Phase II Environmental Site Assessment
Jamestown S'Klallam Tribe
Robinson and Smith Properties
121, 131, 21 Serenity Lane
Sequim, WA 98382

Prepared for: Jamestown S'Klallam Tribe
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November 6, 2015

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November 6, 2015

ESA Associates, Inc. Project Number 711-007-104

Mr. Robert Knapp
Habitat Program Restoration Planner
Jamestown S'Klallam Tribe
1033 Old Blyn Highway
Sequim, WA 98382

Subject: **Phase II Environmental Site Assessment**
Jamestown S'Klallam Tribe
Robinson and Smith Properties
121, 131, 21 Serenity Lane
Sequim, WA 98382

Dear Mr. Knapp:

We are pleased to present this report of our Phase II Environmental Site Assessment (ESA) of the above-referenced subject property. We trust the information presented in this report meets your needs at this time.

We appreciate this opportunity to provide our services to the Jamestown S'Klallam Tribe. Should you require additional information or have any questions regarding this report, please contact us at (425) 870- 8481.

Sincerely,
ESA ASSOCIATES, INC

Kristen Burgess
President

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1.0 SUMMARY

At the request of the Jamestown S'Klallam Tribe, ESA Associates, Inc. (ESA Associates) has completed a Phase II Environmental Site Assessment (ESA) in conformance with the scope and limitations of ASTM Practice E-1903-11 for the properties located along Serenity Lane in Sequim, Washington. The properties are known as the Robinson and Smith properties and consist of three parcels, which collectively make up 4 acres. Each parcel has an associated name and will be referred to throughout this review as follows: Robinson-3 (042902-110075), Robinson-4 (042902-110400), and Smith (042902-110250). The residences at Robinson-3, Robinson-4, and Smith are rental properties.

The following report is a summary of work performed using the guidelines set forth in American Society for Testing and Materials (ASTM) Standard E-1903-11*, Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process*. This report shall satisfy the requirements for conducting "all appropriate inquiry" under Section 101 (35) (B) (i) (I) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Small Business Liability Relief and Brownfields Revitalization Act. This report was prepared by a qualified *Environmental Professional* with ESA Associates as set forth in 40 CFR §312.10(b). The qualifications of the Environmental Professional are presented in Section 8.0 of this report and are included in Appendix D.

ESA Associates' September 2015 Phase I ESA did reveal current recognized environmental conditions (RECs) in association with the subject properties as follows: Robinson-3 parcel located at 131 Serenity Lane. This parcel had one area of improper solid waste disposal and remnants of burned household waste as well as an area to the south of the garage where auto mechanic work took place. The Robinson-4 parcel located at 121 Serenity Lane, had one area of burning household waste. The Smith parcel located at 21 Serenity Lane had two areas of improper burning of household waste and large quantities of household waste, construction waste, automotive waste, and animal waste. ESA Associates concluded that a Phase II ESA was necessary in order to determine whether the past use of the properties resulted in contamination of the soil and/or groundwater at the subject properties. The Phase II ESA targeted areas of concern identified as the following: 1) the burning of household waste on the Robinson-3 parcel; 2) the portion of land at the northern border of the Robinson-3 parcel, which appeared disturbed in the aerial photograph review; 3) the burning of waste on the Robison-4 parcel; 4) the area of auto work on the Robinson-3 parcel; 5) the burning of waste on the Smith parcel; and 6) The abundance of waste near the home on the Smith parcel.

Test Pit 1 Robinson-4 Parcel: 121 Serenity Lane

Test pit 1 was excavated in an area where household garbage and furniture was burned over time, reportedly by the previous tenant. The soil encountered during our subsurface investigation in test pit 1 revealed high levels of arsenic, methylene chloride, dioxins and furans at concentrations well above the Washington State Department of Ecology's Model Toxics Control Act (MTCA) Method A cleanup levels for these constituents. The area impacted by these constituents measured 10 by 10 feet in plan dimensions and reached a depth of 0.5 feet. Based on these measurements approximately 2.5 tons of contaminated soil should be removed from this area and disposed of at an appropriate facility. ESA Associates recommends remediation of this area before further encroachment of the Dungeness River takes these contaminants downstream.

Test Pit 2 Robinson-3 Parcel: 131 Serenity Lane

Test pit 2 was excavated where aerial photographs indicated an area of disturbed soil. Petroleum hydrocarbons, Semi-Volatile Organic Compounds (SVOCs), and Volatile Organic Compounds (VOCs) were not detected above the laboratory detection limits in the soil sample selected for these analyses. Priority pollutant metals-13 were detected in the soil sample at concentrations below the respective MTCA Method A or B cleanup levels and did not exceed the Washington State background levels for these metals. ESA Associates does not recommend any further subsurface investigations in this area.

Test Pit 3 Robinson-3 Parcel: 131 Serenity Lane

Test pit 3 was excavated where household waste had been burned in the past. The surface was charred ash and dirt with fragments of wires, plastics, glass, and nails. At two inches to four inches below ground surface (bgs), the soil contained petroleum hydrocarbons quantified as heavy oil at **174,000 milligrams per kilogram (mg/kg)** exceeding the MTCA Method A cleanup level of 2,000 mg/kg. Petroleum hydrocarbons quantified as gasoline were also detected below two inches at a concentration of 20.8 mg/kg, which is below the MCTA Method A cleanup level of 100 mg/kg. The upper two inches of soil also contained a dioxin/furan total toxic equivalent concentration or total TEQ (for notation purposes, the result is referred to as the TEQ) of 1.19 picograms per gram (pg/g), which is below MTCA's established screening level for terrestrial direct contact of 5.2 pg/g. SVOCs and VOCs were either not detected above the laboratory detection limits in the soil sample selected for these analyses or detected below the respective MTCA Method A or B cleanup levels. Priority pollutant metals-13 were detected in the soil sample at concentrations below the respective MTCA Method A or B cleanup levels and did not exceed the Washington State background levels for these metals.

The area impacted by petroleum hydrocarbons quantified as heavy oil measured 12 by 12 feet in plan dimensions and reached a depth of 0.5 feet. Based on these measurements approximately 3.7 tons of contaminated soil should be removed from this area and disposed of at an appropriate facility. ESA Associates recommends that this area be remediated at the same time as other areas of concern at the subject property.

Test Pit 4 Robinson-3 Parcel: 131 Serenity Lane

Test pit 4 was excavated on the Robinson-3 parcel located at 131 Serenity Lane where cars had been worked on in the past. The upper one inch of soil contained petroleum hydrocarbons quantified as heavy oil at a concentration of **40,700 mg/kg** exceeding the MTCA Method A cleanup level of 2,000 mg/kg. SVOCs and VOCs were not detected above the laboratory detection limits in the soil sample selected for these analyses. Priority pollutant metals-13 were detected in the soil sample at concentrations below the respective MTCA Method A or B cleanup levels and did not exceed the Washington State background levels for these metals.

The area impacted by petroleum hydrocarbons quantified as heavy oil measured five feet by 10 feet in plan dimensions and reached a depth of three feet bgs. Based on these measurements approximately 7.7 tons of contaminated soil should be removed from this area and disposed of at an appropriate facility. ESA Associates recommends that this area be remediated at the same time as other areas of concern at the subject property.

Test Pit 5 Smith Parcel: 21 Serenity Lane

Test pit 5 was excavated where household waste had been burned in the past. The surface was charred ash and dirt with fragments of wires and nails. The upper one inch of soil did not contain petroleum hydrocarbons, SVOCs, or VOCs. Priority pollutant metals-13 were detected in the soil sample at concentrations below the respective MTCA Method A or B cleanup levels and did not exceed the Washington State background levels for these metals. The dioxins/furans total TEQ was detected at 0.69 pg/g well below MTCA's established screening level for terrestrial direct contact of 5.2 pg/g.

The area impacted by dioxins and furans measured 10 by 10 feet in plan dimensions and reached a depth of 0.5 feet bgs. If the Tribe desires to remove the area of dioxin/furan impacted soil below the MTCA screening level, we estimate 2.5 tons will need to be removed and transported to an appropriate facility.

Test Pit 6 Smith Parcel: 21 Serenity Lane

Test pit 6 was excavated where household waste had been burned in the past. The surface was charred ash and dirt with fragments of wires and nails. The upper two inches of soil contained petroleum hydrocarbons quantified as diesel and heavy oil at concentrations well below the MTCA Method A cleanup level. SVOCs were not detected above the laboratory detection limits in this area. Priority pollutant metals-13 were detected in the soil sample at concentrations below the respective MTCA Method A or B cleanup levels and did not exceed the Washington State background levels for these metals. The dioxins/furans total TEQ were detected at **8.94 pg/g** above MTCA's established screening level for terrestrial direct contact of 5.2 pg/g. Benzene **(0.0354mg/kg)** was also detected at a concentration slightly above the MCTA Method A cleanup level of 0.03 mg/kg.

The area impacted by dioxins and furans measured 10 by 10 feet in plan dimensions and reached a depth of 0.5 feet bgs. ESA Associates recommends remediating the area of dioxin/furan and benzene impacted soil from this area. We estimate 2.5 tons will need to be removed and transported to an appropriate facility.

Test Pit 7 Smith Parcel: 21 Serenity Lane

Test pit 7 was excavated where household waste had been improperly disposed. Petroleum hydrocarbons, SVOCs, and VOCs were not detected above the laboratory detection limits in the soil sample selected for these analyses. Priority pollutant metals-13 were detected in the soil sample at concentrations below the respective MTCA Method A or B cleanup levels and did not exceed the Washington State background levels for these metals.

Approximately 10 cubic yards of household waste is currently disposed of on the Smith property. This waste currently poses a human health hazard. ESA Associates recommends removing and properly disposing of the solid waste from the subject property to an appropriate facility.

Conclusions

Approximately 20 tons of contaminated soil is associated with the Robinson and Smith parcels. There are three areas of contaminated soil on the Robinson property which exceed the MCTA Method A cleanup levels. Approximately 14-15 tons of contaminated soil from these three areas require remediation. There are two areas of concern on the Smith property. One area is impacted with benzene and dioxins/furans at concentrations above the MCTA Method A cleanup levels, and one area is impacted with dioxins and furans at concentrations below MTCA Method A cleanup levels. Approximately 2.5 tons of soil are in each area of concern. There are 10 cubic yards of household waste on the Smith property that require proper disposal. Furthermore, ESA Associates concludes that the areas of concern with concentrations of contaminants above the MTCA Method A cleanup level must be properly remediated so that the parcels no longer pose a hazard to human health or the environment.

2.0 BACKGROUND

Historical topographic maps, aerial photographs, records review, and local knowledge of the subject property indicate that the land was primarily forested from the 1930's to the late 1960's when portions of the property were developed for single family residences. From the late 1960's to 2015, all three parcels comprising the subject property were single family residences, and they are currently functioning as rental properties. These three residences all have functioning septic systems, but the system on the Smith parcel has no inspections on file since its installation in 1985. All of the residences have electric baseboard heat with supplementary wood stove heat. Each home is on a private well. Given the age of the homes and our on-site observations, the homes likely contain lead based paint and/or asbestos containing building materials and will require lead based paint and asbestos surveys prior to demolition. The remaining history of the site is detailed by parcel below:

ESA Associates' Phase I ESA review did reveal current RECs in association with some of the parcels of the subject property. Each parcel is discussed individually below:

Robinson-3: 131 Serenity Lane

The Robinson-3 parcel is occupied by a 1976, three bedroom, wood framed home covering 1,778 square feet. It has a detached garage and a work shop. The parcels is on 1.54 acres. This parcel has a few areas of concern. There is a large burn pile of debris with evidence of burning plastic and household wastes; this is a current REC. There is a suspect area on the aerials along the property boundary to the north that looks like digging/burying activities took place. The current tenant also works as a mechanic on his own cars and has poor management practices that may have resulted in some surface contamination. These areas require sampling.

Robinson-4: 121 Serenity Lane

The Robinson-4 parcel is occupied by a 1969, two bedroom mobile covering 1,144 square feet. It has an attached garage and a workshop. The parcel is on 1.28 acres. This parcel was rented by Randall Judd and was in reasonable condition. The home is currently not occupied. There was evidence from adjacent property renter statements that some burning of household items occurred at the west end of the property. This area requires sampling.

Smith: 21 Serenity Lane

The Smith parcel is occupied by a 1986 multi-wide three bedroom mobile home. The home covers 1,136 square feet. The parcel is on 1.18 acres. This parcel has a variety of household wastes, construction waste, and animal waste in the back yard of the property. Reportedly all these wastes were burned through the years. Burning of such waste streams can result in a variety of contaminants being present in the surface and subsurface soils. Burning of plastics can result in the production of dioxins and furans, a highly toxic contaminant. There is also an abundance of automotive waste on the surface as well as large quantities of bagged garbage that has not been burned. It is very likely that the past practices on this parcel have resulted in soil contamination.

ESA Associates concluded that a Phase II ESA was necessary in order to determine whether the historical past use and the current use of the subject property resulted in contamination of the soil. ESA Associates recommended analyzing soil samples for the following: total petroleum hydrocarbons by HCID screen, priority pollutant metals-13, SVOCs, VOCs, and dioxins/furans.

3.0 OBJECTIVE AND SCOPE OF SERVICES

ESA Associates excavated seven test pits in accordance with our authorized proposal dated October 5, 2015. ESA Associate's primary objective was to explore the areas of concern identified in our Phase I ESA report dated September 30, 2015. The Phase II ESA was designed to: 1) provide valid data of known and documented quality to characterize possible sources of contamination in areas of identified concern; and 2) document threats or potential threats that the site may pose to human health or the environment. To accomplish our objectives, the following tasks were executed under this scope of services:

- Provided a Washington State registered geologist to observe the field activities and collect the appropriate number of soil and/or groundwater samples.
- Observed and documented soil sampling activities for each test pit. This included field screening soils for the presence of volatile organic compounds with a photoionization detector (PID) reading in parts per million by volume.
- Documented any obvious indications of soil or groundwater contamination (as indicated by free product, stained soils, odors, or "oily" sheen).
- Collected test pit soil samples and documented the field screening results.
- Collected soil samples during the field activities (archived and analyzed for additional site information).
- Submitted the selected soil samples for petroleum hydrocarbons (by Ecology Method NWHCID and when indicated, NWTPH-G, NWTPH-Dext; Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270; Volatile Organic Compounds (VOCs) by EPA Method 8260; priority pollutant metals-13 by EPA methods 6020 and 7471; and dioxins and furans by EPA Method 1613.
- Prepared a draft and final report.

4.0 SUBSURFACE INVESTIGATION

ESA Associates mobilized to the site on October 1, 2015 to excavate seven test pits in the vicinity of the areas of concern outlined in our Phase I ESA report. ESA Associates utilized Advance Environmental, Inc. to excavate the seven test pits with a track-hoe as directed by an ESA Associates geologist. ESA Associates screened the soil in each test pit, characterized the subsurface soil, and inspected the soil for any obvious signs solid waste disposal or fill material.

The subsurface sampling program consisted of discrete soil samples collected from the sidewalls and base of each test pit. An ESA Associates geologist was present during the placement and excavation of each test pit to observe and document soil conditions. (Note: The geologist of ESA Associates is a registered professional geologist with the State of Washington.)

All field sampling and decontamination procedures, sample preparation and shipping, and overall field procedures were performed in general accordance with protocol established by the EPA and the Washington State Department of Ecology. All soil classification was performed using the ASTM D2487 Soil Classification Method, "*Soil Survey Standard test Method, Unified Soil Classification System: Field Method"*. Field procedures pertaining to the soil sampling and decontamination protocol are presented in Appendix A.

Soil samples were screened for the presence of volatile organic compounds (VOCs) using a photoionization detector (PID). The ESA Associates geologist documented the condition of the soil and visually inspected it for staining (sheen) or discoloration. The vapor reading and sheen tests were noted on the field logs. The soil sample that exhibited the highest potential for containing affected soil was selected for chemical analysis.

The test pit locations are presented on Figure 2. All representative samples were transported to an Ecology-approved analytical laboratory for appropriate analytical testing under chain-of-custody protocol. Chemical Analytical reports are included in Appendix B. Soil logs are included in Appendix C.

4.1 Test Pit 1 (Robinson-4)

Test pit 1 was excavated on the Robinson-4 parcel located at 121 Serenity Lane where household waste had been burned in the past. The surface was charred ash and dirt with fragments of wires and nails. Subsurface soils encountered were two feet of brown silty fine sand with large boulders (river rock) to the depth of the test pit at two feet below ground surface (bgs). Groundwater was not encountered at two feet bgs.

Soil samples were collected and field screened from each soil horizon and in one inch intervals along the sidewalls and base of the test pit. Two soil samples (121-1-1 and 121-1-2) were collected from the test pit at two inches and one foot bgs, respectively. The depth from which the soil samples were collected is recorded on the test pit log. The soil sample that exhibited the highest potential for containing affected soil was selected for chemical analysis.

4.2 Test Pit 2 (Robinson-3)

Test pit 2 was excavated on the Robinson-3 parcel located at 131 Serenity Lane where aerial photographs indicated an area of disturbed soil. The surface was grass. Subsurface soils encountered were six inches of brown silty fine sand underlain by four feet of brown silty fine sand with gravel and large boulders (river rock) to the depth of the test pit at six feet bgs. Groundwater was not encountered at six feet bgs.

Soil samples were collected and field screened from each soil horizon and in one foot intervals along the sidewalls and base of the test pit. Two soil samples (131-1-1 and 131-1-2) were collected from the test pit at three feet and six feet bgs, respectively. The depth from which the soil samples were collected is recorded on the test pit log. The soil sample that exhibited the highest potential for containing affected soil was selected for chemical analysis.

4.3 Test Pit 3 (Robinson-3)

Test pit 3 was excavated on the Robinson-3 parcel located at 131 Serenity Lane where household waste had been burned in the past. The surface was charred ash and dirt with fragments of wires, plastics, glass, and nails. Subsurface soils encountered were two inches of charred debris and brown silty sand underlain by two inches of brown silty sand with no debris underlain by one foot of interbedded silts and silty fine sands to the depth of the test pit at two feet bgs. Groundwater was not encountered at two feet bgs.

Soil samples were collected and field screened from each soil horizon and in one inch intervals along the sidewalls and base of the test pit. Three soil samples (131-2-1, 131-2-2, and 131-2-3) were collected from the test pit at one inch, two inches, and four inches bgs, respectively. The depth from which the soil samples were collected is recorded on the test pit log. The soil sample that exhibited the highest potential for containing affected soil was selected for chemical analysis.

4.4 Test Pit 4 (Robinson-3)

Test pit 4 was excavated on the Robinson-3 parcel located at 131 Serenity Lane where cars had been worked on in the past. The surface was oil stained silty sand. Subsurface soils encountered were brown silty fine sand to the depth of the test pit at four feet bgs. Groundwater was not encountered at four feet bgs.

Soil samples were collected and field screened from each soil horizon and in one inch intervals along the sidewalls and base of the test pit. Two soil samples (131-3-1 and 131-3-2) were collected from the test pit at one inch and 38 inches bgs, respectively. The depth from which the soil samples were collected is recorded on the test pit log. The soil sample that exhibited the highest potential for containing affected soil was selected for chemical analysis.

4.5 Test Pit 5 (Smith)

Test pit 5 was excavated on the Smith parcel located at 21 Serenity Lane where household waste had been burned in the past. The surface was charred ash and dirt with fragments of wires and nails. Subsurface soils encountered were two inches of charred debris and brown silty sand underlain by one foot of brown silty fine sand underlain by brown silty fine sand with boulders (river rock) to the depth of the test pit at two feet bgs. Groundwater was not encountered at two feet bgs.

Soil samples were collected and field screened from each soil horizon and in one inch intervals along the sidewalls and base of the test pit. Two soil samples (21-1-1 and 21-1-2) were collected from the test pit at one inch and one foot bgs, respectively. The depth from which the soil samples were collected is recorded on the test pit log. The soil sample that exhibited the highest potential for containing affected soil was selected for chemical analysis.

4.6 Test Pit 6 (Smith)

Test pit 6 was excavated on the Smith parcel located at 21 Serenity Lane where household waste had been burned in the past. The surface was charred ash and dirt with fragments of wires and nails. Subsurface soils encountered were two inches of charred debris and brown silty sand underlain by two feet of brown silty sand with boulders (river rock) to the depth of the test pit at two feet bgs. Groundwater was not encountered at two feet bgs.

Soil samples were collected and field screened from each soil horizon and in one inch intervals along the sidewalls and base of the test pit. Two soil samples (21-2-1 and 21-2-2) were collected from the test pit at two inches and two feet bgs, respectively. The depth from which the soil samples were collected is recorded on the test pit log. The soil sample that exhibited the highest potential for containing affected soil was selected for chemical analysis.

4.7 Test Pit 7 (Smith)

Test pit 7 was excavated on the Smith parcel located at 21 Serenity Lane where household waste had been improperly disposed. The surface was brown silty fine sand. Subsurface soils encountered were two feet brown silty fine sand to the depth of the test pit at two feet bgs. Groundwater was not encountered at two feet bgs.

Soil samples were collected and field screened from each soil horizon and in one inch intervals along the sidewalls and base of the test pit. One soil samples (21-3-1) was collected from the test pit at two inches bgs. The depth from which the soil samples were collected is recorded on the test pit log.

5.0 LABORATORY ANALYSIS OF SOIL

The samples were submitted to Fremont Analytical of Seattle, Washington, a Washington State Department of Ecology (Ecology)-certified laboratory, for analysis in accordance with applicable Ecology and Environmental Protection Agency (EPA) Methods. Quality Assurance/Quality Control (QA/QC) included generally accepted procedures for sample collection, storage, tracking, and documentation. All sampling equipment was washed and rinsed prior to the collection of the samples. All samples were labeled with a sample number, date, time, and sampler name, and stored in an ice chest containing frozen "blue ice" under appropriate chain-of-custody documentation. Detailed information regarding the field sampling protocol and decontamination procedures is presented in Appendix A.

5.1 Soil Analyses

The soil sample that exhibited the highest potential for containing affected soil was selected for testing (i.e., elevated field screening readings or historic knowledge of depth of contamination). If groundwater was encountered during the subsurface investigation activities, soil samples were collected from the soil/groundwater interface. Copies of the laboratory analysis reports and Chain-of-Custody documentation are presented in Appendix B.

5.2 Chemical Analysis

Nine of the 13 soil samples collected from the seven test pits were analyzed for one or more of the following: petroleum hydrocarbons (by Ecology Method NWHCID); Semi-Volatile Organic Compounds (by EPA Method 8270); Volatile Organic Compounds (by EPA Method 8260); priority pollutant metals-13 (by EPA Methods 6020 and 7471); and dioxins and Furans (by EPA Method 1613). After the NWHCID analysis was completed, any samples that had detections under this analysis were run under the NWTPH analysis for the petroleum hydrocarbons identified in the NWHCID screening.

6.0 SUBSURFACE FINDINGS AND ANALYTICAL RESULTS

In general, the site surface soils consisted of two feet of brown silty fine sand underlain by four feet of brown silty sand with boulders (river rock) to the depth of the excavations reaching a maximum depth of six feet bgs. Groundwater was not encountered in any of the test pits during our Phase II ESA activities; therefore no groundwater samples were collected during this investigation.

6.1 Subsurface Soil Sampling

As stated in Section 4.0, seven test pits were completed during our subsurface investigation activities (Figure 2) at the subject property. The soil from each test pit was placed back into their respective excavations and compacted utilizing the bucket of the trackhoe.

6.2 Subsurface Soil Analytical Results

The soil sample that exhibited the highest potential for containing affected soil was selected for chemical analysis. One to three soil samples per excavation were submitted or archived for chemical analysis. A total of 13 soil samples were submitted to the laboratory. Soil analytical results from the test pits are presented on Tables 1 and 2. Chemical analytical reports and the laboratory Quality Assurance/Quality Control (QA/QC) is presented in Appendix B.

6.2.1 Total Petroleum Hydrocarbons by Ecology Method NWHCID; NWTPH-G; NWTPH-D

Analytical results indicated total petroleum hydrocarbons were not detected above the laboratory detection limits in test pit 1 (121-1-1); test pit 2 (131-1-1); test pit 5 (21-1-1); and test pit 7 (21-3-1). Analytical results from **test pit 3** (131-2-1 and **131-2-2**) had petroleum hydrocarbons quantified as heavy oil at concentrations from 339 mg/kg (below the MTCA cleanup level of 2,000 mg/kg) to **174,000 mg/kg**, which is above the MTCA Method A cleanup level of 2,000 mg/kg, respectively. Analytical results from test pit 3 also indicated that concentrations of petroleum hydrocarbons quantified as gasoline were at 20.8 mg/kg (below the MTCA cleanup level of 100 mg/kg). Analytical results from **test pit 4** (**131-3-1** and 131-3-2) had concentrations of petroleum hydrocarbons from **40,700 mg/kg** (above the MTCA cleanup level) to non-detect, respectively. Analytical results from test pit 6 had concentrations of petroleum hydrocarbons quantified as diesel at 131 mg/kg (below the MTCA cleanup level) and petroleum hydrocarbons quantified as heavy oil at 95.6 mg/kg (below the MTCA cleanup level).

6.2.2 Semi-Volatile Organic Compounds by EPA Method 8270

Analytical results indicated SVOCs were not detected above the laboratory detection limits in all soil samples analyzed (131-1-1, 131-2-1, 131-3-1, 121-1-1, 21-1-1, 21-2-1, and 21-3-1) from all seven test pits.

6.2.4 Priority Pollutant Metals by EPA Method 6020 and 7471

Analytical results indicated priority pollutant metals were not detected above the MTCA Method A or B cleanup levels for each metal of the 13 metals analyzed from soil samples (131-1-1, 131-2-1, 131-3-1, 21-1-1, 21-2-1, and 21-3-1) collected from six of the seven test pits.

Test pit 1 (121-1-1) contained arsenic at a concentration of **372 mg/kg**, which is above the MTCA Method A cleanup level of 20 mg/kg. The remaining 12 metals under this analysis were found at concentrations below their respective MTCA Method A or B cleanup levels.

6.2.5 Volatile Organic Compounds (VOCs) by EPA Method 8260

Analytical results from soil samples (131-1-1, 131-3-1, 21-1-1, and 21-3-1) from test pits 2, 4, 5, and 7, respectively, did not contain VOCs above the laboratory detection limits. Soil sample 131-2-1 from test pit 3 contain one VOC, 4-isopropyltoluene, at 0.0324 mg/kg, which is below the MTCA cleanup level. Soil sample **121-1-1 from test pit 1** contained one VOC, methylene chloride at **0.0454 mg/kg**, which is above the MCTA Method A cleanup level of 0.02 mg/kg. Soil sample **21-2-1 from test pit 6** contained benzene at a concentration of **0.0352 mg/kg**, which is just above the MTCA cleanup level of 0.03 mg/kg.

6.2.6 Dioxin and Furans by EPA Method 1613

The dioxin/furan total toxic equivalent concentration or Total TEQ (for notation purposes, the result is referred to as the TEQ) was calculated using the Ecology Guidance "Dioxin/Furan/PCB (Ecological Risk Calculation Methodology)" dated November 15, 2013 and MTCA (WAC 173-340-7490 through 7494) (Ecology, 2007a). According to the Ecology guidance, Polychlorinated dibenzo-p-dioxin and polychlorinated dibenzofuran congeners (dioxins and furans) are generally present in the environment as a complex mixture of chemical "congeners" that differ in terms of the number and location of chlorine atoms. 2,3,7,8 – Tetrachlorodibenzo-p-dioxin (TCDD) is the most toxic and best studied of the 210 dioxin and furan congeners (Ecology, 2007b). Scientists have concluded that the 17 dioxin/furan congeners identified in MTCA act through a common biological mechanism and essentially behave like one chemical.

Because dioxins and furans are generally present in the environment as complex mixtures of chemical "congeners," scientists have developed the Toxic Equivalency Factor (TEF) methodology to evaluate the toxicity and assess the risks associated with the whole mixture. In this method, each congener is assigned a TEF value. The TEF is the ratio of the estimated toxicity for a particular congener to the toxicity demonstrated by 2,3,7,8 Tetrachlorodibenzo-p-dioxin (TCDD) (Ecology, 2007c). The TEF approach is based on the concept that the various congeners of dioxin/furan essentially act as one chemical, affecting the Ah receptor (Aryl Hydrocarbon Receptor).

ESA Associates calculated the TEQ concentration of each of the seven [7] dioxin and ten [10] furan congeners by multiplying the individual congener analytical results by the appropriate TEF. The sum of the resulting calculations was used to determine a dioxin/furan TEQ. Analytical results for the TEQ of the total dioxins and furans are discussed for each area below:

6.2.6.1 Test Pit 1

The 2,3,7,8, TCDD TEQ for the soil sample **(121-1-1)** collected from **test pit 1 was 216 picograms per gram (pg/g)**, which is well above MTCA's established screening level for terrestrial direct contact of 5.2 pg/g.

6.2.6.2 Test Pit 3

The 2,3,7,8, TCDD TEQ for the soil sample (131-2-1) collected from test pit 2 was 1.19 pg/g, which is below MTCA's established screening level for terrestrial direct contact of 5.2 pg/g.

