

APPENDIX G4

WORK PLAN FOR IMPACTED SOIL REMOVAL AND MANAGEMENT

WORK PLAN FOR IMPACTED SOIL REMOVAL AND MANAGEMENT

Former Union Pacific Railroad (UPR) Right-of-Way
Between I-215 and West Main Street
Grand Terrace, California
(VCP Case #RO0001366)

February 22, 2022



AVOCET
ENVIRONMENTAL, INC.

WORK PLAN FOR IMPACTED SOIL REMOVAL AND MANAGEMENT

Former Union Pacific Railroad (UPR) Right-of-Way
Between I-215 and West Main Street
Grand Terrace, California
(VCP Case #RO0001366)

February 22, 2022

PREPARED FOR

Lewis Management Corp.
1156 North Mountain Avenue
Upland, California 91786

PREPARED BY

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, California 92618-5302

Project No. 1552.002





February 22, 2022

Project No. 1552.002

Mr. Greg Zeigler, REHS, ICC-UI
SAN BERNADINO COUNTY FIRE PROTECTION DISTRICT
Hazardous Materials Section (Division 12)
620 South "E" Street
San Bernardino, California 92415-0179

Work Plan for Impacted Soil Removal and Management
Former Union Pacific Railroad (UPR) Right-of-Way
Between I-215 and West Main Street
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Dear Mr. Zeigler:

On behalf of the Lewis Management Corporation (Lewis) and the City of Grand Terrace, Avocet Environmental, Inc. (Avocet) is pleased to submit this work plan to the San Bernardino County Fire Protection District for the removal and management of arsenic-impacted soil in the former Union Pacific Railroad right-of-way between Interstate 215 and West Main Street in Grand Terrace, California. We would appreciate your earliest possible review of the work plan, but in the meantime, if you have any questions or require additional information, please do not hesitate to contact the undersigned at (949) 296-0977 Ext. 102 or at pmiller@avocetenv.com.

Respectfully submitted,

AVOCET ENVIRONMENTAL, INC.

A handwritten signature in black ink, appearing to read "Philip Miller".

Philip Miller, P.E.
Principal

PM:sh

Enclosure

cc: Ms. Haide Aguirre – City of Grand Terrace
Mr. Adam Collier – Lewis Management Corp.
Ms. Waen Messner – Lewis Management Corp.

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LIST OF ABBREVIATIONS AND ACRONYMS

ARL	A & R Laboratories
bgs	below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC-modified Screening Level
EPA	U.S. Environmental Protection Agency
ESL	SFBRWQCB Environmental Screening Level
HASP	Health and Safety Plan
LOR	LOR Geotechnical Group, Inc.
mg/kg	milligram per kilogram
mg/L	milligram per liter
OCF	organochlorine pesticide
OVA	organic vapor analyzer
PCB	polychlorinated biphenyl
PID	photoionization detector
PPE	personal protective equipment
RCRA	Resource Conservation and Recovery Act of 1986
RSLs	EPA Regional Screening Levels
SBCoFPD	San Bernardino County Fire Protection District
SCAQMD	South Coast Air Quality Management District
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SMP	Soil Management Plan
STLC	Soluble Threshold Limit Concentration
SVOC	semivolatile organic compound
TCLP	Toxicity Characteristic Leaching Procedure
TPH	total petroleum hydrocarbons
TPH-d	total petroleum hydrocarbons as diesel
TPH-g	total petroleum hydrocarbons as gasoline
TPH-o	total petroleum hydrocarbons as oil
TTLC	Total Threshold Limit Concentration
UPR	Union Pacific Railroad
VCP	SBCoFPD Voluntary Cleanup Program
VOC	volatile organic compound
WET	Waste Extraction Test
XRF	X-ray fluorescence

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1.0 INTRODUCTION

This work plan is for the removal and offsite disposal of near-surface soil containing above background concentrations of arsenic beneath the former Union Pacific Railroad (UPR) right-of-way between Interstate 215 and West Main Street in Grand Terrace, California (the site). This work plan also includes procedures for characterizing and managing the arsenic-impacted soil and is intended to also serve as a Soil Management Plan (SMP). Avocet Environmental, Inc. (Avocet) prepared this work plan on behalf of Lewis Management Corp. (Lewis) and the City of Grand Terrace (the City) for review and approval by the San Bernardino County Fire Prevention District (SBCoFPD). Avocet understands that the City, Lewis's client, has acquired the former UPR right-of-way and intends to incorporate it into a planned upgrade of Taylor Avenue to two lanes of traffic in each direction. The location of the site is shown in Figure 1 and an aerial photograph of the site is presented in Figure 2.

1.1 OVERVIEW

The subject segment of UPR right-of-way is approximately 3,250 feet long, between 33 and 100 feet wide, and occupies an area of approximately 3.33 acres (Figure 2). Investigations by Avocet and others have shown that near-surface soil within the right-of-way, especially beneath and adjacent to the former railroad tracks, is impacted by arsenic, believed to have been applied by UPR for pest control purposes. The reported arsenic concentrations range up to 110 milligrams per kilogram (mg/kg), compared to the accepted southern California background level of up to 12 mg/kg (Chernoff, et al., 2008). Most of the above-background arsenic concentrations have been in soil samples collected at 1 foot below ground surface (bgs), although in a few locations, the upper background concentration has been exceeded in samples collected at 3 feet bgs.

Prior to widening Taylor Avenue, the City plans to remove soil containing above-background concentrations of arsenic from beneath the former UPR right-of-way and transport it offsite for disposal. The goal is that the removal action will result in a "clean closure" such that the City will not have to "deed restrict" the former UPR right-of-way and contractors involved in future road construction and/or subsurface utility installation and maintenance will not have to deal with soil containing above-background concentrations of arsenic. Toward that end, the City recently entered SBCoFPD's "Voluntary Cleanup Program" (VCP, Case #RO0001366). Pursuant to the VCP, SBCoFPD requires the subject work plan for arsenic-impacted soil removal and a related SMP. Avocet understands that once SBCoFPD has approved this work plan, the City will use it to solicit competitive bids from qualified contractors to remove soil containing arsenic at concentrations above background for offsite disposal. With respect to disposal, six soil samples that contained arsenic at or above 50 mg/kg have been tested for soluble arsenic pursuant to the federal "Toxicity Characteristic Leaching Procedure" (TCLP) and the more aggressive California "Waste Extraction Test" (WET) procedures. However, soluble arsenic concentrations in all six samples were well below the Soluble Threshold Limit Concentration (STLC) of 5 milligrams per liter (mg/L), regardless of the extraction procedure. Based on the total and soluble arsenic

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concentrations, Avocet does not expect the arsenic-impacted soil to be a federal (RCRA) or California hazardous waste.

The former single railroad track dates back to the late 1800s and ran in a straight, north-south line with a siding into the former Riverside Canal Power Company, Inc. generating station to the west, at 12700 Taylor Street (Figure 2). The steel rails and railroad ties have been removed from the north-south track although the rails and ties for the siding into the former generating station may still be present beneath Taylor Street. A wooden bridge near the northern end of the right-of-way carried the former tracks over the Riverside Canal and there is a major AT&T fiber optic line within the former right-of way. In the southern portion of the right-of-way, the fiber optic line is on the west side of the former track, but it crosses to the east side roughly mid-way between the vacated Pico Street and Van Buren Street rights-of-way (Figure 2). The AT&T fiber optic line is below the maximum soil removal depth envisioned herein but protecting it in place is of critical importance.

1.2 WORK PLAN ORGANIZATION

Including the introduction, this work plan is organized into five sections. Section 2.0 documents the investigations that identified and then delineated above-background arsenic concentrations in near-surface soil. As it is not clear whether these previous investigations have been formally documented, the associated laboratory analytical reports are included as appendices to this work plan. Section 3.0 documents the planned removal action, and Section 4.0 essentially is an SMP. Section 5.0 addresses record keeping and reporting.

Supporting information is contained in tables, figures, and eight appendices, all of which follow the text of this report. Appendices A through F contain laboratory reports related to previous investigations at the site. Appendices G and H contain South Coast Air Quality Management District (SCAQMD) rules that will pertain to the removal action.

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2.0 PREVIOUS INVESTIGATIONS

There have been two phases of investigation at the site, an initial and limited assessment by LOR Geotechnical Group, Inc. (LOR), of Riverside, California, in March 2017 and a more comprehensive assessment by Avocet in February 2018. These investigations are documented below and the related laboratory reports, which may not previously have been submitted to a regulatory agency, are included in Appendices A through F.

2.1 LOR INVESTIGATION, MARCH 2017

LOR's initial assessment of near-surface soil within the former UPR right-of-way in March 2017 involved the collection and analysis of soil matrix samples from eight shallow borings, Borings B-1 through B-8, spaced approximately 435 feet apart at the approximate locations shown in Figure 2. LOR collected soil samples from each boring at 1, 3 and 5 feet bgs and submitted them to A & R Laboratories (ARL) in Ontario, California. LOR initially requested that only the eight 1-foot samples be analyzed for:

- Title 22 metals, including arsenic, using U.S. Environmental Protection Agency (EPA) Method 6010B (EPA Method 7471A for mercury).
- Total petroleum hydrocarbons (TPH) in the diesel (TPH-d) and oil range (TPH-o) ranges using EPA Method 8015B.
- Semivolatile organic compounds (SVOCs) using EPA Method 8270C. The SVOCs analyzed included pentachlorophenol, which in the past was commonly used to preserve wooden railroad ties.

ARL's laboratory report is included in Appendix A to this work plan, and the results of the analyses for metals, TPH, and SVOCs are summarized in Tables 1, 2, and 3, respectively. In brief, none of the samples contained detectable concentrations of TPH (Table 2) or any SVOCs (Table 3), and apart from arsenic, Title 22 metals concentrations were well below potentially applicable residential screening levels (Table 1). Naturally occurring arsenic concentrations in soil throughout much of the western United States exceed residential and commercial/industrial screening levels, and for that reason, arsenic in soil is typically evaluated in the context of background concentrations. Arsenic concentrations up to 12 mg/kg are widely accepted as background in southern California (Chernoff, et al., 2008), although higher background concentrations occur locally. Arsenic concentrations in seven of the eight 1-foot samples were well below 12 mg/kg, ranging from 2.17 to 6.64 mg/kg; however, the 13.5 mg/kg reported in the 1-foot sample from Boring B-1 marginally exceeded the accepted background level.

Although the reported arsenic concentrations were not particularly high, in April 2017 LOR requested confirmation analyses for arsenic using EPA Method 6020 for three samples: the 1-foot samples from Borings B-1, B-6, and B-8. ARL subcontracted these confirmation analyses to the Eurofins Calscience, Inc. (Eurofins) laboratory in Garden Grove, California. Eurofins analyzed

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each of the three samples twice, once apparently before being homogenized and again after the samples were homogenized. The arsenic concentrations reported by Eurofins (Table 1) in two of the three samples were significantly higher than those reported by ARL using EPA Method 6010B. Specifically, Eurofins reported arsenic concentrations up to 100 mg/kg, well above background, in the samples from Borings B-1 and B-8 (Table 1 and Appendix B). In May 2017, presumably because of the higher arsenic concentrations reported by Eurofins, LOR had Babcock Laboratories, Inc. (Babcock), of Riverside, California, analyze the eight 1-foot soil samples and, later in May 2017, the 3-foot samples from Borings B-1 and B-8 for arsenic using EPA Method 6020. The results of these analyses are included in Table 1, and the Babcock laboratory reports are included as Appendices C and E. LOR also had Eurofins reanalyze the 1-foot samples from Borings B-1 and B-8 for arsenic, but this time using EPA Method 6010B. The results of these analyses are included in Table 1 and the Eurofins laboratory report is included as Appendix D.

So far as Avocet is aware, LOR did not prepare a report of its assessment or submit the results to a regulatory agency. Avocet also notes that LOR did not analyze any of the soil samples for soluble arsenic.

2.2 AVOCET INVESTIGATION, FEBRUARY 2018

On February 9 and 12, 2018, Avocet conducted a more comprehensive assessment of arsenic in near-surface soil. Avocet's investigation involved the collection of soil matrix samples at 1, 3, and 5 feet bgs from 45 direct-push borings, Borings B-1A through B8A and B-9 through B-45. Direct-push drilling services were provided by Kehoe Testing & Engineering, Inc., of Huntington Beach, California, and the borings were as follows:

- Borings B-1A through B-8A were drilled adjacent to LOR Borings B-1 through B-8 for confirmation purposes.
- Avocet drilled 23 "step-out" borings approximately 10 feet to the north, south, east, and west of LOR Borings B-1 through B-5, B-7, and B-8 to assess the lateral extent of above-background arsenic. Because of a potential subsurface utility conflict, however, Avocet was unable to locate a step-out boring west of LOR Boring B-5.
- Fourteen borings were drilled between LOR Borings B-1 through B-8 such that the maximum distance between investigation locations was reduced from approximately 435 to approximately 100 feet.

The approximate locations of Avocet's borings are shown in Figure 2, although it should be noted that because of the small scale, the locations of the east and west step-outs are shown further than 10 feet from the original borings for clarity purposes.

Avocet submitted a total of 135 soil matrix samples to the Eurofins laboratory in Garden Grove and had Eurofins analyze all 45 of the 1-foot samples for arsenic using EPA Method 6020. If the reported arsenic concentration exceeded 12 mg/kg in a 1-foot sample, Avocet had Eurofins analyze the 3-foot sample from the same boring, and if arsenic in the 3-foot sample exceeded 12 mg/kg,

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Avocet had Eurofins analyze the 5-foot sample. The results of Avocet's arsenic analyses are presented in the Eurofins laboratory reports in Appendix F and are summarized in Table 4, with data from the step-out borings grouped with the data from the original borings. The reported arsenic concentrations in soil at 1 and 3 feet bgs are presented graphically in Figures 3 and 4, but in brief:

- Arsenic concentrations at 1 foot bgs ranged from 2.58 to 110 mg/kg, with arsenic exceeding the upper background concentration of 12 mg/kg in 25 of the 45 samples analyzed (Figure 3).
- Arsenic concentrations at 3 feet bgs ranged from 1.18 to 18.6 mg/kg, with arsenic exceeding the upper background concentration of 12 mg/kg in only 2 of the 25 samples analyzed: in the 3-foot samples from Borings B-8A and B-10 (Figure 4).
- The reported arsenic concentrations in the 5-foot samples from Borings B-8A and B-10 were 6.48 and 4.07 mg/kg, respectively, well below the 12 mg/kg upper background level.

Based on the above and the data from LOR's investigation, the vertical extent of above-background arsenic concentrations in soil is generally limited to between 1 and 3 feet bgs but locally may extend to between 3 and 5 feet bgs. In terms of the width of the impacted area, all but three of the background exceedances at 1 foot bgs were in borings drilled on the centerline of the right-of-way. Only three of the 1-foot samples collected from the step-out borings to the east and west contained arsenic at concentrations above 12 mg/kg. As such, the width of the impacted area appears to be less than 20 feet, except in a few localized areas.

To determine whether soil containing arsenic at concentrations above background, if removed or otherwise disturbed, could be a federal or California hazardous waste, Avocet had selected soil matrix samples tested for soluble arsenic. In brief:

- Soil is a federal (RCRA) hazardous waste if the total arsenic content equals or exceeds the Total Threshold Limit Concentration (TTLC) of 500 mg/kg or if the soluble arsenic content equals or exceeds the STLC of 5 mg/L pursuant to the TCLP extraction procedure.
- Soil is a California hazardous waste if the soluble arsenic content equals or exceeds the STLC of 5 mg/L pursuant to the California WET procedure, which is significantly more aggressive than the federal TCLP extraction procedure.

Because of the way it is extracted, soluble arsenic cannot exceed the STLC pursuant to the WET unless the total arsenic content equals or exceeds 50 mg/kg. As such, Avocet had the six soil samples that contained arsenic at concentrations above 50 mg/kg tested for soluble arsenic

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pursuant to both the TCLP and WET extraction processes. The results are summarized in Table 4 but were as follows:

- Soluble arsenic concentrations pursuant to the federal TCLP extraction procedure ranged from below the Reporting Limit of 0.1 mg/L to 0.26 mg/L, well below the 5 mg/L STLC.
- Consistent with it being more aggressive, soluble arsenic concentrations pursuant to the California WET ranged from 0.242 to 2.98 mg/L; however, these concentrations are also well below the 5 mg/L STLC.

As none of the total arsenic concentrations in the 98 soil samples analyzed to date exceed or remotely approach the TTLC of 500 mg/kg and as soluble arsenic concentrations pursuant to the TCLP and WET extraction procedures are well below the STLC of 5 mg/L, arsenic-containing soil, when disturbed, is not expected to be a federal (RCRA) or California hazardous waste, although additional testing will be conducted for waste profiling purposes.

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3.0 PLANNED REMOVAL ACTION

The planned removal action will involve excavating near-surface soil containing arsenic at above-background concentrations, confirmation soil sampling to verify residual arsenic concentrations are below 12 mg/kg, and offsite disposal of the excavated soil at an appropriate disposal or recycling facility. As the City plans to use this work plan, once approved by SBCoFPD, to solicit competitive bids from qualified contractors, this section outlines the anticipated scope of work and its objective(s); however, the selected contractor may propose alternate procedures. SBCoFPD's approval will be sought for alternate procedures, if any, proposed by the selected contractor or for other significant deviations from this work plan.

3.1 HEALTH AND SAFETY PLAN

The removal action will be conducted pursuant to a site-specific Health and Safety Plan (HASP) to be prepared by the selected contractor. At a minimum, the HASP should identify the potential chemical and physical hazards that may be encountered at the site, as well as the "generic" hazards associated with working in proximity to excavating and other mechanized equipment. It should also specify the measures to be taken to avoid or minimize these hazards. The identification of potential chemical hazards should be based on the types and concentrations of chemicals known to be present in the subsurface based on past investigations and on the types of operations known to have been conducted at and around the site. The identification of potential physical hazards should be based primarily on the types of equipment expected to be used during the removal action, the potential for encountering and damaging subsurface or overhead utilities, and the potential hazards posed by external factors such as temperature. Based on the identified hazards, the HASP should specify the minimum level of personal protective equipment (PPE) to be worn (expected to be Level D), the type(s) of monitoring to be conducted, the circumstances under which the minimum PPE will be upgraded, and other protective measures. The HASP should also provide emergency contact information and the route to the nearest hospital with an emergency room.

3.2 PERMITS

The selected contractor will be required to engage the City to determine its permitting requirements for the removal action. Avocet anticipates that, at a minimum, a grading permit will be required, although a waiver may be available given that the City is the client and beneficiary.

3.3 CONSTRUCTION STORMWATER MANAGEMENT

As the area expected to be disturbed exceeds 1 acre, a construction stormwater management permit and plan will be required. Compliance with construction stormwater permitting and management requirements will be the responsibility of the City's contractor.

3.4 SCAQMD RULE COMPLIANCE

The removal action will be conducted in accordance with applicable SCAQMD rules, including, but not necessarily limited to, Rules 403 and 1466. Rule 403 is intended to reduce the amount of

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particulate matter entrained in ambient air during earthmoving and similar activities, and Rule 1466 regulates emissions of toxic air contaminants, including arsenic, to ambient air while performing earthmoving activities. Copies of SCAQMD Rules 403 and 1466 are included in Appendices G and H, respectively. There is significant overlap between the requirements of Rules 403 and 1466; however, Rule 1466 is generally more restrictive and requires, among other things:

- That SCAQMD be notified of the planned earthmoving ahead of time using a specific notification form.
- Continuous, simultaneous, real-time monitoring of PM₁₀ levels, using identical, properly calibrated equipment, at a minimum of one upwind and a minimum of one downwind location.
- Calculation of average PM₁₀ concentrations upwind and downwind of the active excavation area.
- Cessation of earthmoving activities if the difference between the upwind and downwind PM₁₀ concentrations exceeds 25 micrograms per cubic meter.

As the removal action will occur after January 1, 2022, particulate measurements pursuant to Rule 1466 must be made and recorded no more than 1 minute apart (Appendix H).

The above is a simplification of potentially applicable SCAQMD requirements; it will be the responsibility of the City's contractor to identify and fully comply with the requirements of Rules 403, 1466, and any other applicable SCAQMD rules. That said, Avocet notes that SCAQMD Rule 1166 pertains to volatile organic compound (VOC) emissions during, among other things, removal actions. As there are no indications that the arsenic-impacted soil to be removed also contains VOCs, however, compliance with SCAQMD Rule 1166 is not expected to be necessary.

3.5 SUBSURFACE UTILITY CLEARANCE

The contractor will be required to mark the anticipated limits of the removal action and as required by law, notify Underground Service Alert of Southern California (aka DigAlert) a minimum 48 hours (two working days) before any intrusive removal work begins. DigAlert will contact the appropriate utility companies to mark their subsurface utilities in the vicinity of the removal action with color-coded paint. AT&T's fiber optic line is expected to be of particular concern, and Avocet anticipates that AT&T may be represented in the field throughout some or all of the removal action. As-built drawings of the fiber optic cable and the results of a potholing investigation to verify the location and especially the depth to the fiber optic cable will be provided to the selected contractor but are not appended to this work plan for security reasons.

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3.6 WORST-CASE TRIAL REMOVAL ACTION

The most cost-effective approach to the removal action would be to “direct-load” arsenic-impacted soil into trucks for offsite transportation and disposal, thereby avoiding the need for temporary stockpiles and “double handling.” Direct-loading, however, would require that the removed soil be first profiled for disposal purposes. Although alternate methods are not precluded (subject to SBCoFPD approval), this work plan includes excavation of a “worst-case” trial section to generate a worst-case waste profile and also confirm that an X-ray fluorescence (XRF) meter can be used to approximate arsenic concentrations in soil and, hence, guide the removal action.

While the data from the trial section are being evaluated, which is expected to take three or four days, the City’s contractor will have the option of pausing the removal action or continuing to remove arsenic-impacted soil. If the contractor elects to continue, it will have to temporarily stockpile arsenic-impacted soil until the waste profiling results are available. If the contractor elects to pause, it would be able to direct-load the remaining arsenic-impacted soil for offsite disposal, thereby avoiding double handling.

3.6.1 Trial Removal Action Area and Depths

Some of the highest arsenic concentrations at the subject site were reported in multiple analyses of the 1-foot soil sample from LOR Boring B-1 (Table 4), located near the south end of the right-of-way (Figure 2). Specifically, arsenic was reported at concentrations up to 100 mg/kg in the 1-foot sample, and the 3-foot sample from Boring B-1 contained 24 mg/kg of arsenic. As such, Avocet recommends a 100-foot-long worst-case trial removal action extending 50 feet north and south of Boring B-1. The trial removal action area will be 20 feet wide and extend to 4 feet bgs for 10 feet to the north and south of Boring B-1 and to 2 feet bgs elsewhere. During the trial removal action, an XRF meter will be used to approximate arsenic concentrations in soil in the floor of the excavation, and collocated confirmation soil samples will be collected for fixed laboratory analysis for arsenic using EPA Method 6020. XRF screening and confirmation soil sampling procedures are outlined in Section 3.6.3.

On completion of the trial removal action, the XRF meter readings will be compared to the results of the fixed laboratory analyses to confirm that an XRF meter can be relied on to guide the geometry of the removal action in real time. That said, Avocet notes that the final geometry of the removal action will be determined by confirmation soil matrix sampling and fixed laboratory analysis; no final decisions will be based on the XRF meter readings alone.

3.6.2 Worst Case Stockpile Sampling

The soil removed from the trial removal action, which equates to approximately 178 cubic yards or 267 tons, will be stockpiled within the right-of-way to the north. As soil to the north of the trial removal action is also scheduled to be removed, it will not be necessary to stockpile the removed soil on polyethylene sheeting, although the stockpile will be covered with this material once it has been sampled. Six representative soil samples will be collected at different locations and depths into the stockpile for waste profiling purposes. The six discrete soil samples will be combined, by

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equal volume in a fixed laboratory, to create a representative composite sample for analysis. The composite stockpile sample will be analyzed for Title 22 metals (including arsenic), TPH, and VOCs using EPA Methods 6020/7471A, 8105, and 8260B, respectively. Avocet notes that although arsenic is the only known contaminant of concern, analysis for TPH and VOCs is required for waste profiling purposes. In the unlikely event that arsenic in the stockpiled material equals or exceeds 50 mg/kg, the composite stockpile sample will be analyzed for soluble arsenic pursuant to the TCLP and WET extraction procedures. Based on the results of the composite sample analyses, the stockpiled soil from the worst-case removal action will be profiled as either California hazardous, RCRA hazardous, or, more likely, nonhazardous waste. Avocet notes that as discussed in Section 2.2, the total and soluble arsenic data available to date indicate the stockpiled soil is likely to be a nonhazardous waste. Assuming the stockpiled material from the worst-case removal action is profiled as nonhazardous, the same waste profile will be used for the remainder of the project, thereby enabling the contractor to, if desired, excavate and direct-load arsenic-impacted soil for offsite disposal without double handling. If the stockpiled material from the worst-case removal action is profiled as California or RCRA hazardous waste, it may be appropriate to conduct additional waste profiling analyses elsewhere at the site.

3.6.3 Trial Removal Area XRF Screening and Confirmation Soil Sampling

Once the worst-case trial removal action has been completed to the dimensions above, an XRF meter will be used to approximate residual arsenic concentrations in the floor of the excavation, and collocated confirmation soil samples will be collected for fixed laboratory analysis. For the 2,000-square-foot trial removal action, a minimum of ten XRF measurements and ten confirmation soil samples will be collected, one for every 200 square feet of area, although fewer confirmation samples will be collected during full-scale removal. Prior to first use, the XRF meter will be calibrated in accordance with the manufacturer's recommendations, expected to be an "internal" calibration process, and the XRF meter will be recalibrated daily thereafter. The XRF screening process will be in accordance with the XRF meter manufacturer's recommendations but is expected to be as follows:

- Pass the soil to be screened through a Number 10 sieve (2-millimeter opening) and, wearing nitrile or similar gloves to prevent direct skin contact, compact it into a virgin 4-ounce glass jar.
- Once the jar is completely full of compacted soil, the exposed soil surface will be trimmed flush with the rim of the jar to create a smooth, firm surface.
- The XRF meter "window" will then be positioned against the exposed soil surface and the "trigger" depressed for the maximum 60-second measurement period.
- With the trigger depressed, the XRF meter continuously measures and displays the average arsenic concentration over the measurement period. The XRF meter also displays the estimated error, expressed in percent. It is noted that measurement

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periods shorter than 60 seconds are possible; however, the potential for error in the measurement is increased.

- The Number 10 sieve will be thoroughly cleaned using a wire brush to remove residual soil before being reused.

After recording the XRF measurement, the ten soil-filled sample jars from the trial removal action area will be sealed, labeled, and placed in a cooler for fixed laboratory analysis. The ten confirmation soil samples will be analyzed for arsenic using EPA Method 6020 and the results compared to the XRF meter readings. Based on past experience, Avocet expects the XRF meter to overestimate residual arsenic concentrations, meaning use of the XRF meter is conservative.

Based on the results of the confirmation soil sample analyses, the trial removal excavation will be extended to the east and/or west or deepened, as appropriate, during the full-scale removal action.

3.7 FULL-SCALE REMOVAL ACTION AND CONFIRMATION SOIL SAMPLING

Having established a worst-case waste profile and verified that the XRF meter can be used to conservatively approximate residual arsenic concentrations, the contractor will then proceed to remove and dispose of soil containing arsenic at concentrations of 12 mg/kg or above. In brief, the upper 12 inches of soil and railroad ballast will be removed from a 20-foot-wide strip the length of the former UPR right-of-way. The assessment data presented in Figures 3 and 4 will then be used to establish the initial geometry of the full-scale removal action, and the XRF meter will be used to guide lateral extensions and/or local deepening, as appropriate. That said, the final geometry of the removal action will be determined by confirmation soil sampling and fixed laboratory analysis; no final decisions will be based on the XRF meter readings alone. XRF screening procedures will be as outlined above, with one XRF measurement for every 200 square feet of area. As each XRF measurement is taken, its location will be marked with a “rooster-tail” survey marker, stake, or white spray paint, as appropriate. The measurement locations will then be recorded using Global Positioning System or other survey techniques, including measurements to known points such as curbs, fence lines, and similar. The XRF measurements of soil arsenic content will be utilized as follows:

- If the indicated arsenic content of the newly exposed soil is less than 12 mg/kg, the removal action around the measurement location will be considered complete, subject to confirmation soil matrix sample analyses.
- If the indicated arsenic content of the newly exposed soil is 12 mg/kg or higher, an additional cut of at least 0.5-foot will be made to reach soil containing less than 12 mg/kg of arsenic and the XRF measurement process will be repeated.

