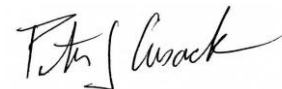

**PHASE II ENVIRONMENTAL SITE
CHARACTERIZATION
Block 56
11 Innes Court
San Francisco, California**

Prepared For:

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LANGAN

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PHASE II ENVIRONMENTAL SITE CHARACTERIATION
Block 56
11 Innes Court
San Francisco, California

1.0 INTRODUCTION

Langan Engineering and Environmental Services, Inc. (Langan) has prepared this Draft Phase II Environmental Site Characterization (ESC) on behalf of Hunters Point Block 56, L.P. (Owner and Client) and Mercy Housing California (Mercy; Sponsor) for Block 56 located at 11 Innes Court in San Francisco, California (site, Figure 1). The proposed development will be a five-story structure that will provide approximately 73 units of affordable residential rental housing which includes four floors of Type VA wood-framed construction over one floor of a Type 1A or five levels of Type IIIA. The first floor finished elevation will be about one level below surrounding sidewalks, however, due to the existing slope of the site, minimal excavation will be required for most of the site. The northern portion of the site will require an excavation of approximately 14½ feet below the ground surface (bgs).

2.0 SITE DESCRIPTION

The site consists of one assessor parcel (APN) 4591C/217 and is bound by Coleman Street to the northwest, Innes Court to the northeast, a slope to the south, 3 Kirkwood Avenue to the southwest, and the 51 Innes Court development to the southeast, as shown on Figure 2. The site is located in a mixed-use area of San Francisco and is approximately 0.64 acres in size. The site is currently occupied by the vacant Lennar Shipyard sales office and the landscape slopes down 10 to 12 feet from the sidewalk elevation at the north to the south.

The site is subject to the requirements of Article 31 of the San Francisco Health Code. Article 31 specifically applies to environmental conditions during construction at the former Hunters Point Shipyard Redevelopment project. Article 31 requires that prior to receiving approval of construction permits; a developer/builder must submit Article 31 compliant plans to ensure safe work practices and environmental protection during construction. The Article 31 plans that have already been approved and will continue to be implemented at Block 56 are a Site Evaluation Report, a Dust Control Plan (DCP); an Unexpected Condition Response Plan (UCRP); a Soil Import Plan (SIP); and a serpentine Cover Plan. Additional plans that will be submitted specific to Block 56 are a Transportation and Disposal Plan (TDP) and an Environmental Health and Safety Plan

(EHASP). Lastly, when construction is complete and prior to receiving permission to occupy the new Block 56 residences, the developer/builder must submit an Article 31 Closure Report for San Francisco Department of Public Health (SFDPH) approval verifying that all approved work plans were properly implemented.

2.1 Project Description

The proposed development will be a five-story structure; the building footprint is shown of Figure 2. The project will provide 73 units of affordable residential rental housing. The first floor finished elevation at about Elevation 95 feet will be one level below the sidewalk grade on Coleman Street and at sidewalk grade on Innes Court. As much as 14.5 feet of excavation into the Coleman Street slope will be required for the below-grade portion of the structure.

2.2 Geology and Hydrogeology

Subsurface soil conditions at the site, based on reports completed by Langan (September 2021), indicate that the site is blanketed by 3.5 to 28 feet of fill underlain by bedrock. The near surface soil consists primarily of stiff to hard sandy clay with varying amounts of silt, sand, and gravel. The bedrock beneath the site is serpentinite, moderately soft, with low hardness, and deeply to intensely weathered. The site is part of the California Coastal Range Province, a region characterized by northwest-trending ridges and valleys that generally parallel the major geologic structures, such as the San Andreas and Hayward Fault systems. Bedrock in the area is composed of highly consolidated and tectonically deformed sedimentary, volcanic, and metamorphic rocks of the Franciscan Complex (about 180 million years old). Large intrusions of serpentinite are closely associated with Franciscan rock. The Franciscan rocks commonly consist of pervasively sheared shale and sandstone that include isolated masses of other types of rocks and are referred to as *mélange*. Based on previous reports, groundwater flow direction is to the north-northeast. Groundwater has previously been measured at a depth of approximately 41.5 feet bgs.

3.0 SITE HISTORY

Historically, the site is located within the former Hunters Point Shipyard Parcel A, which was primarily used for Navy administration offices and housing (United States Environmental Protection Agency [USEPA], 2020). In the early 1990s, the Navy performed routine cleanup activities at Parcel A including removal of transformers and an underground storage tank, abrasive blast material that had been used as utility trench backfill from two areas, and soil impacted by

petroleum and other contaminants from two other areas. Soil was disposed of off-site and those areas were backfilled with clean soil (Navy, 2004). These areas are outside of the current Block 56 boundaries and no known release of petroleum or hazardous substances occurred there (Navy, 2004). Former Parcel A was found to not require additional action in 1995 by the USEPA and the USEPA removed Parcel A from being part of the Hunters Point Shipyard superfund site in 1999 (USEPA, 2020).

In December 2004, the Navy transferred Parcel A to the San Francisco Redevelopment Agency, which is now known as the Office of Community Investment and Infrastructure (successor agency). Developers removed all Navy-era utilities, including sewer lines and maintenance holes. Additionally, the developer excavated (dug out) former Parcel A surface soil and graded to prepare the land for redevelopment, removing between 7.5 and 38.4 feet of soil from Block 56 (ENGEO, 2007). The developer also brought in engineered fill for placement under hardscape to construct new utilities, streets, sidewalks, building foundations and added additional soil for landscaping.

In 2018, California Department of Public Health (CDPH) performed gamma radiological scanning in all accessible, outdoor areas in Parcel A. CDPH's scanning activities included the use of handheld instruments and instruments that were towed on a trailer behind a small vehicle. The areas scanned included the soil stockpiles and the undeveloped portion of Parcel A. CDPH's Division of Radiation Safety and Environmental Management Radiologic Health Branch presented the results of the health and safety survey in the report *Hunters Point Shipyard, Parcel A-1, Health and Safety Survey*, dated 5 February 2019. CDPH concluded there were "No radiological health and safety hazards to the residents of Parcel A-1." Comprehensive scanning by CDPH showed no radiological contamination in the near-surface soil.

Based on a review of aerial photographs, prior to 1946, the Block 56 site appeared to be vacant land. By 1946, the site and area appeared to be occupied by what appear to be housing. The site remained unchanged through the 1956, 1958, 1963, and 1968. By 1974, the housing had been demolished and the site was an asphalt parking lot. The site and surroundings remain unchanged until the master developer removed Navy-era structures and utilities and former Parcel A underwent grading for the future development. The current Welcome Home Center on Block 56 was constructed and operating by 2016.

4.0 SUBSURFACE INVESTIGATIONS

4.1 Langan's 2020 Geotechnical Investigation

The analytical results of soil/rock samples collected from Langan's 2020 geotechnical investigation detected elevated concentrations of soluble chromium and total and soluble nickel that exceeded the Class I non-Resource Conservation and Recovery Act (non-RCRA) criteria and elevated asbestos at concentrations ranging from 0.5 % to 9.25%. Elevated concentrations of chromium, nickel, and asbestos occur naturally in serpentinite present at the site. The site characterization presented in this report was proposed to assist in the delineation of the previous elevated metal concentrations and to profile the material for acceptance at off-site disposal facilities.

4.2 Langan's August 2021 Environmental Sampling

Langan performed a Phase II subsurface investigation in August 2021 for the collection and analyses of soil and rock samples. Prior to any drilling and sampling activities, Langan obtained a drilling permit from SFDPH, notified Underground Services Alert (USA) and retained a private underground utility locating service to check that locations of exploratory borings were clear of existing utilities.

On 27 August 2021, 14 exploratory borings, EB-1 through EB-14, were advanced to depths of approximately five to 10 feet bgs by direct push drilling methods or hand auger. All environmental drilling was conducted by Gregg Drilling, LLC (Gregg) of Martinez, California. The exploratory boring locations are shown on Figure 2.

Based on the depth of the proposed excavation and in an effort to adequately characterize the material to be off-hauled during construction, soil/rock samples were collected at depths of approximately 0.5, 1.5, 3.0, 5.0, 7.5, and 10.0 feet bgs. Sample ends were covered with Teflon, sealed with plastic end caps, labeled, and stored on ice until delivery to the analytical laboratory. All samples were delivered under chain-of-custody control to McCampbell Analytical, Inc. (McCampbell), a California Department of Public Health certified analytical laboratory in Pittsburg, California.

Additionally, two to three soil samples were collected from each boring location at depths of approximately 0.5, 1.5, 3.0, 5.0, and 7.5 feet bgs and were delivered under chain-of-custody

control to Eurofins TestAmerica, St. Louis (Eurofins), a certified analytical laboratory in Earth City, Missouri for radionuclides testing described in Section 4.2.2.

Following sample collection, each boring was properly abandoned via grouting per permit requirements. Environmental boring logs from this investigation are presented in Appendix A as Figures A-1 through A-14. The material encountered was classified according to the soil classification system described on Figure A-15.

4.2.1 Phase II Sample Selection and Analytical Testing

The chemical analytical schedule was chosen to assess soil quality and to satisfy waste profiling scenarios generally accepted by landfills. The soil samples were analyzed for a combination of some or all of the following:

- Total petroleum hydrocarbons (TPH) as gasoline (TPHg), diesel (TPHd), and motor oil (TPHmo) by USEPA Method 8021/8015;
- Volatile organic compounds (VOCs) by USEPA Method 8260;
- Semi-volatile organic compounds (SVOCs) by USEPA Method 8270;
- Organochlorine pesticides (OCPs) by USEPA Method 8081;
- Polychlorinated biphenyls (PCBs) by USEPA Method 8082;
- California Assessment Manual (CAM) 17 metals by USEPA Method 6020; and
- LUFT 5 metals by USEPA Method 6020; and
- Asbestos by California Air Resources Board Method 425.

Analytical results for metal concentrations in soil were compared to the total threshold limit concentration (TTLC). Samples with concentrations of any metal greater than 10 times the soluble threshold limit concentration (STLC) were also analyzed for soluble metals using the California waste extraction test (WET) method. Select soil samples in which the TTLC concentration was elevated or where the detected concentrations exceeded the STLC value after analysis with the WET method were submitted for analysis by the Federal toxicity characteristic leaching potential (TCLP). These analyses were performed to determine soil disposition requirements.

4.2.1.1 Phase II Soil Analytical Results

The non-radiological laboratory analytical results for soil are summarized in Tables 1 and 2 and discussed below. Copies of the certified analytical laboratory reports are presented in Appendix B.

Soil analytical results for parameters other than metals are summarized in Table 1. TPHg was detected in eight of the 36 samples analyzed at concentrations ranging from 1.1 milligrams per kilogram (mg/kg) to 6.8 mg/kg. TPHd was detected in four of the 36 samples analyzed at concentrations ranging from 2.3 mg/kg to 5.5 mg/kg. TPHmo was detected in 11 of the 36 samples analyzed at concentrations ranging from 10 mg/kg to 68 mg/kg. One VOC (m,p-xylene) was detected in one sample at a concentration of 0.0068 mg/kg. None of the detections of TPHg, TPHd, TPHmo, and VOCs exceeded the 2019 Regional Water Quality Control Board (RWQCB) Residential environmental screening levels (ESLs).

Low levels of 19 SVOCs (acenaphthene, anthracene, benzo(a)anthracene, benzo(b)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, 1,1-biphenyl, bis(2-ethylhexyl)phthalate, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene, phenanthrene, and pyrene) were detected in at least one of the 19 samples analyzed. None of the SVOC detections exceeded the 2019 Residential ESLs.

Low levels of eight OCPs (chlordane, alpha-chlordane, gamma-chlordane, dieldrin, endosulfan I, 4,4-dichlorodiphenyldichloroethane [DDD], 4,4-dichlorodipenyldichloroethylene [DDE], and 4,4-dichlorodiphenyltrichloroethane [DDT]) were detected in at least one of the 14 samples analyzed. None of the OCP detections exceeded the 2019 Residential ESLs.

No PCBs were detected in any of the soil samples analyzed. Elevated asbestos concentrations were detected in 16 of the 19 samples analyzed at concentrations ranging from 0.50% to 6.75%.

The metal analytical results are summarized in Table 2. Total chromium was detected in each of the 35 soil samples analyzed at concentrations ranging from 30 mg/kg to 1,200 mg/kg, below the California non-RCRA concentration threshold of 2,500 mg/kg. The thresholds of 10 times the STLC (50 mg/kg) and 20 times the TCLP (100 mg/kg) were used to identify samples requiring STLC and TCLP analyses. Each of the samples detected above these thresholds was subsequently analyzed for STLC and/or TCLP, as appropriate, to determine soluble chromium levels. STLC chromium was detected above the reporting limit (0.10 milligrams per liter [mg/L])

in 31 of the 34 soil samples analyzed ranging in concentrations from 0.21 mg/L to 11 mg/L. Two soil samples (E11-0.5 and E11-1.5) exceeded the California non-RCRA criteria (STLC) of 5 mg/L. 30 soil samples were analyzed for TCLP chromium and two soil samples detected soluble chromium above the reporting limit (0.10 mg/L) at concentrations of 0.18 mg/L and 0.23 mg/L, neither of which exceeded the Federal RCRA criteria of 5 mg/L.

Total nickel was detected in each of the 35 soil samples analyzed at concentrations ranging from 24 mg/kg to 1,600 mg/kg, below the California non-RCRA concentration threshold of 2,000 mg/kg. The threshold of 10 times the STLC (200 mg/kg) was used to identify samples requiring STLC analysis. Each of the samples detected above this threshold was analyzed for STLC to determine soluble nickel levels. Soluble nickel was detected above the reporting limit (0.10 mg/L) in all 30 soil samples analyzed ranging in concentrations from 1.9 mg/L to 45 mg/L. Six soil samples (E-10-0.5, E-11-0.5, E-11-1.5, E-12-0.5, E-13-1.5, and E-14-3.0) exceeded the California non-RCRA criteria (STLC) of 20 mg/L. Total nickel was detected above the residential ESL of 820 mg/kg in 17 of the samples analyzed. All nickel detections were within background ranges found locally¹, except two soil samples (B-2-5.5 and B-3-3.5). The nickel data set was further evaluated to determine whether the concentrations exceed background at a statistically significant level (95 percent upper confidence limit [UCL])². The 95UCL of 1,020 mg/kg was within background.

Arsenic was detected at or above the reporting limit in each of the 24 samples analyzed at concentrations ranging from 0.88 mg/kg to 17 mg/kg. These detections are within normal background ranges³ found in the San Francisco Bay Area. The remaining arsenic concentrations were also within normal background ranges found in the San Francisco Bay Area.

Cobalt was detected at or above the reporting limit in each of the 38 samples analyzed at concentrations ranging from 4.4 mg/kg to 72 mg/kg. Total cobalt was detected above the

¹ 95% UCL for soil and rock matrices for Innes Avenue dataset. Metals Concentrations in Franciscan Bedrock Outcrops: Three Sites in the Hunters Point Shear Zone and Marin Headlands Terrane Subunits, Hunters Point Shipyard, San Francisco, California. March 2004.

² USEPA. Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. December 2002.

³ 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.

residential ESL of 23 mg/kg in 31 of the samples analyzed. All cobalt detections were within background ranges found locally.¹

4.2.2 Radiological Sample Selection and Analytical Testing

In addition to the studies and conclusions discussed in Section 3.0, out of an abundance of caution and at the request of the community and district Supervisor, radiological soil analyses were conducted to provide added confidence that subsurface soil is free from radiological contamination. The radiological sampling and testing conducted at Block 56 was not required by Article 31.

The purpose of this radiological sampling was to screen for significant concentrations of tested radionuclides, i.e., at concentrations that may pose a health risk. With the exception of cobalt-60, the radionuclides tested are naturally occurring in soil and rock (radium-226, thorium-232, uranium-235) or present in the environment due to worldwide fallout from historical nuclear testing (americium-241, cesium-137, plutonium-239, strontium-90). Thus, while the concentrations of these materials may vary, their presence in environmental samples is expected. Minute amounts of these radionuclides are ubiquitously found in the environment and do not pose a health risk.

The radiological sampling included advancing borings to collect soil samples for radionuclide analysis. Radionuclide laboratory analysis involves measuring the activity (emissions) of radionuclides to estimate the quantity of the substance present using a small sample volume over a specific time period.

Thirty one samples were collected and analyzed for radionuclides via gamma spectroscopy by Department of Energy (DOE) Health and Safety Laboratory (HASL) 300 4.5.2.3/GA-01-R consistent with USEPA 901.1 to determine the concentration of the following radionuclides: americium-241 (Am-241), cesium-137 (Cs-137), cobalt-60 (Co-60), and radium-226 (Ra-226). Alpha spectroscopy by DOE A-01-R Mod was used to determine the levels of thorium-232 (Th-232), plutonium-239 (Pu-239) and uranium-235 (U-235). Strontium-90 (Sr-90) was analyzed by Eurofins Environmental Testing Laboratory Standard Operating Procedure (SOP) No. ST-RC-0058⁴. Soil analytical results for radionuclides are summarized in Table 3. The analytical laboratory report is

⁴ Eurofins Environmental Testing Laboratory SOP No. ST-RC-0058 for Sr-90 analysis, with sample preparation using extraction chromatography, is based on ASTM Method C1507-07 and Eichrom Method SRW01 with modifications. Eurofins Environmental Testing Laboratory's DoD ELAP certification references this SOP number for extraction chromatography.

provided in Appendix C. As presented in Table 3 and Appendix C, some radionuclides are present in site soil at low concentrations. It should be noted that the typical background concentrations of these radionuclides are very low. The low concentrations present approach the limits of the ability to detect the radionuclides with available analytical laboratory methods. For comparison purposes, background threshold concentrations are also presented in Table 3.⁵

Table 3 includes the calculated average (i.e., mean) concentrations of the detected radionuclides and the calculated 95th percentile concentrations of the detected radionuclides. Average concentrations of a radionuclide represent a reasonable estimate of the concentration likely to be contacted by a site receptor over time. A 95th percentile concentration of a radionuclide is a concentration that is greater than 95 percent of the detected concentrations. Using an overall concentration comparison (i.e., average concentration) versus a point-by-point approach (i.e., single concentration) to evaluate potential risk is generally applicable for scenarios where the potential risk from direct human contact exposure is being evaluated.⁶ Comparison to the 95th percentile is also a useful benchmark.

The soil analytical data provided in the laboratory report (Appendix C) include a number of measures to aid interpretation of the results. These include the uncertainty⁷ associated with each result, the limit of quantitation (LOQ), and the decision level concentration (DLC). The LOQ is the lowest value where quantitation is valid to achieve a given precision and accuracy. The LOQ is a fixed value that represents the capability of a given analytical method. In contrast, the DLC is the level at which the radionuclide can be detected in a given sample, but with no guarantee about

⁵ Precise quantification of background levels was not the goal of the sampling conducted at the site. Block 56 is not a radiological release site and radionuclides, if present, would be expected at background levels. Background concentrations identified in Table 3 are from a recent background study conducted by the Navy in June 2020, which identifies background threshold values from a reference area located outside of the Hunters Point Shipyard superfund site. USEPA Region 9, 2011. Santa Susana Field Laboratory background threshold values are also provided for additional reference.

⁶ U.S. Department of Defense, U.S. Nuclear Regulatory Commission, U.S. Department of Energy, Environmental Protection Agency, 2000. The Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). Revision 1. August.

⁷ Uncertainty is defined as the interval within which the true value can be considered to lie with a given level of confidence or probability. Radiological analyses involve counting the emission of radiation. Because the emission of radiation from an atom is a random process, a sample counted several times usually yields a slightly different result each time; therefore, a single measurement is not definitive. To account for this variability, the concept of uncertainty is applied to radiological data. Therefore, the reported result (X) is within an expected interval (equal to the reported uncertainty [+/-]) of the true value, with a certain level of confidence. The laboratory reported uncertainty is provided as standard deviations of the mean. Roughly, 95% of all readings will fall within two standard deviations.

the bias or precision of the result. The DLC is measurement-specific (i.e., it will differ for each individual analysis). The confidence in an analytical result increases the more it exceeds the applicable threshold for detection (i.e., the DLC) and as its uncertainty decreases.

4.2.2.1 Radiological Results

The average concentration of each radionuclide and the LOQ, DLC and uncertainty associated with each analysis are provided in Table 3. Using the uncertainties presented in Table 3, statistical uncertainties were calculated as percentages relative to the mean for each radionuclide. High percent uncertainties indicate results were at or below the limits of detection. Limits of detection for all the radionuclides are well below levels that would indicate a health risk.

The mean concentration of Am-241 is -0.0099 picocuries per gram (pCi/g) with an uncertainty of 377%. None of the individual Am-241 sample results exceeded the LOQ. Two of the 31 sample results exceeded their respective DLCs. Collectively these results (i.e., negative average concentration, high uncertainty percentage and limited number of sample results in exceedance of their respective DLC) do not indicate the presence of Am-241.

The mean concentration of Cs-137 is -0.0030 pCi/g with an uncertainty of 454%. None of the individual sample results of Cs-137 exceeded the LOQ or the DLC. Collectively these results (i.e., negative average concentration, high uncertainty percentage and no sample results in exceedance of their respective DLC) do not indicate the presence of Cs-137.

Co-60 has a short half-life (or the time for the radionuclide to decay into other isotopes to half of its original amount) of around five years⁸. This half-life is less than other radionuclides, for example, Ra-226 has a half-life of 1,600 years⁹. Given this half-life, the presence of Co-60 is not expected. The mean concentration of Co-60 is -0.0014 pCi/g with an uncertainty of 1,064%. None of the individual sample results exceeded the LOQ. Seven of the individual Co-60 results exceeded their corresponding DLCs, which is not unexpected given the very high uncertainties associated with measurements for an analyte that is not actually present. Collectively these results (i.e., negative average concentration¹⁰, high uncertainty percentage, and limited number of sample results in exceedance of their respective DLC) do not indicate the presence of Co-60.

⁸ Stanford, 2020. *Environmental Health and Safety, Radionuclide Safety Data Sheet, Cobalt-60*. March.

⁹ USEPA, 2021. *Radionuclide Basics: Radium*. July. <https://www.epa.gov/radiation/radionuclide-basics-radium>.

The mean concentration of Pu-239 was -0.0024 pCi/g with an uncertainty of 99%. None of the individual sample results exceeded the LOQ. Three of the individual sample results exceeded the DLC. Collectively the results do not indicate the presence of Pu-239.

The mean concentration of Ra-226 is 0.3616 pCi/g with an uncertainty of 9%. Seven of the individual sample results exceeded the LOQ and 24 of the individual sample results exceeded the DLC. Collectively the data indicate the presence of Ra-226 (i.e., a reliable result) at a mean concentration below the background threshold concentration (Table 3). The 95th percentile concentration is also below the background threshold concentration (Table 3).

The mean concentration of Sr-90 is 0.0133 pCi/g with an uncertainty of 35%. None of the individual sample results exceeded the LOQ. Six of the individual sample results exceeded the DLC. Collectively the data show negligible levels of Sr-90 in site soils. The mean concentration of Sr-90 is below the background threshold concentration (Table 3). The 95th percentile concentration is also below the background threshold concentration (Table 3).

The mean concentration of Th-232 is 0.4155 pCi/g with an uncertainty of 6%. Twenty-six of the individual sample results exceeded the LOQ and 29 exceeded the DLC. Collectively the data show a reliable result for a background concentration of Th-232. The mean concentration of Th-232 is below the background threshold concentration (Table 3). The 95th percentile concentration is also below the background threshold concentration (Table 3).

The mean concentration of U-235 is 0.0271 pCi/g with an uncertainty of 25%. None of the individual sample results exceeded the LOQ. Six of the individual sample results exceeded the minimum detectable concentration (MDC). Collectively the data show a reasonably reliable value. The mean concentration for U-235 is below the background threshold concentration (Table 3). The 95th percentile concentration is also below the background threshold concentration (Table 3).

Further evaluation, including estimates for dose and risk, of the radionuclide concentrations detected at Block 56 is provided in Appendix D. Evaluation of concentrations below background threshold values, such as those at Block 56, is not generally conducted or required by the USEPA, the Argonne National Laboratory (ANL), the United States Department of Energy (DOE), or the

United States Nuclear Regulatory Commission (NRC);¹¹ therefore, the evaluation presented in Appendix D should be considered for informational purposes only.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The site, located in a mixed-use area of San Francisco, is approximately 0.64 acres in size and consists of one parcel (APN 4591C/217), and is currently occupied by the vacant Lennar Shipyard sales office surrounded by landscaped areas. The proposed development includes construction of a five-story structure which will provide 73 units of affordable residential rental housing.

5.1 Conclusions

Based on the analytical results from Langan's 2020 geotechnical and 2021 environmental subsurface investigations, some of the subsurface material at the site contains soluble chromium, and total and soluble nickel concentrations above offsite disposal criteria. The areas of material containing soluble chromium and total and soluble nickel concentrations above offsite disposal criteria are shown on Figure 3 and are near soil borings B-1 at depths of 1.5 feet bgs and 5.5 feet bgs, B-3 at a depth of 1.5 feet bgs, B-4 at a depth of 1.5 feet bgs, EB-11 at depths of 0.5 feet and 1.5 feet bgs, EB-12 at a depth of 0.5 feet bgs, EB-13 at a depth of 1.5 feet bgs, and EB-14 at a depth of 3.0 feet bgs. This material must be removed and disposed as Class I non-RCRA waste and the remaining material on-site to be excavated and removed must be disposed of as Class II material based on the asbestos concentrations. Remaining non-radiological constituents were not detected at concentrations that would represent a concern to construction workers, the public or future residents.

The radiological testing results do not indicate the presence of radionuclides above background levels or the presence of radionuclides at levels that would indicate a release from a contaminant source at the site. Radionuclides were not detected at concentrations that would represent a concern to construction workers, the public or future residents.

¹¹ Refer to USEPA's Preliminary Remediation Goal (PRG) Calculator for Radionuclide Contaminants at Superfund Sites and ANL's, DOE's and NRC's Residual Radiation (RESRAD) Tool User's Guides at: <https://epa-prgs.ornl.gov/radionuclides/> and <https://resrad.evs.anl.gov/>.

5.2 Recommendations

An approved Asbestos Dust Mitigation Plan (ADMP) and DCP must be implemented due to the presence of endemic serpentinite rock containing naturally occurring asbestos (NOA) confirmed in the samples collected at the site. Real-time NOA and PM-10 dust monitoring and third party inspections must be conducted during potential dust generating activities such as grading, excavation, trenching, soil stockpiling, backfilling, soil handling and movement, and vehicular traffic on unpaved surfaces.

Per Article 31, a TDP must be submitted for SFDPH approval prior to construction because NOA, chromium, and nickel are present on-site above off-site disposal criteria. Chromium and nickel naturally occur in the endemic serpentinite rock. The TDP must provide guidance and protocols to the contractor for soil/rock handling, transport, and disposal according to the pertinent regulations in an environmentally sound and safe manner. The UCRP contains protocols that should be referenced in the TDP and must be implemented during excavation activities if unanticipated conditions are encountered. The EHASP must outline proper material handling procedures and health and safety requirements to minimize worker and public exposure to hazardous materials during construction.

The Article 31 Closure Report must include the results of implementation of all the required Article 31 plans, all air monitoring results, copies of the required EHASP trainings (asbestos and lead awareness) and any notifications during construction.

The radiological sampling and testing conducted at Block 56 was not required by Article 31. As stated above, these radionuclides are generally naturally occurring in rock or present due to worldwide fallout from nuclear testing. These radionuclides are present at very low concentrations that test the limits of the available and appropriate analytical laboratory methods (as indicated by the relative uncertainties associated with each radionuclide).¹² Given the very low concentrations and lack of radiological dose or risk exceedances, these radiological results do not pose a risk to the public or future residential users.

¹² Radionuclide laboratory analysis involves measuring the activity of radionuclides to estimate the quantity of the substance present using a small sample volume over a specific time period and thus has inherent uncertainties.

6.0 LIMITATIONS

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

7.0 REFERENCES

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TABLES

Table 1
Soil Analytical Results - Non-Metals
Block 56
11 Innes Court
San Francisco, California

Sample ID	Sample Depth	Date Sampled	SVOCs					All Other SVOCs	OCPs							All Other OCPs	PCBs	Asbestos	
			1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenathrene	Pyrene		Chlordane	alpha-Chlordane	gamma-Chlordane	DDD	DDE	DDT	Dieldrin				Endosulfan I
			(mg/kg)																%
E-1-0.5	0.5	8/27/2021	< 0.0013	< 0.0025	< 0.0013	0.0075	0.0052	ND	< 0.0025	0.00045	0.00038	0.00091	0.0045	0.011	< 0.0001	< 0.0001	ND	ND	--
E-1-3.0	3.0	8/27/2021	< 0.0013	< 0.0025	< 0.0013	< 0.05	< 0.025	ND	--	--	--	--	--	--	--	--	--	--	1.50
E-1-7.5	7.5	8/27/2021	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.75
E-2-0.5	0.5	8/27/2021	--	--	--	--	--	--	< 0.0025	0.00052	0.00046	0.0011	0.0044	0.0087	< 0.0001	< 0.0001	ND	ND	--
E-2-1.5	1.5	8/27/2021	< 0.0013	< 0.0025	< 0.0013	0.083	0.071	ND	--	--	--	--	--	--	--	--	--	--	1.75
E-2-5.0	5.0	8/27/2021	0.0013	< 0.0025	< 0.0013	< 0.005	< 0.0025	ND	--	--	--	--	--	--	--	--	--	--	1.25
E-2-10.0	10.0	8/27/2021	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.00
E-3-0.5	0.5	8/27/2021	--	--	--	--	--	--	< 0.0025	0.00033 P	0.00035	0.00097	0.0031	0.0084	< 0.0001	< 0.0001	ND	ND	--
E-3-1.5	1.5	8/27/2021	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
E-3-3.0	3.0	8/27/2021	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.00
E-3-7.5	7.5	8/27/2021	0.0014	< 0.0025	0.0023	0.012	0.004	ND	--	--	--	--	--	--	--	--	--	--	1.75
E-4-0.5	0.5	8/27/2021	--	--	--	--	--	--	0.0078	0.0011 P	0.00097	0.0092	0.0067	0.0046	0.00027	< 0.0001	ND	ND	--
E-4-1.5	1.5	8/27/2021	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
E-4-3.0	3.0	8/27/2021	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.50
E-4-7.5	7.5	8/27/2021	< 0.0013	< 0.0025	< 0.0013	< 0.005	< 0.0025	ND	--	--	--	--	--	--	--	--	--	--	1.25
E-5-0.5	0.5	8/27/2021	--	--	--	--	--	--	< 0.0025	0.00024	0.00021	0.00082	0.0019	0.002	0.0001	< 0.0001	ND	ND	--
E-5-3.0	3.0	8/27/2021	< 0.0013	< 0.0025	< 0.0013	< 0.005	< 0.0025	ND	--	--	--	--	--	--	--	--	--	--	1.25
E-6-1.5	1.5	8/27/2021	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.50
E-7-0.5	0.5	8/27/2021	< 0.0013	< 0.0025	< 0.0013	< 0.005	< 0.0025	ND	< 0.0025	0.00013	0.00016	0.0014	0.0012	0.0022	< 0.0001	< 0.0001	ND	ND	--
E-7-3.0	3.0	8/27/2021	0.051	0.06	0.026	0.078	0.011	ND	--	--	--	--	--	--	--	--	--	--	< 0.25
E-8-0.5	0.5	8/27/2021	--	--	--	--	--	--	< 0.0025	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	ND	ND	--
E-8-1.5	1.5	8/27/2021	< 0.0013	< 0.0025	< 0.0013	0.047	0.011	ND	--	--	--	--	--	--	--	--	--	--	< 0.25
E-8-5.0	5.0	8/27/2021	0.0052	0.0046	< 0.0013	0.029	0.0061	ND	--	--	--	--	--	--	--	--	--	--	ND
E-9-0.5	0.5	8/27/2021	--	--	--	--	--	--	0.02	0.0028	0.0013 P	0.00094 P	0.01	0.007	0.002	< 0.0001	ND	ND	0.50
E-9-1.5	1.5	8/27/2021	0.0035	0.0051	0.0025	0.027	0.0047	ND	--	--	--	--	--	--	--	--	--	--	--
E-10-0.5	0.5	8/27/2021	--	--	--	--	--	--	< 0.0025	0.0003	0.00019	0.0011	0.0016	0.0042	< 0.0001	< 0.0001	ND	ND	--
E-10-3.0	3.0	8/27/2021	< 0.0013	< 0.0025	< 0.0013	< 0.005	< 0.0025	ND	--	--	--	--	--	--	--	--	--	--	6.75
E-11-0.5	0.5	8/27/2021	--	--	--	--	--	--	< 0.0025	< 0.0001	< 0.0001	< 0.0001	0.00028	0.00054	< 0.0001	< 0.0001	ND	ND	--
E-11-1.5	1.5	8/27/2021	< 0.0013	< 0.0025	< 0.0013	< 0.005	< 0.0025	ND	--	--	--	--	--	--	--	--	--	--	3.00
E-12-0.5	0.5	8/27/2021	< 0.0026	< 0.005	0.0033	0.011	0.0059	ND	< 0.025	0.0016	0.0013	0.002	0.0032	0.0056	< 0.001	< 0.001	ND	ND	--
E-12-3.0	3.0	8/27/2021	< 0.0013	< 0.0025	< 0.0013	0.0079	0.017	ND	< 0.012	0.0015	< 0.0005	0.029	0.012	0.069	< 0.0005	< 0.0005	ND	ND	2.75
E-13-0.5	0.5	8/27/2021	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
E-13-1.5	1.5	8/27/2021	< 0.0013	< 0.0025	0.0018	< 0.005	< 0.0025	ND	< 0.0025	0.00031	0.00025	0.0016	0.0012	0.0035	< 0.0001	< 0.0001	ND	ND	--
E-13-5.0	5.0	8/27/2021	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
E-14-0.5	0.5	8/27/2021	< 0.0026	< 0.005	0.0028	< 0.01	< 0.005	ND	0.036	0.0044	0.004	0.0016	0.0017	0.0021	0.0016	0.002	ND	ND	--
E-14-3.0	3.0	8/27/2021	< 0.0013	< 0.0025	< 0.0013	< 0.005	< 0.0025	ND	--	--	--	--	--	--	--	--	--	--	4.50
B-1-1.5	1.5	12/5/2020	0.0021	< 0.0025	0.0014	0.0082	0.0057	ND	< 0.012	0.00072	0.00079	0.0046	0.009	0.016	< 0.0005	< 0.0005	ND	ND	3.25
B-1-3.5	3.5	12/5/2020	0.003	0.0026	0.0032	0.0087	< 0.0025	ND	--	--	--	--	--	--	--	--	--	--	0.5
B-2-1.5	1.5	12/5/2020	< 0.0013	< 0.0025	< 0.0013	< 0.005	< 0.0025	ND	< 0.0025	< 0.0001	< 0.0001	< 0.0001	0.00015	0.00029	< 0.0001	< 0.0001	ND	ND	3.75
B-2-3.5	3.5	12/5/2020	0.003	< 0.0025	0.0021	0.01	0.0031	ND	--	--	--	--	--	--	--	--	--	--	2.75
B-2-5.5	5.5	12/5/2020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7
B-3-1.5	1.5	12/5/2020	0.0018	< 0.0025	< 0.0013	0.0067	0.0031	ND	< 0.0025	< 0.0001	0.00033	< 0.0013	< 0.0021	< 0.005	< 0.0001	< 0.0001	ND	ND	5.5
B-3-3.5	3.5	12/5/2020	< 0.0013	< 0.0025	< 0.0013	< 0.005	< 0.0025	ND	--	--	--	--	--	--	--	--	--	--	> 10%
B-3-5.5	5.5	12/5/2020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9.25
B-4-1.5	1.5	12/5/2020	0.0022	< 0.0025	< 0.0013	0.0071	0.0048	ND	< 0.0025	0.00012 P	0.0001	0.00019	0.0013	0.0017	< 0.0001	< 0.0001	ND	ND	6.25
B-4-3.5	3.5	12/5/2020	0.014	0.015	0.0085	0.022	0.0067	ND	--	--	--	--	--	--	--	--	--	--	3.25
B-4-5.5	5.5	12/5/2020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.75
B-4-10.5	10.5	12/5/2020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.75
Environmental Screening Levels¹																			
Residential			--	240	3.8	--	1,800	Various	0.48	--	--	2.7	1.8	1.9	0.037	--	Various	0.23	--

Table 1
Soil Analytical Results - Non-Metals
Block 56
11 Innes Court
San Francisco, California

Langan 731744801
July 2022

Notes:

¹ - Residential Environmental Screening Levels (ESLs), San Francisco Bay Regional Water Quality Control Board (RWQCB), Direct Exposure Human Health Risk Screening Levels, Shallow Soil Exposure (Table S-1) 2019

Asbestos by California Air Resource Board (CARB) 435 Method

DDD - Dichlorodiphenyldichloroethane

DDE - Dichlorodiphenyldichloroethylene

DDT - Dichlorodiphenyltrichloroethane

OCPs - Organochlorine Pesticides, EPA Method 8081A

mg/kg - milligrams per kilograms

ND - Not detected at or above the laboratory reporting limit

P - Agreement between quantitative confirmation results exceed method recommended limits

PCBs - Polychlorinated Biphenyls, EPA Method 8082

SVOCs - Semi-volatile Organic Compounds, EPA Method 8270C

TPHd - Total Petroleum Hydrocarbons as Diesel, EPA Method 8015M

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

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

VOCs - Volatile Organic Compounds, EPA Method 8260B

- Not Analyzed or criteria not established

< 1.0 - Analyte was not detected at or above the laboratory reporting limit

Table 2
Soil Analytical Results - Metals
Block 56
11 Innes Court
San Francisco, California

Sample ID	Sample Depth	Date Sampled	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	STLC Chromium	TCLP Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	STLC Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
			(mg/kg)						(mg/L)		(mg/kg)						(mg/L)	(mg/kg)				
E-1-0.5	0.5	8/27/2021	< 0.5	3.8	65	< 0.5	< 0.5	250	1.3	< 0.10	38	22	4.8	< 0.05	< 0.5	770	8.8	0.57	< 0.5	< 0.5	37	50
E-1-3.0	3.0	8/27/2021	--	--	--	--	< 0.5	440	1.8	< 0.10	--	--	3	--	--	1,600	16	--	--	--	--	33
E-1-7.5	7.5	8/27/2021	< 0.5	7.3	170	< 0.5	< 0.5	380	1.2	< 0.10	51	38	9.5	0.078	< 0.5	960	9.4	0.96	< 0.5	< 0.5	65	55
E-2-0.5	0.5	8/27/2021	--	--	--	--	< 0.5	340	1.1	< 0.10	--	--	5.1	--	--	850	7.4	--	--	--	--	45
E-2-1.5	1.5	8/27/2021	< 0.5	2.4	62	< 0.5	< 0.5	440	1.9	< 0.10	58	19	3.8	0.073	< 0.5	1,200	16	< 0.5	< 0.5	< 0.5	47	41
E-2-5.0	5.0	8/27/2021	< 0.5	5	130	< 0.5	< 0.5	320	0.89	< 0.10	37	29	5.6	0.069	< 0.5	700	8.1	0.98	< 0.5	< 0.5	60	53
E-2-10.0	10.0	8/27/2021	< 0.5	4.6	130	< 0.5	< 0.5	360	0.79	< 0.10	49	31	5.4	0.075	0.6	1,100	6.6	1.1	< 0.5	< 0.5	68	54
E-3-0.5	0.5	8/27/2021	< 0.5	3.9	54	< 0.5	< 0.5	570	0.84	< 0.10	55	20	3.8	0.061	< 0.5	1,200	6.9	0.54	< 0.5	< 0.5	44	44
E-3-1.5	1.5	8/27/2021	--	--	--	--	< 0.5	410	1.7	< 0.10	--	--	4.7	--	--	1,000	13	--	--	--	--	51
E-3-3.0	3.0	8/27/2021	< 0.5	1.2	31	< 0.5	< 0.5	560	1.3	< 0.10	46	12	1.9	< 0.05	< 0.5	980	12	< 0.5	< 0.5	< 0.5	28	24
E-3-7.5	7.5	8/27/2021	< 0.5	3.7	89	< 0.5	< 0.5	440	1.8	< 0.10	53	22	3.9	0.085	< 0.5	1,100	13	0.75	< 0.5	< 0.5	50	44
E-4-0.5	0.5	8/27/2021	< 0.5	2.6	65	< 0.5	< 0.5	30	--	--	4.4	9.7	7.3	< 0.05	0.7	24	--	0.66	< 0.5	< 0.5	31	39
E-4-1.5	1.5	8/27/2021	--	--	--	--	< 0.5	1,200	1.7	< 0.10	--	--	2.8	--	--	1,500	12	--	--	--	--	34
E-4-3.0	3.0	8/27/2021	< 0.5	6.5	90	< 0.5	< 0.5	280	0.56	< 0.10	33	23	6.4	0.067	< 0.5	720	8.5	1	< 0.5	< 0.5	63	47
E-4-7.5	7.5	8/27/2021	< 0.5	4.6	71	< 0.5	< 0.5	380	1.1	< 0.10	36	33	4	0.053	0.52	640	9.5	1	< 0.5	< 0.5	63	55
E-5-0.5	0.5	8/27/2021	0.52	3.2	92	< 0.5	< 0.5	250	0.81	< 0.10	27	25	6.1	0.06	< 0.5	540	7.9	0.68	< 0.5	< 0.5	45	46
E-5-3.0	3.0	8/27/2021	--	--	--	--	< 0.5	480	1.0	< 0.10	--	--	5.6	--	--	970	6.2	--	--	--	--	48
E-6-1.5	1.5	8/27/2021	0.57	12	75	0.55	< 0.5	260	0.24	< 0.10	28	44	8.8	0.1	0.77	380	2.4	1.3	< 0.5	< 0.5	70	79
E-7-0.5	0.5	8/27/2021	--	--	--	--	< 0.5	320	1.5	< 0.10	--	--	3.7	--	--	520	9.2	--	--	--	--	51
E-7-3.0	3.0	8/27/2021	< 0.5	6.3	33	0.55	< 0.5	450	1.3	< 0.10	38	30	5	0.2	< 0.5	690	9.4	1.3	< 0.5	< 0.5	68	66
E-8-0.5	0.5	8/27/2021	0.66	17	31	0.66	< 0.5	70	< 0.10	--	16	62	13	0.12	1.2	99	--	1.5	< 0.5	< 0.5	69	95
E-8-1.5	1.5	8/27/2021	< 0.5	8.4	25	0.7	< 0.5	55	< 0.10	--	15	70	9.6	0.079	0.59	91	--	1.1	< 0.5	< 0.5	63	98
E-8-5.0	5.0	8/27/2021	< 0.5	8.1	18	0.53	< 0.5	290	0.21	< 0.10	23	41	6.2	0.068	0.69	500	1.9	2.1	< 0.5	< 0.5	76	87
E-9-0.5	0.5	8/27/2021	--	--	--	--	< 0.5	160	0.88	< 0.10	--	--	11	--	--	300	3.5	--	--	--	--	60
E-9-1.5	1.5	8/27/2021	< 0.5	7.4	20	< 0.5	< 0.5	58	< 0.10	--	14	58	5.9	< 0.05	< 0.5	58	--	1.8	< 0.5	< 0.5	97	82
E-10-0.5	0.5	8/27/2021	< 0.5	3.2	53	< 0.5	< 0.5	720	3.6	< 0.10	69	22	2.7	0.065	< 0.5	1,500	21	0.81	< 0.5	< 0.5	45	44
E-10-3.0	3.0	8/27/2021	< 0.5	1.6	200	< 0.5	< 0.5	380	0.43	< 0.10	72	18	1.8	0.054	< 0.5	1,500	7.2	0.55	< 0.5	< 0.5	38	39
E-11-0.5	0.5	8/27/2021	< 0.5	5.5	27	< 0.5	< 0.5	160	9.5	0.18	22	32	12	0.052	< 0.5	330	41	1.2	< 0.5	< 0.5	41	49
E-11-1.5	1.5	8/27/2021	--	--	--	--	< 0.5	390	11	0.23	--	--	1.2	--	--	1,200	45	--	--	--	--	28
E-12-0.5	0.5	8/27/2021	--	--	--	--	< 0.5	660	4.0	< 0.10	--	--	5.9	4.0	--	1,300	22	--	--	--	--	58
E-12-3.0	3.0	8/27/2021	0.82	4.4	53	< 0.5	< 0.5	360	1.1	< 0.10	41	28	5.9	0.13	< 0.5	810	14	1.4	< 0.5	< 0.5	54	53
E-13-1.5	1.5	8/27/2021	0.5	3	82	< 0.5	< 0.5	440	1.5	< 0.10	35	18	5.2	0.051	< 0.5	670	23	1.2	< 0.5	< 0.5	44	41
E-13-5.0	5.0	8/27/2021	--	--	--	--	< 0.5	790	0.91	< 0.10	--	--	4.3	--	--	970	15	--	--	--	--	51
E-14-0.5	0.5	8/27/2021	--	--	--	--	< 0.5	60	0.25	--	--	--	13	--	--	35	--	--	--	--	--	61
E-14-3.0	3.0	8/27/2021	< 0.5	0.88	63	< 0.5	< 0.5	600	3.9	< 0.10	65	6.5	< 0.5	< 0.05	< 0.5	1,600	28	< 0.5	< 0.5	< 0.5	19	23
B-1-1.5	1.5	12/5/2020	2	3.5	71	< 0.5	< 0.5	430	1.2	< 0.1	48	26	5.7	0.059	< 0.5	1,000	10	0.7	< 0.5	< 0.5	50	54
B-1-3.5	3.5	12/5/2020	< 0.5	7	31	< 0.5	< 0.5	340	0.77	< 0.1	31	45	5.3	0.061	0.5	680	7.6	1	< 5.0	< 0.5	67	62
B-2-1.5	1.5	12/5/2020	< 0.5	2	58	< 0.5	< 0.5	390	1.2	< 0.1	55	17	2	0.063	< 0.5	1,100	21	0.52	< 5.0	< 0.5	51	41
B-2-3.5	3.5	12/5/2020	< 0.5	5.5	74	< 0.5	< 0.5	220	1.3	< 0.1	40	29	4.2	0.17	< 0.5	750	10	0.82	< 5.0	< 0.5	57	54
B-2-5.5	5.5	12/5/2020	< 0.5	< 0.5	< 50	< 5.0	< 5.0	770	28	1.4	100	9.5	< 5.0	< 0.5	< 5.0	2,100	--	< 5.0	< 5.0	< 5.0	21	< 50
B-2-9.0	9.0	12/5/2020	< 0.5	0.8	19	< 0.5	< 0.5	560	4.4	0.1	62	10	0.73	< 0.05	< 0.5	1,500	17	< 0.5	< 0.5	< 0.5	20	24
B-3-1.5	1.5	12/5/2020	< 0.5	4.6	91	< 0.5	< 0.5	500	4.2	< 0.1	51	30	5.7	0.087	< 0.5	1,100	26	0.72	< 5.0	< 0.5	52	50
B-3-3.5	3.5	12/5/2020	< 0.5	2.6	55	< 0.5	< 0.5	850	2.2	< 0.1	97	14	0.66	0.066	< 0.5	1,900	14	< 0.5	< 0.5	< 0.5	41	37
B-3-5.5	5.5	12/5/2020	< 0.5	1.1	170	< 0.5	< 0.5	240	1.7	< 0.1	40	27	4.8	< 0.05	< 0.5	670	13	0.67	< 0.5	< 0.5	39	57

Table 2
Soil Analytical Results - Metals
Block 56
11 Innes Court
San Francisco, California

Sample ID	Sample Depth	Date Sampled	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	STLC Chromium	TCLP Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	STLC Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
			(mg/kg)						(mg/L)		(mg/kg)						(mg/L)	(mg/kg)				
B-4-1.5	1.5	12/5/2020	< 0.5	1.9	62	< 0.5	< 0.5	610	9.7	0.13	56	28	2.7	< 0.05	< 0.5	1,300	34	< 0.5	< 0.5	< 0.5	34	54
B-4-3.5	3.5	12/5/2020	< 0.5	3.9	80	< 0.5	< 0.5	690	1.1	< 0.1	50	26	7.7	0.073	< 0.5	1,200	12	0.71	< 0.5	< 0.5	51	49
B-4-5.5	5.5	12/5/2020	< 0.5	2.2	27	< 0.5	< 0.5	750	1.7	< 0.1	80	18	1.8	0.095	< 0.5	1,500	13	< 0.5	< 0.5	< 0.5	29	37
B-4-10.5	10.5	12/5/2020	< 0.5	5.9	92	< 0.5	< 0.5	410	1.7	< 0.1	41	38	6.5	0.12	0.57	760	12	0.6	< 0.5	< 0.5	67	70
B-4-15.5	15.5	12/5/2020	< 0.5	3.5	140	0.87	< 0.5	1.3	--	--	4	41	2.4	0.36	1.5	16	--	1.2	< 0.5	< 0.5	14	150
Hazardous Waste Criteria																						
TTLIC			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			15	5	--	0.75	1	--	5	--	80	25	--	0.2	350	--	20	1	5	7.0	24	--
TCLP			--	5	--	--	1	--	--	5	--	--	--	0.2	--	--	--	1	5	--	--	--
Screening Criteria																						
Residential ESLs¹			11	0.067	15,000	16	78	120,000	--	--	23	3,100	80	13	390	820	--	390	390	0.78	390	23,000
Background Metals in Bay Area²			1.5-7.1	1.2-31	41-411	3	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
Background Metals in Hunters Point³			5.21-11.34	5.73-8.76	210.17-593.21	0.61-0.75	0.85-2.13	--	--	--	35.23-91.54	5.96-34.05	0.15-2.94	0.85-2.81	--	--	--	0.59-5.20	0.62-1.43	0.56-0.99	87.00-129.26	70.37-371.69
Background Metals in Innes Ave⁴			NA	1.08-2.84	6.59-47.5	--	--	460-662	--	--	84.4-113	27.1-28.6	58.9-85.4	0.0812-0.361	--	1,630*	--	--	--	2.71-8.25	12.6-34.6	32.7-99.4

Notes:

¹Residential Environmental Screening Levels (ESLs), San Francisco Bay Regional Water Quality Control Board (RWQCB), Direct Exposure Human Health Risk Screening Levels, Shallow Soil Exposure (Table S-1) 2019. The lower of the cancer risk or non-cancer hazard ESL listed (where applicable).

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

³95% UCL of the 95 percentile (ambient levels) provided for all soil types, excluding Bay Mud. Calculation of Hunters Point Ambient Levels. August 1995.

⁴95% UCL for soil and rock matrices for Innes Avenue dataset. Metals Concentrations in Franciscan Bedrock Outcrops: Three Sites in the Hunters Point Shear Zone and Marin Headlands Terrane Subunits, Hunters Point Shipyard, San Francisco, California. March 2004.

*

mg/kg - milligrams per kilograms

mg/L - milligrams per Liter

STLC - California Soluble Threshold Limit Concentration

TCLP - Federal Toxicity Characteristic Leaching Potential Analysis

TTLIC - California Total Threshold Limit Concentration

UCL - Upper confidence limits

< 0.5 - Analyte was not detected at or above the laboratory reporting limit

-- Not analyzed or not established


240 - Sample exceeds residential ESL and background concentrations

Bold - sample concentration exceeds hazardous waste criteria

FIGURES



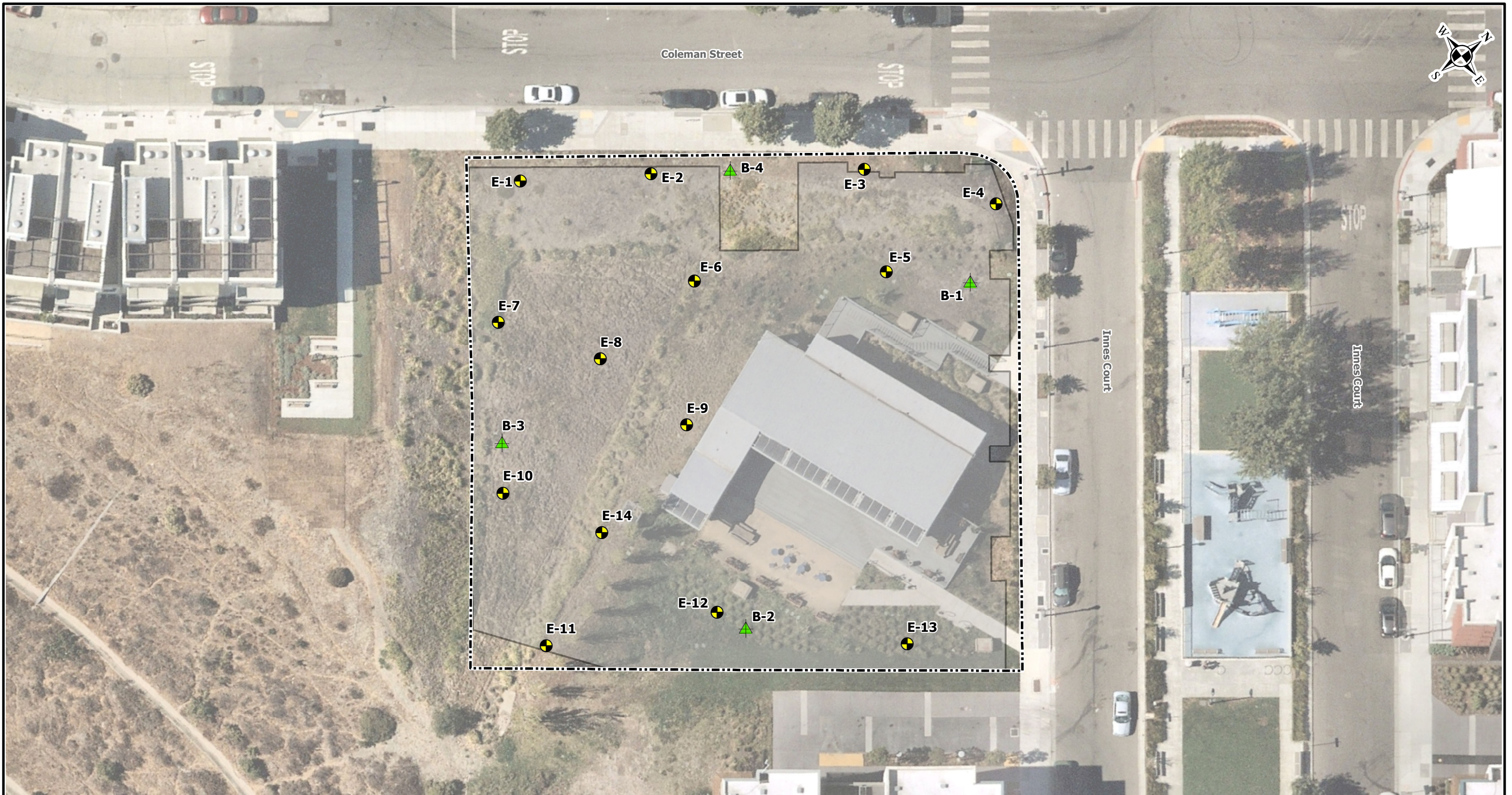
Legend

 Approximate Site Boundary





Notes:
 1. Topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online
 Copyright: © 2011 National Geographic Society, i-cubed.



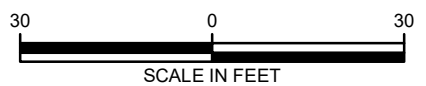
<p>LANGAN Langan Engineering and Environmental Services, Inc. 135 Main Street, Suite 1500 San Francisco, CA 94105 T: 415.955.5200 F: 415.955.5201 www.langan.com</p>	<p>Project BLOCK 56 11 INNES COURT SAN FRANCISCO SAN FRANCISCO COUNTY CALIFORNIA</p>	<p>Figure Title SITE LOCATION MAP</p>	<p>Project No. 731744801 Date 11/15/2021 Scale 1" = 1,000' Drawn By JNE</p>	<p>Figure 1</p>
---	---	--	--	-----------------------------



Legend

-  Approximate Location of Hollow-Stem Auger Boring by Langan, December 2020
-  Approximate Soil Sampling Location by Langan, August 2021
-  Approximate Location of Proposed Building Footprint
-  Site Boundary

Notes:
 1. Aerial imagery provided by Langan's subscription to Nearmap.com. Aerial flown 09/28/2021.
 2. All features shown are approximate.



LANGAN

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Project

**BLOCK 56
 11 INNES COURT**

SAN FRANCISCO

SAN FRANCISCO
 COUNTY

Drawing Title

SITE PLAN

Project No.
 731744801

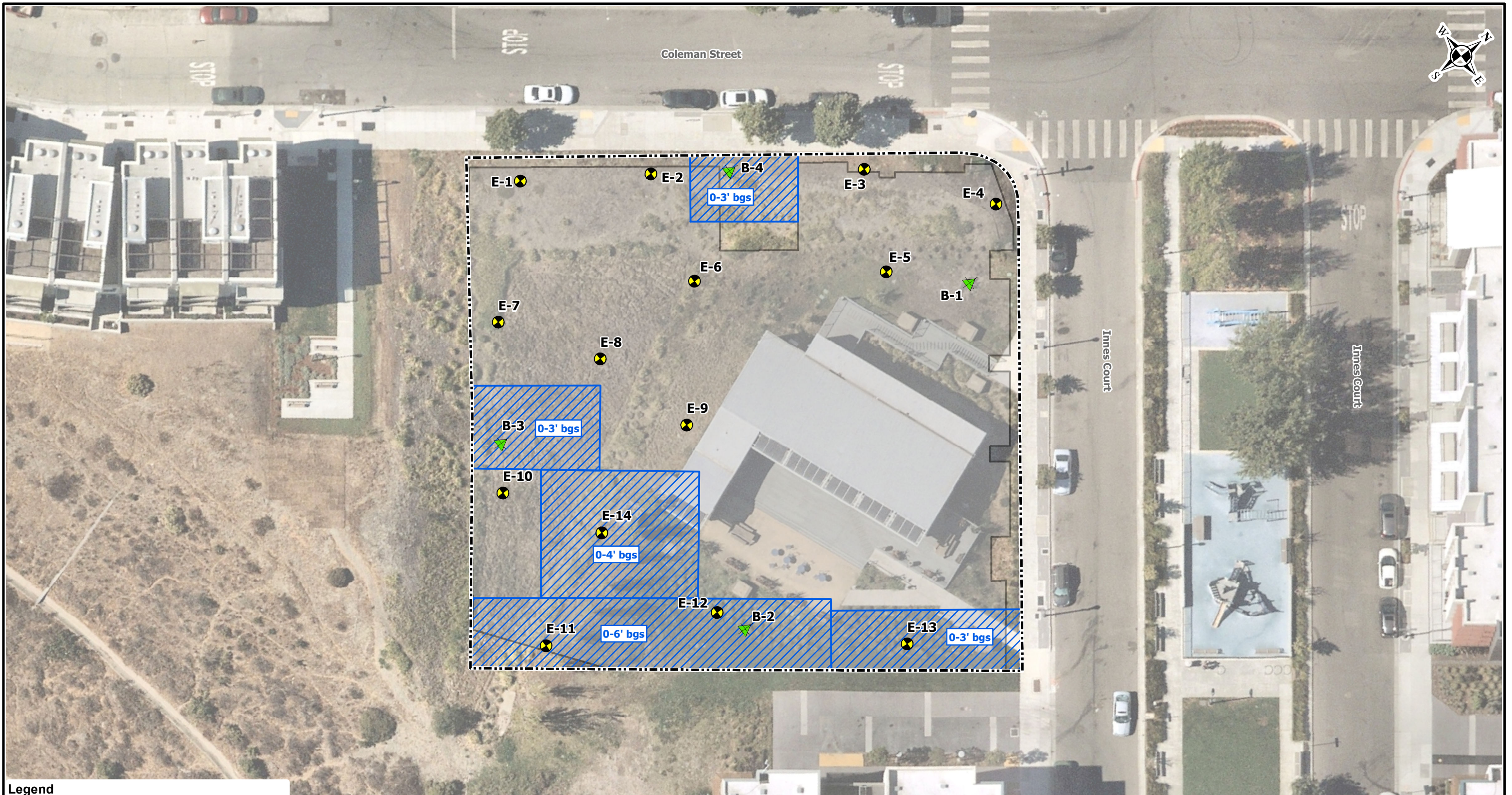
Date
 11/15/2021

Scale
 1" = 30'

Drawn By
 JNE

Figure

2



- Legend**
- Approximate Location of Hollow-Stem Auger Boring by Langan, December 2020
 - Approximate Soil Sampling Location by Langan, August 2021
 - Approximate Location of Proposed Building Footprint
 - Site Boundary
 - Approximate Location of Class I Non-RCRA Material
 - Approximate Depth of Material to be Excavated (feet below ground surface)

Notes:
 1. Aerial imagery provided by Langan's subscription to Nearmap.com. Aerial flown 09/28/2021.
 2. All features shown are approximate.

SCALE IN FEET

LANGAN

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Project

**BLOCK 56
 11 INNES COURT**

SAN FRANCISCO
 CALIFORNIA

Figure Title

**SITE PLAN WITH
 ESTIMATED EXTENT
 OF CLASS I NON-RCRA
 MATERIAL**

Project No.	731744801
Date	4/28/2022
Scale	1" = 30'
Drawn By	JNE

Figure

3

APPENDIX A
EXPLORATORY BORING LOGS

PROJECT: **BLOCK 56, 11 INNES COURT
San Francisco, California**

Log of Boring E-1

PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: D. Wood
Drilled By: Gregg Drilling

Date started: 8/27/21

Date finished: 8/27/21

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Macrocore

DEPTH (feet)	SAMPLES				OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (Inches)			
1	E-1-0.5	●			0.0	SM	SANDY SILT (SM) brown, loose, dry, slightly plastic, no odor
2	E-1-1.5	●			0.0		
3	E-1-3.0	●		48/ 48"	0.0	SM	CLAYEY SILTY SAND (SM) green, dense, dry, slightly plastic, no odor
4					0.0		
5	E-1-5.0	●			0.0	CL	CLAYEY SAND (CL) dark brown, dense, dry, plastic, no odor
6				48/ 48"	0.0		
7	E-1-7.5	●			0.0	GP	CLAYEY SILTY SAND and GRAVEL (GP) brown, medium dense, dry, slightly plastic, no odor, some gravel and serpentinite fragments
8					0.0		
9				24/ 24"	0.0		
10	E-1-10.0	●			0.0		
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with cement grout.

LANGAN

Project No.: 731744802

Figure: A-1

TEST ENVIRONMENTAL INCHES 731744802_HUNTERS POINT.GPJ TEMPLATE_CA-MODIFIED - COPY.GDT 11/16/21

PROJECT: **BLOCK 56, 11 INNES COURT
San Francisco, California**

Log of Boring E-2

PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: D. Wood
Drilled By: Gregg Drilling

Date started: 8/27/21

Date finished: 8/27/21

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Macrocore

DEPTH (feet)	SAMPLES				OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (Inches)			
1	E-2-0.5	●			0.0	SM	SANDY SILT (SM) dark brown, loose, dry, non plastic, no odor
2	E-2-1.5	●		48/ 48"	0.0		SILTY SAND (SM) brown and green, loose, dry, non plastic, no odor, highly weathered serpentinite interlayered with sand lenses. Glass fragments.
3	E-2-3.0	●			0.0	SM	
4					0.0		
5	E-2-5.0	●			0.0		
6				48/ 48"	0.0		
7	E-2-7.5	●			0.0		SILTY CLAY (CL) dark brown, medium dense, dry, slightly plastic, no odor gravel lenses at 6.5, 7.5, 8.5, and 9.5.
8					0.0	CL	
9				24/ 24"	0.0		
10	E-2-10.0	●			0.0		
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

TEST ENVIRONMENTAL INCHES 731744802_HUNTERS POINT.GPJ TEMPLATE_CA-MODIFIED - COPY.GDT 11/16/21

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with cement grout.



Project No.: 731744802

Figure: A-2

PROJECT:

**BLOCK 56, 11 INNES COURT
San Francisco, California**

Log of Boring E-3

PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: D. Wood
Drilled By: Gregg Drilling

Date started: 8/27/21

Date finished: 8/27/21

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Macrocore

DEPTH (feet)	SAMPLES				OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (Inches)			
1	E-3-0.5	●			0.0	SM	SANDY SILT (SM) dark brown, loose, dry, non plastic, no odor, rock and glass fragments
2	E-3-1.5	●			0.0	SM	SILTY SAND (SM) brown, dense, dry, non plastic, no odor, some rock fragments
3	E-3-3.0	●		48/ 48"	0.0		
4	E-3-5.0	●			0.0		
5	E-3-7.5	●			0.0	CL	SANDY CLAY (CL) brown, medium dense, dry, slightly plastic, no odor
6	E-3-10.0	●			0.0	CL	Rock fragment lens at 7.0
7					0.0	CL	SILTY CLAY (CL) dark brown, medium dense, dry, plastic, no odor
8					0.0	CL	Rock fragments lens 8.0
9					0.0		
10					0.0		
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

TEST ENVIRONMENTAL INCHES 731744802_HUNTERS POINT.GPJ TEMPLATE_CA-MODIFIED - COPY.GDT 11/16/21

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with cement grout.

LANGAN

Project No.: 731744802

Figure: A-3

PROJECT: **BLOCK 56, 11 INNES COURT
San Francisco, California**

Log of Boring E-4

PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: D. Wood
Drilled By: Gregg Drilling

Date started: 8/27/21

Date finished: 8/27/21

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Macrocore

DEPTH (feet)	SAMPLES				OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (Inches)			
1	E-4-0.5	●			0.0	SM	SANDY SILT (SM) dark brown, medium dense, moist, non plastic, no odor
2	E-4-1.5	●			0.0		
3	E-4-3.0	●		48/ 48"	0.0	SM	SILTY SAND (SM) brown, dense, dry, non plastic, no odor rock fragments at 3.0
4					0.0		
5	E-4-5.0	●			0.0		
6				48/ 48"	0.0	CL	SANDY CLAY (CL) dark brown, medium dense, dry, plastic, no odor
7	E-4-7.5	●			0.0		serpentinite rock fragment lens at 7.0
8					0.0		
9				24/ 24"	0.0	CL	SILTY CLAY (CL) dark brown, medium dense, saturated, plastic, no odor
10	E-4-10.0	●			0.0		
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

TEST ENVIRONMENTAL INCHES 731744802_HUNTERS POINT.GPJ TEMPLATE_CA-MODIFIED - COPY.GDT 11/16/21

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with cement grout.

LANGAN

Project No.: 731744802

Figure: A-4

PROJECT: **BLOCK 56, 11 INNES COURT
San Francisco, California**

Log of Boring E-5

PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: D. Wood
Drilled By: Gregg Drilling

Date started: 8/27/21

Date finished: 8/27/21

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Macrocore

DEPTH (feet)	SAMPLES				OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (Inches)			
1	E-5-0.5	●			0.0	SM	SANDY SILT (SM) dark brown, medium dense, dry, non plastic, no odor, rock fragments and gravel
2	E-5-1.5	●			0.0		
3	E-5-3.0	●			0.0		
4				36/ 36"	0.0	CL	SILTY SANDY CLAY (CL) dark brown, medium dense, dry, slightly plastic, no odor, rock fragments and gravel
5	E-5-5.0	●			0.0		
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with cement grout.

LANGAN

Project No.: 731744802

Figure: A-5

TEST ENVIRONMENTAL INCHES 731744802_HUNTERS POINT.GPJ TEMPLATE_CA-MODIFIED - COPY.GDT 11/16/21

PROJECT: **BLOCK 56, 11 INNES COURT
San Francisco, California**

Log of Boring E-6

PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: D. Wood
Drilled By: Gregg Drilling

Date started: 8/27/21

Date finished: 8/27/21

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Macrocore

DEPTH (feet)	SAMPLES				OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (Inches)			
1	E-6-0.5	●			0.0	SM	SILTY SAND (SM) dark brown, loose, dry, slightly plastic, no odor, grass
	E-6-1.5	●			0.0		
2				30/ 60"	0.0	ROCK gray-green, very dense, dry, non plastic, no odor, rock, rock fragments, rock powder	
3	E-6-3.0	●			0.0		
4					0.0		
5	E-6-5.0	●			0.0		
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with cement grout.

LANGAN

Project No.: 731744802

Figure: A-6

TEST ENVIRONMENTAL INCHES 731744802_HUNTERS POINT.GPJ TEMPLATE_CA-MODIFIED - COPY.GDT 11/16/21

PROJECT: **BLOCK 56, 11 INNES COURT
San Francisco, California**

Log of Boring E-7

PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: D. Wood
Drilled By: Gregg Drilling

Date started: 8/27/21

Date finished: 8/27/21

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Macrocore

DEPTH (feet)	SAMPLES				OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (Inches)			
1	E-7-0.5	●			0.0	SM	SILTY SAND (SM) dark brown, medium dense, dry, non plastic, no odor
2	E-7-1.5	●		48/ 48"	0.0	SM	SILTY SAND (SM) light brown, dense, dry, non plastic, no odor, rock fragments, grass
3	E-7-3.0	●			0.0		
4					0.0	SM	SILTY SAND (SM) green and brown, dense, dry, non plastic, no odor, serpentinite rock fragments
5	E-7-5.0	●		12/ 12"	0.0		
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Boring terminated at a depth of 5 feet below ground surface.
Boring backfilled with cement grout.

LANGAN

Project No.: 731744802

Figure: A-7

TEST ENVIRONMENTAL INCHES 731744802_HUNTERS POINT.GPJ TEMPLATE_CA-MODIFIED - COPY.GDT 11/16/21

PROJECT: **BLOCK 56, 11 INNES COURT
San Francisco, California**

Log of Boring E-8

Boring location: See Site Plan, Figure 2

Logged by: D. Wood
Drilled By: Gregg Drilling

Date started: 8/27/21

Date finished: 8/27/21

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Macrocore

DEPTH (feet)	SAMPLES				OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (Inches)			
1	E-8-0.5	●			0.0	SM	SILTY SAND (SM) dark brown, medium dense, dry, non plastic, no odor
2	E-8-1.5	●			0.0		
3	E-8-3.0	●		48/ 60"	0.0	SM	SILTY SAND (SM) gray, dense, dry, non plastic, no odor
4					0.0		
5	E-8-5.0	●			0.0		
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Boring terminated at a depth of 5 feet below ground surface.
Boring backfilled with cement grout.



Project No.: 731744802

Figure: A-8

TEST ENVIRONMENTAL INCHES 731744802_HUNTERS POINT.GPJ TEMPLATE_CA-MODIFIED - COPY.GDT 11/16/21

PROJECT: **BLOCK 56, 11 INNES COURT
San Francisco, California**

Log of Boring E-9

PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: D. Wood
Drilled By: Gregg Drilling

Date started: 8/27/21

Date finished: 8/27/21

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Macrocore

DEPTH (feet)	SAMPLES				OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (Inches)			
1	E-9-0.5	●			0.0	SM	CLAYEY SANDY SILT (SM) dark brown, medium dense, dry, slightly plastic, no odor, grass, mulch
	E-9-1.5	●			0.0		
2				36/ 60"	0.0	SM	SILTY SAND (SM) brown and gray, medium dense, dry, non plastic, no odor, serpentinite rock fragments
3	E-9-3.0	●			0.0		
4					0.0		
5	E-9-5.0	●			0.0		
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Boring terminated at a depth of 5 feet below ground surface.
Boring backfilled with cement grout.

LANGAN

Project No.: 731744802

Figure: A-9

TEST ENVIRONMENTAL INCHES 731744802_HUNTERS POINT.GPJ TEMPLATE_CA-MODIFIED - COPY.GDT 11/16/21

PROJECT: **BLOCK 56, 11 INNES COURT
San Francisco, California**

Log of Boring E-10

PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: D. Wood
Drilled By: Gregg Drilling

Date started: 8/27/21

Date finished: 8/27/21

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Macrocore

DEPTH (feet)	SAMPLES				OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (Inches)			
1	E-10-0.5	●			0.0	SM	SAND SILT (SM) dark brown, dense, dry, non plastic, no odor
2	E-10-1.5	●			0.0		
3	E-10-3.0	●		60/ 48"	0.0		Weathered ROCK green and gray, medium dense, dry, non plastic, no odor, serpentinite rock fragments and chunks
4					0.0		
5	E-10-5.0	●			0.0		
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Boring terminated at a depth of 5 feet below ground surface.
Boring backfilled with cement grout.

LANGAN

Project No.: 731744802

Figure: A-10

TEST ENVIRONMENTAL INCHES 731744802_HUNTERS POINT.GPJ TEMPLATE_CA-MODIFIED - COPY.GDT 11/16/21

PROJECT: **BLOCK 56, 11 INNES COURT
San Francisco, California**

Log of Boring E-11

PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: D. Wood
Drilled By: Gregg Drilling

Date started: 8/27/21

Date finished: 8/27/21

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Macrocore

DEPTH (feet)	SAMPLES				OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (Inches)			
1	E-11-0.5	●			0.0	SM	SANDY SILT (SM) dark brown, dense, dry, non plastic, no odor
2	E-11-1.5	●			0.0		SANDY SILT (SM) brown, dense, dry, non plastic, no odor
3	E-11-3.0	●		60/ 48"	0.0	SM	gravel and rock fragments. Pine needles and organic matter at 3.0'
5	E-11-5.0	●			0.0	SM	SANDY SILT (SM) green, medium dense, dry, non plastic, no odor, weathered serpenetinite
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Boring terminated at a depth of 5 feet below ground surface.
Boring backfilled with cement grout.

LANGAN

Project No.: 731744802

Figure: A-11

TEST ENVIRONMENTAL INCHES 731744802_HUNTERS POINT.GPJ TEMPLATE_CA-MODIFIED - COPY.GDT 11/16/21

PROJECT: **BLOCK 56, 11 INNES COURT
San Francisco, California**

Log of Boring E-12

Boring location: See Site Plan, Figure 2

Logged by: D. Wood
Drilled By: Gregg Drilling

Date started: 8/27/21

Date finished: 8/27/21

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Macrocore

DEPTH (feet)	SAMPLES				OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (Inches)			
1	E-12-0.5	●			0.0	SM	SANDY SILT (SM) dark brown, medium dense, dry, non plastic, no odor, serpentinite chunks
2	E-12-1.5	●			0.0		
3	E-12-3.0	●		60/ 48"	0.0	SM	SILTY SAND (SM) dark brown, dense, dry, non plastic, no odor, serpentinite chunks
4					0.0		
5	E-12-5.0	●			0.0		
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Boring terminated at a depth of 5 feet below ground surface.
Boring backfilled with cement grout.

LANGAN

Project No.: 731744802

Figure: A-12

TEST ENVIRONMENTAL INCHES 731744802_HUNTERS POINT.GPJ TEMPLATE_CA-MODIFIED - COPY.GDT 11/16/21

PROJECT: **BLOCK 56, 11 INNES COURT
San Francisco, California**

Log of Boring E-13

PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: D. Wood
Drilled By: Gregg Drilling

Date started: 8/27/21

Date finished: 8/27/21

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Macrocore

DEPTH (feet)	SAMPLES				OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (Inches)			
1	E-13-0.5	●			0.0	SM	SILTY SAND (SM) brown, medium dense, dry, non plastic, no odor, serpentinite fragments
	E-13-1.5	●			0.0		
2				60/ 48"	0.0	SM	SILTY SAND (SM) light brown, dense, dry, non plastic, no odor, serpentinite fragments, gravel
3	E-13-3.0	●			0.0		
4					0.0		
5	E-13-5.0	●			0.0		
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Boring terminated at a depth of 5 feet below ground surface.
Boring backfilled with cement grout.

LANGAN

Project No.: 731744802

Figure: A-13

TEST ENVIRONMENTAL INCHES 731744802_HUNTERS POINT.GPJ TEMPLATE_CA-MODIFIED - COPY.GDT 11/16/21

PROJECT: **BLOCK 56, 11 INNES COURT
San Francisco, California**

Log of Boring E-14

PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: D. Wood
Drilled By: Gregg Drilling

Date started: 8/27/21

Date finished: 8/27/21

Drilling method: Direct Push

Hammer weight/drop: NA

Hammer type: NA

Sampler: Macrocore

DEPTH (feet)	SAMPLES				OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
	Sample Number	Sample	Blow Count	Recovery (Inches)			
1	E-14-0.5	●			0.0	SM	SILTY SAND (SM) brown, medium dense, dry, non plastic, no odor, serpentinite chunks
2	E-14-1.5	●			0.0		SILTY SAND (SM) gray to light brown, dense, dry, non plastic, no odor, serpentinite chunks, gravel
3	E-14-3.0	●		60/ 48"	0.0	SM	
4					0.0		Weathered SERPENTINITE green, dense, dry, non plastic, no odor
5	E-14-5.0	●			0.0		
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Boring terminated at a depth of 5 feet below ground surface.
Boring backfilled with cement grout.

LANGAN

Project No.:
731744802

Figure:
A-14

TEST ENVIRONMENTAL INCHES 731744802_HUNTERS POINT.GPJ TEMPLATE_CA-MODIFIED - COPY.GDT 11/16/21

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	

SAMPLE DESIGNATIONS/SYMBOLS

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

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

- Unstabilized groundwater level
- Stabilized groundwater level

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

Langan Engineering and Environmental Services, Inc. 135 Main Street, Suite 1500 San Francisco, CA 94105 T: 415.955.5200 F: 415.955.5201 www.langan.com	Project BLOCK 56, 11 INNES COURT SAN FRANCISCO SAN FRANCISCO COUNTY CALIFORNIA	Figure Title SOIL CLASSIFICATION CHART	Project No. 731744802 Date 11/16/2021 Drawn By AG Checked By DLW	Figure <h1 style="margin: 0;">A-15</h1>
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APPENDIX B
NON-RADIOLOGICAL LABORATORY ANALYTICAL REPORTS



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 2108G85

Report Created for: Langan

1 Almaden Blvd, Suite 590
San Jose, CA 95113

Project Contact: Peter Cusack

Project P.O.:

Project: 731744801; Hunters Point Block 56

Project Received: 08/30/2021

Analytical Report reviewed & approved for release on 09/10/2021 by:

Yen Cao

Project 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 a case narrative.





Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 731744801; Hunters Point Block 56
WorkOrder: 2108G85

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
CPT	Consumer Product Testing not NELAP Accredited
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
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
LQL	Lowest Quantitation Level
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
TZA	TimeZone Net Adjustment for sample collected outside of MAI's UTC.
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 731744801; Hunters Point Block 56
WorkOrder: 2108G85

Analytical Qualifiers

P	Agreement between quantitative confirmation results exceed method recommended limits.
S	Surrogate recovery outside accepted recovery limits.
a2	Sample diluted due to cluttered chromatogram.
a3	Sample diluted due to high organic content interfering with quantitative/or qualitative analysis.
c1	Surrogate recovery outside of the control limits due to the dilution of the sample.
c2	Surrogate recovery outside of the control limits due to matrix interference.
c16	The internal standard recovery is below the lower limit. The target analyte(s) were Not Detected (ND); therefore, the data is reportable.
d1	Weakly modified or unmodified gasoline is significant.
d7	Strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram.
d9	No recognizable pattern.
e2	Diesel range compounds are detected; no recognizable pattern.
e7	Oil range compounds are detected.
h7	Copper (EPA 3660B) cleanup.
k10	CARB 435 Exception 1 - No asbestos detected. The limit of quantitation (LOQ) = 0.25%.
k12	Asbestos observed but no asbestos points counted.
k15	Chrysotile.

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/RSD is out of acceptance criteria.
F3	The surrogate standard recovery and/or RPD is outside of acceptance limits.
F13	Indigenous sample results too high for a representative matrix spike analysis.



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-0.5	2108G85-001A	Soil	08/27/2021 09:03	GC20 09012130.D	228886

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.00010	1	09/01/2021 17:52
a-BHC	ND	0.00010	1	09/01/2021 17:52
b-BHC	ND	0.00030	1	09/01/2021 17:52
d-BHC	ND	0.00020	1	09/01/2021 17:52
g-BHC	ND	0.00010	1	09/01/2021 17:52
Chlordane (Technical)	ND	0.0025	1	09/01/2021 17:52
a-Chlordane	0.00045	0.00010	1	09/01/2021 17:52
g-Chlordane	0.00038	0.00010	1	09/01/2021 17:52
p,p-DDD	0.00091	0.00010	1	09/01/2021 17:52
p,p-DDE	0.0045	0.00010	1	09/01/2021 17:52
p,p-DDT	0.011	0.00010	1	09/01/2021 17:52
Dieldrin	ND	0.00010	1	09/01/2021 17:52
Endosulfan I	ND	0.00010	1	09/01/2021 17:52
Endosulfan II	ND	0.00010	1	09/01/2021 17:52
Endosulfan sulfate	ND	0.00010	1	09/01/2021 17:52
Endrin	ND	0.00010	1	09/01/2021 17:52
Endrin aldehyde	ND	0.00010	1	09/01/2021 17:52
Endrin ketone	ND	0.00010	1	09/01/2021 17:52
Heptachlor	ND	0.00010	1	09/01/2021 17:52
Heptachlor epoxide	ND	0.00010	1	09/01/2021 17:52
Hexachlorobenzene	ND	0.0010	1	09/01/2021 17:52
Hexachlorocyclopentadiene	ND	0.0020	1	09/01/2021 17:52
Methoxychlor	ND	0.00020	1	09/01/2021 17:52
Toxaphene	ND	0.0050	1	09/01/2021 17:52
Aroclor1016	ND	0.0050	1	09/01/2021 17:52
Aroclor1221	ND	0.0050	1	09/01/2021 17:52
Aroclor1232	ND	0.0050	1	09/01/2021 17:52
Aroclor1242	ND	0.0050	1	09/01/2021 17:52
Aroclor1248	ND	0.0050	1	09/01/2021 17:52
Aroclor1254	ND	0.0050	1	09/01/2021 17:52
Aroclor1260	ND	0.0050	1	09/01/2021 17:52
PCBs, total	ND	0.0050	1	09/01/2021 17:52

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	84	20-145	09/01/2021 17:52

Analyst(s): CK

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-0.5	2108G85-006A	Soil	08/27/2021 09:25	GC20 09012131.D	228886

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.00010	1	09/01/2021 18:08
a-BHC	ND	0.00010	1	09/01/2021 18:08
b-BHC	ND	0.00030	1	09/01/2021 18:08
d-BHC	ND	0.00020	1	09/01/2021 18:08
g-BHC	ND	0.00010	1	09/01/2021 18:08
Chlordane (Technical)	ND	0.0025	1	09/01/2021 18:08
a-Chlordane	0.00052	0.00010	1	09/01/2021 18:08
g-Chlordane	0.00046	0.00010	1	09/01/2021 18:08
p,p-DDD	0.0011	0.00010	1	09/01/2021 18:08
p,p-DDE	0.0044	0.00010	1	09/01/2021 18:08
p,p-DDT	0.0087	0.00010	1	09/01/2021 18:08
Dieldrin	ND	0.00010	1	09/01/2021 18:08
Endosulfan I	ND	0.00010	1	09/01/2021 18:08
Endosulfan II	ND	0.00010	1	09/01/2021 18:08
Endosulfan sulfate	ND	0.00010	1	09/01/2021 18:08
Endrin	ND	0.00010	1	09/01/2021 18:08
Endrin aldehyde	ND	0.00010	1	09/01/2021 18:08
Endrin ketone	ND	0.00010	1	09/01/2021 18:08
Heptachlor	ND	0.00010	1	09/01/2021 18:08
Heptachlor epoxide	ND	0.00010	1	09/01/2021 18:08
Hexachlorobenzene	ND	0.0010	1	09/01/2021 18:08
Hexachlorocyclopentadiene	ND	0.0020	1	09/01/2021 18:08
Methoxychlor	ND	0.00020	1	09/01/2021 18:08
Toxaphene	ND	0.0050	1	09/01/2021 18:08
Aroclor1016	ND	0.0050	1	09/01/2021 18:08
Aroclor1221	ND	0.0050	1	09/01/2021 18:08
Aroclor1232	ND	0.0050	1	09/01/2021 18:08
Aroclor1242	ND	0.0050	1	09/01/2021 18:08
Aroclor1248	ND	0.0050	1	09/01/2021 18:08
Aroclor1254	ND	0.0050	1	09/01/2021 18:08
Aroclor1260	ND	0.0050	1	09/01/2021 18:08
PCBs, total	ND	0.0050	1	09/01/2021 18:08

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	74	20-145	09/01/2021 18:08

Analyst(s): CK

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-0.5	2108G85-012A	Soil	08/27/2021 09:45	GC20 09012132.D	228886

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aldrin	ND		0.00010	1	09/01/2021 18:23
a-BHC	ND		0.00010	1	09/01/2021 18:23
b-BHC	ND		0.00030	1	09/01/2021 18:23
d-BHC	ND		0.00020	1	09/01/2021 18:23
g-BHC	ND		0.00010	1	09/01/2021 18:23
Chlordane (Technical)	ND		0.0025	1	09/01/2021 18:23
a-Chlordane	0.00033	P	0.00010	1	09/01/2021 18:23
g-Chlordane	0.00035		0.00010	1	09/01/2021 18:23
p,p-DDD	0.00097		0.00010	1	09/01/2021 18:23
p,p-DDE	0.0031		0.00010	1	09/01/2021 18:23
p,p-DDT	0.0084		0.00010	1	09/01/2021 18:23
Dieldrin	ND		0.00010	1	09/01/2021 18:23
Endosulfan I	ND		0.00010	1	09/01/2021 18:23
Endosulfan II	ND		0.00010	1	09/01/2021 18:23
Endosulfan sulfate	ND		0.00010	1	09/01/2021 18:23
Endrin	ND		0.00010	1	09/01/2021 18:23
Endrin aldehyde	ND		0.00010	1	09/01/2021 18:23
Endrin ketone	ND		0.00010	1	09/01/2021 18:23
Heptachlor	ND		0.00010	1	09/01/2021 18:23
Heptachlor epoxide	ND		0.00010	1	09/01/2021 18:23
Hexachlorobenzene	ND		0.0010	1	09/01/2021 18:23
Hexachlorocyclopentadiene	ND		0.0020	1	09/01/2021 18:23
Methoxychlor	ND		0.00020	1	09/01/2021 18:23
Toxaphene	ND		0.0050	1	09/01/2021 18:23
Aroclor1016	ND		0.0050	1	09/01/2021 18:23
Aroclor1221	ND		0.0050	1	09/01/2021 18:23
Aroclor1232	ND		0.0050	1	09/01/2021 18:23
Aroclor1242	ND		0.0050	1	09/01/2021 18:23
Aroclor1248	ND		0.0050	1	09/01/2021 18:23
Aroclor1254	ND		0.0050	1	09/01/2021 18:23
Aroclor1260	ND		0.0050	1	09/01/2021 18:23
PCBs, total	ND		0.0050	1	09/01/2021 18:23

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	91	20-145	09/01/2021 18:23

Analyst(s): CK

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-0.5	2108G85-018A	Soil	08/27/2021 10:15	GC20 09012133.D	228886

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aldrin	ND		0.00010	1	09/01/2021 18:39
a-BHC	ND		0.00010	1	09/01/2021 18:39
b-BHC	ND		0.00030	1	09/01/2021 18:39
d-BHC	ND		0.00020	1	09/01/2021 18:39
g-BHC	ND		0.00010	1	09/01/2021 18:39
Chlordane (Technical)	0.0078		0.0025	1	09/01/2021 18:39
a-Chlordane	0.0011	P	0.00010	1	09/01/2021 18:39
g-Chlordane	0.00097		0.00010	1	09/01/2021 18:39
p,p-DDD	0.0092		0.00010	1	09/01/2021 18:39
p,p-DDE	0.0067		0.00010	1	09/01/2021 18:39
p,p-DDT	0.0046		0.00010	1	09/01/2021 18:39
Dieldrin	0.00027		0.00010	1	09/01/2021 18:39
Endosulfan I	ND		0.00010	1	09/01/2021 18:39
Endosulfan II	ND		0.00010	1	09/01/2021 18:39
Endosulfan sulfate	ND		0.00010	1	09/01/2021 18:39
Endrin	ND		0.00010	1	09/01/2021 18:39
Endrin aldehyde	ND		0.00010	1	09/01/2021 18:39
Endrin ketone	ND		0.00010	1	09/01/2021 18:39
Heptachlor	ND		0.00010	1	09/01/2021 18:39
Heptachlor epoxide	ND		0.00010	1	09/01/2021 18:39
Hexachlorobenzene	ND		0.0010	1	09/01/2021 18:39
Hexachlorocyclopentadiene	ND		0.0020	1	09/01/2021 18:39
Methoxychlor	ND		0.00020	1	09/01/2021 18:39
Toxaphene	ND		0.0050	1	09/01/2021 18:39
Aroclor1016	ND		0.0050	1	09/01/2021 18:39
Aroclor1221	ND		0.0050	1	09/01/2021 18:39
Aroclor1232	ND		0.0050	1	09/01/2021 18:39
Aroclor1242	ND		0.0050	1	09/01/2021 18:39
Aroclor1248	ND		0.0050	1	09/01/2021 18:39
Aroclor1254	ND		0.0050	1	09/01/2021 18:39
Aroclor1260	ND		0.0050	1	09/01/2021 18:39
PCBs, total	ND		0.0050	1	09/01/2021 18:39

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	116	20-145	09/01/2021 18:39

Analyst(s): CK

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-5-0.5	2108G85-024A	Soil	08/27/2021 10:35	GC20 09012134.D	228886

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.00010	1	09/01/2021 18:55
a-BHC	ND	0.00010	1	09/01/2021 18:55
b-BHC	ND	0.00030	1	09/01/2021 18:55
d-BHC	ND	0.00020	1	09/01/2021 18:55
g-BHC	ND	0.00010	1	09/01/2021 18:55
Chlordane (Technical)	ND	0.0025	1	09/01/2021 18:55
a-Chlordane	0.00024	0.00010	1	09/01/2021 18:55
g-Chlordane	0.00021	0.00010	1	09/01/2021 18:55
p,p-DDD	0.00082	0.00010	1	09/01/2021 18:55
p,p-DDE	0.0019	0.00010	1	09/01/2021 18:55
p,p-DDT	0.0020	0.00010	1	09/01/2021 18:55
Dieldrin	0.00010	0.00010	1	09/01/2021 18:55
Endosulfan I	ND	0.00010	1	09/01/2021 18:55
Endosulfan II	ND	0.00010	1	09/01/2021 18:55
Endosulfan sulfate	ND	0.00010	1	09/01/2021 18:55
Endrin	ND	0.00010	1	09/01/2021 18:55
Endrin aldehyde	ND	0.00010	1	09/01/2021 18:55
Endrin ketone	ND	0.00010	1	09/01/2021 18:55
Heptachlor	ND	0.00010	1	09/01/2021 18:55
Heptachlor epoxide	ND	0.00010	1	09/01/2021 18:55
Hexachlorobenzene	ND	0.0010	1	09/01/2021 18:55
Hexachlorocyclopentadiene	ND	0.0020	1	09/01/2021 18:55
Methoxychlor	ND	0.00020	1	09/01/2021 18:55
Toxaphene	ND	0.0050	1	09/01/2021 18:55
Aroclor1016	ND	0.0050	1	09/01/2021 18:55
Aroclor1221	ND	0.0050	1	09/01/2021 18:55
Aroclor1232	ND	0.0050	1	09/01/2021 18:55
Aroclor1242	ND	0.0050	1	09/01/2021 18:55
Aroclor1248	ND	0.0050	1	09/01/2021 18:55
Aroclor1254	ND	0.0050	1	09/01/2021 18:55
Aroclor1260	ND	0.0050	1	09/01/2021 18:55
PCBs, total	ND	0.0050	1	09/01/2021 18:55

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	101	20-145	09/01/2021 18:55

Analyst(s): CK

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-0.5	2108G85-031A	Soil	08/27/2021 11:40	GC23 09022147.d	228886

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.00010	1	09/02/2021 21:35
a-BHC	ND	0.00010	1	09/02/2021 21:35
b-BHC	ND	0.00030	1	09/02/2021 21:35
d-BHC	ND	0.00020	1	09/02/2021 21:35
g-BHC	ND	0.00010	1	09/02/2021 21:35
Chlordane (Technical)	ND	0.0025	1	09/02/2021 21:35
a-Chlordane	0.00013	0.00010	1	09/02/2021 21:35
g-Chlordane	0.00016	0.00010	1	09/02/2021 21:35
p,p-DDD	0.0014	0.00010	1	09/02/2021 21:35
p,p-DDE	0.0012	0.00010	1	09/02/2021 21:35
p,p-DDT	0.0022	0.00010	1	09/02/2021 21:35
Dieldrin	ND	0.00010	1	09/02/2021 21:35
Endosulfan I	ND	0.00010	1	09/02/2021 21:35
Endosulfan II	ND	0.00010	1	09/02/2021 21:35
Endosulfan sulfate	ND	0.00010	1	09/02/2021 21:35
Endrin	ND	0.00010	1	09/02/2021 21:35
Endrin aldehyde	ND	0.00010	1	09/02/2021 21:35
Endrin ketone	ND	0.00010	1	09/02/2021 21:35
Heptachlor	ND	0.00010	1	09/02/2021 21:35
Heptachlor epoxide	ND	0.00010	1	09/02/2021 21:35
Hexachlorobenzene	ND	0.0010	1	09/02/2021 21:35
Hexachlorocyclopentadiene	ND	0.0020	1	09/02/2021 21:35
Methoxychlor	ND	0.00020	1	09/02/2021 21:35
Toxaphene	ND	0.0050	1	09/02/2021 21:35
Aroclor1016	ND	0.0050	1	09/02/2021 21:35
Aroclor1221	ND	0.0050	1	09/02/2021 21:35
Aroclor1232	ND	0.0050	1	09/02/2021 21:35
Aroclor1242	ND	0.0050	1	09/02/2021 21:35
Aroclor1248	ND	0.0050	1	09/02/2021 21:35
Aroclor1254	ND	0.0050	1	09/02/2021 21:35
Aroclor1260	ND	0.0050	1	09/02/2021 21:35
PCBs, total	ND	0.0050	1	09/02/2021 21:35

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	96	20-145	09/02/2021 21:35

Analyst(s): KVE

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-0.5	2108G85-035A	Soil	08/27/2021 11:28	GC23 09032133.d	228886

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.00010	1	09/03/2021 17:50
a-BHC	ND	0.00010	1	09/03/2021 17:50
b-BHC	ND	0.00030	1	09/03/2021 17:50
d-BHC	ND	0.00020	1	09/03/2021 17:50
g-BHC	ND	0.00010	1	09/03/2021 17:50
Chlordane (Technical)	ND	0.0025	1	09/03/2021 17:50
a-Chlordane	ND	0.00010	1	09/03/2021 17:50
g-Chlordane	ND	0.00010	1	09/03/2021 17:50
p,p-DDD	ND	0.00010	1	09/03/2021 17:50
p,p-DDE	ND	0.00010	1	09/03/2021 17:50
p,p-DDT	ND	0.00010	1	09/03/2021 17:50
Dieldrin	ND	0.00010	1	09/03/2021 17:50
Endosulfan I	ND	0.00010	1	09/03/2021 17:50
Endosulfan II	ND	0.00010	1	09/03/2021 17:50
Endosulfan sulfate	ND	0.00010	1	09/03/2021 17:50
Endrin	ND	0.00010	1	09/03/2021 17:50
Endrin aldehyde	ND	0.00010	1	09/03/2021 17:50
Endrin ketone	ND	0.00010	1	09/03/2021 17:50
Heptachlor	ND	0.00010	1	09/03/2021 17:50
Heptachlor epoxide	ND	0.00010	1	09/03/2021 17:50
Hexachlorobenzene	ND	0.0010	1	09/03/2021 17:50
Hexachlorocyclopentadiene	ND	0.0020	1	09/03/2021 17:50
Methoxychlor	ND	0.00020	1	09/03/2021 17:50
Toxaphene	ND	0.0050	1	09/03/2021 17:50
Aroclor1016	ND	0.0050	1	09/03/2021 17:50
Aroclor1221	ND	0.0050	1	09/03/2021 17:50
Aroclor1232	ND	0.0050	1	09/03/2021 17:50
Aroclor1242	ND	0.0050	1	09/03/2021 17:50
Aroclor1248	ND	0.0050	1	09/03/2021 17:50
Aroclor1254	ND	0.0050	1	09/03/2021 17:50
Aroclor1260	ND	0.0050	1	09/03/2021 17:50
PCBs, total	ND	0.0050	1	09/03/2021 17:50

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	89	20-145	09/03/2021 17:50

Analyst(s): KVE

Analytical Comments: h7

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-9-0.5	2108G85-039A	Soil	08/27/2021 10:50	GC23 09022149.d	228886

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aldrin	ND		0.00010	1	09/02/2021 22:06
a-BHC	ND		0.00010	1	09/02/2021 22:06
b-BHC	ND		0.00030	1	09/02/2021 22:06
d-BHC	ND		0.00020	1	09/02/2021 22:06
g-BHC	ND		0.00010	1	09/02/2021 22:06
Chlordane (Technical)	0.020		0.0025	1	09/02/2021 22:06
a-Chlordane	0.0028		0.00010	1	09/02/2021 22:06
g-Chlordane	0.0013	P	0.00010	1	09/02/2021 22:06
p,p-DDD	0.00094	P	0.00010	1	09/02/2021 22:06
p,p-DDE	0.010		0.00010	1	09/02/2021 22:06
p,p-DDT	0.0070		0.00010	1	09/02/2021 22:06
Dieldrin	0.0020		0.00010	1	09/02/2021 22:06
Endosulfan I	ND		0.00010	1	09/02/2021 22:06
Endosulfan II	ND		0.00010	1	09/02/2021 22:06
Endosulfan sulfate	ND		0.00010	1	09/02/2021 22:06
Endrin	ND		0.00010	1	09/02/2021 22:06
Endrin aldehyde	ND		0.00010	1	09/02/2021 22:06
Endrin ketone	ND		0.00010	1	09/02/2021 22:06
Heptachlor	ND		0.00010	1	09/02/2021 22:06
Heptachlor epoxide	ND		0.00010	1	09/02/2021 22:06
Hexachlorobenzene	ND		0.0010	1	09/02/2021 22:06
Hexachlorocyclopentadiene	ND		0.0020	1	09/02/2021 22:06
Methoxychlor	ND		0.00020	1	09/02/2021 22:06
Toxaphene	ND		0.0050	1	09/02/2021 22:06
Aroclor1016	ND		0.0050	1	09/02/2021 22:06
Aroclor1221	ND		0.0050	1	09/02/2021 22:06
Aroclor1232	ND		0.0050	1	09/02/2021 22:06
Aroclor1242	ND		0.0050	1	09/02/2021 22:06
Aroclor1248	ND		0.0050	1	09/02/2021 22:06
Aroclor1254	ND		0.0050	1	09/02/2021 22:06
Aroclor1260	ND		0.0050	1	09/02/2021 22:06
PCBs, total	ND		0.0050	1	09/02/2021 22:06

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	124	20-145	09/02/2021 22:06

Analyst(s): KVE

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-10-0.5	2108G85-043A	Soil	08/27/2021 12:40	GC23 09022150.d	228886

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.00010	1	09/02/2021 22:22
a-BHC	ND	0.00010	1	09/02/2021 22:22
b-BHC	ND	0.00030	1	09/02/2021 22:22
d-BHC	ND	0.00020	1	09/02/2021 22:22
g-BHC	ND	0.00010	1	09/02/2021 22:22
Chlordane (Technical)	ND	0.0025	1	09/02/2021 22:22
a-Chlordane	0.00030	0.00010	1	09/02/2021 22:22
g-Chlordane	0.00019	0.00010	1	09/02/2021 22:22
p,p-DDD	0.0011	0.00010	1	09/02/2021 22:22
p,p-DDE	0.0016	0.00010	1	09/02/2021 22:22
p,p-DDT	0.0042	0.00010	1	09/02/2021 22:22
Dieldrin	ND	0.00010	1	09/02/2021 22:22
Endosulfan I	ND	0.00010	1	09/02/2021 22:22
Endosulfan II	ND	0.00010	1	09/02/2021 22:22
Endosulfan sulfate	ND	0.00010	1	09/02/2021 22:22
Endrin	ND	0.00010	1	09/02/2021 22:22
Endrin aldehyde	ND	0.00010	1	09/02/2021 22:22
Endrin ketone	ND	0.00010	1	09/02/2021 22:22
Heptachlor	ND	0.00010	1	09/02/2021 22:22
Heptachlor epoxide	ND	0.00010	1	09/02/2021 22:22
Hexachlorobenzene	ND	0.0010	1	09/02/2021 22:22
Hexachlorocyclopentadiene	ND	0.0020	1	09/02/2021 22:22
Methoxychlor	ND	0.00020	1	09/02/2021 22:22
Toxaphene	ND	0.0050	1	09/02/2021 22:22
Aroclor1016	ND	0.0050	1	09/02/2021 22:22
Aroclor1221	ND	0.0050	1	09/02/2021 22:22
Aroclor1232	ND	0.0050	1	09/02/2021 22:22
Aroclor1242	ND	0.0050	1	09/02/2021 22:22
Aroclor1248	ND	0.0050	1	09/02/2021 22:22
Aroclor1254	ND	0.0050	1	09/02/2021 22:22
Aroclor1260	ND	0.0050	1	09/02/2021 22:22
PCBs, total	ND	0.0050	1	09/02/2021 22:22

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	85	20-145	09/02/2021 22:22

Analyst(s): KVE

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-11-0.5	2108G85-047A	Soil	08/27/2021 12:53	GC23 09022151.d	228886

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.00010	1	09/02/2021 22:38
a-BHC	ND	0.00010	1	09/02/2021 22:38
b-BHC	ND	0.00030	1	09/02/2021 22:38
d-BHC	ND	0.00020	1	09/02/2021 22:38
g-BHC	ND	0.00010	1	09/02/2021 22:38
Chlordane (Technical)	ND	0.0025	1	09/02/2021 22:38
a-Chlordane	ND	0.00010	1	09/02/2021 22:38
g-Chlordane	ND	0.00010	1	09/02/2021 22:38
p,p-DDD	ND	0.00010	1	09/02/2021 22:38
p,p-DDE	0.00028	0.00010	1	09/02/2021 22:38
p,p-DDT	0.00054	0.00010	1	09/02/2021 22:38
Dieldrin	ND	0.00010	1	09/02/2021 22:38
Endosulfan I	ND	0.00010	1	09/02/2021 22:38
Endosulfan II	ND	0.00010	1	09/02/2021 22:38
Endosulfan sulfate	ND	0.00010	1	09/02/2021 22:38
Endrin	ND	0.00010	1	09/02/2021 22:38
Endrin aldehyde	ND	0.00010	1	09/02/2021 22:38
Endrin ketone	ND	0.00010	1	09/02/2021 22:38
Heptachlor	ND	0.00010	1	09/02/2021 22:38
Heptachlor epoxide	ND	0.00010	1	09/02/2021 22:38
Hexachlorobenzene	ND	0.0010	1	09/02/2021 22:38
Hexachlorocyclopentadiene	ND	0.0020	1	09/02/2021 22:38
Methoxychlor	ND	0.00020	1	09/02/2021 22:38
Toxaphene	ND	0.0050	1	09/02/2021 22:38
Aroclor1016	ND	0.0050	1	09/02/2021 22:38
Aroclor1221	ND	0.0050	1	09/02/2021 22:38
Aroclor1232	ND	0.0050	1	09/02/2021 22:38
Aroclor1242	ND	0.0050	1	09/02/2021 22:38
Aroclor1248	ND	0.0050	1	09/02/2021 22:38
Aroclor1254	ND	0.0050	1	09/02/2021 22:38
Aroclor1260	ND	0.0050	1	09/02/2021 22:38
PCBs, total	ND	0.0050	1	09/02/2021 22:38

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	93	20-145	09/02/2021 22:38

Analyst(s): KVE

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-0.5	2108G85-051A	Soil	08/27/2021 13:35	GC23 09032134.d	228886

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.0010	10	09/03/2021 18:06
a-BHC	ND	0.0010	10	09/03/2021 18:06
b-BHC	ND	0.0030	10	09/03/2021 18:06
d-BHC	ND	0.0020	10	09/03/2021 18:06
g-BHC	ND	0.0010	10	09/03/2021 18:06
Chlordane (Technical)	ND	0.025	10	09/03/2021 18:06
a-Chlordane	0.0016	0.0010	10	09/03/2021 18:06
g-Chlordane	0.0013	0.0010	10	09/03/2021 18:06
p,p-DDD	0.0020	0.0010	10	09/03/2021 18:06
p,p-DDE	0.0032	0.0010	10	09/03/2021 18:06
p,p-DDT	0.0056	0.0010	10	09/03/2021 18:06
Dieldrin	ND	0.0010	10	09/03/2021 18:06
Endosulfan I	ND	0.0010	10	09/03/2021 18:06
Endosulfan II	ND	0.0010	10	09/03/2021 18:06
Endosulfan sulfate	ND	0.0010	10	09/03/2021 18:06
Endrin	ND	0.0010	10	09/03/2021 18:06
Endrin aldehyde	ND	0.0010	10	09/03/2021 18:06
Endrin ketone	ND	0.0010	10	09/03/2021 18:06
Heptachlor	ND	0.0010	10	09/03/2021 18:06
Heptachlor epoxide	ND	0.0010	10	09/03/2021 18:06
Hexachlorobenzene	ND	0.010	10	09/03/2021 18:06
Hexachlorocyclopentadiene	ND	0.020	10	09/03/2021 18:06
Methoxychlor	ND	0.0020	10	09/03/2021 18:06
Toxaphene	ND	0.050	10	09/03/2021 18:06
Aroclor1016	ND	0.050	10	09/03/2021 18:06
Aroclor1221	ND	0.050	10	09/03/2021 18:06
Aroclor1232	ND	0.050	10	09/03/2021 18:06
Aroclor1242	ND	0.050	10	09/03/2021 18:06
Aroclor1248	ND	0.050	10	09/03/2021 18:06
Aroclor1254	ND	0.050	10	09/03/2021 18:06
Aroclor1260	ND	0.050	10	09/03/2021 18:06
PCBs, total	ND	0.050	10	09/03/2021 18:06

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	127	20-145	09/03/2021 18:06

Analyst(s): KVE

Analytical Comments: a2,h7

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-3.0	2108G85-053A	Soil	08/27/2021 13:37	GC23 09032135.d	228886

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.00050	5	09/03/2021 18:22
a-BHC	ND	0.00050	5	09/03/2021 18:22
b-BHC	ND	0.0015	5	09/03/2021 18:22
d-BHC	ND	0.0010	5	09/03/2021 18:22
g-BHC	ND	0.00050	5	09/03/2021 18:22
Chlordane (Technical)	ND	0.012	5	09/03/2021 18:22
a-Chlordane	0.0015	0.00050	5	09/03/2021 18:22
g-Chlordane	ND	0.00050	5	09/03/2021 18:22
p,p-DDD	0.029	0.00050	5	09/03/2021 18:22
p,p-DDE	0.012	0.00050	5	09/03/2021 18:22
p,p-DDT	0.069	0.00050	5	09/03/2021 18:22
Dieldrin	ND	0.00050	5	09/03/2021 18:22
Endosulfan I	ND	0.00050	5	09/03/2021 18:22
Endosulfan II	ND	0.00050	5	09/03/2021 18:22
Endosulfan sulfate	ND	0.00050	5	09/03/2021 18:22
Endrin	ND	0.00050	5	09/03/2021 18:22
Endrin aldehyde	ND	0.00050	5	09/03/2021 18:22
Endrin ketone	ND	0.00050	5	09/03/2021 18:22
Heptachlor	ND	0.00050	5	09/03/2021 18:22
Heptachlor epoxide	ND	0.00050	5	09/03/2021 18:22
Hexachlorobenzene	ND	0.0050	5	09/03/2021 18:22
Hexachlorocyclopentadiene	ND	0.010	5	09/03/2021 18:22
Methoxychlor	ND	0.0010	5	09/03/2021 18:22
Toxaphene	ND	0.025	5	09/03/2021 18:22
Aroclor1016	ND	0.025	5	09/03/2021 18:22
Aroclor1221	ND	0.025	5	09/03/2021 18:22
Aroclor1232	ND	0.025	5	09/03/2021 18:22
Aroclor1242	ND	0.025	5	09/03/2021 18:22
Aroclor1248	ND	0.025	5	09/03/2021 18:22
Aroclor1254	ND	0.025	5	09/03/2021 18:22
Aroclor1260	ND	0.025	5	09/03/2021 18:22
PCBs, total	ND	0.025	5	09/03/2021 18:22

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	92	20-145	09/03/2021 18:22

Analyst(s): KVE Analytical Comments: a2

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-13-1.5	2108G85-056A	Soil	08/27/2021 13:45	GC23 09022154.d	228886

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.00010	1	09/02/2021 23:25
a-BHC	ND	0.00010	1	09/02/2021 23:25
b-BHC	ND	0.00030	1	09/02/2021 23:25
d-BHC	ND	0.00020	1	09/02/2021 23:25
g-BHC	ND	0.00010	1	09/02/2021 23:25
Chlordane (Technical)	ND	0.0025	1	09/02/2021 23:25
a-Chlordane	0.00031	0.00010	1	09/02/2021 23:25
g-Chlordane	0.00025	0.00010	1	09/02/2021 23:25
p,p-DDD	0.0016	0.00010	1	09/02/2021 23:25
p,p-DDE	0.0012	0.00010	1	09/02/2021 23:25
p,p-DDT	0.0035	0.00010	1	09/02/2021 23:25
Dieldrin	ND	0.00010	1	09/02/2021 23:25
Endosulfan I	ND	0.00010	1	09/02/2021 23:25
Endosulfan II	ND	0.00010	1	09/02/2021 23:25
Endosulfan sulfate	ND	0.00010	1	09/02/2021 23:25
Endrin	ND	0.00010	1	09/02/2021 23:25
Endrin aldehyde	ND	0.00010	1	09/02/2021 23:25
Endrin ketone	ND	0.00010	1	09/02/2021 23:25
Heptachlor	ND	0.00010	1	09/02/2021 23:25
Heptachlor epoxide	ND	0.00010	1	09/02/2021 23:25
Hexachlorobenzene	ND	0.0010	1	09/02/2021 23:25
Hexachlorocyclopentadiene	ND	0.0020	1	09/02/2021 23:25
Methoxychlor	ND	0.00020	1	09/02/2021 23:25
Toxaphene	ND	0.0050	1	09/02/2021 23:25
Aroclor1016	ND	0.0050	1	09/02/2021 23:25
Aroclor1221	ND	0.0050	1	09/02/2021 23:25
Aroclor1232	ND	0.0050	1	09/02/2021 23:25
Aroclor1242	ND	0.0050	1	09/02/2021 23:25
Aroclor1248	ND	0.0050	1	09/02/2021 23:25
Aroclor1254	ND	0.0050	1	09/02/2021 23:25
Aroclor1260	ND	0.0050	1	09/02/2021 23:25
PCBs, total	ND	0.0050	1	09/02/2021 23:25

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	89	20-145	09/02/2021 23:25

Analyst(s): KVE

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-0.5	2108G85-059A	Soil	08/27/2021 13:10	GC23 09022155.d	228886

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.00010	1	09/02/2021 23:41
a-BHC	ND	0.00010	1	09/02/2021 23:41
b-BHC	ND	0.00030	1	09/02/2021 23:41
d-BHC	ND	0.00020	1	09/02/2021 23:41
g-BHC	ND	0.00010	1	09/02/2021 23:41
Chlordane (Technical)	0.036	0.0025	1	09/02/2021 23:41
a-Chlordane	0.0044	0.00010	1	09/02/2021 23:41
g-Chlordane	0.0040	0.00010	1	09/02/2021 23:41
p,p-DDD	0.0016	0.00010	1	09/02/2021 23:41
p,p-DDE	0.0017	0.00010	1	09/02/2021 23:41
p,p-DDT	0.0021	0.00010	1	09/02/2021 23:41
Dieldrin	0.0016	0.00010	1	09/02/2021 23:41
Endosulfan I	0.0020	0.00010	1	09/02/2021 23:41
Endosulfan II	ND	0.00010	1	09/02/2021 23:41
Endosulfan sulfate	ND	0.00010	1	09/02/2021 23:41
Endrin	ND	0.00010	1	09/02/2021 23:41
Endrin aldehyde	ND	0.00010	1	09/02/2021 23:41
Endrin ketone	ND	0.00010	1	09/02/2021 23:41
Heptachlor	ND	0.00010	1	09/02/2021 23:41
Heptachlor epoxide	ND	0.00010	1	09/02/2021 23:41
Hexachlorobenzene	ND	0.0010	1	09/02/2021 23:41
Hexachlorocyclopentadiene	ND	0.0020	1	09/02/2021 23:41
Methoxychlor	ND	0.00020	1	09/02/2021 23:41
Toxaphene	ND	0.0050	1	09/02/2021 23:41
Aroclor1016	ND	0.0050	1	09/02/2021 23:41
Aroclor1221	ND	0.0050	1	09/02/2021 23:41
Aroclor1232	ND	0.0050	1	09/02/2021 23:41
Aroclor1242	ND	0.0050	1	09/02/2021 23:41
Aroclor1248	ND	0.0050	1	09/02/2021 23:41
Aroclor1254	ND	0.0050	1	09/02/2021 23:41
Aroclor1260	ND	0.0050	1	09/02/2021 23:41
PCBs, total	ND	0.0050	1	09/02/2021 23:41

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	111	20-145	09/02/2021 23:41

Analyst(s): KVE



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-0.5	2108G85-001A	Soil	08/27/2021 09:03	GC18 09032132.D	228786

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	09/04/2021 03:53
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/04/2021 03:53
Benzene	ND	0.0050	1	09/04/2021 03:53
Bromobenzene	ND	0.0050	1	09/04/2021 03:53
Bromochloromethane	ND	0.0050	1	09/04/2021 03:53
Bromodichloromethane	ND	0.0050	1	09/04/2021 03:53
Bromoform	ND	0.0050	1	09/04/2021 03:53
Bromomethane	ND	0.0050	1	09/04/2021 03:53
2-Butanone (MEK)	ND	0.050	1	09/04/2021 03:53
t-Butyl alcohol (TBA)	ND	0.050	1	09/04/2021 03:53
n-Butyl benzene	ND	0.0050	1	09/04/2021 03:53
sec-Butyl benzene	ND	0.0050	1	09/04/2021 03:53
tert-Butyl benzene	ND	0.0050	1	09/04/2021 03:53
Carbon Disulfide	ND	0.0050	1	09/04/2021 03:53
Carbon Tetrachloride	ND	0.0050	1	09/04/2021 03:53
Chlorobenzene	ND	0.0050	1	09/04/2021 03:53
Chloroethane	ND	0.0050	1	09/04/2021 03:53
Chloroform	ND	0.0050	1	09/04/2021 03:53
Chloromethane	ND	0.0050	1	09/04/2021 03:53
2-Chlorotoluene	ND	0.0050	1	09/04/2021 03:53
4-Chlorotoluene	ND	0.0050	1	09/04/2021 03:53
Dibromochloromethane	ND	0.0050	1	09/04/2021 03:53
1,2-Dibromo-3-chloropropane	ND	0.00050	1	09/04/2021 03:53
1,2-Dibromoethane (EDB)	ND	0.00025	1	09/04/2021 03:53
Dibromomethane	ND	0.0050	1	09/04/2021 03:53
1,2-Dichlorobenzene	ND	0.0050	1	09/04/2021 03:53
1,3-Dichlorobenzene	ND	0.0050	1	09/04/2021 03:53
1,4-Dichlorobenzene	ND	0.0050	1	09/04/2021 03:53
Dichlorodifluoromethane	ND	0.0050	1	09/04/2021 03:53
1,1-Dichloroethane	ND	0.0050	1	09/04/2021 03:53
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	09/04/2021 03:53
1,1-Dichloroethene	ND	0.0050	1	09/04/2021 03:53
cis-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 03:53
trans-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 03:53
1,2-Dichloropropane	ND	0.0050	1	09/04/2021 03:53
1,3-Dichloropropane	ND	0.0050	1	09/04/2021 03:53
2,2-Dichloropropane	ND	0.0050	1	09/04/2021 03:53

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-0.5	2108G85-001A	Soil	08/27/2021 09:03	GC18 09032132.D	228786

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/04/2021 03:53
cis-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 03:53
trans-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 03:53
Diisopropyl ether (DIPE)	ND	0.0050	1	09/04/2021 03:53
Ethylbenzene	ND	0.0050	1	09/04/2021 03:53
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/04/2021 03:53
Freon 113	ND	0.0050	1	09/04/2021 03:53
Hexachlorobutadiene	ND	0.0050	1	09/04/2021 03:53
Hexachloroethane	ND	0.0050	1	09/04/2021 03:53
2-Hexanone	ND	0.0050	1	09/04/2021 03:53
Isopropylbenzene	ND	0.0050	1	09/04/2021 03:53
4-Isopropyl toluene	ND	0.0050	1	09/04/2021 03:53
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/04/2021 03:53
Methylene chloride	ND	0.020	1	09/04/2021 03:53
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/04/2021 03:53
Naphthalene	ND	0.0050	1	09/04/2021 03:53
n-Propyl benzene	ND	0.0050	1	09/04/2021 03:53
Styrene	ND	0.0050	1	09/04/2021 03:53
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 03:53
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 03:53
Tetrachloroethene	ND	0.0050	1	09/04/2021 03:53
Toluene	ND	0.0050	1	09/04/2021 03:53
1,2,3-Trichlorobenzene	ND	0.0050	1	09/04/2021 03:53
1,2,4-Trichlorobenzene	ND	0.0050	1	09/04/2021 03:53
1,1,1-Trichloroethane	ND	0.0050	1	09/04/2021 03:53
1,1,2-Trichloroethane	ND	0.0050	1	09/04/2021 03:53
Trichloroethene	ND	0.0050	1	09/04/2021 03:53
Trichlorofluoromethane	ND	0.0050	1	09/04/2021 03:53
1,2,3-Trichloropropane	ND	0.00025	1	09/04/2021 03:53
1,2,4-Trimethylbenzene	ND	0.0050	1	09/04/2021 03:53
1,3,5-Trimethylbenzene	ND	0.0050	1	09/04/2021 03:53
Vinyl Chloride	ND	0.00025	1	09/04/2021 03:53
m,p-Xylene	ND	0.0050	1	09/04/2021 03:53
o-Xylene	ND	0.0050	1	09/04/2021 03:53
Xylenes, Total	ND	0.0050	1	09/04/2021 03:53

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-0.5	2108G85-001A	Soil	08/27/2021 09:03	GC18 09032132.D	228786

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	87	70-140		09/04/2021 03:53
Toluene-d8	94	70-140		09/04/2021 03:53
4-BFB	82	70-140		09/04/2021 03:53
Benzene-d6	104	50-140		09/04/2021 03:53
Ethylbenzene-d10	107	50-140		09/04/2021 03:53
1,2-DCB-d4	82	40-140		09/04/2021 03:53

Analyst(s): JEM



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-3.0	2108G85-002A	Soil	08/27/2021 09:00	GC18 09032133.D	228786

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	09/04/2021 04:32
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/04/2021 04:32
Benzene	ND	0.0050	1	09/04/2021 04:32
Bromobenzene	ND	0.0050	1	09/04/2021 04:32
Bromochloromethane	ND	0.0050	1	09/04/2021 04:32
Bromodichloromethane	ND	0.0050	1	09/04/2021 04:32
Bromoform	ND	0.0050	1	09/04/2021 04:32
Bromomethane	ND	0.0050	1	09/04/2021 04:32
2-Butanone (MEK)	ND	0.050	1	09/04/2021 04:32
t-Butyl alcohol (TBA)	ND	0.050	1	09/04/2021 04:32
n-Butyl benzene	ND	0.0050	1	09/04/2021 04:32
sec-Butyl benzene	ND	0.0050	1	09/04/2021 04:32
tert-Butyl benzene	ND	0.0050	1	09/04/2021 04:32
Carbon Disulfide	ND	0.0050	1	09/04/2021 04:32
Carbon Tetrachloride	ND	0.0050	1	09/04/2021 04:32
Chlorobenzene	ND	0.0050	1	09/04/2021 04:32
Chloroethane	ND	0.0050	1	09/04/2021 04:32
Chloroform	ND	0.0050	1	09/04/2021 04:32
Chloromethane	ND	0.0050	1	09/04/2021 04:32
2-Chlorotoluene	ND	0.0050	1	09/04/2021 04:32
4-Chlorotoluene	ND	0.0050	1	09/04/2021 04:32
Dibromochloromethane	ND	0.0050	1	09/04/2021 04:32
1,2-Dibromo-3-chloropropane	ND	0.00050	1	09/04/2021 04:32
1,2-Dibromoethane (EDB)	ND	0.00025	1	09/04/2021 04:32
Dibromomethane	ND	0.0050	1	09/04/2021 04:32
1,2-Dichlorobenzene	ND	0.0050	1	09/04/2021 04:32
1,3-Dichlorobenzene	ND	0.0050	1	09/04/2021 04:32
1,4-Dichlorobenzene	ND	0.0050	1	09/04/2021 04:32
Dichlorodifluoromethane	ND	0.0050	1	09/04/2021 04:32
1,1-Dichloroethane	ND	0.0050	1	09/04/2021 04:32
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	09/04/2021 04:32
1,1-Dichloroethene	ND	0.0050	1	09/04/2021 04:32
cis-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 04:32
trans-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 04:32
1,2-Dichloropropane	ND	0.0050	1	09/04/2021 04:32
1,3-Dichloropropane	ND	0.0050	1	09/04/2021 04:32
2,2-Dichloropropane	ND	0.0050	1	09/04/2021 04:32

