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Via Email and GeoTracker

May 26, 2017

Ms. Anne Jurek
Alameda County Department of Environmental Health
1131 Harbor Bay Pkwy
Alameda, California 94502

Re: Investigation Summary Report and Work Plan for Additional Investigation
3820 Penniman Avenue
Oakland, Alameda County, California
ACEH Case No. RO0003231

Dear Ms. Jurek:

On behalf of Pat Kwan, please find enclosed RPS Iris Environmental's *Investigation Summary Report and Work Plan for Additional Investigation* (Report/Work Plan) dated May 26, 2017 for property located at 3820 Penniman Avenue in Oakland, California (the "Site"). This Report/Work Plan is being submitted to the Alameda County Department of Environmental Health (ACEH) to document recent investigation activities performed at the Site, which were done in accordance with the *Additional Subsurface Investigation Work Plan* dated November 1, 2016 that was approved ACEH in a letter dated December 30, 2016.

Please let us know if you have any questions.

Sincerely,

RPS IRIS ENVIRONMENTAL

PROFESSIONAL GEOLOGIST
CRAIG T. PELLETIER
No. 8283
Exp. 5/31/18
STATE OF CALIFORNIA

Conor McDonough, PG
Manager

Craig T Pelletier, PG
Principal

Enclosure: *Investigation Summary Report and Work Plan for Additional Investigation* dated May 26, 2017

INVESTIGATION SUMMARY REPORT
AND
WORKPLAN FOR ADDITIONAL INVESTIGATION

3820 Penniman Avenue
Oakland, Alameda County, California

Submitted to:
Alameda County Department of Environmental Health
1131 Harbor Bay Pkwy
Alameda, California 94502

Prepared for:
Pat Kwan
3820 Penniman Avenue
Oakland, California 94619

Prepared by:
RPS IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612

May 26, 2017
Project No. 15-1311C

PROFESSIONAL CERTIFICATION AND LIMITATIONS

This *Investigation Summary Report and Work Plan for Additional Investigation* dated May 26, 2017 for the Site property located 3820 Penniman Avenue Oakland, California, has been prepared under the oversight of a California Professional Geologist. This document is based on information available to RPS Iris Environmental and current laws, policies, and regulations as of the date of this document. The information and opinions expressed in this document are based upon the information available to RPS Iris Environmental and are given in response to a limited assignment and should be considered and implemented only in light of that assignment. The services provided by RPS Iris Environmental in completing this project were consistent with normal standards of the profession. No other warranty, expressed or implied, is made.

Sincerely,

RPS IRIS ENVIRONMENTAL

Conor McDonough, P.G.
Manager

Craig Pelletier, P.G.
Principal

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1.0 INTRODUCTION

RPS Iris Environmental is presenting this *Investigation Summary Report and Work Plan for Additional Investigation* (Report/Work Plan) to the Alameda County Department of Environmental Health (ACEH) regarding ACEH leaking underground fuel tank (LUFT) Case Number RO0003231, associated with the property located at 3820 Penniman Avenue in Oakland, California (the "Site"). The Site location and layout with respect to the surrounding vicinity are illustrated in Figures 1 and 2. The Site is currently a commercial warehouse located primarily in a mixed commercial and residential area.

This Report/Work Plan is being submitted in response to ACEH's letter dated October 7, 2016 ("Letter"), which requested additional investigation to delineate the extent of soil impacts and to evaluate the potential for groundwater and soil gas impacts in the vicinity of the former underground storage tanks (USTs) that were removed in November 2015 (ACEH 2016a). This Report/Work Plan presents the results of the subsequent investigation design presented in the *Additional Subsurface Investigation Work Plan* dated November 1, 2016, which was approved by ACEH in a letter dated December 30, 2016 (ACEH 2016b). The intent of that work plan was to collect additional data associated with the Site and determine whether the criteria for Site Closure under the Low-Threat Underground Storage Tank (UST) Case Closure Policy (LTCP) have been met (State Water Resources Control Board 2012).

2.0 BACKGROUND

The following sections discuss the Site setting and history, a brief summary of previous investigations, the chemicals of potential concern (COPCs) for the Site, the objectives of this investigation, a summarized scope of work performed to meet the objectives, conclusions and recommendations and a work plan for future investigation.

2.1 Site Setting and History

The Site is currently a commercial warehouse located primarily in a residential area. The Site operated as a wholesale herb distributor for approximately 26 years. The majority of the Site is comprised of an approximate 7,000 square foot warehouse with a small loading yard located on the southeast side of the building. A *Phase I Environmental Site Assessment* (Phase I ESA) dated July 9, 2015 prepared by Basics Environmental (Basics), documents the Site's history as an automobile repair garage. The automobile repair garage stored and handled hazardous material and contained a gas and oil station in the southwest side of the Site from the late 1930s to the 1960s. Details are presented in the Phase I ESA, which recommended a utility search be performed to confirm the existence or non-existence of potential USTs commonly associated with service stations.

Subsequently, Golden Gate Tank Removal, Inc. (GGTR), a licensed hazardous waste removal contractor located in San Francisco, California, inspected the Site and identified two USTs located below the sidewalk southwest of the warehouse (Figure 2).

In November 2015, RPS Iris Environmental oversaw GGTR excavate the overburden and remove the tanks. The UST removal activities, confirmation sample results, and a request for Site closure were presented to ACEH in the *Case Closure Report, Former Underground Storage*

Tanks (Closure Report) dated January 14, 2016 (RPS Iris Environmental 2016). As noted in Section 1.0, ACEH responded to the Closure Report with a comment Letter (ACEH 2016a), which requested a work plan to further investigate UST related impacts and Site hydrogeology.

2.2 Chemicals of Potential Concern

Based on the history of the Site and known contents of the former tanks, the contaminants of potential concern (COPCs) for the Site are total petroleum hydrocarbon in the gasoline, diesel, and motor oil ranges (TPH-g, TPH-d, and TPH-mo), volatile organic compounds (VOCs), benzene, toluene, ethylbenzene, and xylene (BTEX), fuel oxygenates, methyl tert-butyl ether (MtBE), semi-volatile organic compounds (SVOCs), naphthalene, lead, lead scavengers, LUFT 5 metals (cadmium, chromium, lead, nickel, and zinc), and polychlorinated biphenyls (PCBs).[1]

2.3 Objectives

Consistent with the Work Plan, the additional Site subsurface investigation was completed to meet the following objectives:

1. Evaluate whether groundwater beneath the former tank pit and immediate vicinity has been impacted from the historical use of the former USTs.
2. Delineate the lateral and vertical extent of petroleum impacted soils associated with the former USTs.
3. Install a soil gas probe and collect one soil gas sample for chemical analysis inside the building to evaluate the potential for vapor intrusion, if necessitated.
4. Prepare this Report summarizing the activities and results of the limited subsurface investigation including a discussion of groundwater flow and identification of sensitive receptors.

Presented in this Report are the field activities, results of the additional investigation, and proposed additional investigation scope of work to further evaluate whether the Site can meet the criteria for environmental case closure under the LTCP.

2.4 Summarized Scope of Work Performed

To meet the objectives above, RPS Iris Environmental completed the following:

- Advanced one boring (IE-1) within the footprint of the UST excavation for the collection of one grab-groundwater sample.
- Advanced three borings IE-2, IE-3, and IE-4 approximately 15 feet northwest, northeast, and southeast from the perimeter of the former UST excavation (Figure 2) to a maximum depth of 20 feet bgs for the purpose of defining the lateral and vertical extents of soil and groundwater impacts adjacent to the former USTs.
- Advanced an adjacent step-out boring IE-5, which was located adjacent to the northeast boring location IE-4, and collected a soil gas sample.

[1] As documented later in this Report/Work Plan, concentrations of metals, MtBE, VOCs (excluding BTEX), SVOCs, and PCBs were not detected in the analyzed subsurface media; and, therefore will not be considered to be COPCs in future investigation events.

The sampling and analytical plan is summarized in Table 1 and boring locations are shown on Figure 2.

3.0 INVESTIGATION ACTIVITIES

The following sections document the investigation work completed including the pre-field activities, and fieldwork to collect representative soil, groundwater and soil gas samples.

3.1 Pre-Field Activities

The following pre-field activities were conducted prior to the field work.

- Updated the Site-specific health and safety plan (HASP) incorporating the scope of work proposed herein. A copy of the HASP, which detailed the work to be performed, safety precautions, emergency response procedures, nearest hospital information, and on-Site personnel responsible for managing emergencies, was present on-Site during field activities.
- Marked each proposed soil boring location in white paint and contact Underground Service Alert (USA) at least 48 hours prior to drilling, as required by law.
- Subcontracted a private utility locating contractor to clear boring locations relative to the potential presence of subsurface utilities prior to drilling work.
- Obtained the required drilling permit from the Alameda County Public Works Agency (ACPWA) and an Excavation and Obstruction permit from the City of Oakland. Copies of these permits are included as Appendix A.

3.2 Soil Boring Installation and Soil and Groundwater Sampling

On March 17, 2017, RPS Iris Environmental oversaw Environmental Control Associates, Inc. (ECA), a California C-57 licensed drilling company located in Aptos, California; operate a limited-access drill rig to advance five borings (IE-1 to IE-5) using direct-push technology. RPS Iris Environmental field personnel were under the direct supervision of an RPS Iris Environmental Professional Geologist. The borings were advanced to a maximum depth of 20 feet bgs at the locations shown on Figure 2.

3.2.1 Soil Logging and Sampling Methodology

Soil cores were collected from boreholes using a 4-foot long core barrel sampler with single use acetate liners. Soil cores were examined for soil classification and described on boring logs in general conformance with the Unified Soil Classification System (USCS). Soil boring logs are presented in Appendix B.

Field screening of soil cores was performed using a photoionization detector (PID) to evaluate the potential presence of VOCs. To initiate this procedure, selected depth-discrete soil samples were removed from the acetate liners, placed into glass jars, and jar lids were sealed with aluminum foil (foil) to allow the jar head space equilibrate with vapor in the soil pore space. Once the head space equilibrated, the probe tip of the PID was inserted through the foil to measure ionizable substances in the head space. PID measurements of the headspace in the parts

per million (ppm) range for total VOCs were recorded on boring logs (Appendix B). Stratigraphic observations are further discussed in Section 4.1.

3.2.2 Soil Sampling Methodology and Analytical Program

Soil samples were collected for laboratory analysis from approximate depths of three and eight feet bgs in accordance with the Work Plan. Following collection, these samples were cut from recovered acetate liners, sealed with Teflon tape, secured with plastic end caps, labeled, and recorded on a chain-of-custody (COC). To minimize the potential loss of volatiles in transit, soil samples selected for VOC analysis were collected into single-use containers designed in accordance with United States Environmental Protection Agency (USEPA) Method 5035.

The collected soil samples were stored in a pre-chilled ice chest and transported under standard COC documentation to Curtis & Tompkins, Ltd. (C&T), a California-certified laboratory for analyses as summarized in Table 1.

3.2.3 Grab-Groundwater Sampling Methodology and Analytical Program

After encountering groundwater and upon completion of drilling to the desired depths, new temporary completions consisting of approximately ten feet of ¾ -inch –diameter Schedule 40, machine slotted-screen polyvinyl chloride (PVC) screen and ten feet of blank PVC casing were placed into the open boreholes to prevent boring collapse and allow for first-encountered groundwater to flow into the temporary screen and casing. Prior to sampling at each location, the depths to which groundwater stabilized in the borings were gauged to the nearest 0.1 foot using an electronic water level indicator. Stabilized water levels were recorded on boring logs (Appendix B).

The grab-groundwater samples were collected from borings IE-1 to IE-4 from the temporary well casings using new polyethylene tubing outfitted with a peristaltic pump at each location. Upon retrieval, the grab-groundwater samples were transferred directly into laboratory provided sample containers. Following collection, the grab-groundwater samples were sealed, labeled, placed in a zip-top style plastic bag, recorded on the COC, and placed in a pre-chilled ice chest for delivery to C&T for analyses as summarized on Table 1.

3.3 Soil Vapor Probe Installation and Sample Collection

One temporary soil gas probe was installed in a step-out boring (IE-5) located adjacent to IE-4, within the warehouse in general accordance with the *Advisory-Active Soil Gas Investigation* dated July 2015 by the California Environmental Protection Agency (Cal/EPA) – DTSC, Los Angeles Regional Water Quality Control Board (LARWQCB), and the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) (Advisory) (Cal/EPA 2015). The soil gas probe was composed of inert Teflon tubing attached to a stainless steel vapor inlet installed at a target depth of approximately 5 feet bgs within the borehole. Once emplaced within the bore hole, approximately 6 inches of clean sand was added above and below the tip of the probe. The borehole annulus was then filled with approximately 1 foot of dry granular bentonite, followed by hydrated granular bentonite to ground surface.

Consistent with the Advisory, the soil gas probe was allowed to stabilize for a minimum of 2 hours after installation. Prior to sample collection three purge volumes consisting of the annulus of the sample tubing volume and the void space in the sand pack and dry bentonite were removed from the probe at a rate of approximately a rate of 200 milliliters per minute (ml/min). Following purging, one soil gas sample was collected into a batch-certified stainless steel Summa canister. For quality assurance and quality control (QA/QC) purposes, helium was used within a shroud as the leak check during sample collection.

After collection, the soil gas sample container was sealed, labeled, and transported under standard COC documentation to a California-certified laboratory for VOC analysis by USEPA Method TO-15 and helium tracer gas.

3.4 Borehole Abandonment

After the soil and grab-groundwater samples were collected, a representative from ACDPW was notified of drilling and grouting activities in accordance with the drilling permit requirements. The borings were grouted from the bottom of the boring to approximately 6-inches below ground surface with neat cement using a tremie pipe. Similarly, following soil gas sample collection at step-out location at IE-5, the probe was destroyed by removing the sample tubing, over-drilling the bore hole using direct-push technology, and grouting the bore hole to 6 inches below ground surface. Final completion of all bore holes consisted of patching the remaining 6-inch annulus of the boreholes with concrete to match the surrounding ground surface.

3.5 Decontamination and Waste Generation

ECA placed new plastic liners in the core barrel prior to each sampling interval. Prior to each use, drilling equipment and down-hole sampling equipment were washed in a solution of non-phosphate detergent, double-rinsed with potable water, and allowed to dry.

Rinse water, purge water and soil drilling cuttings were containerized in one Department of Transportation (DOT) approved 10-gallon drum. The drum will be removed from the Site at a later date and disposal documentation will be forwarded to the ACEH once the generated wastes have been removed.

4.0 RESULTS

The following sections present the results of this investigation.

4.1 Stratigraphic and Hydrogeologic Observations

Boring logs summarizing lithological observations from the field sampling are presented in Appendix B.

Based on the encountered stratigraphy, shallow soil types at the Site consist of sediments ranging in size from clays to silt to approximate depths ranging from 10.5 feet bgs to total depth (20 feet bgs). Silty sand was observed in boring IE-2 from 10.5 feet to 20 feet bgs.

First-encountered groundwater was observed during drilling at depths between 11.0 feet bgs (IE-3) and 16 feet bgs (IE-4) and stabilized to depths ranging from 7.5feet bgs (IE-1) and 15.8 feet bgs (IE-2). RPS Iris Environmental field geologists observed evidence of petroleum impacts at

to just below the water table with PID readings ranging from 21.5 ppm (IE-3) to 900 ppm (IE-2) within this horizon.

4.2 Soil Analytical Results

A tabular summary of the soil analytical data is provided in Table 2. Soil analytical data were initially compared to conservative SFBRWQCB Tier 1 Environmental Screening Levels (ESLs) (California Environmental Protection Agency [Cal/EPA] 2016). Certified laboratory analytical reports and COC information are included in Appendix C. The analytical data for the analyzed soil samples are further discussed in the following sub-sections.

4.2.1 TPH in Soil

As presented in Table 3, low concentrations of TPH-d were detected in soil sample IE-2-3.at (1.5 milligrams per kilogram [mg/kg]), which is below the residential and commercial/industrial direct exposure ESLs of 230 mg/kg and 1,100 mg/kg set for this range of compounds, respectively.

4.2.2 VOCs in Soil

As summarized in Table 3, VOCs were not detected in Site soil above laboratory reporting limits. Based on this information, VOCs in soil are not considered to be COPCs.

4.2.3 LUFT 5 Metals in Soil

As presented in Table 3, concentrations of analyzed metals were either not detected in the soil samples or were detected at concentrations below their respective residential and commercial/industrial direct exposure ESLs. Metals in soil are not considered to be COPCs based on this information.

4.2.4 PCBs in Soil

As presented in Table 3, PCBs were not detected above laboratory the reporting limits and are below applicable ESLs. PCBs in soil are not considered to be COPCs based on this information.

4.3 Grab-Groundwater Analytical Results

A tabular summary of the groundwater analytical results compared to Tier 1 ESL for groundwater is provided as Table 3. Certified laboratory analytical reports are included in Appendix C. The analytical data for the analyzed grab-groundwater samples are presented below.

4.3.1 TPH in Groundwater

Concentrations of TPH-g were detected in three of the grab-groundwater samples IE-1-GW, IE-3-GW and IE-4-GW at concentrations of 1,100 micrograms per liter (µg/L), 230,000 µg/L, and 5,300 µg /L, respectively. The detections of TPH-g are each above the Tier 1 ESL set for this range of compounds of 100 µg/L. Analytical results for TPH-d in groundwater analyzed both

without/with SGC ranged from 110 µg/L /64 µg/L (IE-1-GW) to 13,000 µg/L /6,300 µg/L (IE-2-GW). With the exception of groundwater one of the four groundwater which was prepped with SGC (IE-1-GW), the detections of TPH-d were above the ESL of 100 µg/L set for this range of compounds. Concentrations of TPH-mo were detected in one groundwater sample (IE-4GW) at concentrations 2,000 µg/L/1,400 µg/L: however, a Tier 1 ESL has not been established for this range of compounds. *We note that these grab-groundwater samples likely contained sediment and were not collected from properly constructed and developed monitoring wells. It is the experience and opinion of RPS Iris Environmental that analytical results of grab-samples that are not collected from properly developed monitoring wells are often biased high for extractable TPH due to matrix interference.*

4.3.2 VOCs in Groundwater

As presented on Table 4, concentrations of benzene were detected in one grab-groundwater sample collected from IE-3 (220 µg/L), which is above the Tier 1 ESL established at 1 µg/L. Ethylbenzene was detected in groundwater samples collected from IE-1 and IE-3 at concentrations of 5.2 µg/L and 110 µg/L, respectively. The detection of ethylbenzene in groundwater sample IE-3-GW is above Tier 1 ESL (13 µg/L) set for this compound. Other VOCs detected in the analyzed grab-groundwater samples include: acetone, n- butylbenzene, para-isopropyl toluene, propylbenzene. sec-butylbenzene, and toluene. These compounds were detected at concentrations below their respective ESLs, where established. MtBE was not detected in the analyzed groundwater samples. Based on this information, VOCs (excluding BTEX) in groundwater are not considered COPCs.

4.3.3 SVOCs in Groundwater

As presented in Table 4, SVOCs were not detected in the groundwater sample analyzed for SVOCs (IE-1-GW) above laboratory reporting limits. Based on this information, IE-2-GW to IE-4-GW were not further analyzed for SVOCs. Based on this information, SVOCs in groundwater are not considered COPCs.

4.4 Soil Vapor Analytical Results

A tabular summary of the soil gas analytical data is provided in Table 4. The soil gas analytical results are compared to Tier 1 soil gas ESLs for residential and commercial land use scenarios and are summarized below. Certified laboratory analytical reports and COC information are included in Appendix C.

4.4.1 VOCs in Soil Gas

As shown on Table 5, benzene was detected in soil gas at a concentration of 75 micrograms per cubic meter (µg/m^3), which is slightly above the residential land use ESL(48 µg/m^3), but below the commercial land use ESL(420 µg/m^3). Also, the following compounds were detected in soil gas sample IE-5-SG: acetone, benzene, cyclohexane, ethylbenzene, 4-ethyltoluene, m-,p-xylene, n-heptane, n-hexane, o-xylene, tetrachloroethene (PCE), toluene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene above laboratory reporting limits, but were below the respective residential and commercial/industrial land use scenario ESLs set for these compounds, where

established. Because the current Site use is commercial, no additional action appears warranted at this time.

4.4.2 Fixed Gases

Oxygen was detected in the soil gas sample at 17 percent. In addition, helium, the leak detection compound, was not detected above laboratory reporting limits (Table 5).

5.0 LTCP CLOSURE CRITERIA

The following section is a preliminary assessment of the Site conditions with regards to the requirements of the LTCP for UST cases. Bolded sentences in the sections below reflect language and requirements of the LTCP. The unbolded sentences demonstrate either how the Site qualifies for closure under the LTCP criteria or identifies data gaps.

5.1 General Criteria

This section discusses how the general criteria specified in the LTCP have been met or what is needed in order to be met. Unless otherwise noted, the general criteria of the LTCP have been achieved as follows:

- **The unauthorized release is located within the service area of a public water system.** Potable water is provided to the Site by the city and there are no production wells within two miles of the Site. Also, impacts associated with the UST release are in shallow first-encountered groundwater ,which is not suitable for drinking water
- **The unauthorized release consists only of petroleum.** COPCs at the Site associated with petroleum release include TPH-g, TPH-d, TPH-mo, and BTEX.
- **The primary release from the former UST system has been stopped.** Both of the former 750-gallon steel USTs were removed as documented in the Closure Report (RPS Iris Environmental 2016a). Associated vertical piping was found to be attached at the top of the tanks; however, the extent of piping was limited to connections at the tops of the tanks to former fill-ports (and/or vents) at sidewalk level. There were no horizontal piping runs, nor pipes running outside the limits of the soil excavation. The short sections of tank-related piping were removed for recycling along with the steel UST shells.
- **Free product has been removed to the maximum extent practicable.** Free product has not been observed at the Site. Additional investigation activities are proposed to evaluate the potential presence of free product and are further presented in Section 6.
- **A conceptual site model (CSM) that assesses the nature, extent, and mobility of the release has been developed.** A CSM has not been developed for the Site due to the limited amount of information associated with groundwater flow direction, Site stratigraphy, and extent of impacts to groundwater. Additional proposed investigation activities are designed to evaluate Site conditions for the development of a CSM are proposed in Section 6 and will be presented in the next report submittal.
- **Secondary sources have been removed to the extent practicable.** As documented in the Completion Report, the soils above the former USTs were identified as clean fill, and

were stockpiled separately from those soils around and under the former USTs that showed visual or odor evidence of impact. Following removal of the USTs, neither of the UST showed visual evidence of holes, pitting, or significant deterioration. Following UST extraction, in a proactive effort to remove the visibly stained soil and minor residual liquids in the tank pit from tank rinsing activities, the tank pit removal excavations were extended to 11 feet bgs, which extended the total depth of the excavation to a depth of 3 feet below the former bottom of the tanks. Soils at 11 feet bgs were not visibly stained or odorous, and subsequent analytical results supported the absence of gross soil contamination in sols from the base of the tank pit excavation. Following completion, approximately 15 tons of non-hazardous petroleum-impacted soils were transported to the Keller Canyon Landfill facility in Pittsburg, California.

- **Soil or groundwater has been tested for methyl tert-butyl ether (MtBE) and results reported in accordance with Health and Safety Code section 25296.15.** Soil, groundwater, and soil gas beneath the Site have been sampled and analyzed for MtBE (Tables 3, 4, and 5, respectively), with this submittal the analytical results have been made available to ACEH and California Regional Water Quality Control Board in accordance with Health and Safety Code section 25296.15.
- **Nuisance as defined by Water Code section 13050 does not exist at the Site.** The residual concentrations of petroleum constituents in soil and groundwater beneath the Site and off-Site are below levels that the LTCP deems could be injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. The concentrations of COPCs beneath the Site will not obstruct the free use of property, so as to interfere with the comfortable enjoyment of life or property. Off-Site impacts are beneath the street, and use of this property as anything other than such is highly unlikely.

5.2 Groundwater Specific Criteria

The groundwater-specific criteria of the LTCP have been achieved as follows:

- **The groundwater contaminant plume that exceeds water quality objectives is less than 250 feet in length.** The approximate extent of petroleum impacts (TPH-g and benzene) in first-encountered groundwater is illustrated on Figure 3. The extent of the petroleum plume beneath the Site is unknown. Additional investigation activities are proposed to define the extent of groundwater impacts and are further presented in Section 6.
- **There is no free product.** Based on a review of available boring logs and noted above, free product has not been identified beneath the Site. Free product has not been observed in the soil samples, borings, or in the grab-groundwater samples collected to date. Additional investigation activities are proposed to evaluate the potential presence of free product beneath the Site and are presented in Section 6.
- **The nearest existing water supply well or surface water body is greater than 1,000 feet from the defined plume boundary.** The nearest body of water, which is Peralta Creek, located approximately 2,250 feet to the north-northwest of the Site. The nearest municipal water well which is located approximately 2.8 miles to the northeast of the Site.

- **The dissolved concentration of benzene is less than 1,000 µg/l, and the dissolved concentration of MtBE is less than 1,000 µg/l.** The maximum reported concentrations for benzene in Site groundwater is 220 µg/L (IE-3-GW). MtBE has not been detected above laboratory reporting limits in the analyzed soil or grab-groundwater-samples and based on this information, MtBE is not considered to be a COPC.
- **Petroleum Vapor Intrusion to Indoor Air Criteria The petroleum vapor intrusion to indoor air criteria of the LTCP have been achieved.** Consistent with the criterial listed in Appendix 4, Scenario 4 with bio-attenuation zone for residential land use scenarios of the LTCP, the following have been determined at the Site: TPH was not detected in soil greater at concentrations greater than 100 mg/kg; groundwater is deeper that five feet bgs; concentrations of petroleum-impacted vapors (benzene, ethylbenzene, and naphthalene) were not detected beneath the Site at levels exceeding the soil gas criteria (85,000 µg /m^3, 1,100,000 µg /m^3, and 93,000 µg /m^3, respectively); the concentrations of oxygen detected in Site soil gas were above four percent (Table 5), indicating an oxygen-rich environment and that a bio-attenuation zone exists beneath the Site.

5.3 Direct Contact and Outdoor Air Exposure

The direct contact and outdoor air exposure criteria of the LTCP have been achieved and are as follows:

- **Maximum concentrations of petroleum constituents in soil are less than or equal to those listed in Table 1 of the LTCP for the specified depth bgs.**

Chemical	Residential		Commercial/ Industrial		Utility Worker
	0 to 5 feet bgs (mg/kg)	Volatilization to outdoor air (5 to 10 feet bgs) (mg/kg)	0 to 5 feet bgs (mg/kg)	Volatilization to outdoor air (5 to 10 feet bgs) (mg/kg)	0 to 10 feet bgs (mg/kg)
Benzene	1.9	2.8	8.2	12	14
Ethylbenzene	21	32	89	134	314
Naphthalene	9.7	9.7	45	45	219
PAH[1]	0.063	NA	0.68	NA	4.5

Notes:
1. **Based on the seven carcinogenic poly-aromatic hydrocarbons (PAHs) as benzo(a)pyrene toxicity equivalent [BaPe]. Sampling and analysis for PAH is only necessary where soil is affected by either waste oil or Bunker C fuel.**
2. **NA = not applicable**
3. **mg/kg = milligrams per kilogram**

Benzene, ethylbenzene, and naphthalene were not detected in Site soils above laboratory reporting limits at depths of 3 and 8 feet bgs (Table 2) and the reporting limits are below the above-referenced LTCP criteria.

- As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, the regulatory agency determined that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health.

- There are currently no concentrations of petroleum constituents in soil that will have a significant risk of adversely affecting human health. The Site is currently a commercial warehouse and there are no plans to change the use of the property in the foreseeable future.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the information in this Report, RPS Iris Environmental concludes and recommends the following:

- Based on the analytical data, COPCs (primarily in groundwater) at the Site appears to be limited to TPH-g, TPH-d, TPH-mo, and BTEX. Future sampling events will target these specific analytes.
- The extent of soil impacts is defined and no further investigation or action with respect to soil impacts is warranted at this time.
- The extent of petroleum impacts in groundwater are not fully defined. Additional delineation is warranted to define the lateral extent of groundwater impacts such that the case can be closed under the LTCP.
- Additional investigation appears warranted to evaluate the potential for free product beneath the Site, particularly in the vicinity of IE-3 such that the case can be closed under the LTCP.
- Although there does not appear to be a vapor intrusion concern in the vicinity of IE-5, additional soil gas sampling beneath the existing building in proximity to IE-3 should be conducted.

7.0 WORK PLAN FOR ADDITIONAL INVESTIGATION

As noted above, the results for the initial investigation have been compared to LTCP criteria for case closure. The scope of work presented in this section has been developed to address the data gaps identified in Section 5.0.

7.1 Objectives

To address the above data gaps, as presented on Figure 4, summarized in Table 5, and described below, the following Site investigation scope of work is proposed:

- Advance three borings to approximately 15 to 20 feet below the ground surface and install three wells (MW-1, MW-3, and MW-4) to evaluate the groundwater flow direction and characterize the lateral extent of groundwater impacts.
- Advance one boring as described above and install one well (MW-2) in the immediate vicinity of IE-3 (the boring location with the highest TPH detection on groundwater). At this boring location fluid level monitoring with be conducted with an oil/water interface probe to evaluate the presence of free product in the subsurface.
- Advance three borings IE-6 to IE-8 to first-encountered groundwater to collect grab-groundwater samples to assist in the delineation and extent of groundwater impacts.

- Advance one step-out boring (adjacent to IE-6) to approximately five feet bgs and install one temporary soil gas probe to collect a soil gas sample to evaluate potential vapor intrusion impacts in the SE portion of the building.
- Install one well (MW-5) after the four initial wells have been installed, surveyed, developed, and sampled. Water level data and groundwater chemistry from the initial wells will be evaluated to strategically choose a well location for MW-5, which is downgradient from the Site.
- Develop, survey, and sample the newly installed wells in accordance with Section 7.5 of this Report/Work Plan.

7.2 Pre-Field Activities

The following pre-field activities will be conducted prior to the field work.

- Update the Site-specific health and safety plan (HASP), incorporating the scope of work proposed herein. A copy of the HASP will be kept on-Site during field activities. The HASP will detail work to be performed, safety precautions, emergency response procedures, nearest hospital information, and on-Site personnel responsible for managing emergencies.
- Mark each proposed soil boring location in white paint and contact Underground Service Alert (USA) at least 48 hours prior to drilling, as required by law.
- Subcontract a private utility locating contractor to ensure boring locations are not in conflict with subsurface utilities prior to subsurface disturbance.
- Obtain the required drilling permit from the ACPWA and an Excavation and Obstruction permit from the City of Oakland.

7.3 Drilling and Soil Logging Activities

To complete the subsurface investigation work, a California C-57 licensed drilling company will be contracted to advance borings to approximately 15 to 20 feet bgs to install monitoring wells within each boring or collect supplemental grab-groundwater samples to assist in delineation efforts. It is anticipated that a limited-access drill rig will be required to advance borings and wells along Penniman Avenue and within the sidewalk, due to close proximity of these borings to the roadway and/ lack of space within the parking strip. Drilling work will be overseen by RPS Iris Environmental field personnel under the direct supervision of an RPS Iris Environmental Professional Geologist. Borings will be advanced using either direct push technology or 8-inch hollow stem auger drilling techniques.

7.3.1 Soil Logging and Screening Methodology

Soil cores are proposed to be collected from boreholes using a 4-foot long core barrel sampler with acetate liners. Soil cores will be examined for soil classification and described on boring logs in general conformance with the USCS. Soil cores will be screened in the field using a PID to evaluate the potential presence of VOCs. To initiate this procedure, selected depth-discrete soil samples will be removed from the acetate liners, placed into glass jars, and jar lids sealed with aluminum foil to allow the jar head space to equilibrate with vapor in the soil pore space.

Once equilibrated, the probe tip of the PID will be inserted through the foil to measure ionizable substances in the headspace. PID measurements of the headspace in the ppm range for total VOCs will be recorded on boring logs.

7.4 Grab-Groundwater Sampling Methodology and Analytical Program

Three borings (IE-6 to IE-8) will be advanced to the northwest, within, and southeast of the Site building for the collection of shallow grab-groundwater samples. At each boring location, shallow groundwater is anticipated to be encountered between approximately to 10 and 20 feet bgs based on observations from the previous investigation at the Site. To prevent boring collapse, approximately ten feet of ¾ -inch, machine slotted, Schedule 40 PVC casing and 10 feet of blank Schedule 40 PVC casing will be inserted into the bore hole. Following installation, groundwater levels will be allowed to stabilize prior to collection of a grab-groundwater sample for chemical analysis.

The grab-groundwater sample will be collected from borings using either a single-use disposable bailer or a decontaminated ball-check valve attached to single-use disposable PVC tubing. Upon retrieval, the grab-groundwater sample will be transferred directly into appropriate sample containers provided by the analytical laboratory. The grab-groundwater samples will be sealed, labeled, recorded on the COC, placed in zip-top style plastic bags, and placed in a pre-chilled ice chest for delivery to the analytical laboratory for chemical analyses as summarized in Table 5.

7.5 Well Installation, Development, and Sampling Activities

The monitoring well installations, development, sampling activities are summarized in this section.

7.5.1 Installation of Monitoring WellsMW-1 to MW-5

After logging the borings using a direct-push rig, the completed borings will be over-drilled to a total depth of 20 feet bgs using a hollow stem auger rig equipped with 6-inch or 8-inch diameter augers. Monitoring wells will be placed in the borings and will be constructed with a 10-foot section of 0.010-inch machine-slotted screen PVC from approximately 10 to 20 feet bgs. A filter pack consisting of #2/16 clean sand will be emplaced around the well from approximately 8 to 20 feet bgs, constituting the screened interval. A hydrated-bentonite pellet seal will be emplaced between approximately 8 to 6 feet bgs. A Portland Type II grout seal will be emplaced between approximately 1 to 6 feet. Each of the wells will be completed with a traffic rated flush mount well box. Monitoring well construction may vary based on actual encountered groundwater conditions during drilling.

7.5.2 Monitoring Well Development

With oversight by RPS Iris Environmental, monitoring well development will be performed no sooner than 48 hours following placement of the grout seal. Development of wells will be accomplished with a submersible pump or bailer. If appropriate, a surge block will used to flush the filter pack of fine sediment. Surging will be conducted slowly to reduce disruption to the filter pack and screen. Following surging, the well will be pumped or bailed again to remove sediment drawn in by the surging process until suspended sediment is reduced to acceptable

levels. During well purging activities, the following physical groundwater parameters will be collected:

- Dissolved oxygen (DO);
- Oxidation reduction potential (ORP);
- Turbidity;
- Temperature;
- Electrical conductivity; and,
- pH.

A well will be considered fully developed when all the following criteria are met:

- Well water is clear to the unaided eye (based on observations of water clarity through a clear glass jar) and turbidity readings have stabilized to +/- 10 percent over three consecutive readings;
- Sediment thickness remaining in the well is less than one percent of the screen length; and
- Total volume of water removed from the well equals 10 times the standing water volume in the well.

Pumps will be decontaminated prior to reuse. Purge water will be placed in labeled drums and stored on-Site pending disposal at a California–licensed disposal facility.

7.5.3 Monitoring Well Sampling

Groundwater will be sampled from each newly constructed and developed well with oversight by RPS Iris Environmental not sooner than 72 hours following development. Prior to sample collection, each well will be gauged to the nearest 0.01 foot with an electronic interface probe and fluid levels will be recorded in the field notes. Wells will be purged and sampled using a peristaltic pump with dedicated tubing. Groundwater will be purged from the well at an approximate rate of 200 ml/minute and stabilization parameters will be monitored in a flow cell with a Young State's Instruments (YSI) 556 multimeter or similar, and the parameters referenced in Section 7.5.2 will be measured and recorded on the field sheets:

Once parameters of pH, temperature, and conductance are within ±10 percent of the previous reading, groundwater samples will be collected. Upon retrieval, the groundwater samples will be transferred directly into appropriate sample containers provided by an analytical laboratory. The samples will be sealed, labeled, recorded on the COC, put in zip top style plastic bag, and placed in an ice-filled ice chest for delivery to the analytical laboratory.

7.6 Soil Gas Probe Installation and Sample Collection

One soil gas sample is proposed to be collected from a step-out boring location (IE-6) in general compliance with the DTSC's Advisory, utilizing a helium shrouds as the leak check compound

during sampling. Probe construction, purging, and sampling will be conducted as described in Section 3.3.

After collection, the soil gas sample container will be sealed, labeled, and transported under standard COC documentation to a California-certified laboratory for VOC analysis by USEPA Method TO-15 and helium tracer gas.

7.7 Monitoring Well, Boring, Soil Gas Probe Surveying

A professional California-Licensed Land Surveyor will survey the borings following , wells, and soil gas probe completed during this investigation. The survey will include five of well casings elevation (north face), top of well box rim elevation and ground surface elevation, where relevant. The elevation data will be surveyed to an accuracy of 0.01 foot. The northing and easting coordinates will be surveyed to 0.1-foot accuracy and referenced to a recognized survey monument. The north side of the top of the each well casing will be used as a surveying and depth to water measurement reference point.

7.8 Decontamination and Waste Generation

Drillers will place new plastic liners in the core barrel sampler prior to each sampling interval. Drilling equipment and down-hole sampling equipment will be washed in a solution of non-phosphate detergent, double-rinsed with potable water prior to each use, and allowed to dry.

Rinse water, purge water and soil drilling cuttings will be containerized in labeled Department of Transportation (DOT) approved 55-gallon drums. The drums will be secured on-Site until they are disposed of at a suitable disposal facility.

7.9 Data Evaluation and Reporting

Upon completion of the field activities and receipt of the laboratory analytical data, RPS Iris Environmental will prepare a Report that will summarize the work performed at the Site and soil, soil gas, and groundwater analytical results. The analytical results will be compared to applicable residential and commercial use SFBRWQCB ESLs or LTCP criteria for associated media (groundwater and soil gas). The results of this comparison will then be presented in the Report, and will form the basis of the Report's conclusions and recommendation. The Report will include summary tables presenting the analytical results, a figure showing the boring locations, and official laboratory analytical reports as an attachment. Reporting requirements to ACEH will also be made as necessitated by the permit, which will include a cover letter, a discussion of groundwater flow, identification of sensitive receptors, boring logs, a figure showing boring locations, and raw analytical data.

8.0 REFERENCES

Alameda County Department of Environmental Health (ACEH). 2016a. *Work Plan Request for Fuel Leak Case No. RO0003231 and GeoTracker Global ID T10000009413, 3820 Penniman Avenue, Oakland, CA 94619*. October 7.