Avocet anticipates that the contractor will direct-load the arsenic-impacted soil into end-dump trucks and transport it as nonhazardous waste to a local landfill or recycling facility. Dust suppression measures will be implemented, as necessary, to maintain compliance with SCAQMD

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Rules 403 and 1466 (Section 3.4). Transportation and disposal documentation will include nonhazardous waste manifests and scale tickets from the disposal or recycling facility.

When the XRF measurements indicate that residual arsenic concentrations in the floor of the removal action area are below 12 mg/kg, confirmation soil matrix samples will be collected for verification purposes. Unlike in the trial removal area, however, one confirmation soil sample will be collected for every 500 square feet of removal area. Avocet notes that because the ground surface within much of the railroad right-of-way is raised and the removal action will generally be less than 2 feet deep, sidewall confirmation sampling is not expected to be necessary. The confirmation soil matrix samples will be analyzed for arsenic using EPA Method 6020. If any of the confirmation soil matrix samples contain arsenic at concentrations of 12 mg/kg or above, additional soil will be removed in a 10-foot square, centered on the confirmation sample, to a depth of at least 1 foot beneath the confirmation sample.

3.8 SITE RESTORATION

As the ground surface beneath the former railroad tracks is elevated above surrounding grade, soil removal along much of the former UPR right-of-way is not expected to result in significant, if any, excavations per se. That said, any excavations more than 2 feet below surrounding grade will be backfilled, ideally with native soil from the adjoining areas of the City property. If it is necessary to import fill for backfill purposes, the import fill screening procedures in the SMP (Section 4.0) will be followed prior to import.

3.9 STANDARD CONSTRUCTION PROCEDURES

Nothing in this work plan should be interpreted as relieving Lewis, the City, or their contractors of their responsibility to follow standard construction procedures that may or may not be related to subsurface environmental conditions.

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4.0 SOIL MANAGEMENT PLAN (SMP)

Soil containing arsenic at concentrations equal to or above 12 mg/kg will be removed from the former UPR right-of-way and transported offsite for disposal or to be recycled; it will not be reused onsite. However, it is possible that other contaminants could be encountered during the removal action or during subsequent grading for the Taylor Avenue upgrade. This section outlines the procedures to be followed to ensure that soil potentially impacted by arsenic and/or other contaminants, if any, is properly characterized, managed, and transported offsite or reused onsite as appropriate.

4.1 SMP OBJECTIVES

The purpose of this SMP is to ensure that the former UPR right-of-way is remediated to the extent appropriate in accordance with the applicable agency regulations and permitting programs. Specific objectives are to help ensure that:

- Procedures are in place to minimize the potential for workers involved in the removal action and subsequent redevelopment grading to be unexpectedly exposed to contaminants in soil.
- Soil within the former UPR right-of-way disturbed during post-removal action redevelopment grading is properly evaluated in terms of whether it is suitable for onsite reuse, unrestricted offsite reuse, or should be transported offsite to an appropriate disposal or recycling facility.
- Soil imported to the site, if any, does not contain contaminants at unacceptable concentrations.

To evaluate disturbed soil in the context of onsite reuse or unrestricted offsite reuse, contaminant concentrations, if any, will be compared to both commercial/industrial and residential screening levels. Notwithstanding that the redeveloped site will be a roadway, akin to a commercial/industrial land use, imported soil, if any, will be evaluated in terms of the more conservative residential screening levels only. The screening levels will be applied as follows:

Post-Removal Action Soil Screening Levels	
Onsite Soil Disturbed During Site Clearance and Redevelopment	
Arsenic less than 12 mg/kg and no residential screening levels exceeded	Soil from removal action will be disposed or recycled offsite; however, other disturbed soil can be reused onsite or exported for unrestricted offsite reuse.
Arsenic less than 12 mg/kg, residential screening levels exceeded, but no commercial/industrial screening levels exceeded	Soil from removal action will be disposed or recycled offsite; however, other disturbed soil can be reused onsite or transported offsite for disposal or treatment.
Arsenic less or more than 12 mg/kg or commercial/industrial screening levels exceeded	Disturbed soil should be transported offsite for disposal or treatment

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Post-Removal Action Soil Screening Levels	
Soil Imported from “Greenfield” Source(s) – Testing Not required	
Testing not required if analytical data available from supplier	Soil can be imported for onsite use
Soil Imported from Residential or Commercial/Industrial Source(s) – Testing Required	
Arsenic less than 12 mg/kg and no residential screening levels exceeded	Soil can be imported for onsite use
Arsenic less than 12 mg/kg but other residential screening levels exceeded	Soil should be rejected

As indicated above, soil imported from greenfield sources, such as commercial quarries or gravel pits, where the potential for impacts from agriculture and/or commercial/industrial land uses are minimal, need not be tested prior to import, provided the supplier is able to provide representative analytical data. Soil imported from offsite residential or commercial/industrial properties should be tested in accordance with California Department of Toxic Substances Control’s (DTSC’s) clean fill import advisory (DTSC, October 2001), as discussed in Section 4.9.

4.2 SOIL SCREENING LEVELS

To evaluate disturbed soil (other than that from the removal action) in the context of onsite reuse or unrestricted offsite reuse, contaminant concentrations, if any and excluding arsenic, will be compared to commercial/industrial or residential screening levels developed by DTSC, EPA, and San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). Soil considered for import to the site will be screened against residential screening levels only. In order of preference, disturbed soil will be screened as follows:

- With the exception of arsenic, contaminant concentrations will be compared to the latest residential or commercial/industrial DTSC-modified Screening Levels (DTSC-SLs). As of the date this SMP, the most recent DTSC-SLs were published in June 2020.
- If DTSC-SLs are not available, and again with the exception of arsenic, contaminant concentrations will be compared to the latest EPA residential or commercial/industrial Regional Screening Levels (RSLs). As of the date of this SMP, the most recent RSLs were published in November 2021.
- Concentrations of TPH as gasoline (TPH-g), TPH-d, and TPH-o will be compared to the latest SFBRWQCB Environmental Screening Levels (ESLs) for direct exposure. As of July 2019, these ESLs are as follows:

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SFBRWQCB ESLs for Direct Exposure (Units are milligrams per kilogram or mg/kg)			
Compound	Residential Shallow Soil	Commercial/Industrial Shallow Soil	Construction Worker
TPH-g	430	2,000	1,800
TPH-d	260	1,200	1,100
TPH-o	12,000	180,000	54,000

- As naturally occurring arsenic concentrations throughout the western United States are typically well above DTSC-SLs and EPA RSLs, concentrations will be compared to the accepted southern California background range of up to 12 mg/kg (Chernoff, 2008).

The screening process above is intended to be conservative and simple to implement without having to seek regulatory agency approval at multiple stages during the removal action and redevelopment grading processes.

4.3 FIELD SOIL SCREENING

Soil screening is required in the field whenever suspected soil impacts are encountered. Intermittent or periodic field soil screening is also recommended when soil from an offsite residential or greenfield borrow source is being imported. Field screening of disturbed soil for indications of contamination will involve visual and olfactory observation and screening for organic vapors using a properly calibrated photoionization detector (PID) or organic vapor analyzer (OVA). Indications of potential contamination might include, but not be limited to, the following:

- Soil discoloration or staining when compared to the natural color of soil exposed elsewhere, especially discoloration or staining in proximity to a potential contaminant source, such as subsurface infrastructure.
- Saturated or excessively moist soils when compared to the natural moisture content of soil exposed elsewhere.
- Odors in ambient air when soil is disturbed. It is noted in this regard that soil should not be held close to the nose to determine whether odors are present.
- Elevated PID/OVA readings indicating the presence of organic vapors.
- Soils containing pieces of pipe, tile, or other debris that may be asbestos-containing material.

This SMP requires that if any of the above conditions are encountered, the soil-disturbing activity be terminated and that contractor personnel notify Lewis or Avocet immediately.

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4.4 *IN-SITU* SOIL CHARACTERIZATION

If impacted soil is encountered or suspected during redevelopment grading, it may be appropriate to collect one or more representative *in-situ* soil samples for laboratory analysis, prior to disturbing additional soil, to assess whether and what type(s) of contamination may be present. The scope of *in-situ* soil sampling is highly dependent on the location-specific conditions, but in general, samples for fixed laboratory analysis should be collected, preserved, and managed in accordance with industry-standard procedures, including sample chain of custody. The types of analyses to be conducted are similarly highly dependent on the location-specific conditions, but based on the site's history and the conditions known to exist at nearby properties, soil sample analyses should, at a minimum, include:

- TPH with carbon chain speciation using EPA Method 8105M CC.
- VOCs, including fuel oxygenates, using EPA Method 5035/8260B
- Title 22 metals using EPA Method 6020/7471A

Additional analyses, such as for organochlorine pesticides (OCPs), polychlorinated biphenyls (PCBs), SVOCs, and/or organic lead, may be warranted based on the conditions observed at the site and the results of the analyses listed above.

4.5 EXCAVATION, STOCKPILING, AND DUST CONTROL

Unless direct-loaded, impacted soil or soil suspected of being impacted should be stockpiled on heavy-duty polyethylene sheeting until it has been characterized to determine whether it can be reused onsite or must be transported offsite for treatment or disposal. Stockpiles of contaminated soil must also be covered with heavy-duty polyethylene sheeting or other covering to minimize emissions to the atmosphere for any period of inactivity lasting more than one hour. As good practice, Avocet recommends that stockpiles of potentially contaminated soil be covered and managed as contaminated until sampling and analysis shows otherwise. The following provides general and generic guidance on excavation, segregation, and related dust control procedures.

- During excavation, potentially impacted soil should be segregated, to the extent practical, from soil judged to be "clean." Obviously-stained/odorous/impacted soil should be "surgically" removed and stockpiled separately. Segregation may be based on the soil's appearance, PID/OVA readings, or similar.
- To the extent practical, foreign objects such as construction or other debris should be segregated from potentially impacted soil to simplify its subsequent management.
- Potentially impacted soil with different characteristics should be segregated and stockpiled separately in discrete stockpiles. This may result in additional stockpile characterization costs but can prevent cross-contamination between stockpiles, resulting in more soil than necessary having to be transported offsite.

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- To minimize the potential for a small volume of contaminated material to impact a large stockpile, resulting in increased disposal costs, the size of any individual stockpile should be limited to no more than 400 cubic yards.
- Impacted soil or suspected impacted soil should be stockpiled on heavy-duty polyethylene sheeting and covered with the same to minimize potential contaminant volatilization to the atmosphere or dispersion via wind or precipitation. Adjoining sheets of polyethylene should overlap by at least 3 feet.
- Stockpile covers should be weighted down with sandbags or similar to prevent the cover being blown off or damaged during windy conditions.
- Covered stockpiles should be surrounded, as necessary, by straw rolls, straw bales, or similar to minimize the potential for eroded sediment to be transported beyond the stockpile area.
- Covered stockpiles should be inspected on a daily basis and the covers repaired, replaced, adjusted, or supplemented.
- If odors or dust are detectable at the site boundary during the placement or removal of contaminated soil stockpiles, the “active” stockpile surface should be misted or lightly sprayed with water to minimize dust generation and odors in ambient air. Misting or lightly spraying newly cut and exposed soil surfaces may also be appropriate.

It is noted that if impacted soil has been characterized *in-situ* (Section 4.4) and the ultimate disposition of the impacted material has been established, excavated material may be direct-loaded into trucks for offsite disposal or treatment, thereby bypassing the stockpiling process.

4.6 STOCKPILE SAMPLING

Stockpiled soil should be sampled to obtain representative data and determine its ultimate disposition, including onsite reuse and offsite disposal or recycling. To ensure the analytical results are representative of the entire stockpile, samples should be collected at multiple locations and at different depths into the stockpile. Samples should not be collected less than 6 inches into the stockpile to help avoid potentially underestimating VOC concentrations. The number of stockpile samples to be collected may differ depending on the intended disposition of the excavated soils (onsite reuse versus offsite disposal), and different soil disposal facilities may have different requirements in terms of the number of samples to be analyzed and the analytical parameters. In broad terms, however, the number of stockpile samples collected for analysis should be proportional to the volume of the stockpile. Guidance on the minimum number of stockpile samples to be collected is as follows:

- Collect a minimum of one discrete sample for every 50 cubic yards in stockpiles up to 200 cubic yards.

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- Collect one additional sample for each additional 100 cubic yards up to a maximum volume of 400 cubic yards. Thus, a 400-cubic-yard stockpile would require six discrete samples, as follows:

Four for the first 200 cubic yards	=	4
One for the next two 100 cubic yards	=	<u>2</u>
Total	=	6

The discrete stockpile samples may be combined into a composite sample prior to analysis; however, the discrete samples should be composited in and by the analytical laboratory, as opposed to in the field. Moreover, the remainder of the discrete sample material should be held at the laboratory until the results of the composite sample analyses have been received and evaluated so that the discrete samples can, if warranted, be analyzed individually. Composite stockpile samples should, at a minimum, be analyzed for:

- TPH with carbon chain speciation using EPA Method 8105M CC
- VOCs, including fuel oxygenates, using EPA Method 5035/8260B
- Title 22 metals using EPA Method 6010B/7471A

Additional analyses, such as for OCPs, PCBs, SVOCs, and organic lead, may be warranted based on the conditions observed at the site and the results of the analyses listed above.

The results of the stockpile sample analyses should be compared to the screening levels specified in Section 4.2. If the concentrations of any contaminant exceed commercial/industrial screening levels, the stockpiled soil should be transported offsite for disposal or to be recycled. However, if the screening process indicates that a large volume of soil must be transported offsite for disposal, it may be appropriate to develop less conservative, site-specific, risk-based screening levels for regulatory agency approval.

4.7 CONFIRMATION SOIL SAMPLING

On completion of an excavation from which impacted soil has been removed, confirmation soil samples should be collected from the floor and/or sidewalls to assess residual contaminant concentrations prior to the excavation being backfilled. The scope of the confirmation sampling effort will be highly dependent on the location-specific conditions, but in general, samples for laboratory analysis should be collected from the floor and sidewalls of the excavation, preserved, and managed in accordance with industry-standard procedures, including sample chain of custody. The types of analyses to be conducted are similarly highly dependent on the location-specific conditions, but based on the site's history, the analyses should, at a minimum, include:

- TPH with carbon chain speciation using EPA Method 8105M CC
- VOCs, including fuel oxygenates, using EPA Method 5035/8260B
- Title 22 metals using EPA Method 6010B/7471A

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Additional analyses, such as for OCPs, PCBs, SVOCs, and organic lead, may be warranted based on the conditions observed at the site and the results of the analyses listed above.

4.8 TRUCK LOADING

If impacted soil cannot be utilized onsite, including arsenic-impacted soil from the subject removal action, it should be transported offsite for treatment or disposal. When loading trucks with impacted material for offsite treatment or disposal, the following general procedures should be followed:

- Mist or lightly water the impacted soil when placing it in trucks or bins.
- Minimize “drop heights” when loading trucks or bins.
- Impacted soil in trucks should be covered with tarpaulins or similar prior to leaving the site.
- Prior to leaving the site, trucks and bins should be thoroughly inspected, particularly truck wheels and undercarriages, to ensure there is no loose dirt that may fall off onto public streets.
- Public streets near the site used by trucks transporting impacted soil offsite should be inspected on a daily basis for debris and/or dust accumulations and swept, as necessary.

Trucks and bins may be filled with stockpiled material or direct-loaded once an impact has been confirmed and characterized. Proper documentation related to material transported offsite should be maintained, including hazardous and nonhazardous waste manifests, bills of lading, scale tickets, and/or disposal facility receipts.

4.9 IMPORTED FILL CHARACTERIZATION

If fill is imported to the site, its origin and geotechnical properties must be known and the potential for contamination must be evaluated prior to its importation. Options for imported fill include, but may not be limited to, the following:

- Fill may be imported from residential sources without any supporting analytical data. Residential borrow sources must never have been used for agriculture or commercial/industrial purposes and they should not directly border agriculture or commercial/industrial properties.
- Fill may be imported from nonresidential “greenfield” sources, such as commercial quarries or gravel pits, provided the operator provides appropriate analytical data of an affirmative statement to the effect that the material being supplied is suitable for unrestricted use at residential properties. The operator should provide the appropriate documentation to the ownership team prior to importing the fill.

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- Fill material may be imported from other sources, subject to review of the source and representative analytical data. At a minimum, previous environmental and geotechnical reports as well as analytical data for TPH, VOCs, and Title 22 metals will be required, but depending on the source, additional analytical data may be required. Analytical data for imported fill, if any, should be included in project documentation, as outlined in Section 5.0.

Sampling requirements for imported fill are based on DTSC guidance and are as follows:

Import Volume	Sample Requirement
First 1,000 cubic yards	1 sample per 250 cubic yards (4 max.)
2,000 to 5,000 cubic yards	1 sample per each additional 500 cubic yards
More than 5,000 cubic yards	1 sample per each additional 1,000 cubic yards

Potential import fill material containing contaminant concentrations above residential screening levels (Section 4.2) should not be used onsite under any circumstances. Fill material imported to the site without having been evaluated and approved by the ownership team should be turned away.

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5.0 RECORD KEEPING AND REPORTING

The subject removal action will be documented in a report supported by tabular summaries of the analytical results, figures, and appendices as appropriate. The text of the report will include narrative descriptions of field, laboratory, and related activities and an interpretation of the results. Based on the results, the report will include recommendations for no further action, additional investigation, and/or remediation as appropriate.

All of the records mentioned in the preceding sections of this work plan should be maintained for inclusion in a removal action or site redevelopment report to be prepared on substantial completion of the redevelopment effort. At a minimum, the removal action or site redevelopment report should include the following:

- A summary of relevant background information and narrative descriptions of field and laboratory procedures.
- Summaries of the soil impacts encountered at the site and their ultimate disposition, including location information, estimated volumes, *in-situ* characterization data (if any), the volume of soil removed, the results of confirmation soil sample analyses, and the disposition of the removed soil. If the removed soil is reused onsite, its approximate onsite location should also be documented, to the extent practical.
- Summaries of soil, if any, imported to the site, including sources(s), supporting analytical data, and, to the extent practical, where at the site the imported soil was placed.
- A summary of post-removal action site conditions and an evaluation of potential hazards, if any, that could be encountered by future site occupants or workers involved in site maintenance or other activities that could involve soil disturbance.
- Tables, figures, and appendices, as necessary. Tables will include summaries of analytical data, the volumes of soil exported and their ultimate dispositions, and the volumes of soil imported to the site. Figures will show excavation locations. Attachments to the site redevelopment report will include stockpile management data, laboratory analytical reports, waste manifests, and the like. SCAQMD notifications and monitoring data also will be attached.

The site redevelopment report will also include an evaluation of whether a revised SMP may be required for the post-redevelopment period.

Avocet Environmental, Inc. appreciates the opportunity to submit this work plan for your review and we look forward to your response. In the meantime, if you have any questions about the work

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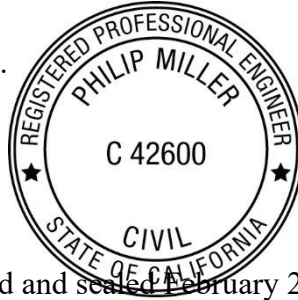
plan or any other aspect of the investigation, please do not hesitate to contact the undersigned at (949) 296-0977 Ext. 102 or at pmiller@avocetenv.com.

Respectfully submitted,

AVOCET ENVIRONMENTAL, INC.



Philip Miller, P.E.
Principal



Signed and sealed February 22, 2022

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Tables

Table 1
Title 22 Metals in Soil Samples
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Boring No.	Sample Depth (feet bgs)	Sample Date	Analytical Laboratory	Analytical Method (except Hg)	Sample Preparation	Analysis Date	Arsenic	Barium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury (Hg)	Nickel	Vanadium	Zinc
B-1	1	03/30/17	A &R Laboratories, Inc.	6010B	Not specified	04/01/17	13.5	60.1	2.34	11.6	4.75	28.6	54.3	0.25	6.12	17.2	97.0
			Eurofins Calscience, Inc.	6020	Not specified	04/11/17	100	--	--	--	--	--	--	--	--	--	--
			Eurofins Calscience, Inc.	6020	Homogenized	04/17/17	97.2	--	--	--	--	--	--	--	--	--	--
			Babcock Laboratories, Inc.	6020	Not specified	05/03/17	60	--	--	--	--	--	--	--	--	--	--
			Eurofins Calscience, Inc.	6010B	Not specified	05/09/17	99.4	--	--	--	--	--	--	--	--	--	--
	3	03/30/17	Babcock Laboratories, Inc.	6020	Not specified	05/23/17	24	--	--	--	--	--	--	--	--	--	--
B-2	5	03/30/17	Sample not analyzed				--	--	--	--	--	--	--	--	--	--	--
	1	03/30/17	A &R Laboratories, Inc.	6010B	Not specified	04/01/17	3.21	29.8	<0.500	10.7	4.28	8.44	2.9	<0.2	6.88	16.1	26.7
			Babcock Laboratories, Inc.	6020	Not specified	05/23/17	59	--	--	--	--	--	--	--	--	--	--
	3	03/30/17	Sample not analyzed				--	--	--	--	--	--	--	--	--	--	--
B-3	5	03/30/17	Sample not analyzed				--	--	--	--	--	--	--	--	--	--	--
	1	03/30/17	A &R Laboratories, Inc.	6010B	Not specified	04/01/17	2.17	111	<0.500	18.5	8.01	13.2	3.4	<0.2	11.7	25.8	39.3
			Babcock Laboratories, Inc.	6020	Not specified	05/23/17	4.5	--	--	--	--	--	--	--	--	--	--
	3	03/30/17	Sample not analyzed				--	--	--	--	--	--	--	--	--	--	--
B-4	5	03/30/17	Sample not analyzed				--	--	--	--	--	--	--	--	--	--	--
	1	03/30/17	A &R Laboratories, Inc.	6010B	Not specified	04/01/17	2.86	43.5	<0.500	6.51	3.26	10.1	13.9	<0.2	4.42	9.12	41.3
			Babcock Laboratories, Inc.	6020	Not specified	05/23/17	32	--	--	--	--	--	--	--	--	--	--
	3	03/30/17	Sample not analyzed				--	--	--	--	--	--	--	--	--	--	--
B-5	5	03/30/17	Sample not analyzed				--	--	--	--	--	--	--	--	--	--	--
	1	03/30/17	A &R Laboratories, Inc.	6010B	Not specified	04/01/17	3.8	35.2	0.692	10.8	4.62	10.8	6.25	<0.2	7.87	15.2	52.6
			Babcock Laboratories, Inc.	6020	Not specified	05/23/17	28	--	--	--	--	--	--	--	--	--	--
	3	03/30/17	Sample not analyzed				--	--	--	--	--	--	--	--	--	--	--
B-6	5	03/30/17	Sample not analyzed				--	--	--	--	--	--	--	--	--	--	--
	1	03/30/17	A &R Laboratories, Inc.	6010B	Not specified	04/01/17	6.64	97.0	0.972	19.7	8.81	14.1	4.84	<0.2	12.7	28.3	45.9
			Eurofins Calscience, Inc.	6020	Not specified	04/11/17	4.35	--	--	--	--	--	--	--	--	--	--
			Eurofins Calscience, Inc.	6020	Homogenized	04/17/17	9.11	--	--	--	--	--	--	--	--	--	--
			Babcock Laboratories, Inc.	6020	Not specified	05/23/17	4.1	--	--	--	--	--	--	--	--	--	--
	3	03/30/17	Sample not analyzed				--	--	--	--	--	--	--	--	--	--	--
B-7	5	03/30/17	Sample not analyzed				--	--	--	--	--	--	--	--	--	--	--
	1	03/30/17	A &R Laboratories, Inc.	6010B	Not specified	04/01/17	3.88	45.9	0.670	12.5	5.18	14.1	28.4	<0.2	7.46	18.4	30.2
			Babcock Laboratories, Inc.	6020	Not specified	05/23/17	11	--	--	--	--	--	--	--	--	--	--
	3	03/30/17	Sample not analyzed				--	--	--	--	--	--	--	--	--	--	--
B-8	5	03/30/17	Sample not analyzed				--	--	--	--	--	--	--	--	--	--	--
	1	03/30/17	A &R Laboratories, Inc.	6010B	Not specified	04/01/17	5.16	29.6	0.797	11.1	4.97	8.86	2.78	<0.2	8.47	17.5	37.8
			Eurofins Calscience, Inc.	6020	Not specified	04/11/17	26.4	--	--	--	--	--	--	--	--	--	--
			Eurofins Calscience, Inc.	6020	Homogenized	04/17/17	35.7	--	--	--	--	--	--	--	--	--	--
			Babcock Laboratories, Inc.	6020	Not specified	05/03/17	41	--	--	--	--	--	--	--	--	--	--
			Eurofins Calscience, Inc.	6010B	Not specified	05/09/17	34.8	--	--	--	--	--	--	--	--	--	--
	3	03/30/17	Babcock Laboratories, Inc.	6020	Not specified	05/23/17	5.7	--	--	--	--	--	--	--	--	--	--
San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) and California Department of Toxic Substances Control (DTSC) Screening Criteria																	
SFBRWQCB Residential Environmental Screening Level (ESL)							0.68	15,000	71	--	23	3,100	400	11	1,500	390	23,000
SFBRWQCB Commercial/Industrial ESL							3.0	220,000	980	--	350	47,000	800	46	22,000	5,800	350,000
DTSC-SL (Residential)							0.11	--	2,100	--	--	3,100	--	15,000	80	390	--
DTSC-SL (Industrial)							0.36	--	9,300	--	--	47,000	--	64,000	300	1,000	--

Notes:
bgs = below ground surface
Bold type indicates reported at detectable concentration
-- Denotes not analyzed or not available
< Denotes nondetected at the Reporting Limit (RL) indicated
SFBRWQCB ESLs as of January 2019
DTSC-SLs as of June 2020



Table 2
TPH in Soil Samples
Former UPR Right-of-Way
Between I-215 and West Main Street
Grand Terrace, California

Boring No.	Sample Depth (feet bgs)	Sample Date	Units	TPH-d	TPH-o
B-1	1.0	03/30/17	mg/kg	<10	<20
B-2	1.0	03/30/17	mg/kg	<10	<20
B-3	1.0	03/30/17	mg/kg	<10	<20
B-4	1.0	03/30/17	mg/kg	<10	<20
B-5	1.0	03/30/17	mg/kg	<10	<20
B-6	1.0	03/30/17	mg/kg	<10	<20
B-7	1.0	03/30/17	mg/kg	<10	<20
B-8	1.0	03/30/17	mg/kg	<10	<20

Notes:

bgs = below ground surface

mg/kg = milligram per kilogram

TPH-d and TPH-o = total petroleum hydrocarbons as diesel fuel and as oil

TPH analyses by A&R Laboratories using EPA Method 8015B

< indicates not detected at the Reporting Limit (RL) indicated

Table 3
SVOCs in Soil Samples
Former UPR Right-of-Way
Between I-215 and West Main Street
Grand Terrace, California
Page 1 of 3

Boring No.	Sample Depth (feet bgs)	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methyl-4,6-dinitrophenol	2-Methylnaphthalene	2-Methylphenol (o-Cresol)	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3/4-Methylphenol (Cresol)	3-Nitroaniline
B-1	1.0	03/30/17	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	
B-2	1.0	03/30/17	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	
B-3	1.0	03/30/17	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	
B-4	1.0	03/30/17	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	
B-5	1.0	03/30/17	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	
B-6	1.0	03/30/17	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	
B-7	1.0	03/30/17	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	
B-8	1.0	03/30/17	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	

Notes:
Units are milligrams per kilogram or mg/kg
bgs = below ground surface
< indicates not detected at the Reporting Limit (RL) indicated
SVOC analyses by A&R Laboratories using EPA Method 8270C