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-3.0	2108G85-002A	Soil	08/27/2021 09:00	GC18 09032133.D	228786

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/04/2021 04:32
cis-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 04:32
trans-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 04:32
Diisopropyl ether (DIPE)	ND	0.0050	1	09/04/2021 04:32
Ethylbenzene	ND	0.0050	1	09/04/2021 04:32
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/04/2021 04:32
Freon 113	ND	0.0050	1	09/04/2021 04:32
Hexachlorobutadiene	ND	0.0050	1	09/04/2021 04:32
Hexachloroethane	ND	0.0050	1	09/04/2021 04:32
2-Hexanone	ND	0.0050	1	09/04/2021 04:32
Isopropylbenzene	ND	0.0050	1	09/04/2021 04:32
4-Isopropyl toluene	ND	0.0050	1	09/04/2021 04:32
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/04/2021 04:32
Methylene chloride	ND	0.020	1	09/04/2021 04:32
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/04/2021 04:32
Naphthalene	ND	0.0050	1	09/04/2021 04:32
n-Propyl benzene	ND	0.0050	1	09/04/2021 04:32
Styrene	ND	0.0050	1	09/04/2021 04:32
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 04:32
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 04:32
Tetrachloroethene	ND	0.0050	1	09/04/2021 04:32
Toluene	ND	0.0050	1	09/04/2021 04:32
1,2,3-Trichlorobenzene	ND	0.0050	1	09/04/2021 04:32
1,2,4-Trichlorobenzene	ND	0.0050	1	09/04/2021 04:32
1,1,1-Trichloroethane	ND	0.0050	1	09/04/2021 04:32
1,1,2-Trichloroethane	ND	0.0050	1	09/04/2021 04:32
Trichloroethene	ND	0.0050	1	09/04/2021 04:32
Trichlorofluoromethane	ND	0.0050	1	09/04/2021 04:32
1,2,3-Trichloropropane	ND	0.00025	1	09/04/2021 04:32
1,2,4-Trimethylbenzene	ND	0.0050	1	09/04/2021 04:32
1,3,5-Trimethylbenzene	ND	0.0050	1	09/04/2021 04:32
Vinyl Chloride	ND	0.00025	1	09/04/2021 04:32
m,p-Xylene	ND	0.0050	1	09/04/2021 04:32
o-Xylene	ND	0.0050	1	09/04/2021 04:32
Xylenes, Total	ND	0.0050	1	09/04/2021 04:32

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-3.0	2108G85-002A	Soil	08/27/2021 09:00	GC18 09032133.D	228786

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	87	70-140		09/04/2021 04:32
Toluene-d8	92	70-140		09/04/2021 04:32
4-BFB	82	70-140		09/04/2021 04:32
Benzene-d6	91	50-140		09/04/2021 04:32
Ethylbenzene-d10	93	50-140		09/04/2021 04:32
1,2-DCB-d4	73	40-140		09/04/2021 04:32

Analyst(s): JEM



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-1.5	2108G85-007A	Soil	08/27/2021 09:28	GC18 09032134.D	228786

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	09/04/2021 05:12
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/04/2021 05:12
Benzene	ND	0.0050	1	09/04/2021 05:12
Bromobenzene	ND	0.0050	1	09/04/2021 05:12
Bromochloromethane	ND	0.0050	1	09/04/2021 05:12
Bromodichloromethane	ND	0.0050	1	09/04/2021 05:12
Bromoform	ND	0.0050	1	09/04/2021 05:12
Bromomethane	ND	0.0050	1	09/04/2021 05:12
2-Butanone (MEK)	ND	0.050	1	09/04/2021 05:12
t-Butyl alcohol (TBA)	ND	0.050	1	09/04/2021 05:12
n-Butyl benzene	ND	0.0050	1	09/04/2021 05:12
sec-Butyl benzene	ND	0.0050	1	09/04/2021 05:12
tert-Butyl benzene	ND	0.0050	1	09/04/2021 05:12
Carbon Disulfide	ND	0.0050	1	09/04/2021 05:12
Carbon Tetrachloride	ND	0.0050	1	09/04/2021 05:12
Chlorobenzene	ND	0.0050	1	09/04/2021 05:12
Chloroethane	ND	0.0050	1	09/04/2021 05:12
Chloroform	ND	0.0050	1	09/04/2021 05:12
Chloromethane	ND	0.0050	1	09/04/2021 05:12
2-Chlorotoluene	ND	0.0050	1	09/04/2021 05:12
4-Chlorotoluene	ND	0.0050	1	09/04/2021 05:12
Dibromochloromethane	ND	0.0050	1	09/04/2021 05:12
1,2-Dibromo-3-chloropropane	ND	0.00050	1	09/04/2021 05:12
1,2-Dibromoethane (EDB)	ND	0.00025	1	09/04/2021 05:12
Dibromomethane	ND	0.0050	1	09/04/2021 05:12
1,2-Dichlorobenzene	ND	0.0050	1	09/04/2021 05:12
1,3-Dichlorobenzene	ND	0.0050	1	09/04/2021 05:12
1,4-Dichlorobenzene	ND	0.0050	1	09/04/2021 05:12
Dichlorodifluoromethane	ND	0.0050	1	09/04/2021 05:12
1,1-Dichloroethane	ND	0.0050	1	09/04/2021 05:12
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	09/04/2021 05:12
1,1-Dichloroethene	ND	0.0050	1	09/04/2021 05:12
cis-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 05:12
trans-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 05:12
1,2-Dichloropropane	ND	0.0050	1	09/04/2021 05:12
1,3-Dichloropropane	ND	0.0050	1	09/04/2021 05:12
2,2-Dichloropropane	ND	0.0050	1	09/04/2021 05:12

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-1.5	2108G85-007A	Soil	08/27/2021 09:28	GC18 09032134.D	228786

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/04/2021 05:12
cis-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 05:12
trans-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 05:12
Diisopropyl ether (DIPE)	ND	0.0050	1	09/04/2021 05:12
Ethylbenzene	ND	0.0050	1	09/04/2021 05:12
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/04/2021 05:12
Freon 113	ND	0.0050	1	09/04/2021 05:12
Hexachlorobutadiene	ND	0.0050	1	09/04/2021 05:12
Hexachloroethane	ND	0.0050	1	09/04/2021 05:12
2-Hexanone	ND	0.0050	1	09/04/2021 05:12
Isopropylbenzene	ND	0.0050	1	09/04/2021 05:12
4-Isopropyl toluene	ND	0.0050	1	09/04/2021 05:12
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/04/2021 05:12
Methylene chloride	ND	0.020	1	09/04/2021 05:12
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/04/2021 05:12
Naphthalene	ND	0.0050	1	09/04/2021 05:12
n-Propyl benzene	ND	0.0050	1	09/04/2021 05:12
Styrene	ND	0.0050	1	09/04/2021 05:12
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 05:12
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 05:12
Tetrachloroethene	ND	0.0050	1	09/04/2021 05:12
Toluene	ND	0.0050	1	09/04/2021 05:12
1,2,3-Trichlorobenzene	ND	0.0050	1	09/04/2021 05:12
1,2,4-Trichlorobenzene	ND	0.0050	1	09/04/2021 05:12
1,1,1-Trichloroethane	ND	0.0050	1	09/04/2021 05:12
1,1,2-Trichloroethane	ND	0.0050	1	09/04/2021 05:12
Trichloroethene	ND	0.0050	1	09/04/2021 05:12
Trichlorofluoromethane	ND	0.0050	1	09/04/2021 05:12
1,2,3-Trichloropropane	ND	0.00025	1	09/04/2021 05:12
1,2,4-Trimethylbenzene	ND	0.0050	1	09/04/2021 05:12
1,3,5-Trimethylbenzene	ND	0.0050	1	09/04/2021 05:12
Vinyl Chloride	ND	0.00025	1	09/04/2021 05:12
m,p-Xylene	ND	0.0050	1	09/04/2021 05:12
o-Xylene	ND	0.0050	1	09/04/2021 05:12
Xylenes, Total	ND	0.0050	1	09/04/2021 05:12

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-1.5	2108G85-007A	Soil	08/27/2021 09:28	GC18 09032134.D	228786

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	86		70-140	09/04/2021 05:12
Toluene-d8	93		70-140	09/04/2021 05:12
4-BFB	80		70-140	09/04/2021 05:12
Benzene-d6	90		50-140	09/04/2021 05:12
Ethylbenzene-d10	94		50-140	09/04/2021 05:12
1,2-DCB-d4	74		40-140	09/04/2021 05:12

Analyst(s): JEM



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-5.0	2108G85-009A	Soil	08/27/2021 09:32	GC18 09042108.D	228786

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	09/04/2021 10:54
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/04/2021 10:54
Benzene	ND	0.0050	1	09/04/2021 10:54
Bromobenzene	ND	0.0050	1	09/04/2021 10:54
Bromochloromethane	ND	0.0050	1	09/04/2021 10:54
Bromodichloromethane	ND	0.0050	1	09/04/2021 10:54
Bromoform	ND	0.0050	1	09/04/2021 10:54
Bromomethane	ND	0.0050	1	09/04/2021 10:54
2-Butanone (MEK)	ND	0.050	1	09/04/2021 10:54
t-Butyl alcohol (TBA)	ND	0.050	1	09/04/2021 10:54
n-Butyl benzene	ND	0.0050	1	09/04/2021 10:54
sec-Butyl benzene	ND	0.0050	1	09/04/2021 10:54
tert-Butyl benzene	ND	0.0050	1	09/04/2021 10:54
Carbon Disulfide	ND	0.0050	1	09/04/2021 10:54
Carbon Tetrachloride	ND	0.0050	1	09/04/2021 10:54
Chlorobenzene	ND	0.0050	1	09/04/2021 10:54
Chloroethane	ND	0.0050	1	09/04/2021 10:54
Chloroform	ND	0.0050	1	09/04/2021 10:54
Chloromethane	ND	0.0050	1	09/04/2021 10:54
2-Chlorotoluene	ND	0.0050	1	09/04/2021 10:54
4-Chlorotoluene	ND	0.0050	1	09/04/2021 10:54
Dibromochloromethane	ND	0.0050	1	09/04/2021 10:54
1,2-Dibromo-3-chloropropane	ND	0.00050	1	09/04/2021 10:54
1,2-Dibromoethane (EDB)	ND	0.00025	1	09/04/2021 10:54
Dibromomethane	ND	0.0050	1	09/04/2021 10:54
1,2-Dichlorobenzene	ND	0.0050	1	09/04/2021 10:54
1,3-Dichlorobenzene	ND	0.0050	1	09/04/2021 10:54
1,4-Dichlorobenzene	ND	0.0050	1	09/04/2021 10:54
Dichlorodifluoromethane	ND	0.0050	1	09/04/2021 10:54
1,1-Dichloroethane	ND	0.0050	1	09/04/2021 10:54
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	09/04/2021 10:54
1,1-Dichloroethene	ND	0.0050	1	09/04/2021 10:54
cis-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 10:54
trans-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 10:54
1,2-Dichloropropane	ND	0.0050	1	09/04/2021 10:54
1,3-Dichloropropane	ND	0.0050	1	09/04/2021 10:54
2,2-Dichloropropane	ND	0.0050	1	09/04/2021 10:54

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-5.0	2108G85-009A	Soil	08/27/2021 09:32	GC18 09042108.D	228786

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/04/2021 10:54
cis-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 10:54
trans-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 10:54
Diisopropyl ether (DIPE)	ND	0.0050	1	09/04/2021 10:54
Ethylbenzene	ND	0.0050	1	09/04/2021 10:54
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/04/2021 10:54
Freon 113	ND	0.0050	1	09/04/2021 10:54
Hexachlorobutadiene	ND	0.0050	1	09/04/2021 10:54
Hexachloroethane	ND	0.0050	1	09/04/2021 10:54
2-Hexanone	ND	0.0050	1	09/04/2021 10:54
Isopropylbenzene	ND	0.0050	1	09/04/2021 10:54
4-Isopropyl toluene	ND	0.0050	1	09/04/2021 10:54
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/04/2021 10:54
Methylene chloride	ND	0.020	1	09/04/2021 10:54
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/04/2021 10:54
Naphthalene	ND	0.0050	1	09/04/2021 10:54
n-Propyl benzene	ND	0.0050	1	09/04/2021 10:54
Styrene	ND	0.0050	1	09/04/2021 10:54
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 10:54
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 10:54
Tetrachloroethene	ND	0.0050	1	09/04/2021 10:54
Toluene	ND	0.0050	1	09/04/2021 10:54
1,2,3-Trichlorobenzene	ND	0.0050	1	09/04/2021 10:54
1,2,4-Trichlorobenzene	ND	0.0050	1	09/04/2021 10:54
1,1,1-Trichloroethane	ND	0.0050	1	09/04/2021 10:54
1,1,2-Trichloroethane	ND	0.0050	1	09/04/2021 10:54
Trichloroethene	ND	0.0050	1	09/04/2021 10:54
Trichlorofluoromethane	ND	0.0050	1	09/04/2021 10:54
1,2,3-Trichloropropane	ND	0.00025	1	09/04/2021 10:54
1,2,4-Trimethylbenzene	ND	0.0050	1	09/04/2021 10:54
1,3,5-Trimethylbenzene	ND	0.0050	1	09/04/2021 10:54
Vinyl Chloride	ND	0.00025	1	09/04/2021 10:54
m,p-Xylene	ND	0.0050	1	09/04/2021 10:54
o-Xylene	ND	0.0050	1	09/04/2021 10:54
Xylenes, Total	ND	0.0050	1	09/04/2021 10:54

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-5.0	2108G85-009A	Soil	08/27/2021 09:32	GC18 09042108.D	228786

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	86		70-140	09/04/2021 10:54
Toluene-d8	93		70-140	09/04/2021 10:54
4-BFB	81		70-140	09/04/2021 10:54
Benzene-d6	89		50-140	09/04/2021 10:54
Ethylbenzene-d10	94		50-140	09/04/2021 10:54
1,2-DCB-d4	76		40-140	09/04/2021 10:54

Analyst(s): AK



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-7.5	2108G85-016A	Soil	08/27/2021 09:52	GC18 09042109.D	228786

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	09/04/2021 11:34
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/04/2021 11:34
Benzene	ND	0.0050	1	09/04/2021 11:34
Bromobenzene	ND	0.0050	1	09/04/2021 11:34
Bromochloromethane	ND	0.0050	1	09/04/2021 11:34
Bromodichloromethane	ND	0.0050	1	09/04/2021 11:34
Bromoform	ND	0.0050	1	09/04/2021 11:34
Bromomethane	ND	0.0050	1	09/04/2021 11:34
2-Butanone (MEK)	ND	0.050	1	09/04/2021 11:34
t-Butyl alcohol (TBA)	ND	0.050	1	09/04/2021 11:34
n-Butyl benzene	ND	0.0050	1	09/04/2021 11:34
sec-Butyl benzene	ND	0.0050	1	09/04/2021 11:34
tert-Butyl benzene	ND	0.0050	1	09/04/2021 11:34
Carbon Disulfide	ND	0.0050	1	09/04/2021 11:34
Carbon Tetrachloride	ND	0.0050	1	09/04/2021 11:34
Chlorobenzene	ND	0.0050	1	09/04/2021 11:34
Chloroethane	ND	0.0050	1	09/04/2021 11:34
Chloroform	ND	0.0050	1	09/04/2021 11:34
Chloromethane	ND	0.0050	1	09/04/2021 11:34
2-Chlorotoluene	ND	0.0050	1	09/04/2021 11:34
4-Chlorotoluene	ND	0.0050	1	09/04/2021 11:34
Dibromochloromethane	ND	0.0050	1	09/04/2021 11:34
1,2-Dibromo-3-chloropropane	ND	0.00050	1	09/04/2021 11:34
1,2-Dibromoethane (EDB)	ND	0.00025	1	09/04/2021 11:34
Dibromomethane	ND	0.0050	1	09/04/2021 11:34
1,2-Dichlorobenzene	ND	0.0050	1	09/04/2021 11:34
1,3-Dichlorobenzene	ND	0.0050	1	09/04/2021 11:34
1,4-Dichlorobenzene	ND	0.0050	1	09/04/2021 11:34
Dichlorodifluoromethane	ND	0.0050	1	09/04/2021 11:34
1,1-Dichloroethane	ND	0.0050	1	09/04/2021 11:34
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	09/04/2021 11:34
1,1-Dichloroethene	ND	0.0050	1	09/04/2021 11:34
cis-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 11:34
trans-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 11:34
1,2-Dichloropropane	ND	0.0050	1	09/04/2021 11:34
1,3-Dichloropropane	ND	0.0050	1	09/04/2021 11:34
2,2-Dichloropropane	ND	0.0050	1	09/04/2021 11:34

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-7.5	2108G85-016A	Soil	08/27/2021 09:52	GC18 09042109.D	228786

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/04/2021 11:34
cis-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 11:34
trans-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 11:34
Diisopropyl ether (DIPE)	ND	0.0050	1	09/04/2021 11:34
Ethylbenzene	ND	0.0050	1	09/04/2021 11:34
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/04/2021 11:34
Freon 113	ND	0.0050	1	09/04/2021 11:34
Hexachlorobutadiene	ND	0.0050	1	09/04/2021 11:34
Hexachloroethane	ND	0.0050	1	09/04/2021 11:34
2-Hexanone	ND	0.0050	1	09/04/2021 11:34
Isopropylbenzene	ND	0.0050	1	09/04/2021 11:34
4-Isopropyl toluene	ND	0.0050	1	09/04/2021 11:34
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/04/2021 11:34
Methylene chloride	ND	0.020	1	09/04/2021 11:34
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/04/2021 11:34
Naphthalene	ND	0.0050	1	09/04/2021 11:34
n-Propyl benzene	ND	0.0050	1	09/04/2021 11:34
Styrene	ND	0.0050	1	09/04/2021 11:34
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 11:34
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 11:34
Tetrachloroethene	ND	0.0050	1	09/04/2021 11:34
Toluene	ND	0.0050	1	09/04/2021 11:34
1,2,3-Trichlorobenzene	ND	0.0050	1	09/04/2021 11:34
1,2,4-Trichlorobenzene	ND	0.0050	1	09/04/2021 11:34
1,1,1-Trichloroethane	ND	0.0050	1	09/04/2021 11:34
1,1,2-Trichloroethane	ND	0.0050	1	09/04/2021 11:34
Trichloroethene	ND	0.0050	1	09/04/2021 11:34
Trichlorofluoromethane	ND	0.0050	1	09/04/2021 11:34
1,2,3-Trichloropropane	ND	0.00025	1	09/04/2021 11:34
1,2,4-Trimethylbenzene	ND	0.0050	1	09/04/2021 11:34
1,3,5-Trimethylbenzene	ND	0.0050	1	09/04/2021 11:34
Vinyl Chloride	ND	0.00025	1	09/04/2021 11:34
m,p-Xylene	ND	0.0050	1	09/04/2021 11:34
o-Xylene	ND	0.0050	1	09/04/2021 11:34
Xylenes, Total	ND	0.0050	1	09/04/2021 11:34

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-7.5	2108G85-016A	Soil	08/27/2021 09:52	GC18 09042109.D	228786

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	86	70-140		09/04/2021 11:34
Toluene-d8	95	70-140		09/04/2021 11:34
4-BFB	81	70-140		09/04/2021 11:34
Benzene-d6	98	50-140		09/04/2021 11:34
Ethylbenzene-d10	103	50-140		09/04/2021 11:34
1,2-DCB-d4	82	40-140		09/04/2021 11:34

Analyst(s): AK



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-7.5	2108G85-022A	Soil	08/27/2021 10:23	GC18 09042110.D	228786

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	09/04/2021 12:14
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/04/2021 12:14
Benzene	ND	0.0050	1	09/04/2021 12:14
Bromobenzene	ND	0.0050	1	09/04/2021 12:14
Bromochloromethane	ND	0.0050	1	09/04/2021 12:14
Bromodichloromethane	ND	0.0050	1	09/04/2021 12:14
Bromoform	ND	0.0050	1	09/04/2021 12:14
Bromomethane	ND	0.0050	1	09/04/2021 12:14
2-Butanone (MEK)	ND	0.050	1	09/04/2021 12:14
t-Butyl alcohol (TBA)	ND	0.050	1	09/04/2021 12:14
n-Butyl benzene	ND	0.0050	1	09/04/2021 12:14
sec-Butyl benzene	ND	0.0050	1	09/04/2021 12:14
tert-Butyl benzene	ND	0.0050	1	09/04/2021 12:14
Carbon Disulfide	ND	0.0050	1	09/04/2021 12:14
Carbon Tetrachloride	ND	0.0050	1	09/04/2021 12:14
Chlorobenzene	ND	0.0050	1	09/04/2021 12:14
Chloroethane	ND	0.0050	1	09/04/2021 12:14
Chloroform	ND	0.0050	1	09/04/2021 12:14
Chloromethane	ND	0.0050	1	09/04/2021 12:14
2-Chlorotoluene	ND	0.0050	1	09/04/2021 12:14
4-Chlorotoluene	ND	0.0050	1	09/04/2021 12:14
Dibromochloromethane	ND	0.0050	1	09/04/2021 12:14
1,2-Dibromo-3-chloropropane	ND	0.00050	1	09/04/2021 12:14
1,2-Dibromoethane (EDB)	ND	0.00025	1	09/04/2021 12:14
Dibromomethane	ND	0.0050	1	09/04/2021 12:14
1,2-Dichlorobenzene	ND	0.0050	1	09/04/2021 12:14
1,3-Dichlorobenzene	ND	0.0050	1	09/04/2021 12:14
1,4-Dichlorobenzene	ND	0.0050	1	09/04/2021 12:14
Dichlorodifluoromethane	ND	0.0050	1	09/04/2021 12:14
1,1-Dichloroethane	ND	0.0050	1	09/04/2021 12:14
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	09/04/2021 12:14
1,1-Dichloroethene	ND	0.0050	1	09/04/2021 12:14
cis-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 12:14
trans-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 12:14
1,2-Dichloropropane	ND	0.0050	1	09/04/2021 12:14
1,3-Dichloropropane	ND	0.0050	1	09/04/2021 12:14
2,2-Dichloropropane	ND	0.0050	1	09/04/2021 12:14

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-7.5	2108G85-022A	Soil	08/27/2021 10:23	GC18 09042110.D	228786

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/04/2021 12:14
cis-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 12:14
trans-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 12:14
Diisopropyl ether (DIPE)	ND	0.0050	1	09/04/2021 12:14
Ethylbenzene	ND	0.0050	1	09/04/2021 12:14
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/04/2021 12:14
Freon 113	ND	0.0050	1	09/04/2021 12:14
Hexachlorobutadiene	ND	0.0050	1	09/04/2021 12:14
Hexachloroethane	ND	0.0050	1	09/04/2021 12:14
2-Hexanone	ND	0.0050	1	09/04/2021 12:14
Isopropylbenzene	ND	0.0050	1	09/04/2021 12:14
4-Isopropyl toluene	ND	0.0050	1	09/04/2021 12:14
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/04/2021 12:14
Methylene chloride	ND	0.020	1	09/04/2021 12:14
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/04/2021 12:14
Naphthalene	ND	0.0050	1	09/04/2021 12:14
n-Propyl benzene	ND	0.0050	1	09/04/2021 12:14
Styrene	ND	0.0050	1	09/04/2021 12:14
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 12:14
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 12:14
Tetrachloroethene	ND	0.0050	1	09/04/2021 12:14
Toluene	ND	0.0050	1	09/04/2021 12:14
1,2,3-Trichlorobenzene	ND	0.0050	1	09/04/2021 12:14
1,2,4-Trichlorobenzene	ND	0.0050	1	09/04/2021 12:14
1,1,1-Trichloroethane	ND	0.0050	1	09/04/2021 12:14
1,1,2-Trichloroethane	ND	0.0050	1	09/04/2021 12:14
Trichloroethene	ND	0.0050	1	09/04/2021 12:14
Trichlorofluoromethane	ND	0.0050	1	09/04/2021 12:14
1,2,3-Trichloropropane	ND	0.00025	1	09/04/2021 12:14
1,2,4-Trimethylbenzene	ND	0.0050	1	09/04/2021 12:14
1,3,5-Trimethylbenzene	ND	0.0050	1	09/04/2021 12:14
Vinyl Chloride	ND	0.00025	1	09/04/2021 12:14
m,p-Xylene	ND	0.0050	1	09/04/2021 12:14
o-Xylene	ND	0.0050	1	09/04/2021 12:14
Xylenes, Total	ND	0.0050	1	09/04/2021 12:14

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-7.5	2108G85-022A	Soil	08/27/2021 10:23	GC18 09042110.D	228786

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	86	70-140		09/04/2021 12:14
Toluene-d8	93	70-140		09/04/2021 12:14
4-BFB	78	70-140		09/04/2021 12:14
Benzene-d6	92	50-140		09/04/2021 12:14
Ethylbenzene-d10	96	50-140		09/04/2021 12:14
1,2-DCB-d4	77	40-140		09/04/2021 12:14

Analyst(s): AK



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-5-3.0	2108G85-026A	Soil	08/27/2021 10:40	GC18 09042111.D	228786

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	09/04/2021 12:55
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/04/2021 12:55
Benzene	ND	0.0050	1	09/04/2021 12:55
Bromobenzene	ND	0.0050	1	09/04/2021 12:55
Bromochloromethane	ND	0.0050	1	09/04/2021 12:55
Bromodichloromethane	ND	0.0050	1	09/04/2021 12:55
Bromoform	ND	0.0050	1	09/04/2021 12:55
Bromomethane	ND	0.0050	1	09/04/2021 12:55
2-Butanone (MEK)	ND	0.050	1	09/04/2021 12:55
t-Butyl alcohol (TBA)	ND	0.050	1	09/04/2021 12:55
n-Butyl benzene	ND	0.0050	1	09/04/2021 12:55
sec-Butyl benzene	ND	0.0050	1	09/04/2021 12:55
tert-Butyl benzene	ND	0.0050	1	09/04/2021 12:55
Carbon Disulfide	ND	0.0050	1	09/04/2021 12:55
Carbon Tetrachloride	ND	0.0050	1	09/04/2021 12:55
Chlorobenzene	ND	0.0050	1	09/04/2021 12:55
Chloroethane	ND	0.0050	1	09/04/2021 12:55
Chloroform	ND	0.0050	1	09/04/2021 12:55
Chloromethane	ND	0.0050	1	09/04/2021 12:55
2-Chlorotoluene	ND	0.0050	1	09/04/2021 12:55
4-Chlorotoluene	ND	0.0050	1	09/04/2021 12:55
Dibromochloromethane	ND	0.0050	1	09/04/2021 12:55
1,2-Dibromo-3-chloropropane	ND	0.00050	1	09/04/2021 12:55
1,2-Dibromoethane (EDB)	ND	0.00025	1	09/04/2021 12:55
Dibromomethane	ND	0.0050	1	09/04/2021 12:55
1,2-Dichlorobenzene	ND	0.0050	1	09/04/2021 12:55
1,3-Dichlorobenzene	ND	0.0050	1	09/04/2021 12:55
1,4-Dichlorobenzene	ND	0.0050	1	09/04/2021 12:55
Dichlorodifluoromethane	ND	0.0050	1	09/04/2021 12:55
1,1-Dichloroethane	ND	0.0050	1	09/04/2021 12:55
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	09/04/2021 12:55
1,1-Dichloroethene	ND	0.0050	1	09/04/2021 12:55
cis-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 12:55
trans-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 12:55
1,2-Dichloropropane	ND	0.0050	1	09/04/2021 12:55
1,3-Dichloropropane	ND	0.0050	1	09/04/2021 12:55
2,2-Dichloropropane	ND	0.0050	1	09/04/2021 12:55

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-5-3.0	2108G85-026A	Soil	08/27/2021 10:40	GC18 09042111.D	228786

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/04/2021 12:55
cis-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 12:55
trans-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 12:55
Diisopropyl ether (DIPE)	ND	0.0050	1	09/04/2021 12:55
Ethylbenzene	ND	0.0050	1	09/04/2021 12:55
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/04/2021 12:55
Freon 113	ND	0.0050	1	09/04/2021 12:55
Hexachlorobutadiene	ND	0.0050	1	09/04/2021 12:55
Hexachloroethane	ND	0.0050	1	09/04/2021 12:55
2-Hexanone	ND	0.0050	1	09/04/2021 12:55
Isopropylbenzene	ND	0.0050	1	09/04/2021 12:55
4-Isopropyl toluene	ND	0.0050	1	09/04/2021 12:55
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/04/2021 12:55
Methylene chloride	ND	0.020	1	09/04/2021 12:55
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/04/2021 12:55
Naphthalene	ND	0.0050	1	09/04/2021 12:55
n-Propyl benzene	ND	0.0050	1	09/04/2021 12:55
Styrene	ND	0.0050	1	09/04/2021 12:55
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 12:55
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 12:55
Tetrachloroethene	ND	0.0050	1	09/04/2021 12:55
Toluene	ND	0.0050	1	09/04/2021 12:55
1,2,3-Trichlorobenzene	ND	0.0050	1	09/04/2021 12:55
1,2,4-Trichlorobenzene	ND	0.0050	1	09/04/2021 12:55
1,1,1-Trichloroethane	ND	0.0050	1	09/04/2021 12:55
1,1,2-Trichloroethane	ND	0.0050	1	09/04/2021 12:55
Trichloroethene	ND	0.0050	1	09/04/2021 12:55
Trichlorofluoromethane	ND	0.0050	1	09/04/2021 12:55
1,2,3-Trichloropropane	ND	0.00025	1	09/04/2021 12:55
1,2,4-Trimethylbenzene	ND	0.0050	1	09/04/2021 12:55
1,3,5-Trimethylbenzene	ND	0.0050	1	09/04/2021 12:55
Vinyl Chloride	ND	0.00025	1	09/04/2021 12:55
m,p-Xylene	ND	0.0050	1	09/04/2021 12:55
o-Xylene	ND	0.0050	1	09/04/2021 12:55
Xylenes, Total	ND	0.0050	1	09/04/2021 12:55

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-5-3.0	2108G85-026A	Soil	08/27/2021 10:40	GC18 09042111.D	228786

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	85	70-140		09/04/2021 12:55
Toluene-d8	92	70-140		09/04/2021 12:55
4-BFB	78	70-140		09/04/2021 12:55
Benzene-d6	89	50-140		09/04/2021 12:55
Ethylbenzene-d10	92	50-140		09/04/2021 12:55
1,2-DCB-d4	75	40-140		09/04/2021 12:55

Analyst(s): AK



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-0.5	2108G85-031A	Soil	08/27/2021 11:40	GC18 09042112.D	228786

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	09/04/2021 13:35
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/04/2021 13:35
Benzene	ND	0.0050	1	09/04/2021 13:35
Bromobenzene	ND	0.0050	1	09/04/2021 13:35
Bromochloromethane	ND	0.0050	1	09/04/2021 13:35
Bromodichloromethane	ND	0.0050	1	09/04/2021 13:35
Bromoform	ND	0.0050	1	09/04/2021 13:35
Bromomethane	ND	0.0050	1	09/04/2021 13:35
2-Butanone (MEK)	ND	0.050	1	09/04/2021 13:35
t-Butyl alcohol (TBA)	ND	0.050	1	09/04/2021 13:35
n-Butyl benzene	ND	0.0050	1	09/04/2021 13:35
sec-Butyl benzene	ND	0.0050	1	09/04/2021 13:35
tert-Butyl benzene	ND	0.0050	1	09/04/2021 13:35
Carbon Disulfide	ND	0.0050	1	09/04/2021 13:35
Carbon Tetrachloride	ND	0.0050	1	09/04/2021 13:35
Chlorobenzene	ND	0.0050	1	09/04/2021 13:35
Chloroethane	ND	0.0050	1	09/04/2021 13:35
Chloroform	ND	0.0050	1	09/04/2021 13:35
Chloromethane	ND	0.0050	1	09/04/2021 13:35
2-Chlorotoluene	ND	0.0050	1	09/04/2021 13:35
4-Chlorotoluene	ND	0.0050	1	09/04/2021 13:35
Dibromochloromethane	ND	0.0050	1	09/04/2021 13:35
1,2-Dibromo-3-chloropropane	ND	0.00050	1	09/04/2021 13:35
1,2-Dibromoethane (EDB)	ND	0.00025	1	09/04/2021 13:35
Dibromomethane	ND	0.0050	1	09/04/2021 13:35
1,2-Dichlorobenzene	ND	0.0050	1	09/04/2021 13:35
1,3-Dichlorobenzene	ND	0.0050	1	09/04/2021 13:35
1,4-Dichlorobenzene	ND	0.0050	1	09/04/2021 13:35
Dichlorodifluoromethane	ND	0.0050	1	09/04/2021 13:35
1,1-Dichloroethane	ND	0.0050	1	09/04/2021 13:35
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	09/04/2021 13:35
1,1-Dichloroethene	ND	0.0050	1	09/04/2021 13:35
cis-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 13:35
trans-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 13:35
1,2-Dichloropropane	ND	0.0050	1	09/04/2021 13:35
1,3-Dichloropropane	ND	0.0050	1	09/04/2021 13:35
2,2-Dichloropropane	ND	0.0050	1	09/04/2021 13:35

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-0.5	2108G85-031A	Soil	08/27/2021 11:40	GC18 09042112.D	228786

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/04/2021 13:35
cis-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 13:35
trans-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 13:35
Diisopropyl ether (DIPE)	ND	0.0050	1	09/04/2021 13:35
Ethylbenzene	ND	0.0050	1	09/04/2021 13:35
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/04/2021 13:35
Freon 113	ND	0.0050	1	09/04/2021 13:35
Hexachlorobutadiene	ND	0.0050	1	09/04/2021 13:35
Hexachloroethane	ND	0.0050	1	09/04/2021 13:35
2-Hexanone	ND	0.0050	1	09/04/2021 13:35
Isopropylbenzene	ND	0.0050	1	09/04/2021 13:35
4-Isopropyl toluene	ND	0.0050	1	09/04/2021 13:35
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/04/2021 13:35
Methylene chloride	ND	0.020	1	09/04/2021 13:35
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/04/2021 13:35
Naphthalene	ND	0.0050	1	09/04/2021 13:35
n-Propyl benzene	ND	0.0050	1	09/04/2021 13:35
Styrene	ND	0.0050	1	09/04/2021 13:35
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 13:35
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 13:35
Tetrachloroethene	ND	0.0050	1	09/04/2021 13:35
Toluene	ND	0.0050	1	09/04/2021 13:35
1,2,3-Trichlorobenzene	ND	0.0050	1	09/04/2021 13:35
1,2,4-Trichlorobenzene	ND	0.0050	1	09/04/2021 13:35
1,1,1-Trichloroethane	ND	0.0050	1	09/04/2021 13:35
1,1,2-Trichloroethane	ND	0.0050	1	09/04/2021 13:35
Trichloroethene	ND	0.0050	1	09/04/2021 13:35
Trichlorofluoromethane	ND	0.0050	1	09/04/2021 13:35
1,2,3-Trichloropropane	ND	0.00025	1	09/04/2021 13:35
1,2,4-Trimethylbenzene	ND	0.0050	1	09/04/2021 13:35
1,3,5-Trimethylbenzene	ND	0.0050	1	09/04/2021 13:35
Vinyl Chloride	ND	0.00025	1	09/04/2021 13:35
m,p-Xylene	ND	0.0050	1	09/04/2021 13:35
o-Xylene	ND	0.0050	1	09/04/2021 13:35
Xylenes, Total	ND	0.0050	1	09/04/2021 13:35

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-0.5	2108G85-031A	Soil	08/27/2021 11:40	GC18 09042112.D	228786

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	89	70-140		09/04/2021 13:35
Toluene-d8	92	70-140		09/04/2021 13:35
4-BFB	80	70-140		09/04/2021 13:35
Benzene-d6	88	50-140		09/04/2021 13:35
Ethylbenzene-d10	89	50-140		09/04/2021 13:35
1,2-DCB-d4	75	40-140		09/04/2021 13:35

Analyst(s): AK



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-3.0	2108G85-033A	Soil	08/27/2021 11:44	GC18 09042113.D	228786

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	09/04/2021 14:17
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/04/2021 14:17
Benzene	ND	0.0050	1	09/04/2021 14:17
Bromobenzene	ND	0.0050	1	09/04/2021 14:17
Bromochloromethane	ND	0.0050	1	09/04/2021 14:17
Bromodichloromethane	ND	0.0050	1	09/04/2021 14:17
Bromoform	ND	0.0050	1	09/04/2021 14:17
Bromomethane	ND	0.0050	1	09/04/2021 14:17
2-Butanone (MEK)	ND	0.050	1	09/04/2021 14:17
t-Butyl alcohol (TBA)	ND	0.050	1	09/04/2021 14:17
n-Butyl benzene	ND	0.0050	1	09/04/2021 14:17
sec-Butyl benzene	ND	0.0050	1	09/04/2021 14:17
tert-Butyl benzene	ND	0.0050	1	09/04/2021 14:17
Carbon Disulfide	ND	0.0050	1	09/04/2021 14:17
Carbon Tetrachloride	ND	0.0050	1	09/04/2021 14:17
Chlorobenzene	ND	0.0050	1	09/04/2021 14:17
Chloroethane	ND	0.0050	1	09/04/2021 14:17
Chloroform	ND	0.0050	1	09/04/2021 14:17
Chloromethane	ND	0.0050	1	09/04/2021 14:17
2-Chlorotoluene	ND	0.0050	1	09/04/2021 14:17
4-Chlorotoluene	ND	0.0050	1	09/04/2021 14:17
Dibromochloromethane	ND	0.0050	1	09/04/2021 14:17
1,2-Dibromo-3-chloropropane	ND	0.00050	1	09/04/2021 14:17
1,2-Dibromoethane (EDB)	ND	0.00025	1	09/04/2021 14:17
Dibromomethane	ND	0.0050	1	09/04/2021 14:17
1,2-Dichlorobenzene	ND	0.0050	1	09/04/2021 14:17
1,3-Dichlorobenzene	ND	0.0050	1	09/04/2021 14:17
1,4-Dichlorobenzene	ND	0.0050	1	09/04/2021 14:17
Dichlorodifluoromethane	ND	0.0050	1	09/04/2021 14:17
1,1-Dichloroethane	ND	0.0050	1	09/04/2021 14:17
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	09/04/2021 14:17
1,1-Dichloroethene	ND	0.0050	1	09/04/2021 14:17
cis-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 14:17
trans-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 14:17
1,2-Dichloropropane	ND	0.0050	1	09/04/2021 14:17
1,3-Dichloropropane	ND	0.0050	1	09/04/2021 14:17
2,2-Dichloropropane	ND	0.0050	1	09/04/2021 14:17

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-3.0	2108G85-033A	Soil	08/27/2021 11:44	GC18 09042113.D	228786

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/04/2021 14:17
cis-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 14:17
trans-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 14:17
Diisopropyl ether (DIPE)	ND	0.0050	1	09/04/2021 14:17
Ethylbenzene	ND	0.0050	1	09/04/2021 14:17
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/04/2021 14:17
Freon 113	ND	0.0050	1	09/04/2021 14:17
Hexachlorobutadiene	ND	0.0050	1	09/04/2021 14:17
Hexachloroethane	ND	0.0050	1	09/04/2021 14:17
2-Hexanone	ND	0.0050	1	09/04/2021 14:17
Isopropylbenzene	ND	0.0050	1	09/04/2021 14:17
4-Isopropyl toluene	ND	0.0050	1	09/04/2021 14:17
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/04/2021 14:17
Methylene chloride	ND	0.020	1	09/04/2021 14:17
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/04/2021 14:17
Naphthalene	ND	0.0050	1	09/04/2021 14:17
n-Propyl benzene	ND	0.0050	1	09/04/2021 14:17
Styrene	ND	0.0050	1	09/04/2021 14:17
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 14:17
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 14:17
Tetrachloroethene	ND	0.0050	1	09/04/2021 14:17
Toluene	ND	0.0050	1	09/04/2021 14:17
1,2,3-Trichlorobenzene	ND	0.0050	1	09/04/2021 14:17
1,2,4-Trichlorobenzene	ND	0.0050	1	09/04/2021 14:17
1,1,1-Trichloroethane	ND	0.0050	1	09/04/2021 14:17
1,1,2-Trichloroethane	ND	0.0050	1	09/04/2021 14:17
Trichloroethene	ND	0.0050	1	09/04/2021 14:17
Trichlorofluoromethane	ND	0.0050	1	09/04/2021 14:17
1,2,3-Trichloropropane	ND	0.00025	1	09/04/2021 14:17
1,2,4-Trimethylbenzene	ND	0.0050	1	09/04/2021 14:17
1,3,5-Trimethylbenzene	ND	0.0050	1	09/04/2021 14:17
Vinyl Chloride	ND	0.00025	1	09/04/2021 14:17
m,p-Xylene	0.0068	0.0050	1	09/04/2021 14:17
o-Xylene	ND	0.0050	1	09/04/2021 14:17
Xylenes, Total	0.0068	0.0050	1	09/04/2021 14:17

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-3.0	2108G85-033A	Soil	08/27/2021 11:44	GC18 09042113.D	228786

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	87	70-140		09/04/2021 14:17
Toluene-d8	93	70-140		09/04/2021 14:17
4-BFB	80	70-140		09/04/2021 14:17
Benzene-d6	97	50-140		09/04/2021 14:17
Ethylbenzene-d10	100	50-140		09/04/2021 14:17
1,2-DCB-d4	81	40-140		09/04/2021 14:17

Analyst(s): AK



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-1.5	2108G85-036A	Soil	08/27/2021 11:30	GC18 09042114.D	228786

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	09/04/2021 14:59
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/04/2021 14:59
Benzene	ND	0.0050	1	09/04/2021 14:59
Bromobenzene	ND	0.0050	1	09/04/2021 14:59
Bromochloromethane	ND	0.0050	1	09/04/2021 14:59
Bromodichloromethane	ND	0.0050	1	09/04/2021 14:59
Bromoform	ND	0.0050	1	09/04/2021 14:59
Bromomethane	ND	0.0050	1	09/04/2021 14:59
2-Butanone (MEK)	ND	0.050	1	09/04/2021 14:59
t-Butyl alcohol (TBA)	ND	0.050	1	09/04/2021 14:59
n-Butyl benzene	ND	0.0050	1	09/04/2021 14:59
sec-Butyl benzene	ND	0.0050	1	09/04/2021 14:59
tert-Butyl benzene	ND	0.0050	1	09/04/2021 14:59
Carbon Disulfide	ND	0.0050	1	09/04/2021 14:59
Carbon Tetrachloride	ND	0.0050	1	09/04/2021 14:59
Chlorobenzene	ND	0.0050	1	09/04/2021 14:59
Chloroethane	ND	0.0050	1	09/04/2021 14:59
Chloroform	ND	0.0050	1	09/04/2021 14:59
Chloromethane	ND	0.0050	1	09/04/2021 14:59
2-Chlorotoluene	ND	0.0050	1	09/04/2021 14:59
4-Chlorotoluene	ND	0.0050	1	09/04/2021 14:59
Dibromochloromethane	ND	0.0050	1	09/04/2021 14:59
1,2-Dibromo-3-chloropropane	ND	0.00050	1	09/04/2021 14:59
1,2-Dibromoethane (EDB)	ND	0.00025	1	09/04/2021 14:59
Dibromomethane	ND	0.0050	1	09/04/2021 14:59
1,2-Dichlorobenzene	ND	0.0050	1	09/04/2021 14:59
1,3-Dichlorobenzene	ND	0.0050	1	09/04/2021 14:59
1,4-Dichlorobenzene	ND	0.0050	1	09/04/2021 14:59
Dichlorodifluoromethane	ND	0.0050	1	09/04/2021 14:59
1,1-Dichloroethane	ND	0.0050	1	09/04/2021 14:59
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	09/04/2021 14:59
1,1-Dichloroethene	ND	0.0050	1	09/04/2021 14:59
cis-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 14:59
trans-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 14:59
1,2-Dichloropropane	ND	0.0050	1	09/04/2021 14:59
1,3-Dichloropropane	ND	0.0050	1	09/04/2021 14:59
2,2-Dichloropropane	ND	0.0050	1	09/04/2021 14:59

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-1.5	2108G85-036A	Soil	08/27/2021 11:30	GC18 09042114.D	228786

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/04/2021 14:59
cis-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 14:59
trans-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 14:59
Diisopropyl ether (DIPE)	ND	0.0050	1	09/04/2021 14:59
Ethylbenzene	ND	0.0050	1	09/04/2021 14:59
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/04/2021 14:59
Freon 113	ND	0.0050	1	09/04/2021 14:59
Hexachlorobutadiene	ND	0.0050	1	09/04/2021 14:59
Hexachloroethane	ND	0.0050	1	09/04/2021 14:59
2-Hexanone	ND	0.0050	1	09/04/2021 14:59
Isopropylbenzene	ND	0.0050	1	09/04/2021 14:59
4-Isopropyl toluene	ND	0.0050	1	09/04/2021 14:59
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/04/2021 14:59
Methylene chloride	ND	0.020	1	09/04/2021 14:59
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/04/2021 14:59
Naphthalene	ND	0.0050	1	09/04/2021 14:59
n-Propyl benzene	ND	0.0050	1	09/04/2021 14:59
Styrene	ND	0.0050	1	09/04/2021 14:59
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 14:59
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 14:59
Tetrachloroethene	ND	0.0050	1	09/04/2021 14:59
Toluene	ND	0.0050	1	09/04/2021 14:59
1,2,3-Trichlorobenzene	ND	0.0050	1	09/04/2021 14:59
1,2,4-Trichlorobenzene	ND	0.0050	1	09/04/2021 14:59
1,1,1-Trichloroethane	ND	0.0050	1	09/04/2021 14:59
1,1,2-Trichloroethane	ND	0.0050	1	09/04/2021 14:59
Trichloroethene	ND	0.0050	1	09/04/2021 14:59
Trichlorofluoromethane	ND	0.0050	1	09/04/2021 14:59
1,2,3-Trichloropropane	ND	0.00025	1	09/04/2021 14:59
1,2,4-Trimethylbenzene	ND	0.0050	1	09/04/2021 14:59
1,3,5-Trimethylbenzene	ND	0.0050	1	09/04/2021 14:59
Vinyl Chloride	ND	0.00025	1	09/04/2021 14:59
m,p-Xylene	ND	0.0050	1	09/04/2021 14:59
o-Xylene	ND	0.0050	1	09/04/2021 14:59
Xylenes, Total	ND	0.0050	1	09/04/2021 14:59

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-1.5	2108G85-036A	Soil	08/27/2021 11:30	GC18 09042114.D	228786

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	86	70-140		09/04/2021 14:59
Toluene-d8	94	70-140		09/04/2021 14:59
4-BFB	83	70-140		09/04/2021 14:59
Benzene-d6	108	50-140		09/04/2021 14:59
Ethylbenzene-d10	111	50-140		09/04/2021 14:59
1,2-DCB-d4	88	40-140		09/04/2021 14:59

Analyst(s): AK



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-5.0	2108G85-038A	Soil	08/27/2021 11:35	GC18 09042115.D	228786

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	09/04/2021 15:41
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/04/2021 15:41
Benzene	ND	0.0050	1	09/04/2021 15:41
Bromobenzene	ND	0.0050	1	09/04/2021 15:41
Bromochloromethane	ND	0.0050	1	09/04/2021 15:41
Bromodichloromethane	ND	0.0050	1	09/04/2021 15:41
Bromoform	ND	0.0050	1	09/04/2021 15:41
Bromomethane	ND	0.0050	1	09/04/2021 15:41
2-Butanone (MEK)	ND	0.050	1	09/04/2021 15:41
t-Butyl alcohol (TBA)	ND	0.050	1	09/04/2021 15:41
n-Butyl benzene	ND	0.0050	1	09/04/2021 15:41
sec-Butyl benzene	ND	0.0050	1	09/04/2021 15:41
tert-Butyl benzene	ND	0.0050	1	09/04/2021 15:41
Carbon Disulfide	ND	0.0050	1	09/04/2021 15:41
Carbon Tetrachloride	ND	0.0050	1	09/04/2021 15:41
Chlorobenzene	ND	0.0050	1	09/04/2021 15:41
Chloroethane	ND	0.0050	1	09/04/2021 15:41
Chloroform	ND	0.0050	1	09/04/2021 15:41
Chloromethane	ND	0.0050	1	09/04/2021 15:41
2-Chlorotoluene	ND	0.0050	1	09/04/2021 15:41
4-Chlorotoluene	ND	0.0050	1	09/04/2021 15:41
Dibromochloromethane	ND	0.0050	1	09/04/2021 15:41
1,2-Dibromo-3-chloropropane	ND	0.00050	1	09/04/2021 15:41
1,2-Dibromoethane (EDB)	ND	0.00025	1	09/04/2021 15:41
Dibromomethane	ND	0.0050	1	09/04/2021 15:41
1,2-Dichlorobenzene	ND	0.0050	1	09/04/2021 15:41
1,3-Dichlorobenzene	ND	0.0050	1	09/04/2021 15:41
1,4-Dichlorobenzene	ND	0.0050	1	09/04/2021 15:41
Dichlorodifluoromethane	ND	0.0050	1	09/04/2021 15:41
1,1-Dichloroethane	ND	0.0050	1	09/04/2021 15:41
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	09/04/2021 15:41
1,1-Dichloroethene	ND	0.0050	1	09/04/2021 15:41
cis-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 15:41
trans-1,2-Dichloroethene	ND	0.0050	1	09/04/2021 15:41
1,2-Dichloropropane	ND	0.0050	1	09/04/2021 15:41
1,3-Dichloropropane	ND	0.0050	1	09/04/2021 15:41
2,2-Dichloropropane	ND	0.0050	1	09/04/2021 15:41

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-5.0	2108G85-038A	Soil	08/27/2021 11:35	GC18 09042115.D	228786

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/04/2021 15:41
cis-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 15:41
trans-1,3-Dichloropropene	ND	0.0050	1	09/04/2021 15:41
Diisopropyl ether (DIPE)	ND	0.0050	1	09/04/2021 15:41
Ethylbenzene	ND	0.0050	1	09/04/2021 15:41
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/04/2021 15:41
Freon 113	ND	0.0050	1	09/04/2021 15:41
Hexachlorobutadiene	ND	0.0050	1	09/04/2021 15:41
Hexachloroethane	ND	0.0050	1	09/04/2021 15:41
2-Hexanone	ND	0.0050	1	09/04/2021 15:41
Isopropylbenzene	ND	0.0050	1	09/04/2021 15:41
4-Isopropyl toluene	ND	0.0050	1	09/04/2021 15:41
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/04/2021 15:41
Methylene chloride	ND	0.020	1	09/04/2021 15:41
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/04/2021 15:41
Naphthalene	ND	0.0050	1	09/04/2021 15:41
n-Propyl benzene	ND	0.0050	1	09/04/2021 15:41
Styrene	ND	0.0050	1	09/04/2021 15:41
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 15:41
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/04/2021 15:41
Tetrachloroethene	ND	0.0050	1	09/04/2021 15:41
Toluene	ND	0.0050	1	09/04/2021 15:41
1,2,3-Trichlorobenzene	ND	0.0050	1	09/04/2021 15:41
1,2,4-Trichlorobenzene	ND	0.0050	1	09/04/2021 15:41
1,1,1-Trichloroethane	ND	0.0050	1	09/04/2021 15:41
1,1,2-Trichloroethane	ND	0.0050	1	09/04/2021 15:41
Trichloroethene	ND	0.0050	1	09/04/2021 15:41
Trichlorofluoromethane	ND	0.0050	1	09/04/2021 15:41
1,2,3-Trichloropropane	ND	0.00025	1	09/04/2021 15:41
1,2,4-Trimethylbenzene	ND	0.0050	1	09/04/2021 15:41
1,3,5-Trimethylbenzene	ND	0.0050	1	09/04/2021 15:41
Vinyl Chloride	ND	0.00025	1	09/04/2021 15:41
m,p-Xylene	ND	0.0050	1	09/04/2021 15:41
o-Xylene	ND	0.0050	1	09/04/2021 15:41
Xylenes, Total	ND	0.0050	1	09/04/2021 15:41

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-5.0	2108G85-038A	Soil	08/27/2021 11:35	GC18 09042115.D	228786

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	87		70-140	09/04/2021 15:41
Toluene-d8	95		70-140	09/04/2021 15:41
4-BFB	83		70-140	09/04/2021 15:41
Benzene-d6	107		50-140	09/04/2021 15:41
Ethylbenzene-d10	112		50-140	09/04/2021 15:41
1,2-DCB-d4	88		40-140	09/04/2021 15:41

Analyst(s): AK



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-9-1.5	2108G85-040A	Soil	08/27/2021 10:52	GC28 09052112.D	228786

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	09/05/2021 15:27
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/05/2021 15:27
Benzene	ND	0.0050	1	09/05/2021 15:27
Bromobenzene	ND	0.0050	1	09/05/2021 15:27
Bromochloromethane	ND	0.0050	1	09/05/2021 15:27
Bromodichloromethane	ND	0.0050	1	09/05/2021 15:27
Bromoform	ND	0.0050	1	09/05/2021 15:27
Bromomethane	ND	0.0050	1	09/05/2021 15:27
2-Butanone (MEK)	ND	0.050	1	09/05/2021 15:27
t-Butyl alcohol (TBA)	ND	0.050	1	09/05/2021 15:27
n-Butyl benzene	ND	0.0050	1	09/05/2021 15:27
sec-Butyl benzene	ND	0.0050	1	09/05/2021 15:27
tert-Butyl benzene	ND	0.0050	1	09/05/2021 15:27
Carbon Disulfide	ND	0.0050	1	09/05/2021 15:27
Carbon Tetrachloride	ND	0.0050	1	09/05/2021 15:27
Chlorobenzene	ND	0.0050	1	09/05/2021 15:27
Chloroethane	ND	0.0050	1	09/05/2021 15:27
Chloroform	ND	0.0050	1	09/05/2021 15:27
Chloromethane	ND	0.0050	1	09/05/2021 15:27
2-Chlorotoluene	ND	0.0050	1	09/05/2021 15:27
4-Chlorotoluene	ND	0.0050	1	09/05/2021 15:27
Dibromochloromethane	ND	0.0050	1	09/05/2021 15:27
1,2-Dibromo-3-chloropropane	ND	0.00050	1	09/05/2021 15:27
1,2-Dibromoethane (EDB)	ND	0.00025	1	09/05/2021 15:27
Dibromomethane	ND	0.0050	1	09/05/2021 15:27
1,2-Dichlorobenzene	ND	0.0050	1	09/05/2021 15:27
1,3-Dichlorobenzene	ND	0.0050	1	09/05/2021 15:27
1,4-Dichlorobenzene	ND	0.0050	1	09/05/2021 15:27
Dichlorodifluoromethane	ND	0.0050	1	09/05/2021 15:27
1,1-Dichloroethane	ND	0.0050	1	09/05/2021 15:27
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	09/05/2021 15:27
1,1-Dichloroethene	ND	0.0050	1	09/05/2021 15:27
cis-1,2-Dichloroethene	ND	0.0050	1	09/05/2021 15:27
trans-1,2-Dichloroethene	ND	0.0050	1	09/05/2021 15:27
1,2-Dichloropropane	ND	0.0050	1	09/05/2021 15:27
1,3-Dichloropropane	ND	0.0050	1	09/05/2021 15:27
2,2-Dichloropropane	ND	0.0050	1	09/05/2021 15:27

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-9-1.5	2108G85-040A	Soil	08/27/2021 10:52	GC28 09052112.D	228786

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/05/2021 15:27
cis-1,3-Dichloropropene	ND	0.0050	1	09/05/2021 15:27
trans-1,3-Dichloropropene	ND	0.0050	1	09/05/2021 15:27
Diisopropyl ether (DIPE)	ND	0.0050	1	09/05/2021 15:27
Ethylbenzene	ND	0.0050	1	09/05/2021 15:27
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/05/2021 15:27
Freon 113	ND	0.0050	1	09/05/2021 15:27
Hexachlorobutadiene	ND	0.0050	1	09/05/2021 15:27
Hexachloroethane	ND	0.0050	1	09/05/2021 15:27
2-Hexanone	ND	0.0050	1	09/05/2021 15:27
Isopropylbenzene	ND	0.0050	1	09/05/2021 15:27
4-Isopropyl toluene	ND	0.0050	1	09/05/2021 15:27
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/05/2021 15:27
Methylene chloride	ND	0.020	1	09/05/2021 15:27
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/05/2021 15:27
Naphthalene	ND	0.0050	1	09/05/2021 15:27
n-Propyl benzene	ND	0.0050	1	09/05/2021 15:27
Styrene	ND	0.0050	1	09/05/2021 15:27
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/05/2021 15:27
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/05/2021 15:27
Tetrachloroethene	ND	0.0050	1	09/05/2021 15:27
Toluene	ND	0.0050	1	09/05/2021 15:27
1,2,3-Trichlorobenzene	ND	0.0050	1	09/05/2021 15:27
1,2,4-Trichlorobenzene	ND	0.0050	1	09/05/2021 15:27
1,1,1-Trichloroethane	ND	0.0050	1	09/05/2021 15:27
1,1,2-Trichloroethane	ND	0.0050	1	09/05/2021 15:27
Trichloroethene	ND	0.0050	1	09/05/2021 15:27
Trichlorofluoromethane	ND	0.0050	1	09/05/2021 15:27
1,2,3-Trichloropropane	ND	0.00025	1	09/05/2021 15:27
1,2,4-Trimethylbenzene	ND	0.0050	1	09/05/2021 15:27
1,3,5-Trimethylbenzene	ND	0.0050	1	09/05/2021 15:27
Vinyl Chloride	ND	0.00025	1	09/05/2021 15:27
m,p-Xylene	ND	0.0050	1	09/05/2021 15:27
o-Xylene	ND	0.0050	1	09/05/2021 15:27
Xylenes, Total	ND	0.0050	1	09/05/2021 15:27

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-9-1.5	2108G85-040A	Soil	08/27/2021 10:52	GC28 09052112.D	228786

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	95		70-140	09/05/2021 15:27
Toluene-d8	100		70-140	09/05/2021 15:27
4-BFB	104		70-140	09/05/2021 15:27
Benzene-d6	101		50-140	09/05/2021 15:27
Ethylbenzene-d10	113		50-140	09/05/2021 15:27
1,2-DCB-d4	84		40-140	09/05/2021 15:27

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-10-3.0	2108G85-045A	Soil	08/27/2021 12:44	GC28 09052113.D	228786

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	09/05/2021 16:07
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/05/2021 16:07
Benzene	ND	0.0050	1	09/05/2021 16:07
Bromobenzene	ND	0.0050	1	09/05/2021 16:07
Bromochloromethane	ND	0.0050	1	09/05/2021 16:07
Bromodichloromethane	ND	0.0050	1	09/05/2021 16:07
Bromoform	ND	0.0050	1	09/05/2021 16:07
Bromomethane	ND	0.0050	1	09/05/2021 16:07
2-Butanone (MEK)	ND	0.050	1	09/05/2021 16:07
t-Butyl alcohol (TBA)	ND	0.050	1	09/05/2021 16:07
n-Butyl benzene	ND	0.0050	1	09/05/2021 16:07
sec-Butyl benzene	ND	0.0050	1	09/05/2021 16:07
tert-Butyl benzene	ND	0.0050	1	09/05/2021 16:07
Carbon Disulfide	ND	0.0050	1	09/05/2021 16:07
Carbon Tetrachloride	ND	0.0050	1	09/05/2021 16:07
Chlorobenzene	ND	0.0050	1	09/05/2021 16:07
Chloroethane	ND	0.0050	1	09/05/2021 16:07
Chloroform	ND	0.0050	1	09/05/2021 16:07
Chloromethane	ND	0.0050	1	09/05/2021 16:07
2-Chlorotoluene	ND	0.0050	1	09/05/2021 16:07
4-Chlorotoluene	ND	0.0050	1	09/05/2021 16:07
Dibromochloromethane	ND	0.0050	1	09/05/2021 16:07
1,2-Dibromo-3-chloropropane	ND	0.00050	1	09/05/2021 16:07
1,2-Dibromoethane (EDB)	ND	0.00025	1	09/05/2021 16:07
Dibromomethane	ND	0.0050	1	09/05/2021 16:07
1,2-Dichlorobenzene	ND	0.0050	1	09/05/2021 16:07
1,3-Dichlorobenzene	ND	0.0050	1	09/05/2021 16:07
1,4-Dichlorobenzene	ND	0.0050	1	09/05/2021 16:07
Dichlorodifluoromethane	ND	0.0050	1	09/05/2021 16:07
1,1-Dichloroethane	ND	0.0050	1	09/05/2021 16:07
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	09/05/2021 16:07
1,1-Dichloroethene	ND	0.0050	1	09/05/2021 16:07
cis-1,2-Dichloroethene	ND	0.0050	1	09/05/2021 16:07
trans-1,2-Dichloroethene	ND	0.0050	1	09/05/2021 16:07
1,2-Dichloropropane	ND	0.0050	1	09/05/2021 16:07
1,3-Dichloropropane	ND	0.0050	1	09/05/2021 16:07
2,2-Dichloropropane	ND	0.0050	1	09/05/2021 16:07

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-10-3.0	2108G85-045A	Soil	08/27/2021 12:44	GC28 09052113.D	228786

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/05/2021 16:07
cis-1,3-Dichloropropene	ND	0.0050	1	09/05/2021 16:07
trans-1,3-Dichloropropene	ND	0.0050	1	09/05/2021 16:07
Diisopropyl ether (DIPE)	ND	0.0050	1	09/05/2021 16:07
Ethylbenzene	ND	0.0050	1	09/05/2021 16:07
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/05/2021 16:07
Freon 113	ND	0.0050	1	09/05/2021 16:07
Hexachlorobutadiene	ND	0.0050	1	09/05/2021 16:07
Hexachloroethane	ND	0.0050	1	09/05/2021 16:07
2-Hexanone	ND	0.0050	1	09/05/2021 16:07
Isopropylbenzene	ND	0.0050	1	09/05/2021 16:07
4-Isopropyl toluene	ND	0.0050	1	09/05/2021 16:07
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/05/2021 16:07
Methylene chloride	ND	0.020	1	09/05/2021 16:07
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/05/2021 16:07
Naphthalene	ND	0.0050	1	09/05/2021 16:07
n-Propyl benzene	ND	0.0050	1	09/05/2021 16:07
Styrene	ND	0.0050	1	09/05/2021 16:07
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/05/2021 16:07
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/05/2021 16:07
Tetrachloroethene	ND	0.0050	1	09/05/2021 16:07
Toluene	ND	0.0050	1	09/05/2021 16:07
1,2,3-Trichlorobenzene	ND	0.0050	1	09/05/2021 16:07
1,2,4-Trichlorobenzene	ND	0.0050	1	09/05/2021 16:07
1,1,1-Trichloroethane	ND	0.0050	1	09/05/2021 16:07
1,1,2-Trichloroethane	ND	0.0050	1	09/05/2021 16:07
Trichloroethene	ND	0.0050	1	09/05/2021 16:07
Trichlorofluoromethane	ND	0.0050	1	09/05/2021 16:07
1,2,3-Trichloropropane	ND	0.00025	1	09/05/2021 16:07
1,2,4-Trimethylbenzene	ND	0.0050	1	09/05/2021 16:07
1,3,5-Trimethylbenzene	ND	0.0050	1	09/05/2021 16:07
Vinyl Chloride	ND	0.00025	1	09/05/2021 16:07
m,p-Xylene	ND	0.0050	1	09/05/2021 16:07
o-Xylene	ND	0.0050	1	09/05/2021 16:07
Xylenes, Total	ND	0.0050	1	09/05/2021 16:07

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-10-3.0	2108G85-045A	Soil	08/27/2021 12:44	GC28 09052113.D	228786

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	95		70-140	09/05/2021 16:07
Toluene-d8	101		70-140	09/05/2021 16:07
4-BFB	103		70-140	09/05/2021 16:07
Benzene-d6	104		50-140	09/05/2021 16:07
Ethylbenzene-d10	115		50-140	09/05/2021 16:07
1,2-DCB-d4	89		40-140	09/05/2021 16:07

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-11-1.5	2108G85-048A	Soil	08/27/2021 12:55	GC28 09052114.D	228786

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	09/05/2021 16:47
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/05/2021 16:47
Benzene	ND	0.0050	1	09/05/2021 16:47
Bromobenzene	ND	0.0050	1	09/05/2021 16:47
Bromochloromethane	ND	0.0050	1	09/05/2021 16:47
Bromodichloromethane	ND	0.0050	1	09/05/2021 16:47
Bromoform	ND	0.0050	1	09/05/2021 16:47
Bromomethane	ND	0.0050	1	09/05/2021 16:47
2-Butanone (MEK)	ND	0.050	1	09/05/2021 16:47
t-Butyl alcohol (TBA)	ND	0.050	1	09/05/2021 16:47
n-Butyl benzene	ND	0.0050	1	09/05/2021 16:47
sec-Butyl benzene	ND	0.0050	1	09/05/2021 16:47
tert-Butyl benzene	ND	0.0050	1	09/05/2021 16:47
Carbon Disulfide	ND	0.0050	1	09/05/2021 16:47
Carbon Tetrachloride	ND	0.0050	1	09/05/2021 16:47
Chlorobenzene	ND	0.0050	1	09/05/2021 16:47
Chloroethane	ND	0.0050	1	09/05/2021 16:47
Chloroform	ND	0.0050	1	09/05/2021 16:47
Chloromethane	ND	0.0050	1	09/05/2021 16:47
2-Chlorotoluene	ND	0.0050	1	09/05/2021 16:47
4-Chlorotoluene	ND	0.0050	1	09/05/2021 16:47
Dibromochloromethane	ND	0.0050	1	09/05/2021 16:47
1,2-Dibromo-3-chloropropane	ND	0.00050	1	09/05/2021 16:47
1,2-Dibromoethane (EDB)	ND	0.00025	1	09/05/2021 16:47
Dibromomethane	ND	0.0050	1	09/05/2021 16:47
1,2-Dichlorobenzene	ND	0.0050	1	09/05/2021 16:47
1,3-Dichlorobenzene	ND	0.0050	1	09/05/2021 16:47
1,4-Dichlorobenzene	ND	0.0050	1	09/05/2021 16:47
Dichlorodifluoromethane	ND	0.0050	1	09/05/2021 16:47
1,1-Dichloroethane	ND	0.0050	1	09/05/2021 16:47
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	09/05/2021 16:47
1,1-Dichloroethene	ND	0.0050	1	09/05/2021 16:47
cis-1,2-Dichloroethene	ND	0.0050	1	09/05/2021 16:47
trans-1,2-Dichloroethene	ND	0.0050	1	09/05/2021 16:47
1,2-Dichloropropane	ND	0.0050	1	09/05/2021 16:47
1,3-Dichloropropane	ND	0.0050	1	09/05/2021 16:47
2,2-Dichloropropane	ND	0.0050	1	09/05/2021 16:47

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-11-1.5	2108G85-048A	Soil	08/27/2021 12:55	GC28 09052114.D	228786

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/05/2021 16:47
cis-1,3-Dichloropropene	ND	0.0050	1	09/05/2021 16:47
trans-1,3-Dichloropropene	ND	0.0050	1	09/05/2021 16:47
Diisopropyl ether (DIPE)	ND	0.0050	1	09/05/2021 16:47
Ethylbenzene	ND	0.0050	1	09/05/2021 16:47
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/05/2021 16:47
Freon 113	ND	0.0050	1	09/05/2021 16:47
Hexachlorobutadiene	ND	0.0050	1	09/05/2021 16:47
Hexachloroethane	ND	0.0050	1	09/05/2021 16:47
2-Hexanone	ND	0.0050	1	09/05/2021 16:47
Isopropylbenzene	ND	0.0050	1	09/05/2021 16:47
4-Isopropyl toluene	ND	0.0050	1	09/05/2021 16:47
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/05/2021 16:47
Methylene chloride	ND	0.020	1	09/05/2021 16:47
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/05/2021 16:47
Naphthalene	ND	0.0050	1	09/05/2021 16:47
n-Propyl benzene	ND	0.0050	1	09/05/2021 16:47
Styrene	ND	0.0050	1	09/05/2021 16:47
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/05/2021 16:47
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/05/2021 16:47
Tetrachloroethene	ND	0.0050	1	09/05/2021 16:47
Toluene	ND	0.0050	1	09/05/2021 16:47
1,2,3-Trichlorobenzene	ND	0.0050	1	09/05/2021 16:47
1,2,4-Trichlorobenzene	ND	0.0050	1	09/05/2021 16:47
1,1,1-Trichloroethane	ND	0.0050	1	09/05/2021 16:47
1,1,2-Trichloroethane	ND	0.0050	1	09/05/2021 16:47
Trichloroethene	ND	0.0050	1	09/05/2021 16:47
Trichlorofluoromethane	ND	0.0050	1	09/05/2021 16:47
1,2,3-Trichloropropane	ND	0.00025	1	09/05/2021 16:47
1,2,4-Trimethylbenzene	ND	0.0050	1	09/05/2021 16:47
1,3,5-Trimethylbenzene	ND	0.0050	1	09/05/2021 16:47
Vinyl Chloride	ND	0.00025	1	09/05/2021 16:47
m,p-Xylene	ND	0.0050	1	09/05/2021 16:47
o-Xylene	ND	0.0050	1	09/05/2021 16:47
Xylenes, Total	ND	0.0050	1	09/05/2021 16:47

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-11-1.5	2108G85-048A	Soil	08/27/2021 12:55	GC28 09052114.D	228786

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	93		70-140	09/05/2021 16:47
Toluene-d8	97		70-140	09/05/2021 16:47
4-BFB	99		70-140	09/05/2021 16:47
Benzene-d6	92		50-140	09/05/2021 16:47
Ethylbenzene-d10	103		50-140	09/05/2021 16:47
1,2-DCB-d4	79		40-140	09/05/2021 16:47

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-0.5	2108G85-051A	Soil	08/27/2021 13:35	GC18 09052120.D	228786

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	09/05/2021 21:10
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/05/2021 21:10
Benzene	ND	0.0050	1	09/05/2021 21:10
Bromobenzene	ND	0.0050	1	09/05/2021 21:10
Bromochloromethane	ND	0.0050	1	09/05/2021 21:10
Bromodichloromethane	ND	0.0050	1	09/05/2021 21:10
Bromoform	ND	0.0050	1	09/05/2021 21:10
Bromomethane	ND	0.0050	1	09/05/2021 21:10
2-Butanone (MEK)	ND	0.050	1	09/05/2021 21:10
t-Butyl alcohol (TBA)	ND	0.050	1	09/05/2021 21:10
n-Butyl benzene	ND	0.0050	1	09/05/2021 21:10
sec-Butyl benzene	ND	0.0050	1	09/05/2021 21:10
tert-Butyl benzene	ND	0.0050	1	09/05/2021 21:10
Carbon Disulfide	ND	0.0050	1	09/05/2021 21:10
Carbon Tetrachloride	ND	0.0050	1	09/05/2021 21:10
Chlorobenzene	ND	0.0050	1	09/05/2021 21:10
Chloroethane	ND	0.0050	1	09/05/2021 21:10
Chloroform	ND	0.0050	1	09/05/2021 21:10
Chloromethane	ND	0.0050	1	09/05/2021 21:10
2-Chlorotoluene	ND	0.0050	1	09/05/2021 21:10
4-Chlorotoluene	ND	0.0050	1	09/05/2021 21:10
Dibromochloromethane	ND	0.0050	1	09/05/2021 21:10
1,2-Dibromo-3-chloropropane	ND	0.00050	1	09/05/2021 21:10
1,2-Dibromoethane (EDB)	ND	0.00025	1	09/05/2021 21:10
Dibromomethane	ND	0.0050	1	09/05/2021 21:10
1,2-Dichlorobenzene	ND	0.0050	1	09/05/2021 21:10
1,3-Dichlorobenzene	ND	0.0050	1	09/05/2021 21:10
1,4-Dichlorobenzene	ND	0.0050	1	09/05/2021 21:10
Dichlorodifluoromethane	ND	0.0050	1	09/05/2021 21:10
1,1-Dichloroethane	ND	0.0050	1	09/05/2021 21:10
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	09/05/2021 21:10
1,1-Dichloroethene	ND	0.0050	1	09/05/2021 21:10
cis-1,2-Dichloroethene	ND	0.0050	1	09/05/2021 21:10
trans-1,2-Dichloroethene	ND	0.0050	1	09/05/2021 21:10
1,2-Dichloropropane	ND	0.0050	1	09/05/2021 21:10
1,3-Dichloropropane	ND	0.0050	1	09/05/2021 21:10
2,2-Dichloropropane	ND	0.0050	1	09/05/2021 21:10

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-0.5	2108G85-051A	Soil	08/27/2021 13:35	GC18 09052120.D	228786

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/05/2021 21:10
cis-1,3-Dichloropropene	ND	0.0050	1	09/05/2021 21:10
trans-1,3-Dichloropropene	ND	0.0050	1	09/05/2021 21:10
Diisopropyl ether (DIPE)	ND	0.0050	1	09/05/2021 21:10
Ethylbenzene	ND	0.0050	1	09/05/2021 21:10
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/05/2021 21:10
Freon 113	ND	0.0050	1	09/05/2021 21:10
Hexachlorobutadiene	ND	0.0050	1	09/05/2021 21:10
Hexachloroethane	ND	0.0050	1	09/05/2021 21:10
2-Hexanone	ND	0.0050	1	09/05/2021 21:10
Isopropylbenzene	ND	0.0050	1	09/05/2021 21:10
4-Isopropyl toluene	ND	0.0050	1	09/05/2021 21:10
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/05/2021 21:10
Methylene chloride	ND	0.020	1	09/05/2021 21:10
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/05/2021 21:10
Naphthalene	ND	0.0050	1	09/05/2021 21:10
n-Propyl benzene	ND	0.0050	1	09/05/2021 21:10
Styrene	ND	0.0050	1	09/05/2021 21:10
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/05/2021 21:10
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/05/2021 21:10
Tetrachloroethene	ND	0.0050	1	09/05/2021 21:10
Toluene	ND	0.0050	1	09/05/2021 21:10
1,2,3-Trichlorobenzene	ND	0.0050	1	09/05/2021 21:10
1,2,4-Trichlorobenzene	ND	0.0050	1	09/05/2021 21:10
1,1,1-Trichloroethane	ND	0.0050	1	09/05/2021 21:10
1,1,2-Trichloroethane	ND	0.0050	1	09/05/2021 21:10
Trichloroethene	ND	0.0050	1	09/05/2021 21:10
Trichlorofluoromethane	ND	0.0050	1	09/05/2021 21:10
1,2,3-Trichloropropane	ND	0.00025	1	09/05/2021 21:10
1,2,4-Trimethylbenzene	ND	0.0050	1	09/05/2021 21:10
1,3,5-Trimethylbenzene	ND	0.0050	1	09/05/2021 21:10
Vinyl Chloride	ND	0.00025	1	09/05/2021 21:10
m,p-Xylene	ND	0.0050	1	09/05/2021 21:10
o-Xylene	ND	0.0050	1	09/05/2021 21:10
Xylenes, Total	ND	0.0050	1	09/05/2021 21:10

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-0.5	2108G85-051A	Soil	08/27/2021 13:35	GC18 09052120.D	228786

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	88	70-140		09/05/2021 21:10
Toluene-d8	95	70-140		09/05/2021 21:10
4-BFB	85	70-140		09/05/2021 21:10
Benzene-d6	96	50-140		09/05/2021 21:10
Ethylbenzene-d10	97	50-140		09/05/2021 21:10
1,2-DCB-d4	79	40-140		09/05/2021 21:10

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-3.0	2108G85-053A	Soil	08/27/2021 13:37	GC18 09052121.D	228786

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	09/05/2021 21:51
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/05/2021 21:51
Benzene	ND	0.0050	1	09/05/2021 21:51
Bromobenzene	ND	0.0050	1	09/05/2021 21:51
Bromochloromethane	ND	0.0050	1	09/05/2021 21:51
Bromodichloromethane	ND	0.0050	1	09/05/2021 21:51
Bromoform	ND	0.0050	1	09/05/2021 21:51
Bromomethane	ND	0.0050	1	09/05/2021 21:51
2-Butanone (MEK)	ND	0.050	1	09/05/2021 21:51
t-Butyl alcohol (TBA)	ND	0.050	1	09/05/2021 21:51
n-Butyl benzene	ND	0.0050	1	09/05/2021 21:51
sec-Butyl benzene	ND	0.0050	1	09/05/2021 21:51
tert-Butyl benzene	ND	0.0050	1	09/05/2021 21:51
Carbon Disulfide	ND	0.0050	1	09/05/2021 21:51
Carbon Tetrachloride	ND	0.0050	1	09/05/2021 21:51
Chlorobenzene	ND	0.0050	1	09/05/2021 21:51
Chloroethane	ND	0.0050	1	09/05/2021 21:51
Chloroform	ND	0.0050	1	09/05/2021 21:51
Chloromethane	ND	0.0050	1	09/05/2021 21:51
2-Chlorotoluene	ND	0.0050	1	09/05/2021 21:51
4-Chlorotoluene	ND	0.0050	1	09/05/2021 21:51
Dibromochloromethane	ND	0.0050	1	09/05/2021 21:51
1,2-Dibromo-3-chloropropane	ND	0.00050	1	09/05/2021 21:51
1,2-Dibromoethane (EDB)	ND	0.00025	1	09/05/2021 21:51
Dibromomethane	ND	0.0050	1	09/05/2021 21:51
1,2-Dichlorobenzene	ND	0.0050	1	09/05/2021 21:51
1,3-Dichlorobenzene	ND	0.0050	1	09/05/2021 21:51
1,4-Dichlorobenzene	ND	0.0050	1	09/05/2021 21:51
Dichlorodifluoromethane	ND	0.0050	1	09/05/2021 21:51
1,1-Dichloroethane	ND	0.0050	1	09/05/2021 21:51
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	09/05/2021 21:51
1,1-Dichloroethene	ND	0.0050	1	09/05/2021 21:51
cis-1,2-Dichloroethene	ND	0.0050	1	09/05/2021 21:51
trans-1,2-Dichloroethene	ND	0.0050	1	09/05/2021 21:51
1,2-Dichloropropane	ND	0.0050	1	09/05/2021 21:51
1,3-Dichloropropane	ND	0.0050	1	09/05/2021 21:51
2,2-Dichloropropane	ND	0.0050	1	09/05/2021 21:51

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-3.0	2108G85-053A	Soil	08/27/2021 13:37	GC18 09052121.D	228786

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/05/2021 21:51
cis-1,3-Dichloropropene	ND	0.0050	1	09/05/2021 21:51
trans-1,3-Dichloropropene	ND	0.0050	1	09/05/2021 21:51
Diisopropyl ether (DIPE)	ND	0.0050	1	09/05/2021 21:51
Ethylbenzene	ND	0.0050	1	09/05/2021 21:51
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/05/2021 21:51
Freon 113	ND	0.0050	1	09/05/2021 21:51
Hexachlorobutadiene	ND	0.0050	1	09/05/2021 21:51
Hexachloroethane	ND	0.0050	1	09/05/2021 21:51
2-Hexanone	ND	0.0050	1	09/05/2021 21:51
Isopropylbenzene	ND	0.0050	1	09/05/2021 21:51
4-Isopropyl toluene	ND	0.0050	1	09/05/2021 21:51
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/05/2021 21:51
Methylene chloride	ND	0.020	1	09/05/2021 21:51
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/05/2021 21:51
Naphthalene	ND	0.0050	1	09/05/2021 21:51
n-Propyl benzene	ND	0.0050	1	09/05/2021 21:51
Styrene	ND	0.0050	1	09/05/2021 21:51
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/05/2021 21:51
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/05/2021 21:51
Tetrachloroethene	ND	0.0050	1	09/05/2021 21:51
Toluene	ND	0.0050	1	09/05/2021 21:51
1,2,3-Trichlorobenzene	ND	0.0050	1	09/05/2021 21:51
1,2,4-Trichlorobenzene	ND	0.0050	1	09/05/2021 21:51
1,1,1-Trichloroethane	ND	0.0050	1	09/05/2021 21:51
1,1,2-Trichloroethane	ND	0.0050	1	09/05/2021 21:51
Trichloroethene	ND	0.0050	1	09/05/2021 21:51
Trichlorofluoromethane	ND	0.0050	1	09/05/2021 21:51
1,2,3-Trichloropropane	ND	0.00025	1	09/05/2021 21:51
1,2,4-Trimethylbenzene	ND	0.0050	1	09/05/2021 21:51
1,3,5-Trimethylbenzene	ND	0.0050	1	09/05/2021 21:51
Vinyl Chloride	ND	0.00025	1	09/05/2021 21:51
m,p-Xylene	ND	0.0050	1	09/05/2021 21:51
o-Xylene	ND	0.0050	1	09/05/2021 21:51
Xylenes, Total	ND	0.0050	1	09/05/2021 21:51

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-3.0	2108G85-053A	Soil	08/27/2021 13:37	GC18 09052121.D	228786

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	86		70-140	09/05/2021 21:51
Toluene-d8	95		70-140	09/05/2021 21:51
4-BFB	82		70-140	09/05/2021 21:51
Benzene-d6	92		50-140	09/05/2021 21:51
Ethylbenzene-d10	95		50-140	09/05/2021 21:51
1,2-DCB-d4	77		40-140	09/05/2021 21:51

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-13-1.5	2108G85-056A	Soil	08/27/2021 13:45	GC18 09052122.D	228786

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	09/05/2021 22:32
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/05/2021 22:32
Benzene	ND	0.0050	1	09/05/2021 22:32
Bromobenzene	ND	0.0050	1	09/05/2021 22:32
Bromochloromethane	ND	0.0050	1	09/05/2021 22:32
Bromodichloromethane	ND	0.0050	1	09/05/2021 22:32
Bromoform	ND	0.0050	1	09/05/2021 22:32
Bromomethane	ND	0.0050	1	09/05/2021 22:32
2-Butanone (MEK)	ND	0.050	1	09/05/2021 22:32
t-Butyl alcohol (TBA)	ND	0.050	1	09/05/2021 22:32
n-Butyl benzene	ND	0.0050	1	09/05/2021 22:32
sec-Butyl benzene	ND	0.0050	1	09/05/2021 22:32
tert-Butyl benzene	ND	0.0050	1	09/05/2021 22:32
Carbon Disulfide	ND	0.0050	1	09/05/2021 22:32
Carbon Tetrachloride	ND	0.0050	1	09/05/2021 22:32
Chlorobenzene	ND	0.0050	1	09/05/2021 22:32
Chloroethane	ND	0.0050	1	09/05/2021 22:32
Chloroform	ND	0.0050	1	09/05/2021 22:32
Chloromethane	ND	0.0050	1	09/05/2021 22:32
2-Chlorotoluene	ND	0.0050	1	09/05/2021 22:32
4-Chlorotoluene	ND	0.0050	1	09/05/2021 22:32
Dibromochloromethane	ND	0.0050	1	09/05/2021 22:32
1,2-Dibromo-3-chloropropane	ND	0.00050	1	09/05/2021 22:32
1,2-Dibromoethane (EDB)	ND	0.00025	1	09/05/2021 22:32
Dibromomethane	ND	0.0050	1	09/05/2021 22:32
1,2-Dichlorobenzene	ND	0.0050	1	09/05/2021 22:32
1,3-Dichlorobenzene	ND	0.0050	1	09/05/2021 22:32
1,4-Dichlorobenzene	ND	0.0050	1	09/05/2021 22:32
Dichlorodifluoromethane	ND	0.0050	1	09/05/2021 22:32
1,1-Dichloroethane	ND	0.0050	1	09/05/2021 22:32
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	09/05/2021 22:32
1,1-Dichloroethene	ND	0.0050	1	09/05/2021 22:32
cis-1,2-Dichloroethene	ND	0.0050	1	09/05/2021 22:32
trans-1,2-Dichloroethene	ND	0.0050	1	09/05/2021 22:32
1,2-Dichloropropane	ND	0.0050	1	09/05/2021 22:32
1,3-Dichloropropane	ND	0.0050	1	09/05/2021 22:32
2,2-Dichloropropane	ND	0.0050	1	09/05/2021 22:32

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-13-1.5	2108G85-056A	Soil	08/27/2021 13:45	GC18 09052122.D	228786

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/05/2021 22:32
cis-1,3-Dichloropropene	ND	0.0050	1	09/05/2021 22:32
trans-1,3-Dichloropropene	ND	0.0050	1	09/05/2021 22:32
Diisopropyl ether (DIPE)	ND	0.0050	1	09/05/2021 22:32
Ethylbenzene	ND	0.0050	1	09/05/2021 22:32
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/05/2021 22:32
Freon 113	ND	0.0050	1	09/05/2021 22:32
Hexachlorobutadiene	ND	0.0050	1	09/05/2021 22:32
Hexachloroethane	ND	0.0050	1	09/05/2021 22:32
2-Hexanone	ND	0.0050	1	09/05/2021 22:32
Isopropylbenzene	ND	0.0050	1	09/05/2021 22:32
4-Isopropyl toluene	ND	0.0050	1	09/05/2021 22:32
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/05/2021 22:32
Methylene chloride	ND	0.020	1	09/05/2021 22:32
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/05/2021 22:32
Naphthalene	ND	0.0050	1	09/05/2021 22:32
n-Propyl benzene	ND	0.0050	1	09/05/2021 22:32
Styrene	ND	0.0050	1	09/05/2021 22:32
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/05/2021 22:32
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/05/2021 22:32
Tetrachloroethene	ND	0.0050	1	09/05/2021 22:32
Toluene	ND	0.0050	1	09/05/2021 22:32
1,2,3-Trichlorobenzene	ND	0.0050	1	09/05/2021 22:32
1,2,4-Trichlorobenzene	ND	0.0050	1	09/05/2021 22:32
1,1,1-Trichloroethane	ND	0.0050	1	09/05/2021 22:32
1,1,2-Trichloroethane	ND	0.0050	1	09/05/2021 22:32
Trichloroethene	ND	0.0050	1	09/05/2021 22:32
Trichlorofluoromethane	ND	0.0050	1	09/05/2021 22:32
1,2,3-Trichloropropane	ND	0.00025	1	09/05/2021 22:32
1,2,4-Trimethylbenzene	ND	0.0050	1	09/05/2021 22:32
1,3,5-Trimethylbenzene	ND	0.0050	1	09/05/2021 22:32
Vinyl Chloride	ND	0.00025	1	09/05/2021 22:32
m,p-Xylene	ND	0.0050	1	09/05/2021 22:32
o-Xylene	ND	0.0050	1	09/05/2021 22:32
Xylenes, Total	ND	0.0050	1	09/05/2021 22:32

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-13-1.5	2108G85-056A	Soil	08/27/2021 13:45	GC18 09052122.D	228786

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	87		70-140	09/05/2021 22:32
Toluene-d8	93		70-140	09/05/2021 22:32
4-BFB	81		70-140	09/05/2021 22:32
Benzene-d6	88		50-140	09/05/2021 22:32
Ethylbenzene-d10	90		50-140	09/05/2021 22:32
1,2-DCB-d4	73		40-140	09/05/2021 22:32

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-0.5	2108G85-059A	Soil	08/27/2021 13:10	GC18 09052123.D	228786

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	09/05/2021 23:12
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/05/2021 23:12
Benzene	ND	0.0050	1	09/05/2021 23:12
Bromobenzene	ND	0.0050	1	09/05/2021 23:12
Bromochloromethane	ND	0.0050	1	09/05/2021 23:12
Bromodichloromethane	ND	0.0050	1	09/05/2021 23:12
Bromoform	ND	0.0050	1	09/05/2021 23:12
Bromomethane	ND	0.0050	1	09/05/2021 23:12
2-Butanone (MEK)	ND	0.050	1	09/05/2021 23:12
t-Butyl alcohol (TBA)	ND	0.050	1	09/05/2021 23:12
n-Butyl benzene	ND	0.0050	1	09/05/2021 23:12
sec-Butyl benzene	ND	0.0050	1	09/05/2021 23:12
tert-Butyl benzene	ND	0.0050	1	09/05/2021 23:12
Carbon Disulfide	ND	0.0050	1	09/05/2021 23:12
Carbon Tetrachloride	ND	0.0050	1	09/05/2021 23:12
Chlorobenzene	ND	0.0050	1	09/05/2021 23:12
Chloroethane	ND	0.0050	1	09/05/2021 23:12
Chloroform	ND	0.0050	1	09/05/2021 23:12
Chloromethane	ND	0.0050	1	09/05/2021 23:12
2-Chlorotoluene	ND	0.0050	1	09/05/2021 23:12
4-Chlorotoluene	ND	0.0050	1	09/05/2021 23:12
Dibromochloromethane	ND	0.0050	1	09/05/2021 23:12
1,2-Dibromo-3-chloropropane	ND	0.00050	1	09/05/2021 23:12
1,2-Dibromoethane (EDB)	ND	0.00025	1	09/05/2021 23:12
Dibromomethane	ND	0.0050	1	09/05/2021 23:12
1,2-Dichlorobenzene	ND	0.0050	1	09/05/2021 23:12
1,3-Dichlorobenzene	ND	0.0050	1	09/05/2021 23:12
1,4-Dichlorobenzene	ND	0.0050	1	09/05/2021 23:12
Dichlorodifluoromethane	ND	0.0050	1	09/05/2021 23:12
1,1-Dichloroethane	ND	0.0050	1	09/05/2021 23:12
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	09/05/2021 23:12
1,1-Dichloroethene	ND	0.0050	1	09/05/2021 23:12
cis-1,2-Dichloroethene	ND	0.0050	1	09/05/2021 23:12
trans-1,2-Dichloroethene	ND	0.0050	1	09/05/2021 23:12
1,2-Dichloropropane	ND	0.0050	1	09/05/2021 23:12
1,3-Dichloropropane	ND	0.0050	1	09/05/2021 23:12
2,2-Dichloropropane	ND	0.0050	1	09/05/2021 23:12

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-0.5	2108G85-059A	Soil	08/27/2021 13:10	GC18 09052123.D	228786

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/05/2021 23:12
cis-1,3-Dichloropropene	ND	0.0050	1	09/05/2021 23:12
trans-1,3-Dichloropropene	ND	0.0050	1	09/05/2021 23:12
Diisopropyl ether (DIPE)	ND	0.0050	1	09/05/2021 23:12
Ethylbenzene	ND	0.0050	1	09/05/2021 23:12
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/05/2021 23:12
Freon 113	ND	0.0050	1	09/05/2021 23:12
Hexachlorobutadiene	ND	0.0050	1	09/05/2021 23:12
Hexachloroethane	ND	0.0050	1	09/05/2021 23:12
2-Hexanone	ND	0.0050	1	09/05/2021 23:12
Isopropylbenzene	ND	0.0050	1	09/05/2021 23:12
4-Isopropyl toluene	ND	0.0050	1	09/05/2021 23:12
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/05/2021 23:12
Methylene chloride	ND	0.020	1	09/05/2021 23:12
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/05/2021 23:12
Naphthalene	ND	0.0050	1	09/05/2021 23:12
n-Propyl benzene	ND	0.0050	1	09/05/2021 23:12
Styrene	ND	0.0050	1	09/05/2021 23:12
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/05/2021 23:12
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/05/2021 23:12
Tetrachloroethene	ND	0.0050	1	09/05/2021 23:12
Toluene	ND	0.0050	1	09/05/2021 23:12
1,2,3-Trichlorobenzene	ND	0.0050	1	09/05/2021 23:12
1,2,4-Trichlorobenzene	ND	0.0050	1	09/05/2021 23:12
1,1,1-Trichloroethane	ND	0.0050	1	09/05/2021 23:12
1,1,2-Trichloroethane	ND	0.0050	1	09/05/2021 23:12
Trichloroethene	ND	0.0050	1	09/05/2021 23:12
Trichlorofluoromethane	ND	0.0050	1	09/05/2021 23:12
1,2,3-Trichloropropane	ND	0.00025	1	09/05/2021 23:12
1,2,4-Trimethylbenzene	ND	0.0050	1	09/05/2021 23:12
1,3,5-Trimethylbenzene	ND	0.0050	1	09/05/2021 23:12
Vinyl Chloride	ND	0.00025	1	09/05/2021 23:12
m,p-Xylene	ND	0.0050	1	09/05/2021 23:12
o-Xylene	ND	0.0050	1	09/05/2021 23:12
Xylenes, Total	ND	0.0050	1	09/05/2021 23:12

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-0.5	2108G85-059A	Soil	08/27/2021 13:10	GC18 09052123.D	228786

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	88	70-140		09/05/2021 23:12
Toluene-d8	95	70-140		09/05/2021 23:12
4-BFB	84	70-140		09/05/2021 23:12
Benzene-d6	102	50-140		09/05/2021 23:12
Ethylbenzene-d10	104	50-140		09/05/2021 23:12
1,2-DCB-d4	83	40-140		09/05/2021 23:12

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-3.0	2108G85-061A	Soil	08/27/2021 13:12	GC18 09052124.D	228823

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	09/05/2021 23:53
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/05/2021 23:53
Benzene	ND	0.0050	1	09/05/2021 23:53
Bromobenzene	ND	0.0050	1	09/05/2021 23:53
Bromochloromethane	ND	0.0050	1	09/05/2021 23:53
Bromodichloromethane	ND	0.0050	1	09/05/2021 23:53
Bromoform	ND	0.0050	1	09/05/2021 23:53
Bromomethane	ND	0.0050	1	09/05/2021 23:53
2-Butanone (MEK)	ND	0.050	1	09/05/2021 23:53
t-Butyl alcohol (TBA)	ND	0.050	1	09/05/2021 23:53
n-Butyl benzene	ND	0.0050	1	09/05/2021 23:53
sec-Butyl benzene	ND	0.0050	1	09/05/2021 23:53
tert-Butyl benzene	ND	0.0050	1	09/05/2021 23:53
Carbon Disulfide	ND	0.0050	1	09/05/2021 23:53
Carbon Tetrachloride	ND	0.0050	1	09/05/2021 23:53
Chlorobenzene	ND	0.0050	1	09/05/2021 23:53
Chloroethane	ND	0.0050	1	09/05/2021 23:53
Chloroform	ND	0.0050	1	09/05/2021 23:53
Chloromethane	ND	0.0050	1	09/05/2021 23:53
2-Chlorotoluene	ND	0.0050	1	09/05/2021 23:53
4-Chlorotoluene	ND	0.0050	1	09/05/2021 23:53
Dibromochloromethane	ND	0.0050	1	09/05/2021 23:53
1,2-Dibromo-3-chloropropane	ND	0.00050	1	09/05/2021 23:53
1,2-Dibromoethane (EDB)	ND	0.00025	1	09/05/2021 23:53
Dibromomethane	ND	0.0050	1	09/05/2021 23:53
1,2-Dichlorobenzene	ND	0.0050	1	09/05/2021 23:53
1,3-Dichlorobenzene	ND	0.0050	1	09/05/2021 23:53
1,4-Dichlorobenzene	ND	0.0050	1	09/05/2021 23:53
Dichlorodifluoromethane	ND	0.0050	1	09/05/2021 23:53
1,1-Dichloroethane	ND	0.0050	1	09/05/2021 23:53
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	09/05/2021 23:53
1,1-Dichloroethene	ND	0.0050	1	09/05/2021 23:53
cis-1,2-Dichloroethene	ND	0.0050	1	09/05/2021 23:53
trans-1,2-Dichloroethene	ND	0.0050	1	09/05/2021 23:53
1,2-Dichloropropane	ND	0.0050	1	09/05/2021 23:53
1,3-Dichloropropane	ND	0.0050	1	09/05/2021 23:53
2,2-Dichloropropane	ND	0.0050	1	09/05/2021 23:53

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-3.0	2108G85-061A	Soil	08/27/2021 13:12	GC18 09052124.D	228823

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/05/2021 23:53
cis-1,3-Dichloropropene	ND	0.0050	1	09/05/2021 23:53
trans-1,3-Dichloropropene	ND	0.0050	1	09/05/2021 23:53
Diisopropyl ether (DIPE)	ND	0.0050	1	09/05/2021 23:53
Ethylbenzene	ND	0.0050	1	09/05/2021 23:53
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/05/2021 23:53
Freon 113	ND	0.0050	1	09/05/2021 23:53
Hexachlorobutadiene	ND	0.0050	1	09/05/2021 23:53
Hexachloroethane	ND	0.0050	1	09/05/2021 23:53
2-Hexanone	ND	0.0050	1	09/05/2021 23:53
Isopropylbenzene	ND	0.0050	1	09/05/2021 23:53
4-Isopropyl toluene	ND	0.0050	1	09/05/2021 23:53
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/05/2021 23:53
Methylene chloride	ND	0.020	1	09/05/2021 23:53
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/05/2021 23:53
Naphthalene	ND	0.0050	1	09/05/2021 23:53
n-Propyl benzene	ND	0.0050	1	09/05/2021 23:53
Styrene	ND	0.0050	1	09/05/2021 23:53
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/05/2021 23:53
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/05/2021 23:53
Tetrachloroethene	ND	0.0050	1	09/05/2021 23:53
Toluene	ND	0.0050	1	09/05/2021 23:53
1,2,3-Trichlorobenzene	ND	0.0050	1	09/05/2021 23:53
1,2,4-Trichlorobenzene	ND	0.0050	1	09/05/2021 23:53
1,1,1-Trichloroethane	ND	0.0050	1	09/05/2021 23:53
1,1,2-Trichloroethane	ND	0.0050	1	09/05/2021 23:53
Trichloroethene	ND	0.0050	1	09/05/2021 23:53
Trichlorofluoromethane	ND	0.0050	1	09/05/2021 23:53
1,2,3-Trichloropropane	ND	0.00025	1	09/05/2021 23:53
1,2,4-Trimethylbenzene	ND	0.0050	1	09/05/2021 23:53
1,3,5-Trimethylbenzene	ND	0.0050	1	09/05/2021 23:53
Vinyl Chloride	ND	0.00025	1	09/05/2021 23:53
m,p-Xylene	ND	0.0050	1	09/05/2021 23:53
o-Xylene	ND	0.0050	1	09/05/2021 23:53
Xylenes, Total	ND	0.0050	1	09/05/2021 23:53

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-3.0	2108G85-061A	Soil	08/27/2021 13:12	GC18 09052124.D	228823

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	85		70-140	09/05/2021 23:53
Toluene-d8	94		70-140	09/05/2021 23:53
4-BFB	83		70-140	09/05/2021 23:53
Benzene-d6	97		50-140	09/05/2021 23:53
Ethylbenzene-d10	99		50-140	09/05/2021 23:53
1,2-DCB-d4	80		40-140	09/05/2021 23:53

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected		Instrument	Batch ID
E-1-0.5	2108G85-001A	Soil	08/27/2021 09:03		GC42 09082105.D	228980
Analytes	Result	RL	DF	Date Analyzed		
Acenaphthene	ND	0.0013	1	09/08/2021 11:45		
Acenaphthylene	ND	0.0013	1	09/08/2021 11:45		
Acetochlor	ND	0.25	1	09/08/2021 11:45		
Anthracene	ND	0.0013	1	09/08/2021 11:45		
Benzidine	ND	1.2	1	09/08/2021 11:45		
Benzo (a) anthracene	ND	0.013	1	09/08/2021 11:45		
Benzo (a) pyrene	ND	0.0025	1	09/08/2021 11:45		
Benzo (b) fluoranthene	0.0081	0.0063	1	09/08/2021 11:45		
Benzo (g,h,i) perylene	0.0082	0.0025	1	09/08/2021 11:45		
Benzo (k) fluoranthene	ND	0.0013	1	09/08/2021 11:45		
Benzyl Alcohol	ND	1.2	1	09/08/2021 11:45		
1,1-Biphenyl	ND	0.013	1	09/08/2021 11:45		
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/08/2021 11:45		
Bis (2-chloroethyl) Ether	ND	0.0013	1	09/08/2021 11:45		
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	09/08/2021 11:45		
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/08/2021 11:45		
Bis (2-ethylhexyl) Phthalate	0.026	0.025	1	09/08/2021 11:45		
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/08/2021 11:45		
Butylbenzyl Phthalate	ND	0.025	1	09/08/2021 11:45		
4-Chloroaniline	ND	0.0025	1	09/08/2021 11:45		
4-Chloro-3-methylphenol	ND	0.25	1	09/08/2021 11:45		
2-Chloronaphthalene	ND	0.25	1	09/08/2021 11:45		
2-Chlorophenol	ND	0.013	1	09/08/2021 11:45		
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/08/2021 11:45		
Chrysene	ND	0.0025	1	09/08/2021 11:45		
Dibenzo (a,h) anthracene	0.0025	0.0025	1	09/08/2021 11:45		
Dibenzofuran	ND	0.25	1	09/08/2021 11:45		
Di-n-butyl Phthalate	ND	0.013	1	09/08/2021 11:45		
1,2-Dichlorobenzene	ND	0.25	1	09/08/2021 11:45		
1,3-Dichlorobenzene	ND	0.25	1	09/08/2021 11:45		
1,4-Dichlorobenzene	ND	0.25	1	09/08/2021 11:45		
3,3-Dichlorobenzidine	ND	0.0025	1	09/08/2021 11:45		
2,4-Dichlorophenol	ND	0.0013	1	09/08/2021 11:45		
Diethyl Phthalate	ND	0.013	1	09/08/2021 11:45		
2,4-Dimethylphenol	ND	0.25	1	09/08/2021 11:45		
Dimethyl Phthalate	ND	0.0025	1	09/08/2021 11:45		
4,6-Dinitro-2-methylphenol	ND	1.2	1	09/08/2021 11:45		

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-0.5	2108G85-001A	Soil	08/27/2021 09:03	GC42 09082105.D	228980

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	0.25	1	09/08/2021 11:45
2,4-Dinitrotoluene	ND	0.013	1	09/08/2021 11:45
2,6-Dinitrotoluene	ND	0.013	1	09/08/2021 11:45
Di-n-octyl Phthalate	ND	0.013	1	09/08/2021 11:45
1,2-Diphenylhydrazine	ND	0.25	1	09/08/2021 11:45
Fluoranthene	0.0080	0.0013	1	09/08/2021 11:45
Fluorene	ND	0.0025	1	09/08/2021 11:45
Hexachlorobenzene	ND	0.0013	1	09/08/2021 11:45
Hexachlorobutadiene	ND	0.0025	1	09/08/2021 11:45
Hexachlorocyclopentadiene	ND	2.0	1	09/08/2021 11:45
Hexachloroethane	ND	0.013	1	09/08/2021 11:45
Indeno (1,2,3-cd) pyrene	ND	0.013	1	09/08/2021 11:45
Isophorone	ND	0.25	1	09/08/2021 11:45
1-Methylnaphthalene	ND	0.0013	1	09/08/2021 11:45
2-Methylnaphthalene	ND	0.0025	1	09/08/2021 11:45
2-Methylphenol (o-Cresol)	ND	0.25	1	09/08/2021 11:45
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/08/2021 11:45
Naphthalene	ND	0.0013	1	09/08/2021 11:45
2-Nitroaniline	ND	1.2	1	09/08/2021 11:45
3-Nitroaniline	ND	1.2	1	09/08/2021 11:45
4-Nitroaniline	ND	1.2	1	09/08/2021 11:45
Nitrobenzene	ND	0.25	1	09/08/2021 11:45
2-Nitrophenol	ND	1.2	1	09/08/2021 11:45
4-Nitrophenol	ND	1.2	1	09/08/2021 11:45
N-Nitrosodimethylamine	ND	1.2	1	09/08/2021 11:45
N-Nitrosodiphenylamine	ND	0.25	1	09/08/2021 11:45
N-Nitrosodi-n-propylamine	ND	0.25	1	09/08/2021 11:45
Pentachlorophenol	ND	0.062	1	09/08/2021 11:45
Phenanthrene	0.0075	0.0050	1	09/08/2021 11:45
Phenol	ND	0.050	1	09/08/2021 11:45
Pyrene	0.0052	0.0025	1	09/08/2021 11:45
Pyridine	ND	0.25	1	09/08/2021 11:45
1,2,4-Trichlorobenzene	ND	0.25	1	09/08/2021 11:45
2,4,5-Trichlorophenol	ND	0.0025	1	09/08/2021 11:45
2,4,6-Trichlorophenol	ND	0.013	1	09/08/2021 11:45

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-0.5	2108G85-001A	Soil	08/27/2021 09:03	GC42 09082105.D	228980

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	79	60-130		09/08/2021 11:45
Phenol-d5	78	60-130		09/08/2021 11:45
Nitrobenzene-d5	73	60-130		09/08/2021 11:45
2-Fluorobiphenyl	68	60-130		09/08/2021 11:45
2,4,6-Tribromophenol	57	50-130		09/08/2021 11:45
4-Terphenyl-d14	57	50-130		09/08/2021 11:45

Analyst(s): KOS



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected		Instrument	Batch ID
E-1-3.0	2108G85-002A	Soil	08/27/2021 09:00		GC42 09102106.D	228980
Analytes	Result		RL	DF	Date Analyzed	
Acenaphthene	ND		0.013	10	09/10/2021 10:38	
Acenaphthylene	ND		0.013	10	09/10/2021 10:38	
Acetochlor	ND		2.5	10	09/10/2021 10:38	
Anthracene	ND		0.013	10	09/10/2021 10:38	
Benzidine	ND		12	10	09/10/2021 10:38	
Benzo (a) anthracene	ND		0.13	10	09/10/2021 10:38	
Benzo (a) pyrene	ND		0.025	10	09/10/2021 10:38	
Benzo (b) fluoranthene	ND		0.063	10	09/10/2021 10:38	
Benzo (g,h,i) perylene	ND		0.025	10	09/10/2021 10:38	
Benzo (k) fluoranthene	ND		0.013	10	09/10/2021 10:38	
Benzyl Alcohol	ND		12	10	09/10/2021 10:38	
1,1-Biphenyl	ND		0.13	10	09/10/2021 10:38	
Bis (2-chloroethoxy) Methane	ND		2.5	10	09/10/2021 10:38	
Bis (2-chloroethyl) Ether	ND		0.013	10	09/10/2021 10:38	
Bis (2-chloroisopropyl) Ether	ND		0.013	10	09/10/2021 10:38	
Bis (2-ethylhexyl) Adipate	ND		2.5	10	09/10/2021 10:38	
Bis (2-ethylhexyl) Phthalate	ND		0.25	10	09/10/2021 10:38	
4-Bromophenyl Phenyl Ether	ND		2.5	10	09/10/2021 10:38	
Butylbenzyl Phthalate	ND		0.25	10	09/10/2021 10:38	
4-Chloroaniline	ND		0.025	10	09/10/2021 10:38	
4-Chloro-3-methylphenol	ND		2.5	10	09/10/2021 10:38	
2-Chloronaphthalene	ND		2.5	10	09/10/2021 10:38	
2-Chlorophenol	ND		0.13	10	09/10/2021 10:38	
4-Chlorophenyl Phenyl Ether	ND		2.5	10	09/10/2021 10:38	
Chrysene	ND		0.025	10	09/10/2021 10:38	
Dibenzo (a,h) anthracene	ND		0.025	10	09/10/2021 10:38	
Dibenzofuran	ND		2.5	10	09/10/2021 10:38	
Di-n-butyl Phthalate	ND		0.13	10	09/10/2021 10:38	
1,2-Dichlorobenzene	ND		2.5	10	09/10/2021 10:38	
1,3-Dichlorobenzene	ND		2.5	10	09/10/2021 10:38	
1,4-Dichlorobenzene	ND		2.5	10	09/10/2021 10:38	
3,3-Dichlorobenzidine	ND		0.025	10	09/10/2021 10:38	
2,4-Dichlorophenol	ND		0.013	10	09/10/2021 10:38	
Diethyl Phthalate	ND		0.13	10	09/10/2021 10:38	
2,4-Dimethylphenol	ND		2.5	10	09/10/2021 10:38	
Dimethyl Phthalate	ND		0.025	10	09/10/2021 10:38	
4,6-Dinitro-2-methylphenol	ND		12	10	09/10/2021 10:38	

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-3.0	2108G85-002A	Soil	08/27/2021 09:00	GC42 09102106.D	228980
<u>Analytes</u>	<u>Result</u>		<u>RL</u> <u>DF</u>		<u>Date Analyzed</u>
2,4-Dinitrophenol	ND		2.5 10		09/10/2021 10:38
2,4-Dinitrotoluene	ND		0.13 10		09/10/2021 10:38
2,6-Dinitrotoluene	ND		0.13 10		09/10/2021 10:38
Di-n-octyl Phthalate	ND		0.13 10		09/10/2021 10:38
1,2-Diphenylhydrazine	ND		2.5 10		09/10/2021 10:38
Fluoranthene	ND		0.013 10		09/10/2021 10:38
Fluorene	ND		0.025 10		09/10/2021 10:38
Hexachlorobenzene	ND		0.013 10		09/10/2021 10:38
Hexachlorobutadiene	ND		0.025 10		09/10/2021 10:38
Hexachlorocyclopentadiene	ND		20 10		09/10/2021 10:38
Hexachloroethane	ND		0.13 10		09/10/2021 10:38
Indeno (1,2,3-cd) pyrene	ND		0.13 10		09/10/2021 10:38
Isophorone	ND		2.5 10		09/10/2021 10:38
1-Methylnaphthalene	ND		0.013 10		09/10/2021 10:38
2-Methylnaphthalene	ND		0.025 10		09/10/2021 10:38
2-Methylphenol (o-Cresol)	ND		2.5 10		09/10/2021 10:38
3 & 4-Methylphenol (m,p-Cresol)	ND		2.5 10		09/10/2021 10:38
Naphthalene	ND		0.013 10		09/10/2021 10:38
2-Nitroaniline	ND		12 10		09/10/2021 10:38
3-Nitroaniline	ND		12 10		09/10/2021 10:38
4-Nitroaniline	ND		12 10		09/10/2021 10:38
Nitrobenzene	ND		2.5 10		09/10/2021 10:38
2-Nitrophenol	ND		12 10		09/10/2021 10:38
4-Nitrophenol	ND		12 10		09/10/2021 10:38
N-Nitrosodimethylamine	ND		12 10		09/10/2021 10:38
N-Nitrosodiphenylamine	ND		2.5 10		09/10/2021 10:38
N-Nitrosodi-n-propylamine	ND		2.5 10		09/10/2021 10:38
Pentachlorophenol	ND		0.62 10		09/10/2021 10:38
Phenanthrene	ND		0.050 10		09/10/2021 10:38
Phenol	ND		0.50 10		09/10/2021 10:38
Pyrene	ND		0.025 10		09/10/2021 10:38
Pyridine	ND		2.5 10		09/10/2021 10:38
1,2,4-Trichlorobenzene	ND		2.5 10		09/10/2021 10:38
2,4,5-Trichlorophenol	ND		0.025 10		09/10/2021 10:38
2,4,6-Trichlorophenol	ND		0.13 10		09/10/2021 10:38

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Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-3.0	2108G85-002A	Soil	08/27/2021 09:00	GC42 09102106.D	228980

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>	
2-Fluorophenol	61		60-130	09/10/2021 10:38
Phenol-d5	69		60-130	09/10/2021 10:38
Nitrobenzene-d5	78		60-130	09/10/2021 10:38
2-Fluorobiphenyl	65		60-130	09/10/2021 10:38
2,4,6-Tribromophenol	49	S	50-130	09/10/2021 10:38
4-Terphenyl-d14	52		50-130	09/10/2021 10:38

Analyst(s): KOS

Analytical Comments: a3,c1,c16



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Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-1.5	2108G85-007A	Soil	08/27/2021 09:28	GC42 09082106.D	228980

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	0.0050	0.0013	1	09/08/2021 12:13
Acenaphthylene	ND	0.0013	1	09/08/2021 12:13
Acetochlor	ND	0.25	1	09/08/2021 12:13
Anthracene	0.014	0.0013	1	09/08/2021 12:13
Benzidine	ND	1.2	1	09/08/2021 12:13
Benzo (a) anthracene	0.035	0.013	1	09/08/2021 12:13
Benzo (a) pyrene	0.032	0.0025	1	09/08/2021 12:13
Benzo (b) fluoranthene	0.042	0.0063	1	09/08/2021 12:13
Benzo (g,h,i) perylene	0.021	0.0025	1	09/08/2021 12:13
Benzo (k) fluoranthene	0.017	0.0013	1	09/08/2021 12:13
Benzyl Alcohol	ND	1.2	1	09/08/2021 12:13
1,1-Biphenyl	ND	0.013	1	09/08/2021 12:13
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/08/2021 12:13
Bis (2-chloroethyl) Ether	ND	0.0013	1	09/08/2021 12:13
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	09/08/2021 12:13
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/08/2021 12:13
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	09/08/2021 12:13
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/08/2021 12:13
Butylbenzyl Phthalate	ND	0.025	1	09/08/2021 12:13
4-Chloroaniline	ND	0.0025	1	09/08/2021 12:13
4-Chloro-3-methylphenol	ND	0.25	1	09/08/2021 12:13
2-Chloronaphthalene	ND	0.25	1	09/08/2021 12:13
2-Chlorophenol	ND	0.013	1	09/08/2021 12:13
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/08/2021 12:13
Chrysene	0.043	0.0025	1	09/08/2021 12:13
Dibenzo (a,h) anthracene	0.0064	0.0025	1	09/08/2021 12:13
Dibenzofuran	ND	0.25	1	09/08/2021 12:13
Di-n-butyl Phthalate	ND	0.013	1	09/08/2021 12:13
1,2-Dichlorobenzene	ND	0.25	1	09/08/2021 12:13
1,3-Dichlorobenzene	ND	0.25	1	09/08/2021 12:13
1,4-Dichlorobenzene	ND	0.25	1	09/08/2021 12:13
3,3-Dichlorobenzidine	ND	0.0025	1	09/08/2021 12:13
2,4-Dichlorophenol	ND	0.0013	1	09/08/2021 12:13
Diethyl Phthalate	ND	0.013	1	09/08/2021 12:13
2,4-Dimethylphenol	ND	0.25	1	09/08/2021 12:13
Dimethyl Phthalate	ND	0.0025	1	09/08/2021 12:13
4,6-Dinitro-2-methylphenol	ND	1.2	1	09/08/2021 12:13

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Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-1.5	2108G85-007A	Soil	08/27/2021 09:28	GC42 09082106.D	228980

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	0.25	1	09/08/2021 12:13
2,4-Dinitrotoluene	ND	0.013	1	09/08/2021 12:13
2,6-Dinitrotoluene	ND	0.013	1	09/08/2021 12:13
Di-n-octyl Phthalate	ND	0.013	1	09/08/2021 12:13
1,2-Diphenylhydrazine	ND	0.25	1	09/08/2021 12:13
Fluoranthene	0.11	0.0013	1	09/08/2021 12:13
Fluorene	0.0046	0.0025	1	09/08/2021 12:13
Hexachlorobenzene	ND	0.0013	1	09/08/2021 12:13
Hexachlorobutadiene	ND	0.0025	1	09/08/2021 12:13
Hexachlorocyclopentadiene	ND	2.0	1	09/08/2021 12:13
Hexachloroethane	ND	0.013	1	09/08/2021 12:13
Indeno (1,2,3-cd) pyrene	0.028	0.013	1	09/08/2021 12:13
Isophorone	ND	0.25	1	09/08/2021 12:13
1-Methylnaphthalene	ND	0.0013	1	09/08/2021 12:13
2-Methylnaphthalene	ND	0.0025	1	09/08/2021 12:13
2-Methylphenol (o-Cresol)	ND	0.25	1	09/08/2021 12:13
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/08/2021 12:13
Naphthalene	ND	0.0013	1	09/08/2021 12:13
2-Nitroaniline	ND	1.2	1	09/08/2021 12:13
3-Nitroaniline	ND	1.2	1	09/08/2021 12:13
4-Nitroaniline	ND	1.2	1	09/08/2021 12:13
Nitrobenzene	ND	0.25	1	09/08/2021 12:13
2-Nitrophenol	ND	1.2	1	09/08/2021 12:13
4-Nitrophenol	ND	1.2	1	09/08/2021 12:13
N-Nitrosodimethylamine	ND	1.2	1	09/08/2021 12:13
N-Nitrosodiphenylamine	ND	0.25	1	09/08/2021 12:13
N-Nitrosodi-n-propylamine	ND	0.25	1	09/08/2021 12:13
Pentachlorophenol	ND	0.062	1	09/08/2021 12:13
Phenanthrene	0.083	0.0050	1	09/08/2021 12:13
Phenol	ND	0.050	1	09/08/2021 12:13
Pyrene	0.071	0.0025	1	09/08/2021 12:13
Pyridine	ND	0.25	1	09/08/2021 12:13
1,2,4-Trichlorobenzene	ND	0.25	1	09/08/2021 12:13
2,4,5-Trichlorophenol	ND	0.0025	1	09/08/2021 12:13
2,4,6-Trichlorophenol	ND	0.013	1	09/08/2021 12:13

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Analytical Report

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Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-1.5	2108G85-007A	Soil	08/27/2021 09:28	GC42 09082106.D	228980

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorophenol	91	60-130		09/08/2021 12:13
Phenol-d5	84	60-130		09/08/2021 12:13
Nitrobenzene-d5	75	60-130		09/08/2021 12:13
2-Fluorobiphenyl	63	60-130		09/08/2021 12:13
2,4,6-Tribromophenol	59	50-130		09/08/2021 12:13
4-Terphenyl-d14	55	50-130		09/08/2021 12:13

Analyst(s): KOS



Analytical Report

Client: Langan
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Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-5.0	2108G85-009A	Soil	08/27/2021 09:32	GC42 09082108.D	228980

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.0013	1	09/08/2021 13:08
Acenaphthylene	ND	0.0013	1	09/08/2021 13:08
Acetochlor	ND	0.25	1	09/08/2021 13:08
Anthracene	ND	0.0013	1	09/08/2021 13:08
Benzidine	ND	1.2	1	09/08/2021 13:08
Benzo (a) anthracene	ND	0.013	1	09/08/2021 13:08
Benzo (a) pyrene	ND	0.0025	1	09/08/2021 13:08
Benzo (b) fluoranthene	ND	0.0063	1	09/08/2021 13:08
Benzo (g,h,i) perylene	ND	0.0025	1	09/08/2021 13:08
Benzo (k) fluoranthene	ND	0.0013	1	09/08/2021 13:08
Benzyl Alcohol	ND	1.2	1	09/08/2021 13:08
1,1-Biphenyl	ND	0.013	1	09/08/2021 13:08
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/08/2021 13:08
Bis (2-chloroethyl) Ether	ND	0.0013	1	09/08/2021 13:08
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	09/08/2021 13:08
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/08/2021 13:08
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	09/08/2021 13:08
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/08/2021 13:08
Butylbenzyl Phthalate	ND	0.025	1	09/08/2021 13:08
4-Chloroaniline	ND	0.0025	1	09/08/2021 13:08
4-Chloro-3-methylphenol	ND	0.25	1	09/08/2021 13:08
2-Chloronaphthalene	ND	0.25	1	09/08/2021 13:08
2-Chlorophenol	ND	0.013	1	09/08/2021 13:08
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/08/2021 13:08
Chrysene	ND	0.0025	1	09/08/2021 13:08
Dibenzo (a,h) anthracene	ND	0.0025	1	09/08/2021 13:08
Dibenzofuran	ND	0.25	1	09/08/2021 13:08
Di-n-butyl Phthalate	ND	0.013	1	09/08/2021 13:08
1,2-Dichlorobenzene	ND	0.25	1	09/08/2021 13:08
1,3-Dichlorobenzene	ND	0.25	1	09/08/2021 13:08
1,4-Dichlorobenzene	ND	0.25	1	09/08/2021 13:08
3,3-Dichlorobenzidine	ND	0.0025	1	09/08/2021 13:08
2,4-Dichlorophenol	ND	0.0013	1	09/08/2021 13:08
Diethyl Phthalate	ND	0.013	1	09/08/2021 13:08
2,4-Dimethylphenol	ND	0.25	1	09/08/2021 13:08
Dimethyl Phthalate	ND	0.0025	1	09/08/2021 13:08
4,6-Dinitro-2-methylphenol	ND	1.2	1	09/08/2021 13:08

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Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-5.0	2108G85-009A	Soil	08/27/2021 09:32	GC42 09082108.D	228980