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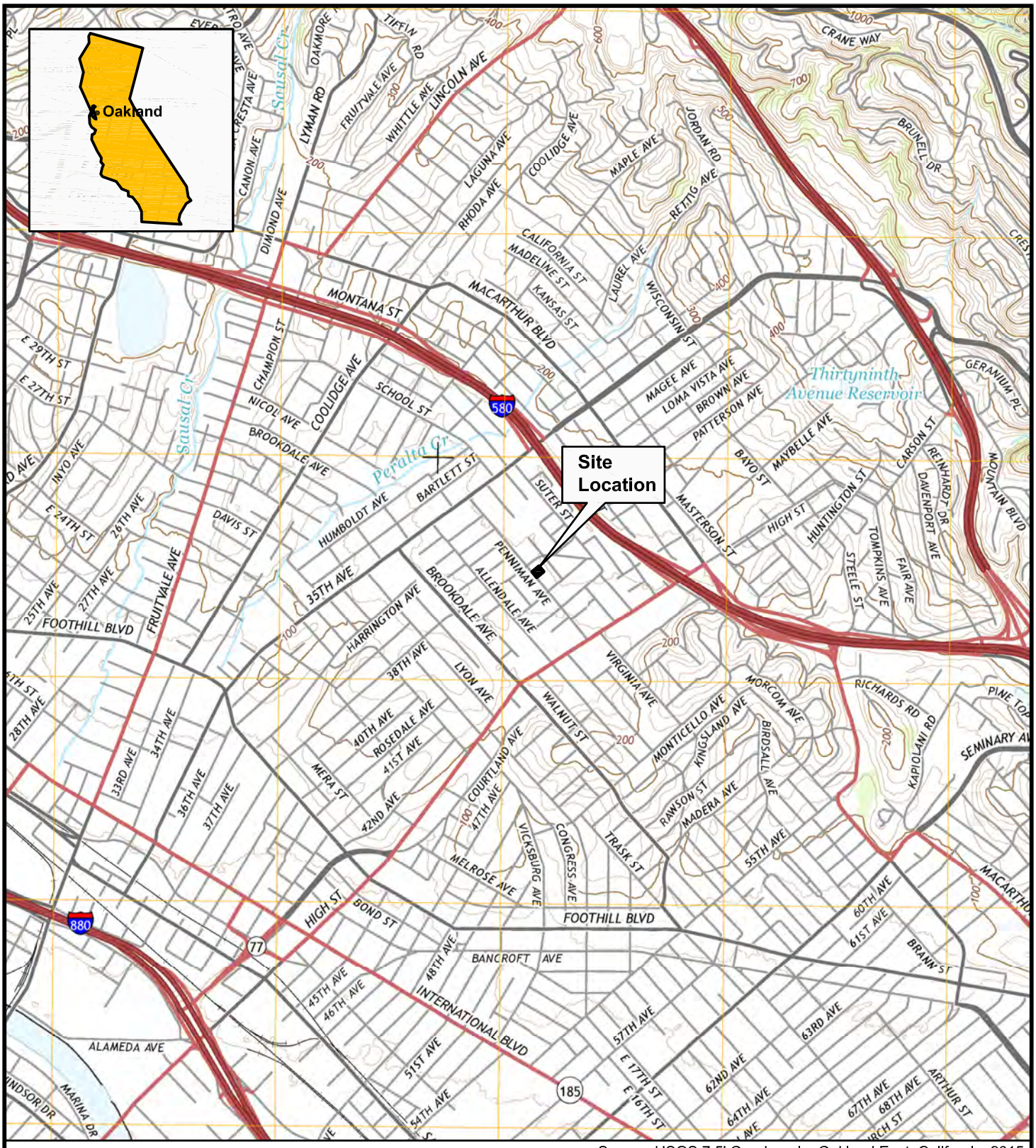
FIGURES



Source: USGS 7.5' Quadrangle, Oakland East, California, 2015

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Site Location Map
3820 Penniman Avenue
Oakland, California

Figure
1

Drafter: EC | Date: 10/06/16 | Contract Number: 15-1311B

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Basemap: Nearmap.com

LEGEND:

- Approximate property boundary
- Groundwater sample
- Soil sample at 3 feet and 8 feet
- Soil gas sample

N

0 15 30 60

APPROXIMATE SCALE IN FEET

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Site Layout and Boring Location Map
3820 Penniman Avenue
Oakland, California

Figure
2

Drafter: EC | Date: 03/21/17 | Contract Number: 15-1311B

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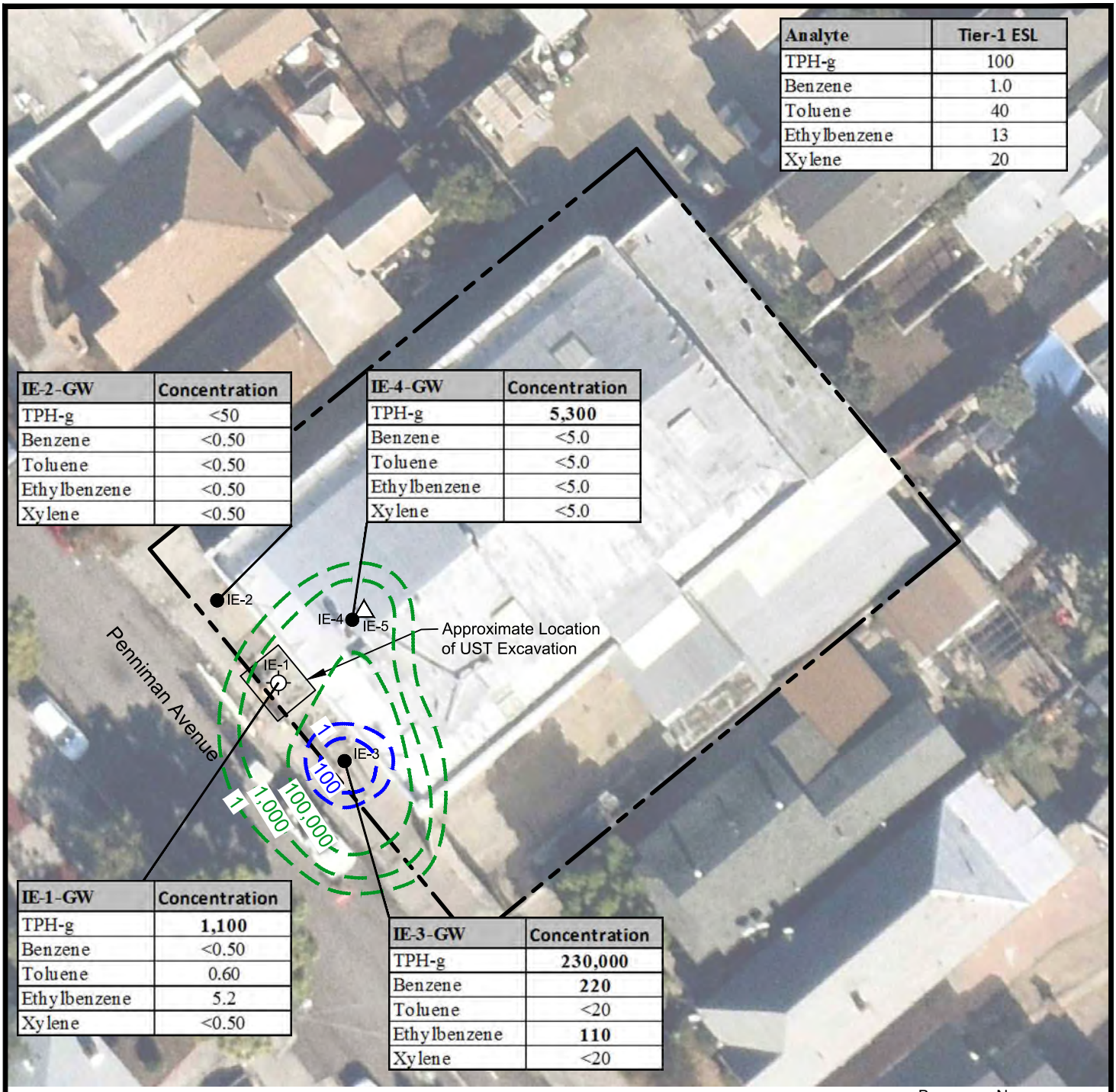

Analyte	Tier-1 ESL
TPH-g	100
Benzene	1.0
Toluene	40
Ethylbenzene	13
Xylene	20

IE-2-GW	Concentration
TPH-g	<50
Benzene	<0.50
Toluene	<0.50
Ethylbenzene	<0.50
Xylene	<0.50

IE-4-GW	Concentration
TPH-g	**5,300**
Benzene	<5.0
Toluene	<5.0
Ethylbenzene	<5.0
Xylene	<5.0

IE-1-GW	Concentration
TPH-g	**1,100**
Benzene	<0.50
Toluene	0.60
Ethylbenzene	5.2
Xylene	<0.50

IE-3-GW	Concentration
TPH-g	**230,000**
Benzene	**220**
Toluene	<20
Ethylbenzene	**110**
Xylene	<20

Basemap: Nearmap.com

LEGEND:

- Approximate property boundary
- Grab-groundwater sample location
- Soil and grab-groundwater sample location
- Soil gas sample location
- Inferred TPH-g concentration contour
- Inferred benzene concentration contour
- TPH-g — Total petroleum hydrocarbons as gasoline
- <0.50 — Compound not detected above laboratory reporting limit
- BTEX — Benzene, toluene, ethylbenzene and xylene

Notes:

Results are reported in micrograms per liter (µg/L)

Groundwater results are compared to the San Francisco Bay Regional Water Quality Control Board (BRWQCB) Tier-1 Environmental Screening Levels (ESLs) (RWQCB, 2016)

Bold font indicates a detected concentration above the respective Tier-1 ESL

Samples were collected on March 17, 2017

N

0 15 30 60

APPROXIMATE SCALE IN FEET

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Site Plan with TPH-g and BTEX Isocontours in Groundwater
3820 Penniman Avenue
Oakland, California

Figure **3**

Drafter: EC | Date: 05/11/17 | Contract Number: 15-1311B

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Basemap: Nearmap.com

LEGEND:

- Approximate property boundary
- Grab-groundwater sample location
- Soil and grab-groundwater sample location
- Soil gas sample location
- Proposed well location
- Proposed grab-groundwater sample location
- Proposed soil gas and grab-groundwater sample location

N

0 15 30 60

APPROXIMATE SCALE IN FEET

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Proposed Boring and Monitoring Well Location Map
3820 Penniman Avenue
Oakland, California

Figure
4

Drafter: EC | Date: 05/23/17 | Contract Number: 15-1311B

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TABLES

Table 1. Sampling and Analytical Plan

Location	Sample ID	Depth (ft bgs)	Matrix	Laboratory Analyses							
				TPH-g	TPH-d/-mo	VOCs	SVOCs	LUFT5 Metals	PCBs	TO-15	Oxygen
IE-1	IE-1-GW	15-20	GW	X	X	X	X				
IE-2	IE-2-3.0	3.0	Soil	X	X	X	X	X	X		
	IE-2-8.0	8.0	Soil	X	X	X	X	X	X		
	IE-2-GW	15-20	GW	X	X	X					
IE-3	IE-3-3.0	3.0	Soil	X	X	X	X	X	X		
	IE-3-8.0	8.0	Soil	X	X	X	X	X	X		
	IE-3-GW	15-20	GW	X	X	X					
IE-4	IE-4-3.0	3.0	Soil	X	X	X	X	X	X		
	IE-4-8.0	8.0	Soil	X	X	X	X	X	X		
	IE-4-GW	15-20	GW	X	X	X					
IE-5	IE-5-SG	5.0	Soil Gas							X	X

Notes:

(1) "ID" indicates identification

(2) "ft bgs" indicates feet below ground surface.

(3) "X" indicates a sample collected and analyzed for the indicated parameter.

(4) "TPH-g" indicates gasoline range total petroleum hydrocarbons analyzed by United States Environmental Protection Agency (USEPA) Method 8260B.

(5) "TPH-d/-mo" indicates diesel and motor range total petroleum hydrocarbons analyzed by USEPA Method 8015B **with** and **without** a silica gel cleanup preparation method.

(6) "VOCs" indicates volatile organic compounds analyzed by USEPA Method 8260B for soil (USEPA 5035 preparation Method) and groundwater samples and, soil gas samples by USEPA Method TO-15.

(7) "SVOCs" indicates semi-volatile organic compounds analyzed by USEPA Method 8270.

(8) "LUFT 5 Metals" indicates soil and groundwater analyzed for leaking underground fuel tank metals by USEPA Method 6010B.

(9) "PCBs" indicates polychlorinated biphenyl compounds analyzed by Method 8082.

(10) Oxygen analyzed by American Section of the International Association for Testing Material (ASTM) Method D1946.

Table 2. Soil Analytical Results

Analyte	Tier 1 ESLs	Commercial Direct Exposure ESLs	Soil Analytical Results					
			IE-2-3.0 3/17/2017	IE-2-8.0 3/17/2017	IE-3-3.0 3/17/2017	IE-3-8.0 3/17/2017	IE-4-3.0 3/17/2017	IE-4-8.0 3/17/2017
Total Petroleum Hydrocarbons (TPH) by USEPA Method 8015B								
TPH-g	100	3,900	<0.17	<0.22	<0.18	<0.21	<0.19	<0.14
TPH-d	230	1,100	1.5 Y	<1.3	<1.2	<1.1	<1.3	<1.1
TPH-mo	5,100	140,000	<6.2	<6.5	<6.2	<5.6	<6.6	<5.6
TPH by USEPA Method 8015B with Silica Gel Cleanup								
TPH-d-SGC	1,100	230	<1.2	<1.3	<1.2	<1.1	<1.3	<1.1
TPH-mo-SGC	140,000	11,000	<6.2	<6.5	<6.2	<5.6	<6.6	<5.6
Volatile Organic Compounds (VOCs) by USEPA Method 8260B								
Acetone	0.50	630,000	<0.018	<0.023	<0.020	<0.017	<0.017	<0.017
Benzene	0.044	1.0	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Bromobenzene	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Bromodichloromethane	0.52	2.3	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Bromoform	1.7	300	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Bromomethane (methyl bromide)	0.30	36	<0.0088	<0.011	<0.0098	<0.0083	<0.0087	<0.0084
2-Butanone (methyl ethyl ketone)	5.1	250,000	<0.0088	<0.011	<0.0098	<0.0083	<0.0087	<0.0084
n-Butylbenzene	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
sec-Butylbenzene	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
tert-Butylbenzene	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Carbon disulfide	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Carbon tetrachloride	0.048	0.54	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Chlorobenzene	1.5	1,200	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Chlorobromomethane (bromochloromethane)	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Chlorodibromomethane (dibromochloromethane)	3.8	39	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Chloroethane (ethyl chloride)	1.1	53,000	<0.0088	<0.011	<0.0098	<0.0083	<0.0087	<0.0084
Chloroform	0.068	1.3	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Chloromethane (methyl chloride)	29	430	<0.0088	<0.011	<0.0098	<0.0083	<0.0087	<0.0084
2-Chlorotoluene	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
4-Chlorotoluene	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Cumene (isopropylbenzene)	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Cymene (p-isopropyltoluene)	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
1,2-Dibromo-3-chloropropane	0.0045	0.072	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
1,2-Dibromoethane (ethylene dibromide)	0.00033	0.16	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Dibromomethane (methylene bromide)	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
1,2-Dichlorobenzene	1.6	11,000	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
1,3-Dichlorobenzene	7.4	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
1,4-Dichlorobenzene	0.59	13	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Dichlorodifluoromethane (Freon 12)	None	None	<0.0088	<0.011	<0.0098	<0.0083	<0.0087	<0.0084
1,1-Dichloroethane (1,1-DCA)	0.20	17	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
1,2-Dichloroethane (1,2-DCA)	0.0045	1.6	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
1,1-Dichloroethene (1,1-DCE)	0.55	400	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
cis-1,2-Dichloroethene (cis-1,2-DCE)	0.19	90	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
trans-1,2-Dichloroethene (trans-1,2-DCE)	0.67	730	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Dichloromethane (methylene chloride)	0.077	25	<0.018	<0.023	<0.020	<0.017	<0.017	<0.017
1,2-Dichloropropane	0.12	3.9	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
1,3-Dichloropropane	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
2,2-Dichloropropane	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
1,1-Dichloropropene	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
cis-1,3-Dichloropropene	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
trans-1,3-Dichloropropene	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Ethylbenzene	1.4	22	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Hexachlorobutadiene	0.68	42	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
2-Hexanone (methyl butyl ketone)	None	None	<0.0088	<0.011	<0.0098	<0.0083	<0.0087	<0.0084
Methyl tert-butyl ether (MTBE)	0.023	180	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
4-Methyl-2-pentanone (methyl isobutyl ketone)	2.8	71,000	<0.0088	<0.011	<0.0098	<0.0083	<0.0087	<0.0084
Naphthalene	0.033	14	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
n-Propylbenzene	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Styrene	1.5	40,000	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
1,1,1,2-Tetrachloroethane	0.010	18	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
1,1,2,2-Tetrachloroethane	0.018	2.3	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Tetrachloroethene (PCE)	0.42	2.7	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Toluene	2.9	4,600	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
1,2,3-Trichlorobenzene	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
1,2,4-Trichlorobenzene	1.5	110	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
1,1,1-Trichloroethane (1,1,1-TCA)	7.8	8,900	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042

Table 2. Soil Analytical Results

Analyte	Tier 1 ESLs	Commercial Direct Exposure ESLs	Soil Analytical Results					
			IE-2-3.0 3/17/2017	IE-2-8.0 3/17/2017	IE-3-3.0 3/17/2017	IE-3-8.0 3/17/2017	IE-4-3.0 3/17/2017	IE-4-8.0 3/17/2017
1,1,2-Trichloroethane (1,1,2-TCA)	0.070	4.2	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Trichloroethene (TCE)	0.46	8.0	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Trichlorofluoromethane (Freon 11)	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
1,2,3-Trichloropropane	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
1,2,4-Trimethylbenzene	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
1,3,5-Trimethylbenzene	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Vinyl acetate	None	None	<0.044	<0.057	<0.049	<0.041	<0.044	<0.042
Vinyl chloride	0.0082	0.15	<0.0088	<0.011	<0.0098	<0.0083	<0.0087	<0.0084
o-Xylene	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
m-, p-Xylene	None	None	<0.0044	<0.0057	<0.0049	<0.0041	<0.0044	<0.0042
Semi-Volatile Organic Compounds (SVOCs) by USEPA Method 8270C								
Acenaphthene			<0.081	<0.087	<0.083	<0.074	<0.088	<0.074
Acenaphthylene	13	None	<0.081	<0.087	<0.083	<0.074	<0.088	<0.074
Anthracene	2.8	230,000	<0.081	<0.087	<0.083	<0.074	<0.088	<0.074
Azobenzene	None	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
Benz(a)anthracene	0.16	2.9	<0.081	<0.087	<0.083	<0.074	<0.088	<0.074
Benzo(a)pyrene	0.016	0.29	<0.081	<0.087	<0.083	<0.074	<0.088	<0.074
Benzo(b)fluoranthene	0.16	2.9	<0.081	<0.087	<0.083	<0.074	<0.088	<0.074
Benzo(g,h,i)perylene	2.5	None	<0.081	<0.087	<0.083	<0.074	<0.088	<0.074
Benzo(k)fluoranthene	1.6	29	<0.081	<0.087	<0.083	<0.074	<0.088	<0.074
Benzoic acid	None	None	<2.0	<2.2	<2.1	<1.9	<2.2	<1.9
Benzyl alcohol	None	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
Bis(2-chloro-1-methylethyl) ether	0.0039	16	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
Bis(2-chloroethoxy)methane	None	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
Bis(2-chloroethyl)ether	0.000080	0.53	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
Bis(2-ethylhexyl)phthalate	39	160	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
4-Bromophenyl phenyl ether	None	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
Butyl benzyl phthlate	None	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
p-Chloroaniline	0.0039	16	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
4-Chloro-3-methylphenol	None	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
Beta-Chloronaphthalene	None	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
2-Chlorophenol	0.012	5,800	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
4-Chlorophenyl phenyl ether	None	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
Chrysene	3.8	260	<0.081	<0.087	<0.083	<0.074	<0.088	<0.074
Dibenz(a,h)anthracene	0.016	0.29	<0.081	<0.087	<0.083	<0.074	<0.088	<0.074
Dibenzofuran	None	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
Dibutyl phthalate	None	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
1,2-Dichlorobenzene	1.6	11,000	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
1,3-Dichlorobenzene	7.4	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
1,4-Dichlorobenzene	0.59	13	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
3,3-Dichlorobenzidine	0.012	2.7	<0.81	<0.87	<0.83	<0.74	<0.88	<0.74
2,4-Dichlorophenol	0.30	3,500	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
Diethyl phthalate	0.035	660,000	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
Dimethyl phthalate	0.035	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
2,4-Dimethylphenol	0.67	23,000	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
4,6-Dinitro-2-methylphenol	None	None	<0.81	<0.87	<0.83	<0.74	<0.88	<0.74
2,4-Dinitrophenol	0.11	2,300	<0.81	<0.87	<0.83	<0.74	<0.88	<0.74
2,4-Dinitrotoluene	0.0018	11	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
2,6-Dinitrotoluene	None	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
Di-n-octyl phthalate	None	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
Fluoranthene	60	30,000	<0.081	<0.087	<0.083	<0.074	<0.088	<0.074
Fluorene	8.9	30,000	<0.081	<0.087	<0.083	<0.074	<0.088	<0.074
Hexachlorobenzene	0.34	1.5	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
Hexachlorobutadiene	0.68	42	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
Hexachlorocyclopentadiene	None	None	<0.81	<0.87	<0.83	<0.74	<0.88	<0.74
Hexachloroethane	1.1	57	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
Indeno(1,2,3-c,d)pyrene	0.16	2.9	<0.081	<0.087	<0.083	<0.074	<0.088	<0.074
Isophorone	None	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
2-Methylnaphthalene	0.25	3,000	<0.081	<0.087	<0.083	<0.074	<0.088	<0.074
2-Methylphenol (o-cresol)	None	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
4-Methylphenol (p-cresol)	None	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
Naphthalene	0.033	14	<0.081	<0.087	<0.083	<0.074	<0.088	<0.074
2-Nitroaniline	None	None	<0.81	<0.87	<0.83	<0.74	<0.88	<0.74

Table 2. Soil Analytical Results

Analyte	Tier 1 ESLs	Commercial Direct Exposure ESLs	Soil Analytical Results					
			IE-2-3.0 3/17/2017	IE-2-8.0 3/17/2017	IE-3-3.0 3/17/2017	IE-3-8.0 3/17/2017	IE-4-3.0 3/17/2017	IE-4-8.0 3/17/2017
3-Nitroaniline	None	None	<0.81	<0.87	<0.83	<0.74	<0.88	<0.74
4-Nitroaniline	None	None	<0.81	<0.87	<0.83	<0.74	<0.88	<0.74
Nitrobenzene	None	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
2-Nitrophenol	None	None	<0.81	<0.87	<0.83	<0.74	<0.88	<0.74
4-Nitrophenol	None	None	<0.81	<0.87	<0.83	<0.74	<0.88	<0.74
N-Nitrosodimethylamine	None	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
N-Nitroso-di-n-propylamine	None	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
N-Nitrosodiphenylamine	None	None	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
Pentachlorophenol	1.0	4.0	<0.81	<0.87	<0.83	<0.74	<0.88	<0.74
Phenanthrene	11	None	<0.081	<0.087	<0.083	<0.074	<0.088	<0.074
Phenol	0.076	350,000	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
Pyrene	85	23,000	<0.081	<0.087	<0.083	<0.074	<0.088	<0.074
1,2,4-Trichlorobenzene	1.5	110	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
2,4,5-Trichlorophenol	0.18	120,000	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
2,4,6-Trichlorophenol	0.21	47	<0.41	<0.43	<0.42	<0.37	<0.44	<0.37
LUFT 5 Metals by USEPA 200/7/6010B/6010C								
Cadmium	39	580	<0.30	<0.33	<0.29	<0.31	<0.33	0.39
Chromium, total	None	None	56	71	53	54	100	69
Lead	80	320	7.8	8.4	8.7	7.0	10	9.7
Nickel	86	11,000	58	**210**	60	**120**	77	**150**
Zinc	23,000	350,000	36	140	37	120	42	140
Polychlorinated Biphenyls (PCBs) by USEPA Method 8082								
Aroclor-1016	None	None	<0.0059	<0.0061	<0.0059	<0.0054	<0.0063	<0.0054
Aroclor-1221	None	None	<0.012	<0.012	<0.012	<0.011	<0.013	<0.011
Aroclor-1232	None	None	<0.0059	<0.0061	<0.0059	<0.0054	<0.0063	<0.0054
Aroclor-1242	None	None	<0.0059	<0.0061	<0.0059	<0.0054	<0.0063	<0.0054
Aroclor-1248	None	None	<0.0059	<0.0061	<0.0059	<0.0054	<0.0063	<0.0054
Aroclor-1254	None	None	<0.0059	<0.0061	<0.0059	<0.0054	<0.0063	<0.0054
Aroclor-1260	None	None	<0.0059	<0.0061	<0.0059	<0.0054	<0.0063	<0.0054

Table 2. Soil Analytical Results

Notes:

(1) Acronyms are defined as follows:

ESLs - Environmental Screening Levels

TPH-g - Total Petroleum Hydrocarbons in the gasoline range

TPH-d - Total Petroleum Hydrocarbons in the diesel range

TPH-mo - Total Petroleum Hydrocarbons in the motor oil range

(2) Laboratory and screening criteria qualifiers are indicated as follows:

Y - Sample exhibits chromatographic pattern which does not resemble standard

J - Estimated value

(*) - Screening criteria applies to the sum of compounds indicated

(3) Units are defined as follows:

Depths are reported in feet below ground surface (ft bgs).

Results are reported in milligrams per kilogram (mg/kg).

(4) Soil sampling results are reported on a dry-weight basis for comparison to San Francisco Bay Regional Water Quality Control Board (SFRWQCB) Tier 1 ESLs and direct contact commercial ESLs (Cal/EPA 2016).

(5) Results that are reported as non-detect by the lab are presented with a less than sign ("<") followed by the laboratory reporting limit.

(6) **Bold** font indicates a detection above the respectuve Tier1 ESL.

(8) Double Underlined font indicates a detection above the direct contact commercial ESLs.

(9) Samples were collected on March 17, 2017.

Table 3. Grab-Groundwater Analytical Results

Analyte	Tier 1 Groundwater ESL	Groundwater Sampling Results			
		IE-1-GW 3/17/2017	IE-2-GW 3/17/2017	IE-3-GW 3/17/2017	IE-4-GW 3/17/2017
Total Petroleum Hydrocarbons (TPH) by USEPA Method 8015B Modified					
TPH-g	100	**1,100**	<50	**230,000 Y**	**5,300**
TPH-d	100	**110 Y**	**1,100 Y**	**13,000 Y**	**2,600 Y**
TPH-d with SGC	100	64 Y	<56	**6,300 Y**	**1,600 Y**
TPH-mo	None	<300	<330	<320	2,000
TPH-mo with SGC	None	<300	<330	<320	1,400
TPH by USEPA Method 8015B Modified with Silica Gel Cleanup					
TPH-d with SGC	None	64 Y	<56	6,300 Y	1,600 Y
TPH-mo with SGC	None	<300	<330	<320	1,400
Volatile Organic Compounds (VOCs) by USEPA Method 8260B					
Acetone	1,500	11	<10	<400	<100
Benzene	1.0	<0.50	<0.50	**220**	<5.0
Bromobenzene	None	<0.50	<0.50	<20	<5.0
Bromodichloromethane	80	<0.50	<0.50	<20	<5.0
Bromoform	80	<1.0	<1.0	<40	<10
Bromomethane	7.5	<1.0	<1.0	<40	<10
Butanone, 2-	5,600	<10	<10	<400	<100
Butylbenzene, n-	None	3.0	<0.50	<100	<17
Butylbenzene, sec-	None	2.0	<0.50	<20	7.2
Butylbenzene, tert-	None	<0.50	<0.50	<20	<5.0
Carbon disulfide	None	<0.50	<0.50	<20	<5.0
Carbon tetrachloride	0.22	<0.50	<0.50	<20	<5.0
Chlorobenzene	25	<0.50	<0.50	<20	<5.0
Chlorobromomethane	None	<0.50	<0.50	<20	<5.0
Chlorodibromomethane	46	<0.50	<0.50	<20	<5.0
Chloroethane	16	<1.0	<1.0	<40	<10
Chloroform	2.3	<0.50	<0.50	<20	<5.0
Chloromethane	190	<1.0	<1.0	<40	<10
Chlorotoluene, 2-	None	<0.50	<0.50	<20	<5.0
Chlorotoluene, 4-	None	<0.50	<0.50	<20	<5.0
Cumene	None	5.4	<0.50	58	39
Cymene	None	1.9	<0.50	21	7.1
Dibromochloropropane, 1,2-, 3-	0.20	<2.0	<2.0	<80	<20
Dibromoethane, 1,2-	0.050	<0.50	<0.50	<20	<5.0
Dibromomethane	None	<0.50	<0.50	<20	<5.0
Dichlorobenzene, 1,2-	14	<0.50	<0.50	<20	<5.0
Dichlorobenzene, 1,3-	65	<0.50	<0.50	<20	<5.0
Dichlorobenzene, 1,4-	5.0	<0.50	<0.50	<20	<5.0
Dichlorodifluoromethane	None	<1.0	<1.0	<40	<10
Dichloroethane, 1,1-	5.0	<0.50	<0.50	<20	<5.0
Dichloroethane, 1,2-	0.50	<0.50	<0.50	<20	<5.0
Dichloroethene, 1,1-	3.2	<0.50	<0.50	<20	<5.0
Dichloroethene, 1,2-, cis-	6.0	<0.50	<0.50	<20	<5.0
Dichloroethene, 1,2-, trans-	10	<0.50	<0.50	<20	<5.0
Dichloromethane	5.0	<10	<10	<400	<100
Dichloropropane, 1,2-	5.0	<0.50	<0.50	<20	<5.0
Dichloropropane, 1,3-	None	<0.50	<0.50	<20	<5.0
Dichloropropane, 2,2-	None	<0.50	<0.50	<20	<5.0
Dichloropropene, 1,1-	None	<0.50	<0.50	<20	<5.0
Dichloropropene, 1,3-, cis-	None	<0.50	<0.50	<20	<5.0
Dichloropropene, 1,3-, trans-	None	<0.50	<0.50	<20	<5.0
Ethylbenzene	13	5.2	<0.50	**110**	<5.0
Hexachlorobutadiene	0.14	<2.0	<2.0	<80	<20
Hexanone, 2-	None	<10	<10	<400	<100
Methyl tert-butyl ether	5.0	<0.50	<0.50	<20	<5.0
Methylpentanone, 4-, 2-	120	<10	<10	<400	<100
Naphthalene	0.17	<2.0	<2.0	<80	<20
Propylbenzene, n-	None	12	<0.50	73	37
Styrene	10	<0.50	<0.50	<20	<5.0

Table 3. Grab-Groundwater Analytical Results

Analyte	Tier 1 Groundwater ESL	Groundwater Sampling Results			
		IE-1-GW 3/17/2017	IE-2-GW 3/17/2017	IE-3-GW 3/17/2017	IE-4-GW 3/17/2017
Tetrachloroethane, 1,1,1,2-	0.57	<0.50	<0.50	<20	<5.0
Tetrachloroethane, 1,1,2,2-	1.0	<0.50	<0.50	<20	<5.0
Tetrachloroethene	3.0	<0.50	<0.50	<20	<5.0
Toluene	40	0.60	<0.50	<20	<5.0
Trichlorobenzene, 1,2,3-	None	<0.50	<0.50	<20	<5.0
Trichlorobenzene, 1,2,4-	5.0	<0.50	<0.50	<20	<5.0
Trichloroethane, 1,1,1-	62	<0.50	<0.50	<20	<5.0
Trichloroethane, 1,1,2-	5.0	<0.50	<0.50	<20	<5.0
Trichloroethene	5.0	<0.50	<0.50	<20	<5.0
Trichlorofluoromethane	None	<1.0	<1.0	<40	<10
Trichloropropane, 1,2,3-	None	<0.50	<0.50	<20	<5.0
Trichlorotrifluoroethane, 1,1,2-, 1,2,2-	None	<2.0	<2.0	<80	<20
Trimethylbenzene, 1,2,4-	None	<0.50	<0.50	<20	<5.0
Trimethylbenzene, 1,3,5-	None	0.60	<0.50	<20	7.5
Vinyl acetate	None	<10	<10	<400	<100
Vinyl chloride	0.061	<0.50	<0.50	<20	<5.0
Xylene, m-, p-	None	<0.50	<0.50	<20	<5.0
Xylene, o-	None	<0.50	<0.50	<20	<5.0
Semi-Volatile Organic Compounds (SVOCs) by USEPA Method 8270C					
Acenaphthene	20	<9.6	-	-	-
Acenaphthylene	30	<9.6	-	-	-
Anthracene	0.73	<9.6	-	-	-
Azobenzene	None	<9.6	-	-	-
Benz(a)anthracene	0.027	<9.6	-	-	-
Benzo(a)pyrene	0.014	<9.6	-	-	-
Benzo(b)fluoranthene	0.012	<9.6	-	-	-
Benzo(g,h,i)perylene	0.10	<9.6	-	-	-
Benzo(k)fluoranthene	0.017	<9.6	-	-	-
Benzoic acid	None	<48	-	-	-
Benzyl alcohol	None	<9.6	-	-	-
Bis(2-chloro-1-methylethyl) ether	0.36	<9.6	-	-	-
Bis(2-chloroethoxy)methane	None	<9.6	-	-	-
Bis(2-chloroethyl)ether	0.0063	<9.6	-	-	-
Bis(2-ethylhexyl)phthalate	4.0	<9.6	-	-	-
Bromophenyl phenyl ether, 4-	None	<9.6	-	-	-
Butyl benzyl phthlate	None	<9.6	-	-	-
Chloroaniline, p-	0.36	<9.6	-	-	-
Chloromethylphenol, 4-, 3-	None	<9.6	-	-	-
Chloronaphthalene, Beta-	None	<9.6	-	-	-
Chlorophenol, 2-	0.18	<9.6	-	-	-
Chlorophenyl phenyl ether, 4-	None	<9.6	-	-	-
Chrysene	0.049	<9.6	-	-	-
Dibenz(a,h)anthracene	0.0034	<9.6	-	-	-
Dibenzofuran	None	<9.6	-	-	-
Dibutyl phthalate	None	<9.6	-	-	-
Dichlorobenzene, 1,2-	14	<9.6	-	-	-
Dichlorobenzene, 1,3-	65	<9.6	-	-	-
Dichlorobenzene, 1,4-	5.0	<9.6	-	-	-
Dichlorobenzidine, 3,3'-	0.046	<19	-	-	-
Dichlorophenol, 2,4-	0.30	<9.6	-	-	-
Diethyl phthalate	1.5	<9.6	-	-	-
Dimethyl phthalate	1.5	<9.6	-	-	-
Dimethylphenol, 2,4-	100	<9.6	-	-	-
Dinitromethylphenol, 4,6-, 2-	None	<19	-	-	-
Dinitrophenol, 2,4-	39	<19	-	-	-
Dinitrotoluene, 2,4-	0.24	<9.6	-	-	-
Dinitrotoluene, 2,6-	None	<9.6	-	-	-
Di-n-octyl phthalate	None	<9.6	-	-	-
Fluoranthene	8.0	<9.6	-	-	-

Table 3. Grab-Groundwater Analytical Results

Analyte	Tier 1 Groundwater ESL	Groundwater Sampling Results			
		IE-1-GW 3/17/2017	IE-2-GW 3/17/2017	IE-3-GW 3/17/2017	IE-4-GW 3/17/2017
Fluorene	3.9	<9.6	-	-	-
Hexachlorobenzene	0.00077	<9.6	-	-	-
Hexachlorobutadiene	0.14	<9.6	-	-	-
Hexachlorocyclopentadiene	None	<19	-	-	-
Hexachloroethane	0.33	<9.6	-	-	-
Indeno(1,2,3-c,d)pyrene	0.034	<9.6	-	-	-
Isophorone	None	<9.6	-	-	-
Methylnaphthalene, 2-	2.1	<9.6	-	-	-
Methylphenol, 2-	None	<9.6	-	-	-
Methylphenol, 4-	None	<9.6	-	-	-
Naphthalene	0.17	<9.6	-	-	-
Nitroaniline, 2-	None	<19	-	-	-
Nitroaniline, 3-	None	<19	-	-	-
Nitroaniline, 4-	None	<19	-	-	-
Nitrobenzene	None	<9.6	-	-	-
Nitrophenol, 2-	None	<19	-	-	-
Nitrophenol, 4-	None	<19	-	-	-
Nitrosodimethylamine, N-	None	<9.6	-	-	-
Nitroso-di-N-propylamine, N-	None	<9.6	-	-	-
Nitrosodiphenylamine, N-	None	<9.6	-	-	-
Pentachlorophenol	1.0	<19	-	-	-
Phenanthrene	4.6	<9.6	-	-	-
Phenol	5.0	<9.6	-	-	-
Pyrene	2.0	<9.6	-	-	-
Trichlorobenzene, 1,2,4-	5.0	<9.6	-	-	-
Trichlorophenol, 2,4,5-	11	<9.6	-	-	-
Trichlorophenol, 2,4,6-	0.63	<9.6	-	-	-

Notes:

(1) Acronyms are defined as follows:
ESLs - Environmental Screening Levels
TPH-g - Total Petroleum Hydrocarbons in the gasoline range
TPH-d - Total Petroleum Hydrocarbons in the diesel range
TPH-mo - Total Petroleum Hydrocarbons in the motor oil range
SGC - Siliva gel cleanup

(2) Results are reported in micrograms per liter (µg/L).

(3) Groundwater sampling results are conservatively compared to the San Francisco Bay Regional Water Quality Control Board (SFRWQCB) Tier 1 ESLs.

(4) Results that are reported as non-detect by the lab are presented with a less than sign (<) followed by the laboratory reporting limit.

(5) **Bold** font indicates a detection above the Deep Groundwater, Residential Sand ESL.

(6) Underlined font indicates a detection above the Deep Groundwater, Commercial Sand ESL

(7) Samples were collected on March 17, 2017

Table 4. Summary of Analytical Soil Gas Results

Analyte	Human Health Risk Residential	Human Health Risk Commercial/Industrial	Soil Gas Sampling Results IE-5-SG 3/17/2017
Acetone	16,000,000	140,000,000	24
Acrolein	None	None	<17
Benzene	48	420	**75**
Benzyl chloride (alpha chlorotoluene)	None	None	<9.8
Bromodichloromethane	38	330	<13
Bromoform	1,300	11,000	<20
Bromomethane (methyl bromide)	2,600	22,000	<7.4
1,3-Butadiene	None	None	<4.2
2-Butanone (methyl ethyl ketone)	2,600,000	22,000,000	<19
Carbon disulfide	None	None	<5.9
Carbon tetrachloride	33	290	<12
Chlorobenzene	26,000	220,000	<8.7
Chlorodibromomethane (dibromochloromethane)	None	None	<16
Chloroethane (ethyl chloride)	5,200,000	44,000,000	<5.0
Chloroform	61	530	<9.3
Chloromethane (methyl chloride)	47,000	390,000	<3.9
Cyclohexane	None	None	400
1,2-Dibromoethane (ethylene dibromide)	2.3	20	<15
1,2-Dichlorobenzene	100,000	880,000	<11
1,3-Dichlorobenzene	None	None	<11
1,4-Dichlorobenzene	130	1,100	<11
Dichlorodifluoromethane (Freon 12)	None	None	<9.4
1,1-Dichloroethane (1,1-DCA)	880	7,700	<7.7
1,2-Dichloroethane (1,2-DCA)	54	470	<7.7
1,1-Dichloroethene (1,1-DCE)	37,000	310,000	<7.5
cis-1,2-Dichloroethene (cis-1,2-DCE)	4,200	35,000	<7.5
trans-1,2-Dichloroethene (trans-1,2-DCE)	42,000	350,000	<7.5
1,2-Dichloropropane	140	1,200	<8.8
cis-1,3-Dichloropropene	None	None	<8.6
trans-1,3-Dichloropropene	None	None	<8.6
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	None	None	<13
Ethyl acetate	None	None	<6.8
Ethylbenzene	560	4,900	76
4-Ethyltoluene	None	None	14
Heptane	None	None	84
Hexachlorobutadiene	64	560	<20
Hexane	None	None	41
2-Hexanone (methyl butyl ketone)	None	None	<7.8
Methyl tert-butyl ether (MTBE)	5,400	47,000	<6.9
Methylene chloride	510	12,000	<6.6
4-Methyl-2-pentanone (methyl isobutyl ketone)	1,600,000	13,000,000	<7.8
Naphthalene	41	360	<40
2-Propanol (isopropanol)	None	None	<19
Styrene	470,000	3,900,000	<8.1
1,1,2,2-Tetrachloroethane	24	210	<13
Tetrachloroethene (PCE)	240	2,100	20
Tetrahydrofuran	None	None	<5.6
Toluene	160,000	1,300,000	680
1,2,4-Trichlorobenzene	1,000	8,800	<14
1,1,1-Trichloroethane (1,1,1-TCA)	520,000	4,400,000	<10
1,1,2-Trichloroethane (1,1,2-TCA)	88	770	<10
Trichloroethene (TCE)	240	3,000	<10
Trichlorofluoromethane (Freon 11)	None	None	<11
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	None	None	<15
1,2,4-Trimethylbenzene	None	None	36
1,3,5-Trimethylbenzene	None	None	12
Vinyl acetate	None	None	<6.7
Vinyl chloride	4.7	160	<4.9
o-Xylene	None	None	79
m-,p-Xylene	52,000	440,000	310
Fixed Gases by ASTM Method D1946			
Helium	None	None	<0.19 %
Oxygen	None	None	17%

Notes:
(1) Soil gas sampling results are compared to the San Francisco Bay Regional Water Quality Control Board (SFRWQCB) Subslab/Soil Gas Vapor Intrusion: Human Health Risk Levels (Table SG-1) (Cal/EPA 2016) for Residential and Commercial/Industrial
(2) All concentrations reported in micrograms per cubic meter ($\mu g/m^3$), except for helium and oxygen, which are reported in percent.
(3) Results that are reported as non-detect by the lab are presented with a less than sign ("<") followed by the laboratory reporting limit.
(4) **Bold** font indicates a detection above the Human Health Risk Level - Residential.
(5) Underlined font indicates a detection above the Human Health Risk Level - Commercial.

