br>1703F72-019AMS/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 | 0.0341 | 0.0050 | 0.050 | - | 68 | 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 | 0.133 | 0.050 | 0.20 | - | 66 | 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 | 0.0423 | 0.0050 | 0.050 | - | 85 | 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 | 0.0388 | 0.0040 | 0.050 | - | 78 | 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 | 0.0403 | 0.0040 | 0.050 | - | 81 | 58-135 |
| 1,1-Dichloroethene | ND | 0.0442 | 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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QA/QC Officer

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 3/30/17 | **BatchID:** | 136485 |
| **Date Analyzed:** | 3/30/17 - 3/31/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136485<br>1703F72-019AMS/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 | 0.0407 | 0.0050 | 0.050 | - | 81 | 52-129 |
| Ethylbenzene | ND | - | 0.0050 | - | - | - | - |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0395 | 0.0050 | 0.050 | - | 79 | 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 | 0.0381 | 0.0050 | 0.050 | - | 76 | 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 | 0.0461 | 0.0050 | 0.050 | - | 92 | 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 | 0.0436 | 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 | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 3/30/17 | **BatchID:** | 136485 |
| **Date Analyzed:** | 3/30/17 - 3/31/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136485<br>1703F72-019AMS/MSD |

## QC Summary Report for SW8260B

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | | | |
| Dibromofluoromethane | 0.104 | 0.109 | | 0.12 | 83 | 87 | 70-130 |
| Toluene-d8 | 0.1335 | 0.134 | | 0.12 | 107 | 107 | 70-130 |
| 4-BFB | 0.01012 | 0.0102 | | 0.012 | 81 | 82 | 70-130 |
| Benzene-d6 | 0.07858 | 0.0856 | | 0.10 | 79 | 86 | 60-140 |
| Ethylbenzene-d10 | 0.107 | 0.111 | | 0.10 | 107 | 111 | 60-140 |
| 1,2-DCB-d4 | 0.07664 | 0.0785 | | 0.10 | 77 | 79 | 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) | 0.0344 | 0.0346 | 0.050 | ND | 69 | 69 | 53-116 | 0 | 20 |
| Benzene | 0.0408 | 0.0415 | 0.050 | ND | 82 | 83 | 63-137 | 1.86 | 20 |
| t-Butyl alcohol (TBA) | 0.126 | 0.130 | 0.20 | ND | 63 | 65 | 41-135 | 2.60 | 20 |
| Chlorobenzene | 0.0401 | 0.0406 | 0.050 | ND | 80 | 81 | 77-121 | 1.20 | 20 |
| 1,2-Dibromoethane (EDB) | 0.0380 | 0.0381 | 0.050 | ND | 76 | 76 | 67-119 | 0 | 20 |
| 1,2-Dichloroethane (1,2-DCA) | 0.0374 | 0.0384 | 0.050 | ND | 75 | 77 | 58-135 | 2.52 | 20 |
| 1,1-Dichloroethene | 0.0419 | 0.0430 | 0.050 | ND | 84 | 86 | 42-145 | 2.51 | 20 |
| Diisopropyl ether (DIPE) | 0.0394 | 0.0401 | 0.050 | ND | 79 | 80 | 52-129 | 1.61 | 20 |
| Ethyl tert-butyl ether (ETBE) | 0.0378 | 0.0383 | 0.050 | ND | 76 | 77 | 53-125 | 1.42 | 20 |
| Methyl-t-butyl ether (MTBE) | 0.0360 | 0.0365 | 0.050 | ND | 72 | 73 | 58-122 | 1.37 | 20 |
| Toluene | 0.0429 | 0.0436 | 0.050 | ND | 86 | 87 | 76-130 | 1.75 | 20 |
| Trichloroethene | 0.0420 | 0.0430 | 0.050 | ND | 84 | 86 | 72-132 | 2.36 | 20 |
| **Surrogate Recovery** | | | | | | | | | |
| Dibromofluoromethane | 0.108 | 0.108 | 0.12 | | 87 | 86 | 70-130 | 0.491 | 20 |
| Toluene-d8 | 0.133 | 0.133 | 0.12 | | 107 | 106 | 70-130 | 0.252 | 20 |
| 4-BFB | 0.00990 | 0.00980 | 0.012 | | 79 | 78 | 70-130 | 0.992 | 20 |
| Benzene-d6 | 0.0832 | 0.0847 | 0.10 | | 83 | 85 | 60-140 | 1.68 | 20 |
| Ethylbenzene-d10 | 0.112 | 0.112 | 0.10 | | 112 | 112 | 60-140 | 0 | 20 |
| 1,2-DCB-d4 | 0.0772 | 0.0766 | 0.10 | | 77 | 77 | 60-140 | 0 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 3/31/17 | **BatchID:** | 136565 |
| **Date Analyzed:** | 4/1/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136565 |

## 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 | 0.0403 | 0.0050 | 0.050 | - | 81 | 53-116 |
| Benzene | ND | 0.0470 | 0.0050 | 0.050 | - | 94 | 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 | 0.162 | 0.050 | 0.20 | - | 81 | 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 | 0.0473 | 0.0050 | 0.050 | - | 95 | 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 | 0.0457 | 0.0040 | 0.050 | - | 91 | 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 | 0.0407 | 0.0040 | 0.050 | - | 81 | 58-135 |
| 1,1-Dichloroethene | ND | 0.0475 | 0.0050 | 0.050 | - | 95 | 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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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 3/31/17 | **BatchID:** | 136565 |
| **Date Analyzed:** | 4/1/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136565 |

## 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 | 0.0458 | 0.0050 | 0.050 | - | 92 | 52-129 |
| Ethylbenzene | ND | - | 0.0050 | - | - | - | - |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0426 | 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 | 0.0418 | 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 | 0.0518 | 0.0050 | 0.050 | - | 104 | 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 | 0.0456 | 0.0050 | 0.050 | - | 91 | 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 | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 3/31/17 | **BatchID:** | 136565 |
| **Date Analyzed:** | 4/1/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136565 |

## QC Summary Report for SW8260B

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | | | |
| Dibromofluoromethane | 0.1068 | 0.107 | | 0.12 | 85 | 86 | 70-130 |
| Toluene-d8 | 0.1352 | 0.139 | | 0.12 | 108 | 111 | 70-130 |
| 4-BFB | 0.01029 | 0.0113 | | 0.012 | 82 | 91 | 70-130 |
| Benzene-d6 | 0.08651 | 0.101 | | 0.10 | 87 | 101 | 60-140 |
| Ethylbenzene-d10 | 0.1059 | 0.126 | | 0.10 | 106 | 126 | 60-140 |
| 1,2-DCB-d4 | 0.076 | 0.0863 | | 0.10 | 76 | 86 | 60-140 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 3/30/17 | **BatchID:** | 136542 |
| **Date Analyzed:** | 3/30/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136542 |

## 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 | 9.60 | 0.50 | 10 | - | 96 | 54-140 |
| Benzene | ND | 9.99 | 0.50 | 10 | - | 100 | 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 | 36.1 | 2.0 | 40 | - | 90 | 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 | 9.03 | 0.50 | 10 | - | 90 | 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 | 9.60 | 0.50 | 10 | - | 96 | 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 | 9.37 | 0.50 | 10 | - | 94 | 66-125 |
| 1,1-Dichloroethene | ND | 9.73 | 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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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 3/30/17 | **BatchID:** | 136542 |
| **Date Analyzed:** | 3/30/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136542 |

## 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 | 9.95 | 0.50 | 10 | - | 99 | 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 | 9.28 | 0.50 | 10 | - | 93 | 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 | 9.49 | 0.50 | 10 | - | 95 | 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 | 8.90 | 0.50 | 10 | - | 89 | 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 | - | - | - | - |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 3/30/17 | **BatchID:** | 136542 |
| **Date Analyzed:** | 3/30/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136542 |

## QC Summary Report for SW8260B

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | | | |
| Dibromofluoromethane | 23.09 | 22.7 | | 25 | 92 | 91 | 70-130 |
| Toluene-d8 | 24 | 24.5 | | 25 | 96 | 98 | 70-130 |
| 4-BFB | 2.927 | 2.80 | | 2.5 | 117 | 112 | 70-130 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 4/4/17 | **BatchID:** | 136711 |
| **Date Analyzed:** | 4/4/17 | **Extraction Method:** | SW3510C |
| **Instrument:** | HPLC4 | **Analytical Method:** | SW8310 |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136711 |

## QC Summary Report for SW8310

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | - | 0.0500 | - | - | - | - |
| Acenaphthylene | ND | - | 0.0500 | - | - | - | - |
| Anthracene | ND | - | 0.0500 | - | - | - | - |
| Benzo (a) anthracene | ND | 0.933 | 0.0250 | 0.75 | - | 124 | 70-130 |
| Benzo (a) pyrene | ND | 0.901 | 0.0500 | 0.75 | - | 120 | 70-130 |
| Benzo (b) fluoranthene | ND | - | 0.0250 | - | - | - | - |
| Benzo (k) fluoranthene | ND | - | 0.0250 | - | - | - | - |
| Benzo (g,h,i) perylene | ND | - | 0.0500 | - | - | - | - |
| Chrysene | ND | 0.985 | 0.0500 | 0.75 | - | 131, F2 | 70-130 |
| Dibenzo (a,h) anthracene | ND | - | 0.0500 | - | - | - | - |
| Fluoranthene | ND | - | 0.0500 | - | - | - | - |
| Fluorene | ND | - | 0.0500 | - | - | - | - |
| Indeno (1,2,3-cd) pyrene | ND | - | 0.0250 | - | - | - | - |
| 1-Methylnaphthalene | ND | 0.929 | 0.0500 | 0.75 | - | 124 | 70-130 |
| 2-Methylnaphthalene | ND | 0.904 | 0.0500 | 0.75 | - | 121 | 70-130 |
| Naphthalene | ND | - | 0.0500 | - | - | - | - |
| Phenanthrene | ND | 0.927 | 0.0500 | 0.75 | - | 124 | 70-130 |
| Pyrene | ND | 0.932 | 0.0500 | 0.75 | - | 124 | 70-130 |
| **Surrogate Recovery** | | | | | | | |
| Decafluorobiphenyl | 57.09 | 62.7 | | 50 | 114 | 125 | 70-130 |
| 4,4-Dichlorobiphenyl | 28.98 | 31.8 | | 25 | 116 | 127 | 70-130 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 3/29/17 | **BatchID:** | 136448 |
| **Date Analyzed:** | 3/30/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC19 | **Analytical Method:** | SW8021B/8015Bm |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136448<br>1703F37-031AMS/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 | 0.596 | 0.40 | 0.60 | - | 99 | 82-118 |
| MTBE | ND | 0.0884 | 0.050 | 0.10 | - | 88 | 61-119 |
| Benzene | ND | 0.112 | 0.0050 | 0.10 | - | 111 | 77-128 |
| Toluene | ND | 0.121 | 0.0050 | 0.10 | - | 121 | 74-132 |
| Ethylbenzene | ND | 0.122 | 0.0050 | 0.10 | - | 122 | 84-127 |
| Xylenes | ND | 0.342 | 0.015 | 0.30 | - | 114 | 86-129 |
| **Surrogate Recovery** | | | | | | | |
| 2-Fluorotoluene | 0.09521 | 0.102 | | 0.10 | 95 | 102 | 75-134 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| TPH(btex) | NR | NR | | 1300 | NR | NR | - | NR | - |
| MTBE | NR | NR | | ND<10 | NR | NR | - | NR | - |
| Benzene | NR | NR | | 7 | NR | NR | - | NR | - |
| Toluene | NR | NR | | 21 | NR | NR | - | NR | - |
| Ethylbenzene | NR | NR | | 27 | NR | NR | - | NR | - |
| Xylenes | NR | NR | | 120 | NR | NR | - | NR | - |
| **Surrogate Recovery** | | | | | | | | | |
| 2-Fluorotoluene | NR | NR | | | NR | NR | - | NR | - |

*(Cont.)*

NELAP 4033ORELAP

QA/QC Officer

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 3/30/17 | **BatchID:** | 136521 |
| **Date Analyzed:** | 3/31/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC19 | **Analytical Method:** | SW8021B/8015Bm |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136521<br>1703F87-008AMS/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 | 0.574 | 0.40 | 0.60 | - | 96 | 82-118 |
| MTBE | ND | 0.100 | 0.050 | 0.10 | - | 100 | 61-119 |
| Benzene | ND | 0.122 | 0.0050 | 0.10 | - | 122 | 77-128 |
| Toluene | ND | 0.125 | 0.0050 | 0.10 | - | 125 | 74-132 |
| Ethylbenzene | ND | 0.123 | 0.0050 | 0.10 | - | 123 | 84-127 |
| Xylenes | ND | 0.338 | 0.015 | 0.30 | - | 113 | 86-129 |
| **Surrogate Recovery** | | | | | | | |
| 2-Fluorotoluene | 0.095 | 0.104 | | 0.10 | 95 | 104 | 75-134 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| TPH(btex) | 0.532 | 0.529 | 0.60 | ND | 89 | 88 | 58-129 | 0.692 | 20 |
| MTBE | 0.0805 | 0.0866 | 0.10 | ND | 73 | 79 | 47-118 | 7.39 | 20 |
| Benzene | 0.0980 | 0.103 | 0.10 | ND | 98 | 103 | 55-129 | 5.31 | 20 |
| Toluene | 0.103 | 0.109 | 0.10 | ND | 103 | 109 | 56-130 | 5.56 | 20 |
| Ethylbenzene | 0.104 | 0.110 | 0.10 | ND | 104 | 110 | 63-129 | 5.81 | 20 |
| Xylenes | 0.291 | 0.308 | 0.30 | ND | 97 | 103 | 64-131 | 5.67 | 20 |
| **Surrogate Recovery** | | | | | | | | | |
| 2-Fluorotoluene | 0.0856 | 0.0909 | 0.10 | | 86 | 91 | 62-126 | 5.97 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 3/30/17 | **BatchID:** | 136613 |
| **Date Analyzed:** | 3/30/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC3 | **Analytical Method:** | SW8021B/8015Bm |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136613<br>1703F26-004AMS/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 | 57.3 | 40 | 60 | - | 96 | 78-116 |
| MTBE | ND | 9.90 | 5.0 | 10 | - | 99 | 72-122 |
| Benzene | ND | 9.13 | 0.50 | 10 | - | 91 | 81-123 |
| Toluene | ND | 9.49 | 0.50 | 10 | - | 95 | 83-129 |
| Ethylbenzene | ND | 9.97 | 0.50 | 10 | - | 100 | 88-126 |
| Xylenes | ND | 31.2 | 1.5 | 30 | - | 104 | 87-131 |
| **Surrogate Recovery** | | | | | | | |
| aaa-TFT | 9.957 | 9.86 | | 10 | 100 | 99 | 89-116 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| TPH(btex) | 59.2 | 57.4 | 60 | ND | 99 | 96 | 63-133 | 2.99 | 20 |
| MTBE | 9.56 | 9.38 | 10 | ND | 96 | 94 | 69-122 | 1.91 | 20 |
| Benzene | 9.14 | 9.11 | 10 | ND | 91 | 91 | 84-125 | 0 | 20 |
| Toluene | 9.58 | 9.54 | 10 | ND | 96 | 95 | 87-131 | 0.401 | 20 |
| Ethylbenzene | 10.0 | 9.63 | 10 | ND | 101 | 96 | 92-126 | 4.28 | 20 |
| Xylenes | 31.3 | 29.6 | 30 | ND | 104 | 98 | 88-132 | 5.87 | 20 |
| **Surrogate Recovery** | | | | | | | | | |
| aaa-TFT | 9.90 | 9.93 | 10 | | 99 | 99 | 90-117 | 0 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 3/31/17 | **BatchID:** | 136723 |
| **Date Analyzed:** | 3/31/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC3 | **Analytical Method:** | SW8021B/8015Bm |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136723<br>1703G10-047AMS/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 | 59.6 | 40 | 60 | - | 99 | 78-116 |
| MTBE | ND | 9.85 | 5.0 | 10 | - | 99 | 72-122 |
| Benzene | ND | 9.08 | 0.50 | 10 | - | 91 | 81-123 |
| Toluene | ND | 9.58 | 0.50 | 10 | - | 96 | 83-129 |
| Ethylbenzene | ND | 9.95 | 0.50 | 10 | - | 99 | 88-126 |
| Xylenes | ND | 31.2 | 1.5 | 30 | - | 104 | 87-131 |
| **Surrogate Recovery** | | | | | | | |
| aaa-TFT | 10.15 | 10.0 | | 10 | 102 | 100 | 89-116 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| TPH(btex) | 58.2 | 59.3 | 60 | ND | 97 | 99 | 63-133 | 1.83 | 20 |
| MTBE | 9.65 | 9.67 | 10 | ND | 97 | 97 | 69-122 | 0 | 20 |
| Benzene | 9.05 | 9.46 | 10 | ND | 90 | 95 | 84-125 | 4.45 | 20 |
| Toluene | 9.50 | 9.92 | 10 | ND | 92 | 96 | 87-131 | 4.29 | 20 |
| Ethylbenzene | 9.90 | 9.86 | 10 | ND | 99 | 99 | 92-126 | 0 | 20 |
| Xylenes | 31.0 | 30.2 | 30 | ND | 103 | 100 | 88-132 | 2.54 | 20 |
| **Surrogate Recovery** | | | | | | | | | |
| aaa-TFT | 10.0 | 10.2 | 10 | | 100 | 102 | 90-117 | 1.39 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 3/29/17 | **BatchID:** | 136449 |
| **Date Analyzed:** | 3/30/17 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC9b | **Analytical Method:** | SW8015B |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136449 |

## 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 | 40.8 | 1.0 | 40 | - | 102 | 79-133 |
| TPH-Motor Oil (C18-C36) | ND | - | 5.0 | - | - | - | - |
| **Surrogate Recovery** | | | | | | | |
| C9 | 25.29 | 25.4 | | 25 | 101 | 102 | 77-109 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 3/30/17 | **BatchID:** | 136519 |
| **Date Analyzed:** | 3/31/17 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC9a | **Analytical Method:** | SW8015B |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-136519<br>1703F87-016AMS/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 | 37.7 | 1.0 | 40 | - | 94 | 79-133 |
| TPH-Motor Oil (C18-C36) | ND | - | 5.0 | - | - | - | - |
| **Surrogate Recovery** | | | | | | | |
| C9 | 26.01 | 26.3 | | 25 | 104 | 105 | 77-109 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| TPH-Diesel (C10-C23) | 38.4 | 38.6 | 40 | 1.453 | 92 | 93 | 59-150 | 0.441 | 30 |
| **Surrogate Recovery** | | | | | | | | | |
| C9 | 26.4 | 26.3 | 25 | | 105 | 105 | 78-109 | 0 | 30 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703F87 |
| **Date Prepared:** | 3/30/17 | **BatchID:** | 136511 |
| **Date Analyzed:** | 3/30/17 | **Extraction Method:** | SW3510C |
| **Instrument:** | GC9a | **Analytical Method:** | SW8015B |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS/LCSD-136511 |

## 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 | 657.6 | | 625 | 105 | 79-111 |

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| TPH-Diesel (C10-C23) | 1100 | 1230 | 1000 | 110 | 123 | 88-134 | 11.0 | 30 |
| **Surrogate Recovery** | | | | | | | | |
| C9 | 655 | 660 | 625 | 105 | 106 | 79-111 | 0.865 | 30 |

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# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1703F87** **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: 750635603; 260 30th Street

**Bill to:**
Accounts Payable
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursolutio

**Requested TATs:** **3 days; 4 days;**

***Date Received:*** **03/30/2017**
***Date Logged:*** **03/30/2017**

| 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 |
| 1703F87-002 | B-31-12.5 | Soil | 3/29/2017 11:55 | ☐ | A | | | A | | A | | | | | | |
| 1703F87-003 | B-31-15.0 | Soil | 3/29/2017 12:00 | ☐ | A | | | A | | A | | | | | | |
| 1703F87-006 | B-32-10.0 | Soil | 3/29/2017 08:10 | ☐ | A | | | A | | A | | | | | | |
| 1703F87-007 | B-32-12.5 | Soil | 3/29/2017 08:30 | ☐ | A | | | A | | A | | | | | | |
| 1703F87-008 | B-32-15.0 | Soil | 3/29/2017 08:35 | ☐ | A | | | A | | A | | | | | | |
| 1703F87-011 | B-34-8.0 | Soil | 3/29/2017 09:11 | ☐ | A | | | A | | A | | | | | | |
| 1703F87-012 | B-34-12.5 | Soil | 3/29/2017 09:20 | ☐ | A | | | A | | A | | | | | | |
| 1703F87-013 | B-34-15.0 | Soil | 3/29/2017 09:25 | ☐ | A | | | A | | A | | | | | | |
| 1703F87-016 | B-35-10.0 | Soil | 3/29/2017 10:12 | ☐ | A | | | A | | A | | | | | | |
| 1703F87-020 | B-31-GW | Water | 3/29/2017 15:05 | ☐ | | B | C | | A | | A | | | | | |
| 1703F87-021 | B-34-GW | Water | 3/29/2017 14:50 | ☐ | | B | C | | A | | A | | | | | |
| 1703F87-022 | B-35-GW | Water | 3/29/2017 14:40 | ☐ | | B | C | | A | | A | | | | | |

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 8260B_S | 2 | 8260B_W | 3 | 8310_W | 4 | G-MBTEX_S |
| 5 | G-MBTEX_W | 6 | TPH(DMO)_S | 7 | TPH(DMO)_W | 8 | |
| 9 | | 10 | | 11 | | 12 | |

**Prepared by: Alexandra Iniguez**

The following SampIDs: 002A, 003A, 006A, 007A, 008A, 011A, 012A, 013A, 016A contain testgroup Multi Range_S.; The following SampIDs: 020A, 021A, 022A 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.

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# WORK ORDER SUMMARY

**Client Name:** LANGAN **Project:** 750635603; 260 30th Street **Work Order:** 1703F87
**Client Contact:** Josh Graber **QC Level:** LEVEL 2
**Contact's Email:** jdgraber@treadwellrollo.com **Comments:** **Date Logged:** 3/30/2017

☐ 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1703F87-001A | B-31-5.0 | Soil | | 1 | Acetate Liner | ☐ | 3/29/2017 11:38 | | | ☑ | |
| 1703F87-002A | B-31-12.5 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 1 | Acetate Liner | ☐ | 3/29/2017 11:55 | 3 days | | ☐ | |
| | | | SW8260B (VOCs) | | | ☐ | | 3 days | | ☐ | |
| 1703F87-003A | B-31-15.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 1 | Acetate Liner | ☐ | 3/29/2017 12:00 | 3 days | | ☐ | |
| | | | SW8260B (VOCs) | | | ☐ | | 3 days | | ☐ | |
| 1703F87-004A | B-31-20.0 | Soil | | 1 | Acetate Liner | ☐ | 3/29/2017 12:14 | | | ☑ | |
| 1703F87-005A | B-32-8.0 | Soil | | 1 | Acetate Liner | ☐ | 3/29/2017 8:06 | | | ☑ | |
| 1703F87-006A | B-32-10.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 1 | Acetate Liner | ☐ | 3/29/2017 8:10 | 3 days | | ☐ | |
| | | | SW8260B (VOCs) | | | ☐ | | 3 days | | ☐ | |
| 1703F87-007A | B-32-12.5 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 1 | Acetate Liner | ☐ | 3/29/2017 8:30 | 3 days | | ☐ | |
| | | | SW8260B (VOCs) | | | ☐ | | 3 days | | ☐ | |
| 1703F87-008A | B-32-15.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 1 | Acetate Liner | ☐ | 3/29/2017 8:35 | 3 days | | ☐ | |
| | | | SW8260B (VOCs) | | | ☐ | | 3 days | | ☐ | |
| 1703F87-009A | B-32-20.0 | Soil | | 1 | Acetate Liner | ☐ | 3/29/2017 8:48 | | | ☑ | |
| 1703F87-010A | B-34-5.0 | Soil | | 1 | Acetate Liner | ☐ | 3/29/2017 9:00 | | | ☑ | |

**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.**

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# WORK ORDER SUMMARY

**Client Name:** LANGAN **Project:** 750635603; 260 30th Street **Work Order:** 1703F87
**Client Contact:** Josh Graber **QC Level:** LEVEL 2
**Contact's Email:** jdgraber@treadwellrollo.com **Comments:** **Date Logged:** 3/30/2017

☐ 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1703F87-011A | B-34-8.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 1 | Acetate Liner | ☐ | 3/29/2017 9:11 | 3 days | | ☐ | |
| | | | SW8260B (VOCs) | | | ☐ | | 3 days | | ☐ | |
| 1703F87-012A | B-34-12.5 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 1 | Acetate Liner | ☐ | 3/29/2017 9:20 | 3 days | | ☐ | |
| | | | SW8260B (VOCs) | | | ☐ | | 3 days | | ☐ | |
| 1703F87-013A | B-34-15.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 1 | Acetate Liner | ☐ | 3/29/2017 9:25 | 3 days | | ☐ | |
| | | | SW8260B (VOCs) | | | ☐ | | 3 days | | ☐ | |
| 1703F87-014A | B-34-20.0 | Soil | | 1 | Acetate Liner | ☐ | 3/29/2017 9:34 | | | ☑ | |
| 1703F87-015A | B-35-8.0 | Soil | | 1 | Acetate Liner | ☐ | 3/29/2017 10:08 | | | ☑ | |
| 1703F87-016A | B-35-10.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 1 | Acetate Liner | ☐ | 3/29/2017 10:12 | 3 days | | ☐ | |
| | | | SW8260B (VOCs) | | | ☐ | | 3 days | | ☐ | |
| 1703F87-017A | B-35-12.5 | Soil | | 1 | Acetate Liner | ☐ | 3/29/2017 10:19 | | | ☑ | |
| 1703F87-018A | B-35-15.0 | Soil | | 1 | Acetate Liner | ☐ | 3/29/2017 10:29 | | | ☑ | |
| 1703F87-019A | B-35-20.0 | Soil | | 1 | Acetate Liner | ☐ | 3/29/2017 10:36 | | | ☑ | |
| 1703F87-020A | B-31-GW | Water | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 4 | 2 VOAs w/HCL + 2-aVOAs (multi-range) | ☐ | 3/29/2017 15:05 | 3 days | 5%+ | ☐ | |
| 1703F87-020B | B-31-GW | Water | SW8260B (VOCs) | 2 | VOA w/ HCl | ☐ | 3/29/2017 15:05 | 3 days | 5%+ | ☐ | |

**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.**

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# WORK ORDER SUMMARY

**Client Name:** LANGAN **Project:** 750635603; 260 30th Street **Work Order:** 1703F87
**Client Contact:** Josh Graber **QC Level:** LEVEL 2
**Contact's Email:** jdgraber@treadwellrollo.com **Comments:** **Date Logged:** 3/30/2017

☐ 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1703F87-020C | B-31-GW | Water | SW8310 (PAHs/PNAs) | 1 | 1LA w/ HCl | ☐ | 3/29/2017 15:05 | 4 days | 5%+ | ☐ | |
| 1703F87-021A | B-34-GW | Water | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 4 | 2 VOAs w/HCL + 2-aVOAs (multi-range) | ☐ | 3/29/2017 14:50 | 3 days | 5%+ | ☐ | |
| 1703F87-021B | B-34-GW | Water | SW8260B (VOCs) | 2 | VOA w/ HCl | ☐ | 3/29/2017 14:50 | 3 days | 5%+ | ☐ | |
| 1703F87-021C | B-34-GW | Water | SW8310 (PAHs/PNAs) | 1 | 1LA w/ HCl | ☐ | 3/29/2017 14:50 | 4 days | 5%+ | ☐ | |
| 1703F87-022A | B-35-GW | Water | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 4 | 2 VOAs w/HCL + 2-aVOAs (multi-range) | ☐ | 3/29/2017 14:40 | 3 days | 5%+ | ☐ | |
| 1703F87-022B | B-35-GW | Water | SW8260B (VOCs) | 2 | VOA w/ HCl | ☐ | 3/29/2017 14:40 | 3 days | 5%+ | ☐ | |
| 1703F87-022C | B-35-GW | Water | SW8310 (PAHs/PNAs) | 1 | 1LA w/ HCl | ☐ | 3/29/2017 14:40 | 4 days | 5%+ | ☐ | |

**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.**

RUSH * PLEASE C.C. ANNIE S. AT KSTAEHLIN@LANGIAN.COM * 10433

# LANGAN

## CHAIN OF CUSTODY RECORD

170387

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: 750635603
Project Manager\Contact: JOSH GRABER
Samplers: KARIANNE STAEHLIN
Recorder (Signature Required):

Turnaround Time: 72-HOUR

| Field Sample Identification No. | Date | Time | Lab Sample No. | Matrix: Soil | Water | Air | Other | No. Containers & Preservative: HCL | $H_2SO_4$ | $HNO_3$ | Ice | Analysis Requested: TPH g, d, mo | VOCs | PAHs (8310) | Silica gel clean-up | Hold | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-31-5.0 | 3/29/17 | 1138 | | X | | | | | | | X | | | | | X | |
| B-31-12.5 | | 1155 | | X | | | | | | | X | X | X | | | | |
| B-31-15.0 | | 1200 | | X | | | | | | | X | X | X | | | | |
| B-31-20.0 | | 1219 | | X | | | | | | | X | | | | | X | |
| B-32-8.0 | | 0806 | | X | | | | | | | X | | | | | X | |
| B-32-10.0 | | 0810 | | X | | | | | | | X | X | X | | | | |
| B-32-12.5 | | 0830 | | X | | | | | | | X | X | X | | | | |
| B-32-15.0 | | 0835 | | X | | | | | | | X | X | X | | | | |
| B-32-20.0 | | 0848 | | X | | | | | | | X | | | | | X | |
| B-34-5.0 | | 0900 | | X | | | | | | | X | | | | | X | |
| B-34-8.0 | | 0911 | | X | | | | | | | X | X | X | | | | |
| B-34-12.5 | | 0920 | | X | | | | | | | X | X | X | | | | |
| B-34-15.0 | | 0925 | | X | | | | | | | X | X | X | | | | |
| B-34-20.0 | 3/29/17 | 0934 | | X | | | | | | | X | | | | | X | |

| | | | | |
|---|---|---|---|---|
| Relinquished by: (Signature) | Date: | Time | Received by: (Signature) | Date: 3-30-17 Time: 1235 |
| Relinquished by: (Signature) | Date: 3-30-17 | Time: 1420 | Received by: (Signature) | Date: 3/30/17 Time: 1420 |
| Relinquished by: (Signature) | Date: | Time | Received by Lab: (Signature) | Date: Time: |

Sent to Laboratory (Name): McCAMPBELL ANALYTICAL
Laboratory Comments/Notes:

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

White Copy - Original  Yellow Copy - Laboratory  Pink Copy - Field  COC Number:

1703787 10434

# LANGAN

RUSH

## CHAIN OF CUSTODY RECORD




- [ ] 555 Montgomery Street. Suite 1300, San Francisco, CA 94111
- [x] 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: 7506035603
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: Soil | Water | Air | Other | No. Containers & Preservative: HCL | $H_2SO_4$ | $HNO_3$ | Ice | Analysis Requested: TPH g,d,mo | VOCs | PAHs (8310) | Silica gel clean-up | Hold | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-35-8.0 | 3/29/17 | 1008 | | X | | | | | | | X | | | | | X | |
| B-35-10.0 | | 1012 | | X | | | | | | | X | X | X | | | | |
| B-35-12.5 | | 1019 | | X | | | | | | | X | | | | | X | |
| B-35-15.0 | | 1029 | | X | | | | | | | X | | | | | X | |
| B-35-20.0 | | 1036 | | X | | | | | | | X | | | | | X | |
| | | | | | | | | | | | | | | | | | |
| B-31-GW | | 1505 | | | X | | | 5 | | | 2 | X | X | X | | | |
| B-34-GW | | 1450 | | | X | | | 5 | | | 2 | X | X | X | | | |
| B-35-GW | 3/29/17 | 1440 | | | X | | | 5 | | | 2 | X | X | X | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Relinquished by: (Signature) [signature] | Date: | Time | Received by: (Signature) [signature] | Date: 3-30-17 | Time 1735 |
| Relinquished by: (Signature) [signature] | Date: 3-30-17 | Time 1420 | Received by: (Signature) [signature] | Date 3/30/17 | Time 1420 |
| Relinquished by: (Signature) | Date: | Time | Received by Lab: (Signature) | Date | Time |

Sent to Laboratory (Name): McCAMPBELL ANALYTICAL
Laboratory Comments/Notes:

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

White Copy - Original  Yellow Copy - Laboratory  Pink Copy - Field  COC Number:

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Sample Receipt Checklist

Client Name: **Langan**
Project Name: **750635603; 260 30th Street**

WorkOrder №: **1703F87** Matrix: Soil/Water
Carrier: Bernie Cummins (MAI Courier)

Date and Time Received: **3/30/2017 14:20**
Date Logged: **3/30/2017**
Received by: Alexandra Iniguez
Logged by: Alexandra Iniguez

## 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: 5.2°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:

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# Analytical Report

**WorkOrder:** 1703G69

**Report Created for:** Langan

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

**Project Contact:** Josh Graber
**Project P.O.:**
**Project Name:** 750635603; 260 30th St

**Project Received:** 03/31/2017

Analytical Report reviewed & approved for release on 04/04/2017 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.***

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# Glossary of Terms & Qualifier Definitions

**Client:** Langan
**Project:** 750635603; 260 30th St
**WorkOrder:** 1703G69

## 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

| | |
|---|---|
| e2 | diesel range compounds are significant; no recognizable pattern |
| e7 | oil range compounds are significant |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703G69 |
| **Date Received:** | 3/31/17 16:30 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th St | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| GGW-2 | 1703G69-001B | Water | 03/30/2017 11:20 | GC18 | 136618 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 10 | 1 | 04/01/2017 14:50 |
| tert-Amyl methyl ether (TAME) | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Benzene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Bromobenzene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Bromochloromethane | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Bromodichloromethane | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Bromoform | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Bromomethane | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 2-Butanone (MEK) | ND | 2.0 | 1 | 04/01/2017 14:50 |
| t-Butyl alcohol (TBA) | ND | 2.0 | 1 | 04/01/2017 14:50 |
| n-Butyl benzene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| sec-Butyl benzene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| tert-Butyl benzene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Carbon Disulfide | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Carbon Tetrachloride | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Chlorobenzene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Chloroethane | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Chloroform | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Chloromethane | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 2-Chlorotoluene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 4-Chlorotoluene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Dibromochloromethane | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 1,2-Dibromo-3-chloropropane | ND | 0.20 | 1 | 04/01/2017 14:50 |
| 1,2-Dibromoethane (EDB) | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Dibromomethane | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 1,2-Dichlorobenzene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 1,3-Dichlorobenzene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 1,4-Dichlorobenzene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Dichlorodifluoromethane | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 1,1-Dichloroethane | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 1,1-Dichloroethene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| cis-1,2-Dichloroethene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| trans-1,2-Dichloroethene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 1,2-Dichloropropane | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 1,3-Dichloropropane | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 2,2-Dichloropropane | ND | 0.50 | 1 | 04/01/2017 14:50 |

*(Cont.)*

NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703G69 |
| **Date Received:** | 3/31/17 16:30 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th St | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **GGW-2** | **1703G69-001B** | **Water** | **03/30/2017 11:20** | **GC18** | **136618** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| cis-1,3-Dichloropropene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| trans-1,3-Dichloropropene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Diisopropyl ether (DIPE) | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Ethylbenzene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Freon 113 | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Hexachlorobutadiene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Hexachloroethane | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 2-Hexanone | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Isopropylbenzene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 4-Isopropyl toluene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Methyl-t-butyl ether (MTBE) | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Methylene chloride | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Naphthalene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| n-Propyl benzene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Styrene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 1,1,1,2-Tetrachloroethane | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 1,1,2,2-Tetrachloroethane | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Tetrachloroethene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Toluene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 1,2,3-Trichlorobenzene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 1,2,4-Trichlorobenzene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 1,1,1-Trichloroethane | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 1,1,2-Trichloroethane | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Trichloroethene | **5.2** | 0.50 | 1 | 04/01/2017 14:50 |
| Trichlorofluoromethane | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 1,2,3-Trichloropropane | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 1,2,4-Trimethylbenzene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| 1,3,5-Trimethylbenzene | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Vinyl Chloride | ND | 0.50 | 1 | 04/01/2017 14:50 |
| Xylenes, Total | ND | 0.50 | 1 | 04/01/2017 14:50 |

*(Cont.)*

NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703G69 |
| **Date Received:** | 3/31/17 16:30 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/1/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th St | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **GGW-2** | **1703G69-001B** | **Water** | **03/30/2017 11:20** | **GC18** | **136618** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 104 | 70-130 | | 04/01/2017 14:50 |
| Toluene-d8 | 96 | 70-130 | | 04/01/2017 14:50 |
| 4-BFB | 90 | 70-130 | | 04/01/2017 14:50 |

Analyst(s): KF

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703G69 |
| **Date Received:** | 3/31/17 16:30 | **Extraction Method:** | SW3510C |
| **Date Prepared:** | 4/3/17 | **Analytical Method:** | SW8270C-SIM |
| **Project:** | 750635603; 260 30th St | **Unit:** | µg/L |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| GGW-2 | 1703G69-001C | Water | 03/30/2017 11:20 | GC35 | 136647 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.50 | 1 | 04/04/2017 12:37 |
| Acenaphthylene | ND | 0.50 | 1 | 04/04/2017 12:37 |
| Anthracene | ND | 0.50 | 1 | 04/04/2017 12:37 |
| Benzo (a) anthracene | ND | 0.50 | 1 | 04/04/2017 12:37 |
| Benzo (a) pyrene | ND | 0.50 | 1 | 04/04/2017 12:37 |
| Benzo (b) fluoranthene | ND | 0.50 | 1 | 04/04/2017 12:37 |
| Benzo (g,h,i) perylene | ND | 0.50 | 1 | 04/04/2017 12:37 |
| Benzo (k) fluoranthene | ND | 0.50 | 1 | 04/04/2017 12:37 |
| Chrysene | ND | 0.50 | 1 | 04/04/2017 12:37 |
| Dibenzo (a,h) anthracene | ND | 0.50 | 1 | 04/04/2017 12:37 |
| Fluoranthene | ND | 0.50 | 1 | 04/04/2017 12:37 |
| Fluorene | ND | 0.50 | 1 | 04/04/2017 12:37 |
| Indeno (1,2,3-cd) pyrene | ND | 0.50 | 1 | 04/04/2017 12:37 |
| 1-Methylnaphthalene | ND | 0.50 | 1 | 04/04/2017 12:37 |
| 2-Methylnaphthalene | ND | 0.50 | 1 | 04/04/2017 12:37 |
| Naphthalene | ND | 0.50 | 1 | 04/04/2017 12:37 |
| Phenanthrene | ND | 0.50 | 1 | 04/04/2017 12:37 |
| Pyrene | ND | 0.50 | 1 | 04/04/2017 12:37 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 1-Fluoronaphthalene | 71 | 30-130 | 04/04/2017 12:37 |
| 2-Fluorobiphenyl | 57 | 30-130 | 04/04/2017 12:37 |

Analyst(s): REB

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703G69 |
| **Date Received:** | 3/31/17 16:30 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/1/17 | **Analytical Method:** | SW8021B/8015Bm |
| **Project:** | 750635603; 260 30th St | **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 |
|---|---|---|---|---|---|
| **GGW-2** | **1703G69-001A** | **Water** | **03/30/2017 11:20** | **GC3** | **136615** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 50 | 1 | 04/01/2017 17:46 |
| MTBE | --- | 5.0 | 1 | 04/01/2017 17:46 |
| Benzene | --- | 0.50 | 1 | 04/01/2017 17:46 |
| Toluene | --- | 0.50 | 1 | 04/01/2017 17:46 |
| Ethylbenzene | --- | 0.50 | 1 | 04/01/2017 17:46 |
| Xylenes | --- | 1.5 | 1 | 04/01/2017 17:46 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| aaa-TFT | 115 | 70-130 | 04/01/2017 17:46 |

Analyst(s): LT

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703G69 |
| **Date Received:** | 3/31/17 16:30 | **Extraction Method:** | SW3510C |
| **Date Prepared:** | 3/31/17 | **Analytical Method:** | SW8015B |
| **Project:** | 750635603; 260 30th St | **Unit:** | µg/L |

## Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **GGW-2** | **1703G69-001A** | **Water** | **03/30/2017 11:20** | **GC11A** | **136586** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | **150** | 50 | 1 | 04/01/2017 10:17 |
| TPH-Motor Oil (C18-C36) | **420** | 250 | 1 | 04/01/2017 10:17 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 103 | 66-138 | 04/01/2017 10:17 |

Analyst(s): TK  Analytical Comments: e7,e2

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703G69 |
| **Date Prepared:** | 4/1/17 | **BatchID:** | 136618 |
| **Date Analyzed:** | 4/1/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC18 | **Analytical Method:** | SW8260B |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 750635603; 260 30th St | **Sample ID:** | MB/LCS-136618<br>1703E95-001CMS/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 | 8.84 | 0.50 | 10 | - | 88 | 54-140 |
| Benzene | ND | 10.3 | 0.50 | 10 | - | 103 | 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 | 25.6 | 2.0 | 40 | - | 64 | 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 | 10.2 | 0.50 | 10 | - | 102 | 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 | 9.33 | 0.50 | 10 | - | 93 | 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 | 9.63 | 0.50 | 10 | - | 96 | 66-125 |
| 1,1-Dichloroethene | ND | 9.87 | 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 | - | - | - | - |

*(Cont.)*

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QA/QC Officer

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703G69 |
| **Date Prepared:** | 4/1/17 | **BatchID:** | 136618 |
| **Date Analyzed:** | 4/1/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC18 | **Analytical Method:** | SW8260B |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 750635603; 260 30th St | **Sample ID:** | MB/LCS-136618<br>1703E95-001CMS/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 | 10.1 | 0.50 | 10 | - | 101 | 57-136 |
| Ethylbenzene | ND | - | 0.50 | - | - | - | - |
| Ethyl tert-butyl ether (ETBE) | ND | 9.65 | 0.50 | 10 | - | 97 | 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 | 8.93 | 0.50 | 10 | - | 89 | 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 | 9.84 | 0.50 | 10 | - | 98 | 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 | 10.4 | 0.50 | 10 | - | 103 | 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 | - | - | - | - |

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QA/QC Officer

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703G69 |
| **Date Prepared:** | 4/1/17 | **BatchID:** | 136618 |
| **Date Analyzed:** | 4/1/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC18 | **Analytical Method:** | SW8260B |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 750635603; 260 30th St | **Sample ID:** | MB/LCS-136618<br>1703E95-001CMS/MSD |

## QC Summary Report for SW8260B

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | | | |
| Dibromofluoromethane | 25.59 | 25.4 | | 25 | 102 | 102 | 70-130 |
| Toluene-d8 | 24.28 | 24.8 | | 25 | 97 | 99 | 70-130 |
| 4-BFB | 2.154 | 2.24 | | 2.5 | 86 | 90 | 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) | 9.81 | 10.3 | 10 | ND | 98 | 103 | 69-139 | 4.72 | 20 |
| Benzene | 10.2 | 10.8 | 10 | ND | 101 | 107 | 69-141 | 5.72 | 20 |
| t-Butyl alcohol (TBA) | 36.1 | 34.6 | 40 | ND | 90 | 86 | 41-152 | 4.36 | 20 |
| Chlorobenzene | 10.1 | 10.7 | 10 | ND | 101 | 107 | 77-120 | 5.99 | 20 |
| 1,2-Dibromoethane (EDB) | 10.1 | 10.6 | 10 | ND | 101 | 106 | 76-135 | 3.98 | 20 |
| 1,2-Dichloroethane (1,2-DCA) | 10.3 | 10.7 | 10 | ND | 103 | 107 | 73-139 | 4.00 | 20 |
| 1,1-Dichloroethene | 9.46 | 10.2 | 10 | ND | 95 | 102 | 59-140 | 7.53 | 20 |
| Diisopropyl ether (DIPE) | 10.6 | 11.0 | 10 | ND | 106 | 110 | 72-140 | 3.73 | 20 |
| Ethyl tert-butyl ether (ETBE) | 10.4 | 10.9 | 10 | ND | 104 | 109 | 71-140 | 4.64 | 20 |
| Methyl-t-butyl ether (MTBE) | 10.0 | 10.4 | 10 | ND | 100 | 104 | 73-139 | 3.86 | 20 |
| Toluene | 9.53 | 10.1 | 10 | ND | 94 | 100 | 71-128 | 5.74 | 20 |
| Trichloroethene | 10.2 | 10.8 | 10 | ND | 102 | 108 | 64-132 | 6.27 | 20 |
| **Surrogate Recovery** | | | | | | | | | |
| Dibromofluoromethane | 26.0 | 26.0 | 25 | | 104 | 104 | 73-131 | 0 | 20 |
| Toluene-d8 | 24.4 | 24.2 | 25 | | 97 | 97 | 72-117 | 0 | 20 |
| 4-BFB | 2.24 | 2.32 | 2.5 | | 90 | 93 | 74-116 | 3.41 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703G69 |
| **Date Prepared:** | 4/3/17 | **BatchID:** | 136647 |
| **Date Analyzed:** | 4/4/17 | **Extraction Method:** | SW3510C |
| **Instrument:** | GC35 | **Analytical Method:** | SW8270C-SIM |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 750635603; 260 30th St | **Sample ID:** | MB/LCS/LCSD-136647 |

## 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 | 14.51 | | 25 | 58 | 30-130 |
| 2-Fluorobiphenyl | 13.83 | | 25 | 55 | 30-130 |

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Benzo (a) pyrene | 7.64 | 6.83 | 10 | 76 | 68 | 12-152 | 11.2 | 25 |
| Chrysene | 5.92 | 5.40 | 10 | 59 | 54 | 28-116 | 9.06 | 25 |
| 1-Methylnaphthalene | 8.77 | 8.26 | 10 | 88 | 83 | 48-125 | 6.00 | 25 |
| 2-Methylnaphthalene | 8.12 | 7.65 | 10 | 81 | 77 | 41-124 | 6.00 | 25 |
| Phenanthrene | 7.31 | 6.82 | 10 | 73 | 68 | 36-123 | 6.95 | 25 |
| Pyrene | 8.22 | 7.50 | 10 | 82 | 75 | 29-118 | 9.10 | 25 |
| **Surrogate Recovery** | | | | | | | | |
| 1-Fluoronaphthalene | 15.2 | 14.3 | 25 | 61 | 57 | 45-129 | 5.88 | 25 |
| 2-Fluorobiphenyl | 14.5 | 13.4 | 25 | 58 | 54 | 47-125 | 7.88 | 25 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703G69 |
| **Date Prepared:** | 4/1/17 | **BatchID:** | 136615 |
| **Date Analyzed:** | 4/1/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC3 | **Analytical Method:** | SW8021B/8015Bm |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 750635603; 260 30th St | **Sample ID:** | MB/LCS-136615<br>1703G94-002BMS/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 | 59.6 | 40 | 60 | - | 99 | 78-116 |
| MTBE | ND | 9.39 | 5.0 | 10 | - | 94 | 72-122 |
| Benzene | ND | 9.49 | 0.50 | 10 | - | 95 | 81-123 |
| Toluene | ND | 9.93 | 0.50 | 10 | - | 99 | 83-129 |
| Ethylbenzene | ND | 10.3 | 0.50 | 10 | - | 103 | 88-126 |
| Xylenes | ND | 32.1 | 1.5 | 30 | - | 107 | 87-131 |
| **Surrogate Recovery** | | | | | | | |
| aaa-TFT | 10.78 | 10.4 | | 10 | 108 | 104 | 89-116 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| TPH(btex) | 59.2 | 59.9 | 60 | ND | 99 | 100 | 63-133 | 1.29 | 20 |
| MTBE | 9.86 | 10.1 | 10 | ND | 99 | 101 | 69-122 | 1.96 | 20 |
| Benzene | 9.24 | 9.62 | 10 | ND | 92 | 96 | 84-125 | 4.09 | 20 |
| Toluene | 9.75 | 10.1 | 10 | ND | 98 | 101 | 87-131 | 3.32 | 20 |
| Ethylbenzene | 10.1 | 10.5 | 10 | ND | 101 | 105 | 92-126 | 4.19 | 20 |
| Xylenes | 31.6 | 32.8 | 30 | ND | 105 | 109 | 88-132 | 3.94 | 20 |
| **Surrogate Recovery** | | | | | | | | | |
| aaa-TFT | 9.98 | 10.5 | 10 | | 100 | 105 | 90-117 | 5.05 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1703G69 |
| **Date Prepared:** | 3/31/17 | **BatchID:** | 136586 |
| **Date Analyzed:** | 4/1/17 | **Extraction Method:** | SW3510C |
| **Instrument:** | GC6B | **Analytical Method:** | SW8015B |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 750635603; 260 30th St | **Sample ID:** | MB/LCS/LCSD-136586 |

## 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 | 605.4 | | 625 | 97 | 79-111 |

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| TPH-Diesel (C10-C23) | 1070 | 1040 | 1000 | 107 | 104 | 88-134 | 2.92 | 30 |
| **Surrogate Recovery** | | | | | | | | |
| C9 | 609 | 622 | 625 | 97 | 100 | 79-111 | 2.15 | 30 |

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# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1703G69** **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:
PO:
ProjectNo: 750635603; 260 30th St

**Bill to:**
Accounts Payable
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursolutio

**Requested TAT:** 3 days;

***Date Received:*** **03/31/2017**
***Date Logged:*** **03/31/2017**

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1703G69-001 | GGW-2 | Water | 3/30/2017 11:20 | ☐ | B | C | A | A | | | | | | | | |

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 8260B_W | 2 | 8270_PNA_W | 3 | G-MBTEX_W | 4 | TPH(DMO)_W |
| 5 | | 6 | | 7 | | 8 | |
| 9 | | 10 | | 11 | | 12 | |

**Prepared by: Alexandra Iniguez**

The following SampID: 001A 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.

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# WORK ORDER SUMMARY

**Client Name:** LANGAN **Project:** 750635603; 260 30th St **Work Order:** 1703G69
**Client Contact:** Josh Graber **QC Level:** LEVEL 2
**Contact's Email:** jdgraber@treadwellrollo.com **Comments:** **Date Logged:** 3/31/2017

☐ 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1703G69-001A | GGW-2 | Water | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 4 | 2 VOAs w/HCL + 2-aVOAs (multi-range) | ☐ | 3/30/2017 11:20 | 3 days | Trace | ☐ | |
| 1703G69-001B | GGW-2 | Water | SW8260B (VOCs) | 2 | VOA w/ HCl | ☐ | 3/30/2017 11:20 | 3 days | Trace | ☐ | |
| 1703G69-001C | GGW-2 | Water | SW8270C (PAHs/PNAs) | 1 | 1LA | ☐ | 3/30/2017 11:20 | 3 days | Trace | ☐ | |

**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.**

17036169

10301

# LANGAN RUSH CHAIN OF CUSTODY RECORD

Page 1 of 1

- [ ] 555 Montgomery Street. Suite 1300, San Francisco, CA 94111
- [x] 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: 2603 30th St

Job Number: 750635603

Project Manager\Contact: Joshua Gruber

Samplers: noel liner (nliner@langan.com)

Recorder (Signature Required):

Turnaround Time: 72 hr

| Field Sample Identification No. | Date | Time | Lab Sample No. | Matrix: Soil | Matrix: Water | Matrix: Air | Matrix: Other | No. Containers & Preservative: HCL | $H_2SO_4$ | $HNO_3$ | Ice | | | Analysis Requested: PAH | TRH-C5-mid | VOCs | | | | | | | | | | | | | | | Silica gel clean-up | Hold | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GGW-2 | 3-30-17 | 1120 | | | X | | | 6 | | | 1 | | | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | |
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| | | | | | |
|---|---|---|---|---|---|
| Relinquished by: (Signature) | Date: | Time | Received by: (Signature) | Date 3-31-17 | Time 1120 |
| Relinquished by: (Signature) | Date: 3-31-17 | Time 1630 | Received by: (Signature) | Date 3/31/17 | Time 1630 |
| Relinquished by: (Signature) | Date: | Time | Received by Lab: (Signature) | Date | Time |

Sent to Laboratory (Name): MCCAMPBELL

Laboratory Comments/Notes:

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

White Copy - Original Yellow Copy - Laboratory Pink Copy - Field 5.0 COC Number:

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Sample Receipt Checklist

| | | | |
|---|---|---|---|
| Client Name: | **Langan** | Date and Time Received | **3/31/2017 16:30** |
| Project Name: | **750635603; 260 30th St** | Date Logged: | **3/31/2017** |
| | | Received by: | Alexandra Iniguez |
| WorkOrder №: | **1703G69** Matrix: Water | Logged by: | Alexandra Iniguez |
| 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: 5.6°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:

# K PRIME, Inc.

CONSULTING ANALYTICAL CHEMISTS

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


## TRANSMITTAL

**DATE:** 4/21/2017

**TO:** MS. ANNIE STAEHLIN
LANGAN TREADWELL ROLLO
555 MONTGOMERY STREET, STE. 1300
SAN FRANCISCO, CA 94111

Phone: 415-955-9041
Email: kstaehlin@langan.com

**ACCT:** 4841
**PROJ:** 750635603

**FROM:** Richard A. Kagel, Ph.D. RAK 4/21/2017
Laboratory Director

**SUBJECT:** LABORATORY RESULTS FOR YOUR PROJECT 750635603

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

| SAMPLE ID | TYPE | DATE | TIME | KPI LAB # |
|---|---|---|---|---|
| SV-2 | AIR | 04/11/17 | 12:18 | 153776 |
| SV-1 | AIR | 04/11/17 | 13:07 | 153777 |

The above listed sample group was received on 04/12/17 and tested as requested on the chain of custody document.

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

**K PRIME, INC.**
**LABORATORY REPORT**

**K PRIME PROJECT: 4841**
**CLIENT PROJECT: 750635603**

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

| | |
|---|---|
| **SAMPLE ID:** | SV-2 |
| **LAB NO:** | 153776 |
| **SAMPLE TYPE:** | AIR |
| **DATE SAMPLED:** | 04/11/2017 |
| **TIME SAMPLED:** | 12:18 |
| **BATCH ID:** | 040317A1 |
| **DATE ANALYZED:** | 04/13/2017 |

| | | PPB (V/V) | | µg/cu. m | |
|---|---|---|---|---|---|
| **COMPOUND NAME** | **CAS NO.** | **RL** | **SAMPLE CONC** | **RL** | **SAMPLE CONC** |
| DICHLORODIFLUOROMETHANE | 75-71-8 | 1.00 | ND | 4.95 | ND |
| CHLOROMETHANE | 74-87-3 | 1.00 | ND | 2.07 | ND |
| DICHLOROTETRAFLUOROETHANE | 76-14-2 | 1.00 | ND | 6.99 | ND |
| VINYL CHLORIDE | 75-01-4 | 1.00 | ND | 2.56 | ND |
| BROMOMETHANE | 74-83-9 | 1.00 | ND | 3.88 | ND |
| CHLOROETHANE | 75-00-3 | 1.00 | ND | 2.64 | ND |
| TRICHLOROFLUOROMETHANE | 75-69-4 | 1.00 | ND | 5.62 | ND |
| 1,1-DICHLOROETHENE | 75-35-4 | 1.00 | ND | 3.97 | ND |
| TRICHLOROTRIFLUOROETHANE | 76-13-1 | 1.00 | ND | 7.66 | ND |
| METHYLENE CHLORIDE | 75-09-2 | 1.00 | ND | 3.47 | ND |
| 1,1-DICHLOROETHANE | 75-34-3 | 1.00 | ND | 4.05 | ND |
| CIS-1,2-DICHLOROETHENE | 159-59-2 | 1.00 | 10.4 | 3.97 | 41.0 |
| CHLOROFORM | 67-66-3 | 1.00 | ND | 4.88 | ND |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 1.00 | ND | 5.46 | ND |
| 1,2-DICHLOROETHANE | 107-06-2 | 1.00 | ND | 4.05 | ND |
| BENZENE | 71-43-2 | 1.00 | 5.71 | 3.19 | 18.2 |
| CARBON TETRACHLORIDE | 56-23-5 | 1.00 | ND | 6.29 | ND |
| 1,2-DICHLOROPROPANE | 78-87-5 | 1.00 | ND | 4.62 | ND |
| TRICHLOROETHENE | 79-01-6 | 1.00 | 18.3 | 5.37 | 98.3 |
| CIS-1,3-DICHLOROPROPENE | 10061-01-5 | 1.00 | ND | 4.54 | ND |
| TRANS-1,3-DICHLOROPROPENE | 10061-02-6 | 1.00 | ND | 4.54 | ND |
| TOLUENE | 108-88-3 | 1.00 | 7.02 | 3.77 | 26.5 |
| 1,1,2-TRICHLOROETHANE | 79-00-5 | 1.00 | ND | 5.46 | ND |
| 1,2-DIBROMOETHANE | 106-93-4 | 1.00 | ND | 7.68 | ND |
| TETRACHLOROETHENE | 127-18-4 | 1.00 | ND | 6.78 | ND |
| CHLOROBENZENE | 108-90-7 | 1.00 | ND | 4.60 | ND |
| ETHYLBENZENE | 100-41-4 | 1.00 | 1.42 | 4.34 | 6.17 |
| XYLENE (M+P) | 179601-23-1 | 2.00 | 3.93 | 8.68 | 17.1 |
| STYRENE | 100-42-5 | 1.00 | ND | 4.26 | ND |
| XYLENE (O) | 95-47-6 | 1.00 | 1.87 | 4.34 | 8.12 |
| 1,1,2,2-TETRACHLOROETHANE | 79-34-5 | 1.00 | ND | 6.87 | ND |
| 1,3,5-TRIMETHYLBENZENE | 108-67-8 | 1.00 | ND | 4.92 | ND |
| 1,2,4-TRIMETHYLBENZENE | 95-63-6 | 1.00 | 1.86 | 4.92 | 9.14 |
| 1,3-DICHLOROBENZENE | 541-73-1 | 1.00 | ND | 6.01 | ND |
| 1,4-DICHLOROBENZENE | 106-46-7 | 1.00 | ND | 6.01 | ND |
| 1,2-DICHLOROBENZENE | 95-50-1 | 1.00 | ND | 6.01 | ND |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 1.00 | ND | 7.42 | ND |
| HEXACHLOROBUTADIENE | 87-68-3 | 1.00 | ND | 10.7 | ND |
| ACETONE | 67-64-1 | 2.00 | 18.7 | 4.74 | 44.3 |
| 2-BUTANONE | 78-93-3 | 2.00 | 4.51 | 5.90 | 13.3 |
| NAPHTHALENE | 91-20-3 | 1.00 | ND | 5.24 | ND |

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

**APPROVED BY:** RMS
**DATE:** 4/21/17

**K PRIME, INC.**
**LABORATORY REPORT**

**K PRIME PROJECT: 4841**
**CLIENT PROJECT: 750635603**

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

| | |
|---|---|
| **SAMPLE ID:** | SV-1 |
| **LAB NO:** | 153777 |
| **SAMPLE TYPE:** | AIR |
| **DATE SAMPLED:** | 04/11/2017 |
| **TIME SAMPLED:** | 13:07 |
| **BATCH ID:** | 040317A1 |
| **DATE ANALYZED:** | 04/13/2017 |

| | | PPB (V/V) | | µg/cu. m | |
|---|---|---|---|---|---|
| **COMPOUND NAME** | **CAS NO.** | **RL** | **SAMPLE CONC** | **RL** | **SAMPLE CONC** |
| DICHLORODIFLUOROMETHANE | 75-71-8 | 1.00 | ND | 4.95 | ND |
| CHLOROMETHANE | 74-87-3 | 1.00 | ND | 2.07 | ND |
| DICHLOROTETRAFLUOROETHANE | 76-14-2 | 1.00 | ND | 6.99 | ND |
| VINYL CHLORIDE | 75-01-4 | 1.00 | ND | 2.56 | ND |
| BROMOMETHANE | 74-83-9 | 1.00 | ND | 3.88 | ND |
| CHLOROETHANE | 75-00-3 | 1.00 | ND | 2.64 | ND |
| TRICHLOROFLUOROMETHANE | 75-69-4 | 1.00 | ND | 5.62 | ND |
| 1,1-DICHLOROETHENE | 75-35-4 | 1.00 | ND | 3.97 | ND |
| TRICHLOROTRIFLUOROETHANE | 76-13-1 | 1.00 | ND | 7.66 | ND |
| METHYLENE CHLORIDE | 75-09-2 | 1.00 | ND | 3.47 | ND |
| 1,1-DICHLOROETHANE | 75-34-3 | 1.00 | ND | 4.05 | ND |
| CIS-1,2-DICHLOROETHENE | 159-59-2 | 1.00 | ND | 3.97 | ND |
| CHLOROFORM | 67-66-3 | 1.00 | ND | 4.88 | ND |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 1.00 | ND | 5.46 | ND |
| 1,2-DICHLOROETHANE | 107-06-2 | 1.00 | ND | 4.05 | ND |
| BENZENE | 71-43-2 | 1.00 | 7.08 | 3.19 | 22.6 |
| CARBON TETRACHLORIDE | 56-23-5 | 1.00 | ND | 6.29 | ND |
| 1,2-DICHLOROPROPANE | 78-87-5 | 1.00 | ND | 4.62 | ND |
| TRICHLOROETHENE | 79-01-6 | 1.00 | ND | 5.37 | ND |
| CIS-1,3-DICHLOROPROPENE | 10061-01-5 | 1.00 | ND | 4.54 | ND |
| TRANS-1,3-DICHLOROPROPENE | 10061-02-6 | 1.00 | ND | 4.54 | ND |
| TOLUENE | 108-88-3 | 1.00 | 5.96 | 3.77 | 22.5 |
| 1,1,2-TRICHLOROETHANE | 79-00-5 | 1.00 | ND | 5.46 | ND |
| 1,2-DIBROMOETHANE | 106-93-4 | 1.00 | ND | 7.68 | ND |
| TETRACHLOROETHENE | 127-18-4 | 1.00 | ND | 6.78 | ND |
| CHLOROBENZENE | 108-90-7 | 1.00 | ND | 4.60 | ND |
| ETHYLBENZENE | 100-41-4 | 1.00 | ND | 4.34 | ND |
| XYLENE (M+P) | 179601-23-1 | 2.00 | ND | 8.68 | ND |
| STYRENE | 100-42-5 | 1.00 | ND | 4.26 | ND |
| XYLENE (O) | 95-47-6 | 1.00 | ND | 4.34 | ND |
| 1,1,2,2-TETRACHLOROETHANE | 79-34-5 | 1.00 | ND | 6.87 | ND |
| 1,3,5-TRIMETHYLBENZENE | 108-67-8 | 1.00 | ND | 4.92 | ND |
| 1,2,4-TRIMETHYLBENZENE | 95-63-6 | 1.00 | ND | 4.92 | ND |
| 1,3-DICHLOROBENZENE | 541-73-1 | 1.00 | ND | 6.01 | ND |
| 1,4-DICHLOROBENZENE | 106-46-7 | 1.00 | ND | 6.01 | ND |
| 1,2-DICHLOROBENZENE | 95-50-1 | 1.00 | ND | 6.01 | ND |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 1.00 | ND | 7.42 | ND |
| HEXACHLOROBUTADIENE | 87-68-3 | 1.00 | ND | 10.7 | ND |
| ACETONE | 67-64-1 | 2.00 | 19.7 | 4.74 | 46.8 |
| 2-BUTANONE | 78-93-3 | 2.00 | 4.75 | 5.90 | 14.0 |
| NAPHTHALENE | 91-20-3 | 1.00 | ND | 5.24 | ND |

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

**APPROVED BY:** RMK
**DATE:** 4/21/17

**K PRIME, INC.**
**LABORATORY METHOD BLANK REPORT**

**METHOD BLANK ID:** B040317A1
**SAMPLE TYPE:** AIR

**BATCH ID:** 040317A1
**DATE ANALYZED:** 04/03/2017

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

| | | PPB (V/V) | | µg/cu. m | |
|---|---|---|---|---|---|
| **COMPOUND NAME** | **CAS NO.** | **RL** | **SAMPLE CONC** | **RL** | **SAMPLE CONC** |
| DICHLORODIFLUOROMETHANE | 75-71-8 | 0.500 | ND | 2.47 | ND |
| CHLOROMETHANE | 74-87-3 | 0.500 | ND | 1.03 | ND |
| DICHLOROTETRAFLUOROETHANE | 76-14-2 | 0.500 | ND | 3.50 | ND |
| VINYL CHLORIDE | 75-01-4 | 0.500 | ND | 1.28 | ND |
| BROMOMETHANE | 74-83-9 | 0.500 | ND | 1.94 | ND |
| CHLOROETHANE | 75-00-3 | 0.500 | ND | 1.32 | ND |
| TRICHLOROFLUOROMETHANE | 75-69-4 | 0.500 | ND | 2.81 | ND |
| 1,1-DICHLOROETHENE | 75-35-4 | 0.500 | ND | 1.98 | ND |
| TRICHLOROTRIFLUOROETHANE | 76-13-1 | 0.500 | ND | 3.83 | ND |
| METHYLENE CHLORIDE | 75-09-2 | 0.500 | ND | 1.74 | ND |
| 1,1-DICHLOROETHANE | 75-34-3 | 0.500 | ND | 2.02 | ND |
| CIS-1,2-DICHLOROETHENE | 159-59-2 | 0.500 | ND | 1.98 | ND |
| CHLOROFORM | 67-66-3 | 0.500 | ND | 2.44 | ND |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 0.500 | ND | 2.73 | ND |
| 1,2-DICHLOROETHANE | 107-06-2 | 0.500 | ND | 2.02 | ND |
| BENZENE | 71-43-2 | 0.500 | ND | 1.60 | ND |
| CARBON TETRACHLORIDE | 56-23-5 | 0.500 | ND | 3.15 | ND |
| 1,2-DICHLOROPROPANE | 78-87-5 | 0.500 | ND | 2.31 | ND |
| TRICHLOROETHENE | 79-01-6 | 0.500 | ND | 2.69 | ND |
| CIS-1,3-DICHLOROPROPENE | 10061-01-5 | 0.500 | ND | 2.27 | ND |
| TRANS-1,3-DICHLOROPROPENE | 10061-02-6 | 0.500 | ND | 2.27 | ND |
| TOLUENE | 108-88-3 | 0.500 | ND | 1.88 | ND |
| 1,1,2-TRICHLOROETHANE | 79-00-5 | 0.500 | ND | 2.73 | ND |
| 1,2-DIBROMOETHANE | 106-93-4 | 0.500 | ND | 3.84 | ND |
| TETRACHLOROETHENE | 127-18-4 | 0.500 | ND | 3.39 | ND |
| CHLOROBENZENE | 108-90-7 | 0.500 | ND | 2.30 | ND |
| ETHYLBENZENE | 100-41-4 | 0.500 | ND | 2.17 | ND |
| XYLENE (M+P) | 179601-23-1 | 1.00 | ND | 4.34 | ND |
| STYRENE | 100-42-5 | 0.500 | ND | 2.13 | ND |
| XYLENE (O) | 95-47-6 | 0.500 | ND | 2.17 | ND |
| 1,1,2,2-TETRACHLOROETHANE | 79-34-5 | 0.500 | ND | 3.43 | ND |
| 1,3,5-TRIMETHYLBENZENE | 108-67-8 | 0.500 | ND | 2.46 | ND |
| 1,2,4-TRIMETHYLBENZENE | 95-63-6 | 0.500 | ND | 2.46 | ND |
| 1,3-DICHLOROBENZENE | 541-73-1 | 0.500 | ND | 3.01 | ND |
| 1,4-DICHLOROBENZENE | 106-46-7 | 0.500 | ND | 3.01 | ND |
| 1,2-DICHLOROBENZENE | 95-50-1 | 0.500 | ND | 3.01 | ND |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 0.500 | ND | 3.71 | ND |
| HEXACHLOROBUTADIENE | 87-68-3 | 0.500 | ND | 5.33 | ND |
| METHYL METHACRYLATE | 80-62-6 | 0.500 | ND | 2.05 | ND |
| ACETONE | 67-64-1 | 1.00 | ND | 2.37 | ND |
| 2-BUTANONE | 78-93-3 | 1.00 | ND | 2.95 | ND |
| NAPHTHALENE | 91-20-3 | 0.500 | ND | 2.62 | ND |

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

**K PRIME, INC.**
**LABORATORY QUALITY CONTROL REPORT**

**LAB CONTROL ID:** L040317A1
**LAB CONTROL DUPLICATE ID:** D040317A1

**SAMPLE TYPE:** AIR
**BATCH ID:** 040317A1
**DATE ANALYZED:** 04/03/2017

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

| COMPOUND NAME | SPIKE ADDED (PPB) | REPORTING LIMIT (PPB) | SAMPLE CONC (PPB) | SPIKE CONC (PPB) | SPIKE REC (%) | REC LIMITS (%) |
|---|---|---|---|---|---|---|
| 1,1-DICHLOROETHENE | 10.0 | 0.500 | ND | 9.75 | 98 | 60 - 140 |
| BENZENE | 10.0 | 0.500 | ND | 8.62 | 86 | 60 - 140 |
| TRICHLOROETHENE | 10.0 | 0.500 | ND | 10.5 | 105 | 60 - 140 |
| TOLUENE | 10.0 | 0.500 | ND | 10.3 | 103 | 60 - 140 |
| TETRACHLOROETHENE | 10.0 | 0.500 | ND | 10.6 | 106 | 60 - 140 |

| COMPOUND NAME | SPIKE ADDED (PPB) | SPIKE DUP CONC (PPB) | SPIKE DUP REC (%) | RPD (%) | QC LIMITS RPD (%) | QC LIMITS REC (%) |
|---|---|---|---|---|---|---|
| 1,1-DICHLOROETHENE | 10.0 | 10.1 | 101 | 3.9 | 25 | 60 - 140 |
| BENZENE | 10.0 | 8.86 | 89 | 2.7 | 25 | 60 - 140 |
| TRICHLOROETHENE | 10.0 | 10.3 | 103 | 2.1 | 25 | 60 - 140 |
| TOLUENE | 10.0 | 10.2 | 102 | 1.1 | 25 | 60 - 140 |
| TETRACHLOROETHENE | 10.0 | 10.5 | 105 | 1.1 | 25 | 60 - 140 |

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

# SUMMA CANISTER CHAIN OF CUSTODY

K Prime, Inc. Laboratory
3621 Westwind Blvd.
Santa Rosa, CA 95403-1067
(707) 527-7574
clientservice@kprimeinc.com

K PRIME INC.