6.2.6.3 Test Pit 5

The 2,3,7,8, TCDD TEQ for the soil sample (21-1-1) collected from test pit 5 was 0.69 pg/g, which is below MTCA's established screening level for terrestrial direct contact of 5.2 pg/g.

6.2.6.4 Test Pit 6

The 2,3,7,8, TCDD TEQ for the soil sample **(21-2-1)** collected from **test pit 6 was 8.94 pg/g**, which is above MTCA's established screening level for terrestrial direct contact of 5.2 pg/g.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The subsurface soil-sampling program consisted of discrete soil samples collected from seven test pits. Groundwater was not encountered in the test pits to a total depth of six feet bgs; therefore, no groundwater samples were collected for this study. A summary of our findings and recommendations for each area is presented below.

7.1 Test Pit 1 Robinson-4 Parcel: 121 Serenity Lane

Test pit 1 was excavated in an area where household garbage and furniture was burned over time reportedly by the previous tenant. The soil encountered during our subsurface investigation in test pit 1 revealed high levels of arsenic, methylene chloride, dioxins and furans at concentrations well above the MTCA Method A cleanup levels for these constituents.

The area impacted by these constituents measured 10 by 10 feet in plan dimensions and reached a depth of 0.5 feet. Based on these measurements approximately 2.5 tons of contaminated soil should be removed from this area and disposed of at an appropriate facility. Groundwater was not encountered at one foot bgs.

ESA Associates recommends remediation of this area before further encroachment of the Dungeness River takes these contaminants downstream.

7.2 Test Pit 2 Robinson-3 Parcel: 131 Serenity Lane

Test pit 2 was excavated on the Robinson-3 parcel located at 131 Serenity Lane where aerial photographs indicated an area of disturbed soil. Subsurface soils encountered were six inches of brown silty fine sand underlain by four feet of brown silty fine sand with gravel and large boulders (river rock) to the depth of the test pit at six feet bgs. Groundwater was not encountered at six feet bgs.

Petroleum hydrocarbons, SVOCs, and VOCs were not detected above the laboratory detection limits in the soil sample selected for these analyses. Priority pollutant metals-13 were detected in the soil sample at concentrations below the respective MTCA Method A or B cleanup levels and did not exceed the Washington State background levels for these metals.

ESA Associates does not recommend any further subsurface investigations in this area.

7.3 Test Pit 3 Robinson-3 Parcel: 131 Serenity Lane

Test pit 3 was excavated on the Robinson-3 parcel located at 131 Serenity Lane where household waste had been burned in the past. The surface was charred ash and dirt with fragments of wires, plastics, glass, and nails. Subsurface soils encountered were two inches of charred debris and brown silty sand underlain by two inches of brown silty sand with no debris underlain by one foot of interbedded silts and silty fine sands to the depth of the test pit at two feet bgs. Groundwater was not encountered at two feet bgs.

The upper two inches of soil contained petroleum hydrocarbons quantified as heavy oil at a concentration of 339 mg/kg, which is below the MCTA Method A cleanup level of 2,000 mg/kg. At two inches to four inches bgs, the soil contained petroleum hydrocarbons quantified as heavy oil at **174,000 mg/kg** exceeding the MTCA Method A cleanup level. Petroleum hydrocarbons quantified as gasoline was also detected below two inches at a concentration of 20.8 mg/kg, which is below the MCTA Method A cleanup level of 100 mg/kg. The upper two inches of soil also contained a dioxin/furan TEQ of 1.19 pg/g, which is below MTCA's established screening level for terrestrial direct contact of 5.2 pg/g.

SVOCs and VOCs were either not detected above the laboratory detection limits in the soil sample selected for these analyses or detected below the respective MTCA Method A or B cleanup levels. Priority pollutant metals-13 were detected in the soil sample at concentrations below the respective MTCA Method A or B cleanup levels and did not exceed the Washington State background levels for these metals.

The area impacted by petroleum hydrocarbons quantified as heavy oil and dioxins/furans measured 12 by 12 feet in plan dimensions and reached a depth of 0.5 feet. Based on these measurements approximately 3.7 tons of contaminated soil should be removed from this area and disposed of at an appropriate facility

ESA Associates recommends that this area be remediated at the same time as other areas of concern at the subject property. Please note that while the dioxin/furan concentrations are below the MCTA screening level, they will likely be remediated with the removal of the petroleum impacted soil since they are found in the same horizons.

7.4 Test Pit 4 Robinson-3 Parcel: 131 Serenity Lane

Test pit 4 was excavated on the Robinson-3 parcel located at 131 Serenity Lane where cars had been worked on in the past. The surface was oil stained silty sand. Subsurface soils encountered were brown silty fine sand to the depth of the test pit at four feet bgs. Groundwater was not encountered at four feet bgs.

The upper one inch of soil contained petroleum hydrocarbons quantified as heavy oil at a concentration of **40,700 mg/kg** exceeding the MTCA Method A cleanup level of 2,000 mg/kg.

SVOCs and VOCs were not detected above the laboratory detection limits in the soil sample selected for these analyses. Priority pollutant metals-13 were detected in the soil sample at concentrations below the respective MTCA Method A or B cleanup levels and did not exceed the Washington State background levels for these metals.

The area impacted by petroleum hydrocarbons quantified as heavy oil measured five feet by 10 feet in plan dimensions and reached a depth of three feet bgs. Based on these measurements approximately 7.7 tons of contaminated soil should be removed from this area and disposed of at an appropriate facility

ESA Associates recommends that this area be remediated at the same time as other areas of concern at the subject property.

7.5 Test Pit 5 Smith Parcel: 21 Serenity Lane

Test pit 5 was excavated on the Smith parcel located at 21 Serenity Lane where household waste had been burned in the past. The surface was charred ash and dirt with fragments of wires and nails. Subsurface soils encountered were two inches of charred debris and brown silty sand underlain by one foot of brown silty fine sand underlain by brown silty fine sand with boulders (river rock) to the depth of the test pit at two feet bgs. Groundwater was not encountered at two feet bgs.

The upper one inch of soil did not contain petroleum hydrocarbons, SVOCs, or VOCs. Priority pollutant metals-13 were detected in the soil sample at concentrations below the respective MTCA Method A or B cleanup levels and did not exceed the Washington State background levels for these metals. Dioxins and furans were detected at 0.69 pg/g well below MTCA's established screening level for terrestrial direct contact of 5.2 pg/g.

The area impacted by dioxins and furans measured 10 by 10 feet in plan dimensions and reached a depth of 0.5 feet bgs. If the Tribe desires to remove the area of dioxin/furan impacted soil that is currently below the MTCA screening level, we estimate 2.5 tons will need to be removed and transported to an appropriate facility.

7.6 Test Pit 6 Smith Parcel: 21 Serenity Lane

Test pit 6 was excavated on the Smith parcel located at 21 Serenity Lane where household waste had been burned in the past. The surface was charred ash and dirt with fragments of wires and nails. Subsurface soils encountered were two inches of charred debris and brown silty sand underlain by two feet of brown silty sand with boulders (river rock) to the depth of the test pit at two feet bgs. Groundwater was not encountered at two feet bgs.

The upper two inches of soil contained petroleum hydrocarbons quantified as diesel and heavy oil at concentrations well below the MTCA Method A cleanup level. SVOCs were not detected above the laboratory detection limits in this area. Priority pollutant metals-13 were detected in the soil sample at concentrations below the respective MTCA Method A or B cleanup levels and did not exceed the Washington State background levels for these metals. Dioxins and furans were detected at **8.94 pg/g** above MTCA's established screening level for terrestrial direct contact of 5.2 pg/g. The VOC, benzene was also detected at a concentration **(0.0354 mg/kg)** slightly above the MCTA Method A cleanup level of 0.03 mg/kg. All remaining VOCs were not detected above the laboratory detection limit for each individual analyte.

The area impacted by benzene, dioxins, and furans measured 10 by 10 feet in plan dimensions and reached a depth of 0.5 feet bgs. ESA Associates recommends remediating the area of dioxin/furan and benzene impacted soil from this area. We estimate 2.5 tons will need to be removed and transported to an appropriate facility.

7.7 Test Pit 7 Smith Parcel: 21 Serenity Lane

Test pit 7 was excavated on the Smith parcel located at 21 Serenity Lane where household waste had been improperly disposed. The surface was brown silty fine sand. Subsurface soils encountered were two feet brown silty fine sand to the depth of the test pit at two feet bgs. Groundwater was not encountered at two feet bgs.

Petroleum hydrocarbons, SVOCs, and VOCs were not detected above the laboratory detection limits in the soil sample selected for these analyses. Priority pollutant metals-13 were detected in the soil sample at concentrations below the respective MTCA Method A or B cleanup levels and did not exceed the Washington State background levels for these metals.

ESA Associates does not recommend any further subsurface investigations in this area for environmental contaminants; however, approximately 10 cubic yards of household waste is currently disposed of on the Smith property. This waste currently poses a human health hazard. ESA Associates recommends removing and properly disposing of the solid waste on the subject property.

8.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

I declare that, to the best of my professional knowledge and belief, I meet the definition of *Environmental Professional* as defined in §312.10 of 40 CFR 312, and I have the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the subject *property*. I have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR part 312. Qualifications of the environmental professional who conducted this environmental site assessment are included in Appendix D.

Respectfully Submitted,
ESA ASSOCIATES, INC.

Kristen L Burgess,
Registered Geologist, No. 1322

9.0 LIMITATIONS

Our proposed scope of services is intended to provide an assessment of possible contamination of soil on the subject property. Although we believe our work provides a thorough assessment of potential areas of environmental concern on the subject property, it was not designed to eliminate all risk associated with the subject property. Even the most rigorous of professional assessments may fail to identify all existing conditions. This work will not provide a guarantee regarding site contamination and may not generate sufficient data to accurately define the lateral and vertical extent of contamination, if present.

Property activities and regulations beyond ESA Associate's control could change at any time after the completion of our property visit. Therefore, ESA Associate's observations, findings and opinions are based solely upon site conditions of the date of the property visit.

Our report may be used only by the client and their designated representatives, only for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both on site and off site) or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use the generated report shall notify ESA Associates of such intended use. Based on the intended use of the report, ESA Associates may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release ESA Associates from any liability resulting from the use of the report by any unauthorized party.

No warranty, express or implied, is made.

TABLES

TABLE 1

Summary of Soil Samples Laboratory Analytical Results

Robinson and Smith Properties: Sequim, Washington

Sampled on October 1, 2015

Results in mg/kg for petroleum hydrocarbons and pg/g for dioxins/furans

Sample ID	Sample Depth	PID Reading (ppm)	Sheen Results	NWTPH-HCID	SVOCs EPA Method 8270	VOCs EPA Method 8260	Priority Pollutant Metals – 13 EPA Methods 7471 and 6020	NWTPH-Dx/ Dx Ext	NWTPH -Gx	Dioxins / Furans By EPA Method 1613
131-1-1	3’	0	SS	ND	ND	ND	Detected[1]	NA	NA	NA
131-2-1	1”	0	SS	Detected[2]	ND	Detected[3]	Detected	339	NA	1.19[9]
131-2-2	2”	0	HS	NA	NA	NA	NA	**174,000**	20.8	NA
131-2-3	4”	0	NS	NA	NA	NA	NA	ND	NA	NA
131-3-1	1”	0	HS	**Detected[4]**	ND	ND	Detected	**40,700**	NA	NA
131-3-2	39”	0.1	SS	NA	NA	NA	NA	ND	NA	NA
121-1-1	2”	0	SS-	ND	ND	**Detected[5]**	**Detected[6]**	NA	NA	**216**
21-1-1	1”	0	NS	ND	ND	ND	Detected	NA	NA	0.69
21-2-1	2”	0	SS+	Detected[7]	ND	**Detected[8]**	Detected	131/95.6	NA	**8.94**
21-3-1	2”	0	NS	ND	ND	ND	Detected	NA	NA	NA

Bold indicates concentrations exceeding MTCA Method A or B cleanup levels or above MTCA’s direct contact screening level for dioxin/furans.

NS: No Sheen, SS: Slight Sheen, MS: Moderate Sheen, ND: Non-Detect, NA: Not Analyzed

[1] For Priority Pollutant Metals detected, see Table 2.

[2] Heavy Oil detected.

[3] 4-Isopropyltoluene detected at 0.0342 mg/kg.

[4] Heavy Oil detected.

[5] Methylene chloride detected at 0.0454 mg/kg, above the MTCA Method A cleanup level of 0.0200 mg/kg.

[6] Arsenic detected at 372 mg/kg above the MTCA Method As cleanup level of 20 mg/kg.

[7] Diesel detected/heavy oil detected.

[8] Benzene detected at 0.0352 mg/kg above the MTCA Method A cleanup level of 0.03 mg/kg.

[9] Concentrations of dioxins/furans are reported as a total toxic equivalent concentration (TEQ) in picograms per gram (pg/g).

TABLE 2

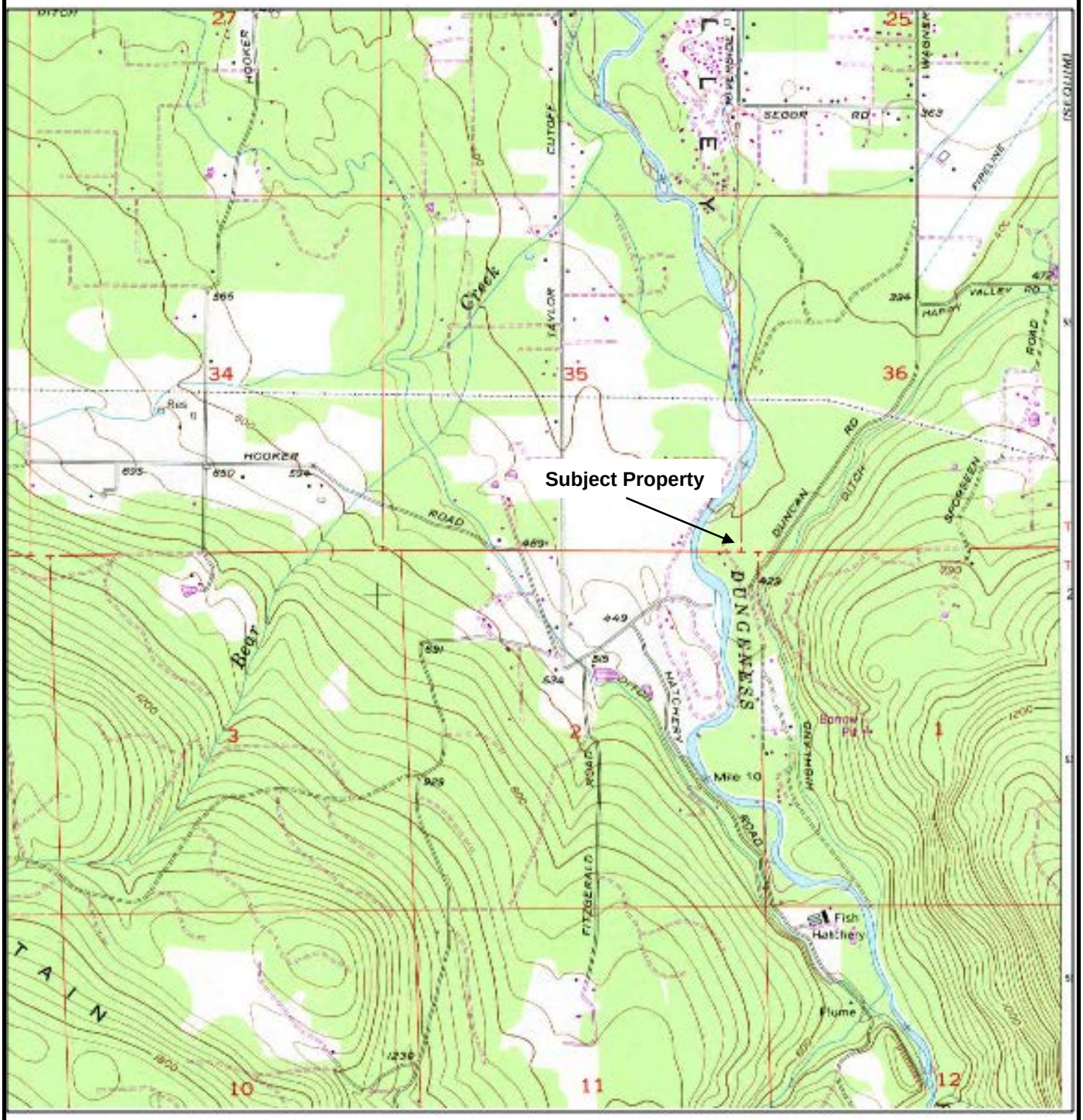
Summary of Soil Samples Priority Pollutant Metals Laboratory Analytical Results
By EPA Methods 7471 and 6020
Robinson and Smith Properties: Sequim, Washington
Sampled on October 1, 2015
Results Reported in mg/kg for soil

Sample ID	Sample Depth (FT)	Sb	As	Be	Cd	Cr	Cu	Pb	Ni	Se	Ag	Tl	Zn	Hg
131-1-1	3’	ND	5.18	0.456	ND	46.2	36.7	6.21	46.7	1.79	ND	ND	62.5	ND
131-2-1	1”	1.04	6.19	0.373	ND	39.6	42.9	15.4	37.4	1.52	15.5	ND	231	ND
131-2-2	2”	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
131-3-1	1”	ND	4.56	0.413	0.463	40.2	40.1	33.5	43.3	1.62	ND	ND	78.9	ND
121-1-1	2”	1.48	**372***	0.451	0.388	160	325	11.9	41.1	1.54	0.180	ND	889	ND
21-1-1	1”	ND	5.13	0.469	ND	42.4	37.5	7.75	40.2	1.90	ND	ND	79.0	ND
21-2-1	2”	0.465	14.3	0.424	0.300	50.6	296	14.8	47.9	1.42	ND	ND	661	ND
21-3-1	2”	ND	3.79	0.346	ND	33.5	40.0	7.46	37.9	1.48	ND	ND	133	ND
MTCA Cleanup Levels Soil (mg/kg)		32	20	160	2	19/ 2000	3,200	250	1,600	400	400	5.6	24,000	2

* **Bold** indicates concentrations exceeding MTCA Method A or B cleanup levels.

Sb: Antimony As: Arsenic Be: Beryllium Cd: Cadmium Cr: Chromium Cu: Copper Pb: Lead
Ni: Nickel Se: Selenium Ag: Silver Tl: Thallium Zn: Zinc Hg: Mercury

FIGURES



N

ESA Associates, Inc.

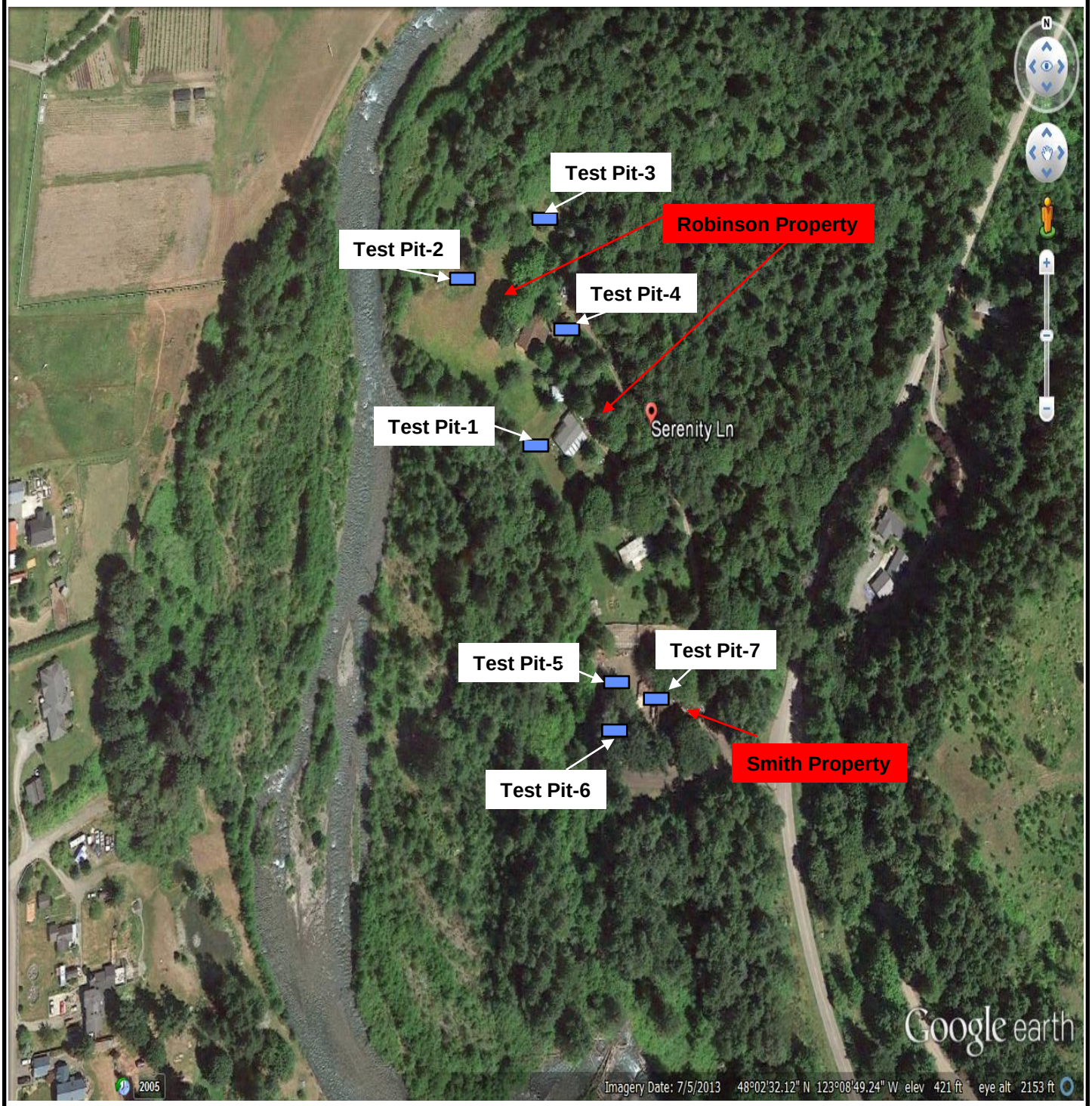
PROJECT NO. 711-007-104 November, 2015

Site Vicinity Map

Smith and Robinson Properties
21, 121, 131 Serenity Lane
Sequim, Washington

FIGURE

1



Test Pit Location

N

ESA Associates, Inc.

PROJECT NO. 711-007-104 November, 2015

Test Pit Locations

Robinson and Smith Properties
21, 121, 131 Serenity Lane
Sequim, Washington

FIGURE

2

APPENDIX A

SITE EXPLORATION METHODS

SITE EXPLORATION METHODS

General

ESA Associates developed a health and safety plan for this project prior to the start of fieldwork. The health and safety plan included specifications for steel toe boots, hard hats, safety glasses, and protective clothing. For the protection of the crew, a photoionization detector (PID) was used to screen for the presence of volatile organic concentrations in the breathing zone during the excavation of test pits. The PID was a Thermo Environmental Model 580B OVM, or equivalent, with a 10.5 ev lamp. The instrument was calibrated to 100 parts per million by volume (ppmv) with an isobutylene gas standard. The PID measures volatile organic compounds (VOCs) in the air in ppmv.

Soil Sampling

A track mounted excavator was used to dig each test pit. All sampling equipment was steam cleaned prior to mobilization to reduce the potential for cross contamination. Discrete soil samples are obtained using a stainless steel spoon. The spoon was decontaminated between sampling intervals to reduce the potential for cross contamination.

Collected soil samples were evaluated for evidence of contamination by visible discoloration of the soil sample or VOCs detected by the PID. A portion of each soil sample was placed into a plastic zip-lock bag, and the vapors were drawn through the PID for qualitative screening of VOCs. The vapor readings were documented as the field screening results. A new plastic bag was used each time a sample was screened.

Field screening on soil samples collected during subsurface explorations provide a relative indication of the degree of contamination. Field screening consists of inspecting the soil for stains indicative of contamination. Visual screening is generally effective in detecting the presence of heavy hydrocarbons such as diesel fuel or when the contaminant concentrations are high. Water sheen screening is also an effective way to detect lighter hydrocarbons such as gasoline as well as the heavier end hydrocarbons such as hydraulic oil.

Water sheen screening involves placing soil in a pan of distilled water and observing the water surface for signs of sheen. Sheen classifications are as follows:

No Sheen (NS)	No visible sheen
Slight Sheen (SS)	Light, colorless, dull sheen; spread is irregular, not rapid; sheen dissipates rapidly
Moderate Sheen (MS)	Light to heavy sheen; may have some color/iridescence; spread is irregular to flowing, may be rapid; few remaining areas of no sheen on the water surface.
Heavy Sheen (HS)	Heavy sheen with color/iridescence; spread is rapid; entire water surface maybe covered with sheen.

Where analysis of the complete suite of volatile organics is required, the procedure for sampling soils will include steps that are commensurate with EPA Method 5035a as follows:

After a fresh surface of the solid material is exposed to the atmosphere, the subsample collection process (splitting the sample: one to submit and the other for screening purpose) was completed in the least amount of time in order to minimize the loss of VOCs due to volatilization. Removing a subsample from a material was done in the least amount of disruption as possible. Additionally, rough trimming of the sampling location's surface was considered if the material may have already lost VOCs or if contaminated by other waste, different soil strata, or vegetation. Removal of surface layers was accomplished by scraping the surface using a clean spatula, scoop, knife, or shovel.

Subsamples of the appropriate size for analysis were collected using a metal or rigid plastic coring tool. For example, coring tools for the purpose of transferring a subsample were made from disposable plastic syringes by cutting off the tapered front end and removing the rubber cap from the plunger. When inserting a clean coring tool into a fresh surface for sample collection, air was not be trapped behind the sample.

Soil samples were placed directly into laboratory-provided sample jars and sealed with a Teflon lined lid. The samples were then placed into an ice chest containing frozen "blue ice" for preservation. The sample was then forwarded to the analytical laboratory using proper Chain-of-Custody procedures. All soil sample containers were labeled with sample identification numbers, the date, and the sampler's name.

APPENDIX B

CHEMICAL ANALYTICAL REPORTS

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

ESA Associates, Inc.
Kristen Burgess
2820 132nd Ave SE
Snohomish, WA 98290-4792

RE: JKT - Dungeness
Lab ID: 1510028

October 19, 2015

Attention Kristen Burgess:

Fremont Analytical, Inc. received 14 sample(s) on 10/2/2015 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Dioxins by EPA Method 1613
Gasoline by NWTPH-Gx
Hydrocarbon Identification by NWTPH-HCID
Mercury by EPA Method 7471
Sample Moisture (Percent Moisture)
Semi-Volatile Organic Compounds by EPA Method 8270
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Chelsea Ward
Project Manager

Date: *11/02/2015*

CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness
Lab Order: 1510028

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1510028-001	131-1-1	10/01/2015 9:45 AM	10/02/2015 12:00 PM
1510028-002	131-2-1	10/01/2015 10:35 AM	10/02/2015 12:00 PM
1510028-003	131-1-2	10/01/2015 10:07 AM	10/02/2015 12:00 PM
1510028-004	131-2-2	10/01/2015 10:51 AM	10/02/2015 12:00 PM
1510028-005	131-2-3	10/01/2015 11:09 AM	10/02/2015 12:00 PM
1510028-006	131-3-1	10/01/2015 11:52 AM	10/02/2015 12:00 PM
1510028-007	131-3-2	10/01/2015 12:15 PM	10/02/2015 12:00 PM
1510028-008	121-1-1	10/01/2015 7:50 AM	10/02/2015 12:00 PM
1510028-009	21-1-1	10/01/2015 1:25 AM	10/02/2015 12:00 PM
1510028-010	21-1-2	10/01/2015 2:10 AM	10/02/2015 12:00 PM
1510028-011	21-2-1	10/01/2015 2:22 AM	10/02/2015 12:00 PM
1510028-012	21-2-2	10/01/2015 2:32 AM	10/02/2015 12:00 PM
1510028-013	21-3-1	10/01/2015 2:46 AM	10/02/2015 12:00 PM
1510028-014	Trip Blank	09/23/2015 12:15 PM	10/02/2015 12:00 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1510028**

Date: **10/19/2015**

CLIENT: ESA Associates, Inc.