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	0.25	1	09/08/2021 13:08
2,4-Dinitrotoluene	ND	0.013	1	09/08/2021 13:08
2,6-Dinitrotoluene	ND	0.013	1	09/08/2021 13:08
Di-n-octyl Phthalate	ND	0.013	1	09/08/2021 13:08
1,2-Diphenylhydrazine	ND	0.25	1	09/08/2021 13:08
Fluoranthene	0.0030	0.0013	1	09/08/2021 13:08
Fluorene	ND	0.0025	1	09/08/2021 13:08
Hexachlorobenzene	ND	0.0013	1	09/08/2021 13:08
Hexachlorobutadiene	ND	0.0025	1	09/08/2021 13:08
Hexachlorocyclopentadiene	ND	2.0	1	09/08/2021 13:08
Hexachloroethane	ND	0.013	1	09/08/2021 13:08
Indeno (1,2,3-cd) pyrene	ND	0.013	1	09/08/2021 13:08
Isophorone	ND	0.25	1	09/08/2021 13:08
1-Methylnaphthalene	0.0013	0.0013	1	09/08/2021 13:08
2-Methylnaphthalene	ND	0.0025	1	09/08/2021 13:08
2-Methylphenol (o-Cresol)	ND	0.25	1	09/08/2021 13:08
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/08/2021 13:08
Naphthalene	ND	0.0013	1	09/08/2021 13:08
2-Nitroaniline	ND	1.2	1	09/08/2021 13:08
3-Nitroaniline	ND	1.2	1	09/08/2021 13:08
4-Nitroaniline	ND	1.2	1	09/08/2021 13:08
Nitrobenzene	ND	0.25	1	09/08/2021 13:08
2-Nitrophenol	ND	1.2	1	09/08/2021 13:08
4-Nitrophenol	ND	1.2	1	09/08/2021 13:08
N-Nitrosodimethylamine	ND	1.2	1	09/08/2021 13:08
N-Nitrosodiphenylamine	ND	0.25	1	09/08/2021 13:08
N-Nitrosodi-n-propylamine	ND	0.25	1	09/08/2021 13:08
Pentachlorophenol	ND	0.062	1	09/08/2021 13:08
Phenanthrene	ND	0.0050	1	09/08/2021 13:08
Phenol	ND	0.050	1	09/08/2021 13:08
Pyrene	ND	0.0025	1	09/08/2021 13:08
Pyridine	ND	0.25	1	09/08/2021 13:08
1,2,4-Trichlorobenzene	ND	0.25	1	09/08/2021 13:08
2,4,5-Trichlorophenol	ND	0.0025	1	09/08/2021 13:08
2,4,6-Trichlorophenol	ND	0.013	1	09/08/2021 13:08

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-5.0	2108G85-009A	Soil	08/27/2021 09:32	GC42 09082108.D	228980

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorophenol	78	60-130		09/08/2021 13:08
Phenol-d5	74	60-130		09/08/2021 13:08
Nitrobenzene-d5	73	60-130		09/08/2021 13:08
2-Fluorobiphenyl	63	60-130		09/08/2021 13:08
2,4,6-Tribromophenol	59	50-130		09/08/2021 13:08
4-Terphenyl-d14	54	50-130		09/08/2021 13:08

Analyst(s): KOS



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-7.5	2108G85-016A	Soil	08/27/2021 09:52	GC42 09082109.D	228980

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	0.0021	0.0013	1	09/08/2021 13:36
Acenaphthylene	ND	0.0013	1	09/08/2021 13:36
Acetochlor	ND	0.25	1	09/08/2021 13:36
Anthracene	ND	0.0013	1	09/08/2021 13:36
Benzidine	ND	1.2	1	09/08/2021 13:36
Benzo (a) anthracene	ND	0.013	1	09/08/2021 13:36
Benzo (a) pyrene	ND	0.0025	1	09/08/2021 13:36
Benzo (b) fluoranthene	ND	0.0063	1	09/08/2021 13:36
Benzo (g,h,i) perylene	0.0032	0.0025	1	09/08/2021 13:36
Benzo (k) fluoranthene	ND	0.0013	1	09/08/2021 13:36
Benzyl Alcohol	ND	1.2	1	09/08/2021 13:36
1,1-Biphenyl	ND	0.013	1	09/08/2021 13:36
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/08/2021 13:36
Bis (2-chloroethyl) Ether	ND	0.0013	1	09/08/2021 13:36
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	09/08/2021 13:36
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/08/2021 13:36
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	09/08/2021 13:36
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/08/2021 13:36
Butylbenzyl Phthalate	ND	0.025	1	09/08/2021 13:36
4-Chloroaniline	ND	0.0025	1	09/08/2021 13:36
4-Chloro-3-methylphenol	ND	0.25	1	09/08/2021 13:36
2-Chloronaphthalene	ND	0.25	1	09/08/2021 13:36
2-Chlorophenol	ND	0.013	1	09/08/2021 13:36
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/08/2021 13:36
Chrysene	ND	0.0025	1	09/08/2021 13:36
Dibenzo (a,h) anthracene	ND	0.0025	1	09/08/2021 13:36
Dibenzofuran	ND	0.25	1	09/08/2021 13:36
Di-n-butyl Phthalate	ND	0.013	1	09/08/2021 13:36
1,2-Dichlorobenzene	ND	0.25	1	09/08/2021 13:36
1,3-Dichlorobenzene	ND	0.25	1	09/08/2021 13:36
1,4-Dichlorobenzene	ND	0.25	1	09/08/2021 13:36
3,3-Dichlorobenzidine	ND	0.0025	1	09/08/2021 13:36
2,4-Dichlorophenol	ND	0.0013	1	09/08/2021 13:36
Diethyl Phthalate	ND	0.013	1	09/08/2021 13:36
2,4-Dimethylphenol	ND	0.25	1	09/08/2021 13:36
Dimethyl Phthalate	ND	0.0025	1	09/08/2021 13:36
4,6-Dinitro-2-methylphenol	ND	1.2	1	09/08/2021 13:36

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected		Instrument	Batch ID
E-3-7.5	2108G85-016A	Soil	08/27/2021 09:52		GC42 09082109.D	228980
Analytes	Result		RL	DF	Date Analyzed	
2,4-Dinitrophenol	ND		0.25	1	09/08/2021 13:36	
2,4-Dinitrotoluene	ND		0.013	1	09/08/2021 13:36	
2,6-Dinitrotoluene	ND		0.013	1	09/08/2021 13:36	
Di-n-octyl Phthalate	ND		0.013	1	09/08/2021 13:36	
1,2-Diphenylhydrazine	ND		0.25	1	09/08/2021 13:36	
Fluoranthene	0.0086		0.0013	1	09/08/2021 13:36	
Fluorene	0.0090		0.0025	1	09/08/2021 13:36	
Hexachlorobenzene	ND		0.0013	1	09/08/2021 13:36	
Hexachlorobutadiene	ND		0.0025	1	09/08/2021 13:36	
Hexachlorocyclopentadiene	ND		2.0	1	09/08/2021 13:36	
Hexachloroethane	ND		0.013	1	09/08/2021 13:36	
Indeno (1,2,3-cd) pyrene	ND		0.013	1	09/08/2021 13:36	
Isophorone	ND		0.25	1	09/08/2021 13:36	
1-Methylnaphthalene	0.0014		0.0013	1	09/08/2021 13:36	
2-Methylnaphthalene	ND		0.0025	1	09/08/2021 13:36	
2-Methylphenol (o-Cresol)	ND		0.25	1	09/08/2021 13:36	
3 & 4-Methylphenol (m,p-Cresol)	ND		0.25	1	09/08/2021 13:36	
Naphthalene	0.0023		0.0013	1	09/08/2021 13:36	
2-Nitroaniline	ND		1.2	1	09/08/2021 13:36	
3-Nitroaniline	ND		1.2	1	09/08/2021 13:36	
4-Nitroaniline	ND		1.2	1	09/08/2021 13:36	
Nitrobenzene	ND		0.25	1	09/08/2021 13:36	
2-Nitrophenol	ND		1.2	1	09/08/2021 13:36	
4-Nitrophenol	ND		1.2	1	09/08/2021 13:36	
N-Nitrosodimethylamine	ND		1.2	1	09/08/2021 13:36	
N-Nitrosodiphenylamine	ND		0.25	1	09/08/2021 13:36	
N-Nitrosodi-n-propylamine	ND		0.25	1	09/08/2021 13:36	
Pentachlorophenol	ND		0.062	1	09/08/2021 13:36	
Phenanthrene	0.012		0.0050	1	09/08/2021 13:36	
Phenol	ND		0.050	1	09/08/2021 13:36	
Pyrene	0.0040		0.0025	1	09/08/2021 13:36	
Pyridine	ND		0.25	1	09/08/2021 13:36	
1,2,4-Trichlorobenzene	ND		0.25	1	09/08/2021 13:36	
2,4,5-Trichlorophenol	ND		0.0025	1	09/08/2021 13:36	
2,4,6-Trichlorophenol	ND		0.013	1	09/08/2021 13:36	

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-7.5	2108G85-016A	Soil	08/27/2021 09:52	GC42 09082109.D	228980

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorophenol	82	60-130		09/08/2021 13:36
Phenol-d5	80	60-130		09/08/2021 13:36
Nitrobenzene-d5	79	60-130		09/08/2021 13:36
2-Fluorobiphenyl	70	60-130		09/08/2021 13:36
2,4,6-Tribromophenol	64	50-130		09/08/2021 13:36
4-Terphenyl-d14	62	50-130		09/08/2021 13:36

Analyst(s): KOS



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-7.5	2108G85-022A	Soil	08/27/2021 10:23	GC42 09082110.D	228980

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.0013	1	09/08/2021 14:04
Acenaphthylene	ND	0.0013	1	09/08/2021 14:04
Acetochlor	ND	0.25	1	09/08/2021 14:04
Anthracene	ND	0.0013	1	09/08/2021 14:04
Benzidine	ND	1.2	1	09/08/2021 14:04
Benzo (a) anthracene	ND	0.013	1	09/08/2021 14:04
Benzo (a) pyrene	ND	0.0025	1	09/08/2021 14:04
Benzo (b) fluoranthene	ND	0.0063	1	09/08/2021 14:04
Benzo (g,h,i) perylene	ND	0.0025	1	09/08/2021 14:04
Benzo (k) fluoranthene	ND	0.0013	1	09/08/2021 14:04
Benzyl Alcohol	ND	1.2	1	09/08/2021 14:04
1,1-Biphenyl	ND	0.013	1	09/08/2021 14:04
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/08/2021 14:04
Bis (2-chloroethyl) Ether	ND	0.0013	1	09/08/2021 14:04
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	09/08/2021 14:04
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/08/2021 14:04
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	09/08/2021 14:04
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/08/2021 14:04
Butylbenzyl Phthalate	ND	0.025	1	09/08/2021 14:04
4-Chloroaniline	ND	0.0025	1	09/08/2021 14:04
4-Chloro-3-methylphenol	ND	0.25	1	09/08/2021 14:04
2-Chloronaphthalene	ND	0.25	1	09/08/2021 14:04
2-Chlorophenol	ND	0.013	1	09/08/2021 14:04
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/08/2021 14:04
Chrysene	ND	0.0025	1	09/08/2021 14:04
Dibenzo (a,h) anthracene	ND	0.0025	1	09/08/2021 14:04
Dibenzofuran	ND	0.25	1	09/08/2021 14:04
Di-n-butyl Phthalate	ND	0.013	1	09/08/2021 14:04
1,2-Dichlorobenzene	ND	0.25	1	09/08/2021 14:04
1,3-Dichlorobenzene	ND	0.25	1	09/08/2021 14:04
1,4-Dichlorobenzene	ND	0.25	1	09/08/2021 14:04
3,3-Dichlorobenzidine	ND	0.0025	1	09/08/2021 14:04
2,4-Dichlorophenol	ND	0.0013	1	09/08/2021 14:04
Diethyl Phthalate	ND	0.013	1	09/08/2021 14:04
2,4-Dimethylphenol	ND	0.25	1	09/08/2021 14:04
Dimethyl Phthalate	ND	0.0025	1	09/08/2021 14:04
4,6-Dinitro-2-methylphenol	ND	1.2	1	09/08/2021 14:04

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-7.5	2108G85-022A	Soil	08/27/2021 10:23	GC42 09082110.D	228980

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	0.25	1	09/08/2021 14:04
2,4-Dinitrotoluene	ND	0.013	1	09/08/2021 14:04
2,6-Dinitrotoluene	ND	0.013	1	09/08/2021 14:04
Di-n-octyl Phthalate	ND	0.013	1	09/08/2021 14:04
1,2-Diphenylhydrazine	ND	0.25	1	09/08/2021 14:04
Fluoranthene	ND	0.0013	1	09/08/2021 14:04
Fluorene	0.0032	0.0025	1	09/08/2021 14:04
Hexachlorobenzene	ND	0.0013	1	09/08/2021 14:04
Hexachlorobutadiene	ND	0.0025	1	09/08/2021 14:04
Hexachlorocyclopentadiene	ND	2.0	1	09/08/2021 14:04
Hexachloroethane	ND	0.013	1	09/08/2021 14:04
Indeno (1,2,3-cd) pyrene	ND	0.013	1	09/08/2021 14:04
Isophorone	ND	0.25	1	09/08/2021 14:04
1-Methylnaphthalene	ND	0.0013	1	09/08/2021 14:04
2-Methylnaphthalene	ND	0.0025	1	09/08/2021 14:04
2-Methylphenol (o-Cresol)	ND	0.25	1	09/08/2021 14:04
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/08/2021 14:04
Naphthalene	ND	0.0013	1	09/08/2021 14:04
2-Nitroaniline	ND	1.2	1	09/08/2021 14:04
3-Nitroaniline	ND	1.2	1	09/08/2021 14:04
4-Nitroaniline	ND	1.2	1	09/08/2021 14:04
Nitrobenzene	ND	0.25	1	09/08/2021 14:04
2-Nitrophenol	ND	1.2	1	09/08/2021 14:04
4-Nitrophenol	ND	1.2	1	09/08/2021 14:04
N-Nitrosodimethylamine	ND	1.2	1	09/08/2021 14:04
N-Nitrosodiphenylamine	ND	0.25	1	09/08/2021 14:04
N-Nitrosodi-n-propylamine	ND	0.25	1	09/08/2021 14:04
Pentachlorophenol	ND	0.062	1	09/08/2021 14:04
Phenanthrene	ND	0.0050	1	09/08/2021 14:04
Phenol	ND	0.050	1	09/08/2021 14:04
Pyrene	ND	0.0025	1	09/08/2021 14:04
Pyridine	ND	0.25	1	09/08/2021 14:04
1,2,4-Trichlorobenzene	ND	0.25	1	09/08/2021 14:04
2,4,5-Trichlorophenol	ND	0.0025	1	09/08/2021 14:04
2,4,6-Trichlorophenol	ND	0.013	1	09/08/2021 14:04

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-7.5	2108G85-022A	Soil	08/27/2021 10:23	GC42 09082110.D	228980

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>	
2-Fluorophenol	63		60-130	09/08/2021 14:04
Phenol-d5	63		60-130	09/08/2021 14:04
Nitrobenzene-d5	59	S	60-130	09/08/2021 14:04
2-Fluorobiphenyl	51	S	60-130	09/08/2021 14:04
2,4,6-Tribromophenol	52		50-130	09/08/2021 14:04
4-Terphenyl-d14	51		50-130	09/08/2021 14:04

Analyst(s): KOS

Analytical Comments: c2



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-5-3.0	2108G85-026A	Soil	08/27/2021 10:40	GC42 09082111.D	228980

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.0013	1	09/08/2021 14:32
Acenaphthylene	ND	0.0013	1	09/08/2021 14:32
Acetochlor	ND	0.25	1	09/08/2021 14:32
Anthracene	ND	0.0013	1	09/08/2021 14:32
Benzidine	ND	1.2	1	09/08/2021 14:32
Benzo (a) anthracene	ND	0.013	1	09/08/2021 14:32
Benzo (a) pyrene	ND	0.0025	1	09/08/2021 14:32
Benzo (b) fluoranthene	ND	0.0063	1	09/08/2021 14:32
Benzo (g,h,i) perylene	ND	0.0025	1	09/08/2021 14:32
Benzo (k) fluoranthene	ND	0.0013	1	09/08/2021 14:32
Benzyl Alcohol	ND	1.2	1	09/08/2021 14:32
1,1-Biphenyl	ND	0.013	1	09/08/2021 14:32
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/08/2021 14:32
Bis (2-chloroethyl) Ether	ND	0.0013	1	09/08/2021 14:32
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	09/08/2021 14:32
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/08/2021 14:32
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	09/08/2021 14:32
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/08/2021 14:32
Butylbenzyl Phthalate	ND	0.025	1	09/08/2021 14:32
4-Chloroaniline	ND	0.0025	1	09/08/2021 14:32
4-Chloro-3-methylphenol	ND	0.25	1	09/08/2021 14:32
2-Chloronaphthalene	ND	0.25	1	09/08/2021 14:32
2-Chlorophenol	ND	0.013	1	09/08/2021 14:32
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/08/2021 14:32
Chrysene	ND	0.0025	1	09/08/2021 14:32
Dibenzo (a,h) anthracene	ND	0.0025	1	09/08/2021 14:32
Dibenzofuran	ND	0.25	1	09/08/2021 14:32
Di-n-butyl Phthalate	ND	0.013	1	09/08/2021 14:32
1,2-Dichlorobenzene	ND	0.25	1	09/08/2021 14:32
1,3-Dichlorobenzene	ND	0.25	1	09/08/2021 14:32
1,4-Dichlorobenzene	ND	0.25	1	09/08/2021 14:32
3,3-Dichlorobenzidine	ND	0.0025	1	09/08/2021 14:32
2,4-Dichlorophenol	ND	0.0013	1	09/08/2021 14:32
Diethyl Phthalate	ND	0.013	1	09/08/2021 14:32
2,4-Dimethylphenol	ND	0.25	1	09/08/2021 14:32
Dimethyl Phthalate	ND	0.0025	1	09/08/2021 14:32
4,6-Dinitro-2-methylphenol	ND	1.2	1	09/08/2021 14:32

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-5-3.0	2108G85-026A	Soil	08/27/2021 10:40	GC42 09082111.D	228980

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	0.25	1	09/08/2021 14:32
2,4-Dinitrotoluene	ND	0.013	1	09/08/2021 14:32
2,6-Dinitrotoluene	ND	0.013	1	09/08/2021 14:32
Di-n-octyl Phthalate	ND	0.013	1	09/08/2021 14:32
1,2-Diphenylhydrazine	ND	0.25	1	09/08/2021 14:32
Fluoranthene	0.0020	0.0013	1	09/08/2021 14:32
Fluorene	ND	0.0025	1	09/08/2021 14:32
Hexachlorobenzene	ND	0.0013	1	09/08/2021 14:32
Hexachlorobutadiene	ND	0.0025	1	09/08/2021 14:32
Hexachlorocyclopentadiene	ND	2.0	1	09/08/2021 14:32
Hexachloroethane	ND	0.013	1	09/08/2021 14:32
Indeno (1,2,3-cd) pyrene	ND	0.013	1	09/08/2021 14:32
Isophorone	ND	0.25	1	09/08/2021 14:32
1-Methylnaphthalene	ND	0.0013	1	09/08/2021 14:32
2-Methylnaphthalene	ND	0.0025	1	09/08/2021 14:32
2-Methylphenol (o-Cresol)	ND	0.25	1	09/08/2021 14:32
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/08/2021 14:32
Naphthalene	ND	0.0013	1	09/08/2021 14:32
2-Nitroaniline	ND	1.2	1	09/08/2021 14:32
3-Nitroaniline	ND	1.2	1	09/08/2021 14:32
4-Nitroaniline	ND	1.2	1	09/08/2021 14:32
Nitrobenzene	ND	0.25	1	09/08/2021 14:32
2-Nitrophenol	ND	1.2	1	09/08/2021 14:32
4-Nitrophenol	ND	1.2	1	09/08/2021 14:32
N-Nitrosodimethylamine	ND	1.2	1	09/08/2021 14:32
N-Nitrosodiphenylamine	ND	0.25	1	09/08/2021 14:32
N-Nitrosodi-n-propylamine	ND	0.25	1	09/08/2021 14:32
Pentachlorophenol	ND	0.062	1	09/08/2021 14:32
Phenanthrene	ND	0.0050	1	09/08/2021 14:32
Phenol	ND	0.050	1	09/08/2021 14:32
Pyrene	ND	0.0025	1	09/08/2021 14:32
Pyridine	ND	0.25	1	09/08/2021 14:32
1,2,4-Trichlorobenzene	ND	0.25	1	09/08/2021 14:32
2,4,5-Trichlorophenol	ND	0.0025	1	09/08/2021 14:32
2,4,6-Trichlorophenol	ND	0.013	1	09/08/2021 14:32

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-5-3.0	2108G85-026A	Soil	08/27/2021 10:40	GC42 09082111.D	228980

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorophenol	75	60-130		09/08/2021 14:32
Phenol-d5	74	60-130		09/08/2021 14:32
Nitrobenzene-d5	74	60-130		09/08/2021 14:32
2-Fluorobiphenyl	65	60-130		09/08/2021 14:32
2,4,6-Tribromophenol	61	50-130		09/08/2021 14:32
4-Terphenyl-d14	61	50-130		09/08/2021 14:32

Analyst(s): KOS



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-0.5	2108G85-031A	Soil	08/27/2021 11:40	GC42 09082112.D	228980

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.0013	1	09/08/2021 15:00
Acenaphthylene	ND	0.0013	1	09/08/2021 15:00
Acetochlor	ND	0.25	1	09/08/2021 15:00
Anthracene	ND	0.0013	1	09/08/2021 15:00
Benzidine	ND	1.2	1	09/08/2021 15:00
Benzo (a) anthracene	ND	0.013	1	09/08/2021 15:00
Benzo (a) pyrene	ND	0.0025	1	09/08/2021 15:00
Benzo (b) fluoranthene	ND	0.0063	1	09/08/2021 15:00
Benzo (g,h,i) perylene	ND	0.0025	1	09/08/2021 15:00
Benzo (k) fluoranthene	ND	0.0013	1	09/08/2021 15:00
Benzyl Alcohol	ND	1.2	1	09/08/2021 15:00
1,1-Biphenyl	ND	0.013	1	09/08/2021 15:00
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/08/2021 15:00
Bis (2-chloroethyl) Ether	ND	0.0013	1	09/08/2021 15:00
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	09/08/2021 15:00
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/08/2021 15:00
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	09/08/2021 15:00
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/08/2021 15:00
Butylbenzyl Phthalate	ND	0.025	1	09/08/2021 15:00
4-Chloroaniline	ND	0.0025	1	09/08/2021 15:00
4-Chloro-3-methylphenol	ND	0.25	1	09/08/2021 15:00
2-Chloronaphthalene	ND	0.25	1	09/08/2021 15:00
2-Chlorophenol	ND	0.013	1	09/08/2021 15:00
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/08/2021 15:00
Chrysene	ND	0.0025	1	09/08/2021 15:00
Dibenzo (a,h) anthracene	ND	0.0025	1	09/08/2021 15:00
Dibenzofuran	ND	0.25	1	09/08/2021 15:00
Di-n-butyl Phthalate	ND	0.013	1	09/08/2021 15:00
1,2-Dichlorobenzene	ND	0.25	1	09/08/2021 15:00
1,3-Dichlorobenzene	ND	0.25	1	09/08/2021 15:00
1,4-Dichlorobenzene	ND	0.25	1	09/08/2021 15:00
3,3-Dichlorobenzidine	ND	0.0025	1	09/08/2021 15:00
2,4-Dichlorophenol	ND	0.0013	1	09/08/2021 15:00
Diethyl Phthalate	ND	0.013	1	09/08/2021 15:00
2,4-Dimethylphenol	ND	0.25	1	09/08/2021 15:00
Dimethyl Phthalate	ND	0.0025	1	09/08/2021 15:00
4,6-Dinitro-2-methylphenol	ND	1.2	1	09/08/2021 15:00

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected		Instrument	Batch ID
E-7-0.5	2108G85-031A	Soil	08/27/2021 11:40		GC42 09082112.D	228980
Analytes	Result	RL	DF	Date Analyzed		
2,4-Dinitrophenol	ND	0.25	1	09/08/2021 15:00		
2,4-Dinitrotoluene	ND	0.013	1	09/08/2021 15:00		
2,6-Dinitrotoluene	ND	0.013	1	09/08/2021 15:00		
Di-n-octyl Phthalate	ND	0.013	1	09/08/2021 15:00		
1,2-Diphenylhydrazine	ND	0.25	1	09/08/2021 15:00		
Fluoranthene	0.0016	0.0013	1	09/08/2021 15:00		
Fluorene	ND	0.0025	1	09/08/2021 15:00		
Hexachlorobenzene	ND	0.0013	1	09/08/2021 15:00		
Hexachlorobutadiene	ND	0.0025	1	09/08/2021 15:00		
Hexachlorocyclopentadiene	ND	2.0	1	09/08/2021 15:00		
Hexachloroethane	ND	0.013	1	09/08/2021 15:00		
Indeno (1,2,3-cd) pyrene	ND	0.013	1	09/08/2021 15:00		
Isophorone	ND	0.25	1	09/08/2021 15:00		
1-Methylnaphthalene	ND	0.0013	1	09/08/2021 15:00		
2-Methylnaphthalene	ND	0.0025	1	09/08/2021 15:00		
2-Methylphenol (o-Cresol)	ND	0.25	1	09/08/2021 15:00		
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/08/2021 15:00		
Naphthalene	ND	0.0013	1	09/08/2021 15:00		
2-Nitroaniline	ND	1.2	1	09/08/2021 15:00		
3-Nitroaniline	ND	1.2	1	09/08/2021 15:00		
4-Nitroaniline	ND	1.2	1	09/08/2021 15:00		
Nitrobenzene	ND	0.25	1	09/08/2021 15:00		
2-Nitrophenol	ND	1.2	1	09/08/2021 15:00		
4-Nitrophenol	ND	1.2	1	09/08/2021 15:00		
N-Nitrosodimethylamine	ND	1.2	1	09/08/2021 15:00		
N-Nitrosodiphenylamine	ND	0.25	1	09/08/2021 15:00		
N-Nitrosodi-n-propylamine	ND	0.25	1	09/08/2021 15:00		
Pentachlorophenol	ND	0.062	1	09/08/2021 15:00		
Phenanthrene	ND	0.0050	1	09/08/2021 15:00		
Phenol	ND	0.050	1	09/08/2021 15:00		
Pyrene	ND	0.0025	1	09/08/2021 15:00		
Pyridine	ND	0.25	1	09/08/2021 15:00		
1,2,4-Trichlorobenzene	ND	0.25	1	09/08/2021 15:00		
2,4,5-Trichlorophenol	ND	0.0025	1	09/08/2021 15:00		
2,4,6-Trichlorophenol	ND	0.013	1	09/08/2021 15:00		

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-0.5	2108G85-031A	Soil	08/27/2021 11:40	GC42 09082112.D	228980

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorophenol	74	60-130		09/08/2021 15:00
Phenol-d5	72	60-130		09/08/2021 15:00
Nitrobenzene-d5	66	60-130		09/08/2021 15:00
2-Fluorobiphenyl	61	60-130		09/08/2021 15:00
2,4,6-Tribromophenol	52	50-130		09/08/2021 15:00
4-Terphenyl-d14	55	50-130		09/08/2021 15:00

Analyst(s): KOS



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected		Instrument	Batch ID
E-7-3.0	2108G85-033A	Soil	08/27/2021 11:44		GC21 09072163.D	228980
Analytes	Result	RL	DF	Date Analyzed		
Acenaphthene	ND	0.0013	1	09/08/2021 14:08		
Acenaphthylene	ND	0.0013	1	09/08/2021 14:08		
Acetochlor	ND	0.25	1	09/08/2021 14:08		
Anthracene	ND	0.0013	1	09/08/2021 14:08		
Benzidine	ND	1.2	1	09/08/2021 14:08		
Benzo (a) anthracene	ND	0.013	1	09/08/2021 14:08		
Benzo (a) pyrene	ND	0.0025	1	09/08/2021 14:08		
Benzo (b) fluoranthene	ND	0.0063	1	09/08/2021 14:08		
Benzo (g,h,i) perylene	0.013	0.0025	1	09/08/2021 14:08		
Benzo (k) fluoranthene	ND	0.0013	1	09/08/2021 14:08		
Benzyl Alcohol	ND	1.2	1	09/08/2021 14:08		
1,1-Biphenyl	0.060	0.013	1	09/08/2021 14:08		
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/08/2021 14:08		
Bis (2-chloroethyl) Ether	ND	0.0013	1	09/08/2021 14:08		
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	09/08/2021 14:08		
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/08/2021 14:08		
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	09/08/2021 14:08		
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/08/2021 14:08		
Butylbenzyl Phthalate	ND	0.025	1	09/08/2021 14:08		
4-Chloroaniline	ND	0.0025	1	09/08/2021 14:08		
4-Chloro-3-methylphenol	ND	0.25	1	09/08/2021 14:08		
2-Chloronaphthalene	ND	0.25	1	09/08/2021 14:08		
2-Chlorophenol	ND	0.013	1	09/08/2021 14:08		
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/08/2021 14:08		
Chrysene	ND	0.0025	1	09/08/2021 14:08		
Dibenzo (a,h) anthracene	0.0069	0.0025	1	09/08/2021 14:08		
Dibenzofuran	ND	0.25	1	09/08/2021 14:08		
Di-n-butyl Phthalate	ND	0.013	1	09/08/2021 14:08		
1,2-Dichlorobenzene	ND	0.25	1	09/08/2021 14:08		
1,3-Dichlorobenzene	ND	0.25	1	09/08/2021 14:08		
1,4-Dichlorobenzene	ND	0.25	1	09/08/2021 14:08		
3,3-Dichlorobenzidine	ND	0.0025	1	09/08/2021 14:08		
2,4-Dichlorophenol	ND	0.0013	1	09/08/2021 14:08		
Diethyl Phthalate	ND	0.013	1	09/08/2021 14:08		
2,4-Dimethylphenol	ND	0.25	1	09/08/2021 14:08		
Dimethyl Phthalate	ND	0.0025	1	09/08/2021 14:08		
4,6-Dinitro-2-methylphenol	ND	1.2	1	09/08/2021 14:08		

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-3.0	2108G85-033A	Soil	08/27/2021 11:44	GC21 09072163.D	228980

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	0.25	1	09/08/2021 14:08
2,4-Dinitrotoluene	ND	0.013	1	09/08/2021 14:08
2,6-Dinitrotoluene	ND	0.013	1	09/08/2021 14:08
Di-n-octyl Phthalate	ND	0.013	1	09/08/2021 14:08
1,2-Diphenylhydrazine	ND	0.25	1	09/08/2021 14:08
Fluoranthene	ND	0.0013	1	09/08/2021 14:08
Fluorene	0.020	0.0025	1	09/08/2021 14:08
Hexachlorobenzene	ND	0.0013	1	09/08/2021 14:08
Hexachlorobutadiene	ND	0.0025	1	09/08/2021 14:08
Hexachlorocyclopentadiene	ND	2.0	1	09/08/2021 14:08
Hexachloroethane	ND	0.013	1	09/08/2021 14:08
Indeno (1,2,3-cd) pyrene	ND	0.013	1	09/08/2021 14:08
Isophorone	ND	0.25	1	09/08/2021 14:08
1-Methylnaphthalene	0.051	0.0013	1	09/08/2021 14:08
2-Methylnaphthalene	0.060	0.0025	1	09/08/2021 14:08
2-Methylphenol (o-Cresol)	ND	0.25	1	09/08/2021 14:08
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/08/2021 14:08
Naphthalene	0.026	0.0013	1	09/08/2021 14:08
2-Nitroaniline	ND	1.2	1	09/08/2021 14:08
3-Nitroaniline	ND	1.2	1	09/08/2021 14:08
4-Nitroaniline	ND	1.2	1	09/08/2021 14:08
Nitrobenzene	ND	0.25	1	09/08/2021 14:08
2-Nitrophenol	ND	1.2	1	09/08/2021 14:08
4-Nitrophenol	ND	1.2	1	09/08/2021 14:08
N-Nitrosodimethylamine	ND	1.2	1	09/08/2021 14:08
N-Nitrosodiphenylamine	ND	0.25	1	09/08/2021 14:08
N-Nitrosodi-n-propylamine	ND	0.25	1	09/08/2021 14:08
Pentachlorophenol	ND	0.062	1	09/08/2021 14:08
Phenanthrene	0.078	0.0050	1	09/08/2021 14:08
Phenol	ND	0.050	1	09/08/2021 14:08
Pyrene	0.011	0.0025	1	09/08/2021 14:08
Pyridine	ND	0.25	1	09/08/2021 14:08
1,2,4-Trichlorobenzene	ND	0.25	1	09/08/2021 14:08
2,4,5-Trichlorophenol	ND	0.0025	1	09/08/2021 14:08
2,4,6-Trichlorophenol	ND	0.013	1	09/08/2021 14:08

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-3.0	2108G85-033A	Soil	08/27/2021 11:44	GC21 09072163.D	228980

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorophenol	66	60-130		09/08/2021 14:08
Phenol-d5	65	60-130		09/08/2021 14:08
Nitrobenzene-d5	80	60-130		09/08/2021 14:08
2-Fluorobiphenyl	65	60-130		09/08/2021 14:08
2,4,6-Tribromophenol	65	50-130		09/08/2021 14:08
4-Terphenyl-d14	67	50-130		09/08/2021 14:08

Analyst(s): KOS



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-1.5	2108G85-036A	Soil	08/27/2021 11:30	GC21 09072162.D	228980

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.0013	1	09/08/2021 13:38
Acenaphthylene	ND	0.0013	1	09/08/2021 13:38
Acetochlor	ND	0.25	1	09/08/2021 13:38
Anthracene	ND	0.0013	1	09/08/2021 13:38
Benzidine	ND	1.2	1	09/08/2021 13:38
Benzo (a) anthracene	0.022	0.013	1	09/08/2021 13:38
Benzo (a) pyrene	ND	0.0025	1	09/08/2021 13:38
Benzo (b) fluoranthene	ND	0.0063	1	09/08/2021 13:38
Benzo (g,h,i) perylene	0.027	0.0025	1	09/08/2021 13:38
Benzo (k) fluoranthene	ND	0.0013	1	09/08/2021 13:38
Benzyl Alcohol	ND	1.2	1	09/08/2021 13:38
1,1-Biphenyl	ND	0.013	1	09/08/2021 13:38
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/08/2021 13:38
Bis (2-chloroethyl) Ether	ND	0.0013	1	09/08/2021 13:38
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	09/08/2021 13:38
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/08/2021 13:38
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	09/08/2021 13:38
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/08/2021 13:38
Butylbenzyl Phthalate	ND	0.025	1	09/08/2021 13:38
4-Chloroaniline	ND	0.0025	1	09/08/2021 13:38
4-Chloro-3-methylphenol	ND	0.25	1	09/08/2021 13:38
2-Chloronaphthalene	ND	0.25	1	09/08/2021 13:38
2-Chlorophenol	ND	0.013	1	09/08/2021 13:38
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/08/2021 13:38
Chrysene	ND	0.0025	1	09/08/2021 13:38
Dibenzo (a,h) anthracene	ND	0.0025	1	09/08/2021 13:38
Dibenzofuran	ND	0.25	1	09/08/2021 13:38
Di-n-butyl Phthalate	ND	0.013	1	09/08/2021 13:38
1,2-Dichlorobenzene	ND	0.25	1	09/08/2021 13:38
1,3-Dichlorobenzene	ND	0.25	1	09/08/2021 13:38
1,4-Dichlorobenzene	ND	0.25	1	09/08/2021 13:38
3,3-Dichlorobenzidine	ND	0.0025	1	09/08/2021 13:38
2,4-Dichlorophenol	ND	0.0013	1	09/08/2021 13:38
Diethyl Phthalate	ND	0.013	1	09/08/2021 13:38
2,4-Dimethylphenol	ND	0.25	1	09/08/2021 13:38
Dimethyl Phthalate	ND	0.0025	1	09/08/2021 13:38
4,6-Dinitro-2-methylphenol	ND	1.2	1	09/08/2021 13:38

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected		Instrument	Batch ID
E-8-1.5	2108G85-036A	Soil	08/27/2021 11:30		GC21 09072162.D	228980
Analytes	Result	RL	DF	Date Analyzed		
2,4-Dinitrophenol	ND	0.25	1	09/08/2021 13:38		
2,4-Dinitrotoluene	ND	0.013	1	09/08/2021 13:38		
2,6-Dinitrotoluene	ND	0.013	1	09/08/2021 13:38		
Di-n-octyl Phthalate	ND	0.013	1	09/08/2021 13:38		
1,2-Diphenylhydrazine	ND	0.25	1	09/08/2021 13:38		
Fluoranthene	ND	0.0013	1	09/08/2021 13:38		
Fluorene	0.016	0.0025	1	09/08/2021 13:38		
Hexachlorobenzene	ND	0.0013	1	09/08/2021 13:38		
Hexachlorobutadiene	ND	0.0025	1	09/08/2021 13:38		
Hexachlorocyclopentadiene	ND	2.0	1	09/08/2021 13:38		
Hexachloroethane	ND	0.013	1	09/08/2021 13:38		
Indeno (1,2,3-cd) pyrene	ND	0.013	1	09/08/2021 13:38		
Isophorone	ND	0.25	1	09/08/2021 13:38		
1-Methylnaphthalene	ND	0.0013	1	09/08/2021 13:38		
2-Methylnaphthalene	ND	0.0025	1	09/08/2021 13:38		
2-Methylphenol (o-Cresol)	ND	0.25	1	09/08/2021 13:38		
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/08/2021 13:38		
Naphthalene	ND	0.0013	1	09/08/2021 13:38		
2-Nitroaniline	ND	1.2	1	09/08/2021 13:38		
3-Nitroaniline	ND	1.2	1	09/08/2021 13:38		
4-Nitroaniline	ND	1.2	1	09/08/2021 13:38		
Nitrobenzene	ND	0.25	1	09/08/2021 13:38		
2-Nitrophenol	ND	1.2	1	09/08/2021 13:38		
4-Nitrophenol	ND	1.2	1	09/08/2021 13:38		
N-Nitrosodimethylamine	ND	1.2	1	09/08/2021 13:38		
N-Nitrosodiphenylamine	ND	0.25	1	09/08/2021 13:38		
N-Nitrosodi-n-propylamine	ND	0.25	1	09/08/2021 13:38		
Pentachlorophenol	ND	0.062	1	09/08/2021 13:38		
Phenanthrene	0.047	0.0050	1	09/08/2021 13:38		
Phenol	ND	0.050	1	09/08/2021 13:38		
Pyrene	0.011	0.0025	1	09/08/2021 13:38		
Pyridine	ND	0.25	1	09/08/2021 13:38		
1,2,4-Trichlorobenzene	ND	0.25	1	09/08/2021 13:38		
2,4,5-Trichlorophenol	ND	0.0025	1	09/08/2021 13:38		
2,4,6-Trichlorophenol	ND	0.013	1	09/08/2021 13:38		

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-1.5	2108G85-036A	Soil	08/27/2021 11:30	GC21 09072162.D	228980

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorophenol	66	60-130		09/08/2021 13:38
Phenol-d5	66	60-130		09/08/2021 13:38
Nitrobenzene-d5	79	60-130		09/08/2021 13:38
2-Fluorobiphenyl	64	60-130		09/08/2021 13:38
2,4,6-Tribromophenol	57	50-130		09/08/2021 13:38
4-Terphenyl-d14	66	50-130		09/08/2021 13:38

Analyst(s): KOS



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-5.0	2108G85-038A	Soil	08/27/2021 11:35	GC42 09082113.D	228980

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.0013	1	09/08/2021 15:28
Acenaphthylene	ND	0.0013	1	09/08/2021 15:28
Acetochlor	ND	0.25	1	09/08/2021 15:28
Anthracene	ND	0.0013	1	09/08/2021 15:28
Benzidine	ND	1.2	1	09/08/2021 15:28
Benzo (a) anthracene	ND	0.013	1	09/08/2021 15:28
Benzo (a) pyrene	ND	0.0025	1	09/08/2021 15:28
Benzo (b) fluoranthene	ND	0.0063	1	09/08/2021 15:28
Benzo (g,h,i) perylene	0.016	0.0025	1	09/08/2021 15:28
Benzo (k) fluoranthene	ND	0.0013	1	09/08/2021 15:28
Benzyl Alcohol	ND	1.2	1	09/08/2021 15:28
1,1-Biphenyl	0.022	0.013	1	09/08/2021 15:28
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/08/2021 15:28
Bis (2-chloroethyl) Ether	ND	0.0013	1	09/08/2021 15:28
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	09/08/2021 15:28
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/08/2021 15:28
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	09/08/2021 15:28
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/08/2021 15:28
Butylbenzyl Phthalate	ND	0.025	1	09/08/2021 15:28
4-Chloroaniline	ND	0.0025	1	09/08/2021 15:28
4-Chloro-3-methylphenol	ND	0.25	1	09/08/2021 15:28
2-Chloronaphthalene	ND	0.25	1	09/08/2021 15:28
2-Chlorophenol	ND	0.013	1	09/08/2021 15:28
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/08/2021 15:28
Chrysene	ND	0.0025	1	09/08/2021 15:28
Dibenzo (a,h) anthracene	0.0058	0.0025	1	09/08/2021 15:28
Dibenzofuran	ND	0.25	1	09/08/2021 15:28
Di-n-butyl Phthalate	ND	0.013	1	09/08/2021 15:28
1,2-Dichlorobenzene	ND	0.25	1	09/08/2021 15:28
1,3-Dichlorobenzene	ND	0.25	1	09/08/2021 15:28
1,4-Dichlorobenzene	ND	0.25	1	09/08/2021 15:28
3,3-Dichlorobenzidine	ND	0.0025	1	09/08/2021 15:28
2,4-Dichlorophenol	ND	0.0013	1	09/08/2021 15:28
Diethyl Phthalate	ND	0.013	1	09/08/2021 15:28
2,4-Dimethylphenol	ND	0.25	1	09/08/2021 15:28
Dimethyl Phthalate	ND	0.0025	1	09/08/2021 15:28
4,6-Dinitro-2-methylphenol	ND	1.2	1	09/08/2021 15:28

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected		Instrument	Batch ID
E-8-5.0	2108G85-038A	Soil	08/27/2021 11:35		GC42 09082113.D	228980
Analytes	Result	RL	DF	Date Analyzed		
2,4-Dinitrophenol	ND	0.25	1	09/08/2021 15:28		
2,4-Dinitrotoluene	ND	0.013	1	09/08/2021 15:28		
2,6-Dinitrotoluene	ND	0.013	1	09/08/2021 15:28		
Di-n-octyl Phthalate	ND	0.013	1	09/08/2021 15:28		
1,2-Diphenylhydrazine	ND	0.25	1	09/08/2021 15:28		
Fluoranthene	ND	0.0013	1	09/08/2021 15:28		
Fluorene	0.029	0.0025	1	09/08/2021 15:28		
Hexachlorobenzene	ND	0.0013	1	09/08/2021 15:28		
Hexachlorobutadiene	ND	0.0025	1	09/08/2021 15:28		
Hexachlorocyclopentadiene	ND	2.0	1	09/08/2021 15:28		
Hexachloroethane	ND	0.013	1	09/08/2021 15:28		
Indeno (1,2,3-cd) pyrene	ND	0.013	1	09/08/2021 15:28		
Isophorone	ND	0.25	1	09/08/2021 15:28		
1-Methylnaphthalene	0.0052	0.0013	1	09/08/2021 15:28		
2-Methylnaphthalene	0.0046	0.0025	1	09/08/2021 15:28		
2-Methylphenol (o-Cresol)	ND	0.25	1	09/08/2021 15:28		
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/08/2021 15:28		
Naphthalene	ND	0.0013	1	09/08/2021 15:28		
2-Nitroaniline	ND	1.2	1	09/08/2021 15:28		
3-Nitroaniline	ND	1.2	1	09/08/2021 15:28		
4-Nitroaniline	ND	1.2	1	09/08/2021 15:28		
Nitrobenzene	ND	0.25	1	09/08/2021 15:28		
2-Nitrophenol	ND	1.2	1	09/08/2021 15:28		
4-Nitrophenol	ND	1.2	1	09/08/2021 15:28		
N-Nitrosodimethylamine	ND	1.2	1	09/08/2021 15:28		
N-Nitrosodiphenylamine	ND	0.25	1	09/08/2021 15:28		
N-Nitrosodi-n-propylamine	ND	0.25	1	09/08/2021 15:28		
Pentachlorophenol	ND	0.062	1	09/08/2021 15:28		
Phenanthrene	0.029	0.0050	1	09/08/2021 15:28		
Phenol	ND	0.050	1	09/08/2021 15:28		
Pyrene	0.0061	0.0025	1	09/08/2021 15:28		
Pyridine	ND	0.25	1	09/08/2021 15:28		
1,2,4-Trichlorobenzene	ND	0.25	1	09/08/2021 15:28		
2,4,5-Trichlorophenol	ND	0.0025	1	09/08/2021 15:28		
2,4,6-Trichlorophenol	ND	0.013	1	09/08/2021 15:28		

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-5.0	2108G85-038A	Soil	08/27/2021 11:35	GC42 09082113.D	228980

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>	
2-Fluorophenol	87		60-130	09/08/2021 15:28
Phenol-d5	85		60-130	09/08/2021 15:28
Nitrobenzene-d5	79		60-130	09/08/2021 15:28
2-Fluorobiphenyl	69		60-130	09/08/2021 15:28
2,4,6-Tribromophenol	47	S	50-130	09/08/2021 15:28
4-Terphenyl-d14	62		50-130	09/08/2021 15:28

Analyst(s): KOS

Analytical Comments: c2



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected		Instrument	Batch ID
E-9-1.5	2108G85-040A	Soil	08/27/2021 10:52		GC42 09082114.D	228980
Analytes	Result	RL	DF	Date Analyzed		
Acenaphthene	ND	0.0013	1	09/08/2021 15:56		
Acenaphthylene	ND	0.0013	1	09/08/2021 15:56		
Acetochlor	ND	0.25	1	09/08/2021 15:56		
Anthracene	ND	0.0013	1	09/08/2021 15:56		
Benzidine	ND	1.2	1	09/08/2021 15:56		
Benzo (a) anthracene	ND	0.013	1	09/08/2021 15:56		
Benzo (a) pyrene	ND	0.0025	1	09/08/2021 15:56		
Benzo (b) fluoranthene	ND	0.0063	1	09/08/2021 15:56		
Benzo (g,h,i) perylene	0.0085	0.0025	1	09/08/2021 15:56		
Benzo (k) fluoranthene	ND	0.0013	1	09/08/2021 15:56		
Benzyl Alcohol	ND	1.2	1	09/08/2021 15:56		
1,1-Biphenyl	0.049	0.013	1	09/08/2021 15:56		
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/08/2021 15:56		
Bis (2-chloroethyl) Ether	ND	0.0013	1	09/08/2021 15:56		
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	09/08/2021 15:56		
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/08/2021 15:56		
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	09/08/2021 15:56		
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/08/2021 15:56		
Butylbenzyl Phthalate	ND	0.025	1	09/08/2021 15:56		
4-Chloroaniline	ND	0.0025	1	09/08/2021 15:56		
4-Chloro-3-methylphenol	ND	0.25	1	09/08/2021 15:56		
2-Chloronaphthalene	ND	0.25	1	09/08/2021 15:56		
2-Chlorophenol	ND	0.013	1	09/08/2021 15:56		
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/08/2021 15:56		
Chrysene	ND	0.0025	1	09/08/2021 15:56		
Dibenzo (a,h) anthracene	0.0036	0.0025	1	09/08/2021 15:56		
Dibenzofuran	ND	0.25	1	09/08/2021 15:56		
Di-n-butyl Phthalate	ND	0.013	1	09/08/2021 15:56		
1,2-Dichlorobenzene	ND	0.25	1	09/08/2021 15:56		
1,3-Dichlorobenzene	ND	0.25	1	09/08/2021 15:56		
1,4-Dichlorobenzene	ND	0.25	1	09/08/2021 15:56		
3,3-Dichlorobenzidine	ND	0.0025	1	09/08/2021 15:56		
2,4-Dichlorophenol	ND	0.0013	1	09/08/2021 15:56		
Diethyl Phthalate	ND	0.013	1	09/08/2021 15:56		
2,4-Dimethylphenol	ND	0.25	1	09/08/2021 15:56		
Dimethyl Phthalate	ND	0.0025	1	09/08/2021 15:56		
4,6-Dinitro-2-methylphenol	ND	1.2	1	09/08/2021 15:56		

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-9-1.5	2108G85-040A	Soil	08/27/2021 10:52	GC42 09082114.D	228980

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	0.25	1	09/08/2021 15:56
2,4-Dinitrotoluene	ND	0.013	1	09/08/2021 15:56
2,6-Dinitrotoluene	ND	0.013	1	09/08/2021 15:56
Di-n-octyl Phthalate	ND	0.013	1	09/08/2021 15:56
1,2-Diphenylhydrazine	ND	0.25	1	09/08/2021 15:56
Fluoranthene	ND	0.0013	1	09/08/2021 15:56
Fluorene	0.023	0.0025	1	09/08/2021 15:56
Hexachlorobenzene	ND	0.0013	1	09/08/2021 15:56
Hexachlorobutadiene	ND	0.0025	1	09/08/2021 15:56
Hexachlorocyclopentadiene	ND	2.0	1	09/08/2021 15:56
Hexachloroethane	ND	0.013	1	09/08/2021 15:56
Indeno (1,2,3-cd) pyrene	ND	0.013	1	09/08/2021 15:56
Isophorone	ND	0.25	1	09/08/2021 15:56
1-Methylnaphthalene	0.0035	0.0013	1	09/08/2021 15:56
2-Methylnaphthalene	0.0051	0.0025	1	09/08/2021 15:56
2-Methylphenol (o-Cresol)	ND	0.25	1	09/08/2021 15:56
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/08/2021 15:56
Naphthalene	0.0025	0.0013	1	09/08/2021 15:56
2-Nitroaniline	ND	1.2	1	09/08/2021 15:56
3-Nitroaniline	ND	1.2	1	09/08/2021 15:56
4-Nitroaniline	ND	1.2	1	09/08/2021 15:56
Nitrobenzene	ND	0.25	1	09/08/2021 15:56
2-Nitrophenol	ND	1.2	1	09/08/2021 15:56
4-Nitrophenol	ND	1.2	1	09/08/2021 15:56
N-Nitrosodimethylamine	ND	1.2	1	09/08/2021 15:56
N-Nitrosodiphenylamine	ND	0.25	1	09/08/2021 15:56
N-Nitrosodi-n-propylamine	ND	0.25	1	09/08/2021 15:56
Pentachlorophenol	ND	0.062	1	09/08/2021 15:56
Phenanthrene	0.027	0.0050	1	09/08/2021 15:56
Phenol	ND	0.050	1	09/08/2021 15:56
Pyrene	0.0047	0.0025	1	09/08/2021 15:56
Pyridine	ND	0.25	1	09/08/2021 15:56
1,2,4-Trichlorobenzene	ND	0.25	1	09/08/2021 15:56
2,4,5-Trichlorophenol	ND	0.0025	1	09/08/2021 15:56
2,4,6-Trichlorophenol	ND	0.013	1	09/08/2021 15:56

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-9-1.5	2108G85-040A	Soil	08/27/2021 10:52	GC42 09082114.D	228980

Analytes	Result	RL	DF	Date Analyzed
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Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
2-Fluorophenol	87		60-130	09/08/2021 15:56
Phenol-d5	83		60-130	09/08/2021 15:56
Nitrobenzene-d5	73		60-130	09/08/2021 15:56
2-Fluorobiphenyl	57	S	60-130	09/08/2021 15:56
2,4,6-Tribromophenol	50		50-130	09/08/2021 15:56
4-Terphenyl-d14	52		50-130	09/08/2021 15:56

Analyst(s): KOS

Analytical Comments: c2



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-10-3.0	2108G85-045A	Soil	08/27/2021 12:44	GC42 09082115.D	228980

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.0013	1	09/08/2021 16:24
Acenaphthylene	ND	0.0013	1	09/08/2021 16:24
Acetochlor	ND	0.25	1	09/08/2021 16:24
Anthracene	ND	0.0013	1	09/08/2021 16:24
Benzidine	ND	1.2	1	09/08/2021 16:24
Benzo (a) anthracene	ND	0.013	1	09/08/2021 16:24
Benzo (a) pyrene	ND	0.0025	1	09/08/2021 16:24
Benzo (b) fluoranthene	ND	0.0063	1	09/08/2021 16:24
Benzo (g,h,i) perylene	ND	0.0025	1	09/08/2021 16:24
Benzo (k) fluoranthene	ND	0.0013	1	09/08/2021 16:24
Benzyl Alcohol	ND	1.2	1	09/08/2021 16:24
1,1-Biphenyl	ND	0.013	1	09/08/2021 16:24
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/08/2021 16:24
Bis (2-chloroethyl) Ether	ND	0.0013	1	09/08/2021 16:24
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	09/08/2021 16:24
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/08/2021 16:24
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	09/08/2021 16:24
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/08/2021 16:24
Butylbenzyl Phthalate	ND	0.025	1	09/08/2021 16:24
4-Chloroaniline	ND	0.0025	1	09/08/2021 16:24
4-Chloro-3-methylphenol	ND	0.25	1	09/08/2021 16:24
2-Chloronaphthalene	ND	0.25	1	09/08/2021 16:24
2-Chlorophenol	ND	0.013	1	09/08/2021 16:24
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/08/2021 16:24
Chrysene	ND	0.0025	1	09/08/2021 16:24
Dibenzo (a,h) anthracene	ND	0.0025	1	09/08/2021 16:24
Dibenzofuran	ND	0.25	1	09/08/2021 16:24
Di-n-butyl Phthalate	ND	0.013	1	09/08/2021 16:24
1,2-Dichlorobenzene	ND	0.25	1	09/08/2021 16:24
1,3-Dichlorobenzene	ND	0.25	1	09/08/2021 16:24
1,4-Dichlorobenzene	ND	0.25	1	09/08/2021 16:24
3,3-Dichlorobenzidine	ND	0.0025	1	09/08/2021 16:24
2,4-Dichlorophenol	ND	0.0013	1	09/08/2021 16:24
Diethyl Phthalate	ND	0.013	1	09/08/2021 16:24
2,4-Dimethylphenol	ND	0.25	1	09/08/2021 16:24
Dimethyl Phthalate	ND	0.0025	1	09/08/2021 16:24
4,6-Dinitro-2-methylphenol	ND	1.2	1	09/08/2021 16:24

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-10-3.0	2108G85-045A	Soil	08/27/2021 12:44	GC42 09082115.D	228980

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	0.25	1	09/08/2021 16:24
2,4-Dinitrotoluene	ND	0.013	1	09/08/2021 16:24
2,6-Dinitrotoluene	ND	0.013	1	09/08/2021 16:24
Di-n-octyl Phthalate	ND	0.013	1	09/08/2021 16:24
1,2-Diphenylhydrazine	ND	0.25	1	09/08/2021 16:24
Fluoranthene	ND	0.0013	1	09/08/2021 16:24
Fluorene	ND	0.0025	1	09/08/2021 16:24
Hexachlorobenzene	ND	0.0013	1	09/08/2021 16:24
Hexachlorobutadiene	ND	0.0025	1	09/08/2021 16:24
Hexachlorocyclopentadiene	ND	2.0	1	09/08/2021 16:24
Hexachloroethane	ND	0.013	1	09/08/2021 16:24
Indeno (1,2,3-cd) pyrene	ND	0.013	1	09/08/2021 16:24
Isophorone	ND	0.25	1	09/08/2021 16:24
1-Methylnaphthalene	ND	0.0013	1	09/08/2021 16:24
2-Methylnaphthalene	ND	0.0025	1	09/08/2021 16:24
2-Methylphenol (o-Cresol)	ND	0.25	1	09/08/2021 16:24
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/08/2021 16:24
Naphthalene	ND	0.0013	1	09/08/2021 16:24
2-Nitroaniline	ND	1.2	1	09/08/2021 16:24
3-Nitroaniline	ND	1.2	1	09/08/2021 16:24
4-Nitroaniline	ND	1.2	1	09/08/2021 16:24
Nitrobenzene	ND	0.25	1	09/08/2021 16:24
2-Nitrophenol	ND	1.2	1	09/08/2021 16:24
4-Nitrophenol	ND	1.2	1	09/08/2021 16:24
N-Nitrosodimethylamine	ND	1.2	1	09/08/2021 16:24
N-Nitrosodiphenylamine	ND	0.25	1	09/08/2021 16:24
N-Nitrosodi-n-propylamine	ND	0.25	1	09/08/2021 16:24
Pentachlorophenol	ND	0.062	1	09/08/2021 16:24
Phenanthrene	ND	0.0050	1	09/08/2021 16:24
Phenol	ND	0.050	1	09/08/2021 16:24
Pyrene	ND	0.0025	1	09/08/2021 16:24
Pyridine	ND	0.25	1	09/08/2021 16:24
1,2,4-Trichlorobenzene	ND	0.25	1	09/08/2021 16:24
2,4,5-Trichlorophenol	ND	0.0025	1	09/08/2021 16:24
2,4,6-Trichlorophenol	ND	0.013	1	09/08/2021 16:24

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-10-3.0	2108G85-045A	Soil	08/27/2021 12:44	GC42 09082115.D	228980

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>	
2-Fluorophenol	103		60-130	09/08/2021 16:24
Phenol-d5	92		60-130	09/08/2021 16:24
Nitrobenzene-d5	91		60-130	09/08/2021 16:24
2-Fluorobiphenyl	84		60-130	09/08/2021 16:24
2,4,6-Tribromophenol	21	S	50-130	09/08/2021 16:24
4-Terphenyl-d14	70		50-130	09/08/2021 16:24

Analyst(s): KOS

Analytical Comments: c2



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-11-1.5	2108G85-048A	Soil	08/27/2021 12:55	GC42 09082116.D	228980

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.0013	1	09/08/2021 16:52
Acenaphthylene	ND	0.0013	1	09/08/2021 16:52
Acetochlor	ND	0.25	1	09/08/2021 16:52
Anthracene	ND	0.0013	1	09/08/2021 16:52
Benzidine	ND	1.2	1	09/08/2021 16:52
Benzo (a) anthracene	ND	0.013	1	09/08/2021 16:52
Benzo (a) pyrene	ND	0.0025	1	09/08/2021 16:52
Benzo (b) fluoranthene	ND	0.0063	1	09/08/2021 16:52
Benzo (g,h,i) perylene	ND	0.0025	1	09/08/2021 16:52
Benzo (k) fluoranthene	ND	0.0013	1	09/08/2021 16:52
Benzyl Alcohol	ND	1.2	1	09/08/2021 16:52
1,1-Biphenyl	ND	0.013	1	09/08/2021 16:52
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/08/2021 16:52
Bis (2-chloroethyl) Ether	ND	0.0013	1	09/08/2021 16:52
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	09/08/2021 16:52
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/08/2021 16:52
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	09/08/2021 16:52
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/08/2021 16:52
Butylbenzyl Phthalate	ND	0.025	1	09/08/2021 16:52
4-Chloroaniline	ND	0.0025	1	09/08/2021 16:52
4-Chloro-3-methylphenol	ND	0.25	1	09/08/2021 16:52
2-Chloronaphthalene	ND	0.25	1	09/08/2021 16:52
2-Chlorophenol	ND	0.013	1	09/08/2021 16:52
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/08/2021 16:52
Chrysene	ND	0.0025	1	09/08/2021 16:52
Dibenzo (a,h) anthracene	ND	0.0025	1	09/08/2021 16:52
Dibenzofuran	ND	0.25	1	09/08/2021 16:52
Di-n-butyl Phthalate	ND	0.013	1	09/08/2021 16:52
1,2-Dichlorobenzene	ND	0.25	1	09/08/2021 16:52
1,3-Dichlorobenzene	ND	0.25	1	09/08/2021 16:52
1,4-Dichlorobenzene	ND	0.25	1	09/08/2021 16:52
3,3-Dichlorobenzidine	ND	0.0025	1	09/08/2021 16:52
2,4-Dichlorophenol	ND	0.0013	1	09/08/2021 16:52
Diethyl Phthalate	ND	0.013	1	09/08/2021 16:52
2,4-Dimethylphenol	ND	0.25	1	09/08/2021 16:52
Dimethyl Phthalate	ND	0.0025	1	09/08/2021 16:52
4,6-Dinitro-2-methylphenol	ND	1.2	1	09/08/2021 16:52

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-11-1.5	2108G85-048A	Soil	08/27/2021 12:55	GC42 09082116.D	228980

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	0.25	1	09/08/2021 16:52
2,4-Dinitrotoluene	ND	0.013	1	09/08/2021 16:52
2,6-Dinitrotoluene	ND	0.013	1	09/08/2021 16:52
Di-n-octyl Phthalate	ND	0.013	1	09/08/2021 16:52
1,2-Diphenylhydrazine	ND	0.25	1	09/08/2021 16:52
Fluoranthene	ND	0.0013	1	09/08/2021 16:52
Fluorene	ND	0.0025	1	09/08/2021 16:52
Hexachlorobenzene	ND	0.0013	1	09/08/2021 16:52
Hexachlorobutadiene	ND	0.0025	1	09/08/2021 16:52
Hexachlorocyclopentadiene	ND	2.0	1	09/08/2021 16:52
Hexachloroethane	ND	0.013	1	09/08/2021 16:52
Indeno (1,2,3-cd) pyrene	ND	0.013	1	09/08/2021 16:52
Isophorone	ND	0.25	1	09/08/2021 16:52
1-Methylnaphthalene	ND	0.0013	1	09/08/2021 16:52
2-Methylnaphthalene	ND	0.0025	1	09/08/2021 16:52
2-Methylphenol (o-Cresol)	ND	0.25	1	09/08/2021 16:52
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/08/2021 16:52
Naphthalene	ND	0.0013	1	09/08/2021 16:52
2-Nitroaniline	ND	1.2	1	09/08/2021 16:52
3-Nitroaniline	ND	1.2	1	09/08/2021 16:52
4-Nitroaniline	ND	1.2	1	09/08/2021 16:52
Nitrobenzene	ND	0.25	1	09/08/2021 16:52
2-Nitrophenol	ND	1.2	1	09/08/2021 16:52
4-Nitrophenol	ND	1.2	1	09/08/2021 16:52
N-Nitrosodimethylamine	ND	1.2	1	09/08/2021 16:52
N-Nitrosodiphenylamine	ND	0.25	1	09/08/2021 16:52
N-Nitrosodi-n-propylamine	ND	0.25	1	09/08/2021 16:52
Pentachlorophenol	ND	0.062	1	09/08/2021 16:52
Phenanthrene	ND	0.0050	1	09/08/2021 16:52
Phenol	ND	0.050	1	09/08/2021 16:52
Pyrene	ND	0.0025	1	09/08/2021 16:52
Pyridine	ND	0.25	1	09/08/2021 16:52
1,2,4-Trichlorobenzene	ND	0.25	1	09/08/2021 16:52
2,4,5-Trichlorophenol	ND	0.0025	1	09/08/2021 16:52
2,4,6-Trichlorophenol	ND	0.013	1	09/08/2021 16:52

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-11-1.5	2108G85-048A	Soil	08/27/2021 12:55	GC42 09082116.D	228980

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>	
2-Fluorophenol	113		60-130	09/08/2021 16:52
Phenol-d5	103		60-130	09/08/2021 16:52
Nitrobenzene-d5	102		60-130	09/08/2021 16:52
2-Fluorobiphenyl	88		60-130	09/08/2021 16:52
2,4,6-Tribromophenol	19	S	50-130	09/08/2021 16:52
4-Terphenyl-d14	80		50-130	09/08/2021 16:52

Analyst(s): KOS

Analytical Comments: c2



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-0.5	2108G85-051A	Soil	08/27/2021 13:35	GC42 09082117.D	228980
<u>Analytes</u>	<u>Result</u>		<u>RL</u> <u>DF</u>		<u>Date Analyzed</u>
Acenaphthene	ND		0.0026 2		09/08/2021 17:21
Acenaphthylene	ND		0.0026 2		09/08/2021 17:21
Acetochlor	ND		0.50 2		09/08/2021 17:21
Anthracene	ND		0.0026 2		09/08/2021 17:21
Benzidine	ND		2.5 2		09/08/2021 17:21
Benzo (a) anthracene	ND		0.026 2		09/08/2021 17:21
Benzo (a) pyrene	0.0072		0.0050 2		09/08/2021 17:21
Benzo (b) fluoranthene	ND		0.013 2		09/08/2021 17:21
Benzo (g,h,i) perylene	0.013		0.0050 2		09/08/2021 17:21
Benzo (k) fluoranthene	ND		0.0026 2		09/08/2021 17:21
Benzyl Alcohol	ND		2.5 2		09/08/2021 17:21
1,1-Biphenyl	ND		0.026 2		09/08/2021 17:21
Bis (2-chloroethoxy) Methane	ND		0.50 2		09/08/2021 17:21
Bis (2-chloroethyl) Ether	ND		0.0026 2		09/08/2021 17:21
Bis (2-chloroisopropyl) Ether	ND		0.0026 2		09/08/2021 17:21
Bis (2-ethylhexyl) Adipate	ND		0.50 2		09/08/2021 17:21
Bis (2-ethylhexyl) Phthalate	ND		0.050 2		09/08/2021 17:21
4-Bromophenyl Phenyl Ether	ND		0.50 2		09/08/2021 17:21
Butylbenzyl Phthalate	ND		0.050 2		09/08/2021 17:21
4-Chloroaniline	ND		0.0050 2		09/08/2021 17:21
4-Chloro-3-methylphenol	ND		0.50 2		09/08/2021 17:21
2-Chloronaphthalene	ND		0.50 2		09/08/2021 17:21
2-Chlorophenol	ND		0.026 2		09/08/2021 17:21
4-Chlorophenyl Phenyl Ether	ND		0.50 2		09/08/2021 17:21
Chrysene	ND		0.0050 2		09/08/2021 17:21
Dibenzo (a,h) anthracene	ND		0.0050 2		09/08/2021 17:21
Dibenzofuran	ND		0.50 2		09/08/2021 17:21
Di-n-butyl Phthalate	ND		0.026 2		09/08/2021 17:21
1,2-Dichlorobenzene	ND		0.50 2		09/08/2021 17:21
1,3-Dichlorobenzene	ND		0.50 2		09/08/2021 17:21
1,4-Dichlorobenzene	ND		0.50 2		09/08/2021 17:21
3,3-Dichlorobenzidine	ND		0.0050 2		09/08/2021 17:21
2,4-Dichlorophenol	ND		0.0026 2		09/08/2021 17:21
Diethyl Phthalate	ND		0.026 2		09/08/2021 17:21
2,4-Dimethylphenol	ND		0.50 2		09/08/2021 17:21
Dimethyl Phthalate	ND		0.0050 2		09/08/2021 17:21
4,6-Dinitro-2-methylphenol	ND		2.5 2		09/08/2021 17:21

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-0.5	2108G85-051A	Soil	08/27/2021 13:35	GC42 09082117.D	228980

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	0.50	2	09/08/2021 17:21
2,4-Dinitrotoluene	ND	0.026	2	09/08/2021 17:21
2,6-Dinitrotoluene	ND	0.026	2	09/08/2021 17:21
Di-n-octyl Phthalate	ND	0.026	2	09/08/2021 17:21
1,2-Diphenylhydrazine	ND	0.50	2	09/08/2021 17:21
Fluoranthene	0.011	0.0026	2	09/08/2021 17:21
Fluorene	ND	0.0050	2	09/08/2021 17:21
Hexachlorobenzene	ND	0.0026	2	09/08/2021 17:21
Hexachlorobutadiene	ND	0.0050	2	09/08/2021 17:21
Hexachlorocyclopentadiene	ND	4.0	2	09/08/2021 17:21
Hexachloroethane	ND	0.026	2	09/08/2021 17:21
Indeno (1,2,3-cd) pyrene	ND	0.026	2	09/08/2021 17:21
Isophorone	ND	0.50	2	09/08/2021 17:21
1-Methylnaphthalene	ND	0.0026	2	09/08/2021 17:21
2-Methylnaphthalene	ND	0.0050	2	09/08/2021 17:21
2-Methylphenol (o-Cresol)	ND	0.50	2	09/08/2021 17:21
3 & 4-Methylphenol (m,p-Cresol)	ND	0.50	2	09/08/2021 17:21
Naphthalene	0.0033	0.0026	2	09/08/2021 17:21
2-Nitroaniline	ND	2.5	2	09/08/2021 17:21
3-Nitroaniline	ND	2.5	2	09/08/2021 17:21
4-Nitroaniline	ND	2.5	2	09/08/2021 17:21
Nitrobenzene	ND	0.50	2	09/08/2021 17:21
2-Nitrophenol	ND	2.5	2	09/08/2021 17:21
4-Nitrophenol	ND	2.5	2	09/08/2021 17:21
N-Nitrosodimethylamine	ND	2.5	2	09/08/2021 17:21
N-Nitrosodiphenylamine	ND	0.50	2	09/08/2021 17:21
N-Nitrosodi-n-propylamine	ND	0.50	2	09/08/2021 17:21
Pentachlorophenol	ND	0.12	2	09/08/2021 17:21
Phenanthrene	0.011	0.010	2	09/08/2021 17:21
Phenol	ND	0.10	2	09/08/2021 17:21
Pyrene	0.0059	0.0050	2	09/08/2021 17:21
Pyridine	ND	0.50	2	09/08/2021 17:21
1,2,4-Trichlorobenzene	ND	0.50	2	09/08/2021 17:21
2,4,5-Trichlorophenol	ND	0.0050	2	09/08/2021 17:21
2,4,6-Trichlorophenol	ND	0.026	2	09/08/2021 17:21

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-0.5	2108G85-051A	Soil	08/27/2021 13:35	GC42 09082117.D	228980

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorophenol	76	60-130		09/08/2021 17:21
Phenol-d5	74	60-130		09/08/2021 17:21
Nitrobenzene-d5	73	60-130		09/08/2021 17:21
2-Fluorobiphenyl	69	60-130		09/08/2021 17:21
2,4,6-Tribromophenol	63	50-130		09/08/2021 17:21
4-Terphenyl-d14	50	50-130		09/08/2021 17:21

Analyst(s): KOS



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-3.0	2108G85-053A	Soil	08/27/2021 13:37	GC42 09082118.D	228980

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.0013	1	09/08/2021 17:49
Acenaphthylene	ND	0.0013	1	09/08/2021 17:49
Acetochlor	ND	0.25	1	09/08/2021 17:49
Anthracene	ND	0.0013	1	09/08/2021 17:49
Benzidine	ND	1.2	1	09/08/2021 17:49
Benzo (a) anthracene	0.015	0.013	1	09/08/2021 17:49
Benzo (a) pyrene	0.0096	0.0025	1	09/08/2021 17:49
Benzo (b) fluoranthene	0.018	0.0063	1	09/08/2021 17:49
Benzo (g,h,i) perylene	0.0086	0.0025	1	09/08/2021 17:49
Benzo (k) fluoranthene	0.0065	0.0013	1	09/08/2021 17:49
Benzyl Alcohol	ND	1.2	1	09/08/2021 17:49
1,1-Biphenyl	ND	0.013	1	09/08/2021 17:49
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/08/2021 17:49
Bis (2-chloroethyl) Ether	ND	0.0013	1	09/08/2021 17:49
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	09/08/2021 17:49
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/08/2021 17:49
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	09/08/2021 17:49
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/08/2021 17:49
Butylbenzyl Phthalate	ND	0.025	1	09/08/2021 17:49
4-Chloroaniline	ND	0.0025	1	09/08/2021 17:49
4-Chloro-3-methylphenol	ND	0.25	1	09/08/2021 17:49
2-Chloronaphthalene	ND	0.25	1	09/08/2021 17:49
2-Chlorophenol	ND	0.013	1	09/08/2021 17:49
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/08/2021 17:49
Chrysene	0.020	0.0025	1	09/08/2021 17:49
Dibenzo (a,h) anthracene	0.0030	0.0025	1	09/08/2021 17:49
Dibenzofuran	ND	0.25	1	09/08/2021 17:49
Di-n-butyl Phthalate	ND	0.013	1	09/08/2021 17:49
1,2-Dichlorobenzene	ND	0.25	1	09/08/2021 17:49
1,3-Dichlorobenzene	ND	0.25	1	09/08/2021 17:49
1,4-Dichlorobenzene	ND	0.25	1	09/08/2021 17:49
3,3-Dichlorobenzidine	ND	0.0025	1	09/08/2021 17:49
2,4-Dichlorophenol	ND	0.0013	1	09/08/2021 17:49
Diethyl Phthalate	ND	0.013	1	09/08/2021 17:49
2,4-Dimethylphenol	ND	0.25	1	09/08/2021 17:49
Dimethyl Phthalate	ND	0.0025	1	09/08/2021 17:49
4,6-Dinitro-2-methylphenol	ND	1.2	1	09/08/2021 17:49

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-3.0	2108G85-053A	Soil	08/27/2021 13:37	GC42 09082118.D	228980

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	0.25	1	09/08/2021 17:49
2,4-Dinitrotoluene	ND	0.013	1	09/08/2021 17:49
2,6-Dinitrotoluene	ND	0.013	1	09/08/2021 17:49
Di-n-octyl Phthalate	ND	0.013	1	09/08/2021 17:49
1,2-Diphenylhydrazine	ND	0.25	1	09/08/2021 17:49
Fluoranthene	0.031	0.0013	1	09/08/2021 17:49
Fluorene	0.0044	0.0025	1	09/08/2021 17:49
Hexachlorobenzene	ND	0.0013	1	09/08/2021 17:49
Hexachlorobutadiene	ND	0.0025	1	09/08/2021 17:49
Hexachlorocyclopentadiene	ND	2.0	1	09/08/2021 17:49
Hexachloroethane	ND	0.013	1	09/08/2021 17:49
Indeno (1,2,3-cd) pyrene	ND	0.013	1	09/08/2021 17:49
Isophorone	ND	0.25	1	09/08/2021 17:49
1-Methylnaphthalene	ND	0.0013	1	09/08/2021 17:49
2-Methylnaphthalene	ND	0.0025	1	09/08/2021 17:49
2-Methylphenol (o-Cresol)	ND	0.25	1	09/08/2021 17:49
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/08/2021 17:49
Naphthalene	ND	0.0013	1	09/08/2021 17:49
2-Nitroaniline	ND	1.2	1	09/08/2021 17:49
3-Nitroaniline	ND	1.2	1	09/08/2021 17:49
4-Nitroaniline	ND	1.2	1	09/08/2021 17:49
Nitrobenzene	ND	0.25	1	09/08/2021 17:49
2-Nitrophenol	ND	1.2	1	09/08/2021 17:49
4-Nitrophenol	ND	1.2	1	09/08/2021 17:49
N-Nitrosodimethylamine	ND	1.2	1	09/08/2021 17:49
N-Nitrosodiphenylamine	ND	0.25	1	09/08/2021 17:49
N-Nitrosodi-n-propylamine	ND	0.25	1	09/08/2021 17:49
Pentachlorophenol	ND	0.062	1	09/08/2021 17:49
Phenanthrene	0.0079	0.0050	1	09/08/2021 17:49
Phenol	ND	0.050	1	09/08/2021 17:49
Pyrene	0.017	0.0025	1	09/08/2021 17:49
Pyridine	ND	0.25	1	09/08/2021 17:49
1,2,4-Trichlorobenzene	ND	0.25	1	09/08/2021 17:49
2,4,5-Trichlorophenol	ND	0.0025	1	09/08/2021 17:49
2,4,6-Trichlorophenol	ND	0.013	1	09/08/2021 17:49

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-3.0	2108G85-053A	Soil	08/27/2021 13:37	GC42 09082118.D	228980

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>	
2-Fluorophenol	64		60-130	09/08/2021 17:49
Phenol-d5	62		60-130	09/08/2021 17:49
Nitrobenzene-d5	61		60-130	09/08/2021 17:49
2-Fluorobiphenyl	54	S	60-130	09/08/2021 17:49
2,4,6-Tribromophenol	50		50-130	09/08/2021 17:49
4-Terphenyl-d14	46	S	50-130	09/08/2021 17:49

Analyst(s): KOS

Analytical Comments: c2



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-13-1.5	2108G85-056A	Soil	08/27/2021 13:45	GC42 09082119.D	228980

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.0013	1	09/08/2021 18:17
Acenaphthylene	ND	0.0013	1	09/08/2021 18:17
Acetochlor	ND	0.25	1	09/08/2021 18:17
Anthracene	ND	0.0013	1	09/08/2021 18:17
Benzidine	ND	1.2	1	09/08/2021 18:17
Benzo (a) anthracene	ND	0.013	1	09/08/2021 18:17
Benzo (a) pyrene	ND	0.0025	1	09/08/2021 18:17
Benzo (b) fluoranthene	ND	0.0063	1	09/08/2021 18:17
Benzo (g,h,i) perylene	0.0030	0.0025	1	09/08/2021 18:17
Benzo (k) fluoranthene	ND	0.0013	1	09/08/2021 18:17
Benzyl Alcohol	ND	1.2	1	09/08/2021 18:17
1,1-Biphenyl	ND	0.013	1	09/08/2021 18:17
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/08/2021 18:17
Bis (2-chloroethyl) Ether	ND	0.0013	1	09/08/2021 18:17
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	09/08/2021 18:17
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/08/2021 18:17
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	09/08/2021 18:17
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/08/2021 18:17
Butylbenzyl Phthalate	ND	0.025	1	09/08/2021 18:17
4-Chloroaniline	ND	0.0025	1	09/08/2021 18:17
4-Chloro-3-methylphenol	ND	0.25	1	09/08/2021 18:17
2-Chloronaphthalene	ND	0.25	1	09/08/2021 18:17
2-Chlorophenol	ND	0.013	1	09/08/2021 18:17
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/08/2021 18:17
Chrysene	ND	0.0025	1	09/08/2021 18:17
Dibenzo (a,h) anthracene	ND	0.0025	1	09/08/2021 18:17
Dibenzofuran	ND	0.25	1	09/08/2021 18:17
Di-n-butyl Phthalate	ND	0.013	1	09/08/2021 18:17
1,2-Dichlorobenzene	ND	0.25	1	09/08/2021 18:17
1,3-Dichlorobenzene	ND	0.25	1	09/08/2021 18:17
1,4-Dichlorobenzene	ND	0.25	1	09/08/2021 18:17
3,3-Dichlorobenzidine	ND	0.0025	1	09/08/2021 18:17
2,4-Dichlorophenol	ND	0.0013	1	09/08/2021 18:17
Diethyl Phthalate	ND	0.013	1	09/08/2021 18:17
2,4-Dimethylphenol	ND	0.25	1	09/08/2021 18:17
Dimethyl Phthalate	ND	0.0025	1	09/08/2021 18:17
4,6-Dinitro-2-methylphenol	ND	1.2	1	09/08/2021 18:17

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-13-1.5	2108G85-056A	Soil	08/27/2021 13:45	GC42 09082119.D	228980

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	0.25	1	09/08/2021 18:17
2,4-Dinitrotoluene	ND	0.013	1	09/08/2021 18:17
2,6-Dinitrotoluene	ND	0.013	1	09/08/2021 18:17
Di-n-octyl Phthalate	ND	0.013	1	09/08/2021 18:17
1,2-Diphenylhydrazine	ND	0.25	1	09/08/2021 18:17
Fluoranthene	0.0028	0.0013	1	09/08/2021 18:17
Fluorene	ND	0.0025	1	09/08/2021 18:17
Hexachlorobenzene	ND	0.0013	1	09/08/2021 18:17
Hexachlorobutadiene	ND	0.0025	1	09/08/2021 18:17
Hexachlorocyclopentadiene	ND	2.0	1	09/08/2021 18:17
Hexachloroethane	ND	0.013	1	09/08/2021 18:17
Indeno (1,2,3-cd) pyrene	ND	0.013	1	09/08/2021 18:17
Isophorone	ND	0.25	1	09/08/2021 18:17
1-Methylnaphthalene	ND	0.0013	1	09/08/2021 18:17
2-Methylnaphthalene	ND	0.0025	1	09/08/2021 18:17
2-Methylphenol (o-Cresol)	ND	0.25	1	09/08/2021 18:17
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/08/2021 18:17
Naphthalene	0.0018	0.0013	1	09/08/2021 18:17
2-Nitroaniline	ND	1.2	1	09/08/2021 18:17
3-Nitroaniline	ND	1.2	1	09/08/2021 18:17
4-Nitroaniline	ND	1.2	1	09/08/2021 18:17
Nitrobenzene	ND	0.25	1	09/08/2021 18:17
2-Nitrophenol	ND	1.2	1	09/08/2021 18:17
4-Nitrophenol	ND	1.2	1	09/08/2021 18:17
N-Nitrosodimethylamine	ND	1.2	1	09/08/2021 18:17
N-Nitrosodiphenylamine	ND	0.25	1	09/08/2021 18:17
N-Nitrosodi-n-propylamine	ND	0.25	1	09/08/2021 18:17
Pentachlorophenol	ND	0.062	1	09/08/2021 18:17
Phenanthrene	ND	0.0050	1	09/08/2021 18:17
Phenol	ND	0.050	1	09/08/2021 18:17
Pyrene	ND	0.0025	1	09/08/2021 18:17
Pyridine	ND	0.25	1	09/08/2021 18:17
1,2,4-Trichlorobenzene	ND	0.25	1	09/08/2021 18:17
2,4,5-Trichlorophenol	ND	0.0025	1	09/08/2021 18:17
2,4,6-Trichlorophenol	ND	0.013	1	09/08/2021 18:17

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-13-1.5	2108G85-056A	Soil	08/27/2021 13:45	GC42 09082119.D	228980

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorophenol	76	60-130		09/08/2021 18:17
Phenol-d5	73	60-130		09/08/2021 18:17
Nitrobenzene-d5	72	60-130		09/08/2021 18:17
2-Fluorobiphenyl	62	60-130		09/08/2021 18:17
2,4,6-Tribromophenol	60	50-130		09/08/2021 18:17
4-Terphenyl-d14	50	50-130		09/08/2021 18:17

Analyst(s): KOS



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-0.5	2108G85-059A	Soil	08/27/2021 13:10	GC42 09082120.D	228980

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.0026	2	09/08/2021 18:44
Acenaphthylene	ND	0.0026	2	09/08/2021 18:44
Acetochlor	ND	0.50	2	09/08/2021 18:44
Anthracene	ND	0.0026	2	09/08/2021 18:44
Benzidine	ND	2.5	2	09/08/2021 18:44
Benzo (a) anthracene	ND	0.026	2	09/08/2021 18:44
Benzo (a) pyrene	ND	0.0050	2	09/08/2021 18:44
Benzo (b) fluoranthene	ND	0.013	2	09/08/2021 18:44
Benzo (g,h,i) perylene	0.0071	0.0050	2	09/08/2021 18:44
Benzo (k) fluoranthene	ND	0.0026	2	09/08/2021 18:44
Benzyl Alcohol	ND	2.5	2	09/08/2021 18:44
1,1-Biphenyl	ND	0.026	2	09/08/2021 18:44
Bis (2-chloroethoxy) Methane	ND	0.50	2	09/08/2021 18:44
Bis (2-chloroethyl) Ether	ND	0.0026	2	09/08/2021 18:44
Bis (2-chloroisopropyl) Ether	ND	0.0026	2	09/08/2021 18:44
Bis (2-ethylhexyl) Adipate	ND	0.50	2	09/08/2021 18:44
Bis (2-ethylhexyl) Phthalate	ND	0.050	2	09/08/2021 18:44
4-Bromophenyl Phenyl Ether	ND	0.50	2	09/08/2021 18:44
Butylbenzyl Phthalate	ND	0.050	2	09/08/2021 18:44
4-Chloroaniline	ND	0.0050	2	09/08/2021 18:44
4-Chloro-3-methylphenol	ND	0.50	2	09/08/2021 18:44
2-Chloronaphthalene	ND	0.50	2	09/08/2021 18:44
2-Chlorophenol	ND	0.026	2	09/08/2021 18:44
4-Chlorophenyl Phenyl Ether	ND	0.50	2	09/08/2021 18:44
Chrysene	ND	0.0050	2	09/08/2021 18:44
Dibenzo (a,h) anthracene	ND	0.0050	2	09/08/2021 18:44
Dibenzofuran	ND	0.50	2	09/08/2021 18:44
Di-n-butyl Phthalate	ND	0.026	2	09/08/2021 18:44
1,2-Dichlorobenzene	ND	0.50	2	09/08/2021 18:44
1,3-Dichlorobenzene	ND	0.50	2	09/08/2021 18:44
1,4-Dichlorobenzene	ND	0.50	2	09/08/2021 18:44
3,3-Dichlorobenzidine	ND	0.0050	2	09/08/2021 18:44
2,4-Dichlorophenol	ND	0.0026	2	09/08/2021 18:44
Diethyl Phthalate	ND	0.026	2	09/08/2021 18:44
2,4-Dimethylphenol	ND	0.50	2	09/08/2021 18:44
Dimethyl Phthalate	ND	0.0050	2	09/08/2021 18:44
4,6-Dinitro-2-methylphenol	ND	2.5	2	09/08/2021 18:44

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Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-0.5	2108G85-059A	Soil	08/27/2021 13:10	GC42 09082120.D	228980

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	0.50	2	09/08/2021 18:44
2,4-Dinitrotoluene	ND	0.026	2	09/08/2021 18:44
2,6-Dinitrotoluene	ND	0.026	2	09/08/2021 18:44
Di-n-octyl Phthalate	ND	0.026	2	09/08/2021 18:44
1,2-Diphenylhydrazine	ND	0.50	2	09/08/2021 18:44
Fluoranthene	0.0059	0.0026	2	09/08/2021 18:44
Fluorene	ND	0.0050	2	09/08/2021 18:44
Hexachlorobenzene	ND	0.0026	2	09/08/2021 18:44
Hexachlorobutadiene	ND	0.0050	2	09/08/2021 18:44
Hexachlorocyclopentadiene	ND	4.0	2	09/08/2021 18:44
Hexachloroethane	ND	0.026	2	09/08/2021 18:44
Indeno (1,2,3-cd) pyrene	ND	0.026	2	09/08/2021 18:44
Isophorone	ND	0.50	2	09/08/2021 18:44
1-Methylnaphthalene	ND	0.0026	2	09/08/2021 18:44
2-Methylnaphthalene	ND	0.0050	2	09/08/2021 18:44
2-Methylphenol (o-Cresol)	ND	0.50	2	09/08/2021 18:44
3 & 4-Methylphenol (m,p-Cresol)	ND	0.50	2	09/08/2021 18:44
Naphthalene	0.0028	0.0026	2	09/08/2021 18:44
2-Nitroaniline	ND	2.5	2	09/08/2021 18:44
3-Nitroaniline	ND	2.5	2	09/08/2021 18:44
4-Nitroaniline	ND	2.5	2	09/08/2021 18:44
Nitrobenzene	ND	0.50	2	09/08/2021 18:44
2-Nitrophenol	ND	2.5	2	09/08/2021 18:44
4-Nitrophenol	ND	2.5	2	09/08/2021 18:44
N-Nitrosodimethylamine	ND	2.5	2	09/08/2021 18:44
N-Nitrosodiphenylamine	ND	0.50	2	09/08/2021 18:44
N-Nitrosodi-n-propylamine	ND	0.50	2	09/08/2021 18:44
Pentachlorophenol	ND	0.12	2	09/08/2021 18:44
Phenanthrene	ND	0.010	2	09/08/2021 18:44
Phenol	ND	0.10	2	09/08/2021 18:44
Pyrene	ND	0.0050	2	09/08/2021 18:44
Pyridine	ND	0.50	2	09/08/2021 18:44
1,2,4-Trichlorobenzene	ND	0.50	2	09/08/2021 18:44
2,4,5-Trichlorophenol	ND	0.0050	2	09/08/2021 18:44
2,4,6-Trichlorophenol	ND	0.026	2	09/08/2021 18:44

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-0.5	2108G85-059A	Soil	08/27/2021 13:10	GC42 09082120.D	228980

Analytes	Result	RL	DF	Date Analyzed
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Surrogates	REC (%)	Qualifiers	Limits	
2-Fluorophenol	87		60-130	09/08/2021 18:44
Phenol-d5	83		60-130	09/08/2021 18:44
Nitrobenzene-d5	75		60-130	09/08/2021 18:44
2-Fluorobiphenyl	66		60-130	09/08/2021 18:44
2,4,6-Tribromophenol	63		50-130	09/08/2021 18:44
4-Terphenyl-d14	48	S	50-130	09/08/2021 18:44

Analyst(s): KOS

Analytical Comments: a3c1



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-3.0	2108G85-061A	Soil	08/27/2021 13:12	GC42 09082121.D	228980

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.0013	1	09/08/2021 19:12
Acenaphthylene	ND	0.0013	1	09/08/2021 19:12
Acetochlor	ND	0.25	1	09/08/2021 19:12
Anthracene	ND	0.0013	1	09/08/2021 19:12
Benzidine	ND	1.2	1	09/08/2021 19:12
Benzo (a) anthracene	ND	0.013	1	09/08/2021 19:12
Benzo (a) pyrene	ND	0.0025	1	09/08/2021 19:12
Benzo (b) fluoranthene	ND	0.0063	1	09/08/2021 19:12
Benzo (g,h,i) perylene	ND	0.0025	1	09/08/2021 19:12
Benzo (k) fluoranthene	ND	0.0013	1	09/08/2021 19:12
Benzyl Alcohol	ND	1.2	1	09/08/2021 19:12
1,1-Biphenyl	ND	0.013	1	09/08/2021 19:12
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/08/2021 19:12
Bis (2-chloroethyl) Ether	ND	0.0013	1	09/08/2021 19:12
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	09/08/2021 19:12
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/08/2021 19:12
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	09/08/2021 19:12
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/08/2021 19:12
Butylbenzyl Phthalate	ND	0.025	1	09/08/2021 19:12
4-Chloroaniline	ND	0.0025	1	09/08/2021 19:12
4-Chloro-3-methylphenol	ND	0.25	1	09/08/2021 19:12
2-Chloronaphthalene	ND	0.25	1	09/08/2021 19:12
2-Chlorophenol	ND	0.013	1	09/08/2021 19:12
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/08/2021 19:12
Chrysene	ND	0.0025	1	09/08/2021 19:12
Dibenzo (a,h) anthracene	ND	0.0025	1	09/08/2021 19:12
Dibenzofuran	ND	0.25	1	09/08/2021 19:12
Di-n-butyl Phthalate	ND	0.013	1	09/08/2021 19:12
1,2-Dichlorobenzene	ND	0.25	1	09/08/2021 19:12
1,3-Dichlorobenzene	ND	0.25	1	09/08/2021 19:12
1,4-Dichlorobenzene	ND	0.25	1	09/08/2021 19:12
3,3-Dichlorobenzidine	ND	0.0025	1	09/08/2021 19:12
2,4-Dichlorophenol	ND	0.0013	1	09/08/2021 19:12
Diethyl Phthalate	ND	0.013	1	09/08/2021 19:12
2,4-Dimethylphenol	ND	0.25	1	09/08/2021 19:12
Dimethyl Phthalate	ND	0.0025	1	09/08/2021 19:12
4,6-Dinitro-2-methylphenol	ND	1.2	1	09/08/2021 19:12

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-3.0	2108G85-061A	Soil	08/27/2021 13:12	GC42 09082121.D	228980

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	0.25	1	09/08/2021 19:12
2,4-Dinitrotoluene	ND	0.013	1	09/08/2021 19:12
2,6-Dinitrotoluene	ND	0.013	1	09/08/2021 19:12
Di-n-octyl Phthalate	ND	0.013	1	09/08/2021 19:12
1,2-Diphenylhydrazine	ND	0.25	1	09/08/2021 19:12
Fluoranthene	ND	0.0013	1	09/08/2021 19:12
Fluorene	ND	0.0025	1	09/08/2021 19:12
Hexachlorobenzene	ND	0.0013	1	09/08/2021 19:12
Hexachlorobutadiene	ND	0.0025	1	09/08/2021 19:12
Hexachlorocyclopentadiene	ND	2.0	1	09/08/2021 19:12
Hexachloroethane	ND	0.013	1	09/08/2021 19:12
Indeno (1,2,3-cd) pyrene	ND	0.013	1	09/08/2021 19:12
Isophorone	ND	0.25	1	09/08/2021 19:12
1-Methylnaphthalene	ND	0.0013	1	09/08/2021 19:12
2-Methylnaphthalene	ND	0.0025	1	09/08/2021 19:12
2-Methylphenol (o-Cresol)	ND	0.25	1	09/08/2021 19:12
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/08/2021 19:12
Naphthalene	ND	0.0013	1	09/08/2021 19:12
2-Nitroaniline	ND	1.2	1	09/08/2021 19:12
3-Nitroaniline	ND	1.2	1	09/08/2021 19:12
4-Nitroaniline	ND	1.2	1	09/08/2021 19:12
Nitrobenzene	ND	0.25	1	09/08/2021 19:12
2-Nitrophenol	ND	1.2	1	09/08/2021 19:12
4-Nitrophenol	ND	1.2	1	09/08/2021 19:12
N-Nitrosodimethylamine	ND	1.2	1	09/08/2021 19:12
N-Nitrosodiphenylamine	ND	0.25	1	09/08/2021 19:12
N-Nitrosodi-n-propylamine	ND	0.25	1	09/08/2021 19:12
Pentachlorophenol	ND	0.062	1	09/08/2021 19:12
Phenanthrene	ND	0.0050	1	09/08/2021 19:12
Phenol	ND	0.050	1	09/08/2021 19:12
Pyrene	ND	0.0025	1	09/08/2021 19:12
Pyridine	ND	0.25	1	09/08/2021 19:12
1,2,4-Trichlorobenzene	ND	0.25	1	09/08/2021 19:12
2,4,5-Trichlorophenol	ND	0.0025	1	09/08/2021 19:12
2,4,6-Trichlorophenol	ND	0.013	1	09/08/2021 19:12

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 09/02/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-3.0	2108G85-061A	Soil	08/27/2021 13:12	GC42 09082121.D	228980

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>	
2-Fluorophenol	120		60-130	09/08/2021 19:12
Phenol-d5	107		60-130	09/08/2021 19:12
Nitrobenzene-d5	99		60-130	09/08/2021 19:12
2-Fluorobiphenyl	84		60-130	09/08/2021 19:12
2,4,6-Tribromophenol	25	S	50-130	09/08/2021 19:12
4-Terphenyl-d14	63		50-130	09/08/2021 19:12

Analyst(s): KOS

Analytical Comments: c2



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-0.5	2108G85-001A	Soil	08/27/2021 09:03	ICP-MS4 133SMPL.d	228807

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	09/01/2021 11:50
Arsenic	3.8	0.50	1	09/01/2021 11:50
Barium	65	5.0	1	09/01/2021 11:50
Beryllium	ND	0.50	1	09/01/2021 11:50
Cadmium	ND	0.50	1	09/01/2021 11:50
Chromium	250	0.50	1	09/01/2021 11:50
Cobalt	38	0.50	1	09/01/2021 11:50
Copper	22	0.50	1	09/01/2021 11:50
Lead	4.8	0.50	1	09/01/2021 11:50
Mercury	ND	0.050	1	09/01/2021 11:50
Molybdenum	ND	0.50	1	09/01/2021 11:50
Nickel	770	5.0	10	09/01/2021 13:02
Selenium	0.57	0.50	1	09/01/2021 11:50
Silver	ND	0.50	1	09/01/2021 11:50
Thallium	ND	0.50	1	09/01/2021 11:50
Vanadium	37	0.50	1	09/01/2021 11:50
Zinc	50	5.0	1	09/01/2021 11:50

Surrogates	REC (%)	Limits	
Terbium	92	70-130	09/01/2021 11:50

Analyst(s): AL



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-7.5	2108G85-004A	Soil	08/27/2021 09:12	ICP-MS4 135SMPL.d	228807

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	09/01/2021 11:58
Arsenic	7.3	0.50	1	09/01/2021 11:58
Barium	170	5.0	1	09/01/2021 11:58
Beryllium	ND	0.50	1	09/01/2021 11:58
Cadmium	ND	0.50	1	09/01/2021 11:58
Chromium	380	0.50	1	09/01/2021 11:58
Cobalt	51	0.50	1	09/01/2021 11:58
Copper	38	0.50	1	09/01/2021 11:58
Lead	9.5	0.50	1	09/01/2021 11:58
Mercury	0.078	0.050	1	09/01/2021 11:58
Molybdenum	ND	0.50	1	09/01/2021 11:58
Nickel	960	5.0	10	09/01/2021 13:09
Selenium	0.96	0.50	1	09/01/2021 11:58
Silver	ND	0.50	1	09/01/2021 11:58
Thallium	ND	0.50	1	09/01/2021 11:58
Vanadium	65	0.50	1	09/01/2021 11:58
Zinc	55	5.0	1	09/01/2021 11:58

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	112	70-130	09/01/2021 11:58

Analyst(s): AL



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-1.5	2108G85-007A	Soil	08/27/2021 09:28	ICP-MS4 104SMPL.d	228825

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	09/01/2021 10:02
Arsenic	2.4	0.50	1	09/01/2021 10:02
Barium	62	5.0	1	09/01/2021 10:02
Beryllium	ND	0.50	1	09/01/2021 10:02
Cadmium	ND	0.50	1	09/01/2021 10:02
Chromium	440	0.50	1	09/01/2021 10:02
Cobalt	58	0.50	1	09/01/2021 10:02
Copper	19	0.50	1	09/01/2021 10:02
Lead	3.8	0.50	1	09/01/2021 10:02
Mercury	0.073	0.050	1	09/01/2021 10:02
Molybdenum	ND	0.50	1	09/01/2021 10:02
Nickel	1200	2.5	5	09/01/2021 11:42
Selenium	ND	0.50	1	09/01/2021 10:02
Silver	ND	0.50	1	09/01/2021 10:02
Thallium	ND	0.50	1	09/01/2021 10:02
Vanadium	47	0.50	1	09/01/2021 10:02
Zinc	41	5.0	1	09/01/2021 10:02

Surrogates	REC (%)	Limits	
Terbium	108	70-130	09/01/2021 10:02

Analyst(s): WV



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-5.0	2108G85-009A	Soil	08/27/2021 09:32	ICP-MS4 137SMPL.d	228825

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	09/01/2021 12:05
Arsenic	5.0	0.50	1	09/01/2021 12:05
Barium	130	5.0	1	09/01/2021 12:05
Beryllium	ND	0.50	1	09/01/2021 12:05
Cadmium	ND	0.50	1	09/01/2021 12:05
Chromium	320	0.50	1	09/01/2021 12:05
Cobalt	37	0.50	1	09/01/2021 12:05
Copper	29	0.50	1	09/01/2021 12:05
Lead	5.6	0.50	1	09/01/2021 12:05
Mercury	0.069	0.050	1	09/01/2021 12:05
Molybdenum	ND	0.50	1	09/01/2021 12:05
Nickel	700	5.0	10	09/01/2021 13:24
Selenium	0.98	0.50	1	09/01/2021 12:05
Silver	ND	0.50	1	09/01/2021 12:05
Thallium	ND	0.50	1	09/01/2021 12:05
Vanadium	60	0.50	1	09/01/2021 12:05
Zinc	53	5.0	1	09/01/2021 12:05

Surrogates	REC (%)	Limits	
Terbium	114	70-130	09/01/2021 12:05

Analyst(s): AL, WV



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-10.0	2108G85-011A	Soil	08/27/2021 09:36	ICP-MS4 138SMPL.d	228825

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	09/01/2021 12:09
Arsenic	4.6	0.50	1	09/01/2021 12:09
Barium	130	5.0	1	09/01/2021 12:09
Beryllium	ND	0.50	1	09/01/2021 12:09
Cadmium	ND	0.50	1	09/01/2021 12:09
Chromium	360	0.50	1	09/01/2021 12:09
Cobalt	49	0.50	1	09/01/2021 12:09
Copper	31	0.50	1	09/01/2021 12:09
Lead	5.4	0.50	1	09/01/2021 12:09
Mercury	0.075	0.050	1	09/01/2021 12:09
Molybdenum	0.60	0.50	1	09/01/2021 12:09
Nickel	1100	5.0	10	09/01/2021 13:28
Selenium	1.1	0.50	1	09/01/2021 12:09
Silver	ND	0.50	1	09/01/2021 12:09
Thallium	ND	0.50	1	09/01/2021 12:09
Vanadium	68	0.50	1	09/01/2021 12:09
Zinc	54	5.0	1	09/01/2021 12:09

Surrogates	REC (%)	Limits	
Terbium	111	70-130	09/01/2021 12:09

Analyst(s): AL, WV



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-0.5	2108G85-012A	Soil	08/27/2021 09:45	ICP-MS4 139SMPL.d	228825

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	09/01/2021 12:13
Arsenic	3.9	0.50	1	09/01/2021 12:13
Barium	54	5.0	1	09/01/2021 12:13
Beryllium	ND	0.50	1	09/01/2021 12:13
Cadmium	ND	0.50	1	09/01/2021 12:13
Chromium	570	5.0	10	09/01/2021 13:32
Cobalt	55	0.50	1	09/01/2021 12:13
Copper	20	0.50	1	09/01/2021 12:13
Lead	3.8	0.50	1	09/01/2021 12:13
Mercury	0.061	0.050	1	09/01/2021 12:13
Molybdenum	ND	0.50	1	09/01/2021 12:13
Nickel	1200	5.0	10	09/01/2021 13:32
Selenium	0.54	0.50	1	09/01/2021 12:13
Silver	ND	0.50	1	09/01/2021 12:13
Thallium	ND	0.50	1	09/01/2021 12:13
Vanadium	44	0.50	1	09/01/2021 12:13
Zinc	44	5.0	1	09/01/2021 12:13

Surrogates	REC (%)	Limits	
Terbium	109	70-130	09/01/2021 12:13

Analyst(s): AL, WV



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-3.0	2108G85-014A	Soil	08/27/2021 09:48	ICP-MS4 141SMPL.d	228825

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	09/01/2021 12:20
Arsenic	1.2	0.50	1	09/01/2021 12:20
Barium	31	5.0	1	09/01/2021 12:20
Beryllium	ND	0.50	1	09/01/2021 12:20
Cadmium	ND	0.50	1	09/01/2021 12:20
Chromium	560	5.0	10	09/01/2021 13:39
Cobalt	46	0.50	1	09/01/2021 12:20
Copper	12	0.50	1	09/01/2021 12:20
Lead	1.9	0.50	1	09/01/2021 12:20
Mercury	ND	0.050	1	09/01/2021 12:20
Molybdenum	ND	0.50	1	09/01/2021 12:20
Nickel	980	5.0	10	09/01/2021 13:39
Selenium	ND	0.50	1	09/01/2021 12:20
Silver	ND	0.50	1	09/01/2021 12:20
Thallium	ND	0.50	1	09/01/2021 12:20
Vanadium	28	0.50	1	09/01/2021 12:20
Zinc	24	5.0	1	09/01/2021 12:20

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	112	70-130	09/01/2021 12:20

Analyst(s): AL, WV



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-7.5	2108G85-016A	Soil	08/27/2021 09:52	ICP-MS4 145SMPL.d	228825

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	09/01/2021 12:35
Arsenic	3.7	0.50	1	09/01/2021 12:35
Barium	89	5.0	1	09/01/2021 12:35
Beryllium	ND	0.50	1	09/01/2021 12:35
Cadmium	ND	0.50	1	09/01/2021 12:35
Chromium	440	0.50	1	09/01/2021 12:35
Cobalt	53	0.50	1	09/01/2021 12:35
Copper	22	0.50	1	09/01/2021 12:35
Lead	3.9	0.50	1	09/01/2021 12:35
Mercury	0.085	0.050	1	09/01/2021 12:35
Molybdenum	ND	0.50	1	09/01/2021 12:35
Nickel	1100	5.0	10	09/01/2021 13:41
Selenium	0.75	0.50	1	09/01/2021 12:35
Silver	ND	0.50	1	09/01/2021 12:35
Thallium	ND	0.50	1	09/01/2021 12:35
Vanadium	50	0.50	1	09/01/2021 12:35
Zinc	44	5.0	1	09/01/2021 12:35

Surrogates	REC (%)	Limits	
Terbium	109	70-130	09/01/2021 12:35

Analyst(s): AL, WV



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-0.5	2108G85-018A	Soil	08/27/2021 10:15	ICP-MS4 151SMPL.d	228825
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Antimony	ND		0.50	1	09/01/2021 12:58
Arsenic	2.6		0.50	1	09/01/2021 12:58
Barium	65		5.0	1	09/01/2021 12:58
Beryllium	ND		0.50	1	09/01/2021 12:58
Cadmium	ND		0.50	1	09/01/2021 12:58
Chromium	30		0.50	1	09/01/2021 12:58
Cobalt	4.4		0.50	1	09/01/2021 12:58
Copper	9.7		0.50	1	09/01/2021 12:58
Lead	7.3		0.50	1	09/01/2021 12:58
Mercury	ND		0.050	1	09/01/2021 12:58
Molybdenum	0.70		0.50	1	09/01/2021 12:58
Nickel	24		0.50	1	09/01/2021 12:58
Selenium	0.66		0.50	1	09/01/2021 12:58
Silver	ND		0.50	1	09/01/2021 12:58
Thallium	ND		0.50	1	09/01/2021 12:58
Vanadium	31		0.50	1	09/01/2021 12:58
Zinc	39		5.0	1	09/01/2021 12:58

Surrogates	REC (%)	Limits	
Terbium	104	70-130	09/01/2021 12:58

Analyst(s): AL



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-3.0	2108G85-020A	Soil	08/27/2021 10:18	ICP-MS4 148SMPL.d	228825

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	09/01/2021 12:47
Arsenic	6.5	0.50	1	09/01/2021 12:47
Barium	90	5.0	1	09/01/2021 12:47
Beryllium	ND	0.50	1	09/01/2021 12:47
Cadmium	ND	0.50	1	09/01/2021 12:47
Chromium	280	0.50	1	09/01/2021 12:47
Cobalt	33	0.50	1	09/01/2021 12:47
Copper	23	0.50	1	09/01/2021 12:47
Lead	6.4	0.50	1	09/01/2021 12:47
Mercury	0.067	0.050	1	09/01/2021 12:47
Molybdenum	ND	0.50	1	09/01/2021 12:47
Nickel	720	5.0	10	09/01/2021 13:48
Selenium	1.0	0.50	1	09/01/2021 12:47
Silver	ND	0.50	1	09/01/2021 12:47
Thallium	ND	0.50	1	09/01/2021 12:47
Vanadium	63	0.50	1	09/01/2021 12:47
Zinc	47	5.0	1	09/01/2021 12:47

Surrogates	REC (%)	Limits	
Terbium	113	70-130	09/01/2021 12:47

Analyst(s): AL, WV



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-7.5	2108G85-022A	Soil	08/27/2021 10:23	ICP-MS4 149SMPL.d	228825

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	09/01/2021 12:50
Arsenic	4.6	0.50	1	09/01/2021 12:50
Barium	71	5.0	1	09/01/2021 12:50
Beryllium	ND	0.50	1	09/01/2021 12:50
Cadmium	ND	0.50	1	09/01/2021 12:50
Chromium	380	0.50	1	09/01/2021 12:50
Cobalt	36	0.50	1	09/01/2021 12:50
Copper	33	0.50	1	09/01/2021 12:50
Lead	4.0	0.50	1	09/01/2021 12:50
Mercury	0.053	0.050	1	09/01/2021 12:50
Molybdenum	0.52	0.50	1	09/01/2021 12:50
Nickel	640	5.0	10	09/01/2021 13:52
Selenium	1.0	0.50	1	09/01/2021 12:50
Silver	ND	0.50	1	09/01/2021 12:50
Thallium	ND	0.50	1	09/01/2021 12:50
Vanadium	63	0.50	1	09/01/2021 12:50
Zinc	55	5.0	1	09/01/2021 12:50

Surrogates	REC (%)	Limits	
Terbium	115	70-130	09/01/2021 12:50

Analyst(s): AL, WV



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-5-0.5	2108G85-024A	Soil	08/27/2021 10:35	ICP-MS4 164SMPL.d	228825

Analytes	Result	RL	DF	Date Analyzed
Antimony	0.52	0.50	1	09/01/2021 13:47
Arsenic	3.2	0.50	1	09/01/2021 13:47
Barium	92	5.0	1	09/01/2021 13:47
Beryllium	ND	0.50	1	09/01/2021 13:47
Cadmium	ND	0.50	1	09/01/2021 13:47
Chromium	250	0.50	1	09/01/2021 13:47
Cobalt	27	0.50	1	09/01/2021 13:47
Copper	25	0.50	1	09/01/2021 13:47
Lead	6.1	0.50	1	09/01/2021 13:47
Mercury	0.060	0.050	1	09/01/2021 13:47
Molybdenum	ND	0.50	1	09/01/2021 13:47
Nickel	540	2.5	5	09/07/2021 14:21
Selenium	0.68	0.50	1	09/01/2021 13:47
Silver	ND	0.50	1	09/01/2021 13:47
Thallium	ND	0.50	1	09/01/2021 13:47
Vanadium	45	0.50	1	09/01/2021 13:47
Zinc	46	5.0	1	09/01/2021 13:47

Surrogates	REC (%)	Limits	
Terbium	94	70-130	09/01/2021 13:47

Analyst(s): MIG, WV



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-6-1.5	2108G85-028A	Soil	08/27/2021 11:07	ICP-MS4 188SMPL.d	228825

Analytes	Result	RL	DF	Date Analyzed
Antimony	0.57	0.50	1	09/01/2021 15:32
Arsenic	12	0.50	1	09/01/2021 15:32
Barium	75	5.0	1	09/01/2021 15:32
Beryllium	0.55	0.50	1	09/01/2021 15:32
Cadmium	ND	0.50	1	09/01/2021 15:32
Chromium	260	0.50	1	09/01/2021 15:32
Cobalt	28	0.50	1	09/01/2021 15:32
Copper	44	0.50	1	09/01/2021 15:32
Lead	8.8	0.50	1	09/01/2021 15:32
Mercury	0.10	0.050	1	09/01/2021 15:32
Molybdenum	0.77	0.50	1	09/01/2021 15:32
Nickel	380	0.50	1	09/01/2021 15:32
Selenium	1.3	0.50	1	09/01/2021 15:32
Silver	ND	0.50	1	09/01/2021 15:32
Thallium	ND	0.50	1	09/01/2021 15:32
Vanadium	70	0.50	1	09/01/2021 15:32
Zinc	79	5.0	1	09/01/2021 15:32

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	108	70-130	09/01/2021 15:32

Analyst(s): MIG



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-3.0	2108G85-033A	Soil	08/27/2021 11:44	ICP-MS4 184SMPL.d	228825

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	09/01/2021 15:02
Arsenic	6.3	0.50	1	09/01/2021 15:02
Barium	33	5.0	1	09/01/2021 15:02
Beryllium	0.55	0.50	1	09/01/2021 15:02
Cadmium	ND	0.50	1	09/01/2021 15:02
Chromium	450	2.5	5	09/01/2021 17:07
Cobalt	38	0.50	1	09/01/2021 15:02
Copper	30	0.50	1	09/01/2021 15:02
Lead	5.0	0.50	1	09/01/2021 15:02
Mercury	0.20	0.050	1	09/01/2021 15:02
Molybdenum	ND	0.50	1	09/01/2021 15:02
Nickel	690	2.5	5	09/01/2021 17:07
Selenium	1.3	0.50	1	09/01/2021 15:02
Silver	ND	0.50	1	09/01/2021 15:02
Thallium	ND	0.50	1	09/01/2021 15:02
Vanadium	68	0.50	1	09/01/2021 15:02
Zinc	66	5.0	1	09/01/2021 15:02

Surrogates	REC (%)	Limits	
Terbium	112	70-130	09/01/2021 15:02

Analyst(s): MIG



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-0.5	2108G85-035A	Soil	08/27/2021 11:28	ICP-MS4 104SMPL.d	228889

Analytes	Result	RL	DF	Date Analyzed
Antimony	0.66	0.50	1	09/02/2021 09:51
Arsenic	17	0.50	1	09/02/2021 09:51
Barium	31	5.0	1	09/02/2021 09:51
Beryllium	0.66	0.50	1	09/02/2021 09:51
Cadmium	ND	0.50	1	09/02/2021 09:51
Chromium	70	0.50	1	09/02/2021 09:51
Cobalt	16	0.50	1	09/02/2021 09:51
Copper	62	0.50	1	09/02/2021 09:51
Lead	13	0.50	1	09/02/2021 09:51
Mercury	0.12	0.050	1	09/02/2021 09:51
Molybdenum	1.2	0.50	1	09/02/2021 09:51
Nickel	99	0.50	1	09/02/2021 09:51
Selenium	1.5	0.50	1	09/02/2021 09:51
Silver	ND	0.50	1	09/02/2021 09:51
Thallium	ND	0.50	1	09/02/2021 09:51
Vanadium	69	0.50	1	09/02/2021 09:51
Zinc	95	5.0	1	09/02/2021 09:51

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	111	70-130	09/02/2021 09:51

Analyst(s): AL



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-1.5	2108G85-036A	Soil	08/27/2021 11:30	ICP-MS4 084SMPL.d	228826

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	09/02/2021 12:56
Arsenic	8.4	0.50	1	09/02/2021 12:56
Barium	25	5.0	1	09/02/2021 12:56
Beryllium	0.70	0.50	1	09/02/2021 12:56
Cadmium	ND	0.50	1	09/02/2021 12:56
Chromium	55	0.50	1	09/02/2021 12:56
Cobalt	15	0.50	1	09/02/2021 12:56
Copper	70	0.50	1	09/02/2021 12:56
Lead	9.6	0.50	1	09/02/2021 12:56
Mercury	0.079	0.050	1	09/02/2021 12:56
Molybdenum	0.59	0.50	1	09/02/2021 12:56
Nickel	91	0.50	1	09/02/2021 12:56
Selenium	1.1	0.50	1	09/02/2021 12:56
Silver	ND	0.50	1	09/02/2021 12:56
Thallium	ND	0.50	1	09/02/2021 12:56
Vanadium	63	0.50	1	09/02/2021 12:56
Zinc	98	5.0	1	09/02/2021 12:56

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	113	70-130	09/02/2021 12:56

Analyst(s): AL



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-5.0	2108G85-038A	Soil	08/27/2021 11:35	ICP-MS5 298SMPL.d	228826

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	09/01/2021 23:51
Arsenic	8.1	0.50	1	09/01/2021 23:51
Barium	18	5.0	1	09/01/2021 23:51
Beryllium	0.53	0.50	1	09/01/2021 23:51
Cadmium	ND	0.50	1	09/01/2021 23:51
Chromium	290	0.50	1	09/01/2021 23:51
Cobalt	23	0.50	1	09/01/2021 23:51
Copper	41	0.50	1	09/01/2021 23:51
Lead	6.2	0.50	1	09/01/2021 23:51
Mercury	0.068	0.050	1	09/01/2021 23:51
Molybdenum	0.69	0.50	1	09/01/2021 23:51
Nickel	500	2.5	5	09/02/2021 13:08
Selenium	2.1	0.50	1	09/01/2021 23:51
Silver	ND	0.50	1	09/01/2021 23:51
Thallium	ND	0.50	1	09/01/2021 23:51
Vanadium	76	0.50	1	09/01/2021 23:51
Zinc	87	5.0	1	09/01/2021 23:51

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	107	70-130	09/01/2021 23:51

Analyst(s): AL



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-9-1.5	2108G85-040A	Soil	08/27/2021 10:52	ICP-MS5 217SMPL.d	228826

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	09/01/2021 18:04
Arsenic	7.4	0.50	1	09/01/2021 18:04
Barium	20	5.0	1	09/01/2021 18:04
Beryllium	ND	0.50	1	09/01/2021 18:04
Cadmium	ND	0.50	1	09/01/2021 18:04
Chromium	58	0.50	1	09/01/2021 18:04
Cobalt	14	0.50	1	09/01/2021 18:04
Copper	58	0.50	1	09/01/2021 18:04
Lead	5.9	0.50	1	09/01/2021 18:04
Mercury	ND	0.050	1	09/01/2021 18:04
Molybdenum	ND	0.50	1	09/01/2021 18:04
Nickel	58	0.50	1	09/01/2021 18:04
Selenium	1.8	0.50	1	09/01/2021 18:04
Silver	ND	0.50	1	09/01/2021 18:04
Thallium	ND	0.50	1	09/01/2021 18:04
Vanadium	97	0.50	1	09/01/2021 18:04
Zinc	82	5.0	1	09/01/2021 18:04

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	108	70-130	09/01/2021 18:04

Analyst(s): MIG



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-10-0.5	2108G85-043A	Soil	08/27/2021 12:40	ICP-MS5 299SMPL.d	228826

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	09/01/2021 23:54
Arsenic	3.2	0.50	1	09/01/2021 23:54
Barium	53	5.0	1	09/01/2021 23:54
Beryllium	ND	0.50	1	09/01/2021 23:54
Cadmium	ND	0.50	1	09/01/2021 23:54
Chromium	720	5.0	10	09/02/2021 13:11
Cobalt	69	0.50	1	09/01/2021 23:54
Copper	22	0.50	1	09/01/2021 23:54
Lead	2.7	0.50	1	09/01/2021 23:54
Mercury	0.065	0.050	1	09/01/2021 23:54
Molybdenum	ND	0.50	1	09/01/2021 23:54
Nickel	1500	5.0	10	09/02/2021 13:11
Selenium	0.81	0.50	1	09/01/2021 23:54
Silver	ND	0.50	1	09/01/2021 23:54
Thallium	ND	0.50	1	09/01/2021 23:54
Vanadium	45	0.50	1	09/01/2021 23:54
Zinc	44	5.0	1	09/01/2021 23:54

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	106	70-130	09/01/2021 23:54

Analyst(s): AL



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-10-3.0	2108G85-045A	Soil	08/27/2021 12:44	ICP-MS5 300SMPL.d	228826

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	09/01/2021 23:58
Arsenic	1.6	0.50	1	09/01/2021 23:58
Barium	200	5.0	1	09/01/2021 23:58
Beryllium	ND	0.50	1	09/01/2021 23:58
Cadmium	ND	0.50	1	09/01/2021 23:58
Chromium	380	0.50	1	09/01/2021 23:58
Cobalt	72	0.50	1	09/01/2021 23:58
Copper	18	0.50	1	09/01/2021 23:58
Lead	1.8	0.50	1	09/01/2021 23:58
Mercury	0.054	0.050	1	09/01/2021 23:58
Molybdenum	ND	0.50	1	09/01/2021 23:58
Nickel	1500	5.0	10	09/02/2021 13:15
Selenium	0.55	0.50	1	09/01/2021 23:58
Silver	ND	0.50	1	09/01/2021 23:58
Thallium	ND	0.50	1	09/01/2021 23:58
Vanadium	38	0.50	1	09/01/2021 23:58
Zinc	39	5.0	1	09/01/2021 23:58

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	108	70-130	09/01/2021 23:58

Analyst(s): AL



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-11-0.5	2108G85-047A	Soil	08/27/2021 12:53	ICP-MS5 301SMPL.d	228826

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	09/02/2021 00:01
Arsenic	5.5	0.50	1	09/02/2021 00:01
Barium	27	5.0	1	09/02/2021 00:01
Beryllium	ND	0.50	1	09/02/2021 00:01
Cadmium	ND	0.50	1	09/02/2021 00:01
Chromium	160	0.50	1	09/02/2021 00:01
Cobalt	22	0.50	1	09/02/2021 00:01
Copper	32	0.50	1	09/02/2021 00:01
Lead	12	0.50	1	09/02/2021 00:01
Mercury	0.052	0.050	1	09/02/2021 00:01
Molybdenum	ND	0.50	1	09/02/2021 00:01
Nickel	330	0.50	1	09/02/2021 00:01
Selenium	1.2	0.50	1	09/02/2021 00:01
Silver	ND	0.50	1	09/02/2021 00:01
Thallium	ND	0.50	1	09/02/2021 00:01
Vanadium	41	0.50	1	09/02/2021 00:01
Zinc	49	5.0	1	09/02/2021 00:01

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	108	70-130	09/02/2021 00:01

Analyst(s): AL



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-3.0	2108G85-053A	Soil	08/27/2021 13:37	ICP-MS5 306SMPL.d	228826

Analytes	Result	RL	DF	Date Analyzed
Antimony	0.82	0.50	1	09/02/2021 00:19
Arsenic	4.4	0.50	1	09/02/2021 00:19
Barium	53	5.0	1	09/02/2021 00:19
Beryllium	ND	0.50	1	09/02/2021 00:19
Cadmium	ND	0.50	1	09/02/2021 00:19
Chromium	360	0.50	1	09/02/2021 00:19
Cobalt	41	0.50	1	09/02/2021 00:19
Copper	28	0.50	1	09/02/2021 00:19
Lead	5.9	0.50	1	09/02/2021 00:19
Mercury	0.13	0.050	1	09/02/2021 00:19
Molybdenum	ND	0.50	1	09/02/2021 00:19
Nickel	810	2.5	5	09/02/2021 13:34
Selenium	1.4	0.50	1	09/02/2021 00:19
Silver	ND	0.50	1	09/02/2021 00:19
Thallium	ND	0.50	1	09/02/2021 00:19
Vanadium	54	0.50	1	09/02/2021 00:19
Zinc	53	5.0	1	09/02/2021 00:19

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	105	70-130	09/02/2021 00:19

Analyst(s): AL, MIG



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-13-1.5	2108G85-056A	Soil	08/27/2021 13:45	ICP-MS5 307SMPL.d	228826

Analytes	Result	RL	DF	Date Analyzed
Antimony	0.50	0.50	1	09/02/2021 00:22
Arsenic	3.0	0.50	1	09/02/2021 00:22
Barium	82	5.0	1	09/02/2021 00:22
Beryllium	ND	0.50	1	09/02/2021 00:22
Cadmium	ND	0.50	1	09/02/2021 00:22
Chromium	440	0.50	1	09/02/2021 00:22
Cobalt	35	0.50	1	09/02/2021 00:22
Copper	18	0.50	1	09/02/2021 00:22
Lead	5.2	0.50	1	09/02/2021 00:22
Mercury	0.051	0.050	1	09/02/2021 00:22
Molybdenum	ND	0.50	1	09/02/2021 00:22
Nickel	670	2.5	5	09/02/2021 13:38
Selenium	1.2	0.50	1	09/02/2021 00:22
Silver	ND	0.50	1	09/02/2021 00:22
Thallium	ND	0.50	1	09/02/2021 00:22
Vanadium	44	0.50	1	09/02/2021 00:22
Zinc	41	5.0	1	09/02/2021 00:22