Table 3
SVOCs in Soil Samples
Former UPR Right-of-Way
Between I-215 and West Main Street
Grand Terrace, California
Page 2 of 3

Boring No.	Sample Depth (feet bgs)	4-Bromophenyl phenyl ether	4-Chloro-3-methylphenol	4-Chloroaniline	4-Chlorophenyl phenyl ether	4-Nitroaniline	4-Nitrophenol	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	bis(2-Chloroethoxy)methane	bis(2-Chloroethyl) ether	bis(2-Chloroisopropyl) ether	bis(2-Ethylhexyl) phthalate	Butyl benzyl phthalate	Chrysene
B-1	1.0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
B-2	1.0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
B-3	1.0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
B-4	1.0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
B-5	1.0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
B-6	1.0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
B-7	1.0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
B-8	1.0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25

Notes:
Units are milligrams per kilogram or mg/kg
bgs = below ground surface
< indicates not detected at the Reporting Limit (RL) indicated
SVOC analyses by A&R Laboratories using EPA Method 8270C

Table 3
SVOCs in Soil Samples
Former UPR Right-of-Way
Between I-215 and West Main Street
Grand Terrace, California
Page 3 of 3

Boring No.	Sample Depth (feet bgs)	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	N-Nitrosodi-n-propylamine	N-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
B-1	1.0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
B-2	1.0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
B-3	1.0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
B-4	1.0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
B-5	1.0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
B-6	1.0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
B-7	1.0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
B-8	1.0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25

Notes:
Units are milligrams per kilogram or mg/kg
bgs = below ground surface
< indicates not detected at the Reporting Limit (RL) indicated
SVOC analyses by A&R Laboratories using EPA Method 8270C

Table 4
Arsenic in Soil Samples
Former UPR Right-of-Way
Between I-215 and West Main Street
Grand Terrace, California

Boring No.	Consultant	Sample Depth (feet bgs)	Date Sampled	Laboratory	EPA Analytical Method	Arsenic (Total) mg/kg	Arsenic (Soluble)	
							TCLP mg/L	CA WET mg/L
B-1	LOR Geotechnical	1	03/30/17	A & R Laboratories, Inc.	6010B	13.5	--	--
				Eurofins Calscience, Inc.	6020	100	--	--
				Eurofins Calscience, LLC	6020	97.2	--	--
				Babcock Laboratories, Inc.	6020	60	--	--
				Eurofins Calscience, LLC	6010B	99.4	--	--
B-1	LOR Geotechnical	3	03/30/17	Babcock Laboratories, Inc.	6020	24	--	--
B-1A	Avocet (Confirmation)	1	02/09/18	Eurofins Calscience, LLC	6020	9.83	--	--
B-9	Avocet (B-1 Step-Out)	1	02/09/18	Eurofins Calscience, LLC	6020	40.2	--	--
		3	02/09/18	Eurofins Calscience, LLC	6020	2.41	--	--
B-10	Avocet (B-1 Step-Out)	1	02/09/18	Eurofins Calscience, LLC	6020	23.8	--	--
		3	02/09/18	Eurofins Calscience, LLC	6020	18.6	--	--
		5	02/09/18	Eurofins Calscience, LLC	6020	4.07	--	--
B-11	Avocet (B-1 Step-Out)	1	02/09/18	Eurofins Calscience, LLC	6020	5.69	--	--
B-12	Avocet (B-1 Step-Out)	1	02/09/18	Eurofins Calscience, LLC	6020	3.76	--	--
B-2	LOR Geotechnical	1	03/30/17	A & R Laboratories, Inc.	6010B	3.21	--	--
				Babcock Laboratories, Inc.	6020	59	--	--
B-2A	Avocet (Confirmation)	1	02/09/18	Eurofins Calscience, LLC	6020	33.1	--	--
		3	02/09/18	Eurofins Calscience, LLC	6020	2.94	--	--
B-15	Avocet (B-2 Step-Out)	1	02/09/18	Eurofins Calscience, LLC	6020	6.57	--	--
B-16	Avocet (B-2 Step-Out)	1	02/09/18	Eurofins Calscience, LLC	6020	21.4	--	--
		3	02/09/18	Eurofins Calscience, LLC	6020	1.77	--	--
B-17	Avocet (B-2 Step-Out)	1	02/09/18	Eurofins Calscience, LLC	6020	2.84	--	--
B-18	Avocet (B-2 Step-Out)	1	02/09/18	Eurofins Calscience, LLC	6020	44.0	--	--
		3	02/09/18	Eurofins Calscience, LLC	6020	2.68	--	--
B-3	LOR Geotechnical	1	03/30/17	A & R Laboratories, Inc.	6010B	2.17	--	--
				Babcock Laboratories, Inc.	6020	4.5	--	--
B-3A	Avocet (Confirmation)	1	02/09/18	Eurofins Calscience, LLC	6020	21.8	--	--
		3	02/09/18	Eurofins Calscience, LLC	6020	3.22	--	--
B-4	LOR Geotechnical	1	03/30/17	A & R Laboratories, Inc.	6010B	2.86	--	--
				Babcock Laboratories, Inc.	6020	32	--	--
B-4A	Avocet (Confirmation)	1	02/09/18	Eurofins Calscience, LLC	6020	13.5	--	--
		3	02/09/18	Eurofins Calscience, LLC	6020	2.32	--	--
B-23	Avocet (B-4 Step-Out)	1	02/09/18	Eurofins Calscience, LLC	6020	3.36	--	--
B-24	Avocet (B-4 Step-Out)	1	02/09/18	Eurofins Calscience, LLC	6020	2.58	--	--
B-25	Avocet (B-4 Step-Out)	1	02/09/18	Eurofins Calscience, LLC	6020	4.66	--	--
B-26	Avocet (B-4 Step-Out)	1	02/09/18	Eurofins Calscience, LLC	6020	15.1	--	--
		3	02/09/18	Eurofins Calscience, LLC	6020	2.94	--	--
B-5	LOR Geotechnical	1	03/30/17	A & R Laboratories, Inc.	6010B	3.8	--	--
				Babcock Laboratories, Inc.	6020	28	--	--
B-5A	Avocet (Confirmation)	1	02/09/18	Eurofins Calscience, LLC	6020	40.7	--	--
		3	02/09/18	Eurofins Calscience, LLC	6020	3.54	--	--
B-29	Avocet (B-5 Step-Out)	1	02/09/18	Eurofins Calscience, LLC	6020	73.5	<0.1	1.88
		3	02/09/18	Eurofins Calscience, LLC	6020	2.79	--	--
B-30	Avocet (B-5 Step-Out)	1	02/09/18	Eurofins Calscience, LLC	6020	5.5	--	--

Table 4
Arsenic in Soil Samples
Former UPR Right-of-Way
Between I-215 and West Main Street
Grand Terrace, California

Boring No.	Consultant	Sample Depth (feet bgs)	Date Sampled	Laboratory	EPA Analytical Method	Arsenic (Total) mg/kg	Arsenic (Soluble)	
							TCLP mg/L	CA WET mg/L
B-31	Avocet (B-5 Step-Out)	1	02/09/18	Eurofins Calscience, LLC	6020	31.7	--	--
		3	02/09/18	Eurofins Calscience, LLC	6020	2.95	--	--
B-6	LOR Geotechnical	1	03/30/17	A & R Laboratories, Inc.	6010B	6.64	--	--
				Eurofins Calscience, LLC	6020	4.35	--	--
				Eurofins Calscience, LLC	6020	9.11	--	--
				Babcock Laboratories, Inc.	6020	4.1	--	--
B-6A	Avocet (Confirmation)	1	02/12/18	Eurofins Calscience, LLC	6020	42.4	--	--
		3	02/12/18	Eurofins Calscience, LLC	6020	2.63	--	--
B-7	LOR Geotechnical	1	03/30/17	A & R Laboratories, Inc.	6010B	3.88	--	--
				Babcock Laboratories, Inc.	6020	11	--	--
B-7A	Avocet (Confirmation)	1	02/12/18	Eurofins Calscience, LLC	6020	33.7	--	--
		3	02/12/18	Eurofins Calscience, LLC	6020	2.81	--	--
B-36	Avocet (B-7 Step-Out)	1	02/12/18	Eurofins Calscience, LLC	6020	8.75	--	--
B-37	Avocet (B-7 Step-Out)	1	02/12/18	Eurofins Calscience, LLC	6020	3.14	--	--
B-38	Avocet (B-7 Step-Out)	1	02/12/18	Eurofins Calscience, LLC	6020	31.6	--	--
		3	02/12/18	Eurofins Calscience, LLC	6020	5.95	--	--
B-39	Avocet (B-7 Step-Out)	1	02/12/18	Eurofins Calscience, LLC	6020	28.7	--	--
		3	02/12/18	Eurofins Calscience, LLC	6020	5.21	--	--
B-8	LOR Geotechnical	1	03/30/17	A & R Laboratories, Inc.	6010B	5.16	--	--
				Eurofins Calscience, LLC	6020	26.4	--	--
				Eurofins Calscience, LLC	6020	35.7	--	--
				Babcock Laboratories, Inc.	6020	41	--	--
				Eurofins Calscience, LLC	6010B	34.8	--	--
		3	03/30/17	Babcock Laboratories, Inc.	6020	5.7	--	--
B-8A	Avocet (Confirmation)	1	02/12/18	Eurofins Calscience, LLC	6020	24.1	--	--
		3	02/12/18	Eurofins Calscience, LLC	6020	12.2	--	--
		5	02/12/18	Eurofins Calscience, LLC	6020	6.48	--	--
B-42	Avocet (B-8 Step-Out)	1	02/12/18	Eurofins Calscience, LLC	6020	4.34	--	--
B-43	Avocet (B-8 Step-Out)	1	02/12/18	Eurofins Calscience, LLC	6020	4.24	--	--
B-44	Avocet (B-8 Step-Out)	1	02/12/18	Eurofins Calscience, LLC	6020	11.9	--	--
B-45	Avocet (B-8 Step-Out)	1	02/12/18	Eurofins Calscience, LLC	6020	10.6	--	--
B-13	Avocet	1	02/09/18	Eurofins Calscience, LLC	6020	2.62	--	--
B-14	Avocet	1	02/09/18	Eurofins Calscience, LLC	6020	62.9	<0.1	1.9
		3	02/09/18	Eurofins Calscience, LLC	6020	2.52	--	--
B-19	Avocet	1	02/09/18	Eurofins Calscience, LLC	6020	10.9	--	--
B-20	Avocet	1	02/09/18	Eurofins Calscience, LLC	6020	5.30	--	--
B-21	Avocet	1	02/09/18	Eurofins Calscience, LLC	6020	33.6	--	--
		3	02/09/18	Eurofins Calscience, LLC	6020	2.60	--	--
B-22	Avocet	1	02/09/18	Eurofins Calscience, LLC	6020	52.3	0.103	1.73
		3	02/09/18	Eurofins Calscience, LLC	6020	2.44	--	--
B-27	Avocet	1	02/09/18	Eurofins Calscience, LLC	6020	9.74	--	--
B-28	Avocet	1	02/09/18	Eurofins Calscience, LLC	6020	50.6	0.117	2.14
		3	02/09/18	Eurofins Calscience, LLC	6020	3.05	--	--
B-32	Avocet	1	02/12/18	Eurofins Calscience, LLC	6020	20.4	--	--
		3	02/12/18	Eurofins Calscience, LLC	6020	2.52	--	--

Table 4
Arsenic in Soil Samples
Former UPR Right-of-Way
Between I-215 and West Main Street
Grand Terrace, California

Boring No.	Consultant	Sample Depth (feet bgs)	Date Sampled	Laboratory	EPA Analytical Method	Arsenic (Total) mg/kg	Arsenic (Soluble)	
							TCLP mg/L	CA WET mg/L
B-33	Avocet	1	02/12/18	Eurofins Calscience, LLC	6020	22.1	--	--
		3	02/12/18	Eurofins Calscience, LLC	6020	2.78	--	--
B-34	Avocet	1	02/12/18	Eurofins Calscience, LLC	6020	76.9	0.26	2.98
		3	02/12/18	Eurofins Calscience, LLC	6020	1.98	--	--
B-35	Avocet	1	02/12/18	Eurofins Calscience, LLC	6020	9.78	--	--
B-40	Avocet	1	02/12/18	Eurofins Calscience, LLC	6020	110	<0.1	0.242
		3	02/12/18	Eurofins Calscience, LLC	6020	1.18	--	--
B-41	Avocet	1	02/12/18	Eurofins Calscience, LLC	6020	43.6	--	--
		3	02/12/18	Eurofins Calscience, LLC	6020	3.56	--	--

Notes:

bgs = below ground surface

CA WET = California Waste Extraction Test using Extraction Method T22.11.05

mg/kg = milligram per kilogram

mg/L = milligram per liter

TCLP = Toxicity Characteristic Leaching Procedure using EPA Extraction Method 1311

-- Denotes not analyzed

< Denotes nondetected at the Reporting Limit (RL) indicated.

Arsenic analyzed using EPA Method 6020; LOR by Babcock Laboratories, Inc., Avocet by Eurofins Calscience, LLC

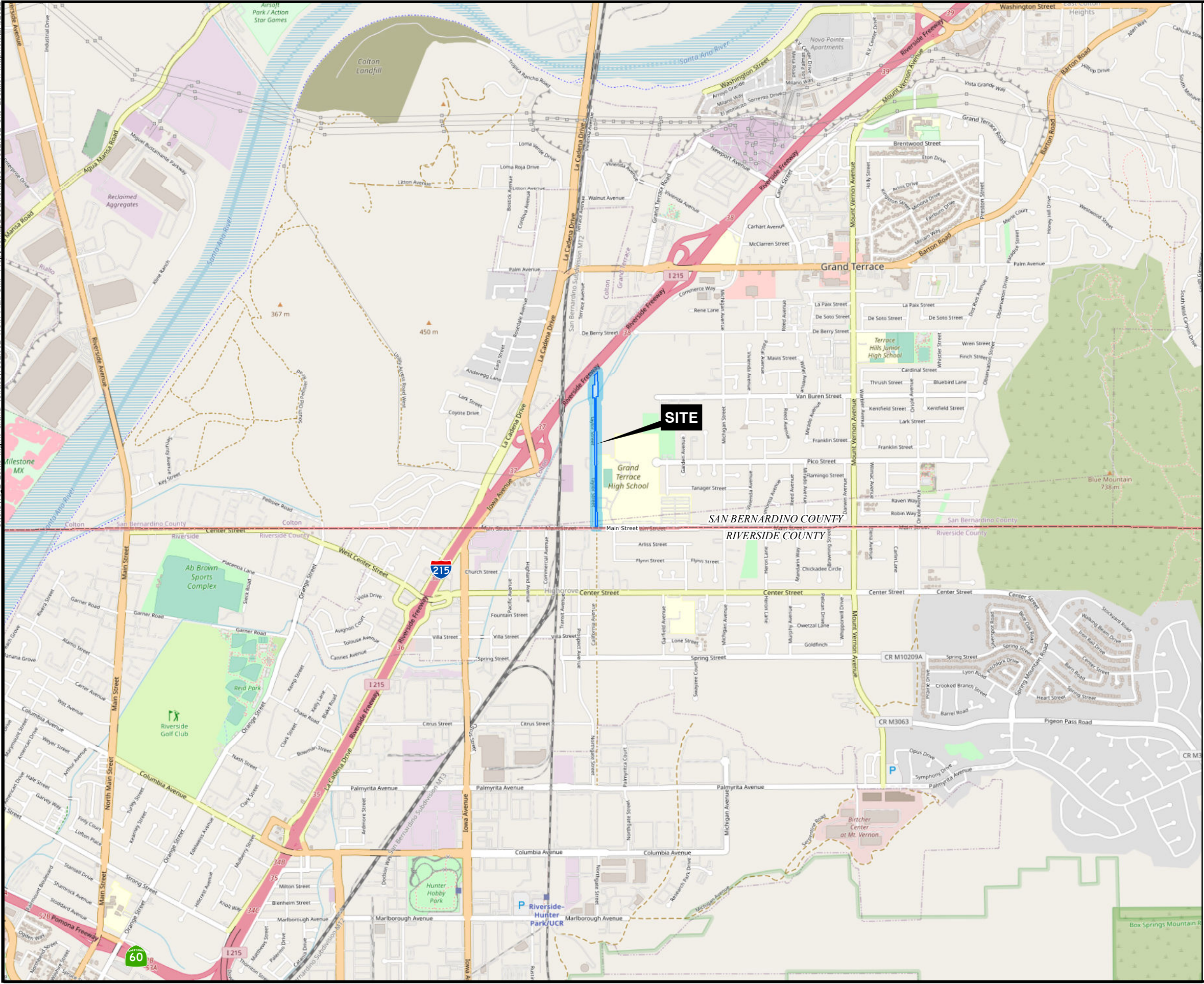
Bold type indicates reported at detectable concentration.

Yellow shading indicates arsenic concentration above 12 mg/kg

Orange shading indicates arsenic concentration above 50 mg/kg

Blue shading indicates soluble arsenic concentration

Figures



SAN BERNARDINO
COUNTY



VICINITY MAP

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NATIONAL GEOGRAPHIC, ESRI, GARMIN, HERE, UNEP-WCMC, USGS,
NASA, ESA, METI, NRCAN, GEBCO, NOAA, INCREMENT P CORP.

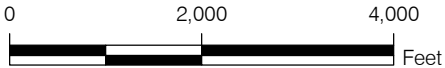
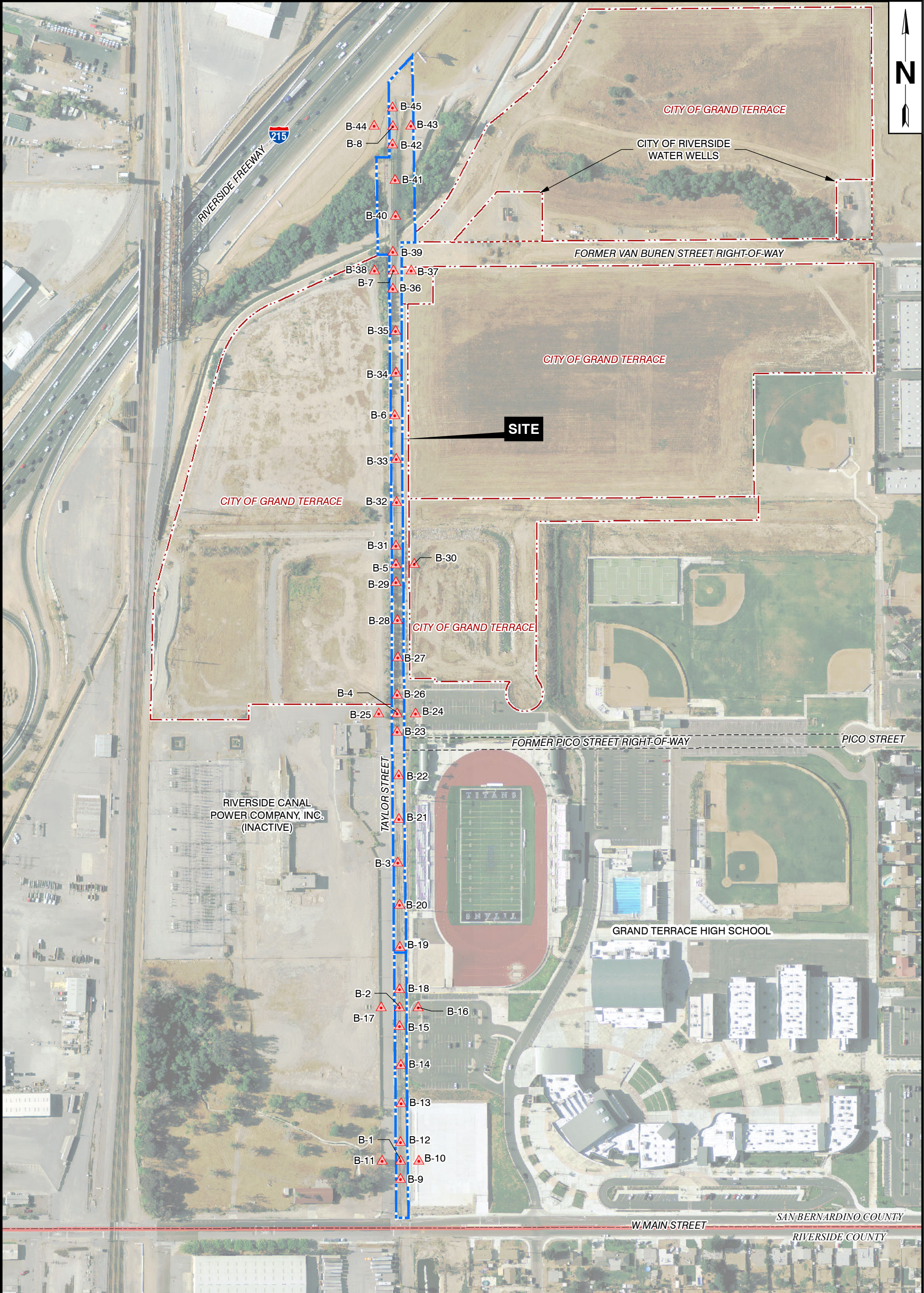




FIGURE 1
SITE LOCATION MAP
FORMER UPR RIGHT-OF-WAY
GRAND TERRACE, CALIFORNIA

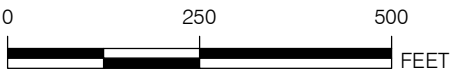




EXPLANATION

 UNION PACIFIC RAILROAD RIGHT-OF-WAY

 SOIL BORING LOCATION

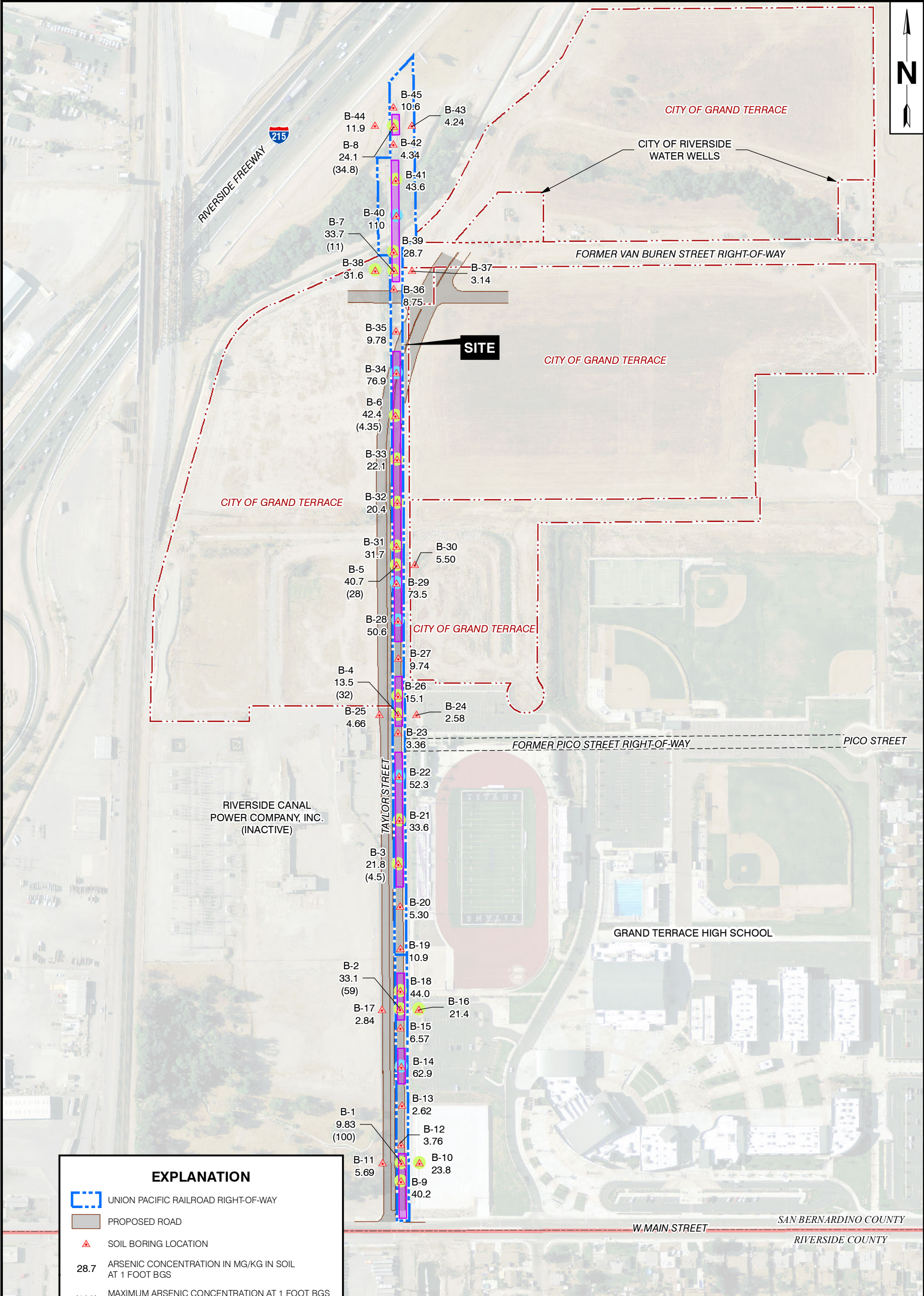


NOTE:
SPACING OF STEP-OUT BORINGS TO EAST AND WEST
EXAGGERATED FOR CLARITY. BORINGS ARE WITHIN
UPR RIGHT-OF-WAY.

FIGURE 2
SITE PLAN
FORMER UPR RIGHT-OF-WAY
GRAND TERRACE, CALIFORNIA



REFERENCE:
U.S.G.S. AERIAL PHOTOGRAPH
DATED: MAY 25, 2014





0 125 250 500
Feet

AVOCET
ENVIRONMENTAL, INC.

Appendix A

*Laboratory Report,
ARL, April 5, 2017*



A & R Laboratories

Formerly Microbac Southern California

1650 S. GROVE AVE., SUITE C

ONTARIO, CA 91761

951-779-0310

www.arlaboratories.com

FAX 951-779-0344

office@arlaboratories.com

FDA#	2030513
LA City#	10261
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	2790
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CASE NARRATIVE

Authorized Signature Name / Title (print)

Ken Zheng, President

Signature / Date

Ken Zheng

Ken Zheng, President
04/10/2017 10:56:15

Laboratory Job No. (Certificate of Analysis No.)

1703-00259

Project Name / No.