□ EDF Log Code: _____

Global ID: _____

| | |
|---|---|
| Client Company: | LANGAN ENGINEERING & ENV. SERVICES, INC. |
| Contact: | KARIANNE STAEHLIN |
| Phone: | (415) 955-5264 |
| Email: | KSTAEHLIN@LANGAN.COM |
| Client Project ID: | 750635603 |

| KPI Project Number |
|---|
| |

"MANIFOLD"

| | KPI LAB NO. | SAMPLE I.D. (Location) | Collection: Date | Collection: Time | Canister I.D. | Controller I.D. | Pressure: Initial | Pressure: Final | Analyses: TO-15 | Analyses: Helium | Analyses: Methane | Analyses: | Analyses: | Turnaround Time | END | Notes COLLECTION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 153776 | SV-2 | 4/11/17 | 1218 | S-295 | 683 | -28 | -11 | ✓ | ✓ | ✓ | | | STD | TIME: | 1251 |
| 2 | 153777 | SV-1 | 4/11/17 | 1307 | S-435 | 684 | -30 | -3 | ✓ | ✓ | ✓ | | | STD | : | 1327 |
| 3 | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | |
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| 10 | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | |

* PLEASE PROVIDE ANALYTICAL DATA FOR ALL VOCs DETECTED ABOVE THE LAB REPORTING/DETECTION LIMITS

| | | | |
|---|---|---|---|
| Relinquished by: (Signature) | | Received by: (Signature) | Date: | Time: |
| Relinquished by: (Signature) | Golden State Overnight 53571264 7 | Received by: (Signature) | Date: 4/12/17 | Time: 12:27 |
| Relinquished by: (Signature) | | Received by: (Signature) | Date: | Time: |

# K PRIME, Inc.

CONSULTING ANALYTICAL CHEMISTS

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


## TRANSMITTAL

**DATE:** 4/18/2017

**TO:** MS. ANNIE STAEHLIN
LANGAN TREADWELL ROLLO
555 MONTGOMERY STREET, STE. 1300
SAN FRANCISCO, CA 94111

Phone: 415-955-9041
Email: kstaehlin@langan.com

**ACCT:** 4841
**PROJ:** 750635603

**FROM:** Richard A. Kagel, Ph.D. RAK 4/18/2017
Laboratory Director

**SUBJECT:** LABORATORY RESULTS FOR YOUR PROJECT 750635603

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

| SAMPLE ID | TYPE | DATE | TIME | KPI LAB # |
|---|---|---|---|---|
| SV-2 | AIR | 04/11/17 | 12:18 | 153776 |
| SV-1 | AIR | 04/11/17 | 13:07 | 153777 |

The above listed sample group was received on 04/12/17 and tested as requested on the chain of custody document.

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

**K PRIME, INC.**
**LABORATORY REPORT**

**K PRIME PROJECT: 4841**
**CLIENT PROJECT: 750635603**

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

| | |
|---|---|
| **SAMPLE ID:** | SV-2 |
| **LAB NO:** | 153776 |
| **SAMPLE TYPE:** | AIR |
| **DATE SAMPLED:** | 04/11/2017 |
| **TIME SAMPLED:** | 12:18 |
| **BATCH ID:** | 040317A1 |
| **DATE ANALYZED:** | 04/13/2017 |

| | | PPB (V/V) | | µg/cu. m | |
|---|---|---|---|---|---|
| **COMPOUND NAME** | **CAS NO.** | **RL** | **SAMPLE CONC** | **RL** | **SAMPLE CONC** |
| DICHLORODIFLUOROMETHANE | 75-71-8 | 1.00 | ND | 4.95 | ND |
| CHLOROMETHANE | 74-87-3 | 1.00 | ND | 2.07 | ND |
| DICHLOROTETRAFLUOROETHANE | 76-14-2 | 1.00 | ND | 6.99 | ND |
| VINYL CHLORIDE | 75-01-4 | 1.00 | ND | 2.56 | ND |
| BROMOMETHANE | 74-83-9 | 1.00 | ND | 3.88 | ND |
| CHLOROETHANE | 75-00-3 | 1.00 | ND | 2.64 | ND |
| TRICHLOROFLUOROMETHANE | 75-69-4 | 1.00 | ND | 5.62 | ND |
| 1,1-DICHLOROETHENE | 75-35-4 | 1.00 | ND | 3.97 | ND |
| TRICHLOROTRIFLUOROETHANE | 76-13-1 | 1.00 | ND | 7.66 | ND |
| METHYLENE CHLORIDE | 75-09-2 | 1.00 | ND | 3.47 | ND |
| 1,1-DICHLOROETHANE | 75-34-3 | 1.00 | ND | 4.05 | ND |
| CIS-1,2-DICHLOROETHENE | 159-59-2 | 1.00 | 10.4 | 3.97 | 41.0 |
| CHLOROFORM | 67-66-3 | 1.00 | ND | 4.88 | ND |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 1.00 | ND | 5.46 | ND |
| 1,2-DICHLOROETHANE | 107-06-2 | 1.00 | ND | 4.05 | ND |
| BENZENE | 71-43-2 | 1.00 | 5.71 | 3.19 | 18.2 |
| CARBON TETRACHLORIDE | 56-23-5 | 1.00 | ND | 6.29 | ND |
| 1,2-DICHLOROPROPANE | 78-87-5 | 1.00 | ND | 4.62 | ND |
| TRICHLOROETHENE | 79-01-6 | 1.00 | 18.3 | 5.37 | 98.3 |
| CIS-1,3-DICHLOROPROPENE | 10061-01-5 | 1.00 | ND | 4.54 | ND |
| TRANS-1,3-DICHLOROPROPENE | 10061-02-6 | 1.00 | ND | 4.54 | ND |
| TOLUENE | 108-88-3 | 1.00 | 7.02 | 3.77 | 26.5 |
| 1,1,2-TRICHLOROETHANE | 79-00-5 | 1.00 | ND | 5.46 | ND |
| 1,2-DIBROMOETHANE | 106-93-4 | 1.00 | ND | 7.68 | ND |
| TETRACHLOROETHENE | 127-18-4 | 1.00 | ND | 6.78 | ND |
| CHLOROBENZENE | 108-90-7 | 1.00 | ND | 4.60 | ND |
| ETHYLBENZENE | 100-41-4 | 1.00 | 1.42 | 4.34 | 6.17 |
| XYLENE (M+P) | 179601-23-1 | 2.00 | 3.93 | 8.68 | 17.1 |
| STYRENE | 100-42-5 | 1.00 | ND | 4.26 | ND |
| XYLENE (O) | 95-47-6 | 1.00 | 1.87 | 4.34 | 8.12 |
| 1,1,2,2-TETRACHLOROETHANE | 79-34-5 | 1.00 | ND | 6.87 | ND |
| 1,3,5-TRIMETHYLBENZENE | 108-67-8 | 1.00 | ND | 4.92 | ND |
| 1,2,4-TRIMETHYLBENZENE | 95-63-6 | 1.00 | 1.86 | 4.92 | 9.14 |
| 1,3-DICHLOROBENZENE | 541-73-1 | 1.00 | ND | 6.01 | ND |
| 1,4-DICHLOROBENZENE | 106-46-7 | 1.00 | ND | 6.01 | ND |
| 1,2-DICHLOROBENZENE | 95-50-1 | 1.00 | ND | 6.01 | ND |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 1.00 | ND | 7.42 | ND |
| HEXACHLOROBUTADIENE | 87-68-3 | 1.00 | ND | 10.7 | ND |

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

**APPROVED BY:** MC
**DATE:** 4/14/17

**K PRIME, INC.**
**LABORATORY REPORT**

**K PRIME PROJECT: 4841**
**CLIENT PROJECT: 750635603**

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

| | |
|---|---|
| **SAMPLE ID:** | SV-1 |
| **LAB NO:** | 153777 |
| **SAMPLE TYPE:** | AIR |
| **DATE SAMPLED:** | 04/11/2017 |
| **TIME SAMPLED:** | 13:07 |
| **BATCH ID:** | 040317A1 |
| **DATE ANALYZED:** | 04/13/2017 |

| | | PPB (V/V) | | µg/cu. m | |
|---|---|---|---|---|---|
| **COMPOUND NAME** | **CAS NO.** | **RL** | **SAMPLE CONC** | **RL** | **SAMPLE CONC** |
| DICHLORODIFLUOROMETHANE | 75-71-8 | 1.00 | ND | 4.95 | ND |
| CHLOROMETHANE | 74-87-3 | 1.00 | ND | 2.07 | ND |
| DICHLOROTETRAFLUOROETHANE | 76-14-2 | 1.00 | ND | 6.99 | ND |
| VINYL CHLORIDE | 75-01-4 | 1.00 | ND | 2.56 | ND |
| BROMOMETHANE | 74-83-9 | 1.00 | ND | 3.88 | ND |
| CHLOROETHANE | 75-00-3 | 1.00 | ND | 2.64 | ND |
| TRICHLOROFLUOROMETHANE | 75-69-4 | 1.00 | ND | 5.62 | ND |
| 1,1-DICHLOROETHENE | 75-35-4 | 1.00 | ND | 3.97 | ND |
| TRICHLOROTRIFLUOROETHANE | 76-13-1 | 1.00 | ND | 7.66 | ND |
| METHYLENE CHLORIDE | 75-09-2 | 1.00 | ND | 3.47 | ND |
| 1,1-DICHLOROETHANE | 75-34-3 | 1.00 | ND | 4.05 | ND |
| CIS-1,2-DICHLOROETHENE | 159-59-2 | 1.00 | ND | 3.97 | ND |
| CHLOROFORM | 67-66-3 | 1.00 | ND | 4.88 | ND |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 1.00 | ND | 5.46 | ND |
| 1,2-DICHLOROETHANE | 107-06-2 | 1.00 | ND | 4.05 | ND |
| BENZENE | 71-43-2 | 1.00 | 7.08 | 3.19 | 22.6 |
| CARBON TETRACHLORIDE | 56-23-5 | 1.00 | ND | 6.29 | ND |
| 1,2-DICHLOROPROPANE | 78-87-5 | 1.00 | ND | 4.62 | ND |
| TRICHLOROETHENE | 79-01-6 | 1.00 | ND | 5.37 | ND |
| CIS-1,3-DICHLOROPROPENE | 10061-01-5 | 1.00 | ND | 4.54 | ND |
| TRANS-1,3-DICHLOROPROPENE | 10061-02-6 | 1.00 | ND | 4.54 | ND |
| TOLUENE | 108-88-3 | 1.00 | 5.96 | 3.77 | 22.5 |
| 1,1,2-TRICHLOROETHANE | 79-00-5 | 1.00 | ND | 5.46 | ND |
| 1,2-DIBROMOETHANE | 106-93-4 | 1.00 | ND | 7.68 | ND |
| TETRACHLOROETHENE | 127-18-4 | 1.00 | ND | 6.78 | ND |
| CHLOROBENZENE | 108-90-7 | 1.00 | ND | 4.60 | ND |
| ETHYLBENZENE | 100-41-4 | 1.00 | ND | 4.34 | ND |
| XYLENE (M+P) | 179601-23-1 | 2.00 | ND | 8.68 | ND |
| STYRENE | 100-42-5 | 1.00 | ND | 4.26 | ND |
| XYLENE (O) | 95-47-6 | 1.00 | ND | 4.34 | ND |
| 1,1,2,2-TETRACHLOROETHANE | 79-34-5 | 1.00 | ND | 6.87 | ND |
| 1,3,5-TRIMETHYLBENZENE | 108-67-8 | 1.00 | ND | 4.92 | ND |
| 1,2,4-TRIMETHYLBENZENE | 95-63-6 | 1.00 | ND | 4.92 | ND |
| 1,3-DICHLOROBENZENE | 541-73-1 | 1.00 | ND | 6.01 | ND |
| 1,4-DICHLOROBENZENE | 106-46-7 | 1.00 | ND | 6.01 | ND |
| 1,2-DICHLOROBENZENE | 95-50-1 | 1.00 | ND | 6.01 | ND |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 1.00 | ND | 7.42 | ND |
| HEXACHLOROBUTADIENE | 87-68-3 | 1.00 | ND | 10.7 | ND |

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

**APPROVED BY:** MK
**DATE:** 4/14/17

## K PRIME, INC.

**LABORATORY REPORT**

**K PRIME PROJECT:** 4841
**CLIENT PROJECT:** 750635603

**SAMPLE ID:** SV-2
**LAB NO:** 153776
**DATE SAMPLED:** 04/11/2017
**TIME SAMPLED:** 12:18
**BATCH NO:** 040317A1
**DATE ANALYZED:** 04/12/2017

**METHOD: C1-C3 HYDROCARBONS**
**REFERENCE: EPA METHOD 18**

**SAMPLE TYPE:** AIR
**UNITS:** PPMV

| COMPOUND NAME | CAS NO. | REPORTING LIMIT | SAMPLE CONC |
|---|---|---|---|
| METHANE | 74-82-8 | 15.0 | 36.6 |

APPROVED BY: MM
DATE: 4/14/17

**K PRIME, INC.**
**LABORATORY REPORT**

**K PRIME PROJECT:** 4841
**CLIENT PROJECT:** 750635603

**SAMPLE ID:** SV-1
**LAB NO:** 153777
**DATE SAMPLED:** 04/11/2017
**TIME SAMPLED:** 13:07
**BATCH NO:** 040317A1
**DATE ANALYZED:** 04/12/2017

**METHOD:** C1-C3 HYDROCARBONS
**REFERENCE:** EPA METHOD 18

**SAMPLE TYPE:** AIR
**UNITS:** PPMV

| COMPOUND NAME | CAS NO. | REPORTING LIMIT | SAMPLE CONC |
|---|---|---|---|
| METHANE | 74-82-8 | 10.0 | 23.9 |

**APPROVED BY:** RMK
**DATE:** 4/14/17

## K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 4841
CLIENT PROJECT: 750635603

METHOD: HELIUM
REFERENCE: ASTM D 1946

SAMPLE TYPE: AIR
UNITS: %-V

| SAMPLE ID | LAB NO | BATCH NO | DATE SAMPLED | TIME SAMPLED | DATE ANALYZED | MRL | SAMPLE CONC |
|---|---|---|---|---|---|---|---|
| SV-2 | 153776 | 041217A2 | 04/11/2017 | 12:18 | 04/12/2017 | 0.150 | ND |
| SV-1 | 153777 | 041217A2 | 04/11/2017 | 13:07 | 04/12/2017 | 0.100 | ND |

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

APPROVED BY: RMK
DATE: 4/14/17

**K PRIME, INC.**
**LABORATORY METHOD BLANK REPORT**

**METHOD BLANK ID:** B040317A1
**SAMPLE TYPE:** AIR

**BATCH ID:** 040317A1
**DATE ANALYZED:** 04/03/2017

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

| | | PPB (V/V) | | µg/cu. m | |
|---|---|---|---|---|---|
| **COMPOUND NAME** | **CAS NO.** | **RL** | **SAMPLE CONC** | **RL** | **SAMPLE CONC** |
| DICHLORODIFLUOROMETHANE | 75-71-8 | 0.500 | ND | 2.47 | ND |
| CHLOROMETHANE | 74-87-3 | 0.500 | ND | 1.03 | ND |
| DICHLOROTETRAFLUOROETHANE | 76-14-2 | 0.500 | ND | 3.50 | ND |
| VINYL CHLORIDE | 75-01-4 | 0.500 | ND | 1.28 | ND |
| BROMOMETHANE | 74-83-9 | 0.500 | ND | 1.94 | ND |
| CHLOROETHANE | 75-00-3 | 0.500 | ND | 1.32 | ND |
| TRICHLOROFLUOROMETHANE | 75-69-4 | 0.500 | ND | 2.81 | ND |
| 1,1-DICHLOROETHENE | 75-35-4 | 0.500 | ND | 1.98 | ND |
| TRICHLOROTRIFLUOROETHANE | 76-13-1 | 0.500 | ND | 3.83 | ND |
| METHYLENE CHLORIDE | 75-09-2 | 0.500 | ND | 1.74 | ND |
| 1,1-DICHLOROETHANE | 75-34-3 | 0.500 | ND | 2.02 | ND |
| CIS-1,2-DICHLOROETHENE | 159-59-2 | 0.500 | ND | 1.98 | ND |
| CHLOROFORM | 67-66-3 | 0.500 | ND | 2.44 | ND |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 0.500 | ND | 2.73 | ND |
| 1,2-DICHLOROETHANE | 107-06-2 | 0.500 | ND | 2.02 | ND |
| BENZENE | 71-43-2 | 0.500 | ND | 1.60 | ND |
| CARBON TETRACHLORIDE | 56-23-5 | 0.500 | ND | 3.15 | ND |
| 1,2-DICHLOROPROPANE | 78-87-5 | 0.500 | ND | 2.31 | ND |
| TRICHLOROETHENE | 79-01-6 | 0.500 | ND | 2.69 | ND |
| CIS-1,3-DICHLOROPROPENE | 10061-01-5 | 0.500 | ND | 2.27 | ND |
| TRANS-1,3-DICHLOROPROPENE | 10061-02-6 | 0.500 | ND | 2.27 | ND |
| TOLUENE | 108-88-3 | 0.500 | ND | 1.88 | ND |
| 1,1,2-TRICHLOROETHANE | 79-00-5 | 0.500 | ND | 2.73 | ND |
| 1,2-DIBROMOETHANE | 106-93-4 | 0.500 | ND | 3.84 | ND |
| TETRACHLOROETHENE | 127-18-4 | 0.500 | ND | 3.39 | ND |
| CHLOROBENZENE | 108-90-7 | 0.500 | ND | 2.30 | ND |
| ETHYLBENZENE | 100-41-4 | 0.500 | ND | 2.17 | ND |
| XYLENE (M+P) | 179601-23-1 | 1.00 | ND | 4.34 | ND |
| STYRENE | 100-42-5 | 0.500 | ND | 2.13 | ND |
| XYLENE (O) | 95-47-6 | 0.500 | ND | 2.17 | ND |
| 1,1,2,2-TETRACHLOROETHANE | 79-34-5 | 0.500 | ND | 3.43 | ND |
| 1,3,5-TRIMETHYLBENZENE | 108-67-8 | 0.500 | ND | 2.46 | ND |
| 1,2,4-TRIMETHYLBENZENE | 95-63-6 | 0.500 | ND | 2.46 | ND |
| 1,3-DICHLOROBENZENE | 541-73-1 | 0.500 | ND | 3.01 | ND |
| 1,4-DICHLOROBENZENE | 106-46-7 | 0.500 | ND | 3.01 | ND |
| 1,2-DICHLOROBENZENE | 95-50-1 | 0.500 | ND | 3.01 | ND |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 0.500 | ND | 3.71 | ND |
| HEXACHLOROBUTADIENE | 87-68-3 | 0.500 | ND | 5.33 | ND |

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

**K PRIME, INC.**
**LABORATORY QUALITY CONTROL REPORT**

**LAB CONTROL ID:** L040317A1
**LAB CONTROL DUPLICATE ID:** D040317A1

**SAMPLE TYPE:** AIR
**BATCH ID:** 040317A1
**DATE ANALYZED:** 04/03/2017

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

| COMPOUND NAME | SPIKE ADDED (PPB) | REPORTING LIMIT (PPB) | SAMPLE CONC (PPB) | SPIKE CONC (PPB) | SPIKE REC (%) | REC LIMITS (%) |
|---|---|---|---|---|---|---|
| 1,1-DICHLOROETHENE | 10.0 | 0.500 | ND | 9.75 | 98 | 60 - 140 |
| BENZENE | 10.0 | 0.500 | ND | 8.62 | 86 | 60 - 140 |
| TRICHLOROETHENE | 10.0 | 0.500 | ND | 10.5 | 105 | 60 - 140 |
| TOLUENE | 10.0 | 0.500 | ND | 10.3 | 103 | 60 - 140 |
| TETRACHLOROETHENE | 10.0 | 0.500 | ND | 10.6 | 106 | 60 - 140 |

| COMPOUND NAME | SPIKE ADDED (PPB) | SPIKE DUP CONC (PPB) | SPIKE DUP REC (%) | RPD (%) | QC LIMITS RPD (%) | QC LIMITS REC (%) |
|---|---|---|---|---|---|---|
| 1,1-DICHLOROETHENE | 10.0 | 10.1 | 101 | 3.9 | 25 | 60 - 140 |
| BENZENE | 10.0 | 8.86 | 89 | 2.7 | 25 | 60 - 140 |
| TRICHLOROETHENE | 10.0 | 10.3 | 103 | 2.1 | 25 | 60 - 140 |
| TOLUENE | 10.0 | 10.2 | 102 | 1.1 | 25 | 60 - 140 |
| TETRACHLOROETHENE | 10.0 | 10.5 | 105 | 1.1 | 25 | 60 - 140 |

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

## K PRIME, INC.

**LABORATORY BATCH QC REPORT**

**SAMPLE ID:** B040317A1
**SPIKE ID:** L040317A1
**DUPLICATE ID:** D040317A1
**BATCH NO:** 040317A1
**DATE ANALYZED:** 04/03/2017

**METHOD: C1-C3 HYDROCARBONS**
**REFERENCE: EPA METHOD 18**

**SAMPLE TYPE:** AIR
**UNITS:** PPMV

**METHOD BLANK**

| COMPOUND NAME | REPORTING LIMIT | SAMPLE RESULT |
|---|---|---|
| METHANE | 10.0 | ND |

**ACCURACY (MATRIX SPIKE)**

| COMPOUND NAME | SPIKE ADDED | SPIKE RESULT | RECOVERY (%) | LIMITS (%) |
|---|---|---|---|---|
| METHANE | 1000 | 1080 | 108 | 60-140 |

**PRECISION (SPIKE DUPLICATE)**

| COMPOUND NAME | SPIKE RESULT | DUPLICATE RESULT | RPD (%) | LIMITS (%) |
|---|---|---|---|---|
| METHANE | 1080 | 1090 | 0.9 | ±30 |

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

## K PRIME, INC.

LABORATORY BATCH QC REPORT

SAMPLE ID: B041217A2
SPIKE ID: L041217A2
DUPLICATE ID: D041217A2
BATCH NO: 041217A2
DATE ANALYZED: 04/12/2017

METHOD: HELIUM
REFERENCE: ASTM D 1946

SAMPLE TYPE: AIR
UNITS: %-V

METHOD BLANK

| COMPOUND NAME | REPORTING LIMIT | SAMPLE RESULT |
|---|---|---|
| HELIUM | 0.050 | ND |

ACCURACY (MATRIX SPIKE)

| COMPOUND NAME | SPIKE ADDED | SAMPLE RESULT | SPIKE RESULT | RECOVERY (%) | LIMITS (%) |
|---|---|---|---|---|---|
| HELIUM | 10.0 | ND | 10.2 | 102 | 70-130 |

PRECISION (SPIKE DUPLICATE)

| COMPOUND NAME | REPORTING LIMIT | SPIKE RESULT | DUPLICATE RESULT | RPD (%) | LIMITS (%) |
|---|---|---|---|---|---|
| HELIUM | 0.050 | 10.2 | 9.71 | 4.9 | ±20 |

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

# SUMMA CANISTER CHAIN OF CUSTODY

K PRIME INC.

K Prime, Inc. Laboratory
3621 Westwind Blvd.
Santa Rosa, CA 95403-1067
(707) 527-7574
clientservice@kprimeinc.com

□ EDF Log Code: _____

Global ID: _____

KPI Project Number: _____

Client Company: LANGAN ENGINEERING & ENV. SERVICES, INC.
Contact: KARIANNE STAEHLIN
Phone: (415) 955-5264
Email: KSTAEHLIN@LANGAN.COM
Client Project ID: 750635603

"MANIFOLD"

| | KPI LAB NO. | SAMPLE I.D. (Location) | Collection: Date | Collection: Time | Canister I.D. | Controller I.D. | Pressure: Initial | Pressure: Final | Analyses: TO-15 | Analyses: Helium | Analyses: Methane | Analyses: | Analyses: | Turnaround Time | END TIME | Notes COLLECTION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 153776 | SV-2 | 4/11/17 | 1218 | S-295 | 683 | -28 | -11 | ↓ | ↓ | ✓ | | | STD | 1251 | |
| 2 | 153777 | SV-1 | 4/11/17 | 1307 | S-435 | 684 | -30 | -3 | ↓ | ↓ | ✓ | | | STD | 1327 | |
| 3 | | | | | | | | | | | | | | | | |
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* PLEASE PROVIDE ANALYTICAL DATA FOR ALL VOCs DETECTED ABOVE THE LAB REPORTING/DETECTION LIMITS

| | | | |
|---|---|---|---|
| Relinquished by: (Signature) Karianne Staehlin | Received by: (Signature) | Date: | Time: |
| Relinquished by: (Signature) Golden State Overnight 535712647 | Received by: (Signature) | Date: 4/12/17 | Time: 12:27 |
| Relinquished by: (Signature) | Received by: (Signature) | Date: | Time: |

# McCampbell Analytical, Inc.

*"When Quality Counts"*

# Analytical Report

**WorkOrder:** 1704230

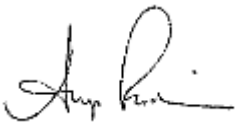
**Report Created for:** Langan

555 Montgomery St., Suite 1300
San Francisco, CA 94111

**Project Contact:** Josh Graber
**Project P.O.:** 750635603
**Project Name:** 260 30th Street

**Project Received:** 04/06/2017

Analytical Report reviewed & approved for release on 04/11/2017 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.***

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CA ELAP 1644 ♦ NELAP 4033ORELAP

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# Glossary of Terms & Qualifier Definitions

**Client:** Langan
**Project:** 260 30th Street
**WorkOrder:** 1704230

## 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) |

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# Glossary of Terms & Qualifier Definitions

**Client:** Langan
**Project:** 260 30th Street
**WorkOrder:** 1704230

## Analytical Qualifiers

| | |
|---|---|
| H | samples were analyzed out of holding time |
| S | surrogate spike recovery outside accepted recovery limits |
| a28 | reporting limit raised due to cluttered chromatogram |
| c1 | surrogate recovery outside of the control limits due to the dilution of the sample. |
| 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 |
| e2 | diesel range compounds are significant; no recognizable pattern |

## Quality Control Qualifiers

| | |
|---|---|
| F1 | MS/MSD recovery and/or RPD is out of acceptance criteria; LCS validates the prep batch. |
| F10 | MS/MSD outside control limits. Physical or chemical interferences exist due to sample matrix. |

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# Case Narrative

**Client:** Langan
**Project:** 260 30th Street

**Work Order:** 1704230
April 11, 2017

RE: Ferric Iron/ Iron (III) Result.

Please note that Iron (III) concentration is obtained by subtracting [Iron (II)] from [Total Iron].

The Iron (III) concentration for sample MAI Lab ID: 1704230-001D = 280 ug/L.
The Iron (III) concentration for sample MAI Lab ID: 1704230-002D = 74 ug/L.

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Received:** | 4/6/17 15:15 | **Extraction Method:** | E300.1 |
| **Date Prepared:** | 4/10/17-4/11/17 | **Analytical Method:** | E300.1 |
| **Project:** | 260 30th Street | **Unit:** | mg/L |

## Sulfite by IC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| GW-1 | 1704230-001I | Water | 04/05/2017 10:12 | IC1 | 137110 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Sulfite | ND | 1.0 | 10 | 04/11/2017 02:24 |

Analyst(s): AO

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| GW-2 | 1704230-002I | Water | 04/05/2017 11:42 | IC1 | 137110 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Sulfite | ND | 0.10 | 1 | 04/10/2017 23:45 |

Analyst(s): AO

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Received:** | 4/6/17 15:15 | **Extraction Method:** | E300.1 |
| **Date Prepared:** | 4/6/17 | **Analytical Method:** | E300.1 |
| **Project:** | 260 30th Street | **Unit:** | mg/L |

## Inorganic Anions by IC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **GW-1** | **1704230-001G** | **Water** | **04/05/2017 10:12** | **IC3** | **136905** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Chloride | **65** | 2.0 | 20 | 04/06/2017 21:30 |
| Nitrate as N | **13** | 2.0 | 20 | 04/06/2017 21:30 |
| Nitrate as $NO3^{-}$ | **59** | 8.8 | 20 | 04/06/2017 21:30 |
| Nitrite as N | ND | 0.10 | 1 | 04/06/2017 20:53 |
| Nitrite as $NO2^{-}$ | ND | 0.33 | 1 | 04/06/2017 20:53 |
| Nitrate & Nitrite as N | **13** | 2.0 | 20 | 04/06/2017 21:30 |
| Sulfate | **72** | 2.0 | 20 | 04/06/2017 21:30 |

| Surrogates | REC (%) | Qualifiers | Limits | |
|---|---|---|---|---|
| Formate | 60 | S | 85-115 | 04/06/2017 21:30 |

Analyst(s): AO  Analytical Comments: c1

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **GW-2** | **1704230-002G** | **Water** | **04/05/2017 11:42** | **IC3** | **136905** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Chloride | **59** | 2.0 | 20 | 04/06/2017 21:49 |
| Nitrate as N | **12** | 2.0 | 20 | 04/06/2017 21:49 |
| Nitrate as $NO3^{-}$ | **54** | 8.8 | 20 | 04/06/2017 21:49 |
| Nitrite as N | ND | 0.10 | 1 | 04/06/2017 21:11 |
| Nitrite as $NO2^{-}$ | ND | 0.33 | 1 | 04/06/2017 21:11 |
| Nitrate & Nitrite as N | **12** | 2.0 | 20 | 04/06/2017 21:49 |
| Sulfate | **73** | 2.0 | 20 | 04/06/2017 21:49 |

| Surrogates | REC (%) | Qualifiers | Limits | |
|---|---|---|---|---|
| Formate | 59 | S | 85-115 | 04/06/2017 21:49 |

Analyst(s): AO  Analytical Comments: c1

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Received:** | 4/6/17 15:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/8/17 | **Analytical Method:** | SW8260B |
| **Project:** | 260 30th Street | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **GW-1** | **1704230-001B** | **Water** | **04/05/2017 10:12** | **GC16** | **137024** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 500 | 50 | 04/08/2017 13:42 |
| tert-Amyl methyl ether (TAME) | ND | 25 | 50 | 04/08/2017 13:42 |
| Benzene | ND | 25 | 50 | 04/08/2017 13:42 |
| Bromobenzene | ND | 25 | 50 | 04/08/2017 13:42 |
| Bromochloromethane | ND | 25 | 50 | 04/08/2017 13:42 |
| Bromodichloromethane | ND | 25 | 50 | 04/08/2017 13:42 |
| Bromoform | ND | 25 | 50 | 04/08/2017 13:42 |
| Bromomethane | ND | 25 | 50 | 04/08/2017 13:42 |
| 2-Butanone (MEK) | ND | 100 | 50 | 04/08/2017 13:42 |
| t-Butyl alcohol (TBA) | ND | 100 | 50 | 04/08/2017 13:42 |
| n-Butyl benzene | ND | 25 | 50 | 04/08/2017 13:42 |
| sec-Butyl benzene | ND | 25 | 50 | 04/08/2017 13:42 |
| tert-Butyl benzene | ND | 25 | 50 | 04/08/2017 13:42 |
| Carbon Disulfide | ND | 25 | 50 | 04/08/2017 13:42 |
| Carbon Tetrachloride | ND | 25 | 50 | 04/08/2017 13:42 |
| Chlorobenzene | ND | 25 | 50 | 04/08/2017 13:42 |
| Chloroethane | ND | 25 | 50 | 04/08/2017 13:42 |
| Chloroform | ND | 25 | 50 | 04/08/2017 13:42 |
| Chloromethane | ND | 25 | 50 | 04/08/2017 13:42 |
| 2-Chlorotoluene | ND | 25 | 50 | 04/08/2017 13:42 |
| 4-Chlorotoluene | ND | 25 | 50 | 04/08/2017 13:42 |
| Dibromochloromethane | ND | 25 | 50 | 04/08/2017 13:42 |
| 1,2-Dibromo-3-chloropropane | ND | 10 | 50 | 04/08/2017 13:42 |
| 1,2-Dibromoethane (EDB) | ND | 25 | 50 | 04/08/2017 13:42 |
| Dibromomethane | ND | 25 | 50 | 04/08/2017 13:42 |
| 1,2-Dichlorobenzene | ND | 25 | 50 | 04/08/2017 13:42 |
| 1,3-Dichlorobenzene | ND | 25 | 50 | 04/08/2017 13:42 |
| 1,4-Dichlorobenzene | ND | 25 | 50 | 04/08/2017 13:42 |
| Dichlorodifluoromethane | ND | 25 | 50 | 04/08/2017 13:42 |
| 1,1-Dichloroethane | ND | 25 | 50 | 04/08/2017 13:42 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 25 | 50 | 04/08/2017 13:42 |
| 1,1-Dichloroethene | ND | 25 | 50 | 04/08/2017 13:42 |
| cis-1,2-Dichloroethene | **170** | 25 | 50 | 04/08/2017 13:42 |
| trans-1,2-Dichloroethene | ND | 25 | 50 | 04/08/2017 13:42 |
| 1,2-Dichloropropane | ND | 25 | 50 | 04/08/2017 13:42 |
| 1,3-Dichloropropane | ND | 25 | 50 | 04/08/2017 13:42 |
| 2,2-Dichloropropane | ND | 25 | 50 | 04/08/2017 13:42 |

*(Cont.)*

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Angela Rydelius, Lab Manager

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Received:** | 4/6/17 15:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/8/17 | **Analytical Method:** | SW8260B |
| **Project:** | 260 30th Street | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **GW-1** | **1704230-001B** | **Water** | **04/05/2017 10:12** | **GC16** | **137024** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 25 | 50 | 04/08/2017 13:42 |
| cis-1,3-Dichloropropene | ND | 25 | 50 | 04/08/2017 13:42 |
| trans-1,3-Dichloropropene | ND | 25 | 50 | 04/08/2017 13:42 |
| Diisopropyl ether (DIPE) | ND | 25 | 50 | 04/08/2017 13:42 |
| Ethylbenzene | ND | 25 | 50 | 04/08/2017 13:42 |
| Ethyl tert-butyl ether (ETBE) | ND | 25 | 50 | 04/08/2017 13:42 |
| Freon 113 | ND | 25 | 50 | 04/08/2017 13:42 |
| Hexachlorobutadiene | ND | 25 | 50 | 04/08/2017 13:42 |
| Hexachloroethane | ND | 25 | 50 | 04/08/2017 13:42 |
| 2-Hexanone | ND | 25 | 50 | 04/08/2017 13:42 |
| Isopropylbenzene | ND | 25 | 50 | 04/08/2017 13:42 |
| 4-Isopropyl toluene | ND | 25 | 50 | 04/08/2017 13:42 |
| Methyl-t-butyl ether (MTBE) | ND | 25 | 50 | 04/08/2017 13:42 |
| Methylene chloride | ND | 25 | 50 | 04/08/2017 13:42 |
| 4-Methyl-2-pentanone (MIBK) | ND | 25 | 50 | 04/08/2017 13:42 |
| Naphthalene | ND | 25 | 50 | 04/08/2017 13:42 |
| n-Propyl benzene | ND | 25 | 50 | 04/08/2017 13:42 |
| Styrene | ND | 25 | 50 | 04/08/2017 13:42 |
| 1,1,1,2-Tetrachloroethane | ND | 25 | 50 | 04/08/2017 13:42 |
| 1,1,2,2-Tetrachloroethane | ND | 25 | 50 | 04/08/2017 13:42 |
| Tetrachloroethene | ND | 25 | 50 | 04/08/2017 13:42 |
| Toluene | ND | 25 | 50 | 04/08/2017 13:42 |
| 1,2,3-Trichlorobenzene | ND | 25 | 50 | 04/08/2017 13:42 |
| 1,2,4-Trichlorobenzene | ND | 25 | 50 | 04/08/2017 13:42 |
| 1,1,1-Trichloroethane | ND | 25 | 50 | 04/08/2017 13:42 |
| 1,1,2-Trichloroethane | ND | 25 | 50 | 04/08/2017 13:42 |
| Trichloroethene | **1200** | 25 | 50 | 04/08/2017 13:42 |
| Trichlorofluoromethane | ND | 25 | 50 | 04/08/2017 13:42 |
| 1,2,3-Trichloropropane | ND | 25 | 50 | 04/08/2017 13:42 |
| 1,2,4-Trimethylbenzene | ND | 25 | 50 | 04/08/2017 13:42 |
| 1,3,5-Trimethylbenzene | ND | 25 | 50 | 04/08/2017 13:42 |
| Vinyl Chloride | ND | 25 | 50 | 04/08/2017 13:42 |
| Xylenes, Total | ND | 25 | 50 | 04/08/2017 13:42 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Received:** | 4/6/17 15:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/8/17 | **Analytical Method:** | SW8260B |
| **Project:** | 260 30th Street | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **GW-1** | **1704230-001B** | **Water** | **04/05/2017 10:12** | **GC16** | **137024** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 86 | 70-130 | | 04/08/2017 13:42 |
| Toluene-d8 | 96 | 70-130 | | 04/08/2017 13:42 |
| 4-BFB | 92 | 70-130 | | 04/08/2017 13:42 |

Analyst(s): AK

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Received:** | 4/6/17 15:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/8/17 | **Analytical Method:** | SW8260B |
| **Project:** | 260 30th Street | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **GW-2** | **1704230-002B** | **Water** | **04/05/2017 11:42** | **GC16** | **136954** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 1000 | 100 | 04/08/2017 14:21 |
| tert-Amyl methyl ether (TAME) | ND | 50 | 100 | 04/08/2017 14:21 |
| Benzene | ND | 50 | 100 | 04/08/2017 14:21 |
| Bromobenzene | ND | 50 | 100 | 04/08/2017 14:21 |
| Bromochloromethane | ND | 50 | 100 | 04/08/2017 14:21 |
| Bromodichloromethane | ND | 50 | 100 | 04/08/2017 14:21 |
| Bromoform | ND | 50 | 100 | 04/08/2017 14:21 |
| Bromomethane | ND | 50 | 100 | 04/08/2017 14:21 |
| 2-Butanone (MEK) | ND | 200 | 100 | 04/08/2017 14:21 |
| t-Butyl alcohol (TBA) | ND | 200 | 100 | 04/08/2017 14:21 |
| n-Butyl benzene | ND | 50 | 100 | 04/08/2017 14:21 |
| sec-Butyl benzene | ND | 50 | 100 | 04/08/2017 14:21 |
| tert-Butyl benzene | ND | 50 | 100 | 04/08/2017 14:21 |
| Carbon Disulfide | ND | 50 | 100 | 04/08/2017 14:21 |
| Carbon Tetrachloride | ND | 50 | 100 | 04/08/2017 14:21 |
| Chlorobenzene | ND | 50 | 100 | 04/08/2017 14:21 |
| Chloroethane | ND | 50 | 100 | 04/08/2017 14:21 |
| Chloroform | ND | 50 | 100 | 04/08/2017 14:21 |
| Chloromethane | ND | 50 | 100 | 04/08/2017 14:21 |
| 2-Chlorotoluene | ND | 50 | 100 | 04/08/2017 14:21 |
| 4-Chlorotoluene | ND | 50 | 100 | 04/08/2017 14:21 |
| Dibromochloromethane | ND | 50 | 100 | 04/08/2017 14:21 |
| 1,2-Dibromo-3-chloropropane | ND | 20 | 100 | 04/08/2017 14:21 |
| 1,2-Dibromoethane (EDB) | ND | 50 | 100 | 04/08/2017 14:21 |
| Dibromomethane | ND | 50 | 100 | 04/08/2017 14:21 |
| 1,2-Dichlorobenzene | ND | 50 | 100 | 04/08/2017 14:21 |
| 1,3-Dichlorobenzene | ND | 50 | 100 | 04/08/2017 14:21 |
| 1,4-Dichlorobenzene | ND | 50 | 100 | 04/08/2017 14:21 |
| Dichlorodifluoromethane | ND | 50 | 100 | 04/08/2017 14:21 |
| 1,1-Dichloroethane | ND | 50 | 100 | 04/08/2017 14:21 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 50 | 100 | 04/08/2017 14:21 |
| 1,1-Dichloroethene | ND | 50 | 100 | 04/08/2017 14:21 |
| cis-1,2-Dichloroethene | **300** | 50 | 100 | 04/08/2017 14:21 |
| trans-1,2-Dichloroethene | ND | 50 | 100 | 04/08/2017 14:21 |
| 1,2-Dichloropropane | ND | 50 | 100 | 04/08/2017 14:21 |
| 1,3-Dichloropropane | ND | 50 | 100 | 04/08/2017 14:21 |
| 2,2-Dichloropropane | ND | 50 | 100 | 04/08/2017 14:21 |

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Received:** | 4/6/17 15:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/8/17 | **Analytical Method:** | SW8260B |
| **Project:** | 260 30th Street | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **GW-2** | **1704230-002B** | **Water** | **04/05/2017 11:42** | **GC16** | **136954** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 50 | 100 | 04/08/2017 14:21 |
| cis-1,3-Dichloropropene | ND | 50 | 100 | 04/08/2017 14:21 |
| trans-1,3-Dichloropropene | ND | 50 | 100 | 04/08/2017 14:21 |
| Diisopropyl ether (DIPE) | ND | 50 | 100 | 04/08/2017 14:21 |
| Ethylbenzene | ND | 50 | 100 | 04/08/2017 14:21 |
| Ethyl tert-butyl ether (ETBE) | ND | 50 | 100 | 04/08/2017 14:21 |
| Freon 113 | ND | 50 | 100 | 04/08/2017 14:21 |
| Hexachlorobutadiene | ND | 50 | 100 | 04/08/2017 14:21 |
| Hexachloroethane | ND | 50 | 100 | 04/08/2017 14:21 |
| 2-Hexanone | ND | 50 | 100 | 04/08/2017 14:21 |
| Isopropylbenzene | ND | 50 | 100 | 04/08/2017 14:21 |
| 4-Isopropyl toluene | ND | 50 | 100 | 04/08/2017 14:21 |
| Methyl-t-butyl ether (MTBE) | ND | 50 | 100 | 04/08/2017 14:21 |
| Methylene chloride | ND | 50 | 100 | 04/08/2017 14:21 |
| 4-Methyl-2-pentanone (MIBK) | ND | 50 | 100 | 04/08/2017 14:21 |
| Naphthalene | ND | 50 | 100 | 04/08/2017 14:21 |
| n-Propyl benzene | ND | 50 | 100 | 04/08/2017 14:21 |
| Styrene | ND | 50 | 100 | 04/08/2017 14:21 |
| 1,1,1,2-Tetrachloroethane | ND | 50 | 100 | 04/08/2017 14:21 |
| 1,1,2,2-Tetrachloroethane | ND | 50 | 100 | 04/08/2017 14:21 |
| Tetrachloroethene | ND | 50 | 100 | 04/08/2017 14:21 |
| Toluene | ND | 50 | 100 | 04/08/2017 14:21 |
| 1,2,3-Trichlorobenzene | ND | 50 | 100 | 04/08/2017 14:21 |
| 1,2,4-Trichlorobenzene | ND | 50 | 100 | 04/08/2017 14:21 |
| 1,1,1-Trichloroethane | ND | 50 | 100 | 04/08/2017 14:21 |
| 1,1,2-Trichloroethane | ND | 50 | 100 | 04/08/2017 14:21 |
| Trichloroethene | **2400** | 50 | 100 | 04/08/2017 14:21 |
| Trichlorofluoromethane | ND | 50 | 100 | 04/08/2017 14:21 |
| 1,2,3-Trichloropropane | ND | 50 | 100 | 04/08/2017 14:21 |
| 1,2,4-Trimethylbenzene | ND | 50 | 100 | 04/08/2017 14:21 |
| 1,3,5-Trimethylbenzene | ND | 50 | 100 | 04/08/2017 14:21 |
| Vinyl Chloride | ND | 50 | 100 | 04/08/2017 14:21 |
| Xylenes, Total | ND | 50 | 100 | 04/08/2017 14:21 |

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Received:** | 4/6/17 15:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/8/17 | **Analytical Method:** | SW8260B |
| **Project:** | 260 30th Street | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **GW-2** | **1704230-002B** | **Water** | **04/05/2017 11:42** | **GC16** | **136954** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 87 | 70-130 | | 04/08/2017 14:21 |
| Toluene-d8 | 96 | 70-130 | | 04/08/2017 14:21 |
| 4-BFB | 89 | 70-130 | | 04/08/2017 14:21 |

Analyst(s): AK

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Received:** | 4/6/17 15:15 | **Extraction Method:** | SW3510C |
| **Date Prepared:** | 4/7/17 | **Analytical Method:** | SW8310 |
| **Project:** | 260 30th Street | **Unit:** | µg/L |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| GW-1 | 1704230-001C | Water | 04/05/2017 10:12 | HPLC4 | 136951 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.0500 | 1 | 04/10/2017 23:06 |
| Acenaphthylene | ND | 0.0500 | 1 | 04/10/2017 23:06 |
| Anthracene | ND | 0.0500 | 1 | 04/10/2017 23:06 |
| Benzo (a) anthracene | ND | 0.0250 | 1 | 04/10/2017 23:06 |
| Benzo (a) pyrene | ND | 0.0500 | 1 | 04/10/2017 23:06 |
| Benzo (b) fluoranthene | ND | 0.0250 | 1 | 04/10/2017 23:06 |
| Benzo (k) fluoranthene | ND | 0.0250 | 1 | 04/10/2017 23:06 |
| Benzo (g,h,i) perylene | ND | 0.0500 | 1 | 04/10/2017 23:06 |
| Chrysene | ND | 0.0500 | 1 | 04/10/2017 23:06 |
| Dibenzo (a,h) anthracene | ND | 0.0500 | 1 | 04/10/2017 23:06 |
| Fluoranthene | ND | 0.0500 | 1 | 04/10/2017 23:06 |
| Fluorene | ND | 0.0500 | 1 | 04/10/2017 23:06 |
| Indeno (1,2,3-cd) pyrene | ND | 0.0250 | 1 | 04/10/2017 23:06 |
| 1-Methylnaphthalene | ND | 0.0500 | 1 | 04/10/2017 23:06 |
| 2-Methylnaphthalene | ND | 0.0500 | 1 | 04/10/2017 23:06 |
| Naphthalene | ND | 0.0590 | 1 | 04/10/2017 23:06 |
| Phenanthrene | ND | 0.0500 | 1 | 04/10/2017 23:06 |
| Pyrene | ND | 0.0500 | 1 | 04/10/2017 23:06 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 88 | 70-130 | 04/10/2017 23:06 |
| 4,4-Dichlorobiphenyl | 91 | 70-130 | 04/10/2017 23:06 |

Analyst(s): BBO  Analytical Comments: a28

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Received:** | 4/6/17 15:15 | **Extraction Method:** | SW3510C |
| **Date Prepared:** | 4/7/17 | **Analytical Method:** | SW8310 |
| **Project:** | 260 30th Street | **Unit:** | µg/L |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| GW-2 | 1704230-002C | Water | 04/05/2017 11:42 | HPLC4 | 136951 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.0500 | 1 | 04/10/2017 23:50 |
| Acenaphthylene | ND | 0.0500 | 1 | 04/10/2017 23:50 |
| Anthracene | ND | 0.0500 | 1 | 04/10/2017 23:50 |
| Benzo (a) anthracene | ND | 0.0250 | 1 | 04/10/2017 23:50 |
| Benzo (a) pyrene | ND | 0.0500 | 1 | 04/10/2017 23:50 |
| Benzo (b) fluoranthene | ND | 0.0250 | 1 | 04/10/2017 23:50 |
| Benzo (k) fluoranthene | ND | 0.0250 | 1 | 04/10/2017 23:50 |
| Benzo (g,h,i) perylene | ND | 0.0500 | 1 | 04/10/2017 23:50 |
| Chrysene | ND | 0.0500 | 1 | 04/10/2017 23:50 |
| Dibenzo (a,h) anthracene | ND | 0.0500 | 1 | 04/10/2017 23:50 |
| Fluoranthene | ND | 0.0500 | 1 | 04/10/2017 23:50 |
| Fluorene | ND | 0.0500 | 1 | 04/10/2017 23:50 |
| Indeno (1,2,3-cd) pyrene | ND | 0.0250 | 1 | 04/10/2017 23:50 |
| 1-Methylnaphthalene | ND | 0.0500 | 1 | 04/10/2017 23:50 |
| 2-Methylnaphthalene | ND | 0.0500 | 1 | 04/10/2017 23:50 |
| Naphthalene | ND | 0.0500 | 1 | 04/10/2017 23:50 |
| Phenanthrene | ND | 0.0500 | 1 | 04/10/2017 23:50 |
| Pyrene | ND | 0.0500 | 1 | 04/10/2017 23:50 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 79 | 70-130 | 04/10/2017 23:50 |
| 4,4-Dichlorobiphenyl | 80 | 70-130 | 04/10/2017 23:50 |

Analyst(s): BBO

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Received:** | 4/6/17 15:15 | **Extraction Method:** | SM2320 B-1997 |
| **Date Prepared:** | 4/10/17 | **Analytical Method:** | SM2320 B |
| **Project:** | 260 30th Street | **Unit:** | mg $CaCO_3$/L |

## Total & Speciated Alkalinity as Calcium Carbonate

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **GW-1** | **1704230-001E** | **Water** | **04/05/2017 10:12** | **Titrino** | **137043** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Total Alkalinity | **193** | 1.00 | 1 | 04/10/2017 12:57 |
| Carbonate | ND | 1.00 | 1 | 04/10/2017 12:57 |
| Bicarbonate | **193** | 1.00 | 1 | 04/10/2017 12:57 |
| Hydroxide | ND | 1.00 | 1 | 04/10/2017 12:57 |

Analyst(s): HN

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **GW-2** | **1704230-002E** | **Water** | **04/05/2017 11:42** | **Titrino** | **137043** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Total Alkalinity | **194** | 1.00 | 1 | 04/10/2017 13:08 |
| Carbonate | ND | 1.00 | 1 | 04/10/2017 13:08 |
| Bicarbonate | **194** | 1.00 | 1 | 04/10/2017 13:08 |
| Hydroxide | ND | 1.00 | 1 | 04/10/2017 13:08 |

Analyst(s): HN

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Received:** | 4/6/17 15:15 | **Extraction Method:** | E200.8 |
| **Date Prepared:** | 4/6/17 | **Analytical Method:** | E200.8 |
| **Project:** | 260 30th Street | **Unit:** | µg/L |

## CAM / CCR 17 Metals + Misc. Elements

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **GW-1** | **1704230-001D** | **Water** | **04/05/2017 10:12** | **ICP-MS1** | **136878** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Antimony | ND | 0.50 | 1 | 04/07/2017 12:01 |
| Arsenic | **3.1** | 0.50 | 1 | 04/07/2017 12:01 |
| Barium | **55** | 5.0 | 1 | 04/07/2017 12:01 |
| Beryllium | ND | 0.50 | 1 | 04/07/2017 12:01 |
| Cadmium | ND | 0.25 | 1 | 04/07/2017 12:01 |
| Chromium | **3.1** | 0.50 | 1 | 04/07/2017 12:01 |
| Cobalt | **0.65** | 0.50 | 1 | 04/07/2017 12:01 |
| Copper | ND | 2.0 | 1 | 04/07/2017 12:01 |
| Iron | **280** | 20 | 1 | 04/07/2017 12:01 |
| Lead | ND | 0.50 | 1 | 04/07/2017 12:01 |
| Mercury | ND | 0.050 | 1 | 04/07/2017 12:01 |
| Molybdenum | **0.59** | 0.50 | 1 | 04/07/2017 12:01 |
| Nickel | **3.1** | 0.50 | 1 | 04/07/2017 12:01 |
| Selenium | ND | 0.50 | 1 | 04/07/2017 12:01 |
| Silver | ND | 0.19 | 1 | 04/07/2017 12:01 |
| Thallium | ND | 0.50 | 1 | 04/07/2017 12:01 |
| Vanadium | **4.7** | 0.50 | 1 | 04/07/2017 12:01 |
| Zinc | ND | 15 | 1 | 04/07/2017 12:01 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Terbium | 111 | 70-130 | 04/07/2017 12:01 |

Analyst(s): DVH

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Received:** | 4/6/17 15:15 | **Extraction Method:** | E200.8 |
| **Date Prepared:** | 4/6/17 | **Analytical Method:** | E200.8 |
| **Project:** | 260 30th Street | **Unit:** | µg/L |

## CAM / CCR 17 Metals + Misc. Elements

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **GW-2** | **1704230-002D** | **Water** | **04/05/2017 11:42** | **ICP-MS1** | **136878** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Antimony | ND | 0.50 | 1 | 04/07/2017 12:14 |
| Arsenic | **4.1** | 0.50 | 1 | 04/07/2017 12:14 |
| Barium | **22** | 5.0 | 1 | 04/07/2017 12:14 |
| Beryllium | ND | 0.50 | 1 | 04/07/2017 12:14 |
| Cadmium | ND | 0.25 | 1 | 04/07/2017 12:14 |
| Chromium | **3.5** | 0.50 | 1 | 04/07/2017 12:14 |
| Cobalt | ND | 0.50 | 1 | 04/07/2017 12:14 |
| Copper | ND | 2.0 | 1 | 04/07/2017 12:14 |
| Iron | **74** | 20 | 1 | 04/07/2017 12:14 |
| Lead | ND | 0.50 | 1 | 04/07/2017 12:14 |
| Mercury | ND | 0.050 | 1 | 04/07/2017 12:14 |
| Molybdenum | **2.1** | 0.50 | 1 | 04/07/2017 12:14 |
| Nickel | **1.6** | 0.50 | 1 | 04/07/2017 12:14 |
| Selenium | **0.83** | 0.50 | 1 | 04/07/2017 12:14 |
| Silver | ND | 0.19 | 1 | 04/07/2017 12:14 |
| Thallium | ND | 0.50 | 1 | 04/07/2017 12:14 |
| Vanadium | **4.8** | 0.50 | 1 | 04/07/2017 12:14 |
| Zinc | ND | 15 | 1 | 04/07/2017 12:14 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Terbium | 113 | 70-130 | 04/07/2017 12:14 |

Analyst(s): DVH

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Received:** | 4/6/17 15:15 | **Extraction Method:** | SM5220 D-1997 |
| **Date Prepared:** | 4/6/17 | **Analytical Method:** | SM5220 D-1997 |
| **Project:** | 260 30th Street | **Unit:** | mg/L |

## Chemical Oxygen Demand (COD) as mg O2 /L

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| GW-1 | 1704230-001F | Water | 04/05/2017 10:12 | SPECTROPHOTOMETER | 136869 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| COD | ND | 10 | 1 | 04/06/2017 18:11 |

Analyst(s): RB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| GW-2 | 1704230-002F | Water | 04/05/2017 11:42 | SPECTROPHOTOMETER | 136869 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| COD | ND | 10 | 1 | 04/06/2017 18:12 |

Analyst(s): RB

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Received:** | 4/6/17 15:15 | **Extraction Method:** | SM3500-Fe B4c |
| **Date Prepared:** | 4/6/17 | **Analytical Method:** | SM3500-Fe B4c |
| **Project:** | 260 30th Street | **Unit:** | µg/L |

## Ferrous Iron

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| GW-1 | 1704230-001J | Water | 04/05/2017 10:12 | SPECTROPHOTOMETER | 136974 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Ferrous Iron | ND | 50 | 1 | 04/06/2017 16:20 |

Analyst(s): RB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| GW-2 | 1704230-002J | Water | 04/05/2017 11:42 | SPECTROPHOTOMETER | 136974 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Ferrous Iron | ND | 50 | 1 | 04/06/2017 16:29 |

Analyst(s): RB

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# Analytical Report

**Client:** Langan
**Date Received:** 4/6/17 15:15
**Date Prepared:** 4/7/17
**Project:** 260 30th Street

**WorkOrder:** 1704230
**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 |
|---|---|---|---|---|---|
| GW-1 | 1704230-001A | Water | 04/05/2017 10:12 | GC3 | 136959 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | **67** | 50 | 1 | 04/07/2017 06:57 |
| MTBE | --- | 5.0 | 1 | 04/07/2017 06:57 |
| Benzene | --- | 0.50 | 1 | 04/07/2017 06:57 |
| Toluene | --- | 0.50 | 1 | 04/07/2017 06:57 |
| Ethylbenzene | --- | 0.50 | 1 | 04/07/2017 06:57 |
| Xylenes | --- | 1.5 | 1 | 04/07/2017 06:57 |

| Surrogates | REC (%) | Qualifiers | Limits | |
|---|---|---|---|---|
| aaa-TFT | 1607 | S | 89-115 | 04/07/2017 06:57 |

Analyst(s): TD
Analytical Comments: d6,c4

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| GW-2 | 1704230-002A | Water | 04/05/2017 11:42 | GC3 | 136959 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | **130** | 50 | 1 | 04/07/2017 06:27 |
| MTBE | --- | 5.0 | 1 | 04/07/2017 06:27 |
| Benzene | --- | 0.50 | 1 | 04/07/2017 06:27 |
| Toluene | --- | 0.50 | 1 | 04/07/2017 06:27 |
| Ethylbenzene | --- | 0.50 | 1 | 04/07/2017 06:27 |
| Xylenes | --- | 1.5 | 1 | 04/07/2017 06:27 |

| Surrogates | REC (%) | Qualifiers | Limits | |
|---|---|---|---|---|
| aaa-TFT | 2094 | S | 89-115 | 04/07/2017 06:27 |

Analyst(s): TD
Analytical Comments: d6,c4

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Received:** | 4/6/17 15:15 | **Extraction Method:** | SM4500H+B-2000 |
| **Date Prepared:** | 4/6/17 | **Analytical Method:** | SM4500H+B |
| **Project:** | 260 30th Street | **Unit:** | pH units @ 25°C |

## pH

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **GW-1** | **1704230-001H** | **Water** | **04/05/2017 10:12** | **WetChem** | **136936** |

| Analytes | Result | Qualifiers | Accuracy | DF | Date Analyzed |
|---|---|---|---|---|---|
| pH | **6.72** | H | ±0.05 | 1 | 04/06/2017 22:26 |

Analyst(s): RB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **GW-2** | **1704230-002H** | **Water** | **04/05/2017 11:42** | **WetChem** | **136936** |

| Analytes | Result | Qualifiers | Accuracy | DF | Date Analyzed |
|---|---|---|---|---|---|
| pH | **6.95** | H | ±0.05 | 1 | 04/06/2017 22:29 |

Analyst(s): RB

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Received:** | 4/6/17 15:15 | **Extraction Method:** | SW3510C |
| **Date Prepared:** | 4/6/17 | **Analytical Method:** | SW8015B |
| **Project:** | 260 30th Street | **Unit:** | µg/L |

## Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **GW-1** | **1704230-001A** | **Water** | **04/05/2017 10:12** | **GC9b** | **136845** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 50 | 1 | 04/07/2017 08:33 |
| TPH-Motor Oil (C18-C36) | ND | 250 | 1 | 04/07/2017 08:33 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 100 | 66-138 | 04/07/2017 08:33 |

Analyst(s): TK

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **GW-2** | **1704230-002A** | **Water** | **04/05/2017 11:42** | **GC9b** | **136845** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | **56** | 50 | 1 | 04/07/2017 09:12 |
| TPH-Motor Oil (C18-C36) | ND | 250 | 1 | 04/07/2017 09:12 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 101 | 66-138 | 04/07/2017 09:12 |

Analyst(s): TK  Analytical Comments: e2

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Prepared:** | 4/10/17 | **BatchID:** | 137110 |
| **Date Analyzed:** | 4/10/17 | **Extraction Method:** | E300.1 |
| **Instrument:** | IC1 | **Analytical Method:** | E300.1 |
| **Matrix:** | Water | **Unit:** | mg/L |
| **Project:** | 260 30th Street | **Sample ID:** | MB/LCS/LCSD-137110 |

## QC Summary Report for E300.1

| Analyte | MB Result | RL | | | |
|---|---|---|---|---|---|
| Sulfite | ND | 0.10 | - | - | - |

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Sulfite | 0.920 | 0.929 | 1 | 92 | 93 | 80-120 | 1.01 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Prepared:** | 4/7/17 | **BatchID:** | 136905 |
| **Date Analyzed:** | 4/7/17 | **Extraction Method:** | E300.1 |
| **Instrument:** | IC3 | **Analytical Method:** | E300.1 |
| **Matrix:** | Water | **Unit:** | mg/L |
| **Project:** | 260 30th Street | **Sample ID:** | MB/LCS-136905<br>1704230-001GMS/MSD |

## QC Summary Report for E300.1

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| Chloride | ND | 0.952 | 0.10 | 1 | - | 95 | 85-115 |
| Nitrate as N | ND | 0.952 | 0.10 | 1 | - | 95 | 85-115 |
| Nitrate as $NO3^{-}$ | ND | 4.22 | 0.44 | 4.4 | - | 96 | 85-115 |
| Nitrite as N | ND | 0.991 | 0.10 | 1 | - | 99 | 85-115 |
| Nitrite as $NO2^{-}$ | ND | 3.26 | 0.33 | 3.3 | - | 99 | 85-115 |
| Sulfate | ND | 0.986 | 0.10 | 1 | - | 99 | 85-115 |
| **Surrogate Recovery** | | | | | | | |
| Formate | 0.09735 | 0.0966 | | 0.10 | 97 | 97 | 85-115 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 78.7 | 78.7 | 1 | 77 | 124,F1 | 124,F1 | 85-115 | 0 | 15 |
| Nitrate as N | 16.9 | 16.9 | 1 | 16 | 123,F1 | 123,F1 | 85-115 | 0 | 15 |
| Nitrate as $NO3^{-}$ | 74.7 | 74.7 | 4.4 | 69 | 124,F1 | 124,F1 | 85-115 | 0 | 15 |
| Nitrite as N | 0.993 | 0.997 | 1 | ND | 99 | 100 | 85-115 | 0.413 | 15 |
| Nitrite as $NO2^{-}$ | 3.26 | 3.28 | 3.3 | ND | 99 | 99 | 85-115 | 0 | 15 |
| Sulfate | 94.4 | 94.3 | 1 | 93 | 159,F1 | 154,F1 | 85-115 | 0.0594 | 15 |
| **Surrogate Recovery** | | | | | | | | | |
| Formate | 0.0989 | 0.0996 | 0.10 | | 99 | 100 | 85-115 | 0.738 | 10 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Prepared:** | 4/7/17 | **BatchID:** | 136954 |
| **Date Analyzed:** | 4/7/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC18 | **Analytical Method:** | SW8260B |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 260 30th Street | **Sample ID:** | MB/LCS-136954<br>1703H01-008CMS/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 | 8.58 | 0.50 | 10 | - | 86 | 54-140 |
| Benzene | ND | 9.48 | 0.50 | 10 | - | 95 | 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 | 27.6 | 2.0 | 40 | - | 69 | 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 | 9.72 | 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 | 9.09 | 0.50 | 10 | - | 91 | 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 | 9.15 | 0.50 | 10 | - | 91 | 66-125 |
| 1,1-Dichloroethene | ND | 9.14 | 0.50 | 10 | - | 91 | 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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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Prepared:** | 4/7/17 | **BatchID:** | 136954 |
| **Date Analyzed:** | 4/7/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC18 | **Analytical Method:** | SW8260B |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 260 30th Street | **Sample ID:** | MB/LCS-136954<br>1703H01-008CMS/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 | 8.98 | 0.50 | 10 | - | 90 | 57-136 |
| Ethylbenzene | ND | - | 0.50 | - | - | - | - |
| Ethyl tert-butyl ether (ETBE) | ND | 9.00 | 0.50 | 10 | - | 90 | 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 | 8.67 | 0.50 | 10 | - | 87 | 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 | 9.06 | 0.50 | 10 | - | 91 | 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 | 9.69 | 0.50 | 10 | - | 97 | 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 | - | - | - | - |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Prepared:** | 4/7/17 | **BatchID:** | 136954 |
| **Date Analyzed:** | 4/7/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC18 | **Analytical Method:** | SW8260B |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 260 30th Street | **Sample ID:** | MB/LCS-136954<br>1703H01-008CMS/MSD |

## QC Summary Report for SW8260B

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | | | |
| Dibromofluoromethane | 26.29 | 25.4 | | 25 | 105 | 102 | 70-130 |
| Toluene-d8 | 22.97 | 23.8 | | 25 | 92 | 95 | 70-130 |
| 4-BFB | 2.354 | 2.50 | | 2.5 | 94 | 100 | 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) | 9.06 | 9.45 | 10 | ND | 91 | 95 | 69-139 | 4.25 | 20 |
| Benzene | 9.10 | 9.85 | 10 | ND | 91 | 98 | 69-141 | 7.84 | 20 |
| t-Butyl alcohol (TBA) | 32.4 | 33.5 | 40 | ND | 81 | 84 | 41-152 | 3.23 | 20 |
| Chlorobenzene | 9.37 | 10.0 | 10 | ND | 94 | 100 | 77-120 | 6.57 | 20 |
| 1,2-Dibromoethane (EDB) | 9.77 | 10.0 | 10 | ND | 98 | 100 | 76-135 | 2.81 | 20 |
| 1,2-Dichloroethane (1,2-DCA) | 9.44 | 9.91 | 10 | ND | 93 | 98 | 73-139 | 4.89 | 20 |
| 1,1-Dichloroethene | 8.74 | 9.45 | 10 | ND | 87 | 95 | 59-140 | 7.83 | 20 |
| Diisopropyl ether (DIPE) | 9.17 | 9.71 | 10 | ND | 92 | 97 | 72-140 | 5.75 | 20 |
| Ethyl tert-butyl ether (ETBE) | 9.37 | 9.84 | 10 | ND | 94 | 98 | 71-140 | 4.86 | 20 |
| Methyl-t-butyl ether (MTBE) | 9.39 | 9.68 | 10 | ND | 94 | 97 | 73-139 | 3.04 | 20 |
| Toluene | 8.56 | 9.33 | 10 | ND | 85 | 92 | 71-128 | 8.61 | 20 |
| Trichloroethene | 9.19 | 10.0 | 10 | ND | 89 | 97 | 64-132 | 8.42 | 20 |
| **Surrogate Recovery** | | | | | | | | | |
| Dibromofluoromethane | 25.4 | 25.6 | 25 | | 102 | 102 | 73-131 | 0 | 20 |
| Toluene-d8 | 23.9 | 23.8 | 25 | | 95 | 95 | 72-117 | 0 | 20 |
| 4-BFB | 2.47 | 2.48 | 2.5 | | 99 | 99 | 74-116 | 0 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Prepared:** | 4/7/17 | **BatchID:** | 137024 |
| **Date Analyzed:** | 4/7/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 260 30th Street | **Sample ID:** | MB/LCS-137024 |