Table 5. Proposed Sampling and Analytical Plan

Location	Sample ID	Depth (ft bgs)	Matrix	Laboratory Analyses				
				TPH-g	TPH-d/ -mo	BTEX	VOCs	Oxygen
Monitoring Wells								
MW-1	MW-1-GW	15-20	GW	X	X	X		
MW-2	MW-2-GW	15-20	GW	X	X	X		
MW-3	MW-3-GW	15-20	GW	X	X	X		
MW-4	MW-4-GW	15-20	GW	X	X	X		
MW-5	MW-5-GW	15-20	GW	X	X	X		
Grab-Groundwater Samples								
IE-6	IE-6-GW	15-20	GW	X	X	X		
IE-7	IE-7-GW	15-20	Soil	X	X	X		
IE-8	IE-8-GW	15-20	GW	X	X	X		
Soil Gas Sample								
IE-6	IE-6-SG	5.0	Soil Gas				X	X

Notes:

(1) "ID" indicates identification

(2) "ft bgs" indicates feet below ground surface.

(3) "X" indicates a sample collected and analyzed for the indicated parameter.

(4) "TPH-g" indicates gasoline range total petroleum hydrocarbons analyzed by United States Environmental Protection Agency (USEPA) Method 8260B.

(5) "TPH-d/-mo" indicates diesel and motor range total petroleum hydrocarbons analyzed by USEPA Method 8015B **with** and **without** a silica gel cleanup preparation method.

(6) "BTEX" indicates benzene, toluene, ethylbenzene, and xylene analyzed by USEPA Method 8260B for soil (USEPA 5035 preparation Method) and groundwater samples.

(7) "VOCs" indicates volatile organic compounds analyzed by USEPA Method TO-15.

(8) Oxygen analyzed by American Section of the International Association for Testing Material (ASTM) Method D1946.

APPENDIX A
DRILLING PERMITS AND EXCAVATION AND OBSTRUCTION PERMIT

Alameda County Public Works Agency - Water Resources Well Permit

Public Works Agency
Alameda County

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

Application Approved on: 01/18/2017 By jamesy

Permit Numbers: W2017-0046
Permits Valid from 02/02/2017 to 02/02/2017

Application Id:	1484691467926	**City of Project Site:**	Oakland
Site Location:	3820 Penniman Avenue, Oakland, CA		
Project Start Date:	02/02/2017	**Completion Date:**	02/02/2017
Assigned Inspector:	Contact Marcelino Vialpando at (510) 670-5760 or Marcelino@acpwa.org		
Applicant:	RPS Iris Envr - Craig Pelletier 1438 Webster St Ste 302, Oakland, CA 94612	**Phone:**	510-834-4747
Property Owner:	Sar P Kwan Kuen C Lau 3701 Lakeshore Ave, Oakland, CA 94610	**Phone:**	510-543-3300
Client:	** same as Property Owner **		

	Total Due:	$265.00
Receipt Number: WR2017-0034	**Total Amount Paid:**	$265.00
Payer Name : RPS Iris Envr.	Paid By: CHECK	**PAID IN FULL**

Works Requesting Permits:

Borehole(s) for Investigation-Environmental/Monitorinig Study - 5 Boreholes
Driller: ECA - Lic #: 695970 - Method: DP **Work Total: $265.00**

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2017-0046	01/18/2017	05/03/2017	5	2.25 in.	20.00 ft

Specific Work Permit Conditions

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

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

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

4. Applicant shall contact assigned inspector listed on the top of the permit at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

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

6. Electronic Reporting Regulations (Chapter 30, Division 3 of Title 23 & Division 3 of Title 27, CCR) require electronic submission of any report or data required by a regulatory agency from a cleanup site. Submission dates are set by a

Regional Water Board or by a regulatory agency. Once a report/data is successfully uploaded, as required, you have met the reporting requirement (i.e. the compliance measure for electronic submittals is the actual upload itself). The upload date should be on or prior to the regulatory due date.

7. NOTE:
Under California laws, the owner/operator are responsible for reporting the contamination to the governmental regulatory agencies under Section 25295(a). The owner/operator is liable for civil penalties under Section 25299(a)(4) and criminal penalties under Section 25299(d) for failure to report a leak. The owner/operator is liable for civil penalties under Section 25299(b)(4) for knowing failure to ensure compliance with the law by the operator. These penalty provisions do not apply to a potential buyer.

8. Prior to any drilling activities onto any public right-of-ways, it shall be the applicants responsibilities to contact and coordinate a Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits required for that City or to the County and follow all City or County Ordinances. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County a Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

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

JOB SITE

Permits for which no major inspection has been approved within 180 days shall expire by limitation. No refund more than 180 days after expiration or final.

- SL and X permits valid 90 days
- CGS permit valid 30 days

CHECK REVERSE

CITY OF OAKLAND

DEPT OF PUBLIC WORKS 4th FLOOR

250 FRANK H. OGAWA PLAZA • 2ND FLOOR • OAKLAND, CA 94612

Planning and Building Department
www.oaklandnet.com

To schedule inspection
Email: pwa_inspections@oaklandnet.com or call 510-238-3651

[redacted]

Permit No: X1700168 OPW - Excavation **Filed Date:** 3/8/2017

Job Site: 3820 PENNIMAN AVE

Schedule inspection by calling 510-238-3444

Parcel No: 032 203112600

District:

For SL; X; and CGS permits see **SPECIAL NOTE** below

Project Description: Soil boring(s) on 3820 Penniman Ave between Minna Ave and 38th Ave. Impact on traffic lane or sidewalk allowed per TSD 17-0040 valid on 3/17/2017. Maximum 75 feet of sidewalk closure. Please see Map.
Ensure that environmental controls are in place to prevent dust/debris/waste water from contaminating environment.
If working within 25' feet of a monument you must comply with State Law 8771, contact the Inspector prior to starting excavation: minimum $5,800.00 fine for non-compliance.
Comply with all terms of City of Oakland Public Works Standards, Street Excavation Rules, Revised March 2015 and City Council Ordinance No. 13300 C.M.S. Five day prior notice required for work lasting five days or less in business/commercial districts; 72 hour notice in residential districts. Ten day prior notice required for work lasting six days or more in all districts.
Call PWA INSPECTION prior to start: 510-238-3651. email PWA_inspections@oaklandnet.com.
Contact: 831-662-8178

Related Permits:

	Name	Applicant	Address	Phone	License #
Owner:	LAU KUEN C & KWAN SAU P		3701 LAKESHORE AVE OAKLAND, CA		
Contractor:	ENVIRONMENTAL CONTROL ASSOCIATES		3011 TWIN PALMS DRIVE APTOS, CA	(831) 662-8178	695970
Contractor-Employee:	Leah Nelson	X	3011 TWIN PALMS DRIVE APTOS, CA	(831) 662-8178	

ADDRESS

PERMIT DETAILS: Building/Public Infrastructure/Excavation/NA

General Information

Excavation Type: Private Party
Special Paving Detail Required:
Tree Removal Involved:
Date Street Last Resurfaced:
Holiday Restriction (Nov 1 - Jan 1):
Worker's Compensation Company Name:
Limited Operation Area (7AM-9AM) And (4PM-6PM):
Worker's Compensation Policy #:

Key Dates

Approximate Start Date:
Approximate End Date:

YL 3/8/17

APPLICATION

TOTAL FEES TO BE PAID AT FILING: $449.09

Application Fee	$70.00	Excavation - Private Party	$321.36	Records Management Fee	$37.18
Technology Enhancement Fee	$20.55				

SPECIAL NOTE

- SL, X, and CGS permits: prior to start, email pwa_inspections@oaklandnet.com or call 510-238-3651
- SL and X permits valid 90 days
- CGS permit valid 30 days

JOB SITE

Permits for which no major inspection has been approved within 180 days shall expire by limitation. No refund more than 180 days after expiration or final.

- SL and X permits valid 90 days
- CGS permit valid 30 days

CHECK REVERSE

CITY OF OAKLAND

DEPT OF PUBLIC WORKS 4th FLOOR

250 FRANK H. OGAWA PLAZA • 2ND FLOOR • OAKLAND, CA 94612

Planning and Building Department
www.oaklandnet.com

To schedule inspection
Email: pwa_inspections@oaklandnet.com or call 510-238-3651

[redacted]

Permit No: OB1700235 Obstruction
Filed Date: 3/8/2017

Job Site: 3820 PENNIMAN AVE
[redacted]

Parcel No: 032 203112600

District:

For SL; X; and CGS permits see **SPECIAL NOTE** below

Project Description: Reserve 3 NON-METERED parking space(s) in front of parcel only for dumpster, construction vehicle, moving van or storage pod. Received one (1) non fee parking space per X1700168. Post No-parking signs 72 hours prior in residential areas. No-parking signs picked up by applicant after payment, 4TH FLOOR. To Have Illegally Parked Vehicle Ticketed Call 510-777-3333. Applicant arranges towing. Comply with terms set forth in CVC Section 22651 (m). For Towed Vehicle: Call 510-238-3021.
Contact: 831-662-8178

Soil boring(s) on 3820 Penniman Ave between Minna Ave and 38th Ave. Impact on traffic lane or sidewalk allowed per TSD 17-0040 valid on 3/17/2017. Maximum 75 feet of sidewalk closure. Please see Map.

Related Permits: X1700168

ADDRESS

	Name	Applicant	Address	Phone	License #
Owner:	LAU KUEN C & KWAN SAR P		3701 LAKESHORE AVE OAKLAND, CA		
Contractor:	ENVIRONMENTAL CONTROL ASSOCIATES		3011 TWIN PALMS DRIVE APTOS, CA	(831) 662-8178	695970
Contractor-Employee:	Leah Nelson	X	3011 TWIN PALMS DRIVE APTOS, CA	518-605-6798	

PERMIT DETAILS: Building/Public Use/Activity/Obstructions

Work Information

Start Date: 03/17/2017
End Date: 03/17/2017

Obstruction Permit Type: Short Term (Max 14 Days)
Number of Meters (Metered Area):
Length Of Obstruction (Unmetered Area): 75

Traffic Control Plan (TCP) to be approved every 30 days by PWA Transportation Services or whenever there is any deviation from previously approved TCP.

APPLICATION

TOTAL FEES TO BE PAID AT FILING: $314.61

Application Fee	$70.00	Records Management Fee	$11.50	Short Term Permits	$51.00
Technology Enhancement Fee	$6.35	Transportation Service	$175.76		

Plans Checked By _____ Date _____ Permit Issued By YL Date 3/8/17

SPECIAL NOTE Finalized By _____ Date _____

- SL; X; and CGS permits: prior to start, email pwa_inspections@oaklandnet.com or call 510-238-3651
- SL and X permits valid 90 days • CGS permit valid 30 days

#725552-77-03/08/17-Master Card 763.70

763.70

APPENDIX B
BORING AND WELL LOGS

RPS Iris Environmental
1438 Webster Street, Suite 302, Oakland, CA 94612
T+(510) 834-4747 F+(510) 834-4199 W www.rpsgroup.com | www.irisenv.com

BORING NUMBER IE-1

PROJECT NAME 3820 Penniman Avenue
CLIENT SSL Law
PROJECT NUMBER 15-1311C
PROJECT LOCATION 3820 Penniman Avenue, Oakland, California
DATE STARTED 3/17/17 **COMPLETED** 3/17/17
DRILL RIG Geoprobe 6610DT **HOLE DIAM.** 2.25 inches
DRILLING CONTRACTOR Environmental Control Associates
SAMPLER TYPE Macro-Core **TOTAL DEPTH** 20.0 ft
DRILLING METHOD Direct Push
GW DEPTH DURING DRILLING ---
LOGGED BY Alexi Snyder **CHECKED BY**
STATIC GW DEPTH 7.5 ft
BOREHOLE BACKFILL Macro-Core
NOTES

DEPTH (FEET)	SAMPLES: DRIVE	SAMPLES: RECOVERY RETAINED	SAMPLES: SAMPLE NUMBER	SAMPLES: TIME	PID (ppm)	GRAPHIC LOG	MATERIAL DESCRIPTION	REMARKS
0							Hydropunched boring, no soil to log.	
5								
10								
15								
20								

Bottom of Borehole at 20 feet.

Drilling Notes:

1. Boring terminated at 20.0 feet below ground surface.
2. Field estimates of percent gravel, sand and fines are shown in parentheses.
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.

ENVR DIRECT PUSH - IRIS SEPT08.GDT - 5/15/17 13:23 - I:\CAD\15\15-1311-C\BORING LOGS.GPJ

RPS Iris Environmental
1438 Webster Street, Suite 302, Oakland, CA 94612
T+(510) 834-4747 F+(510) 834-4199 W www.rpsgroup.com | www.irisenv.com

BORING NUMBER IE-2

PROJECT NAME 3820 Penniman Avenue
CLIENT SSL Law
PROJECT NUMBER 15-1311C
PROJECT LOCATION 3820 Penniman Avenue, Oakland, California
DATE STARTED 3/17/17 **COMPLETED** 3/17/17
DRILL RIG Geoprobe 6610DT **HOLE DIAM.** 2.25 inches
DRILLING CONTRACTOR Environmental Control Associates
SAMPLER TYPE Macro-Core **TOTAL DEPTH** 20.0 ft
DRILLING METHOD Direct Push
GW DEPTH DURING DRILLING ---
LOGGED BY Alexi Snyder **CHECKED BY**
STATIC GW DEPTH 15.8 ft
BOREHOLE BACKFILL Macro-Core
NOTES

DEPTH (FEET)	SAMPLES: DRIVE / RECOVERY / RETAINED	SAMPLE NUMBER	TIME	PID (ppm)	GRAPHIC LOG	MATERIAL DESCRIPTION	REMARKS
0						Silt (ML), gray (10YR 6/1), dry, soft, dine to coarse grained gravel, (10% gravel, 0% sand, 90% fines).	
						Clay (CL), dark brown (7YR 3/2), moist, stiff, medium dry strength, slow dilatency, medium plasticity, some silt (0%,10%, 90%).	
		IE-2-3.0	1305	3			
5				.5		Clay (CL), brownish yellow (10YR 6/6), dry, some medium to coarse sand and gravels, medium stiff, no dry strength, slow dilatency, non plastic (20%, 10%, 70%).	
		IE-4-8.0	1320	7.8		Clay (CL), dark gray (7.5 YR 4/1), wet, quick dilatency, medium plasticity, some fine sand to coarse gravel, (20%, 20%, 60%)	
10				1.4			
				.4		Silty Sand (SM), brown (7.5yr 4/3), dense, coarse sand to coarse gravel, well graded (25%, 40%, 35%)	
				.2			
15		IE-2-14.0	1400	900			
20						Bottom of Borehole at 20 feet.	

Drilling Notes:

1. Boring terminated at 20.0 feet below ground surface.
2. Field estimates of percent gravel, sand and fines are shown in parentheses.
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.

RPS Iris Environmental
1438 Webster Street, Suite 302, Oakland, CA 94612
T+(510) 834-4747 F+(510) 834-4199 W www.rpsgroup.com | www.irisenv.com

BORING NUMBER IE-3

PROJECT NAME 3820 Penniman Avenue
CLIENT SSL Law
PROJECT NUMBER 15-1311C
PROJECT LOCATION 3820 Penniman Avenue, Oakland, California
DATE STARTED 3/17/17 **COMPLETED** 3/17/17
DRILL RIG Geoprobe 6610DT **HOLE DIAM.** 2.25 inches
DRILLING CONTRACTOR Environmental Control Associates
SAMPLER TYPE Macro-Core **TOTAL DEPTH** 20.0 ft
DRILLING METHOD Direct Push
GW DEPTH DURING DRILLING 11.0 ft
LOGGED BY Alexi Snyder **CHECKED BY**
STATIC GW DEPTH 13.3 ft
BOREHOLE BACKFILL Macro-Core
NOTES

DEPTH (FEET)	SAMPLES: DRIVE / RECOVERY / RETAINED	SAMPLE NUMBER	TIME	PID (ppm)	GRAPHIC LOG	MATERIAL DESCRIPTION	REMARKS
0						Gravel (GW), gray (10YR 6/1), dry, loose, fine to coarse gravel, some silt, well graded, (90% gravel, 0% sand, 10% fines).	
						Clay (CL), light brown (7.5 YR 3/4), moist, slow dilatency, medium plasticity (20%, 0%, 80%).	
		IE-3-3.0	1005	159			
5						Clay (CL), brownish yellow (10YR 6/6), dry, no dry strength, slow dilatency, fine to coarse sands and gravel, medium stiff, non plastic (20%, 10%, 70%).	
		IE-3-8.0	1019	3			
10						Clay (CL), light gray (7.5YR 7/1), damp, very stiff, strength, quick dilatency, high dry strength, plasticity, some coarse sand, (0%, 20%, 80%).	
		IE-3-11.0	1030	21.5		As above, wet.	
						As above, some fine to coarse gravel.	
				21			
15						Gravelly Clay (CL), dark gray (7.5 YR 4/1), wet, quick dilatency, medium plasticity, some fine to coarse sand and gravels, (30%, 20%, 50%)	
				0.5			
20						Bottom of Borehole at 20 feet.	

Drilling Notes:

1. Boring terminated at 20.0 feet below ground surface.
2. Field estimates of percent gravel, sand and fines are shown in parentheses.
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.

BORING NUMBER IE-4

RPS Iris Environmental
1438 Webster Street, Suite 302, Oakland, CA 94612
T+(510) 834-4747 F+(510) 834-4199 W www.rpsgroup.com | www.irisenv.com

PROJECT NAME 3820 Penniman Avenue
CLIENT SSL Law
PROJECT NUMBER 15-1311C
PROJECT LOCATION 3820 Penniman Avenue, Oakland, California
DATE STARTED 3/17/17 **COMPLETED** 3/17/17
DRILL RIG Geoprobe 6610DT **HOLE DIAM.** 2.25 inches
DRILLING CONTRACTOR Environmental Control Associates
SAMPLER TYPE Macro-Core **TOTAL DEPTH** 16.0 ft
DRILLING METHOD Direct Push
GW DEPTH DURING DRILLING 16.1 ft
LOGGED BY Alexi Snyder **CHECKED BY**
STATIC GW DEPTH 8.8 ft
BOREHOLE BACKFILL Macro-Core
NOTES

DEPTH (FEET)	SAMPLES: DRIVE / RECOVERY / RETAINED	SAMPLE NUMBER	TIME	PID (ppm)	GRAPHIC LOG	MATERIAL DESCRIPTION	REMARKS
0						Silty Gravels (GM), gray (10YR 6/1), dry, loose, fine silt to coarse gravel, well graded, (10% gravel, 0% sand, 90% fines).	
						SILT (ML), dark brown (7YR 3/2), moist, dense, medium dry strength, slow dilatency, medium plasticity (0%,10%, 90%).	
		IE-4-3.0	0850	0			
5						Clay (CL), brownish yellow (10YR 6/6), dry, medium stiff, no dry strength, slow dilatency, non plastic, some fine to coarse gravel and sands (20%, 10%, 70%).	
		IE-4-8.0	0915	0		Clayey Gravel (GC), brownish yellow (10YR 6/6), dry, fine to coarse gravel, moderate density, no dry strength, slow dilatency, non plastic, fine to coarse sands (50%, 10%, 40%).	
10							
		IE-4-11.0	0950	600		Clay (CL), light gray (7.5YR 7/1), damp, very stiff, high dry strength, quick dilatency, medium plasticity, some coarse sand (0%, 20%, 80%).	
						Clay (CL), light gray (7.5YR 7/1), damp, very dense, high dry strength, quick dilatency, medium plasticity, some coarse sand and gravels (10%, 10%, 80%).	
15				620			

Bottom of Borehole at 16 feet.

Drilling Notes:

1. Boring terminated at 16.0 feet below ground surface.
2. Field estimates of percent gravel, sand and fines are shown in parentheses.
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.

APPENDIX C
LABORATORY ANALYTICAL REPORTS


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 287116
ANALYTICAL REPORT

Iris Environmental	Project : 15-1311B
1438 Webster Street	Location : 3820 Penniman Ave
Oakland, CA 94612	Level : II

Sample ID	Lab ID
IE-1-GW	287116-001
IE-2-GW	287116-002
IE-3-GW	287116-003
IE-4-GW	287116-004

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 03/24/2017

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226 Ext 13107

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**287116**
Client:	**Iris Environmental**
Project:	**15-1311B**
Location:	**3820 Penniman Ave**
Request Date:	**03/17/17**
Samples Received:	**03/17/17**

This data package contains sample and QC results for one water sample, requested for the above referenced project on 03/17/17. The sample was received cold and intact.

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

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

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

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

CHAIN OF COUSTODY

Page 1 of 1

Chain of Custody # ____

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

C&T LOGIN # 287116

Project No: 15-1311B

Project Name: 3520 Fl[illegible]

Project P. O. No:

EDD Format: 3rd Report Level ☒ II ☐ III ☐ IV

Turnaround Time: ☐ RUSH ____ ☒ Standard

Sampler: A. Snyder

Report To: C. McDonagh, C. Pelletier

Company: RPS IRS

Telephone: 510-834-4747

Email: Alex@, conor@, craig@irisenv.com

Lab No.	Sample ID.	Date Collected	Time Collected	Water	Solid			# of Containers	HCl	H2SO4	HNO3	NaOH	None	hold	TPHg 8260B	TPHd/mo 8015M without silica gel	VOCs 8260B	SVOCs 8270
	IE-1-GW	3-17-16	1300	X				10	6				4		X	X	X	X
	IE-2-GW	↓	1130	X				10	6				4	X				
	IE-3-GW	↓	1130	X				10	6				4	X				
	IE-4-GW	↓	1050	X				10	6				4	X				

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
[signature]	3-17-17	1451	[signature]	3-17-17	1451

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 287116 Date Received 3-17-17 Number of coolers 2
Client RPS IRIS Environmental Project 3820 Penniman

Date Opened 3-17-17 By (print) DC (sign)
Date Logged in | By (print) EM (sign)
Date Labeled ✓ By (print) ✓ (sign) ✓

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

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

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

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

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 4.3, 2.2

☐ Temperature blank(s) included? ☐ Thermometer# _____ ☒ IR Gun# A

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

8. Were Method 5035 sampling containers present? _____ (YES) NO
   If YES, what time were they transferred to freezer? _____
9. Did all bottles arrive unbroken/unopened? _____ (YES) NO
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
12. Are sample labels present, in good condition and complete? _____ (YES) NO
13. Do the sample labels agree with custody papers? _____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
15. Are the samples appropriately preserved? _____ YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? _____ YES NO (N/A)
17. Did you document your preservative check? (pH strip lot# _____) YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? _____ (YES) NO N/A
21. Was the client contacted concerning this sample delivery? _____ YES (NO)
   If YES, Who was called? _____ By _____ Date: _____

COMMENTS

Curtis & Tompkins, Ltd.

Detections Summary for 287116

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

Client : Iris Environmental
Project : 15-1311B
Location : 3820 Penniman Ave

Client Sample ID : IE-1-GW Laboratory Sample ID : 287116-001

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	1,100		50	ug/L	As Recd	1.000	EPA 8015B	EPA 5030B
Diesel C10-C24	110	Y	50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Diesel C10-C24	64	Y	50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Acetone	11		10	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Toluene	0.6		0.5	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Ethylbenzene	5.2		0.5	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Isopropylbenzene	5.4		0.5	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Propylbenzene	12		0.5	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
1,3,5-Trimethylbenzene	0.6		0.5	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
sec-Butylbenzene	2.0		0.5	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
para-Isopropyl Toluene	1.9		0.5	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
n-Butylbenzene	3.0		0.5	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B

Y = Sample exhibits chromatographic pattern which does not resemble standard

Curtis & Tompkins, Ltd.

Total Volatile Hydrocarbons

Lab #:	287116	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8015B
Field ID:	IE-1-GW	Batch#:	245839
Matrix:	Water	Sampled:	03/17/17
Units:	ug/L	Received:	03/17/17
Diln Fac:	1.000	Analyzed:	03/23/17

Type: SAMPLE Lab ID: 287116-001

Analyte	Result	RL
Gasoline C7-C12	1,100	50

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	110	80-122

Type: BLANK Lab ID: QC878193

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	95	80-122

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	287116	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC878192	Batch#:	245839
Matrix:	Water	Analyzed:	03/23/17
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	993.6	99	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	99	80-122

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	287116	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	245839
MSS Lab ID:	287207-001	Sampled:	03/21/17
Matrix:	Water	Received:	03/21/17
Units:	ug/L	Analyzed:	03/24/17
Diln Fac:	1.000		

Type: MS Lab ID: QC878194

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	13.22	2,000	1,959	97	79-120

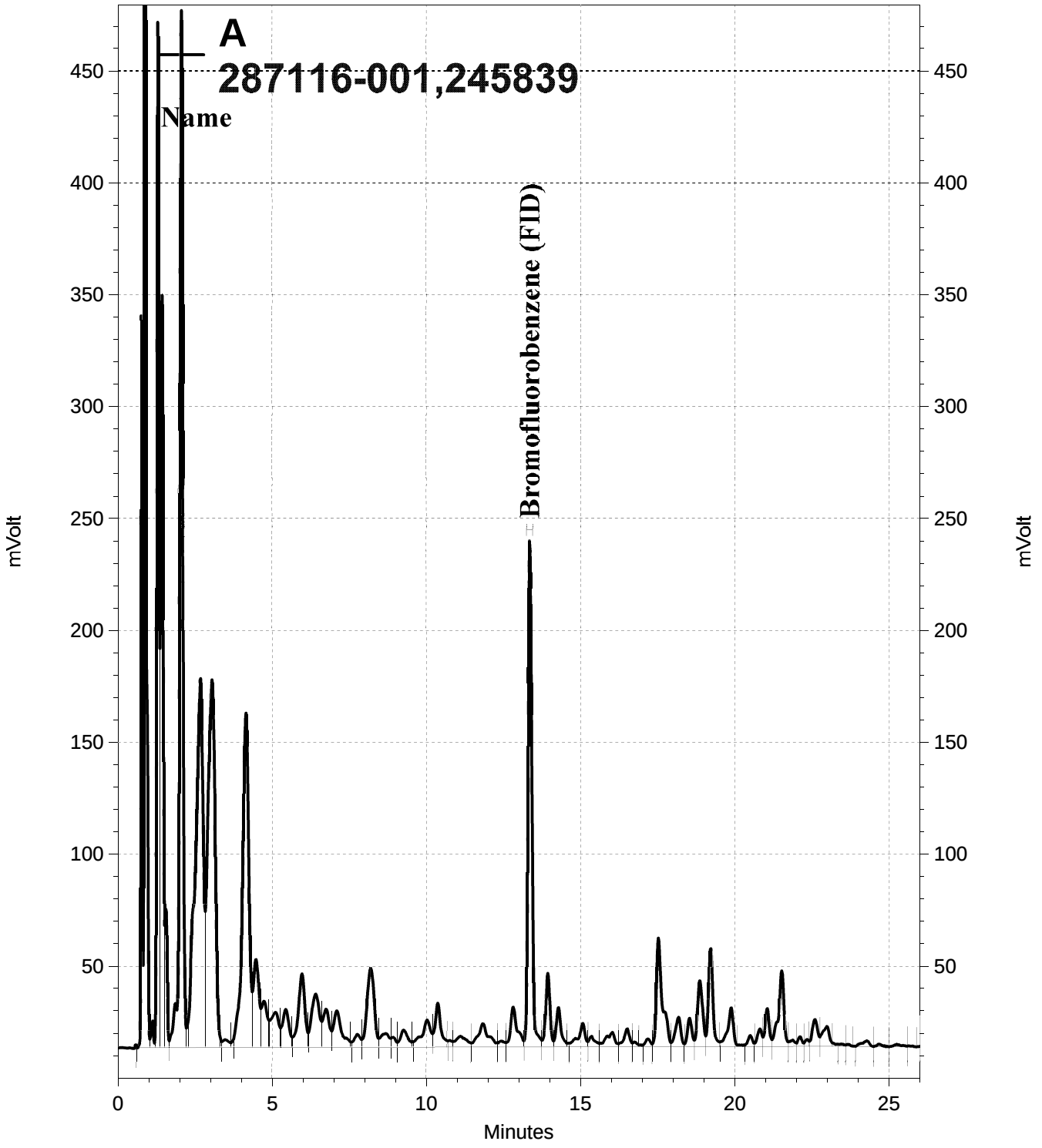
Surrogate	%REC	Limits
Bromofluorobenzene (FID)	119	80-122

Type: MSD Lab ID: QC878195

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,989	99	79-120	2	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	116	80-122

RPD= Relative Percent Difference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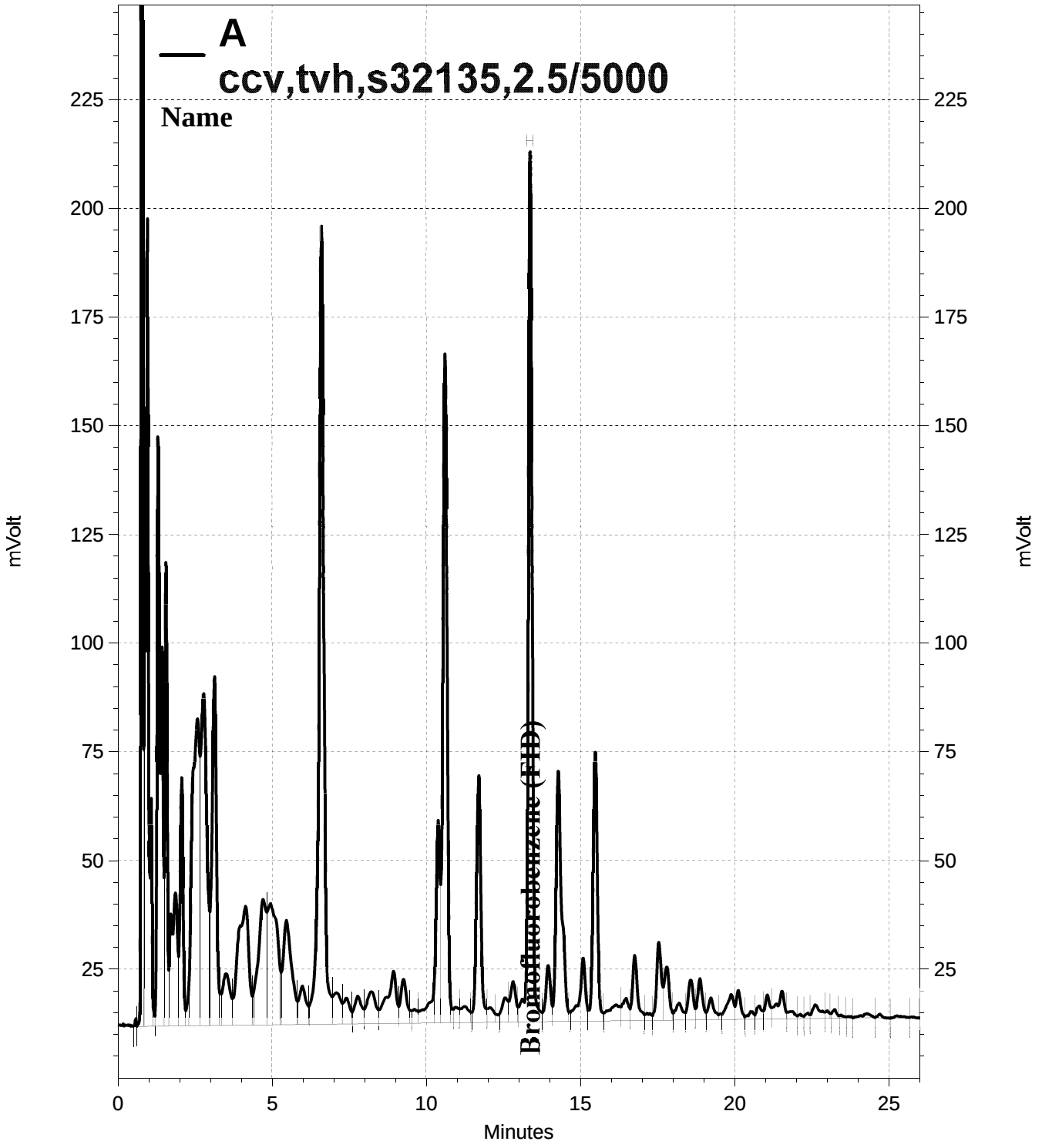
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Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	287116	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3520C
Project#:	15-1311B	Analysis:	EPA 8015B
Field ID:	IE-1-GW	Batch#:	245795
Matrix:	Water	Sampled:	03/17/17
Units:	ug/L	Received:	03/17/17
Diln Fac:	1.000	Prepared:	03/22/17

Type: SAMPLE
Lab ID: 287116-001
Cleanup Method: EPA 3630C

Analyte	Result	RL	Analyzed
Diesel C10-C24	110 Y	50	03/24/17
Diesel C10-C24 (SGCU)	64 Y	50	03/23/17
Motor Oil C24-C36	ND	300	03/24/17
Motor Oil C24-C36 (SGCU)	ND	300	03/23/17

Surrogate	%REC	Limits	Analyzed
o-Terphenyl	83	52-138	03/24/17
o-Terphenyl (SGCU)	65	52-138	03/23/17

Type: BLANK
Lab ID: QC878014
Analyzed: 03/23/17
Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	50
Diesel C10-C24 (SGCU)	ND	50
Motor Oil C24-C36	ND	300
Motor Oil C24-C36 (SGCU)	ND	300

Surrogate	%REC	Limits
o-Terphenyl	78	52-138
o-Terphenyl (SGCU)	65	52-138

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

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	287116	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3520C
Project#:	15-1311B	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	245795
Units:	ug/L	Prepared:	03/22/17
Diln Fac:	1.000	Analyzed:	03/23/17

Type: BS Cleanup Method: EPA 3630C
Lab ID: QC878015

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,037	81	52-124
Diesel C10-C24 (SGCU)	2,500	1,907	76	52-124

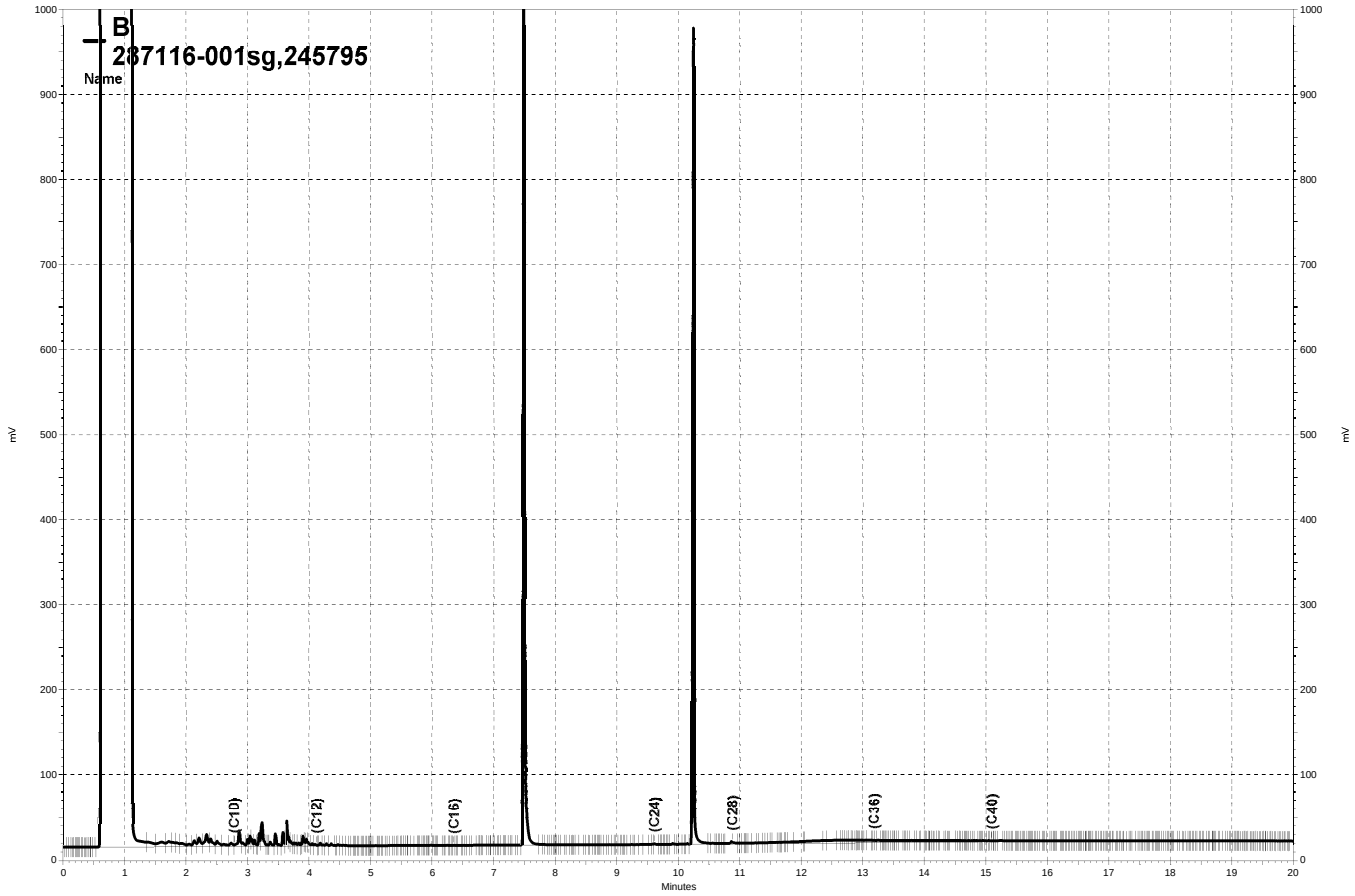
Surrogate	%REC	Limits
o-Terphenyl	93	52-138
o-Terphenyl (SGCU)	90	52-138

Type: BSD Cleanup Method: EPA 3630C
Lab ID: QC878016

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,349	94	52-124	14	34
Diesel C10-C24 (SGCU)	2,500	2,186	87	52-124	14	34

Surrogate	%REC	Limits
o-Terphenyl	105	52-138
o-Terphenyl (SGCU)	100	52-138

RPD= Relative Percent Difference
SGCU= Silica gel cleanup



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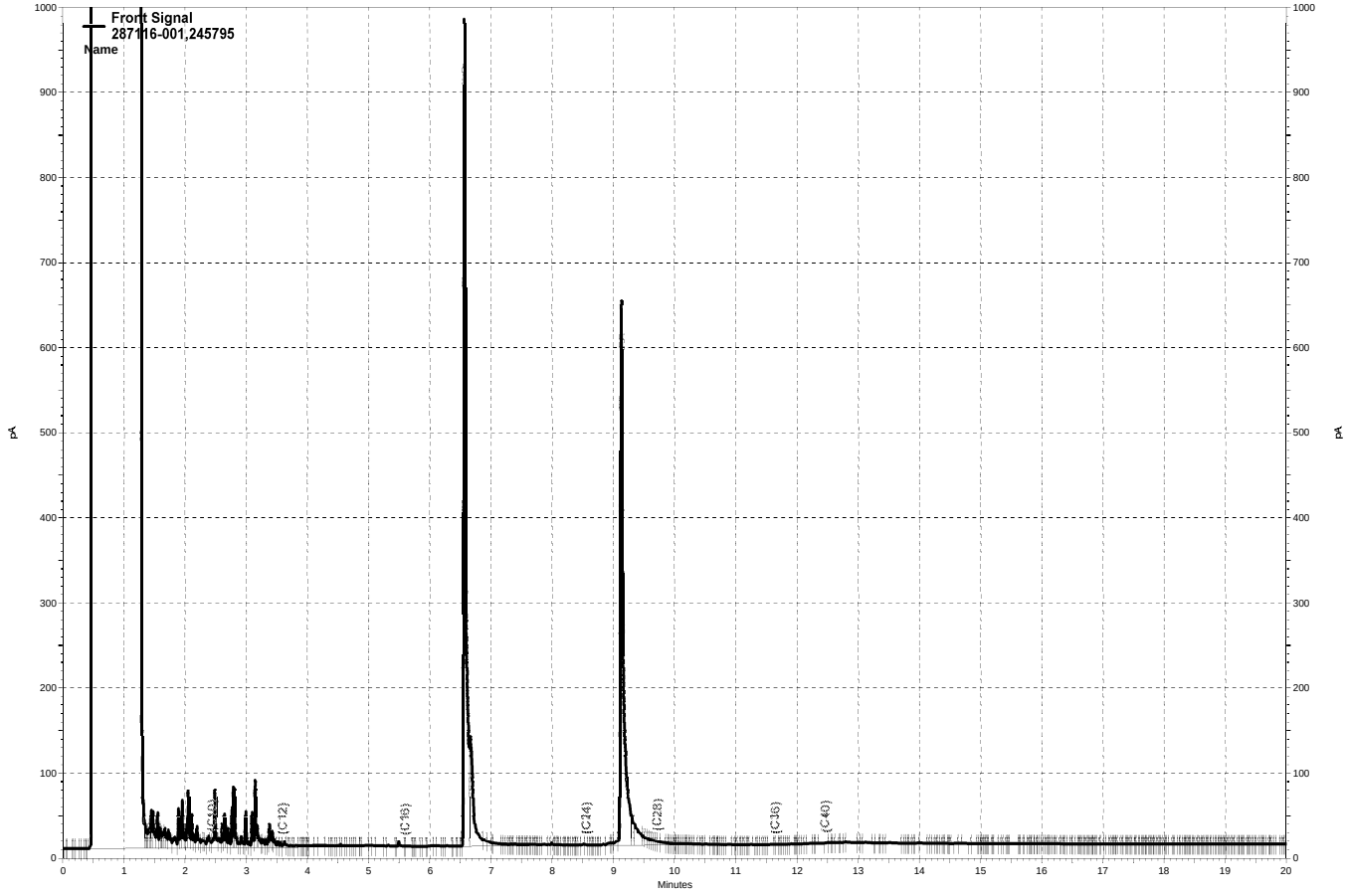