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	105	70-130	09/02/2021 00:22

Analyst(s): AL, MIG



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-3.0	2108G85-061A	Soil	08/27/2021 13:12	ICP-MS5 310SMPL.d	228826

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	09/02/2021 00:32
Arsenic	0.88	0.50	1	09/02/2021 00:32
Barium	63	5.0	1	09/02/2021 00:32
Beryllium	ND	0.50	1	09/02/2021 00:32
Cadmium	ND	0.50	1	09/02/2021 00:32
Chromium	600	5.0	10	09/02/2021 13:45
Cobalt	65	0.50	1	09/02/2021 00:32
Copper	6.5	0.50	1	09/02/2021 00:32
Lead	ND	0.50	1	09/02/2021 00:32
Mercury	ND	0.050	1	09/02/2021 00:32
Molybdenum	ND	0.50	1	09/02/2021 00:32
Nickel	1600	5.0	10	09/02/2021 13:45
Selenium	ND	0.50	1	09/02/2021 00:32
Silver	ND	0.50	1	09/02/2021 00:32
Thallium	ND	0.50	1	09/02/2021 00:32
Vanadium	19	0.50	1	09/02/2021 00:32
Zinc	23	5.0	1	09/02/2021 00:32

Surrogates	REC (%)	Limits	
Terbium	104	70-130	09/02/2021 00:32

Analyst(s): AL, MIG



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: CARB 435 Asbestos
Analytical Method: 435 CARB
Unit: %

Asbestos (CARB 435) 400 Point Count

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-3.0	2108G85-002A	Soil	08/27/2021 09:00	Microscope	228903

Analytes	Result	RL	DF	Date Analyzed
Asbestos	1.50	0.25	1	09/01/2021 10:30

Analyst(s): DA

Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-7.5	2108G85-004A	Soil	08/27/2021 09:12	Microscope	228903

Analytes	Result	RL	DF	Date Analyzed
Asbestos	2.75	0.25	1	09/01/2021 12:05

Analyst(s): DA

Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-1.5	2108G85-007A	Soil	08/27/2021 09:28	Microscope	229076

Analytes	Result	RL	DF	Date Analyzed
Asbestos	1.75	0.25	1	09/01/2021 13:00

Analyst(s): DA

Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-5.0	2108G85-009A	Soil	08/27/2021 09:32	Microscope	229076

Analytes	Result	RL	DF	Date Analyzed
Asbestos	1.25	0.25	1	09/01/2021 14:15

Analyst(s): DA

Analytical Comments: k15

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: CARB 435 Asbestos
Analytical Method: 435 CARB
Unit: %

Asbestos (CARB 435) 400 Point Count

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-10.0	2108G85-011A	Soil	08/27/2021 09:36	Microscope	229076

Analytes	Result	RL	DF	Date Analyzed
Asbestos	2.00	0.25	1	09/01/2021 15:30

Analyst(s): DA

Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-3.0	2108G85-014A	Soil	08/27/2021 09:48	Microscope	229076

Analytes	Result	RL	DF	Date Analyzed
Asbestos	3.00	0.25	1	09/01/2021 16:45

Analyst(s): DA

Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-7.5	2108G85-016A	Soil	08/27/2021 09:52	Microscope	229076

Analytes	Result	RL	DF	Date Analyzed
Asbestos	1.75	0.25	1	09/02/2021 09:20

Analyst(s): DA

Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-3.0	2108G85-020A	Soil	08/27/2021 10:18	Microscope	229076

Analytes	Result	RL	DF	Date Analyzed
Asbestos	1.50	0.25	1	09/02/2021 10:35

Analyst(s): DA

Analytical Comments: k15

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: CARB 435 Asbestos
Analytical Method: 435 CARB
Unit: %

Asbestos (CARB 435) 400 Point Count

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-7.5	2108G85-022A	Soil	08/27/2021 10:23	Microscope	229076

Analytes	Result	RL	DF	Date Analyzed
Asbestos	1.25	0.25	1	09/02/2021 11:50

Analyst(s): DA

Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-5-3.0	2108G85-026A	Soil	08/27/2021 10:40	Microscope	229076

Analytes	Result	RL	DF	Date Analyzed
Asbestos	1.25	0.25	1	09/02/2021 13:10

Analyst(s): DA

Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-6-1.5	2108G85-028A	Soil	08/27/2021 11:07	Microscope	229076

Analytes	Result	RL	DF	Date Analyzed
Asbestos	0.50	0.25	1	09/02/2021 14:35

Analyst(s): DA

Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-3.0	2108G85-033A	Soil	08/27/2021 11:44	Microscope	229076

Analytes	Result	RL	DF	Date Analyzed
Asbestos	< 0.25	0.25	1	09/02/2021 16:00

Analyst(s): DA

Analytical Comments: k12,k15

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: CARB 435 Asbestos
Analytical Method: 435 CARB
Unit: %

Asbestos (CARB 435) 400 Point Count

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-1.5	2108G85-036A	Soil	08/27/2021 11:30	Microscope	229076

Analytes	Result	RL	DF	Date Analyzed
Asbestos	< 0.25	0.25	1	09/03/2021 09:05

Analyst(s): DA

Analytical Comments: k12,k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-5.0	2108G85-038A	Soil	08/27/2021 11:35	Microscope	229076

Analytes	Result	RL	DF	Date Analyzed
Asbestos	ND	0.25	1	09/03/2021 10:15

Analyst(s): DA

Analytical Comments: k10

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-9-0.5	2108G85-039A	Soil	08/27/2021 10:50	Microscope	229076

Analytes	Result	RL	DF	Date Analyzed
Asbestos	0.50	0.25	1	09/03/2021 10:50

Analyst(s): DA

Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-10-3.0	2108G85-045A	Soil	08/27/2021 12:44	Microscope	229076

Analytes	Result	RL	DF	Date Analyzed
Asbestos	6.75	0.25	1	09/03/2021 12:05

Analyst(s): DA

Analytical Comments: k15

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: CARB 435 Asbestos
Analytical Method: 435 CARB
Unit: %

Asbestos (CARB 435) 400 Point Count

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-11-1.5	2108G85-048A	Soil	08/27/2021 12:55	Microscope	229076

Analytes	Result	RL	DF	Date Analyzed
Asbestos	3.00	0.25	1	09/03/2021 13:20

Analyst(s): DA

Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-3.0	2108G85-053A	Soil	08/27/2021 13:37	Microscope	229076

Analytes	Result	RL	DF	Date Analyzed
Asbestos	2.75	0.25	1	09/03/2021 14:30

Analyst(s): DA

Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-3.0	2108G85-061A	Soil	08/27/2021 13:12	Microscope	229076

Analytes	Result	RL	DF	Date Analyzed
Asbestos	4.50	0.25	1	09/03/2021 15:45

Analyst(s): DA

Analytical Comments: k15



Analytical Report

Client: Langan	WorkOrder: 2108G85
Date Received: 08/30/2021 16:30	Extraction Method: SW5035
Date Prepared: 08/31/2021-09/03/2021	Analytical Method: SW8021B/8015Bm
Project: 731744801; Hunters Point Block 56	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
E-1-0.5	2108G85-001A	Soil	08/27/2021 09:03	GC3 09012139.D	228788

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/02/2021 07:18
MTBE	---	0.050	1	09/02/2021 07:18
Benzene	---	0.0050	1	09/02/2021 07:18
Toluene	---	0.0050	1	09/02/2021 07:18
Ethylbenzene	---	0.0050	1	09/02/2021 07:18
m,p-Xylene	---	0.010	1	09/02/2021 07:18
o-Xylene	---	0.0050	1	09/02/2021 07:18
Xylenes	---	0.0050	1	09/02/2021 07:18

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	98	62-126	09/02/2021 07:18

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-3.0	2108G85-002A	Soil	08/27/2021 09:00	GC3 09012140.D	228788

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/02/2021 07:49
MTBE	---	0.050	1	09/02/2021 07:49
Benzene	---	0.0050	1	09/02/2021 07:49
Toluene	---	0.0050	1	09/02/2021 07:49
Ethylbenzene	---	0.0050	1	09/02/2021 07:49
m,p-Xylene	---	0.010	1	09/02/2021 07:49
o-Xylene	---	0.0050	1	09/02/2021 07:49
Xylenes	---	0.0050	1	09/02/2021 07:49

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	85	62-126	09/02/2021 07:49

Analyst(s): IA

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5035
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
E-1-7.5	2108G85-004A	Soil	08/27/2021 09:12	GC3 09042135.D	229067

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/05/2021 04:23
MTBE	---	0.050	1	09/05/2021 04:23
Benzene	---	0.0050	1	09/05/2021 04:23
Toluene	---	0.0050	1	09/05/2021 04:23
Ethylbenzene	---	0.0050	1	09/05/2021 04:23
m,p-Xylene	---	0.010	1	09/05/2021 04:23
o-Xylene	---	0.0050	1	09/05/2021 04:23
Xylenes	---	0.0050	1	09/05/2021 04:23

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	91	62-126	09/05/2021 04:23

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-0.5	2108G85-006A	Soil	08/27/2021 09:25	GC19 09022105.D	228788

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/02/2021 13:32
MTBE	---	0.050	1	09/02/2021 13:32
Benzene	---	0.0050	1	09/02/2021 13:32
Toluene	---	0.0050	1	09/02/2021 13:32
Ethylbenzene	---	0.0050	1	09/02/2021 13:32
m,p-Xylene	---	0.010	1	09/02/2021 13:32
o-Xylene	---	0.0050	1	09/02/2021 13:32
Xylenes	---	0.0050	1	09/02/2021 13:32

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	80	62-126	09/02/2021 13:32

Analyst(s): IA

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5035
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
E-2-1.5	2108G85-007A	Soil	08/27/2021 09:28	GC3 09042136.D	229067

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/05/2021 04:53
MTBE	---	0.050	1	09/05/2021 04:53
Benzene	---	0.0050	1	09/05/2021 04:53
Toluene	---	0.0050	1	09/05/2021 04:53
Ethylbenzene	---	0.0050	1	09/05/2021 04:53
m,p-Xylene	---	0.010	1	09/05/2021 04:53
o-Xylene	---	0.0050	1	09/05/2021 04:53
Xylenes	---	0.0050	1	09/05/2021 04:53

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	85	62-126	09/05/2021 04:53

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-5.0	2108G85-009A	Soil	08/27/2021 09:32	GC3 09042137.D	229067

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/05/2021 05:23
MTBE	---	0.050	1	09/05/2021 05:23
Benzene	---	0.0050	1	09/05/2021 05:23
Toluene	---	0.0050	1	09/05/2021 05:23
Ethylbenzene	---	0.0050	1	09/05/2021 05:23
m,p-Xylene	---	0.010	1	09/05/2021 05:23
o-Xylene	---	0.0050	1	09/05/2021 05:23
Xylenes	---	0.0050	1	09/05/2021 05:23

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	88	62-126	09/05/2021 05:23

Analyst(s): IA

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5035
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
E-2-10.0	2108G85-011A	Soil	08/27/2021 09:36	GC19 09032122.D	229067

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/03/2021 23:11
MTBE	---	0.050	1	09/03/2021 23:11
Benzene	---	0.0050	1	09/03/2021 23:11
Toluene	---	0.0050	1	09/03/2021 23:11
Ethylbenzene	---	0.0050	1	09/03/2021 23:11
m,p-Xylene	---	0.010	1	09/03/2021 23:11
o-Xylene	---	0.0050	1	09/03/2021 23:11
Xylenes	---	0.0050	1	09/03/2021 23:11

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	97	62-126	09/03/2021 23:11

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-0.5	2108G85-012A	Soil	08/27/2021 09:45	GC3 09042138.D	229067

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	1.4	1.0	1	09/05/2021 05:53
MTBE	---	0.050	1	09/05/2021 05:53
Benzene	---	0.0050	1	09/05/2021 05:53
Toluene	---	0.0050	1	09/05/2021 05:53
Ethylbenzene	---	0.0050	1	09/05/2021 05:53
m,p-Xylene	---	0.010	1	09/05/2021 05:53
o-Xylene	---	0.0050	1	09/05/2021 05:53
Xylenes	---	0.0050	1	09/05/2021 05:53

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	98	62-126	09/05/2021 05:53

Analyst(s): IA

Analytical Comments: d1

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5035
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
E-3-1.5	2108G85-013A	Soil	08/27/2021 09:46	GC3 09032138.D	229067

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/04/2021 06:50
MTBE	---	0.050	1	09/04/2021 06:50
Benzene	---	0.0050	1	09/04/2021 06:50
Toluene	---	0.0050	1	09/04/2021 06:50
Ethylbenzene	---	0.0050	1	09/04/2021 06:50
m,p-Xylene	---	0.010	1	09/04/2021 06:50
o-Xylene	---	0.0050	1	09/04/2021 06:50
Xylenes	---	0.0050	1	09/04/2021 06:50

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	99	62-126	09/04/2021 06:50

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-3.0	2108G85-014A	Soil	08/27/2021 09:48	GC3 09032139.D	229067

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/04/2021 07:20
MTBE	---	0.050	1	09/04/2021 07:20
Benzene	---	0.0050	1	09/04/2021 07:20
Toluene	---	0.0050	1	09/04/2021 07:20
Ethylbenzene	---	0.0050	1	09/04/2021 07:20
m,p-Xylene	---	0.010	1	09/04/2021 07:20
o-Xylene	---	0.0050	1	09/04/2021 07:20
Xylenes	---	0.0050	1	09/04/2021 07:20

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	93	62-126	09/04/2021 07:20

Analyst(s): IA

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5035
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
E-3-7.5	2108G85-016A	Soil	08/27/2021 09:52	GC7 09022127.D	228788

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/03/2021 00:49
MTBE	---	0.050	1	09/03/2021 00:49
Benzene	---	0.0050	1	09/03/2021 00:49
Toluene	---	0.0050	1	09/03/2021 00:49
Ethylbenzene	---	0.0050	1	09/03/2021 00:49
m,p-Xylene	---	0.010	1	09/03/2021 00:49
o-Xylene	---	0.0050	1	09/03/2021 00:49
Xylenes	---	0.0050	1	09/03/2021 00:49

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	81	62-126	09/03/2021 00:49

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-0.5	2108G85-018A	Soil	08/27/2021 10:15	GC7 09022106.D	228788

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/02/2021 14:17
MTBE	---	0.050	1	09/02/2021 14:17
Benzene	---	0.0050	1	09/02/2021 14:17
Toluene	---	0.0050	1	09/02/2021 14:17
Ethylbenzene	---	0.0050	1	09/02/2021 14:17
m,p-Xylene	---	0.010	1	09/02/2021 14:17
o-Xylene	---	0.0050	1	09/02/2021 14:17
Xylenes	---	0.0050	1	09/02/2021 14:17

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	72	62-126	09/02/2021 14:17

Analyst(s): IA

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5035
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
E-4-1.5	2108G85-019A	Soil	08/27/2021 10:16	GC7 09022113.D	228788

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/02/2021 17:51
MTBE	---	0.050	1	09/02/2021 17:51
Benzene	---	0.0050	1	09/02/2021 17:51
Toluene	---	0.0050	1	09/02/2021 17:51
Ethylbenzene	---	0.0050	1	09/02/2021 17:51
m,p-Xylene	---	0.010	1	09/02/2021 17:51
o-Xylene	---	0.0050	1	09/02/2021 17:51
Xylenes	---	0.0050	1	09/02/2021 17:51

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	80	62-126	09/02/2021 17:51

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-3.0	2108G85-020A	Soil	08/27/2021 10:18	GC7 09022107.D	228788

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/02/2021 14:47
MTBE	---	0.050	1	09/02/2021 14:47
Benzene	---	0.0050	1	09/02/2021 14:47
Toluene	---	0.0050	1	09/02/2021 14:47
Ethylbenzene	---	0.0050	1	09/02/2021 14:47
m,p-Xylene	---	0.010	1	09/02/2021 14:47
o-Xylene	---	0.0050	1	09/02/2021 14:47
Xylenes	---	0.0050	1	09/02/2021 14:47

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	69	62-126	09/02/2021 14:47

Analyst(s): IA

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5035
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
E-4-7.5	2108G85-022A	Soil	08/27/2021 10:23	GC7 09022108.D	228788

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/02/2021 15:18
MTBE	---	0.050	1	09/02/2021 15:18
Benzene	---	0.0050	1	09/02/2021 15:18
Toluene	---	0.0050	1	09/02/2021 15:18
Ethylbenzene	---	0.0050	1	09/02/2021 15:18
m,p-Xylene	---	0.010	1	09/02/2021 15:18
o-Xylene	---	0.0050	1	09/02/2021 15:18
Xylenes	---	0.0050	1	09/02/2021 15:18

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	78	62-126	09/02/2021 15:18

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-5-0.5	2108G85-024A	Soil	08/27/2021 10:35	GC19 09042116.D	228788

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/04/2021 17:59
MTBE	---	0.050	1	09/04/2021 17:59
Benzene	---	0.0050	1	09/04/2021 17:59
Toluene	---	0.0050	1	09/04/2021 17:59
Ethylbenzene	---	0.0050	1	09/04/2021 17:59
m,p-Xylene	---	0.010	1	09/04/2021 17:59
o-Xylene	---	0.0050	1	09/04/2021 17:59
Xylenes	---	0.0050	1	09/04/2021 17:59

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	71	62-126	09/04/2021 17:59

Analyst(s): IA

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5035
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
E-5-3.0	2108G85-026A	Soil	08/27/2021 10:40	GC19 09022107.D	228821
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH(g) (C6-C12)	ND		1.0	1	09/02/2021 14:35
MTBE	---		0.050	1	09/02/2021 14:35
Benzene	---		0.0050	1	09/02/2021 14:35
Toluene	---		0.0050	1	09/02/2021 14:35
Ethylbenzene	---		0.0050	1	09/02/2021 14:35
m,p-Xylene	---		0.010	1	09/02/2021 14:35
o-Xylene	---		0.0050	1	09/02/2021 14:35
Xylenes	---		0.0050	1	09/02/2021 14:35
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
2-Fluorotoluene	89		62-126		09/02/2021 14:35
Analyst(s): IA					

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-6-1.5	2108G85-028A	Soil	08/27/2021 11:07	GC7 09022128.D	228821
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH(g) (C6-C12)	2.7		1.0	1	09/03/2021 01:19
MTBE	---		0.050	1	09/03/2021 01:19
Benzene	---		0.0050	1	09/03/2021 01:19
Toluene	---		0.0050	1	09/03/2021 01:19
Ethylbenzene	---		0.0050	1	09/03/2021 01:19
m,p-Xylene	---		0.010	1	09/03/2021 01:19
o-Xylene	---		0.0050	1	09/03/2021 01:19
Xylenes	---		0.0050	1	09/03/2021 01:19
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
2-Fluorotoluene	82		62-126		09/03/2021 01:19
Analyst(s): IA					
Analytical Comments: d7,d9					

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5035
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
E-7-0.5	2108G85-031A	Soil	08/27/2021 11:40	GC7 09022129.D	228821

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/03/2021 01:48
MTBE	---	0.050	1	09/03/2021 01:48
Benzene	---	0.0050	1	09/03/2021 01:48
Toluene	---	0.0050	1	09/03/2021 01:48
Ethylbenzene	---	0.0050	1	09/03/2021 01:48
m,p-Xylene	---	0.010	1	09/03/2021 01:48
o-Xylene	---	0.0050	1	09/03/2021 01:48
Xylenes	---	0.0050	1	09/03/2021 01:48

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	77	62-126	09/03/2021 01:48

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-3.0	2108G85-033A	Soil	08/27/2021 11:44	GC19 09032115.D	228821

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	2.9	1.0	1	09/03/2021 19:32
MTBE	---	0.050	1	09/03/2021 19:32
Benzene	---	0.0050	1	09/03/2021 19:32
Toluene	---	0.0050	1	09/03/2021 19:32
Ethylbenzene	---	0.0050	1	09/03/2021 19:32
m,p-Xylene	---	0.010	1	09/03/2021 19:32
o-Xylene	---	0.0050	1	09/03/2021 19:32
Xylenes	---	0.0050	1	09/03/2021 19:32

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	79	62-126	09/03/2021 19:32

Analyst(s): IA

Analytical Comments: d1

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5035
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
E-8-0.5	2108G85-035A	Soil	08/27/2021 11:28	GC7 09032119.D	228821

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	6.8	1.0	1	09/03/2021 21:06
MTBE	---	0.050	1	09/03/2021 21:06
Benzene	---	0.0050	1	09/03/2021 21:06
Toluene	---	0.0050	1	09/03/2021 21:06
Ethylbenzene	---	0.0050	1	09/03/2021 21:06
m,p-Xylene	---	0.010	1	09/03/2021 21:06
o-Xylene	---	0.0050	1	09/03/2021 21:06
Xylenes	---	0.0050	1	09/03/2021 21:06

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	86	62-126	09/03/2021 21:06

Analyst(s): IA Analytical Comments: d7,d9

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-1.5	2108G85-036A	Soil	08/27/2021 11:30	GC7 09022114.D	228821

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	4.6	1.0	1	09/02/2021 18:21
MTBE	---	0.050	1	09/02/2021 18:21
Benzene	---	0.0050	1	09/02/2021 18:21
Toluene	---	0.0050	1	09/02/2021 18:21
Ethylbenzene	---	0.0050	1	09/02/2021 18:21
m,p-Xylene	---	0.010	1	09/02/2021 18:21
o-Xylene	---	0.0050	1	09/02/2021 18:21
Xylenes	---	0.0050	1	09/02/2021 18:21

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	83	62-126	09/02/2021 18:21

Analyst(s): IA Analytical Comments: d7,d9

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5035
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
E-8-5.0	2108G85-038A	Soil	08/27/2021 11:35	GC7 09022115.D	228821

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	2.9	1.0	1	09/02/2021 18:51
MTBE	---	0.050	1	09/02/2021 18:51
Benzene	---	0.0050	1	09/02/2021 18:51
Toluene	---	0.0050	1	09/02/2021 18:51
Ethylbenzene	---	0.0050	1	09/02/2021 18:51
m,p-Xylene	---	0.010	1	09/02/2021 18:51
o-Xylene	---	0.0050	1	09/02/2021 18:51
Xylenes	---	0.0050	1	09/02/2021 18:51

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	89	62-126	09/02/2021 18:51

Analyst(s): IA Analytical Comments: d7,d9

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-9-0.5	2108G85-039A	Soil	08/27/2021 10:50	GC3 09042139.D	229084

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/05/2021 06:24
MTBE	---	0.050	1	09/05/2021 06:24
Benzene	---	0.0050	1	09/05/2021 06:24
Toluene	---	0.0050	1	09/05/2021 06:24
Ethylbenzene	---	0.0050	1	09/05/2021 06:24
m,p-Xylene	---	0.010	1	09/05/2021 06:24
o-Xylene	---	0.0050	1	09/05/2021 06:24
Xylenes	---	0.0050	1	09/05/2021 06:24

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	99	62-126	09/05/2021 06:24

Analyst(s): IA

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5035
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
E-9-1.5	2108G85-040A	Soil	08/27/2021 10:52	GC7 09032123.D	228821

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	2.9	1.0	1	09/03/2021 23:07
MTBE	---	0.050	1	09/03/2021 23:07
Benzene	---	0.0050	1	09/03/2021 23:07
Toluene	---	0.0050	1	09/03/2021 23:07
Ethylbenzene	---	0.0050	1	09/03/2021 23:07
m,p-Xylene	---	0.010	1	09/03/2021 23:07
o-Xylene	---	0.0050	1	09/03/2021 23:07
Xylenes	---	0.0050	1	09/03/2021 23:07

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	86	62-126	09/03/2021 23:07

Analyst(s): IA Analytical Comments: d7,d9

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-10-0.5	2108G85-043A	Soil	08/27/2021 12:40	GC7 09032124.D	228821

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/03/2021 23:37
MTBE	---	0.050	1	09/03/2021 23:37
Benzene	---	0.0050	1	09/03/2021 23:37
Toluene	---	0.0050	1	09/03/2021 23:37
Ethylbenzene	---	0.0050	1	09/03/2021 23:37
m,p-Xylene	---	0.010	1	09/03/2021 23:37
o-Xylene	---	0.0050	1	09/03/2021 23:37
Xylenes	---	0.0050	1	09/03/2021 23:37

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	86	62-126	09/03/2021 23:37

Analyst(s): IA

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5035
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
E-10-3.0	2108G85-045A	Soil	08/27/2021 12:44	GC19 09032116.D	228821

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/03/2021 20:04
MTBE	---	0.050	1	09/03/2021 20:04
Benzene	---	0.0050	1	09/03/2021 20:04
Toluene	---	0.0050	1	09/03/2021 20:04
Ethylbenzene	---	0.0050	1	09/03/2021 20:04
m,p-Xylene	---	0.010	1	09/03/2021 20:04
o-Xylene	---	0.0050	1	09/03/2021 20:04
Xylenes	---	0.0050	1	09/03/2021 20:04

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	89	62-126	09/03/2021 20:04

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-11-0.5	2108G85-047A	Soil	08/27/2021 12:53	GC7 09032125.D	228821

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/04/2021 00:07
MTBE	---	0.050	1	09/04/2021 00:07
Benzene	---	0.0050	1	09/04/2021 00:07
Toluene	---	0.0050	1	09/04/2021 00:07
Ethylbenzene	---	0.0050	1	09/04/2021 00:07
m,p-Xylene	---	0.010	1	09/04/2021 00:07
o-Xylene	---	0.0050	1	09/04/2021 00:07
Xylenes	---	0.0050	1	09/04/2021 00:07

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	78	62-126	09/04/2021 00:07

Analyst(s): IA

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5035
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
E-11-1.5	2108G85-048A	Soil	08/27/2021 12:55	GC7 09032126.D	228821

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/04/2021 00:37
MTBE	---	0.050	1	09/04/2021 00:37
Benzene	---	0.0050	1	09/04/2021 00:37
Toluene	---	0.0050	1	09/04/2021 00:37
Ethylbenzene	---	0.0050	1	09/04/2021 00:37
m,p-Xylene	---	0.010	1	09/04/2021 00:37
o-Xylene	---	0.0050	1	09/04/2021 00:37
Xylenes	---	0.0050	1	09/04/2021 00:37

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	80	62-126	09/04/2021 00:37

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-0.5	2108G85-051A	Soil	08/27/2021 13:35	GC7 09032127.D	228821

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/04/2021 01:06
MTBE	---	0.050	1	09/04/2021 01:06
Benzene	---	0.0050	1	09/04/2021 01:06
Toluene	---	0.0050	1	09/04/2021 01:06
Ethylbenzene	---	0.0050	1	09/04/2021 01:06
m,p-Xylene	---	0.010	1	09/04/2021 01:06
o-Xylene	---	0.0050	1	09/04/2021 01:06
Xylenes	---	0.0050	1	09/04/2021 01:06

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	81	62-126	09/04/2021 01:06

Analyst(s): IA

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5035
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
E-12-3.0	2108G85-053A	Soil	08/27/2021 13:37	GC7 09032129.D	228821

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	1.1	1.0	1	09/04/2021 02:06
MTBE	---	0.050	1	09/04/2021 02:06
Benzene	---	0.0050	1	09/04/2021 02:06
Toluene	---	0.0050	1	09/04/2021 02:06
Ethylbenzene	---	0.0050	1	09/04/2021 02:06
m,p-Xylene	---	0.010	1	09/04/2021 02:06
o-Xylene	---	0.0050	1	09/04/2021 02:06
Xylenes	---	0.0050	1	09/04/2021 02:06

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	88	62-126	09/04/2021 02:06

Analyst(s): IA Analytical Comments: d7

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-13-0.5	2108G85-055A	Soil	08/27/2021 13:48	GC7 09032130.D	228821

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/04/2021 02:36
MTBE	---	0.050	1	09/04/2021 02:36
Benzene	---	0.0050	1	09/04/2021 02:36
Toluene	---	0.0050	1	09/04/2021 02:36
Ethylbenzene	---	0.0050	1	09/04/2021 02:36
m,p-Xylene	---	0.010	1	09/04/2021 02:36
o-Xylene	---	0.0050	1	09/04/2021 02:36
Xylenes	---	0.0050	1	09/04/2021 02:36

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	74	62-126	09/04/2021 02:36

Analyst(s): IA

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5035
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
E-13-1.5	2108G85-056A	Soil	08/27/2021 13:45	GC7 09032131.D	228821

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/04/2021 03:05
MTBE	---	0.050	1	09/04/2021 03:05
Benzene	---	0.0050	1	09/04/2021 03:05
Toluene	---	0.0050	1	09/04/2021 03:05
Ethylbenzene	---	0.0050	1	09/04/2021 03:05
m,p-Xylene	---	0.010	1	09/04/2021 03:05
o-Xylene	---	0.0050	1	09/04/2021 03:05
Xylenes	---	0.0050	1	09/04/2021 03:05

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	83	62-126	09/04/2021 03:05

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-13-5.0	2108G85-058A	Soil	08/27/2021 13:51	GC7 09032132.D	228821

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/04/2021 03:35
MTBE	---	0.050	1	09/04/2021 03:35
Benzene	---	0.0050	1	09/04/2021 03:35
Toluene	---	0.0050	1	09/04/2021 03:35
Ethylbenzene	---	0.0050	1	09/04/2021 03:35
m,p-Xylene	---	0.010	1	09/04/2021 03:35
o-Xylene	---	0.0050	1	09/04/2021 03:35
Xylenes	---	0.0050	1	09/04/2021 03:35

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	83	62-126	09/04/2021 03:35

Analyst(s): IA

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/03/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW5035
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
E-14-0.5	2108G85-059A	Soil	08/27/2021 13:10	GC7 09032137.D	228821

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/04/2021 06:02
MTBE	---	0.050	1	09/04/2021 06:02
Benzene	---	0.0050	1	09/04/2021 06:02
Toluene	---	0.0050	1	09/04/2021 06:02
Ethylbenzene	---	0.0050	1	09/04/2021 06:02
m,p-Xylene	---	0.010	1	09/04/2021 06:02
o-Xylene	---	0.0050	1	09/04/2021 06:02
Xylenes	---	0.0050	1	09/04/2021 06:02

Surrogates	REC (%)	Limits	Date Analyzed
aaa-TFT	95	72-123	09/04/2021 06:02

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-3.0	2108G85-061A	Soil	08/27/2021 13:12	GC7 09032138.D	228821

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	09/04/2021 06:32
MTBE	---	0.050	1	09/04/2021 06:32
Benzene	---	0.0050	1	09/04/2021 06:32
Toluene	---	0.0050	1	09/04/2021 06:32
Ethylbenzene	---	0.0050	1	09/04/2021 06:32
m,p-Xylene	---	0.010	1	09/04/2021 06:32
o-Xylene	---	0.0050	1	09/04/2021 06:32
Xylenes	---	0.0050	1	09/04/2021 06:32

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	95	62-126	09/04/2021 06:32

Analyst(s): IA



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

LUFT 5 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-3.0	2108G85-002A	Soil	08/27/2021 09:00	ICP-MS4 134SMPL.d	228807

Analytes	Result	RL	DF	Date Analyzed
Cadmium	ND	0.50	1	09/01/2021 11:54
Chromium	440	0.50	1	09/01/2021 11:54
Lead	3.0	0.50	1	09/01/2021 11:54
Nickel	1600	5.0	10	09/01/2021 13:05
Zinc	33	5.0	1	09/01/2021 11:54

Surrogates	REC (%)	Limits
Terbium	113	70-130

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-0.5	2108G85-006A	Soil	08/27/2021 09:25	ICP-MS4 136SMPL.d	228807

Analytes	Result	RL	DF	Date Analyzed
Cadmium	ND	0.50	1	09/01/2021 12:02
Chromium	340	0.50	1	09/01/2021 12:02
Lead	5.1	0.50	1	09/01/2021 12:02
Nickel	850	5.0	10	09/01/2021 13:21
Zinc	45	5.0	1	09/01/2021 12:02

Surrogates	REC (%)	Limits
Terbium	112	70-130

Analyst(s): AL, WV



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

LUFT 5 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-1.5	2108G85-013A	Soil	08/27/2021 09:46	ICP-MS4 140SMPL.d	228825

Analytes	Result	RL	DF	Date Analyzed
Cadmium	ND	0.50	1	09/01/2021 12:17
Chromium	410	0.50	1	09/01/2021 12:17
Lead	4.7	0.50	1	09/01/2021 12:17
Nickel	1000	5.0	10	09/01/2021 13:36
Zinc	51	5.0	1	09/01/2021 12:17

Surrogates	REC (%)	Limits
Terbium	113	70-130

Analyst(s): AL, WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-1.5	2108G85-019A	Soil	08/27/2021 10:16	ICP-MS4 147SMPL.d	228825

Analytes	Result	RL	DF	Date Analyzed
Cadmium	ND	0.50	1	09/01/2021 12:43
Chromium	1200	5.0	10	09/01/2021 13:45
Lead	2.8	0.50	1	09/01/2021 12:43
Nickel	1500	5.0	10	09/01/2021 13:45
Zinc	34	5.0	1	09/01/2021 12:43

Surrogates	REC (%)	Limits
Terbium	112	70-130

Analyst(s): AL, WV



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

LUFT 5 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-5-3.0	2108G85-026A	Soil	08/27/2021 10:40	ICP-MS4 165SMPL.d	228825

Analytes	Result	RL	DF	Date Analyzed
Cadmium	ND	0.50	1	09/01/2021 13:51
Chromium	480	2.5	5	09/01/2021 15:36
Lead	5.6	0.50	1	09/01/2021 13:51
Nickel	970	2.5	5	09/01/2021 15:36
Zinc	48	5.0	1	09/01/2021 13:51

Surrogates	REC (%)	Limits
Terbium	111	70-130

Analyst(s): MIG, WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-0.5	2108G85-031A	Soil	08/27/2021 11:40	ICP-MS4 118SMPL.d	228889

Analytes	Result	RL	DF	Date Analyzed
Cadmium	ND	0.50	1	09/02/2021 10:43
Chromium	320	0.50	1	09/02/2021 10:43
Lead	3.7	0.50	1	09/02/2021 10:43
Nickel	520	2.5	5	09/02/2021 12:16
Zinc	51	5.0	1	09/02/2021 10:43

Surrogates	REC (%)	Limits
Terbium	109	70-130

Analyst(s): AL



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

LUFT 5 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-9-0.5	2108G85-039A	Soil	08/27/2021 10:50	ICP-MS4 121SMPL.d	228889

Analytes	Result	RL	DF	Date Analyzed
Cadmium	ND	0.50	1	09/02/2021 10:54
Chromium	160	0.50	1	09/02/2021 10:54
Lead	11	0.50	1	09/02/2021 10:54
Nickel	300	0.50	1	09/02/2021 10:54
Zinc	60	5.0	1	09/02/2021 10:54

Surrogates	REC (%)	Limits
Terbium	109	70-130

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-11-1.5	2108G85-048A	Soil	08/27/2021 12:55	ICP-MS5 302SMPL.d	228826

Analytes	Result	RL	DF	Date Analyzed
Cadmium	ND	0.50	1	09/02/2021 00:05
Chromium	390	0.50	1	09/02/2021 00:05
Lead	1.2	0.50	1	09/02/2021 00:05
Nickel	1200	5.0	10	09/02/2021 13:26
Zinc	28	5.0	1	09/02/2021 00:05

Surrogates	REC (%)	Limits
Terbium	109	70-130

Analyst(s): AL, MIG



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

LUFT 5 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-0.5	2108G85-051A	Soil	08/27/2021 13:35	ICP-MS5 303SMPL.d	228826

Analytes	Result	RL	DF	Date Analyzed
Cadmium	ND	0.50	1	09/02/2021 00:08
Chromium	660	5.0	10	09/02/2021 13:30
Lead	5.9	0.50	1	09/02/2021 00:08
Nickel	1300	5.0	10	09/02/2021 13:30
Zinc	58	5.0	1	09/02/2021 00:08

Surrogates	REC (%)	Limits
Terbium	111	70-130

Analyst(s): AL, MIG

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-13-5.0	2108G85-058A	Soil	08/27/2021 13:51	ICP-MS5 308SMPL.d	228826

Analytes	Result	RL	DF	Date Analyzed
Cadmium	ND	0.50	1	09/02/2021 00:25
Chromium	790	2.5	5	09/02/2021 13:42
Lead	4.3	0.50	1	09/02/2021 00:25
Nickel	970	2.5	5	09/02/2021 13:42
Zinc	51	5.0	1	09/02/2021 00:25

Surrogates	REC (%)	Limits
Terbium	107	70-130

Analyst(s): AL, MIG



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021-09/01/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

LUFT 5 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-0.5	2108G85-059A	Soil	08/27/2021 13:10	ICP-MS4 085SMPL.d	228826

Analytes	Result	RL	DF	Date Analyzed
Cadmium	ND	0.50	1	09/02/2021 13:00
Chromium	60	0.50	1	09/02/2021 13:00
Lead	13	0.50	1	09/02/2021 13:00
Nickel	35	0.50	1	09/02/2021 13:00
Zinc	61	5.0	1	09/02/2021 13:00

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	109	70-130	09/02/2021 13:00

Analyst(s): AL



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-0.5	2108G85-001A	Soil	08/27/2021 09:03	GC39B 09012163.D	228787

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/02/2021 06:51
TPH-Motor Oil (C18-C36)	14	10	1	09/02/2021 06:51

Surrogates	REC (%)	Limits	Date Analyzed
C9	86	70-130	09/02/2021 06:51

Analyst(s): JIS **Analytical Comments:** e7

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-3.0	2108G85-002A	Soil	08/27/2021 09:00	GC6B 09032127.D	228787

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/03/2021 23:58
TPH-Motor Oil (C18-C36)	ND	10	1	09/03/2021 23:58

Surrogates	REC (%)	Limits	Date Analyzed
C9	100	70-130	09/03/2021 23:58

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-7.5	2108G85-004A	Soil	08/27/2021 09:12	GC6B 09032129.D	228787

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/04/2021 00:37
TPH-Motor Oil (C18-C36)	ND	10	1	09/04/2021 00:37

Surrogates	REC (%)	Limits	Date Analyzed
C9	100	70-130	09/04/2021 00:37

Analyst(s): TD

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-0.5	2108G85-006A	Soil	08/27/2021 09:25	GC39A 09032120.D	228787

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/03/2021 20:02
TPH-Motor Oil (C18-C36)	ND	10	1	09/03/2021 20:02

Surrogates	REC (%)	Limits	Date Analyzed
C9	84	70-130	09/03/2021 20:02

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-1.5	2108G85-007A	Soil	08/27/2021 09:28	GC6B 09032131.D	228787

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/04/2021 01:17
TPH-Motor Oil (C18-C36)	ND	10	1	09/04/2021 01:17

Surrogates	REC (%)	Limits	Date Analyzed
C9	101	70-130	09/04/2021 01:17

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-5.0	2108G85-009A	Soil	08/27/2021 09:32	GC6B 09032133.D	228787

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/04/2021 01:56
TPH-Motor Oil (C18-C36)	ND	10	1	09/04/2021 01:56

Surrogates	REC (%)	Limits	Date Analyzed
C9	100	70-130	09/04/2021 01:56

Analyst(s): TD

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-10.0	2108G85-011A	Soil	08/27/2021 09:36	GC6B 09032145.D	228787

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)	ND	2.0	1	09/04/2021 05:49
TPH-Motor Oil (C18-C36)	ND	10	1	09/04/2021 05:49

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>	<u>Date Analyzed</u>
C9	100	70-130	09/04/2021 05:49

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-0.5	2108G85-012A	Soil	08/27/2021 09:45	GC39A 09032124.D	228787

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)	ND	2.0	1	09/03/2021 21:21
TPH-Motor Oil (C18-C36)	30	10	1	09/03/2021 21:21

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>	<u>Date Analyzed</u>
C9	84	70-130	09/03/2021 21:21

Analyst(s): TD Analytical Comments: e7

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-1.5	2108G85-013A	Soil	08/27/2021 09:46	GC39A 09032128.D	228787

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)	ND	2.0	1	09/03/2021 22:39
TPH-Motor Oil (C18-C36)	13	10	1	09/03/2021 22:39

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>	<u>Date Analyzed</u>
C9	84	70-130	09/03/2021 22:39

Analyst(s): TD Analytical Comments: e7

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-3.0	2108G85-014A	Soil	08/27/2021 09:48	GC39A 09032132.D	228787

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/03/2021 23:58
TPH-Motor Oil (C18-C36)	ND	10	1	09/03/2021 23:58

Surrogates	REC (%)	Limits
C9	84	70-130

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-7.5	2108G85-016A	Soil	08/27/2021 09:52	GC6B 09032147.D	228787

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/04/2021 06:28
TPH-Motor Oil (C18-C36)	ND	10	1	09/04/2021 06:28

Surrogates	REC (%)	Limits
C9	100	70-130

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-0.5	2108G85-018A	Soil	08/27/2021 10:15	GC39B 09032127.D	228787

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	5.5	2.0	1	09/03/2021 22:39
TPH-Motor Oil (C18-C36)	50	10	1	09/03/2021 22:39

Surrogates	REC (%)	Limits
C9	86	70-130

Analyst(s): TD

Analytical Comments: e2,e7

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-1.5	2108G85-019A	Soil	08/27/2021 10:16	GC6B 09032149.D	228787
<u>Analytes</u>		<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)		ND	2.0	1	09/04/2021 07:07
TPH-Motor Oil (C18-C36)		ND	10	1	09/04/2021 07:07
<u>Surrogates</u>		<u>REC (%)</u>	<u>Limits</u>		
C9		100	70-130		09/04/2021 07:07
<u>Analyst(s):</u> TD					

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-3.0	2108G85-020A	Soil	08/27/2021 10:18	GC6B 09032151.D	228787
<u>Analytes</u>		<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)		ND	2.0	1	09/04/2021 07:46
TPH-Motor Oil (C18-C36)		ND	10	1	09/04/2021 07:46
<u>Surrogates</u>		<u>REC (%)</u>	<u>Limits</u>		
C9		100	70-130		09/04/2021 07:46
<u>Analyst(s):</u> TD					

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-7.5	2108G85-022A	Soil	08/27/2021 10:23	GC6B 09032153.D	228787
<u>Analytes</u>		<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)		ND	2.0	1	09/04/2021 08:26
TPH-Motor Oil (C18-C36)		ND	10	1	09/04/2021 08:26
<u>Surrogates</u>		<u>REC (%)</u>	<u>Limits</u>		
C9		99	70-130		09/04/2021 08:26
<u>Analyst(s):</u> TD					

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-5-0.5	2108G85-024A	Soil	08/27/2021 10:35	GC39B 09032117.D	228787

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/03/2021 19:22
TPH-Motor Oil (C18-C36)	16	10	1	09/03/2021 19:22

Surrogates	REC (%)	Limits	Date Analyzed
C9	87	70-130	09/03/2021 19:22

Analyst(s): TD Analytical Comments: e7

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-5-3.0	2108G85-026A	Soil	08/27/2021 10:40	GC6B 09032157.D	228787

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/04/2021 09:45
TPH-Motor Oil (C18-C36)	ND	10	1	09/04/2021 09:45

Surrogates	REC (%)	Limits	Date Analyzed
C9	100	70-130	09/04/2021 09:45

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-6-1.5	2108G85-028A	Soil	08/27/2021 11:07	GC6B 09032159.D	228787

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/04/2021 10:25
TPH-Motor Oil (C18-C36)	ND	10	1	09/04/2021 10:25

Surrogates	REC (%)	Limits	Date Analyzed
C9	99	70-130	09/04/2021 10:25

Analyst(s): TD

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-0.5	2108G85-031A	Soil	08/27/2021 11:40	GC39A 09032110.D	228819

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/03/2021 16:37
TPH-Motor Oil (C18-C36)	12	10	1	09/03/2021 16:37

Surrogates	REC (%)	Limits	Date Analyzed
C9	83	70-130	09/03/2021 16:37

Analyst(s): TD Analytical Comments: e7

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-3.0	2108G85-033A	Soil	08/27/2021 11:44	GC6B 09032161.D	228819

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/04/2021 11:06
TPH-Motor Oil (C18-C36)	ND	10	1	09/04/2021 11:06

Surrogates	REC (%)	Limits	Date Analyzed
C9	100	70-130	09/04/2021 11:06

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-0.5	2108G85-035A	Soil	08/27/2021 11:28	GC6B 09032163.D	228819

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/04/2021 11:47
TPH-Motor Oil (C18-C36)	ND	10	1	09/04/2021 11:47

Surrogates	REC (%)	Limits	Date Analyzed
C9	100	70-130	09/04/2021 11:47

Analyst(s): TD



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-1.5	2108G85-036A	Soil	08/27/2021 11:30	GC6B 09032165.D	228819

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/04/2021 12:29
TPH-Motor Oil (C18-C36)	ND	10	1	09/04/2021 12:29

Surrogates	REC (%)	Limits	Date Analyzed
C9	100	70-130	09/04/2021 12:29

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-5.0	2108G85-038A	Soil	08/27/2021 11:35	GC6B 09032167.D	228819

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/04/2021 13:11
TPH-Motor Oil (C18-C36)	ND	10	1	09/04/2021 13:11

Surrogates	REC (%)	Limits	Date Analyzed
C9	99	70-130	09/04/2021 13:11

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-9-0.5	2108G85-039A	Soil	08/27/2021 10:50	GC39A 09032136.D	228819

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	2.8	2.0	1	09/04/2021 01:16
TPH-Motor Oil (C18-C36)	16	10	1	09/04/2021 01:16

Surrogates	REC (%)	Limits	Date Analyzed
C9	84	70-130	09/04/2021 01:16

Analyst(s): TD

Analytical Comments: e2,e7

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-9-1.5	2108G85-040A	Soil	08/27/2021 10:52	GC6B 09032179.D	228819
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)	ND		2.0	1	09/04/2021 17:21
TPH-Motor Oil (C18-C36)	ND		10	1	09/04/2021 17:21
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
C9	100		70-130		09/04/2021 17:21
<u>Analyst(s):</u> TD					

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-10-0.5	2108G85-043A	Soil	08/27/2021 12:40	GC6B 09032181.D	228819
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)	ND		2.0	1	09/04/2021 18:03
TPH-Motor Oil (C18-C36)	ND		10	1	09/04/2021 18:03
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
C9	100		70-130		09/04/2021 18:03
<u>Analyst(s):</u> TD					

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-10-3.0	2108G85-045A	Soil	08/27/2021 12:44	GC6B 09032183.D	228819
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)	ND		2.0	1	09/04/2021 18:45
TPH-Motor Oil (C18-C36)	ND		10	1	09/04/2021 18:45
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
C9	99		70-130		09/04/2021 18:45
<u>Analyst(s):</u> TD					

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-11-0.5	2108G85-047A	Soil	08/27/2021 12:53	GC6B 09032185.D	228819

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/04/2021 19:27
TPH-Motor Oil (C18-C36)	ND	10	1	09/04/2021 19:27

Surrogates	REC (%)	Limits	Date Analyzed
C9	100	70-130	09/04/2021 19:27

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-11-1.5	2108G85-048A	Soil	08/27/2021 12:55	GC6B 09032187.D	228819

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/04/2021 20:07
TPH-Motor Oil (C18-C36)	ND	10	1	09/04/2021 20:07

Surrogates	REC (%)	Limits	Date Analyzed
C9	99	70-130	09/04/2021 20:07

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-0.5	2108G85-051A	Soil	08/27/2021 13:35	GC39B 09032121.D	228819

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	2.3	2.0	1	09/03/2021 20:42
TPH-Motor Oil (C18-C36)	50	10	1	09/03/2021 20:42

Surrogates	REC (%)	Limits	Date Analyzed
C9	87	70-130	09/03/2021 20:42

Analyst(s): TD

Analytical Comments: e2,e7

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-3.0	2108G85-053A	Soil	08/27/2021 13:37	GC6B 09032189.D	228819

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/04/2021 20:48
TPH-Motor Oil (C18-C36)	11	10	1	09/04/2021 20:48

Surrogates	REC (%)	Limits	Date Analyzed
C9	99	70-130	09/04/2021 20:48

Analyst(s): TD Analytical Comments: e7

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-13-0.5	2108G85-055A	Soil	08/27/2021 13:48	GC6B 09032191.D	228819

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/04/2021 21:29
TPH-Motor Oil (C18-C36)	ND	10	1	09/04/2021 21:29

Surrogates	REC (%)	Limits	Date Analyzed
C9	100	70-130	09/04/2021 21:29

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-13-1.5	2108G85-056A	Soil	08/27/2021 13:45	GC39B 09032113.D	228819

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/03/2021 18:00
TPH-Motor Oil (C18-C36)	10	10	1	09/03/2021 18:00

Surrogates	REC (%)	Limits	Date Analyzed
C9	87	70-130	09/03/2021 18:00

Analyst(s): TD Analytical Comments: e7

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 08/31/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-13-5.0	2108G85-058A	Soil	08/27/2021 13:51	GC39B 09032109.D	228819

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/03/2021 16:37
TPH-Motor Oil (C18-C36)	ND	10	1	09/03/2021 16:37

Surrogates	REC (%)	Limits	Date Analyzed
C9	87	70-130	09/03/2021 16:37

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-0.5	2108G85-059A	Soil	08/27/2021 13:10	GC39B 09032133.D	228819

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	5.3	2.0	1	09/04/2021 00:37
TPH-Motor Oil (C18-C36)	68	10	1	09/04/2021 00:37

Surrogates	REC (%)	Limits	Date Analyzed
C9	86	70-130	09/04/2021 00:37

Analyst(s): TD

Analytical Comments: e2,e7

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-3.0	2108G85-061A	Soil	08/27/2021 13:12	GC39B 09032111.D	228819

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	2.0	1	09/03/2021 17:18
TPH-Motor Oil (C18-C36)	ND	10	1	09/03/2021 17:18

Surrogates	REC (%)	Limits	Date Analyzed
C9	87	70-130	09/03/2021 17:18

Analyst(s): TD



Quality Control Report

Client: Langan	WorkOrder: 2108G85
Date Prepared: 09/01/2021	BatchID: 228886
Date Analyzed: 09/01/2021	Extraction Method: SW3550B/3640Am/3630Cm
Instrument: GC40	Analytical Method: SW8081A/8082
Matrix: Soil	Unit: mg/kg
Project: 731744801; Hunters Point Block 56	Sample ID: MB/LCS/LCSD-228886

QC Summary Report for SW8081A/8082

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Aldrin	ND	0.0000360	0.000100	-	-	-
a-BHC	ND	0.0000250	0.000100	-	-	-
b-BHC	ND	0.000250	0.000300	-	-	-
d-BHC	ND	0.000130	0.000200	-	-	-
g-BHC	ND	0.0000660	0.000100	-	-	-
Chlordane (Technical)	ND	0.000430	0.00250	-	-	-
a-Chlordane	ND	0.0000950	0.000100	-	-	-
g-Chlordane	ND	0.0000470	0.000100	-	-	-
p,p-DDD	ND	0.0000430	0.000100	-	-	-
p,p-DDE	ND	0.0000940	0.000100	-	-	-
p,p-DDT	ND	0.0000920	0.000100	-	-	-
Dieldrin	ND	0.0000610	0.000100	-	-	-
Endosulfan I	ND	0.0000480	0.000100	-	-	-
Endosulfan II	ND	0.0000760	0.000100	-	-	-
Endosulfan sulfate	ND	0.0000780	0.000100	-	-	-
Endrin	ND	0.0000350	0.000100	-	-	-
Endrin aldehyde	ND	0.0000670	0.000100	-	-	-
Endrin ketone	ND	0.0000840	0.000100	-	-	-
Heptachlor	ND	0.0000400	0.000100	-	-	-
Heptachlor epoxide	ND	0.0000540	0.000100	-	-	-
Hexachlorobenzene	ND	0.000110	0.00100	-	-	-
Hexachlorocyclopentadiene	ND	0.000340	0.00200	-	-	-
Methoxychlor	ND	0.000130	0.000200	-	-	-
Toxaphene	ND	0.00340	0.00500	-	-	-
Aroclor1016	ND	0.00200	0.00500	-	-	-
Aroclor1221	ND	0.00220	0.00500	-	-	-
Aroclor1232	ND	0.00220	0.00500	-	-	-
Aroclor1242	ND	0.00220	0.00500	-	-	-
Aroclor1248	ND	0.00220	0.00500	-	-	-
Aroclor1254	ND	0.00220	0.00500	-	-	-
Aroclor1260	ND	0.00220	0.00500	-	-	-
PCBs, total	ND	N/A	0.00500	-	-	-
Surrogate Recovery						
Decachlorobiphenyl	0.00400			0.005	80	28-170

(Cont.)



Quality Control Report

Client: Langan
Date Prepared: 09/01/2021
Date Analyzed: 09/01/2021
Instrument: GC40
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228886
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228886

QC Summary Report for SW8081A/8082

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Aldrin	0.00365	0.00317	0.0050	73	63	31-155	14.1	20
a-BHC	0.00406	0.00352	0.0050	81	70	32-160	14.2	20
b-BHC	0.00357	0.00318	0.0050	71	63	44-149	11.7	20
d-BHC	0.00387	0.00360	0.0050	77	72	37-157	7.14	20
g-BHC	0.00387	0.00334	0.0050	77	67	43-154	14.6	20
a-Chlordane	0.00374	0.00329	0.0050	75	66	39-150	12.9	20
g-Chlordane	0.00411	0.00359	0.0050	82	72	39-151	13.5	20
p,p-DDD	0.00508	0.00467	0.0050	102	93	30-158	8.35	20
p,p-DDE	0.00423	0.00373	0.0050	85	75	47-149	12.6	20
p,p-DDT	0.00446	0.00412	0.0050	89	82	56-166	7.86	20
Dieldrin	0.00442	0.00404	0.0050	88	81	50-163	8.81	20
Endosulfan I	0.00446	0.00405	0.0050	89	81	45-159	9.65	20
Endosulfan II	0.00451	0.00418	0.0050	90	84	41-155	7.50	20
Endosulfan sulfate	0.00421	0.00373	0.0050	84	75	45-156	12.2	20
Endrin	0.00463	0.00424	0.0050	93	85	54-154	8.85	20
Endrin aldehyde	0.00449	0.00414	0.0050	90	83	27-159	7.98	20
Endrin ketone	0.00385	0.00360	0.0050	77	72	40-147	6.91	20
Heptachlor	0.00385	0.00336	0.0050	77	67	52-165	13.7	20
Heptachlor epoxide	0.00386	0.00348	0.0050	77	70	46-145	10.2	20
Hexachlorobenzene	0.00314	0.00267	0.0050	63	53	22-156	16.1	20
Hexachlorocyclopentadiene	0.00234	0.00188	0.0050	47	38,F2	43-173	22.1,F2	20
Methoxychlor	0.00430	0.00369	0.0050	86	74	49-150	15.2	20
Aroclor1016	0.0111	0.0121	0.015	74	81	49-120	8.80	20
Aroclor1260	0.0116	0.0127	0.015	78	85	48-160	8.77	20
Surrogate Recovery								
Decachlorobiphenyl	0.00467	0.00407	0.0050	93	81	28-170	13.9	20



Quality Control Report

Client: Langan	WorkOrder: 2108G85
Date Prepared: 08/31/2021	BatchID: 228786
Date Analyzed: 08/31/2021	Extraction Method: SW5030B
Instrument: GC18	Analytical Method: SW8260B
Matrix: Soil	Unit: mg/kg
Project: 731744801; Hunters Point Block 56	Sample ID: MB/LCS/LCSD-228786

QC Summary Report for SW8260B

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Acetone	ND	0.120	0.200	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.000740	0.00500	-	-	-
Benzene	ND	0.000870	0.00500	-	-	-
Bromobenzene	ND	0.000910	0.00500	-	-	-
Bromochloromethane	ND	0.000910	0.00500	-	-	-
Bromodichloromethane	ND	0.0000940	0.00500	-	-	-
Bromoform	ND	0.00390	0.00500	-	-	-
Bromomethane	ND	0.00250	0.00500	-	-	-
2-Butanone (MEK)	ND	0.0230	0.0500	-	-	-
t-Butyl alcohol (TBA)	ND	0.0230	0.0500	-	-	-
n-Butyl benzene	ND	0.00140	0.00500	-	-	-
sec-Butyl benzene	ND	0.00150	0.00500	-	-	-
tert-Butyl benzene	ND	0.00170	0.00500	-	-	-
Carbon Disulfide	ND	0.00150	0.00500	-	-	-
Carbon Tetrachloride	ND	0.000120	0.00500	-	-	-
Chlorobenzene	ND	0.000870	0.00500	-	-	-
Chloroethane	ND	0.00160	0.00500	-	-	-
Chloroform	ND	0.000190	0.00500	-	-	-
Chloromethane	ND	0.00170	0.00500	-	-	-
2-Chlorotoluene	ND	0.00130	0.00500	-	-	-
4-Chlorotoluene	ND	0.00100	0.00500	-	-	-
Dibromochloromethane	ND	0.000420	0.00500	-	-	-
1,2-Dibromo-3-chloropropane	ND	0.000490	0.000500	-	-	-
1,2-Dibromoethane (EDB)	ND	0.000120	0.000250	-	-	-
Dibromomethane	ND	0.000950	0.00500	-	-	-
1,2-Dichlorobenzene	ND	0.00230	0.00500	-	-	-
1,3-Dichlorobenzene	ND	0.00100	0.00500	-	-	-
1,4-Dichlorobenzene	ND	0.00100	0.00500	-	-	-
Dichlorodifluoromethane	ND	0.00170	0.00500	-	-	-
1,1-Dichloroethane	ND	0.000810	0.00500	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0000710	0.000100	-	-	-
1,1-Dichloroethene	ND	0.0000690	0.00500	-	-	-
cis-1,2-Dichloroethene	ND	0.000750	0.00500	-	-	-
trans-1,2-Dichloroethene	ND	0.00120	0.00500	-	-	-
1,2-Dichloropropane	ND	0.000780	0.00500	-	-	-
1,3-Dichloropropane	ND	0.00100	0.00500	-	-	-
2,2-Dichloropropane	ND	0.00120	0.00500	-	-	-
1,1-Dichloropropene	ND	0.000960	0.00500	-	-	-

(Cont.)



Quality Control Report

Client:	Langan	WorkOrder:	2108G85
Date Prepared:	08/31/2021	BatchID:	228786
Date Analyzed:	08/31/2021	Extraction Method:	SW5030B
Instrument:	GC18	Analytical Method:	SW8260B
Matrix:	Soil	Unit:	mg/kg
Project:	731744801; Hunters Point Block 56	Sample ID:	MB/LCS/LCSD-228786

QC Summary Report for SW8260B

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
cis-1,3-Dichloropropene	ND	0.000660	0.00500	-	-	-
trans-1,3-Dichloropropene	ND	0.000670	0.00500	-	-	-
Diisopropyl ether (DIPE)	ND	0.000780	0.00500	-	-	-
Ethylbenzene	ND	0.00110	0.00500	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.000730	0.00500	-	-	-
Freon 113	ND	0.00110	0.00500	-	-	-
Hexachlorobutadiene	ND	0.00120	0.00500	-	-	-
Hexachloroethane	ND	0.000670	0.00500	-	-	-
2-Hexanone	ND	0.00430	0.00500	-	-	-
Isopropylbenzene	ND	0.00140	0.00500	-	-	-
4-Isopropyl toluene	ND	0.00130	0.00500	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.00140	0.00500	-	-	-
Methylene chloride	ND	0.00580	0.0200	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	0.00150	0.00500	-	-	-
Naphthalene	ND	0.00220	0.00500	-	-	-
n-Propyl benzene	ND	0.00160	0.00500	-	-	-
Styrene	ND	0.00120	0.00500	-	-	-
1,1,1,2-Tetrachloroethane	ND	0.00100	0.00500	-	-	-
1,1,2,2-Tetrachloroethane	ND	0.000280	0.00500	-	-	-
Tetrachloroethene	ND	0.000310	0.00500	-	-	-
Toluene	ND	0.00120	0.00500	-	-	-
1,2,3-Trichlorobenzene	ND	0.00170	0.00500	-	-	-
1,2,4-Trichlorobenzene	ND	0.00120	0.00500	-	-	-
1,1,1-Trichloroethane	ND	0.000840	0.00500	-	-	-
1,1,2-Trichloroethane	ND	0.000920	0.00500	-	-	-
Trichloroethene	ND	0.000810	0.00500	-	-	-
Trichlorofluoromethane	ND	0.00130	0.00500	-	-	-
1,2,3-Trichloropropane	ND	0.000150	0.000250	-	-	-
1,2,4-Trimethylbenzene	ND	0.00320	0.00500	-	-	-
1,3,5-Trimethylbenzene	ND	0.00120	0.00500	-	-	-
Vinyl Chloride	ND	0.000130	0.000250	-	-	-
m,p-Xylene	ND	0.00250	0.00500	-	-	-
o-Xylene	ND	0.00120	0.00500	-	-	-

(Cont.)



Quality Control Report

Client: Langan	WorkOrder: 2108G85
Date Prepared: 08/31/2021	BatchID: 228786
Date Analyzed: 08/31/2021	Extraction Method: SW5030B
Instrument: GC18	Analytical Method: SW8260B
Matrix: Soil	Unit: mg/kg
Project: 731744801; Hunters Point Block 56	Sample ID: MB/LCS/LCSD-228786

QC Summary Report for SW8260B

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Surrogate Recovery						
Dibromofluoromethane	0.111			0.125	89	70-140
Toluene-d8	0.116			0.125	93	70-140
4-BFB	0.00952			0.0125	76	70-140
Benzene-d6	0.109			0.1	109	70-140
Ethylbenzene-d10	0.108			0.1	108	70-140
1,2-DCB-d4	0.0850			0.1	85	70-140



Quality Control Report

Client: Langan
Date Prepared: 08/31/2021
Date Analyzed: 08/31/2021
Instrument: GC18
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228786
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228786

QC Summary Report for SW8260B

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Acetone	0.240	0.237	0.20	120	119	60-140	1.41	20
tert-Amyl methyl ether (TAME)	0.0148	0.0146	0.020	74	73	50-140	0.983	20
Benzene	0.0148	0.0144	0.020	74	72	60-140	2.93	20
Bromobenzene	0.0141	0.0140	0.020	71	70	60-140	0.661	20
Bromochloromethane	0.0156	0.0154	0.020	78	77	60-140	1.94	20
Bromodichloromethane	0.0152	0.0148	0.020	76	74	60-140	2.53	20
Bromoform	0.0130	0.0130	0.020	65	65	40-140	0.265	20
Bromomethane	0.0200	0.0191	0.020	100	95	30-140	4.41	20
2-Butanone (MEK)	0.102	0.105	0.080	128	132	50-140	2.76	20
t-Butyl alcohol (TBA)	0.0872	0.0897	0.080	109	112	50-140	2.86	20
n-Butyl benzene	0.0217	0.0211	0.020	109	105	60-150	2.94	20
sec-Butyl benzene	0.0206	0.0202	0.020	103	101	60-150	1.92	20
tert-Butyl benzene	0.0176	0.0174	0.020	88	87	60-140	1.17	20
Carbon Disulfide	0.0176	0.0170	0.020	88	85	50-140	3.19	20
Carbon Tetrachloride	0.0154	0.0150	0.020	77	75	60-140	2.58	20
Chlorobenzene	0.0157	0.0152	0.020	78	76	60-140	3.46	20
Chloroethane	0.0210	0.0196	0.020	105	98	50-140	6.91	20
Chloroform	0.0161	0.0156	0.020	80	78	60-140	2.78	20
Chloromethane	0.0171	0.0161	0.020	86	80	20-140	6.08	20
2-Chlorotoluene	0.0172	0.0170	0.020	86	85	60-140	1.16	20
4-Chlorotoluene	0.0159	0.0157	0.020	79	78	60-140	1.32	20
Dibromochloromethane	0.0150	0.0147	0.020	75	73	50-140	2.24	20
1,2-Dibromo-3-chloropropane	0.00780	0.00784	0.010	78	78	30-140	0.495	20
1,2-Dibromoethane (EDB)	0.00763	0.00752	0.010	76	75	40-140	1.44	20
Dibromomethane	0.0161	0.0161	0.020	81	80	60-140	0.479	20
1,2-Dichlorobenzene	0.0134	0.0136	0.020	67	68	60-140	1.46	20
1,3-Dichlorobenzene	0.0164	0.0159	0.020	82	79	60-140	3.25	20
1,4-Dichlorobenzene	0.0155	0.0154	0.020	77	77	60-140	0.770	20
Dichlorodifluoromethane	0.0129	0.0122	0.020	65	61	10-140	6.27	20
1,1-Dichloroethane	0.0167	0.0163	0.020	83	82	60-140	2.23	20
1,2-Dichloroethane (1,2-DCA)	0.0154	0.0150	0.020	77	75	60-140	2.06	20
1,1-Dichloroethene	0.0158	0.0155	0.020	79	78	60-140	1.78	20
cis-1,2-Dichloroethene	0.0154	0.0154	0.020	77	77	60-140	0.0234	20
trans-1,2-Dichloroethene	0.0163	0.0161	0.020	82	80	60-140	1.55	20
1,2-Dichloropropane	0.0166	0.0161	0.020	83	81	60-140	2.65	20
1,3-Dichloropropane	0.0166	0.0165	0.020	83	83	60-140	0.718	20
2,2-Dichloropropane	0.0166	0.0161	0.020	83	81	60-140	3.04	20
1,1-Dichloropropene	0.0166	0.0163	0.020	83	82	60-140	1.76	20

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Quality Control Report

Client: Langan
Date Prepared: 08/31/2021
Date Analyzed: 08/31/2021
Instrument: GC18
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228786
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228786

QC Summary Report for SW8260B

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
cis-1,3-Dichloropropene	0.0161	0.0157	0.020	81	78	60-140	2.68	20
trans-1,3-Dichloropropene	0.0171	0.0167	0.020	85	83	60-140	2.27	20
Diisopropyl ether (DIPE)	0.0166	0.0161	0.020	83	80	60-140	3.09	20
Ethylbenzene	0.0178	0.0172	0.020	89	86	60-140	3.83	20
Ethyl tert-butyl ether (ETBE)	0.0163	0.0157	0.020	81	79	60-140	3.59	20
Freon 113	0.0149	0.0145	0.020	74	73	50-140	2.34	20
Hexachlorobutadiene	0.0193	0.0188	0.020	97	94	60-140	2.82	20
Hexachloroethane	0.0182	0.0178	0.020	91	89	60-140	2.04	20
2-Hexanone	0.0189	0.0197	0.020	94	99	40-140	4.31	20
Isopropylbenzene	0.0185	0.0181	0.020	92	91	60-140	2.06	20
4-Isopropyl toluene	0.0184	0.0180	0.020	92	90	60-150	1.99	20
Methyl-t-butyl ether (MTBE)	0.0168	0.0161	0.020	84	80	50-140	4.67	20
Methylene chloride	0.0168	0.0167	0.020	84	83	60-140	0.903	20
4-Methyl-2-pentanone (MIBK)	0.0188	0.0146	0.020	94	73	50-140	25.1,F2	20
Naphthalene	0.00742	0.00771	0.020	37	39	30-140	3.78	20
n-Propyl benzene	0.0189	0.0183	0.020	95	91	60-140	3.52	20
Styrene	0.0151	0.0148	0.020	75	74	60-140	2.26	20
1,1,1,2-Tetrachloroethane	0.0148	0.0145	0.020	74	73	60-140	1.97	20
1,1,2,2-Tetrachloroethane	0.0156	0.0158	0.020	78	79	40-140	0.748	20
Tetrachloroethene	0.0160	0.0156	0.020	80	78	60-140	2.87	20
Toluene	0.0163	0.0157	0.020	82	78	60-140	4.06	20
1,2,3-Trichlorobenzene	0.00816	0.00851	0.020	41	43	40-140	4.21	20
1,2,4-Trichlorobenzene	0.0115	0.0117	0.020	58	58	50-140	1.58	20
1,1,1-Trichloroethane	0.0154	0.0152	0.020	77	76	60-140	1.28	20
1,1,2-Trichloroethane	0.0160	0.0157	0.020	80	79	60-140	1.67	20
Trichloroethene	0.0159	0.0155	0.020	79	78	60-140	2.35	20
Trichlorofluoromethane	0.0154	0.0152	0.020	77	76	50-140	0.811	20
1,2,3-Trichloropropane	0.00804	0.00816	0.010	80	82	40-140	1.50	20
1,2,4-Trimethylbenzene	0.0176	0.0172	0.020	88	86	30-140	2.71	20
1,3,5-Trimethylbenzene	0.0179	0.0174	0.020	90	87	60-140	3.08	20
Vinyl Chloride	0.00969	0.00908	0.010	97	91	30-140	6.54	20
m,p-Xylene	0.0321	0.0312	0.040	80	78	60-140	2.80	20
o-Xylene	0.0168	0.0162	0.020	84	81	60-140	3.60	20

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Quality Control Report

Client: Langan	WorkOrder: 2108G85
Date Prepared: 08/31/2021	BatchID: 228786
Date Analyzed: 08/31/2021	Extraction Method: SW5030B
Instrument: GC18	Analytical Method: SW8260B
Matrix: Soil	Unit: mg/kg
Project: 731744801; Hunters Point Block 56	Sample ID: MB/LCS/LCSD-228786

QC Summary Report for SW8260B

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Surrogate Recovery								
Dibromofluoromethane	0.109	0.110	0.12	87	88	70-140	0.673	20
Toluene-d8	0.114	0.113	0.12	92	90	70-140	1.24	20
4-BFB	0.00922	0.00965	0.012	74	77	70-140	4.56	20
Benzene-d6	0.102	0.0973	0.10	102	97	70-140	4.77	20
Ethylbenzene-d10	0.104	0.0996	0.10	105	100	70-140	4.81	20
1,2-DCB-d4	0.0824	0.0818	0.10	82	82	70-140	0.676	20



Quality Control Report

Client: Langan
Date Prepared: 08/31/2021
Date Analyzed: 09/01/2021 - 09/09/2021
Instrument: GC18
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228823
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228823
 2108G85-061AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Acetone	ND	0.120	0.200	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.000740	0.00500	-	-	-
Benzene	ND	0.000870	0.00500	-	-	-
Bromobenzene	ND	0.000910	0.00500	-	-	-
Bromochloromethane	ND	0.000910	0.00500	-	-	-
Bromodichloromethane	ND	0.0000940	0.00500	-	-	-
Bromoform	ND	0.00390	0.00500	-	-	-
Bromomethane	ND	0.00250	0.00500	-	-	-
2-Butanone (MEK)	ND	0.0230	0.0500	-	-	-
t-Butyl alcohol (TBA)	ND	0.0230	0.0500	-	-	-
n-Butyl benzene	ND	0.00140	0.00500	-	-	-
sec-Butyl benzene	ND	0.00150	0.00500	-	-	-
tert-Butyl benzene	ND	0.00170	0.00500	-	-	-
Carbon Disulfide	ND	0.00150	0.00500	-	-	-
Carbon Tetrachloride	ND	0.000120	0.00500	-	-	-
Chlorobenzene	ND	0.000870	0.00500	-	-	-
Chloroethane	ND	0.00160	0.00500	-	-	-
Chloroform	ND	0.000190	0.00500	-	-	-
Chloromethane	ND	0.00170	0.00500	-	-	-
2-Chlorotoluene	ND	0.00130	0.00500	-	-	-
4-Chlorotoluene	ND	0.00100	0.00500	-	-	-
Dibromochloromethane	ND	0.000420	0.00500	-	-	-
1,2-Dibromo-3-chloropropane	ND	0.000490	0.000500	-	-	-
1,2-Dibromoethane (EDB)	ND	0.000120	0.000250	-	-	-
Dibromomethane	ND	0.000950	0.00500	-	-	-
1,2-Dichlorobenzene	ND	0.00230	0.00500	-	-	-
1,3-Dichlorobenzene	ND	0.00100	0.00500	-	-	-
1,4-Dichlorobenzene	ND	0.00100	0.00500	-	-	-
Dichlorodifluoromethane	ND	0.00170	0.00500	-	-	-
1,1-Dichloroethane	ND	0.000810	0.00500	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0000710	0.000100	-	-	-
1,1-Dichloroethene	ND	0.0000690	0.00500	-	-	-
cis-1,2-Dichloroethene	ND	0.000750	0.00500	-	-	-
trans-1,2-Dichloroethene	ND	0.00120	0.00500	-	-	-
1,2-Dichloropropane	ND	0.000780	0.00500	-	-	-
1,3-Dichloropropane	ND	0.00100	0.00500	-	-	-
2,2-Dichloropropane	ND	0.00120	0.00500	-	-	-
1,1-Dichloropropene	ND	0.000960	0.00500	-	-	-

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Quality Control Report

Client: Langan
Date Prepared: 08/31/2021
Date Analyzed: 09/01/2021 - 09/09/2021
Instrument: GC18
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228823
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228823
 2108G85-061AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
cis-1,3-Dichloropropene	ND	0.000660	0.00500	-	-	-
trans-1,3-Dichloropropene	ND	0.000670	0.00500	-	-	-
Diisopropyl ether (DIPE)	ND	0.000780	0.00500	-	-	-
Ethylbenzene	ND	0.00110	0.00500	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.000730	0.00500	-	-	-
Freon 113	ND	0.00110	0.00500	-	-	-
Hexachlorobutadiene	ND	0.00120	0.00500	-	-	-
Hexachloroethane	ND	0.000670	0.00500	-	-	-
2-Hexanone	ND	0.00430	0.00500	-	-	-
Isopropylbenzene	ND	0.00140	0.00500	-	-	-
4-Isopropyl toluene	ND	0.00130	0.00500	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.00140	0.00500	-	-	-
Methylene chloride	ND	0.00580	0.0200	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	0.00150	0.00500	-	-	-
Naphthalene	ND	0.00220	0.00500	-	-	-
n-Propyl benzene	ND	0.00160	0.00500	-	-	-
Styrene	ND	0.00120	0.00500	-	-	-
1,1,1,2-Tetrachloroethane	ND	0.00100	0.00500	-	-	-
1,1,2,2-Tetrachloroethane	ND	0.000280	0.00500	-	-	-
Tetrachloroethene	ND	0.000310	0.00500	-	-	-
Toluene	ND	0.00120	0.00500	-	-	-
1,2,3-Trichlorobenzene	ND	0.00170	0.00500	-	-	-
1,2,4-Trichlorobenzene	ND	0.00120	0.00500	-	-	-
1,1,1-Trichloroethane	ND	0.000840	0.00500	-	-	-
1,1,2-Trichloroethane	ND	0.000920	0.00500	-	-	-
Trichloroethene	ND	0.000810	0.00500	-	-	-
Trichlorofluoromethane	ND	0.00130	0.00500	-	-	-
1,2,3-Trichloropropane	ND	0.000150	0.000250	-	-	-
1,2,4-Trimethylbenzene	ND	0.00320	0.00500	-	-	-
1,3,5-Trimethylbenzene	ND	0.00120	0.00500	-	-	-
Vinyl Chloride	ND	0.000130	0.000250	-	-	-
m,p-Xylene	ND	0.00250	0.00500	-	-	-
o-Xylene	ND	0.00120	0.00500	-	-	-

(Cont.)



Quality Control Report

Client: Langan	WorkOrder: 2108G85
Date Prepared: 08/31/2021	BatchID: 228823
Date Analyzed: 09/01/2021 - 09/09/2021	Extraction Method: SW5030B
Instrument: GC18	Analytical Method: SW8260B
Matrix: Soil	Unit: mg/kg
Project: 731744801; Hunters Point Block 56	Sample ID: MB/LCS/LCSD-228823 2108G85-061AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Surrogate Recovery						
Dibromofluoromethane	0.106			0.125	85	70-140
Toluene-d8	0.117			0.125	93	70-140
4-BFB	0.00978			0.0125	78	70-140
Benzene-d6	0.117			0.1	117	70-140
Ethylbenzene-d10	0.120			0.1	121	70-140
1,2-DCB-d4	0.0886			0.1	89	70-140



Quality Control Report

Client: Langan
Date Prepared: 08/31/2021
Date Analyzed: 09/01/2021 - 09/09/2021
Instrument: GC18
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228823
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228823
 2108G85-061AMS/MSD

QC Summary Report for SW8260B

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Acetone	0.270	0.232	0.20	135	116	60-140	14.9	20
tert-Amyl methyl ether (TAME)	0.0163	0.0149	0.020	81	75	50-140	8.89	20
Benzene	0.0171	0.0160	0.020	86	80	60-140	6.78	20
Bromobenzene	0.0172	0.0157	0.020	86	78	60-140	9.47	20
Bromochloromethane	0.0184	0.0168	0.020	92	84	60-140	9.33	20
Bromodichloromethane	0.0170	0.0158	0.020	85	79	60-140	6.97	20
Bromoform	0.0137	0.0124	0.020	69	62	40-140	10.6	20
Bromomethane	0.0279	0.0246	0.020	139	123	30-140	12.4	20
2-Butanone (MEK)	0.100	0.0928	0.080	125	116	50-140	7.81	20
t-Butyl alcohol (TBA)	0.0854	0.0741	0.080	107	93	50-140	14.2	20
n-Butyl benzene	0.0271	0.0240	0.020	136	120	60-150	12.3	20
sec-Butyl benzene	0.0263	0.0236	0.020	131	118	60-150	10.6	20
tert-Butyl benzene	0.0224	0.0204	0.020	112	102	60-140	9.40	20
Carbon Disulfide	0.0210	0.0195	0.020	105	98	50-140	7.48	20
Carbon Tetrachloride	0.0179	0.0171	0.020	90	86	60-140	4.64	20
Chlorobenzene	0.0178	0.0164	0.020	89	82	60-140	8.19	20
Chloroethane	0.0262	0.0233	0.020	131	116	50-140	11.9	20
Chloroform	0.0188	0.0175	0.020	94	87	60-140	7.00	20
Chloromethane	0.0256	0.0208	0.020	128	104	20-140	20.7,F2	20
2-Chlorotoluene	0.0213	0.0192	0.020	106	96	60-140	9.97	20
4-Chlorotoluene	0.0194	0.0176	0.020	97	88	60-140	9.64	20
Dibromochloromethane	0.0164	0.0151	0.020	82	76	50-140	8.12	20
1,2-Dibromo-3-chloropropane	0.00814	0.00712	0.010	81	71	30-140	13.3	20
1,2-Dibromoethane (EDB)	0.00844	0.00768	0.010	84	77	40-140	9.43	20
Dibromomethane	0.0179	0.0165	0.020	89	82	60-140	8.08	20
1,2-Dichlorobenzene	0.0156	0.0136	0.020	78	68	60-140	13.1	20
1,3-Dichlorobenzene	0.0192	0.0172	0.020	96	86	60-140	10.8	20
1,4-Dichlorobenzene	0.0184	0.0163	0.020	92	81	60-140	12.2	20
Dichlorodifluoromethane	0.0170	0.0151	0.020	85	76	10-140	11.8	20
1,1-Dichloroethane	0.0195	0.0182	0.020	97	91	60-140	6.83	20
1,2-Dichloroethane (1,2-DCA)	0.0174	0.0162	0.020	87	81	60-140	7.72	20
1,1-Dichloroethene	0.0190	0.0179	0.020	95	90	60-140	6.18	20
cis-1,2-Dichloroethene	0.0182	0.0169	0.020	91	84	60-140	7.78	20
trans-1,2-Dichloroethene	0.0196	0.0184	0.020	98	92	60-140	6.48	20
1,2-Dichloropropane	0.0188	0.0175	0.020	94	87	60-140	7.16	20
1,3-Dichloropropane	0.0190	0.0172	0.020	95	86	60-140	9.97	20
2,2-Dichloropropane	0.0196	0.0183	0.020	98	92	60-140	6.91	20
1,1-Dichloropropene	0.0196	0.0186	0.020	98	93	60-140	5.28	20

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Quality Control Report

Client: Langan
Date Prepared: 08/31/2021
Date Analyzed: 09/01/2021 - 09/09/2021
Instrument: GC18
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228823
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228823
 2108G85-061AMS/MSD

QC Summary Report for SW8260B

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
cis-1,3-Dichloropropene	0.0184	0.0170	0.020	92	85	60-140	7.88	20
trans-1,3-Dichloropropene	0.0192	0.0175	0.020	96	87	60-140	9.29	20
Diisopropyl ether (DIPE)	0.0185	0.0170	0.020	93	85	60-140	8.35	20
Ethylbenzene	0.0207	0.0192	0.020	104	96	60-140	7.72	20
Ethyl tert-butyl ether (ETBE)	0.0182	0.0167	0.020	91	83	60-140	8.56	20
Freon 113	0.0181	0.0169	0.020	90	85	50-140	6.69	20
Hexachlorobutadiene	0.0212	0.0198	0.020	106	99	60-140	6.73	20
Hexachloroethane	0.0220	0.0197	0.020	110	98	60-140	11.3	20
2-Hexanone	0.0189	0.0165	0.020	94	82	40-140	13.6	20
Isopropylbenzene	0.0233	0.0213	0.020	116	107	60-140	8.77	20
4-Isopropyl toluene	0.0234	0.0209	0.020	117	104	60-150	11.4	20
Methyl-t-butyl ether (MTBE)	0.0186	0.0167	0.020	93	83	50-140	10.7	20
Methylene chloride	0.0205	0.0188	0.020	102	94	60-140	8.72	20
4-Methyl-2-pentanone (MIBK)	0.0189	0.0169	0.020	94	84	50-140	11.3	20
Naphthalene	0.00861	0.00733	0.020	43	37	30-140	16.1	20
n-Propyl benzene	0.0240	0.0218	0.020	120	109	60-140	9.53	20
Styrene	0.0167	0.0152	0.020	84	76	60-140	9.34	20
1,1,1,2-Tetrachloroethane	0.0168	0.0154	0.020	84	77	60-140	8.52	20
1,1,2,2-Tetrachloroethane	0.0165	0.0153	0.020	83	76	40-140	7.92	20
Tetrachloroethene	0.0190	0.0176	0.020	95	88	60-140	7.49	20
Toluene	0.0190	0.0174	0.020	95	87	60-140	8.50	20
1,2,3-Trichlorobenzene	0.00913	0.00828	0.020	46	41	40-140	9.80	20
1,2,4-Trichlorobenzene	0.0123	0.0111	0.020	61	56	50-140	9.77	20
1,1,1-Trichloroethane	0.0184	0.0174	0.020	92	87	60-140	5.69	20
1,1,2-Trichloroethane	0.0177	0.0161	0.020	89	81	60-140	9.42	20
Trichloroethene	0.0194	0.0176	0.020	97	88	60-140	9.87	20
Trichlorofluoromethane	0.0198	0.0183	0.020	99	91	50-140	7.92	20
1,2,3-Trichloropropane	0.00915	0.00830	0.010	92	83	40-140	9.82	20
1,2,4-Trimethylbenzene	0.0214	0.0194	0.020	107	97	30-140	9.96	20
1,3,5-Trimethylbenzene	0.0224	0.0203	0.020	112	101	60-140	9.99	20
Vinyl Chloride	0.0128	0.0115	0.010	129	115	30-140	11.0	20
m,p-Xylene	0.0372	0.0343	0.040	93	86	60-140	8.14	20
o-Xylene	0.0192	0.0174	0.020	96	87	60-140	10.1	20

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Quality Control Report

Client: Langan
Date Prepared: 08/31/2021
Date Analyzed: 09/01/2021 - 09/09/2021
Instrument: GC18
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228823
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228823
 2108G85-061AMS/MSD

QC Summary Report for SW8260B

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Surrogate Recovery								
Dibromofluoromethane	0.110	0.112	0.12	88	89	70-140	1.76	20
Toluene-d8	0.116	0.117	0.12	93	93	70-140	0.965	20
4-BFB	0.0101	0.0101	0.012	81	81	70-140	0.339	20
Benzene-d6	0.117	0.109	0.10	117	109	70-140	7.35	20
Ethylbenzene-d10	0.120	0.110	0.10	120	110	70-140	8.40	20
1,2-DCB-d4	0.0959	0.0862	0.10	96	86	70-140	10.7	20

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Acetone	1	0.236	0.227	0.20	ND	118	113	40-140	4.05	20
tert-Amyl methyl ether (TAME)	1	0.0162	0.0158	0.020	ND	81	79	40-140	2.62	20
Benzene	1	0.0159	0.0158	0.020	ND	80	79	50-140	0.671	20
Bromobenzene	1	0.0166	0.0166	0.020	ND	83	83	40-140	0.0921	20
Bromochloromethane	1	0.0176	0.0171	0.020	ND	88	86	40-140	2.96	20
Bromodichloromethane	1	0.0161	0.0158	0.020	ND	80	79	40-140	2.05	20
Bromoform	1	0.0149	0.0140	0.020	ND	74	70	30-140	5.80	20
Bromomethane	1	0.0165	0.0159	0.020	ND	83	79	20-140	3.93	20
2-Butanone (MEK)	1	0.101	0.0662	0.080	ND	76	32,F1	40-140	41.5,F1	20
t-Butyl alcohol (TBA)	1	0.0882	0.0861	0.080	ND	110	108	40-140	2.44	20
n-Butyl benzene	1	0.0235	0.0228	0.020	ND	118	114	40-150	3.16	20
sec-Butyl benzene	1	0.0226	0.0223	0.020	ND	113	112	40-150	1.16	20
tert-Butyl benzene	1	0.0205	0.0201	0.020	ND	102	100	40-140	2.10	20
Carbon Disulfide	1	0.0174	0.0175	0.020	ND	87	88	20-140	0.559	20
Carbon Tetrachloride	1	0.0162	0.0162	0.020	ND	81	81	30-140	0.149	20
Chlorobenzene	1	0.0177	0.0175	0.020	ND	88	87	40-140	1.06	20
Chloroethane	1	0.0193	0.0186	0.020	ND	97	93	40-140	3.50	20
Chloroform	1	0.0179	0.0178	0.020	ND	86	86	40-140	0.643	20
Chloromethane	1	0.0166	0.0162	0.020	ND	83	81	30-140	2.08	20
2-Chlorotoluene	1	0.0193	0.0193	0.020	ND	96	96	40-140	0.00415	20
4-Chlorotoluene	1	0.0186	0.0181	0.020	ND	93	90	40-140	2.64	20
Dibromochloromethane	1	0.0168	0.0162	0.020	ND	84	81	20-140	3.04	20
1,2-Dibromo-3-chloropropane	1	0.00868	0.00838	0.010	ND	87	84	20-140	3.45	20
1,2-Dibromoethane (EDB)	1	0.00870	0.00846	0.010	ND	87	85	30-140	2.88	20
Dibromomethane	1	0.0174	0.0168	0.020	ND	87	84	40-140	3.73	20
1,2-Dichlorobenzene	1	0.0152	0.0148	0.020	ND	76	74	40-140	2.35	20

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Quality Control Report

Client: Langan
Date Prepared: 08/31/2021
Date Analyzed: 09/01/2021 - 09/09/2021
Instrument: GC18
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228823
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228823
 2108G85-061AMS/MSD

QC Summary Report for SW8260B

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
1,3-Dichlorobenzene	1	0.0180	0.0172	0.020	ND	90	86	40-140	4.89	20
1,4-Dichlorobenzene	1	0.0180	0.0174	0.020	ND	90	87	40-140	3.14	20
Dichlorodifluoromethane	1	0.0116	0.0111	0.020	ND	58	56	10-140	3.96	20
1,1-Dichloroethane	1	0.0176	0.0175	0.020	ND	88	87	40-140	0.645	20
1,2-Dichloroethane (1,2-DCA)	1	0.0154	0.0151	0.020	ND	77	75	40-140	1.95	20
1,1-Dichloroethene	1	0.0171	0.0171	0.020	ND	85	85	30-140	0.167	20
cis-1,2-Dichloroethene	1	0.0169	0.0168	0.020	ND	84	84	40-140	0.796	20
trans-1,2-Dichloroethene	1	0.0176	0.0173	0.020	ND	88	87	30-140	1.82	20
1,2-Dichloropropane	1	0.0178	0.0174	0.020	ND	89	87	40-140	2.35	20
1,3-Dichloropropane	1	0.0185	0.0181	0.020	ND	92	90	40-140	2.11	20
2,2-Dichloropropane	1	0.0174	0.0173	0.020	ND	87	86	30-140	0.509	20
1,1-Dichloropropene	1	0.0178	0.0177	0.020	ND	89	88	30-140	0.371	20
cis-1,3-Dichloropropene	1	0.0168	0.0165	0.020	ND	84	82	20-140	2.06	20
trans-1,3-Dichloropropene	1	0.0170	0.0166	0.020	ND	85	83	20-140	2.68	20
Diisopropyl ether (DIPE)	1	0.0166	0.0165	0.020	ND	83	83	40-140	0.749	20
Ethylbenzene	1	0.0196	0.0190	0.020	ND	98	95	40-140	3.04	20
Ethyl tert-butyl ether (ETBE)	1	0.0169	0.0166	0.020	ND	84	83	40-140	1.93	20
Freon 113	1	0.0157	0.0158	0.020	ND	79	79	20-140	0.541	20
Hexachlorobutadiene	1	0.0208	0.0205	0.020	ND	104	103	20-140	1.48	20
Hexachloroethane	1	0.0197	0.0198	0.020	ND	98	99	20-140	0.701	20
2-Hexanone	1	0.0191	0.0188	0.020	ND	95	94	30-140	1.63	20
Isopropylbenzene	1	0.0211	0.0206	0.020	ND	106	103	50-140	2.31	20
4-Isopropyl toluene	1	0.0215	0.0209	0.020	ND	108	104	40-150	3.20	20
Methyl-t-butyl ether (MTBE)	1	0.0177	0.0172	0.020	ND	88	86	40-140	2.76	20
Methylene chloride	1	0.0218	0.0216	0.020	ND	109	108	40-140	0.578	20
4-Methyl-2-pentanone (MIBK)	1	0.0180	0.0174	0.020	ND	90	87	30-140	3.11	20
Naphthalene	1	0.00930	0.00941	0.020	ND	46	47	30-140	1.22	20
n-Propyl benzene	1	0.0210	0.0208	0.020	ND	105	104	40-140	0.486	20
Styrene	1	0.0167	0.0160	0.020	ND	83	80	40-140	4.06	20
1,1,1,2-Tetrachloroethane	1	0.0166	0.0164	0.020	ND	83	82	30-140	1.28	20
1,1,1,2,2-Tetrachloroethane	1	0.0104	0.0100	0.020	ND	52	50	30-140	3.61	20
Tetrachloroethene	1	0.0186	0.0185	0.020	ND	90	89	30-140	0.486	20
Toluene	1	0.0180	0.0179	0.020	ND	90	90	40-140	0.407	20
1,2,3-Trichlorobenzene	1	0.0101	0.0102	0.020	ND	51	51	30-140	0.917	20
1,2,4-Trichlorobenzene	1	0.0136	0.0133	0.020	ND	68	66	40-140	2.37	20
1,1,1-Trichloroethane	1	0.0166	0.0165	0.020	ND	83	83	40-140	0.127	20
1,1,2-Trichloroethane	1	0.0178	0.0178	0.020	ND	89	89	30-140	0.0355	20
Trichloroethene	1	0.0245	0.0239	0.020	ND	122	120	30-140	2.33	20

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Quality Control Report

Client: Langan
Date Prepared: 08/31/2021
Date Analyzed: 09/01/2021 - 09/09/2021
Instrument: GC18
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228823
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228823
 2108G85-061AMS/MSD

QC Summary Report for SW8260B

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Trichlorofluoromethane	1	0.0160	0.0158	0.020	ND	80	79	30-140	0.859	20
1,2,3-Trichloropropane	1	0.00903	0.00884	0.010	ND	90	88	30-140	2.11	20
1,2,4-Trimethylbenzene	1	0.0200	0.0193	0.020	ND	100	97	40-140	3.43	20
1,3,5-Trimethylbenzene	1	0.0203	0.0200	0.020	ND	102	100	40-140	1.55	20
Vinyl Chloride	1	0.00907	0.00889	0.010	ND	91	89	30-140	2.00	20
m,p-Xylene	1	0.0365	0.0351	0.040	ND	91	88	40-140	4.07	20
o-Xylene	1	0.0180	0.0174	0.020	ND	90	87	40-140	3.55	20
Surrogate Recovery										
Dibromofluoromethane	1	0.110	0.110	0.12		88	88	70-140	0.574	20
Toluene-d8	1	0.116	0.117	0.12		93	94	70-140	0.582	20
4-BFB	1	0.0107	0.0109	0.012		86	87	70-140	1.60	20
Benzene-d6	1	0.102	0.101	0.10		102	101	50-140	0.646	20
Ethylbenzene-d10	1	0.104	0.102	0.10		104	102	50-140	2.38	20
1,2-DCB-d4	1	0.0893	0.0885	0.10		89	88	40-140	0.935	20



Quality Control Report

Client: Langan
Date Prepared: 09/02/2021
Date Analyzed: 09/02/2021 - 09/07/2021
Instrument: GC17, GC42
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228980
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg
Sample ID: MB/LCS/LCSD-228980

QC Summary Report for SW8270C (Low Level) w/ GPC

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
1-Methylnaphthalene	ND	0.000340	0.00130	-	-	-
2,3,4,6-Tetrachlorophenol	ND	0.0660	0.250	-	-	-
Benzoic Acid	ND	0.370	1.20	-	-	-
Acenaphthene	ND	0.000510	0.00130	-	-	-
Acenaphthylene	ND	0.000300	0.00130	-	-	-
Acetochlor	ND	0.0320	0.250	-	-	-
Anthracene	ND	0.000850	0.00130	-	-	-
Benzidine	ND	0.120	1.20	-	-	-
Benzo (a) anthracene	ND	0.00400	0.0130	-	-	-
Benzo (a) pyrene	ND	0.00120	0.00250	-	-	-
Benzo (b) fluoranthene	ND	0.00110	0.00630	-	-	-
Benzo (g,h,i) perylene	ND	0.00160	0.00250	-	-	-
Benzo (k) fluoranthene	ND	0.00120	0.00130	-	-	-
Benzyl Alcohol	ND	0.630	1.20	-	-	-
1,1-Biphenyl	ND	0.00320	0.0130	-	-	-
Bis (2-chloroethoxy) Methane	ND	0.0280	0.250	-	-	-
Bis (2-chloroethyl) Ether	ND	0.000690	0.00130	-	-	-
Bis (2-chloroisopropyl) Ether	ND	0.000540	0.00130	-	-	-
Bis (2-ethylhexyl) Adipate	ND	0.0440	0.250	-	-	-
Bis (2-ethylhexyl) Phthalate	ND	0.0220	0.0250	-	-	-
4-Bromophenyl Phenyl Ether	ND	0.0330	0.250	-	-	-
Butylbenzyl Phthalate	ND	0.0110	0.0250	-	-	-
4-Chloroaniline	ND	0.000660	0.00250	-	-	-
4-Chloro-3-methylphenol	ND	0.0320	0.250	-	-	-
2-Chloronaphthalene	ND	0.0200	0.250	-	-	-
2-Chlorophenol	ND	0.00190	0.0130	-	-	-
4-Chlorophenyl Phenyl Ether	ND	0.0290	0.250	-	-	-
Chrysene	ND	0.00160	0.00250	-	-	-
Dibenzo (a,h) anthracene	ND	0.00140	0.00250	-	-	-
Dibenzofuran	ND	0.0150	0.250	-	-	-
Di-n-butyl Phthalate	ND	0.00520	0.0130	-	-	-
1,2-Dichlorobenzene	ND	0.0660	0.250	-	-	-
1,3-Dichlorobenzene	ND	0.0450	0.250	-	-	-
1,4-Dichlorobenzene	ND	0.0270	0.250	-	-	-
3,3-Dichlorobenzidine	ND	0.00100	0.00250	-	-	-
2,4-Dichlorophenol	ND	0.000500	0.00130	-	-	-
Diethyl Phthalate	ND	0.00350	0.0130	-	-	-
2,4-Dimethylphenol	ND	0.0310	0.250	-	-	-

(Cont.)



Quality Control Report

Client:	Langan	WorkOrder:	2108G85
Date Prepared:	09/02/2021	BatchID:	228980
Date Analyzed:	09/02/2021 - 09/07/2021	Extraction Method:	SW3550B/3640A
Instrument:	GC17, GC42	Analytical Method:	SW8270C
Matrix:	Soil	Unit:	mg/Kg
Project:	731744801; Hunters Point Block 56	Sample ID:	MB/LCS/LCSD-228980

QC Summary Report for SW8270C (Low Level) w/ GPC

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Dimethyl Phthalate	ND	0.00120	0.00250	-	-	-
4,6-Dinitro-2-methylphenol	ND	0.540	1.20	-	-	-
2,4-Dinitrophenol	ND	0.160	0.250	-	-	-
2,4-Dinitrotoluene	ND	0.00240	0.0130	-	-	-
2,6-Dinitrotoluene	ND	0.00150	0.0130	-	-	-
Di-n-octyl Phthalate	ND	0.00490	0.0130	-	-	-
1,2-Diphenylhydrazine	ND	0.0300	0.250	-	-	-
Fluoranthene	ND	0.00120	0.00130	-	-	-
Fluorene	ND	0.00120	0.00250	-	-	-
Hexachlorobenzene	ND	0.000380	0.00130	-	-	-
Hexachlorobutadiene	ND	0.000170	0.00250	-	-	-
Hexachlorocyclopentadiene	ND	0.480	2.00	-	-	-
Hexachloroethane	ND	0.00160	0.0130	-	-	-
Indeno (1,2,3-cd) pyrene	ND	0.00240	0.0130	-	-	-
Isophorone	ND	0.0460	0.250	-	-	-
2-Methylnaphthalene	ND	0.000540	0.00250	-	-	-
2-Methylphenol (o-Cresol)	ND	0.0570	0.250	-	-	-
3 & 4-Methylphenol (m,p-Cresol)	ND	0.0720	0.250	-	-	-
Naphthalene	ND	0.00130	0.00130	-	-	-
2-Nitroaniline	ND	0.180	1.20	-	-	-
3-Nitroaniline	ND	0.120	1.20	-	-	-
4-Nitroaniline	ND	0.130	1.20	-	-	-
Nitrobenzene	ND	0.0550	0.250	-	-	-
2-Nitrophenol	ND	0.150	1.20	-	-	-
4-Nitrophenol	ND	0.380	1.20	-	-	-
N-Nitrosodimethylamine	ND	0.140	1.20	-	-	-
N-Nitrosodiphenylamine	ND	0.0260	0.250	-	-	-
N-Nitrosodi-n-propylamine	ND	0.0770	0.250	-	-	-
Pentachlorophenol	ND	0.00990	0.0620	-	-	-
Phenanthrene	ND	0.00310	0.00500	-	-	-
Phenol	ND	0.00500	0.0500	-	-	-
Pyrene	ND	0.00110	0.00250	-	-	-
Pyridine	ND	0.0480	0.250	-	-	-
1,2,4-Trichlorobenzene	ND	0.0250	0.250	-	-	-
2,4,5-Trichlorophenol	ND	0.000740	0.00250	-	-	-
2,4,6-Trichlorophenol	ND	0.000840	0.0130	-	-	-

(Cont.)



Quality Control Report

Client:	Langan	WorkOrder:	2108G85
Date Prepared:	09/02/2021	BatchID:	228980
Date Analyzed:	09/02/2021 - 09/07/2021	Extraction Method:	SW3550B/3640A
Instrument:	GC17, GC42	Analytical Method:	SW8270C
Matrix:	Soil	Unit:	mg/Kg
Project:	731744801; Hunters Point Block 56	Sample ID:	MB/LCS/LCSD-228980

QC Summary Report for SW8270C (Low Level) w/ GPC

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Surrogate Recovery						
2-Fluorophenol	1.26			1.25	101	60-130
Phenol-d5	1.11			1.25	89	60-130
Nitrobenzene-d5	0.991			1.25	79	60-130
2-Fluorobiphenyl	1.08			1.25	86	60-130
2,4,6-Tribromophenol	0.514			1.25	41,F3	50-130
4-Terphenyl-d14	1.25			1.25	100	50-130



Quality Control Report

Client: Langan
Date Prepared: 09/02/2021
Date Analyzed: 09/02/2021 - 09/07/2021
Instrument: GC17, GC42
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228980
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg
Sample ID: MB/LCS/LCSD-228980

QC Summary Report for SW8270C (Low Level) w/ GPC

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
1-Methylnaphthalene	0.0549	0.0466	0.062	88	75	60-130	16.4	30
Acenaphthene	0.0528	0.0458	0.062	85	73	60-130	14.3	30
Acenaphthylene	0.0654	0.0563	0.062	105	90	60-130	15.0	30
Acetochlor	1.27	1.04	1.25	102	83	60-130	20.2	30
Anthracene	0.0508	0.0437	0.062	81	70	60-130	15.0	30
Benzidine	2.59	2.13	6.25	41	34	30-130	19.6	30
Benzo (a) anthracene	0.0507	0.0429	0.062	81	69	60-130	16.7	30
Benzo (a) pyrene	0.0505	0.0414	0.062	81	66	60-130	19.8	30
Benzo (b) fluoranthene	0.0682	0.0541	0.062	109	87	40-130	23.1	30
Benzo (g,h,i) perylene	0.0559	0.0459	0.062	89	74	60-130	19.6	30
Benzo (k) fluoranthene	0.0563	0.0480	0.062	90	77	60-130	15.9	30
Benzyl Alcohol	5.97	5.31	6.25	95	85	60-130	11.6	30
1,1-Biphenyl	0.0675	0.0587	0.062	108	94	60-130	14.0	30
Bis (2-chloroethoxy) Methane	1.16	1.01	1.25	93	81	60-130	13.9	30
Bis (2-chloroethyl) Ether	0.0626	0.0549	0.062	100	88	60-130	13.0	30
Bis (2-chloroisopropyl) Ether	0.0672	0.0608	0.062	107	97	60-130	9.96	30
Bis (2-ethylhexyl) Adipate	1.37	1.16	1.25	110	93	40-130	16.6	30
Bis (2-ethylhexyl) Phthalate	0.0573	0.0483	0.062	92	77	60-130	17.1	30
4-Bromophenyl Phenyl Ether	1.03	0.886	1.25	82	71	60-130	14.7	30
Butylbenzyl Phthalate	0.0566	0.0476	0.062	91	76	60-130	17.1	30
4-Chloroaniline	0.0665	0.0582	0.062	106	93	40-130	13.3	30
4-Chloro-3-methylphenol	1.03	0.875	1.25	82	70	60-130	15.8	30
2-Chloronaphthalene	1.10	0.978	1.25	88	78	60-130	11.8	30
2-Chlorophenol	0.0640	0.0572	0.062	102	91	60-130	11.4	30
4-Chlorophenyl Phenyl Ether	0.971	0.835	1.25	78	67	60-130	15.0	30
Chrysene	0.0574	0.0487	0.062	92	78	60-130	16.3	30
Dibenzo (a,h) anthracene	0.0538	0.0443	0.062	86	71	60-130	19.3	30
Dibenzofuran	1.10	0.970	1.25	88	78	60-130	12.9	30
Di-n-butyl Phthalate	0.0568	0.0472	0.062	91	75	60-130	18.5	30
1,2-Dichlorobenzene	1.10	0.994	1.25	88	79	60-130	9.70	30
1,3-Dichlorobenzene	0.997	0.873	1.25	80	70	60-130	13.2	30
1,4-Dichlorobenzene	0.927	0.810	1.25	74	65	60-130	13.5	30
3,3-Dichlorobenzidine	0.0470	0.0435	0.062	75	70	40-130	7.76	30
2,4-Dichlorophenol	0.0550	0.0478	0.062	88	77	60-130	14.0	30
Diethyl Phthalate	0.0660	0.0572	0.062	106	91	60-130	14.4	30
2,4-Dimethylphenol	1.15	0.976	1.25	92	78	60-130	16.1	30
Dimethyl Phthalate	0.0588	0.0513	0.062	94	82	60-130	13.7	30
4,6-Dinitro-2-methylphenol	5.02	4.23	6.25	80	68	30-130	17.3	30

(Cont.)



Quality Control Report

Client:	Langan	WorkOrder:	2108G85
Date Prepared:	09/02/2021	BatchID:	228980
Date Analyzed:	09/02/2021 - 09/07/2021	Extraction Method:	SW3550B/3640A
Instrument:	GC17, GC42	Analytical Method:	SW8270C
Matrix:	Soil	Unit:	mg/Kg
Project:	731744801; Hunters Point Block 56	Sample ID:	MB/LCS/LCSD-228980

QC Summary Report for SW8270C (Low Level) w/ GPC

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
2,4-Dinitrophenol	1.06	0.900	1.25	85	72	15-130	16.3	30
2,4-Dinitrotoluene	0.0743	0.0654	0.062	119	105	60-130	12.7	30
2,6-Dinitrotoluene	0.0701	0.0619	0.062	112	99	60-130	12.5	30
Di-n-octyl Phthalate	0.0690	0.0567	0.062	110	91	60-130	19.5	30
1,2-Diphenylhydrazine	0.990	0.860	1.25	79	69	60-130	14.1	30
Fluoranthene	0.0530	0.0451	0.062	85	72	60-130	16.2	30
Fluorene	0.0569	0.0501	0.062	91	80	60-130	12.7	30
Hexachlorobenzene	0.0621	0.0532	0.062	99	85	60-130	15.5	30
Hexachlorobutadiene	0.0643	0.0540	0.062	103	86	60-130	17.4	30
Hexachlorocyclopentadiene	5.43	4.66	6.25	87	75	40-130	15.3	30
Hexachloroethane	0.0635	0.0568	0.062	102	91	60-130	11.2	30
Indeno (1,2,3-cd) pyrene	0.0596	0.0505	0.062	95	81	60-130	16.5	30
Isophorone	2.13	1.64	1.25	170,F2	131,F2	60-130	25.9	30
2-Methylnaphthalene	0.0784	0.0670	0.062	125	107	60-130	15.7	30
2-Methylphenol (o-Cresol)	1.03	0.943	1.25	82	75	60-130	8.67	30
3 & 4-Methylphenol (m,p-Cresol)	1.05	0.960	1.25	84	77	60-130	9.24	30
Naphthalene	0.0623	0.0532	0.062	100	85	60-130	15.7	30
2-Nitroaniline	5.20	4.56	6.25	83	73	60-130	13.0	30
3-Nitroaniline	4.58	4.38	6.25	73	70	30-130	4.55	30
4-Nitroaniline	4.85	4.25	6.25	78	68	60-130	13.2	30
Nitrobenzene	1.30	1.12	1.25	104	90	60-130	14.7	30
2-Nitrophenol	5.76	5.02	6.25	92	80	60-130	13.5	30
4-Nitrophenol	5.31	4.51	6.25	85	72	60-130	16.4	30
N-Nitrosodimethylamine	4.99	4.54	6.25	80	73	60-130	9.49	30
N-Nitrosodiphenylamine	1.14	0.966	1.25	91	77	60-130	16.5	30
N-Nitrosodi-n-propylamine	1.20	1.08	1.25	96	86	60-130	10.4	30
Pentachlorophenol	0.280	0.240	0.31	90	77	40-130	15.4	30
Phenanthrene	0.0599	0.0513	0.062	96	82	60-130	15.5	30
Phenol	0.221	0.197	0.25	88	79	60-130	11.4	30
Pyrene	0.0632	0.0540	0.062	101	86	60-130	15.8	30
Pyridine	1.12	0.955	1.25	90	76	30-130	15.8	30
1,2,4-Trichlorobenzene	1.05	0.928	1.25	84	74	60-130	12.0	30
2,4,5-Trichlorophenol	0.0588	0.0521	0.062	94	83	60-130	12.1	30
2,4,6-Trichlorophenol	0.0597	0.0519	0.062	96	83	60-130	14.0	30

(Cont.)



Quality Control Report

Client: Langan	WorkOrder: 2108G85
Date Prepared: 09/02/2021	BatchID: 228980
Date Analyzed: 09/02/2021 - 09/07/2021	Extraction Method: SW3550B/3640A
Instrument: GC17, GC42	Analytical Method: SW8270C
Matrix: Soil	Unit: mg/Kg
Project: 731744801; Hunters Point Block 56	Sample ID: MB/LCS/LCSD-228980

QC Summary Report for SW8270C (Low Level) w/ GPC

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Surrogate Recovery								
2-Fluorophenol	1.14	1.04	1.25	91	83	60-130	8.90	30
Phenol-d5	1.01	0.927	1.25	81	74	60-130	8.53	30
Nitrobenzene-d5	1.13	1.02	1.25	90	82	60-130	10.0	30
2-Fluorobiphenyl	1.09	0.995	1.25	87	80	60-130	8.97	30
2,4,6-Tribromophenol	0.984	0.877	1.25	79	70	50-130	11.5	30
4-Terphenyl-d14	1.11	0.974	1.25	89	78	50-130	13.2	30



Quality Control Report

Client: Langan	WorkOrder: 2108G85
Date Prepared: 08/31/2021	BatchID: 228807
Date Analyzed: 09/01/2021	Extraction Method: SW3050B
Instrument: ICP-MS5	Analytical Method: SW6020
Matrix: Soil	Unit: mg/kg
Project: 731744801; Hunters Point Block 56	Sample ID: MB/LCS/LCSD-228807

QC Summary Report for Metals

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Antimony	ND	0.160	0.500	-	-	-
Arsenic	ND	0.140	0.500	-	-	-
Barium	ND	0.680	5.00	-	-	-
Beryllium	ND	0.0830	0.500	-	-	-
Cadmium	ND	0.0940	0.500	-	-	-
Chromium	ND	0.130	0.500	-	-	-
Cobalt	ND	0.0690	0.500	-	-	-
Copper	ND	0.230	0.500	-	-	-
Lead	ND	0.0690	0.500	-	-	-
Mercury	ND	0.0380	0.0500	-	-	-
Molybdenum	ND	0.140	0.500	-	-	-
Nickel	ND	0.0810	0.500	-	-	-
Selenium	ND	0.320	0.500	-	-	-
Silver	ND	0.110	0.500	-	-	-
Thallium	ND	0.0720	0.500	-	-	-
Vanadium	ND	0.150	0.500	-	-	-
Zinc	ND	3.20	5.00	-	-	-
Surrogate Recovery						
Terbium	565			500	113	70-130



Quality Control Report

Client: Langan
Date Prepared: 08/31/2021
Date Analyzed: 09/01/2021
Instrument: ICP-MS5
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228807
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228807

QC Summary Report for Metals

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Antimony	49.8	52.2	50	100	104	75-125	4.75	20
Arsenic	49.7	51.8	50	99	104	75-125	4.06	20
Barium	489	508	500	98	102	75-125	3.84	20
Beryllium	48.2	49.3	50	96	99	75-125	2.26	20
Cadmium	49.6	50.7	50	99	101	75-125	2.26	20
Chromium	49.2	50.3	50	98	101	75-125	2.29	20
Cobalt	50.4	51.0	50	101	102	75-125	1.19	20
Copper	49.7	51.7	50	99	103	75-125	3.95	20
Lead	49.9	51.1	50	100	102	75-125	2.41	20
Mercury	1.25	1.28	1.25	100	102	75-125	1.90	20
Molybdenum	49.3	51.4	50	99	103	75-125	4.26	20
Nickel	49.4	51.0	50	99	102	75-125	3.09	20
Selenium	49.4	51.5	50	99	103	75-125	4.20	20
Silver	48.6	51.2	50	97	102	75-125	5.29	20
Thallium	49.1	51.0	50	98	102	75-125	3.93	20
Vanadium	48.9	50.4	50	98	101	75-125	3.11	20
Zinc	497	521	500	99	104	75-125	4.69	20
Surrogate Recovery								
Terbium	538	566	500	108	113	70-130	5.18	20



Quality Control Report

Client: Langan
Date Prepared: 08/31/2021
Date Analyzed: 09/01/2021
Instrument: ICP-MS4, ICP-MS5
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228825
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228825
 2108G85-007AMS/MSD

QC Summary Report for Metals

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Antimony	ND	0.160	0.500	-	-	-
Arsenic	ND	0.140	0.500	-	-	-
Barium	ND	0.680	5.00	-	-	-
Beryllium	ND	0.0830	0.500	-	-	-
Cadmium	ND	0.0940	0.500	-	-	-
Chromium	ND	0.130	0.500	-	-	-
Cobalt	ND	0.0690	0.500	-	-	-
Copper	ND	0.230	0.500	-	-	-
Lead	ND	0.0690	0.500	-	-	-
Mercury	ND	0.0380	0.0500	-	-	-
Molybdenum	ND	0.140	0.500	-	-	-
Nickel	ND	0.0810	0.500	-	-	-
Selenium	ND	0.320	0.500	-	-	-
Silver	ND	0.110	0.500	-	-	-
Thallium	ND	0.0720	0.500	-	-	-
Vanadium	ND	0.150	0.500	-	-	-
Zinc	ND	3.20	5.00	-	-	-
Surrogate Recovery						
Terbium	522			500	104	70-130



Quality Control Report

Client: Langan
Date Prepared: 08/31/2021
Date Analyzed: 09/01/2021
Instrument: ICP-MS4, ICP-MS5
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228825
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228825
 2108G85-007AMS/MSD

QC Summary Report for Metals

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Antimony	47.6	50.3	50	95	101	75-125	5.64	20
Arsenic	49.8	52.7	50	100	105	75-125	5.68	20
Barium	490	522	500	98	104	75-125	6.15	20
Beryllium	49.0	52.0	50	98	104	75-125	5.87	20
Cadmium	47.8	51.0	50	96	102	75-125	6.37	20
Chromium	48.7	51.2	50	97	102	75-125	5.02	20
Cobalt	48.6	51.5	50	97	103	75-125	5.80	20
Copper	49.8	52.6	50	100	105	75-125	5.50	20
Lead	47.4	49.5	50	95	99	75-125	4.24	20
Mercury	1.21	1.31	1.25	97	105	75-125	8.32	20
Molybdenum	49.0	51.4	50	98	103	75-125	4.60	20
Nickel	50.1	52.4	50	100	105	75-125	4.49	20
Selenium	48.7	51.9	50	97	104	75-125	6.38	20
Silver	47.9	49.7	50	96	99	75-125	3.65	20
Thallium	49.7	50.2	50	99	100	75-125	1.06	20
Vanadium	49.2	51.8	50	98	104	75-125	5.12	20
Zinc	501	517	500	100	103	75-125	3.16	20

Surrogate Recovery

Terbium	541	581	500	108	116	70-130	7.25	20
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Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Antimony	1	46.5	48.3	50	ND	93	96	75-125	3.88	20
Arsenic	1	51.9	52.0	50	2.430	99	99	75-125	0.139	20
Barium	1	554	555	500	61.63	98	99	75-125	0.248	20
Beryllium	1	46.8	48.2	50	ND	93	96	75-125	2.93	20
Cadmium	1	48.4	48.0	50	ND	97	96	75-125	0.975	20
Chromium	1	388	594	50	435.2	F13	318,F13	75-125	NA	20
Cobalt	1	99.0	107	50	58.26	81	97	75-125	7.48	20
Copper	1	66.3	65.2	50	19.03	94	92	75-125	1.62	20
Lead	1	49.4	52.4	50	3.850	91	97	75-125	5.82	20
Mercury	1	1.24	1.28	1.25	0.07300	93	97	75-125	3.57	20
Molybdenum	1	48.4	51.1	50	ND	96	102	75-125	5.45	20
Nickel	1	1230	1250	50	1080	287,F13	323,F13	75-125	1.49	20
Selenium	1	48.2	48.1	50	ND	96	95	75-125	0.257	20
Silver	1	45.9	47.9	50	ND	92	96	75-125	4.27	20

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Quality Control Report

Client: Langan
Date Prepared: 08/31/2021
Date Analyzed: 09/01/2021
Instrument: ICP-MS4, ICP-MS5
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228825
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228825
 2108G85-007AMS/MSD

QC Summary Report for Metals

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Thallium	1	46.7	47.6	50	ND	93	95	75-125	1.88	20
Vanadium	1	89.3	86.1	50	46.56	85	79	75-125	3.58	20
Zinc	1	509	515	500	40.56	94	95	75-125	1.22	20
Surrogate Recovery										
Terbium	1	535	560	500		107	112	70-130	4.66	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Antimony	ND<2.50	ND	-	-
Arsenic	2.66	2.430	9.47	-
Barium	60.5	61.63	1.83	-
Beryllium	ND<2.50	ND	-	-
Cadmium	ND<2.50	ND	-	-
Chromium	434	435.2	0.276	20
Cobalt	59.7	58.26	2.47	20
Copper	19.4	19.03	1.94	20
Lead	3.88	3.850	0.779	-
Mercury	ND<0.250	0.07300	-	-
Molybdenum	ND<2.50	ND	-	-
Nickel	1200	1157	3.72	20
Selenium	ND<2.50	ND	-	-
Silver	ND<2.50	ND	-	-
Thallium	ND<2.50	ND	-	-
Vanadium	46.9	46.56	0.730	20
Zinc	40.4	40.56	0.394	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

(Cont.)



Quality Control Report

Client: Langan
Date Prepared: 09/01/2021
Date Analyzed: 09/01/2021
Instrument: ICP-MS5
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228826
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228826
 2108G85-040AMS/MSD

QC Summary Report for Metals

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Antimony	ND	0.160	0.500	-	-	-
Arsenic	ND	0.140	0.500	-	-	-
Barium	ND	0.680	5.00	-	-	-
Beryllium	ND	0.0830	0.500	-	-	-
Cadmium	ND	0.0940	0.500	-	-	-
Chromium	ND	0.130	0.500	-	-	-
Cobalt	ND	0.0690	0.500	-	-	-
Copper	ND	0.230	0.500	-	-	-
Lead	ND	0.0690	0.500	-	-	-
Mercury	ND	0.0380	0.0500	-	-	-
Molybdenum	ND	0.140	0.500	-	-	-
Nickel	ND	0.0810	0.500	-	-	-
Selenium	ND	0.320	0.500	-	-	-
Silver	ND	0.110	0.500	-	-	-
Thallium	ND	0.0720	0.500	-	-	-
Vanadium	ND	0.150	0.500	-	-	-
Zinc	ND	3.20	5.00	-	-	-
Surrogate Recovery						
Terbium	533			500	107	70-130



Quality Control Report

Client: Langan
Date Prepared: 09/01/2021
Date Analyzed: 09/01/2021
Instrument: ICP-MS5
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228826
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228826
 2108G85-040AMS/MSD

QC Summary Report for Metals

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Antimony	47.2	48.3	50	94	97	75-125	2.16	20
Arsenic	49.8	49.4	50	100	99	75-125	0.978	20
Barium	501	491	500	100	98	75-125	1.85	20
Beryllium	49.3	48.2	50	99	96	75-125	2.15	20
Cadmium	46.6	46.2	50	93	92	75-125	0.894	20
Chromium	48.0	47.6	50	96	95	75-125	0.923	20
Cobalt	50.2	48.4	50	100	97	75-125	3.61	20
Copper	48.1	48.5	50	96	97	75-125	0.748	20
Lead	46.8	47.1	50	94	94	75-125	0.571	20
Mercury	1.14	1.13	1.25	92	90	75-125	1.14	20
Molybdenum	46.9	48.4	50	94	97	75-125	3.22	20
Nickel	48.3	48.3	50	97	97	75-125	0.106	20
Selenium	48.9	48.8	50	98	98	75-125	0.377	20
Silver	46.4	47.0	50	93	94	75-125	1.24	20
Thallium	49.0	49.2	50	98	98	75-125	0.306	20
Vanadium	48.1	48.1	50	96	96	75-125	0.0852	20
Zinc	494	485	500	99	97	75-125	1.91	20

Surrogate Recovery

Terbium	529	542	500	106	108	70-130	2.30	20
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Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Antimony	1	47.7	47.4	50	ND	95	94	75-125	0.658	20
Arsenic	1	57.3	56.2	50	7.389	100	98	75-125	1.87	20
Barium	1	517	506	500	20.22	99	97	75-125	2.22	20
Beryllium	1	44.4	44.0	50	ND	88	87	75-125	0.760	20
Cadmium	1	46.3	46.2	50	ND	92	92	75-125	0.207	20
Chromium	1	108	105	50	57.61	101	94	75-125	3.15	20
Cobalt	1	59.4	57.8	50	14.44	90	87	75-125	2.86	20
Copper	1	111	103	50	57.84	106	90	75-125	7.20	20
Lead	1	54.7	53.8	50	5.927	98	96	75-125	1.77	20
Mercury	1	1.25	1.26	1.25	ND	97	97	75-125	0.558	20
Molybdenum	1	47.8	48.1	50	ND	95	96	75-125	0.540	20
Nickel	1	108	105	50	57.81	100	94	75-125	2.80	20
Selenium	1	49.4	49.2	50	1.753	95	95	75-125	0.448	20
Silver	1	46.7	46.2	50	ND	93	93	75-125	0.908	20

(Cont.)



Quality Control Report

Client: Langan
Date Prepared: 09/01/2021
Date Analyzed: 09/01/2021
Instrument: ICP-MS5
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228826
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228826
 2108G85-040AMS/MSD

QC Summary Report for Metals

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Thallium	1	49.7	48.9	50	ND	99	98	75-125	1.56	20
Vanadium	1	152	145	50	96.83	111	97	75-125	4.72	20
Zinc	1	569	554	500	81.59	97	95	75-125	2.56	20
Surrogate Recovery										
Terbium	1	539	534	500		108	107	70-130	0.798	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Antimony	ND<2.50	ND	-	-
Arsenic	7.68	7.389	3.94	-
Barium	ND<25.0	20.22	-	-
Beryllium	ND<2.50	ND	-	-
Cadmium	ND<2.50	ND	-	-
Chromium	62.2	57.61	7.97	20
Cobalt	16.3	14.44	12.9	20
Copper	58.3	57.84	0.795	20
Lead	5.94	5.927	0.219	-
Mercury	ND<0.250	ND	-	-
Molybdenum	ND<2.50	ND	-	-
Nickel	57.7	57.81	0.190	20
Selenium	ND<2.50	1.753	-	-
Silver	ND<2.50	ND	-	-
Thallium	ND<2.50	ND	-	-
Vanadium	105	96.83	8.44	20
Zinc	85.4	81.59	4.67	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

(Cont.)