SOUTHERN PACIFIC RAILROAD CO. PROPERTY 33336.2

Dates Sampled (from/to)

03/30/17 To 03/30/17

Dates Received (from/to)

03/30/17 To 03/30/17

Dates Reported (from/to)

04/05/17 To 4/10/2017

Chains of Custody Received

Yes

Comments:

Subcontracting

Organic Analyses

No analyses sub-contracted

Inorganic Analyses

No analyses sub-contracted

Sample Condition(s)

All samples intact

Positive Results (Organic Compounds)

Sample	Analyte	Result	Qual	Units	RL	Sample	Analyte	Result	Qual	Units	RL
--------	---------	--------	------	-------	----	--------	---------	--------	------	-------	----



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CERTIFICATE OF ANALYSIS

1703-00259

LOR GEOTECHNICAL GROUP, INC.
KEVIN OSMUN
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507

Date Reported 04/05/17
Date Received 03/30/17
Invoice No. 78933
Cust # 1422
Permit Number
Customer P.O. 33336.2

Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 B-1-1					Date & Time Sampled:		03/30/17	@ 8:25
Sample Matrix: Soil								
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		04/02/17	VS
Diesel	<10		mg/Kg	EPA 8015B	1.0	10	04/02/17	AR
Motor Oil	<20		mg/Kg	EPA 8015B	1.0	20	04/02/17	AR
[Surrogate]								
o-Terphenyl (OTP)	71		%REC	EPA 8015B		50-150	04/02/17	AR
[Metals Title 22 no Hg]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		04/01/17	TLB
Antimony	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Arsenic	13.5		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Barium	60.1		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Beryllium	<0.500		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Cadmium	2.34		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Chromium	11.6		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Cobalt	4.75		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Copper	28.6		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Lead	54.3		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Molybdenum	<0.500		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Nickel	6.12		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Selenium	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Silver	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Thallium	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Vanadium	17.2		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Zinc	97.0		mg/Kg	EPA 6010B	1.0	5.00	04/01/17	TLB
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		04/05/17	KZ
Mercury	0.25		mg/Kg	EPA 7471A	1.0	0.20	04/05/17	KZ
[Semi-Volatile Organics]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		04/02/17	KZ
Acenaphthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Acenaphthylene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ

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CERTIFICATE OF ANALYSIS

1703-00259

LOR GEOTECHNICAL GROUP, INC.
KEVIN OSMUN
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507

Date Reported 04/05/17
Date Received 03/30/17
Invoice No. 78933
Cust # 1422
Permit Number
Customer P.O. 33336.2

Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 B-1-1					Date & Time Sampled:		03/30/17	@ 8:25
Sample Matrix: Soil								
.....continued								
Benzo(a)anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(a)pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(b)fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(g,h,i)perylene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(k)fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroethoxy)methane	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroethyl) ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroisopropyl)ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Ethylhexyl) phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Bromophenyl Phenyl Ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzyl Butyl Phthalate(BBP)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chloro-3-Methylphenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chloroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Chloronaphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Chlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chlorophenyl Phenyl Ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Chrysene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Di-n-Butyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Di-n-Octyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dibenzo(a,h)anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dibenzofuran	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,2-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,3-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,4-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3,3-Dichlorobenzidine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Diethyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dimethyl Phthalate(DEP)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dimethylphenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methyl-4,6-Dinitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dinitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ

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LOR GEOTECHNICAL GROUP, INC.
KEVIN OSMUN
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507

Date Reported 04/05/17
Date Received 03/30/17
Invoice No. 78933
Cust # 1422
Permit Number
Customer P.O. 33336.2

Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 B-1-1					Date & Time Sampled:		03/30/17	@ 8:25
Sample Matrix: Soil								
.....continued								
2,4-Dinitrotoluene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,6-Dinitrotoluene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Fluorene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorobutadiene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorocyclopentadiene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachloroethane	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Indeno(1,2,3-c,d)pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Isophorone	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methylnaphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3/4-Methylphenol(Cresol)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methylphenol(o-Cresol)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Naphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Nitrobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Nitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Nitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
n-Nitrosodi-n-Propylamine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
n-Nitroso-Diphenylamine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Pentachlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Phenanthrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Phenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,2,4-Trichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4,5-Trichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4,6-Trichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
[Semi-Volatile Surrogates]								
2-Fluorophenol	85		%REC	EPA 8270C		25-121	04/02/17	KZ

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Invoice No. 78933
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Permit Number
Customer P.O. 33336.2

Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 B-1-1 Sample Matrix: Soilcontinued					Date & Time Sampled:		03/30/17	@ 8:25
Phenol-D5	76		%REC	EPA 8270C		24-113	04/02/17	KZ
Nitrobenzene-D5	70		%REC	EPA 8270C		23-120	04/02/17	KZ
2-Fluorobiphenyl	54		%REC	EPA 8270C		30-115	04/02/17	KZ
2,4,6-Tribromophenol	65		%REC	EPA 8270C		19-122	04/02/17	KZ
p-Terphenyl-D14	60		%REC	EPA 8270C		18-137	04/02/17	KZ
Sample: 002 B-2-1 Sample Matrix: Soil					Date & Time Sampled:		03/30/17	@ 8:56
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		04/02/17	VS
Diesel	<10		mg/Kg	EPA 8015B	1.0	10	04/02/17	AR
Motor Oil	<20		mg/Kg	EPA 8015B	1.0	20	04/02/17	AR
[Surrogate]								
o-Terphenyl (OTP)	72		%REC	EPA 8015B		50-150	04/02/17	AR
[Metals Title 22 no Hg]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		04/01/17	TLB
Antimony	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Arsenic	3.21		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Barium	29.8		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Beryllium	<0.500		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Cadmium	<0.500		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Chromium	10.7		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Cobalt	4.28		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Copper	8.44		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Lead	2.90		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Molybdenum	<0.500		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Nickel	6.88		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Selenium	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Silver	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Thallium	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Vanadium	16.1		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB

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FAX 951-779-0344

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CERTIFICATE OF ANALYSIS

1703-00259

LOR GEOTECHNICAL GROUP, INC.
KEVIN OSMUN
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507

Date Reported 04/05/17
Date Received 03/30/17
Invoice No. 78933
Cust # 1422
Permit Number
Customer P.O. 33336.2

Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 002 B-2-1					Date & Time Sampled:		03/30/17	@ 8:56
Sample Matrix: Soil								
.....continued								
Zinc	26.7		mg/Kg	EPA 6010B	1.0	5.00	04/01/17	TLB
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		04/05/17	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	04/05/17	KZ
[Semi-Volatile Organics]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		04/02/17	KZ
Acenaphthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Acenaphthylene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(a)anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(a)pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(b)fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(g,h,i)perylene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(k)fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroethoxy)methane	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroethyl) ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroisopropyl)ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Ethylhexyl) phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Bromophenyl Phenyl Ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzyl Butyl Phthalate(BBP)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chloro-3-Methylphenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chloroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Chloronaphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Chlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chlorophenyl Phenyl Ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Chrysene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Di-n-Butyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Di-n-Octyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dibenzo(a,h)anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dibenzofuran	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,2-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ

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Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 002 B-2-1							Date & Time Sampled: 03/30/17 @ 8:56	
Sample Matrix: Soil								
.....continued								
1,3-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,4-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3,3-Dichlorobenzidine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Diethyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dimethyl Phthalate(DEP)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dimethylphenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methyl-4,6-Dinitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dinitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dinitrotoluene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,6-Dinitrotoluene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Fluorene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorobutadiene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorocyclopentadiene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachloroethane	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Indeno(1,2,3-c,d)pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Isophorone	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methylnaphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3/4-Methylphenol(Cresol)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methylphenol(o-Cresol)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Naphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Nitrobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Nitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Nitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
n-Nitrosodi-n-Propylamine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
n-Nitroso-Diphenylamine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ

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1703-00259

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RIVERSIDE, CA 92507

Date Reported 04/05/17
Date Received 03/30/17
Invoice No. 78933
Cust # 1422
Permit Number
Customer P.O. 33336.2

Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 002 B-2-1					Date & Time Sampled:		03/30/17	@ 8:56
Sample Matrix: Soil								
.....continued								
Pentachlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Phenanthrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Phenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,2,4-Trichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4,5-Trichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4,6-Trichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
[Semi-Volatile Surrogates]								
2-Fluorophenol	74		%REC	EPA 8270C		25-121	04/02/17	KZ
Phenol-D5	82		%REC	EPA 8270C		24-113	04/02/17	KZ
Nitrobenzene-D5	80		%REC	EPA 8270C		23-120	04/02/17	KZ
2-Fluorobiphenyl	65		%REC	EPA 8270C		30-115	04/02/17	KZ
2,4,6-Tribromophenol	62		%REC	EPA 8270C		19-122	04/02/17	KZ
p-Terphenyl-D14	60		%REC	EPA 8270C		18-137	04/02/17	KZ
Sample: 003 B-3-1					Date & Time Sampled:		03/30/17	@ 9:20
Sample Matrix: Soil								
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		04/02/17	VS
Diesel	<10		mg/Kg	EPA 8015B	1.0	10	04/02/17	AR
Motor Oil	<20		mg/Kg	EPA 8015B	1.0	20	04/02/17	AR
[Surrogate]								
o-Terphenyl (OTP)	69		%REC	EPA 8015B		50-150	04/02/17	AR
[Metals Title 22 no Hg]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		04/01/17	TLB
Antimony	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Arsenic	2.17		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Barium	111		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Beryllium	<0.500		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Cadmium	<0.500		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Chromium	18.5		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB

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Customer P.O. 33336.2

Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 003 B-3-1							Date & Time Sampled: 03/30/17 @ 9:20	
Sample Matrix: Soil								
.....continued								
Cobalt	8.01		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Copper	13.2		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Lead	3.40		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Molybdenum	<0.500		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Nickel	11.7		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Selenium	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Silver	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Thallium	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Vanadium	25.8		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Zinc	39.3		mg/Kg	EPA 6010B	1.0	5.00	04/01/17	TLB
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		04/05/17	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	04/05/17	KZ
[Semi-Volatile Organics]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		04/02/17	KZ
Acenaphthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Acenaphthylene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(a)anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(a)pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(b)fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(g,h,i)perylene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(k)fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroethoxy)methane	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroethyl) ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroisopropyl)ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Ethylhexyl) phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Bromophenyl Phenyl Ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzyl Butyl Phthalate(BBP)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chloro-3-Methylphenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chloroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ

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Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 003 B-3-1					Date & Time Sampled:		03/30/17	@ 9:20
Sample Matrix: Soil								
.....continued								
2-Chloronaphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Chlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chlorophenyl Phenyl Ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Chrysene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Di-n-Butyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Di-n-Octyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dibenzo(a,h)anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dibenzofuran	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,2-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,3-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,4-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3,3-Dichlorobenzidine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Diethyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dimethyl Phthalate(DEP)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dimethylphenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methyl-4,6-Dinitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dinitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dinitrotoluene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,6-Dinitrotoluene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Fluorene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorobutadiene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorocyclopentadiene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachloroethane	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Indeno(1,2,3-c,d)pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Isophorone	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methylnaphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3/4-Methylphenol(Cresol)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methylphenol(o-Cresol)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ

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CERTIFICATE OF ANALYSIS

1703-00259

LOR GEOTECHNICAL GROUP, INC.
KEVIN OSMUN
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507

Date Reported 04/05/17
Date Received 03/30/17
Invoice No. 78933
Cust # 1422
Permit Number
Customer P.O. 33336.2

Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 003 B-3-1					Date & Time Sampled:		03/30/17	@ 9:20
Sample Matrix: Soil								
.....continued								
Naphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Nitrobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Nitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Nitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
n-Nitrosodi-n-Propylamine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
n-Nitroso-Diphenylamine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Pentachlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Phenanthrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Phenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,2,4-Trichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4,5-Trichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4,6-Trichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
[Semi-Volatile Surrogates]								
2-Fluorophenol	74		%REC	EPA 8270C		25-121	04/02/17	KZ
Phenol-D5	70		%REC	EPA 8270C		24-113	04/02/17	KZ
Nitrobenzene-D5	65		%REC	EPA 8270C		23-120	04/02/17	KZ
2-Fluorobiphenyl	69		%REC	EPA 8270C		30-115	04/02/17	KZ
2,4,6-Tribromophenol	64		%REC	EPA 8270C		19-122	04/02/17	KZ
p-Terphenyl-D14	52		%REC	EPA 8270C		18-137	04/02/17	KZ
Sample: 004 B-4-1					Date & Time Sampled:		03/30/17	@ 9:41
Sample Matrix: Soil								
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		04/02/17	VS
Diesel	<10		mg/Kg	EPA 8015B	1.0	10	04/02/17	AR
Motor Oil	<20		mg/Kg	EPA 8015B	1.0	20	04/02/17	AR
[Surrogate]								

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Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 004 B-4-1					Date & Time Sampled:		03/30/17	@ 9:41
Sample Matrix: Soil								
.....continued								
o-Terphenyl (OTP)	79		%REC	EPA 8015B		50-150	04/02/17	AR
[Metals Title 22 no Hg]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		04/01/17	TLB
Antimony	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Arsenic	2.86		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Barium	43.5		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Beryllium	<0.500		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Cadmium	0.586		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Chromium	6.51		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Cobalt	3.26		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Copper	10.1		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Lead	13.9		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Molybdenum	<0.500		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Nickel	4.42		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Selenium	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Silver	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Thallium	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Vanadium	9.12		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Zinc	41.3		mg/Kg	EPA 6010B	1.0	5.00	04/01/17	TLB
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		04/05/17	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	04/05/17	KZ
[Semi-Volatile Organics]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		04/02/17	KZ
Acenaphthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Acenaphthylene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(a)anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(a)pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(b)fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(g,h,i)perylene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ

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Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 004 B-4-1					Date & Time Sampled:	03/30/17	@	9:41
Sample Matrix: Soil								
.....continued								
Benzo(k)fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroethoxy)methane	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroethyl) ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroisopropyl)ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Ethylhexyl) phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Bromophenyl Phenyl Ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzyl Butyl Phthalate(BBP)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chloro-3-Methylphenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chloroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Chloronaphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Chlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chlorophenyl Phenyl Ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Chrysene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Di-n-Butyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Di-n-Octyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dibenzo(a,h)anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dibenzofuran	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,2-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,3-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,4-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3,3-Dichlorobenzidine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Diethyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dimethyl Phthalate(DEP)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dimethylphenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methyl-4,6-Dinitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dinitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dinitrotoluene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,6-Dinitrotoluene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Fluorene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ

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Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 004 B-4-1					Date & Time Sampled:		03/30/17 @ 9:41	
Sample Matrix: Soil								
.....continued								
Hexachlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorobutadiene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorocyclopentadiene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachloroethane	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Indeno(1,2,3-c,d)pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Isophorone	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methylnaphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3/4-Methylphenol(Cresol)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methylphenol(o-Cresol)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Naphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Nitrobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Nitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Nitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
n-Nitrosodi-n-Propylamine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
n-Nitroso-Diphenylamine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Pentachlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Phenanthrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Phenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,2,4-Trichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4,5-Trichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4,6-Trichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
[Semi-Volatile Surrogates]								
2-Fluorophenol	78		%REC	EPA 8270C		25-121	04/02/17	KZ
Phenol-D5	64		%REC	EPA 8270C		24-113	04/02/17	KZ
Nitrobenzene-D5	62		%REC	EPA 8270C		23-120	04/02/17	KZ
2-Fluorobiphenyl	58		%REC	EPA 8270C		30-115	04/02/17	KZ
2,4,6-Tribromophenol	59		%REC	EPA 8270C		19-122	04/02/17	KZ

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Customer P.O. 33336.2

Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 004 B-4-1 Sample Matrix: Soilcontinued					Date & Time Sampled:		03/30/17 @ 9:41	
p-Terphenyl-D14	63		%REC	EPA 8270C		18-137	04/02/17	KZ
Sample: 005 B-5-1 Sample Matrix: Soil					Date & Time Sampled:		03/30/17 @ 10:09	
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		04/02/17	VS
Diesel	<10		mg/Kg	EPA 8015B	1.0	10	04/02/17	AR
Motor Oil	<20		mg/Kg	EPA 8015B	1.0	20	04/02/17	AR
[Surrogate]								
o-Terphenyl (OTP)	72		%REC	EPA 8015B		50-150	04/02/17	AR
[Metals Title 22 no Hg]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		04/01/17	TLB
Antimony	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Arsenic	3.80		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Barium	35.2		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Beryllium	<0.500		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Cadmium	0.692		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Chromium	10.8		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Cobalt	4.62		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Copper	10.8		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Lead	6.25		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Molybdenum	<0.500		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Nickel	7.87		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Selenium	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Silver	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Thallium	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Vanadium	15.2		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Zinc	52.6		mg/Kg	EPA 6010B	1.0	5.00	04/01/17	TLB
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		04/05/17	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	04/05/17	KZ

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FAX 951-779-0344

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CERTIFICATE OF ANALYSIS

1703-00259

LOR GEOTECHNICAL GROUP, INC.
KEVIN OSMUN
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507

Date Reported 04/05/17
Date Received 03/30/17
Invoice No. 78933
Cust # 1422
Permit Number
Customer P.O. 33336.2

Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 005 B-5-1					Date & Time Sampled:		03/30/17	@ 10:09
Sample Matrix: Soil								
.....continued								
[Semi-Volatile Organics]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		04/02/17	KZ
Acenaphthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Acenaphthylene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(a)anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(a)pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(b)fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(g,h,i)perylene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(k)fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroethoxy)methane	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroethyl) ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroisopropyl)ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Ethylhexyl) phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Bromophenyl Phenyl Ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzyl Butyl Phthalate(BBP)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chloro-3-Methylphenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chloroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Chloronaphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Chlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chlorophenyl Phenyl Ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Chrysene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Di-n-Butyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Di-n-Octyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dibenzo(a,h)anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dibenzofuran	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,2-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,3-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,4-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3,3-Dichlorobenzidine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ

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Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 005 B-5-1					Date & Time Sampled:		03/30/17	@ 10:09
Sample Matrix: Soil								
.....continued								
Diethyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dimethyl Phthalate(DEP)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dimethylphenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methyl-4,6-Dinitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dinitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dinitrotoluene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,6-Dinitrotoluene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Fluorene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorobutadiene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorocyclopentadiene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachloroethane	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Indeno(1,2,3-c,d)pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Isophorone	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methylnaphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3/4-Methylphenol(Cresol)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methylphenol(o-Cresol)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Naphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Nitrobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Nitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Nitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
n-Nitrosodi-n-Propylamine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
n-Nitroso-Diphenylamine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Pentachlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Phenanthrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Phenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ

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Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 005 B-5-1					Date & Time Sampled:		03/30/17	@ 10:09
Sample Matrix: Soil								
.....continued								
1,2,4-Trichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4,5-Trichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4,6-Trichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
[Semi-Volatile Surrogates]								
2-Fluorophenol	74		%REC	EPA 8270C		25-121	04/02/17	KZ
Phenol-D5	86		%REC	EPA 8270C		24-113	04/02/17	KZ
Nitrobenzene-D5	82		%REC	EPA 8270C		23-120	04/02/17	KZ
2-Fluorobiphenyl	65		%REC	EPA 8270C		30-115	04/02/17	KZ
2,4,6-Tribromophenol	63		%REC	EPA 8270C		19-122	04/02/17	KZ
p-Terphenyl-D14	54		%REC	EPA 8270C		18-137	04/02/17	KZ
Sample: 006 B-6-1					Date & Time Sampled:		03/30/17	@ 10:34
Sample Matrix: Soil								
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		04/02/17	VS
Diesel	<10		mg/Kg	EPA 8015B	1.0	10	04/02/17	AR
Motor Oil	<20		mg/Kg	EPA 8015B	1.0	20	04/02/17	AR
[Surrogate]								
o-Terphenyl (OTP)	70		%REC	EPA 8015B		50-150	04/02/17	AR
[Metals Title 22 no Hg]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		04/01/17	TLB
Antimony	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Arsenic	6.64		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Barium	97.0		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Beryllium	<0.500		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Cadmium	0.972		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Chromium	19.7		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Cobalt	8.81		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Copper	14.1		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Lead	4.84		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Molybdenum	<0.500		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB

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Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 006 B-6-1					Date & Time Sampled:		03/30/17	@ 10:34
Sample Matrix: Soil								
.....continued								
Nickel	12.7		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Selenium	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Silver	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Thallium	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Vanadium	28.3		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Zinc	45.9		mg/Kg	EPA 6010B	1.0	5.00	04/01/17	TLB
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		04/05/17	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	04/05/17	KZ
[Semi-Volatile Organics]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		04/02/17	KZ
Acenaphthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Acenaphthylene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(a)anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(a)pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(b)fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(g,h,i)perylene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(k)fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroethoxy)methane	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroethyl) ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroisopropyl)ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Ethylhexyl) phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Bromophenyl Phenyl Ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzyl Butyl Phthalate(BBP)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chloro-3-Methylphenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chloroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Chloronaphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Chlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chlorophenyl Phenyl Ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Chrysene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ

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Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 006 B-6-1					Date & Time Sampled:		03/30/17	@ 10:34
Sample Matrix: Soil								
.....continued								
Di-n-Butyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Di-n-Octyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dibenzo(a,h)anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dibenzofuran	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,2-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,3-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,4-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3,3-Dichlorobenzidine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Diethyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dimethyl Phthalate(DEP)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dimethylphenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methyl-4,6-Dinitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dinitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dinitrotoluene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,6-Dinitrotoluene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Fluorene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorobutadiene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorocyclopentadiene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachloroethane	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Indeno(1,2,3-c,d)pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Isophorone	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methylnaphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3/4-Methylphenol(Cresol)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methylphenol(o-Cresol)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Naphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ

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CERTIFICATE OF ANALYSIS

1703-00259

LOR GEOTECHNICAL GROUP, INC.
KEVIN OSMUN
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507

Date Reported 04/05/17
Date Received 03/30/17
Invoice No. 78933
Cust # 1422
Permit Number
Customer P.O. 33336.2

Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 006 B-6-1					Date & Time Sampled:		03/30/17	@ 10:34
Sample Matrix: Soil								
.....continued								
Nitrobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Nitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Nitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
n-Nitrosodi-n-Propylamine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
n-Nitroso-Diphenylamine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Pentachlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Phenanthrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Phenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,2,4-Trichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4,5-Trichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4,6-Trichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
[Semi-Volatile Surrogates]								
2-Fluorophenol	68		%REC	EPA 8270C		25-121	04/02/17	KZ
Phenol-D5	74		%REC	EPA 8270C		24-113	04/02/17	KZ
Nitrobenzene-D5	82		%REC	EPA 8270C		23-120	04/02/17	KZ
2-Fluorobiphenyl	54		%REC	EPA 8270C		30-115	04/02/17	KZ
2,4,6-Tribromophenol	63		%REC	EPA 8270C		19-122	04/02/17	KZ
p-Terphenyl-D14	60		%REC	EPA 8270C		18-137	04/02/17	KZ
Sample: 007 B-7-1					Date & Time Sampled:		03/30/17	@ 10:51
Sample Matrix: Soil								
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		04/02/17	VS
Diesel	<10		mg/Kg	EPA 8015B	1.0	10	04/02/17	AR
Motor Oil	<20		mg/Kg	EPA 8015B	1.0	20	04/02/17	AR
[Surrogate]								
o-Terphenyl (OTP)	74		%REC	EPA 8015B		50-150	04/02/17	AR
[Metals Title 22 no Hg]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		04/01/17	TLB
Antimony	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB

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Cust # 1422
Permit Number
Customer P.O. 33336.2

Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 007 B-7-1					Date & Time Sampled:		03/30/17	@ 10:51
Sample Matrix: Soil								
.....continued								
Arsenic	3.88		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Barium	45.9		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Beryllium	<0.500		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Cadmium	0.670		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Chromium	12.5		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Cobalt	5.18		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Copper	14.1		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Lead	28.4		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Molybdenum	<0.500		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Nickel	7.46		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Selenium	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Silver	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Thallium	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Vanadium	18.4		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Zinc	30.2		mg/Kg	EPA 6010B	1.0	5.00	04/01/17	TLB
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		04/05/17	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	04/05/17	KZ
[Semi-Volatile Organics]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		04/02/17	KZ
Acenaphthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Acenaphthylene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(a)anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(a)pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(b)fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(g,h,i)perylene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(k)fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroethoxy)methane	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroethyl) ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroisopropyl)ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ

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CERTIFICATE OF ANALYSIS

1703-00259

LOR GEOTECHNICAL GROUP, INC.
KEVIN OSMUN
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507

Date Reported 04/05/17
Date Received 03/30/17
Invoice No. 78933
Cust # 1422
Permit Number
Customer P.O. 33336.2

Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 007 B-7-1					Date & Time Sampled:		03/30/17	@ 10:51
Sample Matrix: Soil								
.....continued								
bis(2-Ethylhexyl) phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Bromophenyl Phenyl Ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzyl Butyl Phthalate(BBP)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chloro-3-Methylphenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chloroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Chloronaphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Chlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chlorophenyl Phenyl Ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Chrysene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Di-n-Butyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Di-n-Octyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dibenzo(a,h)anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dibenzofuran	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,2-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,3-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,4-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3,3-Dichlorobenzidine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Diethyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dimethyl Phthalate(DEP)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dimethylphenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methyl-4,6-Dinitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dinitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dinitrotoluene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,6-Dinitrotoluene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Fluorene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorobutadiene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorocyclopentadiene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachloroethane	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ

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Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 007 B-7-1					Date & Time Sampled:		03/30/17	@ 10:51
Sample Matrix: Soil								
.....continued								
Indeno(1,2,3-c,d)pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Isophorone	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methylnaphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3/4-Methylphenol(Cresol)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methylphenol(o-Cresol)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Naphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Nitrobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Nitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Nitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
n-Nitrosodi-n-Propylamine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
n-Nitroso-Diphenylamine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Pentachlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Phenanthrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Phenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,2,4-Trichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4,5-Trichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4,6-Trichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
[Semi-Volatile Surrogates]								
2-Fluorophenol	65		%REC	EPA 8270C		25-121	04/02/17	KZ
Phenol-D5	74		%REC	EPA 8270C		24-113	04/02/17	KZ
Nitrobenzene-D5	89		%REC	EPA 8270C		23-120	04/02/17	KZ
2-Fluorobiphenyl	56		%REC	EPA 8270C		30-115	04/02/17	KZ
2,4,6-Tribromophenol	53		%REC	EPA 8270C		19-122	04/02/17	KZ
p-Terphenyl-D14	46		%REC	EPA 8270C		18-137	04/02/17	KZ

Sample: 008 **B-8-1**
Sample Matrix: **Soil**

Date & Time Sampled: 03/30/17 @ 8:25



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Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 008 B-8-1					Date & Time Sampled:		03/30/17	@ 8:25
Sample Matrix: Soil								
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		04/02/17	VS
Diesel	<10		mg/Kg	EPA 8015B	1.0	10	04/02/17	AR
Motor Oil	<20		mg/Kg	EPA 8015B	1.0	20	04/02/17	AR
[Surrogate]								
o-Terphenyl (OTP)	70		%REC	EPA 8015B		50-150	04/02/17	AR
[Metals Title 22 no Hg]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		04/01/17	TLB
Antimony	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Arsenic	5.16		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Barium	29.6		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Beryllium	<0.500		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Cadmium	0.797		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Chromium	11.1		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Cobalt	4.97		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Copper	8.86		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Lead	2.78		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Molybdenum	<0.500		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Nickel	8.47		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Selenium	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Silver	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Thallium	<1.00		mg/Kg	EPA 6010B	1.0	1.00	04/01/17	TLB
Vanadium	17.5		mg/Kg	EPA 6010B	1.0	0.500	04/01/17	TLB
Zinc	37.8		mg/Kg	EPA 6010B	1.0	5.00	04/01/17	TLB
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		04/05/17	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	04/05/17	KZ
[Semi-Volatile Organics]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		04/02/17	KZ
Acenaphthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Acenaphthylene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ

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CERTIFICATE OF ANALYSIS

1703-00259

LOR GEOTECHNICAL GROUP, INC.
KEVIN OSMUN
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507

Date Reported 04/05/17
Date Received 03/30/17
Invoice No. 78933
Cust # 1422
Permit Number
Customer P.O. 33336.2

Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 008 B-8-1					Date & Time Sampled:		03/30/17	@ 8:25
Sample Matrix: Soil								
.....continued								
Benzo(a)anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(a)pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(b)fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(g,h,i)perylene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzo(k)fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroethoxy)methane	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroethyl) ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Chloroisopropyl)ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
bis(2-Ethylhexyl) phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Bromophenyl Phenyl Ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Benzyl Butyl Phthalate(BBP)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chloro-3-Methylphenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chloroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Chloronaphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Chlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Chlorophenyl Phenyl Ether	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Chrysene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Di-n-Butyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Di-n-Octyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dibenzo(a,h)anthracene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dibenzofuran	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,2-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,3-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,4-Dichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3,3-Dichlorobenzidine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Diethyl Phthalate	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Dimethyl Phthalate(DEP)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dimethylphenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methyl-4,6-Dinitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4-Dinitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ

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CERTIFICATE OF ANALYSIS

1703-00259

LOR GEOTECHNICAL GROUP, INC.
KEVIN OSMUN
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507

Date Reported 04/05/17
Date Received 03/30/17
Invoice No. 78933
Cust # 1422
Permit Number
Customer P.O. 33336.2

Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 008 B-8-1					Date & Time Sampled:		03/30/17	@ 8:25
Sample Matrix: Soil								
.....continued								
2,4-Dinitrotoluene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,6-Dinitrotoluene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Fluoranthene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Fluorene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorobutadiene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachlorocyclopentadiene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Hexachloroethane	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Indeno(1,2,3-c,d)pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Isophorone	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methylnaphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3/4-Methylphenol(Cresol)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Methylphenol(o-Cresol)	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Naphthalene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
3-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Nitroaniline	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Nitrobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2-Nitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
4-Nitrophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
n-Nitrosodi-n-Propylamine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
n-Nitroso-Diphenylamine	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Pentachlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Phenanthrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Phenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
Pyrene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
1,2,4-Trichlorobenzene	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4,5-Trichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
2,4,6-Trichlorophenol	<0.25		mg/Kg	EPA 8270C	1.0	0.25	04/02/17	KZ
[Semi-Volatile Surrogates]								
2-Fluorophenol	65		%REC	EPA 8270C		25-121	04/02/17	KZ

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ONTARIO, CA 91761

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FAX 951-779-0344

office@arlaboratories.com

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LA City#	10261
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CERTIFICATE OF ANALYSIS

1703-00259

LOR GEOTECHNICAL GROUP, INC.
KEVIN OSMUN
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507

Date Reported 04/05/17
Date Received 03/30/17
Invoice No. 78933
Cust # 1422
Permit Number
Customer P.O. 33336.2

Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 008 B-8-1 Sample Matrix: Soilcontinued					Date & Time Sampled:		03/30/17 @ 8:25	
Phenol-D5	63	%REC		EPA 8270C		24-113	04/02/17	KZ
Nitrobenzene-D5	54	%REC		EPA 8270C		23-120	04/02/17	KZ
2-Fluorobiphenyl	55	%REC		EPA 8270C		30-115	04/02/17	KZ
2,4,6-Tribromophenol	63	%REC		EPA 8270C		19-122	04/02/17	KZ
p-Terphenyl-D14	61	%REC		EPA 8270C		18-137	04/02/17	KZ

Respectfully Submitted:

Ken Zheng

Ken Zheng - Lab Director

QUALIFIERS

B = Detected in the associated Method Blank at a concentration above the routine RL.
B1 = BOD dilution water is over specifications. The reported result may be biased high.
D = Surrogate recoveries are not calculated due to sample dilution.
E = Estimated value; Value exceeds calibration level of instrument.
H = Analyte was prepared and/or analyzed outside of the analytical method holding time
I = Matrix Interference.
J = Analyte concentration detected between RL and MDL.
Q = One or more quality control criteria did not meet specifications. See Comments for further explanation.
S = Customer provided specification limit exceeded.