## 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 | 8.60 | 0.50 | 10 | - | 86 | 54-140 |
| Benzene | ND | 8.80 | 0.50 | 10 | - | 88 | 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 | 27.5 | 2.0 | 40 | - | 69 | 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 | 8.88 | 0.50 | 10 | - | 89 | 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 | 0.5629 | - | 0.20 | - | - | - | - |
| 1,2-Dibromoethane (EDB) | ND | 8.75 | 0.50 | 10 | - | 88 | 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 | 9.20 | 0.50 | 10 | - | 92 | 66-125 |
| 1,1-Dichloroethene | ND | 8.78 | 0.50 | 10 | - | 88 | 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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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Prepared:** | 4/7/17 | **BatchID:** | 137024 |
| **Date Analyzed:** | 4/7/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 260 30th Street | **Sample ID:** | MB/LCS-137024 |

## 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 | 9.45 | 0.50 | 10 | - | 95 | 57-136 |
| Ethylbenzene | ND | - | 0.50 | - | - | - | - |
| Ethyl tert-butyl ether (ETBE) | ND | 9.19 | 0.50 | 10 | - | 92 | 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 | 8.45 | 0.50 | 10 | - | 84 | 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 | 8.85 | 0.50 | 10 | - | 89 | 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 | 8.78 | 0.50 | 10 | - | 88 | 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 | - | - | - | - |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Prepared:** | 4/7/17 | **BatchID:** | 137024 |
| **Date Analyzed:** | 4/7/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 260 30th Street | **Sample ID:** | MB/LCS-137024 |

## QC Summary Report for SW8260B

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | | | |
| Dibromofluoromethane | 23.21 | 22.5 | | 25 | 93 | 90 | 70-130 |
| Toluene-d8 | 23.73 | 25.0 | | 25 | 95 | 100 | 70-130 |
| 4-BFB | 2.421 | 2.60 | | 2.5 | 97 | 104 | 70-130 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Prepared:** | 4/7/17 | **BatchID:** | 136951 |
| **Date Analyzed:** | 4/10/17 | **Extraction Method:** | SW3510C |
| **Instrument:** | HPLC4 | **Analytical Method:** | SW8310 |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 260 30th Street | **Sample ID:** | MB/LCS/LCSD-136951 |

## QC Summary Report for SW8310

| Analyte | MB Result | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|
| Acenaphthene | ND | 0.0500 | - | - | - |
| Acenaphthylene | ND | 0.0500 | - | - | - |
| Anthracene | ND | 0.0500 | - | - | - |
| Benzo (a) anthracene | ND | 0.0250 | - | - | - |
| Benzo (a) pyrene | ND | 0.0500 | - | - | - |
| Benzo (b) fluoranthene | ND | 0.0250 | - | - | - |
| Benzo (k) fluoranthene | ND | 0.0250 | - | - | - |
| Benzo (g,h,i) perylene | ND | 0.0500 | - | - | - |
| Chrysene | ND | 0.0500 | - | - | - |
| Dibenzo (a,h) anthracene | ND | 0.0500 | - | - | - |
| Fluoranthene | ND | 0.0500 | - | - | - |
| Fluorene | ND | 0.0500 | - | - | - |
| Indeno (1,2,3-cd) pyrene | ND | 0.0250 | - | - | - |
| 1-Methylnaphthalene | ND | 0.0500 | - | - | - |
| 2-Methylnaphthalene | ND | 0.0500 | - | - | - |
| Naphthalene | ND | 0.0500 | - | - | - |
| Phenanthrene | ND | 0.0500 | - | - | - |
| Pyrene | ND | 0.0500 | - | - | - |
| **Surrogate Recovery** | | | | | |
| Decafluorobiphenyl | 41.08 | | 50 | 82 | 70-130 |
| 4,4-Dichlorobiphenyl | 23.56 | | 25 | 94 | 70-130 |

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Benzo (a) anthracene | 0.703 | 0.671 | 0.75 | 94 | 89 | 70-130 | 4.57 | 20 |
| Benzo (a) pyrene | 0.574 | 0.565 | 0.75 | 77 | 75 | 70-130 | 1.61 | 20 |
| Chrysene | 0.711 | 0.676 | 0.75 | 95 | 90 | 70-130 | 4.99 | 20 |
| 1-Methylnaphthalene | 0.735 | 0.687 | 0.75 | 98 | 92 | 70-130 | 6.76 | 20 |
| 2-Methylnaphthalene | 0.718 | 0.672 | 0.75 | 96 | 90 | 70-130 | 6.65 | 20 |
| Phenanthrene | 0.714 | 0.660 | 0.75 | 95 | 88 | 70-130 | 7.85 | 20 |
| Pyrene | 0.796 | 0.753 | 0.75 | 106 | 100 | 70-130 | 5.55 | 20 |
| **Surrogate Recovery** | | | | | | | | |
| Decafluorobiphenyl | 47.3 | 43.4 | 50 | 95 | 87 | 70-130 | 8.51 | 20 |
| 4,4-Dichlorobiphenyl | 25.0 | 24.7 | 25 | 100 | 99 | 70-130 | 1.33 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Prepared:** | 4/10/17 | **BatchID:** | 137043 |
| **Date Analyzed:** | 4/10/17 | **Extraction Method:** | SM2320 B-1997 |
| **Instrument:** | Titrino | **Analytical Method:** | SM2320 B |
| **Matrix:** | Water | **Unit:** | mg $CaCO_3$/L |
| **Project:** | 260 30th Street | | |

## QC Summary Report for Alkalinity

| SampID | Sample Result | Sample DF | Dup / Serial Dilution Result | Dup / Serial Dilution DF | RPD | Acceptance Criteria (%) |
|---|---|---|---|---|---|---|
| 1704230-001E | 193 | 1 | 194 | 1 | 0.67 | <20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Prepared:** | 4/6/17 | **BatchID:** | 136878 |
| **Date Analyzed:** | 4/7/17 | **Extraction Method:** | E200.8 |
| **Instrument:** | ICP-MS1, ICP-MS3 | **Analytical Method:** | E200.8 |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 260 30th Street | **Sample ID:** | MB/LCS-136878<br>1704167-001DMS/MSD |

## QC Summary Report for Metals

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| Antimony | ND | 51.1 | 0.50 | 50 | - | 102 | 85-115 |
| Arsenic | ND | 53.1 | 0.50 | 50 | - | 106 | 85-115 |
| Barium | ND | 528 | 5.0 | 500 | - | 106 | 85-115 |
| Beryllium | ND | 52.2 | 0.50 | 50 | - | 104 | 85-115 |
| Cadmium | ND | 51.5 | 0.25 | 50 | - | 103 | 85-115 |
| Chromium | ND | 51.3 | 0.50 | 50 | - | 103 | 85-115 |
| Cobalt | ND | 51.2 | 0.50 | 50 | - | 102 | 85-115 |
| Copper | ND | 50.8 | 2.0 | 50 | - | 102 | 85-115 |
| Iron | ND | 5110 | 20 | 5000 | - | 102 | 85-115 |
| Lead | ND | 51.8 | 0.50 | 50 | - | 104 | 85-115 |
| Mercury | ND | 1.24 | 0.050 | 1.25 | - | 99 | 85-115 |
| Molybdenum | ND | 51.5 | 0.50 | 50 | - | 103 | 85-115 |
| Nickel | ND | 51.0 | 0.50 | 50 | - | 102 | 85-115 |
| Selenium | ND | 51.9 | 0.50 | 50 | - | 104 | 85-115 |
| Silver | ND | 50.8 | 0.19 | 50 | - | 102 | 85-115 |
| Thallium | ND | 50.7 | 0.50 | 50 | - | 101 | 85-115 |
| Vanadium | ND | 51.8 | 0.50 | 50 | - | 104 | 85-115 |
| Zinc | ND | 514 | 15 | 500 | - | 103 | 85-115 |
| **Surrogate Recovery** | | | | | | | |
| Terbium | 750.4 | 781 | | 750 | 100 | 104 | 70-130 |

*(Cont.)*

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Prepared:** | 4/6/17 | **BatchID:** | 136878 |
| **Date Analyzed:** | 4/7/17 | **Extraction Method:** | E200.8 |
| **Instrument:** | ICP-MS1, ICP-MS3 | **Analytical Method:** | E200.8 |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 260 30th Street | **Sample ID:** | MB/LCS-136878<br>1704167-001DMS/MSD |

## QC Summary Report for Metals

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | 56.9 | 54.0 | 50 | ND<10 | 114 | 108 | 75-125 | 5.23 | 20 |
| Arsenic | 60.6 | 61.5 | 50 | ND<10 | 103 | 105 | 75-125 | 1.41 | 20 |
| Barium | 557 | 529 | 500 | ND<100 | 104 | 98 | 75-125 | 5.08 | 20 |
| Beryllium | 49.5 | 48.0 | 50 | ND<10 | 99 | 96 | 75-125 | 3.12 | 20 |
| Cadmium | 53.9 | 52.1 | 50 | ND<5.0 | 108 | 104 | 75-125 | 3.28 | 20 |
| Chromium | 53.6 | 49.7 | 50 | ND<10 | 107 | 99 | 75-125 | 7.47 | 20 |
| Cobalt | 51.5 | 49.9 | 50 | ND<10 | 101 | 98 | 75-125 | 3.20 | 20 |
| Copper | 55.5 | 54.4 | 50 | ND<40 | 103 | 101 | 75-125 | 1.93 | 20 |
| Iron | 6120 | 5940 | 5000 | 820 | 106 | 103 | 75-125 | 2.95 | 20 |
| Lead | 48.0 | 45.3 | 50 | ND<10 | 96 | 91 | 75-125 | 5.75 | 20 |
| Mercury | 1.60 | 1.45 | 1.25 | ND<1.0 | 128,F10 | 116 | 75-125 | 9.59 | 20 |
| Molybdenum | 77.7 | 75.6 | 50 | 23 | 109 | 105 | 75-125 | 2.82 | 20 |
| Nickel | 56.9 | 55.8 | 50 | ND<10 | 104 | 102 | 75-125 | 1.92 | 20 |
| Selenium | 59.7 | 60.4 | 50 | ND<10 | 110 | 112 | 75-125 | 1.13 | 20 |
| Silver | 51.5 | 49.2 | 50 | ND<3.8 | 103 | 98 | 75-125 | 4.57 | 20 |
| Thallium | 49.5 | 47.7 | 50 | ND<10 | 99 | 95 | 75-125 | 3.66 | 20 |
| Vanadium | 63.6 | 61.9 | 50 | ND<10 | 109 | 106 | 75-125 | 2.68 | 20 |
| Zinc | 532 | 510 | 500 | ND<300 | 106 | 102 | 75-125 | 4.22 | 20 |
| **Surrogate Recovery** | | | | | | | | | |
| Terbium | 805 | 773 | 750 | | 107 | 103 | 70-130 | 4.01 | 20 |

| Analyte | DLT Result | DLTRef Val | %D | %D Limit |
|---|---|---|---|---|
| Antimony | ND<50 | ND<10 | - | - |
| Arsenic | ND<50 | ND<10 | - | - |
| Barium | ND<500 | ND<100 | - | - |
| Beryllium | ND<50 | ND<10 | - | - |
| Cadmium | ND<25 | ND<5.0 | - | - |
| Chromium | ND<50 | ND<10 | - | - |
| Cobalt | ND<50 | ND<10 | - | - |
| Copper | ND<200 | ND<40 | - | - |
| Iron | ND<2000 | 820 | - | - |
| Lead | ND<50 | ND<10 | - | - |
| Mercury | ND<5.0 | ND<1.0 | - | - |
| Molybdenum | ND<50 | 23 | - | - |

*(Cont.)*

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Prepared:** | 4/6/17 | **BatchID:** | 136878 |
| **Date Analyzed:** | 4/7/17 | **Extraction Method:** | E200.8 |
| **Instrument:** | ICP-MS1, ICP-MS3 | **Analytical Method:** | E200.8 |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 260 30th Street | **Sample ID:** | MB/LCS-136878<br>1704167-001DMS/MSD |

## QC Summary Report for Metals

| Analyte | DLT Result | DLTRef Val | %D | %D Limit |
|---|---|---|---|---|
| Nickel | ND<50 | ND<10 | - | - |
| Selenium | ND<50 | ND<10 | - | - |
| Silver | ND<19 | ND<3.8 | - | - |
| Thallium | ND<50 | ND<10 | - | - |
| Vanadium | ND<50 | ND<10 | - | - |
| Zinc | ND<1500 | ND<300 | - | - |

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Prepared:** | 4/6/17 | **BatchID:** | 136869 |
| **Date Analyzed:** | 4/6/17 | **Extraction Method:** | SM5220 D-1997 |
| **Instrument:** | SPECTROPHOTOMETER | **Analytical Method:** | SM5220 D-1997 |
| **Matrix:** | Water | **Unit:** | mg/L |
| **Project:** | 260 30th Street | **Sample ID:** | MB/LCS-136869<br>1704120-001KMS/MSD |

## QC Summary Report for COD

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| COD | ND | 95.0 | 10 | 100 | - | 95 | 90-110 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| COD | 112 | 110 | 100 | ND | 112 | 110 | 80-120 | 1.80 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Prepared:** | 4/6/17 | **BatchID:** | 136974 |
| **Date Analyzed:** | 4/6/17 | **Extraction Method:** | SM3500-Fe B4c |
| **Instrument:** | SPECTROPHOTOMETER | **Analytical Method:** | SM3500-Fe B4c |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 260 30th Street | **Sample ID:** | MB/LCS-136974<br>1704230-001JMS/MSD |

## QC Summary Report for Ferrous Iron

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| Ferrous Iron | ND | 199 | 50 | 200 | - | 99 | 90-110 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Ferrous Iron | 196 | 197 | 200 | ND | 98 | 98 | 90-110 | 0 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Prepared:** | 4/6/17 - 4/7/17 | **BatchID:** | 136959 |
| **Date Analyzed:** | 4/6/17 - 4/7/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC3 | **Analytical Method:** | SW8021B/8015Bm |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 260 30th Street | **Sample ID:** | MB/LCS-136959<br>1704199-012AMS/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 | 60.2 | 40 | 60 | - | 100 | 78-116 |
| MTBE | ND | 9.50 | 5.0 | 10 | - | 95 | 72-122 |
| Benzene | ND | 9.25 | 0.50 | 10 | - | 93 | 81-123 |
| Toluene | ND | 9.70 | 0.50 | 10 | - | 97 | 83-129 |
| Ethylbenzene | ND | 10.1 | 0.50 | 10 | - | 101 | 88-126 |
| Xylenes | ND | 31.8 | 1.5 | 30 | - | 106 | 87-131 |
| **Surrogate Recovery** | | | | | | | |
| aaa-TFT | 10.22 | 10.6 | | 10 | 102 | 106 | 89-116 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| TPH(btex) | 60.0 | 59.2 | 60 | ND | 100 | 99 | 63-133 | 1.27 | 20 |
| MTBE | 9.37 | 9.22 | 10 | ND | 94 | 92 | 69-122 | 1.65 | 20 |
| Benzene | 9.55 | 9.08 | 10 | ND | 96 | 91 | 84-125 | 5.03 | 20 |
| Toluene | 10.0 | 9.44 | 10 | ND | 100 | 94 | 87-131 | 5.68 | 20 |
| Ethylbenzene | 10.5 | 9.66 | 10 | ND | 105 | 97 | 92-126 | 7.89 | 20 |
| Xylenes | 32.6 | 30.1 | 30 | ND | 109 | 100 | 88-132 | 7.95 | 20 |
| **Surrogate Recovery** | | | | | | | | | |
| aaa-TFT | 11.6 | 10.1 | 10 | | 116 | 101 | 90-117 | 14.4 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Prepared:** | 4/6/17 | **BatchID:** | 136936 |
| **Date Analyzed:** | 4/6/17 | **Extraction Method:** | SM4500H+B-2000 |
| **Instrument:** | WetChem | **Analytical Method:** | SM4500H+B |
| **Matrix:** | Water | **Unit:** | pH units @ 25°C |
| **Project:** | 260 30th Street | | |

## QC Summary Report for pH

| SampID | Sample Result | Sample DF | Dup / Serial Dilution Result | Dup / Serial Dilution DF | Precision | Acceptance Criteria |
|---|---|---|---|---|---|---|
| 1704204-001C | 7.80 | 1 | 7.80 | 1 | 0 | 0.1 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704230 |
| **Date Prepared:** | 4/5/17 | **BatchID:** | 136845 |
| **Date Analyzed:** | 4/6/17 | **Extraction Method:** | SW3510C |
| **Instrument:** | GC9a | **Analytical Method:** | SW8015B |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 260 30th Street | **Sample ID:** | MB/LCS/LCSD-136845 |

## 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 | 640.4 | | 625 | 102 | 79-111 |

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| TPH-Diesel (C10-C23) | 1060 | 993 | 1000 | 106 | 99 | 88-134 | 6.07 | 30 |
| **Surrogate Recovery** | | | | | | | | |
| C9 | 655 | 649 | 625 | 105 | 104 | 79-111 | 0.988 | 30 |

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# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1704230** **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

**Report to:**
Josh Graber
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-5244 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc/3rd Party: kstaehlin@langan.com;
PO: 750635603
ProjectNo: 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:*** **04/06/2017**
***Date Logged:*** **04/06/2017**

| 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 |
| 1704230-001 | GW-1 | Water | 4/5/2017 10:12 | ☐ | I | G | B | C | E | D | F | J | D | A | H | A |
| 1704230-002 | GW-2 | Water | 4/5/2017 11:42 | ☐ | I | G | B | C | E | D | F | J | D | A | H | A |

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 300_1_Sulfite_W | 2 | 300_1_W | 3 | 8260B_W | 4 | 8310_W |
| 5 | Alk_W | 6 | CAMMETMS_TTLC_W | 7 | COD_W | 8 | FE2_W |
| 9 | Fe3calc_W [N] | 10 | G-MBTEX_W | 11 | PH_W | 12 | TPH(DMO)_W |

**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.

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# WORK ORDER SUMMARY

**Client Name:** LANGAN **Project:** 260 30th Street **Work Order:** 1704230
**Client Contact:** Josh Graber **QC Level:** LEVEL 2
**Contact's Email:** jdgraber@treadwellrollo.com **Comments:** **Date Logged:** 4/6/2017

☐ 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1704230-001A | GW-1 | Water | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 4 | 2 VOAs w/HCL + 2-aVOAs (multi-range) | ☐ | 4/5/2017 10:12 | 3 days | Trace | ☐ | |
| 1704230-001B | GW-1 | Water | SW8260B (VOCs) | 2 | VOA w/ HCl | ☐ | 4/5/2017 10:12 | 3 days | Trace | ☐ | |
| 1704230-001C | GW-1 | Water | SW8310 (PAHs/PNAs) | 1 | 1LA w/ HCl | ☐ | 4/5/2017 10:12 | 3 days | Trace | ☐ | |
| 1704230-001D | GW-1 | Water | SW6010B/SM3500-FeB4c (Ferric Iron) | 1 | 250mL HDPE w/ HNO3 | ☐ | 4/5/2017 10:12 | 3 days | Trace | ☐ | |
| | | | E200.8 (Metals) <Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc> | | | ☐ | | 3 days | Trace | ☐ | |
| 1704230-001E | GW-1 | Water | SM2320B (Alkalinity) | 1 | 500mL HDPE, unprsv. | ☐ | 4/5/2017 10:12 | 3 days | Trace | ☐ | |
| 1704230-001F | GW-1 | Water | SM5220D (COD) | 2 | aVOA w/ H2SO4 | ☐ | 4/5/2017 10:12 | 3 days | Trace | ☐ | |
| 1704230-001G | GW-1 | Water | E300.1 (Inorganic Anions) <Chloride, Nitrate & Nitrite as N, Nitrate as N, Nitrate as $NO3^{-}$, Nitrite as N, Nitrite as $NO2^{-}$, Sulfate> | 1 | 125mL HDPE, unprsv. | ☐ | 4/5/2017 10:12 | 3 days | Trace | ☐ | |
| 1704230-001H | GW-1 | Water | SM4500H+B (pH) | 1 | 125mL HDPE, unprsv. | ☐ | 4/5/2017 10:12 | 3 days | Trace | ☐ | |
| 1704230-001I | GW-1 | Water | E300.1 (Sulfite) | 1 | 125mL AG w/ACETONE | ☐ | 4/5/2017 10:12 | 3 days | Trace | ☐ | |
| 1704230-001J | GW-1 | Water | SM3500 Fe B4c (Ferrous Iron) | 1 | VOA w/ HCL | ☐ | 4/5/2017 10:12 | 3 days | Trace | ☐ | |

**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.**

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# WORK ORDER SUMMARY

**Client Name:** LANGAN **Project:** 260 30th Street **Work Order:** 1704230
**Client Contact:** Josh Graber **QC Level:** LEVEL 2
**Contact's Email:** jdgraber@treadwellrollo.com **Comments:** **Date Logged:** 4/6/2017

☐ 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1704230-002A | GW-2 | Water | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 4 | 2 VOAs w/HCL + 2-aVOAs (multi-range) | ☐ | 4/5/2017 11:42 | 3 days | Trace | ☐ | |
| 1704230-002B | GW-2 | Water | SW8260B (VOCs) | 2 | VOA w/ HCl | ☐ | 4/5/2017 11:42 | 3 days | Trace | ☐ | |
| 1704230-002C | GW-2 | Water | SW8310 (PAHs/PNAs) | 1 | 1LA w/ HCl | ☐ | 4/5/2017 11:42 | 3 days | Trace | ☐ | |
| 1704230-002D | GW-2 | Water | SW6010B/SM3500-FeB4c (Ferric Iron) | 1 | 250mL HDPE w/ HNO3 | ☐ | 4/5/2017 11:42 | 3 days | Trace | ☐ | |
| | | | E200.8 (Metals) <Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc> | | | ☐ | | 3 days | Trace | ☐ | |
| 1704230-002E | GW-2 | Water | SM2320B (Alkalinity) | 1 | 500mL HDPE, unprsv. | ☐ | 4/5/2017 11:42 | 3 days | Trace | ☐ | |
| 1704230-002F | GW-2 | Water | SM5220D (COD) | 2 | aVOA w/ H2SO4 | ☐ | 4/5/2017 11:42 | 3 days | Trace | ☐ | |
| 1704230-002G | GW-2 | Water | E300.1 (Inorganic Anions) <Chloride, Nitrate & Nitrite as N, Nitrate as N, Nitrate as $NO3^{-}$, Nitrite as N, Nitrite as $NO2^{-}$, Sulfate> | 1 | 125mL HDPE, unprsv. | ☐ | 4/5/2017 11:42 | 3 days | Trace | ☐ | |
| 1704230-002H | GW-2 | Water | SM4500H+B (pH) | 1 | 125mL HDPE, unprsv. | ☐ | 4/5/2017 11:42 | 3 days | Trace | ☐ | |
| 1704230-002I | GW-2 | Water | E300.1 (Sulfite) | 1 | 125mL AG w/ACETONE | ☐ | 4/5/2017 11:42 | 3 days | Trace | ☐ | |
| 1704230-002J | GW-2 | Water | SM3500 Fe B4c (Ferrous Iron) | 1 | VOA w/ HCL | ☐ | 4/5/2017 11:42 | 3 days | Trace | ☐ | |

**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.**

RUSH

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

10315

# LANGAN

## CHAIN OF CUSTODY RECORD

Page 1 of 1

- [X] 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

170423O

Site Name: 260 30TH STREET
Job Number: 750635603
Project Manager\Contact: JOSH GRABER
Samplers: KSS
Recorder (Signature Required):

Turnaround Time: 72-HOUR

| Field Sample Identification No. | Date | Time | Lab Sample No. | Matrix: Soil | Matrix: Water | Matrix: Air | Matrix: Other | No. Containers & Preservative: HCL | $H_2SO_4$ | $HNO_3$ | Ice | MAIP | Analysis Requested: TPH g/d, mo VOCs | PAHs (8310) | CAM 17 | pH & Alkalinity | COD | Nitrate, Nitrite | Sulfate, Sulfite | Chloride | Iron III | | | Silica gel clean-up | Hold | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GW-1 | 4/5/17 | 1012 | | | X | | | 5 | 2 | 1 | 5 | 1 | X | X | X | X | X | X | X | X | X | | | | | |
| GW-2 | 4/5/17 | 1142 | | | X | | | 5 | 2 | 1 | 5 | 1 | X | X | X | X | X | X | X | X | X | | | | | |

| | | | | |
|---|---|---|---|---|
| Relinquished by: (Signature) | Date: | Time | Received by: (Signature) | Date: 4-6-17 Time: 1200 |
| Relinquished by: (Signature) | Date: 4-6-17 | Time: 1515 | Received by: (Signature) | Date: 4/6/17 Time: 1515 |
| Relinquished by: (Signature) | Date: | Time | Received by Lab: (Signature) | Date: Time: |

Sent to Laboratory (Name): MCCAMPBELL ANALYTICAL
Laboratory Comments/Notes:

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

White Copy - Original  Yellow Copy - Laboratory  Pink Copy - Field  COC Number:

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# Sample Receipt Checklist

| | | | |
|---|---|---|---|
| Client Name: | **Langan** | Date and Time Received | **4/6/2017 15:15** |
| Project Name: | **260 30th Street** | Date Logged: | **4/6/2017** |
| | | Received by: | Briana Cutino |
| WorkOrder №: | **1704230** Matrix: Water | Logged by: | Briana Cutino |
| 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: 3.4°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: Method SM4500H+B (pH) was received past its 0.01-day holding time.

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# Analytical Report

**WorkOrder:** 1704402

**Report Created for:** Langan

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

**Project Contact:** Josh Graber
**Project P.O.:**
**Project Name:** 750635603; 260 30th Street

**Project Received:** 04/11/2017

Analytical Report reviewed & approved for release on 04/14/2017 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.***

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# Glossary of Terms & Qualifier Definitions

**Client:** Langan
**Project:** 750635603; 260 30th Street
**WorkOrder:** 1704402

## 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) |

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# Glossary of Terms & Qualifier Definitions

**Client:** Langan
**Project:** 750635603; 260 30th Street
**WorkOrder:** 1704402

## Analytical Qualifiers

| | |
|---|---|
| S | surrogate spike recovery outside accepted recovery limits |
| a4 | reporting limits raised due to the sample's matrix prohibiting a full volume extraction. |
| b1 | aqueous sample that contains greater than ~1 vol. % sediment |
| 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. |
| e2 | diesel range compounds are significant; no recognizable pattern |
| e7 | oil range compounds are significant |

## Quality Control Qualifiers

| | |
|---|---|
| F2 | LCS/LCSD recovery and/or RPD is out of acceptance criteria. |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Received:** | 4/11/17 14:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/11/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-36-2.5 | 1704402-001A | Soil | 04/11/2017 08:19 | GC18 | 137102 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 04/13/2017 04:23 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Benzene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Bromobenzene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Bromochloromethane | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Bromodichloromethane | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Bromoform | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Bromomethane | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 04/13/2017 04:23 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 04/13/2017 04:23 |
| n-Butyl benzene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Carbon Disulfide | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Chlorobenzene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Chloroethane | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Chloroform | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Chloromethane | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Dibromochloromethane | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 04/13/2017 04:23 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 04/13/2017 04:23 |
| Dibromomethane | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 04/13/2017 04:23 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 04/13/2017 04:23 |

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Received:** | 4/11/17 14:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/11/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-36-2.5 | 1704402-001A | Soil | 04/11/2017 08:19 | GC18 | 137102 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Ethylbenzene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Freon 113 | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Hexachloroethane | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 2-Hexanone | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Isopropylbenzene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Methylene chloride | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Naphthalene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| n-Propyl benzene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Styrene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Tetrachloroethene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Toluene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Trichloroethene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Vinyl Chloride | ND | 0.0050 | 1 | 04/13/2017 04:23 |
| Xylenes, Total | ND | 0.0050 | 1 | 04/13/2017 04:23 |

*(Cont.)*

NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Received:** | 4/11/17 14:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/11/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-36-2.5** | **1704402-001A** | **Soil** | **04/11/2017 08:19** | **GC18** | **137102** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 99 | 70-130 | | 04/13/2017 04:23 |
| Toluene-d8 | 104 | 70-130 | | 04/13/2017 04:23 |
| 4-BFB | 95 | 70-130 | | 04/13/2017 04:23 |
| Benzene-d6 | 83 | 60-140 | | 04/13/2017 04:23 |
| Ethylbenzene-d10 | 93 | 60-140 | | 04/13/2017 04:23 |
| 1,2-DCB-d4 | 72 | 60-140 | | 04/13/2017 04:23 |

Analyst(s): AK

*(Cont.)*

NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Received:** | 4/11/17 14:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/11/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-36-8.0 | 1704402-002A | Soil | 04/11/2017 08:23 | GC18 | 137102 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 04/13/2017 05:02 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Benzene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Bromobenzene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Bromochloromethane | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Bromodichloromethane | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Bromoform | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Bromomethane | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 04/13/2017 05:02 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 04/13/2017 05:02 |
| n-Butyl benzene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Carbon Disulfide | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Chlorobenzene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Chloroethane | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Chloroform | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Chloromethane | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Dibromochloromethane | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 04/13/2017 05:02 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 04/13/2017 05:02 |
| Dibromomethane | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 04/13/2017 05:02 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 04/13/2017 05:02 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Received:** | 4/11/17 14:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/11/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-36-8.0 | 1704402-002A | Soil | 04/11/2017 08:23 | GC18 | 137102 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Ethylbenzene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Freon 113 | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Hexachloroethane | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 2-Hexanone | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Isopropylbenzene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Methylene chloride | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Naphthalene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| n-Propyl benzene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Styrene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Tetrachloroethene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Toluene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Trichloroethene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Vinyl Chloride | ND | 0.0050 | 1 | 04/13/2017 05:02 |
| Xylenes, Total | ND | 0.0050 | 1 | 04/13/2017 05:02 |

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Angela Rydelius, Lab Manager

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Received:** | 4/11/17 14:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/11/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-36-8.0** | **1704402-002A** | **Soil** | **04/11/2017 08:23** | **GC18** | **137102** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 99 | 70-130 | | 04/13/2017 05:02 |
| Toluene-d8 | 105 | 70-130 | | 04/13/2017 05:02 |
| 4-BFB | 95 | 70-130 | | 04/13/2017 05:02 |
| Benzene-d6 | 85 | 60-140 | | 04/13/2017 05:02 |
| Ethylbenzene-d10 | 98 | 60-140 | | 04/13/2017 05:02 |
| 1,2-DCB-d4 | 75 | 60-140 | | 04/13/2017 05:02 |

Analyst(s): AK

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Received:** | 4/11/17 14:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/11/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-36-12.0 | 1704402-004A | Soil | 04/11/2017 08:41 | GC18 | 137102 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 04/13/2017 05:40 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Benzene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Bromobenzene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Bromochloromethane | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Bromodichloromethane | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Bromoform | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Bromomethane | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 04/13/2017 05:40 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 04/13/2017 05:40 |
| n-Butyl benzene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Carbon Disulfide | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Chlorobenzene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Chloroethane | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Chloroform | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Chloromethane | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Dibromochloromethane | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 04/13/2017 05:40 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 04/13/2017 05:40 |
| Dibromomethane | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 04/13/2017 05:40 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 04/13/2017 05:40 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Received:** | 4/11/17 14:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/11/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-36-12.0 | 1704402-004A | Soil | 04/11/2017 08:41 | GC18 | 137102 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Ethylbenzene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Freon 113 | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Hexachloroethane | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 2-Hexanone | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Isopropylbenzene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Methylene chloride | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Naphthalene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| n-Propyl benzene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Styrene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Tetrachloroethene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Toluene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Trichloroethene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Vinyl Chloride | ND | 0.0050 | 1 | 04/13/2017 05:40 |
| Xylenes, Total | ND | 0.0050 | 1 | 04/13/2017 05:40 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Received:** | 4/11/17 14:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/11/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-36-12.0** | **1704402-004A** | **Soil** | **04/11/2017 08:41** | **GC18** | **137102** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 99 | 70-130 | | 04/13/2017 05:40 |
| Toluene-d8 | 104 | 70-130 | | 04/13/2017 05:40 |
| 4-BFB | 94 | 70-130 | | 04/13/2017 05:40 |
| Benzene-d6 | 80 | 60-140 | | 04/13/2017 05:40 |
| Ethylbenzene-d10 | 91 | 60-140 | | 04/13/2017 05:40 |
| 1,2-DCB-d4 | 72 | 60-140 | | 04/13/2017 05:40 |

Analyst(s): AK

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Received:** | 4/11/17 14:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-36-GW** | **1704402-006B** | **Water** | **04/11/2017 10:15** | **GC16** | **137252** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 10 | 1 | 04/12/2017 17:45 |
| tert-Amyl methyl ether (TAME) | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Benzene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Bromobenzene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Bromochloromethane | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Bromodichloromethane | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Bromoform | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Bromomethane | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 2-Butanone (MEK) | ND | 2.0 | 1 | 04/12/2017 17:45 |
| t-Butyl alcohol (TBA) | ND | 2.0 | 1 | 04/12/2017 17:45 |
| n-Butyl benzene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| sec-Butyl benzene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| tert-Butyl benzene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Carbon Disulfide | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Carbon Tetrachloride | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Chlorobenzene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Chloroethane | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Chloroform | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Chloromethane | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 2-Chlorotoluene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 4-Chlorotoluene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Dibromochloromethane | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 1,2-Dibromo-3-chloropropane | ND | 0.20 | 1 | 04/12/2017 17:45 |
| 1,2-Dibromoethane (EDB) | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Dibromomethane | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 1,2-Dichlorobenzene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 1,3-Dichlorobenzene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 1,4-Dichlorobenzene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Dichlorodifluoromethane | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 1,1-Dichloroethane | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 1,1-Dichloroethene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| cis-1,2-Dichloroethene | **4.7** | 0.50 | 1 | 04/12/2017 17:45 |
| trans-1,2-Dichloroethene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 1,2-Dichloropropane | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 1,3-Dichloropropane | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 2,2-Dichloropropane | ND | 0.50 | 1 | 04/12/2017 17:45 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Received:** | 4/11/17 14:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-36-GW** | **1704402-006B** | **Water** | **04/11/2017 10:15** | **GC16** | **137252** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| cis-1,3-Dichloropropene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| trans-1,3-Dichloropropene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Diisopropyl ether (DIPE) | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Ethylbenzene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Freon 113 | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Hexachlorobutadiene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Hexachloroethane | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 2-Hexanone | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Isopropylbenzene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 4-Isopropyl toluene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Methyl-t-butyl ether (MTBE) | **1.6** | 0.50 | 1 | 04/12/2017 17:45 |
| Methylene chloride | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Naphthalene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| n-Propyl benzene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Styrene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 1,1,1,2-Tetrachloroethane | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 1,1,2,2-Tetrachloroethane | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Tetrachloroethene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Toluene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 1,2,3-Trichlorobenzene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 1,2,4-Trichlorobenzene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 1,1,1-Trichloroethane | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 1,1,2-Trichloroethane | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Trichloroethene | **28** | 0.50 | 1 | 04/12/2017 17:45 |
| Trichlorofluoromethane | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 1,2,3-Trichloropropane | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 1,2,4-Trimethylbenzene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| 1,3,5-Trimethylbenzene | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Vinyl Chloride | ND | 0.50 | 1 | 04/12/2017 17:45 |
| Xylenes, Total | ND | 0.50 | 1 | 04/12/2017 17:45 |

*(Cont.)*

NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Received:** | 4/11/17 14:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | µg/L |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-36-GW** | **1704402-006B** | **Water** | **04/11/2017 10:15** | **GC16** | **137252** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 90 | 70-130 | | 04/12/2017 17:45 |
| Toluene-d8 | 97 | 70-130 | | 04/12/2017 17:45 |
| 4-BFB | 94 | 70-130 | | 04/12/2017 17:45 |

Analyst(s): HK  Analytical Comments: b1

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Received:** | 4/11/17 14:15 | **Extraction Method:** | SW3510C |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 260 30th Street | **Unit:** | µg/L |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-36-GW | 1704402-006C | Water | 04/11/2017 10:15 | HPLC4 | 137120 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.500 | 10 | 04/13/2017 04:24 |
| Acenaphthylene | ND | 0.500 | 10 | 04/13/2017 04:24 |
| Anthracene | ND | 0.500 | 10 | 04/13/2017 04:24 |
| Benzo (a) anthracene | ND | 0.250 | 10 | 04/13/2017 04:24 |
| Benzo (a) pyrene | ND | 0.500 | 10 | 04/13/2017 04:24 |
| Benzo (b) fluoranthene | ND | 0.250 | 10 | 04/13/2017 04:24 |
| Benzo (k) fluoranthene | ND | 0.250 | 10 | 04/13/2017 04:24 |
| Benzo (g,h,i) perylene | ND | 0.500 | 10 | 04/13/2017 04:24 |
| Chrysene | ND | 0.500 | 10 | 04/13/2017 04:24 |
| Dibenzo (a,h) anthracene | ND | 0.500 | 10 | 04/13/2017 04:24 |
| Fluoranthene | ND | 0.500 | 10 | 04/13/2017 04:24 |
| Fluorene | ND | 0.500 | 10 | 04/13/2017 04:24 |
| Indeno (1,2,3-cd) pyrene | ND | 0.250 | 10 | 04/13/2017 04:24 |
| 1-Methylnaphthalene | ND | 0.500 | 10 | 04/13/2017 04:24 |
| 2-Methylnaphthalene | ND | 0.500 | 10 | 04/13/2017 04:24 |
| Naphthalene | ND | 0.500 | 10 | 04/13/2017 04:24 |
| Phenanthrene | ND | 0.500 | 10 | 04/13/2017 04:24 |
| Pyrene | ND | 0.500 | 10 | 04/13/2017 04:24 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 110 | 70-130 | 04/13/2017 04:24 |
| 4,4-Dichlorobiphenyl | 111 | 70-130 | 04/13/2017 04:24 |

Analyst(s): BBO  Analytical Comments: a4,b1

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Received:** | 4/11/17 14:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/11/17 | **Analytical Method:** | SW8021B/8015Bm |
| **Project:** | 750635603; 260 30th Street | **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-36-2.5 | 1704402-001A | Soil | 04/11/2017 08:19 | GC19 | 137101 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 04/12/2017 13:31 |
| MTBE | --- | 0.050 | 1 | 04/12/2017 13:31 |
| Benzene | --- | 0.0050 | 1 | 04/12/2017 13:31 |
| Toluene | --- | 0.0050 | 1 | 04/12/2017 13:31 |
| Ethylbenzene | --- | 0.0050 | 1 | 04/12/2017 13:31 |
| Xylenes | --- | 0.015 | 1 | 04/12/2017 13:31 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 88 | 62-126 | 04/12/2017 13:31 |

Analyst(s): LT  Analytical Comments: c2

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-36-8.0 | 1704402-002A | Soil | 04/11/2017 08:23 | GC19 | 137101 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 04/12/2017 11:59 |
| MTBE | --- | 0.050 | 1 | 04/12/2017 11:59 |
| Benzene | --- | 0.0050 | 1 | 04/12/2017 11:59 |
| Toluene | --- | 0.0050 | 1 | 04/12/2017 11:59 |
| Ethylbenzene | --- | 0.0050 | 1 | 04/12/2017 11:59 |
| Xylenes | --- | 0.015 | 1 | 04/12/2017 11:59 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 95 | 62-126 | 04/12/2017 11:59 |

Analyst(s): IA

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Received:** | 4/11/17 14:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/11/17 | **Analytical Method:** | SW8021B/8015Bm |
| **Project:** | 750635603; 260 30th Street | **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-36-12.0** | **1704402-004A** | **Soil** | **04/11/2017 08:41** | **GC19** | **137101** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 04/12/2017 12:30 |
| MTBE | --- | 0.050 | 1 | 04/12/2017 12:30 |
| Benzene | --- | 0.0050 | 1 | 04/12/2017 12:30 |
| Toluene | --- | 0.0050 | 1 | 04/12/2017 12:30 |
| Ethylbenzene | --- | 0.0050 | 1 | 04/12/2017 12:30 |
| Xylenes | --- | 0.015 | 1 | 04/12/2017 12:30 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 95 | 62-126 | 04/12/2017 12:30 |

Analyst(s): IA

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Received:** | 4/11/17 14:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8021B/8015Bm |
| **Project:** | 750635603; 260 30th Street | **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-36-GW | 1704402-006A | Water | 04/11/2017 10:15 | GC3 | 137262 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 50 | 1 | 04/12/2017 18:47 |
| MTBE | --- | 5.0 | 1 | 04/12/2017 18:47 |
| Benzene | --- | 0.50 | 1 | 04/12/2017 18:47 |
| Toluene | --- | 0.50 | 1 | 04/12/2017 18:47 |
| Ethylbenzene | --- | 0.50 | 1 | 04/12/2017 18:47 |
| Xylenes | --- | 1.5 | 1 | 04/12/2017 18:47 |

| Surrogates | REC (%) | Qualifiers | Limits | |
|---|---|---|---|---|
| aaa-TFT | 380 | S | 89-115 | 04/12/2017 18:47 |

Analyst(s): IA  Analytical Comments: c4,b1

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Received:** | 4/11/17 14:15 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 4/11/17 | **Analytical Method:** | SW8015B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/Kg |

## Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-36-2.5 | 1704402-001A | Soil | 04/11/2017 08:19 | GC6A | 137100 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 04/12/2017 10:05 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 04/12/2017 10:05 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 90 | 78-109 | 04/12/2017 10:05 |

Analyst(s): TK

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-36-8.0 | 1704402-002A | Soil | 04/11/2017 08:23 | GC9a | 137100 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 04/12/2017 08:13 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 04/12/2017 08:13 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 105 | 78-109 | 04/12/2017 08:13 |

Analyst(s): TK

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-36-12.0 | 1704402-004A | Soil | 04/11/2017 08:41 | GC6A | 137100 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 04/12/2017 04:15 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 04/12/2017 04:15 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 88 | 78-109 | 04/12/2017 04:15 |

Analyst(s): TK

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Received:** | 4/11/17 14:15 | **Extraction Method:** | SW3510C |
| **Date Prepared:** | 4/11/17 | **Analytical Method:** | SW8015B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | µg/L |

## Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-36-GW** | **1704402-006A** | **Water** | **04/11/2017 10:15** | **GC9b** | **137144** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | **120** | 50 | 1 | 04/12/2017 07:35 |
| TPH-Motor Oil (C18-C36) | **580** | 250 | 1 | 04/12/2017 07:35 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 100 | 66-138 | 04/12/2017 07:35 |

Analyst(s): TK  Analytical Comments: e7,e2,b1

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Prepared:** | 4/11/17 | **BatchID:** | 137102 |
| **Date Analyzed:** | 4/12/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16, GC18 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137102 |

## 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 | 0.0390 | 0.0050 | 0.050 | - | 78 | 53-116 |
| Benzene | ND | 0.0494 | 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 | 0.143 | 0.050 | 0.20 | - | 71 | 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 | 0.0485 | 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 | 0.0440 | 0.0040 | 0.050 | - | 88 | 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 | 0.0449 | 0.0040 | 0.050 | - | 90 | 58-135 |
| 1,1-Dichloroethene | ND | 0.0483 | 0.0050 | 0.050 | - | 97 | 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.)*

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QA/QC Officer

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Prepared:** | 4/11/17 | **BatchID:** | 137102 |
| **Date Analyzed:** | 4/12/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16, GC18 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137102 |

## 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 | 0.0459 | 0.0050 | 0.050 | - | 92 | 52-129 |
| Ethylbenzene | ND | - | 0.0050 | - | - | - | - |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0438 | 0.0050 | 0.050 | - | 88 | 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 | 0.0427 | 0.0050 | 0.050 | - | 85 | 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 | 0.0492 | 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 | 0.0519 | 0.0050 | 0.050 | - | 104 | 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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QA/QC Officer

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Prepared:** | 4/11/17 | **BatchID:** | 137102 |
| **Date Analyzed:** | 4/12/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16, GC18 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137102 |

## QC Summary Report for SW8260B

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | | | |
| Dibromofluoromethane | 0.109 | 0.125 | | 0.12 | 87 | 100 | 70-130 |
| Toluene-d8 | 0.1338 | 0.130 | | 0.12 | 107 | 104 | 70-130 |
| 4-BFB | 0.01292 | 0.0133 | | 0.012 | 103 | 106 | 70-130 |
| Benzene-d6 | 0.0918 | 0.0947 | | 0.10 | 92 | 95 | 60-140 |
| Ethylbenzene-d10 | 0.1075 | 0.108 | | 0.10 | 107 | 108 | 60-140 |
| 1,2-DCB-d4 | 0.07289 | 0.0836 | | 0.10 | 73 | 84 | 60-140 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Prepared:** | 4/12/17 | **BatchID:** | 137252 |
| **Date Analyzed:** | 4/12/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS/LCSD-137252 |

## 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.)*

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QA/QC Officer

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Prepared:** | 4/12/17 | **BatchID:** | 137252 |
| **Date Analyzed:** | 4/12/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS/LCSD-137252 |

## 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 | 22.74 | | 25 | 91 | 70-130 |
| Toluene-d8 | 24.63 | | 25 | 99 | 70-130 |
| 4-BFB | 2.464 | | 2.5 | 99 | 70-130 |

*(Cont.)*

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Prepared:** | 4/12/17 | **BatchID:** | 137252 |
| **Date Analyzed:** | 4/12/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS/LCSD-137252 |

## 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) | 8.86 | 9.35 | 10 | 89 | 94 | 54-140 | 5.37 | 20 |
| Benzene | 9.12 | 9.31 | 10 | 91 | 93 | 47-158 | 2.01 | 20 |
| t-Butyl alcohol (TBA) | 32.3 | 35.9 | 40 | 81 | 90 | 42-140 | 10.5 | 20 |
| Chlorobenzene | 9.17 | 9.20 | 10 | 92 | 92 | 43-157 | 0 | 20 |
| 1,2-Dibromoethane (EDB) | 9.47 | 9.91 | 10 | 95 | 99 | 44-155 | 4.57 | 20 |
| 1,2-Dichloroethane (1,2-DCA) | 9.33 | 9.57 | 10 | 93 | 96 | 66-125 | 2.57 | 20 |
| 1,1-Dichloroethene | 8.93 | 9.48 | 10 | 89 | 95 | 47-149 | 5.97 | 20 |
| Diisopropyl ether (DIPE) | 9.63 | 10.0 | 10 | 96 | 100 | 57-136 | 4.11 | 20 |
| Ethyl tert-butyl ether (ETBE) | 9.31 | 9.78 | 10 | 93 | 98 | 55-137 | 4.88 | 20 |
| Methyl-t-butyl ether (MTBE) | 8.78 | 9.32 | 10 | 88 | 93 | 53-139 | 5.90 | 20 |
| Toluene | 9.04 | 8.86 | 10 | 90 | 89 | 52-137 | 2.03 | 20 |
| Trichloroethene | 8.93 | 9.25 | 10 | 89 | 93 | 43-157 | 3.52 | 20 |
| **Surrogate Recovery** | | | | | | | | |
| Dibromofluoromethane | 22.7 | 22.6 | 25 | 91 | 91 | 70-130 | 0 | 20 |
| Toluene-d8 | 25.2 | 24.2 | 25 | 101 | 97 | 70-130 | 3.74 | 20 |
| 4-BFB | 2.47 | 2.29 | 2.5 | 99 | 92 | 70-130 | 7.41 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Prepared:** | 4/11/17 | **BatchID:** | 137120 |
| **Date Analyzed:** | 4/13/17 | **Extraction Method:** | SW3510C |
| **Instrument:** | HPLC4 | **Analytical Method:** | SW8310 |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS/LCSD-137120 |

## QC Summary Report for SW8310

| Analyte | MB Result | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|
| Acenaphthene | ND | 0.0500 | - | - | - |
| Acenaphthylene | ND | 0.0500 | - | - | - |
| Anthracene | ND | 0.0500 | - | - | - |
| Benzo (a) anthracene | ND | 0.0250 | - | - | - |
| Benzo (a) pyrene | ND | 0.0500 | - | - | - |
| Benzo (a) pyrene | ND | 0.0500 | - | - | - |
| Benzo (b) fluoranthene | ND | 0.0250 | - | - | - |
| Benzo (k) fluoranthene | ND | 0.0250 | - | - | - |
| Benzo (g,h,i) perylene | ND | 0.0500 | - | - | - |
| Chrysene | ND | 0.0500 | - | - | - |
| Dibenzo (a,h) anthracene | ND | 0.0500 | - | - | - |
| Fluoranthene | ND | 0.0500 | - | - | - |
| Fluorene | ND | 0.0500 | - | - | - |
| Indeno (1,2,3-cd) pyrene | ND | 0.0250 | - | - | - |
| 1-Methylnaphthalene | ND | 0.0500 | - | - | - |
| 2-Methylnaphthalene | ND | 0.0500 | - | - | - |
| Naphthalene | ND | 0.0500 | - | - | - |
| Phenanthrene | ND | 0.0500 | - | - | - |
| Pyrene | ND | 0.0500 | - | - | - |
| **Surrogate Recovery** | | | | | |
| Decafluorobiphenyl | 54.24 | | 50 | 108 | 70-130 |
| 4,4-Dichlorobiphenyl | 29.05 | | 25 | 116 | 70-130 |

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Benzo (a) anthracene | 0.864 | 0.824 | 0.75 | 115 | 110 | 70-130 | 4.78 | 20 |
| Benzo (a) pyrene | 0.847 | 0.884 | 0.75 | 113 | 118 | 70-130 | 4.27 | 20 |
| Chrysene | 0.917 | 0.860 | 0.75 | 122 | 115 | 70-130 | 6.51 | 20 |
| 1-Methylnaphthalene | 0.728 | 0.868 | 0.75 | 97 | 116 | 70-130 | 17.6 | 20 |
| 2-Methylnaphthalene | 0.776 | 0.906 | 0.75 | 103 | 121 | 70-130 | 15.5 | 20 |
| Phenanthrene | 0.775 | 0.878 | 0.75 | 103 | 117 | 70-130 | 12.5 | 20 |
| Pyrene | 0.853 | 0.867 | 0.75 | 114 | 116 | 70-130 | 1.68 | 20 |
| **Surrogate Recovery** | | | | | | | | |
| Decafluorobiphenyl | 45.7 | 56.0 | 50 | 91 | 112 | 70-130 | 20.2,F2 | 20 |
| 4,4-Dichlorobiphenyl | 26.8 | 29.1 | 25 | 107 | 116 | 70-130 | 8.40 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Prepared:** | 4/11/17 | **BatchID:** | 137101 |
| **Date Analyzed:** | 4/12/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC7 | **Analytical Method:** | SW8021B/8015Bm |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137101 |

## QC Summary Report for SW8021B/8015Bm

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| TPH(btex) | ND | 0.525 | 0.40 | 0.60 | - | 87 | 82-118 |
| MTBE | ND | 0.0877 | 0.050 | 0.10 | - | 88 | 61-119 |
| Benzene | ND | 0.104 | 0.0050 | 0.10 | - | 104 | 77-128 |
| Toluene | ND | 0.0996 | 0.0050 | 0.10 | - | 100 | 74-132 |
| Ethylbenzene | ND | 0.112 | 0.0050 | 0.10 | - | 112 | 84-127 |
| Xylenes | ND | 0.326 | 0.015 | 0.30 | - | 109 | 86-129 |
| **Surrogate Recovery** | | | | | | | |
| 2-Fluorotoluene | 0.09513 | 0.0934 | | 0.10 | 95 | 93 | 75-134 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Prepared:** | 4/12/17 | **BatchID:** | 137262 |
| **Date Analyzed:** | 4/12/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC3 | **Analytical Method:** | SW8021B/8015Bm |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137262<br>1704332-007AMS/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 | 59.5 | 40 | 60 | - | 99 | 78-116 |
| MTBE | ND | 9.55 | 5.0 | 10 | - | 96 | 72-122 |
| Benzene | ND | 9.35 | 0.50 | 10 | - | 93 | 81-123 |
| Toluene | ND | 9.86 | 0.50 | 10 | - | 99 | 83-129 |
| Ethylbenzene | ND | 10.2 | 0.50 | 10 | - | 102 | 88-126 |
| Xylenes | ND | 32.0 | 1.5 | 30 | - | 107 | 87-131 |
| **Surrogate Recovery** | | | | | | | |
| aaa-TFT | 10.06 | 10.2 | | 10 | 101 | 102 | 89-116 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| TPH(btex) | 59.9 | 58.9 | 60 | ND | 100 | 98 | 63-133 | 1.68 | 20 |
| MTBE | 9.71 | 9.78 | 10 | ND | 97 | 98 | 69-122 | 0.741 | 20 |
| Benzene | 9.39 | 9.29 | 10 | ND | 94 | 93 | 84-125 | 1.05 | 20 |
| Toluene | 9.90 | 9.71 | 10 | ND | 99 | 97 | 87-131 | 1.87 | 20 |
| Ethylbenzene | 10.4 | 10.1 | 10 | ND | 104 | 101 | 92-126 | 3.05 | 20 |
| Xylenes | 32.8 | 31.6 | 30 | ND | 109 | 105 | 88-132 | 3.78 | 20 |
| **Surrogate Recovery** | | | | | | | | | |
| aaa-TFT | 10.0 | 9.92 | 10 | | 100 | 99 | 90-117 | 1.27 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Prepared:** | 4/11/17 | **BatchID:** | 137100 |
| **Date Analyzed:** | 4/11/17 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC9a | **Analytical Method:** | SW8015B |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137100<br>1704362-001AMS/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 | 38.2 | 1.0 | 40 | - | 95 | 79-133 |
| TPH-Motor Oil (C18-C36) | ND | - | 5.0 | - | - | - | - |
| **Surrogate Recovery** | | | | | | | |
| C9 | 25.82 | 25.9 | | 25 | 103 | 104 | 77-109 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| TPH-Diesel (C10-C23) | 39.8 | 39.4 | 40 | 3.878 | 90 | 89 | 59-150 | 1.08 | 30 |
| **Surrogate Recovery** | | | | | | | | | |
| C9 | 28.0 | 26.0 | 25 | | 112 | 104 | 78-109 | 7.69 | 30 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704402 |
| **Date Prepared:** | 4/11/17 | **BatchID:** | 137144 |
| **Date Analyzed:** | 4/12/17 | **Extraction Method:** | SW3510C |
| **Instrument:** | GC9b | **Analytical Method:** | SW8015B |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS/LCSD-137144 |

## 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 | 627.2 | | 625 | 100 | 79-111 |

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| TPH-Diesel (C10-C23) | 996 | 1040 | 1000 | 100 | 104 | 88-134 | 3.99 | 30 |
| **Surrogate Recovery** | | | | | | | | |
| C9 | 624 | 625 | 625 | 100 | 100 | 79-111 | 0 | 30 |

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QA/QC Officer

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# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1704402** **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: 750635603; 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:*** **04/11/2017**
***Date Logged:*** **04/11/2017**

| 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 |
| 1704402-001 | B-36-2.5 | Soil | 4/11/2017 08:19 | ☐ | A | | | A | | A | | | | | | |
| 1704402-002 | B-36-8.0 | Soil | 4/11/2017 08:23 | ☐ | A | | | A | | A | | | | | | |
| 1704402-004 | B-36-12.0 | Soil | 4/11/2017 08:41 | ☐ | A | | | A | | A | | | | | | |
| 1704402-006 | B-36-GW | Water | 4/11/2017 10:15 | ☐ | | B | C | | A | | A | | | | | |

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 8260B_S | 2 | 8260B_W | 3 | 8310_W | 4 | G-MBTEX_S |
| 5 | G-MBTEX_W | 6 | TPH(DMO)_S | 7 | TPH(DMO)_W | 8 | |
| 9 | | 10 | | 11 | | 12 | |

**Prepared by: Agustina Venegas**

The following SampIDs: 001A, 002A, 004A contain testgroup Multi Range_S.; The following SampID: 006A 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.

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# WORK ORDER SUMMARY

**Client Name:** LANGAN **Project:** 750635603; 260 30th Street **Work Order:** 1704402
**Client Contact:** Josh Graber **QC Level:** LEVEL 2
**Contact's Email:** jdgraber@treadwellrollo.com **Comments:** **Date Logged:** 4/11/2017

☐ 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1704402-001A | B-36-2.5 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 1 | Acetate Liner | ☐ | 4/11/2017 8:19 | 3 days | | ☐ | |
| | | | SW8260B (VOCs) | | | ☐ | | 3 days | | ☐ | |
| 1704402-002A | B-36-8.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 1 | Acetate Liner | ☐ | 4/11/2017 8:23 | 3 days | | ☐ | |
| | | | SW8260B (VOCs) | | | ☐ | | 3 days | | ☐ | |
| 1704402-003A | B-36-10.0 | Soil | | 1 | Acetate Liner | ☐ | 4/11/2017 8:32 | | | ☑ | |
| 1704402-004A | B-36-12.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 1 | Acetate Liner | ☐ | 4/11/2017 8:41 | 3 days | | ☐ | |
| | | | SW8260B (VOCs) | | | ☐ | | 3 days | | ☐ | |
| 1704402-005A | B-36-16.0 | Soil | | 1 | Acetate Liner | ☐ | 4/11/2017 8:56 | | | ☑ | |
| 1704402-006A | B-36-GW | Water | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 4 | 2 VOAs w/HCL + 2-aVOAs (multi-range) | ☐ | 4/11/2017 10:15 | 3 days | 30%+ | ☐ | |
| 1704402-006B | B-36-GW | Water | SW8260B (VOCs) | 2 | VOA w/ HCl | ☐ | 4/11/2017 10:15 | 3 days | 30%+ | ☐ | |
| 1704402-006C | B-36-GW | Water | SW8310 (PAHs/PNAs) | 1 | 1LA w/ HCl | ☐ | 4/11/2017 10:15 | 3 days | 30%+ | ☐ | |

**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.**

1704402

* PLEASE C.C. ANNIE S. AT KSTAEHLIN@LANGAN.COM PUSH *10435

# 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: 750635603
Project Manager\Contact: JOSH GRABER
Samplers: KARIANNE STAEHLIN
Recorder (Signature Required):

Turnaround Time: 72-HOUR

| Field Sample Identification No. | Date | Time | Lab Sample No. | Matrix: Soil | Water | Air | Other | No. Containers & Preservative: HCL | $H_2SO_4$ | $HNO_3$ | Ice | | Analysis Requested: TPH 8015 mo | VOCs | PAHs (8310) | | | | | | | | | | | | Silica gel clean-up | Hold | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-36-8.0 | 4/11/17 | 0823 | | X | | | | | | | X | | X | X | | | | | | | | | | | | | | |
| B-36-10.0 | " | 0832 | | X | | | | | | | X | | | | | | | | | | | | | | | | X | |
| B-36-12.0 | " | 0841 | | X | | | | | | | X | | X | X | | | | | | | | | | | | | | |
| B-36-16.0 | 4/11/17 | 0856 | | X | | | | | | | X | | | | | | | | | | | | | | | | X | |
| B-36-25 | 4/11/17 | 0819 | | X | | | | | | | X | | X | X | | | | | | | | | | | | | | |
| B-36-GW | 4/11/17 | 1015 | | | X | | | 5 | | | 2 | | X | X | X | | | | | | | | | | | | | |
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+30

| | | | |
|---|---|---|---|
| Relinquished by: (Signature) | Date: | Time | Received by: (Signature) / Date: 4-11-17 / Time: 1130 |
| Relinquished by: (Signature) | Date: 4-11-17 | Time: 1415 | Received by: (Signature) / Date / Time |
| Relinquished by: (Signature) | Date: | Time | Received by Lab: (Signature) / Date: 4/11 / Time: 1415 |

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

COC Number: 5.4

McCampbell Analytical, Inc.
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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Sample Receipt Checklist

| | | | |
|---|---|---|---|
| Client Name: | **Langan** | Date and Time Received | **4/11/2017 14:15** |
| Project Name: | **750635603; 260 30th Street** | Date Logged: | **4/11/2017** |
| | | Received by: | Agustina Venegas |
| WorkOrder №: | **1704402** Matrix: Soil/Water | Logged by: | Agustina Venegas |
| 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: 5.6°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:

McCampbell Analytical, Inc.
*"When Quality Counts"*

# Analytical Report

**WorkOrder:** 1704496 A

**Report Created for:** Langan

555 Montgomery St., Suite 1300
San Francisco, CA 94111

**Project Contact:** Josh Graber
**Project P.O.:**
**Project Name:** 750635603; 260 30th Street

**Project Received:** 04/12/2017

Analytical Report reviewed & approved for release on 04/26/2017 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.***

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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Glossary of Terms & Qualifier Definitions

**Client:** Langan
**Project:** 750635603; 260 30th Street
**WorkOrder:** 1704496

## 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) |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | CA Title 22 |
| **Date Prepared:** | 4/22/17 | **Analytical Method:** | SW6020 |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/L |

## STLC Metals

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-42-1.0,3.0,44-1.0,3.0 | 1704496-001A | Soil | 04/11/2017 14:24 | ICP-MS1 | 137712 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Lead | **7.8** | 0.10 | 1 | 04/24/2017 22:54 |

Analyst(s): DVH

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW1311/SW3010 |
| **Date Prepared:** | 4/24/17 | **Analytical Method:** | SW6020 |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/L |

## TCLP Metals

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-42-1.0,3.0,44-1.0,3.0 | 1704496-001A | Soil | 04/11/2017 14:24 | ICP-MS1 | 137761 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Lead | ND | 0.10 | 1 | 04/25/2017 21:49 |

Analyst(s): DVH

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Prepared:** | 4/22/17 | **BatchID:** | 137712 |
| **Date Analyzed:** | 4/24/17 | **Extraction Method:** | CA Title 22 |
| **Instrument:** | ICP-MS1 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/L |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137712<br>1704561-002AMS/MSD |

## QC Summary Report for Metals (STLC)

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| Lead | ND | 9.54 | 0.10 | 10 | - | 95 | 75-125 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Lead | 10.6 | 10.5 | 10 | 1.1 | 95 | 94 | 75-125 | 0.967 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Prepared:** | 4/24/17 | **BatchID:** | 137761 |
| **Date Analyzed:** | 4/25/17 | **Extraction Method:** | SW1311/SW3010 |
| **Instrument:** | ICP-MS1 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/L |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137761<br>1704477-001AMS/MSD |

## QC Summary Report for Metals (TCLP)

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| Lead | ND | 9.43 | 0.10 | 10 | - | 94 | 75-125 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Lead | 10.1 | 10.3 | 10 | 0.8162 | 93 | 95 | 75-125 | 1.72 | 20 |

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1704496 A** **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

**Report to:**
Josh Graber
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-5244 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc/3rd Party: kstaehlin@langan.com;
PO:
ProjectNo: 750635603; 260 30th Street

**Bill to:**
Accounts Payable
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursolutio

**Requested TAT:** 5 days;

***Date Received:*** **04/12/2017**
***Date Logged:*** **04/12/2017**
***Date Add-On:*** **04/21/2017**

| 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 |
| 1704496-001 | B-42-1.0,3.0,44-1.0,3.0 | Soil | 4/11/2017 14:24 | ☐ | A | A | | | | | | | | | | |

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | PBMS_STLC_S | 2 | PBMS_TCLP_S | 3 | | 4 | |
| 5 | | 6 | | 7 | | 8 | |
| 9 | | 10 | | 11 | | 12 | |

**Prepared by: Briana Cutino**

**Add-On Prepared By: Maria Venegas**

**Comments:** CAM17 Missed, set up on RUSH TAT!! Sample ID for 001 revised to match COC. STLC & TCLP Pb added 4/21/17 STAT.

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.

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# WORK ORDER SUMMARY

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

**Project:** 750635603; 260 30th Street
**Comments:** CAM17 Missed, set up on RUSH TAT!! Sample ID for 001 revised to match COC. STLC & TCLP Pb added 4/21/17 STAT.

**Work Order:** 1704496
**QC Level:** LEVEL 2
**Date Logged:** 4/12/2017
**Date Add-On:** 4/21/2017

| Lab ID | Client ID | Matrix | Test Name | Containers /Composites | Bottle & Preservative | Collection Date & Time | TAT | Sediment Content | Hold | SubOut |
|---|---|---|---|---|---|---|---|---|---|---|
| 1704496-001A | B-42-1.0,3.0,44-1.0,3.0 | Soil | SW6020 (Lead) (TCLP) | 4 / (4:1) | Acetate Liner | 4/11/2017 14:24 | 5 days* | | ☐ | |
| | | | SW6020 (Lead) (STLC) | | | | 5 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.**

* PLEASE C.C. ANNIE S. AT KSTAEHLIN@LANGAN.COM * 10316

# LANGAN

## CHAIN OF CUSTODY RECORD

1704496

Page 1 of 1

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: 750635603
Project Manager\Contact: JOSH GRABER
Samplers: KARIANNE STAEHLIN
Recorder (Signature Required): Karianne Staehlin

Turnaround Time: STANDARD

| Field Sample Identification No. | Date | Time | Lab Sample No. | Matrix: Soil | Water | Air | Other | No. Containers & Preservative: HCL | $H_2SO_4$ | $HNO_3$ | Ice | Analysis Requested: TPH g,d,mo | OCPs & PCBs | PAHs (8310) | CAM-17 VOCs | ASBESTOS 435 by CARB | STLC Pb | TCLP Pb | Silica gel clean-up | Hold | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-42-1.0 | 4/11/17 | 1422 | | X | | | | | | | X | X | X | X | | | | | | | |
| B-42-3.0 | | 1424 | | X | | | | | | | X | X | X | X | | X | | | | | |
| B-44-1.0 | | 1405 | | X | | | | | | | X | X | X | X | | | | | | | * BAYLANDS DISPOSAL CRITERIA (LOWER RLs) |
| B-44-3.0 | | 1408 | | X | | | | | | | X | X | X | X | | | | | | | |
| B-42-5.0 | | 1426 | | X | | | | | | | X | X | X | X | | | | | | | |
| B-42-8.0 | | 1428 | | X | | | | | | | X | X | X | X | | | | | | | |
| B-44-5.0 | | 1410 | | X | | | | | | | X | X | X | X | | | | | | | |
| B-44-8.0 | | 1413 | | X | | | | | | | X | X | X | X | | | | | | | |
| B-43-3.0 | | 1436 | | X | | | | | | | X | X | X | X | | | | | | | |
| B-43-5.0 | | 1439 | | X | | | | | | | X | X | X | X | | | | | | | |
| B-45-3.0 | | 1356 | | X | | | | | | | X | X | X | X | | | | | | | |
| B-45-5.0 | | 1358 | | X | | | | | | | X | X | X | X | | | | | | | |
| B-43-1.0 | | 1433 | | X | | | | | | | X | X | X | X | | | | | | X | |
| B-45-1.0 | 4/11/17 | 1354 | | X | | | | | | | X | X | X | X | | | | | | | |

X = PLEASE COMPOSITE IN LAB.

| | Date | Time | | Date | Time |
|---|---|---|---|---|---|
| Relinquished by: (Signature) | | | Received by: (Signature) | 4-12-17 | 1005 |
| Relinquished by: (Signature) | 4-12-17 | 1330 | Received by: (Signature) | 4/12/17 | 1330 |
| Relinquished by: (Signature) | | | Received by Lab: (Signature) | | |

Sent to Laboratory (Name): McCAMPBELL ANALYTICAL

Laboratory Comments/Notes: added 4/21/17 STAT

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

White Copy - Original  Yellow Copy - Laboratory  Pink Copy - Field  COC Number:

Forensic Analytical LABORATORIES

**Final Report**

# Bulk Asbestos Material Analysis

(Modified Air Resources Board Method 435, June 6, 1991)

McCampbell Analytical, Inc.
Account Payable
1534 Willow Pass Rd

Pittsburg, CA 94565

| | |
|---|---|
| **Client ID:** | A31409 |
| **Report Number:** | N009305 |
| **Date Received:** | 04/14/17 |
| **Date Analyzed:** | 04/21/17 |
| **Date Printed:** | 04/21/17 |

**Job ID/Site:** 1704496 - 75065603, 260 30th Street

**PLM Report Number:** N/A

| | |
|---|---|
| **FALI Job ID:** | A31409 |
| **Total Samples Submitted:** | 2 |
| **Total Samples Analyzed:** | 2 |

**Sample Preparation and Analysis:**

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

| Sample ID | Lab Number | Layer Description |
|---|---|---|
| **B-42-3.0** | 11879932 | **Brown Soil** |

*Visual Estimation Results:*

| | |
|---|---|
| Matrix percentage of entire | 100 |
| **Visual estimation percentage:** | **None Detected** |
| Asbestos type(s) detected: | None Detected |

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

| Sample ID | Lab Number | Layer Description |
|---|---|---|
| **B-45-3.0** | 11879933 | **Brown Soil** |

*Visual Estimation Results:*

| | |
|---|---|
| Matrix percentage of entire | 100 |
| **Visual estimation percentage:** | **None Detected** |
| Asbestos type(s) detected: | None Detected |

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Tad Thrower, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification (LOQ) = 0.25%. Trace denotes the presence of asbestos below the LOQ. ND = None Detected.