Quality Control Report

Client: Langan
Date Prepared: 09/01/2021
Date Analyzed: 09/02/2021
Instrument: ICP-MS4
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228889
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228889
 2108G85-035AMS/MSD

QC Summary Report for Metals

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Antimony	ND	0.160	0.500	-	-	-
Arsenic	ND	0.140	0.500	-	-	-
Barium	ND	0.680	5.00	-	-	-
Beryllium	ND	0.0830	0.500	-	-	-
Cadmium	ND	0.0940	0.500	-	-	-
Chromium	ND	0.130	0.500	-	-	-
Cobalt	ND	0.0690	0.500	-	-	-
Copper	ND	0.230	0.500	-	-	-
Lead	ND	0.0690	0.500	-	-	-
Mercury	ND	0.0380	0.0500	-	-	-
Molybdenum	ND	0.140	0.500	-	-	-
Nickel	ND	0.0810	0.500	-	-	-
Selenium	ND	0.320	0.500	-	-	-
Silver	ND	0.110	0.500	-	-	-
Thallium	ND	0.0720	0.500	-	-	-
Vanadium	ND	0.150	0.500	-	-	-
Zinc	ND	3.20	5.00	-	-	-
Surrogate Recovery						
Terbium	560			500	112	70-130



Quality Control Report

Client: Langan
Date Prepared: 09/01/2021
Date Analyzed: 09/02/2021
Instrument: ICP-MS4
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228889
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228889
 2108G85-035AMS/MSD

QC Summary Report for Metals

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Antimony	48.2	51.6	50	96	103	75-125	6.76	20
Arsenic	51.9	53.9	50	104	108	75-125	3.64	20
Barium	487	510	500	97	102	75-125	4.64	20
Beryllium	50.3	52.5	50	101	105	75-125	4.26	20
Cadmium	49.9	51.5	50	100	103	75-125	3.07	20
Chromium	49.7	51.3	50	99	103	75-125	3.03	20
Cobalt	49.0	51.0	50	98	102	75-125	3.99	20
Copper	51.8	53.8	50	104	108	75-125	3.76	20
Lead	47.4	49.9	50	95	100	75-125	5.32	20
Mercury	1.27	1.33	1.25	101	107	75-125	5.00	20
Molybdenum	49.7	52.7	50	99	105	75-125	5.94	20
Nickel	50.6	53.4	50	101	107	75-125	5.40	20
Selenium	51.0	52.6	50	102	105	75-125	3.19	20
Silver	47.2	49.9	50	94	100	75-125	5.57	20
Thallium	45.6	47.2	50	91	94	75-125	3.48	20
Vanadium	48.8	50.9	50	98	102	75-125	4.26	20
Zinc	516	534	500	103	107	75-125	3.50	20

Surrogate Recovery

Terbium	545	550	500	109	110	70-130	0.991	20
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Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Antimony	1	47.9	47.1	50	0.6610	94	93	75-125	1.66	20
Arsenic	1	68.7	67.4	50	17.06	103	101	75-125	1.91	20
Barium	1	527	531	500	30.75	99	100	75-125	0.625	20
Beryllium	1	47.8	47.0	50	0.6620	94	93	75-125	1.82	20
Cadmium	1	49.3	47.9	50	ND	99	96	75-125	3.03	20
Chromium	1	126	131	50	69.90	111	123	75-125	4.67	20
Cobalt	1	62.0	60.9	50	16.26	91	89	75-125	1.73	20
Copper	1	116	118	50	61.71	108	112	75-125	1.78	20
Lead	1	59.6	60.5	50	13.03	93	95	75-125	1.44	20
Mercury	1	1.33	1.36	1.25	0.1160	97	100	75-125	2.61	20
Molybdenum	1	50.4	50.0	50	1.188	98	98	75-125	0.857	20
Nickel	1	150	158	50	99.39	101	117	75-125	5.25	20
Selenium	1	51.5	51.9	50	1.538	100	101	75-125	0.778	20
Silver	1	46.6	46.3	50	ND	93	92	75-125	0.469	20

(Cont.)



Quality Control Report

Client: Langan
Date Prepared: 09/01/2021
Date Analyzed: 09/02/2021
Instrument: ICP-MS4
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228889
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/kg
Sample ID: MB/LCS/LCSD-228889
 2108G85-035AMS/MSD

QC Summary Report for Metals

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Thallium	1	44.8	45.3	50	ND	89	90	75-125	1.00	20
Vanadium	1	123	126	50	68.60	109	114	75-125	2.06	20
Zinc	1	596	593	500	95.00	100	100	75-125	0.518	20
Surrogate Recovery										
Terbium	1	548	542	500		110	108	70-130	1.16	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Antimony	ND<2.50	0.6610	-	-
Arsenic	17.6	17.06	3.17	20
Barium	29.5	30.75	4.07	-
Beryllium	ND<2.50	0.6620	-	-
Cadmium	ND<2.50	ND	-	-
Chromium	74.2	69.90	6.15	20
Cobalt	17.2	16.26	5.78	20
Copper	64.0	61.71	3.71	20
Lead	13.0	13.03	0.230	20
Mercury	ND<0.250	0.1160	-	-
Molybdenum	ND<2.50	1.188	-	-
Nickel	102	99.39	2.63	20
Selenium	ND<2.50	1.538	-	-
Silver	ND<2.50	ND	-	-
Thallium	ND<2.50	ND	-	-
Vanadium	72.5	68.60	5.69	20
Zinc	96.9	95.00	2.00	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



Quality Control Report

Client: Langan
Date Prepared: 08/31/2021
Date Analyzed: 08/31/2021
Instrument: GC3
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228788
Extraction Method: SW5035
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS/LCSD-228788

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
TPH(g) (C6-C12)	ND	0.610	1.00	-	-	-
MTBE	ND	0.00340	0.0500	-	-	-
Benzene	ND	0.00190	0.00500	-	-	-
Toluene	ND	0.00240	0.00500	-	-	-
Ethylbenzene	ND	0.00170	0.00500	-	-	-
m,p-Xylene	ND	0.00260	0.0100	-	-	-
o-Xylene	ND	0.000910	0.00500	-	-	-

Surrogate Recovery

2-Fluorotoluene	0.0917			0.1	92	75-134
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Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH(btex)	0.605	0.653	0.60	101	109	82-118	7.64	20
MTBE	0.105	0.101	0.10	105	101	61-119	4.05	20
Benzene	0.0834	0.0884	0.10	83	88	77-128	5.80	20
Toluene	0.0943	0.0959	0.10	94	96	74-132	1.65	20
Ethylbenzene	0.0972	0.0995	0.10	97	99	84-127	2.30	20
m,p-Xylene	0.196	0.203	0.20	98	102	80-120	3.59	20
o-Xylene	0.0957	0.0995	0.10	96	99	80-120	3.87	20

Surrogate Recovery

2-Fluorotoluene	0.0954	0.0963	0.10	95	96	75-134	0.953	20
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Quality Control Report

Client: Langan
Date Prepared: 08/31/2021
Date Analyzed: 09/01/2021 - 09/08/2021
Instrument: GC19, GC3
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228821
Extraction Method: SW5035
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS/LCSD-228821
 2108G85-026AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
TPH(g) (C6-C12)	ND	0.610	1.00	-	-	-
MTBE	ND	0.00340	0.0500	-	-	-
Benzene	ND	0.00190	0.00500	-	-	-
Toluene	ND	0.00240	0.00500	-	-	-
Ethylbenzene	ND	0.00170	0.00500	-	-	-
m,p-Xylene	ND	0.00260	0.0100	-	-	-
o-Xylene	ND	0.000910	0.00500	-	-	-
Surrogate Recovery						
2-Fluorotoluene	0.101			0.1	101	75-134



Quality Control Report

Client: Langan
Date Prepared: 08/31/2021
Date Analyzed: 09/01/2021 - 09/08/2021
Instrument: GC19, GC3
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 228821
Extraction Method: SW5035
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS/LCSD-228821
 2108G85-026AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH(btex)	0.530	0.545	0.60	88	91	82-118	2.88	20
MTBE	0.0904	0.0944	0.10	90	94	61-119	4.26	20
Benzene	0.110	0.112	0.10	110	112	77-128	2.04	20
Toluene	0.117	0.116	0.10	117	116	74-132	0.859	20
Ethylbenzene	0.107	0.114	0.10	107	114	84-127	6.81	20
m,p-Xylene	0.196	0.213	0.20	98	107	80-120	8.65	20
o-Xylene	0.108	0.114	0.10	108	114	80-120	5.87	20

Surrogate Recovery

2-Fluorotoluene	0.0977	0.102	0.10	98	102	75-134	4.34	20
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Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	1	0.630	0.578	0.60	ND	86	77	58-129	8.58	20
MTBE	1	0.109	0.105	0.10	ND	109	105	47-118	3.35	20
Benzene	1	0.0839	0.0945	0.10	ND	84	95	55-129	11.9	20
Toluene	1	0.0903	0.106	0.10	ND	90	106	56-130	15.9	20
Ethylbenzene	1	0.0900	0.0992	0.10	ND	90	99	63-129	9.74	20
m,p-Xylene	1	0.187	0.201	0.20	ND	94	101	80-120	7.20	20
o-Xylene	1	0.0912	0.0987	0.10	ND	90	97	80-120	7.95	20

Surrogate Recovery

2-Fluorotoluene	1	0.0847	0.0956	0.10		85	96	62-126	12.1	20
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Quality Control Report

Client: Langan
Date Prepared: 09/03/2021
Date Analyzed: 09/03/2021 - 09/04/2021
Instrument: GC3
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 229067
Extraction Method: SW5035
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS/LCSD-229067

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
TPH(g) (C6-C12)	ND	0.610	1.00	-	-	-
MTBE	ND	0.00340	0.0500	-	-	-
Benzene	ND	0.00190	0.00500	-	-	-
Toluene	ND	0.00240	0.00500	-	-	-
Ethylbenzene	ND	0.00170	0.00500	-	-	-
m,p-Xylene	ND	0.00260	0.0100	-	-	-
o-Xylene	ND	0.000910	0.00500	-	-	-

Surrogate Recovery

2-Fluorotoluene	0.106			0.1	106	75-134
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Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH(btex)	0.636	0.641	0.60	106	107	82-118	0.723	20
MTBE	0.117	0.118	0.10	117	118	61-119	1.07	20
Benzene	0.0989	0.0989	0.10	99	99	77-128	0.0544	20
Toluene	0.103	0.103	0.10	103	103	74-132	0.0118	20
Ethylbenzene	0.104	0.103	0.10	103	103	84-127	0.298	20
m,p-Xylene	0.208	0.209	0.20	104	105	80-120	0.331	20
o-Xylene	0.102	0.101	0.10	102	101	80-120	0.147	20

Surrogate Recovery

2-Fluorotoluene	0.102	0.102	0.10	103	102	75-134	0.375	20
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Quality Control Report

Client:	Langan	WorkOrder:	2108G85
Date Prepared:	09/03/2021	BatchID:	229084
Date Analyzed:	09/04/2021	Extraction Method:	SW5035
Instrument:	GC3	Analytical Method:	SW8021B/8015Bm
Matrix:	Soil	Unit:	mg/Kg
Project:	731744801; Hunters Point Block 56	Sample ID:	MB/LCS/LCSD-229084

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
TPH(g) (C6-C12)	ND	0.610	1.00	-	-	-
MTBE	ND	0.00340	0.0500	-	-	-
Benzene	ND	0.00190	0.00500	-	-	-
Toluene	ND	0.00240	0.00500	-	-	-
Ethylbenzene	ND	0.00170	0.00500	-	-	-
m,p-Xylene	ND	0.00260	0.0100	-	-	-
o-Xylene	ND	0.000910	0.00500	-	-	-

Surrogate Recovery

2-Fluorotoluene	0.101			0.1	101	75-134
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Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH(btex)	0.637	0.629	0.60	106	105	82-118	1.25	20
MTBE	0.110	0.117	0.10	110	117	61-119	5.57	20
Benzene	0.0918	0.0951	0.10	92	95	77-128	3.61	20
Toluene	0.0966	0.0995	0.10	97	99	74-132	2.96	20
Ethylbenzene	0.0977	0.0983	0.10	98	98	84-127	0.670	20
m,p-Xylene	0.198	0.198	0.20	99	99	80-120	0.380	20
o-Xylene	0.0966	0.0956	0.10	97	96	80-120	1.01	20

Surrogate Recovery

2-Fluorotoluene	0.0969	0.0986	0.10	97	99	75-134	1.76	20
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Quality Control Report

Client: Langan	WorkOrder: 2108G85
Date Prepared: 08/31/2021	BatchID: 228787
Date Analyzed: 08/31/2021	Extraction Method: SW3550B
Instrument: GC9b	Analytical Method: SW8015B
Matrix: Soil	Unit: mg/Kg
Project: 731744801; Hunters Point Block 56	Sample ID: MB/LCS/LCSD-228787

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
TPH-Diesel (C10-C23)	ND	0.780	2.00	-	-	-
TPH-Motor Oil (C18-C36)	ND	4.60	10.0	-	-	-
Surrogate Recovery						
C9	23.7			25	95	70-130

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	38.5	39.4	40	96	99	70-130	2.41	20
Surrogate Recovery								
C9	23.2	23.1	25	93	92	70-130	0.461	20

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

CHAIN-OF-CUSTODY RECORD

WorkOrder: 2108G85

ClientCode: TRSJ

- WaterTrax
 WriteOn
 EDF
 EQuIS
 Dry-Weight
 Email
 HardCopy
 ThirdParty
 J-flag
 Detection Summary
 Excel

Report to:

Peter Cusack
Langan
1 Almaden Blvd, Suite 590
San Jose, CA 95113
(609) 282-8074 FAX:

Email: pcusack@Langan.com
cc/3rd Party: dwood@langan.com;
PO:
Project: 731744801; Hunters Point Block 56

Bill to:

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

Requested TAT: 5 days;

Date Received: 08/30/2021

Date Logged: 08/31/2021

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
2108G85-001	E-1-0.5	Soil	8/27/2021 09:03	<input type="checkbox"/>	A	A	A	A		A		A		A		
2108G85-002	E-1-3.0	Soil	8/27/2021 09:00	<input type="checkbox"/>		A	A			A	A	A	A		A	
2108G85-003	E-1-5.0	Soil	8/27/2021 09:08	<input checked="" type="checkbox"/>								A	A			
2108G85-004	E-1-7.5	Soil	8/27/2021 09:12	<input type="checkbox"/>				A	A	A		A		A		
2108G85-005	E-1-10.0	Soil	8/27/2021 09:15	<input checked="" type="checkbox"/>								A	A			
2108G85-006	E-2-0.5	Soil	8/27/2021 09:25	<input type="checkbox"/>	A						A	A	A		A	
2108G85-007	E-2-1.5	Soil	8/27/2021 09:28	<input type="checkbox"/>		A	A	A	A	A		A		A		
2108G85-008	E-2-3.0	Soil	8/27/2021 09:30	<input checked="" type="checkbox"/>								A	A			
2108G85-009	E-2-5.0	Soil	8/27/2021 09:32	<input type="checkbox"/>		A	A	A	A	A		A		A		
2108G85-010	E-2-7.5	Soil	8/27/2021 09:34	<input checked="" type="checkbox"/>								A	A			
2108G85-011	E-2-10.0	Soil	8/27/2021 09:36	<input type="checkbox"/>				A	A	A		A		A		
2108G85-012	E-3-0.5	Soil	8/27/2021 09:45	<input type="checkbox"/>	A			A		A		A		A		
2108G85-013	E-3-1.5	Soil	8/27/2021 09:46	<input type="checkbox"/>							A	A	A		A	
2108G85-014	E-3-3.0	Soil	8/27/2021 09:48	<input type="checkbox"/>				A	A	A		A		A		
2108G85-015	E-3-5.0	Soil	8/27/2021 09:50	<input checked="" type="checkbox"/>								A	A			

Test Legend:

1	8081pcB_ESL_LL_S	2	8260B_S	3	8270_SCSM_GPC_S	4	CAM17MS_TTLC_S
5	CARB435_400	6	G-MBTEX_S	7	LUFTMS_6020_TTLC_S	8	PRDisposal Fee
9	PRHOLD	10	TPH(DMO)_S	11		12	

Project Manager: Angela Rydelius

Prepared by: Cassandra Gallegos

The following SampIDs: 001A, 002A, 004A, 006A, 007A, 009A, 011A, 012A, 013A, 014A, 016A, 018A, 019A, 020A, 022A, 024A, 026A, 028A, 031A, 033A, 035A, 036A, 038A, 039A, 040A, 043A, 045A, 047A, 048A, 051A, 053A, 055A, 056A, 058A, 059A, 061A 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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Pittsburg, CA 94565-1701
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CHAIN-OF-CUSTODY RECORD

WorkOrder: 2108G85

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Requested TAT: 5 days;

Date Received: 08/30/2021

Date Logged: 08/31/2021

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
2108G85-016	E-3-7.5	Soil	8/27/2021 09:52	<input type="checkbox"/>		A	A	A	A	A		A		A		
2108G85-017	E-3-10.0	Soil	8/27/2021 09:53	<input checked="" type="checkbox"/>								A	A			
2108G85-018	E-4-0.5	Soil	8/27/2021 10:15	<input type="checkbox"/>	A			A		A		A		A		
2108G85-019	E-4-1.5	Soil	8/27/2021 10:16	<input type="checkbox"/>						A	A	A		A		
2108G85-020	E-4-3.0	Soil	8/27/2021 10:18	<input type="checkbox"/>				A	A	A		A		A		
2108G85-021	E-4-5.0	Soil	8/27/2021 10:20	<input checked="" type="checkbox"/>								A	A			
2108G85-022	E-4-7.5	Soil	8/27/2021 10:23	<input type="checkbox"/>		A	A	A	A	A		A		A		
2108G85-023	E-4-10	Soil	8/27/2021 10:24	<input checked="" type="checkbox"/>								A	A			
2108G85-024	E-5-0.5	Soil	8/27/2021 10:35	<input type="checkbox"/>	A			A		A		A		A		
2108G85-025	E-5-1.5	Soil	8/27/2021 10:37	<input checked="" type="checkbox"/>								A	A			
2108G85-026	E-5-3.0	Soil	8/27/2021 10:40	<input type="checkbox"/>		A	A		A	A	A	A		A		
2108G85-027	E-5-5.0	Soil	8/27/2021 10:42	<input checked="" type="checkbox"/>								A	A			
2108G85-028	E-6-1.5	Soil	8/27/2021 11:07	<input type="checkbox"/>				A	A	A		A		A		
2108G85-029	E-6-3.0	Soil	8/27/2021 11:08	<input checked="" type="checkbox"/>								A	A			
2108G85-030	E-6-5.0	Soil	8/27/2021 11:10	<input checked="" type="checkbox"/>								A	A			

Test Legend:

1	8081pcB_ESL_LL_S	2	8260B_S	3	8270_SCSM_GPC_S	4	CAM17MS_TTLC_S
5	CARB435_400	6	G-MBTEX_S	7	LUFTMS_6020_TTLC_S	8	PRDisposal Fee
9	PRHOLD	10	TPH(DMO)_S	11		12	

Project Manager: Angela Rydelius

Prepared by: Cassandra Gallegos

The following Sample IDs: 001A, 002A, 004A, 006A, 007A, 009A, 011A, 012A, 013A, 014A, 016A, 018A, 019A, 020A, 022A, 024A, 026A, 028A, 031A, 033A, 035A, 036A, 038A, 039A, 040A, 043A, 045A, 047A, 048A, 051A, 053A, 055A, 056A, 058A, 059A, 061A 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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CHAIN-OF-CUSTODY RECORD

WorkOrder: 2108G85

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Requested TAT: **5 days;**

Date Received: **08/30/2021**
Date Logged: **08/31/2021**

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
2108G85-031	E-7-0.5	Soil	8/27/2021 11:40	<input type="checkbox"/>	A	A	A			A	A	A		A		
2108G85-032	E-7-1.5	Soil	8/27/2021 11:42	<input checked="" type="checkbox"/>								A	A			
2108G85-033	E-7-3.0	Soil	8/27/2021 11:44	<input type="checkbox"/>		A	A	A	A	A		A		A		
2108G85-034	E-7-5.0	Soil	8/27/2021 11:46	<input checked="" type="checkbox"/>								A	A			
2108G85-035	E-8-0.5	Soil	8/27/2021 11:28	<input type="checkbox"/>	A			A		A		A		A		
2108G85-036	E-8-1.5	Soil	8/27/2021 11:30	<input type="checkbox"/>		A	A	A	A	A		A		A		
2108G85-037	E-8-3.0	Soil	8/27/2021 11:32	<input checked="" type="checkbox"/>								A	A			
2108G85-038	E-8-5.0	Soil	8/27/2021 11:35	<input type="checkbox"/>		A	A	A	A	A		A		A		
2108G85-039	E-9-0.5	Soil	8/27/2021 10:50	<input type="checkbox"/>	A				A	A	A	A		A		
2108G85-040	E-9-1.5	Soil	8/27/2021 10:52	<input type="checkbox"/>		A	A	A		A		A		A		
2108G85-041	E-9-3.0	Soil	8/27/2021 10:53	<input checked="" type="checkbox"/>								A	A			
2108G85-042	E-9-5.0	Soil	8/27/2021 10:55	<input checked="" type="checkbox"/>								A	A			
2108G85-043	E-10-0.5	Soil	8/27/2021 12:40	<input type="checkbox"/>	A			A		A		A		A		
2108G85-044	E-10-1.5	Soil	8/27/2021 12:42	<input checked="" type="checkbox"/>								A	A			
2108G85-045	E-10-3.0	Soil	8/27/2021 12:44	<input type="checkbox"/>		A	A	A	A	A		A		A		

Test Legend:

1	8081pcB_ESL_LL_S	2	8260B_S	3	8270_SCSM_GPC_S	4	CAM17MS_TTLC_S
5	CARB435_400	6	G-MBTEX_S	7	LUFTMS_6020_TTLC_S	8	PRDisposal Fee
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Project Manager: Angela Rydelius

Prepared by: Cassandra Gallegos

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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	
2108G85-046	E-10-5.0	Soil	8/27/2021 12:45	<input checked="" type="checkbox"/>									A	A			
2108G85-047	E-11-0.5	Soil	8/27/2021 12:53	<input type="checkbox"/>	A			A		A			A			A	
2108G85-048	E-11-1.5	Soil	8/27/2021 12:55	<input type="checkbox"/>		A	A			A	A	A	A			A	
2108G85-049	E-11-3.0	Soil	8/27/2021 12:56	<input checked="" type="checkbox"/>									A	A			
2108G85-050	E-11-5.0	Soil	8/27/2021 12:58	<input checked="" type="checkbox"/>									A	A			
2108G85-051	E-12-0.5	Soil	8/27/2021 13:35	<input type="checkbox"/>	A	A	A				A	A	A			A	
2108G85-052	E-12-1.5	Soil	8/27/2021 13:36	<input checked="" type="checkbox"/>									A	A			
2108G85-053	E-12-3.0	Soil	8/27/2021 13:37	<input type="checkbox"/>	A	A	A	A	A	A			A			A	
2108G85-054	E-12-5.0	Soil	8/27/2021 13:38	<input checked="" type="checkbox"/>									A	A			
2108G85-055	E-13-0.5	Soil	8/27/2021 13:48	<input type="checkbox"/>							A		A			A	
2108G85-056	E-13-1.5	Soil	8/27/2021 13:45	<input type="checkbox"/>	A	A	A	A			A		A			A	
2108G85-057	E-13-3.0	Soil	8/27/2021 13:50	<input checked="" type="checkbox"/>									A	A			
2108G85-058	E-13-5.0	Soil	8/27/2021 13:51	<input type="checkbox"/>							A	A	A			A	
2108G85-059	E-14-0.5	Soil	8/27/2021 13:10	<input type="checkbox"/>	A	A	A				A	A	A			A	
2108G85-060	E-14-1.5	Soil	8/27/2021 13:11	<input checked="" type="checkbox"/>									A	A			

Test Legend:

1	8081pcB_ESL_LL_S	2	8260B_S	3	8270_SCSM_GPC_S	4	CAM17MS_TTLC_S
5	CARB435_400	6	G-MBTEX_S	7	LUFTMS_6020_TTLC_S	8	PRDisposal Fee
9	PRHOLD	10	TPH(DMO)_S	11		12	

Project Manager: Angela Rydelius

Prepared by: Cassandra Gallegos

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					1	2	3	4	5	6	7	8	9	10	11	12
2108G85-061	E-14-3.0	Soil	8/27/2021 13:12	<input type="checkbox"/>		A	A	A	A	A		A		A		
2108G85-062	E-14-5.0	Soil	8/27/2021 13:13	<input checked="" type="checkbox"/>								A	A			

Test Legend:

1	8081pcB_ESL_LL_S	2	8260B_S	3	8270_SCSM_GPC_S	4	CAM17MS_TTLC_S
5	CARB435_400	6	G-MBTEX_S	7	LUFTMS_6020_TTLC_S	8	PRDisposal Fee
9	PRHOLD	10	TPH(DMO)_S	11		12	

Project Manager: Angela Rydelius

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WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Peter Cusack
Contact's Email: pcusack@Langan.com

Project: 731744801; Hunters Point Block 56

Work Order: 2108G85
QC Level: LEVEL 2
Date Logged: 8/31/2021

Comments:

WaterTrax WriteOn EDF Excel EQUIS Email HardCopy ThirdParty J-flag

LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	SubOut
001A	E-1-0.5	Soil	Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:03	5 days	9/7/2021		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
002A	E-1-3.0	Soil	SW6020 (LUFT)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:00	5 days	9/7/2021		<input type="checkbox"/>	
			Multi-Range TPH			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
004A	E-1-7.5	Soil	Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:12	5 days	9/7/2021		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
006A	E-2-0.5	Soil	SW6020 (LUFT)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:25	5 days	9/7/2021		<input type="checkbox"/>	

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

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



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Peter Cusack
Contact's Email: pcusack@Langan.com

Project: 731744801; Hunters Point Block 56

Work Order: 2108G85
QC Level: LEVEL 2
Date Logged: 8/31/2021

Comments:

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LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	SubOut
006A	E-2-0.5	Soil	Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:25	5 days	9/7/2021		<input type="checkbox"/>	
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
007A	E-2-1.5	Soil	Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:28	5 days	9/7/2021		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
009A	E-2-5.0	Soil	Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:32	5 days	9/7/2021		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
011A	E-2-10.0	Soil	Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:36	5 days	9/7/2021		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	

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WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Peter Cusack
Contact's Email: pcusack@Langan.com

Project: 731744801; Hunters Point Block 56

Work Order: 2108G85
QC Level: LEVEL 2
Date Logged: 8/31/2021

Comments:

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LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	SubOut
011A	E-2-10.0	Soil	SW6020 (CAM 17)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:36	5 days	9/7/2021		<input type="checkbox"/>	
012A	E-3-0.5	Soil	Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:45	5 days	9/7/2021		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
013A	E-3-1.5	Soil	SW6020 (LUFT)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:46	5 days	9/7/2021		<input type="checkbox"/>	
			Multi-Range TPH			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
014A	E-3-3.0	Soil	Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:48	5 days	9/7/2021		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
016A	E-3-7.5	Soil	Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:52	5 days	9/7/2021		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	

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Project: 731744801; Hunters Point Block 56

Work Order: 2108G85
QC Level: LEVEL 2
Date Logged: 8/31/2021

Comments:

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LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	SubOut
018A	E-4-0.5	Soil	Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 10:15	5 days	9/7/2021		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
019A	E-4-1.5	Soil	SW6020 (LUFT)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 10:16	5 days	9/7/2021		<input type="checkbox"/>	
			Multi-Range TPH			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
020A	E-4-3.0	Soil	Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 10:18	5 days	9/7/2021		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
022A	E-4-7.5	Soil	Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 10:23	5 days	9/7/2021		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
024A	E-5-0.5	Soil	SW8260B (VOCs)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 10:35	5 days	9/7/2021		<input type="checkbox"/>	

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Project: 731744801; Hunters Point Block 56

Work Order: 2108G85
QC Level: LEVEL 2
Date Logged: 8/31/2021

Comments:

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LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	SubOut
024A	E-5-0.5	Soil	SW6020 (CAM 17)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 10:35	5 days	9/7/2021		<input type="checkbox"/>	
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
026A	E-5-3.0	Soil	SW6020 (LUFT)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 10:40	5 days	9/7/2021		<input type="checkbox"/>	
			Multi-Range TPH			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
028A	E-6-1.5	Soil	SW8260B (VOCs)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 11:07	5 days	9/7/2021		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
031A	E-7-0.5	Soil	SW6020 (CAM 17)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW6020 (LUFT)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 11:40	5 days	9/7/2021		<input type="checkbox"/>	
			Multi-Range TPH			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	

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Client Contact: Peter Cusack
Contact's Email: pcusack@Langan.com

Project: 731744801; Hunters Point Block 56

Work Order: 2108G85
QC Level: LEVEL 2
Date Logged: 8/31/2021

Comments:

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LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	SubOut
031A	E-7-0.5	Soil	SW8081A/8082 (OC Pesticides+PCBs) ESLs	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 11:40	5 days	9/9/2021		<input type="checkbox"/>	
033A	E-7-3.0	Soil	Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 11:44	5 days	9/7/2021		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
035A	E-8-0.5	Soil	Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 11:28	5 days	9/7/2021		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
036A	E-8-1.5	Soil	Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 11:30	5 days	9/7/2021		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	

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Contact's Email: pcusack@Langan.com

Project: 731744801; Hunters Point Block 56

Work Order: 2108G85
QC Level: LEVEL 2
Date Logged: 8/31/2021

Comments:

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LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	SubOut
038A	E-8-5.0	Soil	Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 11:35	5 days	9/7/2021		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
039A	E-9-0.5	Soil	SW6020 (LUFT)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 10:50	5 days	9/7/2021		<input type="checkbox"/>	
			Multi-Range TPH			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
			Multi-Range TPH			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
040A	E-9-1.5	Soil	Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 10:52	5 days	9/7/2021		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			Multi-Range TPH			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
043A	E-10-0.5	Soil	Multi-Range TPH	1	8OZ aG Jar, Unpres	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 12:40	5 days	9/7/2021		<input type="checkbox"/>	

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LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	SubOut	
043A	E-10-0.5	Soil	SW6020 (CAM 17)	1	8OZ aG Jar, Unpres	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 12:40	5 days	9/7/2021		<input type="checkbox"/>		
			SW8081A/8082 (OC Pesticides+PCBs) ESLs							9/9/2021				<input type="checkbox"/>
045A	E-10-3.0	Soil	Multi-Range TPH	1	8OZ aG Jar, Unpres	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 12:44	5 days	9/7/2021		<input type="checkbox"/>		
			Asbestos, CARB 435, 400 Point							9/7/2021				<input type="checkbox"/>
			SW6020 (CAM 17)							9/7/2021				<input type="checkbox"/>
			SW8270C (Low Level SVOCs) with GPC Cleanup							9/9/2021				<input type="checkbox"/>
			SW8260B (VOCs)			<input type="checkbox"/>	<input type="checkbox"/>	5 days	9/7/2021		<input type="checkbox"/>			
047A	E-11-0.5	Soil	Multi-Range TPH	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 12:53	5 days	9/7/2021		<input type="checkbox"/>		
			SW6020 (CAM 17)							9/7/2021				<input type="checkbox"/>
			SW8081A/8082 (OC Pesticides+PCBs) ESLs							9/9/2021				<input type="checkbox"/>
048A	E-11-1.5	Soil	SW6020 (LUFT)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 12:55	5 days	9/7/2021		<input type="checkbox"/>		
			Multi-Range TPH							9/7/2021				<input type="checkbox"/>
			Asbestos, CARB 435, 400 Point							9/7/2021				<input type="checkbox"/>
			SW8270C (Low Level SVOCs) with GPC Cleanup							9/9/2021				<input type="checkbox"/>

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LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	SubOut
048A	E-11-1.5	Soil	SW8260B (VOCs)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 12:55	5 days	9/7/2021		<input type="checkbox"/>	
051A	E-12-0.5	Soil	SW6020 (LUFT)	1	Acetate Liner	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 13:35	5 days	9/7/2021		<input type="checkbox"/>	
			Multi-Range TPH			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
053A	E-12-3.0	Soil	Multi-Range TPH	1	Acetate Liner	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 13:37	5 days	9/7/2021		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/9/2021		<input type="checkbox"/>	
055A	E-13-0.5	Soil	Multi-Range TPH	1	Acetate Liner	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 13:48	5 days	9/7/2021		<input type="checkbox"/>	
056A	E-13-1.5	Soil	Multi-Range TPH	1	Acetate Liner	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 13:45	5 days	9/7/2021		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>	<input type="checkbox"/>		5 days	9/7/2021		<input type="checkbox"/>	

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LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	SubOut			
056A	E-13-1.5	Soil	SW8270C (Low Level SVOCs) with GPC Cleanup	1	Acetate Liner	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 13:45	5 days	9/9/2021		<input type="checkbox"/>				
			SW8260B (VOCs)			<input type="checkbox"/>	<input type="checkbox"/>							5 days	9/7/2021	<input type="checkbox"/>
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>	<input type="checkbox"/>							5 days	9/9/2021	<input type="checkbox"/>
058A	E-13-5.0	Soil	SW6020 (LUFT)	1	Acetate Liner	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 13:51	5 days	9/7/2021		<input type="checkbox"/>				
			Multi-Range TPH			<input type="checkbox"/>	<input type="checkbox"/>							5 days	9/7/2021	<input type="checkbox"/>
059A	E-14-0.5	Soil	SW6020 (LUFT)	1	8OZ aG Jar, Unpres	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 13:10	5 days	9/7/2021		<input type="checkbox"/>				
			Multi-Range TPH			<input type="checkbox"/>	<input type="checkbox"/>							5 days	9/7/2021	<input type="checkbox"/>
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>	<input type="checkbox"/>							5 days	9/9/2021	<input type="checkbox"/>
			SW8260B (VOCs)			<input type="checkbox"/>	<input type="checkbox"/>							5 days	9/7/2021	<input type="checkbox"/>
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>	<input type="checkbox"/>							5 days	9/9/2021	<input type="checkbox"/>
061A	E-14-3.0	Soil	Multi-Range TPH	1	8OZ aG Jar, Unpres	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 13:12	5 days	9/7/2021		<input type="checkbox"/>				
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>	<input type="checkbox"/>							5 days	9/7/2021	<input type="checkbox"/>
			SW6020 (CAM 17)			<input type="checkbox"/>	<input type="checkbox"/>							5 days	9/7/2021	<input type="checkbox"/>
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>	<input type="checkbox"/>							5 days	9/9/2021	<input type="checkbox"/>
			SW8260B (VOCs)			<input type="checkbox"/>	<input type="checkbox"/>							5 days	9/7/2021	<input type="checkbox"/>

NOTES: * STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).
 - MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Peter Cusack
Contact's Email: pcusack@Langan.com

Project: 731744801; Hunters Point Block 56

Work Order: 2108G85
QC Level: LEVEL 2
Date Logged: 8/31/2021

Comments:

WaterTrax WriteOn EDF Excel EQUIS Email HardCopy ThirdParty J-flag

LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	SubOut
-------	--------------	--------	-----------	------------------------	-----------------------	------------	------------	------------------------	-----	---------------	------------------	------	--------

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

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

LANGAN

CHAIN OF CUSTODY RECORD

555 Montgomery Street, Suite 1300, San Francisco, CA 94111
 501 14th Street, Third Floor, Oakland, CA 94612
 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
 1 Almaden Boulevard, Suite 590, San Jose, CA 95113

Site Name: Hunters Point Block 56
 Job Number: 731744801
 Project Manager/Contact: Peter Cusack, Daniel Wood
 Samplers: Daniel Wood
 Recorder (Signature Required): Daniel Wood

Turnaround Time
Standard

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix				No. Containers & Preservative				Analysis Requested										Silica gel clean-up	Hold	Remarks						
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH (g/d.m)	VOCS	SVOCs	OCs	PCBs	CAM 17 Metals	LVT 5 Metals	CAN/B 435											
E-1-0.5	8-27-21	0903		X									X	X	X	X	X	X												
E-1-3.0		0900		X									X	X	X				X	X										
E-1-5.0		0908		X																				X						
E-1-7.5		0912		X									X					X	X											
E-1-10.0		0915		X																				X						
E-2-0.5		0925		X									X		X	X		X												
E-2-1.5		0928		X									X	X				X	X											
E-2-3.0		0930		X																				X						
E-2-5.0		0932		X									X	X	X			X	X											
E-2-7.5		0934		X																				X						
E-2-10.0		0936		X									X					X	X											
E-3-0.5		0945		X									X		X	X		X												
E-3-1.5		0946		X									X					X												
E-3-3.0		0948		X									X					X	X											

Relinquished by: (Signature) <u>Daniel Wood</u>	Date: <u>8-27-21</u>	Time: <u>6:00 PM</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>8/30</u>	Time: <u>1350</u>
Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>8/30</u>	Time: <u>1630</u>	Received by: (Signature) <u>Cosette Gallers</u>	Date: <u>8/30</u>	Time: <u>1630</u>
Relinquished by: (Signature)	Date:	Time:	Received by Lab: (Signature)	Date:	Time:

Sent to Laboratory (Name): _____
 Laboratory Comments/Notes: 3.7°C wet
 Method of Shipment: Lab courier Fed Ex Airborne UPS
 Hand Carried Private Courier (Co. Name) _____

LANGAN

CHAIN OF CUSTODY RECORD

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- 1 Almaden Boulevard, Suite 590, San Jose, CA 95113

Site Name: Hunters Point Blak 56
 Job Number: 731744801
 Project Manager/Contact: Peter Gusek, Daniel Wood
 Samplers: Daniel Wood
 Recorder (Signature Required): Daniel Wood

Analysis Requested

Matrix	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH (g./l.)	VOCs	SVOCs	OCs	PCBs	AM 17 metals	LUFT 5 metals	CARB 435	Silica gel clean-up	Hold
Soil				X										
Water														
Air														
Other														
Soil														
Water														
Air														
Other														
Soil														
Water														
Air														
Other														

Turnaround Time
Standard

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix	No. Containers & Preservative	Analysis Requested	Remarks
E-3-5.0	8-27-21	0950		X			
E-3-7.5		0952		X		X X X	
E-3-10.0		0953		X			
E-4-0.5		1015		X		X X X	
E-4-1.5		1016		X			
E-4-3.0		1018		X		X X	
E-4-5.0		1020		X			
E-4-7.5		1023		X		X X X	
E-4-10.0		1024		X			
E-5-0.5		1035		X		X X X	
E-5-1.5		1037		X			
E-5-3.0		1040		X		X X X	
E-5-5.0		1042		X			
E-6-1.5		1107		X		X X	

Relinquished by: (Signature) <u>Daniel Wood</u>	Date: <u>8-27-21</u>	Time: <u>6:00 PM</u>	Received by: (Signature) <u>L. Moore</u>	Date: <u>8/30</u>	Time: <u>1:30</u>
Relinquished by: (Signature) <u>L. Moore</u>	Date: <u>8/30</u>	Time: <u>1:30</u>	Received by: (Signature) <u>Cassandra Gallegos</u>	Date: <u>8/30</u>	Time: <u>1:30</u>
Relinquished by: (Signature)	Date:	Time:	Received by Lab: (Signature)	Date:	Time:

Sent to Laboratory (Name): _____
 Laboratory Comments/Notes: 3.7°C wet
 Method of Shipment Lab courier Fed Ex Airborne UPS
 Hand Carried Private Courier (Co. Name) _____

2108685

14257

LANGAN**CHAIN OF CUSTODY RECORD**Page 3 of 5

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
 1 Almaden Boulevard, Suite 590, San Jose, CA 95113

Site Name: Hunters Point Block 56 #
 Job Number: 731744801
 Project Manager/Contact: Peter Cusack, Daniel Wool
 Samplers: Daniel Wool
 Recorder (Signature Required): Daniel Wool

Analysis Requested

Turnaround
TimeStandard

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix				No. Containers & Preservative						Analysis Requested		Silica gel clean-up	Hold	Remarks		
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice									
E-6-3.0	8-27-21	1108		X														X		
E-6-5.0		1110		X														X		
E-7-0.5		1140		X										X	X	X	X	X	X	
E-7-1.5		1142		X															X	
E-7-3.0		1144		X										X	X		X			
E-7-5.0		1146		X															X	
E-8-0.5		1128		X										X		X	X			
E-8-1.5		1130		X										X	X		X			
E-8-3.0		1132		X															X	
E-8-5.0		1135		X										X	X		X			
E-9-0.5		1050		X										X		X	X			
E-9-1.5		1052		X										X	X	X				
E-9-3.0		1053		X															X	
E-9-5.0		1055		X															X	
Relinquished by: (Signature) <u>Daniel Wool</u>		Date: 8-27-21		Time: 6:00 pm		Received by: (Signature) <u>L. Mon</u>		Date: 8/30		Time: 1750										
Relinquished by: (Signature) <u>Whelan</u>		Date: 8/30		Time: 1430		Received by: (Signature) <u>Cassandra Gallegos</u>		Date: 8/30		Time: 1630										
Relinquished by: (Signature)		Date:		Time:		Received by Lab: (Signature)		Date:		Time:										
Sent to Laboratory (Name): _____						Method of Shipment						<input type="checkbox"/> Lab courier <input type="checkbox"/> Fed Ex <input type="checkbox"/> Airborne <input type="checkbox"/> UPS								
Laboratory Comments/Notes: <u>3.7^{ic}</u>						<input type="checkbox"/> Hand Carried <input type="checkbox"/> Private Courier (Co. Name) _____														

White Copy - Original

Yellow Copy - Laboratory

Pink Copy - Field

COC Number:

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 1 Almaden Boulevard, Suite 590, San Jose, CA 95113

Site Name: Hunters Point Block 56
 Job Number: 731744801
 Project Manager/Contact: Peter Cusack, Daniel Wood
 Samplers: Daniel Wood
 Recorder (Signature Required): [Signature]

Turnaround Time
Standard

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix				No. Containers & Preservative				Analysis Requested										Silica gel clean-up	Hold	Remarks					
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH (gd.mo)	VOCS	SVOCS	OCPS	PCBS	CAM 17 Metals	LVFT 5 Metals	CA/B 435										
E-10-0.5		1240		X									X																
E-10-1.5		1242		X																									
E-10-3.0		1244		X									X	X	X			X	X										
E-10-5.0		1245		X																									
E-11-0.5		1253		X									X			X	X	X											
E-11-1.5		1255		X									X	X	X			X	X										
E-11-3.0		1256		X																									
E-11-5.0		1258		X																									
E-12-0.5		1335		X									X	X	X	X	X	X											
E-12-1.5		1336		X																									
E-12-3.0		1337		X									X	X	X	X	X	X											
E-12-5.0		1338		X																									
E-13-0.5		1348		X									X	X	X	X	X	X											
E-13-1.5		1349		X									X	X	X	X	X	X											

Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>8-27-21</u>	Time: <u>6:00pm</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>8/30</u>	Time: <u>1350</u>
Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>8/30</u>	Time: <u>1630</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>8/30</u>	Time: <u>1630</u>
Relinquished by: (Signature)	Date:	Time:	Received by Lab: (Signature)	Date:	Time:

Sent to Laboratory (Name): _____
 Laboratory Comments/Notes: 3.7 wet
 Method of Shipment: Lab courier Fed Ex Airborne UPS
 Hand Carried Private Courier (Co. Name) _____

LANGAN

CHAIN OF CUSTODY RECORD

- 555 Montgomery Street, Suite 1300, San Francisco, CA 94111
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- 1 Almaden Boulevard, Suite 590, San Jose, CA 95113

Site Name: Hunters Point Block 56
 Job Number: 731744801
 Project Manager/Contact: Peter Cusack, Daniel Wood
 Samplers: Daniel Wood
 Recorder (Signature Required): Daniel Wood

Turnaround
Time
Standard

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix				No. Containers & Preservative				Analysis Requested								Silica gel clean-up	Hold	Remarks				
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH (gpd, mo)	VOCs	SVOCs	OCPS	PCBS	CAM 17 metals	LUFT 5 metals	CARB 435							
E-13-3.0	8-27-21	1350		X																						
E-13-5.0		1351		X																						
E-14-0.5		1310		X																						
E-14-1.5		1311		X																						
E-14-3.0		1312		X																						
E-14-5.0		1313		X																						

Relinquished by: (Signature) <u>Daniel Wood</u>	Date: <u>8-27-21</u>	Time: <u>6:00 PM</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>8/30</u>	Time: <u>1:050</u>
Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>8/30</u>	Time: <u>1630</u>	Received by: (Signature) <u>Cassandra Galles</u>	Date: <u>8/30</u>	Time: <u>1630</u>
Relinquished by: (Signature)	Date:	Time:	Received by Lab: (Signature)	Date:	Time:

Sent to Laboratory (Name): _____
 Laboratory Comments/Notes: 3.7°C

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



Sample Receipt Checklist

Client Name: **Langan**
 Project: **731744801; Hunters Point Block 56**
 WorkOrder No: **2108G85** Matrix: Soil
 Carrier: Laurie Moore (MAI Courier)

Date and Time Received: **8/30/2021 16:30**
 Date Logged: **8/31/2021**
 Received by: **Cassandra Gallegos**
 Logged by: **Cassandra Gallegos**

Chain of Custody (COC) Information

Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample IDs noted by Client on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Date and Time of collection noted by Client on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sampler's name noted on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
COC agrees with Quote?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper containers/bottles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
Samples Received on Ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

(Ice Type: WET ICE)

Sample/Temp Blank temperature		Temp: 3.7°C	NA <input type="checkbox"/>
ZHS conditional analyses: VOA meets zero headspace requirement (VOCs, TPHg/BTEX, RSK)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Sample labels checked for correct preservation?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
pH acceptable upon receipt (Metal: <2; Nitrate 353.2/4500NO3: <2; 522: <4; 218.7: >8)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

UCMR Samples:

pH tested and acceptable upon receipt (200.8: ≤2; 525.3: ≤4; 530: ≤7; 541: <3; 544: <6.5 & 7.5)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Free Chlorine tested and acceptable upon receipt (<0.1mg/L)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

Comments:



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 2108G85 B

Report Created for: Langan

1 Almaden Blvd, Suite 590
San Jose, CA 95113

Project Contact: Peter Cusack

Project P.O.:

Project: 731744801; Hunters Point Block 56

Project Received: 08/30/2021

Analytical Report reviewed & approved for release on 11/01/2021 by:

Yen Cao

Project 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 a case narrative.





Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 731744801; Hunters Point Block 56
WorkOrder: 2108G85 B

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
CPT	Consumer Product Testing not NELAP Accredited
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
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
LQL	Lowest Quantitation Level
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
TZA	TimeZone Net Adjustment for sample collected outside of MAI's UTC.
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 10/26/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-0.5	2108G85-035A	Soil	08/27/2021 11:28	ICP-MS2 026SMPL.D	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/29/2021 11:25

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-1.5	2108G85-036A	Soil	08/27/2021 11:30	ICP-MS5 1184SMPL.d	232381

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/28/2021 21:48

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-9-1.5	2108G85-040A	Soil	08/27/2021 10:52	ICP-MS2 029SMPL.D	232381

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/29/2021 11:42

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-0.5	2108G85-059A	Soil	08/27/2021 13:10	ICP-MS2 040SMPL.D	232381

Analytes	Result	RL	DF	Date Analyzed
Chromium	0.25	0.10	1	10/29/2021 12:43

Analyst(s): WV



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 10/26/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L

Metals (TCLP)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-0.5	2108G85-001A	Soil	08/27/2021 09:03	ICP-MS2 131SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/27/2021 21:24

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-3.0	2108G85-002A	Soil	08/27/2021 09:00	ICP-MS2 142SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/27/2021 22:26

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-7.5	2108G85-004A	Soil	08/27/2021 09:12	ICP-MS2 143SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/27/2021 22:31

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-0.5	2108G85-006A	Soil	08/27/2021 09:25	ICP-MS2 144SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/27/2021 22:37

Analyst(s): WV

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 10/26/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L

Metals (TCLP)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-1.5	2108G85-007A	Soil	08/27/2021 09:28	ICP-MS2 145SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/27/2021 22:43

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-5.0	2108G85-009A	Soil	08/27/2021 09:32	ICP-MS2 148SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/27/2021 22:59

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-10.0	2108G85-011A	Soil	08/27/2021 09:36	ICP-MS2 149SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/27/2021 23:05

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-0.5	2108G85-012A	Soil	08/27/2021 09:45	ICP-MS2 150SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/27/2021 23:11

Analyst(s): WV

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 10/26/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L

Metals (TCLP)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-1.5	2108G85-013A	Soil	08/27/2021 09:46	ICP-MS2 151SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/27/2021 23:16

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-3.0	2108G85-014A	Soil	08/27/2021 09:48	ICP-MS2 152SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/27/2021 23:22

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-7.5	2108G85-016A	Soil	08/27/2021 09:52	ICP-MS2 153SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/27/2021 23:28

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-1.5	2108G85-019A	Soil	08/27/2021 10:16	ICP-MS2 154SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/27/2021 23:33

Analyst(s): WV

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 10/26/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L

Metals (TCLP)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-3.0	2108G85-020A	Soil	08/27/2021 10:18	ICP-MS2 155SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/27/2021 23:39

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-7.5	2108G85-022A	Soil	08/27/2021 10:23	ICP-MS2 156SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/27/2021 23:45

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-5-0.5	2108G85-024A	Soil	08/27/2021 10:35	ICP-MS2 157SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/27/2021 23:50

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-5-3.0	2108G85-026A	Soil	08/27/2021 10:40	ICP-MS2 160SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/28/2021 00:07

Analyst(s): WV

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 10/26/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L

Metals (TCLP)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-6-1.5	2108G85-028A	Soil	08/27/2021 11:07	ICP-MS2 161SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/28/2021 00:12

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-0.5	2108G85-031A	Soil	08/27/2021 11:40	ICP-MS2 162SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/28/2021 00:18

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-3.0	2108G85-033A	Soil	08/27/2021 11:44	ICP-MS2 163SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/28/2021 00:24

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-5.0	2108G85-038A	Soil	08/27/2021 11:35	ICP-MS2 164SMPL.D	232376

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/28/2021 00:29

Analyst(s): WV

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 10/26/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L

Metals (TCLP)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-9-0.5	2108G85-039A	Soil	08/27/2021 10:50	ICP-MS2 137SMPL.D	232377

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/27/2021 21:58

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-10-0.5	2108G85-043A	Soil	08/27/2021 12:40	ICP-MS2 016SMPL.D	232377

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/28/2021 10:19

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-10-3.0	2108G85-045A	Soil	08/27/2021 12:44	ICP-MS2 165SMPL.D	232377

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/28/2021 00:35

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-11-0.5	2108G85-047A	Soil	08/27/2021 12:53	ICP-MS2 017SMPL.D	232377

Analytes	Result	RL	DF	Date Analyzed
Chromium	0.18	0.10	1	10/28/2021 10:25

Analyst(s): AL

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 10/26/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L

Metals (TCLP)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-11-1.5	2108G85-048A	Soil	08/27/2021 12:55	ICP-MS2 018SMPL.D	232377

Analytes	Result	RL	DF	Date Analyzed
Chromium	0.23	0.10	1	10/28/2021 10:30

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-0.5	2108G85-051A	Soil	08/27/2021 13:35	ICP-MS2 019SMPL.D	232377

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/28/2021 10:36

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-3.0	2108G85-053A	Soil	08/27/2021 13:37	ICP-MS2 020SMPL.D	232377

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/28/2021 10:41

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-13-1.5	2108G85-056A	Soil	08/27/2021 13:45	ICP-MS2 021SMPL.D	232377

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/28/2021 10:47

Analyst(s): AL

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 10/26/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L

Metals (TCLP)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-13-5.0	2108G85-058A	Soil	08/27/2021 13:51	ICP-MS2 022SMPL.D	232377

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/28/2021 10:53

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-3.0	2108G85-061A	Soil	08/27/2021 13:12	ICP-MS2 025SMPL.D	232377

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	10/28/2021 11:09

Analyst(s): AL



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 10/26/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-0.5	2108G85-001A	Soil	08/27/2021 09:03	ICP-MS5 1198SMPL.d	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.3	0.10	1	10/28/2021 22:36
Nickel	8.8	0.10	1	10/28/2021 22:36

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-3.0	2108G85-002A	Soil	08/27/2021 09:00	ICP-MS5 1210SMPL.d	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.8	0.10	1	10/28/2021 23:18
Nickel	16	0.10	1	10/28/2021 23:18

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-1-7.5	2108G85-004A	Soil	08/27/2021 09:12	ICP-MS5 1213SMPL.d	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.2	0.10	1	10/28/2021 23:28
Nickel	9.4	0.10	1	10/28/2021 23:28

Analyst(s): DB

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 10/26/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-0.5	2108G85-006A	Soil	08/27/2021 09:25	ICP-MS5 1214SMPL.d	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.1	0.10	1	10/28/2021 23:31
Nickel	7.4	0.10	1	10/28/2021 23:31

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-1.5	2108G85-007A	Soil	08/27/2021 09:28	ICP-MS5 1215SMPL.d	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.9	0.10	1	10/28/2021 23:35
Nickel	16	0.10	1	10/28/2021 23:35

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-5.0	2108G85-009A	Soil	08/27/2021 09:32	ICP-MS5 1216SMPL.d	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	0.89	0.10	1	10/28/2021 23:38
Nickel	8.1	0.10	1	10/28/2021 23:38

Analyst(s): DB

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 10/26/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-2-10.0	2108G85-011A	Soil	08/27/2021 09:36	ICP-MS5 1217SMPL.d	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	0.79	0.10	1	10/28/2021 23:42
Nickel	6.6	0.10	1	10/28/2021 23:42

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-0.5	2108G85-012A	Soil	08/27/2021 09:45	ICP-MS5 1218SMPL.d	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	0.84	0.10	1	10/28/2021 23:45
Nickel	6.9	0.10	1	10/28/2021 23:45

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-1.5	2108G85-013A	Soil	08/27/2021 09:46	ICP-MS2 016SMPL.D	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.7	0.10	1	10/29/2021 10:30
Nickel	13	0.10	1	10/29/2021 10:30

Analyst(s): AL

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 10/26/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-3.0	2108G85-014A	Soil	08/27/2021 09:48	ICP-MS2 017SMPL.D	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.3	0.10	1	10/29/2021 10:36
Nickel	12	0.10	1	10/29/2021 10:36

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-3-7.5	2108G85-016A	Soil	08/27/2021 09:52	ICP-MS5 1219SMPL.d	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.8	0.10	1	10/28/2021 23:49
Nickel	13	0.10	1	10/28/2021 23:49

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-1.5	2108G85-019A	Soil	08/27/2021 10:16	ICP-MS5 1220SMPL.d	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.7	0.10	1	10/28/2021 23:52
Nickel	12	0.10	1	10/28/2021 23:52

Analyst(s): DB

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 10/26/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-3.0	2108G85-020A	Soil	08/27/2021 10:18	ICP-MS5 1221SMPL.d	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	0.56	0.10	1	10/28/2021 23:56
Nickel	8.5	0.10	1	10/28/2021 23:56

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-4-7.5	2108G85-022A	Soil	08/27/2021 10:23	ICP-MS2 018SMPL.D	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.1	0.10	1	10/29/2021 10:41
Nickel	9.5	0.10	1	10/29/2021 10:41

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-5-0.5	2108G85-024A	Soil	08/27/2021 10:35	ICP-MS2 019SMPL.D	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	0.81	0.10	1	10/29/2021 10:47
Nickel	7.9	0.10	1	10/29/2021 10:47

Analyst(s): AL

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 10/26/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-5-3.0	2108G85-026A	Soil	08/27/2021 10:40	ICP-MS2 020SMPL.D	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.0	0.10	1	10/29/2021 10:52
Nickel	6.2	0.10	1	10/29/2021 10:52

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-6-1.5	2108G85-028A	Soil	08/27/2021 11:07	ICP-MS2 021SMPL.D	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	0.24	0.10	1	10/29/2021 10:58
Nickel	2.4	0.10	1	10/29/2021 10:58

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-0.5	2108G85-031A	Soil	08/27/2021 11:40	ICP-MS2 022SMPL.D	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.5	0.10	1	10/29/2021 11:03
Nickel	9.2	0.10	1	10/29/2021 11:03

Analyst(s): AL

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 10/26/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-7-3.0	2108G85-033A	Soil	08/27/2021 11:44	ICP-MS2 025SMPL.D	232378

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.3	0.10	1	10/29/2021 11:20
Nickel	9.4	0.10	1	10/29/2021 11:20

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-8-5.0	2108G85-038A	Soil	08/27/2021 11:35	ICP-MS2 027SMPL.D	232381

Analytes	Result	RL	DF	Date Analyzed
Chromium	0.21	0.10	1	10/29/2021 11:31
Nickel	1.9	0.10	1	10/29/2021 11:31

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-9-0.5	2108G85-039A	Soil	08/27/2021 10:50	ICP-MS2 028SMPL.D	232381

Analytes	Result	RL	DF	Date Analyzed
Chromium	0.88	0.10	1	10/29/2021 11:37
Nickel	3.5	0.10	1	10/29/2021 11:37

Analyst(s): AL

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 10/26/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-10-0.5	2108G85-043A	Soil	08/27/2021 12:40	ICP-MS2 030SMPL.D	232381

Analytes	Result	RL	DF	Date Analyzed
Chromium	3.6	0.10	1	10/29/2021 11:48
Nickel	21	0.10	1	10/29/2021 11:48

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-10-3.0	2108G85-045A	Soil	08/27/2021 12:44	ICP-MS2 031SMPL.D	232381

Analytes	Result	RL	DF	Date Analyzed
Chromium	0.43	0.10	1	10/29/2021 11:53
Nickel	7.2	0.10	1	10/29/2021 11:53

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-11-0.5	2108G85-047A	Soil	08/27/2021 12:53	ICP-MS2 032SMPL.D	232381

Analytes	Result	RL	DF	Date Analyzed
Chromium	9.5	0.10	1	10/29/2021 11:59
Nickel	41	0.10	1	10/29/2021 11:59

Analyst(s): AL

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 10/26/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-11-1.5	2108G85-048A	Soil	08/27/2021 12:55	ICP-MS2 033SMPL.D	232381

Analytes	Result	RL	DF	Date Analyzed
Chromium	11	0.10	1	10/29/2021 12:04
Nickel	45	0.10	1	10/29/2021 12:04

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-0.5	2108G85-051A	Soil	08/27/2021 13:35	ICP-MS2 034SMPL.D	232381

Analytes	Result	RL	DF	Date Analyzed
Chromium	4.0	0.10	1	10/29/2021 12:10
Nickel	22	0.10	1	10/29/2021 12:10

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-12-3.0	2108G85-053A	Soil	08/27/2021 13:37	ICP-MS2 037SMPL.D	232381

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.1	0.10	1	10/29/2021 12:26
Nickel	14	0.10	1	10/29/2021 12:26

Analyst(s): WV

(Cont.)



Analytical Report

Client: Langan
Date Received: 08/30/2021 16:30
Date Prepared: 10/26/2021
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-13-1.5	2108G85-056A	Soil	08/27/2021 13:45	ICP-MS2 038SMPL.D	232381

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.5	0.10	1	10/29/2021 12:32
Nickel	23	0.10	1	10/29/2021 12:32

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-13-5.0	2108G85-058A	Soil	08/27/2021 13:51	ICP-MS2 039SMPL.D	232381

Analytes	Result	RL	DF	Date Analyzed
Chromium	0.91	0.10	1	10/29/2021 12:37
Nickel	15	0.10	1	10/29/2021 12:37

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
E-14-3.0	2108G85-061A	Soil	08/27/2021 13:12	ICP-MS2 041SMPL.D	232381

Analytes	Result	RL	DF	Date Analyzed
Chromium	3.9	0.10	1	10/29/2021 12:48
Nickel	28	0.10	1	10/29/2021 12:48

Analyst(s): WV



Quality Control Report

Client: Langan
Date Prepared: 10/26/2021
Date Analyzed: 10/27/2021 - 10/28/2021
Instrument: ICP-MS2, ICP-MS5
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 232376
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L
Sample ID: MB/LCS/LCSD-232376
 2108G85-001AMS/MSD

QC Summary Report for Metals (TCLP)

Analyte	MB Result	MDL	RL			
Chromium	ND	0.100	0.100	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Chromium	9.82	9.89	10	98	99	75-125	0.670	20

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Chromium	1	9.37	9.69	10	ND	94	97	75-125	3.38	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Chromium	ND<0.500	ND	-	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



Quality Control Report

Client: Langan
Date Prepared: 10/26/2021
Date Analyzed: 10/27/2021 - 10/28/2021
Instrument: ICP-MS2, ICP-MS5
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 232377
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L
Sample ID: MB/LCS/LCSD-232377
 2108G85-039AMS/MSD

QC Summary Report for Metals (TCLP)

Analyte	MB Result	MDL	RL			
Chromium	ND	0.100	0.100	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Chromium	9.80	9.52	10	98	95	75-125	2.88	20

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Chromium	1	9.76	9.77	10	ND	98	98	75-125	0.0819	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Chromium	ND<0.500	ND	-	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



Quality Control Report

Client: Langan
Date Prepared: 10/26/2021
Date Analyzed: 10/28/2021
Instrument: ICP-MS5
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 232378
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L
Sample ID: MB/LCS/LCSD-232378
 2108G85-001AMS/MSD

QC Summary Report for Metals (STLC)

Analyte	MB Result	MDL	RL			
Chromium	ND	0.100	0.100	-	-	-
Nickel	ND	0.100	0.100	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Chromium	9.88	9.70	10	99	97	75-125	1.80	20
Nickel	9.76	10.0	10	98	100	75-125	2.61	20

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Chromium	1	11.3	11.4	10	1.292	100	101	75-125	0.507	20
Nickel	1	18.6	18.7	10	8.797	98	99	75-125	0.807	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Chromium	1.33	1.292	2.94	-
Nickel	9.09	8.797	3.33	20

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

(Cont.)



Quality Control Report

Client: Langan
Date Prepared: 10/26/2021
Date Analyzed: 10/28/2021
Instrument: ICP-MS5
Matrix: Soil
Project: 731744801; Hunters Point Block 56

WorkOrder: 2108G85
BatchID: 232381
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L
Sample ID: MB/LCS/LCSD-232381
 2108G85-036AMS/MSD

QC Summary Report for Metals (STLC)

Analyte	MB Result	MDL	RL			
Chromium	ND	0.100	0.100	-	-	-
Nickel	ND	0.100	0.100	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Chromium	10.0	9.96	10	100	100	75-125	0.754	20
Nickel	10.3	10.2	10	103	102	75-125	1.39	20

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Chromium	1	9.96	10.2	10	ND	100	103	75-125	2.87	20
Nickel	1	10.6	11.2	10	0.703	99	105	75-125	5.53	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Chromium	ND<0.500	ND	-	-
Nickel	0.766	0.703	8.96	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



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

CHAIN-OF-CUSTODY RECORD

WorkOrder: 2108G85 B

ClientCode: TRSJ

- WaterTrax
 WriteOn
 EDF
 EQUIS
 Dry-Weight
 Email
 HardCopy
 ThirdParty
 J-flag
 Detection Summary
 Excel

Report to:

Peter Cusack
Langan
1 Almaden Blvd, Suite 590
San Jose, CA 95113
(609) 282-8074 FAX:

Email: pcusack@Langan.com
cc/3rd Party: dwood@langan.com;
PO:
Project: 731744801; Hunters Point Block 56

Bill to:

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

Requested TAT: 5 days;

Date Received: 08/30/2021
Date Logged: 08/31/2021
Date Add-On: 10/25/2021

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
2108G85-001	E-1-0.5	Soil	8/27/2021 09:03	<input type="checkbox"/>		A	A									
2108G85-002	E-1-3.0	Soil	8/27/2021 09:00	<input type="checkbox"/>		A	A									
2108G85-004	E-1-7.5	Soil	8/27/2021 09:12	<input type="checkbox"/>		A	A									
2108G85-006	E-2-0.5	Soil	8/27/2021 09:25	<input type="checkbox"/>		A	A									
2108G85-007	E-2-1.5	Soil	8/27/2021 09:28	<input type="checkbox"/>		A	A									
2108G85-009	E-2-5.0	Soil	8/27/2021 09:32	<input type="checkbox"/>		A	A									
2108G85-011	E-2-10.0	Soil	8/27/2021 09:36	<input type="checkbox"/>		A	A									
2108G85-012	E-3-0.5	Soil	8/27/2021 09:45	<input type="checkbox"/>		A	A									
2108G85-013	E-3-1.5	Soil	8/27/2021 09:46	<input type="checkbox"/>		A	A									
2108G85-014	E-3-3.0	Soil	8/27/2021 09:48	<input type="checkbox"/>		A	A									
2108G85-016	E-3-7.5	Soil	8/27/2021 09:52	<input type="checkbox"/>		A	A									
2108G85-019	E-4-1.5	Soil	8/27/2021 10:16	<input type="checkbox"/>		A	A									
2108G85-020	E-4-3.0	Soil	8/27/2021 10:18	<input type="checkbox"/>		A	A									
2108G85-022	E-4-7.5	Soil	8/27/2021 10:23	<input type="checkbox"/>		A	A									
2108G85-024	E-5-0.5	Soil	8/27/2021 10:35	<input type="checkbox"/>		A	A									

Test Legend:

1	CRMS_STLC_S	2	CRMS_TCLP_S	3	METALSMS_STLC_S	4	
5		6		7		8	
9		10		11		12	

Project Manager: Angela Rydelius

Prepared by: Cassandra Gallegos
Add-On Prepared By: Maria Venegas

Comments: samples have been placed in archive. Do NOT dispose until 12/10/2021--must confirm with client beforehand in case of extention 10/22/21 CAA. STLCs & TCLPs added 10/25/21 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.

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



CHAIN-OF-CUSTODY RECORD

WorkOrder: 2108G85 B

ClientCode: TRSJ

- WaterTrax
 WriteOn
 EDF
 EQUIS
 Dry-Weight
 Email
 HardCopy
 ThirdParty
 J-flag
 Detection Summary
 Excel

Report to:

Peter Cusack
Langan
1 Almaden Blvd, Suite 590
San Jose, CA 95113
(609) 282-8074 FAX:

Email: pcusack@Langan.com
cc/3rd Party: dwood@langan.com;
PO:
Project: 731744801; Hunters Point Block 56

Bill to:

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

Requested TAT: 5 days;

Date Received: 08/30/2021
Date Logged: 08/31/2021
Date Add-On: 10/25/2021

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
2108G85-026	E-5-3.0	Soil	8/27/2021 10:40	<input type="checkbox"/>		A	A									
2108G85-028	E-6-1.5	Soil	8/27/2021 11:07	<input type="checkbox"/>		A	A									
2108G85-031	E-7-0.5	Soil	8/27/2021 11:40	<input type="checkbox"/>		A	A									
2108G85-033	E-7-3.0	Soil	8/27/2021 11:44	<input type="checkbox"/>		A	A									
2108G85-035	E-8-0.5	Soil	8/27/2021 11:28	<input type="checkbox"/>	A											
2108G85-036	E-8-1.5	Soil	8/27/2021 11:30	<input type="checkbox"/>	A											
2108G85-038	E-8-5.0	Soil	8/27/2021 11:35	<input type="checkbox"/>		A	A									
2108G85-039	E-9-0.5	Soil	8/27/2021 10:50	<input type="checkbox"/>		A	A									
2108G85-040	E-9-1.5	Soil	8/27/2021 10:52	<input type="checkbox"/>	A											
2108G85-043	E-10-0.5	Soil	8/27/2021 12:40	<input type="checkbox"/>		A	A									
2108G85-045	E-10-3.0	Soil	8/27/2021 12:44	<input type="checkbox"/>		A	A									
2108G85-047	E-11-0.5	Soil	8/27/2021 12:53	<input type="checkbox"/>		A	A									
2108G85-048	E-11-1.5	Soil	8/27/2021 12:55	<input type="checkbox"/>		A	A									
2108G85-051	E-12-0.5	Soil	8/27/2021 13:35	<input type="checkbox"/>		A	A									
2108G85-053	E-12-3.0	Soil	8/27/2021 13:37	<input type="checkbox"/>		A	A									

Test Legend:

1	CRMS_STLC_S	2	CRMS_TCLP_S	3	METALSMS_STLC_S	4	
5		6		7		8	
9		10		11		12	

Project Manager: Angela Rydelius

Prepared by: Cassandra Gallegos
Add-On Prepared By: Maria Venegas

Comments: samples have been placed in archive. Do NOT dispose until 12/10/2021--must confirm with client beforehand in case of extention 10/22/21 CAA. STLCs & TCLPs added 10/25/21 STAT.

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



CHAIN-OF-CUSTODY RECORD

WorkOrder: 2108G85 B

ClientCode: TRSJ

WaterTrax WriteOn EDF

EQUIS Dry-Weight Email HardCopy ThirdParty J-flag

Detection Summary Excel

Report to:

Peter Cusack
Langan
1 Almaden Blvd, Suite 590
San Jose, CA 95113
(609) 282-8074 FAX:

Email: pcusack@Langan.com
cc/3rd Party: dwood@langan.com;
PO:
Project: 731744801; Hunters Point Block 56

Bill to:

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

Requested TAT: 5 days;

Date Received: 08/30/2021

Date Logged: 08/31/2021

Date Add-On: 10/25/2021

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	
2108G85-056	E-13-1.5	Soil	8/27/2021 13:45	<input type="checkbox"/>		A	A										
2108G85-058	E-13-5.0	Soil	8/27/2021 13:51	<input type="checkbox"/>		A	A										
2108G85-059	E-14-0.5	Soil	8/27/2021 13:10	<input type="checkbox"/>	A												
2108G85-061	E-14-3.0	Soil	8/27/2021 13:12	<input type="checkbox"/>		A	A										

Test Legend:

1	CRMS_STLC_S
5	
9	

2	CRMS_TCLP_S
6	
10	

3	METALSMS_STLC_S
7	
11	

4	
8	
12	

Project Manager: Angela Rydelius

Prepared by: Cassandra Gallegos

Add-On Prepared By: Maria Venegas

Comments: samples have been placed in archive. Do NOT dispose until 12/10/2021--must confirm with client beforehand in case of extention 10/22/21 CAA. STLCs & TCLPs added 10/25/21 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.



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Peter Cusack
Contact's Email pcusack@Langan.com

Project: 731744801; Hunters Point Block 56

Work Order: 2108G85

QC Level: LEVEL 2

Comments: samples have been placed in archive. Do NOT dispose until 12/10/2021--must confirm with client beforehand in case of
~~***** 10/22/21 CAA STLC & TCLP - 11/11/21 STAT~~

Date Logged: 8/31/2021

Date Add-On: 10/25/2021

LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	SubOut
001A	E-1-0.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:03	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						<input type="checkbox"/>	<input type="checkbox"/>			
002A	E-1-3.0	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:00	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						<input type="checkbox"/>	<input type="checkbox"/>			
004A	E-1-7.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:12	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						<input type="checkbox"/>	<input type="checkbox"/>			
006A	E-2-0.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:25	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						<input type="checkbox"/>	<input type="checkbox"/>			
007A	E-2-1.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:28	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						<input type="checkbox"/>	<input type="checkbox"/>			
009A	E-2-5.0	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:32	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						<input type="checkbox"/>	<input type="checkbox"/>			
011A	E-2-10.0	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:36	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						<input type="checkbox"/>	<input type="checkbox"/>			

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

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



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Peter Cusack
Contact's Email pcusack@Langan.com

Project: 731744801; Hunters Point Block 56

Work Order: 2108G85

QC Level: LEVEL 2

Comments: samples have been placed in archive. Do NOT dispose until 12/10/2021--must confirm with client beforehand in case of
~~***** 10/22/21 CAA STLC & TCLP - 11/11/21 STAT~~

Date Logged: 8/31/2021

Date Add-On: 10/25/2021

LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	SubOut
012A	E-3-0.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:45	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						<input type="checkbox"/>	<input type="checkbox"/>			
013A	E-3-1.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:46	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						<input type="checkbox"/>	<input type="checkbox"/>			
014A	E-3-3.0	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:48	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						<input type="checkbox"/>	<input type="checkbox"/>			
016A	E-3-7.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 9:52	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						<input type="checkbox"/>	<input type="checkbox"/>			
019A	E-4-1.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 10:16	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						<input type="checkbox"/>	<input type="checkbox"/>			
020A	E-4-3.0	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 10:18	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						<input type="checkbox"/>	<input type="checkbox"/>			
022A	E-4-7.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 10:23	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						<input type="checkbox"/>	<input type="checkbox"/>			

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

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WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Peter Cusack
Contact's Email pcusack@Langan.com

Project: 731744801; Hunters Point Block 56

Work Order: 2108G85

QC Level: LEVEL 2

Comments: samples have been placed in archive. Do NOT dispose until 12/10/2021--must confirm with client beforehand in case of
~~***** 10/22/21 CAA STLC & TCLP - 11/11/2021 STAT~~

Date Logged: 8/31/2021

Date Add-On: 10/25/2021

LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	SubOut
024A	E-5-0.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel> SW6020 (Chromium) (TCLP)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 10:35	5 days*	11/3/2021		<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>		5 days*	11/3/2021		<input type="checkbox"/>	
026A	E-5-3.0	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel> SW6020 (Chromium) (TCLP)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 10:40	5 days*	11/3/2021		<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>		5 days*	11/3/2021		<input type="checkbox"/>	
028A	E-6-1.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel> SW6020 (Chromium) (TCLP)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 11:07	5 days*	11/3/2021		<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>		5 days*	11/3/2021		<input type="checkbox"/>	
031A	E-7-0.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel> SW6020 (Chromium) (TCLP)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 11:40	5 days*	11/3/2021		<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>		5 days*	11/3/2021		<input type="checkbox"/>	
033A	E-7-3.0	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel> SW6020 (Chromium) (TCLP)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 11:44	5 days*	11/3/2021		<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>		5 days*	11/3/2021		<input type="checkbox"/>	
035A	E-8-0.5	Soil	SW6020 (Chromium) (STLC)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 11:28	5 days*	11/3/2021		<input type="checkbox"/>	
036A	E-8-1.5	Soil	SW6020 (Chromium) (STLC)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 11:30	5 days*	11/3/2021		<input type="checkbox"/>	
038A	E-8-5.0	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel> SW6020 (Chromium) (TCLP)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 11:35	5 days*	11/3/2021		<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>		5 days*	11/3/2021		<input type="checkbox"/>	

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

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



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Peter Cusack
Contact's Email pcusack@Langan.com

Project: 731744801; Hunters Point Block 56

Work Order: 2108G85

QC Level: LEVEL 2

Comments: samples have been placed in archive. Do NOT dispose until 12/10/2021--must confirm with client beforehand in case of
----- 10/22/21 CAA STLC & TCLP ----- 10/25/21 STAG

Date Logged: 8/31/2021

Date Add-On: 10/25/2021

LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	SubOut
039A	E-9-0.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 10:50	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						5 days*	11/3/2021			
040A	E-9-1.5	Soil	SW6020 (Chromium) (STLC)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 10:52	5 days*	11/3/2021		<input type="checkbox"/>	
043A	E-10-0.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	8OZ aG Jar, Unpres	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 12:40	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						5 days*	11/3/2021			
045A	E-10-3.0	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	8OZ aG Jar, Unpres	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 12:44	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						5 days*	11/3/2021			
047A	E-11-0.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 12:53	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						5 days*	11/3/2021			
048A	E-11-1.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 12:55	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						5 days*	11/3/2021			
051A	E-12-0.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Acetate Liner	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 13:35	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)						5 days*	11/3/2021			
053A	E-12-3.0	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Acetate Liner	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 13:37	5 days*	11/3/2021		<input type="checkbox"/>	

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

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



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Peter Cusack
Contact's Email pcusack@Langan.com

Project: 731744801; Hunters Point Block 56

Work Order: 2108G85

QC Level: LEVEL 2

Comments: samples have been placed in archive. Do NOT dispose until 12/10/2021--must confirm with client beforehand in case of
~~***** 10/22/21 CHL & TCLP - 11-1-10/25/21 STAT~~

Date Logged: 8/31/2021

Date Add-On: 10/25/2021

LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	SubOut
053A	E-12-3.0	Soil	SW6020 (Chromium) (TCLP)	1	Acetate Liner	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 13:37	5 days*	11/3/2021		<input type="checkbox"/>	
056A	E-13-1.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Acetate Liner	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 13:45	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)			<input type="checkbox"/>	<input type="checkbox"/>		5 days*	11/3/2021		<input type="checkbox"/>	
058A	E-13-5.0	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Acetate Liner	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 13:51	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)			<input type="checkbox"/>	<input type="checkbox"/>		5 days*	11/3/2021		<input type="checkbox"/>	
059A	E-14-0.5	Soil	SW6020 (Chromium) (STLC)	1	8OZ aG Jar, Unpres	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 13:10	5 days*	11/3/2021		<input type="checkbox"/>	
061A	E-14-3.0	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	8OZ aG Jar, Unpres	<input type="checkbox"/>	<input type="checkbox"/>	8/27/2021 13:12	5 days*	11/3/2021		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)			<input type="checkbox"/>	<input type="checkbox"/>		5 days*	11/3/2021		<input type="checkbox"/>	

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

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

LANGAN

CHAIN OF CUSTODY RECORD

- 555 Montgomery Street, Suite 1300, San Francisco, CA 94111
- 501 14th Street, Third Floor, Oakland, CA 94612
- 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
- 1 Almaden Boulevard, Suite 590, San Jose, CA 95113

Site Name: Hunters Point Block 56
 Job Number: 731744801
 Project Manager/Contact: Peter Cusack, Daniel Wood
 Samplers: Daniel Wood
 Recorder (Signature Required): Daniel Wood

Turnaround
Time
5:30 AM

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix				No. Containers & Preservative				Analysis Requested										Silica gel clean-up	Hold	Remarks			
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	THH (g,d,m)	VOCs	SvOCs	OCs	PCBs	CAM 17 Metals	LUFT 5 Metals	CANON 415	STIC Cr, Ni	TCuP Cr						
E-1-0.5	8-27-21	0903		X									X	X	X	X	X	X	X	X							
E-1-3.0		0900		X									X	X	X			X	X	X	X						
E-1-5.0		0908		X																				X			
E-1-7.5		0912		X									X			X	X	X	X	X	X						
E-1-10.0		0915		X																				X			
E-2-0.5		0925		X									X	X	X	X	X	X	X	X	X						
E-2-1.5		0928		X									X	X	X	X	X	X	X	X	X						
E-2-3.0		0930		X																				X			
E-2-5.0		0932		X									X	X	X	X	X	X	X	X	X						
E-2-7.5		0934		X																				X			
E-2-10.0		0936		X									X			X	X	X	X	X	X						
E-3-0.5		0945		X									X		X	X	X	X	X	X	X						
E-3-1.5		0946		X									X			X	X	X	X	X	X						
E-3-3.0		0948		X									X			X	X	X	X	X	X						
Relinquished by: (Signature) <u>Daniel Wood</u>				Date: <u>8-27-21</u>				Time: <u>6:00 AM</u>				Received by: (Signature) <u>[Signature]</u>				Date: <u>8/30</u>				Time: <u>1350</u>							
Relinquished by: (Signature) <u>[Signature]</u>				Date: <u>8/30</u>				Time: <u>1630</u>				Received by: (Signature) <u>Cosack Gallero</u>				Date: <u>8/30</u>				Time: <u>1630</u>							
Relinquished by: (Signature) _____				Date: _____				Time: _____				Received by Lab: (Signature) _____				Date: _____				Time: _____							
Sent to Laboratory (Name): _____												Method of Shipment <input type="checkbox"/> Lab courier <input type="checkbox"/> Fed Ex <input type="checkbox"/> Airborne <input type="checkbox"/> UPS															
Laboratory Comments/Notes: <u>Added 10/25/21 STAT</u>												<input type="checkbox"/> Hand Carried <input type="checkbox"/> Private Courier (Co. Name) _____															
												<u>3.1°C wet</u>															

White Copy - Original

Yellow Copy - Laboratory

Pink Copy - Field

COC Number:

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
- 1 Almaden Boulevard, Suite 590, San Jose, CA 95113

Site Name: Hunters Point Black 56
 Job Number: 731744801
 Project Manager/Contact: Peter Gudek, Daniel Wood
 Samplers: Daniel Wood
 Recorder (Signature Required): Daniel Wood

Turnaround
Time
Standard

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix & Preservative										Analysis Requested					Silica gel clean-up	Hold	Remarks				
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice														
E-3-5.0	8-27-21	0950		X											X									X	
E-3-7.5		0952		X										X	X	X		X	X	X					
E-3-10.0		0953		X																				X	
E-4-0.5		1015		X										X		X	X								
E-4-1.5		1016		X										X			X	X	X						
E-4-3.0		1018		X										X		X	X	X							
E-4-5.0		1020		X																				X	
E-4-7.5		1023		X										X	X	X		X	X	X				X	
E-4-10.0		1024		X																				X	
E-5-0.5		1035		X										X	X	X		X	X	X				X	
E-5-1.5		1037		X																				X	
E-5-3.0		1040		X										X	X	X		X	X	X				X	
E-5-5.0		1042		X																				X	
E-6-1.5		1107		X										X		X	X	X	X	X				X	
Relinquished by: (Signature)			Date:		Time		Received by: (Signature)			Date		Time													
<i>Daniel Wood</i>			8-27-21		6:00 AM		<i>L. Moran</i>			8/30/21		1:30 PM													
Relinquished by: (Signature)			Date:		Time		Received by: (Signature)			Date		Time													
<i>L. Moran</i>			8/30		1:30		<i>Cosmodina Gallegos</i>			8/30		1:30													
Relinquished by: (Signature)			Date:		Time		Received by Lab: (Signature)			Date		Time													
Sent to Laboratory (Name): _____							Method of Shipment																		
Laboratory Comments/Notes: _____							<input type="checkbox"/> Lab courier <input type="checkbox"/> Fed Ex <input type="checkbox"/> Airborne <input type="checkbox"/> UPS <input type="checkbox"/> Hand Carried <input type="checkbox"/> Private Courier (Co. Name) _____																		
<i>3.7°C wet</i>																									

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

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
 1 Almaden Boulevard, Suite 590, San Jose, CA 95113

Site Name: Hunters Point Block 56
 Job Number: 731744801
 Project Manager/Contact: Peter Cusack, Daniel Wood
 Samplers: Daniel Wood
 Recorder (Signature Required): [Signature]

Turnaround Time
Standard

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix			No. Containers & Preservative				Analysis Requested							Silica gel clean-up	Hold	Remarks																		
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH (g/d.m)	VOCs	SVOCS	OCPS	PCBS	CAM 17 Metals				LVF 5 Metals	CAD 435	STL Cr	STL Ni	TEL Cr													
E-6-3.0	8-27-21	1108		X																																		
E-6-5.0		1110		X																																		
E-7-0.5		1140		X													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
E-7-1.5		1142		X													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
E-7-3.0		1144		X													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
E-7-5.0		1146		X													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
E-8-0.5		1128		X													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
E-8-1.5		1130		X													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
E-8-3.0		1132		X													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
E-8-5.0		1135		X													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
E-9-0.5		1050		X													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
E-9-1.5		1052		X													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
E-9-3.0		1053		X													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
E-9-5.0		1055		X													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Relinquished by: (Signature) <u>[Signature]</u>				Date: <u>8-27-21</u>	Time <u>6:00 pm</u>	Received by: (Signature) <u>[Signature]</u>				Date <u>8/30</u>	Time <u>1750</u>																											
Relinquished by: (Signature) <u>[Signature]</u>				Date: <u>8/30</u>	Time <u>1630</u>	Received by: (Signature) <u>Cassandra Galley</u>				Date <u>8/30</u>	Time <u>1630</u>																											
Relinquished by: (Signature)				Date:	Time	Received by Lab: (Signature)				Date	Time																											
Sent to Laboratory (Name): _____						Method of Shipment						<input type="checkbox"/> Lab courier <input type="checkbox"/> Fed Ex <input type="checkbox"/> Airborne <input type="checkbox"/> UPS																										
Laboratory Comments/Notes: <u>3.7 ic</u>						<input type="checkbox"/> Hand Carried <input type="checkbox"/> Private Courier (Co. Name) _____																																

White Copy - Original

Yellow Copy - Laboratory

Pink Copy - Field

COC Number:

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
 1 Almaden Boulevard, Suite 590, San Jose, CA 95113

Site Name: Hunters Point Blk 56
 Job Number: 73744801
 Project Manager/Contact: Peter Cusack, Daniel Wood
 Samplers: Daniel Wood
 Recorder (Signature Required): [Signature]

Turnaround Time
Standard

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix				No. Containers & Preservative				Analysis Requested										Silica gel clean-up	Hold	Remarks				
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH (Std. m)	VOCs	S/VOCs	OC/PS	PCBS	CAM 17 Metals	LVFT 5 Metals	CARB 4/35	STL Cr, Ni	TCU/PCY							
E-10-0.5		1240		X									X						X									
E-10-1.5		1242		X																								
E-10-3.0		1244		X									X	X	X				X	X								
E-10-5.0		1245		X																								
E-11-0.5		1253		X									X		X	X			X	X								
E-11-1.5		1255		X									X	X	X				X	X								
E-11-3.0		1256		X																								
E-11-5.0		1258		X																								
E-12-0.5		1335		X									X	X	X	X			X	X								
E-12-1.5		1336		X																								
E-12-3.0		1337		X									X	X	X	X			X	X								
E-12-5.0		1338		X																								
E-13-0.5		1348		X									X	X	X	X												Only TPH - DW
E-13-1.5		1349		X									X	X	X	X			X	X								

Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>8-27-21</u>	Time: <u>6:00pm</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>8/30</u>	Time: <u>1350</u>
Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>8/30</u>	Time: <u>1630</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>8/30</u>	Time: <u>1630</u>
Relinquished by: (Signature)	Date:	Time:	Received by Lab: (Signature)	Date:	Time:

Sent to Laboratory (Name): _____
 Laboratory Comments/Notes: 3.7 wet

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:

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
- 1 Almaden Boulevard, Suite 590, San Jose, CA 95113

Site Name: Hunters Point Block 56
 Job Number: 731744801
 Project Manager/Contact: Peter Cusack, Daniel Wood
 Samplers: Daniel Wood
 Recorder (Signature Required): Daniel Wood

Turnaround
 Time
Standard

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix				No. Containers & Preservative				Analysis Requested										Silica gel clean-up	Hold	Remarks				
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH (gpd, mo)	VOCs	S/VOCs	OCPS	PCBS	CA M (7 Metals)	LUFT (5 Metals)	CA RB 435	STL C1	STL N1				STL P1			
E-13-3.0	8-27-21	1350		X																								
E-13-5.0		1351		X													X	X	X	X	X							
E-14-0.5		1310		X													X	X	X	X	X							
E-14-1.5		1311		X																								
E-14-3.0		1312		X													X	X	X	X	X							
E-14-5.0	↓	1313		X													X	X	X	X	X							
Relinquished by: (Signature) <u>Daniel Wood</u>				Date: <u>8-27-21</u>	Time: <u>6:00 PM</u>	Received by: (Signature) <u>[Signature]</u>				Date: <u>8/30</u>	Time: <u>1850</u>																	
Relinquished by: (Signature) <u>[Signature]</u>				Date: <u>8/30</u>	Time: <u>1630</u>	Received by: (Signature) <u>Cassandra Galles</u>				Date: <u>8/30</u>	Time: <u>1630</u>																	
Relinquished by: (Signature)				Date:	Time:	Received by Lab: (Signature)				Date:	Time:																	
Sent to Laboratory (Name):										Method of Shipment																		
Laboratory Comments/Notes: <u>3.7°C</u>										<input type="checkbox"/> Lab courier <input type="checkbox"/> Fed Ex <input type="checkbox"/> Airborne <input type="checkbox"/> UPS <input type="checkbox"/> Hand Carried <input type="checkbox"/> Private Courier (Co. Name)																		

White Copy - Original

Yellow Copy - Laboratory

Pink Copy - Field

COC Number:



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 2012349

Report Created for: Langan

135 Main St, Suite 1500
San Francisco, CA 94105

Project Contact: Peter Cusack

Project P.O.:

Project: 731744801; HPSY

Project Received: 12/07/2020

Analytical Report reviewed & approved for release on 12/18/2020 by:

Yen Cao

Project 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 a case narrative.





Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 731744801; HPSY
WorkOrder: 2012349

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
CPT	Consumer Product Testing not NELAP Accredited
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
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
LQL	Lowest Quantitation Level
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
TZA	TimeZone Net Adjustment for sample collected outside of MAI's UTC.
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 731744801; HPSY
WorkOrder: 2012349

Analytical Qualifiers

P Agreement between quantitative confirmation results exceed method recommended limits.
S Surrogate recovery outside accepted recovery limits.
a1 Sample diluted due to matrix interference.
a2 Sample diluted due to cluttered chromatogram.
c2 Surrogate recovery outside of the control limits due to matrix interference.
d1 Weakly modified or unmodified gasoline is significant.
e7 Oil range compounds are significant.
h7 Copper (EPA 3660B) cleanup.
k11 CARB 435 Exception 2 - Greater than 10% asbestos detected.
k15 Chrysotile.

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/RSD 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.
F13 Indigenous sample results too high for a representative matrix spike analysis.



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/09/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-1.5	2012349-001A	Soil	12/05/2020	GC23 12102031.d	210937

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.00050	5	12/10/2020 20:30
a-BHC	ND	0.00050	5	12/10/2020 20:30
b-BHC	ND	0.0015	5	12/10/2020 20:30
d-BHC	ND	0.0010	5	12/10/2020 20:30
g-BHC	ND	0.00050	5	12/10/2020 20:30
Chlordane (Technical)	ND	0.012	5	12/10/2020 20:30
a-Chlordane	0.00072	0.00050	5	12/10/2020 20:30
g-Chlordane	0.00079	0.00050	5	12/10/2020 20:30
p,p-DDD	0.0046	0.00050	5	12/10/2020 20:30
p,p-DDE	0.0090	0.00050	5	12/10/2020 20:30
p,p-DDT	0.016	0.00050	5	12/10/2020 20:30
Dieldrin	ND	0.00050	5	12/10/2020 20:30
Endosulfan I	ND	0.00050	5	12/10/2020 20:30
Endosulfan II	ND	0.00050	5	12/10/2020 20:30
Endosulfan sulfate	ND	0.00050	5	12/10/2020 20:30
Endrin	ND	0.00050	5	12/10/2020 20:30
Endrin aldehyde	ND	0.00050	5	12/10/2020 20:30
Endrin ketone	ND	0.00050	5	12/10/2020 20:30
Heptachlor	ND	0.00050	5	12/10/2020 20:30
Heptachlor epoxide	ND	0.00050	5	12/10/2020 20:30
Hexachlorobenzene	ND	0.0050	5	12/10/2020 20:30
Hexachlorocyclopentadiene	ND	0.010	5	12/10/2020 20:30
Methoxychlor	ND	0.0010	5	12/10/2020 20:30
Toxaphene	ND	0.025	5	12/10/2020 20:30
Aroclor1016	ND	0.025	5	12/10/2020 20:30
Aroclor1221	ND	0.025	5	12/10/2020 20:30
Aroclor1232	ND	0.025	5	12/10/2020 20:30
Aroclor1242	ND	0.025	5	12/10/2020 20:30
Aroclor1248	ND	0.025	5	12/10/2020 20:30
Aroclor1254	ND	0.025	5	12/10/2020 20:30
Aroclor1260	ND	0.025	5	12/10/2020 20:30
PCBs, total	ND	0.025	5	12/10/2020 20:30

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	99	20-145	12/10/2020 20:30

Analyst(s): BRV

Analytical Comments: a2,h7

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/09/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-1.5	2012349-003A	Soil	12/05/2020	GC23 12092037.d	210937

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.00010	1	12/10/2020 00:42
a-BHC	ND	0.00010	1	12/10/2020 00:42
b-BHC	ND	0.00030	1	12/10/2020 00:42
d-BHC	ND	0.00020	1	12/10/2020 00:42
g-BHC	ND	0.00010	1	12/10/2020 00:42
Chlordane (Technical)	ND	0.0025	1	12/10/2020 00:42
a-Chlordane	ND	0.00010	1	12/10/2020 00:42
g-Chlordane	ND	0.00010	1	12/10/2020 00:42
p,p-DDD	ND	0.00010	1	12/10/2020 00:42
p,p-DDE	0.00015	0.00010	1	12/10/2020 00:42
p,p-DDT	0.00029	0.00010	1	12/10/2020 00:42
Dieldrin	ND	0.00010	1	12/10/2020 00:42
Endosulfan I	ND	0.00010	1	12/10/2020 00:42
Endosulfan II	ND	0.00010	1	12/10/2020 00:42
Endosulfan sulfate	ND	0.00010	1	12/10/2020 00:42
Endrin	ND	0.00010	1	12/10/2020 00:42
Endrin aldehyde	ND	0.00010	1	12/10/2020 00:42
Endrin ketone	ND	0.00010	1	12/10/2020 00:42
Heptachlor	ND	0.00010	1	12/10/2020 00:42
Heptachlor epoxide	ND	0.00010	1	12/10/2020 00:42
Hexachlorobenzene	ND	0.0010	1	12/10/2020 00:42
Hexachlorocyclopentadiene	ND	0.0020	1	12/10/2020 00:42
Methoxychlor	ND	0.00020	1	12/10/2020 00:42
Toxaphene	ND	0.0050	1	12/10/2020 00:42
Aroclor1016	ND	0.0050	1	12/10/2020 00:42
Aroclor1221	ND	0.0050	1	12/10/2020 00:42
Aroclor1232	ND	0.0050	1	12/10/2020 00:42
Aroclor1242	ND	0.0050	1	12/10/2020 00:42
Aroclor1248	ND	0.0050	1	12/10/2020 00:42
Aroclor1254	ND	0.0050	1	12/10/2020 00:42
Aroclor1260	ND	0.0050	1	12/10/2020 00:42
PCBs, total	ND	0.0050	1	12/10/2020 00:42

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	123	20-145	12/10/2020 00:42

Analyst(s): BRV

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/09/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-1.5	2012349-007A	Soil	12/05/2020	GC23 12092038.d	210937

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.00010	1	12/10/2020 00:58
a-BHC	ND	0.00010	1	12/10/2020 00:58
b-BHC	ND	0.00030	1	12/10/2020 00:58
d-BHC	ND	0.00020	1	12/10/2020 00:58
g-BHC	ND	0.00010	1	12/10/2020 00:58
Chlordane (Technical)	ND	0.0025	1	12/10/2020 00:58
a-Chlordane	ND	0.00010	1	12/10/2020 00:58
g-Chlordane	0.00033	0.00010	1	12/10/2020 00:58
p,p-DDD	0.0013	0.00010	1	12/10/2020 00:58
p,p-DDE	0.0021	0.00010	1	12/10/2020 00:58
p,p-DDT	0.0050	0.00010	1	12/10/2020 00:58
Dieldrin	ND	0.00010	1	12/10/2020 00:58
Endosulfan I	ND	0.00010	1	12/10/2020 00:58
Endosulfan II	ND	0.00010	1	12/10/2020 00:58
Endosulfan sulfate	ND	0.00010	1	12/10/2020 00:58
Endrin	ND	0.00010	1	12/10/2020 00:58
Endrin aldehyde	ND	0.00010	1	12/10/2020 00:58
Endrin ketone	ND	0.00010	1	12/10/2020 00:58
Heptachlor	ND	0.00010	1	12/10/2020 00:58
Heptachlor epoxide	ND	0.00010	1	12/10/2020 00:58
Hexachlorobenzene	ND	0.0010	1	12/10/2020 00:58
Hexachlorocyclopentadiene	ND	0.0020	1	12/10/2020 00:58
Methoxychlor	ND	0.00020	1	12/10/2020 00:58
Toxaphene	ND	0.0050	1	12/10/2020 00:58
Aroclor1016	ND	0.0050	1	12/10/2020 00:58
Aroclor1221	ND	0.0050	1	12/10/2020 00:58
Aroclor1232	ND	0.0050	1	12/10/2020 00:58
Aroclor1242	ND	0.0050	1	12/10/2020 00:58
Aroclor1248	ND	0.0050	1	12/10/2020 00:58
Aroclor1254	ND	0.0050	1	12/10/2020 00:58
Aroclor1260	ND	0.0050	1	12/10/2020 00:58
PCBs, total	ND	0.0050	1	12/10/2020 00:58

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	90	20-145	12/10/2020 00:58

Analyst(s): BRV

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/09/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-1.5	2012349-010A	Soil	12/05/2020	GC23 12092046.d	210937

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aldrin	ND		0.00010	1	12/10/2020 03:03
a-BHC	ND		0.00010	1	12/10/2020 03:03
b-BHC	ND		0.00030	1	12/10/2020 03:03
d-BHC	ND		0.00020	1	12/10/2020 03:03
g-BHC	ND		0.00010	1	12/10/2020 03:03
Chlordane (Technical)	ND		0.0025	1	12/10/2020 03:03
a-Chlordane	0.00012	P	0.00010	1	12/10/2020 03:03
g-Chlordane	0.00010		0.00010	1	12/10/2020 03:03
p,p-DDD	0.00019		0.00010	1	12/10/2020 03:03
p,p-DDE	0.0013		0.00010	1	12/10/2020 03:03
p,p-DDT	0.0017		0.00010	1	12/10/2020 03:03
Dieldrin	ND		0.00010	1	12/10/2020 03:03
Endosulfan I	ND		0.00010	1	12/10/2020 03:03
Endosulfan II	ND		0.00010	1	12/10/2020 03:03
Endosulfan sulfate	ND		0.00010	1	12/10/2020 03:03
Endrin	ND		0.00010	1	12/10/2020 03:03
Endrin aldehyde	ND		0.00010	1	12/10/2020 03:03
Endrin ketone	ND		0.00010	1	12/10/2020 03:03
Heptachlor	ND		0.00010	1	12/10/2020 03:03
Heptachlor epoxide	ND		0.00010	1	12/10/2020 03:03
Hexachlorobenzene	ND		0.0010	1	12/10/2020 03:03
Hexachlorocyclopentadiene	ND		0.0020	1	12/10/2020 03:03
Methoxychlor	ND		0.00020	1	12/10/2020 03:03
Toxaphene	ND		0.0050	1	12/10/2020 03:03
Aroclor1016	ND		0.0050	1	12/10/2020 03:03
Aroclor1221	ND		0.0050	1	12/10/2020 03:03
Aroclor1232	ND		0.0050	1	12/10/2020 03:03
Aroclor1242	ND		0.0050	1	12/10/2020 03:03
Aroclor1248	ND		0.0050	1	12/10/2020 03:03
Aroclor1254	ND		0.0050	1	12/10/2020 03:03
Aroclor1260	ND		0.0050	1	12/10/2020 03:03
PCBs, total	ND		0.0050	1	12/10/2020 03:03

Surrogates	REC (%)	Limits	
Decachlorobiphenyl	121	20-145	12/10/2020 03:03

Analyst(s): BRV



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-1.5	2012349-001A	Soil	12/05/2020	GC16 12112032.D	210787
Analytes	Result	RL	DF	Date Analyzed	
Acetone	ND	0.20	1	12/12/2020 03:40	
tert-Amyl methyl ether (TAME)	ND	0.0050	1	12/12/2020 03:40	
Benzene	ND	0.0050	1	12/12/2020 03:40	
Bromobenzene	ND	0.0050	1	12/12/2020 03:40	
Bromochloromethane	ND	0.0050	1	12/12/2020 03:40	
Bromodichloromethane	ND	0.0050	1	12/12/2020 03:40	
Bromoform	ND	0.0050	1	12/12/2020 03:40	
Bromomethane	ND	0.0050	1	12/12/2020 03:40	
2-Butanone (MEK)	ND	0.050	1	12/12/2020 03:40	
t-Butyl alcohol (TBA)	ND	0.050	1	12/12/2020 03:40	
n-Butyl benzene	ND	0.0050	1	12/12/2020 03:40	
sec-Butyl benzene	ND	0.0050	1	12/12/2020 03:40	
tert-Butyl benzene	ND	0.0050	1	12/12/2020 03:40	
Carbon Disulfide	ND	0.0050	1	12/12/2020 03:40	
Carbon Tetrachloride	ND	0.0050	1	12/12/2020 03:40	
Chlorobenzene	ND	0.0050	1	12/12/2020 03:40	
Chloroethane	ND	0.0050	1	12/12/2020 03:40	
Chloroform	ND	0.0050	1	12/12/2020 03:40	
Chloromethane	ND	0.0050	1	12/12/2020 03:40	
2-Chlorotoluene	ND	0.0050	1	12/12/2020 03:40	
4-Chlorotoluene	ND	0.0050	1	12/12/2020 03:40	
Dibromochloromethane	ND	0.0050	1	12/12/2020 03:40	
1,2-Dibromo-3-chloropropane	ND	0.00050	1	12/12/2020 03:40	
1,2-Dibromoethane (EDB)	ND	0.00025	1	12/12/2020 03:40	
Dibromomethane	ND	0.0050	1	12/12/2020 03:40	
1,2-Dichlorobenzene	ND	0.0050	1	12/12/2020 03:40	
1,3-Dichlorobenzene	ND	0.0050	1	12/12/2020 03:40	
1,4-Dichlorobenzene	ND	0.0050	1	12/12/2020 03:40	
Dichlorodifluoromethane	ND	0.0050	1	12/12/2020 03:40	
1,1-Dichloroethane	ND	0.0050	1	12/12/2020 03:40	
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	12/12/2020 03:40	
1,1-Dichloroethene	ND	0.0050	1	12/12/2020 03:40	
cis-1,2-Dichloroethene	ND	0.0050	1	12/12/2020 03:40	
trans-1,2-Dichloroethene	ND	0.0050	1	12/12/2020 03:40	
1,2-Dichloropropane	ND	0.0050	1	12/12/2020 03:40	
1,3-Dichloropropane	ND	0.0050	1	12/12/2020 03:40	
2,2-Dichloropropane	ND	0.0050	1	12/12/2020 03:40	

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-1.5	2012349-001A	Soil	12/05/2020	GC16 12112032.D	210787

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	12/12/2020 03:40
cis-1,3-Dichloropropene	ND	0.0050	1	12/12/2020 03:40
trans-1,3-Dichloropropene	ND	0.0050	1	12/12/2020 03:40
Diisopropyl ether (DIPE)	ND	0.0050	1	12/12/2020 03:40
Ethylbenzene	ND	0.0050	1	12/12/2020 03:40
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	12/12/2020 03:40
Freon 113	ND	0.0050	1	12/12/2020 03:40
Hexachlorobutadiene	ND	0.0050	1	12/12/2020 03:40
Hexachloroethane	ND	0.0050	1	12/12/2020 03:40
2-Hexanone	ND	0.0050	1	12/12/2020 03:40
Isopropylbenzene	ND	0.0050	1	12/12/2020 03:40
4-Isopropyl toluene	ND	0.0050	1	12/12/2020 03:40
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	12/12/2020 03:40
Methylene chloride	ND	0.020	1	12/12/2020 03:40
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	12/12/2020 03:40
Naphthalene	ND	0.0050	1	12/12/2020 03:40
n-Propyl benzene	ND	0.0050	1	12/12/2020 03:40
Styrene	ND	0.0050	1	12/12/2020 03:40
1,1,1,2-Tetrachloroethane	ND	0.0050	1	12/12/2020 03:40
1,1,2,2-Tetrachloroethane	ND	0.0050	1	12/12/2020 03:40
Tetrachloroethene	ND	0.0050	1	12/12/2020 03:40
Toluene	ND	0.0050	1	12/12/2020 03:40
1,2,3-Trichlorobenzene	ND	0.0050	1	12/12/2020 03:40
1,2,4-Trichlorobenzene	ND	0.0050	1	12/12/2020 03:40
1,1,1-Trichloroethane	ND	0.0050	1	12/12/2020 03:40
1,1,2-Trichloroethane	ND	0.0050	1	12/12/2020 03:40
Trichloroethene	ND	0.0050	1	12/12/2020 03:40
Trichlorofluoromethane	ND	0.0050	1	12/12/2020 03:40
1,2,3-Trichloropropane	ND	0.00025	1	12/12/2020 03:40
1,2,4-Trimethylbenzene	ND	0.0050	1	12/12/2020 03:40
1,3,5-Trimethylbenzene	ND	0.0050	1	12/12/2020 03:40
Vinyl Chloride	ND	0.00025	1	12/12/2020 03:40
m,p-Xylene	ND	0.0050	1	12/12/2020 03:40
o-Xylene	ND	0.0050	1	12/12/2020 03:40
Xylenes, Total	ND	0.0050	1	12/12/2020 03:40

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-1.5	2012349-001A	Soil	12/05/2020	GC16 12112032.D	210787

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	98	82-136		12/12/2020 03:40
Toluene-d8	120	92-139		12/12/2020 03:40
4-BFB	101	82-135		12/12/2020 03:40
Benzene-d6	106	55-122		12/12/2020 03:40
Ethylbenzene-d10	115	58-141		12/12/2020 03:40
1,2-DCB-d4	67	51-107		12/12/2020 03:40

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-3.5	2012349-002A	Soil	12/05/2020	GC16 12112033.D	210787

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	12/12/2020 04:19
tert-Amyl methyl ether (TAME)	ND	0.0050	1	12/12/2020 04:19
Benzene	ND	0.0050	1	12/12/2020 04:19
Bromobenzene	ND	0.0050	1	12/12/2020 04:19
Bromochloromethane	ND	0.0050	1	12/12/2020 04:19
Bromodichloromethane	ND	0.0050	1	12/12/2020 04:19
Bromoform	ND	0.0050	1	12/12/2020 04:19
Bromomethane	ND	0.0050	1	12/12/2020 04:19
2-Butanone (MEK)	ND	0.050	1	12/12/2020 04:19
t-Butyl alcohol (TBA)	ND	0.050	1	12/12/2020 04:19
n-Butyl benzene	ND	0.0050	1	12/12/2020 04:19
sec-Butyl benzene	ND	0.0050	1	12/12/2020 04:19
tert-Butyl benzene	ND	0.0050	1	12/12/2020 04:19
Carbon Disulfide	ND	0.0050	1	12/12/2020 04:19
Carbon Tetrachloride	ND	0.0050	1	12/12/2020 04:19
Chlorobenzene	ND	0.0050	1	12/12/2020 04:19
Chloroethane	ND	0.0050	1	12/12/2020 04:19
Chloroform	ND	0.0050	1	12/12/2020 04:19
Chloromethane	ND	0.0050	1	12/12/2020 04:19
2-Chlorotoluene	ND	0.0050	1	12/12/2020 04:19
4-Chlorotoluene	ND	0.0050	1	12/12/2020 04:19
Dibromochloromethane	ND	0.0050	1	12/12/2020 04:19
1,2-Dibromo-3-chloropropane	ND	0.00050	1	12/12/2020 04:19
1,2-Dibromoethane (EDB)	ND	0.00025	1	12/12/2020 04:19
Dibromomethane	ND	0.0050	1	12/12/2020 04:19
1,2-Dichlorobenzene	ND	0.0050	1	12/12/2020 04:19
1,3-Dichlorobenzene	ND	0.0050	1	12/12/2020 04:19
1,4-Dichlorobenzene	ND	0.0050	1	12/12/2020 04:19
Dichlorodifluoromethane	ND	0.0050	1	12/12/2020 04:19
1,1-Dichloroethane	ND	0.0050	1	12/12/2020 04:19
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	12/12/2020 04:19
1,1-Dichloroethene	ND	0.0050	1	12/12/2020 04:19
cis-1,2-Dichloroethene	ND	0.0050	1	12/12/2020 04:19
trans-1,2-Dichloroethene	ND	0.0050	1	12/12/2020 04:19
1,2-Dichloropropane	ND	0.0050	1	12/12/2020 04:19
1,3-Dichloropropane	ND	0.0050	1	12/12/2020 04:19
2,2-Dichloropropane	ND	0.0050	1	12/12/2020 04:19

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-3.5	2012349-002A	Soil	12/05/2020	GC16 12112033.D	210787

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	12/12/2020 04:19
cis-1,3-Dichloropropene	ND	0.0050	1	12/12/2020 04:19
trans-1,3-Dichloropropene	ND	0.0050	1	12/12/2020 04:19
Diisopropyl ether (DIPE)	ND	0.0050	1	12/12/2020 04:19
Ethylbenzene	ND	0.0050	1	12/12/2020 04:19
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	12/12/2020 04:19
Freon 113	ND	0.0050	1	12/12/2020 04:19
Hexachlorobutadiene	ND	0.0050	1	12/12/2020 04:19
Hexachloroethane	ND	0.0050	1	12/12/2020 04:19
2-Hexanone	ND	0.0050	1	12/12/2020 04:19
Isopropylbenzene	ND	0.0050	1	12/12/2020 04:19
4-Isopropyl toluene	ND	0.0050	1	12/12/2020 04:19
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	12/12/2020 04:19
Methylene chloride	ND	0.020	1	12/12/2020 04:19
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	12/12/2020 04:19
Naphthalene	ND	0.0050	1	12/12/2020 04:19
n-Propyl benzene	ND	0.0050	1	12/12/2020 04:19
Styrene	ND	0.0050	1	12/12/2020 04:19
1,1,1,2-Tetrachloroethane	ND	0.0050	1	12/12/2020 04:19
1,1,2,2-Tetrachloroethane	ND	0.0050	1	12/12/2020 04:19
Tetrachloroethene	ND	0.0050	1	12/12/2020 04:19
Toluene	ND	0.0050	1	12/12/2020 04:19
1,2,3-Trichlorobenzene	ND	0.0050	1	12/12/2020 04:19
1,2,4-Trichlorobenzene	ND	0.0050	1	12/12/2020 04:19
1,1,1-Trichloroethane	ND	0.0050	1	12/12/2020 04:19
1,1,2-Trichloroethane	ND	0.0050	1	12/12/2020 04:19
Trichloroethene	ND	0.0050	1	12/12/2020 04:19
Trichlorofluoromethane	ND	0.0050	1	12/12/2020 04:19
1,2,3-Trichloropropane	ND	0.00025	1	12/12/2020 04:19
1,2,4-Trimethylbenzene	ND	0.0050	1	12/12/2020 04:19
1,3,5-Trimethylbenzene	ND	0.0050	1	12/12/2020 04:19
Vinyl Chloride	ND	0.00025	1	12/12/2020 04:19
m,p-Xylene	ND	0.0050	1	12/12/2020 04:19
o-Xylene	ND	0.0050	1	12/12/2020 04:19
Xylenes, Total	ND	0.0050	1	12/12/2020 04:19

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-3.5	2012349-002A	Soil	12/05/2020	GC16 12112033.D	210787

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	97	82-136		12/12/2020 04:19
Toluene-d8	119	92-139		12/12/2020 04:19
4-BFB	97	82-135		12/12/2020 04:19
Benzene-d6	91	55-122		12/12/2020 04:19
Ethylbenzene-d10	94	58-141		12/12/2020 04:19
1,2-DCB-d4	58	51-107		12/12/2020 04:19

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected		Instrument	Batch ID
B-2-1.5	2012349-003A	Soil	12/05/2020		GC16 12112034.D	210787
Analytes	Result	RL	DF	Date Analyzed		
Acetone	ND	0.20	1	12/12/2020 04:58		
tert-Amyl methyl ether (TAME)	ND	0.0050	1	12/12/2020 04:58		
Benzene	ND	0.0050	1	12/12/2020 04:58		
Bromobenzene	ND	0.0050	1	12/12/2020 04:58		
Bromochloromethane	ND	0.0050	1	12/12/2020 04:58		
Bromodichloromethane	ND	0.0050	1	12/12/2020 04:58		
Bromoform	ND	0.0050	1	12/12/2020 04:58		
Bromomethane	ND	0.0050	1	12/12/2020 04:58		
2-Butanone (MEK)	ND	0.050	1	12/12/2020 04:58		
t-Butyl alcohol (TBA)	ND	0.050	1	12/12/2020 04:58		
n-Butyl benzene	ND	0.0050	1	12/12/2020 04:58		
sec-Butyl benzene	ND	0.0050	1	12/12/2020 04:58		
tert-Butyl benzene	ND	0.0050	1	12/12/2020 04:58		
Carbon Disulfide	ND	0.0050	1	12/12/2020 04:58		
Carbon Tetrachloride	ND	0.0050	1	12/12/2020 04:58		
Chlorobenzene	ND	0.0050	1	12/12/2020 04:58		
Chloroethane	ND	0.0050	1	12/12/2020 04:58		
Chloroform	ND	0.0050	1	12/12/2020 04:58		
Chloromethane	ND	0.0050	1	12/12/2020 04:58		
2-Chlorotoluene	ND	0.0050	1	12/12/2020 04:58		
4-Chlorotoluene	ND	0.0050	1	12/12/2020 04:58		
Dibromochloromethane	ND	0.0050	1	12/12/2020 04:58		
1,2-Dibromo-3-chloropropane	ND	0.00050	1	12/12/2020 04:58		
1,2-Dibromoethane (EDB)	ND	0.00025	1	12/12/2020 04:58		
Dibromomethane	ND	0.0050	1	12/12/2020 04:58		
1,2-Dichlorobenzene	ND	0.0050	1	12/12/2020 04:58		
1,3-Dichlorobenzene	ND	0.0050	1	12/12/2020 04:58		
1,4-Dichlorobenzene	ND	0.0050	1	12/12/2020 04:58		
Dichlorodifluoromethane	ND	0.0050	1	12/12/2020 04:58		
1,1-Dichloroethane	ND	0.0050	1	12/12/2020 04:58		
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	12/12/2020 04:58		
1,1-Dichloroethene	ND	0.0050	1	12/12/2020 04:58		
cis-1,2-Dichloroethene	ND	0.0050	1	12/12/2020 04:58		
trans-1,2-Dichloroethene	ND	0.0050	1	12/12/2020 04:58		
1,2-Dichloropropane	ND	0.0050	1	12/12/2020 04:58		
1,3-Dichloropropane	ND	0.0050	1	12/12/2020 04:58		
2,2-Dichloropropane	ND	0.0050	1	12/12/2020 04:58		

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-1.5	2012349-003A	Soil	12/05/2020	GC16 12112034.D	210787

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	12/12/2020 04:58
cis-1,3-Dichloropropene	ND	0.0050	1	12/12/2020 04:58
trans-1,3-Dichloropropene	ND	0.0050	1	12/12/2020 04:58
Diisopropyl ether (DIPE)	ND	0.0050	1	12/12/2020 04:58
Ethylbenzene	ND	0.0050	1	12/12/2020 04:58
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	12/12/2020 04:58
Freon 113	ND	0.0050	1	12/12/2020 04:58
Hexachlorobutadiene	ND	0.0050	1	12/12/2020 04:58
Hexachloroethane	ND	0.0050	1	12/12/2020 04:58
2-Hexanone	ND	0.0050	1	12/12/2020 04:58
Isopropylbenzene	ND	0.0050	1	12/12/2020 04:58
4-Isopropyl toluene	ND	0.0050	1	12/12/2020 04:58
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	12/12/2020 04:58
Methylene chloride	ND	0.020	1	12/12/2020 04:58
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	12/12/2020 04:58
Naphthalene	ND	0.0050	1	12/12/2020 04:58
n-Propyl benzene	ND	0.0050	1	12/12/2020 04:58
Styrene	ND	0.0050	1	12/12/2020 04:58
1,1,1,2-Tetrachloroethane	ND	0.0050	1	12/12/2020 04:58
1,1,2,2-Tetrachloroethane	ND	0.0050	1	12/12/2020 04:58
Tetrachloroethene	ND	0.0050	1	12/12/2020 04:58
Toluene	ND	0.0050	1	12/12/2020 04:58
1,2,3-Trichlorobenzene	ND	0.0050	1	12/12/2020 04:58
1,2,4-Trichlorobenzene	ND	0.0050	1	12/12/2020 04:58
1,1,1-Trichloroethane	ND	0.0050	1	12/12/2020 04:58
1,1,2-Trichloroethane	ND	0.0050	1	12/12/2020 04:58
Trichloroethene	ND	0.0050	1	12/12/2020 04:58
Trichlorofluoromethane	ND	0.0050	1	12/12/2020 04:58
1,2,3-Trichloropropane	ND	0.00025	1	12/12/2020 04:58
1,2,4-Trimethylbenzene	ND	0.0050	1	12/12/2020 04:58
1,3,5-Trimethylbenzene	ND	0.0050	1	12/12/2020 04:58
Vinyl Chloride	ND	0.00025	1	12/12/2020 04:58
m,p-Xylene	ND	0.0050	1	12/12/2020 04:58
o-Xylene	ND	0.0050	1	12/12/2020 04:58
Xylenes, Total	ND	0.0050	1	12/12/2020 04:58

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-1.5	2012349-003A	Soil	12/05/2020	GC16 12112034.D	210787

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	97	82-136		12/12/2020 04:58
Toluene-d8	120	92-139		12/12/2020 04:58
4-BFB	98	82-135		12/12/2020 04:58
Benzene-d6	105	55-122		12/12/2020 04:58
Ethylbenzene-d10	114	58-141		12/12/2020 04:58
1,2-DCB-d4	66	51-107		12/12/2020 04:58

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-3.5	2012349-004A	Soil	12/05/2020	GC38 12112028.D	210787

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	12/12/2020 01:08
tert-Amyl methyl ether (TAME)	ND	0.0050	1	12/12/2020 01:08
Benzene	ND	0.0050	1	12/12/2020 01:08
Bromobenzene	ND	0.0050	1	12/12/2020 01:08
Bromochloromethane	ND	0.0050	1	12/12/2020 01:08
Bromodichloromethane	ND	0.0050	1	12/12/2020 01:08
Bromoform	ND	0.0050	1	12/12/2020 01:08
Bromomethane	ND	0.0050	1	12/12/2020 01:08
2-Butanone (MEK)	ND	0.050	1	12/12/2020 01:08
t-Butyl alcohol (TBA)	ND	0.050	1	12/12/2020 01:08
n-Butyl benzene	ND	0.0050	1	12/12/2020 01:08
sec-Butyl benzene	ND	0.0050	1	12/12/2020 01:08
tert-Butyl benzene	ND	0.0050	1	12/12/2020 01:08
Carbon Disulfide	ND	0.0050	1	12/12/2020 01:08
Carbon Tetrachloride	ND	0.0050	1	12/12/2020 01:08
Chlorobenzene	ND	0.0050	1	12/12/2020 01:08
Chloroethane	ND	0.0050	1	12/12/2020 01:08
Chloroform	ND	0.0050	1	12/12/2020 01:08
Chloromethane	ND	0.0050	1	12/12/2020 01:08
2-Chlorotoluene	ND	0.0050	1	12/12/2020 01:08
4-Chlorotoluene	ND	0.0050	1	12/12/2020 01:08
Dibromochloromethane	ND	0.0050	1	12/12/2020 01:08
1,2-Dibromo-3-chloropropane	ND	0.00050	1	12/12/2020 01:08
1,2-Dibromoethane (EDB)	ND	0.00025	1	12/12/2020 01:08
Dibromomethane	ND	0.0050	1	12/12/2020 01:08
1,2-Dichlorobenzene	ND	0.0050	1	12/12/2020 01:08
1,3-Dichlorobenzene	ND	0.0050	1	12/12/2020 01:08
1,4-Dichlorobenzene	ND	0.0050	1	12/12/2020 01:08
Dichlorodifluoromethane	ND	0.0050	1	12/12/2020 01:08
1,1-Dichloroethane	ND	0.0050	1	12/12/2020 01:08
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	12/12/2020 01:08
1,1-Dichloroethene	ND	0.0050	1	12/12/2020 01:08
cis-1,2-Dichloroethene	ND	0.0050	1	12/12/2020 01:08
trans-1,2-Dichloroethene	ND	0.0050	1	12/12/2020 01:08
1,2-Dichloropropane	ND	0.0050	1	12/12/2020 01:08
1,3-Dichloropropane	ND	0.0050	1	12/12/2020 01:08
2,2-Dichloropropane	ND	0.0050	1	12/12/2020 01:08

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-3.5	2012349-004A	Soil	12/05/2020	GC38 12112028.D	210787