ABBREVIATIONS

DF = Dilution Factor
RL = Reporting Limit, Adjusted by DF
MDL = Method Detection Limit, Adjusted by DF
Qual = Qualifier
Tech = Technician

As regulatory limits change frequently, A & R Laboratories advises the recipient of this report to confirm such limits with the appropriate federal, state, or local authorities before acting in reliance on the regulatory limits provided.

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.



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QUALITY CONTROL DATA REPORT

LOR GEOTECHNICAL GROUP, INC.
RIVERSIDE, CA 92507

1703-00259

Date Reported 04/05/2017
Date Received 03/30/2017
Date Sampled 03/30/2017
Invoice No. 78933
Customer # 1422
Customer P.O. 33336.2

Project: SOUTHERN PACIFIC RAILROAD CO.
PROPERTY

Method # EPA 6010B

QC Reference # 63239 Date Analyzed: 4/1/2017 Technician: TLB

Samples 001 002 003 004 005 006 007 008

Results

LCS %REC LCS %DUP LCS %RPD

	LCS %REC	LCS %DUP	LCS %RPD
Antimony	105	106	1.0
Arsenic	100	93	6.6
Barium	102	102	0.3
Beryllium	100	100	0.2
Cadmium	103	102	0.6
Chromium	101	101	0.7
Cobalt	102	101	1.0
Copper	102	102	0.2
Lead	104	102	1.8
Molybdenum	106	102	3.7
Nickel	100	100	0.0
Selenium	105	112	5.8
Silver	110	111	0.4
Thallium	91	81	12.2
Vanadium	100	100	0.3
Zinc	101	101	0.5

Control Ranges

LCS %REC LCS %RPD

LCS %REC	LCS %RPD
75 - 125	0 - 20
75 - 125	0 - 20
75 - 125	0 - 20
75 - 125	0 - 20
75 - 125	0 - 20
75 - 125	0 - 20
75 - 125	0 - 20
75 - 125	0 - 20
75 - 125	0 - 20
75 - 125	0 - 20
75 - 125	0 - 20
75 - 125	0 - 20
75 - 125	0 - 20
75 - 125	0 - 20
75 - 125	0 - 20
75 - 125	0 - 20

Method # EPA 7471A

QC Reference # 63373 Date Analyzed: 4/5/2017 Technician: KZ

Samples 001 002 003 004 005 006 007 008

Results

LCS %REC LCS %DUP LCS %RPD

	LCS %REC	LCS %DUP	LCS %RPD
Mercury	90	93	3

Control Ranges

LCS %REC LCS %RPD

LCS %REC	LCS %RPD
75 - 125	0 - 25

Method # EPA 8015B

QC Reference # 63338 Date Analyzed: 4/2/2017 Technician: AR

Samples 001 002 003 004 005 006 007 008

Results

LCS %REC LCS %DUP LCS %RPD SPIKE %REC SPIKE %DUP

	LCS %REC	LCS %DUP	LCS %RPD	SPIKE %REC	SPIKE %DUP
Diesel	92	98	6	85	78

Control Ranges

LCS %REC LCS %RPD

LCS %REC	LCS %RPD
70 - 130	0 - 25

Method # EPA 8270C

QC Reference # 63372 Date Analyzed: 4/2/2017 Technician: KZ

Samples 001 002 003 004 005 006 007 008



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QUALITY CONTROL DATA REPORT

LOR GEOTECHNICAL GROUP, INC.

1703-00259

Date Reported 04/05/2017

Date Received 03/30/2017

Date Sampled 03/30/2017

Project: SOUTHERN PACIFIC RAILROAD CO. PROPERTY

Method # EPA 8270C

QC Reference # 63372

Date Analyzed: 4/2/2017

Technician: KZ

Samples 001 002 003 004 005 006 007 008

Results

LCS %REC LCS %DUP LCS %RPD

1,2,4-Trichlorobenzen	81	86	6
1,4-Dichlorobenzene	89	81	9
2,4-Dinitrotoluene	90	82	8
2-Chlorophenol	85	83	3
4-Chloro-3-Methylphe	87	86	2
4-Nitrophenol	93	87	7
Acenaphthene	92	80	12
n-Nitrosodi-n-Propylam	91	85	6
Pentachlorophenol	88	89	2
Phenol	86	83	4
Pyrene	89	81	9

Control Ranges

LCS %REC LCS %RPD

35 - 100	0 - 25
35 - 105	0 - 25
50 - 130	0 - 25
35 - 105	0 - 25
40 - 100	0 - 25
45 - 140	0 - 25
40 - 110	0 - 25
50 - 130	0 - 25
50 - 150	0 - 25
35 - 100	0 - 25
35 - 140	0 - 25

No method blank results were above reporting limit

Respectfully Submitted:

Ken Zheng

Ken Zheng - President

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.

Client Name LOR Geotechnical Group, Inc.				<input checked="" type="checkbox"/> 3.2°C Chilled		Analyses Requested <div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;">EPA8260B (VOCs & Oxygenates)</div> <div style="width: 33%;">EPA8260B (BTEX & Oxygenates)</div> <div style="width: 33%;">LUFT / 8015 (Gasoline)</div> <div style="width: 33%;">LUFT / 8015 (Diesel)</div> <div style="width: 33%;">EPA8081A (Organochlorine Pesticides)</div> <div style="width: 33%;">EPA 8082 (PCBs)</div> <div style="width: 33%;">EPA 8015M (Carbon Chain C4-C40)</div> <div style="width: 33%;">EPA 6010B/7000 (CAM 17 Metals)</div> <div style="width: 33%;">Micro: Plate Cnt., Coliform, E-Coli</div> <div style="width: 33%;">EPA 8015 TPH-FS</div> <div style="width: 33%;">EPA 8270C SVOCs</div> </div>										Turn Around Time Requested <input type="checkbox"/> Rush 8 12 24 48 Hours <input checked="" type="checkbox"/> Normal			
E-mail mhunt@lorgeo.com		<input checked="" type="checkbox"/> Intact																	
Address 6121 Quail Valley Court, Riverside, CA 92507				<input type="checkbox"/> Seal															
Report Attention Matthew Hunt		Phone # 951-653-1760		Sampled By Matthew Hunt															
Project No./ Name 33336.2		Project Site Southern Pacific Railroad Co. Property																	
Lab # (Lab use)	Client Sample ID	Sample Collection Date Time		Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B (BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA 8015 TPH-FS	EPA 8270C SVOCs	Remarks	
1	B-1-1	3/30/17	0825	Soil	Ice	1 Plastic Skewer								X		X	X		
	B-1-3		0827																
	B-1-5		0829																
2	B-2-1		0856											X		X	X		
	B-2-3		0858																
	B-2-5		0900																
3	B-3-1		0920											X		X	X		
	B-3-3		0922																
	B-3-5		0924																
4	B-4-1		0941											X		X	X		
	B-4-3		0943																
	B-4-5		0945																
5	B-5-1		1009											X		X	X		
	B-5-3		1011																
	B-5-5		1013																
Relinquished By Matthew Hunt		Company LOR		Date 3/30/17		Time 1256		Received By Anthony Ego		Company ARL		Date 3/30/17		Time 1256		Note: Samples are discarded 30 days after results are reported unless other arrangements are made.			
Relinquished By		Company		Date		Time		Received By		Company		Date		Time					
Matrix Code:		DW=Drinking Water GW=Ground Water WW=Waste Water SD=Solid Waste		SL=Sludge SS=Soil/Sediment AR=Air PP=Pure Product		Preservative Code		IC=Ice HC=HCl HN=HNO ₃		SH=NaOH ST=Na ₂ S ₂ O ₃ HS=H ₂ SO ₄		* Sample Container Types:				B= Brass Tube P= Plastic Bottle V= VOA Vial		E= EnCore	

A & R Laboratories

1650 S. Grove Ave., Ste C, Ontario, CA 91761
Tel: 951-779-0310 / 909-781-6335 Fax: 951-779-0344
E-mail: office@arlaboratories.com

CHAIN OF CUSTODY

A & R Work Order #:

1703-00259

Page 2 of 2

Client Name LOR Geotechnical Group, Inc.				328 <input checked="" type="checkbox"/> Chilled <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Seal		Analyses Requested										Turn Around Time Requested <input type="checkbox"/> Rush 8 12 24 48 Hours <input checked="" type="checkbox"/> Normal					
E-mail mhunt@lorgeo.com																					
Address 6121 Quail Valley Court, Riverside, CA 92507																					
Report Attention Mathew Hunt		Phone # 951-653-1760		Sampled By Mathew Hunt																	
Fax: # 951-653-1741																					
Project No./ Name 33336.2				Project Site Southern Pacific Railroad Co. Property																	
Lab # (Lab use)	Client Sample ID	Sample Collection Date Time		Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA 8015 TPH-FS	EPA 8270C SVOCs	Remarks			
6	B-6-1	3/30/17	1034	Soil	Ice	1 Plastic Sleeve															
	B-6-3		1036																		
	B-6-5		1038																		
7	B-7-1		1051																		
	B-7-3		1053																		
	B-7-5		1055																		
8	B-8-1		1117																		
	B-8-3		1119																		
	B-8-5		1121																		
Relinquished By Mathew 2 Hunt				Company LOR		Date 3/30/17		Time 1256		Received By Lyndia				Company Geo Tek		Date 3/30/17		Time 1256		Note: Samples are discarded 30 days after results are reported unless other arrangements are made.	
Matrix Code:				DW=Drinking Water GW=Ground Water WW=Waste Water SD=Solid Waste		SL=Sludge SS=Soil/Sediment AR=Air PP=Pure Product		Preservative Code IC=Ice HC=HCl HN=HNO3		SH=NaOH ST=Na2S2O3 HS=H2SO4		* Sample Container Types: T=Tedlar Air Bag G=Glass Container ST= Steel Tube		B= Brass Tube P=Plastic Bottle V=VOA Vial		E= EnCore					

Sample Acceptance Checklist

CLIENT: LOR Geotechnical

WORK ORDER NUMBER: 1703-00259

Temperature: (Criteria: 0.0°C-6.0°C)

Sample Temp. (w/CF) °C(w/CF) 3.2°C

- ☐ Sample(s) outside temperature criteria: PM contacted by :
☐ Sample(s) outside temperature criteria, but received on ice/chilled on same day of sampling.
☐ Sample(s) received at ambient temperature; placed on ice for transport by courier.
 Ambient Temperature ☐ Air ☐ Filter

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present and Not Intact ☒ Not Present
 Sample(s) ☐ Present and Intact ☐ Present and Not Intact ☒ Not Present

Sample Condition:

	Yes	No	N/A
Was a COC received	<input checked="" type="checkbox"/>		
Were sample IDs present?	<input checked="" type="checkbox"/>		
Were sampling dates & times present?	<input checked="" type="checkbox"/>		
Was a relinquished signature present?	<input checked="" type="checkbox"/>		
Were the tests required clearly indicated?	<input checked="" type="checkbox"/>		
Were all samples sealed in plastic bags?		<input checked="" type="checkbox"/>	
Did all bottle labels agree with COC? (ID, dates and times)	<input checked="" type="checkbox"/>		
Were correct containers used for the tests required?	<input checked="" type="checkbox"/>		
Was a sufficient amount of samples sent for tests indicated?	<input checked="" type="checkbox"/>		
Was there headspace in VOA vials?			<input checked="" type="checkbox"/>
Were the containers labeled with correct preservatives?			<input checked="" type="checkbox"/>

Explanations/Comments:

Notification:

For discrepancies, how was the Project Manager notified? Verbal

Verbal: PM Initials: _____ Date/Time: _____

Email: Send to: _____ Data/Time: _____

Project Manager's response:

Completed By: Cynthia Res

Date: 3-30-17

A R Laboratories
 1650 S. Grove Ave., Suite C, Ontario, CA 91761
 PH: 951-779-0310 Fax: 951-779-0344
 Email: office@arlaboratories.com

Appendix B

*Laboratory Report,
ARL/Eurofins, April 19, 2017*



A & R Laboratories

Formerly Microbac Southern California

1650 S. GROVE AVE., SUITE C

ONTARIO, CA 91761

951-779-0310

www.arlaboratories.com

FAX 951-779-0344

office@arlaboratories.com

FDA#	2030513
LA City#	10261
ELAP#s	2789
	2790
	2122

CHEMISTRY · MICROBIOLOGY · FOOD SAFETY · MOBILE LABORATORIES
FOOD · COSMETICS · WATER · SOIL · SOIL VAPOR · WASTES

CASE NARRATIVE

Authorized Signature Name / Title (print)	Ken Zheng, President
Signature / Date	<i>Ken Zheng</i> Ken Zheng, President 04/19/2017 14:08:07
Laboratory Job No. (Certificate of Analysis No.)	1704-00124
Project Name / No.	Add'l - SOUTHERN PACIFIC RAILROAD CO. PORPERTY 33336.2
Dates Sampled (from/to)	03/30/17 To 03/30/17
Dates Received (from/to)	03/30/17 To 03/30/17
Dates Reported (from/to)	04/19/17 To 4/19/2017
Chains of Custody Received	Yes

Comments:

Subcontracting

Inorganic Analyses

3 EPA 6020 sample(s) reported by technician CEL were contracted to Eurofins Calscience

All results for sub-contracted analyses may be sent separately

Other Analyses

No analyses sub-contracted

Sample Condition(s)

All samples intact

Positive Results (Organic Compounds)

None



A & R Laboratories

Formerly Microbac Southern California

1650 S. GROVE AVE., SUITE C
ONTARIO, CA 91761

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FDA#	2030513
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ELAP#s	2789
	2790
	2122

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FOOD · COSMETICS · WATER · SOIL · SOIL VAPOR · WASTES

CERTIFICATE OF ANALYSIS

1704-00124

LOR GEOTECHNICAL GROUP, INC.
MATHEW HUNT
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507

Date Reported 04/19/17
Date Received 03/30/17
Invoice No. 79063
Cust # 1422
Permit Number
Customer P.O. 33336.2

Project: Addt'l - SOUTHERN PACIFIC RAILROAD CO. PORPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 B-1-1 Sample Matrix: Soil							Date & Time Sampled: 03/30/17 @ 8:25	
No Test Results Reported	1			---	1.0		04/14/17	JMI
Sample: 002 B-6-1 Sample Matrix: Soil							Date & Time Sampled: 03/30/17 @ 10:34	
Sample: 003 B-8-1 Sample Matrix: Soil							Date & Time Sampled: 03/30/17 @ 11:17	

Respectfully Submitted:

Ken Zheng - Lab Director

QUALIFIERS

B = Detected in the associated Method Blank at a concentration above the routine RL.
B1 = BOD dilution water is over specifications. The reported result may be biased high.
D = Surrogate recoveries are not calculated due to sample dilution.
E = Estimated value; Value exceeds calibration level of instrument.
H = Analyte was prepared and/or analyzed outside of the analytical method holding time
I = Matrix Interference.
J = Analyte concentration detected between RL and MDL.
Q = One or more quality control criteria did not meet specifications. See Comments for further explanation.
S = Customer provided specification limit exceeded.

ABBREVIATIONS

DF = Dilution Factor
RL = Reporting Limit, Adjusted by DF
MDL = Method Detection Limit, Adjusted by DF
Qual = Qualifier
Tech = Technician

As regulatory limits change frequently, A & R Laboratories advises the recipient of this report to confirm such limits with the appropriate federal, state, or local authorities before acting in reliance on the regulatory limits provided.

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.



Calscience

Supplemental Report 2

The original report has been revised/corrected.



WORK ORDER NUMBER: 17-04-0685

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: A&R Laboratories, Inc.

Client Project Name: Southern Pacific Railroad Co., Property /1704-00124

Attention: Jennifer Iniguez
1650-C South Grove Avenue
Ontario, CA 91761-4018

Stephen Nowak for

Approved for release on 04/19/2017 by:
Stephen Nowak
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: Southern Pacific Railroad Co., Property /1704-00124
 Work Order Number: 17-04-0685

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	5.1 MS/MSD.	8
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	5.3 LCS/LCSD.	12
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Work Order Narrative

Work Order: 17-04-0685

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 04/10/17. They were assigned to Work Order 17-04-0685.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.



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Sample Summary

Client: A&R Laboratories, Inc. 1650-C South Grove Avenue Ontario, CA 91761-4018	Work Order: 17-04-0685 Project Name: Southern Pacific Railroad Co., Property /1704-00124 PO Number: Date/Time Received: 04/10/17 12:52 Number of Containers: 3
---	--

Attn: Jennifer Iniguez

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
B-1-1	17-04-0685-1	03/30/17 08:25	1	Solid
B-6-1	17-04-0685-2	03/30/17 10:34	1	Solid
B-8-1	17-04-0685-3	03/30/17 11:17	1	Solid


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Calscience

Detections Summary

Client: A&R Laboratories, Inc.

1650-C South Grove Avenue

Ontario, CA 91761-4018

Work Order:

17-04-0685

Project Name:

Southern Pacific Railroad Co., Property /1704-00124

Received:

04/10/17

Attn: Jennifer Iniguez

Page 1 of 1

Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
B-1-1 (17-04-0685-1)						
Arsenic	100		1.00	mg/kg	EPA 6020	EPA 3050B
Arsenic	97.2		1.00	mg/kg	EPA 6020	EPA 3050B
B-6-1 (17-04-0685-2)						
Arsenic	4.35		1.00	mg/kg	EPA 6020	EPA 3050B
Arsenic	9.11		1.00	mg/kg	EPA 6020	EPA 3050B
B-8-1 (17-04-0685-3)						
Arsenic	26.4		1.00	mg/kg	EPA 6020	EPA 3050B
Arsenic	35.7		1.00	mg/kg	EPA 6020	EPA 3050B

Subcontracted analyses, if any, are not included in this summary.

Return to Contents

* MDL is shown



Calscience

Analytical Report

A&R Laboratories, Inc.
1650-C South Grove Avenue
Ontario, CA 91761-4018

Date Received: 04/10/17
Work Order: 17-04-0685
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Southern Pacific Railroad Co., Property /1704-00124

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-1-1	17-04-0685-1-A	03/30/17 08:25	Solid	ICP/MS 03	04/10/17	04/11/17 16:09	170410L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		100		1.00		1.00	
B-1-1	17-04-0685-1-AA	03/30/17 08:25	Solid	ICP/MS 03	04/17/17	04/17/17 20:44	170417L01
Comment(s): - The sample was homogenized prior to preparation / analysis.							
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		97.2		1.00		1.00	
B-6-1	17-04-0685-2-A	03/30/17 10:34	Solid	ICP/MS 03	04/10/17	04/11/17 16:11	170410L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		4.35		1.00		1.00	
B-6-1	17-04-0685-2-AA	03/30/17 10:34	Solid	ICP/MS 03	04/17/17	04/17/17 20:47	170417L01
Comment(s): - The sample was homogenized prior to preparation / analysis.							
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		9.11		1.00		1.00	
B-8-1	17-04-0685-3-A	03/30/17 11:17	Solid	ICP/MS 03	04/10/17	04/11/17 16:14	170410L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		26.4		1.00		1.00	
B-8-1	17-04-0685-3-AA	03/30/17 11:17	Solid	ICP/MS 03	04/17/17	04/17/17 20:49	170417L01
Comment(s): - The sample was homogenized prior to preparation / analysis.							
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		35.7		1.00		1.00	
Method Blank	099-15-621-1448	N/A	Solid	ICP/MS 03	04/10/17	04/11/17 15:54	170410L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		ND		1.00		1.00	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

A&R Laboratories, Inc.
1650-C South Grove Avenue
Ontario, CA 91761-4018

Date Received: 04/10/17
Work Order: 17-04-0685
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: Southern Pacific Railroad Co., Property /1704-00124

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-15-621-1452	N/A	Solid	ICP/MS 05	04/17/17	04/17/17 19:59	170417L01

Parameter	Result	RL	DF	Qualifiers
Arsenic	ND	1.00	1.00	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Quality Control - Spike/Spike Duplicate

A&R Laboratories, Inc.
1650-C South Grove Avenue
Ontario, CA 91761-4018

Date Received: 04/10/17
Work Order: 17-04-0685
Preparation: EPA 3050B
Method: EPA 6020

Project: Southern Pacific Railroad Co., Property /1704-00124

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
B-1-1	Sample	Solid	ICP/MS 03	04/10/17	04/11/17 16:09	170410S01				
B-1-1	Matrix Spike	Solid	ICP/MS 03	04/10/17	04/11/17 15:59	170410S01				
B-1-1	Matrix Spike Duplicate	Solid	ICP/MS 03	04/10/17	04/11/17 16:01	170410S01				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	100.3	25.00	141.9	4X	141.1	4X	72-132	4X	0-13	Q

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

A&R Laboratories, Inc.
1650-C South Grove Avenue
Ontario, CA 91761-4018

Date Received: 04/10/17
Work Order: 17-04-0685
Preparation: EPA 3050B
Method: EPA 6020

Project: Southern Pacific Railroad Co., Property /1704-00124

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
17-04-0475-1	Sample	Solid	ICP/MS 05	04/17/17	04/17/17 21:31	170417S01
17-04-0475-1	Matrix Spike	Solid	ICP/MS 05	04/17/17	04/17/17 20:24	170417S01
17-04-0475-1	Matrix Spike Duplicate	Solid	ICP/MS 05	04/17/17	04/17/17 21:20	170417S01

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	ND	25.00	25.58	102	25.21	101	72-132	1	0-13	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

A&R Laboratories, Inc.
1650-C South Grove Avenue
Ontario, CA 91761-4018

Date Received: 04/10/17
Work Order: 17-04-0685
Preparation: EPA 3050B
Method: EPA 6020

Project: Southern Pacific Railroad Co., Property /1704-00124

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number	
B-1-1	Sample	Solid	ICP/MS 03	04/10/17 00:00	04/11/17 16:09	170410S01	
B-1-1	PDS	Solid	ICP/MS 03	04/10/17 00:00	04/11/17 16:04	170410S01	
<u>Parameter</u>		<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic		100.3	25.00	120.6	4X	75-125	Q

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

A&R Laboratories, Inc.
1650-C South Grove Avenue
Ontario, CA 91761-4018

Date Received: 04/10/17
Work Order: 17-04-0685
Preparation: EPA 3050B
Method: EPA 6020

Project: Southern Pacific Railroad Co., Property /1704-00124

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
17-04-0475-1	Sample	Solid	ICP/MS 05	04/17/17 00:00	04/17/17 21:31	170417S01
17-04-0475-1	PDS	Solid	ICP/MS 05	04/17/17 00:00	04/17/17 21:23	170417S01

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	%Rec. CL	Qualifiers
Arsenic	ND	25.00	25.53	102	75-125	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS

A&R Laboratories, Inc.
1650-C South Grove Avenue
Ontario, CA 91761-4018

Date Received: 04/10/17
Work Order: 17-04-0685
Preparation: EPA 3050B
Method: EPA 6020

Project: Southern Pacific Railroad Co., Property /1704-00124

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-15-621-1448	LCS	Solid	ICP/MS 03	04/10/17	04/11/17 15:56	170410L01

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	25.00	24.28	97	80-120	

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Calscience

Quality Control - LCS

A&R Laboratories, Inc.
1650-C South Grove Avenue
Ontario, CA 91761-4018

Date Received: 04/10/17
Work Order: 17-04-0685
Preparation: EPA 3050B
Method: EPA 6020

Project: Southern Pacific Railroad Co., Property /1704-00124

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-15-621-1452	LCS	Solid	ICP/MS 05	04/17/17	04/17/17 20:02	170417L01

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	25.00	24.67	99	80-120	

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Calscience

Sample Analysis Summary Report

Work Order: 17-04-0685

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 6020	EPA 3050B	598	ICP/MS 03	1


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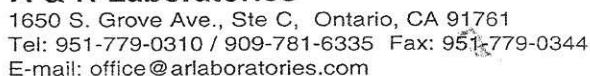
Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 17-04-0685

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.



CHAIN OF CUSTODY
~~RUSH~~

Page 7 of 7

Client Name A+R LABORATORIES		
E-mail jennifer.iniguez@arlaboratories.com		
Address 1650 S. GROVE AVE., STE. C, ONTARIO CA 91761		
Report Attention J. INIGUEZ	Phone # 951-779-0310 Fax: # 951-779-0344	Sampled By MH
Project SOUTHERN PACIFIC Project Site		
No./ Name RAILROAD CO., PROPERTY		

☐ Chilled

☐ Intact

☐ Seal

Analyses Requested

17-04-0685

Turn Around
Time Requested

~~11 Rush~~
~~8 12 24 48~~
~~Hours~~

☒ Normal

Remarks

Lab # (Lab use)	Client Sample ID	Sample Collection		Matrix Type	Sample Preserve	No., type* & size of container
		Date	Time			

EEPA8260B (VOCs & Oxygenates)	
EEPA8260B(BTEX & Oxygenates)	
LUFT / 8015 (Gasoline)	
LUFT / 8015 (Diesel)	
EEPA8081A (Organochlorine Pesticides)	
EEPA 8082 (PCBs)	
EEPA 8015M (Carbon Chain C4-C40)	
EEPA 6010B/7000 (CAM 17 Metals)	
Micro: Plate Cot	Coliform E-Coli

As by 6020

1	B-1-1	3/30/17	0825	Soil	IC	40Z JAR
2	B-6-1	↓	1034	↓	↓	↓
3	B-8-1	↓	1117	↓	↓	↓

[illegible]

4.14.1

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
<i>[Signature]</i>	<i>[Signature]</i>	4/10/17	1252	<i>[Signature]</i>	ECU	4/10/17	1252
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code:	DW=Drinking Water	SL=Sludge
	GW=Ground Water	SS=Soil/Sediment
	WW=Waste Water	AR=Air
	SD=Solid Waste	PP=Pure Product

Preservative Code	IC=Ice HC=HCl HN=HNO ₃
-------------------	---

$$\begin{aligned} \text{SH} &= \text{NaOH} \\ \text{ST} &= \text{Na}_2\text{S}_2\text{O}_3 \\ \text{HS} &= \text{H}_2\text{SO}_4 \end{aligned}$$

* Sample Container Types:
T=Tedlar Air Bag
G=Glass Container
ST= Steel Tube

B= Brass Tube
P=Plastic Bottle
V=VOA Vial

F= EnCore

SAMPLE RECEIPT CHECKLIST

COOLER 0 OF 0

CLIENT: A 4 R Labs .