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McCampbell Analytical, Inc.
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# Analytical Report

**WorkOrder:** 1704496 **Amended:** 04/21/2017

**Report Created for:** Langan

555 Montgomery St., Suite 1300
San Francisco, CA 94111

**Project Contact:** Josh Graber
**Project P.O.:**
**Project Name:** 750635603; 260 30th Street

**Project Received:** 04/12/2017

Analytical Report reviewed & approved for release on 04/19/2017 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.***

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# Glossary of Terms & Qualifier Definitions

**Client:** Langan
**Project:** 750635603; 260 30th Street
**WorkOrder:** 1704496

## 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

| | |
|---|---|
| e7 | oil range compounds are significant |

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# Glossary of Terms & Qualifier Definitions

**Client:** Langan
**Project:** 750635603; 260 30th Street
**WorkOrder:** 1704496

## 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. |
| F10 | MS/MSD outside control limits. Physical or chemical interferences exist due to sample matrix. |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8081A/8082 |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Organochlorine Pesticides + PCBs

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-42,44-5.0,8.0 | 1704496-002A | Soil | 04/11/2017 14:13 | GC22 | 137231 |

| Analytes | Result | MDL | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Aldrin | ND | 0.00027 | 0.0010 | 1 | 04/14/2017 16:52 |
| a-BHC | ND | 0.00010 | 0.0010 | 1 | 04/14/2017 16:52 |
| b-BHC | ND | 0.00025 | 0.0010 | 1 | 04/14/2017 16:52 |
| d-BHC | ND | 0.00037 | 0.0010 | 1 | 04/14/2017 16:52 |
| g-BHC | ND | 0.000097 | 0.0010 | 1 | 04/14/2017 16:52 |
| Chlordane (Technical) | ND | 0.016 | 0.025 | 1 | 04/14/2017 16:52 |
| a-Chlordane | ND | 0.00047 | 0.0010 | 1 | 04/14/2017 16:52 |
| g-Chlordane | ND | 0.00021 | 0.0010 | 1 | 04/14/2017 16:52 |
| p,p-DDD | ND | 0.00014 | 0.0010 | 1 | 04/14/2017 16:52 |
| p,p-DDE | ND | 0.00032 | 0.0010 | 1 | 04/14/2017 16:52 |
| p,p-DDT | ND | 0.00043 | 0.0010 | 1 | 04/14/2017 16:52 |
| Dieldrin | ND | 0.00033 | 0.0010 | 1 | 04/14/2017 16:52 |
| Endosulfan I | ND | 0.00065 | 0.0010 | 1 | 04/14/2017 16:52 |
| Endosulfan II | ND | 0.00020 | 0.0010 | 1 | 04/14/2017 16:52 |
| Endosulfan sulfate | ND | 0.00063 | 0.0010 | 1 | 04/14/2017 16:52 |
| Endrin | ND | 0.00042 | 0.0010 | 1 | 04/14/2017 16:52 |
| Endrin aldehyde | ND | 0.00020 | 0.0010 | 1 | 04/14/2017 16:52 |
| Endrin ketone | ND | 0.00013 | 0.0010 | 1 | 04/14/2017 16:52 |
| Heptachlor | ND | 0.00021 | 0.0010 | 1 | 04/14/2017 16:52 |
| Heptachlor epoxide | ND | 0.00020 | 0.0010 | 1 | 04/14/2017 16:52 |
| Hexachlorobenzene | ND | 0.00027 | 0.010 | 1 | 04/14/2017 16:52 |
| Hexachlorocyclopentadiene | ND | 0.00040 | 0.020 | 1 | 04/14/2017 16:52 |
| Methoxychlor | ND | 0.00089 | 0.0010 | 1 | 04/14/2017 16:52 |
| Toxaphene | ND | 0.035 | 0.050 | 1 | 04/14/2017 16:52 |
| Aroclor1016 | ND | 0.0051 | 0.050 | 1 | 04/14/2017 16:52 |
| Aroclor1221 | ND | 0.011 | 0.050 | 1 | 04/14/2017 16:52 |
| Aroclor1232 | ND | 0.0063 | 0.050 | 1 | 04/14/2017 16:52 |
| Aroclor1242 | ND | 0.0067 | 0.050 | 1 | 04/14/2017 16:52 |
| Aroclor1248 | ND | 0.0040 | 0.050 | 1 | 04/14/2017 16:52 |
| Aroclor1254 | ND | 0.0068 | 0.050 | 1 | 04/14/2017 16:52 |
| Aroclor1260 | ND | 0.0061 | 0.050 | 1 | 04/14/2017 16:52 |
| PCBs, total | ND | 0.0040 | 0.050 | 1 | 04/14/2017 16:52 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decachlorobiphenyl | 112 | 70-130 | 04/14/2017 16:52 |

Analyst(s): CK

*(Cont.)*

NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8081A/8082 |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Organochlorine Pesticides + PCBs

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-43,45-3.0,5.0 | 1704496-003A | Soil | 04/11/2017 13:58 | GC22 | 137231 |

| Analytes | Result | MDL | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Aldrin | ND | 0.00027 | 0.0010 | 1 | 04/14/2017 17:26 |
| a-BHC | ND | 0.00010 | 0.0010 | 1 | 04/14/2017 17:26 |
| b-BHC | ND | 0.00025 | 0.0010 | 1 | 04/14/2017 17:26 |
| d-BHC | ND | 0.00037 | 0.0010 | 1 | 04/14/2017 17:26 |
| g-BHC | ND | 0.000097 | 0.0010 | 1 | 04/14/2017 17:26 |
| Chlordane (Technical) | ND | 0.016 | 0.025 | 1 | 04/14/2017 17:26 |
| a-Chlordane | ND | 0.00047 | 0.0010 | 1 | 04/14/2017 17:26 |
| g-Chlordane | ND | 0.00021 | 0.0010 | 1 | 04/14/2017 17:26 |
| p,p-DDD | ND | 0.00014 | 0.0010 | 1 | 04/14/2017 17:26 |
| p,p-DDE | ND | 0.00032 | 0.0010 | 1 | 04/14/2017 17:26 |
| p,p-DDT | ND | 0.00043 | 0.0010 | 1 | 04/14/2017 17:26 |
| Dieldrin | ND | 0.00033 | 0.0010 | 1 | 04/14/2017 17:26 |
| Endosulfan I | ND | 0.00065 | 0.0010 | 1 | 04/14/2017 17:26 |
| Endosulfan II | ND | 0.00020 | 0.0010 | 1 | 04/14/2017 17:26 |
| Endosulfan sulfate | ND | 0.00063 | 0.0010 | 1 | 04/14/2017 17:26 |
| Endrin | ND | 0.00042 | 0.0010 | 1 | 04/14/2017 17:26 |
| Endrin aldehyde | ND | 0.00020 | 0.0010 | 1 | 04/14/2017 17:26 |
| Endrin ketone | ND | 0.00013 | 0.0010 | 1 | 04/14/2017 17:26 |
| Heptachlor | ND | 0.00021 | 0.0010 | 1 | 04/14/2017 17:26 |
| Heptachlor epoxide | ND | 0.00020 | 0.0010 | 1 | 04/14/2017 17:26 |
| Hexachlorobenzene | ND | 0.00027 | 0.010 | 1 | 04/14/2017 17:26 |
| Hexachlorocyclopentadiene | ND | 0.00040 | 0.020 | 1 | 04/14/2017 17:26 |
| Methoxychlor | ND | 0.00089 | 0.0010 | 1 | 04/14/2017 17:26 |
| Toxaphene | ND | 0.035 | 0.050 | 1 | 04/14/2017 17:26 |
| Aroclor1016 | ND | 0.0051 | 0.050 | 1 | 04/14/2017 17:26 |
| Aroclor1221 | ND | 0.011 | 0.050 | 1 | 04/14/2017 17:26 |
| Aroclor1232 | ND | 0.0063 | 0.050 | 1 | 04/14/2017 17:26 |
| Aroclor1242 | ND | 0.0067 | 0.050 | 1 | 04/14/2017 17:26 |
| Aroclor1248 | ND | 0.0040 | 0.050 | 1 | 04/14/2017 17:26 |
| Aroclor1254 | ND | 0.0068 | 0.050 | 1 | 04/14/2017 17:26 |
| Aroclor1260 | ND | 0.0061 | 0.050 | 1 | 04/14/2017 17:26 |
| PCBs, total | ND | 0.0040 | 0.050 | 1 | 04/14/2017 17:26 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decachlorobiphenyl | 117 | 70-130 | 04/14/2017 17:26 |

Analyst(s): CK

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW3550B/3620B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8081A/8082 |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Organochlorine Pesticides + PCBs w/ Florisil Clean-up

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-42-1.0,3.0,44-1.0,3.0 | 1704496-001A | Soil | 04/11/2017 14:24 | GC22 | 137357 |

| Analytes | Result | MDL | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Aldrin | ND | 0.00027 | 0.0010 | 1 | 04/18/2017 05:20 |
| a-BHC | ND | 0.00010 | 0.0010 | 1 | 04/18/2017 05:20 |
| b-BHC | ND | 0.00025 | 0.0010 | 1 | 04/18/2017 05:20 |
| d-BHC | ND | 0.00037 | 0.0010 | 1 | 04/18/2017 05:20 |
| g-BHC | ND | 0.000097 | 0.0010 | 1 | 04/18/2017 05:20 |
| Chlordane (Technical) | ND | 0.016 | 0.025 | 1 | 04/18/2017 05:20 |
| a-Chlordane | ND | 0.00047 | 0.0010 | 1 | 04/18/2017 05:20 |
| g-Chlordane | ND | 0.00021 | 0.0010 | 1 | 04/18/2017 05:20 |
| p,p-DDD | ND | 0.00014 | 0.0010 | 1 | 04/18/2017 05:20 |
| p,p-DDE | **0.0011** | 0.00032 | 0.0010 | 1 | 04/18/2017 05:20 |
| p,p-DDT | **0.0022** | 0.00043 | 0.0010 | 1 | 04/18/2017 05:20 |
| Dieldrin | ND | 0.00033 | 0.0010 | 1 | 04/18/2017 05:20 |
| Endosulfan I | ND | 0.00065 | 0.0010 | 1 | 04/18/2017 05:20 |
| Endosulfan II | ND | 0.00020 | 0.0010 | 1 | 04/18/2017 05:20 |
| Endosulfan sulfate | ND | 0.00063 | 0.0010 | 1 | 04/18/2017 05:20 |
| Endrin | ND | 0.00042 | 0.0010 | 1 | 04/18/2017 05:20 |
| Endrin aldehyde | ND | 0.00020 | 0.0010 | 1 | 04/18/2017 05:20 |
| Endrin ketone | ND | 0.00013 | 0.0010 | 1 | 04/18/2017 05:20 |
| Heptachlor | ND | 0.00021 | 0.0010 | 1 | 04/18/2017 05:20 |
| Heptachlor epoxide | ND | 0.00020 | 0.0010 | 1 | 04/18/2017 05:20 |
| Hexachlorobenzene | ND | 0.00027 | 0.010 | 1 | 04/18/2017 05:20 |
| Hexachlorocyclopentadiene | ND | 0.00040 | 0.020 | 1 | 04/18/2017 05:20 |
| Methoxychlor | ND | 0.00089 | 0.0010 | 1 | 04/18/2017 05:20 |
| Toxaphene | ND | 0.035 | 0.050 | 1 | 04/18/2017 05:20 |
| Aroclor1016 | ND | 0.0051 | 0.050 | 1 | 04/18/2017 05:20 |
| Aroclor1221 | ND | 0.011 | 0.050 | 1 | 04/18/2017 05:20 |
| Aroclor1232 | ND | 0.0063 | 0.050 | 1 | 04/18/2017 05:20 |
| Aroclor1242 | ND | 0.0067 | 0.050 | 1 | 04/18/2017 05:20 |
| Aroclor1248 | ND | 0.0040 | 0.050 | 1 | 04/18/2017 05:20 |
| Aroclor1254 | ND | 0.0068 | 0.050 | 1 | 04/18/2017 05:20 |
| Aroclor1260 | ND | 0.0061 | 0.050 | 1 | 04/18/2017 05:20 |
| PCBs, total | ND | 0.0040 | 0.050 | 1 | 04/18/2017 05:20 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decachlorobiphenyl | 127 | 70-130 | 04/18/2017 05:20 |

Analyst(s): CK

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-44-3.0 | 1704496-001C | Soil | 04/11/2017 14:22 | GC16 | 137227 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 04/15/2017 03:44 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Benzene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Bromobenzene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Bromochloromethane | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Bromodichloromethane | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Bromoform | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Bromomethane | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 04/15/2017 03:44 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 04/15/2017 03:44 |
| n-Butyl benzene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Carbon Disulfide | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Chlorobenzene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Chloroethane | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Chloroform | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Chloromethane | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Dibromochloromethane | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 04/15/2017 03:44 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 04/15/2017 03:44 |
| Dibromomethane | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 04/15/2017 03:44 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 04/15/2017 03:44 |

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-44-3.0 | 1704496-001C | Soil | 04/11/2017 14:22 | GC16 | 137227 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Ethylbenzene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Freon 113 | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Hexachloroethane | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 2-Hexanone | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Isopropylbenzene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Methylene chloride | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Naphthalene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| n-Propyl benzene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Styrene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Tetrachloroethene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Toluene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Trichloroethene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Vinyl Chloride | ND | 0.0050 | 1 | 04/15/2017 03:44 |
| Xylenes, Total | ND | 0.0050 | 1 | 04/15/2017 03:44 |

*(Cont.)*

NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-44-3.0** | **1704496-001C** | **Soil** | **04/11/2017 14:22** | **GC16** | **137227** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 88 | 70-130 | | 04/15/2017 03:44 |
| Toluene-d8 | 108 | 70-130 | | 04/15/2017 03:44 |
| 4-BFB | 101 | 70-130 | | 04/15/2017 03:44 |
| Benzene-d6 | 84 | 60-140 | | 04/15/2017 03:44 |
| Ethylbenzene-d10 | 100 | 60-140 | | 04/15/2017 03:44 |
| 1,2-DCB-d4 | 71 | 60-140 | | 04/15/2017 03:44 |

Analyst(s): HK

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NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-42-8.0 | 1704496-002B | Soil | 04/11/2017 14:13 | GC16 | 137227 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 04/15/2017 03:05 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Benzene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Bromobenzene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Bromochloromethane | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Bromodichloromethane | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Bromoform | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Bromomethane | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 04/15/2017 03:05 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 04/15/2017 03:05 |
| n-Butyl benzene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Carbon Disulfide | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Chlorobenzene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Chloroethane | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Chloroform | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Chloromethane | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Dibromochloromethane | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 04/15/2017 03:05 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 04/15/2017 03:05 |
| Dibromomethane | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 04/15/2017 03:05 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 04/15/2017 03:05 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-42-8.0 | 1704496-002B | Soil | 04/11/2017 14:13 | GC16 | 137227 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Ethylbenzene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Freon 113 | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Hexachloroethane | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 2-Hexanone | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Isopropylbenzene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Methylene chloride | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Naphthalene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| n-Propyl benzene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Styrene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Tetrachloroethene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Toluene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Trichloroethene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Vinyl Chloride | ND | 0.0050 | 1 | 04/15/2017 03:05 |
| Xylenes, Total | ND | 0.0050 | 1 | 04/15/2017 03:05 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-42-8.0** | **1704496-002B** | **Soil** | **04/11/2017 14:13** | **GC16** | **137227** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 87 | 70-130 | | 04/15/2017 03:05 |
| Toluene-d8 | 107 | 70-130 | | 04/15/2017 03:05 |
| 4-BFB | 104 | 70-130 | | 04/15/2017 03:05 |
| Benzene-d6 | 60 | 60-140 | | 04/15/2017 03:05 |
| Ethylbenzene-d10 | 87 | 60-140 | | 04/15/2017 03:05 |
| 1,2-DCB-d4 | 67 | 60-140 | | 04/15/2017 03:05 |

Analyst(s): HK

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-43-5.0 | 1704496-003B | Soil | 04/11/2017 13:58 | GC10 | 137227 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 04/15/2017 18:44 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Benzene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Bromobenzene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Bromochloromethane | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Bromodichloromethane | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Bromoform | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Bromomethane | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 04/15/2017 18:44 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 04/15/2017 18:44 |
| n-Butyl benzene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Carbon Disulfide | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Chlorobenzene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Chloroethane | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Chloroform | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Chloromethane | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Dibromochloromethane | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 04/15/2017 18:44 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 04/15/2017 18:44 |
| Dibromomethane | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 04/15/2017 18:44 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 04/15/2017 18:44 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-43-5.0 | 1704496-003B | Soil | 04/11/2017 13:58 | GC10 | 137227 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Ethylbenzene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Freon 113 | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Hexachloroethane | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 2-Hexanone | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Isopropylbenzene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Methylene chloride | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Naphthalene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| n-Propyl benzene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Styrene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Tetrachloroethene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Toluene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Trichloroethene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Vinyl Chloride | ND | 0.0050 | 1 | 04/15/2017 18:44 |
| Xylenes, Total | ND | 0.0050 | 1 | 04/15/2017 18:44 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-43-5.0** | **1704496-003B** | **Soil** | **04/11/2017 13:58** | **GC10** | **137227** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 102 | 70-130 | | 04/15/2017 18:44 |
| Toluene-d8 | 110 | 70-130 | | 04/15/2017 18:44 |
| 4-BFB | 84 | 70-130 | | 04/15/2017 18:44 |
| Benzene-d6 | 89 | 60-140 | | 04/15/2017 18:44 |
| Ethylbenzene-d10 | 113 | 60-140 | | 04/15/2017 18:44 |
| 1,2-DCB-d4 | 83 | 60-140 | | 04/15/2017 18:44 |

Analyst(s): KF

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-45-1.0 | 1704496-005A | Soil | 04/11/2017 13:54 | GC16 | 137227 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 04/15/2017 04:24 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Benzene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Bromobenzene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Bromochloromethane | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Bromodichloromethane | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Bromoform | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Bromomethane | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 04/15/2017 04:24 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 04/15/2017 04:24 |
| n-Butyl benzene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Carbon Disulfide | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Chlorobenzene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Chloroethane | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Chloroform | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Chloromethane | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Dibromochloromethane | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 04/15/2017 04:24 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 04/15/2017 04:24 |
| Dibromomethane | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 04/15/2017 04:24 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 04/15/2017 04:24 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-45-1.0 | 1704496-005A | Soil | 04/11/2017 13:54 | GC16 | 137227 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Ethylbenzene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Freon 113 | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Hexachloroethane | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 2-Hexanone | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Isopropylbenzene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Methylene chloride | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Naphthalene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| n-Propyl benzene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Styrene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Tetrachloroethene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Toluene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Trichloroethene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Vinyl Chloride | ND | 0.0050 | 1 | 04/15/2017 04:24 |
| Xylenes, Total | ND | 0.0050 | 1 | 04/15/2017 04:24 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-45-1.0** | **1704496-005A** | **Soil** | **04/11/2017 13:54** | **GC16** | **137227** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 89 | 70-130 | | 04/15/2017 04:24 |
| Toluene-d8 | 106 | 70-130 | | 04/15/2017 04:24 |
| 4-BFB | 101 | 70-130 | | 04/15/2017 04:24 |
| Benzene-d6 | 65 | 60-140 | | 04/15/2017 04:24 |
| Ethylbenzene-d10 | 75 | 60-140 | | 04/15/2017 04:24 |
| 1,2-DCB-d4 | 61 | 60-140 | | 04/15/2017 04:24 |

Analyst(s): HK

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW3550C |
| **Date Prepared:** | 4/18/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-42-1.0,3.0,44-1.0,3.0 | 1704496-001A | Soil | 04/11/2017 14:24 | HPLC4 | 137460 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.0050 | 1 | 04/19/2017 03:03 |
| Acenaphthylene | ND | 0.0050 | 1 | 04/19/2017 03:03 |
| Anthracene | ND | 0.0050 | 1 | 04/19/2017 03:03 |
| Benzo (a) anthracene | ND | 0.0050 | 1 | 04/19/2017 03:03 |
| Benzo (a) pyrene | ND | 0.0050 | 1 | 04/19/2017 03:03 |
| Benzo (b) fluoranthene | ND | 0.0050 | 1 | 04/19/2017 03:03 |
| Benzo (g,h,i) perylene | ND | 0.0050 | 1 | 04/19/2017 03:03 |
| Benzo (k) fluoranthene | ND | 0.0050 | 1 | 04/19/2017 03:03 |
| Chrysene | ND | 0.0050 | 1 | 04/19/2017 03:03 |
| Dibenzo (a,h) anthracene | ND | 0.0050 | 1 | 04/19/2017 03:03 |
| Fluoranthene | ND | 0.0050 | 1 | 04/19/2017 03:03 |
| Fluorene | ND | 0.0050 | 1 | 04/19/2017 03:03 |
| Indeno (1,2,3-cd) pyrene | ND | 0.0050 | 1 | 04/19/2017 03:03 |
| 1-Methylnaphthalene | ND | 0.0050 | 1 | 04/19/2017 03:03 |
| 2-Methylnaphthalene | ND | 0.0050 | 1 | 04/19/2017 03:03 |
| Naphthalene | ND | 0.0050 | 1 | 04/19/2017 03:03 |
| Phenanthrene | ND | 0.0050 | 1 | 04/19/2017 03:03 |
| Pyrene | ND | 0.0050 | 1 | 04/19/2017 03:03 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 90 | 70-130 | 04/19/2017 03:03 |
| 4,4-Dichlorobiphenyl | 74 | 70-130 | 04/19/2017 03:03 |

Analyst(s): BBO

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW3550C |
| **Date Prepared:** | 4/18/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-42-5.0,8.0,44-5.0,8.0 | 1704496-002A | Soil | 04/11/2017 14:28 | HPLC4 | 137460 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.0050 | 1 | 04/19/2017 05:15 |
| Acenaphthylene | ND | 0.0050 | 1 | 04/19/2017 05:15 |
| Anthracene | ND | 0.0050 | 1 | 04/19/2017 05:15 |
| Benzo (a) anthracene | ND | 0.0050 | 1 | 04/19/2017 05:15 |
| Benzo (a) pyrene | ND | 0.0050 | 1 | 04/19/2017 05:15 |
| Benzo (b) fluoranthene | ND | 0.0050 | 1 | 04/19/2017 05:15 |
| Benzo (g,h,i) perylene | ND | 0.0050 | 1 | 04/19/2017 05:15 |
| Benzo (k) fluoranthene | ND | 0.0050 | 1 | 04/19/2017 05:15 |
| Chrysene | ND | 0.0050 | 1 | 04/19/2017 05:15 |
| Dibenzo (a,h) anthracene | ND | 0.0050 | 1 | 04/19/2017 05:15 |
| Fluoranthene | ND | 0.0050 | 1 | 04/19/2017 05:15 |
| Fluorene | ND | 0.0050 | 1 | 04/19/2017 05:15 |
| Indeno (1,2,3-cd) pyrene | ND | 0.0050 | 1 | 04/19/2017 05:15 |
| 1-Methylnaphthalene | ND | 0.0050 | 1 | 04/19/2017 05:15 |
| 2-Methylnaphthalene | ND | 0.0050 | 1 | 04/19/2017 05:15 |
| Naphthalene | ND | 0.0050 | 1 | 04/19/2017 05:15 |
| Phenanthrene | ND | 0.0050 | 1 | 04/19/2017 05:15 |
| Pyrene | ND | 0.0050 | 1 | 04/19/2017 05:15 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 95 | 70-130 | 04/19/2017 05:15 |
| 4,4-Dichlorobiphenyl | 91 | 70-130 | 04/19/2017 05:15 |

Analyst(s): BBO

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW3550C |
| **Date Prepared:** | 4/18/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/kg |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-43-3.0,5.0,45-3.0,5.0 | 1704496-003A | Soil | 04/11/2017 14:39 | HPLC4 | 137460 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.0050 | 1 | 04/19/2017 05:59 |
| Acenaphthylene | ND | 0.0050 | 1 | 04/19/2017 05:59 |
| Anthracene | ND | 0.0050 | 1 | 04/19/2017 05:59 |
| Benzo (a) anthracene | ND | 0.0050 | 1 | 04/19/2017 05:59 |
| Benzo (a) pyrene | ND | 0.0050 | 1 | 04/19/2017 05:59 |
| Benzo (b) fluoranthene | ND | 0.0050 | 1 | 04/19/2017 05:59 |
| Benzo (g,h,i) perylene | ND | 0.0050 | 1 | 04/19/2017 05:59 |
| Benzo (k) fluoranthene | ND | 0.0050 | 1 | 04/19/2017 05:59 |
| Chrysene | ND | 0.0050 | 1 | 04/19/2017 05:59 |
| Dibenzo (a,h) anthracene | ND | 0.0050 | 1 | 04/19/2017 05:59 |
| Fluoranthene | ND | 0.0050 | 1 | 04/19/2017 05:59 |
| Fluorene | ND | 0.0050 | 1 | 04/19/2017 05:59 |
| Indeno (1,2,3-cd) pyrene | ND | 0.0050 | 1 | 04/19/2017 05:59 |
| 1-Methylnaphthalene | ND | 0.0050 | 1 | 04/19/2017 05:59 |
| 2-Methylnaphthalene | ND | 0.0050 | 1 | 04/19/2017 05:59 |
| Naphthalene | ND | 0.0050 | 1 | 04/19/2017 05:59 |
| Phenanthrene | ND | 0.0050 | 1 | 04/19/2017 05:59 |
| Pyrene | ND | 0.0050 | 1 | 04/19/2017 05:59 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 96 | 70-130 | 04/19/2017 05:59 |
| 4,4-Dichlorobiphenyl | 97 | 70-130 | 04/19/2017 05:59 |

Analyst(s): BBO

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 4/20/17 | **Analytical Method:** | SW6020 |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/Kg |

## CAM / CCR 17 Metals

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-42-1.0,3.0,44-1.0,3.0 | 1704496-001A | Soil | 04/11/2017 14:24 | ICP-MS3 | 137581 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Antimony | **1.4** | 0.50 | 1 | 04/20/2017 22:50 |
| Arsenic | **7.8** | 0.50 | 1 | 04/20/2017 22:50 |
| Barium | **240** | 5.0 | 1 | 04/20/2017 22:50 |
| Beryllium | ND | 0.50 | 1 | 04/20/2017 22:50 |
| Cadmium | **0.38** | 0.25 | 1 | 04/20/2017 22:50 |
| Chromium | **32** | 0.50 | 1 | 04/20/2017 22:50 |
| Cobalt | **11** | 0.50 | 1 | 04/20/2017 22:50 |
| Copper | **33** | 0.50 | 1 | 04/20/2017 22:50 |
| Lead | **190** | 0.50 | 1 | 04/20/2017 22:50 |
| Mercury | **0.25** | 0.050 | 1 | 04/20/2017 22:50 |
| Molybdenum | **0.71** | 0.50 | 1 | 04/20/2017 22:50 |
| Nickel | **36** | 0.50 | 1 | 04/20/2017 22:50 |
| Selenium | ND | 0.50 | 1 | 04/20/2017 22:50 |
| Silver | ND | 0.50 | 1 | 04/20/2017 22:50 |
| Thallium | ND | 0.50 | 1 | 04/20/2017 22:50 |
| Vanadium | **29** | 0.50 | 1 | 04/20/2017 22:50 |
| Zinc | **180** | 5.0 | 1 | 04/20/2017 22:50 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Terbium | 104 | 70-130 | 04/20/2017 22:50 |

Analyst(s): DB

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 4/20/17 | **Analytical Method:** | SW6020 |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/Kg |

## CAM / CCR 17 Metals

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-42-5.0,8.0,44-5.0,8.0 | 1704496-002A | Soil | 04/11/2017 14:28 | ICP-MS3 | 137581 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Antimony | ND | 0.50 | 1 | 04/20/2017 22:56 |
| Arsenic | **3.3** | 0.50 | 1 | 04/20/2017 22:56 |
| Barium | **150** | 5.0 | 1 | 04/20/2017 22:56 |
| Beryllium | **0.50** | 0.50 | 1 | 04/20/2017 22:56 |
| Cadmium | ND | 0.25 | 1 | 04/20/2017 22:56 |
| Chromium | **40** | 0.50 | 1 | 04/20/2017 22:56 |
| Cobalt | **12** | 0.50 | 1 | 04/20/2017 22:56 |
| Copper | **12** | 0.50 | 1 | 04/20/2017 22:56 |
| Lead | **6.2** | 0.50 | 1 | 04/20/2017 22:56 |
| Mercury | ND | 0.050 | 1 | 04/20/2017 22:56 |
| Molybdenum | ND | 0.50 | 1 | 04/20/2017 22:56 |
| Nickel | **38** | 0.50 | 1 | 04/20/2017 22:56 |
| Selenium | ND | 0.50 | 1 | 04/20/2017 22:56 |
| Silver | ND | 0.50 | 1 | 04/20/2017 22:56 |
| Thallium | ND | 0.50 | 1 | 04/20/2017 22:56 |
| Vanadium | **34** | 0.50 | 1 | 04/20/2017 22:56 |
| Zinc | **26** | 5.0 | 1 | 04/20/2017 22:56 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Terbium | 107 | 70-130 | 04/20/2017 22:56 |

Analyst(s): DB

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 4/20/17 | **Analytical Method:** | SW6020 |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/Kg |

## CAM / CCR 17 Metals

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-43-3.0,5.0,45-3.0,5.0** | **1704496-003A** | **Soil** | **04/11/2017 14:39** | **ICP-MS3** | **137581** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Antimony | ND | 0.50 | 1 | 04/20/2017 23:03 |
| Arsenic | **3.3** | 0.50 | 1 | 04/20/2017 23:03 |
| Barium | **140** | 5.0 | 1 | 04/20/2017 23:03 |
| Beryllium | **0.64** | 0.50 | 1 | 04/20/2017 23:03 |
| Cadmium | ND | 0.25 | 1 | 04/20/2017 23:03 |
| Chromium | **40** | 0.50 | 1 | 04/20/2017 23:03 |
| Cobalt | **4.4** | 0.50 | 1 | 04/20/2017 23:03 |
| Copper | **12** | 0.50 | 1 | 04/20/2017 23:03 |
| Lead | **7.8** | 0.50 | 1 | 04/20/2017 23:03 |
| Mercury | ND | 0.050 | 1 | 04/20/2017 23:03 |
| Molybdenum | ND | 0.50 | 1 | 04/20/2017 23:03 |
| Nickel | **38** | 0.50 | 1 | 04/20/2017 23:03 |
| Selenium | ND | 0.50 | 1 | 04/20/2017 23:03 |
| Silver | ND | 0.50 | 1 | 04/20/2017 23:03 |
| Thallium | ND | 0.50 | 1 | 04/20/2017 23:03 |
| Vanadium | **32** | 0.50 | 1 | 04/20/2017 23:03 |
| Zinc | **22** | 5.0 | 1 | 04/20/2017 23:03 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Terbium | 98 | 70-130 | 04/20/2017 23:03 |

Analyst(s): DB

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# Analytical Report

**Client:** Langan
**Date Received:** 4/12/17 13:30
**Date Prepared:** 4/12/17
**Project:** 750635603; 260 30th Street

**WorkOrder:** 1704496
**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-42-1.0,3.0,44-1.0,3.0 | 1704496-001A | Soil | 04/11/2017 14:24 | GC19 | 137230 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 04/14/2017 09:35 |
| MTBE | --- | 0.050 | 1 | 04/14/2017 09:35 |
| Benzene | --- | 0.0050 | 1 | 04/14/2017 09:35 |
| Toluene | --- | 0.0050 | 1 | 04/14/2017 09:35 |
| Ethylbenzene | --- | 0.0050 | 1 | 04/14/2017 09:35 |
| Xylenes | --- | 0.015 | 1 | 04/14/2017 09:35 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 85 | 62-126 | 04/14/2017 09:35 |

Analyst(s): IA

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-42-5.0,8.0,44-5.0,8.0 | 1704496-002A | Soil | 04/11/2017 14:28 | GC7 | 137230 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 04/15/2017 12:46 |
| MTBE | --- | 0.050 | 1 | 04/15/2017 12:46 |
| Benzene | --- | 0.0050 | 1 | 04/15/2017 12:46 |
| Toluene | --- | 0.0050 | 1 | 04/15/2017 12:46 |
| Ethylbenzene | --- | 0.0050 | 1 | 04/15/2017 12:46 |
| Xylenes | --- | 0.015 | 1 | 04/15/2017 12:46 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 80 | 62-126 | 04/15/2017 12:46 |

Analyst(s): IA

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8021B/8015Bm |
| **Project:** | 750635603; 260 30th Street | **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-43-3.0,5.0,45-3.0,5.0** | **1704496-003A** | **Soil** | **04/11/2017 14:39** | **GC7** | **137230** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 04/14/2017 07:00 |
| MTBE | --- | 0.050 | 1 | 04/14/2017 07:00 |
| Benzene | --- | 0.0050 | 1 | 04/14/2017 07:00 |
| Toluene | --- | 0.0050 | 1 | 04/14/2017 07:00 |
| Ethylbenzene | --- | 0.0050 | 1 | 04/14/2017 07:00 |
| Xylenes | --- | 0.015 | 1 | 04/14/2017 07:00 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 87 | 62-126 | 04/14/2017 07:00 |

Analyst(s): IA

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Received:** | 4/12/17 13:30 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 4/12/17 | **Analytical Method:** | SW8015B |
| **Project:** | 750635603; 260 30th Street | **Unit:** | mg/Kg |

## Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-42-1.0,3.0,44-1.0,3.0 | 1704496-001A | Soil | 04/11/2017 14:24 | GC9a | 137229 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 04/14/2017 10:23 |
| TPH-Motor Oil (C18-C36) | **5.8** | 5.0 | 1 | 04/14/2017 10:23 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 104 | 78-109 | 04/14/2017 10:23 |

Analyst(s): TK  Analytical Comments: e7

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-42-5.0,8.0,44-5.0,8.0 | 1704496-002A | Soil | 04/11/2017 14:28 | GC9a | 137229 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 04/14/2017 11:41 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 04/14/2017 11:41 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 104 | 78-109 | 04/14/2017 11:41 |

Analyst(s): TK

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-43-3.0,5.0,45-3.0,5.0 | 1704496-003A | Soil | 04/11/2017 14:39 | GC9a | 137229 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 04/14/2017 12:19 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 04/14/2017 12:19 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 104 | 78-109 | 04/14/2017 12:19 |

Analyst(s): TK

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Prepared:** | 4/12/17 | **BatchID:** | 137231 |
| **Date Analyzed:** | 4/13/17 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC23 | **Analytical Method:** | SW8081A/8082 |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS/LCSD-137231 |

## QC Summary Report for SW8081A/8082

| Analyte | MB Result | MDL | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|---|
| Aldrin | ND | 0.00027 | 0.0010 | - | - | - |
| a-BHC | ND | 0.00010 | 0.0010 | - | - | - |
| b-BHC | ND | 0.00025 | 0.0010 | - | - | - |
| d-BHC | ND | 0.00037 | 0.0010 | - | - | - |
| g-BHC | ND | 0.000097 | 0.0010 | - | - | - |
| Chlordane (Technical) | ND | 0.016 | 0.025 | - | - | - |
| a-Chlordane | ND | 0.00047 | 0.0010 | - | - | - |
| g-Chlordane | ND | 0.00021 | 0.0010 | - | - | - |
| p,p-DDD | ND | 0.00014 | 0.0010 | - | - | - |
| p,p-DDE | ND | 0.00032 | 0.0010 | - | - | - |
| p,p-DDT | ND | 0.00043 | 0.0010 | - | - | - |
| Dieldrin | ND | 0.00033 | 0.0010 | - | - | - |
| Endosulfan I | ND | 0.00065 | 0.0010 | - | - | - |
| Endosulfan II | ND | 0.00020 | 0.0010 | - | - | - |
| Endosulfan sulfate | ND | 0.00063 | 0.0010 | - | - | - |
| Endrin | ND | 0.00042 | 0.0010 | - | - | - |
| Endrin aldehyde | ND | 0.00020 | 0.0010 | - | - | - |
| Endrin ketone | ND | 0.00013 | 0.0010 | - | - | - |
| Heptachlor | ND | 0.00021 | 0.0010 | - | - | - |
| Heptachlor epoxide | ND | 0.00020 | 0.0010 | - | - | - |
| Hexachlorobenzene | ND | 0.00027 | 0.010 | - | - | - |
| Hexachlorocyclopentadiene | ND | 0.00040 | 0.020 | - | - | - |
| Methoxychlor | ND | 0.00089 | 0.0010 | - | - | - |
| Toxaphene | ND | 0.035 | 0.050 | - | - | - |
| Aroclor1016 | ND | 0.0051 | 0.050 | - | - | - |
| Aroclor1221 | ND | 0.011 | 0.050 | - | - | - |
| Aroclor1232 | ND | 0.0063 | 0.050 | - | - | - |
| Aroclor1242 | ND | 0.0067 | 0.050 | - | - | - |
| Aroclor1248 | ND | 0.0040 | 0.050 | - | - | - |
| Aroclor1254 | ND | 0.0068 | 0.050 | - | - | - |
| Aroclor1260 | ND | 0.0061 | 0.050 | - | - | - |
| PCBs, total | ND | 0.0040 | 0.050 | - | - | - |
| **Surrogate Recovery** | | | | | | |
| Decachlorobiphenyl | 0.05319 | | | 0.050 | 106 | 70-130 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Prepared:** | 4/12/17 | **BatchID:** | 137231 |
| **Date Analyzed:** | 4/13/17 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC23 | **Analytical Method:** | SW8081A/8082 |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS/LCSD-137231 |

## QC Summary Report for SW8081A/8082

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Aldrin | 0.0560 | - | 0.050 | 112 | - | 70-130 | - | - |
| g-BHC | 0.0564 | - | 0.050 | 113 | - | 70-130 | - | - |
| p,p-DDT | 0.0500 | - | 0.050 | 100 | - | 70-130 | - | - |
| Dieldrin | 0.0623 | - | 0.050 | 125 | - | 70-130 | - | - |
| Endrin | 0.0538 | - | 0.050 | 108 | - | 70-130 | - | - |
| Heptachlor | 0.0516 | - | 0.050 | 103 | - | 70-130 | - | - |
| Aroclor1016 | 0.144 | 0.148 | 0.15 | 96 | 98 | 70-130 | 2.77 | 20 |
| Aroclor1260 | 0.168 | 0.168 | 0.15 | 112 | 112 | 70-130 | 0 | 20 |
| **Surrogate Recovery** | | | | | | | | |
| Decachlorobiphenyl | 0.0496 | 0.0482 | 0.050 | 99 | 96 | 70-130 | 2.84 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Prepared:** | 4/12/17 | **BatchID:** | 137357 |
| **Date Analyzed:** | 4/17/17 - 4/18/17 | **Extraction Method:** | SW3550B/3620B |
| **Instrument:** | GC22 | **Analytical Method:** | SW8081A/8082 |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS/LCSD-137357 |

## QC Summary Report OC Pesticides+PCBs w/ Florisil

| Analyte | MB Result | MDL | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|---|
| Aldrin | ND | 0.00027 | 0.0010 | - | - | - |
| a-BHC | ND | 0.00010 | 0.0010 | - | - | - |
| b-BHC | ND | 0.00025 | 0.0010 | - | - | - |
| d-BHC | ND | 0.00037 | 0.0010 | - | - | - |
| g-BHC | ND | 0.000097 | 0.0010 | - | - | - |
| Chlordane (Technical) | ND | 0.016 | 0.025 | - | - | - |
| a-Chlordane | ND | 0.00047 | 0.0010 | - | - | - |
| g-Chlordane | ND | 0.00021 | 0.0010 | - | - | - |
| p,p-DDD | ND | 0.00014 | 0.0010 | - | - | - |
| p,p-DDE | ND | 0.00032 | 0.0010 | - | - | - |
| p,p-DDT | ND | 0.00043 | 0.0010 | - | - | - |
| Dieldrin | ND | 0.00033 | 0.0010 | - | - | - |
| Endosulfan I | ND | 0.00065 | 0.0010 | - | - | - |
| Endosulfan II | ND | 0.00020 | 0.0010 | - | - | - |
| Endosulfan sulfate | ND | 0.00063 | 0.0010 | - | - | - |
| Endrin | ND | 0.00042 | 0.0010 | - | - | - |
| Endrin aldehyde | ND | 0.00020 | 0.0010 | - | - | - |
| Endrin ketone | ND | 0.00013 | 0.0010 | - | - | - |
| Heptachlor | ND | 0.00021 | 0.0010 | - | - | - |
| Heptachlor epoxide | ND | 0.00020 | 0.0010 | - | - | - |
| Hexachlorobenzene | ND | 0.00027 | 0.010 | - | - | - |
| Hexachlorocyclopentadiene | ND | 0.00040 | 0.020 | - | - | - |
| Methoxychlor | ND | 0.00089 | 0.0010 | - | - | - |
| Toxaphene | ND | 0.035 | 0.050 | - | - | - |
| Aroclor1016 | ND | 0.0051 | 0.050 | - | - | - |
| Aroclor1221 | ND | 0.011 | 0.050 | - | - | - |
| Aroclor1232 | ND | 0.0063 | 0.050 | - | - | - |
| Aroclor1242 | ND | 0.0067 | 0.050 | - | - | - |
| Aroclor1248 | ND | 0.0040 | 0.050 | - | - | - |
| Aroclor1254 | ND | 0.0068 | 0.050 | - | - | - |
| Aroclor1260 | ND | 0.0061 | 0.050 | - | - | - |
| PCBs, total | ND | 0.0040 | 0.050 | - | - | - |
| **Surrogate Recovery** | | | | | | |
| Decachlorobiphenyl | 0.06217 | | | 0.050 | 124 | 70-130 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Prepared:** | 4/12/17 | **BatchID:** | 137357 |
| **Date Analyzed:** | 4/17/17 - 4/18/17 | **Extraction Method:** | SW3550B/3620B |
| **Instrument:** | GC22 | **Analytical Method:** | SW8081A/8082 |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS/LCSD-137357 |

## QC Summary Report OC Pesticides+PCBs w/ Florisil

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Aldrin | 0.0600 | - | 0.050 | 120 | - | 70-130 | - | - |
| g-BHC | 0.0571 | - | 0.050 | 114 | - | 70-130 | - | - |
| p,p-DDT | 0.0568 | - | 0.050 | 114 | - | 70-130 | - | - |
| Dieldrin | 0.0691 | - | 0.050 | 138, F2 | - | 70-130 | - | - |
| Endrin | 0.0600 | - | 0.050 | 120 | - | 70-130 | - | - |
| Heptachlor | 0.0582 | - | 0.050 | 116 | - | 70-130 | - | - |
| Aroclor1016 | 0.150 | 0.151 | 0.15 | 100 | 100 | 70-130 | 0 | 20 |
| Aroclor1260 | 0.171 | 0.175 | 0.15 | 114 | 117 | 70-130 | 2.16 | 20 |
| **Surrogate Recovery** | | | | | | | | |
| Decachlorobiphenyl | 0.0592 | 0.0637 | 0.050 | 118 | 127 | 70-130 | 7.27 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Prepared:** | 4/12/17 | **BatchID:** | 137227 |
| **Date Analyzed:** | 4/13/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137227<br>1704491-029AMS/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 | 0.0415 | 0.0050 | 0.050 | - | 83 | 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 | 0.181 | 0.050 | 0.20 | - | 90 | 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 | 0.0478 | 0.0050 | 0.050 | - | 96 | 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 | 0.0465 | 0.0040 | 0.050 | - | 93 | 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 | 0.0509 | 0.0040 | 0.050 | - | 102 | 58-135 |
| 1,1-Dichloroethene | ND | 0.0480 | 0.0050 | 0.050 | - | 96 | 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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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Prepared:** | 4/12/17 | **BatchID:** | 137227 |
| **Date Analyzed:** | 4/13/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137227<br>1704491-029AMS/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 | 0.0494 | 0.0050 | 0.050 | - | 99 | 52-129 |
| Ethylbenzene | ND | - | 0.0050 | - | - | - | - |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0476 | 0.0050 | 0.050 | - | 95 | 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 | 0.0461 | 0.0050 | 0.050 | - | 92 | 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 | 0.0524 | 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 | 0.0480 | 0.0050 | 0.050 | - | 96 | 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 | **WorkOrder:** | 1704496 |
| **Date Prepared:** | 4/12/17 | **BatchID:** | 137227 |
| **Date Analyzed:** | 4/13/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137227<br>1704491-029AMS/MSD |

## QC Summary Report for SW8260B

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | | | |
| Dibromofluoromethane | 0.1293 | 0.130 | | 0.12 | 103 | 104 | 70-130 |
| Toluene-d8 | 0.1438 | 0.140 | | 0.12 | 115 | 112 | 70-130 |
| 4-BFB | 0.01244 | 0.0121 | | 0.012 | 99 | 97 | 70-130 |
| Benzene-d6 | 0.1073 | 0.0979 | | 0.10 | 107 | 98 | 60-140 |
| Ethylbenzene-d10 | 0.1423 | 0.125 | | 0.10 | 142,F3 | 125 | 60-140 |
| 1,2-DCB-d4 | 0.09441 | 0.0873 | | 0.10 | 94 | 87 | 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) | 0.0364 | 0.0383 | 0.050 | ND | 73 | 77 | 53-116 | 5.02 | 20 |
| Benzene | 0.0427 | 0.0443 | 0.050 | ND | 85 | 89 | 63-137 | 3.66 | 20 |
| t-Butyl alcohol (TBA) | 0.147 | 0.153 | 0.20 | ND | 74 | 76 | 41-135 | 3.86 | 20 |
| Chlorobenzene | 0.0426 | 0.0438 | 0.050 | ND | 85 | 88 | 77-121 | 2.67 | 20 |
| 1,2-Dibromoethane (EDB) | 0.0397 | 0.0415 | 0.050 | ND | 79 | 83 | 67-119 | 4.42 | 20 |
| 1,2-Dichloroethane (1,2-DCA) | 0.0442 | 0.0457 | 0.050 | ND | 88 | 91 | 58-135 | 3.18 | 20 |
| 1,1-Dichloroethene | 0.0412 | 0.0427 | 0.050 | ND | 82 | 85 | 42-145 | 3.61 | 20 |
| Diisopropyl ether (DIPE) | 0.0444 | 0.0456 | 0.050 | ND | 89 | 91 | 52-129 | 2.87 | 20 |
| Ethyl tert-butyl ether (ETBE) | 0.0422 | 0.0438 | 0.050 | ND | 84 | 88 | 53-125 | 3.86 | 20 |
| Methyl-t-butyl ether (MTBE) | 0.0403 | 0.0423 | 0.050 | ND | 81 | 85 | 58-122 | 4.73 | 20 |
| Toluene | 0.0454 | 0.0470 | 0.050 | ND | 91 | 94 | 76-130 | 3.56 | 20 |
| Trichloroethene | 0.0420 | 0.0434 | 0.050 | ND | 84 | 87 | 72-132 | 3.31 | 20 |
| **Surrogate Recovery** | | | | | | | | | |
| Dibromofluoromethane | 0.131 | 0.131 | 0.12 | | 105 | 105 | 70-130 | 0 | 20 |
| Toluene-d8 | 0.137 | 0.138 | 0.12 | | 110 | 111 | 70-130 | 0.887 | 20 |
| 4-BFB | 0.0125 | 0.0125 | 0.012 | | 100 | 100 | 70-130 | 0 | 20 |
| Benzene-d6 | 0.0868 | 0.0893 | 0.10 | | 87 | 89 | 60-140 | 2.85 | 20 |
| Ethylbenzene-d10 | 0.106 | 0.111 | 0.10 | | 106 | 111 | 60-140 | 4.81 | 20 |
| 1,2-DCB-d4 | 0.0784 | 0.0825 | 0.10 | | 78 | 83 | 60-140 | 5.11 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Prepared:** | 4/18/17 | **BatchID:** | 137460 |
| **Date Analyzed:** | 4/19/17 | **Extraction Method:** | SW3550C |
| **Instrument:** | HPLC4 | **Analytical Method:** | SW8310 |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137460 |

## QC Summary Report for SW8310

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | - | 0.0050 | - | - | - | - |
| Acenaphthylene | ND | - | 0.0050 | - | - | - | - |
| Anthracene | ND | - | 0.0050 | - | - | - | - |
| Benzo (a) anthracene | ND | 0.0147 | 0.0050 | 0.015 | - | 98 | 70-130 |
| Benzo (a) pyrene | ND | 0.0143 | 0.0050 | 0.015 | - | 96 | 70-130 |
| Benzo (b) fluoranthene | ND | - | 0.0050 | - | - | - | - |
| Benzo (g,h,i) perylene | ND | - | 0.0050 | - | - | - | - |
| Benzo (k) fluoranthene | ND | - | 0.0050 | - | - | - | - |
| Chrysene | ND | 0.0144 | 0.0050 | 0.015 | - | 96 | 70-130 |
| Dibenzo (a,h) anthracene | ND | - | 0.0050 | - | - | - | - |
| Fluoranthene | ND | - | 0.0050 | - | - | - | - |
| Fluorene | ND | - | 0.0050 | - | - | - | - |
| Indeno (1,2,3-cd) pyrene | ND | - | 0.0050 | - | - | - | - |
| 1-Methylnaphthalene | ND | 0.0152 | 0.0050 | 0.015 | - | 101 | 70-130 |
| 2-Methylnaphthalene | ND | 0.0158 | 0.0050 | 0.015 | - | 105 | 70-130 |
| Naphthalene | ND | - | 0.0050 | - | - | - | - |
| Phenanthrene | ND | 0.0156 | 0.0050 | 0.015 | - | 104 | 70-130 |
| Pyrene | ND | 0.0150 | 0.0050 | 0.015 | - | 100 | 70-130 |
| **Surrogate Recovery** | | | | | | | |
| Decafluorobiphenyl | 0.9537 | 0.962 | | 1 | 95 | 96 | 70-130 |
| 4,4-Dichlorobiphenyl | 0.4872 | 0.493 | | 0.50 | 97 | 99 | 70-130 |

NELAP 4033ORELAP

QA/QC Officer

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Prepared:** | 4/19/17 | **BatchID:** | 137581 |
| **Date Analyzed:** | 4/20/17 | **Extraction Method:** | SW3050B |
| **Instrument:** | ICP-MS3 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137581<br>1704893-001AMS/MSD<br>1704893-001APDS |

## QC Summary Report for Metals

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| Antimony | ND | 50.8 | 0.50 | 50 | - | 102 | 75-125 |
| Arsenic | ND | 51.7 | 0.50 | 50 | - | 103 | 75-125 |
| Barium | ND | 518 | 5.0 | 500 | - | 104 | 75-125 |
| Beryllium | ND | 50.0 | 0.50 | 50 | - | 100 | 75-125 |
| Cadmium | ND | 49.9 | 0.25 | 50 | - | 100 | 75-125 |
| Chromium | ND | 50.6 | 0.50 | 50 | - | 101 | 75-125 |
| Cobalt | ND | 48.7 | 0.50 | 50 | - | 97 | 75-125 |
| Copper | ND | 49.8 | 0.50 | 50 | - | 100 | 75-125 |
| Lead | ND | 50.1 | 0.50 | 50 | - | 100 | 75-125 |
| Mercury | ND | 1.27 | 0.050 | 1.25 | - | 101 | 75-125 |
| Molybdenum | ND | 49.3 | 0.50 | 50 | - | 99 | 75-125 |
| Nickel | ND | 50.7 | 0.50 | 50 | - | 101 | 75-125 |
| Selenium | ND | 50.9 | 0.50 | 50 | - | 102 | 75-125 |
| Silver | ND | 49.3 | 0.50 | 50 | - | 99 | 75-125 |
| Thallium | ND | 49.6 | 0.50 | 50 | - | 99 | 75-125 |
| Vanadium | ND | 49.5 | 0.50 | 50 | - | 99 | 75-125 |
| Zinc | ND | 508 | 5.0 | 500 | - | 102 | 75-125 |
| **Surrogate Recovery** | | | | | | | |
| Terbium | 510 | 537 | | 500 | 102 | 107 | 70-130 |

*(Cont.)*

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Prepared:** | 4/19/17 | **BatchID:** | 137581 |
| **Date Analyzed:** | 4/20/17 | **Extraction Method:** | SW3050B |
| **Instrument:** | ICP-MS3 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137581<br>1704893-001AMS/MSD<br>1704893-001APDS |

## QC Summary Report for Metals

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | 51.1 | 54.9 | 50 | ND | 102 | 109 | 75-125 | 7.09 | 20 |
| Arsenic | 54.0 | 58.1 | 50 | 2.123 | 104 | 112 | 75-125 | 7.37 | 20 |
| Barium | 640 | 699 | 500 | 111.5 | 106 | 118 | 75-125 | 8.84 | 20 |
| Beryllium | 46.7 | 50.6 | 50 | ND | 93 | 101 | 75-125 | 7.93 | 20 |
| Cadmium | 50.2 | 53.7 | 50 | ND | 100 | 107 | 75-125 | 6.84 | 20 |
| Chromium | 97.7 | 104 | 50 | 36.16 | 123 | 137,F10 | 75-125 | 6.75 | 20 |
| Cobalt | 65.9 | 72.2 | 50 | 14.86 | 102 | 115 | 75-125 | 9.16 | 20 |
| Copper | 96.2 | 108 | 50 | 39.42 | 113 | 136,F10 | 75-125 | 11.2 | 20 |
| Lead | 58.5 | 62.3 | 50 | 5.940 | 105 | 113 | 75-125 | 6.26 | 20 |
| Mercury | 1.31 | 1.43 | 1.25 | ND | 103 | 112 | 75-125 | 8.38 | 20 |
| Molybdenum | 50.6 | 54.2 | 50 | ND | 101 | 108 | 75-125 | 6.94 | 20 |
| Nickel | 97.1 | 107 | 50 | 38.01 | 118 | 138,F10 | 75-125 | 9.55 | 20 |
| Selenium | 49.9 | 52.0 | 50 | ND | 99 | 104 | 75-125 | 4.14 | 20 |
| Silver | 52.7 | 52.9 | 50 | ND | 105 | 106 | 75-125 | 0.435 | 20 |
| Thallium | 49.5 | 54.4 | 50 | ND | 99 | 109 | 75-125 | 9.50 | 20 |
| Vanadium | 131 | 150 | 50 | 70.56 | 120 | 159,F10 | 75-125 | 13.8 | 20 |
| Zinc | 1040 | 1280 | 500 | 486.1 | 111 | 159,F10 | 75-125 | 20.7,F10 | 20 |
| **Surrogate Recovery** | | | | | | | | | |
| Terbium | 542 | 575 | 500 | | 108 | 115 | 70-130 | 5.89 | 20 |

| Analyte | PDS Result | SPK Val | SPKRef Val | PDS %REC | PDS Limits |
|---|---|---|---|---|---|
| Chromium | 84.6 | 50 | 36.16 | 97 | 75-125 |
| Copper | 89.8 | 50 | 39.42 | 101 | 75-125 |
| Nickel | 88.8 | 50 | 38.01 | 102 | 75-125 |
| Zinc | 1000 | 500 | 486.1 | 104 | 75-125 |

| Analyte | DLT Result | DLTRef Val | %D | %D Limit |
|---|---|---|---|---|
| Antimony | ND<2.5 | ND | - | - |
| Arsenic | ND<2.5 | 2.123 | - | - |
| Barium | 112 | 111.5 | 0.448 | - |
| Beryllium | ND<2.5 | ND | - | - |
| Cadmium | ND<1.2 | ND | - | - |

*(Cont.)*

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Prepared:** | 4/19/17 | **BatchID:** | 137581 |
| **Date Analyzed:** | 4/20/17 | **Extraction Method:** | SW3050B |
| **Instrument:** | ICP-MS3 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137581<br>1704893-001AMS/MSD<br>1704893-001APDS |

## QC Summary Report for Metals

| Analyte | DLT Result | DLTRef Val | %D | %D Limit |
|---|---|---|---|---|
| Chromium | 38.8 | 36.16 | 7.30 | 20 |
| Cobalt | 16.1 | 14.86 | 8.34 | 20 |
| Copper | 40.4 | 39.42 | 2.49 | 20 |
| Lead | 6.20 | 5.940 | 4.38 | - |
| Mercury | ND<0.25 | ND | - | - |
| Molybdenum | ND<2.5 | ND | - | - |
| Nickel | 39.6 | 38.01 | 4.18 | 20 |
| Selenium | ND<2.5 | ND | - | - |
| Silver | ND<2.5 | ND | - | - |
| Thallium | ND<2.5 | ND | - | - |
| Vanadium | 74.4 | 70.56 | 5.44 | 20 |
| Zinc | 502 | 486.1 | 3.27 | 20 |

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Prepared:** | 4/12/17 | **BatchID:** | 137230 |
| **Date Analyzed:** | 4/14/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC19, GC3 | **Analytical Method:** | SW8021B/8015Bm |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137230<br>1704491-020AMS/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 | 0.597 | 0.40 | 0.60 | - | 99 | 82-118 |
| MTBE | ND | 0.0864 | 0.050 | 0.10 | - | 86 | 61-119 |
| Benzene | ND | 0.0962 | 0.0050 | 0.10 | - | 96 | 77-128 |
| Toluene | ND | 0.102 | 0.0050 | 0.10 | - | 102 | 74-132 |
| Ethylbenzene | ND | 0.107 | 0.0050 | 0.10 | - | 107 | 84-127 |
| Xylenes | ND | 0.337 | 0.015 | 0.30 | - | 112 | 86-129 |
| **Surrogate Recovery** | | | | | | | |
| 2-Fluorotoluene | 0.1094 | 0.107 | | 0.10 | 109 | 107 | 75-134 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| TPH(btex) | 0.541 | 0.528 | 0.60 | ND | 90 | 88 | 58-129 | 2.38 | 20 |
| MTBE | 0.0939 | 0.0837 | 0.10 | ND | 94 | 84 | 47-118 | 11.4 | 20 |
| Benzene | 0.111 | 0.123 | 0.10 | ND | 111 | 123 | 55-129 | 10.5 | 20 |
| Toluene | 0.115 | 0.126 | 0.10 | ND | 115 | 126 | 56-130 | 9.00 | 20 |
| Ethylbenzene | 0.115 | 0.127 | 0.10 | ND | 115 | 127 | 63-129 | 9.88 | 20 |
| Xylenes | 0.324 | 0.352 | 0.30 | ND | 108 | 117 | 64-131 | 8.44 | 20 |
| **Surrogate Recovery** | | | | | | | | | |
| 2-Fluorotoluene | 0.0982 | 0.106 | 0.10 | | 98 | 105 | 62-126 | 7.19 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704496 |
| **Date Prepared:** | 4/12/17 | **BatchID:** | 137229 |
| **Date Analyzed:** | 4/13/17 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC6A | **Analytical Method:** | SW8015B |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 260 30th Street | **Sample ID:** | MB/LCS-137229<br>1704491-031AMS/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 | 39.4 | 1.0 | 40 | - | 99 | 79-133 |
| TPH-Motor Oil (C18-C36) | ND | - | 5.0 | - | - | - | - |
| **Surrogate Recovery** | | | | | | | |
| C9 | 23.01 | 23.1 | | 25 | 92 | 92 | 77-109 |

| 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 | 40.7 | 40 | ND | 104 | 102 | 59-150 | 2.24 | 30 |
| **Surrogate Recovery** | | | | | | | | | |
| C9 | 23.0 | 22.8 | 25 | | 92 | 91 | 78-109 | 0.835 | 30 |

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# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1704496** **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

**Report to:**
Josh Graber
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc/3rd Party: kstaehlin@langan.com;
PO:
ProjectNo: 750635603; 260 30th Street

**Bill to:**
Accounts Payable
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursolutio

**Requested TATs:** 1 day; 5 days;

***Date Received:*** **04/12/2017**
***Date Logged:*** **04/12/2017**

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1704496-001 | B-42-1.0,3.0,44-1.0,3.0 | Soil | 4/11/2017 14:24 | ☐ | A | A | | A | | A | A | A | | | | |
| 1704496-001 | B-42-3.0 | Soil | 4/11/2017 14:24 | ☐ | | | | | B | | | | | | | |
| 1704496-001 | B-44-3.0 | Soil | 4/11/2017 14:05 | ☐ | | | C | | | | | | | | | |
| 1704496-002 | B-42-5.0,8.0,44-5.0,8.0 | Soil | 4/11/2017 14:28 | ☐ | A | | | A | | A | A | A | | | | |
| 1704496-002 | B-42-8.0 | Soil | 4/11/2017 14:28 | ☐ | | | B | | | | | | | | | |
| 1704496-003 | B-43-3.0,5.0,45-3.0,5.0 | Soil | 4/11/2017 14:39 | ☐ | A | | | A | | A | A | A | | | | |
| 1704496-003 | B-43-5.0 | Soil | 4/11/2017 14:39 | ☐ | | | B | | | | | | | | | |
| 1704496-003 | B-45-3.0 | Soil | 4/11/2017 13:56 | ☐ | | | | | C | | | | | | | |
| 1704496-005 | B-45-1.0 | Soil | 4/11/2017 13:54 | ☐ | | | A | | | | | | | | | |

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 8081PCB_ESL_S [J] | 2 | 8081PCB_FLORISIL_S | 3 | 8260B_S | 4 | 8310_S |
| 5 | ASBEST400 (435 CARB)_S | 6 | CAM17MS_TTLC_S | 7 | G-MBTEX_S | 8 | TPH(DMO)_S |
| 9 | | 10 | | 11 | | 12 | |

**Prepared by: Briana Cutino**

The following SampIDs: 001A, 002A, 003A contain testgroup Multi Range_S.

**Comments:** CAM17 Missed, set up on RUSH TAT!! Sample ID for 001 revised to match COC.

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.

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# WORK ORDER SUMMARY

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

**Project:** 750635603; 260 30th Street
**Comments:** CAM17 Missed, set up on RUSH TAT!! Sample ID for 001 revised to match COC.

**Work Order:** 1704496
**QC Level:** LEVEL 2
**Date Logged:** 4/12/2017

☐ 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1704496-001A | B-42-1.0,3.0,44-1.0,3.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 4 / (4:1) | Acetate Liner | ☐ | 4/11/2017 14:24 | 5 days | | ☐ | |
| | | | SW6020 (CAM 17) | | | ☐ | | 1 day | | ☐ | |
| | | | SW8310 (PAHs/PNAs) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8081A/8082 (OC Pesticides+PCB w/ Florisil) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8081A/8082 (OC Pesticides+PCBs) ESLs | | | ☐ | | 5 days | | ☑ | |
| 1704496-001B | B-42-3.0 | Soil | Asbestos, 435 CARB 400 | 1 | Acetate Liner | ☐ | 4/11/2017 14:24 | 5 days | | ☐ | SubOut |
| 1704496-001C | B-44-3.0 | Soil | SW8260B (VOCs) | 1 | Acetate Liner | ☐ | 4/11/2017 14:05 | 5 days | | ☐ | |
| 1704496-002A | B-42-5.0,8.0,44-5.0,8.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 4 / (4:1) | Acetate Liner | ☐ | 4/11/2017 14:28 | 5 days | | ☐ | |
| | | | SW6020 (CAM 17) | | | ☐ | | 1 day | | ☐ | |
| | | | SW8310 (PAHs/PNAs) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8081A/8082 (OC Pesticides+PCBs) ESLs | | | ☐ | | 5 days | | ☐ | |
| 1704496-002B | B-42-8.0 | Soil | SW8260B (VOCs) | 1 | Acetate Liner | ☐ | 4/11/2017 14:28 | 5 days | | ☐ | |
| 1704496-003A | B-43-3.0,5.0,45-3.0,5.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 4 / (4:1) | Acetate Liner | ☐ | 4/11/2017 14:39 | 5 days | | ☐ | |
| | | | SW6020 (CAM 17) | | | ☐ | | 1 day | | ☐ | |

**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.**

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# WORK ORDER SUMMARY

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

**Project:** 750635603; 260 30th Street
**Comments:** CAM17 Missed, set up on RUSH TAT!! Sample ID for 001 revised to match COC.