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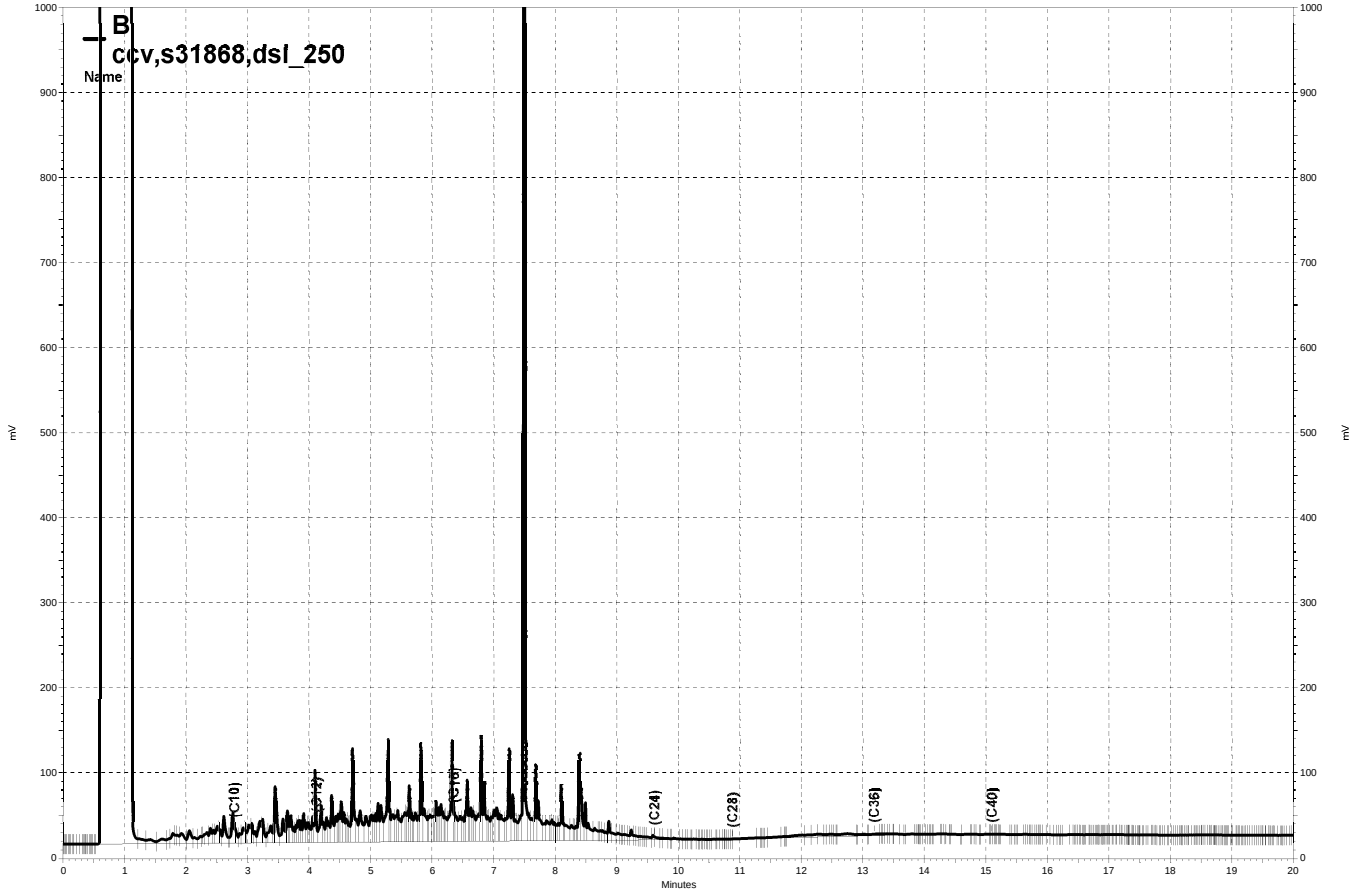

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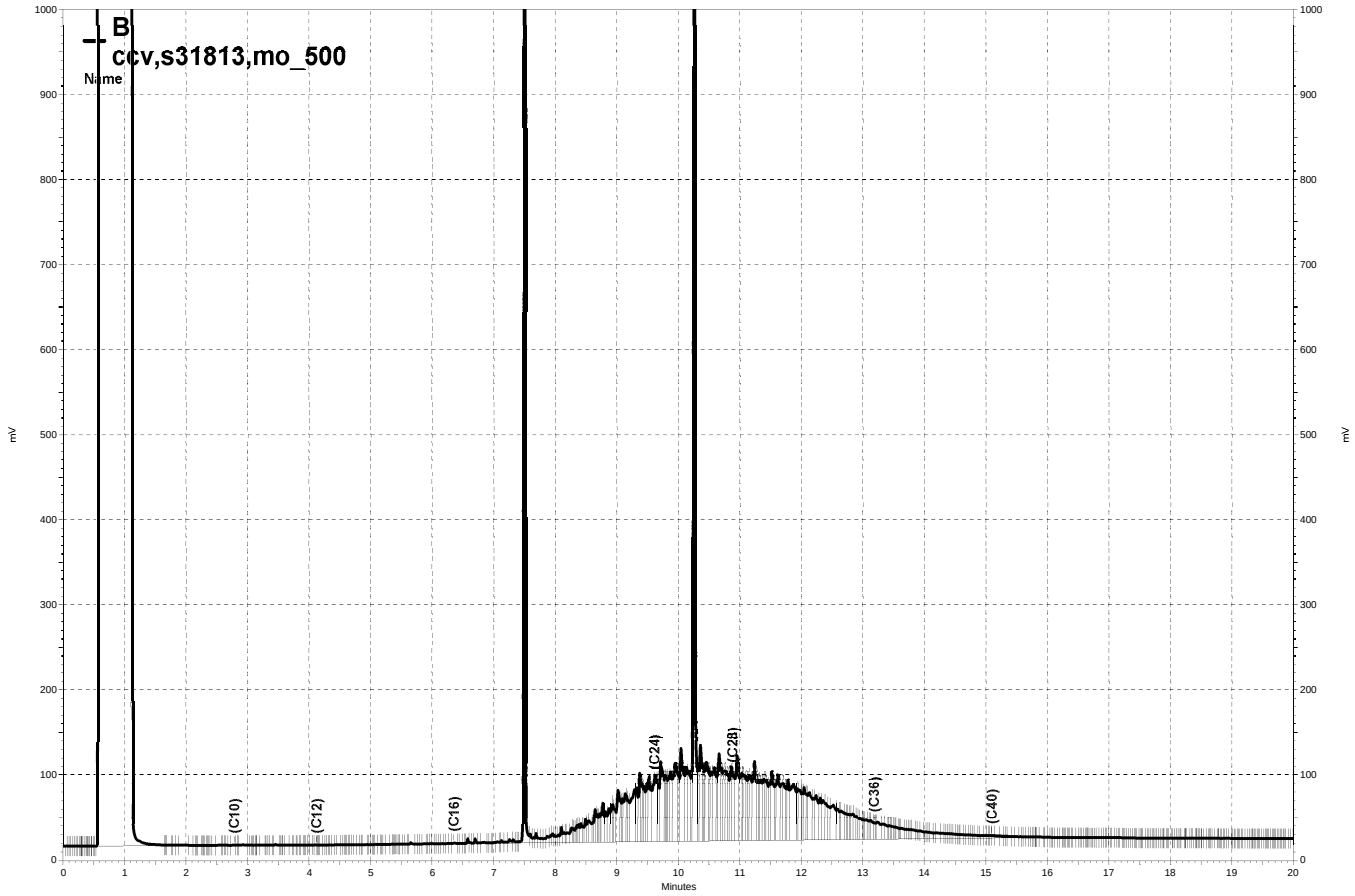

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Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287116	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-1-GW	Batch#:	245693
Lab ID:	287116-001	Sampled:	03/17/17
Matrix:	Water	Received:	03/17/17
Units:	ug/L	Analyzed:	03/20/17
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	11	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	0.6	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287116	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-1-GW	Batch#:	245693
Lab ID:	287116-001	Sampled:	03/17/17
Matrix:	Water	Received:	03/17/17
Units:	ug/L	Analyzed:	03/20/17
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	5.2	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	5.4	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	12	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	0.6	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	2.0	0.5
para-Isopropyl Toluene	1.9	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	3.0	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	95	80-120
1,2-Dichloroethane-d4	92	73-136
Toluene-d8	96	80-120
Bromofluorobenzene	98	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287116	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC877578	Batch#:	245693
Matrix:	Water	Analyzed:	03/20/17
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287116	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC877578	Batch#:	245693
Matrix:	Water	Analyzed:	03/20/17
Units:	ug/L		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	95	80-120
1,2-Dichloroethane-d4	86	73-136
Toluene-d8	96	80-120
Bromofluorobenzene	102	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287116	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	245693
Units:	ug/L	Analyzed:	03/20/17
Diln Fac:	1.000		

Type: BS Lab ID: QC877579

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	12.50	13.07	105	66-127
Benzene	12.50	12.60	101	78-123
Trichloroethene	12.50	12.52	100	75-120
Toluene	12.50	12.63	101	80-120
Chlorobenzene	12.50	12.70	102	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	93	80-120
1,2-Dichloroethane-d4	84	73-136
Toluene-d8	96	80-120
Bromofluorobenzene	96	80-120

Type: BSD Lab ID: QC877580

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	12.50	12.32	99	66-127	6	20
Benzene	12.50	12.20	98	78-123	3	20
Trichloroethene	12.50	11.91	95	75-120	5	20
Toluene	12.50	12.01	96	80-120	5	20
Chlorobenzene	12.50	12.22	98	80-120	4	20

Surrogate	%REC	Limits
Dibromofluoromethane	93	80-120
1,2-Dichloroethane-d4	83	73-136
Toluene-d8	96	80-120
Bromofluorobenzene	96	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	287116	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3520C
Project#:	15-1311B	Analysis:	EPA 8270C
Field ID:	IE-1-GW	Batch#:	245744
Lab ID:	287116-001	Sampled:	03/17/17
Matrix:	Water	Received:	03/17/17
Units:	ug/L	Prepared:	03/22/17
Diln Fac:	1.000	Analyzed:	03/24/17

Analyte	Result	RL
N-Nitrosodimethylamine	ND	9.6
Phenol	ND	9.6
bis(2-Chloroethyl)ether	ND	9.6
2-Chlorophenol	ND	9.6
1,3-Dichlorobenzene	ND	9.6
1,4-Dichlorobenzene	ND	9.6
Benzyl alcohol	ND	9.6
1,2-Dichlorobenzene	ND	9.6
2-Methylphenol	ND	9.6
bis(2-Chloroisopropyl) ether	ND	9.6
4-Methylphenol	ND	9.6
N-Nitroso-di-n-propylamine	ND	9.6
Hexachloroethane	ND	9.6
Nitrobenzene	ND	9.6
Isophorone	ND	9.6
2-Nitrophenol	ND	19
2,4-Dimethylphenol	ND	9.6
Benzoic acid	ND	48
bis(2-Chloroethoxy)methane	ND	9.6
2,4-Dichlorophenol	ND	9.6
1,2,4-Trichlorobenzene	ND	9.6
Naphthalene	ND	9.6
4-Chloroaniline	ND	9.6
Hexachlorobutadiene	ND	9.6
4-Chloro-3-methylphenol	ND	9.6
2-Methylnaphthalene	ND	9.6
Hexachlorocyclopentadiene	ND	19
2,4,6-Trichlorophenol	ND	9.6
2,4,5-Trichlorophenol	ND	9.6
2-Chloronaphthalene	ND	9.6
2-Nitroaniline	ND	19
Dimethylphthalate	ND	9.6
Acenaphthylene	ND	9.6
2,6-Dinitrotoluene	ND	9.6
3-Nitroaniline	ND	19
Acenaphthene	ND	9.6
2,4-Dinitrophenol	ND	19
4-Nitrophenol	ND	19
Dibenzofuran	ND	9.6
2,4-Dinitrotoluene	ND	9.6
Diethylphthalate	ND	9.6
Fluorene	ND	9.6
4-Chlorophenyl-phenylether	ND	9.6
4-Nitroaniline	ND	19
4,6-Dinitro-2-methylphenol	ND	19
N-Nitrosodiphenylamine	ND	9.6
Azobenzene	ND	9.6
4-Bromophenyl-phenylether	ND	9.6
Hexachlorobenzene	ND	9.6
Pentachlorophenol	ND	19
Phenanthrene	ND	9.6
Anthracene	ND	9.6
Di-n-butylphthalate	ND	9.6
Fluoranthene	ND	9.6

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	287116	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3520C
Project#:	15-1311B	Analysis:	EPA 8270C
Field ID:	IE-1-GW	Batch#:	245744
Lab ID:	287116-001	Sampled:	03/17/17
Matrix:	Water	Received:	03/17/17
Units:	ug/L	Prepared:	03/22/17
Diln Fac:	1.000	Analyzed:	03/24/17

Analyte	Result	RL
Pyrene	ND	9.6
Butylbenzylphthalate	ND	9.6
3,3'-Dichlorobenzidine	ND	19
Benzo(a)anthracene	ND	9.6
Chrysene	ND	9.6
bis(2-Ethylhexyl)phthalate	ND	9.6
Di-n-octylphthalate	ND	9.6
Benzo(b)fluoranthene	ND	9.6
Benzo(k)fluoranthene	ND	9.6
Benzo(a)pyrene	ND	9.6
Indeno(1,2,3-cd)pyrene	ND	9.6
Dibenz(a,h)anthracene	ND	9.6
Benzo(g,h,i)perylene	ND	9.6

Surrogate	%REC	Limits
2-Fluorophenol	77	38-120
Phenol-d5	68	36-120
2,4,6-Tribromophenol	84	41-120
Nitrobenzene-d5	71	44-120
2-Fluorobiphenyl	68	46-120
Terphenyl-d14	14	11-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	287116	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3520C
Project#:	15-1311B	Analysis:	EPA 8270C
Type:	BLANK	Dil'n Fac:	1.000
Lab ID:	QC877808	Batch#:	245744
Matrix:	Water	Prepared:	03/21/17
Units:	ug/L	Analyzed:	03/22/17

Analyte	Result	RL
N-Nitrosodimethylamine	ND	10
Phenol	ND	10
bis(2-Chloroethyl)ether	ND	10
2-Chlorophenol	ND	10
1,3-Dichlorobenzene	ND	10
1,4-Dichlorobenzene	ND	10
Benzyl alcohol	ND	10
1,2-Dichlorobenzene	ND	10
2-Methylphenol	ND	10
bis(2-Chloroisopropyl) ether	ND	10
4-Methylphenol	ND	10
N-Nitroso-di-n-propylamine	ND	10
Hexachloroethane	ND	10
Nitrobenzene	ND	10
Isophorone	ND	10
2-Nitrophenol	ND	20
2,4-Dimethylphenol	ND	10
Benzoic acid	ND	50
bis(2-Chloroethoxy)methane	ND	10
2,4-Dichlorophenol	ND	10
1,2,4-Trichlorobenzene	ND	10
Naphthalene	ND	10
4-Chloroaniline	ND	10
Hexachlorobutadiene	ND	10
4-Chloro-3-methylphenol	ND	10
2-Methylnaphthalene	ND	10
Hexachlorocyclopentadiene	ND	20
2,4,6-Trichlorophenol	ND	10
2,4,5-Trichlorophenol	ND	10
2-Chloronaphthalene	ND	10
2-Nitroaniline	ND	20
Dimethylphthalate	ND	10
Acenaphthylene	ND	10
2,6-Dinitrotoluene	ND	10
3-Nitroaniline	ND	20
Acenaphthene	ND	10
2,4-Dinitrophenol	ND	20
4-Nitrophenol	ND	20
Dibenzofuran	ND	10
2,4-Dinitrotoluene	ND	10
Diethylphthalate	ND	10
Fluorene	ND	10
4-Chlorophenyl-phenylether	ND	10
4-Nitroaniline	ND	20
4,6-Dinitro-2-methylphenol	ND	20
N-Nitrosodiphenylamine	ND	10
Azobenzene	ND	10
4-Bromophenyl-phenylether	ND	10
Hexachlorobenzene	ND	10
Pentachlorophenol	ND	20
Phenanthrene	ND	10
Anthracene	ND	10
Di-n-butylphthalate	ND	10
Fluoranthene	ND	10

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	287116	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3520C
Project#:	15-1311B	Analysis:	EPA 8270C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC877808	Batch#:	245744
Matrix:	Water	Prepared:	03/21/17
Units:	ug/L	Analyzed:	03/22/17

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

Surrogate	%REC	Limits
2-Fluorophenol	65	38-120
Phenol-d5	62	36-120
2,4,6-Tribromophenol	66	41-120
Nitrobenzene-d5	69	44-120
2-Fluorobiphenyl	72	46-120
Terphenyl-d14	93	11-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	287116	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3520C
Project#:	15-1311B	Analysis:	EPA 8270C
Matrix:	Water	Batch#:	245744
Units:	ug/L	Prepared:	03/21/17
Diln Fac:	1.000		

Type: BS
Lab ID: QC877809
Analyzed: 03/23/17

Analyte	Spiked	Result	%REC	Limits
Phenol	80.00	66.73	83	60-120
2-Chlorophenol	80.00	64.71	81	63-120
1,4-Dichlorobenzene	80.00	41.81	52	52-120
N-Nitroso-di-n-propylamine	80.00	80.25	100	40-120
1,2,4-Trichlorobenzene	80.00	55.53	69	52-120
4-Chloro-3-methylphenol	80.00	73.93	92	63-120
Acenaphthene	30.00	22.00	73	56-120
4-Nitrophenol	80.00	56.89	71	49-120
2,4-Dinitrotoluene	80.00	74.70	93	65-120
Pentachlorophenol	80.00	62.58	78	52-120
Pyrene	30.00	22.82	76	61-120

Surrogate	%REC	Limits
2-Fluorophenol	69	38-120
Phenol-d5	81	36-120
2,4,6-Tribromophenol	90	41-120
Nitrobenzene-d5	73	44-120
2-Fluorobiphenyl	77	46-120
Terphenyl-d14	71	11-120

Type: BSD
Lab ID: QC877810
Analyzed: 03/24/17

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Phenol	80.00	64.49	81	60-120	3	28
2-Chlorophenol	80.00	63.64	80	63-120	2	26
1,4-Dichlorobenzene	80.00	51.42	64	52-120	21	27
N-Nitroso-di-n-propylamine	80.00	78.95	99	40-120	2	27
1,2,4-Trichlorobenzene	80.00	65.43	82	52-120	16	25
4-Chloro-3-methylphenol	80.00	70.71	88	63-120	4	23
Acenaphthene	30.00	21.59	72	56-120	2	24
4-Nitrophenol	80.00	55.15	69	49-120	3	28
2,4-Dinitrotoluene	80.00	72.69	91	65-120	3	24
Pentachlorophenol	80.00	59.79	75	52-120	5	35
Pyrene	30.00	23.13	77	61-120	1	24

Surrogate	%REC	Limits
2-Fluorophenol	65	38-120
Phenol-d5	74	36-120
2,4,6-Tribromophenol	80	41-120
Nitrobenzene-d5	68	44-120
2-Fluorobiphenyl	72	46-120
Terphenyl-d14	69	11-120

RPD= Relative Percent Difference


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 287118
ANALYTICAL REPORT

Iris Environmental	Project : 15-1311B
1438 Webster Street	Location : 3820 Penniman Ave
Oakland, CA 94612	Level : II

Sample ID	Lab ID
IE-2-3.0	287118-001
IE-2-8.0	287118-002
IE-3-3.0	287118-003
IE-3-8.0	287118-004
IE-3-11.0	287118-005
IE-4-3.0	287118-006
IE-4-8.0	287118-007
IE-4-11.0	287118-008
IE-2-14.0	287118-009

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Tracy Babjar Date: 03/24/2017

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226 Ext 13107

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**287118**
Client:	**Iris Environmental**
Project:	**15-1311B**
Location:	**3820 Penniman Ave**
Request Date:	**03/17/17**
Samples Received:	**03/17/17**

This data package contains sample and QC results for six soil samples, requested for the above referenced project on 03/17/17. The samples were received cold and intact.

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

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

Volatile Organics by GC/MS (EPA 8260B):
High recovery was observed for trichloroethene in the MSD for batch 245692; the parent sample was not a project sample, the BS/BSD were within limits, the associated RPD was within limits, and this analyte was not detected at or above the RL in the associated samples. No other analytical problems were encountered.

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

PCBs (EPA 8082):
All samples underwent sulfuric acid cleanup using EPA Method 3665A. All samples underwent sulfur cleanup using the copper option in EPA Method 3660B. No analytical problems were encountered.

Metals (EPA 6010B):
High recovery was observed for chromium in the MSD of IE-2-3.0 (lab # 287118-001); the BS/BSD were within limits, and the associated RPD was within limits. No other analytical problems were encountered.

Moisture (EPA CLP):
No analytical problems were encountered.

CHAIN OF CUSTODY

Page 1 of 1

Chain of Custody # ____

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
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2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

C&T LOGIN # 287118

Project No: 15-13113
Project Name: 3820 Penning
Project P. O. No:
EDD Format: Std Report Level ☒ II ☐ III ☐ IV
Turnaround Time: ☐ RUSH ____ ☒ Standard

Sampler: A. Snyder
Report To: C. McDonagh, C. Pelletier
Company: RPS Ins Env.
Telephone: 510-834-4747
Email: Alex@, Conor@, Craig@insenv.com

Lab No.	Sample ID.	Date Collected	Time Collected	Water	Solid			# of Containers	~~HCl~~ MeOH	~~H2SO4~~ Bag	HNO3	NaOH	None	TPH-g 8260b	TPH-d/mo 8015m with and without SG	VOCs 8260b	SVOCs 8270	Luft 5 metals 200.7/6010	PCBs 8082	Hold
1	IE-2-3.0		1205		X			7	1	5			1	X	X	X	X	X	X	
2	IE-2-8.0		1320		X			7	1	5			1	↓	↓	↓	↓	↓	↓	
3	IE-3-3.0		1005		X			7	1	5			1	↓	↓	↓	↓	↓	↓	
4	IE-3-8.0		1019		X			7	1	5			1	↓	↓	↓	↓	↓	↓	
5	IE-3-11.0		1030		X			1					X							X
6	IE-4-3.0		850		X			7	1	5			1	X	X	X	X	X	X	
7	IE-4-8.0		915		X			7	1	5			1	X	X	X	X	X	X	
8	IE-4-11.0		950		X			7	1	5			1							X
9	IE-2-14.0		1400		X			1												X

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
[illegible signature]	3-17-17	1651	[illegible signature]	3/17/17	1651

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 287118 Date Received 3-17-17 Number of coolers 2
Client RPS Project 3820 Penniman

Date Opened 3-17-17 By (print) DG (sign)
Date Logged in ↓ By (print) ↓ (sign) ↓
Date Labeled ↓ By (print) ↓ (sign) ↓

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

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

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

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

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 4.3, 2.2

☐ Temperature blank(s) included? ☐ Thermometer# _____ ☒ IR Gun# A

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

8. Were Method 5035 sampling containers present? _____ (YES) NO
If YES, what time were they transferred to freezer? 22:10, 3-17-17
9. Did all bottles arrive unbroken/unopened? _____ (YES) NO
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
12. Are sample labels present, in good condition and complete? _____ (YES) NO
13. Do the sample labels agree with custody papers? _____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
15. Are the samples appropriately preserved? _____ YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? _____ YES NO (N/A)
17. Did you document your preservative check? (pH strip lot# _____) YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ (YES) NO N/A
20. Are bubbles > 6mm absent in VOA samples? _____ (YES) NO N/A
21. Was the client contacted concerning this sample delivery? _____ YES (NO)
If YES, Who was called? _____ By _____ Date: _____

COMMENTS

_____
_____
_____
_____
_____
_____

Curtis & Tompkins, Ltd.

Detections Summary for 287118

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

Client : Iris Environmental
Project : 15-1311B
Location : 3820 Penniman Ave

Client Sample ID : IE-2-3.0 Laboratory Sample ID : 287118-001

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	1.5	Y	1.2	mg/Kg	Dry	1.000	EPA 8015B	EPA 3550B
Chromium	56		0.30	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Lead	7.8		1.2	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Nickel	58		0.30	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Zinc	36		1.2	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Moisture, Percent	19		1	%	As Recd	1.000	EPA CLP	METHOD

Client Sample ID : IE-2-8.0 Laboratory Sample ID : 287118-002

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Chromium	71		0.33	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Lead	8.4		1.3	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Nickel	210		0.33	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Zinc	140		1.3	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Moisture, Percent	22		1	%	As Recd	1.000	EPA CLP	METHOD

Client Sample ID : IE-3-3.0 Laboratory Sample ID : 287118-003

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Chromium	53		0.29	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Lead	8.7		1.1	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Nickel	60		0.29	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Zinc	37		1.1	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Moisture, Percent	19		1	%	As Recd	1.000	EPA CLP	METHOD

Client Sample ID : IE-3-8.0 Laboratory Sample ID : 287118-004

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Chromium	54		0.31	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Lead	7.0		1.1	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Nickel	120		0.31	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Zinc	120		1.2	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Moisture, Percent	11		1	%	As Recd	1.000	EPA CLP	METHOD

Curtis & Tompkins, Ltd.

Client Sample ID : IE-4-3.0 Laboratory Sample ID : 287118-006

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Chromium	100		0.33	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Lead	10		1.3	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Nickel	77		0.33	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Zinc	42		1.3	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Moisture, Percent	25		1	%	As Recd	1.000	EPA CLP	METHOD

Client Sample ID : IE-4-8.0 Laboratory Sample ID : 287118-007

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Cadmium	0.39		0.29	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Chromium	69		0.29	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Lead	9.7		1.1	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Nickel	150		0.29	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Zinc	140		1.2	mg/Kg	Dry	1.000	EPA 6010B	EPA 3050B
Moisture, Percent	11		1	%	As Recd	1.000	EPA CLP	METHOD

Y = Sample exhibits chromatographic pattern which does not resemble standard

Curtis & Tompkins, Ltd.

Gasoline by GC/FID (5035 Prep)

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8015B
Matrix:	Soil	Batch#:	245691
Units:	mg/Kg	Sampled:	03/17/17
Basis:	dry	Received:	03/17/17
Diln Fac:	1.000	Analyzed:	03/20/17

Field ID: IE-2-3.0 Lab ID: 287118-001
Type: SAMPLE Moisture: 19%

Analyte	Result	RL
Gasoline C7-C12	ND	0.17

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

Field ID: IE-2-8.0 Lab ID: 287118-002
Type: SAMPLE Moisture: 22%

Analyte	Result	RL
Gasoline C7-C12	ND	0.22

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

Field ID: IE-3-3.0 Lab ID: 287118-003
Type: SAMPLE Moisture: 19%

Analyte	Result	RL
Gasoline C7-C12	ND	0.18

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	100	70-138

Field ID: IE-3-8.0 Lab ID: 287118-004
Type: SAMPLE Moisture: 11%

Analyte	Result	RL
Gasoline C7-C12	ND	0.21

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

Field ID: IE-4-3.0 Lab ID: 287118-006
Type: SAMPLE Moisture: 25%

Analyte	Result	RL
Gasoline C7-C12	ND	0.19

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

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID (5035 Prep)

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8015B
Matrix:	Soil	Batch#:	245691
Units:	mg/Kg	Sampled:	03/17/17
Basis:	dry	Received:	03/17/17
Diln Fac:	1.000	Analyzed:	03/20/17

Field ID:	IE-4-8.0	Lab ID:	287118-007
Type:	SAMPLE	Moisture:	11%

Analyte	Result	RL
Gasoline C7-C12	ND	0.14

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

Type:	BLANK	Lab ID:	QC877574

Analyte	Result	RL
Gasoline C7-C12	ND	0.20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	97	70-138

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC877569	Batch#:	245691
Matrix:	Soil	Analyzed:	03/20/17
Units:	mg/Kg		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1.000	1.012	101	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	93	70-138

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	287101-001	Batch#:	245691
Matrix:	Soil	Sampled:	03/17/17
Units:	mg/Kg	Received:	03/17/17
Basis:	as received	Analyzed:	03/21/17

Type: MS Lab ID: QC877572

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	0.7761	10.20	9.560	86	49-120

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

Type: MSD Lab ID: QC877573

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	10.00	9.426	86	49-120	0	32

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

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8015B
Matrix:	Soil	Batch#:	245677
Units:	mg/Kg	Sampled:	03/17/17
Basis:	dry	Received:	03/17/17
Diln Fac:	1.000	Prepared:	03/20/17

Field ID: IE-2-3.0
Type: SAMPLE
Lab ID: 287118-001

Moisture: 19%
Cleanup Method: EPA 3630C

Analyte	Result	RL	Analyzed
Diesel C10-C24	1.5 Y	1.2	03/21/17
Diesel C10-C24 (SGCU)	ND	1.2	03/20/17
Motor Oil C24-C36	ND	6.2	03/21/17
Motor Oil C24-C36 (SGCU)	ND	6.2	03/20/17

Surrogate	%REC	Limits	Analyzed
o-Terphenyl	93	58-136	03/21/17
o-Terphenyl (SGCU)	70	58-136	03/20/17

Field ID: IE-2-8.0
Type: SAMPLE
Lab ID: 287118-002

Moisture: 22%
Cleanup Method: EPA 3630C

Analyte	Result	RL	Analyzed
Diesel C10-C24	ND	1.3	03/21/17
Diesel C10-C24 (SGCU)	ND	1.3	03/20/17
Motor Oil C24-C36	ND	6.5	03/21/17
Motor Oil C24-C36 (SGCU)	ND	6.5	03/20/17

Surrogate	%REC	Limits	Analyzed
o-Terphenyl	91	58-136	03/21/17
o-Terphenyl (SGCU)	62	58-136	03/20/17

Field ID: IE-3-3.0
Type: SAMPLE
Lab ID: 287118-003

Moisture: 19%
Cleanup Method: EPA 3630C

Analyte	Result	RL	Analyzed
Diesel C10-C24	ND	1.2	03/21/17
Diesel C10-C24 (SGCU)	ND	1.2	03/20/17
Motor Oil C24-C36	ND	6.2	03/21/17
Motor Oil C24-C36 (SGCU)	ND	6.2	03/20/17

Surrogate	%REC	Limits	Analyzed
o-Terphenyl	96	58-136	03/21/17
o-Terphenyl (SGCU)	68	58-136	03/20/17

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

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8015B
Matrix:	Soil	Batch#:	245677
Units:	mg/Kg	Sampled:	03/17/17
Basis:	dry	Received:	03/17/17
Diln Fac:	1.000	Prepared:	03/20/17

Field ID: IE-3-8.0 Moisture: 11%
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 287118-004

Analyte	Result	RL	Analyzed
Diesel C10-C24	ND	1.1	03/21/17
Diesel C10-C24 (SGCU)	ND	1.1	03/20/17
Motor Oil C24-C36	ND	5.6	03/21/17
Motor Oil C24-C36 (SGCU)	ND	5.6	03/20/17

Surrogate	%REC	Limits	Analyzed
o-Terphenyl	99	58-136	03/21/17
o-Terphenyl (SGCU)	75	58-136	03/20/17

Field ID: IE-4-3.0 Moisture: 25%
Type: SAMPLE Analyzed: 03/21/17
Lab ID: 287118-006 Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	1.3
Diesel C10-C24 (SGCU)	ND	1.3
Motor Oil C24-C36	ND	6.6
Motor Oil C24-C36 (SGCU)	ND	6.6

Surrogate	%REC	Limits
o-Terphenyl	105	58-136
o-Terphenyl (SGCU)	76	58-136

Field ID: IE-4-8.0 Moisture: 11%
Type: SAMPLE Analyzed: 03/21/17
Lab ID: 287118-007 Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	1.1
Diesel C10-C24 (SGCU)	ND	1.1
Motor Oil C24-C36	ND	5.6
Motor Oil C24-C36 (SGCU)	ND	5.6

Surrogate	%REC	Limits
o-Terphenyl	101	58-136
o-Terphenyl (SGCU)	77	58-136

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

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8015B
Matrix:	Soil	Batch#:	245677
Units:	mg/Kg	Sampled:	03/17/17
Basis:	dry	Received:	03/17/17
Diln Fac:	1.000	Prepared:	03/20/17

Type:	BLANK	Analyzed:	03/20/17
Lab ID:	QC877519	Cleanup Method:	EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	93	58-136
o-Terphenyl (SGCU)	69	58-136

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

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC877520	Batch#:	245677
Matrix:	Soil	Prepared:	03/20/17
Units:	mg/Kg	Analyzed:	03/20/17

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	49.65	51.58	104	56-135
Diesel C10-C24 (SGCU)	49.65	40.12	81	56-135

Surrogate	%REC	Limits
o-Terphenyl	103	58-136
o-Terphenyl (SGCU)	79	58-136

SGCU= Silica gel cleanup

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	245677
MSS Lab ID:	286840-002	Sampled:	03/09/17
Matrix:	Soil	Received:	03/09/17
Units:	mg/Kg	Prepared:	03/20/17
Basis:	dry	Analyzed:	03/21/17
Diln Fac:	1.000		

Type: MS Moisture: 19%
Lab ID: QC877521

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	0.3844	62.00	63.90	102	35-143

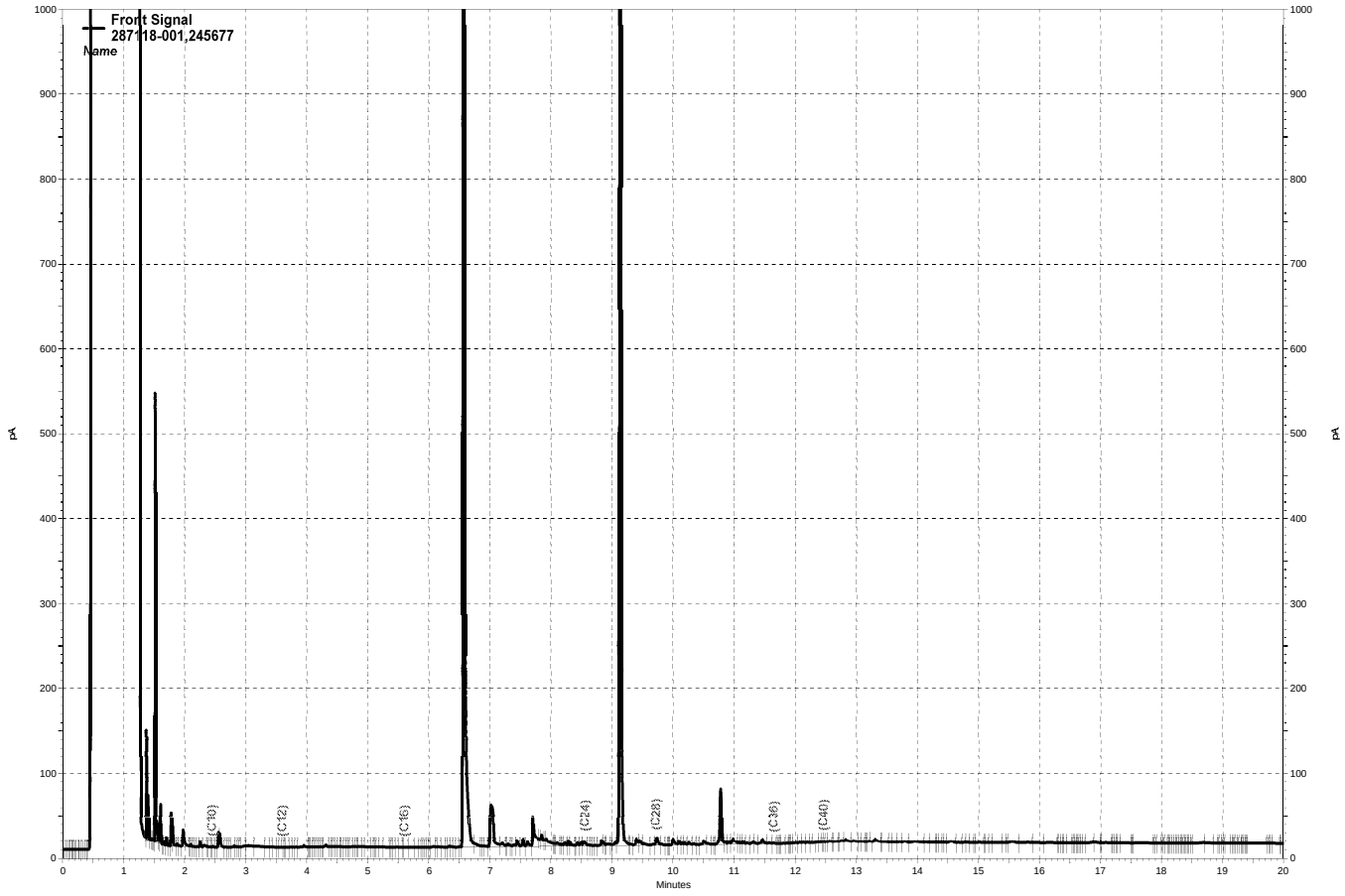
Surrogate	%REC	Limits
o-Terphenyl	103	58-136

Type: MSD Moisture: 19%
Lab ID: QC877522

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	61.95	73.24	118	35-143	14	59

Surrogate	%REC	Limits
o-Terphenyl	113	58-136

RPD= Relative Percent Difference



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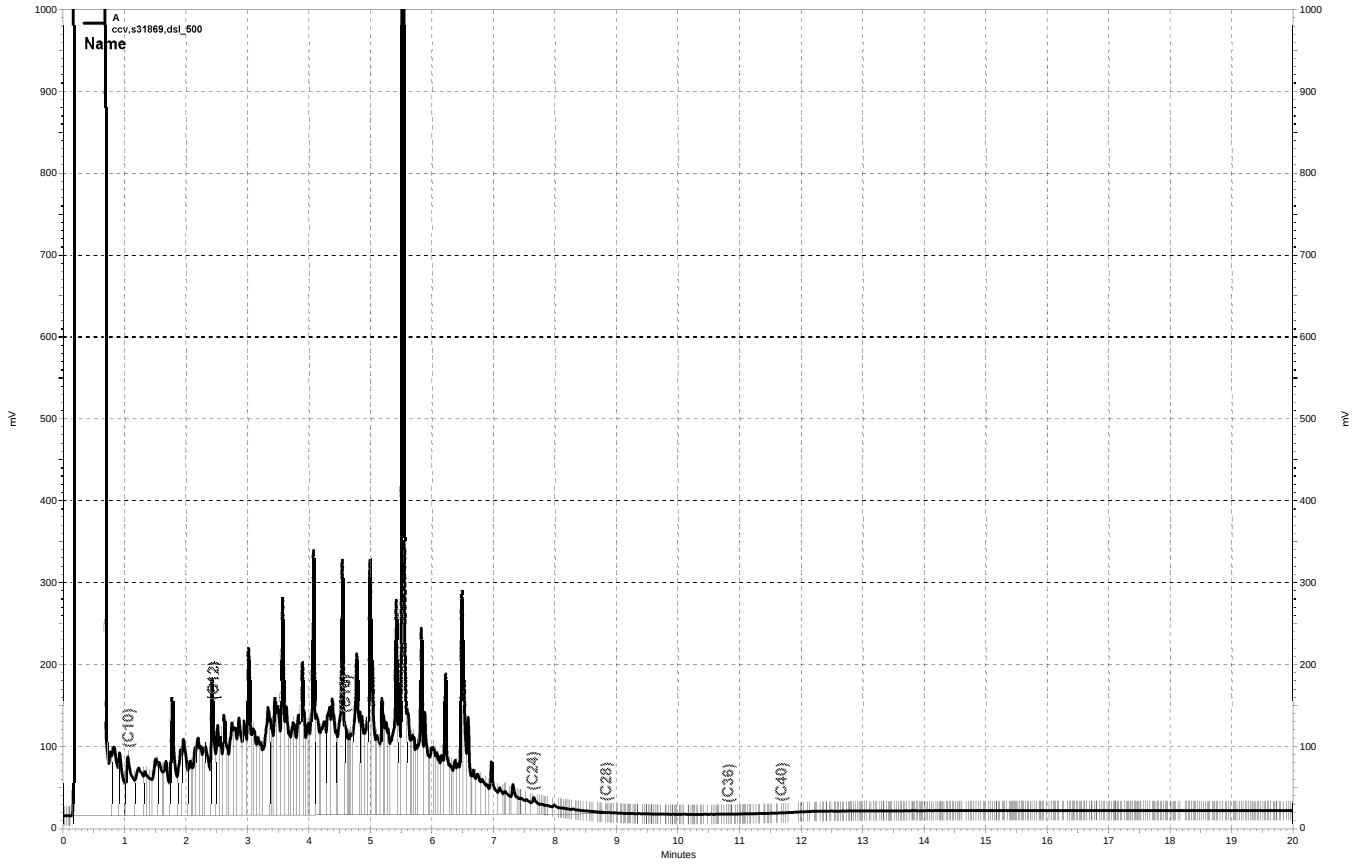