DATE: 04 / 10 / 2017

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC (CF: 0.0°C); Temperature (w/o CF): 14.9 °C (w/ CF): 14.9 °C; ☐ Blank ☒ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by:)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter

Checked by: 836

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☐ Not Present ☒ N/A

Checked by: 836

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A

Checked by: 836

SAMPLE CONDITION:

Chain-of-Custody (COC) document(s) received with samples ☒ Yes ☐ No ☐ N/A

COC document(s) received complete ☒ Yes ☐ No ☐ N/A

☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers

☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time

Sampler's name indicated on COC ☒ Yes ☐ No ☐ N/A

Sample container label(s) consistent with COC ☒ Yes ☐ No ☐ N/A

Sample container(s) intact and in good condition ☒ Yes ☐ No ☐ N/A

Proper containers for analyses requested ☒ Yes ☐ No ☐ N/A

Sufficient volume/mass for analyses requested ☒ Yes ☐ No ☐ N/A

Samples received within holding time ☒ Yes ☐ No ☐ N/A

Aqueous samples for certain analyses received within 15-minute holding time

☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen ☐ Yes ☐ No ☒ N/A

Proper preservation chemical(s) noted on COC and/or sample container ☐ Yes ☐ No ☒ N/A

Unpreserved aqueous sample(s) received for certain analyses

☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals

Container(s) for certain analysis free of headspace ☐ Yes ☐ No ☒ N/A

☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)

☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)

Tedlar™ bag(s) free of condensation ☐ Yes ☐ No ☒ N/A

CONTAINER TYPE:

(Trip Blank Lot Number:)

Aqueous: ☐ VOA ☐ VOA_h ☐ VOA_{na} ☐ 100PJ ☐ 100PJ_{na} ☐ 125AGB ☐ 125AGB_h ☐ 125AGB_p ☐ 125PB

☐ 125PB_{znna} ☐ 250AGB ☐ 250CGB ☐ 250CGB_s ☐ 250PB ☐ 250PB_n ☐ 500AGB ☐ 500AGJ ☐ 500AGJs

☐ 500PB ☒ 1AGB ☐ 1AGB_{na} ☐ 1AGB_s ☐ 1PB ☐ 1PB_{na} ☐ ☐ ☐ ☐

Solid: ☒ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve () ☐ EnCores® () ☐ TerraCores® () ☐

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ ☐ Other Matrix (): ☐ ☐

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 836

s = H₂SO₄, u = ultra-pure, x = Na₂SO₃+NaHSO₄.H₂O, znna = Zn (CH₃CO₂)₂ + NaOH

Reviewed by: 1053



A & R Laboratories
1650 S. Grove Ave., Ste C, Ontario, CA 91761
Tel: 951-779-0310 / 909-781-6335 Fax: 951-779-0344
E-mail: office@arlaboratories.com

CHAIN OF CUSTODY

RUSH

A & R Work Order #:

1704 00124 Page 1 of 2

Client Name LOR Geotechnical Group, Inc.						<input checked="" type="checkbox"/> 3.2°C Chilled		Analyses Requested										Turn Around Time Requested		
E-mail mhunt@lorgeo.com						<input checked="" type="checkbox"/> Intact		EPA8260B (VOCs & Oxygenates) EPA8260B (BTEX & Oxygenates) LUFT / 8015 (Gasoline) LUFT / 8015 (Diesel) EPA8081A (Organochlorine Pesticides) EPA 8082 (PCBs) EPA 8015M (Carbon Chain C4-C40) EPA 6010B/7000 (CAM 17 Metals) Micro: Plate Cnt., Coliform, E-Coli EPA 8015 TPH-PS EPA 8270C SVOCs EPA 6020 AS Homogenize + no analysis for gas EPA 6020 AS (NTAT)										<input checked="" type="checkbox"/> Rush 8 12 24 48 Hours <input checked="" type="checkbox"/> NTAT		
Address 6121 Quail Valley Court, Riverside, CA 92507						<input type="checkbox"/> Seal														
Report Attention Matthew Hunt		Phone # 951-653-1760		Sampled By Matthew Hunt																
Fax: # 951-653-1741																				
Project No./ Name 33336-2		Project Site Southern Pacific Railroad Co. Property																		
Lab # (Lab use)	Client Sample ID	Sample Collection Date Time		Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B (BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA 8015 TPH-PS	EPA 8270C SVOCs	EPA 6020 AS	Homogenize + no analysis for gas EPA 6020 AS (NTAT)	Remarks
1	B-1-1	3/30/17	0825	Soil	Ice	1 Plastic Sterile														
	B-1-3		0827																	
	B-1-5		0829																	
	B-2-1		0856																	
	B-2-3		0858																	
	B-2-5		0900																	
	B-3-1		0920																	
	B-3-3		0922																	
	B-3-5		0924																	
	B-4-1		0941																	
	B-4-3		0943																	
	B-4-5		0945																	
	B-5-1		1009																	
	B-5-3		1011																	
	B-5-5		1013																	
Relinquished By Matthew Hunt		Company LOR		Date 3/30/17		Time 1256		Received By Paul Al		Company ARL		Date 3/30/17		Time 1256		Note: Samples are discarded 30 days after results are reported unless other arrangements are made.				
Relinquished By		Company		Date		Time		Received By		Company		Date		Time						

Matrix Code:

DW=Drinking Water
GW=Ground Water
WW=Waste Water

SL=Sludge
SS=Soil/Sediment
AR=Air

Preservative Code

IC=Ice
HC=HCl
HN=HNO₃

SH=NaOH
ST=Na₂S₂O₃
HS=H₂SO₄

* Sample Container Types:

T=Tedlar Air Bag
G=Glass Container
ST=Steel Tube

B= Brass Tube
P= Plastic Bottle
V= VOA Vial

E= EnCore

ORDERED PER M. HUNT - PREV WO# 1703-259
 ** Pos Matthew - prev WO# 1704-58



RUSH

1704.00124

Page 2 of 2

Client Name

LOR Geotechnical Group, Inc.

E-mail

mhunt@lorger.com

Address

6121 Quail Valley Court, Riverside, CA 92507

Report Attention

Matthew Hunt

Phone #

951-633-1741

Fax #

951-633-1741

Sampled By

Matthew Hunt

Project No./ Name

33336.2

Project Site

Southern Pacific Railroad Co. Property

32

☒ Chilled
 ☒ Intact
 ☐ Seal

Analyses Requested

EPA8260B (VOCs & Oxygenates)

EPA8260B(BTEX & Oxygenates)

LUFT / 8015 (Gasoline)

LUFT / 8015 (Diesel)

EPA8081A (Organochlorine Pesticides)

EPA 8082 (PCBs)

EPA 8015M (Carbon Chain C4-C40)

EPA 6010B/7000 (CAM 17 Metals)

Micro: Plate Cnt., Coliform, E-Coli

EPA-8015 TPH-15

EPA-8210C SVOCs

EPA 6020 AS

Homogeneity
 Pre-attest by
 EPA 6020 AS (NTAT)

Turn Around Time Requested

☒ Rush 8-12-24-48 Hours
 ☒ Normal
 ☒ NTAT

Remarks

Lab # (Lab use)	Client Sample ID	Sample Collection		Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA-8015 TPH-15	EPA-8210C SVOCs	EPA 6020 AS	Homogeneity Pre-attest by EPA 6020 AS (NTAT)	Remarks
		Date	Time																	
2	B-6-1	3/30/17	1034	Soil	Ice	1 Plastic Sleeve														
	B-6-3		1036																	
	B-6-5		1038																	
	B-7-1		1051																	
	B-7-3		1053																	
	B-7-5		1055																	
3	B-8-1		1117																	
	B-8-3		1119																	
	B-8-5		1121																	

Relinquished By

Matthew Hunt

Company

LOR

Date

3/30/17

Time

1256

Received By

Matthew Hunt

Company

LOR

Date

3/30/17

Time

1256

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

E= EnCore

Appendix C

*Laboratory Report,
Babcock, May 4, 2017*



BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name: LOR Geotechnical Group, Inc.
Contact: Mathew L. Hunt
Address: 6121 Quail Valley Ct.
Riverside, CA 92507

Analytical Report: Page 1 of 4
Project Name: LOR-SPRCP
Project Number: 1703-00259

Report Date: 04-May-2017

Work Order Number: B7E0157

Received on Ice (Y/N): Yes Temp: 9 °C

Attached is the analytical report for the sample(s) received for your project. Below is a list of the individual sample descriptions with the corresponding laboratory number(s). Also, enclosed is a copy of the Chain of Custody document (if received with your sample(s)). Please note any unused portion of the sample(s) may be responsibly discarded after 30 days from the above report date, unless you have requested otherwise.

Thank you for the opportunity to serve your analytical needs. If you have any questions or concerns regarding this report please contact our client service department.

Sample Identification

<u>Lab Sample #</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>By</u>	<u>Date Submitted</u>	<u>By</u>
B7E0157-01	1703-00259 B-1-1	Solid	03/30/17 08:25	Mathew L. Hunt	05/02/17 10:15	Mathew L. Hunt
B7E0157-02	1703-00259 B-8-1	Solid	03/30/17 11:17	Mathew L. Hunt	05/02/17 10:15	Mathew L. Hunt



BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name: LOR Geotechnical Group, Inc.
Contact: Mathew L. Hunt
Address: 6121 Quail Valley Ct.
Riverside, CA 92507

Analytical Report: Page 2 of 4
Project Name: LOR-SPRCP
Project Number: 1703-00259

Report Date: 04-May-2017

Work Order Number: B7E0157

Received on Ice (Y/N): Yes Temp: 9 °C

Laboratory Reference Number

B7E0157-01

<u>Sample Description</u>	<u>Matrix</u>	<u>Sampled Date/Time</u>	<u>Received Date/Time</u>
1703-00259 B-1-1	Solid	03/30/17 08:25	05/02/17 10:15

Analyte(s)	Result	RDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids; EPA SW846 Series Arsenic	60	10	mg/kg	EPA 6020	05/03/17 17:06	ap	



BABCOCK Laboratories, Inc.

The Standard of Excellence for Over 100 Years

Client Name: LOR Geotechnical Group, Inc.

Contact: Mathew L. Hunt

Address: 6121 Quail Valley Ct.

Riverside, CA 92507

Analytical Report: Page 3 of 4

Project Name: LOR-SPRCP

Project Number: 1703-00259

Report Date: 04-May-2017

Work Order Number: B7E0157

Received on Ice (Y/N):

Yes

Temp: 9 °C

Laboratory Reference Number

B7E0157-02

Sample Description

1703-00259 B-8-1

Matrix

Solid

Sampled Date/Time

03/30/17 11:17

Received Date/Time

05/02/17 10:15

Analyte(s)	Result	RDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids; EPA SW846 Series							
Arsenic	41	10	mg/kg	EPA 6020	05/03/17 17:08	ap	

mailing

P.O Box 432

Riverside, CA 92502-0432

location

6100 Quail Valley Court

Riverside, CA 92507-0704

P 951 653 3351

F 951 653 1662

www.babcocklabs.com

CA ELAP No. 2698

EPA No. CA00102

NELAP No. OR4035

LACSD No. 10119



BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name: LOR Geotechnical Group, Inc.
Contact: Mathew L. Hunt
Address: 6121 Quail Valley Ct.
Riverside, CA 92507

Analytical Report: Page 4 of 4
Project Name: LOR-SPRCP
Project Number: 1703-00259

Report Date: 04-May-2017

Work Order Number: B7E0157

Received on Ice (Y/N): Yes Temp: 9 °C

Notes and Definitions

ND: Analyte NOT DETECTED at or above the Method Detection Limit (**if MDL is reported**), otherwise at or above the Reportable Detection Limit (RDL)
NR: Not Reported
RDL: Reportable Detection Limit
MDL: Method Detection Limit
* / " : NELAP does not offer accreditation for this analyte/method/matrix combination

Approval

Enclosed are the analytical results for the submitted sample(s). Babcock Laboratories certify the data presented as part of this report meet the minimum quality standards in the referenced analytical methods. Any exceptions have been noted.

Mary Mazurkiewicz For Amanda C. Porter

cc:

e-Short_No Alias.rpt

This report applies only to the sample(s) analyzed. As a mutual protection to clients, the public, and Babcock Laboratories, Inc., this report is submitted and accepted for the exclusive use of the Client to whom it is addressed. Interpretation and use of the information contained within this report are the sole responsibility of the Client. Babcock Laboratories, Inc. is not responsible for any misinformation or consequences that may result from misinterpretation or improper use of this report. This report is not to be modified or abbreviated in any way. Additionally, this report is not to be used, in whole or in part, in any advertising or publicity matter without written authorization from Babcock Laboratories, Inc. The liability of Babcock Laboratories, Inc. is limited to the actual cost of the requested analyses, unless otherwise agreed upon in writing. There is no other warranty expressed or implied.

mailing

P.O Box 432
Riverside, CA 92502-0432

location

6100 Quail Valley Court
Riverside, CA 92507-0704

P 951 653 3351
F 951 653 1662
www.babcocklabs.com

CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119



BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name: LOR Geotechnical Group, Inc.
Contact: Mathew L. Hunt
Address: 6121 Quail Valley Ct.
Riverside, CA 92507

Analytical Report: Page 1 of 1
Project Name: LOR-SPRCR
Project Number: 1703-00259

Report Date: 04-May-2017

Work Order Number: B7E0157

Received on Ice (Y/N): Yes Temp: 9 °C



6100 Quail Valley Court Riverside, CA 92507
(951) 653-3351 • FAX (951) 653-1662
www.babcocklabs.com

Chain of Custody & Sample Information Record

Client: <u>LOR Geo Tech</u>		Contact:		Fax No.		Additional Reporting Requests	
Phone No.		email:				Include QC Data Package: <input type="checkbox"/> Yes <input type="checkbox"/> No FAX Results: <input type="checkbox"/> Yes <input type="checkbox"/> No Email Results: <input type="checkbox"/> Yes <input type="checkbox"/> No State EDT: <input type="checkbox"/> Yes <input type="checkbox"/> No (Include Source Number in Notes)	
Project Name: <u>1703-60259</u>		Turn Around Time: Routine *72 Hour Rush *48 Hour Rush *24 Hour Rush					
Project Location:		*Lab TAT Approval:		By:		*Additional Charges Apply	
Sampler Information		# of Containers & Preservatives		Sample Type		Analysis Requested	
Name: <u>Mathew L. Hunt</u>		Unpreserved H ₂ SO ₄ HCl HNO ₃ Na ₂ S ₂ O ₃ NaOH NaOH/Zn Acetate NH ₄ Cl PDC		Total # of Containers		Matrix	
Employer:				Routine Resample Special		DW = Drinking Water WW = Waste Water GW = Ground Water S = Source SG = Sludge L = Liquid M = Miscellaneous	
Signature: <u>Mathew L. Hunt</u>				EPA 6020 A5		Notes	
Sample ID	Date	Time					
B-1-1	3/2/17	8:25					* Additional
B-8-1	1	11:17					Samples On
							Hold pending
							Results. (possible
							Further Analysis)
							AB 5/2/17
Relinquished By (sign)		Print Name / Company		Date / Time		Received By (sign)	
<u>Mathew L. Hunt</u>		Mathew L. Hunt / LOR		5/2/17 10:15		<u>Angie Brown</u>	
						Angie Brown / ESB	
By signing on behalf of your organization and relinquishing this chain of custody you agree to abide by the Babcock Laboratories, Inc. Terms and Conditions.							
(For Lab Use Only) Sample Integrity Upon Receipt/Acceptance Criteria							
Sample(s) Submitted on Ice? Yes No		Sample meets laboratory acceptance criteria? Yes No				Lab No. <u>B7E0157</u>	
Custody Seal(s) Intact? Yes No NA		Permission to continue: Yes No				Logged in By/Date: <u>MAY - 2 2017</u> AB	
Sample(s) Intact? 9 Yes No		Deviation/Notes:				Page <u>1</u> of <u>1</u>	
Temperature: <u>9</u> °C <input type="checkbox"/> Cooler Blank		Signature/Date:				Rev. 6/16	

Appendix D

*Laboratory Report,
ARL/Eurofins, May 17, 2017*



A & R Laboratories

Formerly Microbac Southern California

1650 S. GROVE AVE., SUITE C

ONTARIO, CA 91761

951-779-0310

www.arlaboratories.com

FAX 951-779-0344

office@arlaboratories.com

FDA#	2030513
LA City#	10261
ELAP#s	2789
	2790
	2122

CHEMISTRY · MICROBIOLOGY · FOOD SAFETY · MOBILE LABORATORIES
FOOD · COSMETICS · WATER · SOIL · SOIL VAPOR · WASTES

CASE NARRATIVE

Authorized Signature Name / Title (print)	Ken Zheng, President
Signature / Date	<i>Ken Zheng</i> Ken Zheng, President 05/17/2017 12:51:54
Laboratory Job No. (Certificate of Analysis No.)	1705-00163
Project Name / No.	Add'l - SOUTHERN PACIFIC RAILROAD CO. PORPERTY 33336.2
Dates Sampled (from/to)	03/30/17 To 03/30/17
Dates Received (from/to)	03/30/17 To 03/30/17
Dates Reported (from/to)	05/17/17 To 5/17/2017
Chains of Custody Received	Yes
Comments:	
Subcontracting Inorganic Analyses 2 EPA 6020 sample(s) reported by technician CEL were contracted to Eurofins Calscience All results for sub-contracted analyses may be sent separately	
Sample Condition(s) All samples intact	
Positive Results (Organic Compounds) None	



A & R Laboratories

Formerly Microbac Southern California

1650 S. GROVE AVE., SUITE C
ONTARIO, CA 91761

951-779-0310

www.arlaboratories.com

FAX 951-779-0344

office@arlaboratories.com

FDA#	2030513
LA City#	10261
ELAP#s	2789
	2790
	2122

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FOOD · COSMETICS · WATER · SOIL · SOIL VAPOR · WASTES

CERTIFICATE OF ANALYSIS

1705-00163

LOR GEOTECHNICAL GROUP, INC.
MATHEW HUNT
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507

Date Reported 05/17/17
Date Received 03/30/17
Invoice No. 79316
Cust # 1422
Permit Number
Customer P.O. 33336.2

Project: Addt'l - SOUTHERN PACIFIC RAILROAD CO. PORPERTY

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 B-1-1 Sample Matrix: Soil						Date & Time Sampled:	03/30/17 @ 8:25	
No Test Results Reported	Complete			---	1.0		03/30/17	JMI
Metals	SEE ATTACHED			EPA 6020	1.0		03/30/17	CEL
Sample: 002 B-8-1 Sample Matrix: Soil						Date & Time Sampled:	03/30/17 @ 11:17	
Metals	SEE ATTACHED			EPA 6020	1.0		05/05/17	CEL

Respectfully Submitted:

Ken Zheng - Lab Director

QUALIFIERS

B = Detected in the associated Method Blank at a concentration above the routine RL.
B1 = BOD dilution water is over specifications. The reported result may be biased high.
D = Surrogate recoveries are not calculated due to sample dilution.
E = Estimated value; Value exceeds calibration level of instrument.
H = Analyte was prepared and/or analyzed outside of the analytical method holding time
I = Matrix Interference.
J = Analyte concentration detected between RL and MDL.
Q = One or more quality control criteria did not meet specifications. See Comments for further explanation.
S = Customer provided specification limit exceeded.

ABBREVIATIONS

DF = Dilution Factor
RL = Reporting Limit, Adjusted by DF
MDL = Method Detection Limit, Adjusted by DF
Qual = Qualifier
Tech = Technician

As regulatory limits change frequently, A & R Laboratories advises the recipient of this report to confirm such limits with the appropriate federal, state, or local authorities before acting in reliance on the regulatory limits provided.

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.



Calscience

Supplemental Report 3

Additional requested analyses are reported as a stand-alone report.



WORK ORDER NUMBER: 17-04-0685

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: A&R Laboratories, Inc.

Client Project Name: Southern Pacific Railroad Co., Property
/1705-00163

Attention: Jennifer Iniguez
1650-C South Grove Avenue
Ontario, CA 91761-4018

Approved for release on 05/17/2017 by:
Stephen Nowak
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: Southern Pacific Railroad Co., Property /1705-00163
 Work Order Number: 17-04-0685

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7	Glossary of Terms and Qualifiers.	10
8	Chain-of-Custody/Sample Receipt Form.	11

Work Order: 17-04-0685Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 04/10/17. They were assigned to Work Order 17-04-0685.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.



Calscience

Sample Summary

Client: A&R Laboratories, Inc. 1650-C South Grove Avenue Ontario, CA 91761-4018	Work Order: 17-04-0685 Project Name: Southern Pacific Railroad Co., Property /1705-00163 PO Number: Date/Time Received: 04/10/17 12:52 Number of Containers: 3
---	--

Attn: Jennifer Iniguez

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
B-1-1	17-04-0685-1	03/30/17 08:25	1	Solid
B-6-1	17-04-0685-2	03/30/17 10:34	1	Solid
B-8-1	17-04-0685-3	03/30/17 11:17	1	Solid


Return to Contents



Calscience

Detections Summary

Client: A&R Laboratories, Inc. 1650-C South Grove Avenue Ontario, CA 91761-4018	Work Order: 17-04-0685 Project Name: Southern Pacific Railroad Co., Property /1705-00163 Received: 04/10/17
---	---

Attn: Jennifer Iniguez

Page 1 of 1

Client SampleID3

<u>Analyte</u>	<u>Result</u>	<u>Qualifiers</u>	<u>RL</u>	<u>Units</u>	<u>Method</u>	<u>Extraction</u>
B-1-1 (17-04-0685-1) Arsenic	99.4		0.773	mg/kg	EPA 6010B	EPA 3050B
B-8-1 (17-04-0685-3) Arsenic	34.8		0.773	mg/kg	EPA 6010B	EPA 3050B

Subcontracted analyses, if any, are not included in this summary.


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* MDL is shown



Calscience

Analytical Report

A&R Laboratories, Inc.
1650-C South Grove Avenue
Ontario, CA 91761-4018

Date Received: 04/10/17
Work Order: 17-04-0685
Preparation: EPA 3050B
Method: EPA 6010B
Units: mg/kg

Project: Southern Pacific Railroad Co., Property /1705-00163

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-1-1	17-04-0685-1-AA	03/30/17 08:25	Solid	ICP 7300	05/09/17	05/09/17 17:44	170509L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		99.4		0.773		1.03	
B-8-1	17-04-0685-3-AA	03/30/17 11:17	Solid	ICP 7300	05/09/17	05/09/17 17:45	170509L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		34.8		0.773		1.03	
Method Blank	097-01-002-24820	N/A	Solid	ICP 7300	05/09/17	05/09/17 17:22	170509L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		ND		0.721		0.962	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Quality Control - Spike/Spike Duplicate

A&R Laboratories, Inc.
1650-C South Grove Avenue
Ontario, CA 91761-4018

Date Received: 04/10/17
Work Order: 17-04-0685
Preparation: EPA 3050B
Method: EPA 6010B

Project: Southern Pacific Railroad Co., Property /1705-00163

Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
17-05-0618-1	Sample	Solid	ICP 7300	05/09/17	05/09/17 17:27	170509S01
17-05-0618-1	Matrix Spike	Solid	ICP 7300	05/09/17	05/09/17 17:28	170509S01
17-05-0618-1	Matrix Spike Duplicate	Solid	ICP 7300	05/09/17	05/09/17 17:29	170509S01

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	9.065	25.00	39.72	123	36.97	112	75-125	7	0-20	

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RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS

A&R Laboratories, Inc.
1650-C South Grove Avenue
Ontario, CA 91761-4018

Date Received: 04/10/17
Work Order: 17-04-0685
Preparation: EPA 3050B
Method: EPA 6010B

Project: Southern Pacific Railroad Co., Property /1705-00163

Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
097-01-002-24820	LCS	Solid	ICP 7300	05/09/17	05/09/17 17:23	170509L01

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Arsenic	25.00	23.38	94	80-120	

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Calscience

Sample Analysis Summary Report

Work Order: 17-04-0685

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 6010B	EPA 3050B	935	ICP 7300	1


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Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 17-04-0685

Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

A & R Laboratories

1650 S. Grove Ave., Ste C, Ontario, CA 91761
Tel: 951-779-0310 / 909-781-6335 Fax: 951-779-0344
E-mail: office@arlaboratories.com

CHAIN OF CUSTODY
~~RUSH~~

A & R Work Order #:

124
1704.00058

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CAUSCIENCE

[illegible]

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CHAIN OF CUSTODY

1704.00058

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CAUSCIENCE

[illegible]

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Matrix Code:	DW=Drinking Water	SL=Sludge
	GW=Ground Water	SS=Soil/Sediment
	WW=Waste Water	AR=Air
	SD=Solid Waste	PP=Pure Product

Preservative Code	IC=Ice HC=HCl HN=HNO ₃
-------------------	---

$$\begin{aligned} \text{SH} &= \text{NaOH} \\ \text{ST} &= \text{Na}_2\text{S}_2\text{O}_3 \\ \text{HS} &= \text{H}_2\text{SO}_4 \end{aligned}$$

* Sample Container Types:
T=Tedlar Air Bag
G=Glass Container
ST= Steel Tube

B= Brass Tube
P=Plastic Bottle
V=VOA Vial

EnCore

SAMPLE RECEIPT CHECKLIST

COOLER 0 OF 0

CLIENT: A 4 R Labs .

DATE: 04 / 10 / 2017

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC (CF: 0.0°C); Temperature (w/o CF): 14.9 °C (w/ CF): 14.9 °C; ☐ Blank ☒ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by:)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter

Checked by: 836

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☐ Not Present ☒ N/A

Checked by: 836

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A

Checked by: 836

SAMPLE CONDITION:

	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers			
<input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time			
Sampler's name indicated on COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and in good condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sufficient volume/mass for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aqueous samples for certain analyses received within 15-minute holding time			
<input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation chemical(s) noted on COC and/or sample container	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Unpreserved aqueous sample(s) received for certain analyses			
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals			
Container(s) for certain analysis free of headspace	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500)			
<input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CONTAINER TYPE:

(Trip Blank Lot Number:)

Aqueous: ☐ VOA ☐ VOA_h ☐ VOA_{na} ☐ 100PJ ☐ 100PJ_{na} ☐ 125AGB ☐ 125AGB_h ☐ 125AGB_p ☐ 125PB

☐ 125PB_{znna} ☐ 250AGB ☐ 250CGB ☐ 250CGB_s ☐ 250PB ☐ 250PB_n ☐ 500AGB ☐ 500AGJ ☐ 500AGJs

☐ 500PB ☒ 1AGB ☐ 1AGB_{na} ☐ 1AGB_s ☐ 1PB ☐ 1PB_{na} ☐ ☐ ☐ ☐

Solid: ☒ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve () ☐ EnCores® () ☐ TerraCores® () ☐

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ ☐ Other Matrix (): ☐ ☐

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 836

s = H₂SO₄, u = ultra-pure, x = Na₂SO₃+NaHSO₄.H₂O, znna = Zn (CH₃CO₂)₂ + NaOH

Reviewed by: 1053

Hoaibao Nguyen

From: Jennifer Iniguez <jennifer.iniguez@arlaboratories.com>
Sent: Friday, May 05, 2017 5:04 PM
To: Hoaibao Nguyen
Subject: Fwd: Southern Pacific Railroad Co., Property /1704-00058 / ECI 17-04-0685
Attachments: 17-04-0685_s2.pdf; 1378069.pdf

Hi Tina,

Our client wants more testing done. Please see the below:

Hi Jen,

Please have Calscience analyze samples B-1-1 and B-8-1 for arsenic by 6010B on a normal turnaround time (original A&R WO# 1703-00259).

I can do a proper coc if need. Do you still have enough sample?

Jen

----- Forwarded message -----

From: Hoaibao Nguyen <HoaiBaoNguyen@eurofinsus.com>
Date: Wed, Apr 19, 2017 at 11:51 AM
Subject: RE: Southern Pacific Railroad Co., Property /1704-00058 / ECI 17-04-0685
To: Jennifer Iniguez <jennifer.iniguez@arlaboratories.com>

Hi Jen,

I apologize, you had mentioned that but it slipped my mind! Revisions are attached.