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	12/12/2020 01:08
cis-1,3-Dichloropropene	ND	0.0050	1	12/12/2020 01:08
trans-1,3-Dichloropropene	ND	0.0050	1	12/12/2020 01:08
Diisopropyl ether (DIPE)	ND	0.0050	1	12/12/2020 01:08
Ethylbenzene	ND	0.0050	1	12/12/2020 01:08
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	12/12/2020 01:08
Freon 113	ND	0.0050	1	12/12/2020 01:08
Hexachlorobutadiene	ND	0.0050	1	12/12/2020 01:08
Hexachloroethane	ND	0.0050	1	12/12/2020 01:08
2-Hexanone	ND	0.0050	1	12/12/2020 01:08
Isopropylbenzene	ND	0.0050	1	12/12/2020 01:08
4-Isopropyl toluene	ND	0.0050	1	12/12/2020 01:08
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	12/12/2020 01:08
Methylene chloride	ND	0.020	1	12/12/2020 01:08
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	12/12/2020 01:08
Naphthalene	ND	0.0050	1	12/12/2020 01:08
n-Propyl benzene	ND	0.0050	1	12/12/2020 01:08
Styrene	ND	0.0050	1	12/12/2020 01:08
1,1,1,2-Tetrachloroethane	ND	0.0050	1	12/12/2020 01:08
1,1,2,2-Tetrachloroethane	ND	0.0050	1	12/12/2020 01:08
Tetrachloroethene	ND	0.0050	1	12/12/2020 01:08
Toluene	ND	0.0050	1	12/12/2020 01:08
1,2,3-Trichlorobenzene	ND	0.0050	1	12/12/2020 01:08
1,2,4-Trichlorobenzene	ND	0.0050	1	12/12/2020 01:08
1,1,1-Trichloroethane	ND	0.0050	1	12/12/2020 01:08
1,1,2-Trichloroethane	ND	0.0050	1	12/12/2020 01:08
Trichloroethene	ND	0.0050	1	12/12/2020 01:08
Trichlorofluoromethane	ND	0.0050	1	12/12/2020 01:08
1,2,3-Trichloropropane	ND	0.00025	1	12/12/2020 01:08
1,2,4-Trimethylbenzene	ND	0.0050	1	12/12/2020 01:08
1,3,5-Trimethylbenzene	ND	0.0050	1	12/12/2020 01:08
Vinyl Chloride	ND	0.00025	1	12/12/2020 01:08
m,p-Xylene	ND	0.0050	1	12/12/2020 01:08
o-Xylene	ND	0.0050	1	12/12/2020 01:08
Xylenes, Total	ND	0.0050	1	12/12/2020 01:08

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-3.5	2012349-004A	Soil	12/05/2020	GC38 12112028.D	210787

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	102	82-136		12/12/2020 01:08
Toluene-d8	128	92-139		12/12/2020 01:08
4-BFB	113	82-135		12/12/2020 01:08
Benzene-d6	102	55-122		12/12/2020 01:08
Ethylbenzene-d10	107	58-141		12/12/2020 01:08
1,2-DCB-d4	67	51-107		12/12/2020 01:08

Analyst(s): HK



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-1.5	2012349-007A	Soil	12/05/2020	GC38 12112029.D	210787

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	12/12/2020 01:46
tert-Amyl methyl ether (TAME)	ND	0.0050	1	12/12/2020 01:46
Benzene	ND	0.0050	1	12/12/2020 01:46
Bromobenzene	ND	0.0050	1	12/12/2020 01:46
Bromochloromethane	ND	0.0050	1	12/12/2020 01:46
Bromodichloromethane	ND	0.0050	1	12/12/2020 01:46
Bromoform	ND	0.0050	1	12/12/2020 01:46
Bromomethane	ND	0.0050	1	12/12/2020 01:46
2-Butanone (MEK)	ND	0.050	1	12/12/2020 01:46
t-Butyl alcohol (TBA)	ND	0.050	1	12/12/2020 01:46
n-Butyl benzene	ND	0.0050	1	12/12/2020 01:46
sec-Butyl benzene	ND	0.0050	1	12/12/2020 01:46
tert-Butyl benzene	ND	0.0050	1	12/12/2020 01:46
Carbon Disulfide	ND	0.0050	1	12/12/2020 01:46
Carbon Tetrachloride	ND	0.0050	1	12/12/2020 01:46
Chlorobenzene	ND	0.0050	1	12/12/2020 01:46
Chloroethane	ND	0.0050	1	12/12/2020 01:46
Chloroform	ND	0.0050	1	12/12/2020 01:46
Chloromethane	ND	0.0050	1	12/12/2020 01:46
2-Chlorotoluene	ND	0.0050	1	12/12/2020 01:46
4-Chlorotoluene	ND	0.0050	1	12/12/2020 01:46
Dibromochloromethane	ND	0.0050	1	12/12/2020 01:46
1,2-Dibromo-3-chloropropane	ND	0.00050	1	12/12/2020 01:46
1,2-Dibromoethane (EDB)	ND	0.00025	1	12/12/2020 01:46
Dibromomethane	ND	0.0050	1	12/12/2020 01:46
1,2-Dichlorobenzene	ND	0.0050	1	12/12/2020 01:46
1,3-Dichlorobenzene	ND	0.0050	1	12/12/2020 01:46
1,4-Dichlorobenzene	ND	0.0050	1	12/12/2020 01:46
Dichlorodifluoromethane	ND	0.0050	1	12/12/2020 01:46
1,1-Dichloroethane	ND	0.0050	1	12/12/2020 01:46
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	12/12/2020 01:46
1,1-Dichloroethene	ND	0.0050	1	12/12/2020 01:46
cis-1,2-Dichloroethene	ND	0.0050	1	12/12/2020 01:46
trans-1,2-Dichloroethene	ND	0.0050	1	12/12/2020 01:46
1,2-Dichloropropane	ND	0.0050	1	12/12/2020 01:46
1,3-Dichloropropane	ND	0.0050	1	12/12/2020 01:46
2,2-Dichloropropane	ND	0.0050	1	12/12/2020 01:46

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-1.5	2012349-007A	Soil	12/05/2020	GC38 12112029.D	210787

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	12/12/2020 01:46
cis-1,3-Dichloropropene	ND	0.0050	1	12/12/2020 01:46
trans-1,3-Dichloropropene	ND	0.0050	1	12/12/2020 01:46
Diisopropyl ether (DIPE)	ND	0.0050	1	12/12/2020 01:46
Ethylbenzene	ND	0.0050	1	12/12/2020 01:46
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	12/12/2020 01:46
Freon 113	ND	0.0050	1	12/12/2020 01:46
Hexachlorobutadiene	ND	0.0050	1	12/12/2020 01:46
Hexachloroethane	ND	0.0050	1	12/12/2020 01:46
2-Hexanone	ND	0.0050	1	12/12/2020 01:46
Isopropylbenzene	ND	0.0050	1	12/12/2020 01:46
4-Isopropyl toluene	ND	0.0050	1	12/12/2020 01:46
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	12/12/2020 01:46
Methylene chloride	ND	0.020	1	12/12/2020 01:46
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	12/12/2020 01:46
Naphthalene	ND	0.0050	1	12/12/2020 01:46
n-Propyl benzene	ND	0.0050	1	12/12/2020 01:46
Styrene	ND	0.0050	1	12/12/2020 01:46
1,1,1,2-Tetrachloroethane	ND	0.0050	1	12/12/2020 01:46
1,1,2,2-Tetrachloroethane	ND	0.0050	1	12/12/2020 01:46
Tetrachloroethene	ND	0.0050	1	12/12/2020 01:46
Toluene	ND	0.0050	1	12/12/2020 01:46
1,2,3-Trichlorobenzene	ND	0.0050	1	12/12/2020 01:46
1,2,4-Trichlorobenzene	ND	0.0050	1	12/12/2020 01:46
1,1,1-Trichloroethane	ND	0.0050	1	12/12/2020 01:46
1,1,2-Trichloroethane	ND	0.0050	1	12/12/2020 01:46
Trichloroethene	ND	0.0050	1	12/12/2020 01:46
Trichlorofluoromethane	ND	0.0050	1	12/12/2020 01:46
1,2,3-Trichloropropane	ND	0.00025	1	12/12/2020 01:46
1,2,4-Trimethylbenzene	ND	0.0050	1	12/12/2020 01:46
1,3,5-Trimethylbenzene	ND	0.0050	1	12/12/2020 01:46
Vinyl Chloride	ND	0.00025	1	12/12/2020 01:46
m,p-Xylene	ND	0.0050	1	12/12/2020 01:46
o-Xylene	ND	0.0050	1	12/12/2020 01:46
Xylenes, Total	ND	0.0050	1	12/12/2020 01:46

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-1.5	2012349-007A	Soil	12/05/2020	GC38 12112029.D	210787

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	94	82-136		12/12/2020 01:46
Toluene-d8	128	92-139		12/12/2020 01:46
4-BFB	108	82-135		12/12/2020 01:46
Benzene-d6	104	55-122		12/12/2020 01:46
Ethylbenzene-d10	120	58-141		12/12/2020 01:46
1,2-DCB-d4	74	51-107		12/12/2020 01:46

Analyst(s): HK



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-3.5	2012349-008A	Soil	12/05/2020	GC38 12112030.D	210787

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	12/12/2020 02:23
tert-Amyl methyl ether (TAME)	ND	0.0050	1	12/12/2020 02:23
Benzene	ND	0.0050	1	12/12/2020 02:23
Bromobenzene	ND	0.0050	1	12/12/2020 02:23
Bromochloromethane	ND	0.0050	1	12/12/2020 02:23
Bromodichloromethane	ND	0.0050	1	12/12/2020 02:23
Bromoform	ND	0.0050	1	12/12/2020 02:23
Bromomethane	ND	0.0050	1	12/12/2020 02:23
2-Butanone (MEK)	ND	0.050	1	12/12/2020 02:23
t-Butyl alcohol (TBA)	ND	0.050	1	12/12/2020 02:23
n-Butyl benzene	ND	0.0050	1	12/12/2020 02:23
sec-Butyl benzene	ND	0.0050	1	12/12/2020 02:23
tert-Butyl benzene	ND	0.0050	1	12/12/2020 02:23
Carbon Disulfide	ND	0.0050	1	12/12/2020 02:23
Carbon Tetrachloride	ND	0.0050	1	12/12/2020 02:23
Chlorobenzene	ND	0.0050	1	12/12/2020 02:23
Chloroethane	ND	0.0050	1	12/12/2020 02:23
Chloroform	ND	0.0050	1	12/12/2020 02:23
Chloromethane	ND	0.0050	1	12/12/2020 02:23
2-Chlorotoluene	ND	0.0050	1	12/12/2020 02:23
4-Chlorotoluene	ND	0.0050	1	12/12/2020 02:23
Dibromochloromethane	ND	0.0050	1	12/12/2020 02:23
1,2-Dibromo-3-chloropropane	ND	0.00050	1	12/12/2020 02:23
1,2-Dibromoethane (EDB)	ND	0.00025	1	12/12/2020 02:23
Dibromomethane	ND	0.0050	1	12/12/2020 02:23
1,2-Dichlorobenzene	ND	0.0050	1	12/12/2020 02:23
1,3-Dichlorobenzene	ND	0.0050	1	12/12/2020 02:23
1,4-Dichlorobenzene	ND	0.0050	1	12/12/2020 02:23
Dichlorodifluoromethane	ND	0.0050	1	12/12/2020 02:23
1,1-Dichloroethane	ND	0.0050	1	12/12/2020 02:23
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	12/12/2020 02:23
1,1-Dichloroethene	ND	0.0050	1	12/12/2020 02:23
cis-1,2-Dichloroethene	ND	0.0050	1	12/12/2020 02:23
trans-1,2-Dichloroethene	ND	0.0050	1	12/12/2020 02:23
1,2-Dichloropropane	ND	0.0050	1	12/12/2020 02:23
1,3-Dichloropropane	ND	0.0050	1	12/12/2020 02:23
2,2-Dichloropropane	ND	0.0050	1	12/12/2020 02:23

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-3.5	2012349-008A	Soil	12/05/2020	GC38 12112030.D	210787

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	12/12/2020 02:23
cis-1,3-Dichloropropene	ND	0.0050	1	12/12/2020 02:23
trans-1,3-Dichloropropene	ND	0.0050	1	12/12/2020 02:23
Diisopropyl ether (DIPE)	ND	0.0050	1	12/12/2020 02:23
Ethylbenzene	ND	0.0050	1	12/12/2020 02:23
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	12/12/2020 02:23
Freon 113	ND	0.0050	1	12/12/2020 02:23
Hexachlorobutadiene	ND	0.0050	1	12/12/2020 02:23
Hexachloroethane	ND	0.0050	1	12/12/2020 02:23
2-Hexanone	ND	0.0050	1	12/12/2020 02:23
Isopropylbenzene	ND	0.0050	1	12/12/2020 02:23
4-Isopropyl toluene	ND	0.0050	1	12/12/2020 02:23
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	12/12/2020 02:23
Methylene chloride	ND	0.020	1	12/12/2020 02:23
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	12/12/2020 02:23
Naphthalene	ND	0.0050	1	12/12/2020 02:23
n-Propyl benzene	ND	0.0050	1	12/12/2020 02:23
Styrene	ND	0.0050	1	12/12/2020 02:23
1,1,1,2-Tetrachloroethane	ND	0.0050	1	12/12/2020 02:23
1,1,2,2-Tetrachloroethane	ND	0.0050	1	12/12/2020 02:23
Tetrachloroethene	ND	0.0050	1	12/12/2020 02:23
Toluene	ND	0.0050	1	12/12/2020 02:23
1,2,3-Trichlorobenzene	ND	0.0050	1	12/12/2020 02:23
1,2,4-Trichlorobenzene	ND	0.0050	1	12/12/2020 02:23
1,1,1-Trichloroethane	ND	0.0050	1	12/12/2020 02:23
1,1,2-Trichloroethane	ND	0.0050	1	12/12/2020 02:23
Trichloroethene	ND	0.0050	1	12/12/2020 02:23
Trichlorofluoromethane	ND	0.0050	1	12/12/2020 02:23
1,2,3-Trichloropropane	ND	0.00025	1	12/12/2020 02:23
1,2,4-Trimethylbenzene	ND	0.0050	1	12/12/2020 02:23
1,3,5-Trimethylbenzene	ND	0.0050	1	12/12/2020 02:23
Vinyl Chloride	ND	0.00025	1	12/12/2020 02:23
m,p-Xylene	ND	0.0050	1	12/12/2020 02:23
o-Xylene	ND	0.0050	1	12/12/2020 02:23
Xylenes, Total	ND	0.0050	1	12/12/2020 02:23

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-3.5	2012349-008A	Soil	12/05/2020	GC38 12112030.D	210787

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	94	82-136		12/12/2020 02:23
Toluene-d8	128	92-139		12/12/2020 02:23
4-BFB	114	82-135		12/12/2020 02:23
Benzene-d6	105	55-122		12/12/2020 02:23
Ethylbenzene-d10	121	58-141		12/12/2020 02:23
1,2-DCB-d4	74	51-107		12/12/2020 02:23

Analyst(s): HK



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-1.5	2012349-010A	Soil	12/05/2020	GC38 12112031.D	210787

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	12/12/2020 03:00
tert-Amyl methyl ether (TAME)	ND	0.0050	1	12/12/2020 03:00
Benzene	ND	0.0050	1	12/12/2020 03:00
Bromobenzene	ND	0.0050	1	12/12/2020 03:00
Bromochloromethane	ND	0.0050	1	12/12/2020 03:00
Bromodichloromethane	ND	0.0050	1	12/12/2020 03:00
Bromoform	ND	0.0050	1	12/12/2020 03:00
Bromomethane	ND	0.0050	1	12/12/2020 03:00
2-Butanone (MEK)	ND	0.050	1	12/12/2020 03:00
t-Butyl alcohol (TBA)	ND	0.050	1	12/12/2020 03:00
n-Butyl benzene	ND	0.0050	1	12/12/2020 03:00
sec-Butyl benzene	ND	0.0050	1	12/12/2020 03:00
tert-Butyl benzene	ND	0.0050	1	12/12/2020 03:00
Carbon Disulfide	ND	0.0050	1	12/12/2020 03:00
Carbon Tetrachloride	ND	0.0050	1	12/12/2020 03:00
Chlorobenzene	ND	0.0050	1	12/12/2020 03:00
Chloroethane	ND	0.0050	1	12/12/2020 03:00
Chloroform	ND	0.0050	1	12/12/2020 03:00
Chloromethane	ND	0.0050	1	12/12/2020 03:00
2-Chlorotoluene	ND	0.0050	1	12/12/2020 03:00
4-Chlorotoluene	ND	0.0050	1	12/12/2020 03:00
Dibromochloromethane	ND	0.0050	1	12/12/2020 03:00
1,2-Dibromo-3-chloropropane	ND	0.00050	1	12/12/2020 03:00
1,2-Dibromoethane (EDB)	ND	0.00025	1	12/12/2020 03:00
Dibromomethane	ND	0.0050	1	12/12/2020 03:00
1,2-Dichlorobenzene	ND	0.0050	1	12/12/2020 03:00
1,3-Dichlorobenzene	ND	0.0050	1	12/12/2020 03:00
1,4-Dichlorobenzene	ND	0.0050	1	12/12/2020 03:00
Dichlorodifluoromethane	ND	0.0050	1	12/12/2020 03:00
1,1-Dichloroethane	ND	0.0050	1	12/12/2020 03:00
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	12/12/2020 03:00
1,1-Dichloroethene	ND	0.0050	1	12/12/2020 03:00
cis-1,2-Dichloroethene	ND	0.0050	1	12/12/2020 03:00
trans-1,2-Dichloroethene	ND	0.0050	1	12/12/2020 03:00
1,2-Dichloropropane	ND	0.0050	1	12/12/2020 03:00
1,3-Dichloropropane	ND	0.0050	1	12/12/2020 03:00
2,2-Dichloropropane	ND	0.0050	1	12/12/2020 03:00

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-1.5	2012349-010A	Soil	12/05/2020	GC38 12112031.D	210787

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	12/12/2020 03:00
cis-1,3-Dichloropropene	ND	0.0050	1	12/12/2020 03:00
trans-1,3-Dichloropropene	ND	0.0050	1	12/12/2020 03:00
Diisopropyl ether (DIPE)	ND	0.0050	1	12/12/2020 03:00
Ethylbenzene	ND	0.0050	1	12/12/2020 03:00
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	12/12/2020 03:00
Freon 113	ND	0.0050	1	12/12/2020 03:00
Hexachlorobutadiene	ND	0.0050	1	12/12/2020 03:00
Hexachloroethane	ND	0.0050	1	12/12/2020 03:00
2-Hexanone	ND	0.0050	1	12/12/2020 03:00
Isopropylbenzene	ND	0.0050	1	12/12/2020 03:00
4-Isopropyl toluene	ND	0.0050	1	12/12/2020 03:00
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	12/12/2020 03:00
Methylene chloride	ND	0.020	1	12/12/2020 03:00
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	12/12/2020 03:00
Naphthalene	ND	0.0050	1	12/12/2020 03:00
n-Propyl benzene	ND	0.0050	1	12/12/2020 03:00
Styrene	ND	0.0050	1	12/12/2020 03:00
1,1,1,2-Tetrachloroethane	ND	0.0050	1	12/12/2020 03:00
1,1,2,2-Tetrachloroethane	ND	0.0050	1	12/12/2020 03:00
Tetrachloroethene	ND	0.0050	1	12/12/2020 03:00
Toluene	ND	0.0050	1	12/12/2020 03:00
1,2,3-Trichlorobenzene	ND	0.0050	1	12/12/2020 03:00
1,2,4-Trichlorobenzene	ND	0.0050	1	12/12/2020 03:00
1,1,1-Trichloroethane	ND	0.0050	1	12/12/2020 03:00
1,1,2-Trichloroethane	ND	0.0050	1	12/12/2020 03:00
Trichloroethene	ND	0.0050	1	12/12/2020 03:00
Trichlorofluoromethane	ND	0.0050	1	12/12/2020 03:00
1,2,3-Trichloropropane	ND	0.00025	1	12/12/2020 03:00
1,2,4-Trimethylbenzene	ND	0.0050	1	12/12/2020 03:00
1,3,5-Trimethylbenzene	ND	0.0050	1	12/12/2020 03:00
Vinyl Chloride	ND	0.00025	1	12/12/2020 03:00
m,p-Xylene	ND	0.0050	1	12/12/2020 03:00
o-Xylene	ND	0.0050	1	12/12/2020 03:00
Xylenes, Total	ND	0.0050	1	12/12/2020 03:00

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-1.5	2012349-010A	Soil	12/05/2020	GC38 12112031.D	210787

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	101	82-136		12/12/2020 03:00
Toluene-d8	128	92-139		12/12/2020 03:00
4-BFB	114	82-135		12/12/2020 03:00
Benzene-d6	108	55-122		12/12/2020 03:00
Ethylbenzene-d10	117	58-141		12/12/2020 03:00
1,2-DCB-d4	71	51-107		12/12/2020 03:00

Analyst(s): HK



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-3.5	2012349-011A	Soil	12/05/2020	GC16 12112031.D	210787

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.20	1	12/12/2020 03:00
tert-Amyl methyl ether (TAME)	ND	0.0050	1	12/12/2020 03:00
Benzene	ND	0.0050	1	12/12/2020 03:00
Bromobenzene	ND	0.0050	1	12/12/2020 03:00
Bromochloromethane	ND	0.0050	1	12/12/2020 03:00
Bromodichloromethane	ND	0.0050	1	12/12/2020 03:00
Bromoform	ND	0.0050	1	12/12/2020 03:00
Bromomethane	ND	0.0050	1	12/12/2020 03:00
2-Butanone (MEK)	ND	0.050	1	12/12/2020 03:00
t-Butyl alcohol (TBA)	ND	0.050	1	12/12/2020 03:00
n-Butyl benzene	ND	0.0050	1	12/12/2020 03:00
sec-Butyl benzene	ND	0.0050	1	12/12/2020 03:00
tert-Butyl benzene	ND	0.0050	1	12/12/2020 03:00
Carbon Disulfide	ND	0.0050	1	12/12/2020 03:00
Carbon Tetrachloride	ND	0.0050	1	12/12/2020 03:00
Chlorobenzene	ND	0.0050	1	12/12/2020 03:00
Chloroethane	ND	0.0050	1	12/12/2020 03:00
Chloroform	ND	0.0050	1	12/12/2020 03:00
Chloromethane	ND	0.0050	1	12/12/2020 03:00
2-Chlorotoluene	ND	0.0050	1	12/12/2020 03:00
4-Chlorotoluene	ND	0.0050	1	12/12/2020 03:00
Dibromochloromethane	ND	0.0050	1	12/12/2020 03:00
1,2-Dibromo-3-chloropropane	ND	0.00050	1	12/12/2020 03:00
1,2-Dibromoethane (EDB)	ND	0.00025	1	12/12/2020 03:00
Dibromomethane	ND	0.0050	1	12/12/2020 03:00
1,2-Dichlorobenzene	ND	0.0050	1	12/12/2020 03:00
1,3-Dichlorobenzene	ND	0.0050	1	12/12/2020 03:00
1,4-Dichlorobenzene	ND	0.0050	1	12/12/2020 03:00
Dichlorodifluoromethane	ND	0.0050	1	12/12/2020 03:00
1,1-Dichloroethane	ND	0.0050	1	12/12/2020 03:00
1,2-Dichloroethane (1,2-DCA)	ND	0.00010	1	12/12/2020 03:00
1,1-Dichloroethene	ND	0.0050	1	12/12/2020 03:00
cis-1,2-Dichloroethene	ND	0.0050	1	12/12/2020 03:00
trans-1,2-Dichloroethene	ND	0.0050	1	12/12/2020 03:00
1,2-Dichloropropane	ND	0.0050	1	12/12/2020 03:00
1,3-Dichloropropane	ND	0.0050	1	12/12/2020 03:00
2,2-Dichloropropane	ND	0.0050	1	12/12/2020 03:00

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-3.5	2012349-011A	Soil	12/05/2020	GC16 12112031.D	210787

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	12/12/2020 03:00
cis-1,3-Dichloropropene	ND	0.0050	1	12/12/2020 03:00
trans-1,3-Dichloropropene	ND	0.0050	1	12/12/2020 03:00
Diisopropyl ether (DIPE)	ND	0.0050	1	12/12/2020 03:00
Ethylbenzene	ND	0.0050	1	12/12/2020 03:00
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	12/12/2020 03:00
Freon 113	ND	0.0050	1	12/12/2020 03:00
Hexachlorobutadiene	ND	0.0050	1	12/12/2020 03:00
Hexachloroethane	ND	0.0050	1	12/12/2020 03:00
2-Hexanone	ND	0.0050	1	12/12/2020 03:00
Isopropylbenzene	ND	0.0050	1	12/12/2020 03:00
4-Isopropyl toluene	ND	0.0050	1	12/12/2020 03:00
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	12/12/2020 03:00
Methylene chloride	ND	0.020	1	12/12/2020 03:00
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	12/12/2020 03:00
Naphthalene	ND	0.0050	1	12/12/2020 03:00
n-Propyl benzene	ND	0.0050	1	12/12/2020 03:00
Styrene	ND	0.0050	1	12/12/2020 03:00
1,1,1,2-Tetrachloroethane	ND	0.0050	1	12/12/2020 03:00
1,1,2,2-Tetrachloroethane	ND	0.0050	1	12/12/2020 03:00
Tetrachloroethene	ND	0.0050	1	12/12/2020 03:00
Toluene	ND	0.0050	1	12/12/2020 03:00
1,2,3-Trichlorobenzene	ND	0.0050	1	12/12/2020 03:00
1,2,4-Trichlorobenzene	ND	0.0050	1	12/12/2020 03:00
1,1,1-Trichloroethane	ND	0.0050	1	12/12/2020 03:00
1,1,2-Trichloroethane	ND	0.0050	1	12/12/2020 03:00
Trichloroethene	ND	0.0050	1	12/12/2020 03:00
Trichlorofluoromethane	ND	0.0050	1	12/12/2020 03:00
1,2,3-Trichloropropane	ND	0.00025	1	12/12/2020 03:00
1,2,4-Trimethylbenzene	ND	0.0050	1	12/12/2020 03:00
1,3,5-Trimethylbenzene	ND	0.0050	1	12/12/2020 03:00
Vinyl Chloride	ND	0.00025	1	12/12/2020 03:00
m,p-Xylene	ND	0.0050	1	12/12/2020 03:00
o-Xylene	ND	0.0050	1	12/12/2020 03:00
Xylenes, Total	ND	0.0050	1	12/12/2020 03:00

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-3.5	2012349-011A	Soil	12/05/2020	GC16 12112031.D	210787

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	98	82-136		12/12/2020 03:00
Toluene-d8	121	92-139		12/12/2020 03:00
4-BFB	99	82-135		12/12/2020 03:00
Benzene-d6	107	55-122		12/12/2020 03:00
Ethylbenzene-d10	115	58-141		12/12/2020 03:00
1,2-DCB-d4	68	51-107		12/12/2020 03:00

Analyst(s): KF



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-1.5	2012349-001A	Soil	12/05/2020	GC21 12152033.D	211071

Analytes	Result	RL	DF	Date Analyzed
1-Methylnaphthalene	0.0021	0.0013	1	12/15/2020 22:41
Acenaphthene	ND	0.0013	1	12/15/2020 22:41
Acenaphthylene	ND	0.0013	1	12/15/2020 22:41
Acetochlor	ND	0.25	1	12/15/2020 22:41
Anthracene	0.0019	0.0013	1	12/15/2020 22:41
Benzidine	ND	1.2	1	12/15/2020 22:41
Benzo (a) anthracene	ND	0.013	1	12/15/2020 22:41
Benzo (a) pyrene	0.0037	0.0025	1	12/15/2020 22:41
Benzo (b) fluoranthene	ND	0.0063	1	12/15/2020 22:41
Benzo (g,h,i) perylene	0.0053	0.0025	1	12/15/2020 22:41
Benzo (k) fluoranthene	0.0017	0.0013	1	12/15/2020 22:41
Benzyl Alcohol	ND	1.2	1	12/15/2020 22:41
1,1-Biphenyl	ND	0.013	1	12/15/2020 22:41
Bis (2-chloroethoxy) Methane	ND	0.25	1	12/15/2020 22:41
Bis (2-chloroethyl) Ether	ND	0.0013	1	12/15/2020 22:41
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	12/15/2020 22:41
Bis (2-ethylhexyl) Adipate	ND	0.25	1	12/15/2020 22:41
Bis (2-ethylhexyl) Phthalate	0.043	0.025	1	12/15/2020 22:41
4-Bromophenyl Phenyl Ether	ND	0.25	1	12/15/2020 22:41
Butylbenzyl Phthalate	ND	0.025	1	12/15/2020 22:41
4-Chloroaniline	ND	0.0025	1	12/15/2020 22:41
4-Chloro-3-methylphenol	ND	0.25	1	12/15/2020 22:41
2-Chloronaphthalene	ND	0.25	1	12/15/2020 22:41
2-Chlorophenol	ND	0.013	1	12/15/2020 22:41
4-Chlorophenyl Phenyl Ether	ND	0.25	1	12/15/2020 22:41
Chrysene	0.0034	0.0025	1	12/15/2020 22:41
Dibenzo (a,h) anthracene	ND	0.0025	1	12/15/2020 22:41
Dibenzofuran	ND	0.25	1	12/15/2020 22:41
Di-n-butyl Phthalate	ND	0.013	1	12/15/2020 22:41
1,2-Dichlorobenzene	ND	0.25	1	12/15/2020 22:41
1,3-Dichlorobenzene	ND	0.25	1	12/15/2020 22:41
1,4-Dichlorobenzene	ND	0.25	1	12/15/2020 22:41
3,3-Dichlorobenzidine	ND	0.0025	1	12/15/2020 22:41
2,4-Dichlorophenol	ND	0.0013	1	12/15/2020 22:41
Diethyl Phthalate	ND	0.013	1	12/15/2020 22:41
2,4-Dimethylphenol	ND	0.25	1	12/15/2020 22:41
Dimethyl Phthalate	ND	0.0025	1	12/15/2020 22:41

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-1.5	2012349-001A	Soil	12/05/2020	GC21 12152033.D	211071

Analytes	Result	RL	DF	Date Analyzed
4,6-Dinitro-2-methylphenol	ND	1.2	1	12/15/2020 22:41
2,4-Dinitrophenol	ND	0.25	1	12/15/2020 22:41
2,4-Dinitrotoluene	ND	0.013	1	12/15/2020 22:41
2,6-Dinitrotoluene	ND	0.013	1	12/15/2020 22:41
Di-n-octyl Phthalate	ND	0.013	1	12/15/2020 22:41
1,2-Diphenylhydrazine	ND	0.25	1	12/15/2020 22:41
Fluoranthene	0.0068	0.0013	1	12/15/2020 22:41
Fluorene	0.0048	0.0025	1	12/15/2020 22:41
Hexachlorobenzene	ND	0.0013	1	12/15/2020 22:41
Hexachlorobutadiene	ND	0.0025	1	12/15/2020 22:41
Hexachlorocyclopentadiene	ND	2.0	1	12/15/2020 22:41
Hexachloroethane	ND	0.013	1	12/15/2020 22:41
Indeno (1,2,3-cd) pyrene	ND	0.013	1	12/15/2020 22:41
Isophorone	ND	0.25	1	12/15/2020 22:41
2-Methylnaphthalene	ND	0.0025	1	12/15/2020 22:41
2-Methylphenol (o-Cresol)	ND	0.25	1	12/15/2020 22:41
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	12/15/2020 22:41
Naphthalene	0.0014	0.0013	1	12/15/2020 22:41
2-Nitroaniline	ND	1.2	1	12/15/2020 22:41
3-Nitroaniline	ND	1.2	1	12/15/2020 22:41
4-Nitroaniline	ND	1.2	1	12/15/2020 22:41
Nitrobenzene	ND	0.25	1	12/15/2020 22:41
2-Nitrophenol	ND	1.2	1	12/15/2020 22:41
4-Nitrophenol	ND	1.2	1	12/15/2020 22:41
N-Nitrosodimethylamine	ND	1.2	1	12/15/2020 22:41
N-Nitrosodiphenylamine	ND	0.25	1	12/15/2020 22:41
N-Nitrosodi-n-propylamine	ND	0.25	1	12/15/2020 22:41
Pentachlorophenol	ND	0.062	1	12/15/2020 22:41
Phenanthrene	0.0082	0.0050	1	12/15/2020 22:41
Phenol	ND	0.050	1	12/15/2020 22:41
Pyrene	0.0057	0.0025	1	12/15/2020 22:41
Pyridine	ND	0.25	1	12/15/2020 22:41
1,2,4-Trichlorobenzene	ND	0.25	1	12/15/2020 22:41
2,4,5-Trichlorophenol	ND	0.0025	1	12/15/2020 22:41
2,4,6-Trichlorophenol	ND	0.013	1	12/15/2020 22:41

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-1.5	2012349-001A	Soil	12/05/2020	GC21 12152033.D	211071

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
2-Fluorophenol	98		60-130	12/15/2020 22:41
Phenol-d5	95		60-130	12/15/2020 22:41
Nitrobenzene-d5	80		60-130	12/15/2020 22:41
2-Fluorobiphenyl	77		60-130	12/15/2020 22:41
2,4,6-Tribromophenol	59		50-130	12/15/2020 22:41
4-Terphenyl-d14	92		50-130	12/15/2020 22:41

Analyst(s): AK



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected		Instrument	Batch ID
B-1-3.5	2012349-002A	Soil	12/05/2020		GC17 12172034.D	211071
Analytes	Result	RL	DF	Date Analyzed		
1-Methylnaphthalene	0.0030	0.0013	1	12/17/2020 20:30		
Acenaphthene	ND	0.0013	1	12/17/2020 20:30		
Acenaphthylene	ND	0.0013	1	12/17/2020 20:30		
Acetochlor	ND	0.25	1	12/17/2020 20:30		
Anthracene	ND	0.0013	1	12/17/2020 20:30		
Benzidine	ND	1.2	1	12/17/2020 20:30		
Benzo (a) anthracene	ND	0.013	1	12/17/2020 20:30		
Benzo (a) pyrene	ND	0.0025	1	12/17/2020 20:30		
Benzo (b) fluoranthene	ND	0.0063	1	12/17/2020 20:30		
Benzo (g,h,i) perylene	ND	0.0025	1	12/17/2020 20:30		
Benzo (k) fluoranthene	ND	0.0013	1	12/17/2020 20:30		
Benzyl Alcohol	ND	1.2	1	12/17/2020 20:30		
1,1-Biphenyl	0.032	0.013	1	12/17/2020 20:30		
Bis (2-chloroethoxy) Methane	ND	0.25	1	12/17/2020 20:30		
Bis (2-chloroethyl) Ether	ND	0.0013	1	12/17/2020 20:30		
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	12/17/2020 20:30		
Bis (2-ethylhexyl) Adipate	ND	0.25	1	12/17/2020 20:30		
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	12/17/2020 20:30		
4-Bromophenyl Phenyl Ether	ND	0.25	1	12/17/2020 20:30		
Butylbenzyl Phthalate	ND	0.025	1	12/17/2020 20:30		
4-Chloroaniline	ND	0.0025	1	12/17/2020 20:30		
4-Chloro-3-methylphenol	ND	0.25	1	12/17/2020 20:30		
2-Chloronaphthalene	ND	0.25	1	12/17/2020 20:30		
2-Chlorophenol	ND	0.013	1	12/17/2020 20:30		
4-Chlorophenyl Phenyl Ether	ND	0.25	1	12/17/2020 20:30		
Chrysene	ND	0.0025	1	12/17/2020 20:30		
Dibenzo (a,h) anthracene	ND	0.0025	1	12/17/2020 20:30		
Dibenzofuran	ND	0.25	1	12/17/2020 20:30		
Di-n-butyl Phthalate	ND	0.013	1	12/17/2020 20:30		
1,2-Dichlorobenzene	ND	0.25	1	12/17/2020 20:30		
1,3-Dichlorobenzene	ND	0.25	1	12/17/2020 20:30		
1,4-Dichlorobenzene	ND	0.25	1	12/17/2020 20:30		
3,3-Dichlorobenzidine	ND	0.0025	1	12/17/2020 20:30		
2,4-Dichlorophenol	ND	0.0013	1	12/17/2020 20:30		
Diethyl Phthalate	ND	0.013	1	12/17/2020 20:30		
2,4-Dimethylphenol	ND	0.25	1	12/17/2020 20:30		
Dimethyl Phthalate	ND	0.0025	1	12/17/2020 20:30		

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-3.5	2012349-002A	Soil	12/05/2020	GC17 12172034.D	211071

Analytes	Result	RL	DF	Date Analyzed
4,6-Dinitro-2-methylphenol	ND	1.2	1	12/17/2020 20:30
2,4-Dinitrophenol	ND	0.25	1	12/17/2020 20:30
2,4-Dinitrotoluene	ND	0.013	1	12/17/2020 20:30
2,6-Dinitrotoluene	ND	0.013	1	12/17/2020 20:30
Di-n-octyl Phthalate	ND	0.013	1	12/17/2020 20:30
1,2-Diphenylhydrazine	ND	0.25	1	12/17/2020 20:30
Fluoranthene	0.0025	0.0013	1	12/17/2020 20:30
Fluorene	0.0087	0.0025	1	12/17/2020 20:30
Hexachlorobenzene	ND	0.0013	1	12/17/2020 20:30
Hexachlorobutadiene	ND	0.0025	1	12/17/2020 20:30
Hexachlorocyclopentadiene	ND	2.0	1	12/17/2020 20:30
Hexachloroethane	ND	0.013	1	12/17/2020 20:30
Indeno (1,2,3-cd) pyrene	ND	0.013	1	12/17/2020 20:30
Isophorone	ND	0.25	1	12/17/2020 20:30
2-Methylnaphthalene	0.0026	0.0025	1	12/17/2020 20:30
2-Methylphenol (o-Cresol)	ND	0.25	1	12/17/2020 20:30
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	12/17/2020 20:30
Naphthalene	0.0021	0.0013	1	12/17/2020 20:30
2-Nitroaniline	ND	1.2	1	12/17/2020 20:30
3-Nitroaniline	ND	1.2	1	12/17/2020 20:30
4-Nitroaniline	ND	1.2	1	12/17/2020 20:30
Nitrobenzene	ND	0.25	1	12/17/2020 20:30
2-Nitrophenol	ND	1.2	1	12/17/2020 20:30
4-Nitrophenol	ND	1.2	1	12/17/2020 20:30
N-Nitrosodimethylamine	ND	1.2	1	12/17/2020 20:30
N-Nitrosodiphenylamine	ND	0.25	1	12/17/2020 20:30
N-Nitrosodi-n-propylamine	ND	0.25	1	12/17/2020 20:30
Pentachlorophenol	ND	0.062	1	12/17/2020 20:30
Phenanthrene	0.0087	0.0050	1	12/17/2020 20:30
Phenol	ND	0.050	1	12/17/2020 20:30
Pyrene	ND	0.0025	1	12/17/2020 20:30
Pyridine	ND	0.25	1	12/17/2020 20:30
1,2,4-Trichlorobenzene	ND	0.25	1	12/17/2020 20:30
2,4,5-Trichlorophenol	ND	0.0025	1	12/17/2020 20:30
2,4,6-Trichlorophenol	ND	0.013	1	12/17/2020 20:30

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-3.5	2012349-002A	Soil	12/05/2020	GC17 12172034.D	211071

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>	
2-Fluorophenol	100		60-130	12/17/2020 20:30
Phenol-d5	100		60-130	12/17/2020 20:30
Nitrobenzene-d5	102		60-130	12/17/2020 20:30
2-Fluorobiphenyl	89		60-130	12/17/2020 20:30
2,4,6-Tribromophenol	43	S	50-130	12/17/2020 20:30
4-Terphenyl-d14	95		50-130	12/17/2020 20:30

Analyst(s): AK

Analytical Comments: c2



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-1.5	2012349-003A	Soil	12/05/2020	GC21 12162021.D	211071

Analytes	Result	RL	DF	Date Analyzed
1-Methylnaphthalene	ND	0.0013	1	12/16/2020 16:10
Acenaphthene	ND	0.0013	1	12/16/2020 16:10
Acenaphthylene	ND	0.0013	1	12/16/2020 16:10
Acetochlor	ND	0.25	1	12/16/2020 16:10
Anthracene	ND	0.0013	1	12/16/2020 16:10
Benzidine	ND	1.2	1	12/16/2020 16:10
Benzo (a) anthracene	ND	0.013	1	12/16/2020 16:10
Benzo (a) pyrene	ND	0.0025	1	12/16/2020 16:10
Benzo (b) fluoranthene	ND	0.0063	1	12/16/2020 16:10
Benzo (g,h,i) perylene	ND	0.0025	1	12/16/2020 16:10
Benzo (k) fluoranthene	ND	0.0013	1	12/16/2020 16:10
Benzyl Alcohol	ND	1.2	1	12/16/2020 16:10
1,1-Biphenyl	ND	0.013	1	12/16/2020 16:10
Bis (2-chloroethoxy) Methane	ND	0.25	1	12/16/2020 16:10
Bis (2-chloroethyl) Ether	ND	0.0013	1	12/16/2020 16:10
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	12/16/2020 16:10
Bis (2-ethylhexyl) Adipate	ND	0.25	1	12/16/2020 16:10
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	12/16/2020 16:10
4-Bromophenyl Phenyl Ether	ND	0.25	1	12/16/2020 16:10
Butylbenzyl Phthalate	ND	0.025	1	12/16/2020 16:10
4-Chloroaniline	ND	0.0025	1	12/16/2020 16:10
4-Chloro-3-methylphenol	ND	0.25	1	12/16/2020 16:10
2-Chloronaphthalene	ND	0.25	1	12/16/2020 16:10
2-Chlorophenol	ND	0.013	1	12/16/2020 16:10
4-Chlorophenyl Phenyl Ether	ND	0.25	1	12/16/2020 16:10
Chrysene	ND	0.0025	1	12/16/2020 16:10
Dibenzo (a,h) anthracene	ND	0.0025	1	12/16/2020 16:10
Dibenzofuran	ND	0.25	1	12/16/2020 16:10
Di-n-butyl Phthalate	ND	0.013	1	12/16/2020 16:10
1,2-Dichlorobenzene	ND	0.25	1	12/16/2020 16:10
1,3-Dichlorobenzene	ND	0.25	1	12/16/2020 16:10
1,4-Dichlorobenzene	ND	0.25	1	12/16/2020 16:10
3,3-Dichlorobenzidine	ND	0.0025	1	12/16/2020 16:10
2,4-Dichlorophenol	ND	0.0013	1	12/16/2020 16:10
Diethyl Phthalate	ND	0.013	1	12/16/2020 16:10
2,4-Dimethylphenol	ND	0.25	1	12/16/2020 16:10
Dimethyl Phthalate	ND	0.0025	1	12/16/2020 16:10

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-1.5	2012349-003A	Soil	12/05/2020	GC21 12162021.D	211071

Analytes	Result	RL	DF	Date Analyzed
4,6-Dinitro-2-methylphenol	ND	1.2	1	12/16/2020 16:10
2,4-Dinitrophenol	ND	0.25	1	12/16/2020 16:10
2,4-Dinitrotoluene	ND	0.013	1	12/16/2020 16:10
2,6-Dinitrotoluene	ND	0.013	1	12/16/2020 16:10
Di-n-octyl Phthalate	ND	0.013	1	12/16/2020 16:10
1,2-Diphenylhydrazine	ND	0.25	1	12/16/2020 16:10
Fluoranthene	0.0019	0.0013	1	12/16/2020 16:10
Fluorene	ND	0.0025	1	12/16/2020 16:10
Hexachlorobenzene	ND	0.0013	1	12/16/2020 16:10
Hexachlorobutadiene	ND	0.0025	1	12/16/2020 16:10
Hexachlorocyclopentadiene	ND	2.0	1	12/16/2020 16:10
Hexachloroethane	ND	0.013	1	12/16/2020 16:10
Indeno (1,2,3-cd) pyrene	ND	0.013	1	12/16/2020 16:10
Isophorone	ND	0.25	1	12/16/2020 16:10
2-Methylnaphthalene	ND	0.0025	1	12/16/2020 16:10
2-Methylphenol (o-Cresol)	ND	0.25	1	12/16/2020 16:10
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	12/16/2020 16:10
Naphthalene	ND	0.0013	1	12/16/2020 16:10
2-Nitroaniline	ND	1.2	1	12/16/2020 16:10
3-Nitroaniline	ND	1.2	1	12/16/2020 16:10
4-Nitroaniline	ND	1.2	1	12/16/2020 16:10
Nitrobenzene	ND	0.25	1	12/16/2020 16:10
2-Nitrophenol	ND	1.2	1	12/16/2020 16:10
4-Nitrophenol	ND	1.2	1	12/16/2020 16:10
N-Nitrosodimethylamine	ND	1.2	1	12/16/2020 16:10
N-Nitrosodiphenylamine	ND	0.25	1	12/16/2020 16:10
N-Nitrosodi-n-propylamine	ND	0.25	1	12/16/2020 16:10
Pentachlorophenol	ND	0.062	1	12/16/2020 16:10
Phenanthrene	ND	0.0050	1	12/16/2020 16:10
Phenol	ND	0.050	1	12/16/2020 16:10
Pyrene	ND	0.0025	1	12/16/2020 16:10
Pyridine	ND	0.25	1	12/16/2020 16:10
1,2,4-Trichlorobenzene	ND	0.25	1	12/16/2020 16:10
2,4,5-Trichlorophenol	ND	0.0025	1	12/16/2020 16:10
2,4,6-Trichlorophenol	ND	0.013	1	12/16/2020 16:10

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-1.5	2012349-003A	Soil	12/05/2020	GC21 12162021.D	211071

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>	
2-Fluorophenol	158	S	60-130	12/16/2020 16:10
Phenol-d5	144	S	60-130	12/16/2020 16:10
Nitrobenzene-d5	129		60-130	12/16/2020 16:10
2-Fluorobiphenyl	136	S	60-130	12/16/2020 16:10
2,4,6-Tribromophenol	18	S	50-130	12/16/2020 16:10
4-Terphenyl-d14	151	S	50-130	12/16/2020 16:10

Analyst(s): AK

Analytical Comments: c2



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-3.5	2012349-004A	Soil	12/05/2020	GC21 12162022.D	211071
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	0.0030		0.0013	1	12/16/2020 16:37
Acenaphthene	ND		0.0013	1	12/16/2020 16:37
Acenaphthylene	ND		0.0013	1	12/16/2020 16:37
Acetochlor	ND		0.25	1	12/16/2020 16:37
Anthracene	0.0041		0.0013	1	12/16/2020 16:37
Benzidine	ND		1.2	1	12/16/2020 16:37
Benzo (a) anthracene	ND		0.013	1	12/16/2020 16:37
Benzo (a) pyrene	ND		0.0025	1	12/16/2020 16:37
Benzo (b) fluoranthene	ND		0.0063	1	12/16/2020 16:37
Benzo (g,h,i) perylene	0.0037		0.0025	1	12/16/2020 16:37
Benzo (k) fluoranthene	ND		0.0013	1	12/16/2020 16:37
Benzyl Alcohol	ND		1.2	1	12/16/2020 16:37
1,1-Biphenyl	0.015		0.013	1	12/16/2020 16:37
Bis (2-chloroethoxy) Methane	ND		0.25	1	12/16/2020 16:37
Bis (2-chloroethyl) Ether	ND		0.0013	1	12/16/2020 16:37
Bis (2-chloroisopropyl) Ether	ND		0.0013	1	12/16/2020 16:37
Bis (2-ethylhexyl) Adipate	ND		0.25	1	12/16/2020 16:37
Bis (2-ethylhexyl) Phthalate	ND		0.025	1	12/16/2020 16:37
4-Bromophenyl Phenyl Ether	ND		0.25	1	12/16/2020 16:37
Butylbenzyl Phthalate	ND		0.025	1	12/16/2020 16:37
4-Chloroaniline	ND		0.0025	1	12/16/2020 16:37
4-Chloro-3-methylphenol	ND		0.25	1	12/16/2020 16:37
2-Chloronaphthalene	ND		0.25	1	12/16/2020 16:37
2-Chlorophenol	ND		0.013	1	12/16/2020 16:37
4-Chlorophenyl Phenyl Ether	ND		0.25	1	12/16/2020 16:37
Chrysene	ND		0.0025	1	12/16/2020 16:37
Dibenzo (a,h) anthracene	ND		0.0025	1	12/16/2020 16:37
Dibenzofuran	ND		0.25	1	12/16/2020 16:37
Di-n-butyl Phthalate	ND		0.013	1	12/16/2020 16:37
1,2-Dichlorobenzene	ND		0.25	1	12/16/2020 16:37
1,3-Dichlorobenzene	ND		0.25	1	12/16/2020 16:37
1,4-Dichlorobenzene	ND		0.25	1	12/16/2020 16:37
3,3-Dichlorobenzidine	ND		0.0025	1	12/16/2020 16:37
2,4-Dichlorophenol	ND		0.0013	1	12/16/2020 16:37
Diethyl Phthalate	ND		0.013	1	12/16/2020 16:37
2,4-Dimethylphenol	ND		0.25	1	12/16/2020 16:37
Dimethyl Phthalate	ND		0.0025	1	12/16/2020 16:37

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-3.5	2012349-004A	Soil	12/05/2020	GC21 12162022.D	211071

Analytes	Result	RL	DF	Date Analyzed
4,6-Dinitro-2-methylphenol	ND	1.2	1	12/16/2020 16:37
2,4-Dinitrophenol	ND	0.25	1	12/16/2020 16:37
2,4-Dinitrotoluene	ND	0.013	1	12/16/2020 16:37
2,6-Dinitrotoluene	ND	0.013	1	12/16/2020 16:37
Di-n-octyl Phthalate	ND	0.013	1	12/16/2020 16:37
1,2-Diphenylhydrazine	ND	0.25	1	12/16/2020 16:37
Fluoranthene	0.0057	0.0013	1	12/16/2020 16:37
Fluorene	0.012	0.0025	1	12/16/2020 16:37
Hexachlorobenzene	ND	0.0013	1	12/16/2020 16:37
Hexachlorobutadiene	ND	0.0025	1	12/16/2020 16:37
Hexachlorocyclopentadiene	ND	2.0	1	12/16/2020 16:37
Hexachloroethane	ND	0.013	1	12/16/2020 16:37
Indeno (1,2,3-cd) pyrene	ND	0.013	1	12/16/2020 16:37
Isophorone	ND	0.25	1	12/16/2020 16:37
2-Methylnaphthalene	ND	0.0025	1	12/16/2020 16:37
2-Methylphenol (o-Cresol)	ND	0.25	1	12/16/2020 16:37
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	12/16/2020 16:37
Naphthalene	0.0021	0.0013	1	12/16/2020 16:37
2-Nitroaniline	ND	1.2	1	12/16/2020 16:37
3-Nitroaniline	ND	1.2	1	12/16/2020 16:37
4-Nitroaniline	ND	1.2	1	12/16/2020 16:37
Nitrobenzene	ND	0.25	1	12/16/2020 16:37
2-Nitrophenol	ND	1.2	1	12/16/2020 16:37
4-Nitrophenol	ND	1.2	1	12/16/2020 16:37
N-Nitrosodimethylamine	ND	1.2	1	12/16/2020 16:37
N-Nitrosodiphenylamine	ND	0.25	1	12/16/2020 16:37
N-Nitrosodi-n-propylamine	ND	0.25	1	12/16/2020 16:37
Pentachlorophenol	ND	0.062	1	12/16/2020 16:37
Phenanthrene	0.010	0.0050	1	12/16/2020 16:37
Phenol	ND	0.050	1	12/16/2020 16:37
Pyrene	0.0031	0.0025	1	12/16/2020 16:37
Pyridine	ND	0.25	1	12/16/2020 16:37
1,2,4-Trichlorobenzene	ND	0.25	1	12/16/2020 16:37
2,4,5-Trichlorophenol	ND	0.0025	1	12/16/2020 16:37
2,4,6-Trichlorophenol	ND	0.013	1	12/16/2020 16:37

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-3.5	2012349-004A	Soil	12/05/2020	GC21 12162022.D	211071

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorophenol	88	60-130		12/16/2020 16:37
Phenol-d5	90	60-130		12/16/2020 16:37
Nitrobenzene-d5	80	60-130		12/16/2020 16:37
2-Fluorobiphenyl	81	60-130		12/16/2020 16:37
2,4,6-Tribromophenol	56	50-130		12/16/2020 16:37
4-Terphenyl-d14	100	50-130		12/16/2020 16:37

Analyst(s): AK



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected		Instrument	Batch ID
B-3-1.5	2012349-007A	Soil	12/05/2020		GC21 12162023.D	211071
Analytes	Result	RL	DF	Date Analyzed		
1-Methylnaphthalene	0.0018	0.0013	1	12/16/2020 17:04		
Acenaphthene	ND	0.0013	1	12/16/2020 17:04		
Acenaphthylene	ND	0.0013	1	12/16/2020 17:04		
Acetochlor	ND	0.25	1	12/16/2020 17:04		
Anthracene	0.0020	0.0013	1	12/16/2020 17:04		
Benzidine	ND	1.2	1	12/16/2020 17:04		
Benzo (a) anthracene	ND	0.013	1	12/16/2020 17:04		
Benzo (a) pyrene	ND	0.0025	1	12/16/2020 17:04		
Benzo (b) fluoranthene	ND	0.0063	1	12/16/2020 17:04		
Benzo (g,h,i) perylene	0.0028	0.0025	1	12/16/2020 17:04		
Benzo (k) fluoranthene	ND	0.0013	1	12/16/2020 17:04		
Benzyl Alcohol	ND	1.2	1	12/16/2020 17:04		
1,1-Biphenyl	0.013	0.013	1	12/16/2020 17:04		
Bis (2-chloroethoxy) Methane	ND	0.25	1	12/16/2020 17:04		
Bis (2-chloroethyl) Ether	ND	0.0013	1	12/16/2020 17:04		
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	12/16/2020 17:04		
Bis (2-ethylhexyl) Adipate	ND	0.25	1	12/16/2020 17:04		
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	12/16/2020 17:04		
4-Bromophenyl Phenyl Ether	ND	0.25	1	12/16/2020 17:04		
Butylbenzyl Phthalate	ND	0.025	1	12/16/2020 17:04		
4-Chloroaniline	ND	0.0025	1	12/16/2020 17:04		
4-Chloro-3-methylphenol	ND	0.25	1	12/16/2020 17:04		
2-Chloronaphthalene	ND	0.25	1	12/16/2020 17:04		
2-Chlorophenol	ND	0.013	1	12/16/2020 17:04		
4-Chlorophenyl Phenyl Ether	ND	0.25	1	12/16/2020 17:04		
Chrysene	ND	0.0025	1	12/16/2020 17:04		
Dibenzo (a,h) anthracene	ND	0.0025	1	12/16/2020 17:04		
Dibenzofuran	ND	0.25	1	12/16/2020 17:04		
Di-n-butyl Phthalate	ND	0.013	1	12/16/2020 17:04		
1,2-Dichlorobenzene	ND	0.25	1	12/16/2020 17:04		
1,3-Dichlorobenzene	ND	0.25	1	12/16/2020 17:04		
1,4-Dichlorobenzene	ND	0.25	1	12/16/2020 17:04		
3,3-Dichlorobenzidine	ND	0.0025	1	12/16/2020 17:04		
2,4-Dichlorophenol	ND	0.0013	1	12/16/2020 17:04		
Diethyl Phthalate	ND	0.013	1	12/16/2020 17:04		
2,4-Dimethylphenol	ND	0.25	1	12/16/2020 17:04		
Dimethyl Phthalate	ND	0.0025	1	12/16/2020 17:04		

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-1.5	2012349-007A	Soil	12/05/2020	GC21 12162023.D	211071

Analytes	Result	RL	DF	Date Analyzed
4,6-Dinitro-2-methylphenol	ND	1.2	1	12/16/2020 17:04
2,4-Dinitrophenol	ND	0.25	1	12/16/2020 17:04
2,4-Dinitrotoluene	ND	0.013	1	12/16/2020 17:04
2,6-Dinitrotoluene	ND	0.013	1	12/16/2020 17:04
Di-n-octyl Phthalate	ND	0.013	1	12/16/2020 17:04
1,2-Diphenylhydrazine	ND	0.25	1	12/16/2020 17:04
Fluoranthene	ND	0.0013	1	12/16/2020 17:04
Fluorene	0.0075	0.0025	1	12/16/2020 17:04
Hexachlorobenzene	ND	0.0013	1	12/16/2020 17:04
Hexachlorobutadiene	ND	0.0025	1	12/16/2020 17:04
Hexachlorocyclopentadiene	ND	2.0	1	12/16/2020 17:04
Hexachloroethane	ND	0.013	1	12/16/2020 17:04
Indeno (1,2,3-cd) pyrene	ND	0.013	1	12/16/2020 17:04
Isophorone	ND	0.25	1	12/16/2020 17:04
2-Methylnaphthalene	ND	0.0025	1	12/16/2020 17:04
2-Methylphenol (o-Cresol)	ND	0.25	1	12/16/2020 17:04
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	12/16/2020 17:04
Naphthalene	ND	0.0013	1	12/16/2020 17:04
2-Nitroaniline	ND	1.2	1	12/16/2020 17:04
3-Nitroaniline	ND	1.2	1	12/16/2020 17:04
4-Nitroaniline	ND	1.2	1	12/16/2020 17:04
Nitrobenzene	ND	0.25	1	12/16/2020 17:04
2-Nitrophenol	ND	1.2	1	12/16/2020 17:04
4-Nitrophenol	ND	1.2	1	12/16/2020 17:04
N-Nitrosodimethylamine	ND	1.2	1	12/16/2020 17:04
N-Nitrosodiphenylamine	ND	0.25	1	12/16/2020 17:04
N-Nitrosodi-n-propylamine	ND	0.25	1	12/16/2020 17:04
Pentachlorophenol	ND	0.062	1	12/16/2020 17:04
Phenanthrene	0.0067	0.0050	1	12/16/2020 17:04
Phenol	ND	0.050	1	12/16/2020 17:04
Pyrene	0.0031	0.0025	1	12/16/2020 17:04
Pyridine	ND	0.25	1	12/16/2020 17:04
1,2,4-Trichlorobenzene	ND	0.25	1	12/16/2020 17:04
2,4,5-Trichlorophenol	ND	0.0025	1	12/16/2020 17:04
2,4,6-Trichlorophenol	ND	0.013	1	12/16/2020 17:04

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-1.5	2012349-007A	Soil	12/05/2020	GC21 12162023.D	211071

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorophenol	83	60-130		12/16/2020 17:04
Phenol-d5	84	60-130		12/16/2020 17:04
Nitrobenzene-d5	74	60-130		12/16/2020 17:04
2-Fluorobiphenyl	74	60-130		12/16/2020 17:04
2,4,6-Tribromophenol	52	50-130		12/16/2020 17:04
4-Terphenyl-d14	91	50-130		12/16/2020 17:04

Analyst(s): AK



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-3.5	2012349-008A	Soil	12/05/2020	GC21 12162024.D	211071

Analytes	Result	RL	DF	Date Analyzed
1-Methylnaphthalene	ND	0.0013	1	12/16/2020 17:32
Acenaphthene	ND	0.0013	1	12/16/2020 17:32
Acenaphthylene	ND	0.0013	1	12/16/2020 17:32
Acetochlor	ND	0.25	1	12/16/2020 17:32
Anthracene	ND	0.0013	1	12/16/2020 17:32
Benzidine	ND	1.2	1	12/16/2020 17:32
Benzo (a) anthracene	ND	0.013	1	12/16/2020 17:32
Benzo (a) pyrene	ND	0.0025	1	12/16/2020 17:32
Benzo (b) fluoranthene	ND	0.0063	1	12/16/2020 17:32
Benzo (g,h,i) perylene	ND	0.0025	1	12/16/2020 17:32
Benzo (k) fluoranthene	ND	0.0013	1	12/16/2020 17:32
Benzyl Alcohol	ND	1.2	1	12/16/2020 17:32
1,1-Biphenyl	ND	0.013	1	12/16/2020 17:32
Bis (2-chloroethoxy) Methane	ND	0.25	1	12/16/2020 17:32
Bis (2-chloroethyl) Ether	ND	0.0013	1	12/16/2020 17:32
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	12/16/2020 17:32
Bis (2-ethylhexyl) Adipate	ND	0.25	1	12/16/2020 17:32
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	12/16/2020 17:32
4-Bromophenyl Phenyl Ether	ND	0.25	1	12/16/2020 17:32
Butylbenzyl Phthalate	ND	0.025	1	12/16/2020 17:32
4-Chloroaniline	ND	0.0025	1	12/16/2020 17:32
4-Chloro-3-methylphenol	ND	0.25	1	12/16/2020 17:32
2-Chloronaphthalene	ND	0.25	1	12/16/2020 17:32
2-Chlorophenol	ND	0.013	1	12/16/2020 17:32
4-Chlorophenyl Phenyl Ether	ND	0.25	1	12/16/2020 17:32
Chrysene	ND	0.0025	1	12/16/2020 17:32
Dibenzo (a,h) anthracene	ND	0.0025	1	12/16/2020 17:32
Dibenzofuran	ND	0.25	1	12/16/2020 17:32
Di-n-butyl Phthalate	ND	0.013	1	12/16/2020 17:32
1,2-Dichlorobenzene	ND	0.25	1	12/16/2020 17:32
1,3-Dichlorobenzene	ND	0.25	1	12/16/2020 17:32
1,4-Dichlorobenzene	ND	0.25	1	12/16/2020 17:32
3,3-Dichlorobenzidine	ND	0.0025	1	12/16/2020 17:32
2,4-Dichlorophenol	ND	0.0013	1	12/16/2020 17:32
Diethyl Phthalate	ND	0.013	1	12/16/2020 17:32
2,4-Dimethylphenol	ND	0.25	1	12/16/2020 17:32
Dimethyl Phthalate	ND	0.0025	1	12/16/2020 17:32

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-3.5	2012349-008A	Soil	12/05/2020	GC21 12162024.D	211071

Analytes	Result	RL	DF	Date Analyzed
4,6-Dinitro-2-methylphenol	ND	1.2	1	12/16/2020 17:32
2,4-Dinitrophenol	ND	0.25	1	12/16/2020 17:32
2,4-Dinitrotoluene	ND	0.013	1	12/16/2020 17:32
2,6-Dinitrotoluene	ND	0.013	1	12/16/2020 17:32
Di-n-octyl Phthalate	ND	0.013	1	12/16/2020 17:32
1,2-Diphenylhydrazine	ND	0.25	1	12/16/2020 17:32
Fluoranthene	ND	0.0013	1	12/16/2020 17:32
Fluorene	ND	0.0025	1	12/16/2020 17:32
Hexachlorobenzene	ND	0.0013	1	12/16/2020 17:32
Hexachlorobutadiene	ND	0.0025	1	12/16/2020 17:32
Hexachlorocyclopentadiene	ND	2.0	1	12/16/2020 17:32
Hexachloroethane	ND	0.013	1	12/16/2020 17:32
Indeno (1,2,3-cd) pyrene	ND	0.013	1	12/16/2020 17:32
Isophorone	ND	0.25	1	12/16/2020 17:32
2-Methylnaphthalene	ND	0.0025	1	12/16/2020 17:32
2-Methylphenol (o-Cresol)	ND	0.25	1	12/16/2020 17:32
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	12/16/2020 17:32
Naphthalene	ND	0.0013	1	12/16/2020 17:32
2-Nitroaniline	ND	1.2	1	12/16/2020 17:32
3-Nitroaniline	ND	1.2	1	12/16/2020 17:32
4-Nitroaniline	ND	1.2	1	12/16/2020 17:32
Nitrobenzene	ND	0.25	1	12/16/2020 17:32
2-Nitrophenol	ND	1.2	1	12/16/2020 17:32
4-Nitrophenol	ND	1.2	1	12/16/2020 17:32
N-Nitrosodimethylamine	ND	1.2	1	12/16/2020 17:32
N-Nitrosodiphenylamine	ND	0.25	1	12/16/2020 17:32
N-Nitrosodi-n-propylamine	ND	0.25	1	12/16/2020 17:32
Pentachlorophenol	ND	0.062	1	12/16/2020 17:32
Phenanthrene	ND	0.0050	1	12/16/2020 17:32
Phenol	ND	0.050	1	12/16/2020 17:32
Pyrene	ND	0.0025	1	12/16/2020 17:32
Pyridine	ND	0.25	1	12/16/2020 17:32
1,2,4-Trichlorobenzene	ND	0.25	1	12/16/2020 17:32
2,4,5-Trichlorophenol	ND	0.0025	1	12/16/2020 17:32
2,4,6-Trichlorophenol	ND	0.013	1	12/16/2020 17:32

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-3.5	2012349-008A	Soil	12/05/2020	GC21 12162024.D	211071

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>	
2-Fluorophenol	144	S	60-130	12/16/2020 17:32
Phenol-d5	137	S	60-130	12/16/2020 17:32
Nitrobenzene-d5	122		60-130	12/16/2020 17:32
2-Fluorobiphenyl	130		60-130	12/16/2020 17:32
2,4,6-Tribromophenol	21	S	50-130	12/16/2020 17:32
4-Terphenyl-d14	139	S	50-130	12/16/2020 17:32

Analyst(s): AK

Analytical Comments: c2



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected		Instrument	Batch ID
B-4-1.5	2012349-010A	Soil	12/05/2020		GC21 12162025.D	211071
Analytes	Result	RL	DF	Date Analyzed		
1-Methylnaphthalene	0.0022	0.0013	1	12/16/2020 17:59		
Acenaphthene	ND	0.0013	1	12/16/2020 17:59		
Acenaphthylene	ND	0.0013	1	12/16/2020 17:59		
Acetochlor	ND	0.25	1	12/16/2020 17:59		
Anthracene	0.0016	0.0013	1	12/16/2020 17:59		
Benzidine	ND	1.2	1	12/16/2020 17:59		
Benzo (a) anthracene	ND	0.013	1	12/16/2020 17:59		
Benzo (a) pyrene	ND	0.0025	1	12/16/2020 17:59		
Benzo (b) fluoranthene	ND	0.0063	1	12/16/2020 17:59		
Benzo (g,h,i) perylene	0.0029	0.0025	1	12/16/2020 17:59		
Benzo (k) fluoranthene	ND	0.0013	1	12/16/2020 17:59		
Benzyl Alcohol	ND	1.2	1	12/16/2020 17:59		
1,1-Biphenyl	ND	0.013	1	12/16/2020 17:59		
Bis (2-chloroethoxy) Methane	ND	0.25	1	12/16/2020 17:59		
Bis (2-chloroethyl) Ether	ND	0.0013	1	12/16/2020 17:59		
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	12/16/2020 17:59		
Bis (2-ethylhexyl) Adipate	ND	0.25	1	12/16/2020 17:59		
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	12/16/2020 17:59		
4-Bromophenyl Phenyl Ether	ND	0.25	1	12/16/2020 17:59		
Butylbenzyl Phthalate	ND	0.025	1	12/16/2020 17:59		
4-Chloroaniline	ND	0.0025	1	12/16/2020 17:59		
4-Chloro-3-methylphenol	ND	0.25	1	12/16/2020 17:59		
2-Chloronaphthalene	ND	0.25	1	12/16/2020 17:59		
2-Chlorophenol	ND	0.013	1	12/16/2020 17:59		
4-Chlorophenyl Phenyl Ether	ND	0.25	1	12/16/2020 17:59		
Chrysene	ND	0.0025	1	12/16/2020 17:59		
Dibenzo (a,h) anthracene	ND	0.0025	1	12/16/2020 17:59		
Dibenzofuran	ND	0.25	1	12/16/2020 17:59		
Di-n-butyl Phthalate	ND	0.013	1	12/16/2020 17:59		
1,2-Dichlorobenzene	ND	0.25	1	12/16/2020 17:59		
1,3-Dichlorobenzene	ND	0.25	1	12/16/2020 17:59		
1,4-Dichlorobenzene	ND	0.25	1	12/16/2020 17:59		
3,3-Dichlorobenzidine	ND	0.0025	1	12/16/2020 17:59		
2,4-Dichlorophenol	ND	0.0013	1	12/16/2020 17:59		
Diethyl Phthalate	ND	0.013	1	12/16/2020 17:59		
2,4-Dimethylphenol	ND	0.25	1	12/16/2020 17:59		
Dimethyl Phthalate	ND	0.0025	1	12/16/2020 17:59		

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-1.5	2012349-010A	Soil	12/05/2020	GC21 12162025.D	211071

Analytes	Result	RL	DF	Date Analyzed
4,6-Dinitro-2-methylphenol	ND	1.2	1	12/16/2020 17:59
2,4-Dinitrophenol	ND	0.25	1	12/16/2020 17:59
2,4-Dinitrotoluene	ND	0.013	1	12/16/2020 17:59
2,6-Dinitrotoluene	ND	0.013	1	12/16/2020 17:59
Di-n-octyl Phthalate	ND	0.013	1	12/16/2020 17:59
1,2-Diphenylhydrazine	ND	0.25	1	12/16/2020 17:59
Fluoranthene	0.0053	0.0013	1	12/16/2020 17:59
Fluorene	0.0030	0.0025	1	12/16/2020 17:59
Hexachlorobenzene	ND	0.0013	1	12/16/2020 17:59
Hexachlorobutadiene	ND	0.0025	1	12/16/2020 17:59
Hexachlorocyclopentadiene	ND	2.0	1	12/16/2020 17:59
Hexachloroethane	ND	0.013	1	12/16/2020 17:59
Indeno (1,2,3-cd) pyrene	ND	0.013	1	12/16/2020 17:59
Isophorone	ND	0.25	1	12/16/2020 17:59
2-Methylnaphthalene	ND	0.0025	1	12/16/2020 17:59
2-Methylphenol (o-Cresol)	ND	0.25	1	12/16/2020 17:59
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	12/16/2020 17:59
Naphthalene	ND	0.0013	1	12/16/2020 17:59
2-Nitroaniline	ND	1.2	1	12/16/2020 17:59
3-Nitroaniline	ND	1.2	1	12/16/2020 17:59
4-Nitroaniline	ND	1.2	1	12/16/2020 17:59
Nitrobenzene	ND	0.25	1	12/16/2020 17:59
2-Nitrophenol	ND	1.2	1	12/16/2020 17:59
4-Nitrophenol	ND	1.2	1	12/16/2020 17:59
N-Nitrosodimethylamine	ND	1.2	1	12/16/2020 17:59
N-Nitrosodiphenylamine	ND	0.25	1	12/16/2020 17:59
N-Nitrosodi-n-propylamine	ND	0.25	1	12/16/2020 17:59
Pentachlorophenol	ND	0.062	1	12/16/2020 17:59
Phenanthrene	0.0071	0.0050	1	12/16/2020 17:59
Phenol	ND	0.050	1	12/16/2020 17:59
Pyrene	0.0048	0.0025	1	12/16/2020 17:59
Pyridine	ND	0.25	1	12/16/2020 17:59
1,2,4-Trichlorobenzene	ND	0.25	1	12/16/2020 17:59
2,4,5-Trichlorophenol	ND	0.0025	1	12/16/2020 17:59
2,4,6-Trichlorophenol	ND	0.013	1	12/16/2020 17:59

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-1.5	2012349-010A	Soil	12/05/2020	GC21 12162025.D	211071

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>	
2-Fluorophenol	135	S	60-130	12/16/2020 17:59
Phenol-d5	123		60-130	12/16/2020 17:59
Nitrobenzene-d5	116		60-130	12/16/2020 17:59
2-Fluorobiphenyl	121		60-130	12/16/2020 17:59
2,4,6-Tribromophenol	7	S	50-130	12/16/2020 17:59
4-Terphenyl-d14	137	S	50-130	12/16/2020 17:59

Analyst(s): AK

Analytical Comments: c2



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-3.5	2012349-011A	Soil	12/05/2020	GC21 12162026.D	211071

Analytes	Result	RL	DF	Date Analyzed
1-Methylnaphthalene	0.014	0.0013	1	12/16/2020 18:26
Acenaphthene	0.0020	0.0013	1	12/16/2020 18:26
Acenaphthylene	ND	0.0013	1	12/16/2020 18:26
Acetochlor	ND	0.25	1	12/16/2020 18:26
Anthracene	0.0022	0.0013	1	12/16/2020 18:26
Benzidine	ND	1.2	1	12/16/2020 18:26
Benzo (a) anthracene	ND	0.013	1	12/16/2020 18:26
Benzo (a) pyrene	ND	0.0025	1	12/16/2020 18:26
Benzo (b) fluoranthene	0.0072	0.0063	1	12/16/2020 18:26
Benzo (g,h,i) perylene	0.0057	0.0025	1	12/16/2020 18:26
Benzo (k) fluoranthene	ND	0.0013	1	12/16/2020 18:26
Benzyl Alcohol	ND	1.2	1	12/16/2020 18:26
1,1-Biphenyl	0.013	0.013	1	12/16/2020 18:26
Bis (2-chloroethoxy) Methane	ND	0.25	1	12/16/2020 18:26
Bis (2-chloroethyl) Ether	ND	0.0013	1	12/16/2020 18:26
Bis (2-chloroisopropyl) Ether	ND	0.0013	1	12/16/2020 18:26
Bis (2-ethylhexyl) Adipate	ND	0.25	1	12/16/2020 18:26
Bis (2-ethylhexyl) Phthalate	ND	0.025	1	12/16/2020 18:26
4-Bromophenyl Phenyl Ether	ND	0.25	1	12/16/2020 18:26
Butylbenzyl Phthalate	ND	0.025	1	12/16/2020 18:26
4-Chloroaniline	ND	0.0025	1	12/16/2020 18:26
4-Chloro-3-methylphenol	ND	0.25	1	12/16/2020 18:26
2-Chloronaphthalene	ND	0.25	1	12/16/2020 18:26
2-Chlorophenol	ND	0.013	1	12/16/2020 18:26
4-Chlorophenyl Phenyl Ether	ND	0.25	1	12/16/2020 18:26
Chrysene	0.0037	0.0025	1	12/16/2020 18:26
Dibenzo (a,h) anthracene	ND	0.0025	1	12/16/2020 18:26
Dibenzofuran	ND	0.25	1	12/16/2020 18:26
Di-n-butyl Phthalate	ND	0.013	1	12/16/2020 18:26
1,2-Dichlorobenzene	ND	0.25	1	12/16/2020 18:26
1,3-Dichlorobenzene	ND	0.25	1	12/16/2020 18:26
1,4-Dichlorobenzene	ND	0.25	1	12/16/2020 18:26
3,3-Dichlorobenzidine	ND	0.0025	1	12/16/2020 18:26
2,4-Dichlorophenol	ND	0.0013	1	12/16/2020 18:26
Diethyl Phthalate	ND	0.013	1	12/16/2020 18:26
2,4-Dimethylphenol	ND	0.25	1	12/16/2020 18:26
Dimethyl Phthalate	ND	0.0025	1	12/16/2020 18:26

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-3.5	2012349-011A	Soil	12/05/2020	GC21 12162026.D	211071

Analytes	Result	RL	DF	Date Analyzed
4,6-Dinitro-2-methylphenol	ND	1.2	1	12/16/2020 18:26
2,4-Dinitrophenol	ND	0.25	1	12/16/2020 18:26
2,4-Dinitrotoluene	ND	0.013	1	12/16/2020 18:26
2,6-Dinitrotoluene	ND	0.013	1	12/16/2020 18:26
Di-n-octyl Phthalate	ND	0.013	1	12/16/2020 18:26
1,2-Diphenylhydrazine	ND	0.25	1	12/16/2020 18:26
Fluoranthene	0.0063	0.0013	1	12/16/2020 18:26
Fluorene	0.010	0.0025	1	12/16/2020 18:26
Hexachlorobenzene	ND	0.0013	1	12/16/2020 18:26
Hexachlorobutadiene	ND	0.0025	1	12/16/2020 18:26
Hexachlorocyclopentadiene	ND	2.0	1	12/16/2020 18:26
Hexachloroethane	ND	0.013	1	12/16/2020 18:26
Indeno (1,2,3-cd) pyrene	ND	0.013	1	12/16/2020 18:26
Isophorone	ND	0.25	1	12/16/2020 18:26
2-Methylnaphthalene	0.015	0.0025	1	12/16/2020 18:26
2-Methylphenol (o-Cresol)	ND	0.25	1	12/16/2020 18:26
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	12/16/2020 18:26
Naphthalene	0.0085	0.0013	1	12/16/2020 18:26
2-Nitroaniline	ND	1.2	1	12/16/2020 18:26
3-Nitroaniline	ND	1.2	1	12/16/2020 18:26
4-Nitroaniline	ND	1.2	1	12/16/2020 18:26
Nitrobenzene	ND	0.25	1	12/16/2020 18:26
2-Nitrophenol	ND	1.2	1	12/16/2020 18:26
4-Nitrophenol	ND	1.2	1	12/16/2020 18:26
N-Nitrosodimethylamine	ND	1.2	1	12/16/2020 18:26
N-Nitrosodiphenylamine	ND	0.25	1	12/16/2020 18:26
N-Nitrosodi-n-propylamine	ND	0.25	1	12/16/2020 18:26
Pentachlorophenol	ND	0.062	1	12/16/2020 18:26
Phenanthrene	0.022	0.0050	1	12/16/2020 18:26
Phenol	ND	0.050	1	12/16/2020 18:26
Pyrene	0.0067	0.0025	1	12/16/2020 18:26
Pyridine	ND	0.25	1	12/16/2020 18:26
1,2,4-Trichlorobenzene	ND	0.25	1	12/16/2020 18:26
2,4,5-Trichlorophenol	ND	0.0025	1	12/16/2020 18:26
2,4,6-Trichlorophenol	ND	0.013	1	12/16/2020 18:26

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/10/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-3.5	2012349-011A	Soil	12/05/2020	GC21 12162026.D	211071

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>	
2-Fluorophenol	84		60-130	12/16/2020 18:26
Phenol-d5	83		60-130	12/16/2020 18:26
Nitrobenzene-d5	75		60-130	12/16/2020 18:26
2-Fluorobiphenyl	77		60-130	12/16/2020 18:26
2,4,6-Tribromophenol	49	S	50-130	12/16/2020 18:26
4-Terphenyl-d14	88		50-130	12/16/2020 18:26

Analyst(s): AK

Analytical Comments: c2



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-1.5	2012349-001A	Soil	12/05/2020	ICP-MS4 321SMPL.d	210786

Analytes	Result	RL	DF	Date Analyzed
Antimony	2.0	0.50	1	12/08/2020 21:53
Arsenic	3.5	0.50	1	12/08/2020 21:53
Barium	71	5.0	1	12/08/2020 21:53
Beryllium	ND	0.50	1	12/08/2020 21:53
Cadmium	ND	0.50	1	12/08/2020 21:53
Chromium	430	0.50	1	12/08/2020 21:53
Cobalt	48	0.50	1	12/08/2020 21:53
Copper	26	0.50	1	12/08/2020 21:53
Lead	5.7	0.50	1	12/08/2020 21:53
Mercury	0.059	0.050	1	12/08/2020 21:53
Molybdenum	ND	0.50	1	12/08/2020 21:53
Nickel	1000	2.5	5	12/09/2020 13:44
Selenium	0.70	0.50	1	12/08/2020 21:53
Silver	ND	0.50	1	12/08/2020 21:53
Thallium	ND	0.50	1	12/08/2020 21:53
Vanadium	50	0.50	1	12/08/2020 21:53
Zinc	54	5.0	1	12/08/2020 21:53

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	100	70-130	12/08/2020 21:53

Analyst(s): WV



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-3.5	2012349-002A	Soil	12/05/2020	ICP-MS4 153SMPL.d	210786

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	12/09/2020 11:32
Arsenic	7.0	0.50	1	12/09/2020 11:32
Barium	31	5.0	1	12/09/2020 11:32
Beryllium	ND	0.50	1	12/09/2020 11:32
Cadmium	ND	0.50	1	12/09/2020 11:32
Chromium	340	0.50	1	12/09/2020 11:32
Cobalt	31	0.50	1	12/09/2020 11:32
Copper	45	0.50	1	12/09/2020 11:32
Lead	5.3	0.50	1	12/09/2020 11:32
Mercury	0.061	0.050	1	12/09/2020 11:32
Molybdenum	0.50	0.50	1	12/09/2020 11:32
Nickel	680	2.5	5	12/09/2020 12:41
Selenium	1.0	0.50	1	12/09/2020 11:32
Silver	ND	0.50	1	12/09/2020 11:32
Thallium	ND	0.50	1	12/09/2020 11:32
Vanadium	67	0.50	1	12/09/2020 11:32
Zinc	62	5.0	1	12/09/2020 11:32

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	107	70-130	12/09/2020 11:32

Analyst(s): DB, JAG



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-1.5	2012349-003A	Soil	12/05/2020	ICP-MS4 154SMPL.d	210786

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	12/09/2020 11:36
Arsenic	2.0	0.50	1	12/09/2020 11:36
Barium	58	5.0	1	12/09/2020 11:36
Beryllium	ND	0.50	1	12/09/2020 11:36
Cadmium	ND	0.50	1	12/09/2020 11:36
Chromium	390	0.50	1	12/09/2020 11:36
Cobalt	55	0.50	1	12/09/2020 11:36
Copper	17	0.50	1	12/09/2020 11:36
Lead	2.0	0.50	1	12/09/2020 11:36
Mercury	0.063	0.050	1	12/09/2020 11:36
Molybdenum	ND	0.50	1	12/09/2020 11:36
Nickel	1100	2.5	5	12/09/2020 12:45
Selenium	0.52	0.50	1	12/09/2020 11:36
Silver	ND	0.50	1	12/09/2020 11:36
Thallium	ND	0.50	1	12/09/2020 11:36
Vanadium	51	0.50	1	12/09/2020 11:36
Zinc	41	5.0	1	12/09/2020 11:36

Surrogates	REC (%)	Limits	
Terbium	99	70-130	12/09/2020 11:36

Analyst(s): DB, JAG



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-3.5	2012349-004A	Soil	12/05/2020	ICP-MS4 160SMPL.d	210786

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	12/09/2020 11:57
Arsenic	5.5	0.50	1	12/09/2020 11:57
Barium	74	5.0	1	12/09/2020 11:57
Beryllium	ND	0.50	1	12/09/2020 11:57
Cadmium	ND	0.50	1	12/09/2020 11:57
Chromium	220	0.50	1	12/09/2020 11:57
Cobalt	40	0.50	1	12/09/2020 11:57
Copper	29	0.50	1	12/09/2020 11:57
Lead	4.2	0.50	1	12/09/2020 11:57
Mercury	0.17	0.050	1	12/09/2020 11:57
Molybdenum	ND	0.50	1	12/09/2020 11:57
Nickel	750	2.5	5	12/09/2020 13:28
Selenium	0.82	0.50	1	12/09/2020 11:57
Silver	ND	0.50	1	12/09/2020 11:57
Thallium	ND	0.50	1	12/09/2020 11:57
Vanadium	57	0.50	1	12/09/2020 11:57
Zinc	54	5.0	1	12/09/2020 11:57

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	110	70-130	12/09/2020 11:57

Analyst(s): WV



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-5.5	2012349-005A	Soil	12/05/2020	ICP-MS4 186SMPL.d	210786
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Antimony	ND		5.0	10	12/09/2020 13:32
Arsenic	ND		5.0	10	12/09/2020 13:32
Barium	ND		50	10	12/09/2020 13:32
Beryllium	ND		5.0	10	12/09/2020 13:32
Cadmium	ND		5.0	10	12/09/2020 13:32
Chromium	770		5.0	10	12/09/2020 13:32
Cobalt	100		5.0	10	12/09/2020 13:32
Copper	9.5		5.0	10	12/09/2020 13:32
Lead	ND		5.0	10	12/09/2020 13:32
Mercury	ND		0.50	10	12/09/2020 13:32
Molybdenum	ND		5.0	10	12/09/2020 13:32
Nickel	2100		5.0	10	12/09/2020 13:32
Selenium	ND		5.0	10	12/09/2020 13:32
Silver	ND		5.0	10	12/09/2020 13:32
Thallium	ND		5.0	10	12/09/2020 13:32
Vanadium	21		5.0	10	12/09/2020 13:32
Zinc	ND		50	10	12/09/2020 13:32

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>	
Terbium	106	70-130	12/09/2020 13:32

Analyst(s): WV

Analytical Comments: a1



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-1.5	2012349-007A	Soil	12/05/2020	ICP-MS4 163SMPL.d	210786

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	12/09/2020 12:09
Arsenic	4.6	0.50	1	12/09/2020 12:09
Barium	91	5.0	1	12/09/2020 12:09
Beryllium	ND	0.50	1	12/09/2020 12:09
Cadmium	ND	0.50	1	12/09/2020 12:09
Chromium	500	2.5	5	12/09/2020 13:35
Cobalt	51	0.50	1	12/09/2020 12:09
Copper	30	0.50	1	12/09/2020 12:09
Lead	5.7	0.50	1	12/09/2020 12:09
Mercury	0.087	0.050	1	12/09/2020 12:09
Molybdenum	ND	0.50	1	12/09/2020 12:09
Nickel	1100	2.5	5	12/09/2020 13:35
Selenium	0.72	0.50	1	12/09/2020 12:09
Silver	ND	0.50	1	12/09/2020 12:09
Thallium	ND	0.50	1	12/09/2020 12:09
Vanadium	52	0.50	1	12/09/2020 12:09
Zinc	50	5.0	1	12/09/2020 12:09

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	105	70-130	12/09/2020 12:09

Analyst(s): WV



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-3.5	2012349-008A	Soil	12/05/2020	ICP-MS4 164SMPL.d	210786

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	12/09/2020 12:12
Arsenic	2.6	0.50	1	12/09/2020 12:12
Barium	55	5.0	1	12/09/2020 12:12
Beryllium	ND	0.50	1	12/09/2020 12:12
Cadmium	ND	0.50	1	12/09/2020 12:12
Chromium	850	2.5	5	12/09/2020 13:39
Cobalt	97	0.50	1	12/09/2020 12:12
Copper	14	0.50	1	12/09/2020 12:12
Lead	0.66	0.50	1	12/09/2020 12:12
Mercury	0.066	0.050	1	12/09/2020 12:12
Molybdenum	ND	0.50	1	12/09/2020 12:12
Nickel	1900	2.5	5	12/09/2020 13:39
Selenium	ND	0.50	1	12/09/2020 12:12
Silver	ND	0.50	1	12/09/2020 12:12
Thallium	ND	0.50	1	12/09/2020 12:12
Vanadium	41	0.50	1	12/09/2020 12:12
Zinc	37	5.0	1	12/09/2020 12:12

Surrogates	REC (%)	Limits	
Terbium	108	70-130	12/09/2020 12:12

Analyst(s): WV



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-5.5	2012349-009A	Soil	12/05/2020	ICP-MS4 165SMPL.d	210786

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	12/09/2020 12:16
Arsenic	1.1	0.50	1	12/09/2020 12:16
Barium	170	5.0	1	12/09/2020 12:16
Beryllium	ND	0.50	1	12/09/2020 12:16
Cadmium	ND	0.50	1	12/09/2020 12:16
Chromium	240	0.50	1	12/09/2020 12:16
Cobalt	40	0.50	1	12/09/2020 12:16
Copper	27	0.50	1	12/09/2020 12:16
Lead	4.8	0.50	1	12/09/2020 12:16
Mercury	ND	0.050	1	12/09/2020 12:16
Molybdenum	ND	0.50	1	12/09/2020 12:16
Nickel	670	2.5	5	12/09/2020 13:42
Selenium	0.67	0.50	1	12/09/2020 12:16
Silver	ND	0.50	1	12/09/2020 12:16
Thallium	ND	0.50	1	12/09/2020 12:16
Vanadium	39	0.50	1	12/09/2020 12:16
Zinc	57	5.0	1	12/09/2020 12:16

Surrogates	REC (%)	Limits	
Terbium	107	70-130	12/09/2020 12:16

Analyst(s): WV



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-1.5	2012349-010A	Soil	12/05/2020	ICP-MS4 166SMPL.d	210786

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	12/09/2020 12:20
Arsenic	1.9	0.50	1	12/09/2020 12:20
Barium	62	5.0	1	12/09/2020 12:20
Beryllium	ND	0.50	1	12/09/2020 12:20
Cadmium	ND	0.50	1	12/09/2020 12:20
Chromium	610	2.5	5	12/09/2020 13:46
Cobalt	56	0.50	1	12/09/2020 12:20
Copper	28	0.50	1	12/09/2020 12:20
Lead	2.7	0.50	1	12/09/2020 12:20
Mercury	ND	0.050	1	12/09/2020 12:20
Molybdenum	ND	0.50	1	12/09/2020 12:20
Nickel	1300	2.5	5	12/09/2020 13:46
Selenium	ND	0.50	1	12/09/2020 12:20
Silver	ND	0.50	1	12/09/2020 12:20
Thallium	ND	0.50	1	12/09/2020 12:20
Vanadium	34	0.50	1	12/09/2020 12:20
Zinc	54	5.0	1	12/09/2020 12:20

Surrogates	REC (%)	Limits	
Terbium	96	70-130	12/09/2020 12:20

Analyst(s): WV



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-3.5	2012349-011A	Soil	12/05/2020	ICP-MS4 168SMPL.d	210786

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	12/09/2020 12:27
Arsenic	3.9	0.50	1	12/09/2020 12:27
Barium	80	5.0	1	12/09/2020 12:27
Beryllium	ND	0.50	1	12/09/2020 12:27
Cadmium	ND	0.50	1	12/09/2020 12:27
Chromium	690	2.5	5	12/09/2020 13:50
Cobalt	50	0.50	1	12/09/2020 12:27
Copper	26	0.50	1	12/09/2020 12:27
Lead	7.7	0.50	1	12/09/2020 12:27
Mercury	0.073	0.050	1	12/09/2020 12:27
Molybdenum	ND	0.50	1	12/09/2020 12:27
Nickel	1200	2.5	5	12/09/2020 13:50
Selenium	0.71	0.50	1	12/09/2020 12:27
Silver	ND	0.50	1	12/09/2020 12:27
Thallium	ND	0.50	1	12/09/2020 12:27
Vanadium	51	0.50	1	12/09/2020 12:27
Zinc	49	5.0	1	12/09/2020 12:27

Surrogates	REC (%)	Limits	
Terbium	109	70-130	12/09/2020 12:27

Analyst(s): WV



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-5.5	2012349-012A	Soil	12/05/2020	ICP-MS5 212SMPL.d	210786
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Antimony	ND		0.50	1	12/09/2020 14:47
Arsenic	2.2		0.50	1	12/09/2020 14:47
Barium	27		5.0	1	12/09/2020 14:47
Beryllium	ND		0.50	1	12/09/2020 14:47
Cadmium	ND		0.50	1	12/09/2020 14:47
Chromium	750		2.5	5	12/09/2020 15:37
Cobalt	80		0.50	1	12/09/2020 14:47
Copper	18		0.50	1	12/09/2020 14:47
Lead	1.8		0.50	1	12/09/2020 14:47
Mercury	0.095		0.050	1	12/09/2020 14:47
Molybdenum	ND		0.50	1	12/09/2020 14:47
Nickel	1500		2.5	5	12/09/2020 15:37
Selenium	ND		0.50	1	12/09/2020 14:47
Silver	ND		0.50	1	12/09/2020 14:47
Thallium	ND		0.50	1	12/09/2020 14:47
Vanadium	29		0.50	1	12/09/2020 14:47
Zinc	37		5.0	1	12/09/2020 14:47

Surrogates	REC (%)	Limits	
Terbium	107	70-130	12/09/2020 14:47

Analyst(s): JAG, MIG



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-10.5	2012349-013A	Soil	12/05/2020	ICP-MS5 213SMPL.d	210786

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	12/09/2020 14:50
Arsenic	5.9	0.50	1	12/09/2020 14:50
Barium	92	5.0	1	12/09/2020 14:50
Beryllium	ND	0.50	1	12/09/2020 14:50
Cadmium	ND	0.50	1	12/09/2020 14:50
Chromium	410	0.50	1	12/09/2020 14:50
Cobalt	41	0.50	1	12/09/2020 14:50
Copper	38	0.50	1	12/09/2020 14:50
Lead	6.5	0.50	1	12/09/2020 14:50
Mercury	0.12	0.050	1	12/09/2020 14:50
Molybdenum	0.57	0.50	1	12/09/2020 14:50
Nickel	760	1.0	2	12/09/2020 15:41
Selenium	0.60	0.50	1	12/09/2020 14:50
Silver	ND	0.50	1	12/09/2020 14:50
Thallium	ND	0.50	1	12/09/2020 14:50
Vanadium	67	0.50	1	12/09/2020 14:50
Zinc	70	5.0	1	12/09/2020 14:50

Surrogates	REC (%)	Limits	
Terbium	105	70-130	12/09/2020 14:50

Analyst(s): JAG, MIG



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: CARB 435 Asbestos
Analytical Method: 435 CARB
Unit: %

Asbestos (CARB 435) 400 Point Count

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-1.5	2012349-001A	Soil	12/05/2020	Microscope	211151

Analytes	Result	RL	DF	Date Analyzed
Asbestos	3.25	0.25	1	12/10/2020 11:00

Analyst(s): DA Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-3.5	2012349-002A	Soil	12/05/2020	Microscope	211151

Analytes	Result	RL	DF	Date Analyzed
Asbestos	0.50	0.25	1	12/10/2020 12:35

Analyst(s): DA Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-1.5	2012349-003A	Soil	12/05/2020	Microscope	211151

Analytes	Result	RL	DF	Date Analyzed
Asbestos	3.75	0.25	1	12/10/2020 14:10

Analyst(s): DA Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-3.5	2012349-004A	Soil	12/05/2020	Microscope	211151

Analytes	Result	RL	DF	Date Analyzed
Asbestos	2.75	0.25	1	12/11/2020 11:00

Analyst(s): DA Analytical Comments: k15

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: CARB 435 Asbestos
Analytical Method: 435 CARB
Unit: %

Asbestos (CARB 435) 400 Point Count

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-5.5	2012349-005A	Soil	12/05/2020	Microscope	211151

Analytes	Result	RL	DF	Date Analyzed
Asbestos	7.00	0.25	1	12/11/2020 12:55

Analyst(s): DA

Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-1.5	2012349-007A	Soil	12/05/2020	Microscope	211263

Analytes	Result	RL	DF	Date Analyzed
Asbestos	5.50	0.25	1	12/11/2020 16:00

Analyst(s): DA

Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-3.5	2012349-008A	Soil	12/05/2020	Microscope	211263

Analytes	Result	RL	DF	Date Analyzed
Asbestos	> 10%	0.25	1	12/14/2020 09:30

Analyst(s): DA

Analytical Comments: k11,k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-5.5	2012349-009A	Soil	12/05/2020	Microscope	211263

Analytes	Result	RL	DF	Date Analyzed
Asbestos	9.25	0.25	1	12/14/2020 11:30

Analyst(s): DA

Analytical Comments: k15

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: CARB 435 Asbestos
Analytical Method: 435 CARB
Unit: %

Asbestos (CARB 435) 400 Point Count

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-1.5	2012349-010A	Soil	12/05/2020	Microscope	211384

Analytes	Result	RL	DF	Date Analyzed
Asbestos	6.25	0.25	1	12/14/2020 15:30

Analyst(s): DA

Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-3.5	2012349-011A	Soil	12/05/2020	Microscope	211384

Analytes	Result	RL	DF	Date Analyzed
Asbestos	3.25	0.25	1	12/14/2020 17:30

Analyst(s): DA

Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-5.5	2012349-012A	Soil	12/05/2020	Microscope	211384

Analytes	Result	RL	DF	Date Analyzed
Asbestos	3.75	0.25	1	12/15/2020 09:40

Analyst(s): DA

Analytical Comments: k15

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-10.5	2012349-013A	Soil	12/05/2020	Microscope	211384

Analytes	Result	RL	DF	Date Analyzed
Asbestos	2.75	0.25	1	12/15/2020 11:20

Analyst(s): DA

Analytical Comments: k15



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/11/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SM4500-CN⁻ E
Analytical Method: SM4500-CN⁻ CE
Unit: mg/Kg

Cyanide, Total

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-1.5	2012349-001A	Soil	12/05/2020	WC_SKALAR 121420a1_54	211285

Analytes	Result	RL	DF	Date Analyzed
Total Cyanide	ND	0.10	1	12/14/2020 15:10

Analyst(s): NM



Analytical Report

Client: Langan	WorkOrder: 2012349
Date Received: 12/07/2020 14:25	Extraction Method: SW5035
Date Prepared: 12/08/2020-12/11/2020	Analytical Method: SW8021B/8015Bm
Project: 731744801; HPSY	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-1-1.5	2012349-001A	Soil	12/05/2020	GC19 12122027.D	210761

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	12/12/2020 23:59
MTBE	---	0.050	1	12/12/2020 23:59
Benzene	---	0.0050	1	12/12/2020 23:59
Toluene	---	0.0050	1	12/12/2020 23:59
Ethylbenzene	---	0.0050	1	12/12/2020 23:59
m,p-Xylene	---	0.010	1	12/12/2020 23:59
o-Xylene	---	0.0050	1	12/12/2020 23:59
Xylenes	---	0.0050	1	12/12/2020 23:59

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	93	62-126	12/12/2020 23:59

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-3.5	2012349-002A	Soil	12/05/2020	GC3 12142005.D	211116

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	3.5	1.0	1	12/14/2020 14:24
MTBE	---	0.050	1	12/14/2020 14:24
Benzene	---	0.0050	1	12/14/2020 14:24
Toluene	---	0.0050	1	12/14/2020 14:24
Ethylbenzene	---	0.0050	1	12/14/2020 14:24
m,p-Xylene	---	0.010	1	12/14/2020 14:24
o-Xylene	---	0.0050	1	12/14/2020 14:24
Xylenes	---	0.0050	1	12/14/2020 14:24

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	83	62-126	12/14/2020 14:24

Analyst(s): IA

Analytical Comments: d1

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020-12/11/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5035
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-2-1.5	2012349-003A	Soil	12/05/2020	GC19 12102036.D	210761

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	12/11/2020 09:01
MTBE	---	0.050	1	12/11/2020 09:01
Benzene	---	0.0050	1	12/11/2020 09:01
Toluene	---	0.0050	1	12/11/2020 09:01
Ethylbenzene	---	0.0050	1	12/11/2020 09:01
m,p-Xylene	---	0.010	1	12/11/2020 09:01
o-Xylene	---	0.0050	1	12/11/2020 09:01
Xylenes	---	0.0050	1	12/11/2020 09:01

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	87	62-126	12/11/2020 09:01

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-3.5	2012349-004A	Soil	12/05/2020	GC7 12102033.D	210761

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	12/11/2020 06:25
MTBE	---	0.050	1	12/11/2020 06:25
Benzene	---	0.0050	1	12/11/2020 06:25
Toluene	---	0.0050	1	12/11/2020 06:25
Ethylbenzene	---	0.0050	1	12/11/2020 06:25
m,p-Xylene	---	0.010	1	12/11/2020 06:25
o-Xylene	---	0.0050	1	12/11/2020 06:25
Xylenes	---	0.0050	1	12/11/2020 06:25

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	87	62-126	12/11/2020 06:25

Analyst(s): IA

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020-12/11/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW5035
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-3-1.5	2012349-007A	Soil	12/05/2020	GC19 12122029.D	210761
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH(g) (C6-C12)	ND		1.0	1	12/13/2020 00:59
MTBE	---		0.050	1	12/13/2020 00:59
Benzene	---		0.0050	1	12/13/2020 00:59
Toluene	---		0.0050	1	12/13/2020 00:59
Ethylbenzene	---		0.0050	1	12/13/2020 00:59
m,p-Xylene	---		0.010	1	12/13/2020 00:59
o-Xylene	---		0.0050	1	12/13/2020 00:59
Xylenes	---		0.0050	1	12/13/2020 00:59
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
2-Fluorotoluene	86		62-126		12/13/2020 00:59
Analyst(s): IA					

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-3.5	2012349-008A	Soil	12/05/2020	GC19 12102031.D	210761
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH(g) (C6-C12)	ND		1.0	1	12/11/2020 06:30
MTBE	---		0.050	1	12/11/2020 06:30
Benzene	---		0.0050	1	12/11/2020 06:30
Toluene	---		0.0050	1	12/11/2020 06:30
Ethylbenzene	---		0.0050	1	12/11/2020 06:30
m,p-Xylene	---		0.010	1	12/11/2020 06:30
o-Xylene	---		0.0050	1	12/11/2020 06:30
Xylenes	---		0.0050	1	12/11/2020 06:30
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
2-Fluorotoluene	93		62-126		12/11/2020 06:30
Analyst(s): IA					

(Cont.)



Analytical Report

Client: Langan	WorkOrder: 2012349
Date Received: 12/07/2020 14:25	Extraction Method: SW5035
Date Prepared: 12/08/2020-12/11/2020	Analytical Method: SW8021B/8015Bm
Project: 731744801; HPSY	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-4-1.5	2012349-010A	Soil	12/05/2020	GC19 12102039.D	210761

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	12/11/2020 10:32
MTBE	---	0.050	1	12/11/2020 10:32
Benzene	---	0.0050	1	12/11/2020 10:32
Toluene	---	0.0050	1	12/11/2020 10:32
Ethylbenzene	---	0.0050	1	12/11/2020 10:32
m,p-Xylene	---	0.010	1	12/11/2020 10:32
o-Xylene	---	0.0050	1	12/11/2020 10:32
Xylenes	---	0.0050	1	12/11/2020 10:32

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	88	62-126	12/11/2020 10:32

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-3.5	2012349-011A	Soil	12/05/2020	GC19 12112012.D	211083

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	12/11/2020 20:44
MTBE	---	0.050	1	12/11/2020 20:44
Benzene	---	0.0050	1	12/11/2020 20:44
Toluene	---	0.0050	1	12/11/2020 20:44
Ethylbenzene	---	0.0050	1	12/11/2020 20:44
m,p-Xylene	---	0.010	1	12/11/2020 20:44
o-Xylene	---	0.0050	1	12/11/2020 20:44
Xylenes	---	0.0050	1	12/11/2020 20:44

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	88	62-126	12/11/2020 20:44

Analyst(s): IA



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW9045C
Analytical Method: SW9045C
Unit: pH units @ 25°C

pH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-1.5	2012349-001A	Soil	12/05/2020	WetChem	210856

Analytes	Result	Accuracy	DF	Date Analyzed
pH	7.46	±0.1	1	12/08/2020 19:27

Analyst(s): NYG



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/14/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW9030B/E376.2
Analytical Method: SM4500 S⁻² D
Unit: mg/Kg

Acid Soluble Sulfide - S

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-1.5	2012349-001A	Soil	12/05/2020	SPECTROPHOTOMETER	211236

Analytes	Result	RL	DF	Date Analyzed
Acid Soluble Sulfide - S	ND	50	5	12/14/2020 15:33

Analyst(s): PHU



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-1.5	2012349-001A	Soil	12/05/2020	GC39A 12122052.D	210760

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)	ND	1.0	1	12/12/2020 10:35
TPH-Motor Oil (C18-C36)	ND	5.0	1	12/12/2020 10:35

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>	<u>Date Analyzed</u>
C9	115	70-130	12/12/2020 10:35

Analyst(s): JIS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-3.5	2012349-002A	Soil	12/05/2020	GC39B 12122025.D	210760

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)	ND	1.0	1	12/12/2020 02:07
TPH-Motor Oil (C18-C36)	ND	5.0	1	12/12/2020 02:07

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>	<u>Date Analyzed</u>
C9	105	70-130	12/12/2020 02:07

Analyst(s): JIS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-1.5	2012349-003A	Soil	12/05/2020	GC9a 12142022.D	210760

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)	ND	1.0	1	12/14/2020 15:44
TPH-Motor Oil (C18-C36)	15	5.0	1	12/14/2020 15:44

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>	<u>Date Analyzed</u>
C9	98	70-130	12/14/2020 15:44

Analyst(s): JIS

Analytical Comments: e7

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-3.5	2012349-004A	Soil	12/05/2020	GC39B 12122015.D	210760

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	12/11/2020 22:52
TPH-Motor Oil (C18-C36)	ND	5.0	1	12/11/2020 22:52

Surrogates	REC (%)	Limits	Date Analyzed
C9	105	70-130	12/11/2020 22:52

Analyst(s): JIS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-1.5	2012349-007A	Soil	12/05/2020	GC39B 12122019.D	210760

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	12/12/2020 00:10
TPH-Motor Oil (C18-C36)	ND	5.0	1	12/12/2020 00:10

Surrogates	REC (%)	Limits	Date Analyzed
C9	105	70-130	12/12/2020 00:10

Analyst(s): JIS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-3.5	2012349-008A	Soil	12/05/2020	GC39B 12122017.D	210760

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	12/11/2020 23:31
TPH-Motor Oil (C18-C36)	ND	5.0	1	12/11/2020 23:31

Surrogates	REC (%)	Limits	Date Analyzed
C9	105	70-130	12/11/2020 23:31

Analyst(s): JIS

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Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/08/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-1.5	2012349-010A	Soil	12/05/2020	GC39B 12122021.D	210760

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	12/12/2020 00:49
TPH-Motor Oil (C18-C36)	ND	5.0	1	12/12/2020 00:49

Surrogates	REC (%)	Limits	Date Analyzed
C9	106	70-130	12/12/2020 00:49

Analyst(s): JIS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-3.5	2012349-011A	Soil	12/05/2020	GC39B 12122027.D	210760

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	12/12/2020 02:46
TPH-Motor Oil (C18-C36)	ND	5.0	1	12/12/2020 02:46

Surrogates	REC (%)	Limits	Date Analyzed
C9	106	70-130	12/12/2020 02:46

Analyst(s): JIS



Quality Control Report

Client: Langan
Date Prepared: 12/09/2020
Date Analyzed: 12/09/2020
Instrument: GC23
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 210937
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg
Sample ID: MB/LCS/LCSD-210937

QC Summary Report for SW8081A/8082

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Aldrin	ND	0.0000360	0.000100	-	-	-
a-BHC	ND	0.0000250	0.000100	-	-	-
b-BHC	ND	0.000250	0.000300	-	-	-
d-BHC	ND	0.000130	0.000200	-	-	-
g-BHC	ND	0.0000660	0.000100	-	-	-
Chlordane (Technical)	ND	0.000430	0.00250	-	-	-
a-Chlordane	ND	0.0000950	0.000100	-	-	-
g-Chlordane	ND	0.0000470	0.000100	-	-	-
p,p-DDD	ND	0.0000430	0.000100	-	-	-
p,p-DDE	ND	0.0000940	0.000100	-	-	-
p,p-DDT	ND	0.0000920	0.000100	-	-	-
Dieldrin	ND	0.0000610	0.000100	-	-	-
Endosulfan I	ND	0.0000480	0.000100	-	-	-
Endosulfan II	ND	0.0000760	0.000100	-	-	-
Endosulfan sulfate	ND	0.0000780	0.000100	-	-	-
Endrin	ND	0.0000350	0.000100	-	-	-
Endrin aldehyde	ND	0.0000670	0.000100	-	-	-
Endrin ketone	ND	0.0000840	0.000100	-	-	-
Heptachlor	ND	0.0000400	0.000100	-	-	-
Heptachlor epoxide	ND	0.0000540	0.000100	-	-	-
Hexachlorobenzene	ND	0.000110	0.00100	-	-	-
Hexachlorocyclopentadiene	ND	0.000340	0.00200	-	-	-
Methoxychlor	ND	0.000130	0.000200	-	-	-
Toxaphene	ND	0.00340	0.00500	-	-	-
Aroclor1016	ND	0.00200	0.00500	-	-	-
Aroclor1221	ND	0.00220	0.00500	-	-	-
Aroclor1232	ND	0.00220	0.00500	-	-	-
Aroclor1242	ND	0.00220	0.00500	-	-	-
Aroclor1248	ND	0.00220	0.00500	-	-	-
Aroclor1254	ND	0.00220	0.00500	-	-	-
Aroclor1260	ND	0.00220	0.00500	-	-	-
Surrogate Recovery						
Decachlorobiphenyl	0.00549			0.005	110	28-170

(Cont.)



Quality Control Report

Client: Langan
Date Prepared: 12/09/2020
Date Analyzed: 12/09/2020
Instrument: GC23
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 210937
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A/8082
Unit: mg/kg
Sample ID: MB/LCS/LCSD-210937

QC Summary Report for SW8081A/8082

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Aldrin	0.00418	0.00441	0.0050	84	88	31-155	5.39	20
a-BHC	0.00453	0.00486	0.0050	91	97	32-160	7.14	20
b-BHC	0.00418	0.00435	0.0050	84	87	44-149	3.90	20
d-BHC	0.00449	0.00464	0.0050	90	93	37-157	3.24	20
g-BHC	0.00447	0.00465	0.0050	89	93	43-154	3.91	20
a-Chlordane	0.00438	0.00450	0.0050	88	90	39-150	2.83	20
g-Chlordane	0.00430	0.00443	0.0050	86	89	39-151	2.88	20
p,p-DDD	0.00485	0.00498	0.0050	97	100	30-158	2.50	20
p,p-DDE	0.00442	0.00452	0.0050	88	90	47-149	2.22	20
p,p-DDT	0.00438	0.00448	0.0050	88	89	56-166	2.04	20
Dieldrin	0.00518	0.00532	0.0050	104	106	50-163	2.63	20
Endosulfan I	0.00448	0.00460	0.0050	90	92	45-159	2.65	20
Endosulfan II	0.00441	0.00457	0.0050	88	91	41-155	3.53	20
Endosulfan sulfate	0.00418	0.00436	0.0050	84	87	45-156	4.34	20
Endrin	0.00449	0.00457	0.0050	90	91	54-154	1.69	20
Endrin aldehyde	0.00410	0.00427	0.0050	82	85	27-159	4.13	20
Endrin ketone	0.00451	0.00471	0.0050	90	94	40-147	4.44	20
Heptachlor	0.00417	0.00430	0.0050	83	86	52-165	3.06	20
Heptachlor epoxide	0.00406	0.00433	0.0050	81	87	46-145	6.36	20
Hexachlorobenzene	0.00380	0.00394	0.0050	76	79	22-156	3.60	20
Hexachlorocyclopentadiene	0.00234	0.00244	0.0050	47	49	43-173	4.28	20
Methoxychlor	0.00409	0.00440	0.0050	82	88	49-150	7.22	20
Aroclor1016	0.0124	0.0130	0.015	83	86	49-120	4.49	20
Aroclor1260	0.0124	0.0136	0.015	83	91	48-160	9.24	20
Surrogate Recovery								
Decachlorobiphenyl	0.00572	0.00556	0.0050	114	111	28-170	2.82	20



Quality Control Report

Client: Langan
Date Prepared: 12/08/2020
Date Analyzed: 12/11/2020 - 12/12/2020
Instrument: GC16
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 210787
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS/LCSD-210787
 2012349-011AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Acetone	ND	0.120	0.200	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.000740	0.00500	-	-	-
Benzene	ND	0.000870	0.00500	-	-	-
Bromobenzene	ND	0.000910	0.00500	-	-	-
Bromochloromethane	ND	0.000910	0.00500	-	-	-
Bromodichloromethane	ND	0.0000940	0.00500	-	-	-
Bromoform	ND	0.00390	0.00500	-	-	-
Bromomethane	ND	0.00250	0.00500	-	-	-
2-Butanone (MEK)	ND	0.0230	0.0500	-	-	-
t-Butyl alcohol (TBA)	ND	0.0230	0.0500	-	-	-
n-Butyl benzene	ND	0.00140	0.00500	-	-	-
sec-Butyl benzene	ND	0.00150	0.00500	-	-	-
tert-Butyl benzene	ND	0.00170	0.00500	-	-	-
Carbon Disulfide	ND	0.00150	0.00500	-	-	-
Carbon Tetrachloride	ND	0.000120	0.00500	-	-	-
Chlorobenzene	ND	0.000870	0.00500	-	-	-
Chloroethane	ND	0.00160	0.00500	-	-	-
Chloroform	ND	0.000190	0.00500	-	-	-
Chloromethane	ND	0.00170	0.00500	-	-	-
2-Chlorotoluene	ND	0.00130	0.00500	-	-	-
4-Chlorotoluene	ND	0.00100	0.00500	-	-	-
Dibromochloromethane	ND	0.000420	0.00500	-	-	-
1,2-Dibromo-3-chloropropane	ND	0.000490	0.000500	-	-	-
1,2-Dibromoethane (EDB)	ND	0.000120	0.000250	-	-	-
Dibromomethane	ND	0.000950	0.00500	-	-	-
1,2-Dichlorobenzene	ND	0.00230	0.00500	-	-	-
1,3-Dichlorobenzene	ND	0.00100	0.00500	-	-	-
1,4-Dichlorobenzene	ND	0.00100	0.00500	-	-	-
Dichlorodifluoromethane	ND	0.00170	0.00500	-	-	-
1,1-Dichloroethane	ND	0.000810	0.00500	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0000710	0.000100	-	-	-
1,1-Dichloroethene	ND	0.0000690	0.00500	-	-	-
cis-1,2-Dichloroethene	ND	0.000750	0.00500	-	-	-
trans-1,2-Dichloroethene	ND	0.00120	0.00500	-	-	-
1,2-Dichloropropane	ND	0.000780	0.00500	-	-	-
1,3-Dichloropropane	ND	0.00100	0.00500	-	-	-
2,2-Dichloropropane	ND	0.00120	0.00500	-	-	-
1,1-Dichloropropene	ND	0.000960	0.00500	-	-	-

(Cont.)



Quality Control Report

Client: Langan
Date Prepared: 12/08/2020
Date Analyzed: 12/11/2020 - 12/12/2020
Instrument: GC16
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 210787
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS/LCSD-210787
 2012349-011AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
cis-1,3-Dichloropropene	ND	0.000660	0.00500	-	-	-
trans-1,3-Dichloropropene	ND	0.000670	0.00500	-	-	-
Diisopropyl ether (DIPE)	ND	0.000780	0.00500	-	-	-
Ethylbenzene	ND	0.00110	0.00500	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.000730	0.00500	-	-	-
Freon 113	ND	0.00110	0.00500	-	-	-
Hexachlorobutadiene	ND	0.00120	0.00500	-	-	-
Hexachloroethane	ND	0.000670	0.00500	-	-	-
2-Hexanone	ND	0.00430	0.00500	-	-	-
Isopropylbenzene	ND	0.00140	0.00500	-	-	-
4-Isopropyl toluene	ND	0.00130	0.00500	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.00140	0.00500	-	-	-
Methylene chloride	ND	0.00580	0.0200	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	0.00150	0.00500	-	-	-
Naphthalene	ND	0.00220	0.00500	-	-	-
n-Propyl benzene	ND	0.00160	0.00500	-	-	-
Styrene	ND	0.00120	0.00500	-	-	-
1,1,1,2-Tetrachloroethane	ND	0.00100	0.00500	-	-	-
1,1,2,2-Tetrachloroethane	ND	0.000280	0.00500	-	-	-
Tetrachloroethene	ND	0.000310	0.00500	-	-	-
Toluene	ND	0.00120	0.00500	-	-	-
1,2,3-Trichlorobenzene	ND	0.00170	0.00500	-	-	-
1,2,4-Trichlorobenzene	ND	0.00120	0.00500	-	-	-
1,1,1-Trichloroethane	ND	0.000840	0.00500	-	-	-
1,1,2-Trichloroethane	ND	0.000920	0.00500	-	-	-
Trichloroethene	ND	0.000810	0.00500	-	-	-
Trichlorofluoromethane	ND	0.00130	0.00500	-	-	-
1,2,3-Trichloropropane	ND	0.000150	0.000250	-	-	-
1,2,4-Trimethylbenzene	ND	0.00320	0.00500	-	-	-
1,3,5-Trimethylbenzene	ND	0.00120	0.00500	-	-	-
Vinyl Chloride	ND	0.000130	0.000250	-	-	-
m,p-Xylene	ND	0.00250	0.00500	-	-	-
o-Xylene	ND	0.00120	0.00500	-	-	-

(Cont.)