Project: JKT - Dungeness

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 9:45:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-001
Matrix: Soil
Client Sample ID: 131-1-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Hydrocarbon Identification by NWTPH-HCID				Batch ID: 12022		Analyst: EC
Gasoline	ND	20.2		mg/Kg-dry	1	10/2/2015 11:00:00 PM
Mineral Spirits	ND	30.3		mg/Kg-dry	1	10/2/2015 11:00:00 PM
Kerosene	ND	50.5		mg/Kg-dry	1	10/2/2015 11:00:00 PM
Diesel (Fuel Oil)	ND	50.5		mg/Kg-dry	1	10/2/2015 11:00:00 PM
Heavy Oil	ND	101		mg/Kg-dry	1	10/2/2015 11:00:00 PM
Mineral Oil	ND	101		mg/Kg-dry	1	10/2/2015 11:00:00 PM
Surr: 2-Fluorobiphenyl	98.9	50-150		%REC	1	10/2/2015 11:00:00 PM
Surr: o-Terphenyl	94.3	50-150		%REC	1	10/2/2015 11:00:00 PM
Semi-Volatile Organic Compounds by EPA Method 8270				Batch ID: 12044		Analyst: AK
Phenol	ND	193		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Bis(2-chloroethyl) ether	ND	193		µg/Kg-dry	1	10/8/2015 3:54:00 AM
2-Chlorophenol	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
1,3-Dichlorobenzene	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
1,4-Dichlorobenzene	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
1,2-Dichlorobenzene	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Benzyl alcohol	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
2-Methylphenol (o-cresol)	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Hexachloroethane	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
N-Nitrosodi-n-propylamine	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Nitrobenzene	ND	193		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Isophorone	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
4-Methylphenol (p-cresol)	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
2-Nitrophenol	ND	193		µg/Kg-dry	1	10/8/2015 3:54:00 AM
2,4-Dimethylphenol	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Bis(2-chloroethoxy)methane	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
2,4-Dichlorophenol	ND	193		µg/Kg-dry	1	10/8/2015 3:54:00 AM
1,2,4-Trichlorobenzene	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Naphthalene	ND	77.1		µg/Kg-dry	1	10/8/2015 3:54:00 AM
4-Chloroaniline	ND	482		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Hexachlorobutadiene	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
4-Chloro-3-methylphenol	ND	482		µg/Kg-dry	1	10/8/2015 3:54:00 AM
2-Methylnaphthalene	ND	77.1		µg/Kg-dry	1	10/8/2015 3:54:00 AM
1-Methylnaphthalene	ND	77.1		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Hexachlorocyclopentadiene	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
2,4,6-Trichlorophenol	ND	193		µg/Kg-dry	1	10/8/2015 3:54:00 AM
2,4,5-Trichlorophenol	ND	193		µg/Kg-dry	1	10/8/2015 3:54:00 AM
2-Chloronaphthalene	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM

Analytical Report

WO#: **1510028**

Date Reported: **10/19/2015**

Client: ESA Associates, Inc.

Collection Date: 10/1/2015 9:45:00 AM

Project: JKT - Dungeness

Lab ID: 1510028-001

Matrix: Soil

Client Sample ID: 131-1-1

Semi-Volatile Organic Compounds by EPA Method 8270 Batch ID: 12044 Analyst: AK

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
2-Nitroaniline	ND	482		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Acenaphthene	ND	77.1		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Dimethylphthalate	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
2,6-Dinitrotoluene	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Acenaphthylene	ND	77.1		µg/Kg-dry	1	10/8/2015 3:54:00 AM
2,4-Dinitrophenol	ND	193		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Dibenzofuran	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
2,4-Dinitrotoluene	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
4-Nitrophenol	ND	482		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Fluorene	ND	77.1		µg/Kg-dry	1	10/8/2015 3:54:00 AM
4-Chlorophenyl phenyl ether	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Diethylphthalate	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
4,6-Dinitro-2-methylphenol	ND	193		µg/Kg-dry	1	10/8/2015 3:54:00 AM
4-Bromophenyl phenyl ether	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Hexachlorobenzene	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Pentachlorophenol	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Phenanthrene	ND	77.1		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Anthracene	ND	77.1		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Carbazole	ND	482		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Di-n-butylphthalate	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Fluoranthene	ND	77.1		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Pyrene	ND	77.1		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Butyl Benzylphthalate	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
bis(2-Ethylhexyl)adipate	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Benz (a) anthracene	ND	77.1		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Chrysene	ND	77.1		µg/Kg-dry	1	10/8/2015 3:54:00 AM
bis (2-Ethylhexyl) phthalate	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Di-n-octyl phthalate	ND	96.3		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Benzo (b) fluoranthene	ND	77.1		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Benzo (k) fluoranthene	ND	77.1		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Benzo (a) pyrene	ND	77.1		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Indeno (1,2,3-cd) pyrene	ND	77.1		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Dibenz (a,h) anthracene	ND	77.1		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Benzo (g,h,I) perylene	ND	77.1		µg/Kg-dry	1	10/8/2015 3:54:00 AM
Surr: 2,4,6-Tribromophenol	45.4	11.1-127		%REC	1	10/8/2015 3:54:00 AM
Surr: 2-Fluorobiphenyl	76.4	16.1-150		%REC	1	10/8/2015 3:54:00 AM
Surr: Nitrobenzene-d5	81.1	10-133		%REC	1	10/8/2015 3:54:00 AM
Surr: Phenol-d6	95.3	11.6-133		%REC	1	10/8/2015 3:54:00 AM
Surr: p-Terphenyl	90.8	21.8-150		%REC	1	10/8/2015 3:54:00 AM

Analytical Report

WO#: **1510028**

Date Reported: **10/19/2015**

Client: ESA Associates, Inc.

Collection Date: 10/1/2015 9:45:00 AM

Project: JKT - Dungeness

Lab ID: 1510028-001

Matrix: Soil

Client Sample ID: 131-1-1

Volatile Organic Compounds by EPA Method 8260 Batch ID: 12040 Analyst: BC

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0210		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Chloromethane	ND	0.0210		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Vinyl chloride	ND	0.000700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Bromomethane	ND	0.0315		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0175		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Chloroethane	ND	0.0210		mg/Kg-dry	1	10/6/2015 6:35:00 AM
1,1-Dichloroethene	ND	0.0175		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Methylene chloride	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
trans-1,2-Dichloroethene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0175		mg/Kg-dry	1	10/6/2015 6:35:00 AM
1,1-Dichloroethane	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
2,2-Dichloropropane	ND	0.0175		mg/Kg-dry	1	10/6/2015 6:35:00 AM
cis-1,2-Dichloroethene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Chloroform	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
1,1-Dichloropropene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Carbon tetrachloride	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
1,2-Dichloroethane (EDC)	ND	0.0105		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Benzene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Trichloroethene (TCE)	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
1,2-Dichloropropane	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Bromodichloromethane	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Dibromomethane	ND	0.0140		mg/Kg-dry	1	10/6/2015 6:35:00 AM
cis-1,3-Dichloropropene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Toluene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
trans-1,3-Dichloropropylene	ND	0.0105		mg/Kg-dry	1	10/6/2015 6:35:00 AM
1,1,2-Trichloroethane	ND	0.0105		mg/Kg-dry	1	10/6/2015 6:35:00 AM
1,3-Dichloropropane	ND	0.0175		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Tetrachloroethene (PCE)	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Dibromochloromethane	ND	0.0105		mg/Kg-dry	1	10/6/2015 6:35:00 AM
1,2-Dibromoethane (EDB)	ND	0.00175		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Chlorobenzene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0105		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Ethylbenzene	ND	0.0105		mg/Kg-dry	1	10/6/2015 6:35:00 AM
m,p-Xylene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
o-Xylene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Styrene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Isopropylbenzene	ND	0.0280		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Bromoform	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 9:45:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-001
Matrix: Soil
Client Sample ID: **131-1-1**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 12040		Analyst: BC
1,1,2,2-Tetrachloroethane	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
n-Propylbenzene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Bromobenzene	ND	0.0105		mg/Kg-dry	1	10/6/2015 6:35:00 AM
1,3,5-Trimethylbenzene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
2-Chlorotoluene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
4-Chlorotoluene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
tert-Butylbenzene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
1,2,3-Trichloropropane	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
1,2,4-Trichlorobenzene	ND	0.0175		mg/Kg-dry	1	10/6/2015 6:35:00 AM
sec-Butylbenzene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
4-Isopropyltoluene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
1,3-Dichlorobenzene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
1,4-Dichlorobenzene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
n-Butylbenzene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
1,2-Dichlorobenzene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
1,2-Dibromo-3-chloropropane	ND	0.175		mg/Kg-dry	1	10/6/2015 6:35:00 AM
1,2,4-Trimethylbenzene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Hexachlorobutadiene	ND	0.0350		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Naphthalene	ND	0.0105		mg/Kg-dry	1	10/6/2015 6:35:00 AM
1,2,3-Trichlorobenzene	ND	0.00700		mg/Kg-dry	1	10/6/2015 6:35:00 AM
Surr: Dibromofluoromethane	93.8	56.5-129		%REC	1	10/6/2015 6:35:00 AM
Surr: Toluene-d8	99.3	64.3-131		%REC	1	10/6/2015 6:35:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.9	63.1-141		%REC	1	10/6/2015 6:35:00 AM
Mercury by EPA Method 7471				Batch ID: 12034		Analyst: MW
Mercury	ND	0.235		mg/Kg-dry	1	10/5/2015 3:41:57 PM
Total Metals by EPA Method 6020				Batch ID: 12035		Analyst: TN
Antimony	ND	0.168		mg/Kg-dry	1	10/5/2015 3:23:13 PM
Arsenic	5.18	0.0842		mg/Kg-dry	1	10/5/2015 3:23:13 PM
Beryllium	0.456	0.168		mg/Kg-dry	1	10/5/2015 3:23:13 PM
Cadmium	ND	0.168		mg/Kg-dry	1	10/5/2015 3:23:13 PM
Chromium	46.2	0.0842		mg/Kg-dry	1	10/5/2015 3:23:13 PM
Copper	36.7	0.168		mg/Kg-dry	1	10/5/2015 3:23:13 PM
Lead	6.21	0.168		mg/Kg-dry	1	10/5/2015 3:23:13 PM
Nickel	46.7	0.0842		mg/Kg-dry	1	10/5/2015 3:23:13 PM
Selenium	1.79	0.421		mg/Kg-dry	1	10/5/2015 3:23:13 PM

Analytical Report

WO#: **1510028**

Date Reported: **10/19/2015**

Client: ESA Associates, Inc.

Collection Date: 10/1/2015 9:45:00 AM

Project: JKT - Dungeness

Lab ID: 1510028-001

Matrix: Soil

Client Sample ID: **131-1-1**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 12035		Analyst: TN
Silver	ND	0.0842		mg/Kg-dry	1	10/5/2015 3:23:13 PM
Thallium	ND	0.168		mg/Kg-dry	1	10/5/2015 3:23:13 PM
Zinc	62.5	0.337		mg/Kg-dry	1	10/5/2015 3:23:13 PM
Sample Moisture (Percent Moisture)				Batch ID: R25291		Analyst: CG
Percent Moisture	3.42			wt%	1	10/5/2015 8:17:22 AM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 10:35:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-002
Matrix: Soil
Client Sample ID: 131-2-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 12049		Analyst: EC
Diesel (Fuel Oil)	ND	23.4		mg/Kg-dry	1	10/2/2015 11:31:00 PM
Heavy Oil	339	58.4		mg/Kg-dry	1	10/2/2015 11:31:00 PM
Surr: 2-Fluorobiphenyl	133	50-150		%REC	1	10/2/2015 11:31:00 PM
Surr: o-Terphenyl	130	50-150		%REC	1	10/2/2015 11:31:00 PM
Hydrocarbon Identification by NWTPH-HCID				Batch ID: 12022		Analyst: EC
Gasoline	ND	23.4		mg/Kg-dry	1	10/2/2015 11:31:00 PM
Mineral Spirits	ND	35.1		mg/Kg-dry	1	10/2/2015 11:31:00 PM
Kerosene	ND	58.4		mg/Kg-dry	1	10/2/2015 11:31:00 PM
Diesel (Fuel Oil)	ND	58.4		mg/Kg-dry	1	10/2/2015 11:31:00 PM
Heavy Oil	DETECT	117		mg/Kg-dry	1	10/2/2015 11:31:00 PM
Mineral Oil	ND	117		mg/Kg-dry	1	10/2/2015 11:31:00 PM
Surr: 2-Fluorobiphenyl	133	50-150		%REC	1	10/2/2015 11:31:00 PM
Surr: o-Terphenyl	130	50-150		%REC	1	10/2/2015 11:31:00 PM
Semi-Volatile Organic Compounds by EPA Method 8270				Batch ID: 12044		Analyst: AK
Phenol	ND	237		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Bis(2-chloroethyl) ether	ND	237		µg/Kg-dry	1	10/8/2015 4:39:00 AM
2-Chlorophenol	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
1,3-Dichlorobenzene	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
1,4-Dichlorobenzene	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
1,2-Dichlorobenzene	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Benzyl alcohol	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
2-Methylphenol (o-cresol)	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Hexachloroethane	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
N-Nitrosodi-n-propylamine	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Nitrobenzene	ND	237		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Isophorone	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
4-Methylphenol (p-cresol)	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
2-Nitrophenol	ND	237		µg/Kg-dry	1	10/8/2015 4:39:00 AM
2,4-Dimethylphenol	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Bis(2-chloroethoxy)methane	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
2,4-Dichlorophenol	ND	237		µg/Kg-dry	1	10/8/2015 4:39:00 AM
1,2,4-Trichlorobenzene	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Naphthalene	ND	94.9		µg/Kg-dry	1	10/8/2015 4:39:00 AM
4-Chloroaniline	ND	593		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Hexachlorobutadiene	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM

Analytical Report

WO#: **1510028**

Date Reported: **10/19/2015**

Client: ESA Associates, Inc.

Collection Date: 10/1/2015 10:35:00 AM

Project: JKT - Dungeness

Lab ID: 1510028-002

Matrix: Soil

Client Sample ID: 131-2-1

Semi-Volatile Organic Compounds by EPA Method 8270 Batch ID: 12044 Analyst: AK

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
4-Chloro-3-methylphenol	ND	593		µg/Kg-dry	1	10/8/2015 4:39:00 AM
2-Methylnaphthalene	ND	94.9		µg/Kg-dry	1	10/8/2015 4:39:00 AM
1-Methylnaphthalene	ND	94.9		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Hexachlorocyclopentadiene	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
2,4,6-Trichlorophenol	ND	237		µg/Kg-dry	1	10/8/2015 4:39:00 AM
2,4,5-Trichlorophenol	ND	237		µg/Kg-dry	1	10/8/2015 4:39:00 AM
2-Chloronaphthalene	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
2-Nitroaniline	ND	593		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Acenaphthene	ND	94.9		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Dimethylphthalate	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
2,6-Dinitrotoluene	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Acenaphthylene	ND	94.9		µg/Kg-dry	1	10/8/2015 4:39:00 AM
2,4-Dinitrophenol	ND	237		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Dibenzofuran	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
2,4-Dinitrotoluene	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
4-Nitrophenol	ND	593		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Fluorene	ND	94.9		µg/Kg-dry	1	10/8/2015 4:39:00 AM
4-Chlorophenyl phenyl ether	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Diethylphthalate	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
4,6-Dinitro-2-methylphenol	ND	237		µg/Kg-dry	1	10/8/2015 4:39:00 AM
4-Bromophenyl phenyl ether	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Hexachlorobenzene	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Pentachlorophenol	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Phenanthrene	ND	94.9		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Anthracene	ND	94.9		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Carbazole	ND	593		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Di-n-butylphthalate	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Fluoranthene	ND	94.9		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Pyrene	ND	94.9		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Butyl Benzylphthalate	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
bis(2-Ethylhexyl)adipate	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Benz (a) anthracene	ND	94.9		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Chrysene	ND	94.9		µg/Kg-dry	1	10/8/2015 4:39:00 AM
bis (2-Ethylhexyl) phthalate	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Di-n-octyl phthalate	ND	119		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Benzo (b) fluoranthene	ND	94.9		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Benzo (k) fluoranthene	ND	94.9		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Benzo (a) pyrene	ND	94.9		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Indeno (1,2,3-cd) pyrene	ND	94.9		µg/Kg-dry	1	10/8/2015 4:39:00 AM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 10:35:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-002
Matrix: Soil
Client Sample ID: 131-2-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Semi-Volatile Organic Compounds by EPA Method 8270				Batch ID: 12044		Analyst: AK
Dibenz (a,h) anthracene	ND	94.9		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Benzo (g,h,I) perylene	ND	94.9		µg/Kg-dry	1	10/8/2015 4:39:00 AM
Surr: 2,4,6-Tribromophenol	53.4	11.1-127		%REC	1	10/8/2015 4:39:00 AM
Surr: 2-Fluorobiphenyl	64.3	16.1-150		%REC	1	10/8/2015 4:39:00 AM
Surr: Nitrobenzene-d5	72.1	10-133		%REC	1	10/8/2015 4:39:00 AM
Surr: Phenol-d6	71.6	11.6-133		%REC	1	10/8/2015 4:39:00 AM
Surr: p-Terphenyl	79.5	21.8-150		%REC	1	10/8/2015 4:39:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 12040		Analyst: BC
Dichlorodifluoromethane (CFC-12)	ND	0.0627		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Chloromethane	ND	0.0627		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Vinyl chloride	ND	0.00209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Bromomethane	ND	0.0940		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0522		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Chloroethane	ND	0.0627		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,1-Dichloroethene	ND	0.0522		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Methylene chloride	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
trans-1,2-Dichloroethene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0522		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,1-Dichloroethane	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
2,2-Dichloropropane	ND	0.0522		mg/Kg-dry	1	10/6/2015 7:03:00 AM
cis-1,2-Dichloroethene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Chloroform	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,1-Dichloropropene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Carbon tetrachloride	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,2-Dichloroethane (EDC)	ND	0.0313		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Benzene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Trichloroethene (TCE)	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,2-Dichloropropane	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Bromodichloromethane	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Dibromomethane	ND	0.0418		mg/Kg-dry	1	10/6/2015 7:03:00 AM
cis-1,3-Dichloropropene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Toluene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
trans-1,3-Dichloropropylene	ND	0.0313		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,1,2-Trichloroethane	ND	0.0313		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,3-Dichloropropane	ND	0.0522		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Tetrachloroethene (PCE)	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 10:35:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-002
Matrix: Soil
Client Sample ID: **131-2-1**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 12040		Analyst: BC
Dibromochloromethane	ND	0.0313		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,2-Dibromoethane (EDB)	ND	0.00522		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Chlorobenzene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0313		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Ethylbenzene	ND	0.0313		mg/Kg-dry	1	10/6/2015 7:03:00 AM
m,p-Xylene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
o-Xylene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Styrene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Isopropylbenzene	ND	0.0835		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Bromoform	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
n-Propylbenzene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Bromobenzene	ND	0.0313		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,3,5-Trimethylbenzene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
2-Chlorotoluene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
4-Chlorotoluene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
tert-Butylbenzene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,2,3-Trichloropropane	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,2,4-Trichlorobenzene	ND	0.0522		mg/Kg-dry	1	10/6/2015 7:03:00 AM
sec-Butylbenzene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
4-Isopropyltoluene	0.0342	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,3-Dichlorobenzene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,4-Dichlorobenzene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
n-Butylbenzene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,2-Dichlorobenzene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,2-Dibromo-3-chloropropane	ND	0.522		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,2,4-Trimethylbenzene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Hexachlorobutadiene	ND	0.104		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Naphthalene	ND	0.0313		mg/Kg-dry	1	10/6/2015 7:03:00 AM
1,2,3-Trichlorobenzene	ND	0.0209		mg/Kg-dry	1	10/6/2015 7:03:00 AM
Surr: Dibromofluoromethane	94.0	56.5-129		%REC	1	10/6/2015 7:03:00 AM
Surr: Toluene-d8	100	64.3-131		%REC	1	10/6/2015 7:03:00 AM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%REC	1	10/6/2015 7:03:00 AM
Mercury by EPA Method 7471				Batch ID: 12034		Analyst: MW
Mercury	ND	0.318		mg/Kg-dry	1	10/5/2015 3:43:33 PM

Analytical Report

WO#: **1510028**

Date Reported: **10/19/2015**

Client: ESA Associates, Inc.

Collection Date: 10/1/2015 10:35:00 AM

Project: JKT - Dungeness

Lab ID: 1510028-002

Matrix: Soil

Client Sample ID: **131-2-1**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 12035		Analyst: TN
Antimony	1.04	0.210		mg/Kg-dry	1	10/5/2015 3:51:27 PM
Arsenic	6.19	0.105		mg/Kg-dry	1	10/5/2015 3:51:27 PM
Beryllium	0.373	0.210		mg/Kg-dry	1	10/5/2015 3:51:27 PM
Cadmium	ND	0.210		mg/Kg-dry	1	10/5/2015 3:51:27 PM
Chromium	39.6	0.105		mg/Kg-dry	1	10/5/2015 3:51:27 PM
Copper	42.9	0.210		mg/Kg-dry	1	10/5/2015 3:51:27 PM
Lead	15.4	0.210		mg/Kg-dry	1	10/5/2015 3:51:27 PM
Nickel	37.4	0.105		mg/Kg-dry	1	10/5/2015 3:51:27 PM
Selenium	1.52	0.526		mg/Kg-dry	1	10/5/2015 3:51:27 PM
Silver	15.5	0.105		mg/Kg-dry	1	10/5/2015 3:51:27 PM
Thallium	ND	0.210		mg/Kg-dry	1	10/5/2015 3:51:27 PM
Zinc	231	0.421		mg/Kg-dry	1	10/5/2015 3:51:27 PM
Sample Moisture (Percent Moisture)				Batch ID: R25291		Analyst: CG
Percent Moisture	21.4			wt%	1	10/5/2015 8:17:22 AM

Analytical Report

WO#: **1510028**

Date Reported: **10/19/2015**

Client: ESA Associates, Inc.

Collection Date: 10/1/2015 10:51:00 AM

Project: JKT - Dungeness

Lab ID: 1510028-004

Matrix: Soil

Client Sample ID: 131-2-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 12049		Analyst: EC
Diesel (Fuel Oil)	ND	22.3		mg/Kg-dry	1	10/7/2015 2:07:00 PM
Heavy Oil	174,000	55,900	D	mg/Kg-dry	1000	10/7/2015 3:09:00 PM
Surr: 2-Fluorobiphenyl	119	50-150		%REC	1	10/7/2015 2:07:00 PM
Surr: o-Terphenyl	139	50-150		%REC	1	10/7/2015 2:07:00 PM
Gasoline by NWTPH-Gx				Batch ID: 12040		Analyst: BC
Gasoline	20.8	3.31		mg/Kg-dry	1	10/6/2015 9:26:00 AM
Surr: Toluene-d8	99.0	65-135		%REC	1	10/6/2015 9:26:00 AM
Surr: 4-Bromofluorobenzene	102	65-135		%REC	1	10/6/2015 9:26:00 AM
Sample Moisture (Percent Moisture)				Batch ID: R25291		Analyst: CG
Percent Moisture	11.7	0.500		wt%	1	10/5/2015 8:17:22 AM

Analytical Report

WO#: **1510028**

Date Reported: **10/19/2015**

Client: ESA Associates, Inc.

Collection Date: 10/1/2015 11:09:00 AM

Project: JKT - Dungeness

Lab ID: 1510028-005

Matrix: Soil

Client Sample ID: **131-2-3**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 12097		Analyst: EC
Diesel (Fuel Oil)	ND	21.1		mg/Kg-dry	1	10/13/2015 12:00:00 PM
Heavy Oil	ND	52.7		mg/Kg-dry	1	10/13/2015 12:00:00 PM
Surr: 2-Fluorobiphenyl	116	50-150		%REC	1	10/13/2015 12:00:00 PM
Surr: o-Terphenyl	109	50-150		%REC	1	10/13/2015 12:00:00 PM
Sample Moisture (Percent Moisture)				Batch ID: R25424		Analyst: SL
Percent Moisture	9.42	0.500		wt%	1	10/12/2015 12:54:14 PM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Project: JKT - Dungeness
Lab ID: 1510028-006
Client Sample ID: **131-3-1**

Collection Date: 10/1/2015 11:52:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 12049		Analyst: EC
Diesel (Fuel Oil)	ND	23.9		mg/Kg-dry	1	10/7/2015 3:41:00 PM
Heavy Oil	40,700	5,970	D	mg/Kg-dry	100	10/19/2015 1:49:00 PM
Surr: 2-Fluorobiphenyl	142	50-150		%REC	1	10/7/2015 3:41:00 PM
Surr: o-Terphenyl	150	50-150		%REC	1	10/7/2015 3:41:00 PM
Hydrocarbon Identification by NWTPH-HCID				Batch ID: 12049		Analyst: EC
Gasoline	ND	23.9		mg/Kg-dry	1	10/7/2015 3:41:00 PM
Mineral Spirits	ND	35.8		mg/Kg-dry	1	10/7/2015 3:41:00 PM
Kerosene	ND	59.7		mg/Kg-dry	1	10/7/2015 3:41:00 PM
Diesel (Fuel Oil)	ND	59.7		mg/Kg-dry	1	10/7/2015 3:41:00 PM
Heavy Oil	DETECT	119		mg/Kg-dry	1	10/7/2015 3:41:00 PM
Mineral Oil	ND	119		mg/Kg-dry	1	10/7/2015 3:41:00 PM
Surr: 2-Fluorobiphenyl	142	50-150		%REC	1	10/7/2015 3:41:00 PM
Surr: o-Terphenyl	150	50-150		%REC	1	10/7/2015 3:41:00 PM
Semi-Volatile Organic Compounds by EPA Method 8270				Batch ID: 12044		Analyst: AK
Phenol	ND	231		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Bis(2-chloroethyl) ether	ND	231		µg/Kg-dry	1	10/8/2015 5:24:00 AM
2-Chlorophenol	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
1,3-Dichlorobenzene	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
1,4-Dichlorobenzene	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
1,2-Dichlorobenzene	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Benzyl alcohol	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
2-Methylphenol (o-cresol)	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Hexachloroethane	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
N-Nitrosodi-n-propylamine	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Nitrobenzene	ND	231		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Isophorone	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
4-Methylphenol (p-cresol)	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
2-Nitrophenol	ND	231		µg/Kg-dry	1	10/8/2015 5:24:00 AM
2,4-Dimethylphenol	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Bis(2-chloroethoxy)methane	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
2,4-Dichlorophenol	ND	231		µg/Kg-dry	1	10/8/2015 5:24:00 AM
1,2,4-Trichlorobenzene	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Naphthalene	ND	92.5		µg/Kg-dry	1	10/8/2015 5:24:00 AM
4-Chloroaniline	ND	578		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Hexachlorobutadiene	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 11:52:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-006
Matrix: Soil
Client Sample ID: **131-3-1**

Semi-Volatile Organic Compounds by EPA Method 8270 Batch ID: 12044 Analyst: AK

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
4-Chloro-3-methylphenol	ND	578		µg/Kg-dry	1	10/8/2015 5:24:00 AM
2-Methylnaphthalene	ND	92.5		µg/Kg-dry	1	10/8/2015 5:24:00 AM
1-Methylnaphthalene	ND	92.5		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Hexachlorocyclopentadiene	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
2,4,6-Trichlorophenol	ND	231		µg/Kg-dry	1	10/8/2015 5:24:00 AM
2,4,5-Trichlorophenol	ND	231		µg/Kg-dry	1	10/8/2015 5:24:00 AM
2-Chloronaphthalene	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
2-Nitroaniline	ND	578		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Acenaphthene	ND	92.5		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Dimethylphthalate	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
2,6-Dinitrotoluene	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Acenaphthylene	ND	92.5		µg/Kg-dry	1	10/8/2015 5:24:00 AM
2,4-Dinitrophenol	ND	231		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Dibenzofuran	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
2,4-Dinitrotoluene	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
4-Nitrophenol	ND	578		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Fluorene	ND	92.5		µg/Kg-dry	1	10/8/2015 5:24:00 AM
4-Chlorophenyl phenyl ether	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Diethylphthalate	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
4,6-Dinitro-2-methylphenol	ND	231		µg/Kg-dry	1	10/8/2015 5:24:00 AM
4-Bromophenyl phenyl ether	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Hexachlorobenzene	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Pentachlorophenol	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Phenanthrene	ND	92.5		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Anthracene	ND	92.5		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Carbazole	ND	578		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Di-n-butylphthalate	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Fluoranthene	ND	92.5		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Pyrene	ND	92.5		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Butyl Benzylphthalate	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
bis(2-Ethylhexyl)adipate	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Benz (a) anthracene	ND	92.5		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Chrysene	ND	92.5		µg/Kg-dry	1	10/8/2015 5:24:00 AM
bis (2-Ethylhexyl) phthalate	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Di-n-octyl phthalate	ND	116		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Benzo (b) fluoranthene	ND	92.5		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Benzo (k) fluoranthene	ND	92.5		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Benzo (a) pyrene	ND	92.5		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Indeno (1,2,3-cd) pyrene	ND	92.5		µg/Kg-dry	1	10/8/2015 5:24:00 AM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 11:52:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-006
Matrix: Soil
Client Sample ID: **131-3-1**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Semi-Volatile Organic Compounds by EPA Method 8270				Batch ID: 12044		Analyst: AK
Dibenz (a,h) anthracene	ND	92.5		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Benzo (g,h,I) perylene	ND	92.5		µg/Kg-dry	1	10/8/2015 5:24:00 AM
Surr: 2,4,6-Tribromophenol	72.4	11.1-127		%REC	1	10/8/2015 5:24:00 AM
Surr: 2-Fluorobiphenyl	87.6	16.1-150		%REC	1	10/8/2015 5:24:00 AM
Surr: Nitrobenzene-d5	95.4	10-133		%REC	1	10/8/2015 5:24:00 AM
Surr: Phenol-d6	85.6	11.6-133		%REC	1	10/8/2015 5:24:00 AM
Surr: p-Terphenyl	82.1	21.8-150		%REC	1	10/8/2015 5:24:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 12040		Analyst: BC
Dichlorodifluoromethane (CFC-12)	ND	0.0578		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Chloromethane	ND	0.0578		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Vinyl chloride	ND	0.00193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Bromomethane	ND	0.0867		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0482		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Chloroethane	ND	0.0578		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,1-Dichloroethene	ND	0.0482		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Methylene chloride	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
trans-1,2-Dichloroethene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0482		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,1-Dichloroethane	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
2,2-Dichloropropane	ND	0.0482		mg/Kg-dry	1	10/6/2015 9:55:00 AM
cis-1,2-Dichloroethene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Chloroform	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,1-Dichloropropene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Carbon tetrachloride	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,2-Dichloroethane (EDC)	ND	0.0289		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Benzene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Trichloroethene (TCE)	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,2-Dichloropropane	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Bromodichloromethane	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Dibromomethane	ND	0.0385		mg/Kg-dry	1	10/6/2015 9:55:00 AM
cis-1,3-Dichloropropene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Toluene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
trans-1,3-Dichloropropylene	ND	0.0289		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,1,2-Trichloroethane	ND	0.0289		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,3-Dichloropropane	ND	0.0482		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Tetrachloroethene (PCE)	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 11:52:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-006
Matrix: Soil
Client Sample ID: **131-3-1**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 12040		Analyst: BC
Dibromochloromethane	ND	0.0289		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,2-Dibromoethane (EDB)	ND	0.00482		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Chlorobenzene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0289		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Ethylbenzene	ND	0.0289		mg/Kg-dry	1	10/6/2015 9:55:00 AM
m,p-Xylene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
o-Xylene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Styrene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Isopropylbenzene	ND	0.0771		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Bromoform	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
n-Propylbenzene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Bromobenzene	ND	0.0289		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,3,5-Trimethylbenzene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
2-Chlorotoluene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
4-Chlorotoluene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
tert-Butylbenzene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,2,3-Trichloropropane	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,2,4-Trichlorobenzene	ND	0.0482		mg/Kg-dry	1	10/6/2015 9:55:00 AM
sec-Butylbenzene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
4-Isopropyltoluene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,3-Dichlorobenzene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,4-Dichlorobenzene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
n-Butylbenzene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,2-Dichlorobenzene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,2-Dibromo-3-chloropropane	ND	0.482		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,2,4-Trimethylbenzene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Hexachlorobutadiene	ND	0.0963		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Naphthalene	ND	0.0289		mg/Kg-dry	1	10/6/2015 9:55:00 AM
1,2,3-Trichlorobenzene	ND	0.0193		mg/Kg-dry	1	10/6/2015 9:55:00 AM
Surr: Dibromofluoromethane	95.3	56.5-129		%REC	1	10/6/2015 9:55:00 AM
Surr: Toluene-d8	99.8	64.3-131		%REC	1	10/6/2015 9:55:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.0	63.1-141		%REC	1	10/6/2015 9:55:00 AM
Mercury by EPA Method 7471				Batch ID: 12034		Analyst: MW
Mercury	ND	0.280		mg/Kg-dry	1	10/5/2015 3:45:09 PM

Analytical Report

WO#: **1510028**

Date Reported: **10/19/2015**

Client: ESA Associates, Inc.