Best Regards,

Hoaibao (Tina) Nguyen

Assistant Project Manager

From: Jennifer Iniguez [mailto:jennifer.iniguez@arlaboratories.com]
Sent: Wednesday, April 19, 2017 11:30 AM
To: Hoaibao Nguyen
Subject: Re: Southern Pacific Railroad Co., Property /1704-00058 / ECI 17-04-0685

**A & R Laboratories**

1650 S. Grove Ave., Ste C, Ontario, CA 91761
Tel: 951-779-0310 / 909-781-6335 Fax: 951-779-0344
E-mail: office@arlaboratories.com

CHAIN OF CUSTODY

A & R Work Order #:

1705-00163

~~1705-00259~~

Page 1 of 2

Client Name LOR Geotechnical Group, Inc.		<input checked="" type="checkbox"/> 3.2°C <input type="checkbox"/> Chilled		Analyses Requested												Turn Around Time Requested					
E-mail mhunt@lorgeo.com		<input checked="" type="checkbox"/> Intact														<input type="checkbox"/> Rush 8 12 24 48 Hours					
Address 6121 Quail Valley Court, Riverside, CA 92507		<input type="checkbox"/> Seal														Remarks					
Report Attention Matthew Hunt		Phone # 951-653-7760		Sampled By Matthew Hunt																	
Project No./ Name 33336.2		Project Site Southern Pacific Railroad Co. Property																			
Lab # (Lab use)	Client Sample ID	Sample Collection Date Time		Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B (BTX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Colliform, E-Coli	EPA 8015 TPH-FS	EPA 8270C SVOCs	EPA 6020 AS	EPA 6020 AS - HOMODEN THEN RE-ANALYZE	AS 6010	
1	B-1-1	3/30/17	0825	Soil	Ice	1 Plastic Skewer								X			X	X	X	X	
	B-1-3		0827																		
	B-1-5		0829																		
	B-2-1		0856											X			X	X			
	B-2-3		0858																		
	B-2-5		0900																		
	B-3-1		0920											X			X	X			
	B-3-3		0922																		
	B-3-5		0924																		
	B-4-1		0941											X			X	X			
	B-4-3		0943																		
	B-4-5		0945																		
	B-5-1		1009											X			X	X			
	B-5-3		1011																		
	B-5-5		1013																		
Relinquished By Matthew Hunt		Company LOR	Date 3/30/17	Time 12:56	Received By Matthew Hunt		Company LOR	Date 3/30/17	Time 12:56	Note: Samples are discarded 30 days after results are reported unless other arrangements are made.											

Relinquished By **Matthew Hunt**
Company **LOR**
Date **3/30/17**
Time **12:56**

Received By **Matthew Hunt**
Company **LOR**
Date **3/30/17**
Time **12:56**

* Sample Container Types:

T=Tedlar Air Bag
G=Glass Container
ST=Steel Tube

B=Brass Tube
P=Plastic Bottle
V=Vial

E=EnCore

CHAIN OF CUSTODY

Appendix E

*Laboratory Report,
Babcock, May 24, 2017*



BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name: LOR Geotechnical Group, Inc.
Contact: Mathew L. Hunt
Address: 6121 Quail Valley Ct.
Riverside, CA 92507

Analytical Report: Page 1 of 10
Project Name: LOR-SPRCP

Project Number: SPRR Co. Property - Grand
Terrace CA

Report Date: 24-May-2017

Work Order Number: B7E1718

Received on Ice (Y/N): Yes Temp: 3 °C

Attached is the analytical report for the sample(s) received for your project. Below is a list of the individual sample descriptions with the corresponding laboratory number(s). Also, enclosed is a copy of the Chain of Custody document (if received with your sample(s)). Please note any unused portion of the sample(s) may be responsibly discarded after 30 days from the above report date, unless you have requested otherwise.

Thank you for the opportunity to serve your analytical needs. If you have any questions or concerns regarding this report please contact our client service department.

Sample Identification

<u>Lab Sample #</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>By</u>	<u>Date Submitted</u>	<u>By</u>
B7E1718-01	B-1-3	Solid	03/30/17 08:27	Mathew L. Hunt	05/18/17 12:03	Mathew L. Hunt
B7E1718-02	B-6-1	Solid	03/30/17 10:34	Mathew L. Hunt	05/18/17 12:03	Mathew L. Hunt
B7E1718-03	B-7-1	Solid	03/30/17 10:51	Mathew L. Hunt	05/18/17 12:03	Mathew L. Hunt
B7E1718-04	B-8-3	Solid	03/30/17 11:19	Mathew L. Hunt	05/18/17 12:03	Mathew L. Hunt
B7E1718-05	B-2-1	Solid	03/30/17 08:56	Mathew L. Hunt	05/18/17 12:03	Mathew L. Hunt
B7E1718-06	B-3-1	Solid	03/30/17 09:20	Mathew L. Hunt	05/18/17 12:03	Mathew L. Hunt
B7E1718-07	B-4-1	Solid	03/30/17 09:41	Mathew L. Hunt	05/18/17 12:03	Mathew L. Hunt
B7E1718-08	B-5-1	Solid	03/30/17 10:09	Mathew L. Hunt	05/18/17 12:03	Mathew L. Hunt



BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name: LOR Geotechnical Group, Inc.

Contact: Mathew L. Hunt

Address: 6121 Quail Valley Ct.
Riverside, CA 92507

Report Date: 24-May-2017

Analytical Report: Page 2 of 10

Project Name: LOR-SPRCP

Project Number: SPRR Co. Property - Grand
Terrace CA

Work Order Number: B7E1718

Received on Ice (Y/N): Yes Temp: 3 °C

Laboratory Reference Number

B7E1718-01

Sample Description

B-1-3

Matrix

Solid

Sampled Date/Time

03/30/17 08:27

Received Date/Time

05/18/17 12:03

Analyte(s)	Result	RDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids; EPA SW846 Series Arsenic	24	2.0	mg/kg	EPA 6020	05/23/17 17:18	MEL	

mailing

P.O Box 432
Riverside, CA 92502-0432

location

6100 Quail Valley Court
Riverside, CA 92507-0704

P 951 653 3351

F 951 653 1662

www.babcocklabs.com

CA ELAP No. 2698

EPA No. CA00102

NELAP No. OR4035

LACSD No. 10119



BABCOCK Laboratories, Inc.

The Standard of Excellence for Over 100 Years

Client Name: LOR Geotechnical Group, Inc.

Contact: Mathew L. Hunt

Address: 6121 Quail Valley Ct.

Riverside, CA 92507

Report Date: 24-May-2017

Analytical Report: Page 3 of 10

Project Name: LOR-SPRCP

Project Number: SPRR Co. Property - Grand
Terrace CA

Work Order Number: B7E1718

Received on Ice (Y/N): Yes Temp: 3 °C

Laboratory Reference Number

B7E1718-02

Sample Description

B-6-1

Matrix

Solid

Sampled Date/Time

03/30/17 10:34

Received Date/Time

05/18/17 12:03

Analyte(s)	Result	RDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids; EPA SW846 Series							
Arsenic	4.1	2.0	mg/kg	EPA 6020	05/23/17 17:19	MEL	

mailing

P.O Box 432
Riverside, CA 92502-0432

location

6100 Quail Valley Court
Riverside, CA 92507-0704

P 951 653 3351
F 951 653 1662
www.babcocklabs.com

CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119



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Client Name: LOR Geotechnical Group, Inc.

Contact: Mathew L. Hunt

Address: 6121 Quail Valley Ct.

Riverside, CA 92507

Report Date: 24-May-2017

Analytical Report: Page 4 of 10

Project Name: LOR-SPRCP

Project Number: SPRR Co. Property - Grand
Terrace CA

Work Order Number: B7E1718

Received on Ice (Y/N): Yes Temp: 3 °C

Laboratory Reference Number

B7E1718-03

Sample Description

B-7-1

Matrix

Solid

Sampled Date/Time

03/30/17 10:51

Received Date/Time

05/18/17 12:03

Analyte(s)	Result	RDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids; EPA SW846 Series							
Arsenic	11	2.0	mg/kg	EPA 6020	05/23/17 17:21	MEL	

mailing

P.O Box 432
Riverside, CA 92502-0432

location

6100 Quail Valley Court
Riverside, CA 92507-0704

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F 951 653 1662
www.babcocklabs.com

CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119



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Client Name: LOR Geotechnical Group, Inc.

Contact: Mathew L. Hunt

Address: 6121 Quail Valley Ct.

Riverside, CA 92507

Report Date: 24-May-2017

Analytical Report: Page 5 of 10

Project Name: LOR-SPRCP

Project Number: SPRR Co. Property - Grand
Terrace CA

Work Order Number: B7E1718

Received on Ice (Y/N): Yes Temp: 3 °C

Laboratory Reference Number

B7E1718-04

Sample Description

B-8-3

Matrix

Solid

Sampled Date/Time

03/30/17 11:19

Received Date/Time

05/18/17 12:03

Analyte(s)	Result	RDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids; EPA SW846 Series							
Arsenic	5.7	2.0	mg/kg	EPA 6020	05/23/17 17:23	MEL	

mailing

P.O Box 432
Riverside, CA 92502-0432

location

6100 Quail Valley Court
Riverside, CA 92507-0704

P 951 653 3351
F 951 653 1662
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CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119



BABCOCK Laboratories, Inc.

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Client Name: LOR Geotechnical Group, Inc.

Contact: Mathew L. Hunt

Address: 6121 Quail Valley Ct.

Riverside, CA 92507

Report Date: 24-May-2017

Analytical Report: Page 6 of 10

Project Name: LOR-SPRCP

Project Number: SPRR Co. Property - Grand
Terrace CA

Work Order Number: B7E1718

Received on Ice (Y/N): Yes Temp: 3 °C

Laboratory Reference Number

B7E1718-05

Sample Description

B-2-1

Matrix

Solid

Sampled Date/Time

03/30/17 08:56

Received Date/Time

05/18/17 12:03

Analyte(s)	Result	RDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids; EPA SW846 Series							
Arsenic	59	2.0	mg/kg	EPA 6020	05/23/17 17:25	MEL	

mailing

P.O Box 432
Riverside, CA 92502-0432

location

6100 Quail Valley Court
Riverside, CA 92507-0704

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EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119



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Client Name: LOR Geotechnical Group, Inc.

Contact: Mathew L. Hunt

Address: 6121 Quail Valley Ct.

Riverside, CA 92507

Report Date: 24-May-2017

Analytical Report: Page 7 of 10

Project Name: LOR-SPRCP

Project Number: SPRR Co. Property - Grand
Terrace CA

Work Order Number: B7E1718

Received on Ice (Y/N): Yes Temp: 3 °C

Laboratory Reference Number

B7E1718-06

Sample Description

B-3-1

Matrix

Solid

Sampled Date/Time

03/30/17 09:20

Received Date/Time

05/18/17 12:03

Analyte(s)	Result	RDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids; EPA SW846 Series							
Arsenic	4.5	2.0	mg/kg	EPA 6020	05/23/17 17:27	MEL	

mailing

P.O Box 432
Riverside, CA 92502-0432

location

6100 Quail Valley Court
Riverside, CA 92507-0704

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EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119



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Client Name: LOR Geotechnical Group, Inc.

Contact: Mathew L. Hunt

Address: 6121 Quail Valley Ct.

Riverside, CA 92507

Report Date: 24-May-2017

Analytical Report: Page 8 of 10

Project Name: LOR-SPRCP

Project Number: SPRR Co. Property - Grand
Terrace CA

Work Order Number: B7E1718

Received on Ice (Y/N): Yes Temp: 3 °C

Laboratory Reference Number

B7E1718-07

Sample Description

B-4-1

Matrix

Solid

Sampled Date/Time

03/30/17 09:41

Received Date/Time

05/18/17 12:03

Analyte(s)	Result	RDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids; EPA SW846 Series							
Arsenic	32	2.0	mg/kg	EPA 6020	05/23/17 17:29	MEL	

mailing

P.O Box 432
Riverside, CA 92502-0432

location

6100 Quail Valley Court
Riverside, CA 92507-0704

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CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119



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Client Name: LOR Geotechnical Group, Inc.

Contact: Mathew L. Hunt

Address: 6121 Quail Valley Ct.

Riverside, CA 92507

Report Date: 24-May-2017

Analytical Report: Page 9 of 10

Project Name: LOR-SPRCP

Project Number: SPRR Co. Property - Grand
Terrace CA

Work Order Number: B7E1718

Received on Ice (Y/N): Yes Temp: 3 °C

Laboratory Reference Number

B7E1718-08

Sample Description

B-5-1

Matrix

Solid

Sampled Date/Time

03/30/17 10:09

Received Date/Time

05/18/17 12:03

Analyte(s)	Result	RDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids; EPA SW846 Series							
Arsenic	28	2.0	mg/kg	EPA 6020	05/23/17 17:31	MEL	

mailing

P.O Box 432
Riverside, CA 92502-0432

location

6100 Quail Valley Court
Riverside, CA 92507-0704

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CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119



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Client Name: LOR Geotechnical Group, Inc.
Contact: Mathew L. Hunt
Address: 6121 Quail Valley Ct.
Riverside, CA 92507

Report Date: 24-May-2017

Analytical Report: Page 10 of 10
Project Name: LOR-SPRCP

Project Number: SPRR Co. Property - Grand
Terrace CA

Work Order Number: B7E1718

Received on Ice (Y/N): Yes Temp: 3 °C

Notes and Definitions

ND: Analyte NOT DETECTED at or above the Method Detection Limit (**if MDL is reported**), otherwise at or above the Reportable Detection Limit (RDL)
NR: Not Reported
RDL: Reportable Detection Limit
MDL: Method Detection Limit
* / " : NELAP does not offer accreditation for this analyte/method/matrix combination

Approval

Enclosed are the analytical results for the submitted sample(s). Babcock Laboratories certify the data presented as part of this report meet the minimum quality standards in the referenced analytical methods. Any exceptions have been noted.

Mary Mazurkiewicz For Amanda C. Porter

cc:

e-Short_No Alias.rpt

This report applies only to the sample(s) analyzed. As a mutual protection to clients, the public, and Babcock Laboratories, Inc., this report is submitted and accepted for the exclusive use of the Client to whom it is addressed. Interpretation and use of the information contained within this report are the sole responsibility of the Client. Babcock Laboratories, Inc. is not responsible for any misinformation or consequences that may result from misinterpretation or improper use of this report. This report is not to be modified or abbreviated in any way. Additionally, this report is not to be used, in whole or in part, in any advertising or publicity matter without written authorization from Babcock Laboratories, Inc. The liability of Babcock Laboratories, Inc. is limited to the actual cost of the requested analyses, unless otherwise agreed upon in writing. There is no other warranty expressed or implied.

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Riverside, CA 92502-0432

location
6100 Quail Valley Court
Riverside, CA 92507-0704

P 951 653 3351
F 951 653 1662
www.babcocklabs.com

CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119



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Client Name: LOR Geotechnical Group, Inc.

Contact: Mathew L. Hunt

Address: 6121 Quail Valley Ct.
Riverside, CA 92507

Report Date: 24-May-2017

Analytical Report: Page 1 of 3

Project Name: LOR-SPRC

Project Number: SPRR Co. Property - Grand
Terrace CA

Work Order Number: B7E1718

Received on Ice (Y/N):

Yes

Temp: 3 °C



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6100 Quail Valley Court Riverside, CA 92507
(951) 653-3351 • FAX (951) 653-1662
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Chain of Custody & Sample Information Record

Client: <u>LOR Geotechnical Group, Inc.</u>		Contact: <u>Mathew L. Hunt</u>		Fax No. <u>951-653-1741</u>		Additional Reporting Requests	
Phone No. <u>951-653-1760</u>		email: <u>mhunt@lor-geo.com</u>				Include QC Data Package: <input type="checkbox"/> Yes <input type="checkbox"/> No	
Project Name: <u>SPRR Co. Property</u>		Turn Around Time: Routine *72 Hour Rush *48 Hour Rush *24 Hour Rush				FAX Results: <input type="checkbox"/> Yes <input type="checkbox"/> No	
Project Location: <u>Grand Terrace, CA</u>		*Lab TAT Approval: By: _____		*Additional Charges Apply		Email Results: <input type="checkbox"/> Yes <input type="checkbox"/> No	
						State EDT: <input type="checkbox"/> Yes <input type="checkbox"/> No	
						(Include Source Number in Notes)	
Sampler Information		# of Containers & Preservatives		Sample Type		Analysis Requested	
Name: <u>Mathew L. Hunt</u>		Unpreserved H ₂ SO ₄ HCl HNO ₃ Na ₂ S ₂ O ₃ NaOH NaOH/Zn Acetate NH ₄ Cl PDC		Total # of Containers		Matrix	
Employer: _____				Routine Resample Special		Notes	
Signature: <u>Mathew L. Hunt</u>				X AS 6020		DW = Drinking Water WW = Waste Water GW = Ground Water S = Source SG = Sludge L = Liquid M = Miscellaneous	
Sample ID		Date		Time			
B-1-3		3/30/17		0827			
B-1-5				0829			
B-2-3				0858			
B-2-5				0900			
B-3-3				0922			
B-3-5				0924			
B-4-3				0943			
B-4-5				0945			
B-5-3				1011			
B-5-5				1013			
Relinquished By (sign)		Print Name / Company		Date / Time		Received By (sign)	
<u>Mathew L. Hunt</u>		<u>Mathew L. Hunt / LOR</u>		<u>5/8/17 1203</u>		<u>JB ESB</u>	
By signing on behalf of your organization and relinquishing this chain of custody you agree to abide by the Babcock Laboratories, Inc. Terms and Conditions.							
(For Lab Use Only) Sample Integrity Upon Receipt/Acceptance Criteria							
Sample(s) Submitted on Ice? <u>Yes</u> No		Sample meets laboratory acceptance criteria? <u>Yes</u> No				Lab No. <u>B7E1718</u>	
Custody Seal(s) Intact? <u>Yes</u> No <u>NA</u>		Permission to continue: <u>Yes</u> No				Logged in By/Date: <u>MAY 18 2017 AB</u>	
Sample(s) Intact? <u>Yes</u> No		Deviation/Notes: _____				Page <u>1</u> of <u>3</u>	
Temperature: <u>3</u> °C <input type="checkbox"/> Cooler Blank		Signature/Date: _____				Rev. 6/16	



Temp: 3 °C



CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119



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Client Name: LOR Geotechnical Group, Inc.

Contact: Mathew L. Hunt

Address: 6121 Quail Valley Ct.
Riverside, CA 92507

Report Date: 24-May-2017

Analytical Report: Page 3 of 3

Project Name: LOR-SPRC

Project Number: SPRR Co. Property - Grand
Terrace CA

Work Order Number: B7E1718

Received on Ice (Y/N):

Yes

Temp: 3 °C



6100 Quail Valley Court Riverside, CA 92507
(951) 653-3351 • FAX (951) 653-1662
www.babcocklabs.com

Chain of Custody & Sample Information Record

Client: <u>LOR Geotechnical Group, Inc.</u>		Contact: <u>Mathew L. Hunt</u>		Fax No. <u>951-653-1741</u>		Additional Reporting Requests	
Phone No. <u>951-653-1760</u>		email: <u>mhunt@lorgeo.com</u>				Include QC Data Package: <input type="checkbox"/> Yes <input type="checkbox"/> No FAX Results: <input type="checkbox"/> Yes <input type="checkbox"/> No Email Results: <input type="checkbox"/> Yes <input type="checkbox"/> No State EDT: <input type="checkbox"/> Yes <input type="checkbox"/> No (Include Source Number in Notes)	
Project Name: <u>SPRR Co. Property</u>		Turn Around Time: Routine *72 Hour Rush *48 Hour Rush *24 Hour Rush					
Project Location: <u>Grand Terrace, CA</u>		*Lab TAT Approval: By: _____		*Additional Charges Apply			
Sampler Information		# of Containers & Preservatives		Sample Type		Analysis Requested	
Name: <u>Mathew L. Hunt</u>		Unpreserved		Routine		Matrix	
Employer: _____		H ₂ SO ₄		Resample		DW = Drinking Water	
Signature: <u>Mathew L. Hunt</u>		HCl		Special		WW = Waste Water	
		HNO ₃		AS 6020		GW = Ground Water	
		Na ₂ S ₂ O ₃				S = Source	
		NaOH				SG = Sludge	
		NaOH/Zn Acetate				L = Liquid	
		NH ₄ Cl				M = Miscellaneous	
		PDC					
		Total # of Containers					
Sample ID		Date		Time			
B-6-3		7/30/17		1036			
B-6-5				1038			
B-7-3				1053			
B-7-5				1055			
B-8-3				1119			
B-8-5				1121			
B-2-1				0856			
B-3-1				0920			
B-4-1				0941			
B-5-1				1009			
Relinquished By (sign)		Print Name / Company		Date / Time		Received By (sign)	
<u>Mathew L. Hunt</u>		<u>Mathew L. Hunt / LOR</u>		<u>7/18/17 1203</u>		<u>AS</u>	
						<u>VB-ESB</u>	

By signing on behalf of your organization and relinquishing this chain of custody you agree to abide by the Babcock Laboratories, Inc. Terms and Conditions.

(For Lab Use Only)

Sample Integrity Upon Receipt/Acceptance Criteria

Sample(s) Submitted on Ice?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample meets laboratory acceptance criteria?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Custody Seal(s) Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <u>NA</u>	Permission to continue:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sample(s) Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Deviation/Notes:	
Temperature:	<u>3</u> °C <input type="checkbox"/> Cooler Blank	Signature/Date:	

Lab No.

B7E1718

Logged in By/Date:

MAY 18 2017 AB

Page 2 of 3

Rev. 6/16

Appendix F

*Laboratory Reports,
Eurofins, 2018*



WORK ORDER NUMBER: 18-02-0713

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Avocet Environmental, Inc.

Client Project Name: UPR ROW / 1552.001

Attention: Phil Miller
1 Technology Drive
Suite C515
Irvine, CA 92618-5302

A handwritten signature in black ink, enclosed in an oval. The signature appears to read "Virendra Patel".

Approved for release on 02/16/2018 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: UPR ROW / 1552.001
 Work Order Number: 18-02-0713

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8	Chain-of-Custody/Sample Receipt Form.	20

Work Order Narrative

Work Order: 18-02-0713

Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 02/09/18. They were assigned to Work Order 18-02-0713.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.



Calscience

Sample Summary

Client: Avocet Environmental, Inc.	Work Order: 18-02-0713
1 Technology Drive, Suite C515	Project Name: UPR ROW / 1552.001
Irvine, CA 92618-5302	PO Number:
	Date/Time Received: 02/09/18 16:46
	Number of Containers: 84
Attn: Phil Miller	

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
B-9-1	18-02-0713-1	02/09/18 07:45	1	Solid
B-9-3	18-02-0713-2	02/09/18 07:46	1	Solid
B-9-5	18-02-0713-3	02/09/18 07:50	1	Solid
B-1A-1	18-02-0713-4	02/09/18 07:55	1	Solid
B-1A-3	18-02-0713-5	02/09/18 07:56	1	Solid
B-1A-5	18-02-0713-6	02/09/18 08:00	1	Solid
B-11-1	18-02-0713-7	02/09/18 08:05	1	Solid
B-11-3	18-02-0713-8	02/09/18 08:06	1	Solid
B-11-5	18-02-0713-9	02/09/18 08:10	1	Solid
B-10-1	18-02-0713-10	02/09/18 08:15	1	Solid
B-17-1	18-02-0713-11	02/09/18 10:10	1	Solid
B-17-3	18-02-0713-12	02/09/18 10:11	1	Solid
B-17-5	18-02-0713-13	02/09/18 10:15	1	Solid
B-10-3	18-02-0713-14	02/09/18 08:16	1	Solid
B-10-5	18-02-0713-15	02/09/18 08:20	1	Solid
B-12-1	18-02-0713-16	02/09/18 08:35	1	Solid
B-12-3	18-02-0713-17	02/09/18 08:36	1	Solid
B-12-5	18-02-0713-18	02/09/18 08:40	1	Solid
B-13-1	18-02-0713-19	02/09/18 08:45	1	Solid
B-13-3	18-02-0713-20	02/09/18 08:46	1	Solid
B-13-5	18-02-0713-21	02/09/18 08:50	1	Solid
B-15-1	18-02-0713-22	02/09/18 09:00	1	Solid
B-15-3	18-02-0713-23	02/09/18 09:05	1	Solid
B-15-5	18-02-0713-24	02/09/18 09:06	1	Solid
B-18-1	18-02-0713-25	02/09/18 09:10	1	Solid
B-18-3	18-02-0713-26	02/09/18 09:11	1	Solid
B-18-5	18-02-0713-27	02/09/18 09:15	1	Solid
B-14-1	18-02-0713-28	02/09/18 09:25	1	Solid
B-14-3	18-02-0713-29	02/09/18 09:26	1	Solid
B-14-5	18-02-0713-30	02/09/18 09:30	1	Solid
B-2A-1	18-02-0713-31	02/09/18 09:45	1	Solid
B-2A-3	18-02-0713-32	02/09/18 09:46	1	Solid
B-2A-5	18-02-0713-33	02/09/18 09:50	1	Solid
B-16-1	18-02-0713-34	02/09/18 10:00	1	Solid
B-16-3	18-02-0713-35	02/09/18 10:01	1	Solid
B-16-5	18-02-0713-36	02/09/18 10:05	1	Solid
B-19-1	18-02-0713-37	02/09/18 10:15	1	Solid
B-19-3	18-02-0713-38	02/09/18 10:16	1	Solid
B-19-5	18-02-0713-39	02/09/18 10:20	1	Solid
B-20-1	18-02-0713-40	02/09/18 10:25	1	Solid
B-20-3	18-02-0713-41	02/09/18 10:26	1	Solid
B-20-5	18-02-0713-42	02/09/18 10:30	1	Solid

[Return to Contents](#)



Calscience

Sample Summary

Client: Avocet Environmental, Inc.	Work Order: 18-02-0713
1 Technology Drive, Suite C515	Project Name: UPR ROW / 1552.001
Irvine, CA 92618-5302	PO Number:
	Date/Time Received: 02/09/18 16:46
	Number of Containers: 84
Attn: Phil Miller	

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
B-3A-1	18-02-0713-43	02/09/18 10:35	1	Solid
B-3A-3	18-02-0713-44	02/09/18 10:36	1	Solid
B-3A-5	18-02-0713-45	02/09/18 10:40	1	Solid
B-21-1	18-02-0713-46	02/09/18 10:50	1	Solid
B-21-3	18-02-0713-47	02/09/18 10:51	1	Solid
B-21-5	18-02-0713-48	02/09/18 10:55	1	Solid
B-22-1	18-02-0713-49	02/09/18 11:05	1	Solid
B-22-3	18-02-0713-50	02/09/18 11:06	1	Solid
B-22-5	18-02-0713-51	02/09/18 11:10	1	Solid
B-23-1	18-02-0713-52	02/09/18 12:35	1	Solid
B-23-3	18-02-0713-53	02/09/18 12:36	1	Solid
B-23-5	18-02-0713-54	02/09/18 12:40	1	Solid
B-4A-1	18-02-0713-55	02/09/18 12:45	1	Solid
B-4A-3	18-02-0713-56	02/09/18 12:46	1	Solid
B-4A-5	18-02-0713-57	02/09/18 12:50	1	Solid
B-24-1	18-02-0713-58	02/09/18 12:55	1	Solid
B-24-3	18-02-0713-59	02/09/18 12:56	1	Solid
B-24-5	18-02-0713-60	02/09/18 13:00	1	Solid
B-25-1	18-02-0713-61	02/09/18 13:05	1	Solid
B-25-3	18-02-0713-62	02/09/18 13:06	1	Solid
B-25-5	18-02-0713-63	02/09/18 13:10	1	Solid
B-26-1	18-02-0713-64	02/09/18 13:15	1	Solid
B-26-3	18-02-0713-65	02/09/18 13:16	1	Solid
B-26-5	18-02-0713-66	02/09/18 13:20	1	Solid
B-27-1	18-02-0713-67	02/09/18 13:25	1	Solid
B-27-3	18-02-0713-68	02/09/18 13:26	1	Solid
B-27-5	18-02-0713-69	02/09/18 13:30	1	Solid
B-28-1	18-02-0713-70	02/09/18 13:35	1	Solid
B-28-3	18-02-0713-71	02/09/18 13:36	1	Solid
B-28-5	18-02-0713-72	02/09/18 13:37	1	Solid
B-29-1	18-02-0713-73	02/09/18 13:40	1	Solid
B-29-3	18-02-0713-74	02/09/18 13:41	1	Solid
B-29-5	18-02-0713-75	02/09/18 13:42	1	Solid
B-5A-1	18-02-0713-76	02/09/18 13:45	1	Solid
B-5A-3	18-02-0713-77	02/09/18 13:46	1	Solid
B-5A-5	18-02-0713-78	02/09/18 13:47	1	Solid
B-30-1	18-02-0713-79	02/09/18 13:55	1	Solid
B-30-3	18-02-0713-80	02/09/18 13:56	1	Solid
B-30-5	18-02-0713-81	02/09/18 13:57	1	Solid
B-31-1	18-02-0713-82	02/09/18 14:10	1	Solid
B-31-3	18-02-0713-83	02/09/18 14:11	1	Solid
B-31-5	18-02-0713-84	02/09/18 14:12	1	Solid