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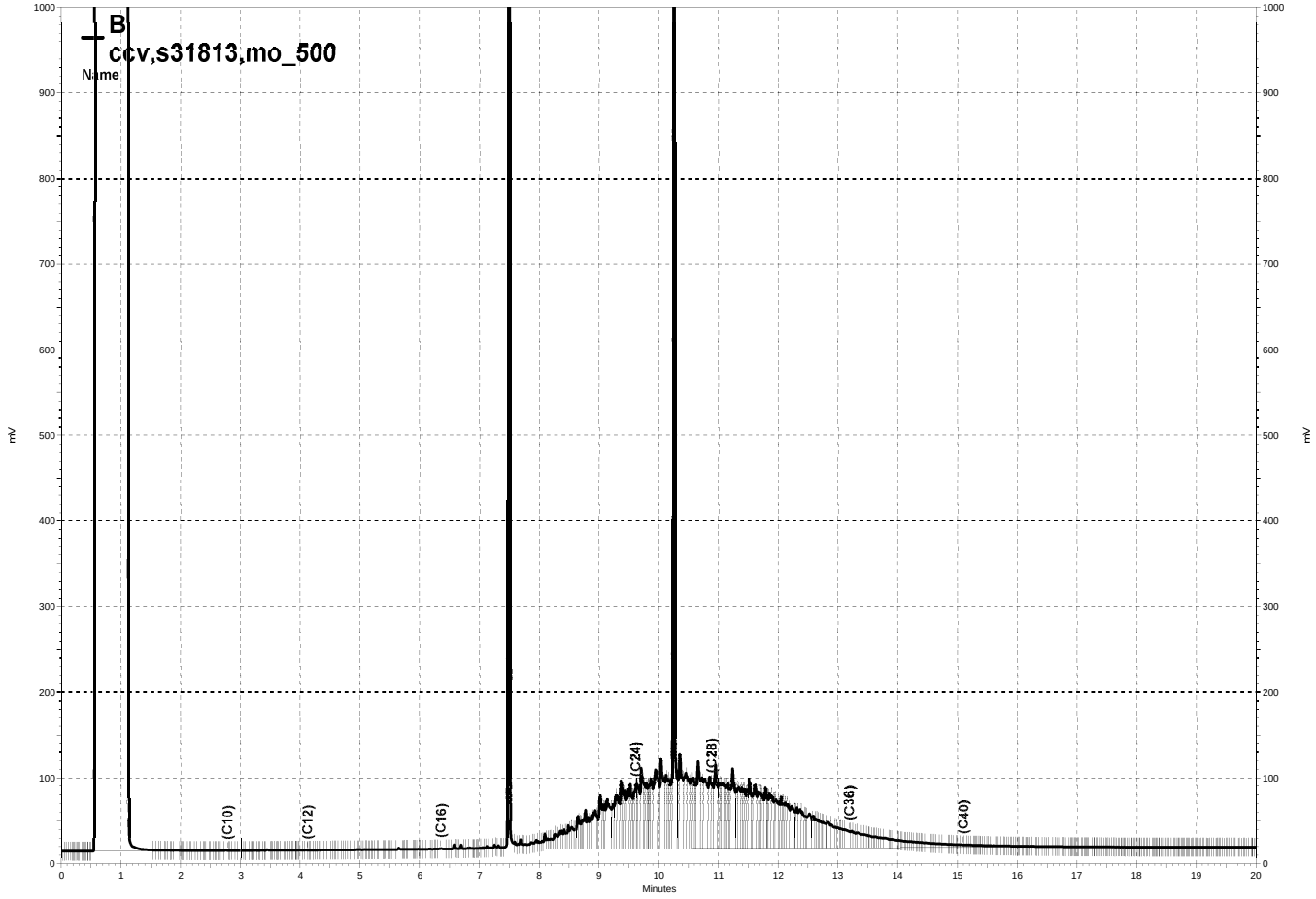

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Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-2-3.0	Diln Fac:	0.7102
Lab ID:	287118-001	Batch#:	245721
Matrix:	Soil	Sampled:	03/17/17
Units:	ug/Kg	Received:	03/17/17
Basis:	dry	Analyzed:	03/21/17

Moisture: 19%

Analyte	Result	RL
Freon 12	ND	8.8
Chloromethane	ND	8.8
Vinyl Chloride	ND	8.8
Bromomethane	ND	8.8
Chloroethane	ND	8.8
Trichlorofluoromethane	ND	4.4
Acetone	ND	18
Freon 113	ND	4.4
1,1-Dichloroethene	ND	4.4
Methylene Chloride	ND	18
Carbon Disulfide	ND	4.4
MTBE	ND	4.4
trans-1,2-Dichloroethene	ND	4.4
Vinyl Acetate	ND	44
1,1-Dichloroethane	ND	4.4
2-Butanone	ND	8.8
cis-1,2-Dichloroethene	ND	4.4
2,2-Dichloropropane	ND	4.4
Chloroform	ND	4.4
Bromochloromethane	ND	4.4
1,1,1-Trichloroethane	ND	4.4
1,1-Dichloropropene	ND	4.4
Carbon Tetrachloride	ND	4.4
1,2-Dichloroethane	ND	4.4
Benzene	ND	4.4
Trichloroethene	ND	4.4
1,2-Dichloropropane	ND	4.4
Bromodichloromethane	ND	4.4
Dibromomethane	ND	4.4
4-Methyl-2-Pentanone	ND	8.8
cis-1,3-Dichloropropene	ND	4.4
Toluene	ND	4.4
trans-1,3-Dichloropropene	ND	4.4
1,1,2-Trichloroethane	ND	4.4
2-Hexanone	ND	8.8
1,3-Dichloropropane	ND	4.4
Tetrachloroethene	ND	4.4
Dibromochloromethane	ND	4.4
1,2-Dibromoethane	ND	4.4
Chlorobenzene	ND	4.4
1,1,1,2-Tetrachloroethane	ND	4.4
Ethylbenzene	ND	4.4
m,p-Xylenes	ND	4.4
o-Xylene	ND	4.4
Styrene	ND	4.4
Bromoform	ND	4.4
Isopropylbenzene	ND	4.4
1,1,2,2-Tetrachloroethane	ND	4.4
1,2,3-Trichloropropane	ND	4.4
Propylbenzene	ND	4.4
Bromobenzene	ND	4.4
1,3,5-Trimethylbenzene	ND	4.4

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-2-3.0	Dil'n Fac:	0.7102
Lab ID:	287118-001	Batch#:	245721
Matrix:	Soil	Sampled:	03/17/17
Units:	ug/Kg	Received:	03/17/17
Basis:	dry	Analyzed:	03/21/17

Analyte	Result	RL
2-Chlorotoluene	ND	4.4
4-Chlorotoluene	ND	4.4
tert-Butylbenzene	ND	4.4
1,2,4-Trimethylbenzene	ND	4.4
sec-Butylbenzene	ND	4.4
para-Isopropyl Toluene	ND	4.4
1,3-Dichlorobenzene	ND	4.4
1,4-Dichlorobenzene	ND	4.4
n-Butylbenzene	ND	4.4
1,2-Dichlorobenzene	ND	4.4
1,2-Dibromo-3-Chloropropane	ND	4.4
1,2,4-Trichlorobenzene	ND	4.4
Hexachlorobutadiene	ND	4.4
Naphthalene	ND	4.4
1,2,3-Trichlorobenzene	ND	4.4

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-128
1,2-Dichloroethane-d4	82	80-136
Toluene-d8	101	80-120
Bromofluorobenzene	103	80-132

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-2-8.0	Diln Fac:	0.8834
Lab ID:	287118-002	Batch#:	245721
Matrix:	Soil	Sampled:	03/17/17
Units:	ug/Kg	Received:	03/17/17
Basis:	dry	Analyzed:	03/21/17

Moisture: 22%

Analyte	Result	RL
Freon 12	ND	11
Chloromethane	ND	11
Vinyl Chloride	ND	11
Bromomethane	ND	11
Chloroethane	ND	11
Trichlorofluoromethane	ND	5.7
Acetone	ND	23
Freon 113	ND	5.7
1,1-Dichloroethene	ND	5.7
Methylene Chloride	ND	23
Carbon Disulfide	ND	5.7
MTBE	ND	5.7
trans-1,2-Dichloroethene	ND	5.7
Vinyl Acetate	ND	57
1,1-Dichloroethane	ND	5.7
2-Butanone	ND	11
cis-1,2-Dichloroethene	ND	5.7
2,2-Dichloropropane	ND	5.7
Chloroform	ND	5.7
Bromochloromethane	ND	5.7
1,1,1-Trichloroethane	ND	5.7
1,1-Dichloropropene	ND	5.7
Carbon Tetrachloride	ND	5.7
1,2-Dichloroethane	ND	5.7
Benzene	ND	5.7
Trichloroethene	ND	5.7
1,2-Dichloropropane	ND	5.7
Bromodichloromethane	ND	5.7
Dibromomethane	ND	5.7
4-Methyl-2-Pentanone	ND	11
cis-1,3-Dichloropropene	ND	5.7
Toluene	ND	5.7
trans-1,3-Dichloropropene	ND	5.7
1,1,2-Trichloroethane	ND	5.7
2-Hexanone	ND	11
1,3-Dichloropropane	ND	5.7
Tetrachloroethene	ND	5.7
Dibromochloromethane	ND	5.7
1,2-Dibromoethane	ND	5.7
Chlorobenzene	ND	5.7
1,1,1,2-Tetrachloroethane	ND	5.7
Ethylbenzene	ND	5.7
m,p-Xylenes	ND	5.7
o-Xylene	ND	5.7
Styrene	ND	5.7
Bromoform	ND	5.7
Isopropylbenzene	ND	5.7
1,1,2,2-Tetrachloroethane	ND	5.7
1,2,3-Trichloropropane	ND	5.7
Propylbenzene	ND	5.7
Bromobenzene	ND	5.7
1,3,5-Trimethylbenzene	ND	5.7

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-2-8.0	Dil'n Fac:	0.8834
Lab ID:	287118-002	Batch#:	245721
Matrix:	Soil	Sampled:	03/17/17
Units:	ug/Kg	Received:	03/17/17
Basis:	dry	Analyzed:	03/21/17

Analyte	Result	RL
2-Chlorotoluene	ND	5.7
4-Chlorotoluene	ND	5.7
tert-Butylbenzene	ND	5.7
1,2,4-Trimethylbenzene	ND	5.7
sec-Butylbenzene	ND	5.7
para-Isopropyl Toluene	ND	5.7
1,3-Dichlorobenzene	ND	5.7
1,4-Dichlorobenzene	ND	5.7
n-Butylbenzene	ND	5.7
1,2-Dichlorobenzene	ND	5.7
1,2-Dibromo-3-Chloropropane	ND	5.7
1,2,4-Trichlorobenzene	ND	5.7
Hexachlorobutadiene	ND	5.7
Naphthalene	ND	5.7
1,2,3-Trichlorobenzene	ND	5.7

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-128
1,2-Dichloroethane-d4	95	80-136
Toluene-d8	98	80-120
Bromofluorobenzene	98	80-132

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-3-3.0	Diln Fac:	0.7911
Lab ID:	287118-003	Batch#:	245692
Matrix:	Soil	Sampled:	03/17/17
Units:	ug/Kg	Received:	03/17/17
Basis:	dry	Analyzed:	03/20/17

Moisture: 19%

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

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-3-3.0	Dil'n Fac:	0.7911
Lab ID:	287118-003	Batch#:	245692
Matrix:	Soil	Sampled:	03/17/17
Units:	ug/Kg	Received:	03/17/17
Basis:	dry	Analyzed:	03/20/17

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

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-128
1,2-Dichloroethane-d4	114	80-136
Toluene-d8	91	80-120
Bromofluorobenzene	105	80-132

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-3-8.0	Diln Fac:	0.7375
Lab ID:	287118-004	Batch#:	245692
Matrix:	Soil	Sampled:	03/17/17
Units:	ug/Kg	Received:	03/17/17
Basis:	dry	Analyzed:	03/20/17

Moisture: 11%

Analyte	Result	RL
Freon 12	ND	8.3
Chloromethane	ND	8.3
Vinyl Chloride	ND	8.3
Bromomethane	ND	8.3
Chloroethane	ND	8.3
Trichlorofluoromethane	ND	4.1
Acetone	ND	17
Freon 113	ND	4.1
1,1-Dichloroethene	ND	4.1
Methylene Chloride	ND	17
Carbon Disulfide	ND	4.1
MTBE	ND	4.1
trans-1,2-Dichloroethene	ND	4.1
Vinyl Acetate	ND	41
1,1-Dichloroethane	ND	4.1
2-Butanone	ND	8.3
cis-1,2-Dichloroethene	ND	4.1
2,2-Dichloropropane	ND	4.1
Chloroform	ND	4.1
Bromochloromethane	ND	4.1
1,1,1-Trichloroethane	ND	4.1
1,1-Dichloropropene	ND	4.1
Carbon Tetrachloride	ND	4.1
1,2-Dichloroethane	ND	4.1
Benzene	ND	4.1
Trichloroethene	ND	4.1
1,2-Dichloropropane	ND	4.1
Bromodichloromethane	ND	4.1
Dibromomethane	ND	4.1
4-Methyl-2-Pentanone	ND	8.3
cis-1,3-Dichloropropene	ND	4.1
Toluene	ND	4.1
trans-1,3-Dichloropropene	ND	4.1
1,1,2-Trichloroethane	ND	4.1
2-Hexanone	ND	8.3
1,3-Dichloropropane	ND	4.1
Tetrachloroethene	ND	4.1
Dibromochloromethane	ND	4.1
1,2-Dibromoethane	ND	4.1
Chlorobenzene	ND	4.1
1,1,1,2-Tetrachloroethane	ND	4.1
Ethylbenzene	ND	4.1
m,p-Xylenes	ND	4.1
o-Xylene	ND	4.1
Styrene	ND	4.1
Bromoform	ND	4.1
Isopropylbenzene	ND	4.1
1,1,2,2-Tetrachloroethane	ND	4.1
1,2,3-Trichloropropane	ND	4.1
Propylbenzene	ND	4.1
Bromobenzene	ND	4.1
1,3,5-Trimethylbenzene	ND	4.1

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-3-8.0	Dil'n Fac:	0.7375
Lab ID:	287118-004	Batch#:	245692
Matrix:	Soil	Sampled:	03/17/17
Units:	ug/Kg	Received:	03/17/17
Basis:	dry	Analyzed:	03/20/17

Analyte	Result	RL
2-Chlorotoluene	ND	4.1
4-Chlorotoluene	ND	4.1
tert-Butylbenzene	ND	4.1
1,2,4-Trimethylbenzene	ND	4.1
sec-Butylbenzene	ND	4.1
para-Isopropyl Toluene	ND	4.1
1,3-Dichlorobenzene	ND	4.1
1,4-Dichlorobenzene	ND	4.1
n-Butylbenzene	ND	4.1
1,2-Dichlorobenzene	ND	4.1
1,2-Dibromo-3-Chloropropane	ND	4.1
1,2,4-Trichlorobenzene	ND	4.1
Hexachlorobutadiene	ND	4.1
Naphthalene	ND	4.1
1,2,3-Trichlorobenzene	ND	4.1

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-128
1,2-Dichloroethane-d4	112	80-136
Toluene-d8	91	80-120
Bromofluorobenzene	99	80-132

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-4-3.0	Diln Fac:	0.6553
Lab ID:	287118-006	Batch#:	245692
Matrix:	Soil	Sampled:	03/17/17
Units:	ug/Kg	Received:	03/17/17
Basis:	dry	Analyzed:	03/20/17

Moisture: 25%

Analyte	Result	RL
Freon 12	ND	8.7
Chloromethane	ND	8.7
Vinyl Chloride	ND	8.7
Bromomethane	ND	8.7
Chloroethane	ND	8.7
Trichlorofluoromethane	ND	4.4
Acetone	ND	17
Freon 113	ND	4.4
1,1-Dichloroethene	ND	4.4
Methylene Chloride	ND	17
Carbon Disulfide	ND	4.4
MTBE	ND	4.4
trans-1,2-Dichloroethene	ND	4.4
Vinyl Acetate	ND	44
1,1-Dichloroethane	ND	4.4
2-Butanone	ND	8.7
cis-1,2-Dichloroethene	ND	4.4
2,2-Dichloropropane	ND	4.4
Chloroform	ND	4.4
Bromochloromethane	ND	4.4
1,1,1-Trichloroethane	ND	4.4
1,1-Dichloropropene	ND	4.4
Carbon Tetrachloride	ND	4.4
1,2-Dichloroethane	ND	4.4
Benzene	ND	4.4
Trichloroethene	ND	4.4
1,2-Dichloropropane	ND	4.4
Bromodichloromethane	ND	4.4
Dibromomethane	ND	4.4
4-Methyl-2-Pentanone	ND	8.7
cis-1,3-Dichloropropene	ND	4.4
Toluene	ND	4.4
trans-1,3-Dichloropropene	ND	4.4
1,1,2-Trichloroethane	ND	4.4
2-Hexanone	ND	8.7
1,3-Dichloropropane	ND	4.4
Tetrachloroethene	ND	4.4
Dibromochloromethane	ND	4.4
1,2-Dibromoethane	ND	4.4
Chlorobenzene	ND	4.4
1,1,1,2-Tetrachloroethane	ND	4.4
Ethylbenzene	ND	4.4
m,p-Xylenes	ND	4.4
o-Xylene	ND	4.4
Styrene	ND	4.4
Bromoform	ND	4.4
Isopropylbenzene	ND	4.4
1,1,2,2-Tetrachloroethane	ND	4.4
1,2,3-Trichloropropane	ND	4.4
Propylbenzene	ND	4.4
Bromobenzene	ND	4.4
1,3,5-Trimethylbenzene	ND	4.4

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-4-3.0	Dil'n Fac:	0.6553
Lab ID:	287118-006	Batch#:	245692
Matrix:	Soil	Sampled:	03/17/17
Units:	ug/Kg	Received:	03/17/17
Basis:	dry	Analyzed:	03/20/17

Analyte	Result	RL
2-Chlorotoluene	ND	4.4
4-Chlorotoluene	ND	4.4
tert-Butylbenzene	ND	4.4
1,2,4-Trimethylbenzene	ND	4.4
sec-Butylbenzene	ND	4.4
para-Isopropyl Toluene	ND	4.4
1,3-Dichlorobenzene	ND	4.4
1,4-Dichlorobenzene	ND	4.4
n-Butylbenzene	ND	4.4
1,2-Dichlorobenzene	ND	4.4
1,2-Dibromo-3-Chloropropane	ND	4.4
1,2,4-Trichlorobenzene	ND	4.4
Hexachlorobutadiene	ND	4.4
Naphthalene	ND	4.4
1,2,3-Trichlorobenzene	ND	4.4

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-128
1,2-Dichloroethane-d4	112	80-136
Toluene-d8	93	80-120
Bromofluorobenzene	101	80-132

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-4-8.0	Diln Fac:	0.7496
Lab ID:	287118-007	Batch#:	245692
Matrix:	Soil	Sampled:	03/17/17
Units:	ug/Kg	Received:	03/17/17
Basis:	dry	Analyzed:	03/20/17

Moisture: 11%

Analyte	Result	RL
Freon 12	ND	8.4
Chloromethane	ND	8.4
Vinyl Chloride	ND	8.4
Bromomethane	ND	8.4
Chloroethane	ND	8.4
Trichlorofluoromethane	ND	4.2
Acetone	ND	17
Freon 113	ND	4.2
1,1-Dichloroethene	ND	4.2
Methylene Chloride	ND	17
Carbon Disulfide	ND	4.2
MTBE	ND	4.2
trans-1,2-Dichloroethene	ND	4.2
Vinyl Acetate	ND	42
1,1-Dichloroethane	ND	4.2
2-Butanone	ND	8.4
cis-1,2-Dichloroethene	ND	4.2
2,2-Dichloropropane	ND	4.2
Chloroform	ND	4.2
Bromochloromethane	ND	4.2
1,1,1-Trichloroethane	ND	4.2
1,1-Dichloropropene	ND	4.2
Carbon Tetrachloride	ND	4.2
1,2-Dichloroethane	ND	4.2
Benzene	ND	4.2
Trichloroethene	ND	4.2
1,2-Dichloropropane	ND	4.2
Bromodichloromethane	ND	4.2
Dibromomethane	ND	4.2
4-Methyl-2-Pentanone	ND	8.4
cis-1,3-Dichloropropene	ND	4.2
Toluene	ND	4.2
trans-1,3-Dichloropropene	ND	4.2
1,1,2-Trichloroethane	ND	4.2
2-Hexanone	ND	8.4
1,3-Dichloropropane	ND	4.2
Tetrachloroethene	ND	4.2
Dibromochloromethane	ND	4.2
1,2-Dibromoethane	ND	4.2
Chlorobenzene	ND	4.2
1,1,1,2-Tetrachloroethane	ND	4.2
Ethylbenzene	ND	4.2
m,p-Xylenes	ND	4.2
o-Xylene	ND	4.2
Styrene	ND	4.2
Bromoform	ND	4.2
Isopropylbenzene	ND	4.2
1,1,2,2-Tetrachloroethane	ND	4.2
1,2,3-Trichloropropane	ND	4.2
Propylbenzene	ND	4.2
Bromobenzene	ND	4.2
1,3,5-Trimethylbenzene	ND	4.2

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-4-8.0	Dil'n Fac:	0.7496
Lab ID:	287118-007	Batch#:	245692
Matrix:	Soil	Sampled:	03/17/17
Units:	ug/Kg	Received:	03/17/17
Basis:	dry	Analyzed:	03/20/17

Analyte	Result	RL
2-Chlorotoluene	ND	4.2
4-Chlorotoluene	ND	4.2
tert-Butylbenzene	ND	4.2
1,2,4-Trimethylbenzene	ND	4.2
sec-Butylbenzene	ND	4.2
para-Isopropyl Toluene	ND	4.2
1,3-Dichlorobenzene	ND	4.2
1,4-Dichlorobenzene	ND	4.2
n-Butylbenzene	ND	4.2
1,2-Dichlorobenzene	ND	4.2
1,2-Dibromo-3-Chloropropane	ND	4.2
1,2,4-Trichlorobenzene	ND	4.2
Hexachlorobutadiene	ND	4.2
Naphthalene	ND	4.2
1,2,3-Trichlorobenzene	ND	4.2

Surrogate	%REC	Limits
Dibromofluoromethane	105	80-128
1,2-Dichloroethane-d4	115	80-136
Toluene-d8	89	80-120
Bromofluorobenzene	98	80-132

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC877575	Batch#:	245692
Matrix:	Soil	Analyzed:	03/20/17
Units:	ug/Kg		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC877575	Batch#:	245692
Matrix:	Soil	Analyzed:	03/20/17
Units:	ug/Kg		

Analyte	Result	RL
Dibromochloromethane	ND	5.0
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-128
1,2-Dichloroethane-d4	107	80-136
Toluene-d8	92	80-120
Bromofluorobenzene	112	80-132

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8260B
Matrix:	Soil	Batch#:	245692
Units:	ug/Kg	Analyzed:	03/20/17
Diln Fac:	1.000		

Type: BS Lab ID: QC877576

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	12.50	14.28	114	65-127
Benzene	12.50	14.87	119	75-124
Trichloroethene	12.50	14.50	116	76-122
Toluene	12.50	13.28	106	77-120
Chlorobenzene	12.50	13.55	108	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-128
1,2-Dichloroethane-d4	107	80-136
Toluene-d8	92	80-120
Bromofluorobenzene	97	80-132

Type: BSD Lab ID: QC877577

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	12.50	13.85	111	65-127	3	28
Benzene	12.50	15.45	124	75-124	4	25
Trichloroethene	12.50	13.22	106	76-122	9	26
Toluene	12.50	12.50	100	77-120	6	25
Chlorobenzene	12.50	12.80	102	80-120	6	24

Surrogate	%REC	Limits
Dibromofluoromethane	108	80-128
1,2-Dichloroethane-d4	107	80-136
Toluene-d8	91	80-120
Bromofluorobenzene	96	80-132

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	245692
MSS Lab ID:	287146-001	Sampled:	03/20/17
Matrix:	Soil	Received:	03/20/17
Units:	ug/Kg	Analyzed:	03/20/17
Basis:	as received		

Type: MS Diln Fac: 0.9381
Lab ID: QC877637

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.8717	46.90	40.59	87	65-131
Benzene	<0.8370	46.90	38.95	83	68-123
Trichloroethene	<0.7747	46.90	62.84	134	60-136
Toluene	<0.6598	46.90	34.50	74	64-120
Chlorobenzene	<0.6364	46.90	31.30	67	59-120

Surrogate	%REC	Limits
Dibromofluoromethane	92	80-128
1,2-Dichloroethane-d4	97	80-136
Toluene-d8	93	80-120
Bromofluorobenzene	92	80-132

Type: MSD Diln Fac: 0.9259
Lab ID: QC877638

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	46.30	41.10	89	65-131	3	33
Benzene	46.30	41.48	90	68-123	8	30
Trichloroethene	46.30	66.47	144 *	60-136	7	34
Toluene	46.30	33.49	72	64-120	2	31
Chlorobenzene	46.30	32.15	69	59-120	4	33

Surrogate	%REC	Limits
Dibromofluoromethane	87	80-128
1,2-Dichloroethane-d4	90	80-136
Toluene-d8	92	80-120
Bromofluorobenzene	93	80-132

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	245721
MSS Lab ID:	287144-001	Sampled:	03/20/17
Matrix:	Soil	Received:	03/20/17
Units:	ug/Kg	Analyzed:	03/21/17
Basis:	as received		

Type: MS Diln Fac: 0.9208
Lab ID: QC877692

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.5712	46.04	48.72	106	65-131
Benzene	<0.6655	46.04	41.11	89	68-123
Trichloroethene	<0.6932	46.04	42.18	92	60-136
Toluene	<0.7290	46.04	41.14	89	64-120
Chlorobenzene	<0.5976	46.04	41.37	90	59-120

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-128
1,2-Dichloroethane-d4	89	80-136
Toluene-d8	97	80-120
Bromofluorobenzene	95	80-132

Type: MSD Diln Fac: 0.9009
Lab ID: QC877693

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	45.05	47.48	105	65-131	0	33
Benzene	45.05	40.66	90	68-123	1	30
Trichloroethene	45.05	41.77	93	60-136	1	34
Toluene	45.05	40.47	90	64-120	1	31
Chlorobenzene	45.05	40.26	89	59-120	1	33

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-128
1,2-Dichloroethane-d4	88	80-136
Toluene-d8	97	80-120
Bromofluorobenzene	93	80-132

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC877694	Batch#:	245721
Matrix:	Soil	Analyzed:	03/21/17
Units:	ug/Kg		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC877694	Batch#:	245721
Matrix:	Soil	Analyzed:	03/21/17
Units:	ug/Kg		

Analyte	Result	RL
Dibromochloromethane	ND	5.0
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	107	80-128
1,2-Dichloroethane-d4	100	80-136
Toluene-d8	99	80-120
Bromofluorobenzene	101	80-132

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5035
Project#:	15-1311B	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC877741	Batch#:	245721
Matrix:	Soil	Analyzed:	03/21/17
Units:	ug/Kg		

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	24.94	100	65-127
Benzene	25.00	23.67	95	75-124
Trichloroethene	25.00	22.92	92	76-122
Toluene	25.00	23.33	93	77-120
Chlorobenzene	25.00	23.46	94	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-128
1,2-Dichloroethane-d4	89	80-136
Toluene-d8	100	80-120
Bromofluorobenzene	94	80-132

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8270C
Field ID:	IE-2-3.0	Batch#:	245719
Lab ID:	287118-001	Sampled:	03/17/17
Matrix:	Soil	Received:	03/17/17
Units:	ug/Kg	Prepared:	03/21/17
Basis:	dry	Analyzed:	03/22/17
Diln Fac:	1.000		

Moisture: 19%

Analyte	Result	RL
N-Nitrosodimethylamine	ND	410
Phenol	ND	410
bis(2-Chloroethyl)ether	ND	410
2-Chlorophenol	ND	410
1,3-Dichlorobenzene	ND	410
1,4-Dichlorobenzene	ND	410
Benzyl alcohol	ND	410
1,2-Dichlorobenzene	ND	410
2-Methylphenol	ND	410
bis(2-Chloroisopropyl) ether	ND	410
4-Methylphenol	ND	410
N-Nitroso-di-n-propylamine	ND	410
Hexachloroethane	ND	410
Nitrobenzene	ND	410
Isophorone	ND	410
2-Nitrophenol	ND	810
2,4-Dimethylphenol	ND	410
Benzoic acid	ND	2,000
bis(2-Chloroethoxy)methane	ND	410
2,4-Dichlorophenol	ND	410
1,2,4-Trichlorobenzene	ND	410
Naphthalene	ND	81
4-Chloroaniline	ND	410
Hexachlorobutadiene	ND	410
4-Chloro-3-methylphenol	ND	410
2-Methylnaphthalene	ND	81
Hexachlorocyclopentadiene	ND	810
2,4,6-Trichlorophenol	ND	410
2,4,5-Trichlorophenol	ND	410
2-Chloronaphthalene	ND	410
2-Nitroaniline	ND	810
Dimethylphthalate	ND	410
Acenaphthylene	ND	81
2,6-Dinitrotoluene	ND	410
3-Nitroaniline	ND	810
Acenaphthene	ND	81
2,4-Dinitrophenol	ND	810
4-Nitrophenol	ND	810
Dibenzofuran	ND	410
2,4-Dinitrotoluene	ND	410
Diethylphthalate	ND	410
Fluorene	ND	81
4-Chlorophenyl-phenylether	ND	410
4-Nitroaniline	ND	810
4,6-Dinitro-2-methylphenol	ND	810
N-Nitrosodiphenylamine	ND	410
Azobenzene	ND	410
4-Bromophenyl-phenylether	ND	410
Hexachlorobenzene	ND	410
Pentachlorophenol	ND	810
Phenanthrene	ND	81

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8270C
Field ID:	IE-2-3.0	Batch#:	245719
Lab ID:	287118-001	Sampled:	03/17/17
Matrix:	Soil	Received:	03/17/17
Units:	ug/Kg	Prepared:	03/21/17
Basis:	dry	Analyzed:	03/22/17
Diln Fac:	1.000		

Analyte	Result	RL
Anthracene	ND	81
Di-n-butylphthalate	ND	410
Fluoranthene	ND	81
Pyrene	ND	81
Butylbenzylphthalate	ND	410
3,3'-Dichlorobenzidine	ND	810
Benzo(a)anthracene	ND	81
Chrysene	ND	81
bis(2-Ethylhexyl)phthalate	ND	410
Di-n-octylphthalate	ND	410
Benzo(b)fluoranthene	ND	81
Benzo(k)fluoranthene	ND	81
Benzo(a)pyrene	ND	81
Indeno(1,2,3-cd)pyrene	ND	81
Dibenz(a,h)anthracene	ND	81
Benzo(g,h,i)perylene	ND	81

Surrogate	%REC	Limits
2-Fluorophenol	57	28-120
Phenol-d5	56	29-120
2,4,6-Tribromophenol	62	26-120
Nitrobenzene-d5	56	38-120
2-Fluorobiphenyl	60	41-120
Terphenyl-d14	86	43-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8270C
Field ID:	IE-2-8.0	Batch#:	245719
Lab ID:	287118-002	Sampled:	03/17/17
Matrix:	Soil	Received:	03/17/17
Units:	ug/Kg	Prepared:	03/21/17
Basis:	dry	Analyzed:	03/22/17
Diln Fac:	1.000		

Moisture: 22%

Analyte	Result	RL
N-Nitrosodimethylamine	ND	430
Phenol	ND	430
bis(2-Chloroethyl)ether	ND	430
2-Chlorophenol	ND	430
1,3-Dichlorobenzene	ND	430
1,4-Dichlorobenzene	ND	430
Benzyl alcohol	ND	430
1,2-Dichlorobenzene	ND	430
2-Methylphenol	ND	430
bis(2-Chloroisopropyl) ether	ND	430
4-Methylphenol	ND	430
N-Nitroso-di-n-propylamine	ND	430
Hexachloroethane	ND	430
Nitrobenzene	ND	430
Isophorone	ND	430
2-Nitrophenol	ND	870
2,4-Dimethylphenol	ND	430
Benzoic acid	ND	2,200
bis(2-Chloroethoxy)methane	ND	430
2,4-Dichlorophenol	ND	430
1,2,4-Trichlorobenzene	ND	430
Naphthalene	ND	87
4-Chloroaniline	ND	430
Hexachlorobutadiene	ND	430
4-Chloro-3-methylphenol	ND	430
2-Methylnaphthalene	ND	87
Hexachlorocyclopentadiene	ND	870
2,4,6-Trichlorophenol	ND	430
2,4,5-Trichlorophenol	ND	430
2-Chloronaphthalene	ND	430
2-Nitroaniline	ND	870
Dimethylphthalate	ND	430
Acenaphthylene	ND	87
2,6-Dinitrotoluene	ND	430
3-Nitroaniline	ND	870
Acenaphthene	ND	87
2,4-Dinitrophenol	ND	870
4-Nitrophenol	ND	870
Dibenzofuran	ND	430
2,4-Dinitrotoluene	ND	430
Diethylphthalate	ND	430
Fluorene	ND	87
4-Chlorophenyl-phenylether	ND	430
4-Nitroaniline	ND	870
4,6-Dinitro-2-methylphenol	ND	870
N-Nitrosodiphenylamine	ND	430
Azobenzene	ND	430
4-Bromophenyl-phenylether	ND	430
Hexachlorobenzene	ND	430
Pentachlorophenol	ND	870
Phenanthrene	ND	87

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8270C
Field ID:	IE-2-8.0	Batch#:	245719
Lab ID:	287118-002	Sampled:	03/17/17
Matrix:	Soil	Received:	03/17/17
Units:	ug/Kg	Prepared:	03/21/17
Basis:	dry	Analyzed:	03/22/17
Diln Fac:	1.000		

Analyte	Result	RL
Anthracene	ND	87
Di-n-butylphthalate	ND	430
Fluoranthene	ND	87
Pyrene	ND	87
Butylbenzylphthalate	ND	430
3,3'-Dichlorobenzidine	ND	870
Benzo(a)anthracene	ND	87
Chrysene	ND	87
bis(2-Ethylhexyl)phthalate	ND	430
Di-n-octylphthalate	ND	430
Benzo(b)fluoranthene	ND	87
Benzo(k)fluoranthene	ND	87
Benzo(a)pyrene	ND	87
Indeno(1,2,3-cd)pyrene	ND	87
Dibenz(a,h)anthracene	ND	87
Benzo(g,h,i)perylene	ND	87

Surrogate	%REC	Limits
2-Fluorophenol	58	28-120
Phenol-d5	55	29-120
2,4,6-Tribromophenol	54	26-120
Nitrobenzene-d5	57	38-120
2-Fluorobiphenyl	63	41-120
Terphenyl-d14	80	43-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8270C
Field ID:	IE-3-3.0	Batch#:	245719
Lab ID:	287118-003	Sampled:	03/17/17
Matrix:	Soil	Received:	03/17/17
Units:	ug/Kg	Prepared:	03/21/17
Basis:	dry	Analyzed:	03/22/17
Diln Fac:	1.000		

Moisture: 19%

Analyte	Result	RL
N-Nitrosodimethylamine	ND	420
Phenol	ND	420
bis(2-Chloroethyl)ether	ND	420
2-Chlorophenol	ND	420
1,3-Dichlorobenzene	ND	420
1,4-Dichlorobenzene	ND	420
Benzyl alcohol	ND	420
1,2-Dichlorobenzene	ND	420
2-Methylphenol	ND	420
bis(2-Chloroisopropyl) ether	ND	420
4-Methylphenol	ND	420
N-Nitroso-di-n-propylamine	ND	420
Hexachloroethane	ND	420
Nitrobenzene	ND	420
Isophorone	ND	420
2-Nitrophenol	ND	830
2,4-Dimethylphenol	ND	420
Benzoic acid	ND	2,100
bis(2-Chloroethoxy)methane	ND	420
2,4-Dichlorophenol	ND	420
1,2,4-Trichlorobenzene	ND	420
Naphthalene	ND	83
4-Chloroaniline	ND	420
Hexachlorobutadiene	ND	420
4-Chloro-3-methylphenol	ND	420
2-Methylnaphthalene	ND	83
Hexachlorocyclopentadiene	ND	830
2,4,6-Trichlorophenol	ND	420
2,4,5-Trichlorophenol	ND	420
2-Chloronaphthalene	ND	420
2-Nitroaniline	ND	830
Dimethylphthalate	ND	420
Acenaphthylene	ND	83
2,6-Dinitrotoluene	ND	420
3-Nitroaniline	ND	830
Acenaphthene	ND	83
2,4-Dinitrophenol	ND	830
4-Nitrophenol	ND	830
Dibenzofuran	ND	420
2,4-Dinitrotoluene	ND	420
Diethylphthalate	ND	420
Fluorene	ND	83
4-Chlorophenyl-phenylether	ND	420
4-Nitroaniline	ND	830
4,6-Dinitro-2-methylphenol	ND	830
N-Nitrosodiphenylamine	ND	420
Azobenzene	ND	420
4-Bromophenyl-phenylether	ND	420
Hexachlorobenzene	ND	420
Pentachlorophenol	ND	830
Phenanthrene	ND	83

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8270C
Field ID:	IE-3-3.0	Batch#:	245719
Lab ID:	287118-003	Sampled:	03/17/17
Matrix:	Soil	Received:	03/17/17
Units:	ug/Kg	Prepared:	03/21/17
Basis:	dry	Analyzed:	03/22/17
Diln Fac:	1.000		

Analyte	Result	RL
Anthracene	ND	83
Di-n-butylphthalate	ND	420
Fluoranthene	ND	83
Pyrene	ND	83
Butylbenzylphthalate	ND	420
3,3'-Dichlorobenzidine	ND	830
Benzo(a)anthracene	ND	83
Chrysene	ND	83
bis(2-Ethylhexyl)phthalate	ND	420
Di-n-octylphthalate	ND	420
Benzo(b)fluoranthene	ND	83
Benzo(k)fluoranthene	ND	83
Benzo(a)pyrene	ND	83
Indeno(1,2,3-cd)pyrene	ND	83
Dibenz(a,h)anthracene	ND	83
Benzo(g,h,i)perylene	ND	83

Surrogate	%REC	Limits
2-Fluorophenol	64	28-120
Phenol-d5	62	29-120
2,4,6-Tribromophenol	60	26-120
Nitrobenzene-d5	64	38-120
2-Fluorobiphenyl	69	41-120
Terphenyl-d14	84	43-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8270C
Field ID:	IE-3-8.0	Batch#:	245719
Lab ID:	287118-004	Sampled:	03/17/17
Matrix:	Soil	Received:	03/17/17
Units:	ug/Kg	Prepared:	03/21/17
Basis:	dry	Analyzed:	03/22/17
Diln Fac:	1.000		