Quality Control Report

Client: Langan
Date Prepared: 12/08/2020
Date Analyzed: 12/11/2020 - 12/12/2020
Instrument: GC16
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 210787
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS/LCSD-210787
 2012349-011AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Surrogate Recovery						
Dibromofluoromethane	0.122			0.125	98	87-127
Toluene-d8	0.152			0.125	121	93-141
4-BFB	0.0127			0.0125	102	84-137
Benzene-d6	0.116			0.1	116	67-131
Ethylbenzene-d10	0.131			0.1	131	78-153
1,2-DCB-d4	0.0709			0.1	71	63-109

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Quality Control Report

Client: Langan
Date Prepared: 12/08/2020
Date Analyzed: 12/11/2020 - 12/12/2020
Instrument: GC16
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 210787
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS/LCSD-210787
 2012349-011AMS/MSD

QC Summary Report for SW8260B

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Acetone	0.229	0.247	0.20	114	124	48-156	7.85	30
tert-Amyl methyl ether (TAME)	0.0138	0.0146	0.020	69	73	56-115	5.30	30
Benzene	0.0162	0.0170	0.020	81	85	63-131	4.79	30
Bromobenzene	0.0171	0.0189	0.020	86	95	66-127	9.89	30
Bromochloromethane	0.0175	0.0184	0.020	88	92	64-124	5.09	30
Bromodichloromethane	0.0150	0.0157	0.020	75	78	64-120	4.44	30
Bromoform	0.0152	0.0166	0.020	76	83	48-92	8.55	30
Bromomethane	0.0147	0.0155	0.020	74	78	25-163	5.31	30
2-Butanone (MEK)	0.0745	0.0780	0.080	93	97	51-133	4.51	30
t-Butyl alcohol (TBA)	0.0639	0.0741	0.080	80	93	52-129	14.7	30
n-Butyl benzene	0.0234	0.0245	0.020	117	122	83-200	4.52	30
sec-Butyl benzene	0.0224	0.0231	0.020	112	115	81-199	3.23	30
tert-Butyl benzene	0.0217	0.0224	0.020	109	112	79-178	2.87	30
Carbon Disulfide	0.0152	0.0158	0.020	76	79	64-136	3.98	30
Carbon Tetrachloride	0.0150	0.0155	0.020	75	78	66-140	3.62	30
Chlorobenzene	0.0167	0.0175	0.020	83	87	73-116	4.85	30
Chloroethane	0.0161	0.0168	0.020	80	84	35-147	4.20	30
Chloroform	0.0170	0.0176	0.020	85	88	65-130	3.80	30
Chloromethane	0.0135	0.0145	0.020	68	72	30-137	6.85	30
2-Chlorotoluene	0.0192	0.0209	0.020	96	104	75-152	8.13	30
4-Chlorotoluene	0.0192	0.0209	0.020	96	104	71-148	8.66	30
Dibromochloromethane	0.0148	0.0153	0.020	74	77	61-106	3.61	30
1,2-Dibromo-3-chloropropane	0.00738	0.00804	0.010	74	80	36-120	8.68	30
1,2-Dibromoethane (EDB)	0.00888	0.00930	0.010	89	93	67-118	4.61	30
Dibromomethane	0.0146	0.0152	0.020	73	76	61-116	4.05	30
1,2-Dichlorobenzene	0.0140	0.0151	0.020	70	76	59-106	7.50	30
1,3-Dichlorobenzene	0.0174	0.0185	0.020	87	92	75-129	5.80	30
1,4-Dichlorobenzene	0.0174	0.0185	0.020	87	93	66-127	6.35	30
Dichlorodifluoromethane	0.00456	0.00487	0.020	23	24	13-74	6.65	30
1,1-Dichloroethane	0.0167	0.0173	0.020	83	86	65-134	3.60	30
1,2-Dichloroethane (1,2-DCA)	0.0167	0.0174	0.020	84	87	57-131	4.05	30
1,1-Dichloroethene	0.0161	0.0166	0.020	80	83	62-127	3.49	30
cis-1,2-Dichloroethene	0.0163	0.0167	0.020	82	84	66-130	2.22	30
trans-1,2-Dichloroethene	0.0159	0.0163	0.020	80	82	60-131	2.49	30
1,2-Dichloropropane	0.0156	0.0162	0.020	78	81	63-127	3.44	30
1,3-Dichloropropane	0.0170	0.0180	0.020	85	90	68-124	5.83	30
2,2-Dichloropropane	0.0165	0.0170	0.020	83	85	63-150	2.79	30
1,1-Dichloropropene	0.0158	0.0164	0.020	79	82	67-134	3.70	30

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Quality Control Report

Client: Langan
Date Prepared: 12/08/2020
Date Analyzed: 12/11/2020 - 12/12/2020
Instrument: GC16
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 210787
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS/LCSD-210787
 2012349-011AMS/MSD

QC Summary Report for SW8260B

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
cis-1,3-Dichloropropene	0.0168	0.0172	0.020	84	86	65-138	2.68	30
trans-1,3-Dichloropropene	0.0160	0.0166	0.020	80	83	66-124	3.73	30
Diisopropyl ether (DIPE)	0.0166	0.0173	0.020	83	86	58-129	3.83	30
Ethylbenzene	0.0176	0.0181	0.020	88	90	73-145	2.67	30
Ethyl tert-butyl ether (ETBE)	0.0160	0.0165	0.020	80	83	62-125	3.06	30
Freon 113	0.0143	0.0147	0.020	71	74	55-116	3.12	30
Hexachlorobutadiene	0.0239	0.0256	0.020	120	128	75-178	6.95	30
Hexachloroethane	0.0179	0.0193	0.020	90	96	75-152	7.25	30
2-Hexanone	0.0118	0.0132	0.020	59	66	41-113	11.6	30
Isopropylbenzene	0.0217	0.0228	0.020	109	114	67-172	4.95	30
4-Isopropyl toluene	0.0223	0.0233	0.020	111	116	88-171	4.34	30
Methyl-t-butyl ether (MTBE)	0.0155	0.0162	0.020	77	81	58-122	4.32	30
Methylene chloride	0.0135	0.0140	0.020	67	70	57-140	4.32	30
4-Methyl-2-pentanone (MIBK)	0.0152	0.0162	0.020	76	81	42-117	6.17	30
Naphthalene	0.00968	0.0108	0.020	48	54	29-65	10.5	30
n-Propyl benzene	0.0219	0.0228	0.020	110	114	85-174	3.78	30
Styrene	0.0144	0.0149	0.020	72	75	63-126	3.55	30
1,1,1,2-Tetrachloroethane	0.0168	0.0174	0.020	84	87	68-131	3.79	30
1,1,2,2-Tetrachloroethane	0.0112	0.0125	0.020	56	63	45-121	10.7	30
Tetrachloroethene	0.0220	0.0228	0.020	110	114	65-150	3.42	30
Toluene	0.0184	0.0190	0.020	92	95	72-135	3.29	30
1,2,3-Trichlorobenzene	0.0102	0.0109	0.020	51	55	35-80	6.52	30
1,2,4-Trichlorobenzene	0.0134	0.0143	0.020	67	71	45-103	6.08	30
1,1,1-Trichloroethane	0.0156	0.0161	0.020	78	80	67-137	2.97	30
1,1,2-Trichloroethane	0.0172	0.0177	0.020	86	88	67-117	2.98	30
Trichloroethene	0.0223	0.0230	0.020	112	115	62-135	2.94	30
Trichlorofluoromethane	0.0147	0.0151	0.020	74	75	56-124	2.39	30
1,2,3-Trichloropropane	0.00955	0.0104	0.010	96	103	58-133	8.04	30
1,2,4-Trimethylbenzene	0.0197	0.0214	0.020	98	107	78-161	8.19	30
1,3,5-Trimethylbenzene	0.0212	0.0226	0.020	106	113	85-170	6.31	30
Vinyl Chloride	0.00661	0.00698	0.010	66	70	32-142	5.44	30
m,p-Xylene	0.0355	0.0364	0.040	89	91	70-138	2.52	30
o-Xylene	0.0160	0.0165	0.020	80	83	69-135	3.16	30

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Quality Control Report

Client: Langan
Date Prepared: 12/08/2020
Date Analyzed: 12/11/2020 - 12/12/2020
Instrument: GC16
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 210787
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS/LCSD-210787
 2012349-011AMS/MSD

QC Summary Report for SW8260B

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Surrogate Recovery								
Dibromofluoromethane	0.123	0.124	0.12	99	99	87-127	0.519	30
Toluene-d8	0.154	0.154	0.12	123	123	93-141	0.418	30
4-BFB	0.0126	0.0127	0.012	101	102	84-137	0.614	30
Benzene-d6	0.128	0.134	0.10	128	134,F3	67-131	4.73	30
Ethylbenzene-d10	0.150	0.156	0.10	150	156,F3	78-153	3.83	30
1,2-DCB-d4	0.0792	0.0864	0.10	79	86	63-109	8.64	30

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Acetone	1	0.174	0.172	0.20	ND	87	86	36-141	1.34	30
tert-Amyl methyl ether (TAME)	1	0.0130	0.0128	0.020	ND	65	64	46-105	1.35	30
Benzene	1	0.0150	0.0146	0.020	ND	75	73	46-124	2.65	30
Bromobenzene	1	0.0158	0.0157	0.020	ND	79	79	50-119	0.866	30
Bromochloromethane	1	0.0152	0.0145	0.020	ND	76	72	42-122	5.00	30
Bromodichloromethane	1	0.0143	0.0138	0.020	ND	71	69	48-112	3.26	30
Bromoform	1	0.0159	0.0152	0.020	ND	79	76	36-90	4.45	30
Bromomethane	1	0.0117	0.0114	0.020	ND	58	57	10-149	2.04	30
2-Butanone (MEK)	1	0.0648	0.0594	0.080	ND	81	74	43-114	8.71	30
t-Butyl alcohol (TBA)	1	0.0615	0.0586	0.040	ND	154,F1	73	33-123	4.89	30
n-Butyl benzene	1	0.0210	0.0202	0.020	ND	105	101	40-185	3.80	30
sec-Butyl benzene	1	0.0213	0.0205	0.020	ND	107	102	40-183	4.09	30
tert-Butyl benzene	1	0.0208	0.0202	0.020	ND	104	101	44-168	2.59	30
Carbon Disulfide	1	0.00966	0.00977	0.020	ND	48	49	23-139	1.22	30
Carbon Tetrachloride	1	0.0141	0.0137	0.020	ND	70	69	43-133	2.56	30
Chlorobenzene	1	0.0156	0.0155	0.020	ND	78	78	51-115	0.439	30
Chloroethane	1	0.0136	0.0132	0.020	ND	68	66	16-138	2.84	30
Chloroform	1	0.0159	0.0154	0.020	ND	79	77	54-117	2.98	30
Chloromethane	1	0.0117	0.0117	0.020	ND	58	59	14-128	0.383	30
2-Chlorotoluene	1	0.0185	0.0181	0.020	ND	92	91	54-141	2.03	30
4-Chlorotoluene	1	0.0185	0.0177	0.020	ND	92	89	52-134	4.01	30
Dibromochloromethane	1	0.0142	0.0135	0.020	ND	71	68	46-102	4.75	30
1,2-Dibromo-3-chloropropane	1	0.00702	0.00661	0.020	ND	35	66	16-120	6.00	30
1,2-Dibromoethane (EDB)	1	0.00798	0.00770	0.010	ND	80	77	48-113	3.57	30
Dibromomethane	1	0.0125	0.0122	0.020	ND	62	61	44-110	1.76	30
1,2-Dichlorobenzene	1	0.0135	0.0131	0.010	ND	135,F1	65	43-106	3.27	30

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Quality Control Report

Client: Langan
Date Prepared: 12/08/2020
Date Analyzed: 12/11/2020 - 12/12/2020
Instrument: GC16
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 210787
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS/LCSD-210787
 2012349-011AMS/MSD

QC Summary Report for SW8260B

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
1,3-Dichlorobenzene	1	0.0163	0.0156	0.020	ND	81	78	49-128	4.70	30
1,4-Dichlorobenzene	1	0.0163	0.0160	0.020	ND	81	80	48-120	1.65	30
Dichlorodifluoromethane	1	0.00399	0.00400	0.020	ND	20	20	8-63	0.288	30
1,1-Dichloroethane	1	0.0153	0.0149	0.020	ND	76	74	50-122	2.67	30
1,2-Dichloroethane (1,2-DCA)	1	0.0148	0.0144	0.020	ND	74	72	46-116	2.84	30
1,1-Dichloroethene	1	0.0140	0.0136	0.020	ND	70	68	37-124	2.92	30
cis-1,2-Dichloroethene	1	0.0141	0.0136	0.020	ND	71	68	47-123	4.05	30
trans-1,2-Dichloroethene	1	0.0118	0.0117	0.020	ND	59	58	31-131	1.00	30
1,2-Dichloropropane	1	0.0147	0.0142	0.020	ND	73	71	50-116	3.66	30
1,3-Dichloropropane	1	0.0159	0.0150	0.020	ND	79	75	52-115	5.72	30
2,2-Dichloropropane	1	0.0152	0.0147	0.020	ND	76	73	43-137	3.54	30
1,1-Dichloropropene	1	0.0141	0.0137	0.020	ND	71	69	43-126	2.91	30
cis-1,3-Dichloropropene	1	0.0147	0.0141	0.020	ND	74	70	35-134	4.44	30
trans-1,3-Dichloropropene	1	0.0137	0.0132	0.020	ND	68	66	35-124	3.48	30
Diisopropyl ether (DIPE)	1	0.0155	0.0150	0.020	ND	78	75	49-116	3.26	30
Ethylbenzene	1	0.0166	0.0163	0.020	ND	83	81	49-137	1.73	30
Ethyl tert-butyl ether (ETBE)	1	0.0150	0.0144	0.020	ND	75	72	50-113	4.31	30
Freon 113	1	0.0130	0.0125	0.020	ND	65	63	28-114	3.45	30
Hexachlorobutadiene	1	0.0229	0.0219	0.020	ND	114	110	22-180	4.26	30
Hexachloroethane	1	0.0177	0.0176	0.020	ND	88	88	28-158	0.310	30
2-Hexanone	1	0.0116	0.0109	0.020	ND	58	54	31-102	6.15	30
Isopropylbenzene	1	0.0202	0.0196	0.020	ND	101	98	50-153	2.96	30
4-Isopropyl toluene	1	0.0213	0.0205	0.020	ND	106	102	41-171	3.85	30
Methyl-t-butyl ether (MTBE)	1	0.0142	0.0138	0.020	ND	71	69	48-110	3.56	30
Methylene chloride	1	0.0109	0.0106	0.020	ND	54	53	42-127	2.74	30
4-Methyl-2-pentanone (MIBK)	1	0.0141	0.0139	0.020	ND	70	69	24-114	1.28	30
Naphthalene	1	0.00974	0.00943	0.020	ND	49	47	19-69	3.22	30
n-Propyl benzene	1	0.0206	0.0199	0.020	ND	103	100	46-168	3.54	30
Styrene	1	0.0136	0.0134	0.020	ND	68	67	42-122	1.66	30
1,1,1,2-Tetrachloroethane	1	0.0162	0.0155	0.020	ND	81	77	52-121	4.67	30
1,1,1,2,2-Tetrachloroethane	1	0.0123	0.0122	0.020	ND	61	61	27-116	1.21	30
Tetrachloroethene	1	0.0197	0.0192	0.020	ND	98	96	37-149	2.24	30
Toluene	1	0.0170	0.0167	0.020	ND	85	83	52-124	1.84	30
1,2,3-Trichlorobenzene	1	0.00985	0.00994	0.020	ND	49	50	20-86	0.935	30
1,2,4-Trichlorobenzene	1	0.0123	0.0120	0.020	ND	61	60	24-107	2.44	30
1,1,1-Trichloroethane	1	0.0145	0.0142	0.020	ND	73	71	48-128	2.49	30
1,1,2-Trichloroethane	1	0.0152	0.0146	0.020	ND	76	73	51-110	3.64	30
Trichloroethene	1	0.0187	0.0184	0.020	ND	94	92	42-128	1.98	30

(Cont.)



Quality Control Report

Client: Langan
Date Prepared: 12/08/2020
Date Analyzed: 12/11/2020 - 12/12/2020
Instrument: GC16
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 210787
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS/LCSD-210787
 2012349-011AMS/MSD

QC Summary Report for SW8260B

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Trichlorofluoromethane	1	0.0133	0.0130	0.020	ND	67	65	31-121	2.50	30
1,2,3-Trichloropropane	1	0.00877	0.00872	0.010	ND	88	87	50-115	0.525	30
1,2,4-Trimethylbenzene	1	0.0187	0.0181	0.020	ND	94	91	48-151	3.45	30
1,3,5-Trimethylbenzene	1	0.0196	0.0189	0.020	ND	98	94	51-159	3.98	30
Vinyl Chloride	1	0.00546	0.00537	0.010	ND	55	54	11-136	1.73	30
m,p-Xylene	1	0.0335	0.0330	0.040	ND	84	82	30-150	1.70	30
o-Xylene	1	0.0156	0.0151	0.020	ND	78	75	48-128	3.12	30
Surrogate Recovery										
Dibromofluoromethane	1	0.123	0.122	0.12		99	98	82-136	0.985	30
Toluene-d8	1	0.151	0.150	0.12		120	120	92-139	0.292	30
4-BFB	1	0.0124	0.0125	0.012		99	100	82-135	0.985	30
Benzene-d6	1	0.121	0.117	0.10		121	117	55-122	3.32	30
Ethylbenzene-d10	1	0.141	0.138	0.10		141	138	58-141	2.45	30
1,2-DCB-d4	1	0.0784	0.0742	0.10		78	74	51-107	5.42	30



Quality Control Report

Client: Langan	WorkOrder: 2012349
Date Prepared: 12/10/2020	BatchID: 211071
Date Analyzed: 12/14/2020	Extraction Method: SW3550B/3640A
Instrument: GC21	Analytical Method: SW8270C
Matrix: Soil	Unit: mg/Kg
Project: 731744801; HPSY	Sample ID: MB/LCS/LCSD-211071

QC Summary Report for SW8270C (Low Level) w/ GPC

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
1-Methylnaphthalene	ND	0.000340	0.00130	-	-	-
Benzoic Acid	ND	0.370	1.20	-	-	-
Acenaphthene	ND	0.000510	0.00130	-	-	-
Acenaphthylene	ND	0.000300	0.00130	-	-	-
Acetochlor	ND	0.0320	0.250	-	-	-
Anthracene	ND	0.000850	0.00130	-	-	-
Benzidine	ND	0.120	1.20	-	-	-
Benzo (a) anthracene	ND	0.00400	0.0130	-	-	-
Benzo (a) pyrene	ND	0.00120	0.00250	-	-	-
Benzo (b) fluoranthene	ND	0.00110	0.00630	-	-	-
Benzo (g,h,i) perylene	ND	0.00160	0.00250	-	-	-
Benzo (k) fluoranthene	ND	0.00120	0.00130	-	-	-
Benzyl Alcohol	ND	0.630	1.20	-	-	-
1,1-Biphenyl	ND	0.00280	0.0130	-	-	-
Bis (2-chloroethoxy) Methane	ND	0.0280	0.250	-	-	-
Bis (2-chloroethyl) Ether	ND	0.000690	0.00130	-	-	-
Bis (2-chloroisopropyl) Ether	ND	0.000540	0.00130	-	-	-
Bis (2-ethylhexyl) Adipate	ND	0.0440	0.250	-	-	-
Bis (2-ethylhexyl) Phthalate	ND	0.0110	0.0250	-	-	-
4-Bromophenyl Phenyl Ether	ND	0.0330	0.250	-	-	-
Butylbenzyl Phthalate	ND	0.00550	0.0250	-	-	-
4-Chloroaniline	ND	0.000660	0.00250	-	-	-
4-Chloro-3-methylphenol	ND	0.0320	0.250	-	-	-
2-Chloronaphthalene	ND	0.0200	0.250	-	-	-
2-Chlorophenol	ND	0.00190	0.0130	-	-	-
4-Chlorophenyl Phenyl Ether	ND	0.0290	0.250	-	-	-
Chrysene	ND	0.00140	0.00250	-	-	-
Dibenzo (a,h) anthracene	ND	0.00140	0.00250	-	-	-
Dibenzofuran	ND	0.0150	0.250	-	-	-
Di-n-butyl Phthalate	ND	0.00520	0.0130	-	-	-
1,2-Dichlorobenzene	ND	0.0170	0.250	-	-	-
1,3-Dichlorobenzene	ND	0.0210	0.250	-	-	-
1,4-Dichlorobenzene	ND	0.0270	0.250	-	-	-
3,3-Dichlorobenzidine	ND	0.00100	0.00250	-	-	-
2,4-Dichlorophenol	ND	0.000500	0.00130	-	-	-
Diethyl Phthalate	ND	0.00350	0.0130	-	-	-
2,4-Dimethylphenol	ND	0.0310	0.250	-	-	-
Dimethyl Phthalate	ND	0.00120	0.00250	-	-	-

(Cont.)



Quality Control Report

Client: Langan	WorkOrder: 2012349
Date Prepared: 12/10/2020	BatchID: 211071
Date Analyzed: 12/14/2020	Extraction Method: SW3550B/3640A
Instrument: GC21	Analytical Method: SW8270C
Matrix: Soil	Unit: mg/Kg
Project: 731744801; HPSY	Sample ID: MB/LCS/LCSD-211071

QC Summary Report for SW8270C (Low Level) w/ GPC

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
4,6-Dinitro-2-methylphenol	ND	0.180	1.20	-	-	-
2,4-Dinitrophenol	ND	0.160	0.250	-	-	-
2,4-Dinitrotoluene	ND	0.00240	0.0130	-	-	-
2,6-Dinitrotoluene	ND	0.00150	0.0130	-	-	-
Di-n-octyl Phthalate	ND	0.00490	0.0130	-	-	-
1,2-Diphenylhydrazine	ND	0.0300	0.250	-	-	-
Fluoranthene	ND	0.00120	0.00130	-	-	-
Fluorene	ND	0.00110	0.00250	-	-	-
Hexachlorobenzene	ND	0.000380	0.00130	-	-	-
Hexachlorobutadiene	ND	0.000170	0.00250	-	-	-
Hexachlorocyclopentadiene	ND	0.150	2.00	-	-	-
Hexachloroethane	ND	0.00160	0.0130	-	-	-
Indeno (1,2,3-cd) pyrene	ND	0.00240	0.0130	-	-	-
Isophorone	ND	0.0460	0.250	-	-	-
2-Methylnaphthalene	ND	0.000540	0.00250	-	-	-
2-Methylphenol (o-Cresol)	ND	0.0570	0.250	-	-	-
3 & 4-Methylphenol (m,p-Cresol)	ND	0.0720	0.250	-	-	-
Naphthalene	ND	0.000550	0.00130	-	-	-
2-Nitroaniline	ND	0.0870	1.20	-	-	-
3-Nitroaniline	ND	0.0910	1.20	-	-	-
4-Nitroaniline	ND	0.130	1.20	-	-	-
Nitrobenzene	ND	0.0250	0.250	-	-	-
2-Nitrophenol	ND	0.150	1.20	-	-	-
4-Nitrophenol	ND	0.380	1.20	-	-	-
N-Nitrosodimethylamine	ND	0.140	1.20	-	-	-
N-Nitrosodiphenylamine	ND	0.0260	0.250	-	-	-
N-Nitrosodi-n-propylamine	ND	0.0770	0.250	-	-	-
Pentachlorophenol	ND	0.00990	0.0620	-	-	-
Phenanthrene	ND	0.00120	0.00500	-	-	-
Phenol	ND	0.00500	0.0500	-	-	-
Pyrene	ND	0.000930	0.00250	-	-	-
Pyridine	ND	0.0480	0.250	-	-	-
1,2,4-Trichlorobenzene	ND	0.0250	0.250	-	-	-
2,4,5-Trichlorophenol	ND	0.000740	0.00250	-	-	-
2,4,6-Trichlorophenol	ND	0.000840	0.0130	-	-	-

(Cont.)



Quality Control Report

Client: Langan	WorkOrder: 2012349
Date Prepared: 12/10/2020	BatchID: 211071
Date Analyzed: 12/14/2020	Extraction Method: SW3550B/3640A
Instrument: GC21	Analytical Method: SW8270C
Matrix: Soil	Unit: mg/Kg
Project: 731744801; HPSY	Sample ID: MB/LCS/LCSD-211071

QC Summary Report for SW8270C (Low Level) w/ GPC

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Surrogate Recovery						
2-Fluorophenol	1.64			1.25	132,F3	60-130
Phenol-d5	1.58			1.25	126	60-130
Nitrobenzene-d5	1.41			1.25	113	60-130
2-Fluorobiphenyl	1.36			1.25	108	60-130
2,4,6-Tribromophenol	0.828			1.25	66	50-130
4-Terphenyl-d14	1.48			1.25	118	50-130



Quality Control Report

Client: Langan
Date Prepared: 12/10/2020
Date Analyzed: 12/14/2020
Instrument: GC21
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 211071
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg
Sample ID: MB/LCS/LCSD-211071

QC Summary Report for SW8270C (Low Level) w/ GPC

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
1-Methylnaphthalene	0.0589	0.0537	0.062	94	86	60-130	9.29	30
Acenaphthene	0.0611	0.0530	0.062	98	85	60-130	14.3	30
Acenaphthylene	0.0446	0.0383	0.062	71	61	60-130	15.2	30
Anthracene	0.0676	0.0583	0.062	108	93	60-130	14.7	30
Benzidine	4.42	3.65	6.25	71	58	30-130	19.3	30
Benzo (a) anthracene	0.0609	0.0528	0.062	97	84	60-130	14.3	30
Benzo (a) pyrene	0.0545	0.0493	0.062	87	79	60-130	9.97	30
Benzo (b) fluoranthene	0.0483	0.0431	0.062	77	69	40-130	11.3	30
Benzo (g,h,i) perylene	0.0614	0.0542	0.062	98	87	60-130	12.4	30
Benzo (k) fluoranthene	0.0590	0.0515	0.062	94	82	60-130	13.5	30
Benzyl Alcohol	4.28	3.13	6.25	69	50,F2	60-130	31.2,F2	30
Bis (2-chloroethoxy) Methane	1.13	0.991	1.25	90	79	60-130	12.9	30
Bis (2-chloroethyl) Ether	0.0462	0.0399	0.062	74	64	60-130	14.8	30
Bis (2-chloroisopropyl) Ether	0.0651	0.0569	0.062	104	91	60-130	13.5	30
Bis (2-ethylhexyl) Adipate	1.19	0.950	1.25	95	76	40-130	22.3	30
Bis (2-ethylhexyl) Phthalate	0.0445	0.0371	0.062	71	59,F2	60-130	18.1	30
4-Bromophenyl Phenyl Ether	1.34	1.14	1.25	108	91	60-130	16.8	30
Butylbenzyl Phthalate	0.0458	0.0394	0.062	73	63	60-130	15.1	30
4-Chloroaniline	0.0517	0.0458	0.062	83	73	40-130	12.0	30
4-Chloro-3-methylphenol	1.25	1.02	1.25	100	81	60-130	20.4	30
2-Chloronaphthalene	1.17	1.04	1.25	93	83	60-130	11.4	30
2-Chlorophenol	0.0586	0.0504	0.062	94	81	60-130	15.1	30
4-Chlorophenyl Phenyl Ether	1.23	1.07	1.25	99	86	60-130	14.1	30
Chrysene	0.0612	0.0531	0.062	98	85	60-130	14.0	30
Dibenzo (a,h) anthracene	0.0599	0.0528	0.062	96	84	60-130	12.7	30
Dibenzofuran	1.28	1.10	1.25	102	88	60-130	14.7	30
Di-n-butyl Phthalate	0.0420	0.0356	0.062	67	57,F2	60-130	16.3	30
1,2-Dichlorobenzene	1.27	1.14	1.25	101	91	60-130	10.4	30
1,3-Dichlorobenzene	1.24	1.07	1.25	99	86	60-130	14.6	30
1,4-Dichlorobenzene	1.21	1.06	1.25	97	85	60-130	13.6	30
3,3-Dichlorobenzidine	0.0608	0.0527	0.062	97	84	40-130	14.4	30
2,4-Dichlorophenol	0.0545	0.0477	0.062	87	76	60-130	13.2	30
Diethyl Phthalate	0.0480	0.0408	0.062	77	65	60-130	16.2	30
2,4-Dimethylphenol	1.17	0.942	1.25	94	75	60-130	21.8	30
Dimethyl Phthalate	0.0476	0.0409	0.062	76	65	60-130	15.2	30
4,6-Dinitro-2-methylphenol	1.65	1.59	6.25	26,F2	26,F2	30-130	3.71	30
2,4-Dinitrophenol	0.197	0.190	1.25	16	15	15-130	3.74	30
2,4-Dinitrotoluene	0.0640	0.0554	0.062	102	89	60-130	14.3	30

(Cont.)



Quality Control Report

Client: Langan
Date Prepared: 12/10/2020
Date Analyzed: 12/14/2020
Instrument: GC21
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 211071
Extraction Method: SW3550B/3640A
Analytical Method: SW8270C
Unit: mg/Kg
Sample ID: MB/LCS/LCSD-211071

QC Summary Report for SW8270C (Low Level) w/ GPC

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
2,6-Dinitrotoluene	0.0596	0.0499	0.062	95	80	60-130	17.7	30
Di-n-octyl Phthalate	0.0424	0.0358	0.062	68	57,F2	60-130	17.0	30
1,2-Diphenylhydrazine	1.08	0.915	1.25	87	73	60-130	16.7	30
Fluoranthene	0.0545	0.0487	0.062	87	78	60-130	11.3	30
Fluorene	0.0601	0.0528	0.062	96	85	60-130	13.0	30
Hexachlorobenzene	0.0586	0.0509	0.062	94	81	60-130	14.2	30
Hexachlorobutadiene	0.0532	0.0467	0.062	85	75	60-130	12.9	30
Hexachlorocyclopentadiene	5.27	4.40	6.25	84	70	40-130	18.0	30
Hexachloroethane	0.0529	0.0466	0.062	85	75	60-130	12.5	30
Indeno (1,2,3-cd) pyrene	0.0571	0.0505	0.062	91	81	60-130	12.3	30
Isophorone	1.07	0.914	1.25	86	73	60-130	16.0	30
2-Methylnaphthalene	0.0579	0.0512	0.062	93	82	60-130	12.4	30
2-Methylphenol (o-Cresol)	1.41	1.12	1.25	112	90	60-130	22.2	30
3 & 4-Methylphenol (m,p-Cresol)	1.30	1.19	1.25	104	95	60-130	9.00	30
Naphthalene	0.0518	0.0453	0.062	83	72	60-130	13.4	30
2-Nitroaniline	5.86	5.22	6.25	94	84	60-130	11.5	30
3-Nitroaniline	5.63	4.83	6.25	90	77	30-130	15.4	30
4-Nitroaniline	5.93	5.28	6.25	95	85	60-130	11.5	30
Nitrobenzene	1.28	1.13	1.25	103	90	60-130	12.9	30
2-Nitrophenol	6.68	5.90	6.25	107	94	60-130	12.4	30
4-Nitrophenol	4.34	3.74	6.25	69	60	60-130	14.8	30
N-Nitrosodimethylamine	5.40	4.69	6.25	86	75	60-130	14.1	30
N-Nitrosodiphenylamine	1.19	1.04	1.25	95	83	60-130	14.0	30
N-Nitrosodi-n-propylamine	1.01	0.917	1.25	81	73	60-130	9.28	30
Pentachlorophenol	0.145	0.128	0.31	46	41	40-130	12.4	30
Phenanthrene	0.0583	0.0508	0.062	93	81	60-130	13.8	30
Phenol	0.249	0.214	0.25	100	85	60-130	15.3	30
Pyrene	0.0615	0.0509	0.062	98	81	60-130	18.9	30
Pyridine	0.691	0.528	1.25	55	42	30-130	26.7	30
1,2,4-Trichlorobenzene	1.22	1.10	1.25	98	88	60-130	10.3	30
2,4,5-Trichlorophenol	0.0614	0.0539	0.062	98	86	60-130	13.0	30
2,4,6-Trichlorophenol	0.0551	0.0487	0.062	88	78	60-130	12.4	30

(Cont.)



Quality Control Report

Client: Langan	WorkOrder: 2012349
Date Prepared: 12/10/2020	BatchID: 211071
Date Analyzed: 12/14/2020	Extraction Method: SW3550B/3640A
Instrument: GC21	Analytical Method: SW8270C
Matrix: Soil	Unit: mg/Kg
Project: 731744801; HPSY	Sample ID: MB/LCS/LCSD-211071

QC Summary Report for SW8270C (Low Level) w/ GPC

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Surrogate Recovery								
2-Fluorophenol	1.43	1.33	1.25	115	106	60-130	7.36	30
Phenol-d5	1.41	1.28	1.25	112	102	60-130	9.63	30
Nitrobenzene-d5	1.26	1.19	1.25	101	95	60-130	6.16	30
2-Fluorobiphenyl	1.28	1.20	1.25	102	96	60-130	6.82	30
2,4,6-Tribromophenol	1.02	0.975	1.25	81	78	50-130	4.30	30
4-Terphenyl-d14	1.39	1.28	1.25	112	102	50-130	8.59	30



Quality Control Report

Client: Langan
Date Prepared: 12/08/2020
Date Analyzed: 12/08/2020 - 12/09/2020
Instrument: ICP-MS4, ICP-MS5
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 210786
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/kg
Sample ID: MB/LCS/LCSD-210786
 2012349-001AMS/MSD
 2012349-001APDS

QC Summary Report for Metals

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Antimony	ND	0.160	0.500	-	-	-
Arsenic	ND	0.150	0.500	-	-	-
Barium	ND	0.570	5.00	-	-	-
Beryllium	ND	0.0730	0.500	-	-	-
Cadmium	ND	0.0610	0.500	-	-	-
Chromium	ND	0.130	0.500	-	-	-
Cobalt	ND	0.0520	0.500	-	-	-
Copper	ND	0.180	0.500	-	-	-
Lead	ND	0.140	0.500	-	-	-
Mercury	ND	0.0320	0.0500	-	-	-
Molybdenum	ND	0.160	0.500	-	-	-
Nickel	ND	0.170	0.500	-	-	-
Selenium	ND	0.150	0.500	-	-	-
Silver	ND	0.120	0.500	-	-	-
Thallium	ND	0.0670	0.500	-	-	-
Vanadium	ND	0.130	0.500	-	-	-
Zinc	ND	3.00	5.00	-	-	-
Surrogate Recovery						
Terbium	506			500	101	70-130



Quality Control Report

Client: Langan
Date Prepared: 12/08/2020
Date Analyzed: 12/08/2020 - 12/09/2020
Instrument: ICP-MS4, ICP-MS5
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 210786
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/kg
Sample ID: MB/LCS/LCSD-210786
 2012349-001AMS/MSD
 2012349-001APDS

QC Summary Report for Metals

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Antimony	49.1	49.0	50	98	98	75-125	0.141	20
Arsenic	50.9	50.4	50	102	101	75-125	0.948	20
Barium	480	480	500	96	96	75-125	0.0156	20
Beryllium	48.6	49.3	50	97	99	75-125	1.30	20
Cadmium	48.7	48.7	50	97	97	75-125	0.138	20
Chromium	49.1	47.5	50	98	95	75-125	3.41	20
Cobalt	47.0	48.4	50	94	97	75-125	2.76	20
Copper	50.1	49.7	50	100	99	75-125	0.822	20
Lead	48.2	49.3	50	97	99	75-125	2.14	20
Mercury	1.19	1.18	1.25	95	94	75-125	0.845	20
Molybdenum	47.4	47.4	50	95	95	75-125	0.0970	20
Nickel	50.0	50.5	50	100	101	75-125	1.11	20
Selenium	50.3	50.2	50	101	100	75-125	0.287	20
Silver	47.3	47.8	50	95	96	75-125	1.07	20
Thallium	48.2	49.5	50	96	99	75-125	2.67	20
Vanadium	49.8	48.3	50	99	97	75-125	2.90	20
Zinc	499	492	500	100	98	75-125	1.29	20

Surrogate Recovery

Terbium	501	495	500	100	99	70-130	1.25	20
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Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Antimony	1	53.0	50.0	50	2.042	102	96	75-125	5.91	20
Arsenic	1	54.2	53.0	50	3.527	101	99	75-125	2.17	20
Barium	1	598	602	500	70.70	105	106	75-125	0.749	20
Beryllium	1	45.9	44.3	50	ND	91	88	75-125	3.39	20
Cadmium	1	48.3	46.9	50	ND	97	94	75-125	2.98	20
Chromium	1	436	357	50	426.8	19,F13	0,F13	75-125	NA	20
Cobalt	1	90.4	77.7	50	48.03	85	59,F10	75-125	15.1	20
Copper	1	72.7	71.1	50	25.86	94	90	75-125	2.19	20
Lead	1	56.5	54.1	50	5.740	101	97	75-125	4.34	20
Mercury	1	1.30	1.28	1.25	0.05900	99	98	75-125	0.930	20
Molybdenum	1	49.4	49.1	50	ND	98	97	75-125	0.631	20
Nickel	1	986	726	50	966	41,F13	0,F13	75-125	NA	20
Selenium	1	50.4	48.4	50	0.7030	99	95	75-125	3.97	20
Silver	1	47.7	46.5	50	ND	95	93	75-125	2.56	20

(Cont.)



Quality Control Report

Client: Langan
Date Prepared: 12/08/2020
Date Analyzed: 12/08/2020 - 12/09/2020
Instrument: ICP-MS4, ICP-MS5
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 210786
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/kg
Sample ID: MB/LCS/LCSD-210786
 2012349-001AMS/MSD
 2012349-001APDS

QC Summary Report for Metals

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Thallium	1	50.9	47.8	50	ND	102	96	75-125	6.33	20
Vanadium	1	98.8	93.5	50	49.68	98	88	75-125	5.46	20
Zinc	1	539	516	500	53.70	97	93	75-125	4.35	20

Surrogate Recovery

Terbium	1	505	481	500		101	96	70-130	4.82	20
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Analyte	PDS Result	SPK Val	SPKRef Val	PDS %REC	PDS Limits
Cobalt	89.8	50	48.03	83	75-125

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Antimony	ND<2.50	2.042	-	-
Arsenic	3.68	3.527	4.34	-
Barium	69.0	70.70	2.40	-
Beryllium	ND<2.50	ND	-	-
Cadmium	ND<2.50	ND	-	-
Chromium	470	426.8	10.1	20
Cobalt	52.6	48.03	9.51	20
Copper	26.5	25.86	2.47	20
Lead	5.74	5.740	0	-
Mercury	ND<0.250	0.05900	-	-
Molybdenum	ND<2.50	ND	-	-
Nickel	1040	1003	3.69	20
Selenium	ND<2.50	0.7030	-	-
Silver	ND<2.50	ND	-	-
Thallium	ND<2.50	ND	-	-
Vanadium	52.4	49.68	5.48	20
Zinc	53.3	53.70	0.745	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



Quality Control Report

Client: Langan
Date Prepared: 12/11/2020
Date Analyzed: 12/14/2020
Instrument: WC_SKALAR
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 211285
Extraction Method: SM4500-CN⁻ E
Analytical Method: SM4500-CN⁻ CE
Unit: mg/Kg
Sample ID: MB/LCS/LCSD-211285
 2012349-001AMS/MSD

QC Summary Report for SM4500-CN⁻ BCE

Analyte	MB Result	MDL	RL			
Total Cyanide	ND	0.0670	0.100	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Total Cyanide	0.845	0.831	0.80	106	104	85-115	1.71	20

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Total Cyanide	1	0.504	0.432	0.80	ND	63,F1	54,F1	80-120	15.4	20



Quality Control Report

Client: Langan
Date Prepared: 12/07/2020
Date Analyzed: 12/09/2020 - 12/10/2020
Instrument: GC19, GC7
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 210761
Extraction Method: SW5035
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS/LCSD-210761

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
TPH(g) (C6-C12)	ND	0.700	1.00	-	-	-
MTBE	ND	0.00400	0.0500	-	-	-
Benzene	ND	0.00300	0.00500	-	-	-
Toluene	ND	0.00200	0.00500	-	-	-
Ethylbenzene	ND	0.00220	0.00500	-	-	-
m,p-Xylene	ND	0.00300	0.0100	-	-	-
o-Xylene	ND	0.00100	0.00500	-	-	-

Surrogate Recovery

2-Fluorotoluene	0.107			0.1	107	75-134
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Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH(btex)	0.587	0.640	0.60	98	107	82-118	8.58	20
MTBE	0.0869	0.0807	0.10	87	81	61-119	7.33	20
Benzene	0.119	0.106	0.10	119	106	77-128	11.4	20
Toluene	0.113	0.110	0.10	113	110	74-132	2.91	20
Ethylbenzene	0.120	0.113	0.10	120	113	84-127	5.94	20
m,p-Xylene	0.214	0.209	0.20	107	104	80-120	2.71	20
o-Xylene	0.112	0.113	0.10	111	113	80-120	1.14	20

Surrogate Recovery

2-Fluorotoluene	0.109	0.100	0.10	109	100	75-134	8.00	20
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Quality Control Report

Client: Langan
Date Prepared: 12/10/2020
Date Analyzed: 12/12/2020
Instrument: GC7
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 211083
Extraction Method: SW5035
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS/LCSD-211083

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
TPH(g) (C6-C12)	ND	0.700	1.00	-	-	-
MTBE	ND	0.00400	0.0500	-	-	-
Benzene	ND	0.00300	0.00500	-	-	-
Toluene	ND	0.00200	0.00500	-	-	-
Ethylbenzene	ND	0.00220	0.00500	-	-	-
m,p-Xylene	ND	0.00300	0.0100	-	-	-
o-Xylene	ND	0.00100	0.00500	-	-	-

Surrogate Recovery

2-Fluorotoluene	0.0978			0.1	98	75-134
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Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH(btex)	0.682	0.684	0.60	114	114	82-118	0.347	20
MTBE	0.0878	0.0819	0.10	88	82	61-119	6.96	20
Benzene	0.0990	0.0955	0.10	99	96	77-128	3.57	20
Toluene	0.106	0.103	0.10	106	103	74-132	2.78	20
Ethylbenzene	0.107	0.106	0.10	107	106	84-127	0.736	20
m,p-Xylene	0.222	0.221	0.20	111	111	80-120	0.261	20
o-Xylene	0.104	0.104	0.10	104	104	80-120	0.255	20

Surrogate Recovery

2-Fluorotoluene	0.0992	0.0951	0.10	99	95	75-134	4.23	20
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Quality Control Report

Client: Langan
Date Prepared: 12/11/2020
Date Analyzed: 12/13/2020
Instrument: GC3
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 211116
Extraction Method: SW5035
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS/LCSD-211116

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
TPH(g) (C6-C12)	ND	0.700	1.00	-	-	-
MTBE	ND	0.00400	0.0500	-	-	-
Benzene	ND	0.00300	0.00500	-	-	-
Toluene	ND	0.00200	0.00500	-	-	-
Ethylbenzene	ND	0.00220	0.00500	-	-	-
m,p-Xylene	ND	0.00300	0.0100	-	-	-
o-Xylene	ND	0.00100	0.00500	-	-	-

Surrogate Recovery

2-Fluorotoluene	0.0972			0.1	97	75-134
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Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH(btex)	0.556	0.558	0.60	93	93	82-118	0.383	20
MTBE	0.0817	0.0859	0.10	82	86	61-119	4.94	20
Benzene	0.0982	0.0979	0.10	98	98	77-128	0.343	20
Toluene	0.103	0.103	0.10	103	103	74-132	0.720	20
Ethylbenzene	0.102	0.102	0.10	103	102	84-127	0.443	20
m,p-Xylene	0.211	0.210	0.20	105	105	80-120	0.452	20
o-Xylene	0.100	0.0999	0.10	100	100	80-120	0.257	20

Surrogate Recovery

2-Fluorotoluene	0.0963	0.0964	0.10	96	96	75-134	0.132	20
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Quality Control Report

Client: Langan
Date Prepared: 12/08/2020
Date Analyzed: 12/08/2020
Instrument: WetChem
Matrix: Water
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 210856
Extraction Method: SW9045C
Analytical Method: SW9045C
Unit: pH units @ 25°C
Sample ID: CCV-210856

QC Summary Report for pH

Analyte	CCV Result	CCV Limits
pH	7.03	6.8-7.2



Quality Control Report

Client: Langan	WorkOrder: 2012349
Date Prepared: 12/14/2020	BatchID: 211236
Date Analyzed: 12/14/2020	Extraction Method: SW9030B/E376.2
Instrument: SPECTROPHOTOMETER	Analytical Method: SM4500 S ⁻² D
Matrix: Soil	Unit: mg/Kg
Project: 731744801; HPSY	Sample ID: MB/LCS/LCSD-211236 2012349-001AMS/MSD

QC Summary Report for SM4500 S-2D

Analyte	MB Result	MDL	RL			
Acid Soluble Sulfide - S	ND	10.0	10.0	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Acid Soluble Sulfide - S	48.6	48.5	50	97	97	80-120	0.247	20

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Acid Soluble Sulfide - S	5	28.0	28.0	50	ND<50	56,F1	56,F1	75-125	0.215	20



Quality Control Report

Client: Langan
Date Prepared: 12/07/2020
Date Analyzed: 12/08/2020 - 12/12/2020
Instrument: GC39A, GC6A
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 210760
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg
Sample ID: MB/LCS/LCSD-210760

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
TPH-Diesel (C10-C23)	ND	0.750	1.00	-	-	-
TPH-Motor Oil (C18-C36)	ND	3.90	5.00	-	-	-
Surrogate Recovery						
C9	22.6			25	90	70-130

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	49.9	48.7	40	125	122	70-130	2.36	20
Surrogate Recovery								
C9	23.0	22.2	25	92	89	70-130	3.59	20

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



CHAIN-OF-CUSTODY RECORD

WorkOrder: 2012349

ClientCode: TWRF

- WaterTrax
 WriteOn
 EDF
 EQulS
 Dry-Weight
 Email
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 J-flag
 Detection Summary
 Excel

Report to:
Peter Cusack
Langan
135 Main St, Suite 1500
San Francisco, CA 94105
(415) 955-5244 FAX: (415) 955-9041

Email: pcusack@langan.com
cc/3rd Party: Mfromstein@langan.com; kwatkins@langa
PO:
Project: 731744801; HPSY

Bill to:
Accounts Payable
Langan
135 Main St, Suite 1500
San Francisco, CA 94105
Langan_InvoiceCapture@concurolutio

Requested TAT: 5 days;

Date Received: 12/07/2020
Date Logged: 12/08/2020

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	
2012349-001	B-1-1.5	Soil	12/5/2020 00:00	<input type="checkbox"/>	A	A	A	A	A	A	A	A	A	A		A	A
2012349-002	B-1-3.5	Soil	12/5/2020 00:00	<input type="checkbox"/>		A	A	A	A		A		A				A
2012349-003	B-2-1.5	Soil	12/5/2020 00:00	<input type="checkbox"/>	A	A	A	A	A		A		A				A
2012349-004	B-2-3.5	Soil	12/5/2020 00:00	<input type="checkbox"/>		A	A	A	A		A		A				A
2012349-005	B-2-5.5	Soil	12/5/2020 00:00	<input type="checkbox"/>				A	A				A				
2012349-006	B-2-9.0	Soil	12/5/2020 00:00	<input checked="" type="checkbox"/>									A	A			
2012349-007	B-3-1.5	Soil	12/5/2020 00:00	<input type="checkbox"/>	A	A	A	A	A		A		A				A
2012349-008	B-3-3.5	Soil	12/5/2020 00:00	<input type="checkbox"/>		A	A	A	A		A		A				A
2012349-009	B-3-5.5	Soil	12/5/2020 00:00	<input type="checkbox"/>				A	A				A				
2012349-010	B-4-1.5	Soil	12/5/2020 00:00	<input type="checkbox"/>	A	A	A	A	A		A		A				A
2012349-011	B-4-3.5	Soil	12/5/2020 00:00	<input type="checkbox"/>		A	A	A	A		A		A				A
2012349-012	B-4-5.5	Soil	12/5/2020 00:00	<input type="checkbox"/>				A	A				A				
2012349-013	B-4-10.5	Soil	12/5/2020 00:00	<input type="checkbox"/>				A	A				A				
2012349-014	B-4-15.5	Soil	12/5/2020 00:00	<input checked="" type="checkbox"/>									A	A			

Test Legend:

1	8081pcB_ESL_LL_S	2	8260B_Scan-SIM_S	3	8270_SCSM_GPC_S	4	CAM17MS_TTLC_S
5	CARB435_400	6	CN_S	7	G-MBTEX_S	8	PH_S
9	PRDisposal Fee	10	PRHOLD	11	SULFIDE_S	12	TPH(DMO)_S

Prepared by: Maria Venegas

The following SampIDs: 001A, 002A, 003A, 004A, 007A, 008A, 010A, 011A 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.



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Peter Cusack
Contact's Email: pcusack@langan.com

Project: 731744801; HPSY

Work Order: 2012349
QC Level: LEVEL 2
Date Logged: 12/8/2020

Comments:

WaterTrax WriteOn EDF Excel EQUIS Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	DryWeight	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
2012349-001A	B-1-1.5	Soil	SM4500S2D (Acid Soluble Sulfide)	1	Stainless Steel tube 2.5"x6"	<input type="checkbox"/>	12/5/2020	5 days		<input type="checkbox"/>	
			SW9045C (pH)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			Multi-Range TPH			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SM4500-CN ⁻ ABCE (Cyanide, Total)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8260B (VOCs, Scan- SIM)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
2012349-002A	B-1-3.5	Soil	Multi-Range TPH	1	Stainless Steel tube 2.5"x6"	<input type="checkbox"/>	12/5/2020	5 days		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8260B (VOCs, Scan- SIM)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
2012349-003A	B-2-1.5	Soil	Multi-Range TPH	1	Stainless Steel tube 2.5"x6"	<input type="checkbox"/>	12/5/2020	5 days		<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).
- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Peter Cusack
Contact's Email: pcusack@langan.com

Project: 731744801; HPSY

Work Order: 2012349
QC Level: LEVEL 2
Date Logged: 12/8/2020

Comments:

WaterTrax WriteOn EDF Excel EQUIS Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	DryWeight	Collection Date & Time	TAT	Sediment Content	Hold	SubOut			
2012349-003A	B-2-1.5	Soil	Asbestos, CARB 435, 400 Point	1	Stainless Steel tube 2.5"x6"	<input type="checkbox"/>	12/5/2020	5 days		<input type="checkbox"/>				
			SW6020 (CAM 17)									<input type="checkbox"/>	5 days	<input type="checkbox"/>
			SW8270C (Low Level SVOCs) with GPC Cleanup									<input type="checkbox"/>	5 days	<input type="checkbox"/>
			SW8260B (VOCs, Scan- SIM)									<input type="checkbox"/>	5 days	<input type="checkbox"/>
			SW8081A/8082 (OC Pesticides+PCBs) ESLs									<input type="checkbox"/>	5 days	<input type="checkbox"/>
2012349-004A	B-2-3.5	Soil	Multi-Range TPH	1	Stainless Steel tube 2.5"x6"	<input type="checkbox"/>	12/5/2020	5 days		<input type="checkbox"/>				
			Asbestos, CARB 435, 400 Point									<input type="checkbox"/>	5 days	<input type="checkbox"/>
			SW6020 (CAM 17)									<input type="checkbox"/>	5 days	<input type="checkbox"/>
			SW8270C (Low Level SVOCs) with GPC Cleanup									<input type="checkbox"/>	5 days	<input type="checkbox"/>
			SW8260B (VOCs, Scan- SIM)									<input type="checkbox"/>	5 days	<input type="checkbox"/>
2012349-005A	B-2-5.5	Soil	Asbestos, CARB 435, 400 Point	1	Stainless Steel tube 2.5"x6"	<input type="checkbox"/>	12/5/2020	5 days		<input type="checkbox"/>				
			SW6020 (CAM 17)									<input type="checkbox"/>	5 days	<input type="checkbox"/>
2012349-007A	B-3-1.5	Soil	Multi-Range TPH	1	Stainless Steel tube 2.5"x6"	<input type="checkbox"/>	12/5/2020	5 days		<input type="checkbox"/>				
			Asbestos, CARB 435, 400 Point									<input type="checkbox"/>	5 days	<input type="checkbox"/>
			SW6020 (CAM 17)									<input type="checkbox"/>	5 days	<input type="checkbox"/>

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).
- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Peter Cusack
Contact's Email: pcusack@langan.com

Project: 731744801; HPSY

Work Order: 2012349
QC Level: LEVEL 2
Date Logged: 12/8/2020

Comments:

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Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	DryWeight	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
2012349-007A	B-3-1.5	Soil	SW8270C (Low Level SVOCs) with GPC Cleanup	1	Stainless Steel tube 2.5"x6"	<input type="checkbox"/>	12/5/2020	5 days		<input type="checkbox"/>	
			SW8260B (VOCs, Scan- SIM)			<input type="checkbox"/>		5 days			
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>		5 days			
2012349-008A	B-3-3.5	Soil	Multi-Range TPH	1	Stainless Steel tube 2.5"x6"	<input type="checkbox"/>	12/5/2020	5 days		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>		5 days			
			SW6020 (CAM 17)			<input type="checkbox"/>		5 days			
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>		5 days			
			SW8260B (VOCs, Scan- SIM)			<input type="checkbox"/>		5 days			
2012349-009A	B-3-5.5	Soil	Asbestos, CARB 435, 400 Point	1	Stainless Steel tube 2.5"x6"	<input type="checkbox"/>	12/5/2020	5 days		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>		5 days			
2012349-010A	B-4-1.5	Soil	Multi-Range TPH	1	Stainless Steel tube 2.5"x6"	<input type="checkbox"/>	12/5/2020	5 days		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>		5 days			
			SW6020 (CAM 17)			<input type="checkbox"/>		5 days			
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>		5 days			
			SW8260B (VOCs, Scan- SIM)			<input type="checkbox"/>		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.



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Peter Cusack
Contact's Email: pcusack@langan.com

Project: 731744801; HPSY

Work Order: 2012349
QC Level: LEVEL 2
Date Logged: 12/8/2020

Comments:

WaterTrax WriteOn EDF Excel EQUIS Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	DryWeight	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
2012349-010A	B-4-1.5	Soil	SW8081A/8082 (OC Pesticides+PCBs) ESLs	1	Stainless Steel tube 2.5"x6"	<input type="checkbox"/>	12/5/2020	5 days		<input type="checkbox"/>	
2012349-011A	B-4-3.5	Soil	Multi-Range TPH	1	Stainless Steel tube 2.5"x6"	<input type="checkbox"/>	12/5/2020	5 days		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>	5 days		<input type="checkbox"/>		
			SW6020 (CAM 17)			<input type="checkbox"/>	5 days		<input type="checkbox"/>		
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>	5 days		<input type="checkbox"/>		
			SW8260B (VOCs, Scan- SIM)			<input type="checkbox"/>	5 days		<input type="checkbox"/>		
2012349-012A	B-4-5.5	Soil	Asbestos, CARB 435, 400 Point	1	Stainless Steel tube 2.5"x6"	<input type="checkbox"/>	12/5/2020	5 days		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>	5 days		<input type="checkbox"/>		
2012349-013A	B-4-10.5	Soil	Asbestos, CARB 435, 400 Point	1	Stainless Steel tube 2.5"x6"	<input type="checkbox"/>	12/5/2020	5 days		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>	5 days		<input type="checkbox"/>		

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

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

cc: kwatkins@langan.com
 mfromstein@langan.com

2012349

12217

LANGAN

CHAIN OF CUSTODY RECORD

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
- 1 Almaden Boulevard, Suite 590, San Jose, CA 95113

Site Name: HPSY
 Job Number: 731744801
 Project Manager/Contact: Peter Cusack pcusack@langan.com
 Samplers: _____
 Recorder (Signature Required): [Signature]

Turnaround Time
STD

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix & Preservative										Analysis Requested										Remarks	
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	TPH (g.d., mo)	VOCs	SVOCs	OCFs	PCBs	CAM-17 metals	CAFB 495 asbestos	Total cyanide	pH	Sulfides	Silica gel clean-up	Hold		
B-1-1.5	12/5/20			X										X	X	X	X	X	X	X	X				
B-1-3.5				X										X	X	X	X	X	X	X	X				
B-2-1.5				X										X	X	X	X	X	X	X	X				
B-2-3.5				X										X	X	X	X	X	X	X	X				
B-2-5.5				X										X	X	X	X	X	X	X	X				
B-2-9.0				X										X	X	X	X	X	X	X	X		X		
B-3-1.5				X										X	X	X	X	X	X	X	X				
B-3-3.5				X										X	X	X	X	X	X	X	X				
B-3-5.5				X										X	X	X	X	X	X	X	X				
B-4-1.5				X										X	X	X	X	X	X	X	X				
B-4-3.5				X										X	X	X	X	X	X	X	X				
B-4-5.5				X										X	X	X	X	X	X	X	X				
B-4-10.5				X										X	X	X	X	X	X	X	X				
B-4-15.5				X										X	X	X	X	X	X	X	X		X		

Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>12/7/20</u>	Time: <u>1425</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>12/7/20</u>	Time: <u>1425</u>
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time: <u>3.55et</u>
Relinquished by: (Signature)	Date:	Time:	Received by Lab: (Signature)	Date:	Time:

Sent to Laboratory (Name): _____
 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:



Sample Receipt Checklist

Client Name: **Langan**
 Project: **731744801; HPSY**

Date and Time Received: **12/7/2020 14:25**
 Date Logged: **12/8/2020**
 Received by: **Lilly Ortiz**
 Logged by: **Maria Venegas**

WorkOrder No: **2012349** Matrix: Soil
 Carrier: Client Drop-In

Chain of Custody (COC) Information

Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample IDs noted by Client on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Date and Time of collection noted by Client on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sampler's name noted on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
COC agrees with Quote?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper containers/bottles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
Samples Received on Ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

(Ice Type: WET ICE)

Sample/Temp Blank temperature	Temp: 3.5°C	NA <input type="checkbox"/>
Water - VOA vials have zero headspace / no bubbles?	Yes <input type="checkbox"/> No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Sample labels checked for correct preservation?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
pH acceptable upon receipt (Metal: <2; Nitrate 353.2/4500NO3: <2; 522: <4; 218.7: >8)?	Yes <input type="checkbox"/> No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

UCMR Samples:

pH tested and acceptable upon receipt (200.8: ≤2; 525.3: ≤4; 530: ≤7; 541: <3; 544: <6.5 & 7.5)?	Yes <input type="checkbox"/> No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Free Chlorine tested and acceptable upon receipt (<0.1mg/L)?	Yes <input type="checkbox"/> No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

Comments:



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 2012349 A

Report Created for: Langan

135 Main St, Suite 1500
San Francisco, CA 94105

Project Contact: Peter Cusack

Project P.O.:

Project: 731744801; HPSY

Project Received: 12/07/2020

Analytical Report reviewed & approved for release on 12/22/2020 by:

Christine Askari
Project 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 a case narrative.





Glossary of Terms & Qualifier Definitions

Client: Langan
Project: 731744801; HPSY
WorkOrder: 2012349 A

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
CPT	Consumer Product Testing not NELAP Accredited
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
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
LQL	Lowest Quantitation Level
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
TZA	TimeZone Net Adjustment for sample collected outside of MAI's UTC.
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/17/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-9.0	2012349-006A	Soil	12/05/2020	ICP-MS5 321SMPL.d	211528
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Antimony	ND		0.50	1	12/17/2020 23:38
Arsenic	0.80		0.50	1	12/17/2020 23:38
Barium	19		5.0	1	12/17/2020 23:38
Beryllium	ND		0.50	1	12/17/2020 23:38
Cadmium	ND		0.50	1	12/17/2020 23:38
Chromium	560		5.0	10	12/18/2020 10:57
Cobalt	62		0.50	1	12/17/2020 23:38
Copper	10		0.50	1	12/17/2020 23:38
Lead	0.73		0.50	1	12/17/2020 23:38
Mercury	ND		0.050	1	12/17/2020 23:38
Molybdenum	ND		0.50	1	12/17/2020 23:38
Nickel	1500		5.0	10	12/18/2020 10:57
Selenium	ND		0.50	1	12/17/2020 23:38
Silver	ND		0.50	1	12/17/2020 23:38
Thallium	ND		0.50	1	12/17/2020 23:38
Vanadium	20		0.50	1	12/17/2020 23:38
Zinc	24		5.0	1	12/17/2020 23:38

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>	
Terbium	102	70-130	12/17/2020 23:38

Analyst(s): DB, WV



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/17/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-15.5	2012349-014A	Soil	12/05/2020	ICP-MS5 146SMPL.d	211528

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	12/18/2020 11:10
Arsenic	3.5	0.50	1	12/18/2020 11:10
Barium	140	5.0	1	12/18/2020 11:10
Beryllium	0.87	0.50	1	12/18/2020 11:10
Cadmium	ND	0.50	1	12/18/2020 11:10
Chromium	1.3	0.50	1	12/18/2020 11:10
Cobalt	4.0	0.50	1	12/18/2020 11:10
Copper	41	0.50	1	12/18/2020 11:10
Lead	2.4	0.50	1	12/18/2020 11:10
Mercury	0.36	0.050	1	12/18/2020 11:10
Molybdenum	1.5	0.50	1	12/18/2020 11:10
Nickel	16	0.50	1	12/18/2020 11:10
Selenium	1.2	0.50	1	12/18/2020 11:10
Silver	ND	0.50	1	12/18/2020 11:10
Thallium	ND	0.50	1	12/18/2020 11:10
Vanadium	14	0.50	1	12/18/2020 11:10
Zinc	150	5.0	1	12/18/2020 11:10

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	106	70-130	12/18/2020 11:10

Analyst(s): JAG



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/16/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-5.5	2012349-005A	Soil	12/05/2020	ICP-MS4 223SMPL.d	211537

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Chromium	28	0.10	1	12/21/2020 16:31

Analyst(s): DB



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/15/2020-12/17/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L

Metals (TCLP)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-1.5	2012349-001A	Soil	12/05/2020	ICP-MS4 147SMPL.d	211422

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	12/17/2020 11:24

Analyst(s): JAG

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-3.5	2012349-002A	Soil	12/05/2020	ICP-MS2 030SMPL.D	211617

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	12/21/2020 11:34

Analyst(s): JAG

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-1.5	2012349-003A	Soil	12/05/2020	ICP-MS2 034SMPL.D	211617

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	12/21/2020 11:56

Analyst(s): JAG

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-3.5	2012349-004A	Soil	12/05/2020	ICP-MS2 079SMPL.D	211617

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	12/21/2020 16:07

Analyst(s): MIG

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/15/2020-12/17/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L

Metals (TCLP)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-5.5	2012349-005A	Soil	12/05/2020	ICP-MS2 093SMPL.D	211617

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.4	0.10	1	12/21/2020 17:24

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-1.5	2012349-007A	Soil	12/05/2020	ICP-MS2 094SMPL.D	211617

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	12/21/2020 17:30

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-3.5	2012349-008A	Soil	12/05/2020	ICP-MS2 095SMPL.D	211617

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	12/21/2020 17:36

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-5.5	2012349-009A	Soil	12/05/2020	ICP-MS2 096SMPL.D	211617

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	12/21/2020 17:41

Analyst(s): DB

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/15/2020-12/17/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L

Metals (TCLP)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-1.5	2012349-010A	Soil	12/05/2020	ICP-MS2 097SMPL.D	211617

Analytes	Result	RL	DF	Date Analyzed
Chromium	0.13	0.10	1	12/21/2020 17:47

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-3.5	2012349-011A	Soil	12/05/2020	ICP-MS2 098SMPL.D	211617

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	12/21/2020 17:53

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-5.5	2012349-012A	Soil	12/05/2020	ICP-MS2 102SMPL.D	211617

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	12/21/2020 18:15

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-10.5	2012349-013A	Soil	12/05/2020	ICP-MS2 103SMPL.D	211617

Analytes	Result	RL	DF	Date Analyzed
Chromium	ND	0.10	1	12/21/2020 18:20

Analyst(s): DB



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/15/2020-12/16/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-1.5	2012349-001A	Soil	12/05/2020	ICP-MS2 132SMPL.D	211423
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Chromium	1.2		0.10	1	12/17/2020 22:22
Nickel	9.9		0.10	1	12/17/2020 22:22

Analyst(s): WV

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1-3.5	2012349-002A	Soil	12/05/2020	ICP-MS4 164SMPL.d	211537
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Chromium	0.77		0.10	1	12/21/2020 12:56
Nickel	7.6		0.10	1	12/21/2020 12:56

Analyst(s): JAG

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-1.5	2012349-003A	Soil	12/05/2020	ICP-MS4 221SMPL.d	211537
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Chromium	1.2		0.10	1	12/21/2020 16:23
Nickel	21		0.10	1	12/21/2020 16:23

Analyst(s): DB

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/15/2020-12/16/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2-3.5	2012349-004A	Soil	12/05/2020	ICP-MS4 222SMPL.d	211537

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.3	0.10	1	12/21/2020 16:27
Nickel	10	0.10	1	12/21/2020 16:27

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-1.5	2012349-007A	Soil	12/05/2020	ICP-MS4 224SMPL.d	211537

Analytes	Result	RL	DF	Date Analyzed
Chromium	4.2	0.10	1	12/21/2020 16:34
Nickel	26	0.10	1	12/21/2020 16:34

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-3.5	2012349-008A	Soil	12/05/2020	ICP-MS4 225SMPL.d	211537

Analytes	Result	RL	DF	Date Analyzed
Chromium	2.2	0.10	1	12/21/2020 16:38
Nickel	14	0.10	1	12/21/2020 16:38

Analyst(s): DB

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/15/2020-12/16/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-3-5.5	2012349-009A	Soil	12/05/2020	ICP-MS4 226SMPL.d	211537

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.7	0.10	1	12/21/2020 16:42
Nickel	13	0.10	1	12/21/2020 16:42

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-1.5	2012349-010A	Soil	12/05/2020	ICP-MS4 227SMPL.d	211537

Analytes	Result	RL	DF	Date Analyzed
Chromium	9.7	0.10	1	12/21/2020 16:45
Nickel	34	0.10	1	12/21/2020 16:45

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-3.5	2012349-011A	Soil	12/05/2020	ICP-MS4 228SMPL.d	211537

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.1	0.10	1	12/21/2020 16:49
Nickel	12	0.10	1	12/21/2020 16:49

Analyst(s): DB

(Cont.)



Analytical Report

Client: Langan
Date Received: 12/07/2020 14:25
Date Prepared: 12/15/2020-12/16/2020
Project: 731744801; HPSY

WorkOrder: 2012349
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-5.5	2012349-012A	Soil	12/05/2020	ICP-MS4 229SMPL.d	211537

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.7	0.10	1	12/21/2020 16:52
Nickel	13	0.10	1	12/21/2020 16:52

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-4-10.5	2012349-013A	Soil	12/05/2020	ICP-MS4 233SMPL.d	211537

Analytes	Result	RL	DF	Date Analyzed
Chromium	1.7	0.10	1	12/21/2020 17:07
Nickel	12	0.10	1	12/21/2020 17:07

Analyst(s): DB



Quality Control Report

Client: Langan
Date Prepared: 12/17/2020
Date Analyzed: 12/17/2020
Instrument: ICP-MS5
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 211528
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/kg
Sample ID: MB/LCS/LCSD-211528

QC Summary Report for Metals

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Antimony	ND	0.160	0.500	-	-	-
Arsenic	ND	0.150	0.500	-	-	-
Barium	ND	0.570	5.00	-	-	-
Beryllium	ND	0.0730	0.500	-	-	-
Cadmium	ND	0.0610	0.500	-	-	-
Chromium	ND	0.130	0.500	-	-	-
Cobalt	ND	0.0520	0.500	-	-	-
Copper	ND	0.180	0.500	-	-	-
Lead	ND	0.140	0.500	-	-	-
Mercury	ND	0.0320	0.0500	-	-	-
Molybdenum	ND	0.160	0.500	-	-	-
Nickel	ND	0.170	0.500	-	-	-
Selenium	ND	0.150	0.500	-	-	-
Silver	ND	0.120	0.500	-	-	-
Thallium	ND	0.0670	0.500	-	-	-
Vanadium	ND	0.130	0.500	-	-	-
Zinc	ND	3.00	5.00	-	-	-
Surrogate Recovery						
Terbium	496			500	99	70-130



Quality Control Report

Client: Langan
Date Prepared: 12/17/2020
Date Analyzed: 12/17/2020
Instrument: ICP-MS5
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 211528
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/kg
Sample ID: MB/LCS/LCSD-211528

QC Summary Report for Metals

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Antimony	53.6	53.4	50	107	107	75-125	0.452	20
Arsenic	52.0	52.2	50	104	104	75-125	0.326	20
Barium	531	525	500	106	105	75-125	1.12	20
Beryllium	50.2	49.2	50	100	98	75-125	2.02	20
Cadmium	51.7	52.1	50	103	104	75-125	0.644	20
Chromium	51.9	50.4	50	104	101	75-125	3.01	20
Cobalt	53.1	52.5	50	106	105	75-125	1.13	20
Copper	51.8	51.9	50	104	104	75-125	0.226	20
Lead	52.3	51.6	50	105	103	75-125	1.31	20
Mercury	1.32	1.31	1.25	106	105	75-125	1.29	20
Molybdenum	51.3	50.6	50	103	101	75-125	1.39	20
Nickel	52.5	52.5	50	105	105	75-125	0.116	20
Selenium	52.1	50.4	50	104	101	75-125	3.31	20
Silver	49.7	49.4	50	99	99	75-125	0.569	20
Thallium	52.4	51.7	50	105	103	75-125	1.43	20
Vanadium	51.9	50.9	50	104	102	75-125	1.83	20
Zinc	520	520	500	104	104	75-125	0.00635	20
Surrogate Recovery								
Terbium	516	507	500	103	101	70-130	1.67	20



Quality Control Report

Client:	Langan	WorkOrder:	2012349
Date Prepared:	12/15/2020	BatchID:	211422
Date Analyzed:	12/17/2020	Extraction Method:	SW1311/SW3010
Instrument:	ICP-MS4	Analytical Method:	SW6020
Matrix:	Soil	Unit:	mg/L
Project:	731744801; HPSY	Sample ID:	MB/LCS/LCSD-211422

QC Summary Report for Metals (TCLP)

Analyte	MB Result	MDL	RL			
Chromium	ND	0.100	0.100	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Chromium	9.80	9.53	10	98	95	75-125	2.74	20

(Cont.)



Quality Control Report

Client: Langan
Date Prepared: 12/17/2020
Date Analyzed: 12/21/2020
Instrument: ICP-MS2
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 211617
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L
Sample ID: MB/LCS/LCSD-211617
 2012349-002AMS/MSD

QC Summary Report for Metals (TCLP)

Analyte	MB Result	MDL	RL			
Chromium	ND	0.100	0.100	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Chromium	9.83	9.99	10	98	100	75-125	1.63	20

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Chromium	1	9.79	9.75	10	ND	98	98	75-125	0.409	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Chromium	ND<0.500	ND	-	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



Quality Control Report

Client: Langan
Date Prepared: 12/15/2020
Date Analyzed: 12/17/2020
Instrument: ICP-MS2
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 211423
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L
Sample ID: MB/LCS/LCSD-211423

QC Summary Report for Metals (STLC)

Analyte	MB Result	MDL	RL			
Chromium	ND	0.100	0.100	-	-	-
Nickel	ND	0.100	0.100	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Chromium	10.0	10.0	10	100	100	75-125	0.160	20
Nickel	9.78	9.86	10	98	99	75-125	0.815	20

(Cont.)



Quality Control Report

Client: Langan
Date Prepared: 12/16/2020
Date Analyzed: 12/21/2020
Instrument: ICP-MS4
Matrix: Soil
Project: 731744801; HPSY

WorkOrder: 2012349
BatchID: 211537
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L
Sample ID: MB/LCS/LCSD-211537
 2012349-002AMS/MSD

QC Summary Report for Metals (STLC)

Analyte	MB Result	MDL	RL			
Chromium	ND	0.100	0.100	-	-	-
Nickel	ND	0.100	0.100	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Chromium	9.68	9.99	10	97	100	75-125	3.19	20
Nickel	10.0	10.1	10	100	101	75-125	0.803	20

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Chromium	1	10.5	10.8	10	0.7722	97	101	75-125	3.60	20
Nickel	1	17.5	17.5	10	7.577	99	99	75-125	0.00229	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Chromium	0.798	0.7722	3.34	-
Nickel	8.19	7.577	8.09	20

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



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

CHAIN-OF-CUSTODY RECORD

WorkOrder: 2012349 **A** ClientCode: TWRF

- WaterTrax WriteOn EDF EQUIS Dry-Weight Email HardCopy ThirdParty J-flag
 Detection Summary Excel

Report to:
Peter Cusack
Langan
135 Main St, Suite 1500
San Francisco, CA 94105
(415) 955-5285 FAX: (415) 955-9041

Email: pcusack@langan.com
 cc/3rd Party: Mfromstein@langan.com; kwatkins@langa
 PO:
 Project: 731744801; HPSY

Bill to:
 Accounts Payable
 Langan
 135 Main St, Suite 1500
 San Francisco, CA 94105
 Langan_InvoiceCapture@concur.solutio

Requested TAT: 5 days;

Date Received: 12/07/2020
Date Logged: 12/08/2020
Date Add-On: 12/15/2020

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
2012349-001	B-1-1.5	Soil	12/5/2020 00:00	<input type="checkbox"/>			A	A								
2012349-002	B-1-3.5	Soil	12/5/2020 00:00	<input type="checkbox"/>			A	A								
2012349-003	B-2-1.5	Soil	12/5/2020 00:00	<input type="checkbox"/>			A	A								
2012349-004	B-2-3.5	Soil	12/5/2020 00:00	<input type="checkbox"/>			A	A								
2012349-005	B-2-5.5	Soil	12/5/2020 00:00	<input type="checkbox"/>		A	A									
2012349-006	B-2-9.0	Soil	12/5/2020 00:00	<input type="checkbox"/>	A											
2012349-007	B-3-1.5	Soil	12/5/2020 00:00	<input type="checkbox"/>			A	A								
2012349-008	B-3-3.5	Soil	12/5/2020 00:00	<input type="checkbox"/>			A	A								
2012349-009	B-3-5.5	Soil	12/5/2020 00:00	<input type="checkbox"/>			A	A								
2012349-010	B-4-1.5	Soil	12/5/2020 00:00	<input type="checkbox"/>			A	A								
2012349-011	B-4-3.5	Soil	12/5/2020 00:00	<input type="checkbox"/>			A	A								
2012349-012	B-4-5.5	Soil	12/5/2020 00:00	<input type="checkbox"/>			A	A								
2012349-013	B-4-10.5	Soil	12/5/2020 00:00	<input type="checkbox"/>			A	A								
2012349-014	B-4-15.5	Soil	12/5/2020 00:00	<input type="checkbox"/>	A											

Test Legend:

1	CAM17MS_TTLC_S	2	CRMS_STLC_S	3	CRMS_TCLP_S	4	METALSMS_STLC_S
5		6		7		8	
9		10		11		12	

Prepared by: Maria Venegas
Add-On Prepared By: Maria Venegas

Comments: STLC/TCLPs & 2 samples off HOLD for CAM17 added 12/15/2020 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.



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Peter Cusack
Contact's Email pcusack@langan.com

Project: 731744801; HPSY

Comments: STLC/TCLPs & 2 samples off HOLD for CAM17 added
12/15/2020 STAT.

Work Order: 2012349
QC Level: LEVEL 2
Date Logged: 12/8/2020
Date Add-On: 12/15/2020

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
2012349-001A	B-1-1.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel> SW6020 (Chromium) (TCLP)	1	Stainless Steel tube 2.5"x6"	12/5/2020	5 days*		<input type="checkbox"/>	
2012349-002A	B-1-3.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel> SW6020 (Chromium) (TCLP)	1	Stainless Steel tube 2.5"x6"	12/5/2020	5 days*		<input type="checkbox"/>	
2012349-003A	B-2-1.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel> SW6020 (Chromium) (TCLP)	1	Stainless Steel tube 2.5"x6"	12/5/2020	5 days*		<input type="checkbox"/>	
2012349-004A	B-2-3.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel> SW6020 (Chromium) (TCLP)	1	Stainless Steel tube 2.5"x6"	12/5/2020	5 days*		<input type="checkbox"/>	
2012349-005A	B-2-5.5	Soil	SW6020 (Chromium) (TCLP) SW6020 (Chromium) (STLC)	1	Stainless Steel tube 2.5"x6"	12/5/2020	5 days*		<input type="checkbox"/>	
2012349-006A	B-2-9.0	Soil	SW6020 (CAM 17)	1	Stainless Steel tube 2.5"x6"	12/5/2020	5 days		<input type="checkbox"/>	
2012349-007A	B-3-1.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel> SW6020 (Chromium) (TCLP)	1	Stainless Steel tube 2.5"x6"	12/5/2020	5 days*		<input type="checkbox"/>	
2012349-008A	B-3-3.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel> SW6020 (Chromium) (TCLP)	1	Stainless Steel tube 2.5"x6"	12/5/2020	5 days*		<input type="checkbox"/>	

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

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



WORK ORDER SUMMARY

Client Name: LANGAN
Client Contact: Peter Cusack
Contact's Email pcusack@langan.com

Project: 731744801; HPSY
Comments: STLC/TCLPs & 2 samples off HOLD for CAM17 added
12/15/2020 STAT.

Work Order: 2012349
QC Level: LEVEL 2
Date Logged: 12/8/2020
Date Add-On: 12/15/2020

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
2012349-009A	B-3-5.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2.5"x6"	12/5/2020	5 days*		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)				5 days*	<input type="checkbox"/>		
2012349-010A	B-4-1.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2.5"x6"	12/5/2020	5 days*		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)				5 days*	<input type="checkbox"/>		
2012349-011A	B-4-3.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2.5"x6"	12/5/2020	5 days*		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)				5 days*	<input type="checkbox"/>		
2012349-012A	B-4-5.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2.5"x6"	12/5/2020	5 days*		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)				5 days*	<input type="checkbox"/>		
2012349-013A	B-4-10.5	Soil	SW6020 (Metals) (STLC) <Chromium, Nickel>	1	Stainless Steel tube 2.5"x6"	12/5/2020	5 days*		<input type="checkbox"/>	
			SW6020 (Chromium) (TCLP)				5 days*	<input type="checkbox"/>		
2012349-014A	B-4-15.5	Soil	SW6020 (CAM 17)	1	Stainless Steel tube 2.5"x6"	12/5/2020	5 days		<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).
- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

cc: kwatkins@langan.com
 mfromstein@langan.com

2012349
 12217

LANGAN

CHAIN OF CUSTODY RECORD

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
- 1 Almaden Boulevard, Suite 590, San Jose, CA 95113

Site Name: HPSY
 Job Number: 731744801
 Project Manager/Contact: Peter Cusack pcusack@langan.com
 Samplers: _____
 Recorder (Signature Required): [Signature]

Turnaround
 Time
STD

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix & Preservative								Analysis Requested										Remarks						
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	No. Containers	TPH (g.d., mo)	VOCs	SVOCs	OCPs	PCBs	CAM-17 metals	CARB 495 asbestos	Total cyanide	pH		Sulfides	STLC + TLCP Cr	STLC Ni	Silica gel clean-up	Hold	
B-1-1.5	12/5/20			X																								
B-1-3.5				X																								
B-2-1.5				X																								
B-2-3.5				X																								
B-2-5.5				X																								
B-2-9.0				X																								
B-3-1.5				X																								
B-3-3.5				X																								
B-3-5.5				X																								
B-4-1.5				X																								
B-4-3.5				X																								
B-4-5.5				X																								
B-4-10.5				X																								
B-4-15.5				X																								
Relinquished by: (Signature) <u>[Signature]</u>			Date: <u>12/7/20</u>	Time: <u>1425</u>	Received by: (Signature) <u>[Signature]</u>			Date: <u>12/7/20</u>	Time: <u>1425</u>	Received by: (Signature) _____			Date: _____	Time: _____	Received by Lab: (Signature) _____			Date: _____	Time: _____									
Relinquished by: (Signature) _____			Date: _____	Time: _____	Received by: (Signature) _____			Date: _____	Time: _____	Received by Lab: (Signature) _____			Date: _____	Time: _____	Received by Lab: (Signature) _____			Date: _____	Time: _____									
Relinquished by: (Signature) _____			Date: _____	Time: _____	Received by: (Signature) _____			Date: _____	Time: _____	Received by Lab: (Signature) _____			Date: _____	Time: _____	Received by Lab: (Signature) _____			Date: _____	Time: _____									
Sent to Laboratory (Name): _____					Method of Shipment					<input type="checkbox"/> Lab courier <input type="checkbox"/> Fed Ex <input type="checkbox"/> Airborne <input type="checkbox"/> UPS <input type="checkbox"/> Hand Carried <input type="checkbox"/> Private Courier (Co. Name) _____																		
Laboratory Comments/Notes: <u>Added 12/15/2020 STAT</u>																												

White Copy - Original

Yellow Copy - Laboratory

Pink Copy - Field

COC Number:

APPENDIX C
RADIOLOGICAL LABORATORY ANALYTICAL REPORTS

ANALYTICAL REPORT

Eurofins St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

Laboratory Job ID: 160-43280-1
Client Project/Site: HP Block 56
Revision: 2

For:
Langan Engineering & Environmental Svcs
1 Almaden Boulevard
Suite 590
San Jose, California 95113

Attn: Peter Cusack



Authorized for release by:
3/28/2022 11:50:18 AM

Jayna Awalt, Project Manager II
(314)298-8566
Jayna.Awalt@Eurofinset.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: Langan Engineering & Environmental Svcs
Project/Site: HP Block 56

Job ID: 160-43280-1

Job ID: 160-43280-1

Laboratory: Eurofins St. Louis

Narrative

CASE NARRATIVE

Client: Langan Engineering & Environmental Svcs

Project: HP Block 56

Report Number: 160-43280-1

Rev. 2 - Previous Strontium-90 by GFPC results have been replaced by Strontium-90 by Eichrom to improve accuracy. Refer to Report Number 160-43280-3.

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, St. Louis attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 08/31/2021; the samples arrived in good condition, properly preserved. The temperature of the coolers at receipt was 27.8 C.

Case Narrative

Client: Langan Engineering & Environmental Svcs
Project/Site: HP Block 56

Job ID: 160-43280-1

Job ID: 160-43280-1 (Continued)

Laboratory: Eurofins St. Louis (Continued)

Isotopic uranium added by the client and not listed on the COC.

ISOTOPIC PLUTONIUM (ALPHA SPECTROMETRY)

Samples E-1-0.5 (160-43280-1), E-1-1.5 (160-43280-2), E-1-5.0 (160-43280-3), E-2-0.5 (160-43280-4), E-2-3.0 (160-43280-5), E-2-7.5 (160-43280-6), E-3-0.5 (160-43280-7), E-3-3.0 (160-43280-8), E-3-5.0 (160-43280-9), E-4-0.5 (160-43280-10), E-4-3.0 (160-43280-11), E-4-5.0 (160-43280-12), E-5-0.5 (160-43280-13), E-5-1.5 (160-43280-14), E-5-5.0 (160-43280-15), E-6-0.5 (160-43280-16), E-7-0.5 (160-43280-17), E-7-1.5 (160-43280-18), E-8-0.5 (160-43280-19), E-8-3.0 (160-43280-20), E-9-1.5 (160-43280-21), E-9-3.0 (160-43280-22), E-10-0.5 (160-43280-23), E-11-0.5 (160-43280-24), E-11-3.0 (160-43280-25), E-11-5.0 (160-43280-26), E-12-0.5 (160-43280-27), E-12-3.0 (160-43280-28), E-13-0.5 (160-43280-29), E-14-0.5 (160-43280-30) and E-14-3.0 (160-43280-31) were analyzed for Isotopic Plutonium (Alpha Spectrometry) in accordance with A-01-R. The samples were dried on 09/02/2021, prepared on 09/12/2021 and analyzed on 09/23/2021 and 09/24/2021.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ISOTOPIC THORIUM (ALPHA SPECTROMETRY)

Samples E-1-0.5 (160-43280-1), E-1-1.5 (160-43280-2), E-1-5.0 (160-43280-3), E-2-0.5 (160-43280-4), E-2-3.0 (160-43280-5), E-2-7.5 (160-43280-6), E-3-0.5 (160-43280-7), E-3-3.0 (160-43280-8), E-3-5.0 (160-43280-9), E-4-0.5 (160-43280-10), E-4-3.0 (160-43280-11), E-4-5.0 (160-43280-12), E-5-0.5 (160-43280-13), E-5-1.5 (160-43280-14), E-5-5.0 (160-43280-15), E-6-0.5 (160-43280-16), E-7-0.5 (160-43280-17), E-7-1.5 (160-43280-18), E-8-0.5 (160-43280-19), E-8-3.0 (160-43280-20), E-9-1.5 (160-43280-21), E-9-3.0 (160-43280-22), E-10-0.5 (160-43280-23), E-11-0.5 (160-43280-24), E-11-3.0 (160-43280-25), E-11-5.0 (160-43280-26), E-12-0.5 (160-43280-27), E-12-3.0 (160-43280-28), E-13-0.5 (160-43280-29), E-14-0.5 (160-43280-30) and E-14-3.0 (160-43280-31) were analyzed for Isotopic Thorium (Alpha Spectrometry) in accordance with DOE A01R_Th. The samples were dried on 09/02/2021, prepared on 09/28/2021 and 09/29/2021 and analyzed on 10/07/2021, 10/11/2021, 10/12/2021, 10/13/2021, 10/17/2021 and 10/19/2021.

The tracer recovery is outside the lower control limit (30%) for the following sample due to matrix interferences identified in prep. : E-2-0.5 (160-43280-4).

A blank population correction was applied to account for contributions to the analyte count rate from sources other than the sample itself. Interferences may include, but are not limited to, impurities in reagents, tracers, or glassware, or effects due to the measurement process E-1-0.5 (160-43280-1), E-1-1.5 (160-43280-2), E-1-5.0 (160-43280-3), E-2-0.5 (160-43280-4), E-2-3.0 (160-43280-5), E-2-7.5 (160-43280-6), E-3-0.5 (160-43280-7), E-3-3.0 (160-43280-8), E-3-5.0 (160-43280-9), E-4-0.5 (160-43280-10), E-4-3.0 (160-43280-11), E-5-0.5 (160-43280-13), E-5-1.5 (160-43280-14), E-5-5.0 (160-43280-15), E-7-0.5 (160-43280-17), E-7-1.5 (160-43280-18), E-8-0.5 (160-43280-19), (LCS 160-529468/2-A), (LCSD 160-529468/3-A) and (MB 160-529468/1-A)

The FWHM keV limits, tracer counts, and tracer recovery are outside the lower control limit for the following samples due to matrix interferences identified during the prep process: E-11-3.0 (160-43280-25), E-11-5.0 (160-43280-26), E-12-0.5 (160-43280-27), E-12-3.0 (160-43280-28), E-13-0.5 (160-43280-29) and E-14-3.0 (160-43280-31).

The detector the sample was counted on failed the pulser resolution check the day after (closing bracket) the sample count. However, the sample tracer resolution was well within QC limits the day of the count. The laboratory does not believe this excursion adversely affects the data. E-8-3.0 (160-43280-20) and E-12-0.5 (160-43280-27)

The detector (AV206) the sample was counted on failed the pulser resolution check the day after (closing bracket) the sample count. However, the sample tracer resolution was well within QC limits the day of the count. The laboratory does not believe this excursion adversely affects the data. E-4-5.0 (160-43280-12)

Isotopic Thorium prep batch 529265

A blank population correction was applied to account for contributions to the analyte count rate from sources other than the sample itself. Interferences may include, but are not limited to, impurities in reagents, tracers, or glassware, or effects due to the measurement process E-8-3.0 (160-43280-20), E-9-1.5 (160-43280-21), E-9-3.0 (160-43280-22), E-10-0.5 (160-43280-23), E-11-0.5 (160-43280-24), E-11-3.0 (160-43280-25), E-11-5.0 (160-43280-26), E-12-0.5 (160-43280-27), E-12-3.0 (160-43280-28), E-13-0.5 (160-43280-29), E-14-0.5 (160-43280-30), E-14-3.0 (160-43280-31), (LCS 160-529265/2-A), (LCSD 160-529265/3-A) and (MB 160-529265/1-A)

The following samples were prepared at a reduced aliquot due to matrix interference: E-8-3.0 (160-43280-20), E-9-1.5 (160-43280-21),

Case Narrative

Client: Langan Engineering & Environmental Svcs
Project/Site: HP Block 56

Job ID: 160-43280-1

Job ID: 160-43280-1 (Continued)

Laboratory: Eurofins St. Louis (Continued)

E-9-3.0 (160-43280-22), E-10-0.5 (160-43280-23), E-11-0.5 (160-43280-24), E-11-3.0 (160-43280-25), E-11-5.0 (160-43280-26), E-12-0.5 (160-43280-27), E-12-3.0 (160-43280-28), E-13-0.5 (160-43280-29), E-14-0.5 (160-43280-30) and E-14-3.0 (160-43280-31). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ISOTOPIC URANIUM (ALPHA SPECTROMETRY)

Samples E-1-0.5 (160-43280-1), E-1-1.5 (160-43280-2), E-1-5.0 (160-43280-3), E-2-0.5 (160-43280-4), E-2-3.0 (160-43280-5), E-2-7.5 (160-43280-6), E-3-0.5 (160-43280-7), E-3-3.0 (160-43280-8), E-3-5.0 (160-43280-9), E-4-0.5 (160-43280-10), E-4-3.0 (160-43280-11), E-4-5.0 (160-43280-12), E-5-0.5 (160-43280-13), E-5-1.5 (160-43280-14), E-5-5.0 (160-43280-15), E-6-0.5 (160-43280-16), E-7-0.5 (160-43280-17), E-7-1.5 (160-43280-18), E-8-0.5 (160-43280-19), E-8-3.0 (160-43280-20), E-9-1.5 (160-43280-21), E-9-3.0 (160-43280-22), E-10-0.5 (160-43280-23), E-11-0.5 (160-43280-24), E-11-3.0 (160-43280-25), E-11-5.0 (160-43280-26), E-12-0.5 (160-43280-27), E-12-3.0 (160-43280-28), E-13-0.5 (160-43280-29), E-14-0.5 (160-43280-30) and E-14-3.0 (160-43280-31) were analyzed for Isotopic Uranium (Alpha Spectrometry) in accordance with DOE. The samples were dried on 09/02/2021, prepared on 10/21/2021 and 10/22/2021 and analyzed on 10/27/2021.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

RADIUM-226 BY GAMMA SPEC (21 DAY INGROWTH)

Samples E-1-0.5 (160-43280-1), E-1-1.5 (160-43280-2), E-1-5.0 (160-43280-3), E-2-0.5 (160-43280-4), E-2-3.0 (160-43280-5), E-2-7.5 (160-43280-6), E-3-0.5 (160-43280-7), E-3-3.0 (160-43280-8), E-3-5.0 (160-43280-9), E-4-0.5 (160-43280-10), E-4-3.0 (160-43280-11), E-4-5.0 (160-43280-12), E-5-0.5 (160-43280-13), E-5-1.5 (160-43280-14), E-5-5.0 (160-43280-15), E-6-0.5 (160-43280-16), E-7-0.5 (160-43280-17), E-7-1.5 (160-43280-18), E-8-0.5 (160-43280-19), E-8-3.0 (160-43280-20), E-9-1.5 (160-43280-21), E-9-3.0 (160-43280-22), E-10-0.5 (160-43280-23), E-11-0.5 (160-43280-24), E-11-3.0 (160-43280-25), E-11-5.0 (160-43280-26), E-12-0.5 (160-43280-27), E-12-3.0 (160-43280-28), E-13-0.5 (160-43280-29), E-14-0.5 (160-43280-30) and E-14-3.0 (160-43280-31) were analyzed for Radium-226 by gamma spec (21 day ingrowth) in accordance with EPA GA_01_R. The samples were dried on 09/02/2021, prepared on 09/07/2021 and analyzed on 09/29/2021 and 09/30/2021.

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from	Reported to Analyte
Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Case Narrative

Client: Langan Engineering & Environmental Svcs
Project/Site: HP Block 56

Job ID: 160-43280-1

Job ID: 160-43280-1 (Continued)

Laboratory: Eurofins St. Louis (Continued)

Gamma Prep Batch 525696

Insufficient samples were provided for the following samples to fill a geometry (e.g. tuna can) calibrated for Ra-226 analysis by gamma spectroscopy: E-9-3.0 (160-43280-22), E-11-0.5 (160-43280-24) and E-14-0.5 (160-43280-30). The use of a different geometry could potentially bias the results low due to the loss of radon into the headspace of the container. Alt Geo used: 100mL Solid

Insufficient samples were provided for the following samples to fill a geometry (e.g. tuna can) calibrated for Ra-226 analysis by gamma spectroscopy: E-10-0.5 (160-43280-23) and E-11-5.0 (160-43280-26). The use of a different geometry could potentially bias the results low due to the loss of radon into the headspace of the container. Alt Geo used: 100mL D=1

The detection goal for Cs-137 (0.0700 pCi/g) was not met for the following samples due to the low initial volume resulting from the low density of the sample matrix (see prep NCM 160-228052): E-9-3.0 (160-43280-22), E-10-0.5 (160-43280-23), E-11-3.0 (160-43280-25) and E-12-0.5 (160-43280-27). Analytical results are reported with the MDC achieved.

Gamma Prep Batch 525701

Insufficient sample was provided for the following sample to fill a geometry (e.g. tuna can) calibrated for Ra-226 analysis by gamma spectroscopy: E-6-0.5 (160-43280-16). The use of a different geometry could potentially bias the results low due to the loss of radon into the headspace of the container. Alt Geo used: 100mL D=1

The cesium-137 detection goal of 0.0700 pCi/g was not met. This is caused by statistical fluctuations in the Compton background due to low level activity in the samples in conjunction with the software attempting to fit a peak into the noise of this baseline. E-1-0.5 (160-43280-1), E-4-0.5 (160-43280-10), E-6-0.5 (160-43280-16) and E-7-0.5 (160-43280-17)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CHAIN OF CUSTODY RECORD

555 Montgomery Street, Suite 1300, San Francisco, CA 94111
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 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
 1 Almaden Boulevard, Suite 590, San Jose, CA 95113

LANGAN

Site Name: Hunters Point Block 56
 Job Number: 731744801
 Project Manager/Contact: Peter Guseck, Daniel Wood
 Samplers: Daniel Wood
 Recorder (Signature Required): Daniel Wood

Turnaround Time
Standard

Field Sample Identification No.	Date	Time	Lab Sample No.	No. Containers & Preservative										Remarks						
				Matrix	No. Containers										Preservative					
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice									
E-1-0.5	8-27-21	0903		X																
E-1-1.5		0905		X																
E-1-5.0		0908		X																
E-2-0.5		0925		X																
E-2-3.0		0930		X																
E-2-7.5		0934		X																
E-3-0.5		0945		X																
E-3-3.0		0948		X																
E-3-5.0		0950		X																
E-4-0.5		1015		X																
E-4-3.0		1018		X																
E-4-5.0		1020		X																
E-5-0.5		1035		X																
E-5-1.5		1037		X																
Relinquished by: (Signature) <u>Daniel Wood</u>				Time 4:10 PM										Date: 8-27-21	Received by: (Signature) <u>FED EX</u>	Date	Time			
Relinquished by: (Signature) <u>FED EX</u>				Time										Date:	Time	Received by: (Signature)	Date	Time		
Relinquished by: (Signature)				Time										Date:	Time	Received by: (Signature)	Date	Time		
Sent to Laboratory (Name):													Date		Time		Date		Time	
Laboratory Comments/Notes:													Date		Time		Date		Time	



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

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



CHAIN OF CUSTODY RECORD

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 1 Almaden Boulevard, Suite 590, San Jose, CA 95113

Site Name: Hunters Point Block 56

Job Number: 731744801

Project Manager/Contact: Peter Cusyle, Daniel Wood

Samplers: Daniel Wood

Recorder (Signature Required): Daniel Wood

Turnaround Time
Standard

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix & Preservative							Analysis Requested				Remarks		
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	Gemm. Spec	Alpha Spec	Strontium-90		Hold	
E-5-5.0	8-27-21	1042		X									X				
E-6-0.5		1105		X									X				
E-7-0.5		1140		X									X				
E-7-1.5		1142		X									X				
E-8-0.5		1128		X									X				
E-8-3.0		1132		X									X				
E-9-1.5		1052		X									X				
E-9-3.0		1053		X									X				
E-10-0.5		1240		X									X				
E-11-0.5		1253		X									X				
E-11-3.0		1256		X									X				
E-11-8.0		1258		X									X				
E-12-0.5		1335		X									X				
E-12-3.0		1337		X									X				
Relinquished by: (Signature)		Date: 8-27-21		Time: 4:30 PM		Received by: (Signature)		Date: 8/31/21		Time: 1333		Method of Shipment		Date: _____		Time: _____	
Relinquished by: (Signature)		Date: _____		Time: _____		Received by: (Signature)		Date: _____		Time: _____		Method of Shipment		Date: _____		Time: _____	
Relinquished by: (Signature)		Date: _____		Time: _____		Received by: (Signature)		Date: _____		Time: _____		Method of Shipment		Date: _____		Time: _____	

Sent to Laboratory (Name): _____
 Laboratory Comments/Notes: _____

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

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CHAIN OF CUSTODY RECORD

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 501 14th Street, Third Floor, Oakland, CA 94612
 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
 1 Almaden Boulevard, Suite 590, San Jose, CA 95113

Site Name: Hunters Point Block 56

Job Number: 731744801

Project Manager/Contact: Peter Cusack, Daniel Wood

Samplers: Daniel Wood

Recorder (Signature Required): Daniel Wood

Turnaround Time
Standard

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix			No. Containers & Preservative						Remarks		
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice	Silica gel clean-up		Hold	
E-13-0.5	8-27-21	1348		X											
E-14-0.5	↓	1310		X											
E-14-3.0	↓	1312		X											

Relinquished by: (Signature) Daniel Wood Date: 8-27-21 Time: 4:30 PM
 Received by: (Signature) [Signature] Date: 8/31/21 Time: 1333
 Received by Lab: (Signature) _____ Date: _____ Time: _____

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

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Login Sample Receipt Checklist

Client: Langan Engineering & Environmental Svcs

Job Number: 160-43280-1

Login Number: 43280

List Source: Eurofins St. Louis

List Number: 1

Creator: Worthington, Sierra M

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Langan Engineering & Environmental Svcs
Project/Site: HP Block 56

Job ID: 160-43280-1

Qualifiers

Rad

Qualifier	Qualifier Description
Q	Tracer is outside acceptance limits.
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Method Summary

Client: Langan Engineering & Environmental Svcs
Project/Site: HP Block 56

Job ID: 160-43280-1

Method	Method Description	Protocol	Laboratory
A-01-R	Isotopic Plutonium (Alpha Spectrometry)	DOE	TAL SL
A-01-R	Isotopic Thorium (Alpha Spectrometry)	DOE	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL
GA-01-R	Radium-226 & Other Gamma Emitters (GS)	DOE	TAL SL
Dry and Grind	Preparation, Dry and Grind	None	TAL SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	TAL SL
Fill_Geo-21	Fill Geometry, 21-Day In-Growth	None	TAL SL

Protocol References:

DOE = U.S. Department of Energy
None = None

Laboratory References:

TAL SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



Sample Summary

Client: Langan Engineering & Environmental Svcs
Project/Site: HP Block 56

Job ID: 160-43280-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-43280-1	E-1-0.5	Solid	08/27/21 09:03	08/31/21 13:33
160-43280-2	E-1-1.5	Solid	08/27/21 09:05	08/31/21 13:33
160-43280-3	E-1-5.0	Solid	08/27/21 09:08	08/31/21 13:33
160-43280-4	E-2-0.5	Solid	08/27/21 09:25	08/31/21 13:33
160-43280-5	E-2-3.0	Solid	08/27/21 09:30	08/31/21 13:33
160-43280-6	E-2-7.5	Solid	08/27/21 09:34	08/31/21 13:33
160-43280-7	E-3-0.5	Solid	08/27/21 09:45	08/31/21 13:33
160-43280-8	E-3-3.0	Solid	08/27/21 09:48	08/31/21 13:33
160-43280-9	E-3-5.0	Solid	08/27/21 09:50	08/31/21 13:33
160-43280-10	E-4-0.5	Solid	08/27/21 10:15	08/31/21 13:33
160-43280-11	E-4-3.0	Solid	08/27/21 10:18	08/31/21 13:33
160-43280-12	E-4-5.0	Solid	08/27/21 10:20	08/31/21 13:33
160-43280-13	E-5-0.5	Solid	08/27/21 10:35	08/31/21 13:33
160-43280-14	E-5-1.5	Solid	08/27/21 10:37	08/31/21 13:33
160-43280-15	E-5-5.0	Solid	08/27/21 10:42	08/31/21 13:33
160-43280-16	E-6-0.5	Solid	08/27/21 11:05	08/31/21 13:33
160-43280-17	E-7-0.5	Solid	08/27/21 11:40	08/31/21 13:33
160-43280-18	E-7-1.5	Solid	08/27/21 11:42	08/31/21 13:33
160-43280-19	E-8-0.5	Solid	08/27/21 11:28	08/31/21 13:33
160-43280-20	E-8-3.0	Solid	08/27/21 11:32	08/31/21 13:33
160-43280-21	E-9-1.5	Solid	08/27/21 10:52	08/31/21 13:33
160-43280-22	E-9-3.0	Solid	08/27/21 10:53	08/31/21 13:33
160-43280-23	E-10-0.5	Solid	08/27/21 12:40	08/31/21 13:33
160-43280-24	E-11-0.5	Solid	08/27/21 12:53	08/31/21 13:33
160-43280-25	E-11-3.0	Solid	08/27/21 12:56	08/31/21 13:33
160-43280-26	E-11-5.0	Solid	08/27/21 12:58	08/31/21 13:33
160-43280-27	E-12-0.5	Solid	08/27/21 13:35	08/31/21 13:33
160-43280-28	E-12-3.0	Solid	08/27/21 13:37	08/31/21 13:33
160-43280-29	E-13-0.5	Solid	08/27/21 13:48	08/31/21 13:33
160-43280-30	E-14-0.5	Solid	08/27/21 13:10	08/31/21 13:33
160-43280-31	E-14-3.0	Solid	08/27/21 13:12	08/31/21 13:33

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-1-0.5

Lab Sample ID: 160-43280-1

Date Collected: 08/27/21 09:03

Matrix: Solid

Date Received: 08/31/21 13:33

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	-0.00943	U	0.0183	0.0183	0.200	0.0179	pCi/g	09/12/21 11:39	09/23/21 19:59	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	91.8		30 - 110					09/12/21 11:39	09/23/21 19:59	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.328		0.0863	0.0906	0.200	0.0224	pCi/g	09/29/21 14:48	10/11/21 19:50	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Thorium-229	69.3		30 - 110					09/29/21 14:48	10/11/21 19:50	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.00502	U	0.0213	0.0213	1.00	0.0563	pCi/g	10/21/21 13:34	10/27/21 09:37	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	91.7		30 - 110					10/21/21 13:34	10/27/21 09:37	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Americium-241	0.0125	U	0.217	0.217	0.500	0.178	pCi/g	09/07/21 11:56	09/30/21 12:50	1
Cesium-137	-0.0516	U	0.100	0.100	0.0700	0.0781	pCi/g	09/07/21 11:56	09/30/21 12:50	1
Cobalt-60	-0.0568	U	0.143	0.143	0.100	0.0682	pCi/g	09/07/21 11:56	09/30/21 12:50	1
Radium-226	0.396		0.178	0.182	0.500	0.0891	pCi/g	09/07/21 11:56	09/30/21 12:50	1

Client Sample ID: E-1-1.5

Lab Sample ID: 160-43280-2

Date Collected: 08/27/21 09:05

Matrix: Solid

Date Received: 08/31/21 13:33

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	0.0135		0.0215	0.0215	0.200	0.0124	pCi/g	09/12/21 11:39	09/23/21 20:00	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	67.2		30 - 110					09/12/21 11:39	09/23/21 20:00	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.0632		0.0703	0.0705	0.200	0.0481	pCi/g	09/29/21 14:48	10/11/21 19:50	1

Eurofins St. Louis

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-1-1.5
Date Collected: 08/27/21 09:05
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-2
Matrix: Solid

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Thorium-229	65.2		30 - 110	09/29/21 14:48	10/11/21 19:50	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	-0.00277	U	0.00554	0.00555	1.00	0.0536	pCi/g	10/21/21 13:34	10/27/21 09:37	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	93.7		30 - 110	10/21/21 13:34	10/27/21 09:37	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Americium-241	-0.00495	U	0.158	0.158	0.500	0.103	pCi/g	09/07/21 11:56	09/30/21 12:46	1
Cesium-137	-0.0258	U	0.0767	0.0768	0.0700	0.0607	pCi/g	09/07/21 11:56	09/30/21 12:46	1
Cobalt-60	-0.00274	U	0.0103	0.0103	0.100	0.0625	pCi/g	09/07/21 11:56	09/30/21 12:46	1
Radium-226	0.361		0.137	0.142	0.500	0.0593	pCi/g	09/07/21 11:56	09/30/21 12:46	1

Client Sample ID: E-1-5.0
Date Collected: 08/27/21 09:08
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-3
Matrix: Solid

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	-0.00834	U	0.0153	0.0153	0.200	0.0154	pCi/g	09/12/21 11:39	09/23/21 20:00	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Pu-242 (T)	94.7		30 - 110	09/12/21 11:39	09/23/21 20:00	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.265		0.0730	0.0763	0.200	0.0143	pCi/g	09/29/21 14:48	10/13/21 23:48	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Thorium-229	74.1		30 - 110	09/29/21 14:48	10/13/21 23:48	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	-0.00494	U	0.00699	0.00700	1.00	0.0553	pCi/g	10/21/21 13:34	10/27/21 09:37	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	108		30 - 110	10/21/21 13:34	10/27/21 09:37	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-1-5.0

Lab Sample ID: 160-43280-3

Date Collected: 08/27/21 09:08

Matrix: Solid

Date Received: 08/31/21 13:33

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Americium-241	-0.0679	U	0.155	0.155	0.500	0.125	pCi/g	09/07/21 11:56	09/30/21 13:16	1
Cesium-137	0.0238	U	0.0463	0.0464	0.0700	0.0349	pCi/g	09/07/21 11:56	09/30/21 13:16	1
Cobalt-60	0.0168	U	0.0115	0.0116	0.100	0.0293	pCi/g	09/07/21 11:56	09/30/21 13:16	1
Radium-226	0.399		0.119	0.126	0.500	0.0487	pCi/g	09/07/21 11:56	09/30/21 13:16	1

Client Sample ID: E-2-0.5

Lab Sample ID: 160-43280-4

Date Collected: 08/27/21 09:25

Matrix: Solid

Date Received: 08/31/21 13:33

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Plutonium-239/240	0.00734		0.0104	0.0104	0.200	0.00608	pCi/g	09/12/21 11:39	09/23/21 20:00	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	74.8		30 - 110					09/12/21 11:39	09/23/21 20:00	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Thorium-232	0.246		0.150	0.152	0.200	0.0750	pCi/g	09/29/21 14:48	10/11/21 19:50	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Thorium-229	25.0	Q	30 - 110					09/29/21 14:48	10/11/21 19:50	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Uranium-235	0.000	U	0.00517	0.00517	1.00	0.0310	pCi/g	10/21/21 13:34	10/27/21 09:37	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	87.8		30 - 110					10/21/21 13:34	10/27/21 09:37	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Americium-241	-0.0988	U	0.264	0.264	0.500	0.214	pCi/g	09/07/21 11:56	09/30/21 13:24	1
Cesium-137	0.0341	U	0.0884	0.0885	0.0700	0.0697	pCi/g	09/07/21 11:56	09/30/21 13:24	1
Cobalt-60	-0.00463	U	0.0784	0.0784	0.100	0.0385	pCi/g	09/07/21 11:56	09/30/21 13:24	1
Radium-226	0.619		0.167	0.178	0.500	0.0624	pCi/g	09/07/21 11:56	09/30/21 13:24	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-2-3.0

Lab Sample ID: 160-43280-5

Date Collected: 08/27/21 09:30

Matrix: Solid

Date Received: 08/31/21 13:33

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	0.000	U	0.00575	0.00575	0.200	0.00762	pCi/g	09/12/21 11:39	09/23/21 20:00	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	59.3		30 - 110					09/12/21 11:39	09/23/21 20:00	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.0931		0.0442	0.0449	0.200	0.0141	pCi/g	09/29/21 14:48	10/11/21 19:50	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Thorium-229	79.6		30 - 110					09/29/21 14:48	10/11/21 19:50	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.000	U	0.00545	0.00545	1.00	0.0327	pCi/g	10/21/21 13:34	10/27/21 09:37	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	95.4		30 - 110					10/21/21 13:34	10/27/21 09:37	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Americium-241	0.0289	U	0.0902	0.0902	0.500	0.0722	pCi/g	09/07/21 11:56	09/30/21 13:18	1
Cesium-137	0.00781	U	0.0352	0.0352	0.0700	0.0277	pCi/g	09/07/21 11:56	09/30/21 13:18	1
Cobalt-60	0.0115	U	0.0568	0.0568	0.100	0.0272	pCi/g	09/07/21 11:56	09/30/21 13:18	1
Radium-226	0.241		0.100	0.103	0.500	0.0395	pCi/g	09/07/21 11:56	09/30/21 13:18	1

Client Sample ID: E-2-7.5

Lab Sample ID: 160-43280-6

Date Collected: 08/27/21 09:34

Matrix: Solid

Date Received: 08/31/21 13:33

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	-0.00313	U	0.0105	0.0105	0.200	0.0103	pCi/g	09/12/21 11:39	09/23/21 20:00	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	74.2		30 - 110					09/12/21 11:39	09/23/21 20:00	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.262		0.0746	0.0778	0.200	0.0182	pCi/g	09/29/21 14:48	10/13/21 23:48	1

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Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-2-7.5
Date Collected: 08/27/21 09:34
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-6
Matrix: Solid

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Thorium-229	74.4		30 - 110	09/29/21 14:48	10/13/21 23:48	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.0107	U	0.0213	0.0213	1.00	0.0320	pCi/g	10/21/21 13:34	10/27/21 09:37	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	82.0		30 - 110	10/21/21 13:34	10/27/21 09:37	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Americium-241	0.0758	U	0.188	0.189	0.500	0.152	pCi/g	09/07/21 11:56	09/30/21 13:18	1
Cesium-137	0.0212	U	0.0457	0.0458	0.0700	0.0342	pCi/g	09/07/21 11:56	09/30/21 13:18	1
Cobalt-60	0.00857	U	0.0687	0.0688	0.100	0.0350	pCi/g	09/07/21 11:56	09/30/21 13:18	1
Radium-226	0.462		0.190	0.196	0.500	0.0847	pCi/g	09/07/21 11:56	09/30/21 13:18	1

Client Sample ID: E-3-0.5
Date Collected: 08/27/21 09:45
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-7
Matrix: Solid

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	-0.00463	U	0.00654	0.00655	0.200	0.00868	pCi/g	09/12/21 11:39	09/23/21 19:59	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Pu-242 (T)	78.3		30 - 110	09/12/21 11:39	09/23/21 19:59	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.563		0.104	0.114	0.200	0.0176	pCi/g	09/29/21 14:48	10/11/21 19:50	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Thorium-229	78.1		30 - 110	09/29/21 14:48	10/11/21 19:50	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.0103	U	0.0205	0.0206	1.00	0.0308	pCi/g	10/21/21 13:34	10/27/21 09:37	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	86.4		30 - 110	10/21/21 13:34	10/27/21 09:37	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-3-0.5

Date Collected: 08/27/21 09:45

Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-7

Matrix: Solid

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Americium-241	0.0317	U	0.158	0.158	0.500	0.102	pCi/g	09/07/21 11:56	09/30/21 13:19	1
Cesium-137	-0.0227	U	0.0863	0.0863	0.0700	0.0691	pCi/g	09/07/21 11:56	09/30/21 13:19	1
Cobalt-60	0.0354		0.0335	0.0337	0.100	0.0151	pCi/g	09/07/21 11:56	09/30/21 13:19	1
Radium-226	0.337		0.136	0.140	0.500	0.0548	pCi/g	09/07/21 11:56	09/30/21 13:19	1

Client Sample ID: E-3-3.0

Date Collected: 08/27/21 09:48

Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-8

Matrix: Solid

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Plutonium-239/240	-0.00213	U	0.00425	0.00426	0.200	0.00564	pCi/g	09/12/21 11:39	09/23/21 19:59	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
<i>Pu-242 (T)</i>	82.9		30 - 110					09/12/21 11:39	09/23/21 19:59	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Thorium-232	0.262		0.0777	0.0808	0.200	0.0243	pCi/g	09/29/21 14:48	10/11/21 19:50	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
<i>Thorium-229</i>	74.2		30 - 110					09/29/21 14:48	10/11/21 19:50	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Uranium-235	0.0108	U	0.0216	0.0216	1.00	0.0324	pCi/g	10/21/21 13:34	10/27/21 09:37	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
<i>Uranium-232</i>	82.7		30 - 110					10/21/21 13:34	10/27/21 09:37	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Americium-241	0.0338	U	0.128	0.128	0.500	0.104	pCi/g	09/07/21 11:56	09/30/21 13:50	1
Cesium-137	0.0172	U	0.0371	0.0371	0.0700	0.0278	pCi/g	09/07/21 11:56	09/30/21 13:50	1
Cobalt-60	0.0208	U	0.0405	0.0406	0.100	0.0270	pCi/g	09/07/21 11:56	09/30/21 13:50	1
Radium-226	0.0575	U	0.0830	0.0832	0.500	0.171	pCi/g	09/07/21 11:56	09/30/21 13:50	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-3-5.0
Date Collected: 08/27/21 09:50
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-9
Matrix: Solid

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	0.00141	U	0.00886	0.00886	0.200	0.00623	pCi/g	09/12/21 11:39	09/23/21 19:59	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	73.6		30 - 110					09/12/21 11:39	09/23/21 19:59	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.372		0.0849	0.0904	0.200	0.0142	pCi/g	09/29/21 14:48	10/11/21 19:50	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Thorium-229	73.5		30 - 110					09/29/21 14:48	10/11/21 19:50	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.0198	U	0.0280	0.0281	1.00	0.0297	pCi/g	10/21/21 13:34	10/27/21 09:37	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	84.1		30 - 110					10/21/21 13:34	10/27/21 09:37	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Americium-241	0.0602	U	0.133	0.133	0.500	0.106	pCi/g	09/07/21 11:56	09/30/21 13:52	1
Cesium-137	0.0299	U	0.0589	0.0590	0.0700	0.0455	pCi/g	09/07/21 11:56	09/30/21 13:52	1
Cobalt-60	0.00906	U	0.0448	0.0448	0.100	0.0284	pCi/g	09/07/21 11:56	09/30/21 13:52	1
Radium-226	0.154	U	0.190	0.191	0.500	0.186	pCi/g	09/07/21 11:56	09/30/21 13:52	1

Client Sample ID: E-4-0.5
Date Collected: 08/27/21 10:15
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-10
Matrix: Solid

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	-0.00734	U	0.0119	0.0119	0.200	0.0128	pCi/g	09/12/21 11:39	09/23/21 19:59	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	77.7		30 - 110					09/12/21 11:39	09/23/21 19:59	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.514		0.0968	0.106	0.200	0.0193	pCi/g	09/29/21 14:48	10/11/21 19:50	1

Eurofins St. Louis

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-4-0.5
Date Collected: 08/27/21 10:15
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-10
Matrix: Solid

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Thorium-229	84.5		30 - 110	09/29/21 14:48	10/11/21 19:50	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.00742	U	0.0204	0.0204	1.00	0.0479	pCi/g	10/21/21 13:34	10/27/21 09:37	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	91.6		30 - 110	10/21/21 13:34	10/27/21 09:37	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Americium-241	-0.123	U	0.265	0.266	0.500	0.170	pCi/g	09/07/21 11:56	09/30/21 13:51	1
Cesium-137	-0.0652	U	0.120	0.120	0.0700	0.0941	pCi/g	09/07/21 11:56	09/30/21 13:51	1
Cobalt-60	0.0427		0.0468	0.0470	0.100	0.0413	pCi/g	09/07/21 11:56	09/30/21 13:51	1
Radium-226	0.476		0.194	0.200	0.500	0.0881	pCi/g	09/07/21 11:56	09/30/21 13:51	1

Client Sample ID: E-4-3.0
Date Collected: 08/27/21 10:18
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-11
Matrix: Solid

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	-0.00686	U	0.00792	0.00794	0.200	0.0105	pCi/g	09/12/21 11:39	09/23/21 19:59	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Pu-242 (T)	74.4		30 - 110	09/12/21 11:39	09/23/21 19:59	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.619		0.104	0.116	0.200	0.0134	pCi/g	09/29/21 14:48	10/11/21 19:50	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Thorium-229	81.1		30 - 110	09/29/21 14:48	10/11/21 19:50	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.0104	U	0.0207	0.0208	1.00	0.0311	pCi/g	10/21/21 13:34	10/27/21 09:37	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	84.5		30 - 110	10/21/21 13:34	10/27/21 09:37	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-4-3.0
Date Collected: 08/27/21 10:18
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-11
Matrix: Solid

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Americium-241	-0.0151	U	0.180	0.180	0.500	0.117	pCi/g	09/07/21 11:56	09/30/21 13:53	1
Cesium-137	0.0301	U	0.0619	0.0620	0.0700	0.0477	pCi/g	09/07/21 11:56	09/30/21 13:53	1
Cobalt-60	0.0392		0.0561	0.0563	0.100	0.0341	pCi/g	09/07/21 11:56	09/30/21 13:53	1
Radium-226	0.0667	U	0.200	0.200	0.500	0.171	pCi/g	09/07/21 11:56	09/30/21 13:53	1

Client Sample ID: E-4-5.0
Date Collected: 08/27/21 10:20
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-12
Matrix: Solid

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Plutonium-239/240	0.00529	U	0.0119	0.0119	0.200	0.00638	pCi/g	09/12/21 11:39	09/23/21 20:00	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	73.9		30 - 110					09/12/21 11:39	09/23/21 20:00	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Thorium-232	0.245		0.0771	0.0798	0.200	0.0164	pCi/g	09/29/21 14:48	10/19/21 22:52	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Thorium-229	60.9		30 - 110					09/29/21 14:48	10/19/21 22:52	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Uranium-235	0.0658		0.0537	0.0540	1.00	0.0329	pCi/g	10/21/21 13:34	10/27/21 09:37	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	81.0		30 - 110					10/21/21 13:34	10/27/21 09:37	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Americium-241	-0.0913	U	0.225	0.226	0.500	0.182	pCi/g	09/07/21 11:56	09/30/21 14:07	1
Cesium-137	0.000	U	0.0535	0.0535	0.0700	0.0623	pCi/g	09/07/21 11:56	09/30/21 14:07	1
Cobalt-60	0.00196	U	0.0199	0.0199	0.100	0.0400	pCi/g	09/07/21 11:56	09/30/21 14:07	1
Radium-226	0.328		0.142	0.146	0.500	0.0728	pCi/g	09/07/21 11:56	09/30/21 14:07	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-5-0.5

Lab Sample ID: 160-43280-13

Date Collected: 08/27/21 10:35

Matrix: Solid

Date Received: 08/31/21 13:33

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	-0.00248	U	0.00496	0.00496	0.200	0.00658	pCi/g	09/12/21 11:39	09/23/21 20:00	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	70.6		30 - 110					09/12/21 11:39	09/23/21 20:00	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.727		0.119	0.134	0.200	0.0147	pCi/g	09/29/21 14:48	10/11/21 19:50	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Thorium-229	69.4		30 - 110					09/29/21 14:48	10/11/21 19:50	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.0420		0.0420	0.0421	1.00	0.0315	pCi/g	10/21/21 13:34	10/27/21 13:51	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	94.0		30 - 110					10/21/21 13:34	10/27/21 13:51	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Americium-241	-0.0484	U	0.159	0.159	0.500	0.129	pCi/g	09/07/21 11:56	09/30/21 14:43	1
Cesium-137	-0.0303	U	0.0684	0.0685	0.0700	0.0536	pCi/g	09/07/21 11:56	09/30/21 14:43	1
Cobalt-60	-0.0810	U	0.131	0.131	0.100	0.0615	pCi/g	09/07/21 11:56	09/30/21 14:43	1
Radium-226	0.402		0.117	0.124	0.500	0.0299	pCi/g	09/07/21 11:56	09/30/21 14:43	1

Client Sample ID: E-5-1.5

Lab Sample ID: 160-43280-14

Date Collected: 08/27/21 10:37

Matrix: Solid

Date Received: 08/31/21 13:33

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	-0.00193	U	0.0145	0.0145	0.200	0.0128	pCi/g	09/12/21 11:39	09/23/21 19:59	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	81.8		30 - 110					09/12/21 11:39	09/23/21 19:59	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.259		0.0701	0.0734	0.200	0.0140	pCi/g	09/29/21 14:48	10/13/21 23:48	1

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Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-5-1.5
Date Collected: 08/27/21 10:37
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-14
Matrix: Solid

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Thorium-229	74.5		30 - 110	09/29/21 14:48	10/13/21 23:48	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.0910	U	0.0819	0.0823	1.00	0.0927	pCi/g	10/21/21 13:34	10/27/21 13:51	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	55.8		30 - 110	10/21/21 13:34	10/27/21 13:51	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Americium-241	-0.0851	U	0.195	0.196	0.500	0.125	pCi/g	09/07/21 11:56	09/30/21 14:42	1
Cesium-137	0.0261	U	0.0868	0.0868	0.0700	0.0693	pCi/g	09/07/21 11:56	09/30/21 14:42	1
Cobalt-60	-0.0943	U	0.0711	0.0718	0.100	0.0794	pCi/g	09/07/21 11:56	09/30/21 14:42	1
Radium-226	0.378		0.140	0.145	0.500	0.0596	pCi/g	09/07/21 11:56	09/30/21 14:42	1

Client Sample ID: E-5-5.0
Date Collected: 08/27/21 10:42
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-15
Matrix: Solid

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	0.00284	U	0.0126	0.0126	0.200	0.00889	pCi/g	09/12/21 11:39	09/24/21 10:23	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Pu-242 (T)	74.1		30 - 110	09/12/21 11:39	09/24/21 10:23	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.470		0.0928	0.101	0.200	0.0193	pCi/g	09/29/21 14:48	10/11/21 19:50	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Thorium-229	87.2		30 - 110	09/29/21 14:48	10/11/21 19:50	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.0341	U	0.0396	0.0397	1.00	0.0546	pCi/g	10/21/21 13:34	10/27/21 13:51	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	85.0		30 - 110	10/21/21 13:34	10/27/21 13:51	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-5-5.0

Lab Sample ID: 160-43280-15

Date Collected: 08/27/21 10:42

Matrix: Solid

Date Received: 08/31/21 13:33

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Americium-241	0.0158	U	0.170	0.170	0.500	0.139	pCi/g	09/07/21 11:56	09/30/21 14:38	1
Cesium-137	0.0234	U	0.0567	0.0568	0.0700	0.0443	pCi/g	09/07/21 11:56	09/30/21 14:38	1
Cobalt-60	0.0259	U	0.0160	0.0162	0.100	0.0387	pCi/g	09/07/21 11:56	09/30/21 14:38	1
Radium-226	0.497		0.173	0.180	0.500	0.0689	pCi/g	09/07/21 11:56	09/30/21 14:38	1

Client Sample ID: E-6-0.5

Lab Sample ID: 160-43280-16

Date Collected: 08/27/21 11:05

Matrix: Solid

Date Received: 08/31/21 13:33

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Plutonium-239/240	0.00381	U	0.0139	0.0139	0.200	0.00974	pCi/g	09/12/21 11:39	09/24/21 10:23	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	85.0		30 - 110					09/12/21 11:39	09/24/21 10:23	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Thorium-232	0.389		0.0865	0.0925	0.200	0.0173	pCi/g	09/29/21 14:48	10/17/21 23:37	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Thorium-229	88.3		30 - 110					09/29/21 14:48	10/17/21 23:37	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Uranium-235	0.0477		0.0427	0.0428	1.00	0.0286	pCi/g	10/21/21 13:34	10/27/21 13:51	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	102		30 - 110					10/21/21 13:34	10/27/21 13:51	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Americium-241	0.224		0.142	0.144	0.500	0.0840	pCi/g	09/07/21 11:56	09/30/21 15:54	1
Cesium-137	-0.0794	U	0.125	0.125	0.0700	0.0973	pCi/g	09/07/21 11:56	09/30/21 15:54	1
Cobalt-60	-0.0798	U	0.191	0.192	0.100	0.109	pCi/g	09/07/21 11:56	09/30/21 15:54	1
Radium-226	0.116	U	0.356	0.356	0.500	0.349	pCi/g	09/07/21 11:56	09/30/21 15:54	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-7-0.5
Date Collected: 08/27/21 11:40
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-17
Matrix: Solid

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	0.00141	U	0.00886	0.00886	0.200	0.00623	pCi/g	09/12/21 11:39	09/24/21 10:23	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	87.8		30 - 110					09/12/21 11:39	09/24/21 10:23	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.422		0.0891	0.0959	0.200	0.0276	pCi/g	09/29/21 14:48	10/11/21 19:50	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Thorium-229	86.4		30 - 110					09/29/21 14:48	10/11/21 19:50	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.0154	U	0.0299	0.0299	1.00	0.0574	pCi/g	10/21/21 13:34	10/27/21 13:51	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	95.7		30 - 110					10/21/21 13:34	10/27/21 13:51	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Americium-241	-0.126	U	0.273	0.273	0.500	0.175	pCi/g	09/07/21 11:56	09/30/21 14:43	1
Cesium-137	-0.0309	U	0.101	0.101	0.0700	0.0800	pCi/g	09/07/21 11:56	09/30/21 14:43	1
Cobalt-60	0.0501		0.0955	0.0956	0.100	0.0450	pCi/g	09/07/21 11:56	09/30/21 14:43	1
Radium-226	0.246		0.142	0.144	0.500	0.225	pCi/g	09/07/21 11:56	09/30/21 14:43	1

Client Sample ID: E-7-1.5
Date Collected: 08/27/21 11:42
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-18
Matrix: Solid

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	-0.00996	U	0.00996	0.0100	0.200	0.0132	pCi/g	09/12/21 11:39	09/24/21 10:23	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	75.9		30 - 110					09/12/21 11:39	09/24/21 10:23	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.385		0.0919	0.0974	0.200	0.0192	pCi/g	09/29/21 14:48	10/11/21 19:50	1

Eurofins St. Louis

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-7-1.5
Date Collected: 08/27/21 11:42
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-18
Matrix: Solid

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Thorium-229	67.5		30 - 110	09/29/21 14:48	10/11/21 19:50	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.00490	U	0.0208	0.0208	1.00	0.0549	pCi/g	10/21/21 13:34	10/27/21 13:51	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	84.2		30 - 110	10/21/21 13:34	10/27/21 13:51	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Americium-241	-0.0933	U	0.256	0.256	0.500	0.207	pCi/g	09/07/21 11:56	09/30/21 14:40	1
Cesium-137	0.000	U	0.0146	0.0146	0.0700	0.0269	pCi/g	09/07/21 11:56	09/30/21 14:40	1
Cobalt-60	0.00557	U	0.0361	0.0361	0.100	0.0172	pCi/g	09/07/21 11:56	09/30/21 14:40	1
Radium-226	0.0800	U	0.0653	0.0658	0.500	0.278	pCi/g	09/07/21 11:56	09/30/21 14:40	1

Client Sample ID: E-8-0.5
Date Collected: 08/27/21 11:28
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-19
Matrix: Solid