**Work Order:** 1704496
**QC Level:** LEVEL 2
**Date Logged:** 4/12/2017

☐ 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1704496-003A | B-43-3.0,5.0,45-3.0,5.0 | Soil | SW8310 (PAHs/PNAs) | 4 / (4:1) | Acetate Liner | ☐ | 4/11/2017 14:39 | 5 days | | ☐ | |
| | | | SW8081A/8082 (OC Pesticides+PCBs) ESLs | | | ☐ | | 5 days | | ☐ | |
| 1704496-003B | B-43-5.0 | Soil | SW8260B (VOCs) | 1 | Acetate Liner | ☐ | 4/11/2017 14:39 | 5 days | | ☐ | |
| 1704496-003C | B-45-3.0 | Soil | Asbestos, 435 CARB 400 | 1 | Acetate Liner | ☐ | 4/11/2017 13:56 | 5 days | | ☐ | SubOut |
| 1704496-004A | B-43-1.0 | Soil | | 1 | Acetate Liner | ☐ | 4/11/2017 14:33 | | | ☑ | |
| 1704496-005A | B-45-1.0 | Soil | SW8260B (VOCs) | 1 | Acetate Liner | ☐ | 4/11/2017 13:54 | 5 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.**

* PLEASE C.C. ANNIE S. AT KSTAEHLIN@LANGAN.COM * 10316

# LANGAN

## CHAIN OF CUSTODY RECORD

1704496

Page 1 of 1

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: 750635603
Project Manager\Contact: JOSH GRABER
Samplers: KARIANNE STAEHLIN
Recorder (Signature Required): Karianne Staehlin

Turnaround Time: STANDARD

| Field Sample Identification No. | Date | Time | Lab Sample No. | Matrix: Soil | Water | Air | Other | No. Containers & Preservative: HCL | $H_2SO_4$ | $HNO_3$ | Ice | Analysis Requested: TPH g,d,mo | OCPs; PCBs | PAHs (8310) | CAM-17 VOCs | ASBESTOS by CARB 435 | Silica gel clean-up | Hold | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-42-1.0 | 4/11/17 | 1422 | | X | | | | | | | X | X | X | X | X | | | | |
| B-42-3.0 | | 1424 | | X | | | | | | | X | | | | | X | | | |
| B-44-1.0 | | 1405 | | X | | | | | | | X | X | X | X | X | | | | * BAYLANDS DISPOSAL CRITERIA (LOWER RLs) |
| B-44-3.0 | | 1408 | | X | | | | | | | X | | | | | X | | | |
| B-42-5.0 | | 1426 | | X | | | | | | | X | X | X | X | X | | | | |
| B-42-8.0 | | 1428 | | X | | | | | | | X | | | | | X | | | |
| B-44-5.0 | | 1410 | | X | | | | | | | X | X | X | X | X | | | | |
| B-44-8.0 | | 1413 | | X | | | | | | | X | | | | | X | | | |
| B-43-3.0 | | 1436 | | X | | | | | | | X | X | X | X | X | | | | |
| B-43-5.0 | | 1439 | | X | | | | | | | X | | | | | X | | | |
| B-45-3.0 | | 1356 | | X | | | | | | | X | X | X | X | X | | | | |
| B-45-5.0 | | 1358 | | X | | | | | | | X | | | | | X | | | |
| B-43-1.0 | | 1433 | | X | | | | | | | X | X | X | X | X | | | X | |
| B-45-1.0 | 4/11/17 | 1354 | | X | | | | | | | X | | | | | X | | | = PLEASE COMPOSITE IN LAB. |

| | | | | | |
|---|---|---|---|---|---|
| Relinquished by: (Signature) | Date: | Time | Received by: (Signature) | Date 4-12-17 | Time 1005 |
| Relinquished by: (Signature) | Date: 4-12-17 | Time 1330 | Received by: (Signature) | Date 4/12/17 | Time 1330 |
| Relinquished by: (Signature) | Date: | Time | Received by Lab: (Signature) | Date | Time |

Sent to Laboratory (Name): MCCAMPBELL ANALYTICAL
Laboratory Comments/Notes:

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

White Copy - Original  Yellow Copy - Laboratory  Pink Copy - Field  COC Number:

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1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Sample Receipt Checklist

Client Name: **Langan**
Project Name: **750635603; 260 30th Street**

WorkOrder №: **1704496** Matrix: Soil
Carrier: Bernie Cummins (MAI Courier)

Date and Time Received **4/12/2017 13:30**
Date Logged: **4/12/2017**
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: 4.1°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:

McCampbell Analytical, Inc.
*"When Quality Counts"*

# Analytical Report

**WorkOrder:** 1704842 **Amended:** 04/26/2017

**Report Created for:** Langan

555 Montgomery St., Suite 1300
San Francisco, CA 94111

**Project Contact:** Josh Graber
**Project P.O.:**
**Project Name:** 750635603; 3000 Broadway

**Project Received:** 04/18/2017

Analytical Report reviewed & approved for release on 04/25/2017 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.***

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Glossary of Terms & Qualifier Definitions

**Client:** Langan
**Project:** 750635603; 3000 Broadway
**WorkOrder:** 1704842

## 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

| | |
|---|---|
| P | agreement between quantitative confirmation results exceed method recommended limits |

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# Glossary of Terms & Qualifier Definitions

**Client:** Langan
**Project:** 750635603; 3000 Broadway
**WorkOrder:** 1704842

## 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. |
| F5 | LCS recovery is outside of acceptance limits; however, the data is acceptable by NELAP criteria. |
| F10 | MS/MSD outside control limits. Physical or chemical interferences exist due to sample matrix. |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8081A/8082 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Organochlorine Pesticides + PCBs

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-37-5.0,10.0,38-5.0,10.0 | 1704842-001A | Soil | 04/17/2017 11:57 | GC22 | 137522 |

| Analytes | Result | MDL | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Aldrin | ND | 0.00027 | 0.0010 | 1 | 04/20/2017 17:15 |
| a-BHC | ND | 0.00010 | 0.0010 | 1 | 04/20/2017 17:15 |
| b-BHC | ND | 0.00025 | 0.0010 | 1 | 04/20/2017 17:15 |
| d-BHC | ND | 0.00037 | 0.0010 | 1 | 04/20/2017 17:15 |
| g-BHC | ND | 0.000097 | 0.0010 | 1 | 04/20/2017 17:15 |
| Chlordane (Technical) | ND | 0.016 | 0.025 | 1 | 04/20/2017 17:15 |
| a-Chlordane | ND | 0.00047 | 0.0010 | 1 | 04/20/2017 17:15 |
| g-Chlordane | ND | 0.00021 | 0.0010 | 1 | 04/20/2017 17:15 |
| p,p-DDD | ND | 0.00014 | 0.0010 | 1 | 04/20/2017 17:15 |
| p,p-DDE | ND | 0.00032 | 0.0010 | 1 | 04/20/2017 17:15 |
| p,p-DDT | ND | 0.00043 | 0.0010 | 1 | 04/20/2017 17:15 |
| Dieldrin | ND | 0.00033 | 0.0010 | 1 | 04/20/2017 17:15 |
| Endosulfan I | ND | 0.00065 | 0.0010 | 1 | 04/20/2017 17:15 |
| Endosulfan II | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 17:15 |
| Endosulfan sulfate | ND | 0.00063 | 0.0010 | 1 | 04/20/2017 17:15 |
| Endrin | ND | 0.00042 | 0.0010 | 1 | 04/20/2017 17:15 |
| Endrin aldehyde | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 17:15 |
| Endrin ketone | ND | 0.00013 | 0.0010 | 1 | 04/20/2017 17:15 |
| Heptachlor | ND | 0.00021 | 0.0010 | 1 | 04/20/2017 17:15 |
| Heptachlor epoxide | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 17:15 |
| Hexachlorobenzene | ND | 0.00027 | 0.010 | 1 | 04/20/2017 17:15 |
| Hexachlorocyclopentadiene | ND | 0.00040 | 0.020 | 1 | 04/20/2017 17:15 |
| Methoxychlor | ND | 0.00089 | 0.0010 | 1 | 04/20/2017 17:15 |
| Toxaphene | ND | 0.035 | 0.050 | 1 | 04/20/2017 17:15 |
| Aroclor1016 | ND | 0.0051 | 0.050 | 1 | 04/20/2017 17:15 |
| Aroclor1221 | ND | 0.011 | 0.050 | 1 | 04/20/2017 17:15 |
| Aroclor1232 | ND | 0.0063 | 0.050 | 1 | 04/20/2017 17:15 |
| Aroclor1242 | ND | 0.0067 | 0.050 | 1 | 04/20/2017 17:15 |
| Aroclor1248 | ND | 0.0040 | 0.050 | 1 | 04/20/2017 17:15 |
| Aroclor1254 | ND | 0.0068 | 0.050 | 1 | 04/20/2017 17:15 |
| Aroclor1260 | ND | 0.0061 | 0.050 | 1 | 04/20/2017 17:15 |
| PCBs, total | ND | 0.0040 | 0.050 | 1 | 04/20/2017 17:15 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decachlorobiphenyl | 115 | 70-130 | 04/20/2017 17:15 |

Analyst(s): CK

*(Cont.)*

NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8081A/8082 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Organochlorine Pesticides + PCBs

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-37, 38-15.0 | 1704842-002A | Soil | 04/17/2017 12:06 | GC22 | 137522 |

| Analytes | Result | MDL | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Aldrin | ND | 0.00027 | 0.0010 | 1 | 04/20/2017 16:40 |
| a-BHC | ND | 0.00010 | 0.0010 | 1 | 04/20/2017 16:40 |
| b-BHC | ND | 0.00025 | 0.0010 | 1 | 04/20/2017 16:40 |
| d-BHC | ND | 0.00037 | 0.0010 | 1 | 04/20/2017 16:40 |
| g-BHC | ND | 0.000097 | 0.0010 | 1 | 04/20/2017 16:40 |
| Chlordane (Technical) | ND | 0.016 | 0.025 | 1 | 04/20/2017 16:40 |
| a-Chlordane | ND | 0.00047 | 0.0010 | 1 | 04/20/2017 16:40 |
| g-Chlordane | ND | 0.00021 | 0.0010 | 1 | 04/20/2017 16:40 |
| p,p-DDD | ND | 0.00014 | 0.0010 | 1 | 04/20/2017 16:40 |
| p,p-DDE | ND | 0.00032 | 0.0010 | 1 | 04/20/2017 16:40 |
| p,p-DDT | ND | 0.00043 | 0.0010 | 1 | 04/20/2017 16:40 |
| Dieldrin | ND | 0.00033 | 0.0010 | 1 | 04/20/2017 16:40 |
| Endosulfan I | ND | 0.00065 | 0.0010 | 1 | 04/20/2017 16:40 |
| Endosulfan II | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 16:40 |
| Endosulfan sulfate | ND | 0.00063 | 0.0010 | 1 | 04/20/2017 16:40 |
| Endrin | ND | 0.00042 | 0.0010 | 1 | 04/20/2017 16:40 |
| Endrin aldehyde | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 16:40 |
| Endrin ketone | ND | 0.00013 | 0.0010 | 1 | 04/20/2017 16:40 |
| Heptachlor | ND | 0.00021 | 0.0010 | 1 | 04/20/2017 16:40 |
| Heptachlor epoxide | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 16:40 |
| Hexachlorobenzene | ND | 0.00027 | 0.010 | 1 | 04/20/2017 16:40 |
| Hexachlorocyclopentadiene | ND | 0.00040 | 0.020 | 1 | 04/20/2017 16:40 |
| Methoxychlor | ND | 0.00089 | 0.0010 | 1 | 04/20/2017 16:40 |
| Toxaphene | ND | 0.035 | 0.050 | 1 | 04/20/2017 16:40 |
| Aroclor1016 | ND | 0.0051 | 0.050 | 1 | 04/20/2017 16:40 |
| Aroclor1221 | ND | 0.011 | 0.050 | 1 | 04/20/2017 16:40 |
| Aroclor1232 | ND | 0.0063 | 0.050 | 1 | 04/20/2017 16:40 |
| Aroclor1242 | ND | 0.0067 | 0.050 | 1 | 04/20/2017 16:40 |
| Aroclor1248 | ND | 0.0040 | 0.050 | 1 | 04/20/2017 16:40 |
| Aroclor1254 | ND | 0.0068 | 0.050 | 1 | 04/20/2017 16:40 |
| Aroclor1260 | ND | 0.0061 | 0.050 | 1 | 04/20/2017 16:40 |
| PCBs, total | ND | 0.0040 | 0.050 | 1 | 04/20/2017 16:40 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decachlorobiphenyl | 116 | 70-130 | 04/20/2017 16:40 |

Analyst(s): CK

*(Cont.)*

NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8081A/8082 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Organochlorine Pesticides + PCBs

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-37, 28-20.0 | 1704842-003A | Soil | 04/17/2017 12:16 | GC22 | 137522 |

| Analytes | Result | MDL | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Aldrin | ND | 0.00027 | 0.0010 | 1 | 04/20/2017 14:58 |
| a-BHC | ND | 0.00010 | 0.0010 | 1 | 04/20/2017 14:58 |
| b-BHC | ND | 0.00025 | 0.0010 | 1 | 04/20/2017 14:58 |
| d-BHC | ND | 0.00037 | 0.0010 | 1 | 04/20/2017 14:58 |
| g-BHC | ND | 0.000097 | 0.0010 | 1 | 04/20/2017 14:58 |
| Chlordane (Technical) | ND | 0.016 | 0.025 | 1 | 04/20/2017 14:58 |
| a-Chlordane | ND | 0.00047 | 0.0010 | 1 | 04/20/2017 14:58 |
| g-Chlordane | ND | 0.00021 | 0.0010 | 1 | 04/20/2017 14:58 |
| p,p-DDD | ND | 0.00014 | 0.0010 | 1 | 04/20/2017 14:58 |
| p,p-DDE | ND | 0.00032 | 0.0010 | 1 | 04/20/2017 14:58 |
| p,p-DDT | ND | 0.00043 | 0.0010 | 1 | 04/20/2017 14:58 |
| Dieldrin | ND | 0.00033 | 0.0010 | 1 | 04/20/2017 14:58 |
| Endosulfan I | ND | 0.00065 | 0.0010 | 1 | 04/20/2017 14:58 |
| Endosulfan II | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 14:58 |
| Endosulfan sulfate | ND | 0.00063 | 0.0010 | 1 | 04/20/2017 14:58 |
| Endrin | ND | 0.00042 | 0.0010 | 1 | 04/20/2017 14:58 |
| Endrin aldehyde | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 14:58 |
| Endrin ketone | ND | 0.00013 | 0.0010 | 1 | 04/20/2017 14:58 |
| Heptachlor | ND | 0.00021 | 0.0010 | 1 | 04/20/2017 14:58 |
| Heptachlor epoxide | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 14:58 |
| Hexachlorobenzene | ND | 0.00027 | 0.010 | 1 | 04/20/2017 14:58 |
| Hexachlorocyclopentadiene | ND | 0.00040 | 0.020 | 1 | 04/20/2017 14:58 |
| Methoxychlor | ND | 0.00089 | 0.0010 | 1 | 04/20/2017 14:58 |
| Toxaphene | ND | 0.035 | 0.050 | 1 | 04/20/2017 14:58 |
| Aroclor1016 | ND | 0.0051 | 0.050 | 1 | 04/20/2017 14:58 |
| Aroclor1221 | ND | 0.011 | 0.050 | 1 | 04/20/2017 14:58 |
| Aroclor1232 | ND | 0.0063 | 0.050 | 1 | 04/20/2017 14:58 |
| Aroclor1242 | ND | 0.0067 | 0.050 | 1 | 04/20/2017 14:58 |
| Aroclor1248 | ND | 0.0040 | 0.050 | 1 | 04/20/2017 14:58 |
| Aroclor1254 | ND | 0.0068 | 0.050 | 1 | 04/20/2017 14:58 |
| Aroclor1260 | ND | 0.0061 | 0.050 | 1 | 04/20/2017 14:58 |
| PCBs, total | ND | 0.0040 | 0.050 | 1 | 04/20/2017 14:58 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decachlorobiphenyl | 122 | 70-130 | 04/20/2017 14:58 |

Analyst(s): CK

*(Cont.)*

NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8081A/8082 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Organochlorine Pesticides + PCBs

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-39-1.5,3.0,5.0 | 1704842-004A | Soil | 04/17/2017 12:38 | GC22 | 137522 |

| Analytes | Result | MDL | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Aldrin | ND | 0.00027 | 0.0010 | 1 | 04/20/2017 13:49 |
| a-BHC | ND | 0.00010 | 0.0010 | 1 | 04/20/2017 13:49 |
| b-BHC | ND | 0.00025 | 0.0010 | 1 | 04/20/2017 13:49 |
| d-BHC | ND | 0.00037 | 0.0010 | 1 | 04/20/2017 13:49 |
| g-BHC | ND | 0.000097 | 0.0010 | 1 | 04/20/2017 13:49 |
| Chlordane (Technical) | ND | 0.016 | 0.025 | 1 | 04/20/2017 13:49 |
| a-Chlordane | ND | 0.00047 | 0.0010 | 1 | 04/20/2017 13:49 |
| g-Chlordane | ND | 0.00021 | 0.0010 | 1 | 04/20/2017 13:49 |
| p,p-DDD | ND | 0.00014 | 0.0010 | 1 | 04/20/2017 13:49 |
| p,p-DDE | ND | 0.00032 | 0.0010 | 1 | 04/20/2017 13:49 |
| p,p-DDT | ND | 0.00043 | 0.0010 | 1 | 04/20/2017 13:49 |
| Dieldrin | ND | 0.00033 | 0.0010 | 1 | 04/20/2017 13:49 |
| Endosulfan I | ND | 0.00065 | 0.0010 | 1 | 04/20/2017 13:49 |
| Endosulfan II | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 13:49 |
| Endosulfan sulfate | ND | 0.00063 | 0.0010 | 1 | 04/20/2017 13:49 |
| Endrin | ND | 0.00042 | 0.0010 | 1 | 04/20/2017 13:49 |
| Endrin aldehyde | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 13:49 |
| Endrin ketone | ND | 0.00013 | 0.0010 | 1 | 04/20/2017 13:49 |
| Heptachlor | ND | 0.00021 | 0.0010 | 1 | 04/20/2017 13:49 |
| Heptachlor epoxide | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 13:49 |
| Hexachlorobenzene | ND | 0.00027 | 0.010 | 1 | 04/20/2017 13:49 |
| Hexachlorocyclopentadiene | ND | 0.00040 | 0.020 | 1 | 04/20/2017 13:49 |
| Methoxychlor | ND | 0.00089 | 0.0010 | 1 | 04/20/2017 13:49 |
| Toxaphene | ND | 0.035 | 0.050 | 1 | 04/20/2017 13:49 |
| Aroclor1016 | ND | 0.0051 | 0.050 | 1 | 04/20/2017 13:49 |
| Aroclor1221 | ND | 0.011 | 0.050 | 1 | 04/20/2017 13:49 |
| Aroclor1232 | ND | 0.0063 | 0.050 | 1 | 04/20/2017 13:49 |
| Aroclor1242 | ND | 0.0067 | 0.050 | 1 | 04/20/2017 13:49 |
| Aroclor1248 | ND | 0.0040 | 0.050 | 1 | 04/20/2017 13:49 |
| Aroclor1254 | ND | 0.0068 | 0.050 | 1 | 04/20/2017 13:49 |
| Aroclor1260 | ND | 0.0061 | 0.050 | 1 | 04/20/2017 13:49 |
| PCBs, total | ND | 0.0040 | 0.050 | 1 | 04/20/2017 13:49 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decachlorobiphenyl | 115 | 70-130 | 04/20/2017 13:49 |

Analyst(s): CK

*(Cont.)*

NELAP 4033ORELAP

Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
*"When Quality Counts"*

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

**Client:** Langan
**Date Received:** 4/18/17 14:50
**Date Prepared:** 4/18/17-4/20/17
**Project:** 750635603; 3000 Broadway

**WorkOrder:** 1704842
**Extraction Method:** SW3550B
**Analytical Method:** SW8081A/8082
**Unit:** mg/kg

## Organochlorine Pesticides + PCBs

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-39-10.0,15.0,20.0 | 1704842-005A | Soil | 04/17/2017 13:11 | GC22 | 137522 |

| Analytes | Result | MDL | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Aldrin | ND | 0.00027 | 0.0010 | 1 | 04/20/2017 14:23 |
| a-BHC | ND | 0.00010 | 0.0010 | 1 | 04/20/2017 14:23 |
| b-BHC | ND | 0.00025 | 0.0010 | 1 | 04/20/2017 14:23 |
| d-BHC | ND | 0.00037 | 0.0010 | 1 | 04/20/2017 14:23 |
| g-BHC | ND | 0.000097 | 0.0010 | 1 | 04/20/2017 14:23 |
| Chlordane (Technical) | ND | 0.016 | 0.025 | 1 | 04/20/2017 14:23 |
| a-Chlordane | ND | 0.00047 | 0.0010 | 1 | 04/20/2017 14:23 |
| g-Chlordane | ND | 0.00021 | 0.0010 | 1 | 04/20/2017 14:23 |
| p,p-DDD | ND | 0.00014 | 0.0010 | 1 | 04/20/2017 14:23 |
| p,p-DDE | ND | 0.00032 | 0.0010 | 1 | 04/20/2017 14:23 |
| p,p-DDT | ND | 0.00043 | 0.0010 | 1 | 04/20/2017 14:23 |
| Dieldrin | ND | 0.00033 | 0.0010 | 1 | 04/20/2017 14:23 |
| Endosulfan I | ND | 0.00065 | 0.0010 | 1 | 04/20/2017 14:23 |
| Endosulfan II | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 14:23 |
| Endosulfan sulfate | ND | 0.00063 | 0.0010 | 1 | 04/20/2017 14:23 |
| Endrin | ND | 0.00042 | 0.0010 | 1 | 04/20/2017 14:23 |
| Endrin aldehyde | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 14:23 |
| Endrin ketone | ND | 0.00013 | 0.0010 | 1 | 04/20/2017 14:23 |
| Heptachlor | ND | 0.00021 | 0.0010 | 1 | 04/20/2017 14:23 |
| Heptachlor epoxide | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 14:23 |
| Hexachlorobenzene | ND | 0.00027 | 0.010 | 1 | 04/20/2017 14:23 |
| Hexachlorocyclopentadiene | ND | 0.00040 | 0.020 | 1 | 04/20/2017 14:23 |
| Methoxychlor | ND | 0.00089 | 0.0010 | 1 | 04/20/2017 14:23 |
| Toxaphene | ND | 0.035 | 0.050 | 1 | 04/20/2017 14:23 |
| Aroclor1016 | ND | 0.0051 | 0.050 | 1 | 04/20/2017 14:23 |
| Aroclor1221 | ND | 0.011 | 0.050 | 1 | 04/20/2017 14:23 |
| Aroclor1232 | ND | 0.0063 | 0.050 | 1 | 04/20/2017 14:23 |
| Aroclor1242 | ND | 0.0067 | 0.050 | 1 | 04/20/2017 14:23 |
| Aroclor1248 | ND | 0.0040 | 0.050 | 1 | 04/20/2017 14:23 |
| Aroclor1254 | ND | 0.0068 | 0.050 | 1 | 04/20/2017 14:23 |
| Aroclor1260 | ND | 0.0061 | 0.050 | 1 | 04/20/2017 14:23 |
| PCBs, total | ND | 0.0040 | 0.050 | 1 | 04/20/2017 14:23 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decachlorobiphenyl | 124 | 70-130 | 04/20/2017 14:23 |

Analyst(s): CK

*(Cont.)*

NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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*"When Quality Counts"*

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8081A/8082 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Organochlorine Pesticides + PCBs

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-40-1.5,3.0 | 1704842-006A | Soil | 04/17/2017 09:03 | GC22 | 137574 |

| Analytes | Result | MDL | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Aldrin | ND | 0.00027 | 0.0010 | 1 | 04/21/2017 02:21 |
| a-BHC | ND | 0.00010 | 0.0010 | 1 | 04/21/2017 02:21 |
| b-BHC | ND | 0.00025 | 0.0010 | 1 | 04/21/2017 02:21 |
| d-BHC | ND | 0.00037 | 0.0010 | 1 | 04/21/2017 02:21 |
| g-BHC | ND | 0.000097 | 0.0010 | 1 | 04/21/2017 02:21 |
| Chlordane (Technical) | ND | 0.016 | 0.025 | 1 | 04/21/2017 02:21 |
| a-Chlordane | ND | 0.00047 | 0.0010 | 1 | 04/21/2017 02:21 |
| g-Chlordane | ND | 0.00021 | 0.0010 | 1 | 04/21/2017 02:21 |
| p,p-DDD | ND | 0.00014 | 0.0010 | 1 | 04/21/2017 02:21 |
| p,p-DDE | ND | 0.00032 | 0.0010 | 1 | 04/21/2017 02:21 |
| p,p-DDT | ND | 0.00043 | 0.0010 | 1 | 04/21/2017 02:21 |
| Dieldrin | ND | 0.00033 | 0.0010 | 1 | 04/21/2017 02:21 |
| Endosulfan I | ND | 0.00065 | 0.0010 | 1 | 04/21/2017 02:21 |
| Endosulfan II | ND | 0.00020 | 0.0010 | 1 | 04/21/2017 02:21 |
| Endosulfan sulfate | ND | 0.00063 | 0.0010 | 1 | 04/21/2017 02:21 |
| Endrin | ND | 0.00042 | 0.0010 | 1 | 04/21/2017 02:21 |
| Endrin aldehyde | ND | 0.00020 | 0.0010 | 1 | 04/21/2017 02:21 |
| Endrin ketone | ND | 0.00013 | 0.0010 | 1 | 04/21/2017 02:21 |
| Heptachlor | ND | 0.00021 | 0.0010 | 1 | 04/21/2017 02:21 |
| Heptachlor epoxide | ND | 0.00020 | 0.0010 | 1 | 04/21/2017 02:21 |
| Hexachlorobenzene | ND | 0.00027 | 0.010 | 1 | 04/21/2017 02:21 |
| Hexachlorocyclopentadiene | ND | 0.00040 | 0.020 | 1 | 04/21/2017 02:21 |
| Methoxychlor | ND | 0.00089 | 0.0010 | 1 | 04/21/2017 02:21 |
| Toxaphene | ND | 0.035 | 0.050 | 1 | 04/21/2017 02:21 |
| Aroclor1016 | ND | 0.0051 | 0.050 | 1 | 04/21/2017 02:21 |
| Aroclor1221 | ND | 0.011 | 0.050 | 1 | 04/21/2017 02:21 |
| Aroclor1232 | ND | 0.0063 | 0.050 | 1 | 04/21/2017 02:21 |
| Aroclor1242 | ND | 0.0067 | 0.050 | 1 | 04/21/2017 02:21 |
| Aroclor1248 | ND | 0.0040 | 0.050 | 1 | 04/21/2017 02:21 |
| Aroclor1254 | ND | 0.0068 | 0.050 | 1 | 04/21/2017 02:21 |
| Aroclor1260 | ND | 0.0061 | 0.050 | 1 | 04/21/2017 02:21 |
| PCBs, total | ND | 0.0040 | 0.050 | 1 | 04/21/2017 02:21 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decachlorobiphenyl | 124 | 70-130 | 04/21/2017 02:21 |

Analyst(s): DP

*(Cont.)*

NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8081A/8082 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Organochlorine Pesticides + PCBs

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-40-5.0, 41-5.0, 7.5 | 1704842-007A | Soil | 04/17/2017 09:08 | GC22 | 137522 |

| Analytes | Result | MDL | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Aldrin | ND | 0.00027 | 0.0010 | 1 | 04/20/2017 08:41 |
| a-BHC | ND | 0.00010 | 0.0010 | 1 | 04/20/2017 08:41 |
| b-BHC | ND | 0.00025 | 0.0010 | 1 | 04/20/2017 08:41 |
| d-BHC | ND | 0.00037 | 0.0010 | 1 | 04/20/2017 08:41 |
| g-BHC | ND | 0.000097 | 0.0010 | 1 | 04/20/2017 08:41 |
| Chlordane (Technical) | ND | 0.016 | 0.025 | 1 | 04/20/2017 08:41 |
| a-Chlordane | ND | 0.00047 | 0.0010 | 1 | 04/20/2017 08:41 |
| g-Chlordane | ND | 0.00021 | 0.0010 | 1 | 04/20/2017 08:41 |
| p,p-DDD | ND | 0.00014 | 0.0010 | 1 | 04/20/2017 08:41 |
| p,p-DDE | ND | 0.00032 | 0.0010 | 1 | 04/20/2017 08:41 |
| p,p-DDT | ND | 0.00043 | 0.0010 | 1 | 04/20/2017 08:41 |
| Dieldrin | ND | 0.00033 | 0.0010 | 1 | 04/20/2017 08:41 |
| Endosulfan I | ND | 0.00065 | 0.0010 | 1 | 04/20/2017 08:41 |
| Endosulfan II | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 08:41 |
| Endosulfan sulfate | ND | 0.00063 | 0.0010 | 1 | 04/20/2017 08:41 |
| Endrin | ND | 0.00042 | 0.0010 | 1 | 04/20/2017 08:41 |
| Endrin aldehyde | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 08:41 |
| Endrin ketone | ND | 0.00013 | 0.0010 | 1 | 04/20/2017 08:41 |
| Heptachlor | ND | 0.00021 | 0.0010 | 1 | 04/20/2017 08:41 |
| Heptachlor epoxide | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 08:41 |
| Hexachlorobenzene | ND | 0.00027 | 0.010 | 1 | 04/20/2017 08:41 |
| Hexachlorocyclopentadiene | ND | 0.00040 | 0.020 | 1 | 04/20/2017 08:41 |
| Methoxychlor | ND | 0.00089 | 0.0010 | 1 | 04/20/2017 08:41 |
| Toxaphene | ND | 0.035 | 0.050 | 1 | 04/20/2017 08:41 |
| Aroclor1016 | ND | 0.0051 | 0.050 | 1 | 04/20/2017 08:41 |
| Aroclor1221 | ND | 0.011 | 0.050 | 1 | 04/20/2017 08:41 |
| Aroclor1232 | ND | 0.0063 | 0.050 | 1 | 04/20/2017 08:41 |
| Aroclor1242 | ND | 0.0067 | 0.050 | 1 | 04/20/2017 08:41 |
| Aroclor1248 | ND | 0.0040 | 0.050 | 1 | 04/20/2017 08:41 |
| Aroclor1254 | ND | 0.0068 | 0.050 | 1 | 04/20/2017 08:41 |
| Aroclor1260 | ND | 0.0061 | 0.050 | 1 | 04/20/2017 08:41 |
| PCBs, total | ND | 0.0040 | 0.050 | 1 | 04/20/2017 08:41 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decachlorobiphenyl | 119 | 70-130 | 04/20/2017 08:41 |

Analyst(s): CK

*(Cont.)*

NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8081A/8082 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Organochlorine Pesticides + PCBs

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-40, 41-10.0 | 1704842-008A | Soil | 04/17/2017 09:18 | GC22 | 137522 |

| Analytes | Result | MDL | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Aldrin | ND | 0.00027 | 0.0010 | 1 | 04/20/2017 10:24 |
| a-BHC | ND | 0.00010 | 0.0010 | 1 | 04/20/2017 10:24 |
| b-BHC | ND | 0.00025 | 0.0010 | 1 | 04/20/2017 10:24 |
| d-BHC | ND | 0.00037 | 0.0010 | 1 | 04/20/2017 10:24 |
| g-BHC | ND | 0.000097 | 0.0010 | 1 | 04/20/2017 10:24 |
| Chlordane (Technical) | ND | 0.016 | 0.025 | 1 | 04/20/2017 10:24 |
| a-Chlordane | ND | 0.00047 | 0.0010 | 1 | 04/20/2017 10:24 |
| g-Chlordane | ND | 0.00021 | 0.0010 | 1 | 04/20/2017 10:24 |
| p,p-DDD | ND | 0.00014 | 0.0010 | 1 | 04/20/2017 10:24 |
| p,p-DDE | ND | 0.00032 | 0.0010 | 1 | 04/20/2017 10:24 |
| p,p-DDT | ND | 0.00043 | 0.0010 | 1 | 04/20/2017 10:24 |
| Dieldrin | ND | 0.00033 | 0.0010 | 1 | 04/20/2017 10:24 |
| Endosulfan I | ND | 0.00065 | 0.0010 | 1 | 04/20/2017 10:24 |
| Endosulfan II | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 10:24 |
| Endosulfan sulfate | ND | 0.00063 | 0.0010 | 1 | 04/20/2017 10:24 |
| Endrin | ND | 0.00042 | 0.0010 | 1 | 04/20/2017 10:24 |
| Endrin aldehyde | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 10:24 |
| Endrin ketone | ND | 0.00013 | 0.0010 | 1 | 04/20/2017 10:24 |
| Heptachlor | ND | 0.00021 | 0.0010 | 1 | 04/20/2017 10:24 |
| Heptachlor epoxide | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 10:24 |
| Hexachlorobenzene | ND | 0.00027 | 0.010 | 1 | 04/20/2017 10:24 |
| Hexachlorocyclopentadiene | ND | 0.00040 | 0.020 | 1 | 04/20/2017 10:24 |
| Methoxychlor | ND | 0.00089 | 0.0010 | 1 | 04/20/2017 10:24 |
| Toxaphene | ND | 0.035 | 0.050 | 1 | 04/20/2017 10:24 |
| Aroclor1016 | ND | 0.0051 | 0.050 | 1 | 04/20/2017 10:24 |
| Aroclor1221 | ND | 0.011 | 0.050 | 1 | 04/20/2017 10:24 |
| Aroclor1232 | ND | 0.0063 | 0.050 | 1 | 04/20/2017 10:24 |
| Aroclor1242 | ND | 0.0067 | 0.050 | 1 | 04/20/2017 10:24 |
| Aroclor1248 | ND | 0.0040 | 0.050 | 1 | 04/20/2017 10:24 |
| Aroclor1254 | ND | 0.0068 | 0.050 | 1 | 04/20/2017 10:24 |
| Aroclor1260 | ND | 0.0061 | 0.050 | 1 | 04/20/2017 10:24 |
| PCBs, total | ND | 0.0040 | 0.050 | 1 | 04/20/2017 10:24 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decachlorobiphenyl | 119 | 70-130 | 04/20/2017 10:24 |

Analyst(s): CK

*(Cont.)*

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Angela Rydelius, Lab Manager

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

**Client:** Langan
**Date Received:** 4/18/17 14:50
**Date Prepared:** 4/18/17-4/20/17
**Project:** 750635603; 3000 Broadway

**WorkOrder:** 1704842
**Extraction Method:** SW3550B
**Analytical Method:** SW8081A/8082
**Unit:** mg/kg

## Organochlorine Pesticides + PCBs

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-40, 41-15.0 | 1704842-009A | Soil | 04/17/2017 09:28 | GC22 | 137522 |

| Analytes | Result | MDL | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Aldrin | ND | 0.00027 | 0.0010 | 1 | 04/20/2017 09:49 |
| a-BHC | ND | 0.00010 | 0.0010 | 1 | 04/20/2017 09:49 |
| b-BHC | ND | 0.00025 | 0.0010 | 1 | 04/20/2017 09:49 |
| d-BHC | ND | 0.00037 | 0.0010 | 1 | 04/20/2017 09:49 |
| g-BHC | ND | 0.000097 | 0.0010 | 1 | 04/20/2017 09:49 |
| Chlordane (Technical) | ND | 0.016 | 0.025 | 1 | 04/20/2017 09:49 |
| a-Chlordane | ND | 0.00047 | 0.0010 | 1 | 04/20/2017 09:49 |
| g-Chlordane | ND | 0.00021 | 0.0010 | 1 | 04/20/2017 09:49 |
| p,p-DDD | ND | 0.00014 | 0.0010 | 1 | 04/20/2017 09:49 |
| p,p-DDE | ND | 0.00032 | 0.0010 | 1 | 04/20/2017 09:49 |
| p,p-DDT | ND | 0.00043 | 0.0010 | 1 | 04/20/2017 09:49 |
| Dieldrin | ND | 0.00033 | 0.0010 | 1 | 04/20/2017 09:49 |
| Endosulfan I | ND | 0.00065 | 0.0010 | 1 | 04/20/2017 09:49 |
| Endosulfan II | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 09:49 |
| Endosulfan sulfate | ND | 0.00063 | 0.0010 | 1 | 04/20/2017 09:49 |
| Endrin | ND | 0.00042 | 0.0010 | 1 | 04/20/2017 09:49 |
| Endrin aldehyde | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 09:49 |
| Endrin ketone | ND | 0.00013 | 0.0010 | 1 | 04/20/2017 09:49 |
| Heptachlor | ND | 0.00021 | 0.0010 | 1 | 04/20/2017 09:49 |
| Heptachlor epoxide | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 09:49 |
| Hexachlorobenzene | ND | 0.00027 | 0.010 | 1 | 04/20/2017 09:49 |
| Hexachlorocyclopentadiene | ND | 0.00040 | 0.020 | 1 | 04/20/2017 09:49 |
| Methoxychlor | ND | 0.00089 | 0.0010 | 1 | 04/20/2017 09:49 |
| Toxaphene | ND | 0.035 | 0.050 | 1 | 04/20/2017 09:49 |
| Aroclor1016 | ND | 0.0051 | 0.050 | 1 | 04/20/2017 09:49 |
| Aroclor1221 | ND | 0.011 | 0.050 | 1 | 04/20/2017 09:49 |
| Aroclor1232 | ND | 0.0063 | 0.050 | 1 | 04/20/2017 09:49 |
| Aroclor1242 | ND | 0.0067 | 0.050 | 1 | 04/20/2017 09:49 |
| Aroclor1248 | ND | 0.0040 | 0.050 | 1 | 04/20/2017 09:49 |
| Aroclor1254 | ND | 0.0068 | 0.050 | 1 | 04/20/2017 09:49 |
| Aroclor1260 | ND | 0.0061 | 0.050 | 1 | 04/20/2017 09:49 |
| PCBs, total | ND | 0.0040 | 0.050 | 1 | 04/20/2017 09:49 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decachlorobiphenyl | 116 | 70-130 | 04/20/2017 09:49 |

Analyst(s): CK

*(Cont.)*

NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8081A/8082 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Organochlorine Pesticides + PCBs

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-40, 41-20.0 | 1704842-010A | Soil | 04/17/2017 09:41 | GC22 | 137522 |

| Analytes | Result | MDL | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Aldrin | ND | 0.00027 | 0.0010 | 1 | 04/20/2017 09:15 |
| a-BHC | ND | 0.00010 | 0.0010 | 1 | 04/20/2017 09:15 |
| b-BHC | ND | 0.00025 | 0.0010 | 1 | 04/20/2017 09:15 |
| d-BHC | ND | 0.00037 | 0.0010 | 1 | 04/20/2017 09:15 |
| g-BHC | ND | 0.000097 | 0.0010 | 1 | 04/20/2017 09:15 |
| Chlordane (Technical) | ND | 0.016 | 0.025 | 1 | 04/20/2017 09:15 |
| a-Chlordane | ND | 0.00047 | 0.0010 | 1 | 04/20/2017 09:15 |
| g-Chlordane | ND | 0.00021 | 0.0010 | 1 | 04/20/2017 09:15 |
| p,p-DDD | ND | 0.00014 | 0.0010 | 1 | 04/20/2017 09:15 |
| p,p-DDE | ND | 0.00032 | 0.0010 | 1 | 04/20/2017 09:15 |
| p,p-DDT | ND | 0.00043 | 0.0010 | 1 | 04/20/2017 09:15 |
| Dieldrin | ND | 0.00033 | 0.0010 | 1 | 04/20/2017 09:15 |
| Endosulfan I | ND | 0.00065 | 0.0010 | 1 | 04/20/2017 09:15 |
| Endosulfan II | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 09:15 |
| Endosulfan sulfate | ND | 0.00063 | 0.0010 | 1 | 04/20/2017 09:15 |
| Endrin | ND | 0.00042 | 0.0010 | 1 | 04/20/2017 09:15 |
| Endrin aldehyde | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 09:15 |
| Endrin ketone | ND | 0.00013 | 0.0010 | 1 | 04/20/2017 09:15 |
| Heptachlor | ND | 0.00021 | 0.0010 | 1 | 04/20/2017 09:15 |
| Heptachlor epoxide | ND | 0.00020 | 0.0010 | 1 | 04/20/2017 09:15 |
| Hexachlorobenzene | ND | 0.00027 | 0.010 | 1 | 04/20/2017 09:15 |
| Hexachlorocyclopentadiene | ND | 0.00040 | 0.020 | 1 | 04/20/2017 09:15 |
| Methoxychlor | ND | 0.00089 | 0.0010 | 1 | 04/20/2017 09:15 |
| Toxaphene | ND | 0.035 | 0.050 | 1 | 04/20/2017 09:15 |
| Aroclor1016 | ND | 0.0051 | 0.050 | 1 | 04/20/2017 09:15 |
| Aroclor1221 | ND | 0.011 | 0.050 | 1 | 04/20/2017 09:15 |
| Aroclor1232 | ND | 0.0063 | 0.050 | 1 | 04/20/2017 09:15 |
| Aroclor1242 | ND | 0.0067 | 0.050 | 1 | 04/20/2017 09:15 |
| Aroclor1248 | ND | 0.0040 | 0.050 | 1 | 04/20/2017 09:15 |
| Aroclor1254 | ND | 0.0068 | 0.050 | 1 | 04/20/2017 09:15 |
| Aroclor1260 | ND | 0.0061 | 0.050 | 1 | 04/20/2017 09:15 |
| PCBs, total | ND | 0.0040 | 0.050 | 1 | 04/20/2017 09:15 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decachlorobiphenyl | 118 | 70-130 | 04/20/2017 09:15 |

Analyst(s): CK

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-37-5.0 | 1704842-001B | Soil | 04/17/2017 11:48 | GC10 | 137501 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 04/20/2017 22:50 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Benzene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Bromobenzene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Bromochloromethane | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Bromodichloromethane | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Bromoform | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Bromomethane | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 04/20/2017 22:50 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 04/20/2017 22:50 |
| n-Butyl benzene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Carbon Disulfide | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Chlorobenzene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Chloroethane | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Chloroform | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Chloromethane | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Dibromochloromethane | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 04/20/2017 22:50 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 04/20/2017 22:50 |
| Dibromomethane | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 04/20/2017 22:50 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 04/20/2017 22:50 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-37-5.0 | 1704842-001B | Soil | 04/17/2017 11:48 | GC10 | 137501 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Ethylbenzene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Freon 113 | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Hexachloroethane | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 2-Hexanone | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Isopropylbenzene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Methylene chloride | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Naphthalene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| n-Propyl benzene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Styrene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Tetrachloroethene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Toluene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Trichloroethene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Vinyl Chloride | ND | 0.0050 | 1 | 04/20/2017 22:50 |
| Xylenes, Total | ND | 0.0050 | 1 | 04/20/2017 22:50 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-37-5.0** | **1704842-001B** | **Soil** | **04/17/2017 11:48** | **GC10** | **137501** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 103 | 70-130 | | 04/20/2017 22:50 |
| Toluene-d8 | 108 | 70-130 | | 04/20/2017 22:50 |
| 4-BFB | 83 | 70-130 | | 04/20/2017 22:50 |
| Benzene-d6 | 88 | 60-140 | | 04/20/2017 22:50 |
| Ethylbenzene-d10 | 106 | 60-140 | | 04/20/2017 22:50 |
| 1,2-DCB-d4 | 77 | 60-140 | | 04/20/2017 22:50 |

Analyst(s): KF

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-38-10.0 | 1704842-001C | Soil | 04/17/2017 11:48 | GC10 | 137501 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 04/20/2017 23:31 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Benzene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Bromobenzene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Bromochloromethane | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Bromodichloromethane | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Bromoform | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Bromomethane | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 04/20/2017 23:31 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 04/20/2017 23:31 |
| n-Butyl benzene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Carbon Disulfide | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Chlorobenzene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Chloroethane | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Chloroform | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Chloromethane | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Dibromochloromethane | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 04/20/2017 23:31 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 04/20/2017 23:31 |
| Dibromomethane | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 04/20/2017 23:31 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 04/20/2017 23:31 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-38-10.0 | 1704842-001C | Soil | 04/17/2017 11:48 | GC10 | 137501 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Ethylbenzene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Freon 113 | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Hexachloroethane | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 2-Hexanone | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Isopropylbenzene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Methylene chloride | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Naphthalene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| n-Propyl benzene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Styrene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Tetrachloroethene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Toluene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Trichloroethene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Vinyl Chloride | ND | 0.0050 | 1 | 04/20/2017 23:31 |
| Xylenes, Total | ND | 0.0050 | 1 | 04/20/2017 23:31 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-38-10.0** | **1704842-001C** | **Soil** | **04/17/2017 11:48** | **GC10** | **137501** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 103 | 70-130 | | 04/20/2017 23:31 |
| Toluene-d8 | 108 | 70-130 | | 04/20/2017 23:31 |
| 4-BFB | 84 | 70-130 | | 04/20/2017 23:31 |
| Benzene-d6 | 84 | 60-140 | | 04/20/2017 23:31 |
| Ethylbenzene-d10 | 100 | 60-140 | | 04/20/2017 23:31 |
| 1,2-DCB-d4 | 74 | 60-140 | | 04/20/2017 23:31 |

Analyst(s): KF

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-39-15.0 | 1704842-005B | Soil | 04/17/2017 13:11 | GC10 | 137501 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 04/21/2017 00:10 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Benzene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Bromobenzene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Bromochloromethane | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Bromodichloromethane | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Bromoform | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Bromomethane | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 04/21/2017 00:10 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 04/21/2017 00:10 |
| n-Butyl benzene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Carbon Disulfide | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Chlorobenzene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Chloroethane | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Chloroform | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Chloromethane | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Dibromochloromethane | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 04/21/2017 00:10 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 04/21/2017 00:10 |
| Dibromomethane | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 04/21/2017 00:10 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 04/21/2017 00:10 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-39-15.0 | 1704842-005B | Soil | 04/17/2017 13:11 | GC10 | 137501 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Ethylbenzene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Freon 113 | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Hexachloroethane | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 2-Hexanone | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Isopropylbenzene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Methylene chloride | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Naphthalene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| n-Propyl benzene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Styrene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Tetrachloroethene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Toluene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Trichloroethene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Vinyl Chloride | ND | 0.0050 | 1 | 04/21/2017 00:10 |
| Xylenes, Total | ND | 0.0050 | 1 | 04/21/2017 00:10 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-39-15.0** | **1704842-005B** | **Soil** | **04/17/2017 13:11** | **GC10** | **137501** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 101 | 70-130 | | 04/21/2017 00:10 |
| Toluene-d8 | 108 | 70-130 | | 04/21/2017 00:10 |
| 4-BFB | 81 | 70-130 | | 04/21/2017 00:10 |
| Benzene-d6 | 84 | 60-140 | | 04/21/2017 00:10 |
| Ethylbenzene-d10 | 101 | 60-140 | | 04/21/2017 00:10 |
| 1,2-DCB-d4 | 76 | 60-140 | | 04/21/2017 00:10 |

Analyst(s): KF

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-40-3.0 | 1704842-006B | Soil | 04/17/2017 09:03 | GC18 | 137599 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 04/21/2017 03:29 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Benzene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Bromobenzene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Bromochloromethane | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Bromodichloromethane | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Bromoform | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Bromomethane | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 04/21/2017 03:29 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 04/21/2017 03:29 |
| n-Butyl benzene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Carbon Disulfide | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Chlorobenzene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Chloroethane | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Chloroform | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Chloromethane | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Dibromochloromethane | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 04/21/2017 03:29 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 04/21/2017 03:29 |
| Dibromomethane | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 04/21/2017 03:29 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 04/21/2017 03:29 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-40-3.0 | 1704842-006B | Soil | 04/17/2017 09:03 | GC18 | 137599 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Ethylbenzene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Freon 113 | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Hexachloroethane | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 2-Hexanone | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Isopropylbenzene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Methylene chloride | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Naphthalene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| n-Propyl benzene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Styrene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Tetrachloroethene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Toluene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Trichloroethene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Vinyl Chloride | ND | 0.0050 | 1 | 04/21/2017 03:29 |
| Xylenes, Total | ND | 0.0050 | 1 | 04/21/2017 03:29 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-40-3.0** | **1704842-006B** | **Soil** | **04/17/2017 09:03** | **GC18** | **137599** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 96 | 70-130 | | 04/21/2017 03:29 |
| Toluene-d8 | 113 | 70-130 | | 04/21/2017 03:29 |
| 4-BFB | 112 | 70-130 | | 04/21/2017 03:29 |
| Benzene-d6 | 81 | 60-140 | | 04/21/2017 03:29 |
| Ethylbenzene-d10 | 95 | 60-140 | | 04/21/2017 03:29 |
| 1,2-DCB-d4 | 73 | 60-140 | | 04/21/2017 03:29 |

Analyst(s): KF

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-41-7.5 | 1704842-007C | Soil | 04/17/2017 09:08 | GC10 | 137501 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 04/21/2017 00:50 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Benzene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Bromobenzene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Bromochloromethane | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Bromodichloromethane | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Bromoform | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Bromomethane | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 2-Butanone (MEK) | ND | 0.020 | 1 | 04/21/2017 00:50 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 04/21/2017 00:50 |
| n-Butyl benzene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Carbon Disulfide | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Chlorobenzene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Chloroethane | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Chloroform | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Chloromethane | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Dibromochloromethane | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | 1 | 04/21/2017 00:50 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 04/21/2017 00:50 |
| Dibromomethane | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 04/21/2017 00:50 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 04/21/2017 00:50 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-41-7.5 | 1704842-007C | Soil | 04/17/2017 09:08 | GC10 | 137501 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Ethylbenzene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Freon 113 | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Hexachloroethane | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 2-Hexanone | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Isopropylbenzene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Methylene chloride | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Naphthalene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| n-Propyl benzene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Styrene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Tetrachloroethene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Toluene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Trichloroethene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Vinyl Chloride | ND | 0.0050 | 1 | 04/21/2017 00:50 |
| Xylenes, Total | ND | 0.0050 | 1 | 04/21/2017 00:50 |

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8260B |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-41-7.5** | **1704842-007C** | **Soil** | **04/17/2017 09:08** | **GC10** | **137501** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 101 | 70-130 | | 04/21/2017 00:50 |
| Toluene-d8 | 108 | 70-130 | | 04/21/2017 00:50 |
| 4-BFB | 82 | 70-130 | | 04/21/2017 00:50 |
| Benzene-d6 | 85 | 60-140 | | 04/21/2017 00:50 |
| Ethylbenzene-d10 | 102 | 60-140 | | 04/21/2017 00:50 |
| 1,2-DCB-d4 | 76 | 60-140 | | 04/21/2017 00:50 |

Analyst(s): KF

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550C |
| **Date Prepared:** | 4/20/17-4/24/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-37-5.0,10.0,38-5.0,10.0 | 1704842-001A | Soil | 04/17/2017 11:57 | HPLC4 | 137601 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.0050 | 1 | 04/21/2017 03:49 |
| Acenaphthylene | ND | 0.0050 | 1 | 04/21/2017 03:49 |
| Anthracene | ND | 0.0050 | 1 | 04/21/2017 03:49 |
| Benzo (a) anthracene | ND | 0.0050 | 1 | 04/21/2017 03:49 |
| Benzo (a) pyrene | ND | 0.0050 | 1 | 04/21/2017 03:49 |
| Benzo (b) fluoranthene | ND | 0.0050 | 1 | 04/21/2017 03:49 |
| Benzo (g,h,i) perylene | ND | 0.0050 | 1 | 04/21/2017 03:49 |
| Benzo (k) fluoranthene | ND | 0.0050 | 1 | 04/21/2017 03:49 |
| Chrysene | ND | 0.0050 | 1 | 04/21/2017 03:49 |
| Dibenzo (a,h) anthracene | ND | 0.0050 | 1 | 04/21/2017 03:49 |
| Fluoranthene | ND | 0.0050 | 1 | 04/21/2017 03:49 |
| Fluorene | ND | 0.0050 | 1 | 04/21/2017 03:49 |
| Indeno (1,2,3-cd) pyrene | ND | 0.0050 | 1 | 04/21/2017 03:49 |
| 1-Methylnaphthalene | ND | 0.0050 | 1 | 04/21/2017 03:49 |
| 2-Methylnaphthalene | ND | 0.0050 | 1 | 04/21/2017 03:49 |
| Naphthalene | ND | 0.0050 | 1 | 04/21/2017 03:49 |
| Phenanthrene | ND | 0.0050 | 1 | 04/21/2017 03:49 |
| Pyrene | ND | 0.0050 | 1 | 04/21/2017 03:49 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 94 | 70-130 | 04/21/2017 03:49 |
| 4,4-Dichlorobiphenyl | 94 | 70-130 | 04/21/2017 03:49 |

Analyst(s): BBO

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550C |
| **Date Prepared:** | 4/20/17-4/24/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-37, 38-15.0 | 1704842-002A | Soil | 04/17/2017 12:06 | HPLC4 | 137601 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.0050 | 1 | 04/21/2017 06:01 |
| Acenaphthylene | ND | 0.0050 | 1 | 04/21/2017 06:01 |
| Anthracene | ND | 0.0050 | 1 | 04/21/2017 06:01 |
| Benzo (a) anthracene | ND | 0.0050 | 1 | 04/21/2017 06:01 |
| Benzo (a) pyrene | ND | 0.0050 | 1 | 04/21/2017 06:01 |
| Benzo (b) fluoranthene | ND | 0.0050 | 1 | 04/21/2017 06:01 |
| Benzo (g,h,i) perylene | ND | 0.0050 | 1 | 04/21/2017 06:01 |
| Benzo (k) fluoranthene | ND | 0.0050 | 1 | 04/21/2017 06:01 |
| Chrysene | ND | 0.0050 | 1 | 04/21/2017 06:01 |
| Dibenzo (a,h) anthracene | ND | 0.0050 | 1 | 04/21/2017 06:01 |
| Fluoranthene | ND | 0.0050 | 1 | 04/21/2017 06:01 |
| Fluorene | ND | 0.0050 | 1 | 04/21/2017 06:01 |
| Indeno (1,2,3-cd) pyrene | ND | 0.0050 | 1 | 04/21/2017 06:01 |
| 1-Methylnaphthalene | ND | 0.0050 | 1 | 04/21/2017 06:01 |
| 2-Methylnaphthalene | ND | 0.0050 | 1 | 04/21/2017 06:01 |
| Naphthalene | ND | 0.0050 | 1 | 04/21/2017 06:01 |
| Phenanthrene | ND | 0.0050 | 1 | 04/21/2017 06:01 |
| Pyrene | ND | 0.0050 | 1 | 04/21/2017 06:01 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 79 | 70-130 | 04/21/2017 06:01 |
| 4,4-Dichlorobiphenyl | 85 | 70-130 | 04/21/2017 06:01 |

Analyst(s): BBO

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550C |
| **Date Prepared:** | 4/20/17-4/24/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-37, 28-20.0 | 1704842-003A | Soil | 04/17/2017 12:16 | HPLC4 | 137601 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.0050 | 1 | 04/21/2017 06:45 |
| Acenaphthylene | ND | 0.0050 | 1 | 04/21/2017 06:45 |
| Anthracene | ND | 0.0050 | 1 | 04/21/2017 06:45 |
| Benzo (a) anthracene | ND | 0.0050 | 1 | 04/21/2017 06:45 |
| Benzo (a) pyrene | ND | 0.0050 | 1 | 04/21/2017 06:45 |
| Benzo (b) fluoranthene | ND | 0.0050 | 1 | 04/21/2017 06:45 |
| Benzo (g,h,i) perylene | ND | 0.0050 | 1 | 04/21/2017 06:45 |
| Benzo (k) fluoranthene | ND | 0.0050 | 1 | 04/21/2017 06:45 |
| Chrysene | ND | 0.0050 | 1 | 04/21/2017 06:45 |
| Dibenzo (a,h) anthracene | ND | 0.0050 | 1 | 04/21/2017 06:45 |
| Fluoranthene | ND | 0.0050 | 1 | 04/21/2017 06:45 |
| Fluorene | ND | 0.0050 | 1 | 04/21/2017 06:45 |
| Indeno (1,2,3-cd) pyrene | ND | 0.0050 | 1 | 04/21/2017 06:45 |
| 1-Methylnaphthalene | ND | 0.0050 | 1 | 04/21/2017 06:45 |
| 2-Methylnaphthalene | ND | 0.0050 | 1 | 04/21/2017 06:45 |
| Naphthalene | ND | 0.0050 | 1 | 04/21/2017 06:45 |
| Phenanthrene | ND | 0.0050 | 1 | 04/21/2017 06:45 |
| Pyrene | ND | 0.0050 | 1 | 04/21/2017 06:45 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 84 | 70-130 | 04/21/2017 06:45 |
| 4,4-Dichlorobiphenyl | 88 | 70-130 | 04/21/2017 06:45 |

Analyst(s): BBO

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550C |
| **Date Prepared:** | 4/20/17-4/24/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-39-1.5,3.0,5.0 | 1704842-004A | Soil | 04/17/2017 12:38 | HPLC4 | 137601 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.0050 | 1 | 04/21/2017 07:29 |
| Acenaphthylene | ND | 0.0050 | 1 | 04/21/2017 07:29 |
| Anthracene | ND | 0.0050 | 1 | 04/21/2017 07:29 |
| Benzo (a) anthracene | ND | 0.0050 | 1 | 04/21/2017 07:29 |
| Benzo (a) pyrene | ND | 0.0050 | 1 | 04/21/2017 07:29 |
| Benzo (b) fluoranthene | ND | 0.0050 | 1 | 04/21/2017 07:29 |
| Benzo (g,h,i) perylene | ND | 0.0050 | 1 | 04/21/2017 07:29 |
| Benzo (k) fluoranthene | ND | 0.0050 | 1 | 04/21/2017 07:29 |
| Chrysene | ND | 0.0050 | 1 | 04/21/2017 07:29 |
| Dibenzo (a,h) anthracene | ND | 0.0050 | 1 | 04/21/2017 07:29 |
| Fluoranthene | ND | 0.0050 | 1 | 04/21/2017 07:29 |
| Fluorene | ND | 0.0050 | 1 | 04/21/2017 07:29 |
| Indeno (1,2,3-cd) pyrene | ND | 0.0050 | 1 | 04/21/2017 07:29 |
| 1-Methylnaphthalene | ND | 0.0050 | 1 | 04/21/2017 07:29 |
| 2-Methylnaphthalene | ND | 0.0050 | 1 | 04/21/2017 07:29 |
| Naphthalene | ND | 0.0050 | 1 | 04/21/2017 07:29 |
| Phenanthrene | ND | 0.0050 | 1 | 04/21/2017 07:29 |
| Pyrene | ND | 0.0050 | 1 | 04/21/2017 07:29 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 93 | 70-130 | 04/21/2017 07:29 |
| 4,4-Dichlorobiphenyl | 90 | 70-130 | 04/21/2017 07:29 |

Analyst(s): BBO

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550C |
| **Date Prepared:** | 4/20/17-4/24/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-39-10.0,15.0,20.0 | 1704842-005A | Soil | 04/17/2017 13:11 | HPLC4 | 137601 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.0050 | 1 | 04/21/2017 08:12 |
| Acenaphthylene | ND | 0.0050 | 1 | 04/21/2017 08:12 |
| Anthracene | ND | 0.0050 | 1 | 04/21/2017 08:12 |
| Benzo (a) anthracene | ND | 0.0050 | 1 | 04/21/2017 08:12 |
| Benzo (a) pyrene | ND | 0.0050 | 1 | 04/21/2017 08:12 |
| Benzo (b) fluoranthene | ND | 0.0050 | 1 | 04/21/2017 08:12 |
| Benzo (g,h,i) perylene | ND | 0.0050 | 1 | 04/21/2017 08:12 |
| Benzo (k) fluoranthene | ND | 0.0050 | 1 | 04/21/2017 08:12 |
| Chrysene | ND | 0.0050 | 1 | 04/21/2017 08:12 |
| Dibenzo (a,h) anthracene | ND | 0.0050 | 1 | 04/21/2017 08:12 |
| Fluoranthene | ND | 0.0050 | 1 | 04/21/2017 08:12 |
| Fluorene | ND | 0.0050 | 1 | 04/21/2017 08:12 |
| Indeno (1,2,3-cd) pyrene | ND | 0.0050 | 1 | 04/21/2017 08:12 |
| 1-Methylnaphthalene | ND | 0.0050 | 1 | 04/21/2017 08:12 |
| 2-Methylnaphthalene | ND | 0.0050 | 1 | 04/21/2017 08:12 |
| Naphthalene | ND | 0.0050 | 1 | 04/21/2017 08:12 |
| Phenanthrene | ND | 0.0050 | 1 | 04/21/2017 08:12 |
| Pyrene | ND | 0.0050 | 1 | 04/21/2017 08:12 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 88 | 70-130 | 04/21/2017 08:12 |
| 4,4-Dichlorobiphenyl | 94 | 70-130 | 04/21/2017 08:12 |

Analyst(s): BBO

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550C |
| **Date Prepared:** | 4/20/17-4/24/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-40-1.5,3.0 | 1704842-006A | Soil | 04/17/2017 09:03 | HPLC4 | 137738 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.0050 | 1 | 04/25/2017 18:28 |
| Acenaphthylene | ND | 0.0050 | 1 | 04/25/2017 18:28 |
| Anthracene | ND | 0.0050 | 1 | 04/25/2017 18:28 |
| Benzo (a) anthracene | ND | 0.0050 | 1 | 04/25/2017 18:28 |
| Benzo (a) pyrene | ND | 0.0050 | 1 | 04/25/2017 18:28 |
| Benzo (b) fluoranthene | ND | 0.0050 | 1 | 04/25/2017 18:28 |
| Benzo (g,h,i) perylene | ND | 0.0050 | 1 | 04/25/2017 18:28 |
| Benzo (k) fluoranthene | ND | 0.0050 | 1 | 04/25/2017 18:28 |
| Chrysene | ND | 0.0050 | 1 | 04/25/2017 18:28 |
| Dibenzo (a,h) anthracene | ND | 0.0050 | 1 | 04/25/2017 18:28 |
| Fluoranthene | ND | 0.0050 | 1 | 04/25/2017 18:28 |
| Fluorene | ND | 0.0050 | 1 | 04/25/2017 18:28 |
| Indeno (1,2,3-cd) pyrene | ND | 0.0050 | 1 | 04/25/2017 18:28 |
| 1-Methylnaphthalene | ND | 0.0050 | 1 | 04/25/2017 18:28 |
| 2-Methylnaphthalene | ND | 0.0050 | 1 | 04/25/2017 18:28 |
| Naphthalene | ND | 0.0050 | 1 | 04/25/2017 18:28 |
| Phenanthrene | ND | 0.0050 | 1 | 04/25/2017 18:28 |
| Pyrene | ND | 0.0050 | 1 | 04/25/2017 18:28 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 92 | 70-130 | 04/25/2017 18:28 |
| 4,4-Dichlorobiphenyl | 88 | 70-130 | 04/25/2017 18:28 |

Analyst(s): BBO

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550C |
| **Date Prepared:** | 4/20/17-4/24/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-40-5.0, 41-5.0, 7.5 | 1704842-007A | Soil | 04/17/2017 09:08 | HPLC4 | 137601 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.0050 | 1 | 04/21/2017 08:56 |
| Acenaphthylene | ND | 0.0050 | 1 | 04/21/2017 08:56 |
| Anthracene | ND | 0.0050 | 1 | 04/21/2017 08:56 |
| Benzo (a) anthracene | ND | 0.0050 | 1 | 04/21/2017 08:56 |
| Benzo (a) pyrene | ND | 0.0050 | 1 | 04/21/2017 08:56 |
| Benzo (b) fluoranthene | ND | 0.0050 | 1 | 04/21/2017 08:56 |
| Benzo (g,h,i) perylene | ND | 0.0050 | 1 | 04/21/2017 08:56 |
| Benzo (k) fluoranthene | ND | 0.0050 | 1 | 04/21/2017 08:56 |
| Chrysene | ND | 0.0050 | 1 | 04/21/2017 08:56 |
| Dibenzo (a,h) anthracene | ND | 0.0050 | 1 | 04/21/2017 08:56 |
| Fluoranthene | ND | 0.0050 | 1 | 04/21/2017 08:56 |
| Fluorene | ND | 0.0050 | 1 | 04/21/2017 08:56 |
| Indeno (1,2,3-cd) pyrene | ND | 0.0050 | 1 | 04/21/2017 08:56 |
| 1-Methylnaphthalene | ND | 0.0050 | 1 | 04/21/2017 08:56 |
| 2-Methylnaphthalene | ND | 0.0050 | 1 | 04/21/2017 08:56 |
| Naphthalene | ND | 0.0050 | 1 | 04/21/2017 08:56 |
| Phenanthrene | ND | 0.0050 | 1 | 04/21/2017 08:56 |
| Pyrene | ND | 0.0050 | 1 | 04/21/2017 08:56 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 89 | 70-130 | 04/21/2017 08:56 |
| 4,4-Dichlorobiphenyl | 91 | 70-130 | 04/21/2017 08:56 |

Analyst(s): BBO

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550C |
| **Date Prepared:** | 4/20/17-4/24/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-40, 41-10.0 | 1704842-008A | Soil | 04/17/2017 09:18 | HPLC4 | 137601 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.0050 | 1 | 04/21/2017 10:24 |
| Acenaphthylene | ND | 0.0050 | 1 | 04/21/2017 10:24 |
| Anthracene | ND | 0.0050 | 1 | 04/21/2017 10:24 |
| Benzo (a) anthracene | ND | 0.0050 | 1 | 04/21/2017 10:24 |
| Benzo (a) pyrene | ND | 0.0050 | 1 | 04/21/2017 10:24 |
| Benzo (b) fluoranthene | ND | 0.0050 | 1 | 04/21/2017 10:24 |
| Benzo (g,h,i) perylene | ND | 0.0050 | 1 | 04/21/2017 10:24 |
| Benzo (k) fluoranthene | ND | 0.0050 | 1 | 04/21/2017 10:24 |
| Chrysene | ND | 0.0050 | 1 | 04/21/2017 10:24 |
| Dibenzo (a,h) anthracene | ND | 0.0050 | 1 | 04/21/2017 10:24 |
| Fluoranthene | ND | 0.0050 | 1 | 04/21/2017 10:24 |
| Fluorene | ND | 0.0050 | 1 | 04/21/2017 10:24 |
| Indeno (1,2,3-cd) pyrene | ND | 0.0050 | 1 | 04/21/2017 10:24 |
| 1-Methylnaphthalene | ND | 0.0050 | 1 | 04/21/2017 10:24 |
| 2-Methylnaphthalene | ND | 0.0050 | 1 | 04/21/2017 10:24 |
| Naphthalene | ND | 0.0050 | 1 | 04/21/2017 10:24 |
| Phenanthrene | ND | 0.0050 | 1 | 04/21/2017 10:24 |
| Pyrene | ND | 0.0050 | 1 | 04/21/2017 10:24 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 98 | 70-130 | 04/21/2017 10:24 |
| 4,4-Dichlorobiphenyl | 101 | 70-130 | 04/21/2017 10:24 |

Analyst(s): BBO

*(Cont.)*

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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550C |
| **Date Prepared:** | 4/20/17-4/24/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-40, 41-15.0 | 1704842-009A | Soil | 04/17/2017 09:28 | HPLC4 | 137601 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.0050 | 1 | 04/21/2017 11:08 |
| Acenaphthylene | ND | 0.0050 | 1 | 04/21/2017 11:08 |
| Anthracene | ND | 0.0050 | 1 | 04/21/2017 11:08 |
| Benzo (a) anthracene | ND | 0.0050 | 1 | 04/21/2017 11:08 |
| Benzo (a) pyrene | ND | 0.0050 | 1 | 04/21/2017 11:08 |
| Benzo (b) fluoranthene | ND | 0.0050 | 1 | 04/21/2017 11:08 |
| Benzo (g,h,i) perylene | ND | 0.0050 | 1 | 04/21/2017 11:08 |
| Benzo (k) fluoranthene | ND | 0.0050 | 1 | 04/21/2017 11:08 |
| Chrysene | ND | 0.0050 | 1 | 04/21/2017 11:08 |
| Dibenzo (a,h) anthracene | ND | 0.0050 | 1 | 04/21/2017 11:08 |
| Fluoranthene | ND | 0.0050 | 1 | 04/21/2017 11:08 |
| Fluorene | ND | 0.0050 | 1 | 04/21/2017 11:08 |
| Indeno (1,2,3-cd) pyrene | ND | 0.0050 | 1 | 04/21/2017 11:08 |
| 1-Methylnaphthalene | ND | 0.0050 | 1 | 04/21/2017 11:08 |
| 2-Methylnaphthalene | ND | 0.0050 | 1 | 04/21/2017 11:08 |
| Naphthalene | ND | 0.0050 | 1 | 04/21/2017 11:08 |
| Phenanthrene | ND | 0.0050 | 1 | 04/21/2017 11:08 |
| Pyrene | ND | 0.0050 | 1 | 04/21/2017 11:08 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 98 | 70-130 | 04/21/2017 11:08 |
| 4,4-Dichlorobiphenyl | 97 | 70-130 | 04/21/2017 11:08 |

Analyst(s): BBO

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Angela Rydelius, Lab Manager

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550C |
| **Date Prepared:** | 4/20/17-4/24/17 | **Analytical Method:** | SW8310 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/kg |

## Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) by HPLC

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-40, 41-20.0 | 1704842-010A | Soil | 04/17/2017 09:41 | HPLC4 | 137601 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | ND | 0.0050 | 1 | 04/21/2017 11:52 |
| Acenaphthylene | ND | 0.0050 | 1 | 04/21/2017 11:52 |
| Anthracene | ND | 0.0050 | 1 | 04/21/2017 11:52 |
| Benzo (a) anthracene | ND | 0.0050 | 1 | 04/21/2017 11:52 |
| Benzo (a) pyrene | ND | 0.0050 | 1 | 04/21/2017 11:52 |
| Benzo (b) fluoranthene | ND | 0.0050 | 1 | 04/21/2017 11:52 |
| Benzo (g,h,i) perylene | ND | 0.0050 | 1 | 04/21/2017 11:52 |
| Benzo (k) fluoranthene | ND | 0.0050 | 1 | 04/21/2017 11:52 |
| Chrysene | ND | 0.0050 | 1 | 04/21/2017 11:52 |
| Dibenzo (a,h) anthracene | ND | 0.0050 | 1 | 04/21/2017 11:52 |
| Fluoranthene | ND | 0.0050 | 1 | 04/21/2017 11:52 |
| Fluorene | ND | 0.0050 | 1 | 04/21/2017 11:52 |
| Indeno (1,2,3-cd) pyrene | ND | 0.0050 | 1 | 04/21/2017 11:52 |
| 1-Methylnaphthalene | ND | 0.0050 | 1 | 04/21/2017 11:52 |
| 2-Methylnaphthalene | ND | 0.0050 | 1 | 04/21/2017 11:52 |
| Naphthalene | ND | 0.0050 | 1 | 04/21/2017 11:52 |
| Phenanthrene | ND | 0.0050 | 1 | 04/21/2017 11:52 |
| Pyrene | ND | 0.0050 | 1 | 04/21/2017 11:52 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decafluorobiphenyl | 98 | 70-130 | 04/21/2017 11:52 |
| 4,4-Dichlorobiphenyl | 99 | 70-130 | 04/21/2017 11:52 |

Analyst(s): BBO

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW6020 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/Kg |

## CAM / CCR 17 Metals

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-37-5.0,10.0,38-5.0,10.0** | **1704842-001A** | **Soil** | **04/17/2017 11:57** | **ICP-MS3** | **137508** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Antimony | ND | 0.50 | 1 | 04/20/2017 15:18 |
| Arsenic | **5.3** | 0.50 | 1 | 04/20/2017 15:18 |
| Barium | **170** | 5.0 | 1 | 04/20/2017 15:18 |
| Beryllium | **0.63** | 0.50 | 1 | 04/20/2017 15:18 |
| Cadmium | ND | 0.25 | 1 | 04/20/2017 15:18 |
| Chromium | **50** | 0.50 | 1 | 04/20/2017 15:18 |
| Cobalt | **13** | 0.50 | 1 | 04/20/2017 15:18 |
| Copper | **16** | 0.50 | 1 | 04/20/2017 15:18 |
| Lead | **17** | 0.50 | 1 | 04/20/2017 15:18 |
| Mercury | **0.066** | 0.050 | 1 | 04/20/2017 15:18 |
| Molybdenum | ND | 0.50 | 1 | 04/20/2017 15:18 |
| Nickel | **58** | 0.50 | 1 | 04/20/2017 15:18 |
| Selenium | ND | 0.50 | 1 | 04/20/2017 15:18 |
| Silver | ND | 0.50 | 1 | 04/20/2017 15:18 |
| Thallium | ND | 0.50 | 1 | 04/20/2017 15:18 |
| Vanadium | **41** | 0.50 | 1 | 04/20/2017 15:18 |
| Zinc | **30** | 5.0 | 1 | 04/20/2017 15:18 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Terbium | 111 | 70-130 | 04/20/2017 15:18 |

Analyst(s): MIG

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW6020 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/Kg |

## CAM / CCR 17 Metals

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-37, 38-15.0** | **1704842-002A** | **Soil** | **04/17/2017 12:06** | **ICP-MS3** | **137508** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Antimony | **0.51** | 0.50 | 1 | 04/20/2017 15:24 |
| Arsenic | **4.5** | 0.50 | 1 | 04/20/2017 15:24 |
| Barium | **170** | 5.0 | 1 | 04/20/2017 15:24 |
| Beryllium | **0.63** | 0.50 | 1 | 04/20/2017 15:24 |
| Cadmium | ND | 0.25 | 1 | 04/20/2017 15:24 |
| Chromium | **61** | 0.50 | 1 | 04/20/2017 15:24 |
| Cobalt | **13** | 0.50 | 1 | 04/20/2017 15:24 |
| Copper | **28** | 0.50 | 1 | 04/20/2017 15:24 |
| Lead | **7.7** | 0.50 | 1 | 04/20/2017 15:24 |
| Mercury | ND | 0.050 | 1 | 04/20/2017 15:24 |
| Molybdenum | ND | 0.50 | 1 | 04/20/2017 15:24 |
| Nickel | **92** | 0.50 | 1 | 04/20/2017 15:24 |
| Selenium | ND | 0.50 | 1 | 04/20/2017 15:24 |
| Silver | ND | 0.50 | 1 | 04/20/2017 15:24 |
| Thallium | ND | 0.50 | 1 | 04/20/2017 15:24 |
| Vanadium | **42** | 0.50 | 1 | 04/20/2017 15:24 |
| Zinc | **64** | 5.0 | 1 | 04/20/2017 15:24 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Terbium | 106 | 70-130 | 04/20/2017 15:24 |

Analyst(s): MIG

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW6020 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/Kg |

## CAM / CCR 17 Metals

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-37, 28-20.0** | **1704842-003A** | **Soil** | **04/17/2017 12:16** | **ICP-MS3** | **137508** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Antimony | ND | 0.50 | 1 | 04/20/2017 15:30 |
| Arsenic | **4.7** | 0.50 | 1 | 04/20/2017 15:30 |
| Barium | **150** | 5.0 | 1 | 04/20/2017 15:30 |
| Beryllium | ND | 0.50 | 1 | 04/20/2017 15:30 |
| Cadmium | ND | 0.25 | 1 | 04/20/2017 15:30 |
| Chromium | **53** | 0.50 | 1 | 04/20/2017 15:30 |
| Cobalt | **12** | 0.50 | 1 | 04/20/2017 15:30 |
| Copper | **22** | 0.50 | 1 | 04/20/2017 15:30 |
| Lead | **7.1** | 0.50 | 1 | 04/20/2017 15:30 |
| Mercury | ND | 0.050 | 1 | 04/20/2017 15:30 |
| Molybdenum | ND | 0.50 | 1 | 04/20/2017 15:30 |
| Nickel | **83** | 0.50 | 1 | 04/20/2017 15:30 |
| Selenium | ND | 0.50 | 1 | 04/20/2017 15:30 |
| Silver | ND | 0.50 | 1 | 04/20/2017 15:30 |
| Thallium | ND | 0.50 | 1 | 04/20/2017 15:30 |
| Vanadium | **37** | 0.50 | 1 | 04/20/2017 15:30 |
| Zinc | **52** | 5.0 | 1 | 04/20/2017 15:30 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Terbium | 108 | 70-130 | 04/20/2017 15:30 |

Analyst(s): MIG

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW6020 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/Kg |

## CAM / CCR 17 Metals

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-39-1.5,3.0,5.0** | **1704842-004A** | **Soil** | **04/17/2017 12:38** | **ICP-MS3** | **137508** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Antimony | ND | 0.50 | 1 | 04/20/2017 19:07 |
| Arsenic | **3.2** | 0.50 | 1 | 04/20/2017 19:07 |
| Barium | **190** | 5.0 | 1 | 04/20/2017 19:07 |
| Beryllium | ND | 0.50 | 1 | 04/20/2017 19:07 |
| Cadmium | ND | 0.25 | 1 | 04/20/2017 19:07 |
| Chromium | **33** | 0.50 | 1 | 04/20/2017 19:07 |
| Cobalt | **7.6** | 0.50 | 1 | 04/20/2017 19:07 |
| Copper | **11** | 0.50 | 1 | 04/20/2017 19:07 |
| Lead | **20** | 0.50 | 1 | 04/20/2017 19:07 |
| Mercury | ND | 0.050 | 1 | 04/20/2017 19:07 |
| Molybdenum | ND | 0.50 | 1 | 04/20/2017 19:07 |
| Nickel | **31** | 0.50 | 1 | 04/20/2017 19:07 |
| Selenium | ND | 0.50 | 1 | 04/20/2017 19:07 |
| Silver | ND | 0.50 | 1 | 04/20/2017 19:07 |
| Thallium | ND | 0.50 | 1 | 04/20/2017 19:07 |
| Vanadium | **29** | 0.50 | 1 | 04/20/2017 19:07 |
| Zinc | **59** | 5.0 | 1 | 04/20/2017 19:07 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Terbium | 102 | 70-130 | 04/20/2017 19:07 |

Analyst(s): DB

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW6020 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/Kg |

## CAM / CCR 17 Metals

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-39-10.0,15.0,20.0** | **1704842-005A** | **Soil** | **04/17/2017 13:11** | **ICP-MS3** | **137508** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Antimony | **0.51** | 0.50 | 1 | 04/21/2017 04:30 |
| Arsenic | **6.0** | 0.50 | 1 | 04/21/2017 04:30 |
| Barium | **340** | 5.0 | 1 | 04/21/2017 04:30 |
| Beryllium | **0.66** | 0.50 | 1 | 04/21/2017 04:30 |
| Cadmium | ND | 0.25 | 1 | 04/21/2017 04:30 |
| Chromium | **58** | 0.50 | 1 | 04/21/2017 04:30 |
| Cobalt | **16** | 0.50 | 1 | 04/21/2017 04:30 |
| Copper | **28** | 0.50 | 1 | 04/21/2017 04:30 |
| Lead | **11** | 0.50 | 1 | 04/21/2017 04:30 |
| Mercury | **0.053** | 0.050 | 1 | 04/21/2017 04:30 |
| Molybdenum | ND | 0.50 | 1 | 04/21/2017 04:30 |
| Nickel | **100** | 0.50 | 1 | 04/21/2017 04:30 |
| Selenium | ND | 0.50 | 1 | 04/21/2017 04:30 |
| Silver | ND | 0.50 | 1 | 04/21/2017 04:30 |
| Thallium | ND | 0.50 | 1 | 04/21/2017 04:30 |
| Vanadium | **44** | 0.50 | 1 | 04/21/2017 04:30 |
| Zinc | **63** | 5.0 | 1 | 04/21/2017 04:30 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Terbium | 108 | 70-130 | 04/21/2017 04:30 |

Analyst(s): DB

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW6020 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/Kg |

## CAM / CCR 17 Metals

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-40-1.5,3.0 | 1704842-006A | Soil | 04/17/2017 09:03 | ICP-MS3 | 137611 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Antimony | ND | 0.50 | 1 | 04/21/2017 00:17 |
| Arsenic | **3.8** | 0.50 | 1 | 04/21/2017 00:17 |
| Barium | **180** | 5.0 | 1 | 04/21/2017 00:17 |
| Beryllium | ND | 0.50 | 1 | 04/21/2017 00:17 |
| Cadmium | ND | 0.25 | 1 | 04/21/2017 00:17 |
| Chromium | **34** | 0.50 | 1 | 04/21/2017 00:17 |
| Cobalt | **26** | 0.50 | 1 | 04/21/2017 00:17 |
| Copper | **13** | 0.50 | 1 | 04/21/2017 00:17 |
| Lead | **13** | 0.50 | 1 | 04/21/2017 00:17 |
| Mercury | ND | 0.050 | 1 | 04/21/2017 00:17 |
| Molybdenum | **0.51** | 0.50 | 1 | 04/21/2017 00:17 |
| Nickel | **33** | 0.50 | 1 | 04/21/2017 00:17 |
| Selenium | ND | 0.50 | 1 | 04/21/2017 00:17 |
| Silver | ND | 0.50 | 1 | 04/21/2017 00:17 |
| Thallium | ND | 0.50 | 1 | 04/21/2017 00:17 |
| Vanadium | **34** | 0.50 | 1 | 04/21/2017 00:17 |
| Zinc | **23** | 5.0 | 1 | 04/21/2017 00:17 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Terbium | 105 | 70-130 | 04/21/2017 00:17 |

Analyst(s): DB

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW6020 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/Kg |

## CAM / CCR 17 Metals

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-40-5.0, 41-5.0, 7.5** | **1704842-007A** | **Soil** | **04/17/2017 09:08** | **ICP-MS3** | **137508** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Antimony | ND | 0.50 | 1 | 04/20/2017 19:13 |
| Arsenic | **5.6** | 0.50 | 1 | 04/20/2017 19:13 |
| Barium | **150** | 5.0 | 1 | 04/20/2017 19:13 |
| Beryllium | **0.68** | 0.50 | 1 | 04/20/2017 19:13 |
| Cadmium | ND | 0.25 | 1 | 04/20/2017 19:13 |
| Chromium | **57** | 0.50 | 1 | 04/20/2017 19:13 |
| Cobalt | **17** | 0.50 | 1 | 04/20/2017 19:13 |
| Copper | **20** | 0.50 | 1 | 04/20/2017 19:13 |
| Lead | **8.0** | 0.50 | 1 | 04/20/2017 19:13 |
| Mercury | **0.073** | 0.050 | 1 | 04/20/2017 19:13 |
| Molybdenum | ND | 0.50 | 1 | 04/20/2017 19:13 |
| Nickel | **61** | 0.50 | 1 | 04/20/2017 19:13 |
| Selenium | ND | 0.50 | 1 | 04/20/2017 19:13 |
| Silver | ND | 0.50 | 1 | 04/20/2017 19:13 |
| Thallium | ND | 0.50 | 1 | 04/20/2017 19:13 |
| Vanadium | **53** | 0.50 | 1 | 04/20/2017 19:13 |
| Zinc | **32** | 5.0 | 1 | 04/20/2017 19:13 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Terbium | 105 | 70-130 | 04/20/2017 19:13 |

Analyst(s): DB

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW6020 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/Kg |

## CAM / CCR 17 Metals

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-40, 41-10.0** | **1704842-008A** | **Soil** | **04/17/2017 09:18** | **ICP-MS3** | **137508** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Antimony | ND | 0.50 | 1 | 04/20/2017 19:19 |
| Arsenic | **5.2** | 0.50 | 1 | 04/20/2017 19:19 |
| Barium | **140** | 5.0 | 1 | 04/20/2017 19:19 |
| Beryllium | **0.56** | 0.50 | 1 | 04/20/2017 19:19 |
| Cadmium | ND | 0.25 | 1 | 04/20/2017 19:19 |
| Chromium | **54** | 0.50 | 1 | 04/20/2017 19:19 |
| Cobalt | **21** | 0.50 | 1 | 04/20/2017 19:19 |
| Copper | **20** | 0.50 | 1 | 04/20/2017 19:19 |
| Lead | **8.2** | 0.50 | 1 | 04/20/2017 19:19 |
| Mercury | **0.055** | 0.050 | 1 | 04/20/2017 19:19 |
| Molybdenum | ND | 0.50 | 1 | 04/20/2017 19:19 |
| Nickel | **77** | 0.50 | 1 | 04/20/2017 19:19 |
| Selenium | ND | 0.50 | 1 | 04/20/2017 19:19 |
| Silver | ND | 0.50 | 1 | 04/20/2017 19:19 |
| Thallium | ND | 0.50 | 1 | 04/20/2017 19:19 |
| Vanadium | **43** | 0.50 | 1 | 04/20/2017 19:19 |
| Zinc | **38** | 5.0 | 1 | 04/20/2017 19:19 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Terbium | 108 | 70-130 | 04/20/2017 19:19 |

Analyst(s): DB

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW6020 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/Kg |

## CAM / CCR 17 Metals

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-40, 41-15.0** | **1704842-009A** | **Soil** | **04/17/2017 09:28** | **ICP-MS3** | **137508** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Antimony | **0.54** | 0.50 | 1 | 04/20/2017 19:44 |
| Arsenic | **5.0** | 0.50 | 1 | 04/20/2017 19:44 |
| Barium | **180** | 5.0 | 1 | 04/20/2017 19:44 |
| Beryllium | **0.67** | 0.50 | 1 | 04/20/2017 19:44 |
| Cadmium | ND | 0.25 | 1 | 04/20/2017 19:44 |
| Chromium | **62** | 0.50 | 1 | 04/20/2017 19:44 |
| Cobalt | **15** | 0.50 | 1 | 04/20/2017 19:44 |
| Copper | **32** | 0.50 | 1 | 04/20/2017 19:44 |
| Lead | **9.6** | 0.50 | 1 | 04/20/2017 19:44 |
| Mercury | ND | 0.050 | 1 | 04/20/2017 19:44 |
| Molybdenum | ND | 0.50 | 1 | 04/20/2017 19:44 |
| Nickel | **110** | 0.50 | 1 | 04/20/2017 19:44 |
| Selenium | ND | 0.50 | 1 | 04/20/2017 19:44 |
| Silver | ND | 0.50 | 1 | 04/20/2017 19:44 |
| Thallium | ND | 0.50 | 1 | 04/20/2017 19:44 |
| Vanadium | **45** | 0.50 | 1 | 04/20/2017 19:44 |
| Zinc | **71** | 5.0 | 1 | 04/20/2017 19:44 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Terbium | 112 | 70-130 | 04/20/2017 19:44 |

Analyst(s): DB

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW6020 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/Kg |

## CAM / CCR 17 Metals

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-40, 41-20.0** | **1704842-010A** | **Soil** | **04/17/2017 09:41** | **ICP-MS3** | **137508** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Antimony | ND | 0.50 | 1 | 04/20/2017 19:50 |
| Arsenic | **3.9** | 0.50 | 1 | 04/20/2017 19:50 |
| Barium | **120** | 5.0 | 1 | 04/20/2017 19:50 |
| Beryllium | ND | 0.50 | 1 | 04/20/2017 19:50 |
| Cadmium | ND | 0.25 | 1 | 04/20/2017 19:50 |
| Chromium | **47** | 0.50 | 1 | 04/20/2017 19:50 |
| Cobalt | **9.2** | 0.50 | 1 | 04/20/2017 19:50 |
| Copper | **17** | 0.50 | 1 | 04/20/2017 19:50 |
| Lead | **6.3** | 0.50 | 1 | 04/20/2017 19:50 |
| Mercury | ND | 0.050 | 1 | 04/20/2017 19:50 |
| Molybdenum | ND | 0.50 | 1 | 04/20/2017 19:50 |
| Nickel | **68** | 0.50 | 1 | 04/20/2017 19:50 |
| Selenium | ND | 0.50 | 1 | 04/20/2017 19:50 |
| Silver | ND | 0.50 | 1 | 04/20/2017 19:50 |
| Thallium | ND | 0.50 | 1 | 04/20/2017 19:50 |
| Vanadium | **31** | 0.50 | 1 | 04/20/2017 19:50 |
| Zinc | **43** | 5.0 | 1 | 04/20/2017 19:50 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Terbium | 108 | 70-130 | 04/20/2017 19:50 |

Analyst(s): DB

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8021B/8015Bm |
| **Project:** | 750635603; 3000 Broadway | **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-37-5.0,10.0,38-5.0,10.0 | 1704842-001A | Soil | 04/17/2017 11:57 | GC19 | 137446 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 04/20/2017 05:06 |
| MTBE | --- | 0.050 | 1 | 04/20/2017 05:06 |
| Benzene | --- | 0.0050 | 1 | 04/20/2017 05:06 |
| Toluene | --- | 0.0050 | 1 | 04/20/2017 05:06 |
| Ethylbenzene | --- | 0.0050 | 1 | 04/20/2017 05:06 |
| Xylenes | --- | 0.015 | 1 | 04/20/2017 05:06 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 97 | 62-126 | 04/20/2017 05:06 |

Analyst(s): IA

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-37, 38-15.0 | 1704842-002A | Soil | 04/17/2017 12:06 | GC19 | 137446 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 04/20/2017 06:06 |
| MTBE | --- | 0.050 | 1 | 04/20/2017 06:06 |
| Benzene | --- | 0.0050 | 1 | 04/20/2017 06:06 |
| Toluene | --- | 0.0050 | 1 | 04/20/2017 06:06 |
| Ethylbenzene | --- | 0.0050 | 1 | 04/20/2017 06:06 |
| Xylenes | --- | 0.015 | 1 | 04/20/2017 06:06 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 97 | 62-126 | 04/20/2017 06:06 |

Analyst(s): IA

*(Cont.)*

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8021B/8015Bm |
| **Project:** | 750635603; 3000 Broadway | **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-37, 28-20.0 | 1704842-003A | Soil | 04/17/2017 12:16 | GC19 | 137446 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 04/20/2017 06:36 |
| MTBE | --- | 0.050 | 1 | 04/20/2017 06:36 |
| Benzene | --- | 0.0050 | 1 | 04/20/2017 06:36 |
| Toluene | --- | 0.0050 | 1 | 04/20/2017 06:36 |
| Ethylbenzene | --- | 0.0050 | 1 | 04/20/2017 06:36 |
| Xylenes | --- | 0.015 | 1 | 04/20/2017 06:36 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 91 | 62-126 | 04/20/2017 06:36 |

Analyst(s): IA

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-39-1.5,3.0,5.0 | 1704842-004A | Soil | 04/17/2017 12:38 | GC19 | 137446 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 04/20/2017 07:06 |
| MTBE | --- | 0.050 | 1 | 04/20/2017 07:06 |
| Benzene | --- | 0.0050 | 1 | 04/20/2017 07:06 |
| Toluene | --- | 0.0050 | 1 | 04/20/2017 07:06 |
| Ethylbenzene | --- | 0.0050 | 1 | 04/20/2017 07:06 |
| Xylenes | --- | 0.015 | 1 | 04/20/2017 07:06 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 96 | 62-126 | 04/20/2017 07:06 |

Analyst(s): IA

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8021B/8015Bm |
| **Project:** | 750635603; 3000 Broadway | **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-39-10.0,15.0,20.0 | 1704842-005A | Soil | 04/17/2017 13:11 | GC19 | 137446 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 04/20/2017 07:37 |
| MTBE | --- | 0.050 | 1 | 04/20/2017 07:37 |
| Benzene | --- | 0.0050 | 1 | 04/20/2017 07:37 |
| Toluene | --- | 0.0050 | 1 | 04/20/2017 07:37 |
| Ethylbenzene | --- | 0.0050 | 1 | 04/20/2017 07:37 |
| Xylenes | --- | 0.015 | 1 | 04/20/2017 07:37 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 96 | 62-126 | 04/20/2017 07:37 |

Analyst(s): IA

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-40-1.5,3.0 | 1704842-006A | Soil | 04/17/2017 09:03 | GC19 | 137595 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 04/20/2017 23:39 |
| MTBE | --- | 0.050 | 1 | 04/20/2017 23:39 |
| Benzene | --- | 0.0050 | 1 | 04/20/2017 23:39 |
| Toluene | --- | 0.0050 | 1 | 04/20/2017 23:39 |
| Ethylbenzene | --- | 0.0050 | 1 | 04/20/2017 23:39 |
| Xylenes | --- | 0.015 | 1 | 04/20/2017 23:39 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 87 | 62-126 | 04/20/2017 23:39 |

Analyst(s): IA

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8021B/8015Bm |
| **Project:** | 750635603; 3000 Broadway | **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-40-5.0, 41-5.0, 7.5 | 1704842-007A | Soil | 04/17/2017 09:08 | GC19 | 137446 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 04/19/2017 21:29 |
| MTBE | --- | 0.050 | 1 | 04/19/2017 21:29 |
| Benzene | --- | 0.0050 | 1 | 04/19/2017 21:29 |
| Toluene | --- | 0.0050 | 1 | 04/19/2017 21:29 |
| Ethylbenzene | --- | 0.0050 | 1 | 04/19/2017 21:29 |
| Xylenes | --- | 0.015 | 1 | 04/19/2017 21:29 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 96 | 62-126 | 04/19/2017 21:29 |

Analyst(s): IA

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-40, 41-10.0 | 1704842-008A | Soil | 04/17/2017 09:18 | GC19 | 137446 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 04/19/2017 21:59 |
| MTBE | --- | 0.050 | 1 | 04/19/2017 21:59 |
| Benzene | --- | 0.0050 | 1 | 04/19/2017 21:59 |
| Toluene | --- | 0.0050 | 1 | 04/19/2017 21:59 |
| Ethylbenzene | --- | 0.0050 | 1 | 04/19/2017 21:59 |
| Xylenes | --- | 0.015 | 1 | 04/19/2017 21:59 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 92 | 62-126 | 04/19/2017 21:59 |

Analyst(s): IA

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8021B/8015Bm |
| **Project:** | 750635603; 3000 Broadway | **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-40, 41-15.0** | **1704842-009A** | **Soil** | **04/17/2017 09:28** | **GC19** | **137526** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 04/20/2017 08:07 |
| MTBE | --- | 0.050 | 1 | 04/20/2017 08:07 |
| Benzene | --- | 0.0050 | 1 | 04/20/2017 08:07 |
| Toluene | --- | 0.0050 | 1 | 04/20/2017 08:07 |
| Ethylbenzene | --- | 0.0050 | 1 | 04/20/2017 08:07 |
| Xylenes | --- | 0.015 | 1 | 04/20/2017 08:07 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 95 | 62-126 | 04/20/2017 08:07 |

Analyst(s): IA

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-40, 41-20.0** | **1704842-010A** | **Soil** | **04/17/2017 09:41** | **GC19** | **137526** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 04/20/2017 08:38 |
| MTBE | --- | 0.050 | 1 | 04/20/2017 08:38 |
| Benzene | --- | 0.0050 | 1 | 04/20/2017 08:38 |
| Toluene | --- | 0.0050 | 1 | 04/20/2017 08:38 |
| Ethylbenzene | --- | 0.0050 | 1 | 04/20/2017 08:38 |
| Xylenes | --- | 0.015 | 1 | 04/20/2017 08:38 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| 2-Fluorotoluene | 95 | 62-126 | 04/20/2017 08:38 |

Analyst(s): IA

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8015B |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/Kg |

## Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-37-5.0,10.0,38-5.0,10.0 | 1704842-001A | Soil | 04/17/2017 11:57 | GC9b | 137505 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 04/19/2017 18:34 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 04/19/2017 18:34 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 98 | 78-109 | 04/19/2017 18:34 |

Analyst(s): TK

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-37, 38-15.0 | 1704842-002A | Soil | 04/17/2017 12:06 | GC9b | 137505 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 04/19/2017 19:52 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 04/19/2017 19:52 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 98 | 78-109 | 04/19/2017 19:52 |

Analyst(s): TK

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-37, 28-20.0 | 1704842-003A | Soil | 04/17/2017 12:16 | GC9b | 137505 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 04/20/2017 07:30 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 04/20/2017 07:30 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 99 | 78-109 | 04/20/2017 07:30 |

Analyst(s): TK

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8015B |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/Kg |

## Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-39-1.5,3.0,5.0 | 1704842-004A | Soil | 04/17/2017 12:38 | GC9b | 137505 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 04/20/2017 06:51 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 04/20/2017 06:51 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 99 | 78-109 | 04/20/2017 06:51 |

Analyst(s): TK

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-39-10.0,15.0,20.0 | 1704842-005A | Soil | 04/17/2017 13:11 | GC9b | 137505 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 04/20/2017 06:13 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 04/20/2017 06:13 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 99 | 78-109 | 04/20/2017 06:13 |

Analyst(s): TK

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-40-1.5,3.0 | 1704842-006A | Soil | 04/17/2017 09:03 | GC9a | 137567 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 04/20/2017 15:31 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 04/20/2017 15:31 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C26 | 98 | 70-130 | 04/20/2017 15:31 |

Analyst(s): TK

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8015B |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/Kg |

## Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-40-5.0, 41-5.0, 7.5 | 1704842-007A | Soil | 04/17/2017 09:08 | GC9b | 137505 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 04/19/2017 21:09 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 04/19/2017 21:09 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 99 | 78-109 | 04/19/2017 21:09 |

Analyst(s): TK

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-40, 41-10.0 | 1704842-008A | Soil | 04/17/2017 09:18 | GC9b | 137505 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 04/19/2017 22:27 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 04/19/2017 22:27 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 99 | 78-109 | 04/19/2017 22:27 |

Analyst(s): TK

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-40, 41-15.0 | 1704842-009A | Soil | 04/17/2017 09:28 | GC9b | 137505 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 04/19/2017 23:45 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 04/19/2017 23:45 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 99 | 78-109 | 04/19/2017 23:45 |

Analyst(s): TK

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Angela Rydelius, Lab Manager

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 4/18/17-4/20/17 | **Analytical Method:** | SW8015B |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/Kg |

## Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-40, 41-20.0** | **1704842-010A** | **Soil** | **04/17/2017 09:41** | **GC9b** | **137505** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 04/20/2017 01:02 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 04/20/2017 01:02 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 99 | 78-109 | 04/20/2017 01:02 |

Analyst(s): TK

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/18/17 | **BatchID:** | 137522 |
| **Date Analyzed:** | 4/20/17 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC22 | **Analytical Method:** | SW8081A/8082 |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS/LCSD-137522 |

## QC Summary Report for SW8081A/8082

| Analyte | MB Result | MDL | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|---|
| Aldrin | ND | 0.00027 | 0.0010 | - | - | - |
| a-BHC | ND | 0.00010 | 0.0010 | - | - | - |
| b-BHC | ND | 0.00025 | 0.0010 | - | - | - |
| d-BHC | ND | 0.00037 | 0.0010 | - | - | - |
| g-BHC | ND | 0.000097 | 0.0010 | - | - | - |
| Chlordane (Technical) | ND | 0.016 | 0.025 | - | - | - |
| a-Chlordane | ND | 0.00047 | 0.0010 | - | - | - |
| g-Chlordane | ND | 0.00021 | 0.0010 | - | - | - |
| p,p-DDD | ND | 0.00014 | 0.0010 | - | - | - |
| p,p-DDE | ND | 0.00032 | 0.0010 | - | - | - |
| p,p-DDT | ND | 0.00043 | 0.0010 | - | - | - |
| Dieldrin | ND | 0.00033 | 0.0010 | - | - | - |
| Endosulfan I | ND | 0.00065 | 0.0010 | - | - | - |
| Endosulfan II | ND | 0.00020 | 0.0010 | - | - | - |
| Endosulfan sulfate | ND | 0.00063 | 0.0010 | - | - | - |
| Endrin | ND | 0.00042 | 0.0010 | - | - | - |
| Endrin aldehyde | ND | 0.00020 | 0.0010 | - | - | - |
| Endrin ketone | ND | 0.00013 | 0.0010 | - | - | - |
| Heptachlor | ND | 0.00021 | 0.0010 | - | - | - |
| Heptachlor epoxide | ND | 0.00020 | 0.0010 | - | - | - |
| Hexachlorobenzene | ND | 0.00027 | 0.010 | - | - | - |
| Hexachlorocyclopentadiene | ND | 0.00040 | 0.020 | - | - | - |
| Methoxychlor | ND | 0.00089 | 0.0010 | - | - | - |
| Toxaphene | ND | 0.035 | 0.050 | - | - | - |
| Aroclor1016 | ND | 0.0051 | 0.050 | - | - | - |
| Aroclor1221 | ND | 0.011 | 0.050 | - | - | - |
| Aroclor1232 | ND | 0.0063 | 0.050 | - | - | - |
| Aroclor1242 | ND | 0.0067 | 0.050 | - | - | - |
| Aroclor1248 | ND | 0.0040 | 0.050 | - | - | - |
| Aroclor1254 | ND | 0.0068 | 0.050 | - | - | - |
| Aroclor1260 | ND | 0.0061 | 0.050 | - | - | - |
| PCBs, total | ND | 0.0040 | 0.050 | - | - | - |
| **Surrogate Recovery** | | | | | | |
| Decachlorobiphenyl | 0.05655 | | | 0.050 | 113 | 70-130 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/18/17 | **BatchID:** | 137522 |
| **Date Analyzed:** | 4/20/17 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC22 | **Analytical Method:** | SW8081A/8082 |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS/LCSD-137522 |

## QC Summary Report for SW8081A/8082

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Aldrin | 0.0552 | - | 0.050 | 110 | - | 70-130 | - | - |
| g-BHC | 0.0538 | - | 0.050 | 108 | - | 70-130 | - | - |
| p,p-DDT | 0.0567 | - | 0.050 | 113 | - | 70-130 | - | - |
| Dieldrin | 0.0646 | - | 0.050 | 129 | - | 70-130 | - | - |
| Endrin | 0.0571 | - | 0.050 | 114 | - | 70-130 | - | - |
| Heptachlor | 0.0550 | - | 0.050 | 110 | - | 70-130 | - | - |
| Aroclor1016 | 0.144 | 0.148 | 0.15 | 96 | 98 | 70-130 | 2.52 | 20 |
| Aroclor1260 | 0.174 | 0.170 | 0.15 | 116 | 114 | 70-130 | 1.84 | 20 |
| **Surrogate Recovery** | | | | | | | | |
| Decachlorobiphenyl | 0.0572 | 0.0577 | 0.050 | 114 | 115 | 70-130 | 2.94 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/19/17 | **BatchID:** | 137574 |
| **Date Analyzed:** | 4/20/17 - 4/21/17 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC22 | **Analytical Method:** | SW8081A/8082 |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS/LCSD-137574 |

## QC Summary Report for SW8081A/8082

| Analyte | MB Result | MDL | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|---|
| Aldrin | ND | 0.00027 | 0.0010 | - | - | - |
| a-BHC | ND | 0.00010 | 0.0010 | - | - | - |
| b-BHC | ND | 0.00025 | 0.0010 | - | - | - |
| d-BHC | ND | 0.00037 | 0.0010 | - | - | - |
| g-BHC | ND | 0.000097 | 0.0010 | - | - | - |
| Chlordane (Technical) | ND | 0.016 | 0.025 | - | - | - |
| a-Chlordane | ND | 0.00047 | 0.0010 | - | - | - |
| g-Chlordane | ND | 0.00021 | 0.0010 | - | - | - |
| p,p-DDD | ND | 0.00014 | 0.0010 | - | - | - |
| p,p-DDE | ND | 0.00032 | 0.0010 | - | - | - |
| p,p-DDT | ND | 0.00043 | 0.0010 | - | - | - |
| Dieldrin | ND | 0.00033 | 0.0010 | - | - | - |
| Endosulfan I | ND | 0.00065 | 0.0010 | - | - | - |
| Endosulfan II | ND | 0.00020 | 0.0010 | - | - | - |
| Endosulfan sulfate | ND | 0.00063 | 0.0010 | - | - | - |
| Endrin | ND | 0.00042 | 0.0010 | - | - | - |
| Endrin aldehyde | ND | 0.00020 | 0.0010 | - | - | - |
| Endrin ketone | ND | 0.00013 | 0.0010 | - | - | - |
| Heptachlor | ND | 0.00021 | 0.0010 | - | - | - |
| Heptachlor epoxide | ND | 0.00020 | 0.0010 | - | - | - |
| Hexachlorobenzene | ND | 0.00027 | 0.010 | - | - | - |
| Hexachlorocyclopentadiene | ND | 0.00040 | 0.020 | - | - | - |
| Methoxychlor | ND | 0.00089 | 0.0010 | - | - | - |
| Toxaphene | ND | 0.035 | 0.050 | - | - | - |
| Aroclor1016 | ND | 0.0051 | 0.050 | - | - | - |
| Aroclor1221 | ND | 0.011 | 0.050 | - | - | - |
| Aroclor1232 | ND | 0.0063 | 0.050 | - | - | - |
| Aroclor1242 | ND | 0.0067 | 0.050 | - | - | - |
| Aroclor1248 | ND | 0.0040 | 0.050 | - | - | - |
| Aroclor1254 | ND | 0.0068 | 0.050 | - | - | - |
| Aroclor1260 | ND | 0.0061 | 0.050 | - | - | - |
| PCBs, total | ND | 0.0040 | 0.050 | - | - | - |
| **Surrogate Recovery** | | | | | | |
| Decachlorobiphenyl | 0.05689 | | | 0.050 | 114 | 70-130 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/19/17 | **BatchID:** | 137574 |
| **Date Analyzed:** | 4/20/17 - 4/21/17 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC22 | **Analytical Method:** | SW8081A/8082 |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS/LCSD-137574 |

## QC Summary Report for SW8081A/8082

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Aldrin | 0.0546 | - | 0.050 | 109 | - | 70-130 | - | - |
| g-BHC | 0.0529 | - | 0.050 | 106 | - | 70-130 | - | - |
| p,p-DDT | 0.0554 | - | 0.050 | 111 | - | 70-130 | - | - |
| Dieldrin | 0.0645 | - | 0.050 | 129 | - | 70-130 | - | - |
| Endrin | 0.0567 | - | 0.050 | 113 | - | 70-130 | - | - |
| Heptachlor | 0.0532 | - | 0.050 | 106 | - | 70-130 | - | - |
| Aroclor1016 | 0.147 | 0.146 | 0.15 | 98 | 98 | 70-130 | 0 | 20 |
| Aroclor1260 | 0.176 | 0.175 | 0.15 | 118 | 117 | 70-130 | 0.966 | 20 |
| **Surrogate Recovery** | | | | | | | | |
| Decachlorobiphenyl | 0.0562 | 0.0561 | 0.050 | 112 | 112 | 70-130 | 0 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/18/17 | **BatchID:** | 137501 |
| **Date Analyzed:** | 4/19/17 - 4/20/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137501<br>1704835-001AMS/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 | 0.0376 | 0.0050 | 0.050 | - | 75 | 53-116 |
| Benzene | ND | 0.0475 | 0.0050 | 0.050 | - | 95 | 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 | 0.170 | 0.050 | 0.20 | - | 85 | 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 | 0.0438 | 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 | 0.0428 | 0.0040 | 0.050 | - | 86 | 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 | 0.0485 | 0.0040 | 0.050 | - | 97 | 58-135 |
| 1,1-Dichloroethene | ND | 0.0487 | 0.0050 | 0.050 | - | 97 | 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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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/18/17 | **BatchID:** | 137501 |
| **Date Analyzed:** | 4/19/17 - 4/20/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137501<br>1704835-001AMS/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 | 0.0485 | 0.0050 | 0.050 | - | 97 | 52-129 |
| Ethylbenzene | ND | - | 0.0050 | - | - | - | - |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0461 | 0.0050 | 0.050 | - | 92 | 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 | 0.0437 | 0.0050 | 0.050 | - | 87 | 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 | 0.0484 | 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 | 0.0517 | 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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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/18/17 | **BatchID:** | 137501 |
| **Date Analyzed:** | 4/19/17 - 4/20/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137501<br>1704835-001AMS/MSD |

## QC Summary Report for SW8260B

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | | | |
| Dibromofluoromethane | 0.1224 | 0.130 | | 0.12 | 98 | 104 | 70-130 |
| Toluene-d8 | 0.1376 | 0.138 | | 0.12 | 110 | 110 | 70-130 |
| 4-BFB | 0.01023 | 0.0108 | | 0.012 | 82 | 87 | 70-130 |
| Benzene-d6 | 0.08106 | 0.0917 | | 0.10 | 81 | 92 | 60-140 |
| Ethylbenzene-d10 | 0.1012 | 0.110 | | 0.10 | 101 | 110 | 60-140 |
| 1,2-DCB-d4 | 0.07546 | 0.0782 | | 0.10 | 75 | 78 | 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) | 0.0351 | 0.0332 | 0.050 | ND | 70 | 66 | 53-116 | 5.64 | 20 |
| Benzene | 0.0447 | 0.0417 | 0.050 | ND | 89 | 83 | 63-137 | 6.97 | 20 |
| t-Butyl alcohol (TBA) | 0.138 | 0.139 | 0.20 | ND | 69 | 70 | 41-135 | 0.649 | 20 |
| Chlorobenzene | 0.0424 | 0.0385 | 0.050 | ND | 85 | 77 | 77-121 | 9.53 | 20 |
| 1,2-Dibromoethane (EDB) | 0.0393 | 0.0364 | 0.050 | ND | 79 | 73 | 67-119 | 7.72 | 20 |
| 1,2-Dichloroethane (1,2-DCA) | 0.0462 | 0.0426 | 0.050 | ND | 92 | 85 | 58-135 | 8.05 | 20 |
| 1,1-Dichloroethene | 0.0420 | 0.0394 | 0.050 | ND | 84 | 79 | 42-145 | 6.47 | 20 |
| Diisopropyl ether (DIPE) | 0.0470 | 0.0440 | 0.050 | ND | 94 | 88 | 52-129 | 6.54 | 20 |
| Ethyl tert-butyl ether (ETBE) | 0.0435 | 0.0412 | 0.050 | ND | 87 | 82 | 53-125 | 5.35 | 20 |
| Methyl-t-butyl ether (MTBE) | 0.0410 | 0.0382 | 0.050 | ND | 82 | 76 | 58-122 | 7.18 | 20 |
| Toluene | 0.0454 | 0.0421 | 0.050 | ND | 91 | 84 | 76-130 | 7.48 | 20 |
| Trichloroethene | 0.0442 | 0.0399 | 0.050 | ND | 89 | 80 | 72-132 | 10.3 | 20 |
| **Surrogate Recovery** | | | | | | | | | |
| Dibromofluoromethane | 0.127 | 0.129 | 0.12 | | 102 | 103 | 70-130 | 1.51 | 20 |
| Toluene-d8 | 0.137 | 0.136 | 0.12 | | 109 | 109 | 70-130 | 0 | 20 |
| 4-BFB | 0.0109 | 0.0111 | 0.012 | | 87 | 89 | 70-130 | 1.91 | 20 |
| Benzene-d6 | 0.0855 | 0.0798 | 0.10 | | 86 | 80 | 60-140 | 6.95 | 20 |
| Ethylbenzene-d10 | 0.105 | 0.0924 | 0.10 | | 105 | 92 | 60-140 | 12.7 | 20 |
| 1,2-DCB-d4 | 0.0743 | 0.0684 | 0.10 | | 74 | 68 | 60-140 | 8.34 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/20/17 | **BatchID:** | 137599 |
| **Date Analyzed:** | 4/21/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137599<br>1704901-003AMS/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 | 0.0362 | 0.0050 | 0.050 | - | 73 | 53-116 |
| Benzene | ND | 0.0468 | 0.0050 | 0.050 | - | 94 | 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 | 0.141 | 0.050 | 0.20 | - | 70 | 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 | 0.0449 | 0.0050 | 0.050 | - | 90 | 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 | 0.0422 | 0.0040 | 0.050 | - | 84 | 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 | 0.0474 | 0.0040 | 0.050 | - | 95 | 58-135 |
| 1,1-Dichloroethene | ND | 0.0476 | 0.0050 | 0.050 | - | 95 | 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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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/20/17 | **BatchID:** | 137599 |
| **Date Analyzed:** | 4/21/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137599<br>1704901-003AMS/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 | 0.0482 | 0.0050 | 0.050 | - | 96 | 52-129 |
| Ethylbenzene | ND | - | 0.0050 | - | - | - | - |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0443 | 0.0050 | 0.050 | - | 89 | 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 | 0.0422 | 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 | 0.0483 | 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 | 0.0478 | 0.0050 | 0.050 | - | 96 | 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 | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/20/17 | **BatchID:** | 137599 |
| **Date Analyzed:** | 4/21/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137599<br>1704901-003AMS/MSD |

## QC Summary Report for SW8260B

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | | | |
| Dibromofluoromethane | 0.1234 | 0.128 | | 0.12 | 99 | 102 | 70-130 |
| Toluene-d8 | 0.1372 | 0.138 | | 0.12 | 110 | 111 | 70-130 |
| 4-BFB | 0.01038 | 0.0106 | | 0.012 | 83 | 85 | 70-130 |
| Benzene-d6 | 0.08748 | 0.0879 | | 0.10 | 87 | 88 | 60-140 |
| Ethylbenzene-d10 | 0.108 | 0.110 | | 0.10 | 108 | 110 | 60-140 |
| 1,2-DCB-d4 | 0.07811 | 0.0744 | | 0.10 | 78 | 74 | 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) | 0.0317 | 0.0330 | 0.050 | ND | 63 | 66 | 53-116 | 3.82 | 20 |
| Benzene | 0.0416 | 0.0428 | 0.050 | ND | 83 | 86 | 63-137 | 2.86 | 20 |
| t-Butyl alcohol (TBA) | 0.120 | 0.124 | 0.20 | ND | 60 | 62 | 41-135 | 2.71 | 20 |
| Chlorobenzene | 0.0399 | 0.0412 | 0.050 | ND | 80 | 82 | 77-121 | 3.15 | 20 |
| 1,2-Dibromoethane (EDB) | 0.0363 | 0.0378 | 0.050 | ND | 73 | 76 | 67-119 | 4.20 | 20 |
| 1,2-Dichloroethane (1,2-DCA) | 0.0410 | 0.0432 | 0.050 | ND | 82 | 86 | 58-135 | 5.30 | 20 |
| 1,1-Dichloroethene | 0.0405 | 0.0413 | 0.050 | ND | 81 | 83 | 42-145 | 1.98 | 20 |
| Diisopropyl ether (DIPE) | 0.0429 | 0.0448 | 0.050 | ND | 86 | 90 | 52-129 | 4.39 | 20 |
| Ethyl tert-butyl ether (ETBE) | 0.0390 | 0.0411 | 0.050 | ND | 78 | 82 | 53-125 | 5.41 | 20 |
| Methyl-t-butyl ether (MTBE) | 0.0360 | 0.0377 | 0.050 | ND | 72 | 75 | 58-122 | 4.81 | 20 |
| Toluene | 0.0427 | 0.0447 | 0.050 | ND | 85 | 89 | 76-130 | 4.57 | 20 |
| Trichloroethene | 0.0416 | 0.0431 | 0.050 | ND | 83 | 86 | 72-132 | 3.55 | 20 |
| **Surrogate Recovery** | | | | | | | | | |
| Dibromofluoromethane | 0.127 | 0.127 | 0.12 | | 101 | 102 | 70-130 | 0.291 | 20 |
| Toluene-d8 | 0.136 | 0.137 | 0.12 | | 109 | 109 | 70-130 | 0 | 20 |
| 4-BFB | 0.0108 | 0.0112 | 0.012 | | 87 | 89 | 70-130 | 2.99 | 20 |
| Benzene-d6 | 0.0808 | 0.0828 | 0.10 | | 81 | 83 | 60-140 | 2.41 | 20 |
| Ethylbenzene-d10 | 0.0974 | 0.101 | 0.10 | | 97 | 101 | 60-140 | 3.74 | 20 |
| 1,2-DCB-d4 | 0.0703 | 0.0719 | 0.10 | | 70 | 72 | 60-140 | 2.29 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/20/17 | **BatchID:** | 137601 |
| **Date Analyzed:** | 4/21/17 | **Extraction Method:** | SW3550C |
| **Instrument:** | HPLC4 | **Analytical Method:** | SW8310 |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137601<br>1704842-001AMS/MSD |

## QC Summary Report for SW8310

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | - | 0.0050 | - | - | - | - |
| Acenaphthylene | ND | - | 0.0050 | - | - | - | - |
| Anthracene | ND | - | 0.0050 | - | - | - | - |
| Benzo (a) anthracene | ND | 0.0145 | 0.0050 | 0.015 | - | 96 | 70-130 |
| Benzo (a) pyrene | ND | 0.0134 | 0.0050 | 0.015 | - | 90 | 70-130 |
| Benzo (b) fluoranthene | ND | - | 0.0050 | - | - | - | - |
| Benzo (g,h,i) perylene | ND | - | 0.0050 | - | - | - | - |
| Benzo (k) fluoranthene | ND | - | 0.0050 | - | - | - | - |
| Chrysene | ND | 0.0142 | 0.0050 | 0.015 | - | 95 | 70-130 |
| Dibenzo (a,h) anthracene | ND | - | 0.0050 | - | - | - | - |
| Fluoranthene | ND | - | 0.0050 | - | - | - | - |
| Fluorene | ND | - | 0.0050 | - | - | - | - |
| Indeno (1,2,3-cd) pyrene | ND | - | 0.0050 | - | - | - | - |
| 1-Methylnaphthalene | ND | 0.0150 | 0.0050 | 0.015 | - | 100 | 70-130 |
| 2-Methylnaphthalene | ND | 0.0155 | 0.0050 | 0.015 | - | 104 | 70-130 |
| Naphthalene | ND | - | 0.0050 | - | - | - | - |
| Phenanthrene | ND | 0.0148 | 0.0050 | 0.015 | - | 98 | 70-130 |
| Pyrene | ND | 0.0148 | 0.0050 | 0.015 | - | 99 | 70-130 |
| **Surrogate Recovery** | | | | | | | |
| Decafluorobiphenyl | 0.9197 | 0.929 | | 1 | 92 | 93 | 70-130 |
| 4,4-Dichlorobiphenyl | 0.4767 | 0.473 | | 0.50 | 95 | 95 | 70-130 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/20/17 | **BatchID:** | 137601 |
| **Date Analyzed:** | 4/21/17 | **Extraction Method:** | SW3550C |
| **Instrument:** | HPLC4 | **Analytical Method:** | SW8310 |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137601<br>1704842-001AMS/MSD |

## QC Summary Report for SW8310

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Benzo (a) anthracene | 0.0142 | 0.0137 | 0.015 | ND | 95 | 91 | 70-130 | 3.77 | 30 |
| Benzo (a) pyrene | 0.0116 | 0.0110 | 0.015 | ND | 77 | 73 | 70-130 | 5.59 | 30 |
| Chrysene | 0.0141 | 0.0135 | 0.015 | ND | 94 | 90 | 70-130 | 4.60 | 30 |
| 1-Methylnaphthalene | 0.0153 | 0.0146 | 0.015 | ND | 102 | 98 | 70-130 | 4.13 | 30 |
| 2-Methylnaphthalene | 0.0159 | 0.0152 | 0.015 | ND | 100 | 95 | 70-130 | 4.56 | 30 |
| Phenanthrene | 0.0155 | 0.0150 | 0.015 | ND | 103 | 100 | 70-130 | 3.44 | 30 |
| Pyrene | 0.0161 | 0.0155 | 0.015 | ND | 107 | 103 | 70-130 | 3.83 | 30 |
| **Surrogate Recovery** | | | | | | | | | |
| Decafluorobiphenyl | 0.946 | 0.913 | 1 | | 95 | 91 | 70-130 | 3.56 | 30 |
| 4,4-Dichlorobiphenyl | 0.482 | 0.470 | 0.50 | | 96 | 94 | 70-130 | 2.42 | 30 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/24/17 | **BatchID:** | 137738 |
| **Date Analyzed:** | 4/25/17 | **Extraction Method:** | SW3550C |
| **Instrument:** | HPLC4 | **Analytical Method:** | SW8310 |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137738<br>1704842-006AMS/MSD |

## QC Summary Report for SW8310

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | - | 0.0050 | - | - | - | - |
| Acenaphthylene | ND | - | 0.0050 | - | - | - | - |
| Anthracene | ND | - | 0.0050 | - | - | - | - |
| Benzo (a) anthracene | ND | 0.0146 | 0.0050 | 0.015 | - | 97 | 70-130 |
| Benzo (a) pyrene | ND | 0.0241 | 0.0050 | 0.015 | - | 161, F2 | 70-130 |
| Benzo (b) fluoranthene | ND | - | 0.0050 | - | - | - | - |
| Benzo (g,h,i) perylene | ND | - | 0.0050 | - | - | - | - |
| Benzo (k) fluoranthene | ND | - | 0.0050 | - | - | - | - |
| Chrysene | ND | 0.0144 | 0.0050 | 0.015 | - | 96 | 70-130 |
| Dibenzo (a,h) anthracene | ND | - | 0.0050 | - | - | - | - |
| Fluoranthene | ND | - | 0.0050 | - | - | - | - |
| Fluorene | ND | - | 0.0050 | - | - | - | - |
| Indeno (1,2,3-cd) pyrene | ND | - | 0.0050 | - | - | - | - |
| 1-Methylnaphthalene | ND | 0.0146 | 0.0050 | 0.015 | - | 97 | 70-130 |
| 2-Methylnaphthalene | ND | 0.0152 | 0.0050 | 0.015 | - | 101 | 70-130 |
| Naphthalene | ND | - | 0.0050 | - | - | - | - |
| Phenanthrene | ND | 0.0147 | 0.0050 | 0.015 | - | 98 | 70-130 |
| Pyrene | ND | 0.0151 | 0.0050 | 0.015 | - | 101 | 70-130 |
| **Surrogate Recovery** | | | | | | | |
| Decafluorobiphenyl | 0.973 | 0.919 | | 1 | 97 | 92 | 70-130 |
| 4,4-Dichlorobiphenyl | 0.4914 | 0.478 | | 0.50 | 98 | 96 | 70-130 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/24/17 | **BatchID:** | 137738 |
| **Date Analyzed:** | 4/25/17 | **Extraction Method:** | SW3550C |
| **Instrument:** | HPLC4 | **Analytical Method:** | SW8310 |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137738<br>1704842-006AMS/MSD |

## QC Summary Report for SW8310

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Benzo (a) anthracene | 0.0108 | 0.0139 | 0.015 | ND | 72 | 92 | 70-130 | 24.7 | 30 |
| Benzo (a) pyrene | 0.0153 | 0.0242 | 0.015 | ND | 102 | 161,F1 | 70-130 | 44.8,F1 | 30 |
| Chrysene | 0.0105 | 0.0135 | 0.015 | ND | 70 | 90 | 70-130 | 25.2 | 30 |
| 1-Methylnaphthalene | 0.0147 | 0.0151 | 0.015 | ND | 98 | 101 | 70-130 | 2.65 | 30 |
| 2-Methylnaphthalene | 0.0160 | 0.0157 | 0.015 | ND | 103 | 101 | 70-130 | 1.85 | 30 |
| Phenanthrene | 0.0141 | 0.0154 | 0.015 | ND | 94 | 103 | 70-130 | 8.99 | 30 |
| Pyrene | 0.0128 | 0.0145 | 0.015 | ND | 85 | 97 | 70-130 | 12.9 | 30 |
| **Surrogate Recovery** | | | | | | | | | |
| Decafluorobiphenyl | 0.966 | 0.958 | 1 | | 97 | 96 | 70-130 | 0.834 | 30 |
| 4,4-Dichlorobiphenyl | 0.450 | 0.468 | 0.50 | | 90 | 94 | 70-130 | 4.03 | 30 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/18/17 | **BatchID:** | 137508 |
| **Date Analyzed:** | 4/19/17 | **Extraction Method:** | SW3050B |
| **Instrument:** | ICP-MS1 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137508<br>1704294-005AMS/MSD |

## QC Summary Report for Metals

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| Antimony | ND | 50.5 | 0.50 | 50 | - | 101 | 75-125 |
| Arsenic | ND | 50.4 | 0.50 | 50 | - | 101 | 75-125 |
| Barium | ND | 502 | 5.0 | 500 | - | 100 | 75-125 |
| Beryllium | ND | 48.4 | 0.50 | 50 | - | 97 | 75-125 |
| Cadmium | ND | 49.6 | 0.25 | 50 | - | 99 | 75-125 |
| Chromium | ND | 49.0 | 0.50 | 50 | - | 98 | 75-125 |
| Cobalt | ND | 46.5 | 0.50 | 50 | - | 93 | 75-125 |
| Copper | ND | 48.7 | 0.50 | 50 | - | 97 | 75-125 |
| Lead | ND | 48.8 | 0.50 | 50 | - | 98 | 75-125 |
| Mercury | ND | 1.28 | 0.050 | 1.25 | - | 103 | 75-125 |
| Molybdenum | ND | 50.1 | 0.50 | 50 | - | 100 | 75-125 |
| Nickel | ND | 50.4 | 0.50 | 50 | - | 101 | 75-125 |
| Selenium | ND | 49.5 | 0.50 | 50 | - | 99 | 75-125 |
| Silver | ND | 49.9 | 0.50 | 50 | - | 100 | 75-125 |
| Thallium | ND | 46.8 | 0.50 | 50 | - | 94 | 75-125 |
| Vanadium | ND | 49.4 | 0.50 | 50 | - | 99 | 75-125 |
| Zinc | ND | 495 | 5.0 | 500 | - | 99 | 75-125 |
| **Surrogate Recovery** | | | | | | | |
| Terbium | 525.7 | 519 | | 500 | 105 | 104 | 70-130 |

*(Cont.)*

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QA/QC Officer

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/18/17 | **BatchID:** | 137508 |
| **Date Analyzed:** | 4/19/17 | **Extraction Method:** | SW3050B |
| **Instrument:** | ICP-MS1 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137508<br>1704294-005AMS/MSD |

## QC Summary Report for Metals

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | 53.7 | 52.9 | 50 | 0.85 | 106 | 104 | 75-125 | 1.52 | 20 |
| Arsenic | 66.6 | 65.4 | 50 | 14.20 | 105 | 102 | 75-125 | 1.74 | 20 |
| Barium | 670 | 655 | 500 | 130 | 108 | 105 | 75-125 | 2.37 | 20 |
| Beryllium | 47.5 | 46.6 | 50 | ND | 94 | 92 | 75-125 | 2.00 | 20 |
| Cadmium | 51.2 | 49.7 | 50 | ND | 102 | 99 | 75-125 | 3.01 | 20 |
| Chromium | 112 | 108 | 50 | 54 | 116 | 108 | 75-125 | 3.74 | 20 |
| Cobalt | 59.2 | 58.1 | 50 | 14 | 91 | 88 | 75-125 | 1.91 | 20 |
| Copper | 82.7 | 81.1 | 50 | 30 | 105 | 101 | 75-125 | 2.01 | 20 |
| Lead | 62.6 | 60.6 | 50 | 11 | 103 | 99 | 75-125 | 3.26 | 20 |
| Mercury | 1.51 | 1.53 | 1.25 | 0.17 | 107 | 108 | 75-125 | 1.25 | 20 |
| Molybdenum | 53.5 | 52.1 | 50 | 1.1 | 105 | 102 | 75-125 | 2.54 | 20 |
| Nickel | 115 | 112 | 50 | 55 | 121 | 115 | 75-125 | 2.91 | 20 |
| Selenium | 49.4 | 48.8 | 50 | ND | 98 | 97 | 75-125 | 1.20 | 20 |
| Silver | 51.1 | 49.9 | 50 | ND | 102 | 100 | 75-125 | 2.51 | 20 |
| Thallium | 48.4 | 47.2 | 50 | ND | 96 | 94 | 75-125 | 2.49 | 20 |
| Vanadium | 119 | 114 | 50 | 61 | 116 | 107 | 75-125 | 3.94 | 20 |
| Zinc | 566 | 562 | 500 | 60 | 101 | 100 | 75-125 | 0.744 | 20 |
| **Surrogate Recovery** | | | | | | | | | |
| Terbium | 545 | 537 | 500 | | 109 | 107 | 70-130 | 1.53 | 20 |

| Analyte | DLT Result | DLTRef Val | %D | %D Limit |
|---|---|---|---|---|
| Antimony | ND<2.5 | 0.85 | - | - |
| Arsenic | 15.6 | 14.20 | 9.86 | 20 |
| Barium | 140 | 130 | 7.69 | 20 |
| Beryllium | ND<2.5 | ND | - | - |
| Cadmium | ND<1.2 | ND | - | - |
| Chromium | 59.8 | 54 | 10.7 | 20 |
| Cobalt | 15.7 | 14 | 12.1 | 20 |
| Copper | 32.9 | 30 | 9.67 | 20 |
| Lead | 11.9 | 11 | 8.18 | - |
| Mercury | 0.292 | 0.17 | 71.8 | - |
| Molybdenum | ND<2.5 | 1.1 | - | - |
| Nickel | 59.8 | 55 | 8.73 | 20 |
| Selenium | ND<2.5 | ND | - | - |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/18/17 | **BatchID:** | 137508 |
| **Date Analyzed:** | 4/19/17 | **Extraction Method:** | SW3050B |
| **Instrument:** | ICP-MS1 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137508<br>1704294-005AMS/MSD |

## QC Summary Report for Metals

| Analyte | DLT Result | DLTRef Val | %D | %D Limit |
|---|---|---|---|---|
| Silver | ND<2.5 | ND | - | - |
| Thallium | ND<2.5 | ND | - | - |
| Vanadium | 68.6 | 61 | 12.5 | 20 |
| Zinc | 68.8 | 60 | 14.7 | - |

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/20/17 | **BatchID:** | 137611 |
| **Date Analyzed:** | 4/21/17 | **Extraction Method:** | SW3050B |
| **Instrument:** | ICP-MS3 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137611<br>1704904-009BMS/MSD<br>1704904-009BPDS |

## QC Summary Report for Metals

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| Antimony | ND | 51.9 | 0.50 | 50 | - | 104 | 75-125 |
| Arsenic | ND | 53.0 | 0.50 | 50 | - | 106 | 75-125 |
| Barium | ND | 535 | 5.0 | 500 | - | 107 | 75-125 |
| Beryllium | ND | 52.7 | 0.50 | 50 | - | 105 | 75-125 |
| Cadmium | ND | 50.9 | 0.25 | 50 | - | 102 | 75-125 |
| Chromium | ND | 50.9 | 0.50 | 50 | - | 102 | 75-125 |
| Cobalt | ND | 49.6 | 0.50 | 50 | - | 99 | 75-125 |
| Copper | ND | 49.8 | 0.50 | 50 | - | 100 | 75-125 |
| Lead | ND | 51.4 | 0.50 | 50 | - | 103 | 75-125 |
| Mercury | ND | 1.28 | 0.050 | 1.25 | - | 102 | 75-125 |
| Molybdenum | ND | 50.7 | 0.50 | 50 | - | 101 | 75-125 |
| Nickel | ND | 51.0 | 0.50 | 50 | - | 102 | 75-125 |
| Selenium | ND | 51.9 | 0.50 | 50 | - | 104 | 75-125 |
| Silver | ND | 49.9 | 0.50 | 50 | - | 100 | 75-125 |
| Thallium | ND | 51.2 | 0.50 | 50 | - | 102 | 75-125 |
| Vanadium | ND | 50.6 | 0.50 | 50 | - | 101 | 75-125 |
| Zinc | ND | 515 | 5.0 | 500 | - | 103 | 75-125 |
| **Surrogate Recovery** | | | | | | | |
| Terbium | 544.4 | 557 | | 500 | 109 | 111 | 70-130 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/20/17 | **BatchID:** | 137611 |
| **Date Analyzed:** | 4/21/17 | **Extraction Method:** | SW3050B |
| **Instrument:** | ICP-MS3 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137611<br>1704904-009BMS/MSD<br>1704904-009BPDS |

## QC Summary Report for Metals

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | 51.8 | 53.2 | 50 | ND | 103 | 106 | 75-125 | 2.74 | 20 |
| Arsenic | 52.2 | 53.1 | 50 | 3.1 | 98 | 100 | 75-125 | 1.73 | 20 |
| Barium | 642 | 660 | 500 | 79 | 113 | 116 | 75-125 | 2.80 | 20 |
| Beryllium | 50.4 | 52.6 | 50 | ND | 100 | 105 | 75-125 | 4.17 | 20 |
| Cadmium | 50.1 | 51.7 | 50 | ND | 100 | 103 | 75-125 | 3.15 | 20 |
| Chromium | 86.6 | 81.5 | 50 | 23 | 127,F10 | 116 | 75-125 | 6.15 | 20 |
| Cobalt | 57.1 | 61.1 | 50 | 8.4 | 97 | 106 | 75-125 | 6.85 | 20 |
| Copper | 56.0 | 58.3 | 50 | 7.2 | 98 | 102 | 75-125 | 4.17 | 20 |
| Lead | 53.8 | 56.2 | 50 | 3.5 | 101 | 105 | 75-125 | 4.40 | 20 |
| Mercury | 1.27 | 1.34 | 1.25 | ND | 100 | 105 | 75-125 | 4.91 | 20 |
| Molybdenum | 49.7 | 51.0 | 50 | ND | 99 | 102 | 75-125 | 2.72 | 20 |
| Nickel | 80.9 | 89.1 | 50 | 30 | 101 | 118 | 75-125 | 9.61 | 20 |
| Selenium | 49.6 | 50.8 | 50 | ND | 99 | 102 | 75-125 | 2.37 | 20 |
| Silver | 48.9 | 50.3 | 50 | ND | 98 | 101 | 75-125 | 2.84 | 20 |
| Thallium | 50.3 | 52.6 | 50 | ND | 101 | 105 | 75-125 | 4.53 | 20 |
| Vanadium | 76.0 | 78.1 | 50 | 22 | 109 | 113 | 75-125 | 2.75 | 20 |
| Zinc | 520 | 538 | 500 | 16 | 101 | 104 | 75-125 | 3.33 | 20 |
| **Surrogate Recovery** | | | | | | | | | |
| Terbium | 564 | 578 | 500 | | 113 | 116 | 70-130 | 2.45 | 20 |

| Analyte | PDS Result | SPK Val | SPKRef Val | PDS %REC | PDS Limits |
|---|---|---|---|---|---|
| Chromium | 74.0 | 50 | 23 | 102 | 75-125 |

| Analyte | DLT Result | DLTRef Val | %D | %D Limit |
|---|---|---|---|---|
| Antimony | ND<2.5 | ND | - | - |
| Arsenic | 2.69 | 3.1 | 13.2 | - |
| Barium | 77.0 | 79 | 2.53 | - |
| Beryllium | ND<2.5 | ND | - | - |
| Cadmium | ND<1.2 | ND | - | - |
| Chromium | 23.4 | 23 | 1.74 | 20 |
| Cobalt | 8.38 | 8.4 | 0.238 | - |
| Copper | 7.17 | 7.2 | 0.417 | - |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/20/17 | **BatchID:** | 137611 |
| **Date Analyzed:** | 4/21/17 | **Extraction Method:** | SW3050B |
| **Instrument:** | ICP-MS3 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137611<br>1704904-009BMS/MSD<br>1704904-009BPDS |

## QC Summary Report for Metals

| Analyte | DLT Result | DLTRef Val | %D | %D Limit |
|---|---|---|---|---|
| Lead | 3.73 | 3.5 | 6.57 | - |
| Mercury | ND<0.25 | ND | - | - |
| Molybdenum | ND<2.5 | ND | - | - |
| Nickel | 29.4 | 30 | 2.00 | 20 |
| Selenium | ND<2.5 | ND | - | - |
| Silver | ND<2.5 | ND | - | - |
| Thallium | ND<2.5 | ND | - | - |
| Vanadium | 21.5 | 22 | 2.27 | 20 |
| Zinc | ND<25 | 16 | - | - |

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/18/17 | **BatchID:** | 137446 |
| **Date Analyzed:** | 4/19/17 - 4/20/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC19 | **Analytical Method:** | SW8021B/8015Bm |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137446<br>1704448-022AMS/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 | 0.585 | 0.40 | 0.60 | - | 97 | 82-118 |
| MTBE | ND | 0.0988 | 0.050 | 0.10 | - | 99 | 61-119 |
| Benzene | ND | 0.118 | 0.0050 | 0.10 | - | 118 | 77-128 |
| Toluene | ND | 0.122 | 0.0050 | 0.10 | - | 122 | 74-132 |
| Ethylbenzene | ND | 0.121 | 0.0050 | 0.10 | - | 121 | 84-127 |
| Xylenes | ND | 0.345 | 0.015 | 0.30 | - | 115 | 86-129 |
| **Surrogate Recovery** | | | | | | | |
| 2-Fluorotoluene | 0.1001 | 0.105 | | 0.10 | 100 | 105 | 75-134 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| TPH(btex) | 0.539 | 0.565 | 0.60 | ND | 90 | 94 | 58-129 | 4.70 | 20 |
| MTBE | 0.0826 | 0.0896 | 0.10 | ND | 83 | 90 | 47-118 | 8.21 | 20 |
| Benzene | 0.0969 | 0.116 | 0.10 | ND | 97 | 116 | 55-129 | 18.3 | 20 |
| Toluene | 0.101 | 0.121 | 0.10 | ND | 101 | 121 | 56-130 | 18.2 | 20 |
| Ethylbenzene | 0.102 | 0.122 | 0.10 | ND | 102 | 121 | 63-129 | 17.1 | 20 |
| Xylenes | 0.301 | 0.344 | 0.30 | ND | 100 | 115 | 64-131 | 13.4 | 20 |
| **Surrogate Recovery** | | | | | | | | | |
| 2-Fluorotoluene | 0.0909 | 0.100 | 0.10 | | 91 | 100 | 62-126 | 9.84 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/18/17 | **BatchID:** | 137526 |
| **Date Analyzed:** | 4/20/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC7 | **Analytical Method:** | SW8021B/8015Bm |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137526<br>1704848-010BMS/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 | 0.500 | 0.40 | 0.60 | - | 83 | 82-118 |
| MTBE | ND | 0.0964 | 0.050 | 0.10 | - | 96 | 61-119 |
| Benzene | ND | 0.105 | 0.0050 | 0.10 | - | 105 | 77-128 |
| Toluene | ND | 0.0995 | 0.0050 | 0.10 | - | 99 | 74-132 |
| Ethylbenzene | ND | 0.112 | 0.0050 | 0.10 | - | 112 | 84-127 |
| Xylenes | ND | 0.339 | 0.015 | 0.30 | - | 113 | 86-129 |
| **Surrogate Recovery** | | | | | | | |
| 2-Fluorotoluene | 0.09656 | 0.0949 | | 0.10 | 97 | 95 | 75-134 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| TPH(btex) | NR | NR | | 18 | NR | NR | - | NR | - |
| MTBE | NR | NR | | ND<0.5 | NR | NR | - | NR | - |
| Benzene | NR | NR | | ND<0.05 | NR | NR | - | NR | - |
| Toluene | NR | NR | | ND<0.05 | NR | NR | - | NR | - |
| Ethylbenzene | NR | NR | | ND<0.05 | NR | NR | - | NR | - |
| Xylenes | NR | NR | | 0.22 | NR | NR | - | NR | - |
| **Surrogate Recovery** | | | | | | | | | |
| 2-Fluorotoluene | NR | NR | | | NR | NR | - | NR | - |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/20/17 | **BatchID:** | 137595 |
| **Date Analyzed:** | 4/21/17 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC19, GC7 | **Analytical Method:** | SW8021B/8015Bm |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137595<br>1704900-003AMS/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 | 0.489 | 0.40 | 0.60 | - | 81, F2 | 82-118 |
| MTBE | ND | 0.0972 | 0.050 | 0.10 | - | 97 | 61-119 |
| Benzene | ND | 0.103 | 0.0050 | 0.10 | - | 103 | 77-128 |
| Toluene | ND | 0.0947 | 0.0050 | 0.10 | - | 95 | 74-132 |
| Ethylbenzene | ND | 0.108 | 0.0050 | 0.10 | - | 108 | 84-127 |
| Xylenes | ND | 0.318 | 0.015 | 0.30 | - | 106 | 86-129 |
| **Surrogate Recovery** | | | | | | | |
| 2-Fluorotoluene | 0.0953 | 0.0955 | | 0.10 | 95 | 95 | 75-134 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| TPH(btex) | 0.553 | 0.563 | 0.60 | ND | 92 | 94 | 58-129 | 1.75 | 20 |
| MTBE | 0.0801 | 0.0846 | 0.10 | ND | 80 | 85 | 47-118 | 5.53 | 20 |
| Benzene | 0.0937 | 0.0973 | 0.10 | ND | 94 | 97 | 55-129 | 3.72 | 20 |
| Toluene | 0.100 | 0.103 | 0.10 | ND | 99 | 101 | 56-130 | 2.83 | 20 |
| Ethylbenzene | 0.0993 | 0.102 | 0.10 | ND | 99 | 102 | 63-129 | 2.74 | 20 |
| Xylenes | 0.295 | 0.301 | 0.30 | ND | 98 | 100 | 64-131 | 2.13 | 20 |
| **Surrogate Recovery** | | | | | | | | | |
| 2-Fluorotoluene | 0.0902 | 0.0915 | 0.10 | | 90 | 92 | 62-126 | 1.44 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/18/17 | **BatchID:** | 137505 |
| **Date Analyzed:** | 4/18/17 - 4/19/17 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC9a | **Analytical Method:** | SW8015B |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137505<br>1704448-022AMS/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 | 37.2 | 1.0 | 40 | - | 93 | 79-133 |
| TPH-Motor Oil (C18-C36) | ND | - | 5.0 | - | - | - | - |
| **Surrogate Recovery** | | | | | | | |
| C9 | 26.36 | 26.0 | | 25 | 105 | 104 | 77-109 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| TPH-Diesel (C10-C23) | 34.6 | 28.5 | 40 | ND | 87 | 71 | 59-150 | 19.3 | 30 |
| **Surrogate Recovery** | | | | | | | | | |
| C9 | 26.1 | 25.9 | 25 | | 104 | 103 | 78-109 | 1.01 | 30 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/19/17 | **BatchID:** | 137567 |
| **Date Analyzed:** | 4/20/17 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC6B, GC9b | **Analytical Method:** | SW8015B |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-137567<br>1704881-001AMS/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 | 28.4 | 1.0 | 40 | - | 71, F5 | 79-133 |
| TPH-Motor Oil (C18-C36) | ND | - | 5.0 | - | - | - | - |
| **Surrogate Recovery** | | | | | | | |
| C9 | 24.71 | 24.7 | | 25 | 99 | 99 | 77-109 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| TPH-Diesel (C10-C23) | 106 | 75.4 | 40 | 38.80 | 167,F1 | 92 | 59-150 | 33.5,F1 | 30 |
| **Surrogate Recovery** | | | | | | | | | |
| C9 | 24.9 | 24.6 | 25 | | 100 | 98 | 78-109 | 1.09 | 30 |

NELAP 4033ORELAP

QA/QC Officer

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1704842** **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ▣ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

**Report to:**
Josh Graber
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-5244 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc/3rd Party: kstaehlin@langan.com;
PO:
ProjectNo: 750635603; 3000 Broadway

**Bill to:**
Accounts Payable
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursolutio

**Requested TAT:** 5 days;

***Date Received:*** **04/18/2017**
***Date Logged:*** **04/18/2017**

| 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 |
| 1704842-001 | B-37-5.0 | Soil | 4/17/2017 11:48 | ☐ | | B | | | | | | | | | | |
| 1704842-001 | B-37-5.0,10.0,38-5.0,10.0 | Soil | 4/17/2017 11:57 | ☐ | A | | A | | A | A | A | | | | | |
| 1704842-001 | B-38-10.0 | Soil | 4/17/2017 11:48 | ☐ | | C | | | | | | | | | | |
| 1704842-002 | B-37, 38-15.0 | Soil | 4/17/2017 12:06 | ☐ | A | | A | | A | A | A | | | | | |
| 1704842-003 | B-37, 28-20.0 | Soil | 4/17/2017 12:16 | ☐ | A | | A | | A | A | A | | | | | |
| 1704842-004 | B-39-1.5,3.0,5.0 | Soil | 4/17/2017 12:38 | ☐ | A | | A | | A | A | A | | | | | |
| 1704842-004 | B-39-3.0 | Soil | 4/17/2017 12:38 | ☐ | | | | B | | | | | | | | |
| 1704842-005 | B-39-10.0,15.0,20.0 | Soil | 4/17/2017 13:11 | ☐ | A | | A | | A | A | A | | | | | |
| 1704842-005 | B-39-15.0 | Soil | 4/17/2017 13:11 | ☐ | | B | | | | | | | | | | |
| 1704842-006 | B-40-1.5,3.0 | Soil | 4/17/2017 09:03 | ☐ | A | | A | | A | A | A | | | | | |
| 1704842-006 | B-40-3.0 | Soil | 4/17/2017 09:03 | ☐ | | B | | | | | | | | | | |
| 1704842-007 | B-40-5.0, 41-5.0, 7.5 | Soil | 4/17/2017 09:08 | ☐ | A | | A | | A | A | A | | | | | |
| 1704842-007 | B-41-5.0 | Soil | 4/17/2017 09:08 | ☐ | | | | B | | | | | | | | |
| 1704842-007 | B-41-7.5 | Soil | 4/17/2017 09:08 | ☐ | | C | | | | | | | | | | |
| 1704842-008 | B-40, 41-10.0 | Soil | 4/17/2017 09:18 | ☐ | A | | A | | A | A | A | | | | | |

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 8081PCB_ESL_S [J] | 2 | 8260B_S | 3 | 8310_S | 4 | ASBEST400 (435 CARB)_S |
| 5 | CAM17MS_TTLC_S | 6 | G-MBTEX_S | 7 | TPH(DMO)_S | 8 | |
| 9 | | 10 | | 11 | | 12 | |

**Prepared by: Agustina Venegas**

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A, 010A contain testgroup Multi Range_S.