Collection Date: 10/1/2015 11:52:00 AM

Project: JKT - Dungeness

Lab ID: 1510028-006

Matrix: Soil

Client Sample ID: **131-3-1**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 12035		Analyst: TN
Antimony	ND	0.190		mg/Kg-dry	1	10/5/2015 3:54:58 PM
Arsenic	4.56	0.0949		mg/Kg-dry	1	10/5/2015 3:54:58 PM
Beryllium	0.413	0.190		mg/Kg-dry	1	10/5/2015 3:54:58 PM
Cadmium	0.463	0.190		mg/Kg-dry	1	10/5/2015 3:54:58 PM
Chromium	40.2	0.0949		mg/Kg-dry	1	10/5/2015 3:54:58 PM
Copper	40.1	0.190		mg/Kg-dry	1	10/5/2015 3:54:58 PM
Lead	33.5	0.190		mg/Kg-dry	1	10/5/2015 3:54:58 PM
Nickel	43.3	0.0949		mg/Kg-dry	1	10/5/2015 3:54:58 PM
Selenium	1.62	0.474		mg/Kg-dry	1	10/5/2015 3:54:58 PM
Silver	ND	0.0949		mg/Kg-dry	1	10/5/2015 3:54:58 PM
Thallium	ND	0.190		mg/Kg-dry	1	10/5/2015 3:54:58 PM
Zinc	78.9	0.380		mg/Kg-dry	1	10/5/2015 3:54:58 PM
Sample Moisture (Percent Moisture)				Batch ID: R25291		Analyst: CG
Percent Moisture	18.9			wt%	1	10/5/2015 8:17:22 AM

Analytical Report

WO#: **1510028**

Date Reported: **10/19/2015**

Client: ESA Associates, Inc.

Collection Date: 10/1/2015 12:15:00 PM

Project: JKT - Dungeness

Lab ID: 1510028-007

Matrix: Soil

Client Sample ID: 131-3-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 12097		Analyst: EC
Diesel (Fuel Oil)	ND	20.5		mg/Kg-dry	1	10/14/2015 5:43:00 PM
Heavy Oil	ND	51.2		mg/Kg-dry	1	10/14/2015 5:43:00 PM
Surr: 2-Fluorobiphenyl	99.1	50-150		%REC	1	10/14/2015 5:43:00 PM
Surr: o-Terphenyl	81.1	50-150		%REC	1	10/14/2015 5:43:00 PM
Sample Moisture (Percent Moisture)				Batch ID: R25424		Analyst: SL
Percent Moisture	3.39	0.500		wt%	1	10/12/2015 12:54:14 PM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 7:50:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-008
Matrix: Soil
Client Sample ID: 121-1-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Hydrocarbon Identification by NWTPH-HCID				Batch ID: 12049		Analyst: EC
Gasoline	ND	24.9		mg/Kg-dry	1	10/7/2015 4:12:00 PM
Mineral Spirits	ND	37.4		mg/Kg-dry	1	10/7/2015 4:12:00 PM
Kerosene	ND	62.4		mg/Kg-dry	1	10/7/2015 4:12:00 PM
Diesel (Fuel Oil)	ND	62.4		mg/Kg-dry	1	10/7/2015 4:12:00 PM
Heavy Oil	ND	125		mg/Kg-dry	1	10/7/2015 4:12:00 PM
Mineral Oil	ND	125		mg/Kg-dry	1	10/7/2015 4:12:00 PM
Surr: 2-Fluorobiphenyl	118	50-150		%REC	1	10/7/2015 4:12:00 PM
Surr: o-Terphenyl	116	50-150		%REC	1	10/7/2015 4:12:00 PM
Semi-Volatile Organic Compounds by EPA Method 8270				Batch ID: 12044		Analyst: AK
Phenol	ND	248		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Bis(2-chloroethyl) ether	ND	248		µg/Kg-dry	1	10/8/2015 5:46:00 AM
2-Chlorophenol	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
1,3-Dichlorobenzene	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
1,4-Dichlorobenzene	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
1,2-Dichlorobenzene	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Benzyl alcohol	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
2-Methylphenol (o-cresol)	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Hexachloroethane	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
N-Nitrosodi-n-propylamine	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Nitrobenzene	ND	248		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Isophorone	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
4-Methylphenol (p-cresol)	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
2-Nitrophenol	ND	248		µg/Kg-dry	1	10/8/2015 5:46:00 AM
2,4-Dimethylphenol	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Bis(2-chloroethoxy)methane	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
2,4-Dichlorophenol	ND	248		µg/Kg-dry	1	10/8/2015 5:46:00 AM
1,2,4-Trichlorobenzene	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Naphthalene	ND	99.1		µg/Kg-dry	1	10/8/2015 5:46:00 AM
4-Chloroaniline	ND	620		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Hexachlorobutadiene	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
4-Chloro-3-methylphenol	ND	620		µg/Kg-dry	1	10/8/2015 5:46:00 AM
2-Methylnaphthalene	ND	99.1		µg/Kg-dry	1	10/8/2015 5:46:00 AM
1-Methylnaphthalene	ND	99.1		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Hexachlorocyclopentadiene	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
2,4,6-Trichlorophenol	ND	248		µg/Kg-dry	1	10/8/2015 5:46:00 AM
2,4,5-Trichlorophenol	ND	248		µg/Kg-dry	1	10/8/2015 5:46:00 AM
2-Chloronaphthalene	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 7:50:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-008
Matrix: Soil
Client Sample ID: 121-1-1

Semi-Volatile Organic Compounds by EPA Method 8270 Batch ID: 12044 Analyst: AK

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
2-Nitroaniline	ND	620		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Acenaphthene	ND	99.1		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Dimethylphthalate	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
2,6-Dinitrotoluene	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Acenaphthylene	ND	99.1		µg/Kg-dry	1	10/8/2015 5:46:00 AM
2,4-Dinitrophenol	ND	248		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Dibenzofuran	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
2,4-Dinitrotoluene	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
4-Nitrophenol	ND	620		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Fluorene	ND	99.1		µg/Kg-dry	1	10/8/2015 5:46:00 AM
4-Chlorophenyl phenyl ether	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Diethylphthalate	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
4,6-Dinitro-2-methylphenol	ND	248		µg/Kg-dry	1	10/8/2015 5:46:00 AM
4-Bromophenyl phenyl ether	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Hexachlorobenzene	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Pentachlorophenol	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Phenanthrene	ND	99.1		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Anthracene	ND	99.1		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Carbazole	ND	620		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Di-n-butylphthalate	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Fluoranthene	ND	99.1		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Pyrene	ND	99.1		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Butyl Benzylphthalate	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
bis(2-Ethylhexyl)adipate	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Benz (a) anthracene	ND	99.1		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Chrysene	ND	99.1		µg/Kg-dry	1	10/8/2015 5:46:00 AM
bis (2-Ethylhexyl) phthalate	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Di-n-octyl phthalate	ND	124		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Benzo (b) fluoranthene	ND	99.1		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Benzo (k) fluoranthene	ND	99.1		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Benzo (a) pyrene	ND	99.1		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Indeno (1,2,3-cd) pyrene	ND	99.1		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Dibenz (a,h) anthracene	ND	99.1		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Benzo (g,h,I) perylene	ND	99.1		µg/Kg-dry	1	10/8/2015 5:46:00 AM
Surr: 2,4,6-Tribromophenol	65.0	11.1-127		%REC	1	10/8/2015 5:46:00 AM
Surr: 2-Fluorobiphenyl	64.1	16.1-150		%REC	1	10/8/2015 5:46:00 AM
Surr: Nitrobenzene-d5	75.5	10-133		%REC	1	10/8/2015 5:46:00 AM
Surr: Phenol-d6	64.8	11.6-133		%REC	1	10/8/2015 5:46:00 AM
Surr: p-Terphenyl	70.6	21.8-150		%REC	1	10/8/2015 5:46:00 AM

Analytical Report

WO#: **1510028**

Date Reported: **10/19/2015**

Client: ESA Associates, Inc.

Collection Date: 10/1/2015 7:50:00 AM

Project: JKT - Dungeness

Lab ID: 1510028-008

Matrix: Soil

Client Sample ID: 121-1-1

Volatile Organic Compounds by EPA Method 8260 Batch ID: 12040 Analyst: BC

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.103		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Chloromethane	ND	0.103		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Vinyl chloride	ND	0.00343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Bromomethane	ND	0.154		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0858		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Chloroethane	ND	0.103		mg/Kg-dry	1	10/6/2015 10:24:00 AM
1,1-Dichloroethene	ND	0.0858		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Methylene chloride	0.0454	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
trans-1,2-Dichloroethene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0858		mg/Kg-dry	1	10/6/2015 10:24:00 AM
1,1-Dichloroethane	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
2,2-Dichloropropane	ND	0.0858		mg/Kg-dry	1	10/6/2015 10:24:00 AM
cis-1,2-Dichloroethene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Chloroform	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
1,1-Dichloropropene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Carbon tetrachloride	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
1,2-Dichloroethane (EDC)	ND	0.0515		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Benzene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Trichloroethene (TCE)	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
1,2-Dichloropropane	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Bromodichloromethane	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Dibromomethane	ND	0.0686		mg/Kg-dry	1	10/6/2015 10:24:00 AM
cis-1,3-Dichloropropene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Toluene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
trans-1,3-Dichloropropylene	ND	0.0515		mg/Kg-dry	1	10/6/2015 10:24:00 AM
1,1,2-Trichloroethane	ND	0.0515		mg/Kg-dry	1	10/6/2015 10:24:00 AM
1,3-Dichloropropane	ND	0.0858		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Tetrachloroethene (PCE)	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Dibromochloromethane	ND	0.0515		mg/Kg-dry	1	10/6/2015 10:24:00 AM
1,2-Dibromoethane (EDB)	ND	0.00858		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Chlorobenzene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0515		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Ethylbenzene	ND	0.0515		mg/Kg-dry	1	10/6/2015 10:24:00 AM
m,p-Xylene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
o-Xylene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Styrene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Isopropylbenzene	ND	0.137		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Bromoform	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 7:50:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-008
Matrix: Soil
Client Sample ID: **121-1-1**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 12040		Analyst: BC
1,1,2,2-Tetrachloroethane	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
n-Propylbenzene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Bromobenzene	ND	0.0515		mg/Kg-dry	1	10/6/2015 10:24:00 AM
1,3,5-Trimethylbenzene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
2-Chlorotoluene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
4-Chlorotoluene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
tert-Butylbenzene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
1,2,3-Trichloropropane	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
1,2,4-Trichlorobenzene	ND	0.0858		mg/Kg-dry	1	10/6/2015 10:24:00 AM
sec-Butylbenzene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
4-Isopropyltoluene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
1,3-Dichlorobenzene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
1,4-Dichlorobenzene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
n-Butylbenzene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
1,2-Dichlorobenzene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
1,2-Dibromo-3-chloropropane	ND	0.858		mg/Kg-dry	1	10/6/2015 10:24:00 AM
1,2,4-Trimethylbenzene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Hexachlorobutadiene	ND	0.172		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Naphthalene	ND	0.0515		mg/Kg-dry	1	10/6/2015 10:24:00 AM
1,2,3-Trichlorobenzene	ND	0.0343		mg/Kg-dry	1	10/6/2015 10:24:00 AM
Surr: Dibromofluoromethane	94.5	56.5-129		%REC	1	10/6/2015 10:24:00 AM
Surr: Toluene-d8	100	64.3-131		%REC	1	10/6/2015 10:24:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.4	63.1-141		%REC	1	10/6/2015 10:24:00 AM

NOTES:
Methylene Chloride is a common laboratory solvent.

Mercury by EPA Method 7471				Batch ID: 12034		Analyst: MW
Mercury	ND	0.307		mg/Kg-dry	1	10/5/2015 3:50:07 PM
Total Metals by EPA Method 6020				Batch ID: 12035		Analyst: TN
Antimony	1.48	0.209		mg/Kg-dry	1	10/5/2015 3:58:30 PM
Arsenic	372	0.105		mg/Kg-dry	1	10/5/2015 3:58:30 PM
Beryllium	0.451	0.209		mg/Kg-dry	1	10/5/2015 3:58:30 PM
Cadmium	0.388	0.209		mg/Kg-dry	1	10/5/2015 3:58:30 PM
Chromium	160	0.105		mg/Kg-dry	1	10/5/2015 3:58:30 PM
Copper	325	0.209		mg/Kg-dry	1	10/5/2015 3:58:30 PM
Lead	11.9	0.209		mg/Kg-dry	1	10/5/2015 3:58:30 PM

Analytical Report

WO#: **1510028**

Date Reported: **10/19/2015**

Client: ESA Associates, Inc.

Collection Date: 10/1/2015 7:50:00 AM

Project: JKT - Dungeness

Lab ID: 1510028-008

Matrix: Soil

Client Sample ID: 121-1-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 12035		Analyst: TN
Nickel	41.1	0.105		mg/Kg-dry	1	10/5/2015 3:58:30 PM
Selenium	1.54	0.523		mg/Kg-dry	1	10/5/2015 3:58:30 PM
Silver	0.180	0.105		mg/Kg-dry	1	10/5/2015 3:58:30 PM
Thallium	ND	0.209		mg/Kg-dry	1	10/5/2015 3:58:30 PM
Zinc	889	0.418		mg/Kg-dry	1	10/5/2015 3:58:30 PM
Sample Moisture (Percent Moisture)				Batch ID: R25291		Analyst: CG
Percent Moisture	21.6			wt%	1	10/5/2015 8:17:22 AM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 1:25:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-009
Matrix: Soil
Client Sample ID: 21-1-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Hydrocarbon Identification by NWTPH-HCID				Batch ID: 12049		Analyst: EC
Gasoline	ND	25.1		mg/Kg-dry	1	10/7/2015 4:44:00 PM
Mineral Spirits	ND	37.7		mg/Kg-dry	1	10/7/2015 4:44:00 PM
Kerosene	ND	62.8		mg/Kg-dry	1	10/7/2015 4:44:00 PM
Diesel (Fuel Oil)	ND	62.8		mg/Kg-dry	1	10/7/2015 4:44:00 PM
Heavy Oil	ND	126		mg/Kg-dry	1	10/7/2015 4:44:00 PM
Mineral Oil	ND	126		mg/Kg-dry	1	10/7/2015 4:44:00 PM
Surr: 2-Fluorobiphenyl	124	50-150		%REC	1	10/7/2015 4:44:00 PM
Surr: o-Terphenyl	119	50-150		%REC	1	10/7/2015 4:44:00 PM
Semi-Volatile Organic Compounds by EPA Method 8270				Batch ID: 12044		Analyst: AK
Phenol	ND	254		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Bis(2-chloroethyl) ether	ND	254		µg/Kg-dry	1	10/8/2015 6:08:00 AM
2-Chlorophenol	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
1,3-Dichlorobenzene	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
1,4-Dichlorobenzene	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
1,2-Dichlorobenzene	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Benzyl alcohol	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
2-Methylphenol (o-cresol)	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Hexachloroethane	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
N-Nitrosodi-n-propylamine	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Nitrobenzene	ND	254		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Isophorone	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
4-Methylphenol (p-cresol)	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
2-Nitrophenol	ND	254		µg/Kg-dry	1	10/8/2015 6:08:00 AM
2,4-Dimethylphenol	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Bis(2-chloroethoxy)methane	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
2,4-Dichlorophenol	ND	254		µg/Kg-dry	1	10/8/2015 6:08:00 AM
1,2,4-Trichlorobenzene	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Naphthalene	ND	102		µg/Kg-dry	1	10/8/2015 6:08:00 AM
4-Chloroaniline	ND	636		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Hexachlorobutadiene	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
4-Chloro-3-methylphenol	ND	636		µg/Kg-dry	1	10/8/2015 6:08:00 AM
2-Methylnaphthalene	ND	102		µg/Kg-dry	1	10/8/2015 6:08:00 AM
1-Methylnaphthalene	ND	102		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Hexachlorocyclopentadiene	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
2,4,6-Trichlorophenol	ND	254		µg/Kg-dry	1	10/8/2015 6:08:00 AM
2,4,5-Trichlorophenol	ND	254		µg/Kg-dry	1	10/8/2015 6:08:00 AM
2-Chloronaphthalene	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 1:25:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-009
Matrix: Soil
Client Sample ID: **21-1-1**

Semi-Volatile Organic Compounds by EPA Method 8270 Batch ID: 12044 Analyst: AK

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
2-Nitroaniline	ND	636		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Acenaphthene	ND	102		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Dimethylphthalate	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
2,6-Dinitrotoluene	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Acenaphthylene	ND	102		µg/Kg-dry	1	10/8/2015 6:08:00 AM
2,4-Dinitrophenol	ND	254		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Dibenzofuran	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
2,4-Dinitrotoluene	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
4-Nitrophenol	ND	636		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Fluorene	ND	102		µg/Kg-dry	1	10/8/2015 6:08:00 AM
4-Chlorophenyl phenyl ether	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Diethylphthalate	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
4,6-Dinitro-2-methylphenol	ND	254		µg/Kg-dry	1	10/8/2015 6:08:00 AM
4-Bromophenyl phenyl ether	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Hexachlorobenzene	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Pentachlorophenol	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Phenanthrene	ND	102		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Anthracene	ND	102		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Carbazole	ND	636		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Di-n-butylphthalate	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Fluoranthene	ND	102		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Pyrene	ND	102		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Butyl Benzylphthalate	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
bis(2-Ethylhexyl)adipate	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Benz (a) anthracene	ND	102		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Chrysene	ND	102		µg/Kg-dry	1	10/8/2015 6:08:00 AM
bis (2-Ethylhexyl) phthalate	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Di-n-octyl phthalate	ND	127		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Benzo (b) fluoranthene	ND	102		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Benzo (k) fluoranthene	ND	102		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Benzo (a) pyrene	ND	102		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Indeno (1,2,3-cd) pyrene	ND	102		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Dibenz (a,h) anthracene	ND	102		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Benzo (g,h,I) perylene	ND	102		µg/Kg-dry	1	10/8/2015 6:08:00 AM
Surr: 2,4,6-Tribromophenol	75.1	11.1-127		%REC	1	10/8/2015 6:08:00 AM
Surr: 2-Fluorobiphenyl	69.3	16.1-150		%REC	1	10/8/2015 6:08:00 AM
Surr: Nitrobenzene-d5	79.0	10-133		%REC	1	10/8/2015 6:08:00 AM
Surr: Phenol-d6	90.6	11.6-133		%REC	1	10/8/2015 6:08:00 AM
Surr: p-Terphenyl	85.9	21.8-150		%REC	1	10/8/2015 6:08:00 AM

Analytical Report

WO#: **1510028**

Date Reported: **10/19/2015**

Client: ESA Associates, Inc.

Collection Date: 10/1/2015 1:25:00 AM

Project: JKT - Dungeness

Lab ID: 1510028-009

Matrix: Soil

Client Sample ID: 21-1-1

Volatile Organic Compounds by EPA Method 8260 Batch ID: 12040 Analyst: BC

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0342		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Chloromethane	ND	0.0342		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Vinyl chloride	ND	0.00114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Bromomethane	ND	0.0513		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0285		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Chloroethane	ND	0.0342		mg/Kg-dry	1	10/6/2015 10:52:00 AM
1,1-Dichloroethene	ND	0.0285		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Methylene chloride	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
trans-1,2-Dichloroethene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0285		mg/Kg-dry	1	10/6/2015 10:52:00 AM
1,1-Dichloroethane	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
2,2-Dichloropropane	ND	0.0285		mg/Kg-dry	1	10/6/2015 10:52:00 AM
cis-1,2-Dichloroethene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Chloroform	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
1,1-Dichloropropene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Carbon tetrachloride	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
1,2-Dichloroethane (EDC)	ND	0.0171		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Benzene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Trichloroethene (TCE)	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
1,2-Dichloropropane	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Bromodichloromethane	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Dibromomethane	ND	0.0228		mg/Kg-dry	1	10/6/2015 10:52:00 AM
cis-1,3-Dichloropropene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Toluene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
trans-1,3-Dichloropropylene	ND	0.0171		mg/Kg-dry	1	10/6/2015 10:52:00 AM
1,1,2-Trichloroethane	ND	0.0171		mg/Kg-dry	1	10/6/2015 10:52:00 AM
1,3-Dichloropropane	ND	0.0285		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Tetrachloroethene (PCE)	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Dibromochloromethane	ND	0.0171		mg/Kg-dry	1	10/6/2015 10:52:00 AM
1,2-Dibromoethane (EDB)	ND	0.00285		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Chlorobenzene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0171		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Ethylbenzene	ND	0.0171		mg/Kg-dry	1	10/6/2015 10:52:00 AM
m,p-Xylene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
o-Xylene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Styrene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Isopropylbenzene	ND	0.0456		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Bromoform	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 1:25:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-009
Matrix: Soil
Client Sample ID: **21-1-1**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 12040		Analyst: BC
1,1,2,2-Tetrachloroethane	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
n-Propylbenzene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Bromobenzene	ND	0.0171		mg/Kg-dry	1	10/6/2015 10:52:00 AM
1,3,5-Trimethylbenzene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
2-Chlorotoluene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
4-Chlorotoluene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
tert-Butylbenzene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
1,2,3-Trichloropropane	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
1,2,4-Trichlorobenzene	ND	0.0285		mg/Kg-dry	1	10/6/2015 10:52:00 AM
sec-Butylbenzene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
4-Isopropyltoluene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
1,3-Dichlorobenzene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
1,4-Dichlorobenzene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
n-Butylbenzene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
1,2-Dichlorobenzene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
1,2-Dibromo-3-chloropropane	ND	0.285		mg/Kg-dry	1	10/6/2015 10:52:00 AM
1,2,4-Trimethylbenzene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Hexachlorobutadiene	ND	0.0570		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Naphthalene	ND	0.0171		mg/Kg-dry	1	10/6/2015 10:52:00 AM
1,2,3-Trichlorobenzene	ND	0.0114		mg/Kg-dry	1	10/6/2015 10:52:00 AM
Surr: Dibromofluoromethane	95.5	56.5-129		%REC	1	10/6/2015 10:52:00 AM
Surr: Toluene-d8	99.6	64.3-131		%REC	1	10/6/2015 10:52:00 AM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%REC	1	10/6/2015 10:52:00 AM
Mercury by EPA Method 7471				Batch ID: 12034		Analyst: MW
Mercury	ND	0.312		mg/Kg-dry	1	10/5/2015 3:51:44 PM
Total Metals by EPA Method 6020				Batch ID: 12035		Analyst: TN
Antimony	ND	0.209		mg/Kg-dry	1	10/5/2015 4:02:01 PM
Arsenic	5.13	0.104		mg/Kg-dry	1	10/5/2015 4:02:01 PM
Beryllium	0.469	0.209		mg/Kg-dry	1	10/5/2015 4:02:01 PM
Cadmium	ND	0.209		mg/Kg-dry	1	10/5/2015 4:02:01 PM
Chromium	42.4	0.104		mg/Kg-dry	1	10/5/2015 4:02:01 PM
Copper	37.5	0.209		mg/Kg-dry	1	10/5/2015 4:02:01 PM
Lead	7.75	0.209		mg/Kg-dry	1	10/5/2015 4:02:01 PM
Nickel	40.2	0.104		mg/Kg-dry	1	10/5/2015 4:02:01 PM
Selenium	1.90	0.522		mg/Kg-dry	1	10/5/2015 4:02:01 PM

Analytical Report

WO#: **1510028**

Date Reported: **10/19/2015**

Client: ESA Associates, Inc.