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	0.000	U	0.00480	0.00480	0.200	0.00636	pCi/g	09/12/21 11:39	09/24/21 10:23	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Pu-242 (T)	77.2		30 - 110	09/12/21 11:39	09/24/21 10:23	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	1.30		0.137	0.175	0.200	0.0116	pCi/g	09/29/21 14:48	10/13/21 23:48	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Thorium-229	90.8		30 - 110	09/29/21 14:48	10/13/21 23:48	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.0173	U	0.0283	0.0284	1.00	0.0477	pCi/g	10/21/21 13:34	10/27/21 13:51	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	85.2		30 - 110	10/21/21 13:34	10/27/21 13:51	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-8-0.5

Lab Sample ID: 160-43280-19

Date Collected: 08/27/21 11:28

Matrix: Solid

Date Received: 08/31/21 13:33

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Americium-241	-0.0112	U	0.220	0.220	0.500	0.144	pCi/g	09/07/21 10:22	09/29/21 14:01	1
Cesium-137	0.0204	U	0.0874	0.0874	0.0700	0.0700	pCi/g	09/07/21 10:22	09/29/21 14:01	1
Cobalt-60	-0.0476	U	0.136	0.136	0.100	0.0710	pCi/g	09/07/21 10:22	09/29/21 14:01	1
Radium-226	0.692		0.183	0.197	0.500	0.0663	pCi/g	09/07/21 10:22	09/29/21 14:01	1

Client Sample ID: E-8-3.0

Lab Sample ID: 160-43280-20

Date Collected: 08/27/21 11:32

Matrix: Solid

Date Received: 08/31/21 13:33

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Plutonium-239/240	0.00165	U	0.0104	0.0104	0.200	0.00731	pCi/g	09/12/21 12:27	09/24/21 21:30	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	72.7		30 - 110					09/12/21 12:27	09/24/21 21:30	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Thorium-232	0.664		0.133	0.145	0.200	0.0236	pCi/g	09/28/21 13:08	10/12/21 23:14	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Thorium-229	61.3		30 - 110					09/28/21 13:08	10/12/21 23:14	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Uranium-235	0.0166	U	0.0272	0.0272	1.00	0.0458	pCi/g	10/21/21 13:34	10/27/21 13:51	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	86.5		30 - 110					10/21/21 13:34	10/27/21 13:51	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Americium-241	0.0164	U	0.141	0.141	0.500	0.0876	pCi/g	09/07/21 10:22	09/29/21 14:35	1
Cesium-137	-0.0214	U	0.0567	0.0568	0.0700	0.0450	pCi/g	09/07/21 10:22	09/29/21 14:35	1
Cobalt-60	0.00988	U	0.0274	0.0274	0.100	0.0451	pCi/g	09/07/21 10:22	09/29/21 14:35	1
Radium-226	0.504		0.117	0.128	0.500	0.0324	pCi/g	09/07/21 10:22	09/29/21 14:35	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-9-1.5

Lab Sample ID: 160-43280-21

Date Collected: 08/27/21 10:52

Matrix: Solid

Date Received: 08/31/21 13:33

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	0.00653	U	0.0147	0.0147	0.200	0.00787	pCi/g	09/12/21 12:27	09/24/21 21:30	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	53.4		30 - 110					09/12/21 12:27	09/24/21 21:30	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.350		0.104	0.108	0.200	0.0254	pCi/g	09/28/21 13:08	10/12/21 23:14	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Thorium-229	51.7		30 - 110					09/28/21 13:08	10/12/21 23:14	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.0299	U	0.0423	0.0424	1.00	0.0671	pCi/g	10/22/21 11:10	10/27/21 09:22	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	70.5		30 - 110					10/22/21 11:10	10/27/21 09:22	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Americium-241	-0.0924	U	0.242	0.242	0.500	0.196	pCi/g	09/07/21 10:22	09/29/21 14:36	1
Cesium-137	-0.0511	U	0.0872	0.0874	0.0700	0.0676	pCi/g	09/07/21 10:22	09/29/21 14:36	1
Cobalt-60	-0.00399	U	0.117	0.117	0.100	0.0343	pCi/g	09/07/21 10:22	09/29/21 14:36	1
Radium-226	0.282		0.129	0.132	0.500	0.0653	pCi/g	09/07/21 10:22	09/29/21 14:36	1

Client Sample ID: E-9-3.0

Lab Sample ID: 160-43280-22

Date Collected: 08/27/21 10:53

Matrix: Solid

Date Received: 08/31/21 13:33

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	-0.00790	U	0.0195	0.0196	0.200	0.0185	pCi/g	09/12/21 12:27	09/24/21 21:30	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	71.1		30 - 110					09/12/21 12:27	09/24/21 21:30	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.396		0.112	0.116	0.200	0.0208	pCi/g	09/28/21 13:08	10/12/21 23:14	1

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Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-9-3.0
Date Collected: 08/27/21 10:53
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-22
Matrix: Solid

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Thorium-229	46.5		30 - 110	09/28/21 13:08	10/12/21 23:14	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.0241	U	0.0469	0.0469	1.00	0.0900	pCi/g	10/22/21 11:10	10/27/21 09:22	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	53.2		30 - 110	10/22/21 11:10	10/27/21 09:22	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Americium-241	-0.0565	U	0.159	0.159	0.500	0.129	pCi/g	09/07/21 10:22	09/29/21 14:37	1
Cesium-137	-0.0193	U	0.0948	0.0948	0.0700	0.0769	pCi/g	09/07/21 10:22	09/29/21 14:37	1
Cobalt-60	-0.0972	U	0.0982	0.0987	0.100	0.0733	pCi/g	09/07/21 10:22	09/29/21 14:37	1
Radium-226	0.446		0.131	0.139	0.500	0.0628	pCi/g	09/07/21 10:22	09/29/21 14:37	1

Client Sample ID: E-10-0.5
Date Collected: 08/27/21 12:40
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-23
Matrix: Solid

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	-0.00738	U	0.0176	0.0176	0.200	0.0171	pCi/g	09/12/21 12:27	09/24/21 21:30	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Pu-242 (T)	64.6		30 - 110	09/12/21 12:27	09/24/21 21:30	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.494		0.101	0.110	0.200	0.0154	pCi/g	09/28/21 13:08	10/07/21 21:45	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Thorium-229	68.2		30 - 110	09/28/21 13:08	10/07/21 21:45	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.0301	U	0.0383	0.0384	1.00	0.0529	pCi/g	10/22/21 11:10	10/27/21 09:22	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	74.8		30 - 110	10/22/21 11:10	10/27/21 09:22	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-10-0.5

Date Collected: 08/27/21 12:40

Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-23

Matrix: Solid

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Americium-241	0.0399	U	0.136	0.136	0.500	0.0878	pCi/g	09/07/21 10:22	09/29/21 16:20	1
Cesium-137	0.0273	U	0.0918	0.0918	0.0700	0.0732	pCi/g	09/07/21 10:22	09/29/21 16:20	1
Cobalt-60	0.0163	U	0.165	0.165	0.100	0.0821	pCi/g	09/07/21 10:22	09/29/21 16:20	1
Radium-226	0.656		0.195	0.205	0.500	0.0980	pCi/g	09/07/21 10:22	09/29/21 16:20	1

Client Sample ID: E-11-0.5

Date Collected: 08/27/21 12:53

Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-24

Matrix: Solid

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Plutonium-239/240	-0.00520	U	0.00735	0.00736	0.200	0.00975	pCi/g	09/12/21 12:27	09/24/21 21:30	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	79.0		30 - 110					09/12/21 12:27	09/24/21 21:30	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Thorium-232	0.455		0.146	0.151	0.200	0.0428	pCi/g	09/28/21 13:08	10/07/21 21:45	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Thorium-229	36.9		30 - 110					09/28/21 13:08	10/07/21 21:45	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Uranium-235	0.0233	U	0.0329	0.0330	1.00	0.0349	pCi/g	10/22/21 11:10	10/27/21 09:22	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	69.6		30 - 110					10/22/21 11:10	10/27/21 09:22	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Americium-241	0.155		0.0977	0.0993	0.500	0.0531	pCi/g	09/07/21 10:22	09/29/21 17:59	1
Cesium-137	0.0240	U	0.0498	0.0498	0.0700	0.0256	pCi/g	09/07/21 10:22	09/29/21 17:59	1
Cobalt-60	0.0366		0.0514	0.0515	0.100	0.0271	pCi/g	09/07/21 10:22	09/29/21 17:59	1
Radium-226	0.435		0.186	0.192	0.500	0.0898	pCi/g	09/07/21 10:22	09/29/21 17:59	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-11-3.0

Lab Sample ID: 160-43280-25

Date Collected: 08/27/21 12:56

Matrix: Solid

Date Received: 08/31/21 13:33

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	0.00579	U	0.0116	0.0116	0.200	0.00961	pCi/g	09/12/21 12:27	09/24/21 21:30	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	54.6		30 - 110					09/12/21 12:27	09/24/21 21:30	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.178		0.150	0.150	0.200	0.0768	pCi/g	09/28/21 13:08	10/07/21 21:46	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Thorium-229	18.0	Q	30 - 110					09/28/21 13:08	10/07/21 21:46	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.0330	U	0.0420	0.0421	1.00	0.0580	pCi/g	10/22/21 11:10	10/27/21 09:22	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	70.3		30 - 110					10/22/21 11:10	10/27/21 09:22	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Americium-241	0.0580	U	0.128	0.128	0.500	0.102	pCi/g	09/07/21 10:22	09/29/21 15:15	1
Cesium-137	-0.0389	U	0.0328	0.0331	0.0700	0.0711	pCi/g	09/07/21 10:22	09/29/21 15:15	1
Cobalt-60	-0.0147	U	0.0643	0.0643	0.100	0.0306	pCi/g	09/07/21 10:22	09/29/21 15:15	1
Radium-226	0.279		0.132	0.135	0.500	0.0616	pCi/g	09/07/21 10:22	09/29/21 15:15	1

Client Sample ID: E-11-5.0

Lab Sample ID: 160-43280-26

Date Collected: 08/27/21 12:58

Matrix: Solid

Date Received: 08/31/21 13:33

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	-0.0365	U	0.0195	0.0198	0.200	0.0259	pCi/g	09/12/21 12:27	09/24/21 21:30	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	63.9		30 - 110					09/12/21 12:27	09/24/21 21:30	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.0515	U	0.106	0.106	0.200	0.0671	pCi/g	09/28/21 13:08	10/07/21 21:46	1

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Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-11-5.0
Date Collected: 08/27/21 12:58
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-26
Matrix: Solid

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Thorium-229	17.1	Q	30 - 110	09/28/21 13:08	10/07/21 21:46	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Uranium-235	0.0238	U	0.0336	0.0337	1.00	0.0357	pCi/g	10/22/21 11:10	10/27/21 09:22	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	73.3		30 - 110	10/22/21 11:10	10/27/21 09:22	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Americium-241	-0.0553	U	0.127	0.127	0.500	0.0812	pCi/g	09/07/21 10:22	09/29/21 18:00	1
Cesium-137	0.0376	U	0.0791	0.0792	0.0700	0.0617	pCi/g	09/07/21 10:22	09/29/21 18:00	1
Cobalt-60	0.0394	U	0.0833	0.0834	0.100	0.0400	pCi/g	09/07/21 10:22	09/29/21 18:00	1
Radium-226	0.0561	U	0.233	0.233	0.500	0.212	pCi/g	09/07/21 10:22	09/29/21 18:00	1

Client Sample ID: E-12-0.5
Date Collected: 08/27/21 13:35
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-27
Matrix: Solid

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Plutonium-239/240	-0.0173	U	0.0131	0.0132	0.200	0.0174	pCi/g	09/12/21 12:27	09/24/21 21:30	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Pu-242 (T)	68.9		30 - 110	09/12/21 12:27	09/24/21 21:30	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Thorium-232	0.238		0.175	0.176	0.200	0.102	pCi/g	09/28/21 13:08	10/07/21 21:46	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Thorium-229	22.4	Q	30 - 110	09/28/21 13:08	10/07/21 21:46	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Uranium-235	0.0427		0.0427	0.0428	1.00	0.0320	pCi/g	10/22/21 11:10	10/27/21 09:22	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	78.5		30 - 110	10/22/21 11:10	10/27/21 09:22	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-12-0.5

Lab Sample ID: 160-43280-27

Date Collected: 08/27/21 13:35

Matrix: Solid

Date Received: 08/31/21 13:33

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Americium-241	0.0783	U	0.222	0.222	0.500	0.179	pCi/g	09/07/21 10:22	09/29/21 15:08	1
Cesium-137	0.0382	U	0.0979	0.0979	0.0700	0.0770	pCi/g	09/07/21 10:22	09/29/21 15:08	1
Cobalt-60	-0.00519	U	0.0878	0.0878	0.100	0.0432	pCi/g	09/07/21 10:22	09/29/21 15:08	1
Radium-226	0.299		0.146	0.149	0.500	0.0847	pCi/g	09/07/21 10:22	09/29/21 15:08	1

Client Sample ID: E-12-3.0

Lab Sample ID: 160-43280-28

Date Collected: 08/27/21 13:37

Matrix: Solid

Date Received: 08/31/21 13:33

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Plutonium-239/240	0.00228	U	0.0203	0.0203	0.200	0.0160	pCi/g	09/12/21 12:27	09/24/21 21:30	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	77.1		30 - 110					09/12/21 12:27	09/24/21 21:30	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Thorium-232	0.972		0.267	0.279	0.200	0.0584	pCi/g	09/28/21 13:08	10/07/21 21:46	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Thorium-229	19.9	Q	30 - 110					09/28/21 13:08	10/07/21 21:46	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Uranium-235	0.0623		0.0534	0.0536	1.00	0.0524	pCi/g	10/22/21 11:10	10/27/21 09:22	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	79.1		30 - 110					10/22/21 11:10	10/27/21 09:22	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Americium-241	0.0814	U	0.160	0.160	0.500	0.128	pCi/g	09/07/21 10:22	09/29/21 15:07	1
Cesium-137	-0.0582	U	0.0899	0.0901	0.0700	0.0699	pCi/g	09/07/21 10:22	09/29/21 15:07	1
Cobalt-60	0.0387		0.0293	0.0295	0.100	0.0129	pCi/g	09/07/21 10:22	09/29/21 15:07	1
Radium-226	0.688		0.134	0.152	0.500	0.0153	pCi/g	09/07/21 10:22	09/29/21 15:07	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-13-0.5

Lab Sample ID: 160-43280-29

Date Collected: 08/27/21 13:48

Matrix: Solid

Date Received: 08/31/21 13:33

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	-0.00106	U	0.0113	0.0113	0.200	0.00997	pCi/g	09/12/21 12:27	09/24/21 21:30	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	64.6		30 - 110					09/12/21 12:27	09/24/21 21:30	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.265		0.174	0.176	0.200	0.0672	pCi/g	09/28/21 13:08	10/07/21 21:52	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Thorium-229	12.3	Q	30 - 110					09/28/21 13:08	10/07/21 21:52	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.0408	U	0.0438	0.0440	1.00	0.0526	pCi/g	10/22/21 11:10	10/27/21 09:22	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	79.7		30 - 110					10/22/21 11:10	10/27/21 09:22	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Americium-241	-0.0812	U	0.185	0.185	0.500	0.149	pCi/g	09/07/21 10:22	09/29/21 16:13	1
Cesium-137	-0.0267	U	0.0332	0.0333	0.0700	0.0484	pCi/g	09/07/21 10:22	09/29/21 16:13	1
Cobalt-60	-0.0556	U	0.113	0.113	0.100	0.0535	pCi/g	09/07/21 10:22	09/29/21 16:13	1
Radium-226	0.531		0.150	0.160	0.500	0.0513	pCi/g	09/07/21 10:22	09/29/21 16:13	1

Client Sample ID: E-14-0.5

Lab Sample ID: 160-43280-30

Date Collected: 08/27/21 13:10

Matrix: Solid

Date Received: 08/31/21 13:33

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	0.00806		0.0114	0.0114	0.200	0.00668	pCi/g	09/12/21 12:27	09/24/21 21:30	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Pu-242 (T)	70.4		30 - 110					09/12/21 12:27	09/24/21 21:30	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.932		0.143	0.163	0.200	0.0161	pCi/g	09/28/21 13:08	10/07/21 21:52	1

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Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-14-0.5

Lab Sample ID: 160-43280-30

Date Collected: 08/27/21 13:10

Matrix: Solid

Date Received: 08/31/21 13:33

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Thorium-229	61.9		30 - 110	09/28/21 13:08	10/07/21 21:52	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.114		0.0721	0.0728	1.00	0.0342	pCi/g	10/22/21 11:10	10/27/21 09:22	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	81.0		30 - 110	10/22/21 11:10	10/27/21 09:22	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Americium-241	-0.0833	U	0.205	0.205	0.500	0.167	pCi/g	09/07/21 10:22	09/29/21 18:01	1
Cesium-137	0.0465	U	0.0760	0.0762	0.0700	0.0584	pCi/g	09/07/21 10:22	09/29/21 18:01	1
Cobalt-60	0.0392	U	0.0688	0.0689	0.100	0.0456	pCi/g	09/07/21 10:22	09/29/21 18:01	1
Radium-226	0.814		0.281	0.293	0.500	0.123	pCi/g	09/07/21 10:22	09/29/21 18:01	1

Client Sample ID: E-14-3.0

Lab Sample ID: 160-43280-31

Date Collected: 08/27/21 13:12

Matrix: Solid

Date Received: 08/31/21 13:33

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	-0.00121	U	0.0130	0.0130	0.200	0.0114	pCi/g	09/12/21 12:27	09/24/21 21:30	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Pu-242 (T)	57.0		30 - 110	09/12/21 12:27	09/24/21 21:30	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Thorium-232	0.102	U	0.159	0.159	0.200	0.103	pCi/g	09/28/21 13:08	10/07/21 21:52	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Thorium-229	15.8	Q	30 - 110	09/28/21 13:08	10/07/21 21:52	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.0148	U	0.0349	0.0349	1.00	0.0730	pCi/g	10/22/21 11:10	10/27/21 09:23	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	86.5		30 - 110	10/22/21 11:10	10/27/21 09:23	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Client Sample ID: E-14-3.0

Lab Sample ID: 160-43280-31

Date Collected: 08/27/21 13:12

Matrix: Solid

Date Received: 08/31/21 13:33

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared		Analyzed		Dil Fac
			Uncert.	Uncert.								
			(2σ+/-)	(2σ+/-)								
Americium-241	-0.0837	U	0.198	0.198	0.500	0.159	pCi/g	09/07/21 10:22	09/29/21 16:15	1		1
Cesium-137	0.0206	U	0.0711	0.0711	0.0700	0.0560	pCi/g	09/07/21 10:22	09/29/21 16:15	1		1
Cobalt-60	0.0512		0.0387	0.0390	0.100	0.0170	pCi/g	09/07/21 10:22	09/29/21 16:15	1		1
Radium-226	-0.0889	U	0.192	0.192	0.500	0.257	pCi/g	09/07/21 10:22	09/29/21 16:15	1		1

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QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Lab Sample ID: MB 160-529265/1-A
Matrix: Solid
Analysis Batch: 530910

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 529265

Analyte	MB		Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Thorium-232	0.02123		0.0265	0.0266	0.200	0.0129	pCi/g	09/28/21 13:08	10/07/21 21:45	1
Tracer	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Thorium-229	84.4		30 - 110					09/28/21 13:08	10/07/21 21:45	1

Lab Sample ID: LCS 160-529265/2-A
Matrix: Solid
Analysis Batch: 530911

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 529265

Analyte	Spike Added	LCS Result	LCS Qual	Total	LOQ	DLC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Thorium-230	24.5	23.00		2.04	1.00	0.0353	pCi/g	94	82 - 114
Tracer	LCS %Yield	LCS Qualifier	Limits		Prepared	Analyzed	Dil Fac		
Thorium-229	82.3		30 - 110					09/28/21 13:08	10/07/21 21:45

Lab Sample ID: LCSD 160-529265/3-A
Matrix: Solid
Analysis Batch: 530912

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 529265

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	LOQ	DLC	Unit	%Rec	%Rec. Limits	RER	Limit
				Uncert. (2σ+/-)							
Thorium-230	24.5	22.50		1.99	1.00	0.0380	pCi/g	92	82 - 114	0.12	1
Tracer	LCSD %Yield	LCSD Qualifier	Limits		Prepared	Analyzed	Dil Fac				
Thorium-229	83.3		30 - 110					09/29/21 14:48	10/07/21 21:54	1	

Lab Sample ID: MB 160-529468/1-A
Matrix: Solid
Analysis Batch: 530949

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 529468

Analyte	MB		Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Thorium-232	-0.007100	U	0.0142	0.0142	0.200	0.0117	pCi/g	09/29/21 14:48	10/07/21 21:54	1
Tracer	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Thorium-229	91.0		30 - 110					09/29/21 14:48	10/07/21 21:54	1

Lab Sample ID: LCS 160-529468/2-A
Matrix: Solid
Analysis Batch: 531703

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 529468

Analyte	Spike Added	LCS Result	LCS Qual	Total	LOQ	DLC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Thorium-230	24.5	21.86		1.93	1.00	0.0325	pCi/g	89	75 - 125

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QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry) (Continued)

Lab Sample ID: LCS 160-529468/2-A
Matrix: Solid
Analysis Batch: 531703

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 529468

Tracer	LCS %Yield	LCS Qualifier	Limits
Thorium-229	93.4		30 - 110

Lab Sample ID: LCSD 160-529468/3-A
Matrix: Solid
Analysis Batch: 531244

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 529468

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Thorium-230	24.5	21.92		1.93	1.00	0.0325	pCi/g	90	75 - 125	0.89	1

Tracer	LCSD %Yield	LCSD Qualifier	Limits
Thorium-229	93.6		30 - 110

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-533057/1-A
Matrix: Solid
Analysis Batch: 533919

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 533057

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	-0.02889	U	0.0375	0.0376	1.00	0.116	pCi/g	10/21/21 13:34	10/27/21 09:37	1

Tracer	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	95.4		30 - 110	10/21/21 13:34	10/27/21 09:37	1

Lab Sample ID: LCS 160-533057/2-A
Matrix: Solid
Analysis Batch: 533920

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 533057

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	%Rec	%Rec. Limits
Uranium-234	6.37	6.865		0.750	1.00	0.101	pCi/g	108	76 - 117
Uranium-238	6.51	7.326		0.789	1.00	0.0680	pCi/g	113	78 - 118

Tracer	LCS %Yield	LCS Qualifier	Limits
Uranium-232	97.9		30 - 110

Lab Sample ID: 160-43280-1 DU
Matrix: Solid
Analysis Batch: 533923

Client Sample ID: E-1-0.5
Prep Type: Total/NA
Prep Batch: 533057

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	RER	RER Limit
Uranium-235	0.00502	U	0.01825	U	0.0300	1.00	0.0505	pCi/g	0.26	1

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QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: 160-43280-1 DU
Matrix: Solid
Analysis Batch: 533923

Client Sample ID: E-1-0.5
Prep Type: Total/NA
Prep Batch: 533057

Tracer	%Yield	Qualifier	Limits
Uranium-232	87.7		30 - 110

Lab Sample ID: MB 160-533178/1-A
Matrix: Solid
Analysis Batch: 533945

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 533178

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-235	0.01026	U	0.0205	0.0205	1.00	0.0308	pCi/g	10/22/21 11:10	10/27/21 09:23	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	84.4		30 - 110	10/22/21 11:10	10/27/21 09:23	1

Lab Sample ID: LCS 160-533178/2-A
Matrix: Solid
Analysis Batch: 533946

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 533178

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	%Rec	%Rec. Limits
Uranium-234	6.37	6.199		0.683	1.00	0.0827	pCi/g	97	76 - 117
Uranium-238	6.51	6.688		0.724	1.00	0.0521	pCi/g	103	78 - 118

Tracer	%Yield	Qualifier	Limits
Uranium-232	85.0		30 - 110

Lab Sample ID: 160-43280-21 DU
Matrix: Solid
Analysis Batch: 533948

Client Sample ID: E-9-1.5
Prep Type: Total/NA
Prep Batch: 533178

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	RER	RER Limit
Uranium-235	0.0299	U	0.03476	U	0.0479	1.00	0.0774	pCi/g	0.05	1

Tracer	%Yield	Qualifier	Limits
Uranium-232	73.3		30 - 110

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Lab Sample ID: MB 160-526447/1-A
Matrix: Solid
Analysis Batch: 528565

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 526447

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-239/240	0.009699		0.0112	0.0112	0.200	0.00536	pCi/g	09/12/21 11:39	09/23/21 19:59	1

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QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry) (Continued)

Lab Sample ID: MB 160-526447/1-A
Matrix: Solid
Analysis Batch: 528565

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 526447

Tracer	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Yield	Qualifier				
Pu-242 (T)	91.1		30 - 110	09/12/21 11:39	09/23/21 19:59	1

Lab Sample ID: LCS 160-526447/2-A
Matrix: Solid
Analysis Batch: 528566

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 526447

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	%Rec	%Rec. Limits

Tracer	LCS LCS		Limits
	%Yield	Qualifier	
Pu-242 (T)	97.7		30 - 110

Lab Sample ID: 160-43280-1 DU
Matrix: Solid
Analysis Batch: 528568

Client Sample ID: E-1-0.5
Prep Type: Total/NA
Prep Batch: 526447

Analyte	Sample Sample		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	RER	RER Limit
	Result	Qual								
Plutonium-239/240	-0.00943	U	0.01657		0.0176	0.200	0.00628	pCi/g	0.72	1

Tracer	DU DU		Limits
	%Yield	Qualifier	
Pu-242 (T)	90.8		30 - 110

Lab Sample ID: MB 160-526448/1-A
Matrix: Solid
Analysis Batch: 528767

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 526448

Analyte	MB MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Plutonium-239/240	0.003516	U	0.0128	0.0128	0.200	0.00897	pCi/g	09/12/21 12:27	09/24/21 21:30	1

Tracer	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Yield	Qualifier				
Pu-242 (T)	98.1		30 - 110	09/12/21 12:27	09/24/21 21:30	1

Lab Sample ID: LCS 160-526448/2-A
Matrix: Solid
Analysis Batch: 528768

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 526448

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	%Rec	%Rec. Limits

Tracer	LCS LCS		Limits
	%Yield	Qualifier	
Pu-242 (T)	76.3		30 - 110

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QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Lab Sample ID: 160-43280-20 DU
Matrix: Solid
Analysis Batch: 528772

Client Sample ID: E-8-3.0
Prep Type: Total/NA
Prep Batch: 526448

Analyte	Sample	Sample	DU	DU	Total	LOQ	DLC	Unit	RER	RER	Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)						
Plutonium-239/240	0.00165	U	0.009139	U	0.0196	0.200	0.0123	pCi/g	0.25		1

Tracer	%Yield	DU	DU	Qualifier	Limits
Pu-242 (T)	72.9				30 - 110

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-525696/1-A
Matrix: Solid
Analysis Batch: 529305

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 525696

Analyte	MB	MB	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil	Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)							
Americium-241	0.03377	U	0.0788	0.0788	0.500	0.0620	pCi/g	09/07/21 10:22	09/29/21 14:32		1
Cesium-137	-0.02276	U	0.0417	0.0418	0.0700	0.0425	pCi/g	09/07/21 10:22	09/29/21 14:32		1
Cobalt-60	0.0000	U	0.0139	0.0139	0.100	0.0114	pCi/g	09/07/21 10:22	09/29/21 14:32		1
Radium-226	0.004833	U	0.00939	0.00941	0.500	0.0919	pCi/g	09/07/21 10:22	09/29/21 14:32		1

Lab Sample ID: LCS 160-525696/2-A
Matrix: Solid
Analysis Batch: 529302

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 525696

Analyte	Spike Added	LCS Result	LCS Qual	Total	LOQ	DLC	Unit	%Rec	%Rec	Limits
Americium-241	96.3	102.2		12.0	0.500	0.629	pCi/g	106	87 - 116	
Cesium-137	26.2	29.55		3.11	0.0700	0.134	pCi/g	113	87 - 120	
Cobalt-60	8.53	9.736		1.09	0.100	0.0682	pCi/g	114	87 - 115	

Lab Sample ID: MB 160-525701/1-A
Matrix: Solid
Analysis Batch: 529532

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 525701

Analyte	MB	MB	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil	Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)							
Americium-241	-0.03403	U	0.0999	0.100	0.500	0.0801	pCi/g	09/07/21 11:56	09/30/21 15:18		1
Cesium-137	0.01728	U	0.0385	0.0385	0.0700	0.0290	pCi/g	09/07/21 11:56	09/30/21 15:18		1
Cobalt-60	-0.0006756	U	0.00333	0.00333	0.100	0.0272	pCi/g	09/07/21 11:56	09/30/21 15:18		1
Radium-226	-0.06499	U	0.0770	0.0773	0.500	0.130	pCi/g	09/07/21 11:56	09/30/21 15:18		1

Lab Sample ID: LCS 160-525701/2-A
Matrix: Solid
Analysis Batch: 529530

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 525701

Analyte	Spike Added	LCS Result	LCS Qual	Total	LOQ	DLC	Unit	%Rec	%Rec	Limits
Americium-241	96.3	106.2		12.5	0.500	0.562	pCi/g	110	87 - 116	
Cesium-137	26.2	29.20		3.07	0.0700	0.122	pCi/g	111	87 - 120	

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QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS) (Continued)

Lab Sample ID: LCS 160-525701/2-A
Matrix: Solid
Analysis Batch: 529530

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 525701

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	%Rec	%Rec. Limits
Cobalt-60	8.53	9.492		1.01	0.100	0.0621	pCi/g	111	87 - 115

Lab Sample ID: 160-43280-1 DU
Matrix: Solid
Analysis Batch: 529515

Client Sample ID: E-1-0.5
Prep Type: Total/NA
Prep Batch: 525701

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	RER	RER Limit
Americium-241	0.0125	U	-0.07898	U	0.182	0.500	0.116	pCi/g	0.23	1
Cesium-137	-0.0516	U	-0.02387	U	0.101	0.0700	0.0818	pCi/g	0.14	1
Cobalt-60	-0.0568	U	0.02741		0.0294	0.100	0.0143	pCi/g	0.49	1
Radium-226	0.396		0.3905		0.139	0.500	0.0515	pCi/g	0.02	1

QC Association Summary

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Rad

Leach Batch: 525275

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-43280-1	E-1-0.5	Total/NA	Solid	Dry and Grind	
160-43280-2	E-1-1.5	Total/NA	Solid	Dry and Grind	
160-43280-3	E-1-5.0	Total/NA	Solid	Dry and Grind	
160-43280-4	E-2-0.5	Total/NA	Solid	Dry and Grind	
160-43280-5	E-2-3.0	Total/NA	Solid	Dry and Grind	
160-43280-6	E-2-7.5	Total/NA	Solid	Dry and Grind	
160-43280-7	E-3-0.5	Total/NA	Solid	Dry and Grind	
160-43280-8	E-3-3.0	Total/NA	Solid	Dry and Grind	
160-43280-9	E-3-5.0	Total/NA	Solid	Dry and Grind	
160-43280-10	E-4-0.5	Total/NA	Solid	Dry and Grind	
160-43280-11	E-4-3.0	Total/NA	Solid	Dry and Grind	
160-43280-12	E-4-5.0	Total/NA	Solid	Dry and Grind	
160-43280-13	E-5-0.5	Total/NA	Solid	Dry and Grind	
160-43280-14	E-5-1.5	Total/NA	Solid	Dry and Grind	
160-43280-15	E-5-5.0	Total/NA	Solid	Dry and Grind	
160-43280-16	E-6-0.5	Total/NA	Solid	Dry and Grind	
160-43280-17	E-7-0.5	Total/NA	Solid	Dry and Grind	
160-43280-18	E-7-1.5	Total/NA	Solid	Dry and Grind	
160-43280-19	E-8-0.5	Total/NA	Solid	Dry and Grind	
160-43280-20	E-8-3.0	Total/NA	Solid	Dry and Grind	
160-43280-21	E-9-1.5	Total/NA	Solid	Dry and Grind	
160-43280-22	E-9-3.0	Total/NA	Solid	Dry and Grind	
160-43280-23	E-10-0.5	Total/NA	Solid	Dry and Grind	
160-43280-24	E-11-0.5	Total/NA	Solid	Dry and Grind	
160-43280-25	E-11-3.0	Total/NA	Solid	Dry and Grind	
160-43280-26	E-11-5.0	Total/NA	Solid	Dry and Grind	
160-43280-27	E-12-0.5	Total/NA	Solid	Dry and Grind	
160-43280-28	E-12-3.0	Total/NA	Solid	Dry and Grind	
160-43280-29	E-13-0.5	Total/NA	Solid	Dry and Grind	
160-43280-30	E-14-0.5	Total/NA	Solid	Dry and Grind	
160-43280-31	E-14-3.0	Total/NA	Solid	Dry and Grind	
160-43280-1 DU	E-1-0.5	Total/NA	Solid	Dry and Grind	
160-43280-20 DU	E-8-3.0	Total/NA	Solid	Dry and Grind	
160-43280-21 DU	E-9-1.5	Total/NA	Solid	Dry and Grind	

Prep Batch: 525696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-43280-19	E-8-0.5	Total/NA	Solid	Fill_Geo-21	525275
160-43280-20	E-8-3.0	Total/NA	Solid	Fill_Geo-21	525275
160-43280-21	E-9-1.5	Total/NA	Solid	Fill_Geo-21	525275
160-43280-22	E-9-3.0	Total/NA	Solid	Fill_Geo-21	525275
160-43280-23	E-10-0.5	Total/NA	Solid	Fill_Geo-21	525275
160-43280-24	E-11-0.5	Total/NA	Solid	Fill_Geo-21	525275
160-43280-25	E-11-3.0	Total/NA	Solid	Fill_Geo-21	525275
160-43280-26	E-11-5.0	Total/NA	Solid	Fill_Geo-21	525275
160-43280-27	E-12-0.5	Total/NA	Solid	Fill_Geo-21	525275
160-43280-28	E-12-3.0	Total/NA	Solid	Fill_Geo-21	525275
160-43280-29	E-13-0.5	Total/NA	Solid	Fill_Geo-21	525275
160-43280-30	E-14-0.5	Total/NA	Solid	Fill_Geo-21	525275
160-43280-31	E-14-3.0	Total/NA	Solid	Fill_Geo-21	525275
MB 160-525696/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

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QC Association Summary

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Rad (Continued)

Prep Batch: 525696 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 160-525696/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	

Prep Batch: 525701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-43280-1	E-1-0.5	Total/NA	Solid	Fill_Geo-21	525275
160-43280-2	E-1-1.5	Total/NA	Solid	Fill_Geo-21	525275
160-43280-3	E-1-5.0	Total/NA	Solid	Fill_Geo-21	525275
160-43280-4	E-2-0.5	Total/NA	Solid	Fill_Geo-21	525275
160-43280-5	E-2-3.0	Total/NA	Solid	Fill_Geo-21	525275
160-43280-6	E-2-7.5	Total/NA	Solid	Fill_Geo-21	525275
160-43280-7	E-3-0.5	Total/NA	Solid	Fill_Geo-21	525275
160-43280-8	E-3-3.0	Total/NA	Solid	Fill_Geo-21	525275
160-43280-9	E-3-5.0	Total/NA	Solid	Fill_Geo-21	525275
160-43280-10	E-4-0.5	Total/NA	Solid	Fill_Geo-21	525275
160-43280-11	E-4-3.0	Total/NA	Solid	Fill_Geo-21	525275
160-43280-12	E-4-5.0	Total/NA	Solid	Fill_Geo-21	525275
160-43280-13	E-5-0.5	Total/NA	Solid	Fill_Geo-21	525275
160-43280-14	E-5-1.5	Total/NA	Solid	Fill_Geo-21	525275
160-43280-15	E-5-5.0	Total/NA	Solid	Fill_Geo-21	525275
160-43280-16	E-6-0.5	Total/NA	Solid	Fill_Geo-21	525275
160-43280-17	E-7-0.5	Total/NA	Solid	Fill_Geo-21	525275
160-43280-18	E-7-1.5	Total/NA	Solid	Fill_Geo-21	525275
MB 160-525701/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	
LCS 160-525701/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
160-43280-1 DU	E-1-0.5	Total/NA	Solid	Fill_Geo-21	525275

Prep Batch: 526447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-43280-1	E-1-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-2	E-1-1.5	Total/NA	Solid	ExtChrom	525275
160-43280-3	E-1-5.0	Total/NA	Solid	ExtChrom	525275
160-43280-4	E-2-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-5	E-2-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-6	E-2-7.5	Total/NA	Solid	ExtChrom	525275
160-43280-7	E-3-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-8	E-3-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-9	E-3-5.0	Total/NA	Solid	ExtChrom	525275
160-43280-10	E-4-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-11	E-4-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-12	E-4-5.0	Total/NA	Solid	ExtChrom	525275
160-43280-13	E-5-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-14	E-5-1.5	Total/NA	Solid	ExtChrom	525275
160-43280-15	E-5-5.0	Total/NA	Solid	ExtChrom	525275
160-43280-16	E-6-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-17	E-7-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-18	E-7-1.5	Total/NA	Solid	ExtChrom	525275
160-43280-19	E-8-0.5	Total/NA	Solid	ExtChrom	525275
MB 160-526447/1-A	Method Blank	Total/NA	Solid	ExtChrom	
LCS 160-526447/2-A	Lab Control Sample	Total/NA	Solid	ExtChrom	
160-43280-1 DU	E-1-0.5	Total/NA	Solid	ExtChrom	525275

QC Association Summary

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Rad

Prep Batch: 526448

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-43280-20	E-8-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-21	E-9-1.5	Total/NA	Solid	ExtChrom	525275
160-43280-22	E-9-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-23	E-10-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-24	E-11-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-25	E-11-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-26	E-11-5.0	Total/NA	Solid	ExtChrom	525275
160-43280-27	E-12-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-28	E-12-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-29	E-13-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-30	E-14-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-31	E-14-3.0	Total/NA	Solid	ExtChrom	525275
MB 160-526448/1-A	Method Blank	Total/NA	Solid	ExtChrom	
LCS 160-526448/2-A	Lab Control Sample	Total/NA	Solid	ExtChrom	
160-43280-20 DU	E-8-3.0	Total/NA	Solid	ExtChrom	525275

Prep Batch: 529265

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-43280-20	E-8-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-21	E-9-1.5	Total/NA	Solid	ExtChrom	525275
160-43280-22	E-9-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-23	E-10-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-24	E-11-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-25	E-11-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-26	E-11-5.0	Total/NA	Solid	ExtChrom	525275
160-43280-27	E-12-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-28	E-12-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-29	E-13-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-30	E-14-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-31	E-14-3.0	Total/NA	Solid	ExtChrom	525275
MB 160-529265/1-A	Method Blank	Total/NA	Solid	ExtChrom	
LCS 160-529265/2-A	Lab Control Sample	Total/NA	Solid	ExtChrom	
LCSD 160-529265/3-A	Lab Control Sample Dup	Total/NA	Solid	ExtChrom	

Prep Batch: 529468

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-43280-1	E-1-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-2	E-1-1.5	Total/NA	Solid	ExtChrom	525275
160-43280-3	E-1-5.0	Total/NA	Solid	ExtChrom	525275
160-43280-4	E-2-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-5	E-2-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-6	E-2-7.5	Total/NA	Solid	ExtChrom	525275
160-43280-7	E-3-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-8	E-3-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-9	E-3-5.0	Total/NA	Solid	ExtChrom	525275
160-43280-10	E-4-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-11	E-4-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-12	E-4-5.0	Total/NA	Solid	ExtChrom	525275
160-43280-13	E-5-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-14	E-5-1.5	Total/NA	Solid	ExtChrom	525275
160-43280-15	E-5-5.0	Total/NA	Solid	ExtChrom	525275

Eurofins St. Louis

QC Association Summary

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Rad (Continued)

Prep Batch: 529468 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-43280-16	E-6-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-17	E-7-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-18	E-7-1.5	Total/NA	Solid	ExtChrom	525275
160-43280-19	E-8-0.5	Total/NA	Solid	ExtChrom	525275
MB 160-529468/1-A	Method Blank	Total/NA	Solid	ExtChrom	
LCS 160-529468/2-A	Lab Control Sample	Total/NA	Solid	ExtChrom	
LCSD 160-529468/3-A	Lab Control Sample Dup	Total/NA	Solid	ExtChrom	

Prep Batch: 533057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-43280-1	E-1-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-2	E-1-1.5	Total/NA	Solid	ExtChrom	525275
160-43280-3	E-1-5.0	Total/NA	Solid	ExtChrom	525275
160-43280-4	E-2-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-5	E-2-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-6	E-2-7.5	Total/NA	Solid	ExtChrom	525275
160-43280-7	E-3-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-8	E-3-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-9	E-3-5.0	Total/NA	Solid	ExtChrom	525275
160-43280-10	E-4-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-11	E-4-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-12	E-4-5.0	Total/NA	Solid	ExtChrom	525275
160-43280-13	E-5-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-14	E-5-1.5	Total/NA	Solid	ExtChrom	525275
160-43280-15	E-5-5.0	Total/NA	Solid	ExtChrom	525275
160-43280-16	E-6-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-17	E-7-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-18	E-7-1.5	Total/NA	Solid	ExtChrom	525275
160-43280-19	E-8-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-20	E-8-3.0	Total/NA	Solid	ExtChrom	525275
MB 160-533057/1-A	Method Blank	Total/NA	Solid	ExtChrom	
LCS 160-533057/2-A	Lab Control Sample	Total/NA	Solid	ExtChrom	
160-43280-1 DU	E-1-0.5	Total/NA	Solid	ExtChrom	525275

Prep Batch: 533178

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-43280-21	E-9-1.5	Total/NA	Solid	ExtChrom	525275
160-43280-22	E-9-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-23	E-10-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-24	E-11-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-25	E-11-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-26	E-11-5.0	Total/NA	Solid	ExtChrom	525275
160-43280-27	E-12-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-28	E-12-3.0	Total/NA	Solid	ExtChrom	525275
160-43280-29	E-13-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-30	E-14-0.5	Total/NA	Solid	ExtChrom	525275
160-43280-31	E-14-3.0	Total/NA	Solid	ExtChrom	525275
MB 160-533178/1-A	Method Blank	Total/NA	Solid	ExtChrom	
LCS 160-533178/2-A	Lab Control Sample	Total/NA	Solid	ExtChrom	
160-43280-21 DU	E-9-1.5	Total/NA	Solid	ExtChrom	525275

Tracer/Carrier Summary

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Pu-242 (T) (30-110)	Percent Yield (Acceptance Limits)			
160-43280-1	E-1-0.5	91.8				
160-43280-1 DU	E-1-0.5	90.8				
160-43280-2	E-1-1.5	67.2				
160-43280-3	E-1-5.0	94.7				
160-43280-4	E-2-0.5	74.8				
160-43280-5	E-2-3.0	59.3				
160-43280-6	E-2-7.5	74.2				
160-43280-7	E-3-0.5	78.3				
160-43280-8	E-3-3.0	82.9				
160-43280-9	E-3-5.0	73.6				
160-43280-10	E-4-0.5	77.7				
160-43280-11	E-4-3.0	74.4				
160-43280-12	E-4-5.0	73.9				
160-43280-13	E-5-0.5	70.6				
160-43280-14	E-5-1.5	81.8				
160-43280-15	E-5-5.0	74.1				
160-43280-16	E-6-0.5	85.0				
160-43280-17	E-7-0.5	87.8				
160-43280-18	E-7-1.5	75.9				
160-43280-19	E-8-0.5	77.2				
160-43280-20	E-8-3.0	72.7				
160-43280-20 DU	E-8-3.0	72.9				
160-43280-21	E-9-1.5	53.4				
160-43280-22	E-9-3.0	71.1				
160-43280-23	E-10-0.5	64.6				
160-43280-24	E-11-0.5	79.0				
160-43280-25	E-11-3.0	54.6				
160-43280-26	E-11-5.0	63.9				
160-43280-27	E-12-0.5	68.9				
160-43280-28	E-12-3.0	77.1				
160-43280-29	E-13-0.5	64.6				
160-43280-30	E-14-0.5	70.4				
160-43280-31	E-14-3.0	57.0				
LCS 160-526447/2-A	Lab Control Sample	97.7				
LCS 160-526448/2-A	Lab Control Sample	76.3				
MB 160-526447/1-A	Method Blank	91.1				
MB 160-526448/1-A	Method Blank	98.1				

Tracer/Carrier Legend

Pu-242 (T) = Pu-242 (T)

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Th-229 (30-110)	Percent Yield (Acceptance Limits)			
160-43280-1	E-1-0.5	69.3				
160-43280-2	E-1-1.5	65.2				
160-43280-3	E-1-5.0	74.1				

Tracer/Carrier Summary

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry) (Continued)

Matrix: Solid

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Th-229 (30-110)
160-43280-4	E-2-0.5	25.0 Q
160-43280-5	E-2-3.0	79.6
160-43280-6	E-2-7.5	74.4
160-43280-7	E-3-0.5	78.1
160-43280-8	E-3-3.0	74.2
160-43280-9	E-3-5.0	73.5
160-43280-10	E-4-0.5	84.5
160-43280-11	E-4-3.0	81.1
160-43280-12	E-4-5.0	60.9
160-43280-13	E-5-0.5	69.4
160-43280-14	E-5-1.5	74.5
160-43280-15	E-5-5.0	87.2
160-43280-16	E-6-0.5	88.3
160-43280-17	E-7-0.5	86.4
160-43280-18	E-7-1.5	67.5
160-43280-19	E-8-0.5	90.8
160-43280-20	E-8-3.0	61.3
160-43280-21	E-9-1.5	51.7
160-43280-22	E-9-3.0	46.5
160-43280-23	E-10-0.5	68.2
160-43280-24	E-11-0.5	36.9
160-43280-25	E-11-3.0	18.0 Q
160-43280-26	E-11-5.0	17.1 Q
160-43280-27	E-12-0.5	22.4 Q
160-43280-28	E-12-3.0	19.9 Q
160-43280-29	E-13-0.5	12.3 Q
160-43280-30	E-14-0.5	61.9
160-43280-31	E-14-3.0	15.8 Q
LCS 160-529265/2-A	Lab Control Sample	82.3
LCS 160-529468/2-A	Lab Control Sample	93.4
LCSD 160-529265/3-A	Lab Control Sample Dup	83.3
LCSD 160-529468/3-A	Lab Control Sample Dup	93.6
MB 160-529265/1-A	Method Blank	84.4
MB 160-529468/1-A	Method Blank	91.0

Tracer/Carrier Legend

Th-229 = Thorium-229

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Solid

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	U-232 (30-110)
160-43280-1	E-1-0.5	91.7
160-43280-1 DU	E-1-0.5	87.7
160-43280-2	E-1-1.5	93.7
160-43280-3	E-1-5.0	108
160-43280-4	E-2-0.5	87.8
160-43280-5	E-2-3.0	95.4
160-43280-6	E-2-7.5	82.0

Eurofins St. Louis

Tracer/Carrier Summary

Client: Langan Engineering & Environmental Svcs
Project/Site: HP Block 56

Job ID: 160-43280-1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Matrix: Solid

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	U-232 (30-110)
160-43280-7	E-3-0.5	86.4
160-43280-8	E-3-3.0	82.7
160-43280-9	E-3-5.0	84.1
160-43280-10	E-4-0.5	91.6
160-43280-11	E-4-3.0	84.5
160-43280-12	E-4-5.0	81.0
160-43280-13	E-5-0.5	94.0
160-43280-14	E-5-1.5	55.8
160-43280-15	E-5-5.0	85.0
160-43280-16	E-6-0.5	102
160-43280-17	E-7-0.5	95.7
160-43280-18	E-7-1.5	84.2
160-43280-19	E-8-0.5	85.2
160-43280-20	E-8-3.0	86.5
160-43280-21	E-9-1.5	70.5
160-43280-21 DU	E-9-1.5	73.3
160-43280-22	E-9-3.0	53.2
160-43280-23	E-10-0.5	74.8
160-43280-24	E-11-0.5	69.6
160-43280-25	E-11-3.0	70.3
160-43280-26	E-11-5.0	73.3
160-43280-27	E-12-0.5	78.5
160-43280-28	E-12-3.0	79.1
160-43280-29	E-13-0.5	79.7
160-43280-30	E-14-0.5	81.0
160-43280-31	E-14-3.0	86.5
LCS 160-533057/2-A	Lab Control Sample	97.9
LCS 160-533178/2-A	Lab Control Sample	85.0
MB 160-533057/1-A	Method Blank	95.4
MB 160-533178/1-A	Method Blank	84.4

Tracer/Carrier Legend

U-232 = Uranium-232

ANALYTICAL REPORT

Eurofins St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

Laboratory Job ID: 160-43280-3
Client Project/Site: HP Block 56

For:

Langan Engineering & Environmental Svcs
1 Almaden Boulevard
Suite 590
San Jose, California 95113

Attn: Peter Cusack



*Authorized for release by:
3/11/2022 12:49:58 PM*

Jayna Awalt, Project Manager II
(314)298-8566
Jayna.Awalt@Eurofinset.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: Langan Engineering & Environmental Svcs
Project/Site: HP Block 56

Job ID: 160-43280-3

Job ID: 160-43280-3

Laboratory: Eurofins St. Louis

Narrative

CASE NARRATIVE

Client: Langan Engineering & Environmental Svcs

Project: HP Block 56

Report Number: 160-43280-3

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, St. Louis attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 08/31/2021; the samples arrived in good condition, properly preserved. The temperature of the coolers at receipt was 27.8 C.

The results, included with this narrative, reported as Sr-90 were performed as a "total beta radio-strontium" analysis, in which the chemistry separates strontium from all other elements. The only beta-emitting strontium isotopes that might be expected to be present are Sr-90 (half-life of 28.8 years) and Sr-89 (half-life of 50.6 days). As the origin of the contaminant of concern (Sr-90) dates back decades, any Sr-89 that may have been present has long since decayed away. Thus, the results are reported as Sr-90 at client request.

TOTAL BETA STRONTIUM BY GFPC (EXTRACTION CHROMATOGRAPHY)

Samples E-1-0.5 (160-43280-1), E-1-1.5 (160-43280-2), E-1-5.0 (160-43280-3), E-2-0.5 (160-43280-4), E-2-3.0 (160-43280-5), E-2-7.5

Case Narrative

Client: Langan Engineering & Environmental Svcs
Project/Site: HP Block 56

Job ID: 160-43280-3

Job ID: 160-43280-3 (Continued)

Laboratory: Eurofins St. Louis (Continued)

(160-43280-6), E-3-0.5 (160-43280-7), E-3-3.0 (160-43280-8), E-3-5.0 (160-43280-9), E-4-0.5 (160-43280-10), E-4-3.0 (160-43280-11), E-4-5.0 (160-43280-12), E-5-0.5 (160-43280-13), E-5-1.5 (160-43280-14), E-5-5.0 (160-43280-15), E-6-0.5 (160-43280-16), E-7-0.5 (160-43280-17), E-7-1.5 (160-43280-18), E-8-0.5 (160-43280-19), E-8-3.0 (160-43280-20), E-9-1.5 (160-43280-21), E-9-3.0 (160-43280-22), E-10-0.5 (160-43280-23), E-11-0.5 (160-43280-24), E-11-3.0 (160-43280-25), E-11-5.0 (160-43280-26), E-12-0.5 (160-43280-27), E-12-3.0 (160-43280-28), E-13-0.5 (160-43280-29), E-14-0.5 (160-43280-30) and E-14-3.0 (160-43280-31) were analyzed for Total Beta Strontium by GFPC (Extraction Chromatography) in accordance with TAL-STL. The samples were leached on 03/10/2022, prepared on 12/23/2021 and analyzed on 03/08/2022.

The laboratory control sample (LCS) associated with the following samples recovered at 74%: E-9-1.5 (160-43280-21), E-9-3.0 (160-43280-22), E-10-0.5 (160-43280-23), E-11-0.5 (160-43280-24), E-11-3.0 (160-43280-25), E-11-5.0 (160-43280-26), E-12-0.5 (160-43280-27), E-12-3.0 (160-43280-28), E-13-0.5 (160-43280-29), E-14-0.5 (160-43280-30), E-14-3.0 (160-43280-31), (LCS 160-554727/1-A) and (160-43280-A-21-S DU). This is a re-count batch. Samples not re-extracted. Recovery was within in-house statistical limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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
 1 Almaden Boulevard, Suite 590, San Jose, CA 95113

LANGAN

Site Name: Hunters Point Block 56
 Job Number: 731744801
 Project Manager/Contact: Peter Guseck, Daniel Wood
 Samplers: Daniel Wood
 Recorder (Signature Required): Daniel Wood

Turnaround Time
Standard

Field Sample Identification No.	Date	Time	Lab Sample No.	No. Containers & Preservative										Remarks
				Matrix	No. Containers									
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice			
E-1-0.5	8-27-21	0903		X										Analysis Requested
E-1-1.5		0905		X										Grms Spec <input checked="" type="checkbox"/>
E-1-5.0		0908		X										Alph Spec <input checked="" type="checkbox"/>
E-2-0.5		0925		X										Strochim-90 <input checked="" type="checkbox"/>
E-2-3.0		0930		X										
E-2-7.5		0934		X										
E-3-0.5		0945		X										
E-3-3.0		0948		X										
E-3-5.0		0950		X										
E-4-0.5		1015		X										
E-4-3.0		1018		X										
E-4-5.0		1020		X										
E-5-0.5		1035		X										
E-5-1.5		1037		X										
Relinquished by: (Signature) <i>Daniel Wood</i>				Received by: FED EX										Date
Date: 8-27-21				Time: 4:10 PM										Date
Relinquished by: (Signature) FED EX				Received by: (Signature) <i>[Signature]</i>										Date
Date:				Time:										Date: 8/31/21
Relinquished by: (Signature)				Received by Lab: (Signature)										Date
Date:				Time:										Date: 1333
Sent to Laboratory (Name):				Method of Shipment										UPS
Laboratory Comments/Notes:				<input type="checkbox"/> Hand Carried <input type="checkbox"/> Private Courier (Co. Name) <input type="checkbox"/> Lab courier <input type="checkbox"/> Fed Ex <input type="checkbox"/> Airborne <input type="checkbox"/> UPS										



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 1 Almaden Boulevard, Suite 590, San Jose, CA 95113

Site Name: Hunters Point Block 56

Job Number: 731744801

Project Manager/Contact: Peter Cusyle, Daniel Wood

Samplers: Daniel Wood

Recorder (Signature Required): Dad Wood

Turnaround Time
Standard

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix & Preservative							Analysis Requested	Remarks			
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃			Ice		
E-5-5.0	8-27-21	1042		X											
E-6-0.5		1105		X											
E-7-0.5		1140		X											
E-7-1.5		1142		X											
E-8-0.5		1128		X											
E-8-3.0		1132		X											
E-9-1.5		1052		X											
E-9-3.0		1053		X											
E-10-0.5		1240		X											
E-11-0.5		1253		X											
E-11-3.0		1256		X											
E-11-8.0		1258		X											
E-12-0.5		1335		X											
E-12-3.0		1337		X											
Relinquished by: (Signature) <u>Dad Wood</u>				Time 4:30 PM							Received by: (Signature) FED EX				Date 8-27-21
Relinquished by: (Signature)				Time							Received by: (Signature) <u>[Signature]</u>				Date 8/31/21
Relinquished by: (Signature)				Time							Received by: (Signature)				Date 1333

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

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Page 3 of 3

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 3320 Data Drive, Suite 350, Rancho Cordova, CA 95670-7982
 1 Almaden Boulevard, Suite 590, San Jose, CA 95113

Site Name: Hunters Point Block 56

Job Number: 731744801

Project Manager/Contact: Peter Cusack, Daniel Wood

Samplers: Daniel Wood

Recorder (Signature Required): Daniel Wood

Turnaround Time Standard

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix			No. Containers & Preservative							
				Soil	Water	Air	Other	HCL	H ₂ SO ₄	HNO ₃	Ice			
E-13-0.5	8-27-21	1348		X										
E-14-0.5	↓	1310		X										
E-14-3.0	↓	1312		X										

Analysis Requested		Date
Genus Spec	X	
At the Spec	X	
Stratton-90	X	
Silica gel clean-up		
Hold		

Relinquished by: (Signature) <i>Daniel Wood</i>	Date: 8-27-21	Time: 4:30 PM	Received by: (Signature) FED EX	Date	Time
Relinquished by: (Signature) FED EX	Date:	Time:	Received by: (Signature) <i>[Signature]</i>	Date: 8/31/21	Time: 1333
Relinquished by: (Signature)	Date:	Time:	Received by Lab: (Signature)	Date	Time

Sent to Laboratory (Name): _____

Laboratory Comments/Notes: _____

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

White Copy - Original

Yellow Copy - Laboratory

Pink Copy - Field

COC Number: _____



Login Sample Receipt Checklist

Client: Langan Engineering & Environmental Svcs

Job Number: 160-43280-3

Login Number: 43280

List Source: Eurofins St. Louis

List Number: 1

Creator: Worthington, Sierra M

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Langan Engineering & Environmental Svcs
Project/Site: HP Block 56

Job ID: 160-43280-3

Qualifiers

Rad

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Method Summary

Client: Langan Engineering & Environmental Svcs
Project/Site: HP Block 56

Job ID: 160-43280-3

Method	Method Description	Protocol	Laboratory
ST-RC-0058	Total Beta Strontium by GFPC (Extraction Chromatography)	TAL-STL	TAL SL
Dry and Grind	Preparation, Dry and Grind	None	TAL SL
ExtChrom	Preparation, Extraction Chromatography Resin, Strontium	None	TAL SL

Protocol References:

None = None

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



Sample Summary

Client: Langan Engineering & Environmental Svcs
Project/Site: HP Block 56

Job ID: 160-43280-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-43280-1	E-1-0.5	Solid	08/27/21 09:03	08/31/21 13:33
160-43280-2	E-1-1.5	Solid	08/27/21 09:05	08/31/21 13:33
160-43280-3	E-1-5.0	Solid	08/27/21 09:08	08/31/21 13:33
160-43280-4	E-2-0.5	Solid	08/27/21 09:25	08/31/21 13:33
160-43280-5	E-2-3.0	Solid	08/27/21 09:30	08/31/21 13:33
160-43280-6	E-2-7.5	Solid	08/27/21 09:34	08/31/21 13:33
160-43280-7	E-3-0.5	Solid	08/27/21 09:45	08/31/21 13:33
160-43280-8	E-3-3.0	Solid	08/27/21 09:48	08/31/21 13:33
160-43280-9	E-3-5.0	Solid	08/27/21 09:50	08/31/21 13:33
160-43280-10	E-4-0.5	Solid	08/27/21 10:15	08/31/21 13:33
160-43280-11	E-4-3.0	Solid	08/27/21 10:18	08/31/21 13:33
160-43280-12	E-4-5.0	Solid	08/27/21 10:20	08/31/21 13:33
160-43280-13	E-5-0.5	Solid	08/27/21 10:35	08/31/21 13:33
160-43280-14	E-5-1.5	Solid	08/27/21 10:37	08/31/21 13:33
160-43280-15	E-5-5.0	Solid	08/27/21 10:42	08/31/21 13:33
160-43280-16	E-6-0.5	Solid	08/27/21 11:05	08/31/21 13:33
160-43280-17	E-7-0.5	Solid	08/27/21 11:40	08/31/21 13:33
160-43280-18	E-7-1.5	Solid	08/27/21 11:42	08/31/21 13:33
160-43280-19	E-8-0.5	Solid	08/27/21 11:28	08/31/21 13:33
160-43280-20	E-8-3.0	Solid	08/27/21 11:32	08/31/21 13:33
160-43280-21	E-9-1.5	Solid	08/27/21 10:52	08/31/21 13:33
160-43280-22	E-9-3.0	Solid	08/27/21 10:53	08/31/21 13:33
160-43280-23	E-10-0.5	Solid	08/27/21 12:40	08/31/21 13:33
160-43280-24	E-11-0.5	Solid	08/27/21 12:53	08/31/21 13:33
160-43280-25	E-11-3.0	Solid	08/27/21 12:56	08/31/21 13:33
160-43280-26	E-11-5.0	Solid	08/27/21 12:58	08/31/21 13:33
160-43280-27	E-12-0.5	Solid	08/27/21 13:35	08/31/21 13:33
160-43280-28	E-12-3.0	Solid	08/27/21 13:37	08/31/21 13:33
160-43280-29	E-13-0.5	Solid	08/27/21 13:48	08/31/21 13:33
160-43280-30	E-14-0.5	Solid	08/27/21 13:10	08/31/21 13:33
160-43280-31	E-14-3.0	Solid	08/27/21 13:12	08/31/21 13:33

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-3

Client Sample ID: E-1-0.5
Date Collected: 08/27/21 09:03
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-1
Matrix: Solid

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	0.0197	U	0.0267	0.0268	0.150	0.0287	pCi/g	12/23/21 09:42	03/08/22 15:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	73.9		40 - 110					12/23/21 09:42	03/08/22 15:26	1

Client Sample ID: E-1-1.5
Date Collected: 08/27/21 09:05
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-2
Matrix: Solid

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	0.00311	U	0.0251	0.0251	0.150	0.0289	pCi/g	12/23/21 09:42	03/08/22 15:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	79.1		40 - 110					12/23/21 09:42	03/08/22 15:26	1

Client Sample ID: E-1-5.0
Date Collected: 08/27/21 09:08
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-3
Matrix: Solid

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	0.0318		0.0264	0.0266	0.150	0.0267	pCi/g	12/23/21 09:42	03/08/22 15:27	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	75.9		40 - 110					12/23/21 09:42	03/08/22 15:27	1

Client Sample ID: E-2-0.5
Date Collected: 08/27/21 09:25
Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-4
Matrix: Solid

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	0.0403		0.0221	0.0224	0.150	0.0207	pCi/g	12/23/21 09:42	03/08/22 15:27	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	96.2		40 - 110					12/23/21 09:42	03/08/22 15:27	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
Project/Site: HP Block 56

Job ID: 160-43280-3

Client Sample ID: E-2-3.0

Date Collected: 08/27/21 09:30

Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-5

Matrix: Solid

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Strontium 89/90	0.0105	U	0.0231	0.0231	0.150	0.0257	pCi/g	12/23/21 09:42	03/08/22 15:27	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	85.5		40 - 110					12/23/21 09:42	03/08/22 15:27	1

Client Sample ID: E-2-7.5

Date Collected: 08/27/21 09:34

Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-6

Matrix: Solid

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Strontium 89/90	0.00132	U	0.0165	0.0165	0.150	0.0190	pCi/g	12/23/21 09:42	03/08/22 15:27	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	110		40 - 110					12/23/21 09:42	03/08/22 15:27	1

Client Sample ID: E-3-0.5

Date Collected: 08/27/21 09:45

Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-7

Matrix: Solid

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Strontium 89/90	0.0186	U	0.0227	0.0227	0.150	0.0238	pCi/g	12/23/21 09:42	03/08/22 15:27	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	80.2		40 - 110					12/23/21 09:42	03/08/22 15:27	1

Client Sample ID: E-3-3.0

Date Collected: 08/27/21 09:48

Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-8

Matrix: Solid

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Strontium 89/90	-0.00651	U	0.0244	0.0244	0.150	0.0294	pCi/g	12/23/21 09:42	03/08/22 15:28	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	65.5		40 - 110					12/23/21 09:42	03/08/22 15:28	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-3

Client Sample ID: E-3-5.0

Lab Sample ID: 160-43280-9

Date Collected: 08/27/21 09:50

Matrix: Solid

Date Received: 08/31/21 13:33

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Strontium 89/90	0.0407		0.0381	0.0383	0.150	0.0401	pCi/g	12/23/21 09:42	03/08/22 15:30	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	62.4		40 - 110					12/23/21 09:42	03/08/22 15:30	1

Client Sample ID: E-4-0.5

Lab Sample ID: 160-43280-10

Date Collected: 08/27/21 10:15

Matrix: Solid

Date Received: 08/31/21 13:33

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Strontium 89/90	-0.00965	U	0.0263	0.0263	0.150	0.0317	pCi/g	12/23/21 09:42	03/08/22 18:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	78.2		40 - 110					12/23/21 09:42	03/08/22 18:17	1

Client Sample ID: E-4-3.0

Lab Sample ID: 160-43280-11

Date Collected: 08/27/21 10:18

Matrix: Solid

Date Received: 08/31/21 13:33

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Strontium 89/90	0.00658	U	0.0258	0.0258	0.150	0.0293	pCi/g	12/23/21 09:42	03/08/22 18:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	81.2		40 - 110					12/23/21 09:42	03/08/22 18:17	1

Client Sample ID: E-4-5.0

Lab Sample ID: 160-43280-12

Date Collected: 08/27/21 10:20

Matrix: Solid

Date Received: 08/31/21 13:33

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
Strontium 89/90	0.0223	U	0.0303	0.0304	0.150	0.0327	pCi/g	12/23/21 09:42	03/08/22 18:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	68.4		40 - 110					12/23/21 09:42	03/08/22 18:17	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-3

Client Sample ID: E-5-0.5

Lab Sample ID: 160-43280-13

Date Collected: 08/27/21 10:35

Matrix: Solid

Date Received: 08/31/21 13:33

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	-0.0115	U	0.0242	0.0242	0.150	0.0297	pCi/g	12/23/21 09:42	03/08/22 18:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	71.7		40 - 110					12/23/21 09:42	03/08/22 18:17	1

Client Sample ID: E-5-1.5

Lab Sample ID: 160-43280-14

Date Collected: 08/27/21 10:37

Matrix: Solid

Date Received: 08/31/21 13:33

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	0.000753	U	0.0250	0.0250	0.150	0.0291	pCi/g	12/23/21 09:42	03/08/22 18:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	80.2		40 - 110					12/23/21 09:42	03/08/22 18:17	1

Client Sample ID: E-5-5.0

Lab Sample ID: 160-43280-15

Date Collected: 08/27/21 10:42

Matrix: Solid

Date Received: 08/31/21 13:33

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	0.0352		0.0306	0.0308	0.150	0.0316	pCi/g	12/23/21 09:42	03/08/22 18:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	71.6		40 - 110					12/23/21 09:42	03/08/22 18:17	1

Client Sample ID: E-6-0.5

Lab Sample ID: 160-43280-16

Date Collected: 08/27/21 11:05

Matrix: Solid

Date Received: 08/31/21 13:33

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	-0.0134	U	0.0252	0.0252	0.150	0.0309	pCi/g	12/23/21 09:42	03/08/22 18:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	74.8		40 - 110					12/23/21 09:42	03/08/22 18:17	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-3

Client Sample ID: E-7-0.5

Date Collected: 08/27/21 11:40

Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-17

Matrix: Solid

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	0.00730	U	0.0236	0.0236	0.150	0.0265	pCi/g	12/23/21 09:42	03/08/22 18:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	79.2		40 - 110					12/23/21 09:42	03/08/22 18:17	1

Client Sample ID: E-7-1.5

Date Collected: 08/27/21 11:42

Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-18

Matrix: Solid

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	0.0184	U	0.0306	0.0307	0.150	0.0336	pCi/g	12/23/21 09:42	03/08/22 18:18	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	71.7		40 - 110					12/23/21 09:42	03/08/22 18:18	1

Client Sample ID: E-8-0.5

Date Collected: 08/27/21 11:28

Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-19

Matrix: Solid

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	0.0780		0.0329	0.0338	0.150	0.0302	pCi/g	12/23/21 09:42	03/08/22 18:18	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	76.0		40 - 110					12/23/21 09:42	03/08/22 18:18	1

Client Sample ID: E-8-3.0

Date Collected: 08/27/21 11:32

Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-20

Matrix: Solid

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	0.0518		0.0311	0.0315	0.150	0.0294	pCi/g	12/23/21 09:42	03/08/22 18:18	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	66.4		40 - 110					12/23/21 09:42	03/08/22 18:18	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-3

Client Sample ID: E-9-1.5

Date Collected: 08/27/21 10:52

Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-21

Matrix: Solid

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	0.00252	U	0.0195	0.0195	0.150	0.0224	pCi/g	12/23/21 11:34	03/08/22 18:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	88.4		40 - 110					12/23/21 11:34	03/08/22 18:20	1

Client Sample ID: E-9-3.0

Date Collected: 08/27/21 10:53

Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-22

Matrix: Solid

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	0.0123	U	0.0236	0.0236	0.150	0.0260	pCi/g	12/23/21 11:34	03/08/22 18:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	82.1		40 - 110					12/23/21 11:34	03/08/22 18:20	1

Client Sample ID: E-10-0.5

Date Collected: 08/27/21 12:40

Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-23

Matrix: Solid

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	-0.0222	U	0.0198	0.0199	0.150	0.0258	pCi/g	12/23/21 11:34	03/08/22 18:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	87.6		40 - 110					12/23/21 11:34	03/08/22 18:20	1

Client Sample ID: E-11-0.5

Date Collected: 08/27/21 12:53

Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-24

Matrix: Solid

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	0.00350	U	0.0222	0.0222	0.150	0.0254	pCi/g	12/23/21 11:34	03/08/22 18:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	86.1		40 - 110					12/23/21 11:34	03/08/22 18:21	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-3

Client Sample ID: E-11-3.0

Lab Sample ID: 160-43280-25

Date Collected: 08/27/21 12:56

Matrix: Solid

Date Received: 08/31/21 13:33

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	-0.0131	U	0.0356	0.0356	0.150	0.0429	pCi/g	12/23/21 11:34	03/08/22 18:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	62.3		40 - 110					12/23/21 11:34	03/08/22 18:21	1

Client Sample ID: E-11-5.0

Lab Sample ID: 160-43280-26

Date Collected: 08/27/21 12:58

Matrix: Solid

Date Received: 08/31/21 13:33

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	0.0252	U	0.0294	0.0295	0.150	0.0314	pCi/g	12/23/21 11:34	03/08/22 18:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	72.3		40 - 110					12/23/21 11:34	03/08/22 18:21	1

Client Sample ID: E-12-0.5

Lab Sample ID: 160-43280-27

Date Collected: 08/27/21 13:35

Matrix: Solid

Date Received: 08/31/21 13:33

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	-0.00360	U	0.0216	0.0216	0.150	0.0257	pCi/g	12/23/21 11:34	03/08/22 18:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	84.2		40 - 110					12/23/21 11:34	03/08/22 18:21	1

Client Sample ID: E-12-3.0

Lab Sample ID: 160-43280-28

Date Collected: 08/27/21 13:37

Matrix: Solid

Date Received: 08/31/21 13:33

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	0.0101	U	0.0231	0.0231	0.150	0.0256	pCi/g	12/23/21 11:34	03/08/22 18:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	82.3		40 - 110					12/23/21 11:34	03/08/22 18:21	1

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-3

Client Sample ID: E-13-0.5

Date Collected: 08/27/21 13:48

Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-29

Matrix: Solid

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	0.0214	U	0.0245	0.0246	0.150	0.0260	pCi/g	12/23/21 11:34	03/08/22 18:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	84.2		40 - 110					12/23/21 11:34	03/08/22 18:21	1

Client Sample ID: E-14-0.5

Date Collected: 08/27/21 13:10

Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-30

Matrix: Solid

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	0.0217	U	0.0233	0.0234	0.150	0.0246	pCi/g	12/23/21 11:34	03/08/22 18:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	88.7		40 - 110					12/23/21 11:34	03/08/22 18:21	1

Client Sample ID: E-14-3.0

Date Collected: 08/27/21 13:12

Date Received: 08/31/21 13:33

Lab Sample ID: 160-43280-31

Matrix: Solid

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Analyte	Result	Qualifier	Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Strontium 89/90	0.00941	U	0.0256	0.0256	0.150	0.0288	pCi/g	12/23/21 11:34	03/08/22 18:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	86.1		40 - 110					12/23/21 11:34	03/08/22 18:21	1

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-3

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Lab Sample ID: MB 160-554718/23-A
Matrix: Solid
Analysis Batch: 554092

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 554718

Analyte	MB		Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium 89/90	0.04907		0.0298	0.0302	0.150	0.0295	pCi/g	12/23/21 09:42	03/08/22 18:18	1
Carrier	MB		Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	%Yield	MB Qualifier	40 - 110					12/23/21 09:42	03/08/22 18:18	1

Lab Sample ID: LCS 160-554718/1-A
Matrix: Solid
Analysis Batch: 554089

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 554718

Analyte	Spike Added	LCS Result	LCS Qual	Total	LOQ	DLC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Strontium 89/90	3.01	2.524		0.267	0.150	0.0262	pCi/g	84	75 - 125
Carrier	LCS	LCS	Limits						
Sr Carrier	%Yield	Qualifier	40 - 110						
	84.8								

Lab Sample ID: 160-43280-1 DU
Matrix: Solid
Analysis Batch: 554089

Client Sample ID: E-1-0.5
Prep Type: Total/NA
Prep Batch: 554718

Analyte	Sample		DU	DU	Total	LOQ	DLC	Unit	RER	RER Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					
Strontium 89/90	0.0197	U	-0.00999	U	0.0270	0.150	0.0326	pCi/g	0.55	1
Carrier	DU	DU	Limits							
Sr Carrier	%Yield	Qualifier	40 - 110							
	76.0									

Lab Sample ID: MB 160-554727/14-A
Matrix: Solid
Analysis Batch: 554090

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 554727

Analyte	MB		Count	Total	LOQ	DLC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium 89/90	0.002310	U	0.0238	0.0238	0.150	0.0275	pCi/g	12/23/21 11:36	03/08/22 18:22	1
Carrier	MB		Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	%Yield	MB Qualifier	40 - 110					12/23/21 11:36	03/08/22 18:22	1
	87.0									

Lab Sample ID: LCS 160-554727/1-A
Matrix: Solid
Analysis Batch: 554285

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 554727

Analyte	Spike Added	LCS Result	LCS Qual	Total	LOQ	DLC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Strontium 89/90	3.01	2.243		0.235	0.150	0.0179	pCi/g	74	75 - 125

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QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-3

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography) (Continued)

Lab Sample ID: LCS 160-554727/1-A
Matrix: Solid
Analysis Batch: 554285

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 554727

		LCS	LCS		
Carrier	%Yield	Qualifier	Limits		
Sr Carrier	104		40 - 110		

Lab Sample ID: 160-43280-21 DU
Matrix: Solid
Analysis Batch: 554285

Client Sample ID: E-9-1.5
Prep Type: Total/NA
Prep Batch: 554727

Analyte	Sample		DU		Total Uncert. (2σ+/-)	LOQ	DLC	Unit	RER	Limit
	Result	Qual	Result	Qual						
Strontium 89/90	0.00252	U	-0.01182	U	0.0183	0.150	0.0230	pCi/g	0.38	1

		DU	DU		
Carrier	%Yield	Qualifier	Limits		
Sr Carrier	82.1		40 - 110		

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

QC Association Summary

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-3

Rad

Leach Batch: 554545

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-43280-1	E-1-0.5	Total/NA	Solid	Dry and Grind	
160-43280-2	E-1-1.5	Total/NA	Solid	Dry and Grind	
160-43280-3	E-1-5.0	Total/NA	Solid	Dry and Grind	
160-43280-4	E-2-0.5	Total/NA	Solid	Dry and Grind	
160-43280-5	E-2-3.0	Total/NA	Solid	Dry and Grind	
160-43280-6	E-2-7.5	Total/NA	Solid	Dry and Grind	
160-43280-7	E-3-0.5	Total/NA	Solid	Dry and Grind	
160-43280-8	E-3-3.0	Total/NA	Solid	Dry and Grind	
160-43280-9	E-3-5.0	Total/NA	Solid	Dry and Grind	
160-43280-10	E-4-0.5	Total/NA	Solid	Dry and Grind	
160-43280-11	E-4-3.0	Total/NA	Solid	Dry and Grind	
160-43280-12	E-4-5.0	Total/NA	Solid	Dry and Grind	
160-43280-13	E-5-0.5	Total/NA	Solid	Dry and Grind	
160-43280-14	E-5-1.5	Total/NA	Solid	Dry and Grind	
160-43280-15	E-5-5.0	Total/NA	Solid	Dry and Grind	
160-43280-16	E-6-0.5	Total/NA	Solid	Dry and Grind	
160-43280-17	E-7-0.5	Total/NA	Solid	Dry and Grind	
160-43280-18	E-7-1.5	Total/NA	Solid	Dry and Grind	
160-43280-19	E-8-0.5	Total/NA	Solid	Dry and Grind	
160-43280-20	E-8-3.0	Total/NA	Solid	Dry and Grind	
160-43280-21	E-9-1.5	Total/NA	Solid	Dry and Grind	
160-43280-22	E-9-3.0	Total/NA	Solid	Dry and Grind	
160-43280-23	E-10-0.5	Total/NA	Solid	Dry and Grind	
160-43280-24	E-11-0.5	Total/NA	Solid	Dry and Grind	
160-43280-25	E-11-3.0	Total/NA	Solid	Dry and Grind	
160-43280-26	E-11-5.0	Total/NA	Solid	Dry and Grind	
160-43280-27	E-12-0.5	Total/NA	Solid	Dry and Grind	
160-43280-28	E-12-3.0	Total/NA	Solid	Dry and Grind	
160-43280-29	E-13-0.5	Total/NA	Solid	Dry and Grind	
160-43280-30	E-14-0.5	Total/NA	Solid	Dry and Grind	
160-43280-31	E-14-3.0	Total/NA	Solid	Dry and Grind	
160-43280-1 DU	E-1-0.5	Total/NA	Solid	Dry and Grind	
160-43280-21 DU	E-9-1.5	Total/NA	Solid	Dry and Grind	

Prep Batch: 554718

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-43280-1	E-1-0.5	Total/NA	Solid	ExtChrom	554545
160-43280-2	E-1-1.5	Total/NA	Solid	ExtChrom	554545
160-43280-3	E-1-5.0	Total/NA	Solid	ExtChrom	554545
160-43280-4	E-2-0.5	Total/NA	Solid	ExtChrom	554545
160-43280-5	E-2-3.0	Total/NA	Solid	ExtChrom	554545
160-43280-6	E-2-7.5	Total/NA	Solid	ExtChrom	554545
160-43280-7	E-3-0.5	Total/NA	Solid	ExtChrom	554545
160-43280-8	E-3-3.0	Total/NA	Solid	ExtChrom	554545
160-43280-9	E-3-5.0	Total/NA	Solid	ExtChrom	554545
160-43280-10	E-4-0.5	Total/NA	Solid	ExtChrom	554545
160-43280-11	E-4-3.0	Total/NA	Solid	ExtChrom	554545
160-43280-12	E-4-5.0	Total/NA	Solid	ExtChrom	554545
160-43280-13	E-5-0.5	Total/NA	Solid	ExtChrom	554545
160-43280-14	E-5-1.5	Total/NA	Solid	ExtChrom	554545
160-43280-15	E-5-5.0	Total/NA	Solid	ExtChrom	554545

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QC Association Summary

Client: Langan Engineering & Environmental Svcs
 Project/Site: HP Block 56

Job ID: 160-43280-3

Rad (Continued)

Prep Batch: 554718 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-43280-16	E-6-0.5	Total/NA	Solid	ExtChrom	554545
160-43280-17	E-7-0.5	Total/NA	Solid	ExtChrom	554545
160-43280-18	E-7-1.5	Total/NA	Solid	ExtChrom	554545
160-43280-19	E-8-0.5	Total/NA	Solid	ExtChrom	554545
160-43280-20	E-8-3.0	Total/NA	Solid	ExtChrom	554545
MB 160-554718/23-A	Method Blank	Total/NA	Solid	ExtChrom	
LCS 160-554718/1-A	Lab Control Sample	Total/NA	Solid	ExtChrom	
160-43280-1 DU	E-1-0.5	Total/NA	Solid	ExtChrom	554545

Prep Batch: 554727

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-43280-21	E-9-1.5	Total/NA	Solid	ExtChrom	554545
160-43280-22	E-9-3.0	Total/NA	Solid	ExtChrom	554545
160-43280-23	E-10-0.5	Total/NA	Solid	ExtChrom	554545
160-43280-24	E-11-0.5	Total/NA	Solid	ExtChrom	554545
160-43280-25	E-11-3.0	Total/NA	Solid	ExtChrom	554545
160-43280-26	E-11-5.0	Total/NA	Solid	ExtChrom	554545
160-43280-27	E-12-0.5	Total/NA	Solid	ExtChrom	554545
160-43280-28	E-12-3.0	Total/NA	Solid	ExtChrom	554545
160-43280-29	E-13-0.5	Total/NA	Solid	ExtChrom	554545
160-43280-30	E-14-0.5	Total/NA	Solid	ExtChrom	554545
160-43280-31	E-14-3.0	Total/NA	Solid	ExtChrom	554545
MB 160-554727/14-A	Method Blank	Total/NA	Solid	ExtChrom	
LCS 160-554727/1-A	Lab Control Sample	Total/NA	Solid	ExtChrom	
160-43280-21 DU	E-9-1.5	Total/NA	Solid	ExtChrom	554545

Tracer/Carrier Summary

Client: Langan Engineering & Environmental Svcs
Project/Site: HP Block 56

Job ID: 160-43280-3

Method: ST-RC-0058 - Total Beta Strontium by GFPC (Extraction Chromatography)

Matrix: Solid

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Sr (40-110)
160-43280-1	E-1-0.5	73.9
160-43280-1 DU	E-1-0.5	76.0
160-43280-2	E-1-1.5	79.1
160-43280-3	E-1-5.0	75.9
160-43280-4	E-2-0.5	96.2
160-43280-5	E-2-3.0	85.5
160-43280-6	E-2-7.5	110
160-43280-7	E-3-0.5	80.2
160-43280-8	E-3-3.0	65.5
160-43280-9	E-3-5.0	62.4
160-43280-10	E-4-0.5	78.2
160-43280-11	E-4-3.0	81.2
160-43280-12	E-4-5.0	68.4
160-43280-13	E-5-0.5	71.7
160-43280-14	E-5-1.5	80.2
160-43280-15	E-5-5.0	71.6
160-43280-16	E-6-0.5	74.8
160-43280-17	E-7-0.5	79.2
160-43280-18	E-7-1.5	71.7
160-43280-19	E-8-0.5	76.0
160-43280-20	E-8-3.0	66.4
160-43280-21	E-9-1.5	88.4
160-43280-21 DU	E-9-1.5	82.1
160-43280-22	E-9-3.0	82.1
160-43280-23	E-10-0.5	87.6
160-43280-24	E-11-0.5	86.1
160-43280-25	E-11-3.0	62.3
160-43280-26	E-11-5.0	72.3
160-43280-27	E-12-0.5	84.2
160-43280-28	E-12-3.0	82.3
160-43280-29	E-13-0.5	84.2
160-43280-30	E-14-0.5	88.7
160-43280-31	E-14-3.0	86.1
LCS 160-554718/1-A	Lab Control Sample	84.8
LCS 160-554727/1-A	Lab Control Sample	104
MB 160-554718/23-A	Method Blank	79.3
MB 160-554727/14-A	Method Blank	87.0

Tracer/Carrier Legend

Sr = Sr Carrier

APPENDIX D
RADIOLOGICAL EVALUATION

APPENDIX D
RADIOLOGICAL EVALUATION
Block 56
11 Innes Court
San Francisco, California

D1.0 INTRODUCTION

Appendix D presents estimated dose and risk associated with exposure to radionuclides detected in site soil using tools typically applied to contaminated sites. Although, Block 56 is not a contaminated site requiring cleanup, the evaluation results confirm that the concentrations of the radionuclides detected in site soil do not pose a risk to the public or to future residents.

Everyone is exposed to radiation every day from both natural sources (such as minerals in the ground) to man-made sources (such as medical x-rays). The average annual radiation dose per person in the United States is 620 millirem (mrem).¹ In general, exposure to this dose has not been shown to impact human health.² To provide a perspective on typical radiation dose or the amount of radiation energy absorbed by the body in everyday life, we provide a summary of the relative doses from common radiation sources in Figure D1. As presented in Figure D1, medical x-rays may result in exposure to four mrem of radiation during a single procedure. Living at sea level results in an exposure to cosmic radiation of 24 mrem per year. Radon, emitted from rock and soil, in an average home also may result in 200 mrem of radiation exposure on an annual basis. The U.S. Nuclear Regulatory Commission (NRC) annual human dose rate criterion is 25 mrem per year.³

The USEPA recommends evaluating potential radiological exposure based on a risk range of E-06 to E-04. The risk range equates to the chance in 1,000,000 to the chance in 10,000 of a person exposed to developing cancer over a lifetime.

¹ National Council on Radiation Protection and Measurement. Doses are commonly reported in millirems (mrem). A mrem is one thousandth of a rem (roentgen equivalent man), which is a unit used to measure adsorbed radiation dose.

² <https://www.nrc.gov/about-nrc/radiation/around-us/doses-daily-lives.html>

³ NRC. 10 CFR 20 Subpart E, Radiological Criteria for License Termination, commonly referred to as the License Termination Rule (LTR).

D1.1 Document Organization

Appendix D is organized into the following Sections:

- D1.0 Introduction: Introduces the purpose of the appendix
- D2.0 RESRAD Tool: Summarizes results of a radiological evaluation using the RESidual RADiation or RESRAD tool
- D3.0 PRG Calculator: Summarizes results of a radiological evaluation using the Preliminary Remediation Goals (PRG) Calculator
- D4.0 Conclusions: Provides conclusions of the evaluation
- D5.0 References: Provides references

Supporting radiological calculations are provided as Attachment D1.

D2.0 RESRAD TOOL

The RESidual RADiation or RESRAD tool was used to evaluate the potential radiation dose of radionuclides detected in site soils. The RESRAD tool was developed by Argonne National Laboratory for the U.S. Department of Energy and is the most extensively verified and used tool to evaluate risk associated with the presence of radionuclides. This tool was used to review and confirm that the Block 56 test results presented in Table 3 of the main report do not pose a health risk to the public or to future residential users. The RESRAD tool is not intended to be used to evaluate background concentrations of radionuclides, such as those detected at Block 56, therefore, this evaluation is conservative and intended for informational purposes only.⁴

The RESRAD tool calculated the dose and the relative risk associated with exposure to average and 95th percentile concentrations in pCi/g for each of the radionuclides. The calculations assumed radionuclide concentrations were uniformly distributed at the applicable concentration to a depth of two meters across the entirety of the site.

⁴ The RESRAD Tool is intended for estimating radiation doses and cancer risks to an individual located on top of radioactively contaminated soils, within which radionuclides are present in above-background concentrations. All radionuclides detected at Block 56 are considered background. Refer to: <https://resrad.evs.anl.gov/>

The following is a tabulated summary of the dose and risk computed for the radionuclides that showed a positive average concentration. Dose and risk values were not calculated for the radionuclides that showed a negative average (as presented in Table 3 of the main report) and denoted by an "NA" in the table below (i.e., not applicable). Additional information regarding the RESRAD calculations (including assumptions) is presented in Attachment D1.

Dose and Risk Associated with Exposure to Average Radionuclide Concentrations:

Radionuclide	Site mean concentration (pCi/g)	Maximum annual dose rate (mrem/yr)	Mean concentration carcinogenic risk
Am-241	-0.0099	NA	NA
Cs-137	-0.0030	NA	NA
Co-60	-0.0014	NA	NA
Pu-239	-0.0024	NA	NA
Ra-226	0.3616	2.183	4.884E-05 (0.00004884)
Sr-90	0.0133	0.000345	3.509E-09 (0.000000003509)
Th-232	0.4155	3.310	7.711E-05 (0.00007711)
U-235	0.0271	0.01127	2.519E-07 (0.0000002519)

The following is a tabulated summary of the dose and risk computed for the 95th percentile for the tested radionuclides (as presented in Table 3 of the main report). Additional information regarding the RESRAD calculations (including assumptions) is presented in Attachment D1.

Dose and Risk Associated with Exposure to 95th Percentile Radionuclide Concentrations:

Radionuclide	95 th percentile concentration (pCi/g)	Maximum annual dose rate (mrem/yr)	95 th percentile concentration carcinogenic risk
Am-241	0.1182	0.007737	6.679E-08 (0.00000006679)
Cs-137	0.0379	0.06491	1.132E-06 (0.000001132)
Co-60	0.0464	0.3657	2.343E-06 (0.000002343)
Pu-239	0.0077	0.0004177	1.840E-09 (0.0000000184)

Radionuclide	95 th percentile concentration (pCi/g)	Maximum annual dose rate (mrem/yr)	95 th percentile concentration carcinogenic risk
Ra-226	0.6900	4.166	9.319E-05 (0.00009319)
Sr-90	0.0463	0.001201	1.221E-08 (0.00000001221)
Th-232	0.9520	7.585	1.767E-04 (0.0001767)
U-235	0.0784	0.03261	7.288E-07 (0.0000007288)

As presented in the tables above, the maximum annual dose rates for the radionuclides range from 0.000345 to 7.585mrem/yr, which are well below the NRC's dose rate criteria of 25 mrem/yr. In addition, the risk values associated with these maximum annual dose rates range from 1.840E-09to 1.767E-04, which are below or within the USEPA's risk range of E-06 to E-04. The risk range equates to the chance in 1,000,000 to the chance in 10,000 of a person exposed to developing cancer over a lifetime.

D3.0 PRG CALCULATOR

The USEPA's *Preliminary Remediation Goals (PRG) for Radionuclide Contaminants at Superfund Sites* calculator (PRG Calculator) is also used to evaluate radionuclides in soil.⁵ Although Block 56 is not a remediation site, the PRG Calculator can also be used to analyze radionuclide concentrations at Block 56 as a basis of comparison against USEPA screening levels. The PRG Calculator calculates PRGs based on theoretical cancer risk levels. In consultation with USEPA, USEPA recommended considering a risk range of E-06 to E-04, which equates to the chance in 1,000,000 to the chance in 10,000 of a person exposed to developing cancer over a lifetime. The PRG Calculator is not intended to be used to evaluate background concentrations of radionuclides, such as those detected at Block 56, therefore, this evaluation is conservative and intended for informational purposes only.⁶

⁵ <https://epa-prgs.ornl.gov/radionuclides/>

⁶ The PRG Calculator User's Guide states that natural background radiation should be considered prior to applying PRGs as cleanup levels. Background and site-related levels of radiation will be addressed as they are for other contaminants at CERCLA sites. The CERCLA program, generally, does not clean up to concentrations below natural or anthropogenic background levels. All radionuclides detected at Block 56 are considered background. Refer to: https://epa-prgs.ornl.gov/radionuclides/users_guide.html

The PRG Calculator was used to calculate PRGs for the eight radionuclides. Two PRGs were calculated for each radionuclide to represent the USEPA’s target risk range of E-06 to E-04. A summary of the methods and assumptions used to calculate the PRGs is provided in Attachment D1.

A summary of the calculated PRGs for the eight radionuclides of interest is presented in the table below. As presented below, the mean, 95th percentile, and maximum sampling results obtained for each radionuclide were compared to the PRGs for the E-06 to E-04 risk range. The maximum concentrations were considered to provide a conservative assessment of risk; however, an overall concentration comparison (i.e., mean or 95th percentile concentration) is generally applicable for scenarios where the potential risk from direct human contact exposure is being evaluated.

Radionuclide	Site mean concentration (pCi/g)	Site 95th percentile concentration (pCi/g)	Site maximum concentration (pCi/g)	PRG E-06 to E-04 (pCi/g)
Am-241	-0.0099	0.1182	0.224	2.46 – 246
Cs-137	-0.0030	0.0379	0.0465	0.0719 – 7.19
Co-60	-0.0014	0.0464	0.0512	0.0388 – 3.88
Pu-239	-0.0024	0.0077	0.0135	3.88 – 388
Ra-226	0.3616	0.6900	0.814	0.0148 – 1.48
Sr-90	0.0133	0.0463	0.078	4.21 – 421
Th-232	0.4155	0.9520	1.30	0.0113 – 1.13
U-235	0.0271	0.0784	0.114	0.277 – 27.7

All of the mean (i.e., average) and 95th percentile concentrations of radionuclides detected in site soil were within or below their respective risk range. Th-232 was the only radionuclide for which the maximum result exceeded the risk range, but as discussed in the main report, the maximum Th-232 result remains within its background concentration range. As a result, this exceedance of the PRG range for this one sample is not of concern.

D4.0 CONCLUSIONS

As presented in the main report, the radiological testing results do not indicate the presence of radionuclides above background levels or the presence of radionuclides at levels that would indicate a release from a contaminant source at the site. In addition, the calculated maximum annual dose rate and relative risk associated with exposure to the maximum annual dose rate were calculated using RESRAD for each radionuclide considered at the site. The maximum annual dose rates were well below the NRC's dose rate criteria of 25 mrem/yr. The risk values associated with these maximum annual dose rates were below or within the USEPA's acceptable risk range of E-06 to E-04. PRGs were also calculated using the USEPA's acceptable risk range of E-06 to E-04. All of the mean (i.e., average), 95th percentile, or maximum concentrations of radionuclides detected in site soil were below or within the accepted risk range or otherwise within expected background ranges. Based on the above dose and risk evaluations, the sampling results make it clear that the concentrations of the radionuclides tested do not pose a risk to the public or to future residents.

D5.0 REFERENCES

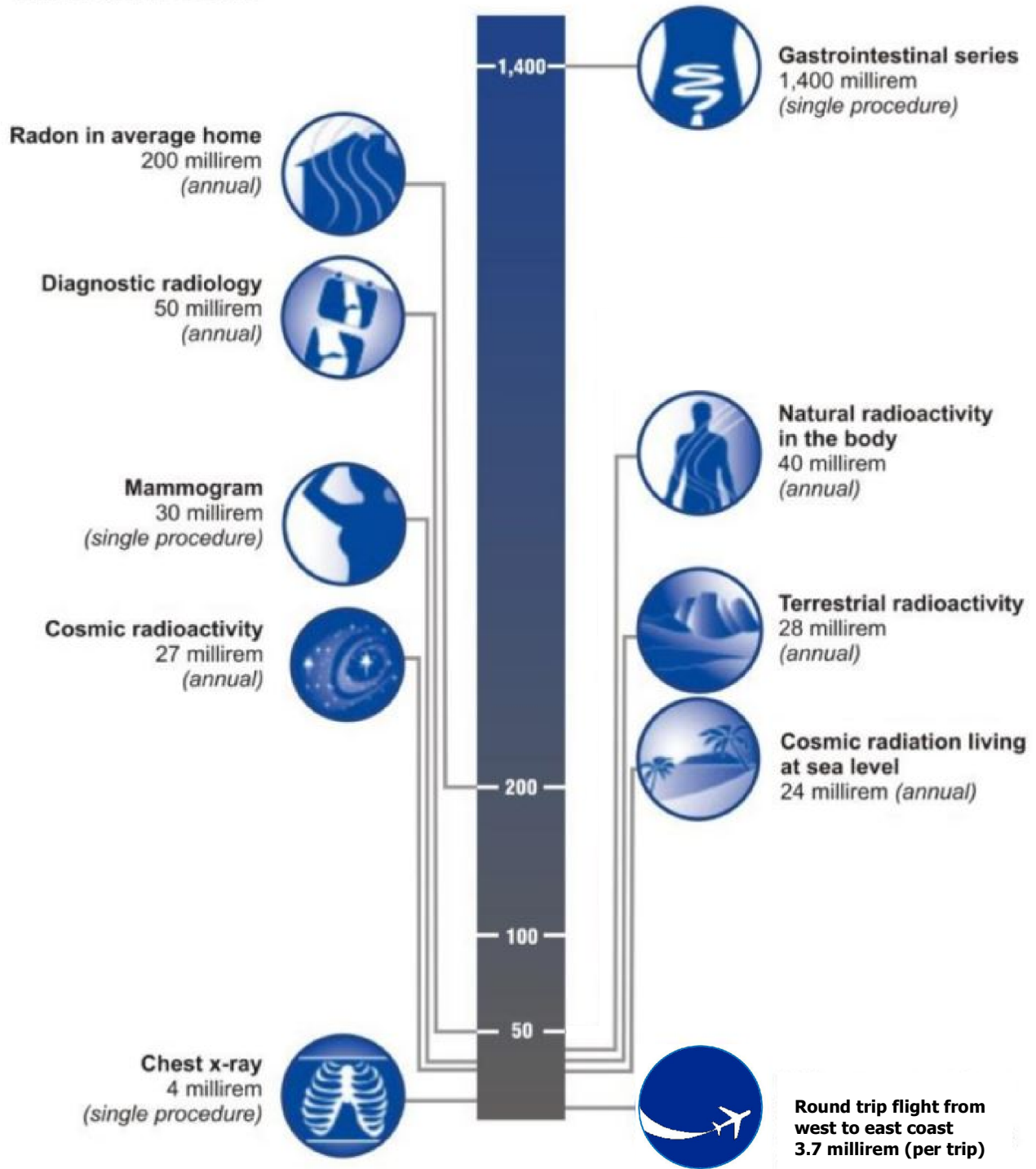
United States Nuclear Regulatory Commission (NRC), Doses in Our Daily Lives, dated 13 May 2021. <https://www.nrc.gov/about-nrc/radiation/around-us/doses-daily-lives.html>

NRC. 10 CFR 20 Subpart E, Radiological Criteria for License Termination, commonly referred to as the License Termination Rule (LTR).

FIGURE

RELATIVE DOSES FROM RADIATION SOURCES

Millirem Doses



Notes:
 1. Diagram based on diagram as presented in the United States Department of Energy, Idaho Operations Office's Draft Environmental Assessment for the Resumption of Transient Testing of Nuclear Fuels and Materials dated November 2013.

LANGAN Langan Engineering and Environmental Services, Inc. 135 Main Street, Suite 1500 San Francisco, CA 94105 T: 415.955.5200 F: 415.955.5201 www.langan.com	Project	Figure Title	Project No. 731744801	Figure
	BLOCK 56 SAN FRANCISCO SAN FRANCISCO COUNTY CALIFORNIA	EXAMPLES OF RELATIVE DOSES OF RADIATION SOURCES	Date JULY 2022 Scale SEE MAP FOR SCALE Drawn By JNE	D1

ATTACHMENT D1
RADIOLOGICAL CALCULATIONS

Attachment D1 Radiological Calculations

D1.1.0 RESRAD CALCULATIONS – MEAN CONCENTRATIONS

RESRAD calculations were performed using an assumption that the mean concentration for each radionuclide was uniformly distributed through the entirety of the site (2,590 square meters = 0.64 acres) to a depth of two meters. The exposure pathways considered included external gamma, inhalation, and soil ingestion.

The RESRAD calculation for Radium-226 (Ra-226) used a mean concentration of 0.3616 picocuries per gram (pCi/g). The calculation included Lead-210 (Pb-210) at the same concentration, representing an assumption of equilibrium throughout the decay chain. The maximum dose and risk results are shown below.

Contaminated Zone Dimensions			Initial Soil Concentrations, pCi/g					
Area:	2590.00 square meters		Pb-210	3.616E-01				
Thickness:	2.00 meters		Ra-226	3.616E-01				
Cover Depth:	0.00 meters							
Total Dose TDOSE(t), mrem/yr								
Basic Radiation Dose Limit = 2.500E+01 mrem/yr								
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)								
t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	2.183E+00	2.177E+00	2.165E+00	2.124E+00	2.009E+00	1.652E+00	9.421E-01	1.321E-01
M(t):	8.732E-02	8.708E-02	8.660E-02	8.494E-02	8.035E-02	6.606E-02	3.769E-02	5.283E-03
Maximum TDOSE(t): 2.183E+00 mrem/yr at t = 0.000E+00 years								

Radio-Nuclide	Water		Fish		Plant		Meat		Milk		All Pathways**	
	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.037E-06	0.0212
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.780E-05	0.9788
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.884E-05	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil and water dependent water, fish, plant, meat, milk pathways

The RESRAD calculation for Strontium-90 (Sr-90) used a mean concentration of 0.0133 pCi/g. The maximum dose and risk results are shown below.

Contaminated Zone Dimensions			Initial Soil Concentrations, pCi/g					
Area:	2590.00 square meters		Sr-90	1.330E-02				
Thickness:	2.00 meters							
Cover Depth:	0.00 meters							
Total Dose TDOSE(t), mrem/yr								
Basic Radiation Dose Limit = 2.500E+01 mrem/yr								
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)								
t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	3.450E-04	3.349E-04	3.157E-04	2.566E-04	1.420E-04	1.789E-05	4.812E-08	4.854E-17
M(t):	1.380E-05	1.340E-05	1.263E-05	1.026E-05	5.680E-06	7.156E-07	1.925E-09	1.942E-18
Maximum TDOSE(t): 3.450E-04 mrem/yr at t = 0.000E+00 years								

Attachment D1 Radiological Calculations

Radio- Nuclide	Water		Fish		Plant		Meat		Milk		All Pathways**	
	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.509E-05	1.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.509E-05	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil and water dependent water, fish, plant, meat, milk pathways

The RESRAD calculation for Thorium-232 (Th-232) used a mean concentration of 0.4155 pCi/g. The calculation included Radium-228 (Ra-228) and Thorium-228 (Th-228) at the same concentration, representing an assumption of equilibrium throughout the decay chain. The maximum dose and risk results are shown below.

Contaminated Zone Dimensions				Initial Soil Concentrations, pCi/g			
Area:	2590.00	square meters		Ra-228	4.155E-01		
Thickness:	2.00	meters		Th-228	4.155E-01		
Cover Depth:	0.00	meters		Th-232	4.155E-01		

Total Dose TDOSE(t), mrem/yr								
Basic Radiation Dose Limit = 2.500E+01 mrem/yr								
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)								
t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	3.310E+00	3.306E+00	3.297E+00	3.271E+00	3.250E+00	3.248E+00	3.246E+00	3.239E+00
M(t):	1.324E-01	1.323E-01	1.319E-01	1.308E-01	1.300E-01	1.299E-01	1.298E-01	1.296E-01

Maximum TDOSE(t): 3.310E+00 mrem/yr at t = 0.000E+00 years

Radio- Nuclide	Water		Fish		Plant		Meat		Milk		All Pathways**	
	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.744E-05	0.3558
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.960E-05	0.6432
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.816E-08	0.0010
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.711E-05	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil and water dependent water, fish, plant, meat, milk pathways

The RESRAD calculation for Uranium-235 (U-235) used a mean concentration of 0.0271 pCi/g. The maximum dose and risk results are shown below.

Contaminated Zone Dimensions				Initial Soil Concentrations, pCi/g			
Area:	2590.00	square meters		U-235	2.710E-02		
Thickness:	2.00	meters					
Cover Depth:	0.00	meters					

Total Dose TDOSE(t), mrem/yr								
Basic Radiation Dose Limit = 2.500E+01 mrem/yr								
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)								
t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	1.127E-02	1.123E-02	1.116E-02	1.091E-02	1.021E-02	8.128E-03	4.239E-03	4.333E-04
M(t):	4.508E-04	4.494E-04	4.464E-04	4.362E-04	4.085E-04	3.251E-04	1.695E-04	1.733E-05

Maximum TDOSE(t): 1.127E-02 mrem/yr at t = 0.000E+00 years

Attachment D1 Radiological Calculations

Radio- Nuclide	Water		Fish		Plant		Meat		Milk		All Pathways**	
	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.507E-11	0.0002
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.953E-11	0.0001
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.515E-07	0.9997
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.515E-07	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil and water dependent water, fish, plant, meat, milk pathways

D1.2.0 RESRAD CALCULATIONS – 95TH PERCENTILE CONCENTRATIONS

RESRAD calculations were performed using an assumption that the 95th percentile concentration for each radionuclide was uniformly distributed through the entirety of the site (2,590 square meters = 0.64 acres) to a depth of two meters. The exposure pathways considered included external gamma, inhalation, and soil ingestion.

The RESRAD calculation for Americium-241 (Am-241) used a 95th percentile concentration of 0.1182 pCi/g. The maximum dose and risk results are shown below.

Contaminated Zone Dimensions		Initial Soil Concentrations, pCi/g	
Area:	2590.00 square meters	Am-241	1.182E-01
Thickness:	2.00 meters		
Cover Depth:	0.00 meters		

Total Dose TDOSE(t), mrem/yr							
Basic Radiation Dose Limit = 2.500E+01 mrem/yr							
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)							
t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02
TDOSE(t):	7.737E-03	7.661E-03	7.511E-03	7.011E-03	5.758E-03	2.891E-03	4.050E-04
M(t):	3.095E-04	3.064E-04	3.005E-04	2.804E-04	2.303E-04	1.156E-04	1.620E-05

Maximum TDOSE(t): 7.737E-03 mrem/yr at t = 0.000E+00 years

Radio- Nuclide	Water		Fish		Plant		Meat		Milk		All Pathways**	
	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.679E-08	0.9999
Np-237	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.438E-12	0.0001
Th-229	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.206E-19	0.0000
U-233	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.127E-18	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.679E-08	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil and water dependent water, fish, plant, meat, milk pathways

The RESRAD calculation for Cesium-137 (Cs-137) used a 95th percentile concentration of 0.0379 pCi/g. The maximum dose and risk results are shown below.

Attachment D1 Radiological Calculations

Contaminated Zone Dimensions				Initial Soil Concentrations, pCi/g				
Area:	2590.00	square meters		Cs-137	3.790E-02			
Thickness:	2.00	meters						
Cover Depth:	0.00	meters						
Total Dose TDOSE(t), mrem/yr Basic Radiation Dose Limit = 2.500E+01 mrem/yr Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)								
t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	6.491E-02	6.344E-02	6.058E-02	5.157E-02	3.255E-02	6.500E-03	6.516E-05	6.574E-12
M(t):	2.597E-03	2.537E-03	2.423E-03	2.063E-03	1.302E-03	2.600E-04	2.606E-06	2.630E-13
Maximum TDOSE(t): 6.491E-02 mrem/yr at t = 0.000E+00 years								

Radio- Nuclide	Water		Fish		Plant		Meat		Milk		All Pathways**	
	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.132E-06	1.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.132E-06	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil and water dependent water, fish, plant, meat, milk pathways

The RESRAD calculation for Cobalt-60 (Co-60) used a 95th percentile concentration of 0.0464 pCi/g. The maximum dose and risk results are shown below.

Contaminated Zone Dimensions				Initial Soil Concentrations, pCi/g								
Area:	2590.00	square meters		Co-60	4.640E-02							
Thickness:	2.00	meters										
Cover Depth:	0.00	meters										
Total Dose TDOSE(t), mrem/yr Basic Radiation Dose Limit = 2.500E+01 mrem/yr Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)												
t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03				
TDOSE(t):	3.657E-01	3.205E-01	2.463E-01	9.801E-02	7.042E-03	7.000E-07	2.565E-18	0.000E+00				
M(t):	1.463E-02	1.282E-02	9.854E-03	3.920E-03	2.817E-04	2.800E-08	1.026E-19	0.000E+00				
Maximum TDOSE(t): 3.657E-01 mrem/yr at t = 0.000E+00 years												
Radio- Nuclide	Water		Fish		Plant		Meat		Milk		All Pathways**	
	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Co-60	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.343E-06	1.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.343E-06	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil and water dependent water, fish, plant, meat, milk pathways

The RESRAD calculation for Plutonium-239 (Pu-239) used a 95th percentile concentration of 0.0077 pCi/g. The maximum dose and risk results are shown below.

Attachment D1 Radiological Calculations

Contaminated Zone Dimensions				Initial Soil Concentrations, pCi/g				
Area:	2590.00	square meters		Pu-239	7.700E-03			
Thickness:	2.00	meters						
Cover Depth:	0.00	meters						
Total Dose TDOSE(t), mrem/yr Basic Radiation Dose Limit = 2.500E+01 mrem/yr Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)								
t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	4.177E-04	4.176E-04	4.176E-04	4.172E-04	4.163E-04	4.130E-04	4.035E-04	3.734E-04
M(t):	1.671E-05	1.671E-05	1.670E-05	1.669E-05	1.665E-05	1.652E-05	1.616E-05	1.494E-05
Maximum TDOSE(t): 4.177E-04 mrem/yr at t = 0.000E+00 years								

Radio-Nuclide	Water		Fish		Plant		Meat		Milk		All Pathways**	
	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.230E-19	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.550E-20	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.840E-05	1.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.073E-15	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.840E-05	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil and water dependent water, fish, plant, meat, milk pathways

The RESRAD calculation for Ra-226 used a 95th percentile concentration of 0.6900 pCi/g. The calculation included Pb-210 at the same concentration, representing an assumption of equilibrium throughout the decay chain. The maximum dose and risk results are shown below.

Contaminated Zone Dimensions				Initial Soil Concentrations, pCi/g				
Area:	2590.00	square meters		Pb-210	6.900E-01			
Thickness:	2.00	meters		Ra-226	6.900E-01			
Cover Depth:	0.00	meters						
Total Dose TDOSE(t), mrem/yr Basic Radiation Dose Limit = 2.500E+01 mrem/yr Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)								
t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	4.166E+00	4.154E+00	4.131E+00	4.052E+00	3.833E+00	3.151E+00	1.798E+00	2.520E-01
M(t):	1.666E-01	1.662E-01	1.652E-01	1.621E-01	1.533E-01	1.261E-01	7.191E-02	1.008E-02
Maximum TDOSE(t): 4.166E+00 mrem/yr at t = 0.000E+00 years								

Radio-Nuclide	Water		Fish		Plant		Meat		Milk		All Pathways**	
	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.978E-06	0.0212
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.121E-05	0.9788
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.319E-05	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil and water dependent water, fish, plant, meat, milk pathways

The RESRAD calculation for Sr-90 used a 95th percentile concentration of 0.0463 pCi/g. The maximum dose and risk results are shown below.

Attachment D1 Radiological Calculations

Contaminated Zone Dimensions				Initial Soil Concentrations, pCi/g				
Area:	2590.00	square meters		Sr-90	4.630E-02			
Thickness:	2.00	meters						
Cover Depth:	0.00	meters						
Total Dose TDOSE(t), mrem/yr Basic Radiation Dose Limit = 2.500E+01 mrem/yr Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)								
t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	1.201E-03	1.166E-03	1.099E-03	8.933E-04	4.943E-04	6.228E-05	1.675E-07	1.690E-16
M(t):	4.804E-05	4.664E-05	4.396E-05	3.573E-05	1.977E-05	2.491E-06	6.700E-09	6.759E-18
Maximum TDOSE(t): 1.201E-03 mrem/yr at t = 0.000E+00 years								

Radio- Nuclide	Water		Fish		Plant		Meat		Milk		All Pathways**	
	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.221E-08	1.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.221E-08	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil and water dependent water, fish, plant, meat, milk pathways

The RESRAD calculation for Th-232 used a 95th percentile concentration of 0.9520 pCi/g. The calculation included Ra-228 and Th-228 at the same concentration, representing an assumption of equilibrium throughout the decay chain. The maximum dose and risk results are shown below.

Contaminated Zone Dimensions				Initial Soil Concentrations, pCi/g				
Area:	2590.00	square meters		Ra-228	9.520E-01			
Thickness:	2.00	meters		Th-228	9.520E-01			
Cover Depth:	0.00	meters		Th-232	9.520E-01			
Total Dose TDOSE(t), mrem/yr Basic Radiation Dose Limit = 2.500E+01 mrem/yr Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)								
t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	7.585E+00	7.576E+00	7.555E+00	7.495E+00	7.447E+00	7.441E+00	7.437E+00	7.422E+00
M(t):	3.034E-01	3.030E-01	3.022E-01	2.998E-01	2.979E-01	2.976E-01	2.975E-01	2.969E-01
Maximum TDOSE(t): 7.585E+00 mrem/yr at t = 0.000E+00 years								

Radio- Nuclide	Water		Fish		Plant		Meat		Milk		All Pathways**	
	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.286E-05	0.3558
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.136E-04	0.6432
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.791E-07	0.0010
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.767E-04	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil and water dependent water, fish, plant, meat, milk pathways

The RESRAD calculation for U-235 used a 95th percentile concentration of 0.0784 pCi/g. The maximum dose and risk results are shown below.

Attachment D1 Radiological Calculations

Contaminated Zone Dimensions				Initial Soil Concentrations, pCi/g								
Area:	2590.00 square meters			U-235	7.840E-02							
Thickness:	2.00 meters											
Cover Depth:	0.00 meters											
Total Dose TDOSE(t), mrem/yr												
Basic Radiation Dose Limit = 2.500E+01 mrem/yr												
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)												
t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03				
TDOSE(t):	3.261E-02	3.250E-02	3.229E-02	3.155E-02	2.955E-02	2.352E-02	1.226E-02	1.254E-03				
M(t):	1.304E-03	1.300E-03	1.291E-03	1.262E-03	1.182E-03	9.406E-04	4.905E-04	5.014E-05				
Maximum TDOSE(t): 3.261E-02 mrem/yr at t = 0.000E+00 years												
	Water		Fish		Plant		Meat		Milk		All Pathways**	
Radio-Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.593E-10	0.0002
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.649E-11	0.0001
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.286E-07	0.9997
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.288E-07	1.0000
** Sum of water independent ground, inhalation, plant, meat, milk, soil and water dependent water, fish, plant, meat, milk pathways												

D1.3.0 PRG CALCULATIONS

The USEPA's Preliminary Remediation Goals (PRG) for Radionuclide Contaminants at Superfund Sites calculator (PRG Calculator) was accessed on 11 and 12 November 2021 to calculate PRGs for the following eight radionuclides of interest: Am-241, Cs-137, Co-60, Pu-239/240, Ra-226, Sr-90, Th-232, and U-235. The PRG Calculator can be accessed via the following website: https://epa-prgs.ornl.gov/cgi-bin/radionuclides/rprg_search

D1.3.1 Calculator Inputs and Assumptions

The following is a list of common input parameters used to calculate the PRGs.

- Target Risk = 1E-06 and 1E-04
 - The results scale linearly with risk, so a PRG for a 1E-04 risk would be 100 times that for 1E-06.
- Resident scenario, soil media.
- Soil area = 2,000 square meters.
- Climate zone for particulate emission factor = San Francisco, California.
- No exposure from produce.

The following is the list of source and decay options selected for each radionuclide:

- Am-241, Co-60, Sr-90, Cs-137, and Pu-239 were run on a peak risk basis, with decay and ingrowth accounted for.
- Ra-226 and Th-232 were run assuming an equilibrated decay chain without decay.
- U-235 was run without progeny since the decay products would not be present for separated material. The only decay product that would be present with separated U-235 would be Protactinium-231 (Pa-231), which is a negligible contributor to the PRG.

D1.3.2 Calculator Outputs (Target Risk 1E-06)

The following is a summary of the PRG Calculator for the eight radionuclides of interest for a target risk of 1E-06. Similar calculations were performed for a target risk of 1E-04. PRGs for both target risks are presented in the table presented in Section 4.3.2.

Attachment D1 Radiological Calculations

D1.3.2.1 Results for Am-241

Results for 1E-06 total risk from Am-241 are shown below.

Peak PRG Results	Ingestion PRG TR=1.0E-06 (pCi/g)	Inhalation PRG TR=1.0E-06 (pCi/g)	External Exposure PRG TR=1.0E-06 (pCi/g)	Produce Consumption PRG TR=1.0E-06 (pCi/g)	Total PRG TR=1.0E-06 (pCi/g)
<i>Peak PRG for Am-241 @ PRG units</i>	4.95E+00	1.87E+03	4.90E+00	-	2.46E+00
<i>Peak start time for maximum risk (yrs)</i>	1.00E-08	1.00E-08	1.00E-08	-	1.00E-08
<i>Maximum risk during peak interval (unitless)</i>	2.02E-07	5.34E-10	2.04E-07	-	4.07E-07
<i>Maximum risk-rate during peak interval (risk/yr)</i>	7.94E-09	2.10E-11	8.02E-09	-	1.60E-08

D1.3.2.2 Results for Cs-137

Results for 1E-06 total risk from Cs-137 are shown below.

Peak PRG Results	Ingestion PRG TR=1.0E-06 (pCi/g)	Inhalation PRG TR=1.0E-06 (pCi/g)	External Exposure PRG TR=1.0E-06 (pCi/g)	Produce Consumption PRG TR=1.0E-06 (pCi/g)	Total PRG TR=1.0E-06 (pCi/g)
<i>Peak PRG for Cs-137 @ PRG units</i>	2.79E+01	8.17E+05	7.21E-02	-	7.19E-02
<i>Peak start time for maximum risk (yrs)</i>	1.00E-08	1.00E-08	1.00E-08	-	1.00E-08
<i>Maximum risk during peak interval (unitless)</i>	3.59E-08	1.22E-12	1.39E-05	-	1.39E-05
<i>Maximum risk-rate during peak interval (risk/yr)</i>	1.83E-09	6.25E-14	7.09E-07	-	7.09E-07

D1.3.2.3 Results for Co-60

Results for 1E-06 total risk from Co-60 are shown below.

Peak PRG Results	Ingestion PRG TR=1.0E-06 (pCi/g)	Inhalation PRG TR=1.0E-06 (pCi/g)	External Exposure PRG TR=1.0E-06 (pCi/g)	Produce Consumption PRG TR=1.0E-06 (pCi/g)	Total PRG TR=1.0E-06 (pCi/g)
<i>Peak PRG for Co-60 @ PRG units</i>	8.28E+01	2.43E+06	3.88E-02	-	3.88E-02
<i>Peak start time for maximum risk (yrs)</i>	1.00E-08	1.00E-08	1.00E-08	-	1.00E-08
<i>Maximum risk during peak interval (unitless)</i>	1.21E-08	4.11E-13	2.58E-05	-	2.58E-05
<i>Maximum risk-rate during peak interval (risk/yr)</i>	1.64E-09	5.59E-14	3.51E-06	-	3.51E-06

Attachment D1 Radiological Calculations

D1.3.2.4 Results for Pu-239

Results for 1E-06 total risk from Pu-239 are shown below.

Peak PRG Results	Ingestion PRG TR=1.0E-06 (pCi/g)	Inhalation PRG TR=1.0E-06 (pCi/g)	External Exposure PRG TR=1.0E-06 (pCi/g)	Produce Consumption PRG TR=1.0E-06 (pCi/g)	Total PRG TR=1.0E-06 (pCi/g)
<i>Peak PRG for Pu-239 @ PRG units</i>	3.92E+00	1.25E+03	5.54E+02	-	3.88E+00
<i>Peak start time for maximum risk (yrs)</i>	1.00E-08	1.00E-08	1.00E-08	-	1.00E-08
<i>Maximum risk during peak interval (unitless)</i>	2.55E-07	8.01E-10	1.81E-09	-	2.58E-07
<i>Maximum risk-rate during peak interval (risk/yr)</i>	9.82E-09	3.08E-11	6.95E-11	-	9.92E-09

D1.3.2.5 Results for Ra-226

Results for 1E-06 total risk from Ra-226 are shown below.

Isotope	Ingestion PRG TR=1.0E-06 (pCi/g)	Inhalation PRG TR=1.0E-06 (pCi/g)	External Exposure PRG TR=1.0E-06 (pCi/g)	Produce Consumption PRG TR=1.0E-06 (pCi/g)	Total PRG TR=1.0E-06 (pCi/g)
<i>Secular Equilibrium PRG for Ra-226</i>	1.57E-01	1.17E+03	1.63E-02	-	1.48E-02

D1.3.2.6 Results for Sr-90

Results for 1E-06 total risk from Sr-90 are shown below.

Peak PRG Results	Ingestion PRG TR=1.0E-06 (pCi/g)	Inhalation PRG TR=1.0E-06 (pCi/g)	External Exposure PRG TR=1.0E-06 (pCi/g)	Produce Consumption PRG TR=1.0E-06 (pCi/g)	Total PRG TR=1.0E-06 (pCi/g)
<i>Peak PRG for Sr-90 @ PRG units</i>	8.87E+00	2.15E+05	8.00E+00	-	4.21E+00
<i>Peak start time for maximum risk (yrs)</i>	1.00E-08	1.00E-08	1.00E-08	-	1.00E-08
<i>Maximum risk during peak interval (unitless)</i>	1.13E-07	4.66E-12	1.25E-07	-	2.38E-07
<i>Maximum risk-rate during peak interval (risk/yr)</i>	3.71E-09	2.36E-13	6.31E-09	-	8.43E-09

D1.3.2.7 Results for Th-232

Results for 1E-06 total risk from Th-232 are shown below.

Isotope	Ingestion PRG TR=1.0E-06 (pCi/g)	Inhalation PRG TR=1.0E-06 (pCi/g)	External Exposure PRG TR=1.0E-06 (pCi/g)	Produce Consumption PRG TR=1.0E-06 (pCi/g)	Total PRG TR=1.0E-06 (pCi/g)
<i>Secular Equilibrium PRG for Th-232</i>	3.08E-01	2.99E+02	1.17E-02	-	1.13E-02

Attachment D1 Radiological Calculations

D1.3.2.8 Results for U-235

Results for 1E-06 total risk from U-235 are shown below.

Isotope	ICRP Lung Absorption Type	Inhalation Slope Factor (risk/pCi)	External Exposure Slope Factor (risk/yr per pCi/g)	Food Ingestion Slope Factor (risk/pCi)	Soil Ingestion Slope Factor (risk/pCi)	Lambda (1/yr)	Half-life (yr)	2000 m ² Soil Volume Area Correction Factor	Particulate Emission Factor (m ³ /kg)	Ingestion PRG TR=1.0E-06 (pCi/g)
U-235	S	2.50E-08	5.51E-07	9.44E-11	1.48E-10	9.84E-10	7.04E+08	7.23E-01	1.11E+10	6.05E+00

Isotope	Inhalation PRG TR=1.0E-06 (pCi/g)	External Exposure PRG TR=1.0E-06 (pCi/g)	Produce Consumption PRG TR=1.0E-06 (pCi/g)	Total PRG TR=1.0E-06 (pCi/g)	Total PRG TR=1.0E-06 (mg/kg)
U-235	2.77E+03	2.90E-01	-	2.77E-01	1.28E-01