Moisture: 11%

Analyte	Result	RL
N-Nitrosodimethylamine	ND	370
Phenol	ND	370
bis(2-Chloroethyl)ether	ND	370
2-Chlorophenol	ND	370
1,3-Dichlorobenzene	ND	370
1,4-Dichlorobenzene	ND	370
Benzyl alcohol	ND	370
1,2-Dichlorobenzene	ND	370
2-Methylphenol	ND	370
bis(2-Chloroisopropyl) ether	ND	370
4-Methylphenol	ND	370
N-Nitroso-di-n-propylamine	ND	370
Hexachloroethane	ND	370
Nitrobenzene	ND	370
Isophorone	ND	370
2-Nitrophenol	ND	740
2,4-Dimethylphenol	ND	370
Benzoic acid	ND	1,900
bis(2-Chloroethoxy)methane	ND	370
2,4-Dichlorophenol	ND	370
1,2,4-Trichlorobenzene	ND	370
Naphthalene	ND	74
4-Chloroaniline	ND	370
Hexachlorobutadiene	ND	370
4-Chloro-3-methylphenol	ND	370
2-Methylnaphthalene	ND	74
Hexachlorocyclopentadiene	ND	740
2,4,6-Trichlorophenol	ND	370
2,4,5-Trichlorophenol	ND	370
2-Chloronaphthalene	ND	370
2-Nitroaniline	ND	740
Dimethylphthalate	ND	370
Acenaphthylene	ND	74
2,6-Dinitrotoluene	ND	370
3-Nitroaniline	ND	740
Acenaphthene	ND	74
2,4-Dinitrophenol	ND	740
4-Nitrophenol	ND	740
Dibenzofuran	ND	370
2,4-Dinitrotoluene	ND	370
Diethylphthalate	ND	370
Fluorene	ND	74
4-Chlorophenyl-phenylether	ND	370
4-Nitroaniline	ND	740
4,6-Dinitro-2-methylphenol	ND	740
N-Nitrosodiphenylamine	ND	370
Azobenzene	ND	370
4-Bromophenyl-phenylether	ND	370
Hexachlorobenzene	ND	370
Pentachlorophenol	ND	740
Phenanthrene	ND	74

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8270C
Field ID:	IE-3-8.0	Batch#:	245719
Lab ID:	287118-004	Sampled:	03/17/17
Matrix:	Soil	Received:	03/17/17
Units:	ug/Kg	Prepared:	03/21/17
Basis:	dry	Analyzed:	03/22/17
Diln Fac:	1.000		

Analyte	Result	RL
Anthracene	ND	74
Di-n-butylphthalate	ND	370
Fluoranthene	ND	74
Pyrene	ND	74
Butylbenzylphthalate	ND	370
3,3'-Dichlorobenzidine	ND	740
Benzo(a)anthracene	ND	74
Chrysene	ND	74
bis(2-Ethylhexyl)phthalate	ND	370
Di-n-octylphthalate	ND	370
Benzo(b)fluoranthene	ND	74
Benzo(k)fluoranthene	ND	74
Benzo(a)pyrene	ND	74
Indeno(1,2,3-cd)pyrene	ND	74
Dibenz(a,h)anthracene	ND	74
Benzo(g,h,i)perylene	ND	74

Surrogate	%REC	Limits
2-Fluorophenol	72	28-120
Phenol-d5	70	29-120
2,4,6-Tribromophenol	52	26-120
Nitrobenzene-d5	70	38-120
2-Fluorobiphenyl	76	41-120
Terphenyl-d14	86	43-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8270C
Field ID:	IE-4-3.0	Batch#:	245719
Lab ID:	287118-006	Sampled:	03/17/17
Matrix:	Soil	Received:	03/17/17
Units:	ug/Kg	Prepared:	03/21/17
Basis:	dry	Analyzed:	03/22/17
Diln Fac:	1.000		

Moisture: 25%

Analyte	Result	RL
N-Nitrosodimethylamine	ND	440
Phenol	ND	440
bis(2-Chloroethyl)ether	ND	440
2-Chlorophenol	ND	440
1,3-Dichlorobenzene	ND	440
1,4-Dichlorobenzene	ND	440
Benzyl alcohol	ND	440
1,2-Dichlorobenzene	ND	440
2-Methylphenol	ND	440
bis(2-Chloroisopropyl) ether	ND	440
4-Methylphenol	ND	440
N-Nitroso-di-n-propylamine	ND	440
Hexachloroethane	ND	440
Nitrobenzene	ND	440
Isophorone	ND	440
2-Nitrophenol	ND	880
2,4-Dimethylphenol	ND	440
Benzoic acid	ND	2,200
bis(2-Chloroethoxy)methane	ND	440
2,4-Dichlorophenol	ND	440
1,2,4-Trichlorobenzene	ND	440
Naphthalene	ND	88
4-Chloroaniline	ND	440
Hexachlorobutadiene	ND	440
4-Chloro-3-methylphenol	ND	440
2-Methylnaphthalene	ND	88
Hexachlorocyclopentadiene	ND	880
2,4,6-Trichlorophenol	ND	440
2,4,5-Trichlorophenol	ND	440
2-Chloronaphthalene	ND	440
2-Nitroaniline	ND	880
Dimethylphthalate	ND	440
Acenaphthylene	ND	88
2,6-Dinitrotoluene	ND	440
3-Nitroaniline	ND	880
Acenaphthene	ND	88
2,4-Dinitrophenol	ND	880
4-Nitrophenol	ND	880
Dibenzofuran	ND	440
2,4-Dinitrotoluene	ND	440
Diethylphthalate	ND	440
Fluorene	ND	88
4-Chlorophenyl-phenylether	ND	440
4-Nitroaniline	ND	880
4,6-Dinitro-2-methylphenol	ND	880
N-Nitrosodiphenylamine	ND	440
Azobenzene	ND	440
4-Bromophenyl-phenylether	ND	440
Hexachlorobenzene	ND	440
Pentachlorophenol	ND	880
Phenanthrene	ND	88

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8270C
Field ID:	IE-4-3.0	Batch#:	245719
Lab ID:	287118-006	Sampled:	03/17/17
Matrix:	Soil	Received:	03/17/17
Units:	ug/Kg	Prepared:	03/21/17
Basis:	dry	Analyzed:	03/22/17
Diln Fac:	1.000		

Analyte	Result	RL
Anthracene	ND	88
Di-n-butylphthalate	ND	440
Fluoranthene	ND	88
Pyrene	ND	88
Butylbenzylphthalate	ND	440
3,3'-Dichlorobenzidine	ND	880
Benzo(a)anthracene	ND	88
Chrysene	ND	88
bis(2-Ethylhexyl)phthalate	ND	440
Di-n-octylphthalate	ND	440
Benzo(b)fluoranthene	ND	88
Benzo(k)fluoranthene	ND	88
Benzo(a)pyrene	ND	88
Indeno(1,2,3-cd)pyrene	ND	88
Dibenz(a,h)anthracene	ND	88
Benzo(g,h,i)perylene	ND	88

Surrogate	%REC	Limits
2-Fluorophenol	69	28-120
Phenol-d5	67	29-120
2,4,6-Tribromophenol	53	26-120
Nitrobenzene-d5	66	38-120
2-Fluorobiphenyl	73	41-120
Terphenyl-d14	84	43-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8270C
Field ID:	IE-4-8.0	Batch#:	245719
Lab ID:	287118-007	Sampled:	03/17/17
Matrix:	Soil	Received:	03/17/17
Units:	ug/Kg	Prepared:	03/21/17
Basis:	dry	Analyzed:	03/22/17
Diln Fac:	1.000		

Moisture: 11%

Analyte	Result	RL
N-Nitrosodimethylamine	ND	370
Phenol	ND	370
bis(2-Chloroethyl)ether	ND	370
2-Chlorophenol	ND	370
1,3-Dichlorobenzene	ND	370
1,4-Dichlorobenzene	ND	370
Benzyl alcohol	ND	370
1,2-Dichlorobenzene	ND	370
2-Methylphenol	ND	370
bis(2-Chloroisopropyl) ether	ND	370
4-Methylphenol	ND	370
N-Nitroso-di-n-propylamine	ND	370
Hexachloroethane	ND	370
Nitrobenzene	ND	370
Isophorone	ND	370
2-Nitrophenol	ND	740
2,4-Dimethylphenol	ND	370
Benzoic acid	ND	1,900
bis(2-Chloroethoxy)methane	ND	370
2,4-Dichlorophenol	ND	370
1,2,4-Trichlorobenzene	ND	370
Naphthalene	ND	74
4-Chloroaniline	ND	370
Hexachlorobutadiene	ND	370
4-Chloro-3-methylphenol	ND	370
2-Methylnaphthalene	ND	74
Hexachlorocyclopentadiene	ND	740
2,4,6-Trichlorophenol	ND	370
2,4,5-Trichlorophenol	ND	370
2-Chloronaphthalene	ND	370
2-Nitroaniline	ND	740
Dimethylphthalate	ND	370
Acenaphthylene	ND	74
2,6-Dinitrotoluene	ND	370
3-Nitroaniline	ND	740
Acenaphthene	ND	74
2,4-Dinitrophenol	ND	740
4-Nitrophenol	ND	740
Dibenzofuran	ND	370
2,4-Dinitrotoluene	ND	370
Diethylphthalate	ND	370
Fluorene	ND	74
4-Chlorophenyl-phenylether	ND	370
4-Nitroaniline	ND	740
4,6-Dinitro-2-methylphenol	ND	740
N-Nitrosodiphenylamine	ND	370
Azobenzene	ND	370
4-Bromophenyl-phenylether	ND	370
Hexachlorobenzene	ND	370
Pentachlorophenol	ND	740
Phenanthrene	ND	74

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8270C
Field ID:	IE-4-8.0	Batch#:	245719
Lab ID:	287118-007	Sampled:	03/17/17
Matrix:	Soil	Received:	03/17/17
Units:	ug/Kg	Prepared:	03/21/17
Basis:	dry	Analyzed:	03/22/17
Diln Fac:	1.000		

Analyte	Result	RL
Anthracene	ND	74
Di-n-butylphthalate	ND	370
Fluoranthene	ND	74
Pyrene	ND	74
Butylbenzylphthalate	ND	370
3,3'-Dichlorobenzidine	ND	740
Benzo(a)anthracene	ND	74
Chrysene	ND	74
bis(2-Ethylhexyl)phthalate	ND	370
Di-n-octylphthalate	ND	370
Benzo(b)fluoranthene	ND	74
Benzo(k)fluoranthene	ND	74
Benzo(a)pyrene	ND	74
Indeno(1,2,3-cd)pyrene	ND	74
Dibenz(a,h)anthracene	ND	74
Benzo(g,h,i)perylene	ND	74

Surrogate	%REC	Limits
2-Fluorophenol	73	28-120
Phenol-d5	72	29-120
2,4,6-Tribromophenol	59	26-120
Nitrobenzene-d5	74	38-120
2-Fluorobiphenyl	79	41-120
Terphenyl-d14	93	43-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8270C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC877695	Batch#:	245719
Matrix:	Soil	Prepared:	03/21/17
Units:	ug/Kg	Analyzed:	03/21/17

Analyte	Result	RL
N-Nitrosodimethylamine	ND	330
Phenol	ND	330
bis(2-Chloroethyl)ether	ND	330
2-Chlorophenol	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
Benzyl alcohol	ND	330
1,2-Dichlorobenzene	ND	330
2-Methylphenol	ND	330
bis(2-Chloroisopropyl) ether	ND	330
4-Methylphenol	ND	330
N-Nitroso-di-n-propylamine	ND	330
Hexachloroethane	ND	330
Nitrobenzene	ND	330
Isophorone	ND	330
2-Nitrophenol	ND	660
2,4-Dimethylphenol	ND	330
Benzoic acid	ND	1,700
bis(2-Chloroethoxy)methane	ND	330
2,4-Dichlorophenol	ND	330
1,2,4-Trichlorobenzene	ND	330
Naphthalene	ND	66
4-Chloroaniline	ND	330
Hexachlorobutadiene	ND	330
4-Chloro-3-methylphenol	ND	330
2-Methylnaphthalene	ND	66
Hexachlorocyclopentadiene	ND	660
2,4,6-Trichlorophenol	ND	330
2,4,5-Trichlorophenol	ND	330
2-Chloronaphthalene	ND	330
2-Nitroaniline	ND	660
Dimethylphthalate	ND	330
Acenaphthylene	ND	66
2,6-Dinitrotoluene	ND	330
3-Nitroaniline	ND	660
Acenaphthene	ND	66
2,4-Dinitrophenol	ND	660
4-Nitrophenol	ND	660
Dibenzofuran	ND	330
2,4-Dinitrotoluene	ND	330
Diethylphthalate	ND	330
Fluorene	ND	66
4-Chlorophenyl-phenylether	ND	330
4-Nitroaniline	ND	660
4,6-Dinitro-2-methylphenol	ND	660
N-Nitrosodiphenylamine	ND	330
Azobenzene	ND	330
4-Bromophenyl-phenylether	ND	330
Hexachlorobenzene	ND	330
Pentachlorophenol	ND	660
Phenanthrene	ND	66
Anthracene	ND	66
Di-n-butylphthalate	ND	330
Fluoranthene	ND	66

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8270C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC877695	Batch#:	245719
Matrix:	Soil	Prepared:	03/21/17
Units:	ug/Kg	Analyzed:	03/21/17

Analyte	Result	RL
Pyrene	ND	66
Butylbenzylphthalate	ND	330
3,3'-Dichlorobenzidine	ND	660
Benzo(a)anthracene	ND	66
Chrysene	ND	66
bis(2-Ethylhexyl)phthalate	ND	330
Di-n-octylphthalate	ND	330
Benzo(b)fluoranthene	ND	66
Benzo(k)fluoranthene	ND	66
Benzo(a)pyrene	ND	66
Indeno(1,2,3-cd)pyrene	ND	66
Dibenz(a,h)anthracene	ND	66
Benzo(g,h,i)perylene	ND	66

Surrogate	%REC	Limits
2-Fluorophenol	73	28-120
Phenol-d5	70	29-120
2,4,6-Tribromophenol	73	26-120
Nitrobenzene-d5	69	38-120
2-Fluorobiphenyl	78	41-120
Terphenyl-d14	85	43-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8270C
Type:	LCS	Diln Fac:	2.000
Lab ID:	QC877696	Batch#:	245719
Matrix:	Soil	Prepared:	03/21/17
Units:	ug/Kg	Analyzed:	03/21/17

Analyte	Spiked	Result	%REC	Limits
Phenol	2,642	2,405	91	45-120
2-Chlorophenol	2,642	2,261	86	55-120
1,4-Dichlorobenzene	2,642	2,139	81	58-120
N-Nitroso-di-n-propylamine	2,642	2,100	79	29-122
1,2,4-Trichlorobenzene	2,642	2,223	84	61-120
4-Chloro-3-methylphenol	2,642	2,243	85	56-131
Acenaphthene	990.8	727.3	73	57-120
4-Nitrophenol	2,642	2,125	80	42-120
2,4-Dinitrotoluene	2,642	2,451	93	58-120
Pentachlorophenol	2,642	1,974	75	23-120
Pyrene	990.8	795.1	80	58-121

Surrogate	%REC	Limits
2-Fluorophenol	63	28-120
Phenol-d5	78	29-120
2,4,6-Tribromophenol	85	26-120
Nitrobenzene-d5	69	38-120
2-Fluorobiphenyl	74	41-120
Terphenyl-d14	74	43-120

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8270C
Field ID:	ZZZZZZZZZZ	Batch#:	245719
MSS Lab ID:	287235-001	Sampled:	03/20/17
Matrix:	Soil	Received:	03/20/17
Units:	ug/Kg	Prepared:	03/21/17
Basis:	as received	Analyzed:	03/21/17
Diln Fac:	2.000		

Type: MS Lab ID: QC877697

Analyte	MSS Result	Spiked	Result	%REC	Limits
Phenol	<10.04	2,676	2,343	88	41-120
2-Chlorophenol	<10.04	2,676	2,183	82	48-120
1,4-Dichlorobenzene	<10.04	2,676	1,612	60	46-120
N-Nitroso-di-n-propylamine	<10.04	2,676	2,137	80	29-120
1,2,4-Trichlorobenzene	<10.04	2,676	1,921	72	53-120
4-Chloro-3-methylphenol	<8.373	2,676	2,186	82	52-123
Acenaphthene	<10.04	1,003	719.9	72	48-120
4-Nitrophenol	<71.60	2,676	1,930	72	35-120
2,4-Dinitrotoluene	<9.664	2,676	2,394	89	54-120
Pentachlorophenol	<128.5	2,676	1,594	60	13-120
Pyrene	<10.95	1,003	762.5	76	50-125

Surrogate	%REC	Limits
2-Fluorophenol	58	28-120
Phenol-d5	70	29-120
2,4,6-Tribromophenol	72	26-120
Nitrobenzene-d5	59	38-120
2-Fluorobiphenyl	66	41-120
Terphenyl-d14	69	43-120

Type: MSD Lab ID: QC877698

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Phenol	2,700	2,309	86	41-120	2	47
2-Chlorophenol	2,700	2,186	81	48-120	1	51
1,4-Dichlorobenzene	2,700	1,646	61	46-120	1	45
N-Nitroso-di-n-propylamine	2,700	2,105	78	29-120	2	62
1,2,4-Trichlorobenzene	2,700	1,906	71	53-120	2	43
4-Chloro-3-methylphenol	2,700	2,142	79	52-123	3	38
Acenaphthene	1,012	708.2	70	48-120	3	50
4-Nitrophenol	2,700	1,867	69	35-120	4	52
2,4-Dinitrotoluene	2,700	2,372	88	54-120	2	47
Pentachlorophenol	2,700	1,474	55	13-120	9	72
Pyrene	1,012	753.0	74	50-125	2	50

Surrogate	%REC	Limits
2-Fluorophenol	62	28-120
Phenol-d5	73	29-120
2,4,6-Tribromophenol	75	26-120
Nitrobenzene-d5	65	38-120
2-Fluorobiphenyl	72	41-120
Terphenyl-d14	70	43-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8270C
Field ID:	ZZZZZZZZZZ	Batch#:	245719
MSS Lab ID:	287235-002	Sampled:	03/20/17
Matrix:	Soil	Received:	03/20/17
Units:	ug/Kg	Prepared:	03/21/17
Basis:	as received	Analyzed:	03/21/17
Diln Fac:	2.000		

Type: MS Lab ID: QC877699

Analyte	MSS Result	Spiked	Result	%REC	Limits
Phenol	<10.04	2,647	2,070	78	41-120
2-Chlorophenol	<10.04	2,647	2,114	80	48-120
1,4-Dichlorobenzene	<10.04	2,647	1,582	60	46-120
N-Nitroso-di-n-propylamine	<10.04	2,647	2,037	77	29-120
1,2,4-Trichlorobenzene	<10.04	2,647	1,842	70	53-120
4-Chloro-3-methylphenol	<8.378	2,647	2,018	76	52-123
Acenaphthene	<10.04	992.7	670.4	68	48-120
4-Nitrophenol	<71.64	2,647	1,781	67	35-120
2,4-Dinitrotoluene	<9.670	2,647	2,200	83	54-120
Pentachlorophenol	<128.6	2,647	1,208	46	13-120
Pyrene	<10.96	992.7	721.4	73	50-125

Surrogate	%REC	Limits
2-Fluorophenol	61	28-120
Phenol-d5	73	29-120
2,4,6-Tribromophenol	74	26-120
Nitrobenzene-d5	65	38-120
2-Fluorobiphenyl	71	41-120
Terphenyl-d14	71	43-120

Type: MSD Lab ID: QC877700

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Phenol	2,660	2,112	79	41-120	2	47
2-Chlorophenol	2,660	2,195	83	48-120	3	51
1,4-Dichlorobenzene	2,660	1,643	62	46-120	3	45
N-Nitroso-di-n-propylamine	2,660	2,077	78	29-120	1	62
1,2,4-Trichlorobenzene	2,660	1,916	72	53-120	3	43
4-Chloro-3-methylphenol	2,660	2,150	81	52-123	6	38
Acenaphthene	997.3	702.0	70	48-120	4	50
4-Nitrophenol	2,660	1,988	75	35-120	11	52
2,4-Dinitrotoluene	2,660	2,375	89	54-120	7	47
Pentachlorophenol	2,660	1,349	51	13-120	11	72
Pyrene	997.3	773.3	78	50-125	6	50

Surrogate	%REC	Limits
2-Fluorophenol	62	28-120
Phenol-d5	75	29-120
2,4,6-Tribromophenol	79	26-120
Nitrobenzene-d5	65	38-120
2-Fluorobiphenyl	73	41-120
Terphenyl-d14	75	43-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8082
Matrix:	Soil	Batch#:	245701
Units:	ug/Kg	Sampled:	03/17/17
Basis:	dry	Received:	03/17/17
Diln Fac:	1.000	Prepared:	03/20/17

Field ID: IE-2-3.0 Moisture: 19%
Type: SAMPLE Analyzed: 03/22/17
Lab ID: 287118-001

Analyte	Result	RL
Aroclor-1016	ND	5.9
Aroclor-1221	ND	12
Aroclor-1232	ND	5.9
Aroclor-1242	ND	5.9
Aroclor-1248	ND	5.9
Aroclor-1254	ND	5.9
Aroclor-1260	ND	5.9

Surrogate	%REC	Limits
Decachlorobiphenyl	102	38-158

Field ID: IE-2-8.0 Moisture: 22%
Type: SAMPLE Analyzed: 03/22/17
Lab ID: 287118-002

Analyte	Result	RL
Aroclor-1016	ND	6.1
Aroclor-1221	ND	12
Aroclor-1232	ND	6.1
Aroclor-1242	ND	6.1
Aroclor-1248	ND	6.1
Aroclor-1254	ND	6.1
Aroclor-1260	ND	6.1

Surrogate	%REC	Limits
Decachlorobiphenyl	95	38-158

Field ID: IE-3-3.0 Moisture: 19%
Type: SAMPLE Analyzed: 03/23/17
Lab ID: 287118-003

Analyte	Result	RL
Aroclor-1016	ND	5.9
Aroclor-1221	ND	12
Aroclor-1232	ND	5.9
Aroclor-1242	ND	5.9
Aroclor-1248	ND	5.9
Aroclor-1254	ND	5.9
Aroclor-1260	ND	5.9

Surrogate	%REC	Limits
Decachlorobiphenyl	109	38-158

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8082
Matrix:	Soil	Batch#:	245701
Units:	ug/Kg	Sampled:	03/17/17
Basis:	dry	Received:	03/17/17
Diln Fac:	1.000	Prepared:	03/20/17

Field ID: IE-3-8.0 Moisture: 11%
Type: SAMPLE Analyzed: 03/23/17
Lab ID: 287118-004

Analyte	Result	RL
Aroclor-1016	ND	5.4
Aroclor-1221	ND	11
Aroclor-1232	ND	5.4
Aroclor-1242	ND	5.4
Aroclor-1248	ND	5.4
Aroclor-1254	ND	5.4
Aroclor-1260	ND	5.4

Surrogate	%REC	Limits
Decachlorobiphenyl	125	38-158

Field ID: IE-4-3.0 Moisture: 25%
Type: SAMPLE Analyzed: 03/23/17
Lab ID: 287118-006

Analyte	Result	RL
Aroclor-1016	ND	6.3
Aroclor-1221	ND	13
Aroclor-1232	ND	6.3
Aroclor-1242	ND	6.3
Aroclor-1248	ND	6.3
Aroclor-1254	ND	6.3
Aroclor-1260	ND	6.3

Surrogate	%REC	Limits
Decachlorobiphenyl	110	38-158

Field ID: IE-4-8.0 Moisture: 11%
Type: SAMPLE Analyzed: 03/23/17
Lab ID: 287118-007

Analyte	Result	RL
Aroclor-1016	ND	5.4
Aroclor-1221	ND	11
Aroclor-1232	ND	5.4
Aroclor-1242	ND	5.4
Aroclor-1248	ND	5.4
Aroclor-1254	ND	5.4
Aroclor-1260	ND	5.4

Surrogate	%REC	Limits
Decachlorobiphenyl	146	38-158

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8082
Matrix:	Soil	Batch#:	245701
Units:	ug/Kg	Sampled:	03/17/17
Basis:	dry	Received:	03/17/17
Diln Fac:	1.000	Prepared:	03/20/17

Type: BLANK
Lab ID: QC877611
Analyzed: 03/22/17

Analyte	Result	RL
Aroclor-1016	ND	4.7
Aroclor-1221	ND	9.5
Aroclor-1232	ND	4.7
Aroclor-1242	ND	4.7
Aroclor-1248	ND	4.7
Aroclor-1254	ND	4.7
Aroclor-1260	ND	4.7

Surrogate	%REC	Limits
Decachlorobiphenyl	94	38-158

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8082
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC877612	Batch#:	245701
Matrix:	Soil	Prepared:	03/20/17
Units:	ug/Kg	Analyzed:	03/22/17

Analyte	Spiked	Result	%REC	Limits
Aroclor-1016	82.56	96.35	117	61-152
Aroclor-1260	82.56	99.99	121	62-158

Surrogate	%REC	Limits
Decachlorobiphenyl	98	38-158

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3550B
Project#:	15-1311B	Analysis:	EPA 8082
Field ID:	ZZZZZZZZZZ	Batch#:	245701
MSS Lab ID:	287109-005	Sampled:	03/17/17
Matrix:	Soil	Received:	03/17/17
Units:	ug/Kg	Prepared:	03/20/17
Basis:	as received	Analyzed:	03/22/17
Diln Fac:	1.000		

Type: MS Lab ID: QC877613

Analyte	MSS Result	Spiked	Result	%REC	Limits
Aroclor-1016	<1.182	82.37	88.87	108	56-167
Aroclor-1260	45.93	82.37	141.9	117	46-167

Surrogate	%REC	Limits
Decachlorobiphenyl	74	38-158

Type: MSD Lab ID: QC877614

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aroclor-1016	83.17	105.8	127	56-167	16	50
Aroclor-1260	83.17	155.0	131	46-167	8	39

Surrogate	%REC	Limits
Decachlorobiphenyl	74	38-158

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

California LUFT Metals

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3050B
Project#:	15-1311B	Analysis:	EPA 6010B
Matrix:	Soil	Sampled:	03/17/17
Units:	mg/Kg	Received:	03/17/17
Basis:	dry	Prepared:	03/22/17
Diln Fac:	1.000	Analyzed:	03/22/17
Batch#:	245789		

Field ID: IE-2-3.0 Lab ID: 287118-001
Type: SAMPLE Moisture: 19%

Analyte	Result	RL
Cadmium	ND	0.30
Chromium	56	0.30
Lead	7.8	1.2
Nickel	58	0.30
Zinc	36	1.2

Field ID: IE-2-8.0 Lab ID: 287118-002
Type: SAMPLE Moisture: 22%

Analyte	Result	RL
Cadmium	ND	0.33
Chromium	71	0.33
Lead	8.4	1.3
Nickel	210	0.33
Zinc	140	1.3

Field ID: IE-3-3.0 Lab ID: 287118-003
Type: SAMPLE Moisture: 19%

Analyte	Result	RL
Cadmium	ND	0.29
Chromium	53	0.29
Lead	8.7	1.1
Nickel	60	0.29
Zinc	37	1.1

Field ID: IE-3-8.0 Lab ID: 287118-004
Type: SAMPLE Moisture: 11%

Analyte	Result	RL
Cadmium	ND	0.31
Chromium	54	0.31
Lead	7.0	1.1
Nickel	120	0.31
Zinc	120	1.2

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California LUFT Metals

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3050B
Project#:	15-1311B	Analysis:	EPA 6010B
Matrix:	Soil	Sampled:	03/17/17
Units:	mg/Kg	Received:	03/17/17
Basis:	dry	Prepared:	03/22/17
Diln Fac:	1.000	Analyzed:	03/22/17
Batch#:	245789		

Field ID: IE-4-3.0 Lab ID: 287118-006
Type: SAMPLE Moisture: 25%

Analyte	Result	RL
Cadmium	ND	0.33
Chromium	100	0.33
Lead	10	1.3
Nickel	77	0.33
Zinc	42	1.3

Field ID: IE-4-8.0 Lab ID: 287118-007
Type: SAMPLE Moisture: 11%

Analyte	Result	RL
Cadmium	0.39	0.29
Chromium	69	0.29
Lead	9.7	1.1
Nickel	150	0.29
Zinc	140	1.2

Type: BLANK Lab ID: QC877981

Analyte	Result	RL
Cadmium	ND	0.27
Chromium	ND	0.27
Lead	ND	1.0
Nickel	ND	0.27
Zinc	ND	1.1

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California LUFT Metals

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3050B
Project#:	15-1311B	Analysis:	EPA 6010B
Matrix:	Soil	Batch#:	245789
Units:	mg/Kg	Prepared:	03/22/17
Diln Fac:	1.000	Analyzed:	03/22/17

Type: BS Lab ID: QC877982

Analyte	Spiked	Result	%REC	Limits
Cadmium	50.51	49.80	99	80-120
Chromium	50.51	53.94	107	80-120
Lead	50.51	50.00	99	80-120
Nickel	50.51	50.01	99	80-120
Zinc	50.51	49.53	98	80-120

Type: BSD Lab ID: QC877983

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Cadmium	52.63	50.26	95	80-120	3	20
Chromium	52.63	54.46	103	80-120	3	20
Lead	52.63	51.47	98	80-120	1	20
Nickel	52.63	50.52	96	80-120	3	20
Zinc	52.63	50.13	95	80-120	3	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California LUFT Metals

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3050B
Project#:	15-1311B	Analysis:	EPA 6010B
Field ID:	IE-2-3.0	Batch#:	245789
MSS Lab ID:	287118-001	Sampled:	03/17/17
Matrix:	Soil	Received:	03/17/17
Units:	mg/Kg	Prepared:	03/22/17
Basis:	dry	Analyzed:	03/22/17
Diln Fac:	1.000		

Type: MS Moisture: 19%
Lab ID: QC877984

Analyte	MSS Result	Spiked	Result	%REC	Limits
Cadmium	0.1294	58.23	60.28	103	73-122
Chromium	56.04	58.23	125.4	119	63-135
Lead	7.760	58.23	63.76	96	50-131
Nickel	57.71	58.23	118.3	104	56-135
Zinc	35.96	58.23	102.2	114	48-143

Type: MSD Moisture: 19%
Lab ID: QC877985

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Cadmium	65.67	69.12	105	73-122	2	28
Chromium	65.67	151.6	145 *	63-135	13	34
Lead	65.67	75.48	103	50-131	6	48
Nickel	65.67	129.3	109	56-135	3	33
Zinc	65.67	105.5	106	48-143	4	33

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

Curtis & Tompkins, Ltd.

Moisture

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	METHOD
Project#:	15-1311B	Analysis:	EPA CLP
Analyte:	Moisture, Percent	Batch#:	245757
Matrix:	Soil	Sampled:	03/17/17
Units:	%	Received:	03/17/17
Diln Fac:	1.000	Analyzed:	03/22/17

Field ID	Lab ID	Result	RL
IE-2-3.0	287118-001	19	1
IE-2-8.0	287118-002	22	1
IE-3-3.0	287118-003	19	1
IE-3-8.0	287118-004	11	1
IE-4-3.0	287118-006	25	1
IE-4-8.0	287118-007	11	1

RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Moisture

Lab #:	287118	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	METHOD
Project#:	15-1311B	Analysis:	EPA CLP
Analyte:	Moisture, Percent	Units:	%
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	SDUP	Batch#:	245757
MSS Lab ID:	287068-005	Sampled:	03/16/17
Lab ID:	QC877857	Received:	03/16/17
Matrix:	Soil	Analyzed:	03/22/17

MSS Result	Result	RL	RPD	Lim
12.25	13.26	1.000	8	26

RL= Reporting Limit
RPD= Relative Percent Difference


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Analytical Laboratories, Since 1878

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

Laboratory Job Number 287133
ANALYTICAL REPORT

Iris Environmental	Project : 15-1311B
1438 Webster Street	Location : 3820 Penniman Ave
Oakland, CA 94612	Level : II

Sample ID	Lab ID
IE-5-SG	287133-001

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Tracy Babjar Date: 03/24/2017

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226 Ext 13107

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**287133**
Client:	**Iris Environmental**
Project:	**15-1311B**
Location:	**3820 Penniman Ave**
Request Date:	**03/20/17**
Samples Received:	**03/20/17**

This data package contains sample and QC results for one air sample, requested for the above referenced project on 03/20/17. The sample was received intact.

Volatile Organics in Air by MS (EPA TO-15):

High response was observed for vinyl acetate in the ICV analyzed 03/11/17 11:05; affected data was qualified with "b". High responses were observed for 1,1-dichloroethene, naphthalene, and vinyl acetate in the CCV analyzed 04/03/17 07:37; affected data was qualified with "b". High recoveries were observed for a number of analytes in the BS/BSD for batch 246208; the associated RPDs were within limits, and these analytes were not detected at or above the RL in the associated sample. No other analytical problems were encountered.

Volatile Organics in Air GC (ASTM D1946-90):

No analytical problems were encountered.

Subject: RE: 15-1311B - C&T Data (287133)
From: Alexi Snyder <asnyder@irisenv.com>
Date: 4/3/2017 2:03 PM
To: "tracy.babjar@ctberk.com" <tracy.babjar@ctberk.com>
CC: "Conor McDonough" <Conor@irisenv.com>, Craig Pelletier <craig@irisenv.com>, Leah Nelson <leah@irisenv.com>

Hi Tracy,

We would like to run the soil gas sample IE-5-SG for TO-15 and oxygen on a standard TAT.

Thank you!
Alexi

From: Tracy Babjar [mailto:tracy.babjar@ctberk.com]
Sent: Friday, March 24, 2017 4:23 PM
To: Alexi Snyder
Subject: 15-1311B - C&T Data (287133)

Hi Alexi,

Data qualifiers and additional information necessary for the interpretation of the test results are contained in the PDF file and may not be included in the EDD.

Please find attached the following files:
• Invoice
• PDF Deliverable
• Iris format EDD (287133_iris.zip)

You may also access this data at https://labline.ctberk.com/
Email was also sent to: Conor@irisenv.com, Craig@irisenv.com, eperney@irisenv.com, leah@irisenv.com

C&T sends its e-reports via the Internet as Portable Document Format (PDF) files. Reports in this format, when accompanied by a signed cover page, are considered official reports. **No hardcopy reports will be sent either by fax or U.S. Postal Service unless otherwise requested.** You may distribute your PDF files electronically or as printed hardcopies, as long as they are distributed in their entirety.

CHAIN OF CUSTODY

Page 1 of 1

Chain of Custody # ______

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ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

C&T LOGIN # 287133

Project No: ~~15-1~~ 15-1311B

Sampler: A. Snyder

Project Name: 3820 Pennin...

Report To: C. McDonough, C. Pelletier

Project P. O. No:

Company: RPS Ins

EDD Format: ~~Std~~ Report Level ☒ II ☐ III ☐ IV

Telephone: 510-834-4747

Turnaround Time: ☐ RUSH ______ ☒ Standard

Email: AlexiC@, connorC@, craigC@ ins enviro.com

Lab No.	Sample ID.	SAMPLING: Date Collected	SAMPLING: Time Collected	MATRIX: Water	MATRIX: Solid	MATRIX: Air	# of Containers	CHEMICAL PRESERVATIVE: HCl	H2SO4	HNO3	NaOH	None	ANALYTICAL REQUEST: TO-15	Fixed Gases	Hold
1	IE-5-SG	3-17-17	1230			x	4					x	X		x

Notes:

Hold!

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
[signature]	3-17-17	1651	[signature]	3/17/17	1651
			[signature]	3/20/17	11:02

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 287133 Date Received 3/20/17 Number of coolers 0
Client IRIS Project 3820 Penniman Ave / 15-1311B

Date Opened 3/20/17 By (print) FWA (sign) [signature]
Date Logged in ↓ By (print) ↓ (sign) ↓
Date Labeled ↓ By (print) ↓ (sign) ↓

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

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

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

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

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

☐ Temperature blank(s) included? ☐ Thermometer# ☐ IR Gun#

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

8. Were Method 5035 sampling containers present? YES NO
If YES, what time were they transferred to freezer?
9. Did all bottles arrive unbroken/unopened? YES NO
10. Are there any missing / extra samples? YES NO
11. Are samples in the appropriate containers for indicated tests? YES NO
12. Are sample labels present, in good condition and complete? YES NO
13. Do the sample labels agree with custody papers? YES NO
14. Was sufficient amount of sample sent for tests requested? YES NO
15. Are the samples appropriately preserved? YES NO N/A
16. Did you check preservatives for all bottles for each sample? YES NO N/A
17. Did you document your preservative check? (pH strip lot#) YES NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO N/A
19. Did you change the hold time in LIMS for preserved terracores? YES NO N/A
20. Are bubbles > 6mm absent in VOA samples? YES NO N/A
21. Was the client contacted concerning this sample delivery? YES NO
If YES, Who was called? By Date:

COMMENTS

Curtis & Tompkins, Ltd.