**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.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1704842** **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

**Report to:**
Josh Graber
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-5244 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc/3rd Party: kstaehlin@langan.com;
PO:
ProjectNo: 750635603; 3000 Broadway

**Bill to:**
Accounts Payable
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursolutio

**Requested TAT:** 5 days;

***Date Received:*** **04/18/2017**
***Date Logged:*** **04/18/2017**

| 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 |
| 1704842-009 | B-40, 41-15.0 | Soil | 4/17/2017 09:28 | ☐ | A | | A | | A | A | A | | | | | |
| 1704842-010 | B-40, 41-20.0 | Soil | 4/17/2017 09:41 | ☐ | A | | A | | A | A | A | | | | | |

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 8081PCB_ESL_S [J] | 2 | 8260B_S | 3 | 8310_S | 4 | ASBEST400 (435 CARB)_S |
| 5 | CAM17MS_TTLC_S | 6 | G-MBTEX_S | 7 | TPH(DMO)_S | 8 | |
| 9 | | 10 | | 11 | | 12 | |

**Prepared by: Agustina Venegas**

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A, 010A contain testgroup Multi Range_S.

**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.

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# WORK ORDER SUMMARY

**Client Name:** LANGAN **Project:** 750635603; 3000 Broadway **Work Order:** 1704842
**Client Contact:** Josh Graber **QC Level:** LEVEL 2
**Contact's Email:** jdgraber@treadwellrollo.com **Comments:** **Date Logged:** 4/18/2017

☐ 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1704842-001A | B-37-5.0,10.0,38-5.0,10.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 4 / (4:1) | Acetate Liner | ☐ | 4/17/2017 11:57 | 5 days | | ☐ | |
| | | | SW6020 (CAM 17) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8310 (PAHs/PNAs) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8081A/8082 (OC Pesticides+PCBs) ESLs | | | ☐ | | 5 days | | ☐ | |
| 1704842-001B | B-37-5.0 | Soil | SW8260B (VOCs) | 1 | Acetate Liner | ☐ | 4/17/2017 11:48 | 5 days | | ☐ | |
| 1704842-001C | B-38-10.0 | Soil | SW8260B (VOCs) | 1 | Acetate Liner | ☐ | 4/17/2017 11:48 | 5 days | | ☐ | |
| 1704842-002A | B-37, 38-15.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 2 / (2:1) | Acetate Liner | ☐ | 4/17/2017 12:06 | 5 days | | ☐ | |
| | | | SW6020 (CAM 17) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8310 (PAHs/PNAs) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8081A/8082 (OC Pesticides+PCBs) ESLs | | | ☐ | | 5 days | | ☐ | |
| 1704842-003A | B-37, 28-20.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 2 / (2:1) | Acetate Liner | ☐ | 4/17/2017 12:16 | 5 days | | ☐ | |
| | | | SW6020 (CAM 17) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8310 (PAHs/PNAs) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8081A/8082 (OC Pesticides+PCBs) ESLs | | | ☐ | | 5 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.**

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1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# WORK ORDER SUMMARY

**Client Name:** LANGAN **Project:** 750635603; 3000 Broadway **Work Order:** 1704842
**Client Contact:** Josh Graber **QC Level:** LEVEL 2
**Contact's Email:** jdgraber@treadwellrollo.com **Comments:** **Date Logged:** 4/18/2017

☐ 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1704842-004A | B-39-1.5,3.0,5.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 3 / (3:1) | Acetate Liner | ☐ | 4/17/2017 12:38 | 5 days | | ☐ | |
| | | | SW6020 (CAM 17) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8310 (PAHs/PNAs) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8081A/8082 (OC Pesticides+PCBs) ESLs | | | ☐ | | 5 days | | ☐ | |
| 1704842-004B | B-39-3.0 | Soil | Asbestos, 435 CARB 400 | 1 | Acetate Liner | ☐ | 4/17/2017 12:38 | 5 days | | ☐ | SubOut |
| 1704842-005A | B-39-10.0,15.0,20.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 3 / (3:1) | Acetate Liner | ☐ | 4/17/2017 13:11 | 5 days | | ☐ | |
| | | | SW6020 (CAM 17) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8310 (PAHs/PNAs) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8081A/8082 (OC Pesticides+PCBs) ESLs | | | ☐ | | 5 days | | ☐ | |
| 1704842-005B | B-39-15.0 | Soil | SW8260B (VOCs) | 1 | Acetate Liner | ☐ | 4/17/2017 13:11 | 5 days | | ☐ | |
| 1704842-006A | B-40-1.5,3.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 2 / (2:1) | Acetate Liner | ☐ | 4/17/2017 9:03 | 5 days | | ☐ | |
| | | | SW6020 (CAM 17) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8310 (PAHs/PNAs) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8081A/8082 (OC Pesticides+PCBs) ESLs | | | ☐ | | 5 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.**

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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# WORK ORDER SUMMARY

**Client Name:** LANGAN **Project:** 750635603; 3000 Broadway **Work Order:** 1704842
**Client Contact:** Josh Graber **QC Level:** LEVEL 2
**Contact's Email:** jdgraber@treadwellrollo.com **Comments:** **Date Logged:** 4/18/2017

☐ 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1704842-006B | B-40-3.0 | Soil | SW8260B (VOCs) | 1 | Acetate Liner | ☐ | 4/17/2017 9:03 | 5 days | | ☐ | |
| 1704842-007A | B-40-5.0, 41-5.0, 7.5 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 3 / (3:1) | Acetate Liner | ☐ | 4/17/2017 9:08 | 5 days | | ☐ | |
| | | | SW6020 (CAM 17) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8310 (PAHs/PNAs) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8081A/8082 (OC Pesticides+PCBs) ESLs | | | ☐ | | 5 days | | ☐ | |
| 1704842-007B | B-41-5.0 | Soil | Asbestos, 435 CARB 400 | 1 | Acetate Liner | ☐ | 4/17/2017 9:08 | 5 days | | ☐ | SubOut |
| 1704842-007C | B-41-7.5 | Soil | SW8260B (VOCs) | 1 | Acetate Liner | ☐ | 4/17/2017 9:08 | 5 days | | ☐ | |
| 1704842-008A | B-40, 41-10.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 2 / (2:1) | Acetate Liner | ☐ | 4/17/2017 9:18 | 5 days | | ☐ | |
| | | | SW6020 (CAM 17) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8310 (PAHs/PNAs) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8081A/8082 (OC Pesticides+PCBs) ESLs | | | ☐ | | 5 days | | ☐ | |
| 1704842-009A | B-40, 41-15.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 2 / (2:1) | Acetate Liner | ☐ | 4/17/2017 9:28 | 5 days | | ☐ | |
| | | | SW6020 (CAM 17) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8310 (PAHs/PNAs) | | | ☐ | | 5 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.**

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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# WORK ORDER SUMMARY

**Client Name:** LANGAN **Project:** 750635603; 3000 Broadway **Work Order:** 1704842
**Client Contact:** Josh Graber **QC Level:** LEVEL 2
**Contact's Email:** jdgraber@treadwellrollo.com **Comments:** **Date Logged:** 4/18/2017

☐ 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1704842-009A | B-40, 41-15.0 | Soil | SW8081A/8082 (OC Pesticides+PCBs) ESLs | 2 / (2:1) | Acetate Liner | ☐ | 4/17/2017 9:28 | 5 days | | ☐ | |
| 1704842-010A | B-40, 41-20.0 | Soil | Multi-Range TPH(g,d,mo) by EPA 8015Bm | 2 / (2:1) | Acetate Liner | ☐ | 4/17/2017 9:41 | 5 days | | ☐ | |
| | | | SW6020 (CAM 17) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8310 (PAHs/PNAs) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8081A/8082 (OC Pesticides+PCBs) ESLs | | | ☐ | | 5 days | | ☐ | |
| 1704842-011A | B-37-3.0 | Soil | | 1 | Acetate Liner | ☐ | 4/17/2017 11:38 | | | ☑ | |
| 1704842-012A | B-38-3.0 | Soil | | 1 | Acetate Liner | ☐ | 4/17/2017 10:07 | | | ☑ | |

**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.**

1704842

* PLEASE C.C. ANNIE S. AT KSTAEHLIN@LANGAN.COM *10317

# LANGAN

# CHAIN OF CUSTODY RECORD




X 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: 3000 BROADWAY
Job Number: 750635403
Project Manager\Contact: JOSH GRAMER
Samplers: KSS
Recorder (Signature Required): [signature]

Turnaround Time: STANDARD

| Field Sample Identification No. | Date | Time | Lab Sample No. | Matrix: Soil | Water | Air | Other | No. Containers & Preservative: HCL | $H_2SO_4$ | $HNO_3$ | Ice | Analysis Requested: TPH-g,d,mo | OCPs, PCBs | PAHs (8310) | CAM-17 | VOCs | Asbestos by CARB 435 | Silica gel clean-up | Hold | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-37-5.0 | 4/17/17 | 1148 | | X | | | | | | | X | | | | X | | | | | * BAYLANDS DISPOSAL/ACCEPTANC CRITERIA (LOWER RLs) |
| B-37-10.0 | | 1157 | | X | | | | | | | X | | | | | | | | | |
| B-38-5.0 | | 1014 | | X | | | | | | | X | | | | | | | | | |
| B-38-10.0 | | 1022 | | X | | | | | | | X | | | | X | | | | | |
| B-37-15.0 | | 1206 | | X | | | | | | | X | | | | | | | | | |
| B-38-15.0 | | 1034 | | X | | | | | | | X | | | | | | | | | |
| B-37-20.0 | | 1216 | | X | | | | | | | X | | | | | | | | | |
| B-38-20.0 | | 1046 | | X | | | | | | | X | | | | | | | | | |
| B-39-1.5 | | 1234 | | X | | | | | | | X | | | | | | | | | |
| B-39-3.0 | | 1235 | | X | | | | | | | X | | | | X | | | | | |
| B-39-5.0 | | 1238 | | X | | | | | | | X | | | | | | | | | |
| B-39-10.0 | | 1247 | | X | | | | | | | X | | | | | | | | | |
| B-39-15.0 | | 1301 | | X | | | | | | | X | | | | X | | | | | |
| B-39-20.0 | 4/17/17 | 1311 | | X | | | | | | | X | | | | | | | | | |

| | | | |
|---|---|---|---|
| Relinquished by: (Signature) [signature] | Date: | Time | Received by: (Signature) [signature] |
| Relinquished by: (Signature) [signature] | Date: 4-18-17 | Time 1450 | Received by: (Signature) | Date: 4-18-17 Time 1050 |
| Relinquished by: (Signature) | Date: | Time | Received by Lab: (Signature) [signature] | Date: 4/18/17 Time 1450 |

Sent to Laboratory (Name): MC CAMPBELL ANALYTICAL
Laboratory Comments/Notes:

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

White Copy - Original | Yellow Copy - Laboratory | Pink Copy - Field

COC Number:

S.T

10318

# LANGAN

## CHAIN OF CUSTODY RECORD

Page 2 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: 3000 BROADWAY
Job Number: 750635603
Project Manager\Contact: JOSH GRABER
Samplers: KSS
Recorder (Signature Required):

Turnaround Time: STANDARD

| Field Sample Identification No. | Date | Time | Lab Sample No. | Matrix: Soil | Water | Air | Other | No. Containers & Preservative: HCL | $H_2SO_4$ | $HNO_3$ | Ice | Analyses Requested: TPH gas/mo | OCPs & PCBs | PAHs (8310) | CAM-17 VOCs | Asbestos by CARB 435 | Silica gel clean-up | Hold | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-40-1.5 | 4/17/17 | 0900 | | X | | | | | | | X | X | X | X | | | | | * SAMPLE WAS NOT RECEIVED. |
| B-40-3.0 | | 0903 | | X | | | | | | | X | X | X | X | | | | | |
| B-41-3.0 | | 0754 | | X | | | | | | | X | X | X | X | | | | | |
| B-40-5.0 | | 0908 | | X | | | | | | | X | X | X | X | | | | | |
| B-41-5.0 | | 0800 | | X | | | | | | | X | X | X | X | X | | | | |
| B-41-7.5 | | 0802 | | X | | | | | | | X | X | X | X | | | | | |
| B-40-10.0 | | 0918 | | X | | | | | | | X | X | X | X | | | | | |
| B-41-10.0 | | 0817 | | X | | | | | | | X | X | X | X | | | | | |
| B-40-15.0 | | 0928 | | X | | | | | | | X | X | X | X | | | | | |
| B-41-15.0 | | 0821 | | X | | | | | | | X | X | X | X | | | | | |
| B-40-20.0 | | 0941 | | X | | | | | | | X | X | X | X | | | | | |
| B-41-20.0 | | 0841 | | X | | | | | | | X | X | X | X | | | | | |
| B-37-3.0 | | 1138 | | X | | | | | | | X | | | | | | X | | |
| B-38-3.0 | 4/17/17 | 1007 | | X | | | | | | | X | | | | | | | | |

| | | | |
|---|---|---|---|
| Relinquished by: (Signature) | Date: | Time | Received by: (Signature) |
| Relinquished by: (Signature) | Date: 4-18-17 | Time 1450 | Received by: (Signature) |
| Relinquished by: (Signature) | Date: | Time | Received by Lab: (Signature) |

| | | |
|---|---|---|
| Date | Time | |
| 4-18-17 | 1080 | |
| Date | Time | |
| Date 4/18/17 | Time 1450 | |

Sent to Laboratory (Name): MCCAMPBELL ANALYTICAL
Laboratory Comments/Notes:

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

White Copy - Original  Yellow Copy - Laboratory  Pink Copy - Field  COC Number:

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Sample Receipt Checklist

| | | | |
|---|---|---|---|
| Client Name: | **Langan** | Date and Time Received | **4/18/2017 14:50** |
| Project Name: | **750635603; 3000 Broadway** | Date Logged: | **4/18/2017** |
| | | Received by: | Agustina Venegas |
| WorkOrder №: | **1704842** Matrix: Soil | Logged by: | Agustina Venegas |
| 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: 5.3°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:

McCampbell Analytical, Inc.
*"When Quality Counts"*

# Analytical Report

**WorkOrder:** 1704842 A

**Report Created for:** Langan

555 Montgomery St., Suite 1300
San Francisco, CA 94111

**Project Contact:** Josh Graber
**Project P.O.:**
**Project Name:** 750635603; 3000 Broadway

**Project Received:** 04/18/2017

Analytical Report reviewed & approved for release on 05/02/2017 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.***

1534 Willow Pass Rd. Pittsburg, CA 94565 ♦ TEL: (877) 252-9262 ♦ FAX: (925) 252-9269 ♦ www.mccampbell.com
CA ELAP 1644 ♦ NELAP 4033ORELAP

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# Glossary of Terms & Qualifier Definitions

**Client:** Langan
**Project:** 750635603; 3000 Broadway
**WorkOrder:** 1704842

## 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 |
| IGN1 | Sample is non metalic |
| IGN2 | Sample is metalic |
| 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) |

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | CA Title 22 |
| **Date Prepared:** | 4/29/17 | **Analytical Method:** | SW6020 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/L |

## Metals (STLC)

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-37-5.0,10.0,38-5.0,10.0 | 1704842-001A | Soil | 04/17/2017 11:57 | ICP-MS1 | 138045 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Chromium | ND | 0.10 | 1 | 05/01/2017 23:13 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-37, 38-15.0 | 1704842-002A | Soil | 04/17/2017 12:06 | ICP-MS1 | 138045 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Chromium | ND | 0.10 | 1 | 05/01/2017 23:31 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-37, 28-20.0 | 1704842-003A | Soil | 04/17/2017 12:16 | ICP-MS1 | 138045 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Chromium | ND | 0.10 | 1 | 05/01/2017 23:19 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| B-39-10.0,15.0,20.0 | 1704842-005A | Soil | 04/17/2017 13:11 | ICP-MS1 | 138045 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Chromium | ND | 0.10 | 1 | 05/01/2017 23:25 |

Analyst(s): DB

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | CA Title 22 |
| **Date Prepared:** | 4/29/17 | **Analytical Method:** | SW6020 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/L |

## Metals (STLC)

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-40, 41-10.0** | **1704842-008A** | **Soil** | **04/17/2017 09:18** | **ICP-MS1** | **138045** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Chromium | ND | 0.10 | 1 | 05/01/2017 23:38 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-40, 41-15.0** | **1704842-009A** | **Soil** | **04/17/2017 09:28** | **ICP-MS1** | **138045** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Chromium | ND | 0.10 | 1 | 05/01/2017 23:44 |

Analyst(s): DB

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 4/29/17 | **BatchID:** | 138045 |
| **Date Analyzed:** | 5/1/17 | **Extraction Method:** | CA Title 22 |
| **Instrument:** | ICP-MS1 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/L |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-138045<br>1704A82-001AMS/MSD |

## QC Summary Report for Metals (STLC)

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| Chromium | ND | 9.29 | 0.10 | 10 | - | 93 | 75-125 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.22 | 9.40 | 10 | ND | 92 | 94 | 75-125 | 2.00 | 20 |

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Pittsburg, CA 94565-1701
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1704842 A** **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

**Report to:**
Josh Graber
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-5244 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc/3rd Party: kstaehlin@langan.com;
PO:
ProjectNo: 750635603; 3000 Broadway

**Bill to:**
Accounts Payable
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursolutio

**Requested TAT:** 3 days;

***Date Received:*** **04/18/2017**
***Date Logged:*** **04/18/2017**
***Date Add-On:*** **04/26/2017**

| 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 |
| 1704842-001 | B-37-5.0,10.0,38-5.0,10.0 | Soil | 4/17/2017 11:57 | ☐ | A | | | | | | | | | | | |
| 1704842-002 | B-37, 38-15.0 | Soil | 4/17/2017 12:06 | ☐ | A | | | | | | | | | | | |
| 1704842-003 | B-37, 28-20.0 | Soil | 4/17/2017 12:16 | ☐ | A | | | | | | | | | | | |
| 1704842-005 | B-39-10.0,15.0,20.0 | Soil | 4/17/2017 13:11 | ☐ | A | | | | | | | | | | | |
| 1704842-008 | B-40, 41-10.0 | Soil | 4/17/2017 09:18 | ☐ | A | | | | | | | | | | | |
| 1704842-009 | B-40, 41-15.0 | Soil | 4/17/2017 09:28 | ☐ | A | | | | | | | | | | | |

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | CRMS_STLC_S | 2 | | 3 | | 4 | |
| 5 | | 6 | | 7 | | 8 | |
| 9 | | 10 | | 11 | | 12 | |

**Prepared by: Agustina Venegas**

**Add-On Prepared By: Agustina Venegas**

**Comments:** STLC Cr added 4/26/17 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.

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# WORK ORDER SUMMARY

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

**Project:** 750635603; 3000 Broadway
**Comments:** STLC Cr added 4/26/17 72HR RUSH

**Work Order:** 1704842
**QC Level:** LEVEL 2
**Date Logged:** 4/18/2017
**Date Add-On:** 4/26/2017

| Lab ID | Client ID | Matrix | Test Name | Containers /Composites | Bottle & Preservative | Collection Date & Time | TAT | Sediment Content | Hold | SubOut |
|---|---|---|---|---|---|---|---|---|---|---|
| 1704842-001A | B-37-5.0,10.0,38-5.0,10.0 | Soil | SW6020 (Chromium) (STLC) | 4 / (4:1) | Acetate Liner | 4/17/2017 11:57 | 3 days* | | ☐ | |
| 1704842-002A | B-37, 38-15.0 | Soil | SW6020 (Chromium) (STLC) | 2 / (2:1) | Acetate Liner | 4/17/2017 12:06 | 3 days* | | ☐ | |
| 1704842-003A | B-37, 28-20.0 | Soil | SW6020 (Chromium) (STLC) | 2 / (2:1) | Acetate Liner | 4/17/2017 12:16 | 3 days* | | ☐ | |
| 1704842-005A | B-39-10.0,15.0,20.0 | Soil | SW6020 (Chromium) (STLC) | 3 / (3:1) | Acetate Liner | 4/17/2017 13:11 | 3 days* | | ☐ | |
| 1704842-008A | B-40, 41-10.0 | Soil | SW6020 (Chromium) (STLC) | 2 / (2:1) | Acetate Liner | 4/17/2017 9:18 | 3 days* | | ☐ | |
| 1704842-009A | B-40, 41-15.0 | Soil | SW6020 (Chromium) (STLC) | 2 / (2:1) | Acetate Liner | 4/17/2017 9:28 | 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.**

1714842

*PLEASE C.C. ANNIE S. AT KSTAEHLIN@LANGAN.COM *10317

# LANGAN

## CHAIN OF CUSTODY RECORD




- [X] 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: 3000 BROADWAY
Job Number: 7506354603
Project Manager\Contact: JOSH GRAMER
Samplers: KSS
Recorder (Signature Required):

Turnaround Time: STANDARD

| Field Sample Identification No. | Date | Time | Lab Sample No. | Matrix: Soil | Water | Air | Other | No. Containers & Preservative: HCL | $H_2SO_4$ | $HNO_3$ | Ice | Analysis Requested: TPH g/d/mo | PCBs & PCBs | PAHs (8310) | CAM-17 VOCs | Asbestos by CARB 435 | STLC CR 4/26 72HR | Silica gel clean-up | Hold | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-37-5.0 | 4/17/17 | 1148 | | X | | | | | | | X | X | X | X | X | | X | | | |
| B-37-10.0 | | 1157 | | X | | | | | | | X | X | X | X | X | | X | | | * BAYLANDS DISPOSAL/ACCEPTANCE CRITERIA (LOWER RLs) |
| B-38-5.0 | | 1014 | | X | | | | | | | X | X | X | X | X | | X | | | |
| B-38-10.0 | | 1022 | | X | | | | | | | X | X | X | X | X | | X | | | |
| B-37-15.0 | | 1206 | | X | | | | | | | X | X | X | X | X | | X | | | |
| B-38-15.0 | | 1034 | | X | | | | | | | X | X | X | X | X | | X | | | |
| B-37-20.0 | | 1216 | | X | | | | | | | X | X | X | X | X | | X | | | |
| B-38-20.0 | | 1046 | | X | | | | | | | X | X | X | X | X | | X | | | |
| B-39-1.5 | | 1234 | | X | | | | | | | X | X | X | X | X | | X | | | |
| B-39-3.0 | | 1235 | | X | | | | | | | X | X | X | X | X | | X | | | |
| B-39-5.0 | | 1238 | | X | | | | | | | X | X | X | X | X | | X | | | |
| B-39-10.0 | | 1247 | | X | | | | | | | X | X | X | X | X | | X | | | |
| B-39-15.0 | | 1301 | | X | | | | | | | X | X | X | X | X | | X | | | |
| B-39-20.0 | 4/17/17 | 1311 | | X | | | | | | | X | X | X | X | X | | X | | | * Added 4/26 72HR RUSH |

| | | | | |
|---|---|---|---|---|
| Relinquished by: (Signature) | Date: | Time | Received by: (Signature) | Date 4-18-17 Time 1080 |
| Relinquished by: (Signature) | Date: 4-18-17 | Time 1450 | Received by: (Signature) | Date Time |
| Relinquished by: (Signature) | Date: | Time | Received by Lab: (Signature) | Date 4/18/17 Time 1450 |

Sent to Laboratory (Name): MC CAMPBELL ANALYTICAL
Laboratory Comments/Notes:

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

White Copy - Original Yellow Copy - Laboratory Pink Copy - Field COC Number:

S.T

10318

# LANGAN

# CHAIN OF CUSTODY RECORD




- [X] 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: 3000 BROADWAY
Job Number: 750635603
Project Manager\Contact: JOSH GRABER
Samplers: KSS
Recorder (Signature Required):

Turnaround Time: STANDARD

| Field Sample Identification No. | Date | Time | Lab Sample No. | Matrix: Soil | Water | Air | Other | No. Containers & Preservative: HCL | $H_2SO_4$ | $HNO_3$ | Ice | Analysis Requested: TPH g/d/mo | OCPs | PCBs | PAHs (8310) | CAM-17 VOCs | Asbestos by CARB 435 STLC CR | Silica gel clean-up | Hold | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-40-1.5 | 4/17/17 | 0900 | | X | | | | | | | X | X | X | | X | X | X | | | JR SAMPLE WAS NOT RECEIVED. |
| B-40-3.0 | | 0903 | | X | | | | | | | X | X | X | | X | X | | | | |
| B-41-3.0 | | 0754 | | X | | | | | | | X | X | X | | X | X | | | | |
| B-40-5.0 | | 0908 | | X | | | | | | | X | X | X | | X | X | X | | | |
| B-41-5.0 | | 0800 | | X | | | | | | | X | X | X | | X | X | | | | |
| B-41-7.5 | | 0802 | | X | | | | | | | X | X | X | | X | X | | | | |
| B-40-10.0 | | 0918 | | X | | | | | | | X | X | X | | X | X | X | | | |
| B-41-10.0 | | 0817 | | X | | | | | | | X | X | X | | X | X | X | | | |
| B-40-15.0 | | 0928 | | X | | | | | | | X | X | X | | X | X | X | | | |
| B-41-15.0 | | 0821 | | X | | | | | | | X | X | X | | X | X | X | | | |
| B-40-20.0 | | 0941 | | X | | | | | | | X | X | X | | X | X | | | | |
| B-41-20.0 | | 0841 | | X | | | | | | | X | X | X | | X | X | | | | |
| B-37-3.0 | | 1138 | | X | | | | | | | X | X | X | | X | X | | X | | |
| B-38-3.0 | 4/17/17 | 1007 | | X | | | | | | | X | X | X | | X | X | | | | |

| | | | |
|---|---|---|---|
| Relinquished by: (Signature) | Date: | Time | Received by: (Signature) |
| Relinquished by: (Signature) | Date: 4-18-17 | Time 1450 | Received by: (Signature) |
| Relinquished by: (Signature) | Date: | Time | Received by Lab: (Signature) |

Received by: (Signature) — Date 4-18-17 — Time 1080

Received by Lab: (Signature) — Date 4/18/17 — Time 1450

Sent to Laboratory (Name): McCAMPBELL ANALYTICAL

Laboratory Comments/Notes:

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

White Copy - Original  Yellow Copy - Laboratory  Pink Copy - Field  COC Number:

McCampbell Analytical, Inc.
*"When Quality Counts"*

# Analytical Report

**WorkOrder:** 1704842 B

**Report Created for:** Langan

555 Montgomery St., Suite 1300
San Francisco, CA 94111

**Project Contact:** Josh Graber
**Project P.O.:**
**Project Name:** 750635603; 3000 Broadway

**Project Received:** 04/18/2017

Analytical Report reviewed & approved for release on 05/08/2017 by:

Angela Rydelius,
Laboratory Manager

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1534 Willow Pass Rd. Pittsburg, CA 94565 ♦ TEL: (877) 252-9262 ♦ FAX: (925) 252-9269 ♦ www.mccampbell.com
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McCampbell Analytical, Inc.
*"When Quality Counts"*

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# Glossary of Terms & Qualifier Definitions

**Client:** Langan
**Project:** 750635603; 3000 Broadway
**WorkOrder:** 1704842

## 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 |
| IGN1 | Sample is non metalic |
| IGN2 | Sample is metalic |
| 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) |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Received:** | 4/18/17 14:50 | **Extraction Method:** | CA Title 22 |
| **Date Prepared:** | 5/6/17 | **Analytical Method:** | SW6020 |
| **Project:** | 750635603; 3000 Broadway | **Unit:** | mg/L |

## Metals (STLC)

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **B-40-5.0, 41-5.0, 7.5** | **1704842-007A** | **Soil** | **04/17/2017 09:08** | **ICP-MS1** | **138411** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Chromium | ND | 0.10 | 1 | 05/08/2017 12:34 |

Analyst(s): MIG

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Langan | **WorkOrder:** | 1704842 |
| **Date Prepared:** | 5/6/17 | **BatchID:** | 138411 |
| **Date Analyzed:** | 5/8/17 | **Extraction Method:** | CA Title 22 |
| **Instrument:** | ICP-MS1 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/L |
| **Project:** | 750635603; 3000 Broadway | **Sample ID:** | MB/LCS-138411<br>1704842-007AMS/MSD |

## QC Summary Report for Metals (STLC)

| Analyte | MB Result | LCS Result | RL | SPK Val | MB SS %REC | LCS %REC | LCS Limits |
|---|---|---|---|---|---|---|---|
| Chromium | ND | 9.86 | 0.10 | 10 | - | 99 | 75-125 |

| Analyte | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.94 | 9.96 | 10 | ND | 99 | 100 | 75-125 | 0.261 | 20 |

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# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1704842 B** **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

**Report to:**
Josh Graber
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-5244 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc/3rd Party: kstaehlin@langan.com;
PO:
ProjectNo: 750635603; 3000 Broadway

**Bill to:**
Accounts Payable
Langan
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursolutio

**Requested TAT:** 3 days;

***Date Received:*** **04/18/2017**
***Date Logged:*** **04/18/2017**
***Date Add-On:*** **05/05/2017**

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1704842-007 | B-40-5.0, 41-5.0, 7.5 | Soil | 4/17/2017 09:08 | ☐ | A | | | | | | | | | | | |

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | CRMS_STLC_S | 2 | | 3 | | 4 | |
| 5 | | 6 | | 7 | | 8 | |
| 9 | | 10 | | 11 | | 12 | |

**Prepared by: Agustina Venegas**

**Add-On Prepared By: Agustina Venegas**

**Comments:** STLC Cr added 4/26/17 72HR RUSH. STLC Cr added to 007 5/5/17 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.

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# WORK ORDER SUMMARY

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

**Project:** 750635603; 3000 Broadway
**Comments:** STLC Cr added 4/26/17 72HR RUSH. STLC Cr added to 007 5/5/17 72HR RUSH

**Work Order:** 1704842
**QC Level:** LEVEL 2
**Date Logged:** 4/18/2017
**Date Add-On:** 5/5/2017

| Lab ID | Client ID | Matrix | Test Name | Containers /Composites | Bottle & Preservative | Collection Date & Time | TAT | Sediment Content | Hold | SubOut |
|---|---|---|---|---|---|---|---|---|---|---|
| 1704842-007A | B-40-5.0, 41-5.0, 7.5 | Soil | SW6020 (Chromium) (STLC) | 3 / (3:1) | Acetate Liner | 4/17/2017 9:08 | 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.**

10318

# LANGAN

# CHAIN OF CUSTODY RECORD




- [X] 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: 3000 BROADWAY
Job Number: 750635603
Project Manager\Contact: JOSH GRABER
Samplers: KSS
Recorder (Signature Required):

Turnaround Time: STANDARD

| Field Sample Identification No. | Date | Time | Lab Sample No. | Matrix: Soil | Water | Air | Other | No. Containers & Preservative: HCL | $H_2SO_4$ | $HNO_3$ | Ice | Analysis Requested: TPH gas/mo | OCPs & PCBs | PAHs (8310) | CAM-17 VOCs | Asbestos by CARB 435 | STLC Cr | STLC-Pb-Ni 72HR | Silica gel clean-up | Hold | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-40-1.5 | 4/17/17 | 0900 | | X | | | | | | | X | X | X | X | | | | | | | ** SAMPLE WAS NOT RECEIVED. *Added 5/5/17 72HR RUSH |
| B-40-3.0 | | 0903 | | X | | | | | | | X | X | X | X | | | | | | | |
| B-41-3.0 | | 0754 | | X | | | | | | | X | X | X | X | | | | | | | |
| B-40-5.0 | | 0908 | | X | | | | | | | X | X | X | X | | | | X | | | |
| B-41-5.0 | | 0800 | | X | | | | | | | X | X | X | X | X | | | | | | |
| B-41-7.5 | | 0802 | | X | | | | | | | X | X | X | X | | | | | | | |
| B-40-10.0 | | 0918 | | X | | | | | | | X | X | X | X | | | | | | | |
| B-41-10.0 | | 0817 | | X | | | | | | | X | X | X | X | | X | | | | | |
| B-40-15.0 | | 0928 | | X | | | | | | | X | X | X | X | | X | | | | | |
| B-41-15.0 | | 0821 | | X | | | | | | | X | X | X | X | | | | | | | |
| B-40-20.0 | | 0941 | | X | | | | | | | X | X | X | X | | | | | | | |
| B-41-20.0 | | 0841 | | X | | | | | | | X | X | X | X | | | | | | | |
| B-37-3.0 | | 1138 | | X | | | | | | | X | X | X | X | | | | | | | |
| B-38-3.0 | 4/17/17 | 1007 | | X | | | | | | | X | X | X | X | | | | | X | | |

| | | | |
|---|---|---|---|
| Relinquished by: (Signature) | Date: | Time | Received by: (Signature) |
| Relinquished by: (Signature) | Date: 4-18-17 | Time 1450 | Received by: (Signature) |
| Relinquished by: (Signature) | Date: | Time | Received by Lab: (Signature) |

Date: 4-18-17 Time: 1080
Date: Time:
Date: 4/18/17 Time: 1450

Sent to Laboratory (Name): McCAMPBELL ANALYTICAL
Laboratory Comments/Notes:

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

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COC Number:

Forensic Analytical LABORATORIES

**Final Report**

# Bulk Asbestos Material Analysis

(Modified Air Resources Board Method 435, June 6, 1991)

McCampbell Analytical, Inc.
Account Payable
1534 Willow Pass Rd

Pittsburg, CA 94565

**Client ID:** A31409
**Report Number:** N009334
**Date Received:** 04/20/17
**Date Analyzed:** 04/27/17
**Date Printed:** 04/27/17

**Job ID/Site:** 1704842, 750635603, 3000 Broadway

**FALI Job ID:** A31409
**Total Samples Submitted:** 2
**Total Samples Analyzed:** 2

**PLM Report Number:** N/A

**Sample Preparation and Analysis:**

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

| Sample ID | Lab Number | Layer Description |
|---|---|---|
| **B-39-3.0** | 11881750 | **Tan Soil** |

*Visual Estimation Results:*

| | |
|---|---|
| Matrix percentage of entire | 100 |
| **Visual estimation percentage:** | **None Detected** |
| Asbestos type(s) detected: | None Detected |

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

| Sample ID | Lab Number | Layer Description |
|---|---|---|
| **B-41-5.0** | 11881751 | **Tan Soil** |

*Visual Estimation Results:*

| | |
|---|---|
| Matrix percentage of entire | 100 |
| **Visual estimation percentage:** | **None Detected** |
| Asbestos type(s) detected: | None Detected |

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Tad Thrower, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification (LOQ) = 0.25%. Trace denotes the presence of asbestos below the LOQ. ND = None Detected.

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10515 Research Drive
Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133

**Client:** Karianne Staehlin
Langan Engineering & Environmental Services
555 Montgomery Street
Suite 1300
San Francisco, CA 94111-2517

**Phone:** 415-955-5264

**Fax:**

**Identifier:** 024OD **Date Rec:** 04/06/2017 **Report Date:** 04/13/2017

**Client Project #:** 750635603 **Client Project Name:** 3000 Broadway Redevelopment

**Purchase Order #:**

**Analysis Requested:** CENSUS

**Reviewed By:**

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**MICROBIAL INSIGHTS, INC.**

10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

**CENSUS**

**Client:** **Langan Engineering & Environmental Servic**
Project: 3000 Broadway Redevelopment

**MI Project Number:** **024OD**
Date Received: 04/06/2017

**Sample Information**

| **Client Sample ID:** | | **GW-1** | **GW-2** |
|---|---|---|---|
| Sample Date: | | 04/05/2017 | 04/05/2017 |
| Units: | | cells/mL | cells/mL |
| Analyst: | | JS | JS |

**Dechlorinating Bacteria**

| | | | |
|---|---|---|---|
| *Dehalococcoides* | *DHC* | <5.00E-01 | **3.60E+00** |
| tceA Reductase | TCE | <5.00E-01 | <5.00E-01 |
| BAV1 Vinyl Chloride Reductase | BVC | <5.00E-01 | **8.00E-01** |
| Vinyl Chloride Reductase | VCR | <5.00E-01 | **1.20E+00** |
| *Dehalobacter spp.* | *DHBt* | **1.21E+01** | **5.40E+02** |

**Legend:**
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

## Quality Assurance/Quality Control Data

**Samples Received** **4/6/2017**

| Component | Date Prepared | Date Analyzed | Arrival Temperature | Positive Control | Extraction Blank | Negative Control |
|---|---|---|---|---|---|---|
| DHC | 04/06/2017 | 04/13/2017 | 2 °C | 104% | non-detect | non-detect |
| DHBt | 04/06/2017 | 04/13/2017 | 2 °C | 104% | non-detect | non-detect |
| BVC | 04/06/2017 | 04/13/2017 | 2 °C | 98% | non-detect | non-detect |
| TCE | 04/06/2017 | 04/13/2017 | 2 °C | 100% | non-detect | non-detect |
| VCR | 04/06/2017 | 04/13/2017 | 2 °C | 106% | non-detect | non-detect |

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

April 12, 2017

Joshua Graber
Treadwell & Rollo A Langan Company
555 Montgomery Street
Suite 1300
San Francisco, CA 94111

RE: **3000 BROADWAY / 750635603**

*Pace Workorder: 22256*

Dear Joshua Graber:

Enclosed are the analytical results for sample(s) received by the laboratory on Thursday, April 06, 2017. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 04/12/2017
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 11



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# LABORATORY ACCREDITATIONS & CERTIFICATIONS

| | |
|---|---|
| **Accreditor:** | Pennsylvania Department of Environmental Protection, Bureau of Laboratories |
| **Accreditation ID:** | 02-00538 |
| **Scope:** | NELAP Non-Potable Water and Solid & Hazardous Waste |
| **Accreditor:** | West Virginia Department of Environmental Protection, Division of Water and Waste Management |
| **Accreditation ID:** | 395 |
| **Scope:** | Non-Potable Water |
| **Accreditor:** | South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification |
| **Accreditation ID:** | 89009003 |
| **Scope:** | Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA) |
| **Accreditor:** | NELAP: New Jersey, Department of Environmental Protection |
| **Accreditation ID:** | PA026 |
| **Scope:** | Non-Potable Water; Solid and Chemical Materials |
| **Accreditor:** | NELAP: New York, Department of Health Wadsworth Center |
| **Accreditation ID:** | 11815 |
| **Scope:** | Non-Potable Water; Solid and Hazardous Waste |
| **Accreditor:** | State of Connecticut, Department of Public Health, Division of Environmental Health |
| **Accreditation ID:** | PH-0263 |
| **Scope:** | Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA) |
| **Accreditor:** | NELAP: Texas, Commission on Environmental Quality |
| **Accreditation ID:** | T104704453-09-TX |
| **Scope:** | Non-Potable Water |
| **Accreditor:** | State of New Hampshire |
| **Accreditation ID:** | 299409 |
| **Scope:** | Non-potable water |
| **Accreditor:** | State of Georgia |
| **Accreditation ID:** | Chapter 391-3-26 |
| **Scope:** | As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC). |



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## SAMPLE SUMMARY

Workorder: 22256 3000 BROADWAY / 750635603

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| 222560001 | GW-1 | Water | 4/5/2017 10:12 | 4/6/2017 16:47 |
| 222560002 | GW-2 | Water | 4/5/2017 11:42 | 4/6/2017 16:47 |



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# ANALYTICAL RESULTS

Workorder: 22256 3000 BROADWAY / 750635603

Lab ID: **222560001** Date Received: 4/6/2017 16:47 Matrix: Water

Sample ID: **GW-1** Date Collected: 4/5/2017 10:12

| Parameters | Results | Units | PQL | MDL | DF | Analyzed | By | Qualifiers |
|---|---|---|---|---|---|---|---|---|
| **RISK - PAES** | | | | | | | | |
| Analysis Desc: EPA RSK175 | | Analytical Method: EPA RSK175 | | | | | | |
| Methane | **0.30J** | ug/l | 0.50 | 0.019 | 1 | 4/7/2017 10:44 | AK | B |
| Ethane | **0.036J** | ug/l | 0.20 | 0.0050 | 1 | 4/7/2017 10:44 | AK | |
| Ethene | **0.034J** | ug/l | 0.20 | 0.0070 | 1 | 4/7/2017 10:44 | AK | |



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# ANALYTICAL RESULTS

Workorder: 22256 3000 BROADWAY / 750635603

Lab ID: **222560002** Date Received: 4/6/2017 16:47 Matrix: Water

Sample ID: **GW-2** Date Collected: 4/5/2017 11:42

| Parameters | Results | Units | PQL | MDL | DF | Analyzed | By | Qualifiers |
|---|---|---|---|---|---|---|---|---|
| **RISK - PAES** | | | | | | | | |
| Analysis Desc: EPA RSK175 | | Analytical Method: EPA RSK175 | | | | | | |
| Methane | **8.2** | ug/l | 0.50 | 0.019 | 1 | 4/7/2017 11:25 | AK | B |
| Ethane | **0.025J** | ug/l | 0.20 | 0.0050 | 1 | 4/7/2017 11:25 | AK | |
| Ethene | **0.042J** | ug/l | 0.20 | 0.0070 | 1 | 4/7/2017 11:25 | AK | |



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# ANALYTICAL RESULTS QUALIFIERS

Workorder: 22256 3000 BROADWAY / 750635603

**DEFINITIONS/QUALIFIERS**

| | |
|---|---|
| MDL | Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection. |
| PQL | Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation. |
| ND | Not detected at or above reporting limit. |
| DF | Dilution Factor. |
| S | Surrogate. |
| RPD | Relative Percent Difference. |
| % Rec | Percent Recovery. |
| U | Indicates the compound was analyzed for, but not detected at or above the noted concentration. |
| J | Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL). |
| B | The analyte was detected in the associated blank. |



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# QUALITY CONTROL DATA

Workorder: 22256 3000 BROADWAY / 750635603

QC Batch: DISG/6032 Analysis Method: EPA RSK175

QC Batch Method: EPA RSK175

Associated Lab Samples: 222560001, 222560002

METHOD BLANK: 48067

| Parameter | Units | Blank Result | Reporting Limit | Qualifiers |
|---|---|---|---|---|
| RISK | | | | |
| Methane | ug/l | 0.022J | 0.50 | B |
| Ethane | ug/l | 0.20 U | 0.20 | |
| Ethene | ug/l | 0.20 U | 0.20 | |

LABORATORY CONTROL SAMPLE & LCSD: 48068 48069

| Parameter | Units | Spike Conc. | LCS Result | LCSD Result | LCS % Rec | LCSD % Rec | % Rec Limit | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| RISK | | | | | | | | | | |
| Methane | ug/l | 44 | 43 | 42 | 97 | 96 | 85-115 | 1 | 20 | B |
| Ethane | ug/l | 83 | 80 | 80 | 97 | 96 | 85-115 | 1 | 20 | |
| Ethene | ug/l | 78 | 76 | 75 | 98 | 97 | 85-115 | 1 | 20 | |

SAMPLE DUPLICATE: 48072 Original: 222360001

| Parameter | Units | Original Result | DUP Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| RISK | | | | | | |
| Methane | ug/l | 94 | 98 | 4.8 | 20 | B |
| Ethane | ug/l | 1.3 | 1.3 | 1.4 | 20 | |
| Ethene | ug/l | 0.55 | 0.58 | 5 | 20 | |

SAMPLE DUPLICATE: 48073 Original: 222370001

| Parameter | Units | Original Result | DUP Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| RISK | | | | | | |
| Methane | ug/l | 84 | 94 | 11 | 20 | B |
| Ethane | ug/l | 0 | 0 | 0 | 20 | |
| Ethene | ug/l | 0 | 0 | 0 | 20 | |



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Fax: (412) 826-3433

# QUALITY CONTROL DATA QUALIFIERS

Workorder: 22256 3000 BROADWAY / 750635603

## QUALITY CONTROL PARAMETER QUALIFIERS

| | |
|---|---|
| B | The analyte was detected in the associated blank. |



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Fax: (412) 826-3433

## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 22256 3000 BROADWAY / 750635603

| Lab ID | Sample ID | Prep Method | Prep Batch | Analysis Method | Analysis Batch |
|---|---|---|---|---|---|
| 222560001 | GW-1 | | | EPA RSK175 | DISG/6032 |
| 222560002 | GW-2 | | | EPA RSK175 | DISG/6032 |



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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

22256

Page: 1 of 1

007745

**Section A** — **Required** Client Information:

Company: LANGAN ENGINEERING & ENVIRONMENTAL SERVICES, INC.
Address: 501 14TH STREET, 3RD FLOOR, OAKLAND, CA 94612
Email To: JGRABER@LANGAN.COM
Phone: (510) 874-7086 Fax:
Requested Due Date/TAT: STANDARD

**Section B** — **Required** Project Information:

Report To: JOSHUA GRABER
Copy To: KARIANNE STAEHLIN
KSTAEHLIN@LANGAN.COM
Purchase Order No.:
Project Name: 3000 BROADWAY REDEVELOPMENT
Project Number: 750635603

**Section C** — Invoice Information:

Attention: JOSHUA GRABER
Company Name: LANGAN ENGINEERING & ENVIRONMENTAL SERVICES, INC.
Address: (SAME AS SECTION A)
Pace Quote Reference:
Pace Project Manager: RUTH WELSH
Pace Profile #:

**REGULATORY AGENCY**

NPDES (GROUND WATER) DRINKING WATER
UST RCRA OTHER _____

Site Location STATE: CA

**Section D** — **Required** Client Information

**SAMPLE ID**
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

**Matrix Codes** — MATRIX / CODE

| | |
|---|---|
| Drinking Water | DW |
| Water | WT |
| Waste Water | WW |
| Product | P |
| Soil/Solid | SL |
| Oil | OL |
| Wipe | WP |
| Air | AR |
| Tissue | TS |
| Other | OT |

Requested Analysis Filtered (Y/N)

| ITEM # | SAMPLE ID | MATRIX CODE (see valid codes to left) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED COMPOSITE START DATE | COLLECTED COMPOSITE START TIME | COLLECTED COMPOSITE END/GRAB DATE | COLLECTED COMPOSITE END/GRAB TIME | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Preservatives: Unpreserved | $H_2SO_4$ | $HNO_3$ | HCl | TSP | BAK | Zinc Acetate & NaOH | Other | Analysis Test ↓ Y/N: (N) | EPA RSK175 • ETHANE • ETHENE • METHANE | Residual Chlorine (Y/N) | Pace Project No./ Lab I.D. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | GW-1 | WT | | | | 4/5/17 | 1012 | | 3 | | | | | 3 | | | | | X | | |
| 2 | GW-2 | WT | | | | 4/5/17 | 1142 | | 3 | | | | | 3 | | | | | X | | |
| 3 | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | |

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS |
|---|---|---|---|---|---|---|---|
| KARIANNE STAEHLIN | LANGAN ENGINEERING | 4/5/17 | 1:35PM | PACE | 4.6 | 1215 | 5 Y N Y |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: KARIANNE STAEHLIN

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY): 04/05/17

| Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N) |
|---|---|---|---|
| 5 | Y | N | Y |

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

# Cooler Receipt Form

Client Name: Langan Project: 3000 Broadway Lab Work Order: 22286

A. Shipping/Container Information (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ Air bill Present: (Yes) No

Tracking Number: 7788 3357 2475

Custody Seal on Cooler/Box Present: Yes (No) Seals Intact: Yes No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None Ice Intact: (Yes) Melted

Cooler Temperature: 5°C Radiation Screened: Yes (No) Chain of Custody Present: (Yes) No

Comments:_____

B. Laboratory Assignment/Log-in (check appropriate response)

| | YES | NO | N/A | Comment Reference non-Conformance |
|---|---|---|---|---|
| Chain of Custody properly filled out | ✓ | | | |
| Chain of Custody relinquished | ✓ | | | |
| Sampler Name & Signature on COC | ✓ | | | |
| Containers intact | ✓ | | | |
| Were samples in separate bags | ✓ | | | |
| Sample container labels match COC Sample name/date and time collected | ✓ | | | |
| Sufficient volume provided | ✓ | | | |
| PAES containers used | ✓ | | | |
| Are containers properly preserved for the requested testing? (as labeled) | ✓ | | | |
| If an unknown preservation state, were containers checked? Exception: VOA's coliform | | | ✓ | If yes, see pH form. |
| Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container? | | | ✓ | |

Comments:_____

Cooler contents examined/received by: LY Date: 4.6.17

Project Manager Review: RW Date: 4-6-17

# APPENDIX C
# MEMBRANE INTERFACE PROBE (MIP) DATA REPORT

March 29, 2017

Langan Treadwell Rollo
Attn: Joshua Graber

Subject: High Resolution Site Characterization (HRSC) Investigation
3000 Broadway
Oakland, California
GREGG Project Number: D2170127

Dear Mr. Graber:

The following report presents the results of Gregg Drilling and Testing's High Resolution test investigation for the above referenced site. The following testing services were performed:

| | | | |
|---|---|---|---|
| 1 | Membrane Interface Probe | (MIP) | ☒ |
| 2 | Hydraulic Profiling Tool | (HPT) | ☒ |
| 3 | Soil Sampling | (SS) | ☒ |

A list of reference papers providing additional background on the specific tests conducted is provided in the bibliography following the text of the report. If you would like a copy of any of these publications or should you have any questions or comments regarding the contents of this report, please do not hesitate to contact our office at (562) 427-6899.

Sincerely,

GREGG Drilling & Testing, Inc.

Frank Stolfi
HRSC Division Manager

Mary Walden
Operations Manager

HRSC Boring Summary

Table 1

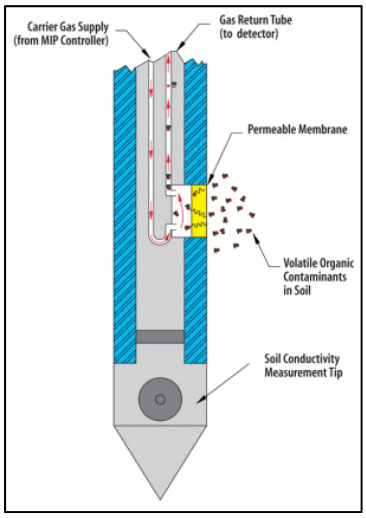
| Boring Identification | Date | Termination Depth (feet) | Depth of Groundwater Samples (feet) | Depth of Soil Samples (feet) | Depth of Pore Pressure Dissipation Test (feet) |
|---|---|---|---|---|---|
| MIP-1 | 3/25/17 | 23.35 | - | - | - |
| MIP-2 | 3/25/17 | 24.35 | - | - | - |
| MIP-3 | 3/25/17 | 24.10 | - | - | - |
| MIP-4 | 3/25/17 | 21.95 | - | - | - |
| B-33 | 3/25/17 | 20.00 | - | 0'-20' | - |

# Membrane Interface Probe

## System Overview:

The MIP is a direct push tool that produces continuous chemical and physical logs of the vadose and saturated zones. The system detects VOCs in-situ and shows where the contaminants occur relative to the geologic and hydrologic units. Vertical profiles, transects, 3D images and maps can all be produced from the electronic data generated by the MIP logs. The unique capability of providing reliable, real-time information allows for informed and timely decision making in the field.

The MIP is a downhole tool that heats the soil and groundwater adjacent to the probe to 120 degrees Celsius. This increases volatility and the vapor phase diffuses across a membrane into a closed, inert gas loop that carries these vapors to a series of detectors housed at the surface. Continuous chemical logs or profiles are generated from each hole. Soil conductivity is also measured and these logs can be compared to chemical logs to better understand where the VOCs occur. The MIP technology is only appropriate for volatile organic compounds (VOCs). The gas stream can be analyzed with multiple detectors; for example an XSD detector is used to detect chlorinated solvents, a photo-ionization detector is used to detect petroleum hydrocarbons, and a flame ionization detector is used to detect methane.




## Detector Overview:

- XSD – The Halogen Specific Detector converts compounds containing halogens to their oxidation products and free halogen atoms by oxidative pyrolysis. These halogen atoms are adsorbed onto the activated platinum surface of the detector probe assembly resulting in an increase thermionic emission. This emission current provides a corresponding voltage that is measured via an electrometer circuit in the detector controller.
- PID – Photo Ionization Detector sample stream flows through the detector's reaction chamber where it is continuously irradiated with high energy ultraviolet light. When compounds are present that have a lower ionization potential than that of the irradiation energy (10 electron volts with standard lamp) they are ionized. The ions formed are collected in an electrical field,

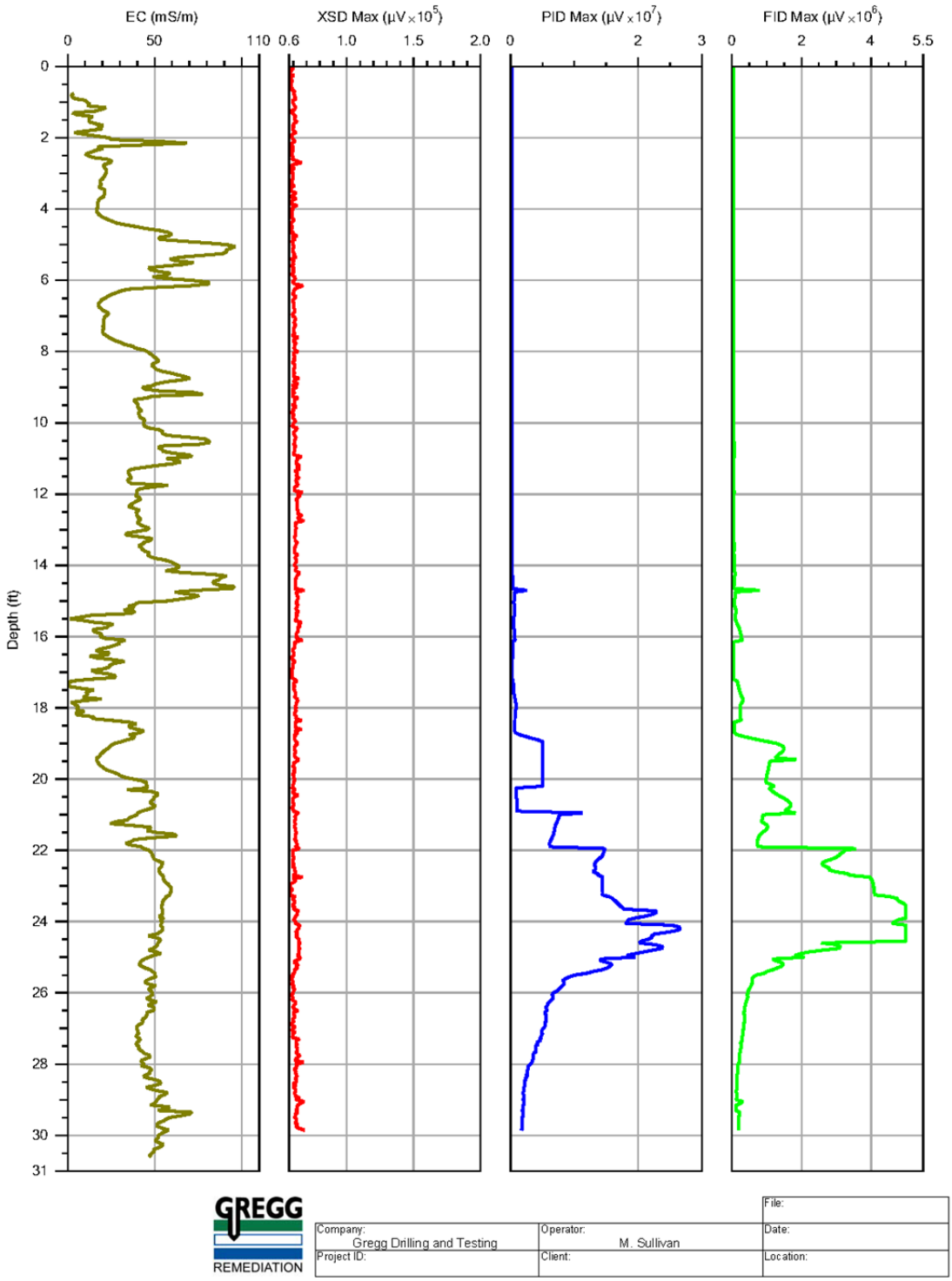
producing an ion current that is proportional to compound concentration. The ion current is amplified and output by the gas chromatograph's electrometer.

- FID – Flame Ionization Detector consists of a hydrogen/air flame and a collector plate. The effluent from the GC (trunk line) passes through the flame, which breaks down organic molecules and produces ions. The ions are collected on a biased electrode and produce an electric signal.

## Data Collected:

- Depth - Data is collected from twenty data points per foot. 0.05', 0.10', 0.15', etc…
- Electrical Conductivity - Electrical Conductivity data is measured/collected in milli-siemens per Meter (ms/M). The conductivity of soils is different for each type of media. Finer grained sediments, such as silts or clays, will have a higher EC signal. While coarser grained sediments, sands and gravel, will have a lower EC signal. The coarser grained sediments will allow the migration of contaminants and the finer grained sediments will trap the contaminant.
- Speed/Advancement Rate - Speed data is measured/collected in feet per minute (ft/min). Speed is an indication of the physical advancement rate of the MIP probe. Speed of the MIP probe can vary due to operator advancement and dense soil types. Speed log can provide soil type information which can be correlated with electrical conductivity. Lower advancement speeds are correlated with lower conductivity and larger grained soils that are most likely associated with dense or compacted sands.
- Temperature - Temperature data is measured/collected in Degrees Celsius. Temperature is an indication of the physical temperature of the MIP block. Minimum and Maximum temperature is collected at each vertical interval. Gregg Drilling's temperature protocol indicates that the MIP probe shall maintain a minimum temperature of 75 Degrees Celsius.
- Pressure - Pressure data is measured/collected in PSI. Pressure is an indication of the internal pressure of the nitrogen lines located within the trunk line and the pressure behind the membrane. Gregg Drilling's protocol indicates that the MIP probe pressure shall not exceed 1.5 PSI difference from baseline.
- Detector (XSD, PID, FID) - Detector responses are measured/collected in micro Volts (uV). Detector responses are an indication of relative contaminant responses. Minimum and Maximum detector responses are collected at each vertical interval.

# MIP Boring Example

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www.greggdrilling.com

Hydraulic Profiling Tool

## System Overview:

The HPT system is designed to evaluate the hydraulic behavior of unconsolidated materials. As the probe is pushed or hammered at 2cm/s, clean water is injected through a screen on the side of the HPT probe at a flow rate usually less than 300 mL/min. The injection pressure, which is monitored and plotted with depth, is an indication of the hydraulic properties of the soil. A relatively low pressure response indicates a relatively large grain size, and the ability to easily transmit water. However, a relatively high pressure response indicates a relatively small grain size, which correlates with the inability to transmit water.

Additionally, an EC dipole is integrated into the HPT probe. This allows for the collection soil electrical conductivity (EC) data to interpret the lithology of the subsurface. In general, the higher the electrical conductivity value, the smaller the grain size, the lower the electrical conductivity value, the larger the grain size. However, other factors can affect EC, such as mineralogy and pore water chemistry (brines, extreme pH, contaminants). Conversely, the HPT pressure response is independent of these chemical and mineralogical factors.

There are five primary components of the HPT system: the probe assembly, controller, pump, trunkline, and field instrument. The probe assembly consists of the section that houses the 100 psi pressure transducer, water and electrical connections, and the probe body with the injection screen and electrical conductivity.

Injecting water at a constant rate is integral to system operation. A controller box houses components that monitor and regulate the water injection rate and pressure, as well as pressure transducer signal conditioning electronics. The flow rate is set manually on the front of the controller, and a valve is used to turn on or shut off flow.