Collection Date: 10/1/2015 1:25:00 AM

Project: JKT - Dungeness

Lab ID: 1510028-009

Matrix: Soil

Client Sample ID: **21-1-1**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 12035		Analyst: TN
Silver	ND	0.104		mg/Kg-dry	1	10/5/2015 4:02:01 PM
Thallium	ND	0.209		mg/Kg-dry	1	10/5/2015 4:02:01 PM
Zinc	79.0	0.418		mg/Kg-dry	1	10/5/2015 4:02:01 PM
Sample Moisture (Percent Moisture)				Batch ID: R25291		Analyst: CG
Percent Moisture	21.5			wt%	1	10/5/2015 8:17:22 AM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 2:22:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-011
Matrix: Soil
Client Sample ID: 21-2-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 12049		Analyst: EC
Diesel (Fuel Oil)	131	25.7		mg/Kg-dry	1	10/7/2015 5:15:00 PM
Heavy Oil	95.6	64.1		mg/Kg-dry	1	10/7/2015 5:15:00 PM
Surr: 2-Fluorobiphenyl	135	50-150		%REC	1	10/7/2015 5:15:00 PM
Surr: o-Terphenyl	131	50-150		%REC	1	10/7/2015 5:15:00 PM
Hydrocarbon Identification by NWTPH-HCID				Batch ID: 12049		Analyst: EC
Gasoline	ND	25.7		mg/Kg-dry	1	10/7/2015 5:15:00 PM
Mineral Spirits	ND	38.5		mg/Kg-dry	1	10/7/2015 5:15:00 PM
Kerosene	ND	64.1		mg/Kg-dry	1	10/7/2015 5:15:00 PM
Diesel (Fuel Oil)	DETECT	64.1		mg/Kg-dry	1	10/7/2015 5:15:00 PM
Heavy Oil	ND	128		mg/Kg-dry	1	10/7/2015 5:15:00 PM
Mineral Oil	ND	128		mg/Kg-dry	1	10/7/2015 5:15:00 PM
Surr: 2-Fluorobiphenyl	135	50-150		%REC	1	10/7/2015 5:15:00 PM
Surr: o-Terphenyl	131	50-150		%REC	1	10/7/2015 5:15:00 PM
Semi-Volatile Organic Compounds by EPA Method 8270				Batch ID: 12044		Analyst: AK
Phenol	ND	243		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Bis(2-chloroethyl) ether	ND	243		µg/Kg-dry	1	10/8/2015 6:31:00 AM
2-Chlorophenol	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
1,3-Dichlorobenzene	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
1,4-Dichlorobenzene	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
1,2-Dichlorobenzene	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Benzyl alcohol	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
2-Methylphenol (o-cresol)	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Hexachloroethane	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
N-Nitrosodi-n-propylamine	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Nitrobenzene	ND	243		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Isophorone	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
4-Methylphenol (p-cresol)	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
2-Nitrophenol	ND	243		µg/Kg-dry	1	10/8/2015 6:31:00 AM
2,4-Dimethylphenol	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Bis(2-chloroethoxy)methane	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
2,4-Dichlorophenol	ND	243		µg/Kg-dry	1	10/8/2015 6:31:00 AM
1,2,4-Trichlorobenzene	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Naphthalene	ND	97.1		µg/Kg-dry	1	10/8/2015 6:31:00 AM
4-Chloroaniline	ND	607		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Hexachlorobutadiene	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 2:22:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-011
Matrix: Soil
Client Sample ID: **21-2-1**

Semi-Volatile Organic Compounds by EPA Method 8270 Batch ID: 12044 Analyst: AK

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
4-Chloro-3-methylphenol	ND	607		µg/Kg-dry	1	10/8/2015 6:31:00 AM
2-Methylnaphthalene	ND	97.1		µg/Kg-dry	1	10/8/2015 6:31:00 AM
1-Methylnaphthalene	ND	97.1		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Hexachlorocyclopentadiene	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
2,4,6-Trichlorophenol	ND	243		µg/Kg-dry	1	10/8/2015 6:31:00 AM
2,4,5-Trichlorophenol	ND	243		µg/Kg-dry	1	10/8/2015 6:31:00 AM
2-Chloronaphthalene	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
2-Nitroaniline	ND	607		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Acenaphthene	ND	97.1		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Dimethylphthalate	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
2,6-Dinitrotoluene	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Acenaphthylene	ND	97.1		µg/Kg-dry	1	10/8/2015 6:31:00 AM
2,4-Dinitrophenol	ND	243		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Dibenzofuran	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
2,4-Dinitrotoluene	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
4-Nitrophenol	ND	607		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Fluorene	ND	97.1		µg/Kg-dry	1	10/8/2015 6:31:00 AM
4-Chlorophenyl phenyl ether	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Diethylphthalate	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
4,6-Dinitro-2-methylphenol	ND	243		µg/Kg-dry	1	10/8/2015 6:31:00 AM
4-Bromophenyl phenyl ether	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Hexachlorobenzene	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Pentachlorophenol	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Phenanthrene	ND	97.1		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Anthracene	ND	97.1		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Carbazole	ND	607		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Di-n-butylphthalate	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Fluoranthene	ND	97.1		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Pyrene	ND	97.1		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Butyl Benzylphthalate	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
bis(2-Ethylhexyl)adipate	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Benz (a) anthracene	ND	97.1		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Chrysene	ND	97.1		µg/Kg-dry	1	10/8/2015 6:31:00 AM
bis (2-Ethylhexyl) phthalate	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Di-n-octyl phthalate	ND	121		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Benzo (b) fluoranthene	ND	97.1		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Benzo (k) fluoranthene	ND	97.1		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Benzo (a) pyrene	ND	97.1		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Indeno (1,2,3-cd) pyrene	ND	97.1		µg/Kg-dry	1	10/8/2015 6:31:00 AM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 2:22:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-011
Matrix: Soil
Client Sample ID: 21-2-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Semi-Volatile Organic Compounds by EPA Method 8270				Batch ID: 12044		Analyst: AK
Dibenz (a,h) anthracene	ND	97.1		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Benzo (g,h,I) perylene	ND	97.1		µg/Kg-dry	1	10/8/2015 6:31:00 AM
Surr: 2,4,6-Tribromophenol	64.0	11.1-127		%REC	1	10/8/2015 6:31:00 AM
Surr: 2-Fluorobiphenyl	77.7	16.1-150		%REC	1	10/8/2015 6:31:00 AM
Surr: Nitrobenzene-d5	83.7	10-133		%REC	1	10/8/2015 6:31:00 AM
Surr: Phenol-d6	60.3	11.6-133		%REC	1	10/8/2015 6:31:00 AM
Surr: p-Terphenyl	83.5	21.8-150		%REC	1	10/8/2015 6:31:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 12040		Analyst: BC
Dichlorodifluoromethane (CFC-12)	ND	0.0829		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Chloromethane	ND	0.0829		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Vinyl chloride	ND	0.00276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Bromomethane	ND	0.124		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0691		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Chloroethane	ND	0.0829		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,1-Dichloroethene	ND	0.0691		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Methylene chloride	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
trans-1,2-Dichloroethene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0691		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,1-Dichloroethane	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
2,2-Dichloropropane	ND	0.0691		mg/Kg-dry	1	10/6/2015 11:21:00 AM
cis-1,2-Dichloroethene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Chloroform	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,1-Dichloropropene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Carbon tetrachloride	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,2-Dichloroethane (EDC)	ND	0.0415		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Benzene	0.0352	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Trichloroethene (TCE)	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,2-Dichloropropane	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Bromodichloromethane	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Dibromomethane	ND	0.0553		mg/Kg-dry	1	10/6/2015 11:21:00 AM
cis-1,3-Dichloropropene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Toluene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
trans-1,3-Dichloropropylene	ND	0.0415		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,1,2-Trichloroethane	ND	0.0415		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,3-Dichloropropane	ND	0.0691		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Tetrachloroethene (PCE)	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 2:22:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-011
Matrix: Soil
Client Sample ID: 21-2-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 12040		Analyst: BC
Dibromochloromethane	ND	0.0415		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,2-Dibromoethane (EDB)	ND	0.00691		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Chlorobenzene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0415		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Ethylbenzene	ND	0.0415		mg/Kg-dry	1	10/6/2015 11:21:00 AM
m,p-Xylene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
o-Xylene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Styrene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Isopropylbenzene	ND	0.111		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Bromoform	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
n-Propylbenzene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Bromobenzene	ND	0.0415		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,3,5-Trimethylbenzene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
2-Chlorotoluene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
4-Chlorotoluene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
tert-Butylbenzene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,2,3-Trichloropropane	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,2,4-Trichlorobenzene	ND	0.0691		mg/Kg-dry	1	10/6/2015 11:21:00 AM
sec-Butylbenzene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
4-Isopropyltoluene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,3-Dichlorobenzene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,4-Dichlorobenzene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
n-Butylbenzene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,2-Dichlorobenzene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,2-Dibromo-3-chloropropane	ND	0.691		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,2,4-Trimethylbenzene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Hexachlorobutadiene	ND	0.138		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Naphthalene	ND	0.0415		mg/Kg-dry	1	10/6/2015 11:21:00 AM
1,2,3-Trichlorobenzene	ND	0.0276		mg/Kg-dry	1	10/6/2015 11:21:00 AM
Surr: Dibromofluoromethane	95.1	56.5-129		%REC	1	10/6/2015 11:21:00 AM
Surr: Toluene-d8	99.6	64.3-131		%REC	1	10/6/2015 11:21:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.8	63.1-141		%REC	1	10/6/2015 11:21:00 AM
Mercury by EPA Method 7471				Batch ID: 12034		Analyst: MW
Mercury	ND	0.292		mg/Kg-dry	1	10/5/2015 3:53:22 PM

Analytical Report

WO#: **1510028**

Date Reported: **10/19/2015**

Client: ESA Associates, Inc.

Collection Date: 10/1/2015 2:22:00 AM

Project: JKT - Dungeness

Lab ID: 1510028-011

Matrix: Soil

Client Sample ID: 21-2-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 12035		Analyst: TN
Antimony	0.465	0.198		mg/Kg-dry	1	10/5/2015 4:05:33 PM
Arsenic	14.3	0.0990		mg/Kg-dry	1	10/5/2015 4:05:33 PM
Beryllium	0.424	0.198		mg/Kg-dry	1	10/5/2015 4:05:33 PM
Cadmium	0.300	0.198		mg/Kg-dry	1	10/5/2015 4:05:33 PM
Chromium	50.6	0.0990		mg/Kg-dry	1	10/5/2015 4:05:33 PM
Copper	296	0.198		mg/Kg-dry	1	10/5/2015 4:05:33 PM
Lead	14.8	0.198		mg/Kg-dry	1	10/5/2015 4:05:33 PM
Nickel	47.9	0.0990		mg/Kg-dry	1	10/5/2015 4:05:33 PM
Selenium	1.42	0.495		mg/Kg-dry	1	10/5/2015 4:05:33 PM
Silver	ND	0.0990		mg/Kg-dry	1	10/5/2015 4:05:33 PM
Thallium	ND	0.198		mg/Kg-dry	1	10/5/2015 4:05:33 PM
Zinc	661	0.396		mg/Kg-dry	1	10/5/2015 4:05:33 PM
Sample Moisture (Percent Moisture)				Batch ID: R25291		Analyst: CG
Percent Moisture	22.3			wt%	1	10/5/2015 8:17:22 AM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 2:46:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-013
Matrix: Soil
Client Sample ID: 21-3-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Hydrocarbon Identification by NWTPH-HCID				Batch ID: 12049		Analyst: EC
Gasoline	ND	29.5		mg/Kg-dry	1	10/7/2015 5:46:00 PM
Mineral Spirits	ND	44.3		mg/Kg-dry	1	10/7/2015 5:46:00 PM
Kerosene	ND	73.8		mg/Kg-dry	1	10/7/2015 5:46:00 PM
Diesel (Fuel Oil)	ND	73.8		mg/Kg-dry	1	10/7/2015 5:46:00 PM
Heavy Oil	ND	148		mg/Kg-dry	1	10/7/2015 5:46:00 PM
Mineral Oil	ND	148		mg/Kg-dry	1	10/7/2015 5:46:00 PM
Surr: 2-Fluorobiphenyl	129	50-150		%REC	1	10/7/2015 5:46:00 PM
Surr: o-Terphenyl	121	50-150		%REC	1	10/7/2015 5:46:00 PM
Semi-Volatile Organic Compounds by EPA Method 8270				Batch ID: 12044		Analyst: AK
Phenol	ND	296		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Bis(2-chloroethyl) ether	ND	296		µg/Kg-dry	1	10/8/2015 6:53:00 AM
2-Chlorophenol	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
1,3-Dichlorobenzene	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
1,4-Dichlorobenzene	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
1,2-Dichlorobenzene	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Benzyl alcohol	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
2-Methylphenol (o-cresol)	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Hexachloroethane	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
N-Nitrosodi-n-propylamine	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Nitrobenzene	ND	296		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Isophorone	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
4-Methylphenol (p-cresol)	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
2-Nitrophenol	ND	296		µg/Kg-dry	1	10/8/2015 6:53:00 AM
2,4-Dimethylphenol	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Bis(2-chloroethoxy)methane	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
2,4-Dichlorophenol	ND	296		µg/Kg-dry	1	10/8/2015 6:53:00 AM
1,2,4-Trichlorobenzene	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Naphthalene	ND	118		µg/Kg-dry	1	10/8/2015 6:53:00 AM
4-Chloroaniline	ND	740		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Hexachlorobutadiene	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
4-Chloro-3-methylphenol	ND	740		µg/Kg-dry	1	10/8/2015 6:53:00 AM
2-Methylnaphthalene	ND	118		µg/Kg-dry	1	10/8/2015 6:53:00 AM
1-Methylnaphthalene	ND	118		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Hexachlorocyclopentadiene	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
2,4,6-Trichlorophenol	ND	296		µg/Kg-dry	1	10/8/2015 6:53:00 AM
2,4,5-Trichlorophenol	ND	296		µg/Kg-dry	1	10/8/2015 6:53:00 AM
2-Chloronaphthalene	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 2:46:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-013
Matrix: Soil
Client Sample ID: 21-3-1

Semi-Volatile Organic Compounds by EPA Method 8270 Batch ID: 12044 Analyst: AK

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
2-Nitroaniline	ND	740		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Acenaphthene	ND	118		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Dimethylphthalate	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
2,6-Dinitrotoluene	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Acenaphthylene	ND	118		µg/Kg-dry	1	10/8/2015 6:53:00 AM
2,4-Dinitrophenol	ND	296		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Dibenzofuran	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
2,4-Dinitrotoluene	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
4-Nitrophenol	ND	740		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Fluorene	ND	118		µg/Kg-dry	1	10/8/2015 6:53:00 AM
4-Chlorophenyl phenyl ether	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Diethylphthalate	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
4,6-Dinitro-2-methylphenol	ND	296		µg/Kg-dry	1	10/8/2015 6:53:00 AM
4-Bromophenyl phenyl ether	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Hexachlorobenzene	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Pentachlorophenol	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Phenanthrene	ND	118		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Anthracene	ND	118		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Carbazole	ND	740		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Di-n-butylphthalate	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Fluoranthene	ND	118		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Pyrene	ND	118		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Butyl Benzylphthalate	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
bis(2-Ethylhexyl)adipate	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Benz (a) anthracene	ND	118		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Chrysene	ND	118		µg/Kg-dry	1	10/8/2015 6:53:00 AM
bis (2-Ethylhexyl) phthalate	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Di-n-octyl phthalate	ND	148		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Benzo (b) fluoranthene	ND	118		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Benzo (k) fluoranthene	ND	118		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Benzo (a) pyrene	ND	118		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Indeno (1,2,3-cd) pyrene	ND	118		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Dibenz (a,h) anthracene	ND	118		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Benzo (g,h,I) perylene	ND	118		µg/Kg-dry	1	10/8/2015 6:53:00 AM
Surr: 2,4,6-Tribromophenol	75.7	11.1-127		%REC	1	10/8/2015 6:53:00 AM
Surr: 2-Fluorobiphenyl	78.8	16.1-150		%REC	1	10/8/2015 6:53:00 AM
Surr: Nitrobenzene-d5	86.8	10-133		%REC	1	10/8/2015 6:53:00 AM
Surr: Phenol-d6	85.6	11.6-133		%REC	1	10/8/2015 6:53:00 AM
Surr: p-Terphenyl	87.9	21.8-150		%REC	1	10/8/2015 6:53:00 AM

Analytical Report

WO#: **1510028**

Date Reported: **10/19/2015**

Client: ESA Associates, Inc.

Collection Date: 10/1/2015 2:46:00 AM

Project: JKT - Dungeness

Lab ID: 1510028-013

Matrix: Soil

Client Sample ID: 21-3-1

Volatile Organic Compounds by EPA Method 8260 Batch ID: 12040 Analyst: BC

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0926		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Chloromethane	ND	0.0926		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Vinyl chloride	ND	0.00309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Bromomethane	ND	0.139		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0772		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Chloroethane	ND	0.0926		mg/Kg-dry	1	10/6/2015 11:50:00 AM
1,1-Dichloroethene	ND	0.0772		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Methylene chloride	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
trans-1,2-Dichloroethene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0772		mg/Kg-dry	1	10/6/2015 11:50:00 AM
1,1-Dichloroethane	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
2,2-Dichloropropane	ND	0.0772		mg/Kg-dry	1	10/6/2015 11:50:00 AM
cis-1,2-Dichloroethene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Chloroform	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
1,1-Dichloropropene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Carbon tetrachloride	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
1,2-Dichloroethane (EDC)	ND	0.0463		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Benzene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Trichloroethene (TCE)	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
1,2-Dichloropropane	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Bromodichloromethane	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Dibromomethane	ND	0.0618		mg/Kg-dry	1	10/6/2015 11:50:00 AM
cis-1,3-Dichloropropene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Toluene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
trans-1,3-Dichloropropylene	ND	0.0463		mg/Kg-dry	1	10/6/2015 11:50:00 AM
1,1,2-Trichloroethane	ND	0.0463		mg/Kg-dry	1	10/6/2015 11:50:00 AM
1,3-Dichloropropane	ND	0.0772		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Tetrachloroethene (PCE)	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Dibromochloromethane	ND	0.0463		mg/Kg-dry	1	10/6/2015 11:50:00 AM
1,2-Dibromoethane (EDB)	ND	0.00772		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Chlorobenzene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0463		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Ethylbenzene	ND	0.0463		mg/Kg-dry	1	10/6/2015 11:50:00 AM
m,p-Xylene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
o-Xylene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Styrene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Isopropylbenzene	ND	0.124		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Bromoform	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM

Analytical Report

WO#: **1510028**
Date Reported: **10/19/2015**

Client: ESA Associates, Inc.
Collection Date: 10/1/2015 2:46:00 AM
Project: JKT - Dungeness
Lab ID: 1510028-013
Matrix: Soil
Client Sample ID: 21-3-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 12040		Analyst: BC
1,1,2,2-Tetrachloroethane	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
n-Propylbenzene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Bromobenzene	ND	0.0463		mg/Kg-dry	1	10/6/2015 11:50:00 AM
1,3,5-Trimethylbenzene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
2-Chlorotoluene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
4-Chlorotoluene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
tert-Butylbenzene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
1,2,3-Trichloropropane	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
1,2,4-Trichlorobenzene	ND	0.0772		mg/Kg-dry	1	10/6/2015 11:50:00 AM
sec-Butylbenzene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
4-Isopropyltoluene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
1,3-Dichlorobenzene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
1,4-Dichlorobenzene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
n-Butylbenzene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
1,2-Dichlorobenzene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
1,2-Dibromo-3-chloropropane	ND	0.772		mg/Kg-dry	1	10/6/2015 11:50:00 AM
1,2,4-Trimethylbenzene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Hexachlorobutadiene	ND	0.154		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Naphthalene	ND	0.0463		mg/Kg-dry	1	10/6/2015 11:50:00 AM
1,2,3-Trichlorobenzene	ND	0.0309		mg/Kg-dry	1	10/6/2015 11:50:00 AM
Surr: Dibromofluoromethane	95.2	56.5-129		%REC	1	10/6/2015 11:50:00 AM
Surr: Toluene-d8	101	64.3-131		%REC	1	10/6/2015 11:50:00 AM
Surr: 1-Bromo-4-fluorobenzene	100	63.1-141		%REC	1	10/6/2015 11:50:00 AM
Mercury by EPA Method 7471				Batch ID: 12034		Analyst: MW
Mercury	ND	0.346		mg/Kg-dry	1	10/5/2015 3:55:00 PM
Total Metals by EPA Method 6020				Batch ID: 12035		Analyst: TN
Antimony	ND	0.247		mg/Kg-dry	1	10/5/2015 4:09:04 PM
Arsenic	3.79	0.123		mg/Kg-dry	1	10/5/2015 4:09:04 PM
Beryllium	0.346	0.247		mg/Kg-dry	1	10/5/2015 4:09:04 PM
Cadmium	ND	0.247		mg/Kg-dry	1	10/5/2015 4:09:04 PM
Chromium	33.5	0.123		mg/Kg-dry	1	10/5/2015 4:09:04 PM
Copper	40.0	0.247		mg/Kg-dry	1	10/5/2015 4:09:04 PM
Lead	7.46	0.247		mg/Kg-dry	1	10/5/2015 4:09:04 PM
Nickel	37.9	0.123		mg/Kg-dry	1	10/5/2015 4:09:04 PM
Selenium	1.48	0.617		mg/Kg-dry	1	10/5/2015 4:09:04 PM

Analytical Report

WO#: **1510028**

Date Reported: **10/19/2015**

Client: ESA Associates, Inc.

Collection Date: 10/1/2015 2:46:00 AM

Project: JKT - Dungeness

Lab ID: 1510028-013

Matrix: Soil

Client Sample ID: **21-3-1**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 12035		Analyst: TN
Silver	ND	0.123		mg/Kg-dry	1	10/5/2015 4:09:04 PM
Thallium	ND	0.247		mg/Kg-dry	1	10/5/2015 4:09:04 PM
Zinc	133	0.494		mg/Kg-dry	1	10/5/2015 4:09:04 PM
Sample Moisture (Percent Moisture)				Batch ID: R25291		Analyst: CG
Percent Moisture	33.1			wt%	1	10/5/2015 8:17:22 AM

Analytical Report

WO#: **1510028**

Date Reported: **10/19/2015**

Client: ESA Associates, Inc.

Collection Date: 9/23/2015 12:15:00 PM

Project: JKT - Dungeness

Lab ID: 1510028-014

Matrix: Soil

Client Sample ID: Trip Blank

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batch ID: 12040		Analyst: BC
Gasoline	ND	5.00		mg/Kg	1	10/6/2015 2:17:00 AM
Surr: Toluene-d8	97.3	65-135		%REC	1	10/6/2015 2:17:00 AM
Surr: 4-Bromofluorobenzene	101	65-135		%REC	1	10/6/2015 2:17:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 12040		Analyst: BC
Dichlorodifluoromethane (CFC-12)	ND	0.0600		mg/Kg	1	10/6/2015 2:17:00 AM
Chloromethane	ND	0.0600		mg/Kg	1	10/6/2015 2:17:00 AM
Vinyl chloride	ND	0.00200		mg/Kg	1	10/6/2015 2:17:00 AM
Bromomethane	ND	0.0900		mg/Kg	1	10/6/2015 2:17:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0500		mg/Kg	1	10/6/2015 2:17:00 AM
Chloroethane	ND	0.0600		mg/Kg	1	10/6/2015 2:17:00 AM
1,1-Dichloroethene	ND	0.0500		mg/Kg	1	10/6/2015 2:17:00 AM
Methylene chloride	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
trans-1,2-Dichloroethene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0500		mg/Kg	1	10/6/2015 2:17:00 AM
1,1-Dichloroethane	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
2,2-Dichloropropane	ND	0.0500		mg/Kg	1	10/6/2015 2:17:00 AM
cis-1,2-Dichloroethene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
Chloroform	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
1,1-Dichloropropene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
Carbon tetrachloride	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
1,2-Dichloroethane (EDC)	ND	0.0300		mg/Kg	1	10/6/2015 2:17:00 AM
Benzene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
Trichloroethene (TCE)	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
1,2-Dichloropropane	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
Bromodichloromethane	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
Dibromomethane	ND	0.0400		mg/Kg	1	10/6/2015 2:17:00 AM
cis-1,3-Dichloropropene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
Toluene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
trans-1,3-Dichloropropylene	ND	0.0300		mg/Kg	1	10/6/2015 2:17:00 AM
1,1,2-Trichloroethane	ND	0.0300		mg/Kg	1	10/6/2015 2:17:00 AM
1,3-Dichloropropane	ND	0.0500		mg/Kg	1	10/6/2015 2:17:00 AM
Tetrachloroethene (PCE)	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
Dibromochloromethane	ND	0.0300		mg/Kg	1	10/6/2015 2:17:00 AM
1,2-Dibromoethane (EDB)	ND	0.00500		mg/Kg	1	10/6/2015 2:17:00 AM
Chlorobenzene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0300		mg/Kg	1	10/6/2015 2:17:00 AM

Analytical Report

WO#: **1510028**

Date Reported: **10/19/2015**

Client: ESA Associates, Inc.

Collection Date: 9/23/2015 12:15:00 PM

Project: JKT - Dungeness

Lab ID: 1510028-014

Matrix: Soil

Client Sample ID: **Trip Blank**

Volatile Organic Compounds by EPA Method 8260 Batch ID: 12040 Analyst: BC

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ethylbenzene	ND	0.0300		mg/Kg	1	10/6/2015 2:17:00 AM
m,p-Xylene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
o-Xylene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
Styrene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
Isopropylbenzene	ND	0.0800		mg/Kg	1	10/6/2015 2:17:00 AM
Bromoform	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
n-Propylbenzene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
Bromobenzene	ND	0.0300		mg/Kg	1	10/6/2015 2:17:00 AM
1,3,5-Trimethylbenzene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
2-Chlorotoluene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
4-Chlorotoluene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
tert-Butylbenzene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
1,2,3-Trichloropropane	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
1,2,4-Trichlorobenzene	ND	0.0500		mg/Kg	1	10/6/2015 2:17:00 AM
sec-Butylbenzene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
4-Isopropyltoluene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
1,3-Dichlorobenzene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
1,4-Dichlorobenzene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
n-Butylbenzene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
1,2-Dichlorobenzene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
1,2-Dibromo-3-chloropropane	ND	0.500		mg/Kg	1	10/6/2015 2:17:00 AM
1,2,4-Trimethylbenzene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
Hexachlorobutadiene	ND	0.100		mg/Kg	1	10/6/2015 2:17:00 AM
Naphthalene	ND	0.0300		mg/Kg	1	10/6/2015 2:17:00 AM
1,2,3-Trichlorobenzene	ND	0.0200		mg/Kg	1	10/6/2015 2:17:00 AM
Surr: Dibromofluoromethane	96.1	56.5-129		%REC	1	10/6/2015 2:17:00 AM
Surr: Toluene-d8	97.9	64.3-131		%REC	1	10/6/2015 2:17:00 AM
Surr: 1-Bromo-4-fluorobenzene	97.9	63.1-141		%REC	1	10/6/2015 2:17:00 AM

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: MB-101515

Lab Sample ID: MB-101515
LIMS ID: 15-18006
Matrix: Soil
Data Release Authorized: MW
Reported: 11/02/15

QC Report No: ANV1-Fremont Analytical
Project: 1510028
NA
Date Sampled: NA
Date Received: NA

Date Extracted: 10/15/15
Date Analyzed: 10/28/15 13:29
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF		0.65-0.89	0.0260	1.00	< 0.0260	U
2,3,7,8-TCDD		0.65-0.89	0.0380	1.00	< 0.0380	U
1,2,3,7,8-PeCDF		1.32-1.78	0.0360	1.00	< 0.0360	U
2,3,4,7,8-PeCDF		1.32-1.78	0.0360	1.00	< 0.0360	U
1,2,3,7,8-PeCDD		1.32-1.78	0.0500	1.00	< 0.0500	U
1,2,3,4,7,8-HxCDF		1.05-1.43	0.0420	1.00	< 0.0420	U
1,2,3,6,7,8-HxCDF		1.05-1.43	0.0420	1.00	< 0.0420	U
2,3,4,6,7,8-HxCDF		1.05-1.43	0.0440	1.00	< 0.0440	U
1,2,3,7,8,9-HxCDF		1.05-1.43	0.0520	1.00	< 0.0520	U
1,2,3,4,7,8-HxCDD		1.05-1.43	0.0560	1.00	< 0.0560	U
1,2,3,6,7,8-HxCDD		1.05-1.43	0.0580	1.00	< 0.0580	U
1,2,3,7,8,9-HxCDD		1.05-1.43	0.0580	1.00	< 0.0580	U
1,2,3,4,6,7,8-HpCDF		0.88-1.20	0.0660	1.00	< 0.0660	U
1,2,3,4,7,8,9-HpCDF		0.88-1.20	0.0940	1.00	< 0.0940	U
1,2,3,4,6,7,8-HpCDD	0.82	0.88-1.20		1.00	0.564	JEMPC
OCDF	10.5	0.76-1.02		2.00	0.282	JEMPC
OCDD	0.91	0.76-1.02		10.0	3.80	

Homologue Group	EDL	RL	Result	
Total TCDF	0.0260	1.00	< 0.0260	U
Total TCDD	0.0380	1.00	0.0662	EMPC
Total PeCDF	0.0360	2.00	< 0.0360	U
Total PeCDD	0.0500	1.00	0.0352	EMPC
Total HxCDF	0.0520	2.00	< 0.0520	U
Total HxCDD	0.0580	2.00	0.399	EMPC
Total HpCDF	0.0940	2.00	< 0.0940	U
Total HpCDD		2.00	1.51	EMPC

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.01

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.08

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
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Sample ID: MB-101515

Lab Sample ID: MB-101515
LIMS ID: 15-18006
Matrix: Soil
Data Release Authorized: MW
Reported: 11/02/15

QC Report No: ANVI-Fremont Analytical
Project: 1510028
NA
Date Sampled: NA
Date Received: NA

Date Extracted: 10/15/15
Date Analyzed: 10/28/15 13:29
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	90.3	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	85.6	25-164	
13C-1,2,3,7,8-PeCDF	1.56	1.32-1.78	88.2	24-185	
13C-2,3,4,7,8-PeCDF	1.58	1.32-1.78	86.4	21-178	
13C-1,2,3,7,8-PeCDD	1.56	1.32-1.78	86.7	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	91.0	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	87.8	26-123	
13C-2,3,4,6,7,8-HxCDF	0.51	0.43-0.59	88.6	28-136	
13C-1,2,3,7,8,9-HxCDF	0.51	0.43-0.59	83.5	29-147	
13C-1,2,3,4,7,8-HxCDD	1.26	1.05-1.43	92.0	32-141	
13C-1,2,3,6,7,8-HxCDD	1.24	1.05-1.43	88.0	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	81.8	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	81.6	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.05	0.88-1.20	86.6	23-140	
13C-OCDD	0.89	0.76-1.02	76.9	17-157	
37Cl4-2,3,7,8-TCDD			102	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-101515

Lab Sample ID: OPR-101515
LIMS ID: 15-18006
Matrix: Soil
Data Release Authorized: MW
Reported: 11/02/15

QC Report No: ANV1-Fremont Analytical
Project: 1510028
NA
Date Sampled: NA
Date Received: NA