Detections Summary for 287133

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

Client : Iris Environmental
Project : 15-1311B
Location : 3820 Penniman Ave

Client Sample ID : IE-5-SG Laboratory Sample ID : 287133-001

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Acetone	9.9		7.6	ppbv	As Recd	3.800	EPA TO-15	METHOD
n-Hexane	12		1.9	ppbv	As Recd	3.800	EPA TO-15	METHOD
Cyclohexane	120		1.9	ppbv	As Recd	3.800	EPA TO-15	METHOD
Benzene	23		1.9	ppbv	As Recd	3.800	EPA TO-15	METHOD
n-Heptane	20		1.9	ppbv	As Recd	3.800	EPA TO-15	METHOD
Toluene	180		1.9	ppbv	As Recd	3.800	EPA TO-15	METHOD
Tetrachloroethene	3.0		1.9	ppbv	As Recd	3.800	EPA TO-15	METHOD
Ethylbenzene	17		1.9	ppbv	As Recd	3.800	EPA TO-15	METHOD
m,p-Xylenes	71		1.9	ppbv	As Recd	3.800	EPA TO-15	METHOD
o-Xylene	18		1.9	ppbv	As Recd	3.800	EPA TO-15	METHOD
4-Ethyltoluene	2.8		1.9	ppbv	As Recd	3.800	EPA TO-15	METHOD
1,3,5-Trimethylbenzene	2.3		1.9	ppbv	As Recd	3.800	EPA TO-15	METHOD
1,2,4-Trimethylbenzene	7.4		1.9	ppbv	As Recd	3.800	EPA TO-15	METHOD
Oxygen	170,000		1,900	ppmv	As Recd	1.900	ASTM D1946	METHOD

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	287133	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	METHOD
Project#:	15-1311B	Analysis:	EPA TO-15
Field ID:	IE-5-SG	Diln Fac:	3.800
Lab ID:	287133-001	Batch#:	246208
Matrix:	Air	Sampled:	03/17/17
Units (V):	ppbv	Received:	03/20/17
Units (M):	ug/m3	Analyzed:	04/04/17

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	1.9	ND	9.4
Freon 114	ND	1.9	ND	13
Chloromethane	ND	1.9	ND	3.9
Vinyl Chloride	ND	1.9	ND	4.9
1,3-Butadiene	ND	1.9	ND	4.2
Bromomethane	ND	1.9	ND	7.4
Chloroethane	ND	1.9	ND	5.0
Trichlorofluoromethane	ND	1.9	ND	11
Acrolein	ND	7.6	ND	17
1,1-Dichloroethene	ND	1.9	ND	7.5
Freon 113	ND	1.9	ND	15
Acetone	9.9	7.6	24	18
Carbon Disulfide	ND	1.9	ND	5.9
Isopropanol	ND	7.6	ND	19
Methylene Chloride	ND	1.9	ND	6.6
trans-1,2-Dichloroethene	ND	1.9	ND	7.5
MTBE	ND	1.9	ND	6.9
n-Hexane	12	1.9	41	6.7
1,1-Dichloroethane	ND	1.9	ND	7.7
Vinyl Acetate	ND	1.9	ND	6.7
cis-1,2-Dichloroethene	ND	1.9	ND	7.5
2-Butanone	ND	6.3	ND	19
Ethyl Acetate	ND	1.9	ND	6.8
Tetrahydrofuran	ND	1.9	ND	5.6
Chloroform	ND	1.9	ND	9.3
1,1,1-Trichloroethane	ND	1.9	ND	10
Cyclohexane	120	1.9	400	6.5
Carbon Tetrachloride	ND	1.9	ND	12
Benzene	23	1.9	75	6.1
1,2-Dichloroethane	ND	1.9	ND	7.7
n-Heptane	20	1.9	84	7.8
Trichloroethene	ND	1.9	ND	10
1,2-Dichloropropane	ND	1.9	ND	8.8
Bromodichloromethane	ND	1.9	ND	13
cis-1,3-Dichloropropene	ND	1.9	ND	8.6

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

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	287133	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	METHOD
Project#:	15-1311B	Analysis:	EPA TO-15
Field ID:	IE-5-SG	Diln Fac:	3.800
Lab ID:	287133-001	Batch#:	246208
Matrix:	Air	Sampled:	03/17/17
Units (V):	ppbv	Received:	03/20/17
Units (M):	ug/m3	Analyzed:	04/04/17

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	ND	1.9	ND	7.8
Toluene	180	1.9	680	7.2
trans-1,3-Dichloropropene	ND	1.9	ND	8.6
1,1,2-Trichloroethane	ND	1.9	ND	10
Tetrachloroethene	3.0	1.9	20	13
2-Hexanone	ND	1.9	ND	7.8
Dibromochloromethane	ND	1.9	ND	16
1,2-Dibromoethane	ND	1.9	ND	15
Chlorobenzene	ND	1.9	ND	8.7
Ethylbenzene	17	1.9	76	8.3
m,p-Xylenes	71	1.9	310	8.3
o-Xylene	18	1.9	79	8.3
Styrene	ND	1.9	ND	8.1
Bromoform	ND	1.9	ND	20
1,1,2,2-Tetrachloroethane	ND	1.9	ND	13
4-Ethyltoluene	2.8	1.9	14	9.3
1,3,5-Trimethylbenzene	2.3	1.9	12	9.3
1,2,4-Trimethylbenzene	7.4	1.9	36	9.3
1,3-Dichlorobenzene	ND	1.9	ND	11
1,4-Dichlorobenzene	ND	1.9	ND	11
Benzyl chloride	ND	1.9	ND	9.8
1,2-Dichlorobenzene	ND	1.9	ND	11
1,2,4-Trichlorobenzene	ND	1.9	ND	14
Hexachlorobutadiene	ND	1.9	ND	20
Naphthalene	ND	7.6	ND	40

Surrogate	%REC	Limits
Bromofluorobenzene	100	80-120

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

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	287133	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	METHOD
Project#:	15-1311B	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	246208
Units (V):	ppbv	Analyzed:	04/03/17
Diln Fac:	1.000		

Type: BS Lab ID: QC879678

Analyte	Spiked	Result (V)	%REC	Limits
Freon 12	10.00	8.741	87	70-130
Freon 114	10.00	9.370	94	70-130
Chloromethane	10.00	7.613	76	70-130
Vinyl Chloride	10.00	8.789	88	70-130
1,3-Butadiene	10.00	8.822	88	70-130
Bromomethane	10.00	7.592	76	70-130
Chloroethane	10.00	8.720	87	70-130
Trichlorofluoromethane	10.00	9.934	99	70-130
Acrolein	10.00	12.08	121	70-130
1,1-Dichloroethene	10.00	13.12 b	131 *	70-130
Freon 113	10.00	10.93	109	70-130
Acetone	10.00	8.849	88	70-130
Carbon Disulfide	10.00	10.08	101	70-130
Isopropanol	10.00	8.877	89	70-130
Methylene Chloride	10.00	9.608	96	70-130
trans-1,2-Dichloroethene	10.00	11.41	114	70-130
MTBE	10.00	10.55	105	70-130
n-Hexane	10.00	10.98	110	70-130
1,1-Dichloroethane	10.00	11.15	112	70-130
Vinyl Acetate	10.00	16.15 b	161 *	70-130
cis-1,2-Dichloroethene	10.00	10.60	106	70-130
2-Butanone	10.00	8.825	88	70-130
Ethyl Acetate	10.00	7.891	79	70-130
Tetrahydrofuran	10.00	11.45	114	70-130
Chloroform	10.00	10.62	106	70-130
1,1,1-Trichloroethane	10.00	10.98	110	70-130
Cyclohexane	10.00	10.62	106	70-130
Carbon Tetrachloride	10.00	9.373	94	70-130
Benzene	10.00	10.07	101	70-130
1,2-Dichloroethane	10.00	10.95	109	70-130
n-Heptane	10.00	11.87	119	70-130
Trichloroethene	10.00	10.33	103	70-130

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	287133	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	METHOD
Project#:	15-1311B	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	246208
Units (V):	ppbv	Analyzed:	04/03/17
Diln Fac:	1.000		

Analyte	Spiked	Result (V)	%REC	Limits
1,2-Dichloropropane	10.00	10.99	110	70-130
Bromodichloromethane	10.00	10.47	105	70-130
cis-1,3-Dichloropropene	10.00	10.13	101	70-130
4-Methyl-2-Pentanone	10.00	12.08	121	70-130
Toluene	10.00	11.72	117	70-130
trans-1,3-Dichloropropene	10.00	10.93	109	70-130
1,1,2-Trichloroethane	10.00	11.89	119	70-130
Tetrachloroethene	10.00	12.39	124	70-130
2-Hexanone	10.00	12.93	129	70-130
Dibromochloromethane	10.00	10.73	107	70-130
1,2-Dibromoethane	10.00	11.13	111	70-130
Chlorobenzene	10.00	11.95	120	70-130
Ethylbenzene	10.00	11.57	116	70-130
m,p-Xylenes	20.00	23.66	118	70-130
o-Xylene	10.00	11.61	116	70-130
Styrene	10.00	11.38	114	70-130
Bromoform	10.00	10.35	104	70-130
1,1,2,2-Tetrachloroethane	10.00	11.74	117	70-130
4-Ethyltoluene	10.00	11.66	117	70-130
1,3,5-Trimethylbenzene	10.00	11.98	120	70-130
1,2,4-Trimethylbenzene	10.00	12.29	123	70-130
1,3-Dichlorobenzene	10.00	11.48	115	70-130
1,4-Dichlorobenzene	10.00	11.49	115	70-130
Benzyl chloride	10.00	11.52	115	70-130
1,2-Dichlorobenzene	10.00	11.77	118	70-130
1,2,4-Trichlorobenzene	10.00	12.84	128	70-130
Hexachlorobutadiene	10.00	12.91	129	70-130
Naphthalene	10.00	13.35 b	134 *	70-130

Surrogate	%REC	Limits
Bromofluorobenzene	96	70-130

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	287133	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	METHOD
Project#:	15-1311B	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	246208
Units (V):	ppbv	Analyzed:	04/03/17
Diln Fac:	1.000		

Type: BSD Lab ID: QC879679

Analyte	Spiked	Result (V)	%REC	Limits	RPD	Lim
Freon 12	10.00	8.538	85	70-130	2	25
Freon 114	10.00	9.342	93	70-130	0	25
Chloromethane	10.00	7.195	72	70-130	6	25
Vinyl Chloride	10.00	8.598	86	70-130	2	25
1,3-Butadiene	10.00	8.933	89	70-130	1	25
Bromomethane	10.00	7.686	77	70-130	1	25
Chloroethane	10.00	8.556	86	70-130	2	25
Trichlorofluoromethane	10.00	9.758	98	70-130	2	25
Acrolein	10.00	11.83	118	70-130	2	25
1,1-Dichloroethene	10.00	13.00 b	130	70-130	1	25
Freon 113	10.00	10.56	106	70-130	3	25
Acetone	10.00	9.010	90	70-130	2	25
Carbon Disulfide	10.00	10.11	101	70-130	0	25
Isopropanol	10.00	9.173	92	70-130	3	25
Methylene Chloride	10.00	9.624	96	70-130	0	25
trans-1,2-Dichloroethene	10.00	11.46	115	70-130	0	25
MTBE	10.00	10.45	104	70-130	1	25
n-Hexane	10.00	11.00	110	70-130	0	25
1,1-Dichloroethane	10.00	11.25	112	70-130	1	25
Vinyl Acetate	10.00	16.10 b	161 *	70-130	0	25
cis-1,2-Dichloroethene	10.00	10.72	107	70-130	1	25
2-Butanone	10.00	8.893	89	70-130	1	25
Ethyl Acetate	10.00	8.010	80	70-130	1	25
Tetrahydrofuran	10.00	11.48	115	70-130	0	25
Chloroform	10.00	10.81	108	70-130	2	25
1,1,1-Trichloroethane	10.00	10.92	109	70-130	1	25
Cyclohexane	10.00	10.53	105	70-130	1	25
Carbon Tetrachloride	10.00	9.189	92	70-130	2	25
Benzene	10.00	10.09	101	70-130	0	25
1,2-Dichloroethane	10.00	10.76	108	70-130	2	25
n-Heptane	10.00	11.73	117	70-130	1	25
Trichloroethene	10.00	10.62	106	70-130	3	25

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	287133	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	METHOD
Project#:	15-1311B	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	246208
Units (V):	ppbv	Analyzed:	04/03/17
Diln Fac:	1.000		

Analyte	Spiked	Result (V)	%REC	Limits	RPD	Lim
1,2-Dichloropropane	10.00	10.58	106	70-130	4	25
Bromodichloromethane	10.00	10.48	105	70-130	0	25
cis-1,3-Dichloropropene	10.00	10.29	103	70-130	2	25
4-Methyl-2-Pentanone	10.00	11.70	117	70-130	3	25
Toluene	10.00	11.97	120	70-130	2	25
trans-1,3-Dichloropropene	10.00	11.15	112	70-130	2	25
1,1,2-Trichloroethane	10.00	12.21	122	70-130	3	25
Tetrachloroethene	10.00	12.68	127	70-130	2	25
2-Hexanone	10.00	13.05	130	70-130	1	25
Dibromochloromethane	10.00	10.80	108	70-130	1	25
1,2-Dibromoethane	10.00	11.47	115	70-130	3	25
Chlorobenzene	10.00	12.17	122	70-130	2	25
Ethylbenzene	10.00	11.88	119	70-130	3	25
m,p-Xylenes	20.00	23.92	120	70-130	1	25
o-Xylene	10.00	11.99	120	70-130	3	25
Styrene	10.00	11.70	117	70-130	3	25
Bromoform	10.00	10.60	106	70-130	2	25
1,1,2,2-Tetrachloroethane	10.00	12.30	123	70-130	5	25
4-Ethyltoluene	10.00	12.45	124	70-130	7	25
1,3,5-Trimethylbenzene	10.00	12.19	122	70-130	2	25
1,2,4-Trimethylbenzene	10.00	12.67	127	70-130	3	25
1,3-Dichlorobenzene	10.00	11.69	117	70-130	2	25
1,4-Dichlorobenzene	10.00	11.68	117	70-130	2	25
Benzyl chloride	10.00	12.14	121	70-130	5	25
1,2-Dichlorobenzene	10.00	12.21	122	70-130	4	25
1,2,4-Trichlorobenzene	10.00	13.18	132 *	70-130	3	25
Hexachlorobutadiene	10.00	13.50	135 *	70-130	5	25
Naphthalene	10.00	13.69 b	137 *	70-130	2	25

Surrogate	%REC	Limits
Bromofluorobenzene	103	70-130

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	287133	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	METHOD
Project#:	15-1311B	Analysis:	EPA TO-15
Type:	BLANK	Units (M):	ug/m3
Lab ID:	QC879680	Diln Fac:	1.000
Matrix:	Air	Batch#:	246208
Units (V):	ppbv	Analyzed:	04/03/17

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	0.50	ND	2.5
Freon 114	ND	0.50	ND	3.5
Chloromethane	ND	0.50	ND	1.0
Vinyl Chloride	ND	0.50	ND	1.3
1,3-Butadiene	ND	0.50	ND	1.1
Bromomethane	ND	0.50	ND	1.9
Chloroethane	ND	0.50	ND	1.3
Trichlorofluoromethane	ND	0.50	ND	2.8
Acrolein	ND	2.0	ND	4.6
1,1-Dichloroethene	ND	0.50	ND	2.0
Freon 113	ND	0.50	ND	3.8
Acetone	ND	2.0	ND	4.8
Carbon Disulfide	ND	0.50	ND	1.6
Isopropanol	ND	2.0	ND	4.9
Methylene Chloride	ND	0.50	ND	1.7
trans-1,2-Dichloroethene	ND	0.50	ND	2.0
MTBE	ND	0.50	ND	1.8
n-Hexane	ND	0.50	ND	1.8
1,1-Dichloroethane	ND	0.50	ND	2.0
Vinyl Acetate	ND	0.50	ND	1.8
cis-1,2-Dichloroethene	ND	0.50	ND	2.0
2-Butanone	ND	1.7	ND	4.9
Ethyl Acetate	ND	0.50	ND	1.8
Tetrahydrofuran	ND	0.50	ND	1.5
Chloroform	ND	0.50	ND	2.4
1,1,1-Trichloroethane	ND	0.50	ND	2.7
Cyclohexane	ND	0.50	ND	1.7
Carbon Tetrachloride	ND	0.50	ND	3.1
Benzene	ND	0.50	ND	1.6
1,2-Dichloroethane	ND	0.50	ND	2.0
n-Heptane	ND	0.50	ND	2.0
Trichloroethene	ND	0.50	ND	2.7
1,2-Dichloropropane	ND	0.50	ND	2.3
Bromodichloromethane	ND	0.50	ND	3.4
cis-1,3-Dichloropropene	ND	0.50	ND	2.3

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

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	287133	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	METHOD
Project#:	15-1311B	Analysis:	EPA TO-15
Type:	BLANK	Units (M):	ug/m3
Lab ID:	QC879680	Diln Fac:	1.000
Matrix:	Air	Batch#:	246208
Units (V):	ppbv	Analyzed:	04/03/17

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	ND	0.50	ND	2.0
Toluene	ND	0.50	ND	1.9
trans-1,3-Dichloropropene	ND	0.50	ND	2.3
1,1,2-Trichloroethane	ND	0.50	ND	2.7
Tetrachloroethene	ND	0.50	ND	3.4
2-Hexanone	ND	0.50	ND	2.0
Dibromochloromethane	ND	0.50	ND	4.3
1,2-Dibromoethane	ND	0.50	ND	3.8
Chlorobenzene	ND	0.50	ND	2.3
Ethylbenzene	ND	0.50	ND	2.2
m,p-Xylenes	ND	0.50	ND	2.2
o-Xylene	ND	0.50	ND	2.2
Styrene	ND	0.50	ND	2.1
Bromoform	ND	0.50	ND	5.2
1,1,2,2-Tetrachloroethane	ND	0.50	ND	3.4
4-Ethyltoluene	ND	0.50	ND	2.5
1,3,5-Trimethylbenzene	ND	0.50	ND	2.5
1,2,4-Trimethylbenzene	ND	0.50	ND	2.5
1,3-Dichlorobenzene	ND	0.50	ND	3.0
1,4-Dichlorobenzene	ND	0.50	ND	3.0
Benzyl chloride	ND	0.50	ND	2.6
1,2-Dichlorobenzene	ND	0.50	ND	3.0
1,2,4-Trichlorobenzene	ND	0.50	ND	3.7
Hexachlorobutadiene	ND	0.50	ND	5.3
Naphthalene	ND	2.0	ND	10

Surrogate	%REC	Limits
Bromofluorobenzene	94	70-130

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

Curtis & Tompkins, Ltd.

Fixed Gas Analysis

Lab #:	287133	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	METHOD
Project#:	15-1311B	Analysis:	ASTM D1946
Field ID:	IE-5-SG	Batch#:	245734
Matrix:	Air	Sampled:	03/17/17
Units:	ppmv	Received:	03/20/17
Units (Mol %):	MOL %	Analyzed:	03/21/17

Type: SAMPLE Diln Fac: 1.900
Lab ID: 287133-001

Analyte	Result	RL	Result (Mol %)	RL
Helium	ND	1,900	ND	0.19
Oxygen	170,000	1,900	17	0.19

Type: BLANK Diln Fac: 1.000
Lab ID: QC877755

Analyte	Result	RL	Result (Mol %)	RL
Helium	ND	1,000	ND	0.10
Oxygen	ND	1,000	ND	0.10

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

Curtis & Tompkins, Ltd.

Batch QC Report

Fixed Gas Analysis

Lab #:	287133	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	METHOD
Project#:	15-1311B	Analysis:	ASTM D1946
Matrix:	Air	Batch#:	245734
Units:	ppmv	Analyzed:	03/21/17
Diln Fac:	1.000		

Type: BS Lab ID: QC877753

Analyte	Spiked	Result	%REC	Limits
Helium	100,000	72,890	73	70-130
Oxygen		NA		

Type: BSD Lab ID: QC877754

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Helium	100,000	72,210	72	70-130	1	20
Oxygen		NA				

NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Fixed Gas Analysis

Lab #:	287133	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	METHOD
Project#:	15-1311B	Analysis:	ASTM D1946
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC877756	Batch#:	245734
Matrix:	Air	Analyzed:	03/21/17
Units:	ppmv		

Analyte	Spiked	Result	%REC	Limits
Helium		NA		
Oxygen	2,000	1,750	88	70-130

NA= Not Analyzed

Curtis & Tompkins, Ltd.

Batch QC Report

Fixed Gas Analysis

Lab #:	287133	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	METHOD
Project#:	15-1311B	Analysis:	ASTM D1946
Field ID:	ZZZZZZZZZZ	Units (Mol %):	MOL %
Type:	SDUP	Diln Fac:	2.290
MSS Lab ID:	287154-001	Batch#:	245734
Lab ID:	QC877757	Sampled:	03/17/17
Matrix:	Air	Received:	03/21/17
Units:	ppmv	Analyzed:	03/21/17

Analyte	MSS Result	Result	RL	Result (Mol %)	RL	RPD	Lim
Helium	336.9	ND	2,290	ND	0.2290	NC	30
Oxygen	157,700	157,700	2,290	15.77	0.2290	0	30

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


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 287369
ANALYTICAL REPORT

Iris Environmental	Project : 15-1311B
1438 Webster Street	Location : 3820 Penniman Ave
Oakland, CA 94612	Level : II

Sample ID	Lab ID
IE-2-GW	287369-001
IE-3-GW	287369-002
IE-4-GW	287369-003

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 04/03/2017

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226 Ext 13107

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**287369**
Client:	**Iris Environmental**
Project:	**15-1311B**
Location:	**3820 Penniman Ave**
Request Date:	**03/27/17**
Samples Received:	**03/17/17**

This data package contains sample and QC results for three water samples, requested for the above referenced project on 03/27/17. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B):
High surrogate recoveries were observed for bromofluorobenzene (FID) in IE-3-GW (lab # 287369-002) and IE-4-GW (lab # 287369-003). No other analytical problems were encountered.

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

Volatile Organics by GC/MS (EPA 8260B):
IE-3-GW (lab # 287369-002) and IE-4-GW (lab # 287369-003) were diluted due to high non-target analytes. No other analytical problems were encountered.

CT# 287369

Subject: RE: 15-1311B - C&T Data (287118)
From: Craig Pelletier <craig@irisenv.com>
Date: 3/24/2017 5:16 PM
To: "tracy.babjar@ctberk.com" <tracy.babjar@ctberk.com>
CC: "Conor McDonough" <Conor@irisenv.com>, Alexi Snyder <asnyder@irisenv.com>, Leah Nelson <leah@irisenv.com>

287116-002 -003 -004

Tracy,
Please run IE-2-GW,IE-3-GW and IE-4-GW for analysis of:

1. VOCs by 8260
2. TPH-g by 8015
3. TPH-d/mo by 8015M w/ and w/o SGC.

Standard turn please. Same manner as before.
Thanks!
cp

Craig Pelletier, P.G.
Principal - RPS Iris Environmental
1438 Webster Street, Suite 302,
Oakland, California, 94612.
USA
Tel: +1 510 834 4747 ext. 29
Fax: +1 510 834 4199
Mobile: +1 510 604 4425
Email: Craig@irisenv.com
www: www.rpsgroup.com | www.irisenv.com

From: Tracy Babjar [mailto:tracy.babjar@ctberk.com]
Sent: Friday, March 24, 2017 4:27 PM
To: Craig Pelletier
Subject: 15-1311B - C&T Data (287118)

Hi Craig,

Data qualifiers and additional information necessary for the interpretation of the test results are contained in the PDF file and may not be included in the EDD.

Please find attached the following files:
• Invoice
• PDF Deliverable
• Iris format EDD (287118_iris.zip)

You may also access this data at https://labline.ctberk.com/
Email was also sent to: Conor@irisenv.com, asnyder@irisenv.com, eperney@irisenv.com, leah@irisenv.com

C&T sends its e-reports via the Internet as Portable Document Format (PDF) files. Reports in this format, when accompanied by a signed cover page, are considered official reports. **No hardcopy**

CHAIN OF CUSTODY

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
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2323 Fifth Street
Berkeley, CA 94710

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Page 1 of 1

C&T LOGIN # 287116

Chain of Custody # ______

Project No: 15-1311B
Project Name: 3820 Pena...
Project P. O. No:
EDD Format: 3rd Report Level ☒ II ☐ III ☐ IV
Turnaround Time: ☐ RUSH ☒ Standard

Sampler: A. Snyder
Report To: C. McDonagh, C. Pelletier
Company: RPS IOS
Telephone: 510-834-4747
Email: Alex@, conor@, craig@irisenv.com

Lab No.	Sample ID.	Date Collected	Time Collected	Water	Solid			# of Containers	HCl	H2SO4	HNO3	NaOH	None	hold	TPHg 8260B	TPHd/mo 8015M w/ silica gel	VOCs 8260B	SVOCs 8270
	IE-1-GW	3-17-16	1300	X				10	6				4		X	X	X	X
	IE-2-GW	↓	1130	X				10	6				4	X				
	IE-3-GW	↓	1130	X				10	6				4	X				
	IE-4-GW	↓	1050	X				10	6				4	X				

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
A. [signature]	3-17-17	1451	[signature]	3-17-17	1451

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 28716 Date Received 3-17-17 Number of coolers 2
Client RPS IRIS Environ Project 3820 Pennimen

Date Opened 3-17-17 By (print) DC (sign)
Date Logged in | By (print) EM (sign)
Date Labeled ↓ By (print) ↓ (sign) ↓

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

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

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

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 4.3, 2.2

☐ Temperature blank(s) included? ☐ Thermometer# ☒ IR Gun# N/A

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

8. Were Method 5035 sampling containers present? (YES) NO
   If YES, what time were they transferred to freezer?
9. Did all bottles arrive unbroken/unopened? (YES) NO
10. Are there any missing / extra samples? YES (NO)
11. Are samples in the appropriate containers for indicated tests? (YES) NO
12. Are sample labels present, in good condition and complete? (YES) NO
13. Do the sample labels agree with custody papers? (YES) NO
14. Was sufficient amount of sample sent for tests requested? (YES) NO
15. Are the samples appropriately preserved? YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? YES NO (N/A)
17. Did you document your preservative check? (pH strip lot#) YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? (YES) NO N/A
21. Was the client contacted concerning this sample delivery? YES (NO)
   If YES, Who was called? By Date:

COMMENTS

Curtis & Tompkins, Ltd.

Detections Summary for 287369

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

Client : Iris Environmental
Project : 15-1311B
Location : 3820 Penniman Ave

Client Sample ID : IE-2-GW Laboratory Sample ID : 287369-001

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C22	1,100	Y	56	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C

Client Sample ID : IE-3-GW Laboratory Sample ID : 287369-002

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	230,000	Y	1,700	ug/L	As Recd	33.33	EPA 8015B	EPA 5030B
Diesel C10-C22	13,000	Y	53	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Diesel C10-C24	6,300	Y	53	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Benzene	220		20	ug/L	As Recd	40.00	EPA 8260B	EPA 5030B
Ethylbenzene	110		20	ug/L	As Recd	40.00	EPA 8260B	EPA 5030B
Isopropylbenzene	58		20	ug/L	As Recd	40.00	EPA 8260B	EPA 5030B
Propylbenzene	73		20	ug/L	As Recd	40.00	EPA 8260B	EPA 5030B
para-Isopropyl Toluene	21		20	ug/L	As Recd	40.00	EPA 8260B	EPA 5030B

Client Sample ID : IE-4-GW Laboratory Sample ID : 287369-003

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	5,300		50	ug/L	As Recd	1.000	EPA 8015B	EPA 5030B
Diesel C10-C22	2,600	Y	50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Diesel C10-C24	1,600	Y	50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Motor Oil C24-C36	2,000		300	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Motor Oil C24-C36	1,400		300	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Isopropylbenzene	39		5.0	ug/L	As Recd	10.00	EPA 8260B	EPA 5030B
Propylbenzene	37		5.0	ug/L	As Recd	10.00	EPA 8260B	EPA 5030B
1,3,5-Trimethylbenzene	7.5		5.0	ug/L	As Recd	10.00	EPA 8260B	EPA 5030B
sec-Butylbenzene	7.2		5.0	ug/L	As Recd	10.00	EPA 8260B	EPA 5030B
para-Isopropyl Toluene	7.1		5.0	ug/L	As Recd	10.00	EPA 8260B	EPA 5030B

Y = Sample exhibits chromatographic pattern which does not resemble standard

Curtis & Tompkins, Ltd.

Total Volatile Hydrocarbons

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/17/17
Units:	ug/L	Received:	03/17/17

Field ID:	IE-2-GW	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	245977
Lab ID:	287369-001	Analyzed:	03/28/17

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	95	80-122

Field ID:	IE-3-GW	Diln Fac:	33.33
Type:	SAMPLE	Batch#:	246065
Lab ID:	287369-002	Analyzed:	03/30/17

Analyte	Result	RL
Gasoline C7-C12	230,000 Y	1,700

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	155 *	80-122

Field ID:	IE-4-GW	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	245977
Lab ID:	287369-003	Analyzed:	03/28/17

Analyte	Result	RL
Gasoline C7-C12	5,300	50

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	131 *	80-122

*= Value outside of QC limits; see narrative
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Volatile Hydrocarbons

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/17/17
Units:	ug/L	Received:	03/17/17

Type:	BLANK	Batch#:	245977
Lab ID:	QC878735	Analyzed:	03/27/17
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	92	80-122

Type:	BLANK	Batch#:	246065
Lab ID:	QC879079	Analyzed:	03/29/17
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	87	80-122

*= Value outside of QC limits; see narrative
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC878732	Batch#:	245977
Matrix:	Water	Analyzed:	03/27/17
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	893.0	89	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	92	80-122

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8015B
Field ID:	IE-2-GW	Batch#:	245977
MSS Lab ID:	287369-001	Sampled:	03/17/17
Matrix:	Water	Received:	03/17/17
Units:	ug/L	Analyzed:	03/28/17
Diln Fac:	1.000		

Type: MS Lab ID: QC878733

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	<12.82	2,000	2,051	103	79-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	103	80-122

Type: MSD Lab ID: QC878734

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,979	99	79-120	4	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	107	80-122

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC879076	Batch#:	246065
Matrix:	Water	Analyzed:	03/29/17
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,019	102	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	94	80-122

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	246065
MSS Lab ID:	287448-001	Sampled:	03/27/17
Matrix:	Water	Received:	03/28/17
Units:	ug/L	Analyzed:	03/29/17
Diln Fac:	1.000		

Type: MS Lab ID: QC879077

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	27.97	2,000	2,065	102	79-120

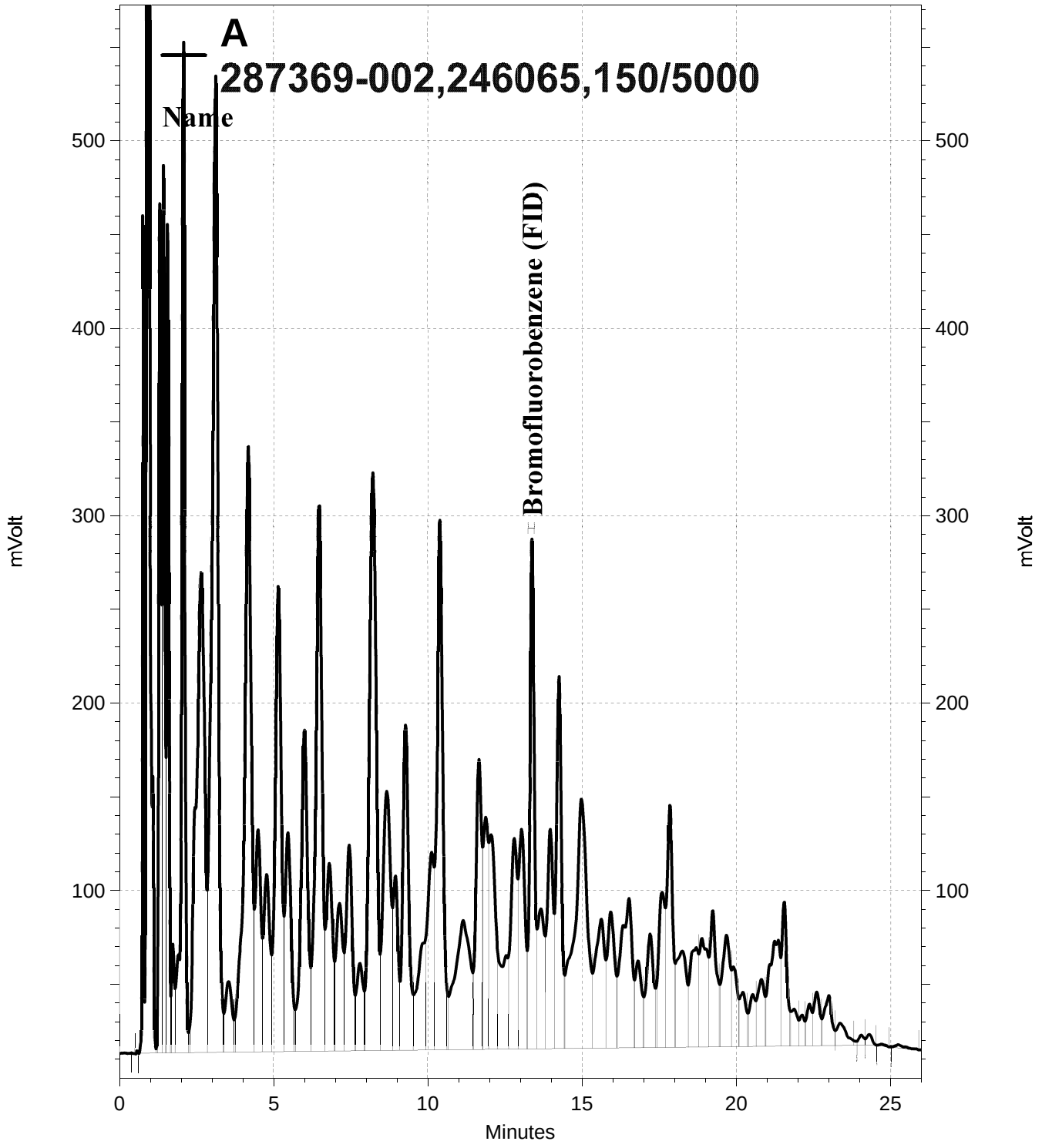
Surrogate	%REC	Limits
Bromofluorobenzene (FID)	103	80-122

Type: MSD Lab ID: QC879078

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,140	106	79-120	4	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	110	80-122

RPD= Relative Percent Difference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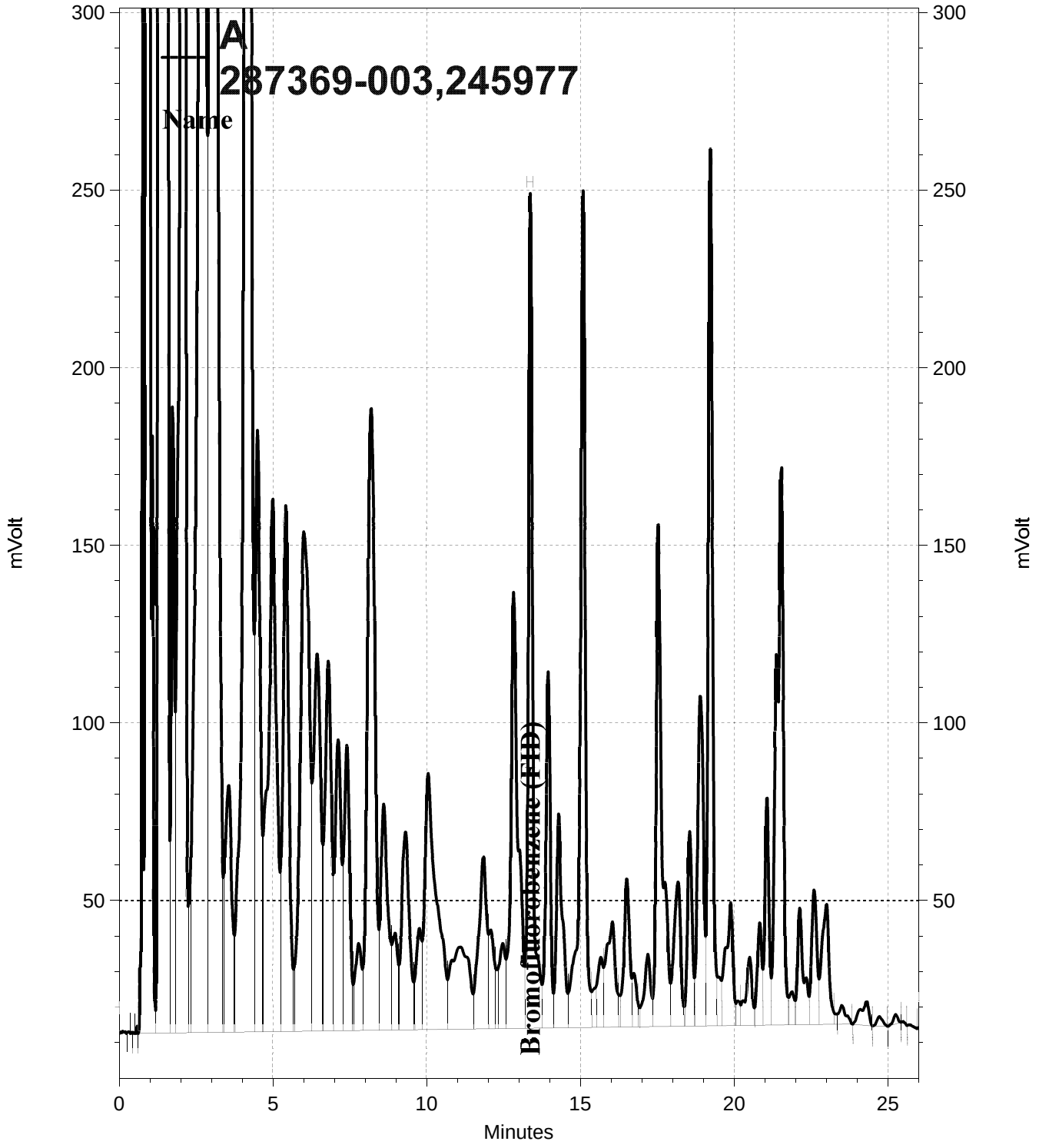

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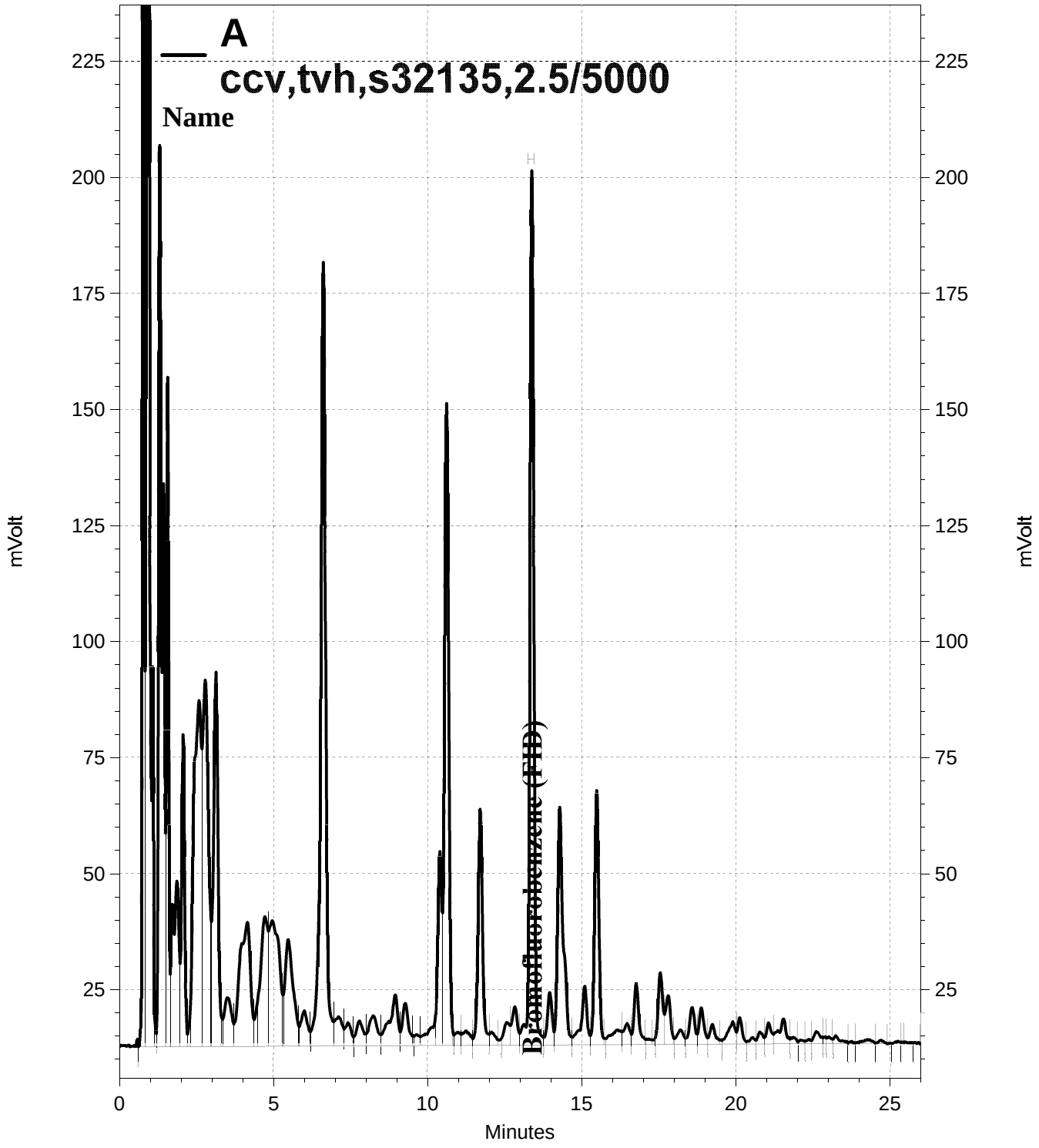
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25
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15
20
25
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Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3520C
Project#:	15-1311B	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/17/17
Units:	ug/L	Received:	03/17/17
Diln Fac:	1.000	Prepared:	03/27/17
Batch#:	245955		

Field ID: IE-2-GW
Type: SAMPLE
Lab ID: 287369-001
Cleanup Method: EPA 3630C

Analyte	Result	RL	Analyzed
Diesel C10-C22	1,100 Y	56	03/29/17
Diesel C10-C24 (SGCU)	ND	56	03/30/17
Motor Oil C24-C36	ND	330	03/29/17
Motor Oil C24-C36 (SGCU)	ND	330	03/30/17

Surrogate	%REC	Limits	Analyzed
o-Terphenyl	96	52-138	03/29/17
o-Terphenyl (SGCU)	70	52-138	03/30/17

Field ID: IE-3-GW
Type: SAMPLE
Lab ID: 287369-002
Cleanup Method: EPA 3630C

Analyte	Result	RL	Analyzed
Diesel C10-C22	13,000 Y	53	03/29/17
Diesel C10-C24 (SGCU)	6,300 Y	53	03/30/17
Motor Oil C24-C36	ND	320	03/29/17
Motor Oil C24-C36 (SGCU)	ND	320	03/30/17

Surrogate	%REC	Limits	Analyzed
o-Terphenyl	100	52-138	03/29/17
o-Terphenyl (SGCU)	70	52-138	03/30/17

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

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3520C
Project#:	15-1311B	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/17/17
Units:	ug/L	Received:	03/17/17
Diln Fac:	1.000	Prepared:	03/27/17
Batch#:	245955		

Field ID: IE-4-GW
Type: SAMPLE
Lab ID: 287369-003
Cleanup Method: EPA 3630C

Analyte	Result	RL	Analyzed
Diesel C10-C22	2,600 Y	50	03/29/17
Diesel C10-C24 (SGCU)	1,600 Y	50	03/30/17
Motor Oil C24-C36	2,000	300	03/29/17
Motor Oil C24-C36 (SGCU)	1,400	300	03/30/17

Surrogate	%REC	Limits	Analyzed
o-Terphenyl	94	52-138	03/29/17
o-Terphenyl (SGCU)	79	52-138	03/30/17

Type: BLANK
Lab ID: QC878644
Analyzed: 03/29/17
Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C22	ND	50
Diesel C10-C24 (SGCU)	ND	50
Motor Oil C24-C36	ND	300
Motor Oil C24-C36 (SGCU)	ND	300

Surrogate	%REC	Limits
o-Terphenyl	109	52-138
o-Terphenyl (SGCU)	73	52-138

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

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 3520C
Project#:	15-1311B	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	245955
Units:	ug/L	Prepared:	03/27/17
Diln Fac:	1.000	Analyzed:	03/29/17

Type: BS Cleanup Method: EPA 3630C
Lab ID: QC878645

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C22	2,500	2,355	94	52-123
Diesel C10-C24 (SGCU)	2,500	1,639	66	52-124