A vane pump provides system pressure ensuring adequate flow to the screen. The pump is secured to a frame with an integrated visual flow meter. Water and power are transmitted from the controller to the probe assembly via the trunkline. The probe rods are pre-strung with the trunkline before advancing of the HPT probe begins.

## Data Collected:

The HPT system collects depth, electrical conductivity, advancement rate, hydraulic pressure, and flow information. Additional detail regarding each of these parameters is provided below.

- Depth - Data is collected from twenty data points per foot. 0.05', 0.10', 0.15', etc…
- Electrical Conductivity - Electrical Conductivity (EC) data is collected in milli-siemens per meter (ms/M). The conductivity of soils is different for each type of media. Finer grained sediments, such as silts or clays, will have a higher EC signal. While coarser grained sediments, sands and gravel, will have a lower EC signal. The coarser grained sediments will allow the migration of contaminants and the finer grained sediments will trap the contaminant.

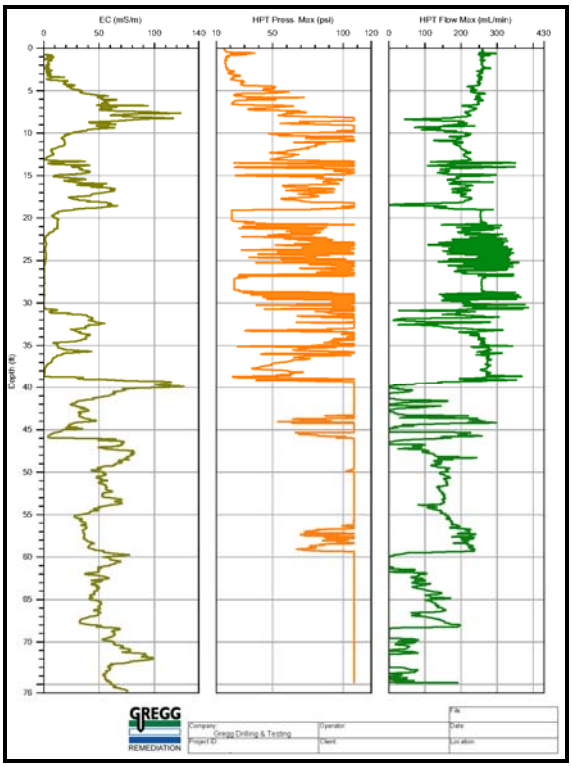
- Advancement Rate – Advancement rate is collected in units of feet per minute (ft/min). Advancement rate of the HPT probe can vary due to operator advancement and soil types encountered.

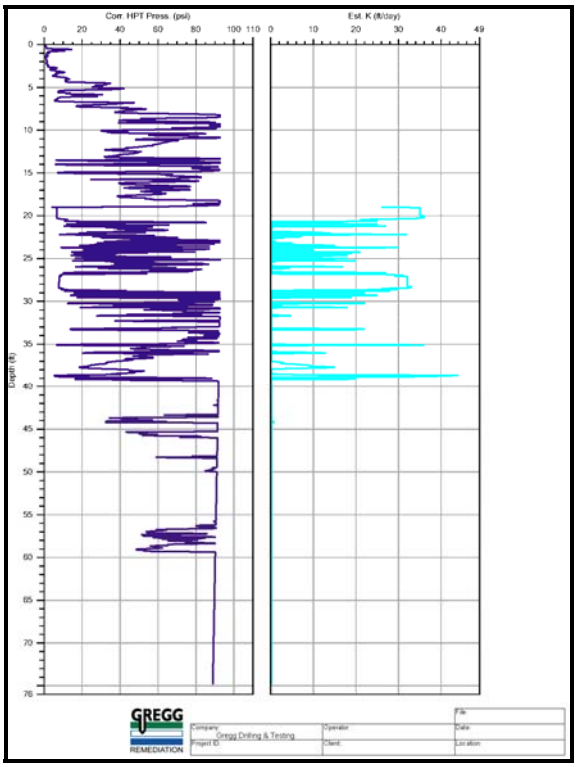
- Pressure - Pressure data is collected in pounds per square inch (PSI). Pressure is an indication of hydraulic pressure applied to the subsurface by the HPT system. The system collects both the minimum and maximum pressures over each vertical interval.

- Flow - Flow data is collected in milliliters per minute (mL/min). Flow is an indication of the rate water that is pumped out of the membrane at the HPT probe. The system collects both the minimum and maximum flow over each vertical interval.

- Estimated Hydraulic Conductivity (est. K) – Hydraulic conductivity, symbolically represented as K, is an in-situ property that describes the ease with which water can move through pore spaces or fractures. It is dependent on the intrinsic permeability of the material and on the degree of saturation. With respect to the HPT system, the estimated K values are only applicable to the saturated portion of the formation. The estimated K value is calculated using the HPT pressure and flow data. It is also necessary to collect HPT response test data before and after each boring. Additionally, it is necessary to conduct at least one pressure dissipation test during the logging operation, below the static water table level.

# HPT Boring Example

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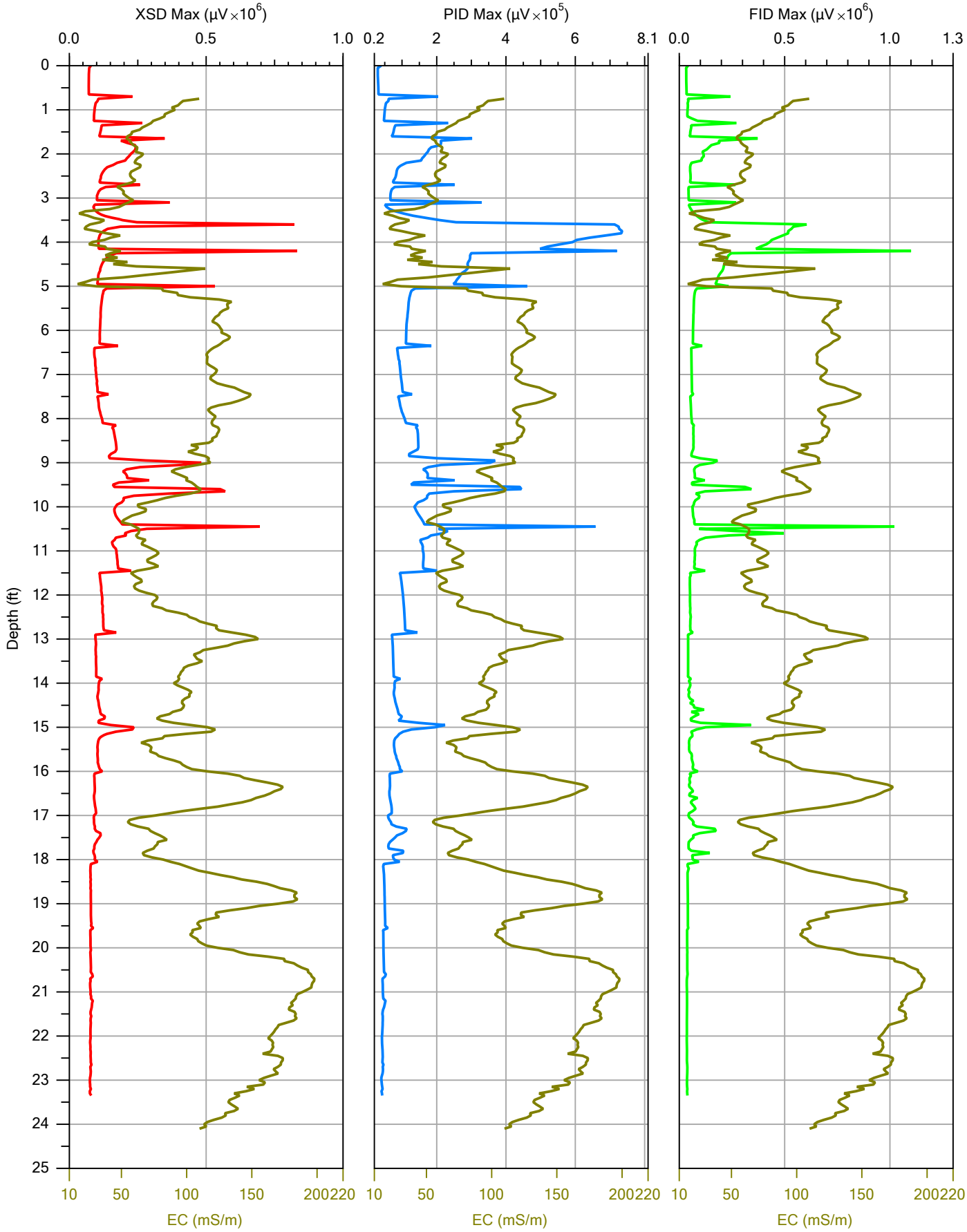
# MEMBRANE INTERFACE PROBE

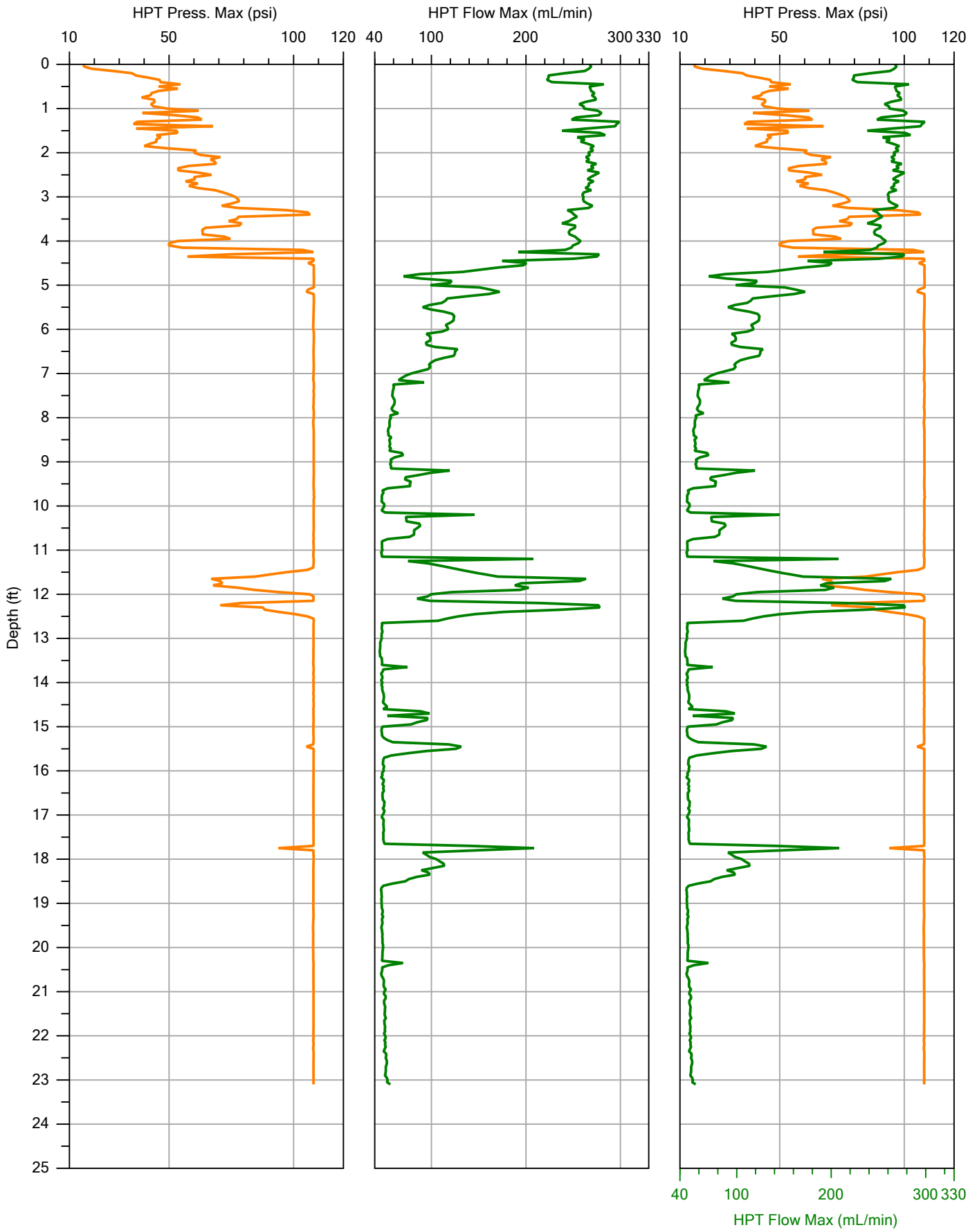
# HYDRAULIC PROFILING TOOL

# BORINGS (AUTO SCALE)




GREGG REMEDIATION

| | | |
|---|---|---|
| | | File: MIP-1.MHP |
| Company: Langan Treadwell Rollo | Operator: M.Haske | Date: 3/25/2017 |
| Project ID: 3000 Broadway | Client: Annie Staehlin | Location: |




GREGG REMEDIATION

| | | |
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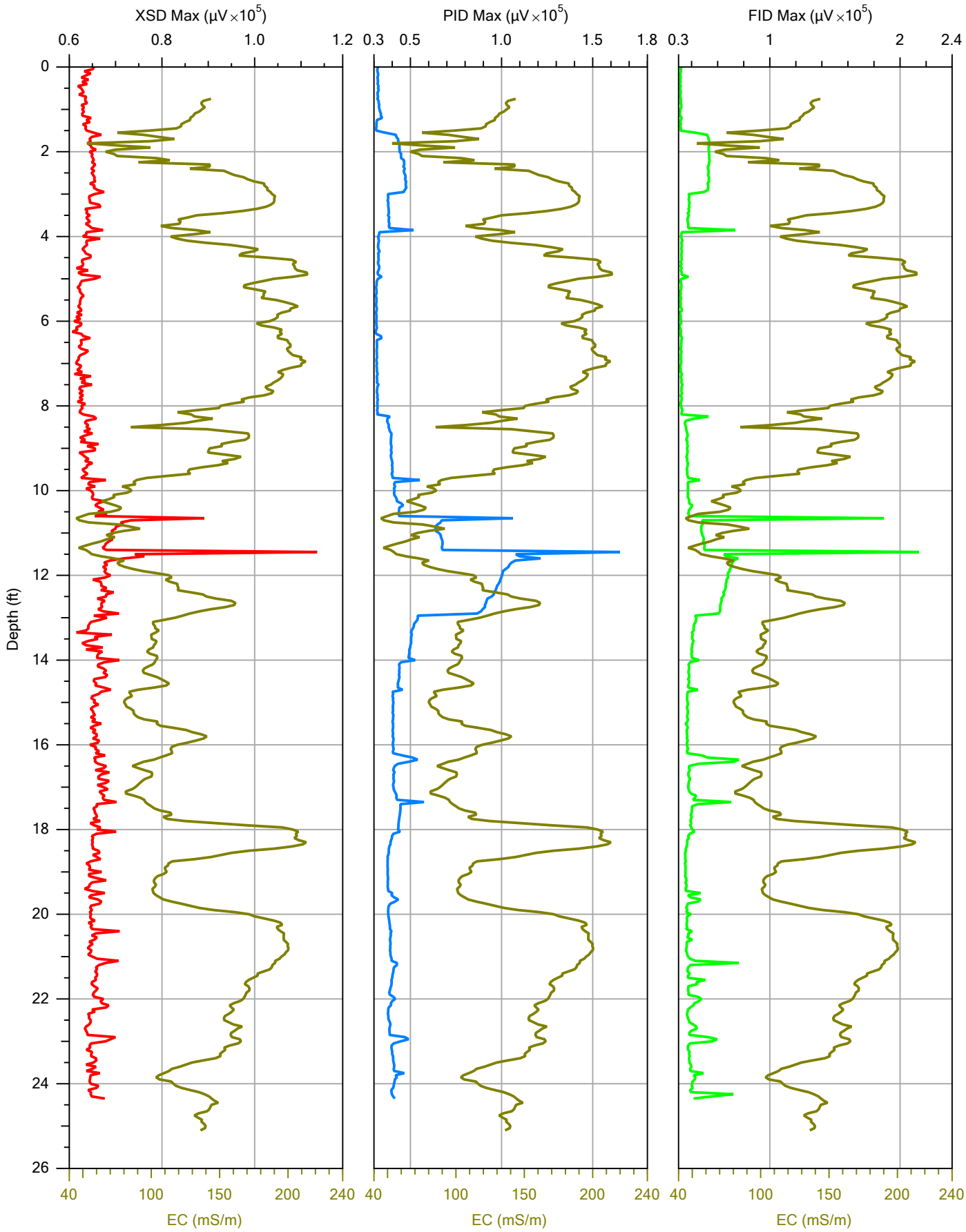
| Company: Langan Treadwell Rollo | Operator: M.Haske | Date: 3/25/2017 |
| Project ID: 3000 Broadway | Client: Annie Staehlin | Location: |




GREGG REMEDIATION

| | | |
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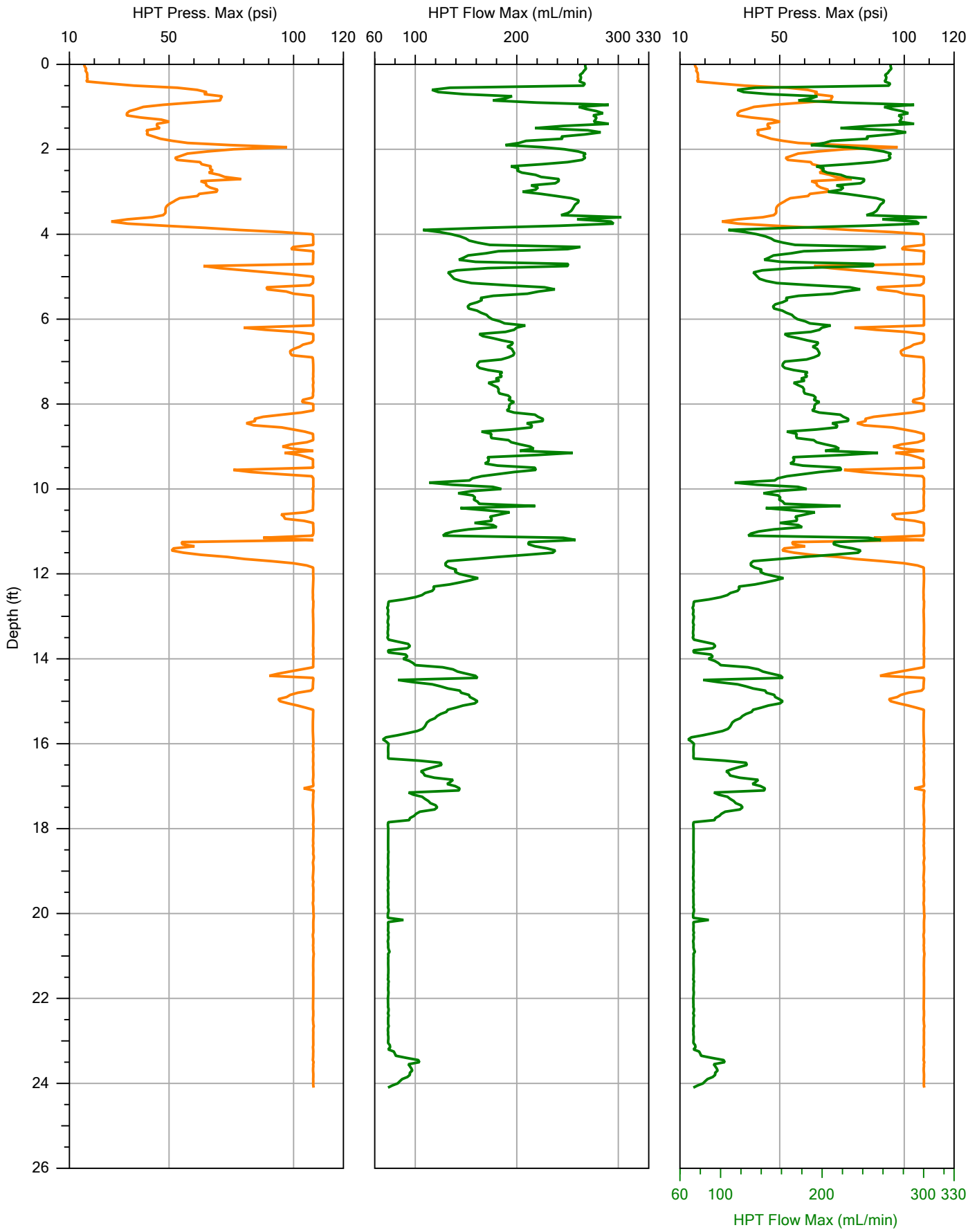
| Project ID: 3000 Broadway | Client: Annie Staehlin | Location: |




GREGG REMEDIATION

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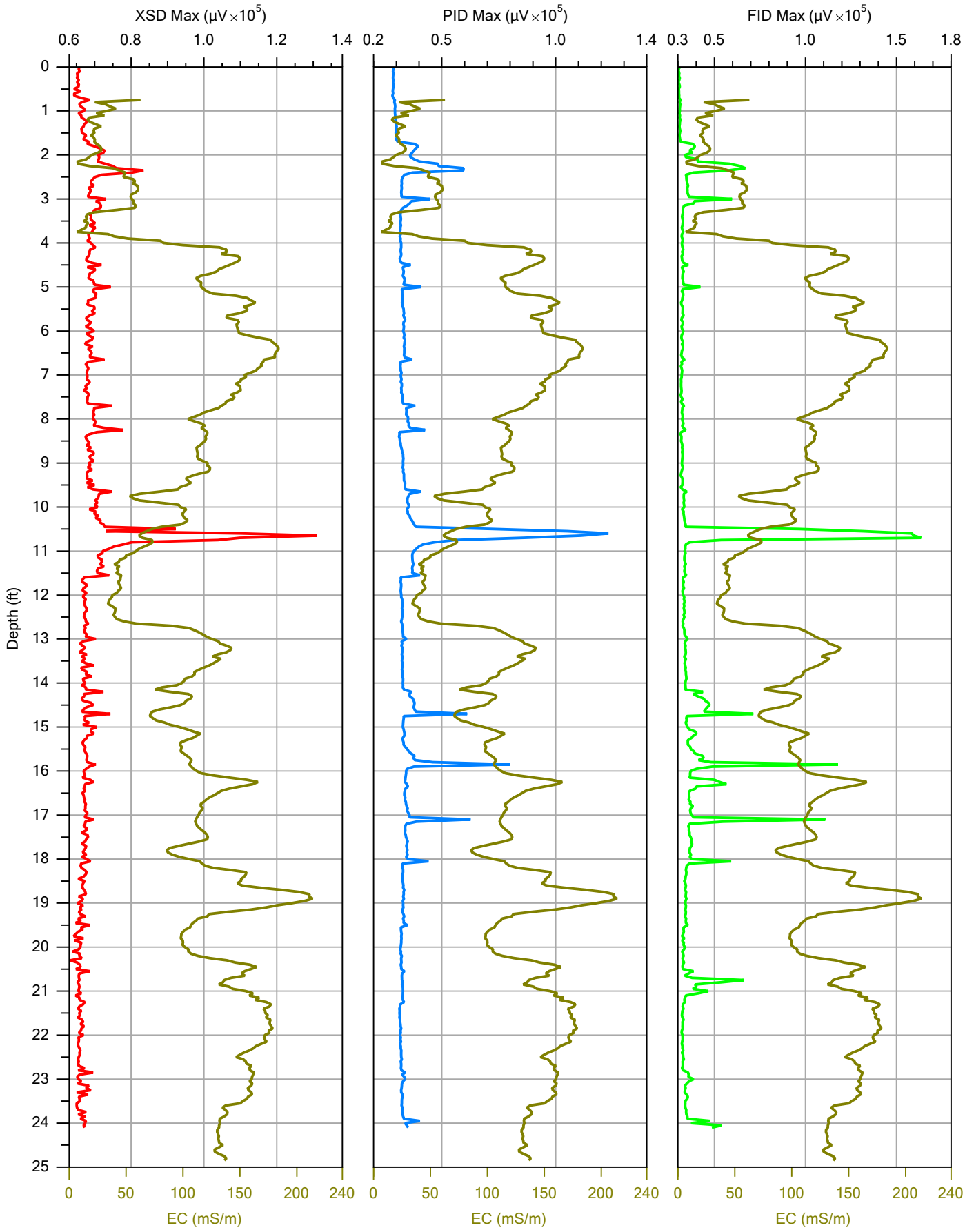
| Company: Langan Treadwell Rollo | Operator: M.Haske | Date: 3/25/2017 |
| Project ID: 3000 Broadway | Client: Annie Staehlin | Location: |




GREGG REMEDIATION

| | | |
|---|---|---|
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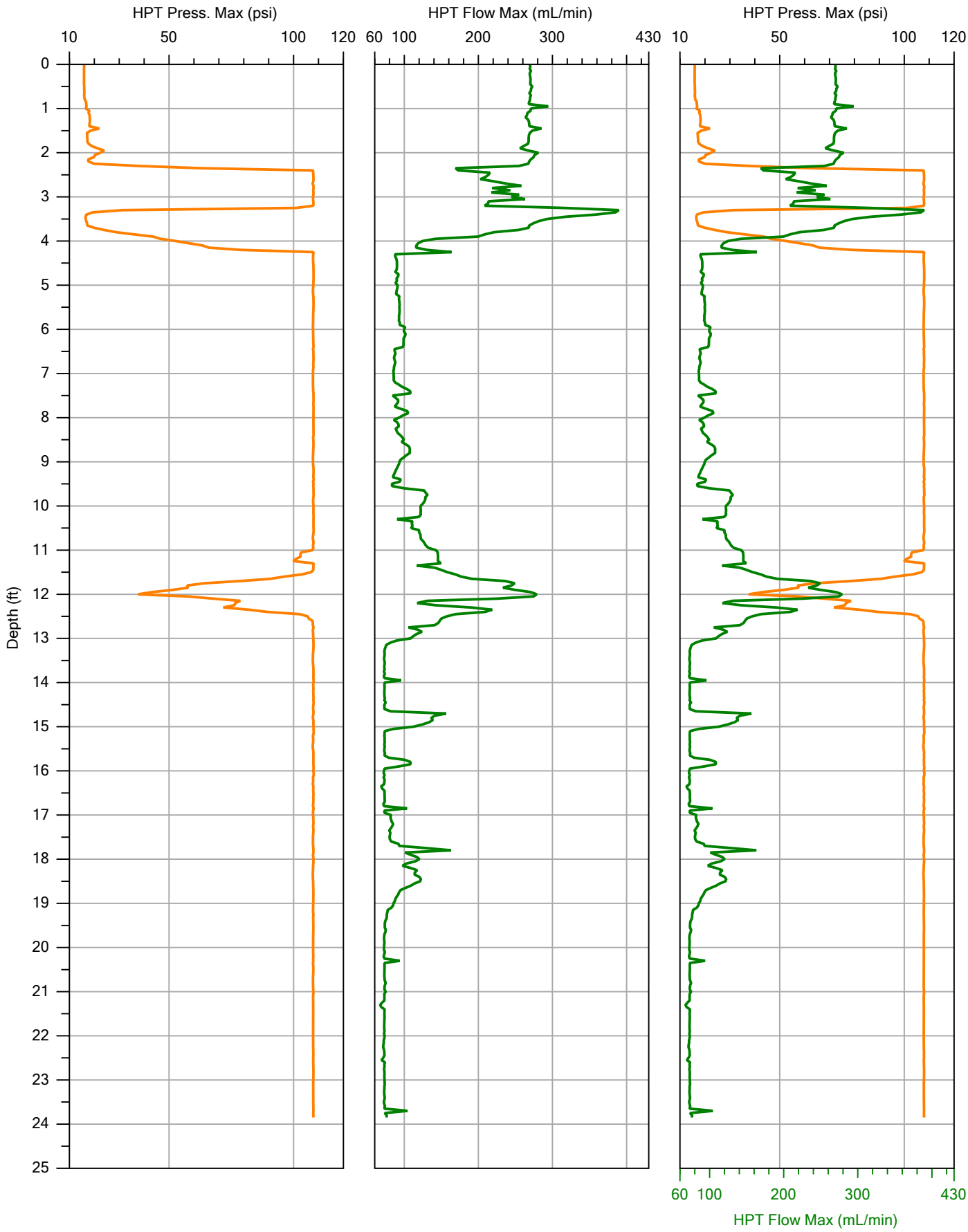
| Project ID: 3000 Broadway | Client: Annie Staehlin | Location: |




GREGG REMEDIATION

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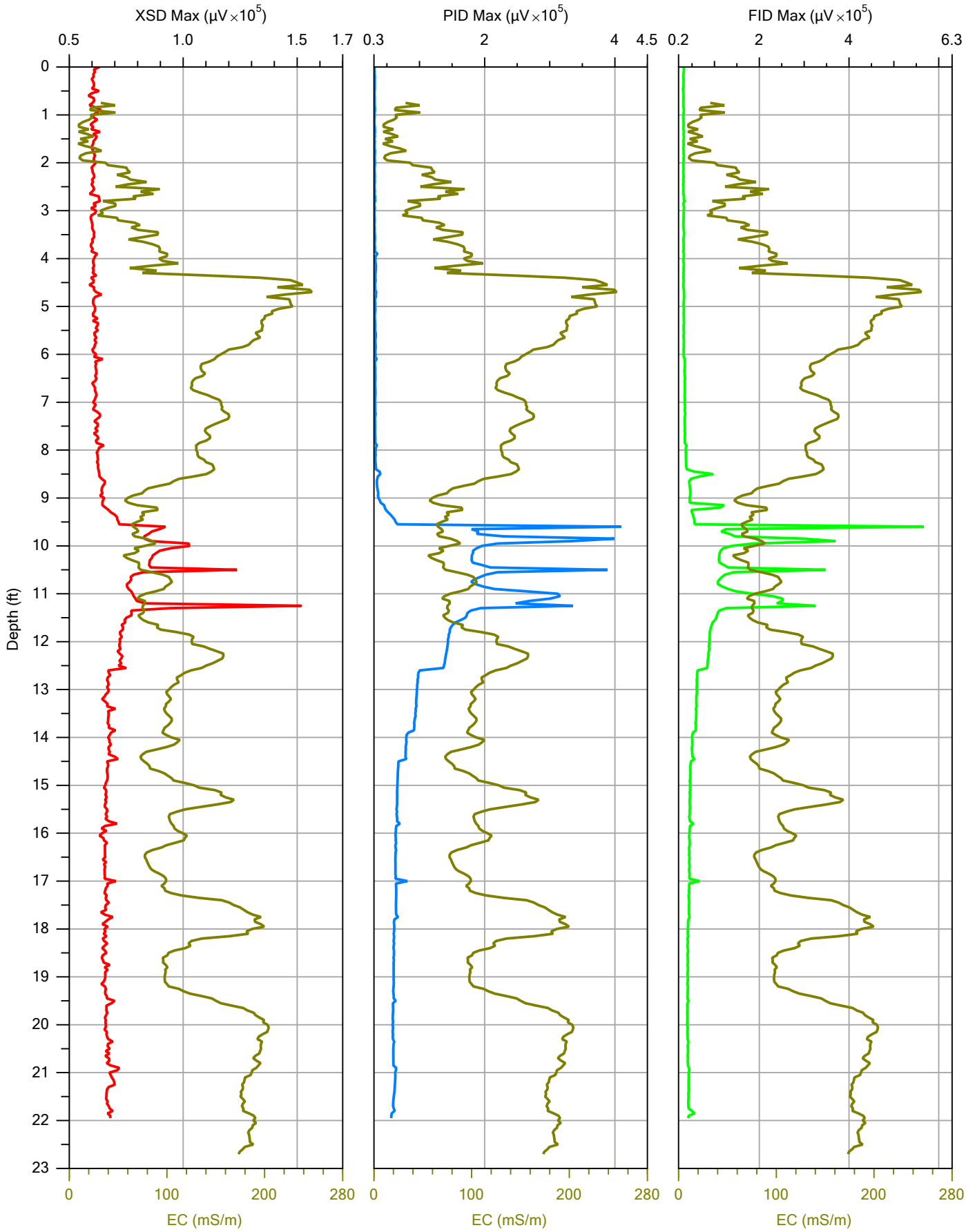
| Company: Langan Treadwell Rollo | Operator: M.Haske | Date: 3/25/2017 |
| Project ID: 3000 Broadway | Client: Annie Staehlin | Location: |




GREGG REMEDIATION

| | | |
|---|---|---|
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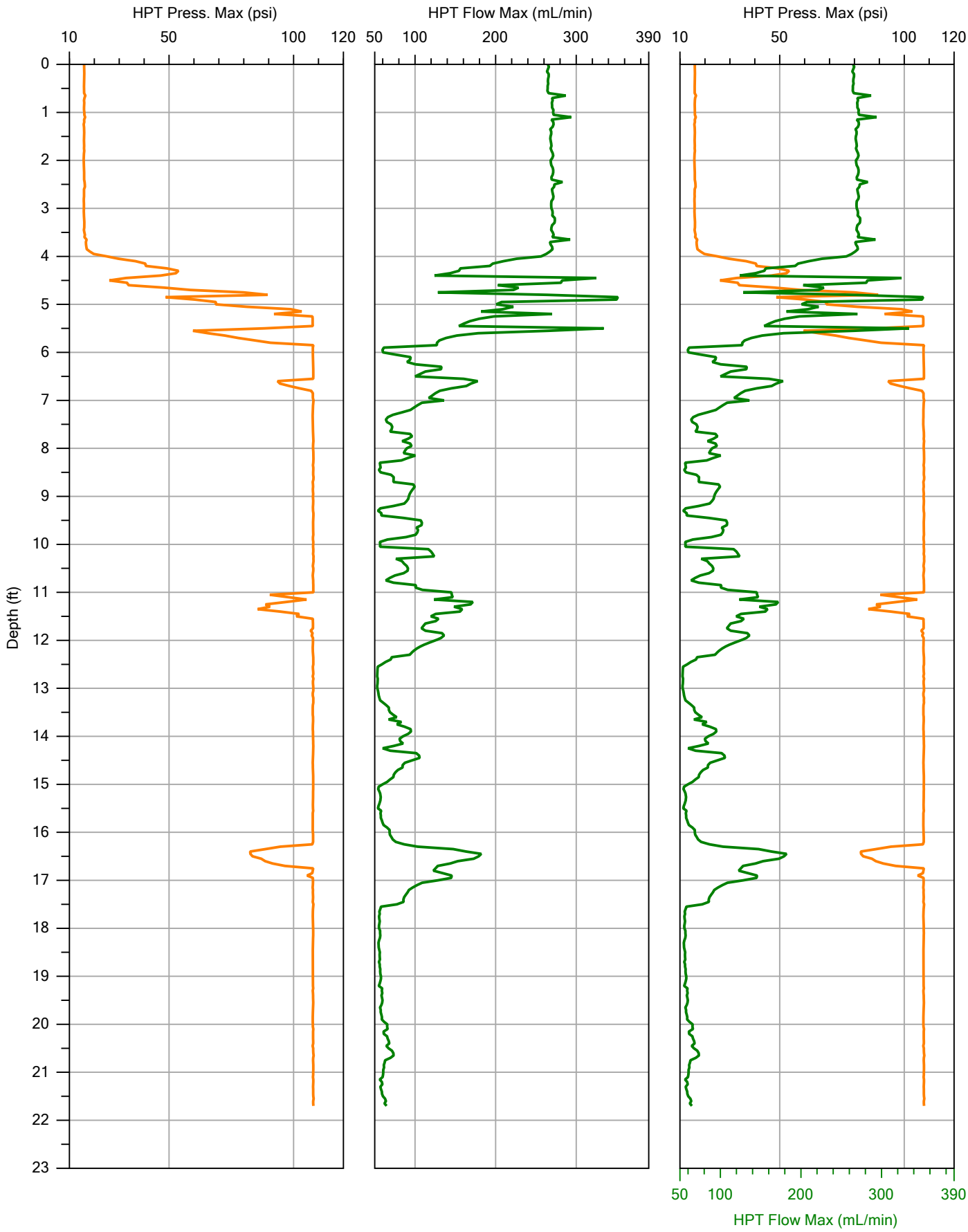
| Project ID: 3000 Broadway | Client: Annie Staehlin | Location: |



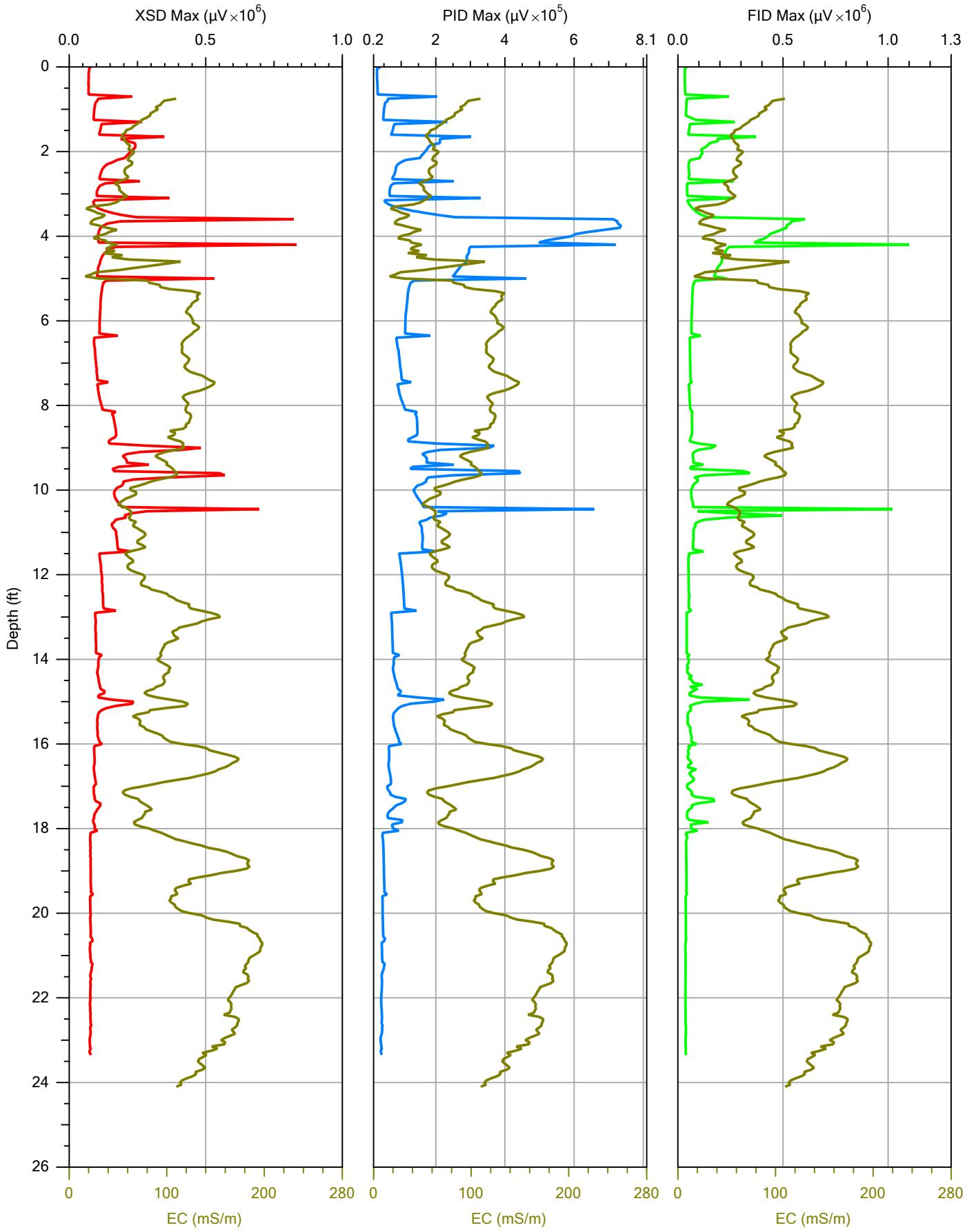

GREGG REMEDIATION

| | | |
|---|---|---|
| | | File: MIP-4.MHP |
| Company: Langan Treadwell Rollo | Operator: M.Haske | Date: 3/25/2017 |
| Project ID: 3000 Broadway | Client: Annie Staehlin | Location: |

# MEMBRANE INTERFACE PROBE

# HYDRAULIC PROFILING TOOL

# BORINGS (NORMALIZED SCALE)




GREGG REMEDIATION

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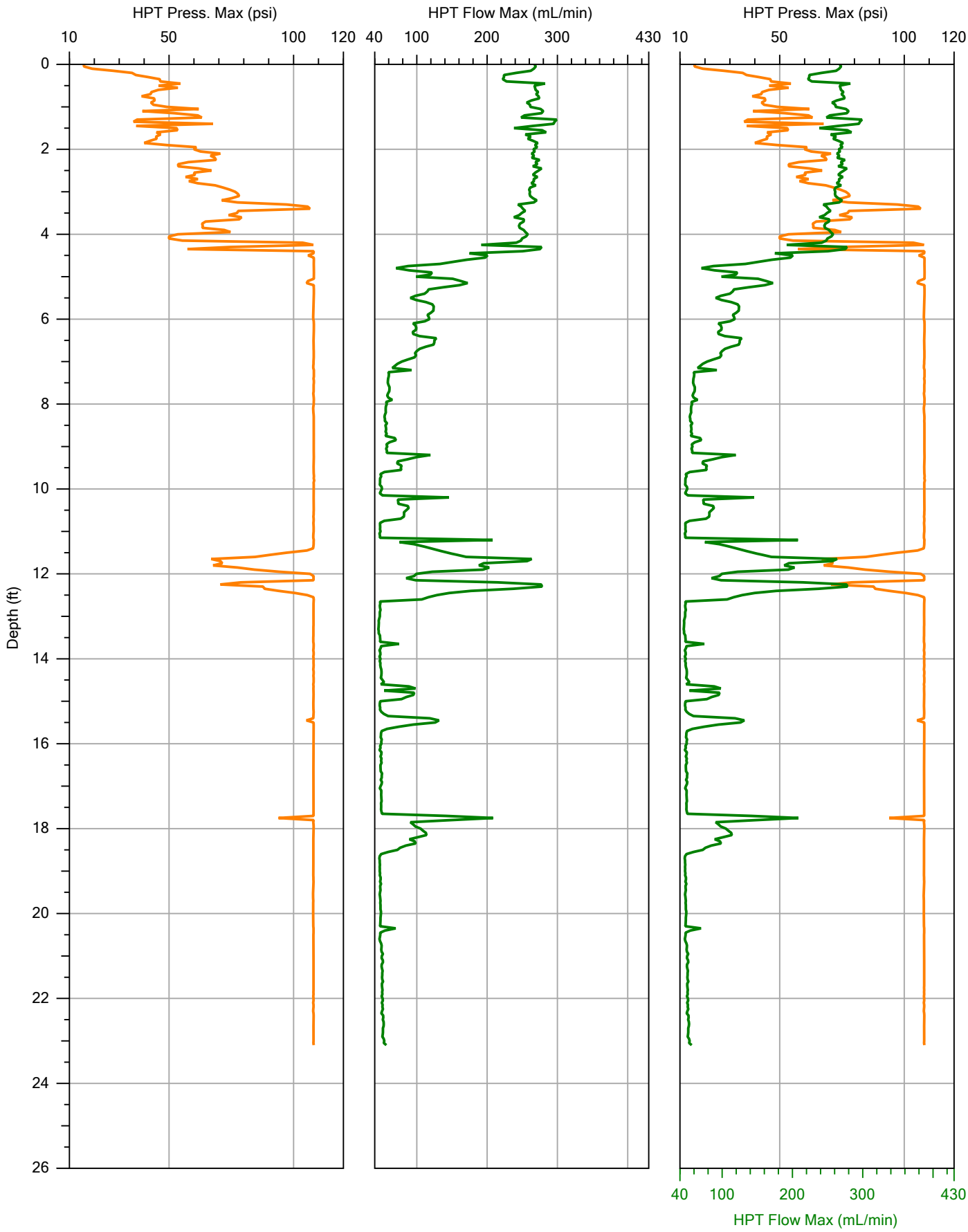
| Project ID: 3000 Broadway | Client: Annie Staehlin | Location: |




GREGG REMEDIATION

| | | |
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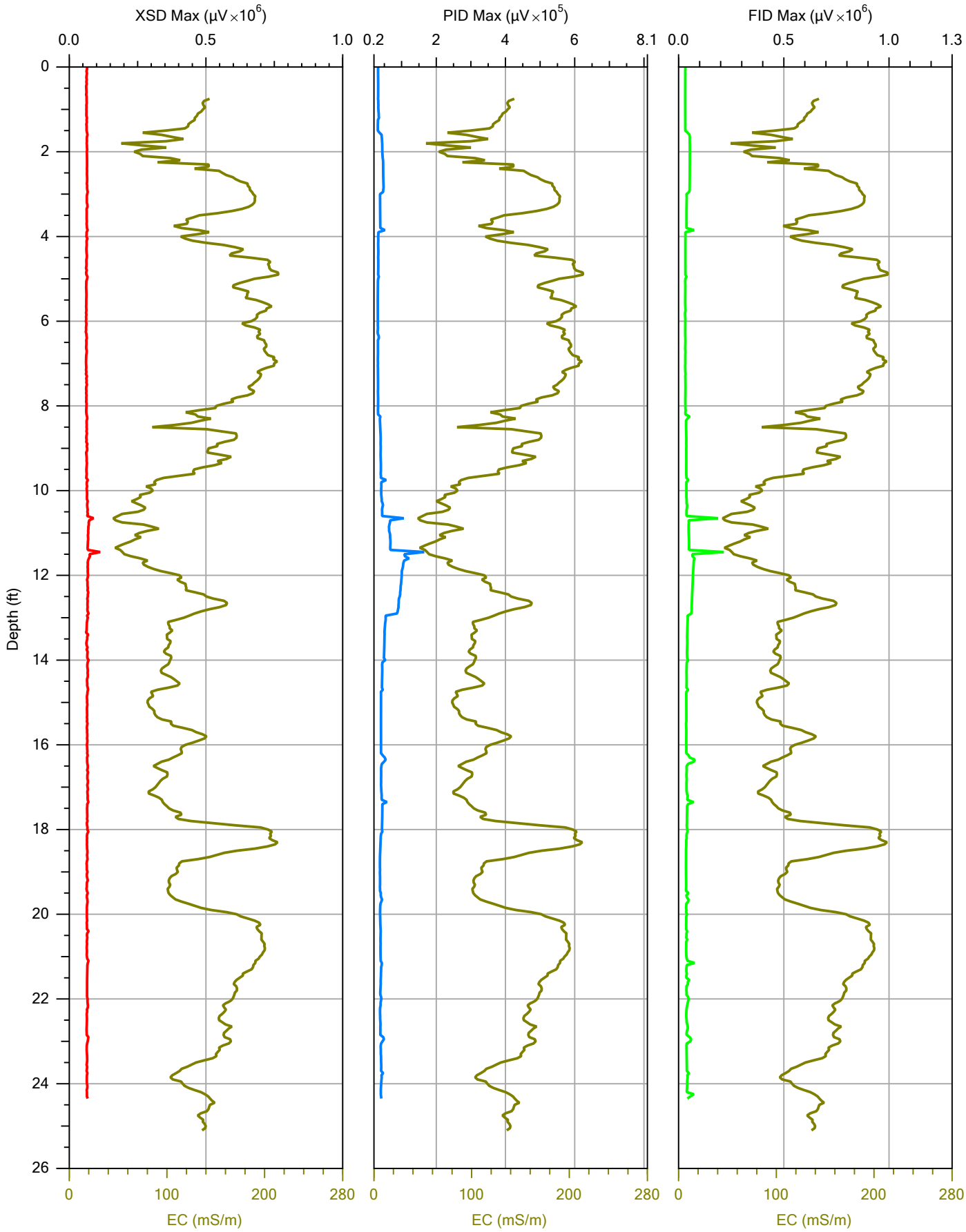
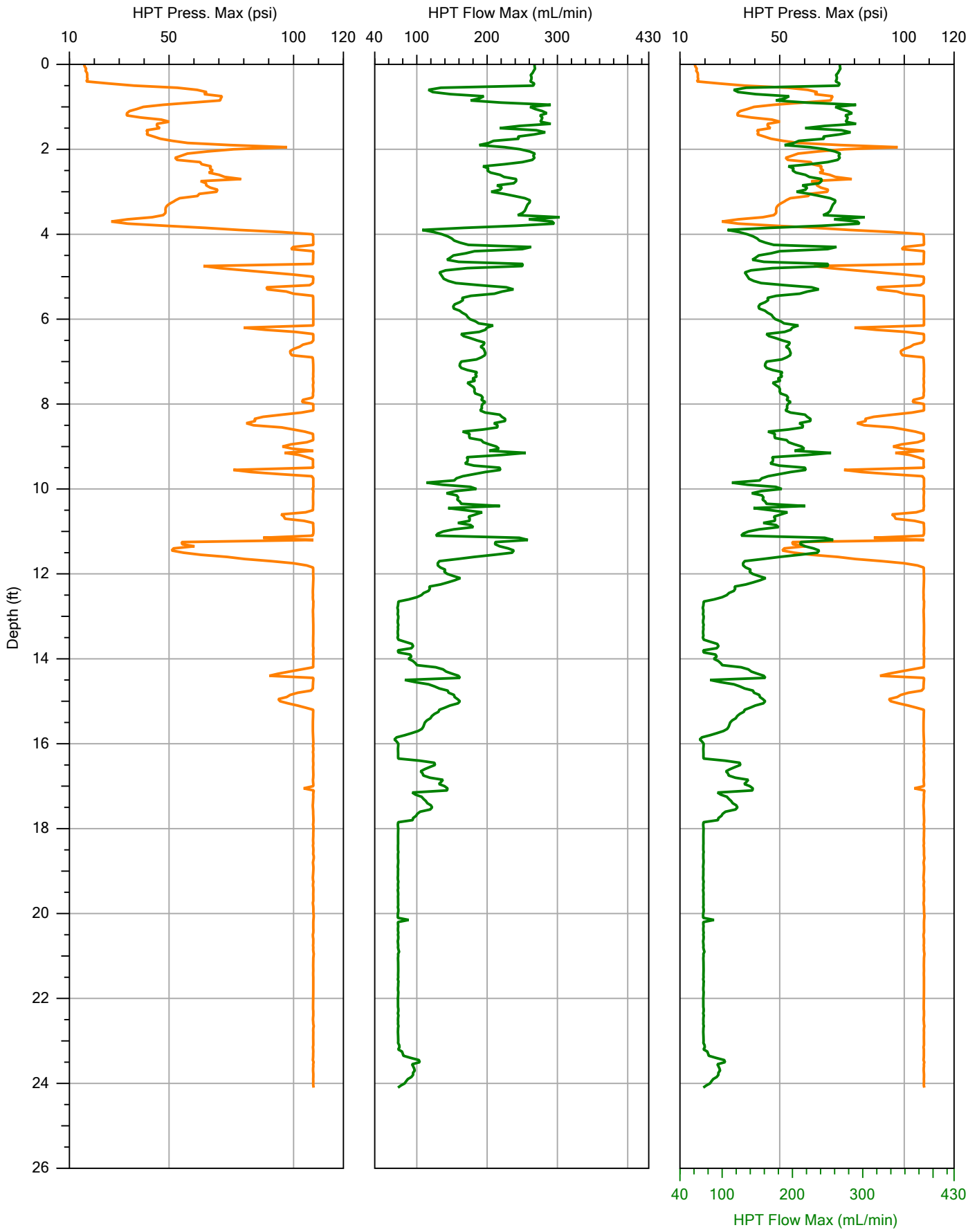
| | | File: MIP-1.MHP |
| Company: Langan Treadwell Rollo | Operator: M.Haske | Date: 3/25/2017 |
| Project ID: 3000 Broadway | Client: Annie Staehlin | Location: |




GREGG REMEDIATION

| | | |
|---|---|---|
| | | File: MIP-2.MHP |
| Company: Langan Treadwell Rollo | Operator: M.Haske | Date: 3/25/2017 |
| Project ID: 3000 Broadway | Client: Annie Staehlin | Location: |




GREGG REMEDIATION

| | | |
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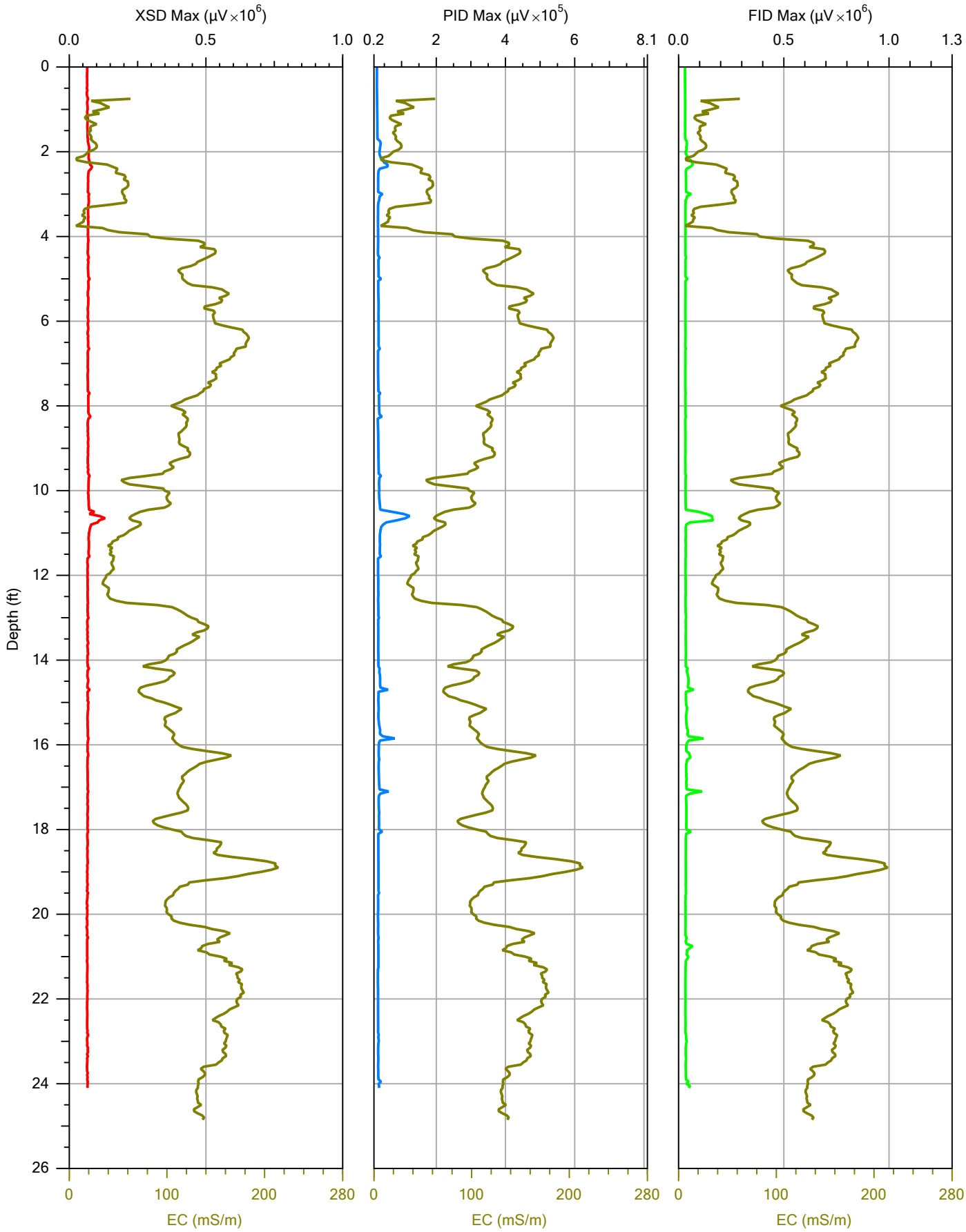
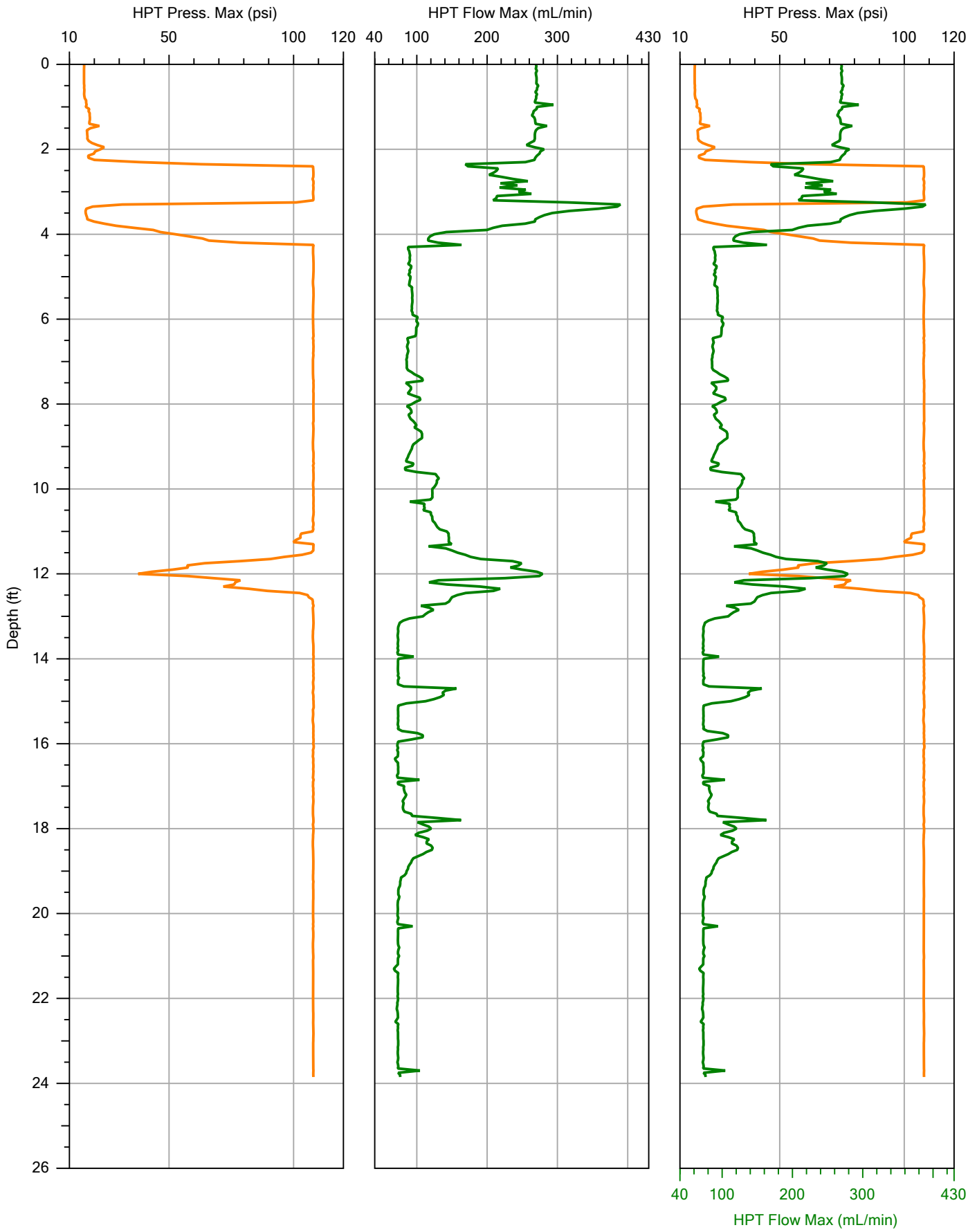
| | | File: MIP-2.MHP |
| Company: Langan Treadwell Rollo | Operator: M.Haske | Date: 3/25/2017 |
| Project ID: 3000 Broadway | Client: Annie Staehlin | Location: |




GREGG REMEDIATION

| | | |
|---|---|---|
| | | File: MIP-3.MHP |
| Company: Langan Treadwell Rollo | Operator: M.Haske | Date: 3/25/2017 |
| Project ID: 3000 Broadway | Client: Annie Staehlin | Location: |




GREGG REMEDIATION

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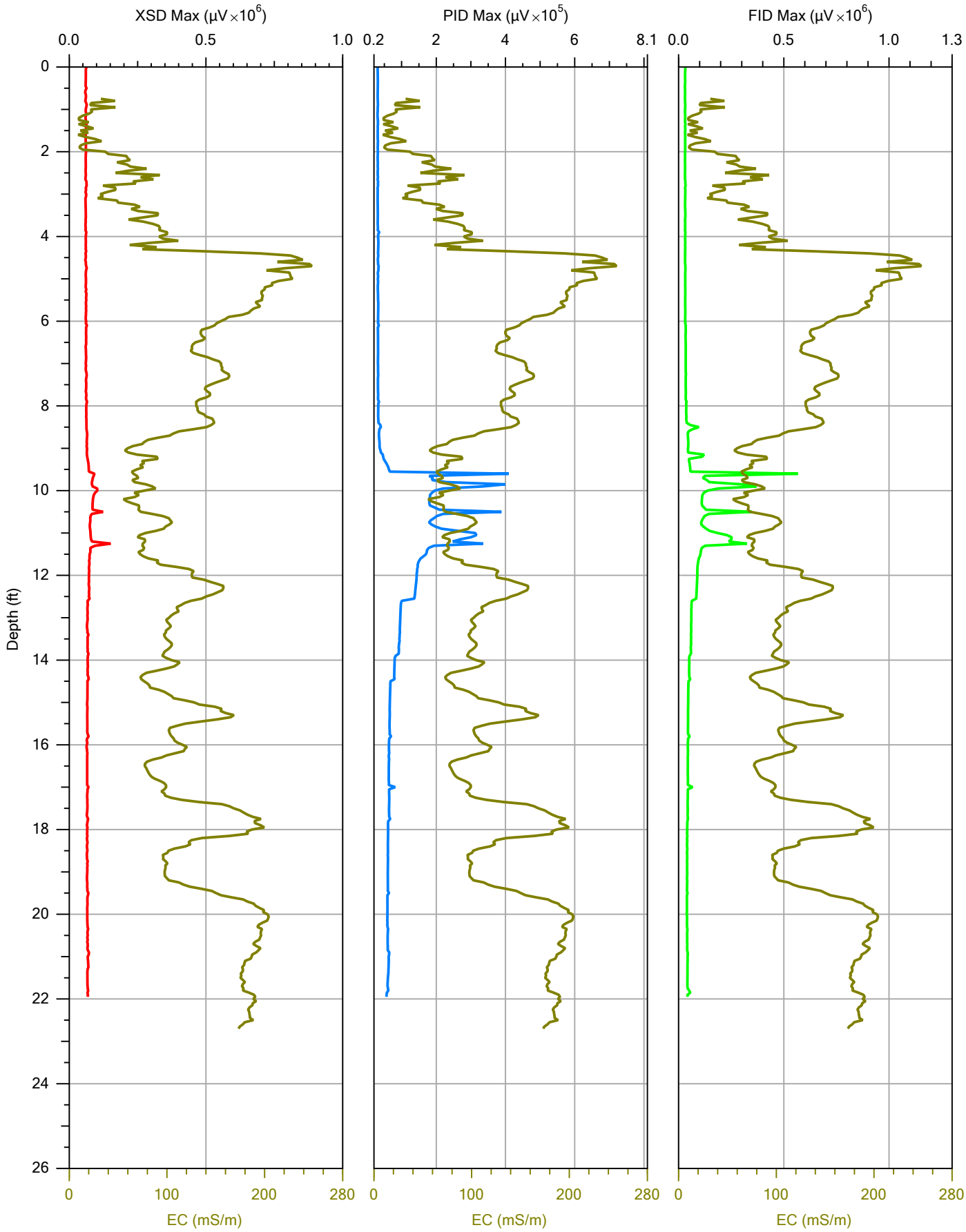
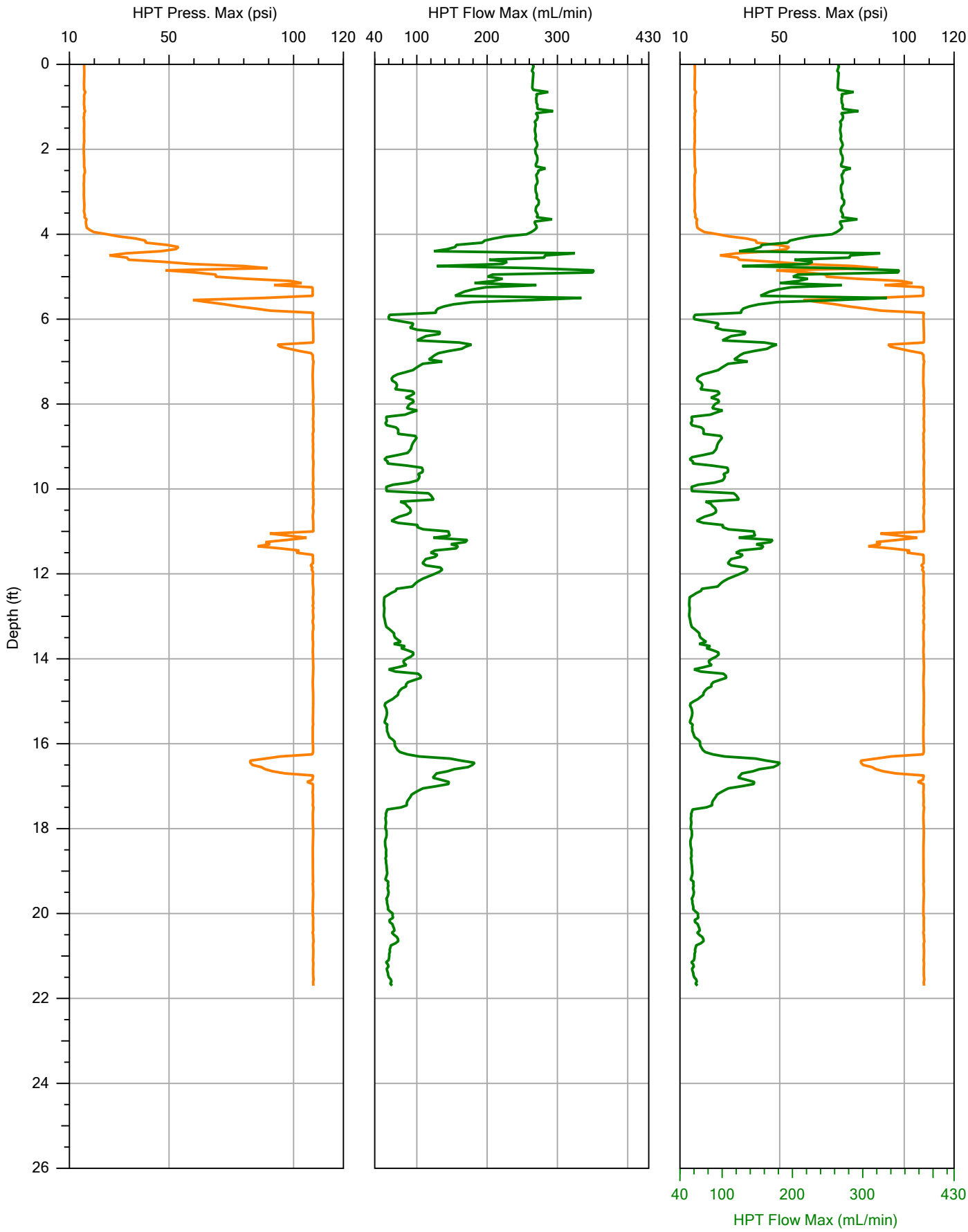
|---|---|---|
| | | File: MIP-3.MHP |
| Company: Langan Treadwell Rollo | Operator: M.Haske | Date: 3/25/2017 |
| Project ID: 3000 Broadway | Client: Annie Staehlin | Location: |




GREGG REMEDIATION

| | | |
|---|---|---|
| | | File: MIP-4.MHP |
| Company: Langan Treadwell Rollo | Operator: M.Haske | Date: 3/25/2017 |
| Project ID: 3000 Broadway | Client: Annie Staehlin | Location: |




GREGG REMEDIATION

| | | |
|---|---|---|
| | | File: MIP-4.MHP |
| Company: Langan Treadwell Rollo | Operator: M.Haske | Date: 3/25/2017 |
| Project ID: 3000 Broadway | Client: Annie Staehlin | Location: |