Date Extracted: 10/15/15
Date Analyzed: 10/28/15 14:23
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	RL	Result
2,3,7,8-TCDF	0.69	0.65-0.89	1.00	19.7
2,3,7,8-TCDD	0.76	0.65-0.89	1.00	21.0
1,2,3,7,8-PeCDF	1.40	1.32-1.78	1.00	101
2,3,4,7,8-PeCDF	1.43	1.32-1.78	1.00	102
1,2,3,7,8-PeCDD	1.57	1.32-1.78	1.00	103
1,2,3,4,7,8-HxCDF	1.14	1.05-1.43	1.00	102
1,2,3,6,7,8-HxCDF	1.13	1.05-1.43	1.00	103
2,3,4,6,7,8-HxCDF	1.14	1.05-1.43	1.00	102
1,2,3,7,8,9-HxCDF	1.15	1.05-1.43	1.00	104
1,2,3,4,7,8-HxCDD	1.23	1.05-1.43	1.00	103
1,2,3,6,7,8-HxCDD	1.24	1.05-1.43	1.00	103
1,2,3,7,8,9-HxCDD	1.23	1.05-1.43	1.00	105
1,2,3,4,6,7,8-HpCDF	0.94	0.88-1.20	1.00	107
1,2,3,4,7,8,9-HpCDF	0.98	0.88-1.20	1.00	106
1,2,3,4,6,7,8-HpCDD	1.05	0.88-1.20	1.00	103
OCDF	0.82	0.76-1.02	2.00	198
OCDD	0.90	0.76-1.02	10.0	206

Homologue Group	EDL	RL	Result	
Total TCDF		1.00	20.6	EMPC
Total TCDD		1.00	21.6	EMPC
Total PeCDF		2.00	208	EMPC
Total PeCDD		1.00	104	EMPC
Total HxCDF		2.00	412	EMPC
Total HxCDD		2.00	312	EMPC
Total HpCDF		2.00	213	EMPC
Total HpCDD		2.00	105	EMPC

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-101515

Lab Sample ID: OPR-101515
LIMS ID: 15-18006
Matrix: Soil
Data Release Authorized:
Reported: 11/02/15

QC Report No: ANV1-Fremont Analytical
Project: 1510028
NA
Date Sampled: NA
Date Received: NA

Date Extracted: 10/15/15
Date Analyzed: 10/28/15 14:23
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	86.4	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	83.7	25-164	
13C-1,2,3,7,8-PeCDF	1.56	1.32-1.78	87.9	24-185	
13C-2,3,4,7,8-PeCDF	1.56	1.32-1.78	86.4	21-178	
13C-1,2,3,7,8-PeCDD	1.56	1.32-1.78	87.1	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	85.2	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	83.3	26-123	
13C-2,3,4,6,7,8-HxCDF	0.51	0.43-0.59	84.8	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	80.7	29-147	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	88.3	32-141	
13C-1,2,3,6,7,8-HxCDD	1.28	1.05-1.43	84.1	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	78.9	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	78.5	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.03	0.86-1.20	84.2	23-140	
13C-OCDD	0.89	0.76-1.02	74.4	17-157	
37Cl4-2,3,7,8-TCDD			101	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-101515

Lab Sample ID: OPR-101515
LIMS ID: 15-18006
Matrix: Soil
Data Release Authorized: MW
Reported: 11/02/15

QC Report No: ANV1-Fremont Analytical
Project: 1510028
NA
Date Sampled: NA
Date Received: NA

Date Extracted: 10/15/15
Date Analyzed: 10/28/15 14:23
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	OPR	Spiked	Recovery	Limits
2,3,7,8-TCDF	19.7	20.0	98.5	75-158
2,3,7,8-TCDD	21.0	20.0	105	67-158
1,2,3,7,8-PeCDF	101	100	101	80-134
2,3,4,7,8-PeCDF	102	100	102	68-160
1,2,3,7,8-PeCDD	103	100	103	70-142
1,2,3,4,7,8-HxCDF	102	100	102	72-134
1,2,3,6,7,8-HxCDF	103	100	103	84-130
2,3,4,6,7,8-HxCDF	102	100	102	70-156
1,2,3,7,8,9-HxCDF	104	100	104	78-130
1,2,3,4,7,8-HxCDD	103	100	103	70-164
1,2,3,6,7,8-HxCDD	103	100	103	76-134
1,2,3,7,8,9-HxCDD	105	100	105	64-162
1,2,3,4,6,7,8-HpCDF	107	100	107	82-132
1,2,3,4,7,8,9-HpCDF	106	100	106	78-138
1,2,3,4,6,7,8-HpCDD	103	100	103	70-140
OCDF	198	200	99.0	63-170
OCDD	206	200	103	78-144

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: 131-2-1

Lab Sample ID: ANV1A
LIMS ID: 15-18006
Matrix: Soil
Data Release Authorized:
Reported: 11/02/15

QC Report No: ANV1-Fremont Analytical
Project: 1510026
NA
Date Sampled: 10/01/15
Date Received: 10/06/15

Date Extracted: 10/15/15
Date Analyzed: 10/28/15 15:16
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.67	0.65-0.89		0.998	3.04	
2,3,7,8-TCDD	0.36	0.65-0.89		0.998	0.321	JEMPC
1,2,3,7,8-PeCDF	1.36	1.32-1.78		0.998	0.453	J
2,3,4,7,8-PeCDF	1.27	1.32-1.78		0.998	0.303	JEMPC
1,2,3,7,8-PeCDD	1.60	1.32-1.78		0.998	0.405	J
1,2,3,4,7,8-HxCDF	1.10	1.05-1.43		0.998	0.150	J
1,2,3,6,7,8-HxCDF	1.06	1.05-1.43		0.998	0.146	J
2,3,4,6,7,8-HxCDF	1.48	1.05-1.43		0.998	0.174	JEMPC
1,2,3,7,8,9-HxCDF	0.79	1.05-1.43		0.998	0.146	JEMPC
1,2,3,4,7,8-HxCDD	1.16	1.05-1.43		0.998	0.130	J
1,2,3,6,7,8-HxCDD	1.36	1.05-1.43		0.998	0.251	J
1,2,3,7,8,9-HxCDD	1.20	1.05-1.43		0.998	0.242	J
1,2,3,4,6,7,8-HpCDF	0.75	0.88-1.20		0.998	0.583	JEMPC
1,2,3,4,7,8,9-HpCDF	1.32	0.88-1.20		0.998	0.132	JEMPC
1,2,3,4,6,7,8-HpCDD	0.95	0.88-1.20		0.998	1.97	B
OCDF	0.87	0.76-1.02		2.00	1.12	JB
OCDD	0.87	0.76-1.02		9.98	13.6	B

Homologue Group	EDL	RL	Result	
Total TCDF		0.998	30.2	EMPC
Total TCDD		0.998	21.9	EMPC
Total PeCDF		2.00	3.79	EMPC
Total PeCDD		0.998	7.50	
Total HxCDF		2.00	1.35	EMPC
Total HxCDD		2.00	3.55	EMPC
Total HpCDF		2.00	1.15	EMPC
Total HpCDD		2.00	3.80	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 1.19

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 1.19

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B

Sample ID: 131-2-1

Lab Sample ID: ANV1A
LIMS ID: 15-18006
Matrix: Soil
Data Release Authorized: MW
Reported: 11/02/15

QC Report No: ANV1-Fremont Analytical
Project: 1510028
NA
Date Sampled: 10/01/15
Date Received: 10/06/15

Date Extracted: 10/15/15
Date Analyzed: 10/28/15 15:16
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	83.8	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	79.2	25-164	
13C-1,2,3,7,8-PeCDF	1.55	1.32-1.78	80.2	24-185	
13C-2,3,4,7,8-PeCDF	1.57	1.32-1.78	78.3	21-178	
13C-1,2,3,7,8-PeCDD	1.56	1.32-1.78	79.0	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	82.2	26-152	
13C-1,2,3,6,7,8-HxCDF	0.51	0.43-0.59	80.1	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	82.4	28-136	
13C-1,2,3,7,8,9-HxCDF	0.51	0.43-0.59	80.0	29-147	
13C-1,2,3,4,7,8-HxCDD	1.26	1.05-1.43	83.9	32-141	
13C-1,2,3,6,7,8-HxCDD	1.24	1.05-1.43	78.6	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	78.3	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	77.3	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.04	0.88-1.20	80.9	23-140	
13C-OCDD	0.90	0.76-1.02	71.0	17-157	
37Cl4-2,3,7,8-TCDD			105	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B

Sample ID: 121-1-1

Lab Sample ID: ANV1B
LIMS ID: 15-18007
Matrix: Soil
Data Release Authorized: MW
Reported: 11/02/15

QC Report No: ANV1-Fremont Analytical
Project: 1510028
NA
Date Sampled: 10/01/15
Date Received: 10/06/15

Date Extracted: 10/15/15
Date Analyzed: 10/28/15 16:09
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result
2,3,7,8-TCDF	0.68	0.65-0.89		0.999	130
2,3,7,8-TCDD	0.77	0.65-0.89		0.999	12.7
1,2,3,7,8-PeCDF	1.40	1.32-1.78		0.999	104
2,3,4,7,8-PeCDF	1.44	1.32-1.78		0.999	188
1,2,3,7,8-PeCDD	1.56	1.32-1.78		0.999	89.3
1,2,3,4,7,8-HxCDF	1.14	1.05-1.43		0.999	143
1,2,3,6,7,8-HxCDF	1.15	1.05-1.43		0.999	152
2,3,4,6,7,8-HxCDF	1.13	1.05-1.43		0.999	225
1,2,3,7,8,9-HxCDF	1.16	1.05-1.43		0.999	30.3
1,2,3,4,7,8-HxCDD	1.23	1.05-1.43		0.999	23.1
1,2,3,6,7,8-HxCDD	1.26	1.05-1.43		0.999	26.2
1,2,3,7,8,9-HxCDD	1.22	1.05-1.43		0.999	25.7
1,2,3,4,6,7,8-HpCDF	0.98	0.88-1.20		0.999	443
1,2,3,4,7,8,9-HpCDF	0.93	0.88-1.20		0.999	38.4
1,2,3,4,6,7,8-HpCDD	1.04	0.88-1.20		0.999	132
OCDF	0.82	0.76-1.02		2.00	86.4
OCDD	0.87	0.76-1.02		9.99	130

Homologue Group	EDL	RL	Result	
Total TCDF		0.999	4,370	
Total TCDD		0.999	412	
Total PeCDF		2.00	3,020	EMPC
Total PeCDD		0.999	393	
Total HxCDF		2.00	1,820	
Total HxCDD		2.00	360	EMPC
Total HpCDF		2.00	661	EMPC
Total HpCDD		2.00	259	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 216

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 216

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B

Sample ID: 121-1-1

Lab Sample ID: ANV1B
LIMS ID: 15-18007
Matrix: Soil
Data Release Authorized:
Reported: 11/02/15

QC Report No: ANV1-Fremont Analytical
Project: 1510028
NA
Date Sampled: 10/01/15
Date Received: 10/06/15

Date Extracted: 10/15/15
Date Analyzed: 10/28/15 16:09
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.79	0.65-0.89	84.7	24-169	
13C-2,3,7,8-TCDD	0.79	0.65-0.89	79.0	25-164	
13C-1,2,3,7,8-PeCDF	1.56	1.32-1.78	85.2	24-185	
13C-2,3,4,7,8-PeCDF	1.56	1.32-1.78	82.3	21-178	
13C-1,2,3,7,8-PeCDD	1.58	1.32-1.78	80.8	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	85.2	26-152	
13C-1,2,3,6,7,8-HxCDF	0.51	0.43-0.59	80.4	26-123	
13C-2,3,4,6,7,8-HxCDF	0.51	0.43-0.59	83.0	28-136	
13C-1,2,3,7,8,9-HxCDF	0.51	0.43-0.59	82.1	29-147	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	85.1	32-141	
13C-1,2,3,6,7,8-HxCDD	1.27	1.05-1.43	79.9	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	78.0	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	77.6	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.05	0.88-1.20	81.4	23-140	
13C-OCDD	0.90	0.76-1.02	73.7	17-157	
37Cl4-2,3,7,8-TCDD			102	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: 21-1-1

Lab Sample ID: ANV1C
LIMS ID: 15-18008
Matrix: Soil
Data Release Authorized: MW
Reported: 11/02/15

QC Report No: ANV1-Fremont Analytical
Project: 1510328
NA
Date Sampled: 10/01/15
Date Received: 10/06/15

Date Extracted: 10/15/15
Date Analyzed: 10/28/15 17:02
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.80	0.65-0.89		0.997	0.241	J
2,3,7,8-TCDD	0.20	0.65-0.89		0.997	0.164	JEMPC
1,2,3,7,8-PeCDF	1.66	1.32-1.78		0.997	0.177	J
2,3,4,7,8-PeCDF	1.76	1.32-1.78		0.997	0.213	J
1,2,3,7,8-PeCDD	1.57	1.32-1.78		0.997	0.203	J
1,2,3,4,7,8-HxCDF	0.73	1.05-1.43		0.997	0.171	JEMPC
1,2,3,6,7,8-HxCDF	1.09	1.05-1.43		0.997	0.179	J
2,3,4,6,7,8-HxCDF	1.17	1.05-1.43		0.997	0.335	J
1,2,3,7,8,9-HxCDF	0.95	1.05-1.43		0.997	0.128	JEMPC
1,2,3,4,7,8-HxCDD	0.98	1.05-1.43		0.997	0.169	JEMPC
1,2,3,6,7,8-HxCDD	1.33	1.05-1.43		0.997	0.385	J
1,2,3,7,8,9-HxCDD	1.10	1.05-1.43		0.997	0.241	J
1,2,3,4,6,7,8-HpCDF	0.96	0.88-1.20		0.997	1.23	
1,2,3,4,7,8,9-HpCDF	0.84	0.88-1.20		0.997	0.140	JEMPC
1,2,3,4,6,7,8-HpCDD	0.96	0.88-1.20		0.997	3.96	B
OCDF	0.75	0.76-1.02		1.99	2.19	BEMPC
OCDD	0.86	0.76-1.02		9.97	24.3	B

Homologue Group	EDL	RL	Result	
Total TCDF		0.997	5.16	EMPC
Total TCDD		0.997	4.14	EMPC
Total PeCDF		1.99	3.45	EMPC
Total PeCDD		0.997	3.68	EMPC
Total HxCDF		1.99	2.56	EMPC
Total HxCDD		1.99	5.25	EMPC
Total HpCDF		1.99	2.82	EMPC
Total HpCDD		1.99	8.14	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.69

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.69

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: 21-1-1

Lab Sample ID: ANV1C
LIMS ID: 15-18008
Matrix: Soil
Data Release Authorized: MW
Reported: 11/02/15

QC Report No: ANV1-Fremont Analytical
Project: 1510028
NA
Date Sampled: 10/01/15
Date Received: 10/06/15

Date Extracted: 10/15/15
Date Analyzed: 10/28/15 17:02
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	90.8	24-169	
13C-2,3,7,8-TCDD	0.80	0.65-0.89	86.3	25-164	
13C-1,2,3,7,8-PeCDF	1.57	1.32-1.78	94.6	24-185	
13C-2,3,4,7,8-PeCDF	1.57	1.32-1.78	92.9	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	92.2	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	88.8	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	87.2	26-123	
13C-2,3,4,6,7,8-HxCDF	0.51	0.43-0.59	88.8	28-136	
13C-1,2,3,7,8,9-HxCDF	0.51	0.43-0.59	87.0	29-147	
13C-1,2,3,4,7,8-HxCDD	1.29	1.05-1.43	90.7	32-141	
13C-1,2,3,6,7,8-HxCDD	1.25	1.05-1.43	84.8	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	83.4	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	85.5	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.05	0.88-1.20	88.6	23-140	
13C-OCDD	0.89	0.76-1.02	80.5	17-157	
37Cl4-2,3,7,8-TCDD			100	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: 21-2-1

Lab Sample ID: ANV1D
LIMS ID: 15-18009
Matrix: Soil
Data Release Authorized: MW
Reported: 11/02/15

QC Report No: ANV1-Fremont Analytical
Project: 1510028
NA
Date Sampled: 10/01/15
Date Received: 10/06/15

Date Extracted: 10/15/15
Date Analyzed: 10/28/15 17:56
Instrument/Analyst: ASI/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.68	0.65-0.89		1.00	7.15	
2,3,7,8-TCDD	0.61	0.65-0.89		1.00	0.872	JEMPC
1,2,3,7,8-PeCDF	1.44	1.32-1.78		1.00	4.01	
2,3,4,7,8-PeCDF	1.43	1.32-1.78		1.00	4.97	
1,2,3,7,8-PeCDD	1.71	1.32-1.78		1.00	1.90	
1,2,3,4,7,8-HxCDF	1.11	1.05-1.43		1.00	6.40	
1,2,3,6,7,8-HxCDF	1.08	1.05-1.43		1.00	7.05	
2,3,4,6,7,8-HxCDF	1.12	1.05-1.43		1.00	10.2	
1,2,3,7,8,9-HxCDF	1.15	1.05-1.43		1.00	3.24	
1,2,3,4,7,8-HxCDD	1.18	1.05-1.43		1.00	0.976	J
1,2,3,6,7,8-HxCDD	1.19	1.05-1.43		1.00	2.03	
1,2,3,7,8,9-HxCDD	1.15	1.05-1.43		1.00	1.80	
1,2,3,4,6,7,8-HpCDF	0.94	0.88-1.20		1.00	37.1	
1,2,3,4,7,8,9-HpCDF	1.02	0.88-1.20		1.00	5.25	
1,2,3,4,6,7,8-HpCDD	1.02	0.88-1.20		1.00	20.9	
OCDF	0.82	0.76-1.02		2.00	31.8	
OCDD	0.89	0.76-1.02		10.0	86.3	

Homologue Group	EDL	RL	Result	
Total TCDF		1.00	112	EMPC
Total TCDD		1.00	15.1	EMPC
Total PeCDF		2.00	62.4	EMPC
Total PeCDD		1.00	13.1	EMPC
Total HxCDF		2.00	64.1	EMPC
Total HxCDD		2.00	20.1	
Total HpCDF		2.00	59.5	
Total HpCDD		2.00	39.4	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 8.94

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 8.94

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: 21-2-1

Lab Sample ID: ANV1D
LIMS ID: 15-18009
Matrix: Soil
Data Release Authorized: MW
Reported: 11/02/15

QC Report No: ANV1-Fremont Analytical
Project: 1510028
NA
Date Sampled: 10/01/15
Date Received: 10/06/15

Date Extracted: 10/15/15
Date Analyzed: 10/28/15 17:56
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	80.2	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	78.0	25-164	
13C-1,2,3,7,8-PeCDF	1.57	1.32-1.78	80.3	24-185	
13C-2,3,4,7,8-PeCDF	1.59	1.32-1.78	84.9	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	79.7	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	80.0	26-152	
13C-1,2,3,6,7,8-HxCDF	0.51	0.43-0.59	78.0	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	84.2	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	78.6	29-147	
13C-1,2,3,4,7,8-HxCDD	1.28	1.05-1.43	84.2	32-141	
13C-1,2,3,6,7,8-HxCDD	1.28	1.05-1.43	77.8	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	74.4	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	74.9	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.07	0.88-1.20	78.2	23-140	
13C-OCDD	0.90	0.76-1.02	69.1	17-157	
37Cl4-2,3,7,8-TCDD			101	35-197	

Reported in Percent Recovery

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **MB-12035** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/5/2015** RunNo: **25310**
Client ID: **MBLKS** Batch ID: **12035** Analysis Date: **10/5/2015** SeqNo: **477364**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.200									
Arsenic	ND	0.100									
Beryllium	ND	0.200									
Cadmium	ND	0.200									
Chromium	ND	0.100									
Copper	ND	0.200									
Lead	ND	0.200									
Nickel	ND	0.100									
Selenium	ND	0.500									
Silver	ND	0.100									
Thallium	ND	0.200									
Zinc	ND	0.400									

Sample ID **LCS-12035** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/5/2015** RunNo: **25310**
Client ID: **LCSS** Batch ID: **12035** Analysis Date: **10/5/2015** SeqNo: **477365**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	2.16	0.200	2.500	0	86.5	80	120				
Arsenic	49.1	0.100	50.00	0	98.2	80	120				
Beryllium	2.42	0.200	2.500	0	96.8	80	120				
Cadmium	2.57	0.200	2.500	0	103	80	120				
Chromium	53.5	0.100	50.00	0	107	80	120				
Copper	51.9	0.200	50.00	0	104	80	120				
Lead	23.0	0.200	25.00	0	92.2	80	120				
Nickel	52.8	0.100	50.00	0	106	80	120				
Selenium	4.77	0.500	5.000	0	95.3	80	120				
Silver	2.38	0.100	2.500	0	95.2	80	120				
Thallium	1.17	0.200	1.250	0	93.5	80	120				
Zinc	50.0	0.400	50.00	0	100	80	120				

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1510028-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/5/2015** RunNo: **25310**
Client ID: **131-1-1** Batch ID: **12035** Analysis Date: **10/5/2015** SeqNo: **477318**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.171						0		20	
Arsenic	5.07	0.0856						5.176	1.98	20	
Beryllium	0.469	0.171						0.4562	2.78	20	
Cadmium	ND	0.171						0		20	
Chromium	38.1	0.0856						46.23	19.4	20	
Copper	33.9	0.171						36.70	8.02	20	
Lead	6.15	0.171						6.213	1.08	20	
Nickel	40.5	0.0856						46.70	14.1	20	
Selenium	1.89	0.428						1.789	5.69	20	
Silver	ND	0.0856						0		20	
Thallium	ND	0.171						0		20	
Zinc	64.4	0.342						62.45	3.06	20	

Sample ID **1510028-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/5/2015** RunNo: **25310**
Client ID: **131-1-1** Batch ID: **12035** Analysis Date: **10/5/2015** SeqNo: **477322**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.651	0.167	2.087	0.08624	27.1	75	125				S
Arsenic	46.0	0.0835	41.75	5.176	97.9	75	125				
Beryllium	3.52	0.167	2.087	0.4562	147	75	125				S
Cadmium	2.11	0.167	2.087	0.08304	97.1	75	125				
Chromium	91.8	0.0835	41.75	46.23	109	75	125				
Copper	85.2	0.167	41.75	36.70	116	75	125				
Lead	24.9	0.167	20.87	6.213	89.3	75	125				
Nickel	87.8	0.0835	41.75	46.70	98.5	75	125				
Selenium	5.81	0.417	4.175	1.789	96.4	75	125				
Silver	1.81	0.0835	2.087	0.04769	84.6	75	125				
Thallium	0.998	0.167	1.044	0.02466	93.3	75	125				
Zinc	102	0.334	41.75	62.45	95.7	75	125				

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1510028-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/5/2015** RunNo: **25310**
Client ID: **131-1-1** Batch ID: **12035** Analysis Date: **10/5/2015** SeqNo: **477323**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.626	0.173	2.157	0.08624	25.0	75	125	0.6511	3.91	20	S
Arsenic	48.7	0.0863	43.14	5.176	101	75	125	46.04	5.67	20	
Beryllium	3.58	0.173	2.157	0.4562	145	75	125	3.522	1.68	20	S
Cadmium	2.22	0.173	2.157	0.08304	99.3	75	125	2.111	5.28	20	
Chromium	95.4	0.0863	43.14	46.23	114	75	125	91.77	3.93	20	
Copper	84.1	0.173	43.14	36.70	110	75	125	85.19	1.31	20	
Lead	26.3	0.173	21.57	6.213	93.3	75	125	24.86	5.77	20	
Nickel	96.5	0.0863	43.14	46.70	115	75	125	87.83	9.41	20	
Selenium	6.25	0.431	4.314	1.789	103	75	125	5.812	7.29	20	
Silver	1.83	0.0863	2.157	0.04769	82.5	75	125	1.814	0.681	20	
Thallium	1.04	0.173	1.079	0.02466	93.8	75	125	0.9980	3.76	20	
Zinc	103	0.345	43.14	62.45	94.7	75	125	102.4	0.898	20	

Sample ID **1510028-001APDS** SampType: **PDS** Units: **mg/Kg-dry** Prep Date: **10/5/2015** RunNo: **25310**
Client ID: **131-1-1** Batch ID: **12035** Analysis Date: **10/5/2015** SeqNo: **477324**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	4.31	0.168	2.50	0.205	82.2	80	120				
Beryllium	8.56	0.168	2.50	1.08	149	80	120				S

NOTES:
S - Outlying spike recovery observed for Be.

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID	MB-12034	SampType:	MBLK	Units:	mg/Kg	Prep Date:	10/5/2015	RunNo:	25305
Client ID:	MBLKS	Batch ID:	12034			Analysis Date:	10/5/2015	SeqNo:	477242

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.250									

Sample ID	LCS-12034	SampType:	LCS	Units:	mg/Kg	Prep Date:	10/5/2015	RunNo:	25305
Client ID:	LCSS	Batch ID:	12034			Analysis Date:	10/5/2015	SeqNo:	477243

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.489	0.250	0.5000	0	97.7	80	120				

Sample ID	1510018-001ADUP	SampType:	DUP	Units:	mg/Kg-dry	Prep Date:	10/5/2015	RunNo:	25305
Client ID:	BATCH	Batch ID:	12034			Analysis Date:	10/5/2015	SeqNo:	477245

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	1.03						0		20	

Sample ID	1510018-001AMS	SampType:	MS	Units:	mg/Kg-dry	Prep Date:	10/5/2015	RunNo:	25305
Client ID:	BATCH	Batch ID:	12034			Analysis Date:	10/5/2015	SeqNo:	477246

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.90	1.03	2.067	0	92.0	70	130				

Sample ID	1510018-001AMSD	SampType:	MSD	Units:	mg/Kg-dry	Prep Date:	10/5/2015	RunNo:	25305
Client ID:	BATCH	Batch ID:	12034			Analysis Date:	10/5/2015	SeqNo:	477247

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.91	1.02	2.031	0	94.1	70	130	1.902	0.506	20	

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-12022** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/2/2015** RunNo: **25289**
Client ID: **MBLKS** Batch ID: **12022** Analysis Date: **10/2/2015** SeqNo: **476954**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	17.8		20.00		89.2	50	150				
Surr: o-Terphenyl	16.9		20.00		84.4	50	150				

Sample ID **LCS-12022** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/2/2015** RunNo: **25289**
Client ID: **LCSS** Batch ID: **12022** Analysis Date: **10/2/2015** SeqNo: **476953**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	461	20.0	500.0	0	92.2	65	135				
Surr: 2-Fluorobiphenyl	17.5		20.00		87.7	50	150				
Surr: o-Terphenyl	16.5		20.00		82.7	50	150				

Sample ID **1510017-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/2/2015** RunNo: **25289**
Client ID: **BATCH** Batch ID: **12022** Analysis Date: **10/2/2015** SeqNo: **476930**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	1,380	20.2						1,257	9.55	30	
Heavy Oil	ND	50.4						0		30	
Surr: 2-Fluorobiphenyl	17.6		20.17		87.3	50	150		0		
Surr: o-Terphenyl	17.1		20.17		85.0	50	150		0		

Sample ID **1510023-004ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/2/2015** RunNo: **25289**
Client ID: **BATCH** Batch ID: **12022** Analysis Date: **10/2/2015** SeqNo: **476941**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	24.3						0		30	
Heavy Oil	ND	60.7						0		30	
Surr: 2-Fluorobiphenyl	24.7		24.28		102	50	150		0		
Surr: o-Terphenyl	23.6		24.28		97.1	50	150		0		

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1510023-004ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/2/2015** RunNo: **25289**
Client ID: **BATCH** Batch ID: **12022** Analysis Date: **10/2/2015** SeqNo: **476941**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **MB-12049** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/6/2015** RunNo: **25349**
Client ID: **MBLKS** Batch ID: **12049** Analysis Date: **10/7/2015** SeqNo: **478107**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	22.2		20.00		111	50	150				
Surr: o-Terphenyl	21.3		20.00		107	50	150				

Sample ID **LCS-12049** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/6/2015** RunNo: **25349**
Client ID: **LCSS** Batch ID: **12049** Analysis Date: **10/7/2015** SeqNo: **478106**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	511	20.0	500.0	0	102	65	135				
Surr: 2-Fluorobiphenyl	23.3		20.00		116	50	150				
Surr: o-Terphenyl	21.8		20.00		109	50	150				

Sample ID **1510028-004ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/6/2015** RunNo: **25349**
Client ID: **131-2-2** Batch ID: **12049** Analysis Date: **10/7/2015** SeqNo: **478985**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	21.5						0		30	
Heavy Oil	46,200	53.9						49,730	7.45	30	E
Surr: 2-Fluorobiphenyl	26.0		21.54		121	50	150		0		
Surr: o-Terphenyl	27.7		21.54		128	50	150		0		

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1510034-005ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/6/2015** RunNo: **25349**
Client ID: **BATCH** Batch ID: **12049** Analysis Date: **10/8/2015** SeqNo: **478652**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	22.0						0		30	
Heavy Oil	ND	54.9						0		30	
Surr: 2-Fluorobiphenyl	27.0		21.95		123	50	150		0		
Surr: o-Terphenyl	25.7		21.95		117	50	150		0		