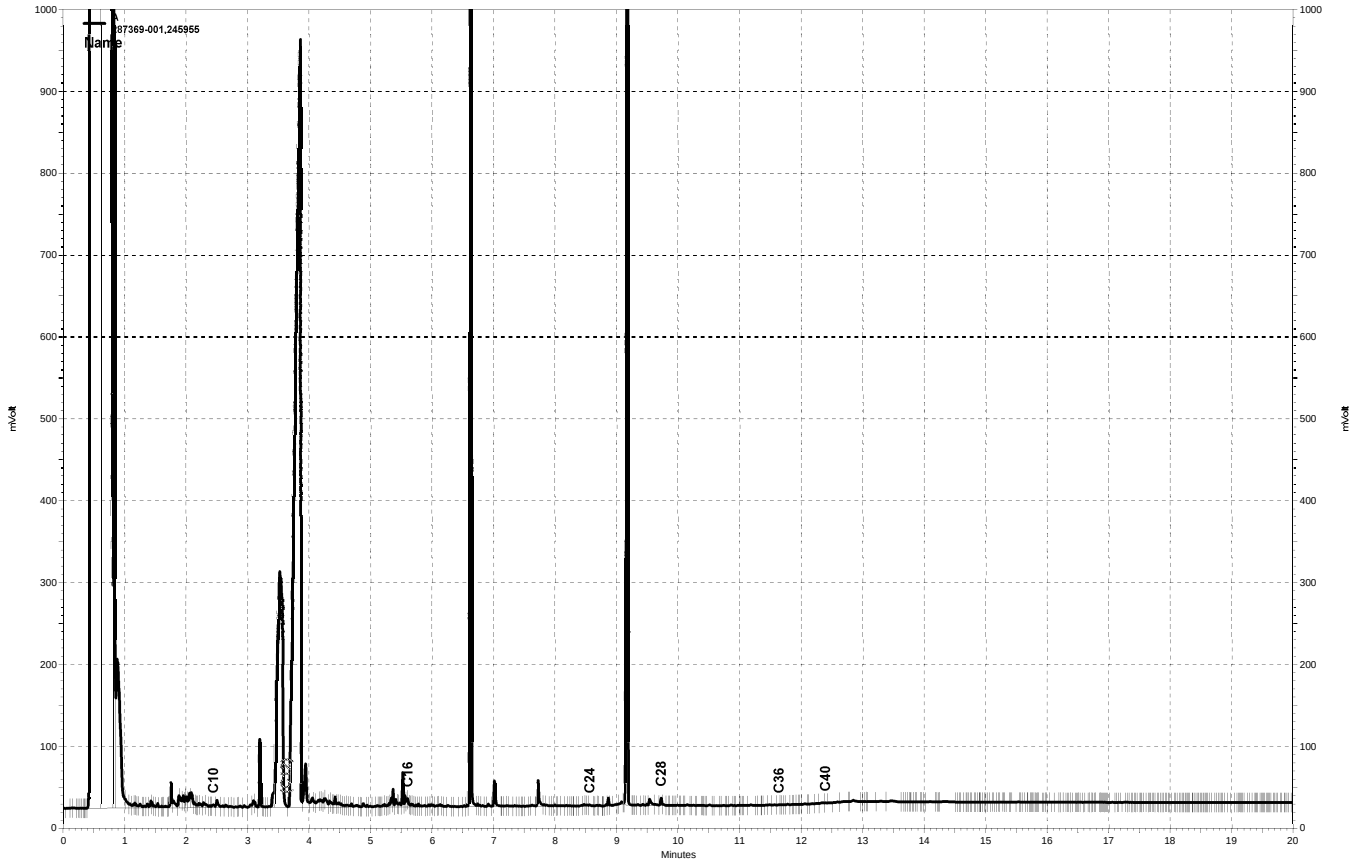
Surrogate	%REC	Limits
o-Terphenyl	115	52-138
o-Terphenyl (SGCU)	74	52-138

Type: BSD Cleanup Method: EPA 3630C
Lab ID: QC878646

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C22	2,500	2,000	80	52-123	16	34
Diesel C10-C24 (SGCU)	2,500	1,414	57	52-124	15	34

Surrogate	%REC	Limits
o-Terphenyl	106	52-138
o-Terphenyl (SGCU)	68	52-138

RPD= Relative Percent Difference
SGCU= Silica gel cleanup



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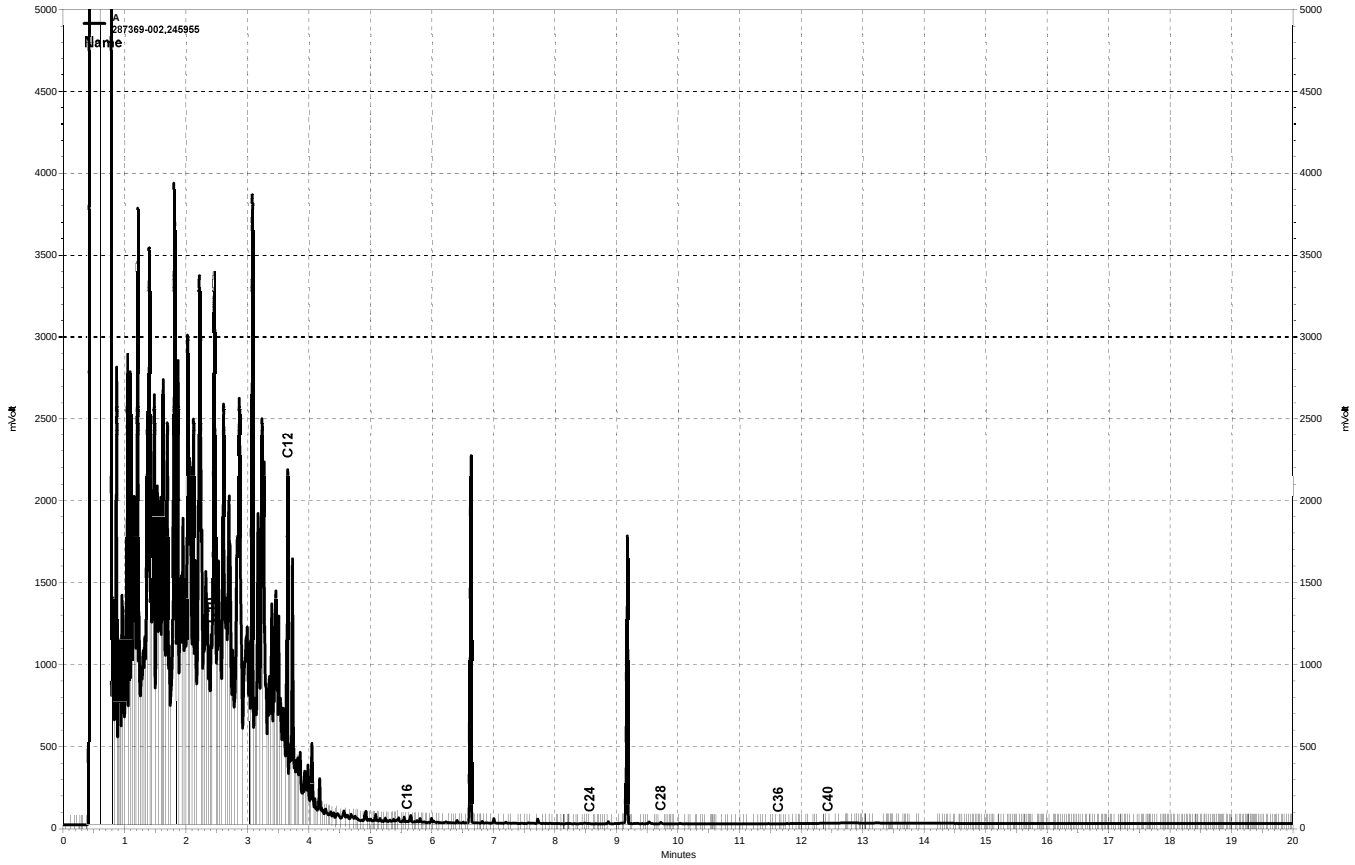

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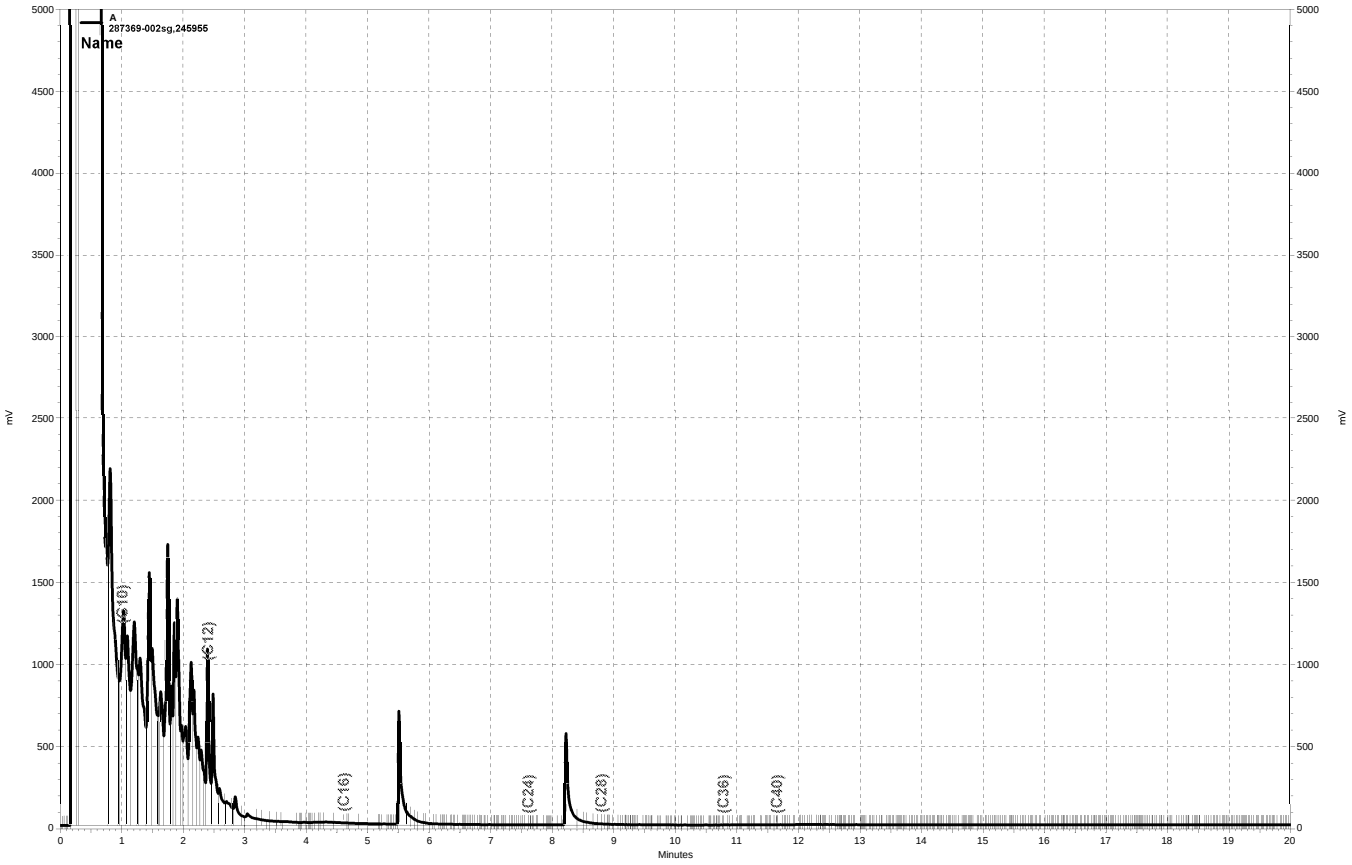

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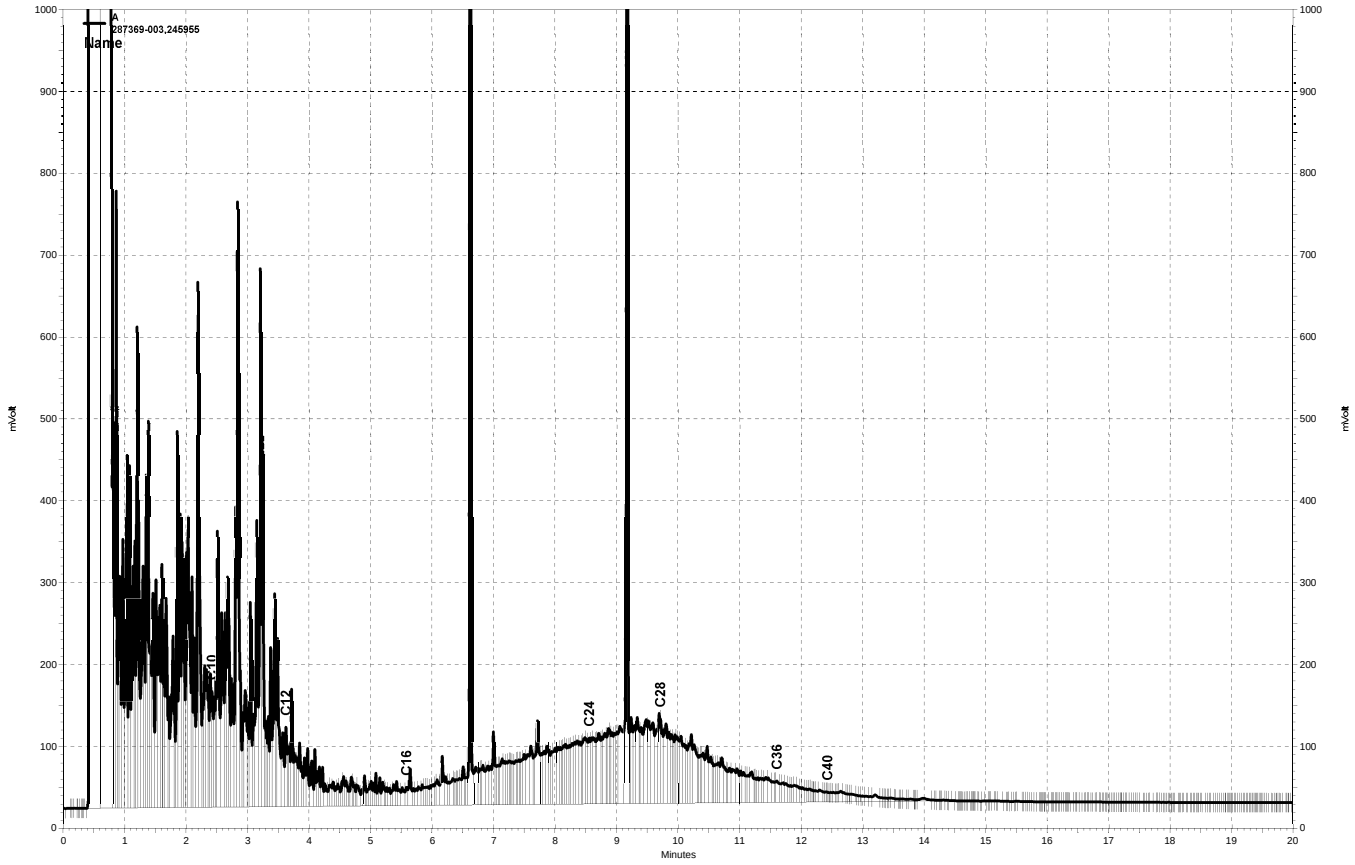

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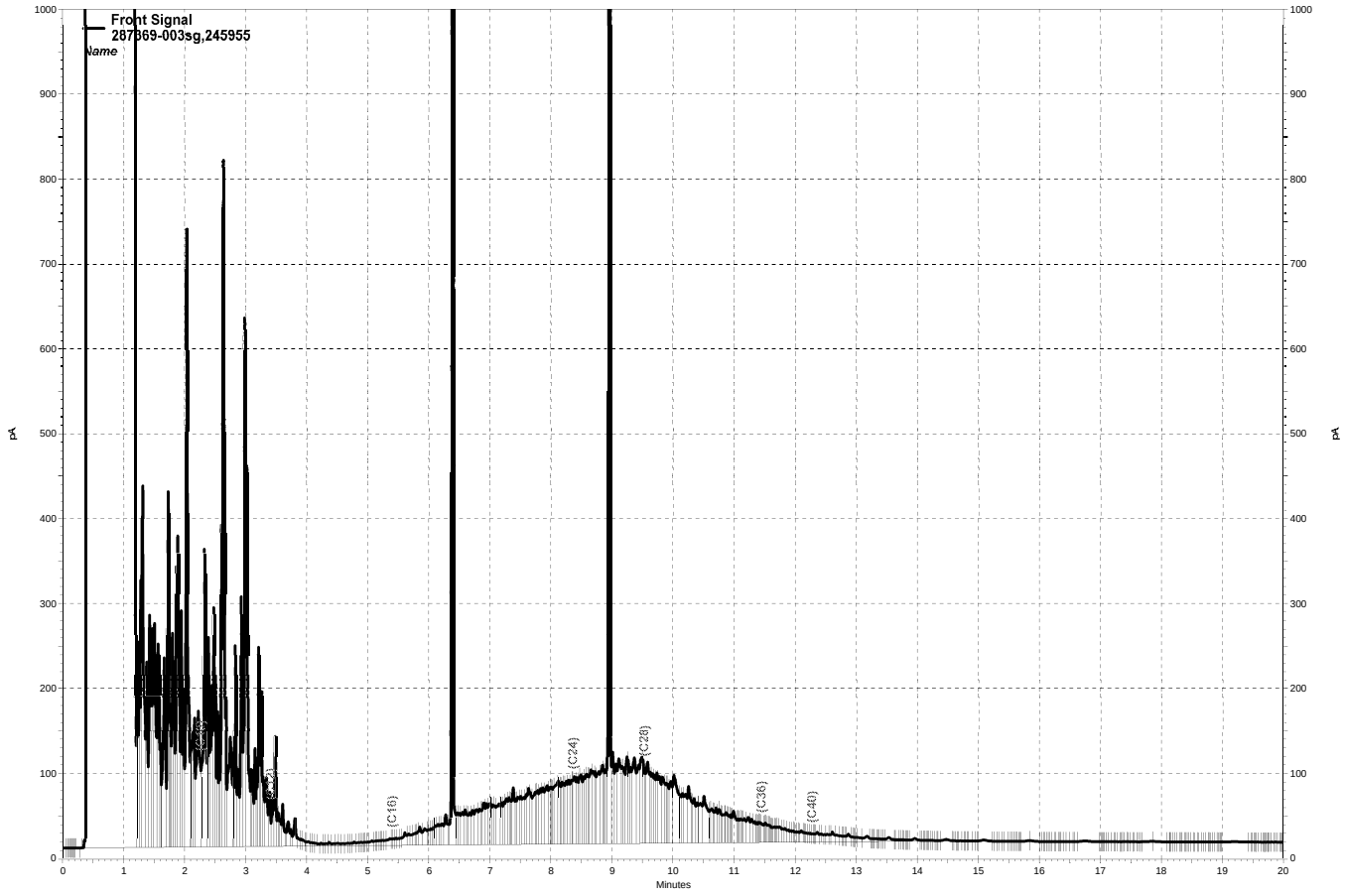

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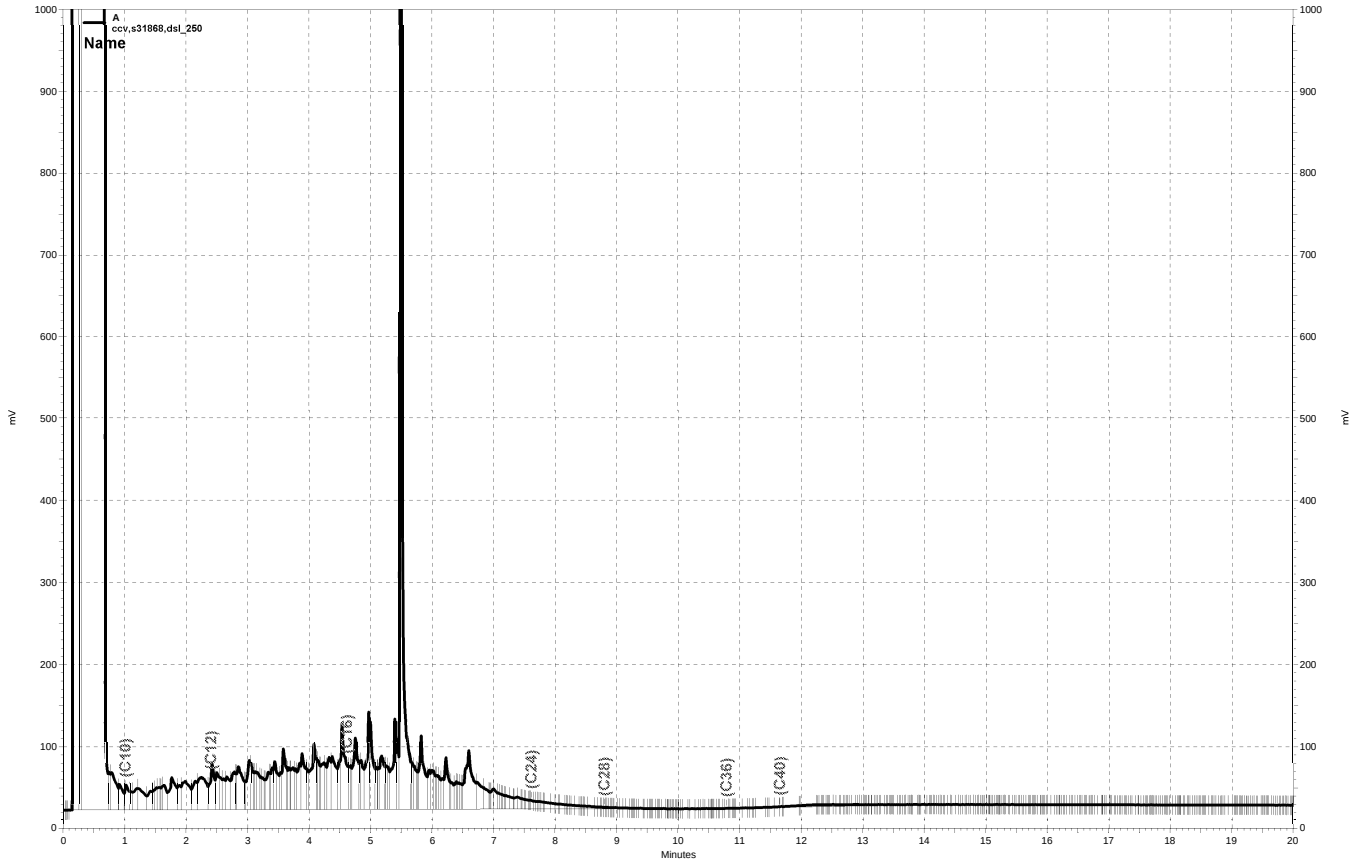

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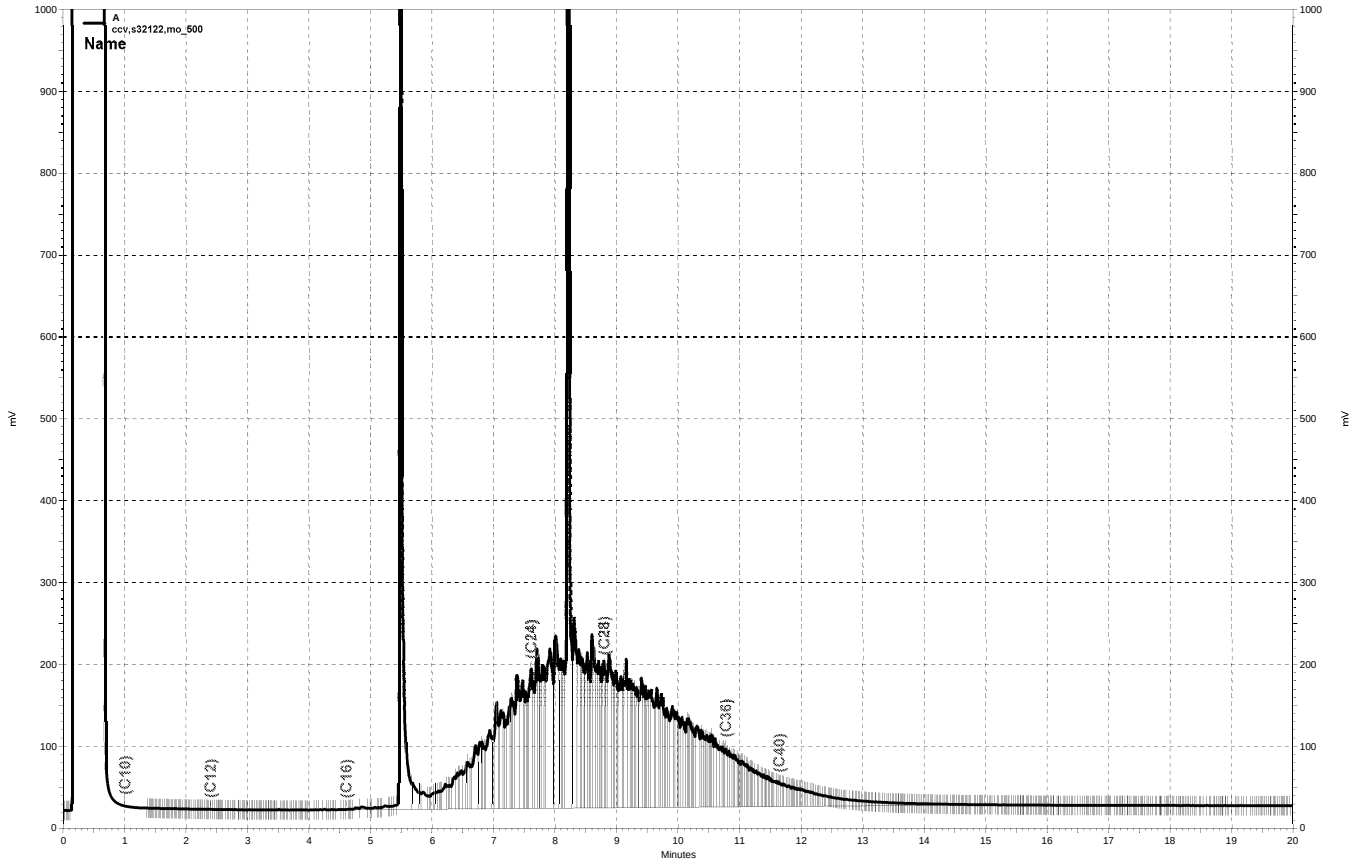

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Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-2-GW	Batch#:	246005
Lab ID:	287369-001	Sampled:	03/17/17
Matrix:	Water	Received:	03/17/17
Units:	ug/L	Analyzed:	03/28/17
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-2-GW	Batch#:	246005
Lab ID:	287369-001	Sampled:	03/17/17
Matrix:	Water	Received:	03/17/17
Units:	ug/L	Analyzed:	03/28/17
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-120
1,2-Dichloroethane-d4	119	73-136
Toluene-d8	111	80-120
Bromofluorobenzene	110	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-3-GW	Units:	ug/L
Lab ID:	287369-002	Sampled:	03/17/17
Matrix:	Water	Received:	03/17/17

Analyte	Result	RL	Diln Fac	Batch#	Analyzed
Freon 12	ND	40	40.00	246075	03/29/17
Chloromethane	ND	40	40.00	246075	03/29/17
Vinyl Chloride	ND	20	40.00	246075	03/29/17
Bromomethane	ND	40	40.00	246075	03/29/17
Chloroethane	ND	40	40.00	246075	03/29/17
Trichlorofluoromethane	ND	40	40.00	246075	03/29/17
Acetone	ND	400	40.00	246075	03/29/17
Freon 113	ND	80	40.00	246075	03/29/17
1,1-Dichloroethene	ND	20	40.00	246075	03/29/17
Methylene Chloride	ND	400	40.00	246075	03/29/17
Carbon Disulfide	ND	20	40.00	246075	03/29/17
MTBE	ND	20	40.00	246075	03/29/17
trans-1,2-Dichloroethene	ND	20	40.00	246075	03/29/17
Vinyl Acetate	ND	400	40.00	246075	03/29/17
1,1-Dichloroethane	ND	20	40.00	246075	03/29/17
2-Butanone	ND	400	40.00	246075	03/29/17
cis-1,2-Dichloroethene	ND	20	40.00	246075	03/29/17
2,2-Dichloropropane	ND	20	40.00	246075	03/29/17
Chloroform	ND	20	40.00	246075	03/29/17
Bromochloromethane	ND	20	40.00	246075	03/29/17
1,1,1-Trichloroethane	ND	20	40.00	246075	03/29/17
1,1-Dichloropropene	ND	20	40.00	246075	03/29/17
Carbon Tetrachloride	ND	20	40.00	246075	03/29/17
1,2-Dichloroethane	ND	20	40.00	246075	03/29/17
Benzene	220	20	40.00	246075	03/29/17
Trichloroethene	ND	20	40.00	246075	03/29/17
1,2-Dichloropropane	ND	20	40.00	246075	03/29/17
Bromodichloromethane	ND	20	40.00	246075	03/29/17
Dibromomethane	ND	20	40.00	246075	03/29/17
4-Methyl-2-Pentanone	ND	400	40.00	246075	03/29/17
cis-1,3-Dichloropropene	ND	20	40.00	246075	03/29/17
Toluene	ND	20	40.00	246075	03/29/17
trans-1,3-Dichloropropene	ND	20	40.00	246075	03/29/17
1,1,2-Trichloroethane	ND	20	40.00	246075	03/29/17
2-Hexanone	ND	400	40.00	246075	03/29/17
1,3-Dichloropropane	ND	20	40.00	246075	03/29/17
Tetrachloroethene	ND	20	40.00	246075	03/29/17
Dibromochloromethane	ND	20	40.00	246075	03/29/17
1,2-Dibromoethane	ND	20	40.00	246075	03/29/17

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-3-GW	Units:	ug/L
Lab ID:	287369-002	Sampled:	03/17/17
Matrix:	Water	Received:	03/17/17

Analyte	Result	RL	Diln Fac	Batch#	Analyzed
Chlorobenzene	ND	20	40.00	246075	03/29/17
1,1,1,2-Tetrachloroethane	ND	20	40.00	246075	03/29/17
Ethylbenzene	110	20	40.00	246075	03/29/17
m,p-Xylenes	ND	20	40.00	246075	03/29/17
o-Xylene	ND	20	40.00	246075	03/29/17
Styrene	ND	20	40.00	246075	03/29/17
Bromoform	ND	40	40.00	246075	03/29/17
Isopropylbenzene	58	20	40.00	246075	03/29/17
1,1,2,2-Tetrachloroethane	ND	20	40.00	246075	03/29/17
1,2,3-Trichloropropane	ND	20	40.00	246075	03/29/17
Propylbenzene	73	20	40.00	246075	03/29/17
Bromobenzene	ND	20	40.00	246075	03/29/17
1,3,5-Trimethylbenzene	ND	20	40.00	246075	03/29/17
2-Chlorotoluene	ND	20	40.00	246075	03/29/17
4-Chlorotoluene	ND	20	40.00	246075	03/29/17
tert-Butylbenzene	ND	20	40.00	246075	03/29/17
1,2,4-Trimethylbenzene	ND	20	40.00	246075	03/29/17
sec-Butylbenzene	ND	20	40.00	246075	03/29/17
para-Isopropyl Toluene	21	20	40.00	246075	03/29/17
1,3-Dichlorobenzene	ND	20	40.00	246075	03/29/17
1,4-Dichlorobenzene	ND	20	40.00	246075	03/29/17
n-Butylbenzene	ND	100	200.0	246005	03/28/17
1,2-Dichlorobenzene	ND	20	40.00	246075	03/29/17
1,2-Dibromo-3-Chloropropane	ND	80	40.00	246075	03/29/17
1,2,4-Trichlorobenzene	ND	20	40.00	246075	03/29/17
Hexachlorobutadiene	ND	80	40.00	246075	03/29/17
Naphthalene	ND	80	40.00	246075	03/29/17
1,2,3-Trichlorobenzene	ND	20	40.00	246075	03/29/17

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed
Dibromofluoromethane	99	80-120	40.00	246075	03/29/17
1,2-Dichloroethane-d4	84	73-136	40.00	246075	03/29/17
Toluene-d8	101	80-120	40.00	246075	03/29/17
Bromofluorobenzene	102	80-120	40.00	246075	03/29/17

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-4-GW	Units:	ug/L
Lab ID:	287369-003	Sampled:	03/17/17
Matrix:	Water	Received:	03/17/17

Analyte	Result	RL	Diln Fac	Batch#	Analyzed
Freon 12	ND	10	10.00	246075	03/29/17
Chloromethane	ND	10	10.00	246075	03/29/17
Vinyl Chloride	ND	5.0	10.00	246075	03/29/17
Bromomethane	ND	10	10.00	246075	03/29/17
Chloroethane	ND	10	10.00	246075	03/29/17
Trichlorofluoromethane	ND	10	10.00	246075	03/29/17
Acetone	ND	100	10.00	246075	03/29/17
Freon 113	ND	20	10.00	246075	03/29/17
1,1-Dichloroethene	ND	5.0	10.00	246075	03/29/17
Methylene Chloride	ND	100	10.00	246075	03/29/17
Carbon Disulfide	ND	5.0	10.00	246075	03/29/17
MTBE	ND	5.0	10.00	246075	03/29/17
trans-1,2-Dichloroethene	ND	5.0	10.00	246075	03/29/17
Vinyl Acetate	ND	100	10.00	246075	03/29/17
1,1-Dichloroethane	ND	5.0	10.00	246075	03/29/17
2-Butanone	ND	100	10.00	246075	03/29/17
cis-1,2-Dichloroethene	ND	5.0	10.00	246075	03/29/17
2,2-Dichloropropane	ND	5.0	10.00	246075	03/29/17
Chloroform	ND	5.0	10.00	246075	03/29/17
Bromochloromethane	ND	5.0	10.00	246075	03/29/17
1,1,1-Trichloroethane	ND	5.0	10.00	246075	03/29/17
1,1-Dichloropropene	ND	5.0	10.00	246075	03/29/17
Carbon Tetrachloride	ND	5.0	10.00	246075	03/29/17
1,2-Dichloroethane	ND	5.0	10.00	246075	03/29/17
Benzene	ND	5.0	10.00	246075	03/29/17
Trichloroethene	ND	5.0	10.00	246075	03/29/17
1,2-Dichloropropane	ND	5.0	10.00	246075	03/29/17
Bromodichloromethane	ND	5.0	10.00	246075	03/29/17
Dibromomethane	ND	5.0	10.00	246075	03/29/17
4-Methyl-2-Pentanone	ND	100	10.00	246075	03/29/17
cis-1,3-Dichloropropene	ND	5.0	10.00	246075	03/29/17
Toluene	ND	5.0	10.00	246075	03/29/17
trans-1,3-Dichloropropene	ND	5.0	10.00	246075	03/29/17
1,1,2-Trichloroethane	ND	5.0	10.00	246075	03/29/17
2-Hexanone	ND	100	10.00	246075	03/29/17
1,3-Dichloropropane	ND	5.0	10.00	246075	03/29/17
Tetrachloroethene	ND	5.0	10.00	246075	03/29/17
Dibromochloromethane	ND	5.0	10.00	246075	03/29/17
1,2-Dibromoethane	ND	5.0	10.00	246075	03/29/17

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8260B
Field ID:	IE-4-GW	Units:	ug/L
Lab ID:	287369-003	Sampled:	03/17/17
Matrix:	Water	Received:	03/17/17

Analyte	Result	RL	Diln Fac	Batch#	Analyzed
Chlorobenzene	ND	5.0	10.00	246075	03/29/17
1,1,1,2-Tetrachloroethane	ND	5.0	10.00	246075	03/29/17
Ethylbenzene	ND	5.0	10.00	246075	03/29/17
m,p-Xylenes	ND	5.0	10.00	246075	03/29/17
o-Xylene	ND	5.0	10.00	246075	03/29/17
Styrene	ND	5.0	10.00	246075	03/29/17
Bromoform	ND	10	10.00	246075	03/29/17
Isopropylbenzene	39	5.0	10.00	246075	03/29/17
1,1,2,2-Tetrachloroethane	ND	5.0	10.00	246075	03/29/17
1,2,3-Trichloropropane	ND	5.0	10.00	246075	03/29/17
Propylbenzene	37	5.0	10.00	246075	03/29/17
Bromobenzene	ND	5.0	10.00	246075	03/29/17
1,3,5-Trimethylbenzene	7.5	5.0	10.00	246075	03/29/17
2-Chlorotoluene	ND	5.0	10.00	246075	03/29/17
4-Chlorotoluene	ND	5.0	10.00	246075	03/29/17
tert-Butylbenzene	ND	5.0	10.00	246075	03/29/17
1,2,4-Trimethylbenzene	ND	5.0	10.00	246075	03/29/17
sec-Butylbenzene	7.2	5.0	10.00	246075	03/29/17
para-Isopropyl Toluene	7.1	5.0	10.00	246075	03/29/17
1,3-Dichlorobenzene	ND	5.0	10.00	246075	03/29/17
1,4-Dichlorobenzene	ND	5.0	10.00	246075	03/29/17
n-Butylbenzene	ND	17	33.33	246005	03/28/17
1,2-Dichlorobenzene	ND	5.0	10.00	246075	03/29/17
1,2-Dibromo-3-Chloropropane	ND	20	10.00	246075	03/29/17
1,2,4-Trichlorobenzene	ND	5.0	10.00	246075	03/29/17
Hexachlorobutadiene	ND	20	10.00	246075	03/29/17
Naphthalene	ND	20	10.00	246075	03/29/17
1,2,3-Trichlorobenzene	ND	5.0	10.00	246075	03/29/17

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed
Dibromofluoromethane	97	80-120	10.00	246075	03/29/17
1,2-Dichloroethane-d4	85	73-136	10.00	246075	03/29/17
Toluene-d8	101	80-120	10.00	246075	03/29/17
Bromofluorobenzene	98	80-120	10.00	246075	03/29/17

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	246005
Units:	ug/L	Analyzed:	03/28/17
Diln Fac:	1.000		

Type: BS Lab ID: QC878836

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	12.50	12.09	97	66-127
Benzene	12.50	12.52	100	78-123
Trichloroethene	12.50	11.60	93	75-120
Toluene	12.50	12.01	96	80-120
Chlorobenzene	12.50	12.55	100	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-120
1,2-Dichloroethane-d4	114	73-136
Toluene-d8	106	80-120
Bromofluorobenzene	105	80-120

Type: BSD Lab ID: QC878837

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	12.50	11.21	90	66-127	8	20
Benzene	12.50	11.51	92	78-123	8	20
Trichloroethene	12.50	11.08	89	75-120	5	20
Toluene	12.50	11.44	92	80-120	5	20
Chlorobenzene	12.50	12.49	100	80-120	0	20

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-120
1,2-Dichloroethane-d4	114	73-136
Toluene-d8	110	80-120
Bromofluorobenzene	112	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC878838	Batch#:	246005
Matrix:	Water	Analyzed:	03/28/17
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC878838	Batch#:	246005
Matrix:	Water	Analyzed:	03/28/17
Units:	ug/L		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-120
1,2-Dichloroethane-d4	124	73-136
Toluene-d8	111	80-120
Bromofluorobenzene	112	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	246075
Units:	ug/L	Analyzed:	03/29/17
Diln Fac:	1.000		

Type: BS Lab ID: QC879114

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	12.50	14.55	116	66-127
Benzene	12.50	14.30	114	78-123
Trichloroethene	12.50	11.71	94	75-120
Toluene	12.50	13.08	105	80-120
Chlorobenzene	12.50	12.56	100	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-120
1,2-Dichloroethane-d4	86	73-136
Toluene-d8	105	80-120
Bromofluorobenzene	100	80-120

Type: BSD Lab ID: QC879115

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	12.50	14.03	112	66-127	4	20
Benzene	12.50	13.51	108	78-123	6	20
Trichloroethene	12.50	11.30	90	75-120	4	20
Toluene	12.50	12.52	100	80-120	4	20
Chlorobenzene	12.50	12.17	97	80-120	3	20

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-120
1,2-Dichloroethane-d4	85	73-136
Toluene-d8	103	80-120
Bromofluorobenzene	99	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC879118	Batch#:	246075
Matrix:	Water	Analyzed:	03/29/17
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287369	Location:	3820 Penniman Ave
Client:	Iris Environmental	Prep:	EPA 5030B
Project#:	15-1311B	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC879118	Batch#:	246075
Matrix:	Water	Analyzed:	03/29/17
Units:	ug/L		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-120
1,2-Dichloroethane-d4	84	73-136
Toluene-d8	103	80-120
Bromofluorobenzene	108	80-120

ND= Not Detected
RL= Reporting Limit

APPENDIX D

PURJURY LETTER

Via Email: *anne.jurek@acgov.org*

May 26, 2017

Ms. Anne Jurek
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, California 94502

Re: Investigation Summary Report and Work Plan for Additional Investigation
3820 Penniman Avenue
Oakland, Alameda County, California
ACEH Case No. RO0003231

Dear Ms. Jurek:

I declare under penalty of perjury that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

Sincerely,

Pat Kwan