Sample ID **MB-12097** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/12/2015** RunNo: **25476**
Client ID: **MBLKS** Batch ID: **12097** Analysis Date: **10/13/2015** SeqNo: **480777**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	23.0		20.00		115	50	150				
Surr: o-Terphenyl	21.9		20.00		110	50	150				

Sample ID **LCS-12097** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/12/2015** RunNo: **25476**
Client ID: **LCSS** Batch ID: **12097** Analysis Date: **10/13/2015** SeqNo: **480776**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	537	20.0	500.0	0	107	65	135				
Surr: 2-Fluorobiphenyl	23.9		20.00		119	50	150				
Surr: o-Terphenyl	19.9		20.00		99.5	50	150				

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Hydrocarbon Identification by NWTPH-HCID

Sample ID **MB-12022** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/2/2015** RunNo: **25290**
Client ID: **MBLKS** Batch ID: **12022** Analysis Date: **10/2/2015** SeqNo: **476964**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	20.0									
Mineral Spirits	ND	30.0									
Kerosene	ND	50.0									
Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	100									
Mineral Oil	ND	100									
Surr: 2-Fluorobiphenyl	17.8		20.00		89.2	50	150				
Surr: o-Terphenyl	16.9		20.00		84.4	50	150				

Sample ID **LCS-12022** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/2/2015** RunNo: **25290**
Client ID: **LCSS** Batch ID: **12022** Analysis Date: **10/2/2015** SeqNo: **476963**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	461	50.0	500.0	0	92.2	65	135				
Surr: 2-Fluorobiphenyl	17.5		20.00		87.7	50	150				
Surr: o-Terphenyl	16.5		20.00		82.7	50	150				

Sample ID **MB-12049** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/6/2015** RunNo: **25364**
Client ID: **MBLKS** Batch ID: **12049** Analysis Date: **10/7/2015** SeqNo: **478571**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	20.0									
Mineral Spirits	ND	30.0									
Diesel 1/ Kerosene	ND	50.0									
Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	100									
Mineral Oil	ND	100									
Surr: 2-Fluorobiphenyl	22.2		20.00		111	50	150				
Surr: o-Terphenyl	21.3		20.00		107	50	150				

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Hydrocarbon Identification by NWTPH-HCID

Sample ID **LCS-12049** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/6/2015** RunNo: **25364**
Client ID: **LCSS** Batch ID: **12049** Analysis Date: **10/7/2015** SeqNo: **478570**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	511	50.0	500.0	0	102	65	135				
Surr: 2-Fluorobiphenyl	23.3		20.00		116	50	150				
Surr: o-Terphenyl	21.8		20.00		109	50	150				

Sample ID **MB-12097** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/12/2015** RunNo: **25447**
Client ID: **MBLKS** Batch ID: **12097** Analysis Date: **10/13/2015** SeqNo: **480315**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	20.0									
Mineral Spirits	ND	30.0									
Diesel 1/ Kerosene	ND	50.0									
Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	100									
Mineral Oil	ND	100									
Surr: 2-Fluorobiphenyl	23.6		20.00		118	50	150				
Surr: o-Terphenyl	23.7		20.00		119	50	150				

Sample ID **LCS-12097** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/12/2015** RunNo: **25447**
Client ID: **LCSS** Batch ID: **12097** Analysis Date: **10/13/2015** SeqNo: **480314**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	571	50.0	500.0	0	114	65	135				
Surr: 2-Fluorobiphenyl	24.2		20.00		121	50	150				
Surr: o-Terphenyl	20.3		20.00		101	50	150				

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID	**MB-12044**	SampType:	**MBLK**	Units:	**µg/Kg**	Prep Date:	**10/5/2015**	RunNo:	**25411**
Client ID:	**MBLKS**	Batch ID:	**12044**			Analysis Date:	**10/8/2015**	SeqNo:	**479482**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	ND	200									
Bis(2-chloroethyl) ether	ND	200									
2-Chlorophenol	ND	100									
1,3-Dichlorobenzene	ND	100									
1,4-Dichlorobenzene	ND	100									
1,2-Dichlorobenzene	ND	100									
Benzyl alcohol	ND	100									
2-Methylphenol (o-cresol)	ND	100									
Hexachloroethane	ND	100									
N-Nitrosodi-n-propylamine	ND	100									
Nitrobenzene	ND	200									
Isophorone	ND	100									
4-Methylphenol (p-cresol)	ND	100									
2-Nitrophenol	ND	200									
2,4-Dimethylphenol	ND	100									
Bis(2-chloroethoxy)methane	ND	100									
2,4-Dichlorophenol	ND	200									
1,2,4-Trichlorobenzene	ND	100									
Naphthalene	ND	80.0									
4-Chloroaniline	ND	500									
Hexachlorobutadiene	ND	100									
4-Chloro-3-methylphenol	ND	500									
2-Methylnaphthalene	ND	80.0									
1-Methylnaphthalene	ND	80.0									
Hexachlorocyclopentadiene	ND	100									
2,4,6-Trichlorophenol	ND	200									
2,4,5-Trichlorophenol	ND	200									
2-Chloronaphthalene	ND	100									
2-Nitroaniline	ND	500									
Acenaphthene	ND	80.0									
Dimethylphthalate	ND	100									

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID	**MB-12044**	SampType:	**MBLK**	Units:	**µg/Kg**	Prep Date:	**10/5/2015**	RunNo:	**25411**
Client ID:	**MBLKS**	Batch ID:	**12044**			Analysis Date:	**10/8/2015**	SeqNo:	**479482**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,6-Dinitrotoluene	ND	100									
Acenaphthylene	ND	80.0									
2,4-Dinitrophenol	ND	200									
Dibenzofuran	ND	100									
2,4-Dinitrotoluene	ND	100									
4-Nitrophenol	ND	500									
Fluorene	ND	80.0									
4-Chlorophenyl phenyl ether	ND	100									
Diethylphthalate	ND	100									
4,6-Dinitro-2-methylphenol	ND	200									
4-Bromophenyl phenyl ether	ND	100									
Hexachlorobenzene	ND	100									
Pentachlorophenol	ND	100									
Phenanthrene	ND	80.0									
Anthracene	ND	80.0									
Carbazole	ND	500									
Di-n-butylphthalate	ND	100									
Fluoranthene	ND	80.0									
Pyrene	ND	80.0									
Butyl Benzylphthalate	ND	100									
bis(2-Ethylhexyl)adipate	ND	100									
Benz (a) anthracene	ND	80.0									
Chrysene	ND	80.0									
bis (2-Ethylhexyl) phthalate	ND	100									
Di-n-octyl phthalate	ND	100									
Benzo (b) fluoranthene	ND	80.0									
Benzo (k) fluoranthene	ND	80.0									
Benzo (a) pyrene	ND	80.0									
Indeno (1,2,3-cd) pyrene	ND	80.0									
Dibenz (a,h) anthracene	ND	80.0									
Benzo (g,h,I) perylene	ND	80.0									

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID **MB-12044** SampType: **MBLK** Units: **µg/Kg** Prep Date: **10/5/2015** RunNo: **25411**
Client ID: **MBLKS** Batch ID: **12044** Analysis Date: **10/8/2015** SeqNo: **479482**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	524		1,000		52.4	11.1	127				
Surr: 2-Fluorobiphenyl	509		500.0		102	16.1	150				
Surr: Nitrobenzene-d5	567		500.0		113	10	133				
Surr: Phenol-d6	1,140		1,000		114	11.6	133				
Surr: p-Terphenyl	472		500.0		94.4	21.8	150				

Sample ID **LCS-12044** SampType: **LCS** Units: **µg/Kg** Prep Date: **10/5/2015** RunNo: **25411**
Client ID: **LCSS** Batch ID: **12044** Analysis Date: **10/8/2015** SeqNo: **479483**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	1,240	200	1,000	0	124	41.8	138				
Bis(2-chloroethyl) ether	1,150	200	1,000	0	115	65	116				
2-Chlorophenol	1,230	100	1,000	0	123	49.3	132				
1,3-Dichlorobenzene	1,120	100	1,000	0	112	50.9	133				
1,4-Dichlorobenzene	1,070	100	1,000	0	107	51.3	133				
1,2-Dichlorobenzene	1,100	100	1,000	0	110	54.2	129				
Benzyl alcohol	1,410	100	1,000	0	141	42.4	131				S
2-Methylphenol (o-cresol)	1,100	100	1,000	0	110	47.2	134				
Hexachloroethane	1,150	100	1,000	0	115	25.4	144				
N-Nitrosodi-n-propylamine	1,120	100	1,000	0	112	39.8	135				
Nitrobenzene	1,140	200	1,000	0	114	62.3	126				
Isophorone	1,120	100	1,000	0	112	62.7	131				
4-Methylphenol (p-cresol)	1,200	100	1,000	0	120	57.4	131				
2-Nitrophenol	1,010	200	1,000	0	101	44.2	129				
2,4-Dimethylphenol	1,140	100	1,000	0	114	57.8	121				
Bis(2-chloroethoxy)methane	1,150	100	1,000	0	115	67.5	124				
2,4-Dichlorophenol	1,190	200	1,000	0	119	57.1	128				
1,2,4-Trichlorobenzene	1,090	100	1,000	0	109	36.2	140				
Naphthalene	1,060	80.0	1,000	0	106	56.8	130				
4-Chloroaniline	1,110	500	1,000	0	111	10.4	130				
Hexachlorobutadiene	1,030	100	1,000	0	103	55.9	131				

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID **LCS-12044** SampType: **LCS** Units: **µg/Kg** Prep Date: **10/5/2015** RunNo: **25411**
Client ID: **LCSS** Batch ID: **12044** Analysis Date: **10/8/2015** SeqNo: **479483**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Chloro-3-methylphenol	1,190	500	1,000	0	119	49.4	138				
2-Methylnaphthalene	1,090	80.0	1,000	0	109	68.3	121				
1-Methylnaphthalene	1,080	80.0	1,000	0	108	64.1	126				
Hexachlorocyclopentadiene	1,130	100	1,000	0	113	21	130				
2,4,6-Trichlorophenol	979	200	1,000	0	97.9	36.4	132				
2,4,5-Trichlorophenol	1,000	200	1,000	0	100	52.3	128				
2-Chloronaphthalene	1,090	100	1,000	0	109	67.1	123				
2-Nitroaniline	1,090	500	1,000	0	109	43.9	135				
Acenaphthene	1,100	80.0	1,000	0	110	49.2	127				
Dimethylphthalate	1,110	100	1,000	0	111	62.4	130				
2,6-Dinitrotoluene	1,070	100	1,000	0	107	54.6	127				
Acenaphthylene	1,110	80.0	1,000	0	111	64.8	127				
2,4-Dinitrophenol	275	200	1,000	0	27.5	7.9	119				
Dibenzofuran	1,080	100	1,000	0	108	67.5	123				
2,4-Dinitrotoluene	1,070	100	1,000	0	107	21.9	136				
4-Nitrophenol	1,130	500	1,000	0	113	25.4	138				
Fluorene	1,150	80.0	1,000	0	115	64.8	126				
4-Chlorophenyl phenyl ether	1,110	100	1,000	0	111	66.6	124				
Diethylphthalate	1,140	100	1,000	0	114	42.9	132				
4,6-Dinitro-2-methylphenol	868	200	1,000	0	86.8	12.9	110				
4-Bromophenyl phenyl ether	1,070	100	1,000	0	107	61.8	128				
Hexachlorobenzene	1,140	100	1,000	0	114	66.8	124				
Pentachlorophenol	832	100	1,000	0	83.2	10	123				
Phenanthrene	1,060	80.0	1,000	0	106	61.2	130				
Anthracene	1,100	80.0	1,000	0	110	68.9	122				
Carbazole	1,140	500	1,000	0	114	64.5	135				
Di-n-butylphthalate	1,080	100	1,000	0	108	50.6	130				
Fluoranthene	1,100	80.0	1,000	0	110	66	129				
Pyrene	1,090	80.0	1,000	0	109	45.4	140				
Butyl Benzylphthalate	1,060	100	1,000	0	106	31.1	157				
bis(2-Ethylhexyl)adipate	1,100	100	1,000	0	110	28.7	160				

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID **LCS-12044** SampType: **LCS** Units: **µg/Kg** Prep Date: **10/5/2015** RunNo: **25411**
Client ID: **LCSS** Batch ID: **12044** Analysis Date: **10/8/2015** SeqNo: **479483**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz (a) anthracene	1,050	80.0	1,000	0	105	44	150				
Chrysene	1,060	80.0	1,000	0	106	65.8	128				
bis (2-Ethylhexyl) phthalate	1,050	100	1,000	0	105	36.3	149				
Di-n-octyl phthalate	1,010	100	1,000	0	101	31.5	152				
Benzo (b) fluoranthene	1,150	80.0	1,000	0	115	45.6	146				
Benzo (k) fluoranthene	1,110	80.0	1,000	0	111	45.5	138				
Benzo (a) pyrene	1,210	80.0	1,000	0	121	49.2	137				
Indeno (1,2,3-cd) pyrene	1,020	80.0	1,000	0	102	44.2	146				
Dibenz (a,h) anthracene	951	80.0	1,000	0	95.1	37.5	152				
Benzo (g,h,I) perylene	1,120	80.0	1,000	0	112	24.1	156				
Surr: 2,4,6-Tribromophenol	970		1,000		97.0	11.1	127				
Surr: 2-Fluorobiphenyl	546		500.0		109	16.1	150				
Surr: Nitrobenzene-d5	619		500.0		124	10	133				
Surr: Phenol-d6	1,220		1,000		122	11.6	133				
Surr: p-Terphenyl	491		500.0		98.2	21.8	150				

NOTES:
S - Outlying spike recovery observed (Benzyl Alcohol; high bias). Samples are non-detect for this analyte, no further action required.

Sample ID **1510028-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/5/2015** RunNo: **25411**
Client ID: **131-1-1** Batch ID: **12044** Analysis Date: **10/8/2015** SeqNo: **479485**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	ND	190						0		50	
Bis(2-chloroethyl) ether	ND	190						0		50	
2-Chlorophenol	ND	95.0						0		50	
1,3-Dichlorobenzene	ND	95.0						0		50	
1,4-Dichlorobenzene	ND	95.0						0		50	
1,2-Dichlorobenzene	ND	95.0						0		50	
Benzyl alcohol	ND	95.0						0		50	
2-Methylphenol (o-cresol)	ND	95.0						0		50	
Hexachloroethane	ND	95.0						0		50	
N-Nitrosodi-n-propylamine	ND	95.0						0		50	

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID **1510028-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/5/2015** RunNo: **25411**
Client ID: **131-1-1** Batch ID: **12044** Analysis Date: **10/8/2015** SeqNo: **479485**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrobenzene	ND	190						0		50	
Isophorone	ND	95.0						0		50	
4-Methylphenol (p-cresol)	ND	95.0						0		50	
2-Nitrophenol	ND	190						0		50	
2,4-Dimethylphenol	ND	95.0						0		50	
Bis(2-chloroethoxy)methane	ND	95.0						0		50	
2,4-Dichlorophenol	ND	190						0		50	
1,2,4-Trichlorobenzene	ND	95.0						0		50	
Naphthalene	ND	76.0						0		50	
4-Chloroaniline	ND	475						0		50	
Hexachlorobutadiene	ND	95.0						0		50	
4-Chloro-3-methylphenol	ND	475						0		50	
2-Methylnaphthalene	ND	76.0						0		50	
1-Methylnaphthalene	ND	76.0						0		50	
Hexachlorocyclopentadiene	ND	95.0						0		50	
2,4,6-Trichlorophenol	ND	190						0		50	
2,4,5-Trichlorophenol	ND	190						0		50	
2-Chloronaphthalene	ND	95.0						0		50	
2-Nitroaniline	ND	475						0		50	
Acenaphthene	ND	76.0						0		50	
Dimethylphthalate	ND	95.0						0		50	
2,6-Dinitrotoluene	ND	95.0						0		50	
Acenaphthylene	ND	76.0						0		50	
2,4-Dinitrophenol	ND	190						0		50	
Dibenzofuran	ND	95.0						0		50	
2,4-Dinitrotoluene	ND	95.0						0		50	
4-Nitrophenol	ND	475						0		50	
Fluorene	ND	76.0						0		50	
4-Chlorophenyl phenyl ether	ND	95.0						0		50	
Diethylphthalate	ND	95.0						0		50	
4,6-Dinitro-2-methylphenol	ND	190						0		50	

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID **1510028-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/5/2015** RunNo: **25411**
Client ID: **131-1-1** Batch ID: **12044** Analysis Date: **10/8/2015** SeqNo: **479485**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Bromophenyl phenyl ether	ND	95.0						0		50	
Hexachlorobenzene	ND	95.0						0		50	
Pentachlorophenol	ND	95.0						0		50	
Phenanthrene	ND	76.0						0		50	
Anthracene	ND	76.0						0		50	
Carbazole	ND	475						0		50	
Di-n-butylphthalate	ND	95.0						0		50	
Fluoranthene	ND	76.0						0		50	
Pyrene	ND	76.0						0		50	
Butyl Benzylphthalate	ND	95.0						0		50	
bis(2-Ethylhexyl)adipate	ND	95.0						0		50	
Benz (a) anthracene	ND	76.0						0		50	
Chrysene	ND	76.0						0		50	
bis (2-Ethylhexyl) phthalate	ND	95.0						0		50	
Di-n-octyl phthalate	ND	95.0						0		50	
Benzo (b) fluoranthene	ND	76.0						0		50	
Benzo (k) fluoranthene	ND	76.0						0		50	
Benzo (a) pyrene	ND	76.0						0		50	
Indeno (1,2,3-cd) pyrene	ND	76.0						0		50	
Dibenz (a,h) anthracene	ND	76.0						0		50	
Benzo (g,h,I) perylene	ND	76.0						0		50	
Surr: 2,4,6-Tribromophenol	436		949.9		45.9	11.1	127		0		
Surr: 2-Fluorobiphenyl	380		475.0		79.9	16.1	150		0		
Surr: Nitrobenzene-d5	377		475.0		79.4	10	133		0		
Surr: Phenol-d6	841		949.9		88.6	11.6	133		0		
Surr: p-Terphenyl	426		475.0		89.8	21.8	150		0		

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID **1510028-002AMS**	SampType: **MS**	Units: **µg/Kg-dry**	Prep Date: **10/5/2015**	RunNo: **25411**
Client ID: **131-2-1**	Batch ID: **12044**		Analysis Date: **10/8/2015**	SeqNo: **479487**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	1,030	240	1,202	0	85.5	29.2	146				
Bis(2-chloroethyl) ether	1,360	240	1,202	0	113	34.4	135				
2-Chlorophenol	973	120	1,202	0	80.9	44	134				
1,3-Dichlorobenzene	728	120	1,202	0	60.6	21.1	133				
1,4-Dichlorobenzene	743	120	1,202	0	61.8	20.9	131				
1,2-Dichlorobenzene	809	120	1,202	0	67.4	35	131				
Benzyl alcohol	470	120	1,202	0	39.1	30.8	159				
2-Methylphenol (o-cresol)	858	120	1,202	0	71.4	57.7	125				
Hexachloroethane	822	120	1,202	0	68.4	15.4	139				
N-Nitrosodi-n-propylamine	934	120	1,202	0	77.7	26.4	151				
Nitrobenzene	956	240	1,202	0	79.6	61.4	130				
Isophorone	942	120	1,202	0	78.4	61.8	132				
4-Methylphenol (p-cresol)	841	120	1,202	0	70.0	65.5	127				
2-Nitrophenol	867	240	1,202	0	72.1	46.3	118				
2,4-Dimethylphenol	941	120	1,202	0	78.3	46	158				
Bis(2-chloroethoxy)methane	944	120	1,202	0	78.6	66.8	124				
2,4-Dichlorophenol	862	240	1,202	0	71.7	56.2	128				
1,2,4-Trichlorobenzene	830	120	1,202	0	69.0	29.2	140				
Naphthalene	846	96.1	1,202	17.26	69.0	44.4	136				
4-Chloroaniline	858	601	1,202	0	71.4	27	126				
Hexachlorobutadiene	785	120	1,202	0	65.3	38.2	138				
4-Chloro-3-methylphenol	787	601	1,202	0	65.5	36.8	159				
2-Methylnaphthalene	879	96.1	1,202	12.96	72.1	51.7	138				
1-Methylnaphthalene	872	96.1	1,202	6.950	72.0	51.8	131				
Hexachlorocyclopentadiene	740	120	1,202	0	61.6	10	133				
2,4,6-Trichlorophenol	751	240	1,202	0	62.5	62.7	122				S
2,4,5-Trichlorophenol	596	240	1,202	0	49.6	54.7	127				S
2-Chloronaphthalene	855	120	1,202	0	71.2	69.8	126				
2-Nitroaniline	899	601	1,202	0	74.8	39.3	145				
Acenaphthene	869	96.1	1,202	0	72.3	49.6	129				
Dimethylphthalate	864	120	1,202	0	71.9	61.5	131				

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID **1510028-002AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/5/2015** RunNo: **25411**
Client ID: **131-2-1** Batch ID: **12044** Analysis Date: **10/8/2015** SeqNo: **479487**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,6-Dinitrotoluene	883	120	1,202	0	73.5	56.8	137				
Acenaphthylene	875	96.1	1,202	0	72.8	64	128				
2,4-Dinitrophenol	ND	240	1,202	0	0	10	149				S
Dibenzofuran	841	120	1,202	0	70.0	64.7	131				
2,4-Dinitrotoluene	870	120	1,202	0	72.4	30.9	139				
4-Nitrophenol	857	601	1,202	0	71.3	15.6	160				
Fluorene	934	96.1	1,202	0	77.7	64.2	127				
4-Chlorophenyl phenyl ether	907	120	1,202	0	75.5	70.9	128				
Diethylphthalate	1,000	120	1,202	0	83.5	61.7	129				
4,6-Dinitro-2-methylphenol	614	240	1,202	0	51.1	21.9	143				
4-Bromophenyl phenyl ether	909	120	1,202	0	75.6	69.6	136				
Hexachlorobenzene	900	120	1,202	0	74.9	66.5	123				
Pentachlorophenol	ND	120	1,202	0	0	28.2	156				S
Phenanthrene	864	96.1	1,202	22.80	70.0	57	134				
Anthracene	895	96.1	1,202	24.77	72.4	68.2	123				
Carbazole	985	601	1,202	0	82.0	64.1	152				
Di-n-butylphthalate	1,100	120	1,202	0	91.2	52.4	130				
Fluoranthene	983	96.1	1,202	8.585	81.1	46.5	165				
Pyrene	969	96.1	1,202	12.72	79.6	31.4	151				
Butyl Benzylphthalate	1,280	120	1,202	0	107	30.4	138				
bis(2-Ethylhexyl)adipate	1,360	120	1,202	0	113	32	136				
Benz (a) anthracene	997	96.1	1,202	20.37	81.3	43.9	151				
Chrysene	863	96.1	1,202	16.53	70.4	71.1	126				S
bis (2-Ethylhexyl) phthalate	1,250	120	1,202	0	104	40.8	170				
Di-n-octyl phthalate	1,640	120	1,202	7.760	136	34.6	142				
Benzo (b) fluoranthene	1,470	96.1	1,202	0	122	52.1	136				
Benzo (k) fluoranthene	985	96.1	1,202	0	82.0	45	140				
Benzo (a) pyrene	1,030	96.1	1,202	8.524	84.7	50.5	137				
Indeno (1,2,3-cd) pyrene	991	96.1	1,202	0	82.5	38.1	155				
Dibenz (a,h) anthracene	1,010	96.1	1,202	0	83.8	40.7	152				
Benzo (g,h,I) perylene	1,040	96.1	1,202	0	86.5	34	157				

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID	**1510028-002AMS**	SampType:	**MS**		Units:	**µg/Kg-dry**	Prep Date:	**10/5/2015**		RunNo:	**25411**
Client ID:	**131-2-1**	Batch ID:	**12044**				Analysis Date:	**10/8/2015**		SeqNo:	**479487**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	748		1,202		62.2	11.1	127				
Surr: 2-Fluorobiphenyl	398		600.8		66.2	16.1	150				
Surr: Nitrobenzene-d5	439		600.8		73.1	10	133				
Surr: Phenol-d6	835		1,202		69.5	11.6	133				
Surr: p-Terphenyl	460		600.8		76.6	21.8	150				

NOTES:

S - Outlying QC recoveries were associated with this sample. The method is in control as indicated by the LCS.

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **LCS-12040** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/5/2015** RunNo: **25343**
Client ID: **LCSS** Batch ID: **12040** Analysis Date: **10/6/2015** SeqNo: **478040**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	24.3	5.00	25.00	0	97.2	65	135				
Surr: Toluene-d8	1.24		1.250		99.5	65	135				
Surr: 4-Bromofluorobenzene	1.24		1.250		99.5	65	135				

Sample ID **MB-12040** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/5/2015** RunNo: **25343**
Client ID: **MBLKS** Batch ID: **12040** Analysis Date: **10/6/2015** SeqNo: **478041**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: Toluene-d8	1.22		1.250		97.7	65	135				
Surr: 4-Bromofluorobenzene	1.28		1.250		102	65	135				

Sample ID **1510017-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/5/2015** RunNo: **25343**
Client ID: **BATCH** Batch ID: **12040** Analysis Date: **10/6/2015** SeqNo: **478029**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	6.31						0		30	
Surr: Toluene-d8	1.53		1.578		97.0	65	135		0		
Surr: 4-Bromofluorobenzene	1.67		1.578		106	65	135		0		

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **LCS-12040** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/5/2015** RunNo: **25342**
Client ID: **LCSS** Batch ID: **12040** Analysis Date: **10/6/2015** SeqNo: **478025**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.745	0.0600	1.000	0	74.5	34.5	141				
Chloromethane	0.937	0.0600	1.000	0	93.7	38.8	132				
Vinyl chloride	0.933	0.00200	1.000	0	93.3	56.1	130				
Bromomethane	1.06	0.0900	1.000	0	106	41.3	148				
Trichlorofluoromethane (CFC-11)	0.859	0.0500	1.000	0	85.9	42.9	147				
Chloroethane	0.972	0.0600	1.000	0	97.2	37.1	144				
1,1-Dichloroethene	0.995	0.0500	1.000	0	99.5	49.7	142				
Methylene chloride	0.889	0.0200	1.000	0	88.9	46.3	140				
trans-1,2-Dichloroethene	1.04	0.0200	1.000	0	104	68	130				
Methyl tert-butyl ether (MTBE)	1.00	0.0500	1.000	0	100	59.1	138				
1,1-Dichloroethane	1.02	0.0200	1.000	0	102	61.9	137				
2,2-Dichloropropane	0.929	0.0500	1.000	0	92.9	28.1	149				
cis-1,2-Dichloroethene	1.02	0.0200	1.000	0	102	71.3	135				
Chloroform	1.01	0.0200	1.000	0	101	67.5	129				
1,1,1-Trichloroethane (TCA)	1.11	0.0200	1.000	0	111	69	132				
1,1-Dichloropropene	0.972	0.0200	1.000	0	97.2	72.7	131				
Carbon tetrachloride	1.06	0.0200	1.000	0	106	63.4	137				
1,2-Dichloroethane (EDC)	0.974	0.0300	1.000	0	97.4	61.9	136				
Benzene	0.978	0.0200	1.000	0	97.8	64.3	133				
Trichloroethene (TCE)	1.01	0.0200	1.000	0	101	65.5	137				
1,2-Dichloropropane	1.00	0.0200	1.000	0	100	63.2	142				
Bromodichloromethane	0.980	0.0200	1.000	0	98.0	73.2	131				
Dibromomethane	1.02	0.0400	1.000	0	102	70	130				
cis-1,3-Dichloropropene	0.968	0.0200	1.000	0	96.8	59.1	143				
Toluene	1.03	0.0200	1.000	0	103	67.3	138				
trans-1,3-Dichloropropylene	0.957	0.0300	1.000	0	95.7	49.2	149				
1,1,2-Trichloroethane	0.965	0.0300	1.000	0	96.5	74.5	129				
1,3-Dichloropropane	0.942	0.0500	1.000	0	94.2	70	130				
Tetrachloroethene (PCE)	1.00	0.0200	1.000	0	100	52.7	150				
Dibromochloromethane	1.00	0.0300	1.000	0	100	70.6	144				
1,2-Dibromoethane (EDB)	1.08	0.00500	1.000	0	108	70	130				

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID	LCS-12040	SampType:	LCS	Units:	mg/Kg	Prep Date:	10/5/2015	RunNo:	25342
Client ID:	LCSS	Batch ID:	12040			Analysis Date:	10/6/2015	SeqNo:	478025

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	1.03	0.0200	1.000	0	103	76.1	123				
1,1,1,2-Tetrachloroethane	1.02	0.0300	1.000	0	102	74.8	131				
Ethylbenzene	0.991	0.0300	1.000	0	99.1	74	129				
m,p-Xylene	1.95	0.0200	2.000	0	97.5	79.8	128				
o-Xylene	1.00	0.0200	1.000	0	100	72.7	124				
Styrene	1.02	0.0200	1.000	0	102	76.8	130				
Isopropylbenzene	1.01	0.0800	1.000	0	101	70	130				
Bromoform	1.07	0.0200	1.000	0	107	67	154				
1,1,2,2-Tetrachloroethane	1.07	0.0200	1.000	0	107	60	130				
n-Propylbenzene	1.01	0.0200	1.000	0	101	74.8	125				
Bromobenzene	0.994	0.0300	1.000	0	99.4	49.2	144				
1,3,5-Trimethylbenzene	1.00	0.0200	1.000	0	100	74.6	123				
2-Chlorotoluene	1.00	0.0200	1.000	0	100	76.7	129				
4-Chlorotoluene	0.992	0.0200	1.000	0	99.2	77.5	125				
tert-Butylbenzene	0.997	0.0200	1.000	0	99.7	66.2	130				
1,2,3-Trichloropropane	1.03	0.0200	1.000	0	103	67.9	136				
1,2,4-Trichlorobenzene	0.975	0.0500	1.000	0	97.5	65.6	137				
sec-Butylbenzene	1.01	0.0200	1.000	0	101	75.6	133				
4-Isopropyltoluene	1.02	0.0200	1.000	0	102	76.8	131				
1,3-Dichlorobenzene	0.936	0.0200	1.000	0	93.6	72.8	128				
1,4-Dichlorobenzene	1.06	0.0200	1.000	0	106	72.6	126				
n-Butylbenzene	1.02	0.0200	1.000	0	102	65.3	136				
1,2-Dichlorobenzene	0.936	0.0200	1.000	0	93.6	72.8	126				
1,2-Dibromo-3-chloropropane	0.955	0.500	1.000	0	95.5	61.2	139				
1,2,4-Trimethylbenzene	0.997	0.0200	1.000	0	99.7	77.5	129				
Hexachlorobutadiene	0.958	0.100	1.000	0	95.8	42	151				
Naphthalene	0.979	0.0300	1.000	0	97.9	62.3	134				
1,2,3-Trichlorobenzene	0.960	0.0200	1.000	0	96.0	62.1	140				
Surr: Dibromofluoromethane	1.29		1.250		103	56.5	129				
Surr: Toluene-d8	1.24		1.250		99.6	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.28		1.250		102	63.1	141				

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID	**LCS-12040**	SampType:	**LCS**	Units:	**mg/Kg**	Prep Date:	**10/5/2015**	RunNo:	**25342**
Client ID:	**LCSS**	Batch ID:	**12040**			Analysis Date:	**10/6/2015**	SeqNo:	**478025**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID	**MB-12040**	SampType:	**MBLK**	Units:	**mg/Kg**	Prep Date:	**10/5/2015**	RunNo:	**25342**
Client ID:	**MBLKS**	Batch ID:	**12040**			Analysis Date:	**10/6/2015**	SeqNo:	**478026**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0600									
Chloromethane	ND	0.0600									
Vinyl chloride	ND	0.00200									
Bromomethane	ND	0.0900									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.0600									
1,1-Dichloroethene	ND	0.0500									
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									
1,2-Dichloroethane (EDC)	ND	0.0300									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0400									
cis-1,3-Dichloropropene	ND	0.0200									
Toluene	ND	0.0200									
trans-1,3-Dichloropropylene	ND	0.0300									

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID	MB-12040	SampType:	MBLK	Units:	mg/Kg	Prep Date:	10/5/2015	RunNo:	25342
Client ID:	MBLKS	Batch ID:	12040			Analysis Date:	10/6/2015	SeqNo:	478026

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									
Dibromochloromethane	ND	0.0300									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
Isopropylbenzene	ND	0.0800									
Bromoform	ND	0.0200									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0200									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0200									
2-Chlorotoluene	ND	0.0200									
4-Chlorotoluene	ND	0.0200									
tert-Butylbenzene	ND	0.0200									
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									
sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0200									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.500									
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.100									

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **MB-12040** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/5/2015** RunNo: **25342**
Client ID: **MBLKS** Batch ID: **12040** Analysis Date: **10/6/2015** SeqNo: **478026**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	0.0300									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	1.21		1.250		97.0	56.5	129				
Surr: Toluene-d8	1.23		1.250		98.8	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.24		1.250		99.0	63.1	141				

Sample ID **1510017-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/5/2015** RunNo: **25342**
Client ID: **BATCH** Batch ID: **12040** Analysis Date: **10/6/2015** SeqNo: **478000**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0758						0		30	
Chloromethane	ND	0.0758						0		30	
Vinyl chloride	ND	0.00253						0		30	
Bromomethane	ND	0.114						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0631						0		30	
Chloroethane	ND	0.0758						0		30	
1,1-Dichloroethene	ND	0.0631						0		30	
Methylene chloride	ND	0.0253						0		30	
trans-1,2-Dichloroethene	ND	0.0253						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0631						0		30	
1,1-Dichloroethane	ND	0.0253						0		30	
2,2-Dichloropropane	ND	0.0631						0		30	
cis-1,2-Dichloroethene	ND	0.0253						0		30	
Chloroform	ND	0.0253						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0253						0		30	
1,1-Dichloropropene	ND	0.0253						0		30	
Carbon tetrachloride	ND	0.0253						0		30	
1,2-Dichloroethane (EDC)	ND	0.0379						0		30	
Benzene	ND	0.0253						0		30	
Trichloroethene (TCE)	ND	0.0253						0		30	
1,2-Dichloropropane	ND	0.0253						0		30	

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1510017-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/5/2015** RunNo: **25342**
Client ID: **BATCH** Batch ID: **12040** Analysis Date: **10/6/2015** SeqNo: **478000**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	0.0253						0		30	
Dibromomethane	ND	0.0505						0		30	
cis-1,3-Dichloropropene	ND	0.0253						0		30	
Toluene	ND	0.0253						0		30	
trans-1,3-Dichloropropylene	ND	0.0379						0		30	
1,1,2-Trichloroethane	ND	0.0379						0		30	
1,3-Dichloropropane	ND	0.0631						0		30	
Tetrachloroethene (PCE)	ND	0.0253						0		30	
Dibromochloromethane	ND	0.0379						0		30	
1,2-Dibromoethane (EDB)	ND	0.00631						0		30	
Chlorobenzene	ND	0.0253						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0379						0		30	
Ethylbenzene	ND	0.0379						0		30	
m,p-Xylene	ND	0.0253						0		30	
o-Xylene	ND	0.0253						0		30	
Styrene	ND	0.0253						0		30	
Isopropylbenzene	ND	0.101						0		30	
Bromoform	ND	0.0253						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0253						0		30	
n-Propylbenzene	ND	0.0253						0		30	
Bromobenzene	ND	0.0379						0		30	
1,3,5-Trimethylbenzene	ND	0.0253						0		30	
2-Chlorotoluene	ND	0.0253						0		30	
4-Chlorotoluene	ND	0.0253						0		30	
tert-Butylbenzene	ND	0.0253						0		30	
1,2,3-Trichloropropane	ND	0.0253						0		30	
1,2,4-Trichlorobenzene	ND	0.0631						0		30	
sec-Butylbenzene	ND	0.0253						0		30	
4-Isopropyltoluene	ND	0.0253						0		30	
1,3-Dichlorobenzene	ND	0.0253						0		30	
1,4-Dichlorobenzene	ND	0.0253						0		30	

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1510017-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/5/2015** RunNo: **25342**
Client ID: **BATCH** Batch ID: **12040** Analysis Date: **10/6/2015** SeqNo: **478000**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
n-Butylbenzene	ND	0.0253						0		30	
1,2-Dichlorobenzene	ND	0.0253						0		30	
1,2-Dibromo-3-chloropropane	ND	0.631						0		30	
1,2,4-Trimethylbenzene	ND	0.0253						0		30	
Hexachlorobutadiene	ND	0.126						0		30	
Naphthalene	ND	0.0379						0.05912	200	30	R
1,2,3-Trichlorobenzene	ND	0.0253						0		30	
Surr: Dibromofluoromethane	1.51		1.578		95.5	56.5	129		0		
Surr: Toluene-d8	1.58		1.578		100	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	1.62		1.578		103	63.1	141		0		

NOTES:
R - High RPD due to low analyte concentration. In this range, high RPD's may be expected.

Sample ID **1510028-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/5/2015** RunNo: **25342**
Client ID: **131-1-1** Batch ID: **12040** Analysis Date: **10/6/2015** SeqNo: **478008**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.746	0.0621	1.035	0	72.0	43.5	121				
Chloromethane	0.859	0.0621	1.035	0	83.0	45	130				
Vinyl chloride	0.927	0.00207	1.035	0	89.5	51.2	146				
Bromomethane	0.999	0.0932	1.035	0	96.4	21.3	120				
Trichlorofluoromethane (CFC-11)	0.859	0.0518	1.035	0	82.9	35	131				
Chloroethane	0.927	0.0621	1.035	0	89.5	43.8	117				
1,1-Dichloroethene	0.979	0.0518	1.035	0	94.6	61.9	141				
Methylene chloride	0.856	0.0207	1.035	0.001222	82.6	54.7	142				
trans-1,2-Dichloroethene	0.989	0.0207	1.035	0	95.5	52	136				
Methyl tert-butyl ether (MTBE)	0.984	0.0518	1.035	0	95.0	54.4	132				
1,1-Dichloroethane	0.921	0.0207	1.035	0	89.0	51.8	141				
2,2-Dichloropropane	0.658	0.0518	1.035	0	63.6	36	123				
cis-1,2-Dichloroethene	0.965	0.0207	1.035	0	93.2	58.6	136				
Chloroform	0.947	0.0207	1.035	0	91.4	53.2	129				
1,1,1-Trichloroethane (TCA)	1.05	0.0207	1.035	0	101	58.3	145				

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1510028-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/5/2015** RunNo: **25342**
Client ID: **131-1-1** Batch ID: **12040** Analysis Date: **10/6/2015** SeqNo: **478008**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloropropene	0.929	0.0207	1.035	0	89.8	55.1	138				
Carbon tetrachloride	0.972	0.0207	1.035	0	93.9	53.3	144				
1,2-Dichloroethane (EDC)	0.916	0.0311	1.035	0	88.5	51.3	139				
Benzene	0.932	0.0207	1.035	0	90.0	63.5	133				
Trichloroethene (TCE)	0.959	0.0207	1.035	0	92.6	68.6	132				
1,2-Dichloropropane	0.966	0.0207	1.035	0	93.3	59	136				
Bromodichloromethane	0.906	0.0207	1.035	0	87.5	50.7	141				
Dibromomethane	1.00	0.0414	1.035	0	96.9	50.6	137				
cis-1,3-Dichloropropene	0.908	0.0207	1.035	0	87.7	50.4	138				
Toluene	0.994	0.0207	1.035	0	96.0	63.4	132				
trans-1,3-Dichloropropylene	0.907	0.0311	1.035	0	87.6	44.1	147				
1,1,2-Trichloroethane	0.960	0.0311	1.035	0	92.7	51.6	137				
1,3-Dichloropropane	0.943	0.0518	1.035	0	91.1	53.1	134				
Tetrachloroethene (PCE)	0.958	0.0207	1.035	0	92.5	35.6	158				
Dibromochloromethane	0.936	0.0311	1.035	0	90.4	55.3	140				
1,2-Dibromoethane (EDB)	1.06	0.00518	1.035	0	103	50.4	136				
Chlorobenzene	0.968	0.0207	1.035	0	93.5	60	133				
1,1,1,2-Tetrachloroethane	0.936	0.0311	1.035	0	90.4	53.1	142				
Ethylbenzene	0.923	0.0311	1.035	0	89.2	54.5	134				
m,p-Xylene	1.83	0.0207	2.071	0.001963	88.5	53.1	132				
o-Xylene	0.943	0.0207	1.035	0.0005970	91.1	53.3	139				
Styrene	0.956	0.0207	1.035	0	92.4	51.1	132				
Isopropylbenzene	0.948	0.0828	1.035	0	91.6	58.9	138				
Bromoform	0.989	0.0207	1.035	0	95.5	57.9	130				
1,1,2,2-Tetrachloroethane	1.05	0.0207	1.035	0	102	51.9	131				
n-Propylbenzene	0.949	0.0207	1.035	0	91.6	53.6	140				
Bromobenzene	0.951	0.0311	1.035	0	91.9	54.2	140				
1,3,5-Trimethylbenzene	0.943	0.0207	1.035	0	91.1	51.8	136				
2-Chlorotoluene	0.931	0.0207	1.035	0	89.9	51.6	136				
4-Chlorotoluene	0.932	0.0207	1.035	0	90.0	50.1	139				
tert-Butylbenzene	0.955	0.0207	1.035	0	92.2	50.5	135				

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1510028-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/5/2015** RunNo: **25342**
Client ID: **131-1-1** Batch ID: **12040** Analysis Date: **10/6/2015** SeqNo: **478008**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,3-Trichloropropane	1.00	0.0207	1.035	0	97.0	50.5	131				
1,2,4-Trichlorobenzene	0.942	0.0518	1.035	0	91.0	50.8	130				
sec-Butylbenzene	0.956	0.0207	1.035	0	92.3	52.6	141				
4-Isopropyltoluene	0.963	0.0207	1.035	0	93.0	52.9	134				
1,3-Dichlorobenzene	0.910	0.0207	1.035	0	87.9	52.6	131				
1,4-Dichlorobenzene	1.02	0.0207	1.035	0	98.5	52.9	129				
n-Butylbenzene	0.976	0.0207	1.035	0	94.3	52.6	130				
1,2-Dichlorobenzene	0.919	0.0207	1.035	0	88.8	55.8	129				
1,2-Dibromo-3-chloropropane	0.919	0.518	1.035	0	88.8	40.5	131				
1,2,4-Trimethylbenzene	0.942	0.0207	1.035	0.0007371	90.9	50.6	137				
Hexachlorobutadiene	0.901	0.104	1.035	0	87.0	40.6	158				
Naphthalene	0.995	0.0311	1.035	0.001073	96.0	52.3	124				
1,2,3-Trichlorobenzene	0.951	0.0207	1.035	0	91.8	54.4	124				
Surr: Dibromofluoromethane	1.33		1.294		103	56.5	129				
Surr: Toluene-d8	1.30		1.294		100	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.31		1.294		101	63.1	141				

Sample ID **1510034-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/5/2015** RunNo: **25342**
Client ID: **BATCH** Batch ID: **12040** Analysis Date: **10/6/2015** SeqNo: **478018**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0264						0		30	
Chloromethane	ND	0.0264						0		30	
Vinyl chloride	ND	0.000881						0		30	
Bromomethane	ND	0.0397						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0220						0		30	
Chloroethane	ND	0.0264						0		30	
1,1-Dichloroethene	ND	0.0220						0		30	
Methylene chloride	ND	0.00881						0		30	
trans-1,2-Dichloroethene	ND	0.00881						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0220						0		30	

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1510034-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/5/2015** RunNo: **25342**
Client ID: **BATCH** Batch ID: **12040** Analysis Date: **10/6/2015** SeqNo: **478018**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethane	ND	0.00881						0		30	
2,2-Dichloropropane	ND	0.0220						0		30	
cis-1,2-Dichloroethene	ND	0.00881						0		30	
Chloroform	ND	0.00881						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.00881						0		30	
1,1-Dichloropropene	ND	0.00881						0		30	
Carbon tetrachloride	ND	0.00881						0		30	
1,2-Dichloroethane (EDC)	ND	0.0132						0		30	
Benzene	ND	0.00881						0		30	
Trichloroethene (TCE)	ND	0.00881						0		30	
1,2-Dichloropropane	ND	0.00881						0		30	
Bromodichloromethane	ND	0.00881						0		30	
Dibromomethane	ND	0.0176						0		30	
cis-1,3-Dichloropropene	ND	0.00881						0		30	
Toluene	ND	0.00881						0		30	
trans-1,3-Dichloropropylene	ND	0.0132						0		30	
1,1,2-Trichloroethane	ND	0.0132						0		30	
1,3-Dichloropropane	ND	0.0220						0		30	
Tetrachloroethene (PCE)	ND	0.00881						0		30	
Dibromochloromethane	ND	0.0132						0		30	
1,2-Dibromoethane (EDB)	ND	0.00220						0		30	
Chlorobenzene	ND	0.00881						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0132						0		30	
Ethylbenzene	ND	0.0132						0		30	
m,p-Xylene	ND	0.00881						0		30	
o-Xylene	ND	0.00881						0		30	
Styrene	ND	0.00881						0		30	
Isopropylbenzene	ND	0.0352						0		30	
Bromoform	ND	0.00881						0		30	
1,1,2,2-Tetrachloroethane	ND	0.00881						0		30	
n-Propylbenzene	ND	0.00881						0		30	

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1510034-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/5/2015** RunNo: **25342**
Client ID: **BATCH** Batch ID: **12040** Analysis Date: **10/6/2015** SeqNo: **478018**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromobenzene	ND	0.0132						0		30	
1,3,5-Trimethylbenzene	ND	0.00881						0		30	
2-Chlorotoluene	ND	0.00881						0		30	
4-Chlorotoluene	ND	0.00881						0		30	
tert-Butylbenzene	ND	0.00881						0		30	
1,2,3-Trichloropropane	ND	0.00881						0		30	
1,2,4-Trichlorobenzene	ND	0.0220						0		30	
sec-Butylbenzene	ND	0.00881						0		30	
4-Isopropyltoluene	ND	0.00881						0		30	
1,3-Dichlorobenzene	ND	0.00881						0		30	
1,4-Dichlorobenzene	ND	0.00881						0		30	
n-Butylbenzene	ND	0.00881						0		30	
1,2-Dichlorobenzene	ND	0.00881						0		30	
1,2-Dibromo-3-chloropropane	ND	0.220						0		30	
1,2,4-Trimethylbenzene	ND	0.00881						0		30	
Hexachlorobutadiene	ND	0.0441						0		30	
Naphthalene	ND	0.0132						0		30	
1,2,3-Trichlorobenzene	ND	0.00881						0		30	
Surr: Dibromofluoromethane	0.519		0.5507		94.3	56.5	129		0		
Surr: Toluene-d8	0.556		0.5507		101	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	0.558		0.5507		101	63.1	141		0		

Date: *10/19/2015*

Work Order: 1510028
CLIENT: ESA Associates, Inc.
Project: JKT - Dungeness

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1510028-001ADUP** SampType: **DUP** Units: **wt%** Prep Date: **10/5/2015** RunNo: **25291**
Client ID: **131-1-1** Batch ID: **R25291** Analysis Date: **10/5/2015** SeqNo: **476966**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	2.90	0.500						3.419	16.3	20	

Sample ID **1510034-001ADUP** SampType: **DUP** Units: **wt%** Prep Date: **10/5/2015** RunNo: **25291**
Client ID: **BATCH** Batch ID: **R25291** Analysis Date: **10/5/2015** SeqNo: **476978**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	12.8	0.500						12.94	1.35	20	

Sample ID **1510028-005ADUP** SampType: **DUP** Units: **wt%** Prep Date: **10/12/2015** RunNo: **25424**
Client ID: **131-2-3** Batch ID: **R25424** Analysis Date: **10/12/2015** SeqNo: **479758**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	8.05	0.500						9.422	15.7	20	

Sample Log-In Check List

Client Name:	**ESA**	Work Order Number:	**1510028**
Logged by:	**Clare Griggs**	Date Received:	**10/2/2015 12:00:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C *	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	1.9
Sample	2.2

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record

Fremont Analytical

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1510028

Date: 10/2/15

Page: 1 of 2

Client: ESA Associates, Inc.
Address: 2820 132nd Ave SE
City, State, Zip: Snohomish, WA
Telephone: 4258708481 Fax: 4253779240

Project Name: JKT - Dungeness
Project No: 711-007-104 Collected by: K. Burgess
Location: SEQUIM, WA
Report To (FM): Kristen Burgess
PM Email: esakb18@att.net

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)***	EDB (8011)	Dilution/Filtered				Comments
1	131-1-1	10/1/15	9:45	SOIL	✓				✓		✓			✓								
2	131-2-1		1035		✓				✓		✓			✓				✓				
3	131-1-2		1007																			archive
4	131-2-2		1051					✓		✓												
5	131-2-3		1109																			archive
6	131-3-1		1157		✓				✓		✓			✓								
7	131-3-2		1215																			archive
8	121-1-1		750		✓				✓		✓			✓				✓				
9	21-1-1		125		✓				✓		✓			✓				✓				
10	21-1-2	↓	210	↓																		archive

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Relinquished	Date/Time	Received	Date/Time
[signature]	10/2/15 1200	[signature]	10/2/15 1200
Relinquished	Date/Time	Received	Date/Time

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

*Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

Fremont Analytical

Chain of Custody Record

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (Internal): _____

Date: 10/2/15

Page: 2 of 2

Client: 2820 132nd Ave SE
Address: Snohomish, WA
City, State, Zip:
Telephone: 425 870 3481 Fax: 4253779240

Project Name: JKT-Dungeness
Project No: 711-007-104
Collected by: K. Burgess
Location: Sequim, WA
Report To (PM): Kristen Burgess
PM Email: esakb12@att.net

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GW/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Diesel/Fuel				Comments
1	21-2-1	10/1/15	227	Soil	✓				✓		✓			✓				✓				
2	21-2-2	↓	232	↓																		archive
3	21-3-1	↓	246	↓	✓				✓		✓			✓								
4	~~620~~																					
5																						
6																						
7																						
8																						
9																						
10																						

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
[signature]	10/2/15 1200	[signature]	10/2/15 1200
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

Fremont Analytical

Chain of Custody Record

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1510028A

Date: 10/2/15

Page: 1 of: 2

Project Name: JBT - Dungeness
Project No: 711-007-104
Collected by: K. Burgess
Location: SEQUIM, WA
Report To (PM): Kristen Burgess
PM Email: esalab1@att.net

Client: ESA Associates, Inc.
Address: 2820 132nd Ave SE
City, State, Zip: Snohomish, WA
Telephone: 425 870 8481
Fax: 425 377 9240

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GW/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Diesel/Furan				Comments
1	131-1-1	10/1/15	9:45	SOIL	✓				✓		✓			✓								
2	131-2-1		1035		✓				✓	⊗	✓			✓				✓				Quant HCID Std TAT
3	131-1-2		1009																			archive
4	131-2-2		1051					✓		✓												
5	131-2-3		1109							⊗												~~archive~~ DxEx Std TAT
6	131-3-1		1157		✓				✓	⊗	✓			✓								Quant HCID Std TAT
7	131-3-2		1215							⊗												~~archive~~ DxEx Std TAT
8	121-1-1		750		✓				✓		✓			✓				✓				
9	21-1-1		125		✓				✓		✓			✓				✓				
10	21-1-2	✓	210	✓																		archive

**Metals Analysis (Circle): MTCA-5 RCRA 8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	10/2/15 1200	x [signature]	10/2/15 1200
Relinquished x	Date/Time	Received x	Date/Time

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

Fremont Analytical

Chain of Custody Record

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 10/2/15

Laboratory Project No (internal): 1510028A

Page: 2 of 2

Client: 2820 132nd Ave SE
Address: Snohomish, WA
City, State, Zip:
Telephone: 425 870 3481 Fax: 4253779240

Project Name: JKT - Dungeness
Project No: 711-007-104 Collected by: K. Burgess
Location: Sequim, WA
Report To (PM): Kristen Burgess
PM Email: esakb18@att.net

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) / Dissolved (D)	Anions (NO3)***	EDB (8011)	Diesel/Heavy				Comments
1	21-2-1	10/1/15	222	Soil	✓				✓	(X)	✓			✓				✓				Quant HCID Std TAT
2	21-2-2	↓	232	↓																		archive
3	21-3-1	↓	246	↓	✓				✓		✓			✓								
4	600																					
5																						
6																						
7																						
8																						
9																						
10																						

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Turn-around times for samples received after 4:00pm will begin on the following business day.

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Relinquished: [signature] Date/Time: 10/2/15 1200
Received: [signature] Date/Time: 10/2/15 1200
Relinquished: Date/Time:
Received: Date/Time:

Special Remarks: (X) Add analysis per K. Burgess 10/12/15 [initials]

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

*Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

APPENDIX C

TEST PIT LOGS

ESA Associates, Inc.

2820 132nd Avenue SE
Snohomish, WA 98290

Test Pit Log

Project NO: 711-007-104	Client: Jamestown S'Klallam Tribe
Location: 21, 121, 131	Subcontractor:Advance Environmental
Start Date: October 1, 2015	Test Pit ID:121-1,131-1,131-2,131-3,21-1,21-2,21-3
Dan Venable	Completion Date: October 1, 2015
Total Depth:two and six feet	Rig Type: Tire-Mounted Backhoe
Water Level:not encountered	Surface Elevation:259'
MP Elevation:NA	Logged By: Kristen Burgess

Depth BGS	Sample ID	Field Sheen	PID	Sample Description	Lithology
2"	121-1-1	SS-	0	black si sa w/ glass, charred frags	SP-SM
1'	121-1-2	NS	0	brown si sa w/ large river rock	SP-SM
1"	131-1	NS	0	grass	
2"	131-1-A	NS	0	brown si sa	SP-SM
6"	131-1-B	NS	0	brown si sa w/ gvl	SP-SM
1'	131-1-C	NS	0	brown si sa w/gvl and boulders	SP-SM
3'	131-1-1	SS	0	brown si sa w/gvl and boulders	SP-SM
6'	131-1-2	NS	0	brown si fi sa w/gvl and cobbles	SP-SM
1"	131-2-1	SS	0	brown si sa w/plastic, metal, oil filter	SP-SM
2"	131-2-2	HS	0	brown si sa w/no debris	SP-SM
4"	131-2-3	NS	0	brown si	ML
1'	131-2-A	NS	0	brown si fi sa	SP-SM
1"	131-3-1	HS	0	brown si sa	SP-SM
3"	131-3-A	HS	0.3	brown sa si	ML
8"	131-3-B	SS	0.1	brown si fi sa	SW-SM
38"	131-3-2	SS	0.1	brown si fi sa	SW-SM
8"	131-3-C	MS	0.1	brown si fi sa w/gvl	SP-SM
1"	21-1-1	NS	0	brown si fi sa	SW-SM
1'	21-1-2	NS	0	brown si fi sa	SW-SM
2'	21-1-A	NS	0	brown si fi sa w/boulders	SW-SM
2"	21-2-1	SS+	0	brown si fi sa	SW-SM
2'	21-2-2	NS	0	brown si fi sa w/cobbles	SW-SM
2"	21-3-1	NS	0	brown si fi sa	SW-SM
2'	21-3-A	NS	0	brown si fi sa	SW-SM

Soil Density			
Sand & Gravel	**Blows/Ft**	**Silt & Clay**	**Blows/Ft**
V. Loose	0-4	V. Soft	0-2
Loose	4-10	Soft	2-4
M. Dense	10-30	M. Stiff	4-8
Dense	30-50	Stiff	8-16
V. Dense	>50	V. Stiff	16-32
		Hard	>32

Soil Classification System				
Major Divisions			**Group Symbol**	**Group Name**
Coarse grained soils >50% retained on No. 200 sieve	Gravel >60% of coarse fraction retained on No. 4 sieve	Clean gravel	GW	Well-graded gravel, fine to coarse gravel
			GP	Poorly-graded gravel
		Gravel with fines	GM	Silty gravel
			GC	Clayey gravel
	Sand >50% of coarse fraction passes No. 4 sieve	Clean sand	SW	Well-graded sand, fine to coarse sand
			SP	Poorly-graded sand
		Sand with fines	SM	Silty sand
			SC	Clayey sand
Fine grained soils >60% passes No. 200 sieve	Silt and clay Liquid limit <50	Inorganic	ML	Silt
			CL	Clay
		Organic	OL	Organic silt, organic clay
	Silt and clay Liquid limit ≥50	Inorganic	MH	Silt of high plasticity, elastic silt
			CH	Clay of high plasticity, elastic clay
		Organic	OH	Organic silt, organic clay
Highly organic soils			PT	Peat

APPENDIX D

QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL

State of Washington
DEPARTMENT OF LICENSING
GEOLOGIST PROGRAM
P O Box 9045
Olympia, WA 98507

ADDRESS SERVICE REQUESTED DPU 1023

KRISTEN L BURGESS
2820 132ND AVE SE
SNOHOMISH WA 98290

STATE OF WASHINGTON

GEOLOGIST

KRISTEN L BURGESS
2820 132ND AVE SE
SNOHOMISH WA 98290

1322	05/16/2016
CERT/LIC NO.	EXP. DATE

Pat Kohler
Pat Kohler, Director

STATE OF WASHINGTON

DEPARTMENT OF LICENSING – BUSINESS AND PROFESSIONS DIVISION

THIS CERTIFIES THAT THE PERSON NAMED HEREON IS AUTHORIZED, AS PROVIDED BY LAW, AS A

GEOLOGIST

KRISTEN L BURGESS
2820 132ND AVE SE
SNOHOMISH WA 98290

COPY COPY COPY

Cert/Lic No.	Issued Date	Expiration Date
1322	07/11/2002	05/16/2016

Pat Kohler
Pat Kohler, Director