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Calscience

Detections Summary

Client: Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Work Order: 18-02-0713
Project Name: UPR ROW / 1552.001
Received: 02/09/18

Attn: Phil Miller

Page 1 of 2

Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
B-9-1 (18-02-0713-1)						
Arsenic	40.2		1.00	mg/kg	EPA 6020	EPA 3050B
B-1A-1 (18-02-0713-4)						
Arsenic	9.83		1.00	mg/kg	EPA 6020	EPA 3050B
B-11-1 (18-02-0713-7)						
Arsenic	5.69		1.00	mg/kg	EPA 6020	EPA 3050B
B-10-1 (18-02-0713-10)						
Arsenic	23.8		1.00	mg/kg	EPA 6020	EPA 3050B
B-17-1 (18-02-0713-11)						
Arsenic	2.84		1.00	mg/kg	EPA 6020	EPA 3050B
B-12-1 (18-02-0713-16)						
Arsenic	3.76		1.00	mg/kg	EPA 6020	EPA 3050B
B-13-1 (18-02-0713-19)						
Arsenic	2.62		1.00	mg/kg	EPA 6020	EPA 3050B
B-15-1 (18-02-0713-22)						
Arsenic	6.57		1.00	mg/kg	EPA 6020	EPA 3050B
B-18-1 (18-02-0713-25)						
Arsenic	44.0		1.00	mg/kg	EPA 6020	EPA 3050B
B-14-1 (18-02-0713-28)						
Arsenic	62.9		1.00	mg/kg	EPA 6020	EPA 3050B
B-2A-1 (18-02-0713-31)						
Arsenic	33.1		1.00	mg/kg	EPA 6020	EPA 3050B
B-16-1 (18-02-0713-34)						
Arsenic	21.4		1.00	mg/kg	EPA 6020	EPA 3050B
B-19-1 (18-02-0713-37)						
Arsenic	10.9		1.00	mg/kg	EPA 6020	EPA 3050B
B-20-1 (18-02-0713-40)						
Arsenic	5.30		1.00	mg/kg	EPA 6020	EPA 3050B
B-3A-1 (18-02-0713-43)						
Arsenic	21.8		1.00	mg/kg	EPA 6020	EPA 3050B
B-21-1 (18-02-0713-46)						
Arsenic	33.6		1.00	mg/kg	EPA 6020	EPA 3050B
B-22-1 (18-02-0713-49)						
Arsenic	52.3		1.00	mg/kg	EPA 6020	EPA 3050B
B-23-1 (18-02-0713-52)						
Arsenic	3.36		1.00	mg/kg	EPA 6020	EPA 3050B
B-4A-1 (18-02-0713-55)						
Arsenic	13.5		1.00	mg/kg	EPA 6020	EPA 3050B

* MDL is shown



Calscience

Detections Summary

Client: Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Work Order: 18-02-0713
Project Name: UPR ROW / 1552.001
Received: 02/09/18

Attn: Phil Miller

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Client SampleID

<u>Analyte</u>	<u>Result</u>	<u>Qualifiers</u>	<u>RL</u>	<u>Units</u>	<u>Method</u>	<u>Extraction</u>
B-24-1 (18-02-0713-58)						
Arsenic	2.58		1.00	mg/kg	EPA 6020	EPA 3050B
B-25-1 (18-02-0713-61)						
Arsenic	4.66		1.00	mg/kg	EPA 6020	EPA 3050B
B-26-1 (18-02-0713-64)						
Arsenic	15.1		1.00	mg/kg	EPA 6020	EPA 3050B
B-27-1 (18-02-0713-67)						
Arsenic	9.74		1.00	mg/kg	EPA 6020	EPA 3050B
B-28-1 (18-02-0713-70)						
Arsenic	50.6		1.00	mg/kg	EPA 6020	EPA 3050B
B-29-1 (18-02-0713-73)						
Arsenic	73.5		1.00	mg/kg	EPA 6020	EPA 3050B
B-5A-1 (18-02-0713-76)						
Arsenic	40.7		1.00	mg/kg	EPA 6020	EPA 3050B
B-30-1 (18-02-0713-79)						
Arsenic	5.50		1.00	mg/kg	EPA 6020	EPA 3050B
B-31-1 (18-02-0713-82)						
Arsenic	31.7		1.00	mg/kg	EPA 6020	EPA 3050B

Subcontracted analyses, if any, are not included in this summary.

Return to Contents

* MDL is shown

Analytical Report

Avocet Environmental, Inc.
 1 Technology Drive, Suite C515
 Irvine, CA 92618-5302

Date Received: 02/09/18
 Work Order: 18-02-0713
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: UPR ROW / 1552.001

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-9-1	18-02-0713-1-A	02/09/18 07:45	Solid	ICP/MS 03	02/14/18	02/15/18 23:18	180214L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		40.2	1.00		1.00		
B-1A-1	18-02-0713-4-A	02/09/18 07:55	Solid	ICP/MS 03	02/14/18	02/15/18 23:20	180214L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		9.83	1.00		1.00		
B-11-1	18-02-0713-7-A	02/09/18 08:05	Solid	ICP/MS 03	02/14/18	02/15/18 23:23	180214L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		5.69	1.00		1.00		
B-10-1	18-02-0713-10-A	02/09/18 08:15	Solid	ICP/MS 03	02/14/18	02/15/18 23:25	180214L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		23.8	1.00		1.00		
B-17-1	18-02-0713-11-A	02/09/18 10:10	Solid	ICP/MS 03	02/14/18	02/15/18 23:28	180214L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		2.84	1.00		1.00		
B-12-1	18-02-0713-16-A	02/09/18 08:35	Solid	ICP/MS 03	02/14/18	02/15/18 23:30	180214L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		3.76	1.00		1.00		
B-13-1	18-02-0713-19-A	02/09/18 08:45	Solid	ICP/MS 03	02/14/18	02/15/18 23:33	180214L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		2.62	1.00		1.00		
B-15-1	18-02-0713-22-A	02/09/18 09:00	Solid	ICP/MS 03	02/14/18	02/15/18 23:35	180214L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		6.57	1.00		1.00		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: UPR ROW / 1552.001

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-18-1	18-02-0713-25-A	02/09/18 09:10	Solid	ICP/MS 03	02/14/18	02/15/18 23:38	180214L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		44.0		1.00	1.00		
B-14-1	18-02-0713-28-A	02/09/18 09:25	Solid	ICP/MS 03	02/14/18	02/15/18 23:41	180214L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		62.9		1.00	1.00		
B-2A-1	18-02-0713-31-A	02/09/18 09:45	Solid	ICP/MS 03	02/14/18	02/16/18 00:19	180214L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		33.1		1.00	1.00		
B-16-1	18-02-0713-34-A	02/09/18 10:00	Solid	ICP/MS 03	02/14/18	02/16/18 00:21	180214L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		21.4		1.00	1.00		
B-19-1	18-02-0713-37-A	02/09/18 10:15	Solid	ICP/MS 03	02/14/18	02/16/18 00:24	180214L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		10.9		1.00	1.00		
B-20-1	18-02-0713-40-A	02/09/18 10:25	Solid	ICP/MS 03	02/14/18	02/16/18 00:26	180214L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		5.30		1.00	1.00		
B-3A-1	18-02-0713-43-A	02/09/18 10:35	Solid	ICP/MS 03	02/14/18	02/16/18 00:29	180214L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		21.8		1.00	1.00		
B-21-1	18-02-0713-46-A	02/09/18 10:50	Solid	ICP/MS 03	02/14/18	02/16/18 00:31	180214L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		33.6		1.00	1.00		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: UPR ROW / 1552.001

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-22-1	18-02-0713-49-A	02/09/18 11:05	Solid	ICP/MS 03	02/14/18	02/16/18 00:34	180214L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		52.3	1.00		1.00		
B-23-1	18-02-0713-52-A	02/09/18 12:35	Solid	ICP/MS 03	02/14/18	02/16/18 00:36	180214L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		3.36	1.00		1.00		
B-4A-1	18-02-0713-55-A	02/09/18 12:45	Solid	ICP/MS 03	02/14/18	02/16/18 00:39	180214L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		13.5	1.00		1.00		
B-24-1	18-02-0713-58-A	02/09/18 12:55	Solid	ICP/MS 03	02/14/18	02/16/18 00:41	180214L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		2.58	1.00		1.00		
B-25-1	18-02-0713-61-A	02/09/18 13:05	Solid	ICP/MS 03	02/14/18	02/16/18 00:51	180213L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		4.66	1.00		1.00		
B-26-1	18-02-0713-64-A	02/09/18 13:15	Solid	ICP/MS 03	02/14/18	02/16/18 00:54	180213L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		15.1	1.00		1.00		
B-27-1	18-02-0713-67-A	02/09/18 13:25	Solid	ICP/MS 03	02/14/18	02/16/18 00:56	180213L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		9.74	1.00		1.00		
B-28-1	18-02-0713-70-A	02/09/18 13:35	Solid	ICP/MS 03	02/14/18	02/16/18 00:59	180213L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		50.6	1.00		1.00		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Avocet Environmental, Inc.
 1 Technology Drive, Suite C515
 Irvine, CA 92618-5302

Date Received: 02/09/18
 Work Order: 18-02-0713
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: UPR ROW / 1552.001

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-29-1	18-02-0713-73-A	02/09/18 13:40	Solid	ICP/MS 03	02/14/18	02/16/18 01:01	180213L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		73.5		1.00		1.00	
B-5A-1	18-02-0713-76-A	02/09/18 13:45	Solid	ICP/MS 03	02/14/18	02/16/18 01:04	180213L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		40.7		1.00		1.00	
B-30-1	18-02-0713-79-A	02/09/18 13:55	Solid	ICP/MS 03	02/14/18	02/16/18 01:06	180213L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		5.50		1.00		1.00	
B-31-1	18-02-0713-82-A	02/09/18 14:10	Solid	ICP/MS 03	02/14/18	02/16/18 01:09	180213L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		31.7		1.00		1.00	
Method Blank	099-15-621-1627	N/A	Solid	ICP/MS 03	02/13/18	02/13/18 17:39	180213L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		ND		1.00		1.00	
Method Blank	099-15-621-1629	N/A	Solid	ICP/MS 03	02/14/18	02/15/18 22:55	180214L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		ND		1.00		1.00	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Quality Control - Spike/Spike Duplicate

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
18-02-0650-1	Sample	Solid	ICP/MS 03	02/13/18	02/13/18 17:54	180213S01
18-02-0650-1	Matrix Spike	Solid	ICP/MS 03	02/13/18	02/13/18 17:44	180213S01
18-02-0650-1	Matrix Spike Duplicate	Solid	ICP/MS 03	02/13/18	02/13/18 17:47	180213S01

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	1.626	25.00	29.42	111	29.81	113	72-132	1	0-13	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
B-9-1	Sample	Solid	ICP/MS 03	02/14/18	02/15/18 23:18	180214S01				
B-9-1	Matrix Spike	Solid	ICP/MS 03	02/14/18	02/15/18 23:00	180214S01				
B-9-1	Matrix Spike Duplicate	Solid	ICP/MS 03	02/14/18	02/15/18 23:03	180214S01				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	40.19	25.00	59.43	77	59.53	77	72-132	0	0-13	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
18-02-0650-1	Sample	Solid	ICP/MS 03	02/13/18 00:00	02/13/18 17:54	180213S01
18-02-0650-1	PDS	Solid	ICP/MS 03	02/13/18 00:00	02/13/18 17:49	180213S01
Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	%Rec. CL	Qualifiers
Arsenic	1.626	25.00	27.86	105	75-125	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number	
B-9-1	Sample	Solid	ICP/MS 03	02/14/18 00:00	02/15/18 23:18	180214S01	
B-9-1	PDS	Solid	ICP/MS 03	02/14/18 00:00	02/15/18 23:05	180214S01	
<u>Parameter</u>		<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic		40.19	25.00	65.36	101	75-125	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-15-621-1627	LCS	Solid	ICP/MS 03	02/13/18	02/13/18 17:42	180213L01

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	25.00	25.29	101	80-120	

Return to Contents



Calscience

Quality Control - LCS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-15-621-1629	LCS	Solid	ICP/MS 03	02/14/18	02/15/18 22:57	180214L01

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	25.00	24.91	100	80-120	

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Calscience

Sample Analysis Summary Report

Work Order: 18-02-0713

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 6020	EPA 3050B	598	ICP/MS 03	1


Return to Contents

Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 18-02-0713

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

CHAIN OF CUSTODY RECORD

Project Information:		Event Name:		Analyses																	
Site Name	UPR ROW	6020)	onal Analysis	<div>18-02-0713</div>																	
Site Location	Grand Terrace, CA																				
Project No.	1552.001																				
Project Manager	Phil Miller																				
Sampled By	SRR																				
Turnaround Time	Standard																				

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number	Arsenic (EPA)	Hold for Additional Testing
B-9-1 JK 2/9/18	0745	0745	Soil	1	1	X	
B-9-3 JK 2/9/18	0746	0746			2	X	
B-9-5	2/9/18	0750			3	X	
B-1A-1		0755			4	X	
B-1A-3		0756			5	X	
B-1A-5		0800			6	X	
B-11-1		0805			7	X	
B-11-3		0806			8	X	
B-11-5		0810			9	X	
B-10-1		0815			10	X	
B-17-1		1010			11	X	
B-17-3		1011			12	X	
B-17-5		1015			13	X	

Relinquished by		Company	Received by		Company
Printed Name: <u>Scott Rund</u>	Date: <u>2/19/18</u>	Avocet Environmental, Inc.	Printed Name: <u>PRELY SORIANO</u>	Date: <u>2/19/18</u>	LC
Signature: <u>[Signature]</u>	Time: <u>1646</u>		Signature: <u>[Signature]</u>	Time: <u>1646</u>	
Printed Name: _____	Date: _____		Printed Name: _____	Date: _____	
Signature: _____	Time: _____		Signature: _____	Time: _____	
Printed Name: _____	Date: _____		Printed Name: _____	Date: _____	
Signature: _____	Time: _____		Signature: _____	Time: _____	

Sample Receipt		Billing Information		Special Instructions
Total Containers	TAT	Bill To:	Philip Miller, P.E. AVOCET ENVIRONMENTAL, INC. 1 Technology Drive, Suite C515 Irvine, CA 92618-5302	Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext.102
Temperature °C _____ °F _____	Lab No.			
COC Seal (Y/N/NA)	Intact (Y/N)			



Sheet 2 of 7

CHAIN OF CUSTODY RECORD

[illegible]

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number	Arsenic (EPA)	Hold for Addition
B-10-3	2/9/18	0816	Soil	1	14		X
B-10-S		0820			15		X
B-12-1		0835			16	X	
B-12-3		0836			17		X
B-12-S		0840			18		X
B-13-1		0845			19	X	
B-13-3		0846			20		X
B-13-S		0850			21		X
B-15-1		0900			22	X	
B-15-3		0905			23		X
B-15-S		0906			24		X

Relinquished by		Company	Received by		Company
Printed Name: <u>Scott Lund</u>	Date: <u>2/9/18</u>	Avocet Environmental, Inc.	Printed Name: <u>PREG SORIANO</u>	Date: <u>2/9/18</u>	EC
Signature: <u>[Signature]</u>	Time: <u>1646</u>		Signature: <u>[Signature]</u>	Time: <u>1646</u>	
Printed Name: _____	Date: _____		Printed Name: _____	Date: _____	
Signature: _____	Time: _____		Signature: _____	Time: _____	
Printed Name: _____	Date: _____		Printed Name: _____	Date: _____	
Signature: _____	Time: _____		Signature: _____	Time: _____	

Sample Receipt		Billing Information	Special Instructions
Total Containers	TAT	Bill To: Philip Miller, P.E. AVOCET ENVIRONMENTAL, INC. 1 Technology Dive, Suite C515 Irvine, CA 92618-5302	<i>Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102</i>
Temperature °C _____ °F _____	Lab No.		
COC Seal (Y/N/NA)	Intact (Y/N)		



1 Technology Drive, Suite C515
Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

Sheet 3 of 7

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name	UPR ROW
Site Location	Grand Terrace, CA
Project No.	1552.001
Project Manager	Phil Miller
Sampled By	SRR
Turnaround Time	Standard

Analyses

Arsenic (EPA 6020)

0713

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number	Arsenic (EPA)	Hold for Addition
B-18-1	2/9/18	0910	Soil	1	25	X	
B-18-3		0911			26		X
B-18-5		0915			27		X
B-14-1		0925			28	X	
B-14-3		0926			29		X
B-14-5		0930			30		X
B-2A-1		0945			31	X	
B-2A-3		0946			32		X
B-2A-5		0950			33		X
B-16-1		1000			34	X	
B-16-3		1001			35		X
B-16-5	↓	1005	↓	↓	36		X

Relinquished by		Company	Received by		Company
Printed Name: <u>Scott Rand</u>	Date: <u>2/9/18</u>	Avocet Environmental, Inc.	Printed Name: <u>PREETI SORLAND</u>	Date: <u>2/9/18</u>	EC
Signature: <u>[Signature]</u>	Time: <u>1646</u>		Signature: <u>[Signature]</u>	Time: <u>1646</u>	
Printed Name: _____	Date: _____		Printed Name: _____	Date: _____	
Signature: _____	Time: _____		Signature: _____	Time: _____	
Printed Name: _____	Date: _____		Printed Name: _____	Date: _____	
Signature: _____	Time: _____		Signature: _____	Time: _____	

Sample Receipt		Billing Information		Special Instructions
Total Containers	TAT	Bill To:	Philip Miller, P.E. AVOCET ENVIRONMENTAL, INC. 1 Technology Drive, Suite C515 Irvine, CA 92618-5302	Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext.102
Temperature °C _____ °F _____	Lab No.			
COC Seal (Y/N/NA)	Intact (Y/N)			



1 Technology Drive, Suite C515
Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

Sheet 4 of 7

CHAIN OF CUSTODY RECORD

Project Information: _____ Event Name: _____

Site Name	UPR ROW
Site Location	Grand Terrace, CA
Project No.	1552.001
Project Manager	Phil Miller
Sampled By	SRR
Turnaround Time	Standard

Analyses

Arsenic (EPA 6020)

0713

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number	Arsenic (EPA)	Hold for Addit
B-19-1	2/19/18	1015	Soil	1	37	X	
B-19-3		1016			38		X
B-19-5		1020			39		X
B-20-1		1025			40	X	
B-20-3		1026			41		X
B- 20-5 20-5		1030			42		X
B- 21-1 3A-1		1035			43	X	
B- 21-3 3A-3		1036			44		X
B- 21-5 3A-5		1040			45		X
B-21-1		1050			46	X	
B-21-3		1051			47		X
B-21-5		1055			48		X

Relinquished by		Company	Received by		Company
Printed Name: <u>Scott Rand</u>	Date: <u>2/9/18</u>	Avocet Environmental, Inc.	Printed Name: <u>PREGY SORIAÑO</u>	Date: <u>2/9/18</u>	EC
Signature: <u>[Signature]</u>	Time: <u>1646</u>		Signature: <u>[Signature]</u>	Time: <u>1646</u>	
Printed Name: _____	Date: _____		Printed Name: _____	Date: _____	
Signature: _____	Time: _____		Signature: _____	Time: _____	
Printed Name: _____	Date: _____		Printed Name: _____	Date: _____	
Signature: _____	Time: _____		Signature: _____	Time: _____	

Sample Receipt		Billing Information	Special Instructions
Total Containers	TAT	Bill To: Philip Miller, P.E. AVOCET ENVIRONMENTAL, INC. 1 Technology Drive, Suite C515 Irvine, CA 92618-5302	<i>Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext.102</i>
Temperature °C _____ °F _____	Lab No.		
COC Seal (Y/N/NA)	Intact (Y/N)		



CHAIN OF CUSTODY RECORD


Project Information:		Event Name:
Site Name	UPR ROW	
Site Location	Grand Terrace, CA	
Project No.	1552.001	
Project Manager	Phil Miller	
Sampled By	SRR	
Turnaround Time	Standard	

Analyses

Arsenic (EPA 6020)

0715

[illegible]

Relinquished by		Company	Received by		Company
Printed Name: <u>Scott Ruml</u>	Date: <u>2/9/18</u>	Avocet Environmental, Inc.	Printed Name: <u>PREY SORIANO</u>	Date: <u>2/9/18</u>	
Signature: <u>[Signature]</u>	Time: <u>1646</u>		Signature: <u>[Signature]</u>	Time: <u>1646</u>	
Printed Name: _____	Date: _____		Printed Name: _____	Date: _____	
Signature: _____	Time: _____		Signature: _____	Time: _____	
Printed Name: _____	Date: _____		Printed Name: _____	Date: _____	
Signature: _____	Time: _____		Signature: _____	Time: _____	

Sample Receipt		Billing Information	Special Instructions
Total Containers	TAT	Bill To: Philip Miller, P.E. AVOCET ENVIRONMENTAL, INC. 1 Technology Drive, Suite C515 Irvine, CA 92618-5302	<i>Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext.102</i>
Temperature °C _____ °F _____	Lab No.		
COC Seal (Y/N/NA)	Intact (Y/N)		



Sheet 6 of

CHAIN OF CUSTODY RECORD

Analyses

Arsenic (EPA 6020)		Hold for Additional Analysis
X		
	X	
	X	
X		
	X	
	X	
X		
	X	
	X	
X		
	X	
	X	

0713

[illegible]

Relinquished by	Company	Received by	Company
Printed Name: <u>Scott Rund</u> Date: <u>2/19/18</u> Signature: <u>[Signature]</u> Time: <u>1646</u>	Avocet Environmental, Inc.	Printed Name: <u>PREY SORIANO</u> Date: <u>2/19/18</u> Signature: <u>[Signature]</u> Time: <u>1646</u>	<u>EC</u>
Printed Name: _____ Date: _____ Signature: _____ Time: _____		Printed Name: _____ Date: _____ Signature: _____ Time: _____	
Printed Name: _____ Date: _____ Signature: _____ Time: _____		Printed Name: _____ Date: _____ Signature: _____ Time: _____	

Sample Receipt		Billing Information	Special Instructions
Total Containers	TAT	Bill To: Philip Miller, P.E. AVOCET ENVIRONMENTAL, INC. 1 Technology Drive, Suite C515 Irvine, CA 92618-5302	<i>Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext.102</i>
Temperature °C _____ °F _____	Lab No.		
COC Seal (Y/N/NA)	Intact (Y/N)		



Sheet 7 of 7

CHAIN OF CUSTODY RECORD

[illegible]

Sample Identification	Sample Date	Sample Time	Matrix	No. of Ctnrs.	Lab I.D. Number	Arsenic (EPA)	Hold for Addition
B-29-1	1A 2/9/18	1340	Sol	1	73	X	
B-29-3	1A 2/9/18	1341			74		X
B-29-5	1A 2/9/18	1342			75		X
B-5A-1	2/9/18	1345			76	X	
B-5A-3		1346			77		X
B-5A-5		1347			78		X
B-30-1		1355			79	X	
B-30-3		1356			80		X
B-30-5		1357			81		X
B-31-1		1410			82	X	
B-31-3		1411			83		X
B-31-5		1412			84		X

Relinquished by		Company	Received by		Company
Printed Name: <u>Scott Lund</u>	Date: <u>2/4/18</u>	Avocet Environmental, Inc.	Printed Name: <u>PROG SORIANO</u>	Date: <u>2/9/18</u>	EC
Signature: <u>[Signature]</u>	Time: <u>1646</u>		Signature: <u>[Signature]</u>	Time: <u>1646</u>	
Printed Name: _____	Date: _____		Printed Name: _____	Date: _____	
Signature: _____	Time: _____		Signature: _____	Time: _____	
Printed Name: _____	Date: _____		Printed Name: _____	Date: _____	
Signature: _____	Time: _____		Signature: _____	Time: _____	

Sample Receipt		Billing Information	Special Instructions
Total Containers	TAT	Bill To: Philip Miller, P.E. AVOCET ENVIRONMENTAL, INC. 1 Technology Drive, Suite C515 Irvine, CA 92618-5302	<i>Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext.102</i>
Temperature °C _____ °F _____	Lab No.		
COC Seal (Y/N/NA)	Intact (Y/N)		

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 2CLIENT: Avocet Env'l., Inc.DATE: 02/09/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 4.6 °C (w/ CF): 4.8 °C; ☒ Blank ☐ Sample☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling☐ Sample(s) received at ambient temperature; placed on ice for transport by courierAmbient Temperature: ☐ Air ☐ FilterChecked by: 836

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A Checked by: 836Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A Checked by: 836

SAMPLE CONDITION:

	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time			
Sampler's name indicated on COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and in good condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sufficient volume/mass for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aqueous samples for certain analyses received within 15-minute holding time			
<input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation chemical(s) noted on COC and/or sample container	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Unpreserved aqueous sample(s) received for certain analyses			
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Container(s) for certain analysis free of headspace	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500)			
<input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA_h ☐ VOA_{na2} ☐ 100PJ ☐ 100PJ_{na2} ☐ 125AGB ☐ 125AGB_h ☐ 125AGB_p ☐ 125PB ☐ 125PB_{znna} (pH__9)
☐ 250AGB ☐ 250CGB ☐ 250CGB_s (pH__2) ☐ 250PB ☐ 250PB_n (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJ_s (pH__2) ☐ 500PB
☐ 1AGB ☐ 1AGB_{na2} ☐ 1AGB_s (pH__2) ☐ 1AGB_s (O&G) ☐ 1PB ☐ 1PB_{na} (pH__12) ☐ _____ ☐ _____ ☐ _____
Solid: ☐ 4ozCGJ ☒ 8ozCGJ ☐ 16ozCGJ ☒ Sleeve (P) ☐ EnCores® (____) ☐ TerraCores® (____) ☐ _____ ☐ _____ ☐ _____
Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ Other Matrix (____): ☐ _____ ☐ _____ ☐ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 836s = H₂SO₄, u = ultra-pure, x = Na₂SO₃+NaHSO₄.H₂O, znna = Zn (CH₃CO₂)₂ + NaOHReviewed by: 619

SAMPLE RECEIPT CHECKLIST

COOLER 2 OF 2

CLIENT: Avocet Env'l, Inc.

DATE: 02/09/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 4.4 °C (w/ CF): 4.6 °C; ☒ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter

Checked by: 826

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A

Checked by: 826

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A

Checked by: 826

SAMPLE CONDITION:

	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time			
Sampler's name indicated on COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and in good condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sufficient volume/mass for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aqueous samples for certain analyses received within 15-minute holding time			
<input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation chemical(s) noted on COC and/or sample container	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Unpreserved aqueous sample(s) received for certain analyses			
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Container(s) for certain analysis free of headspace.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500)			
<input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA_h ☐ VOA_{na2} ☐ 100PJ ☐ 100PJ_{na2} ☐ 125AGB ☐ 125AGB_h ☐ 125AGB_p ☐ 125PB ☐ 125PB_{znna} (pH__9)

☐ 250AGB ☐ 250CGB ☐ 250CGB_s (pH__2) ☐ 250PB ☐ 250PB_n (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJ_s (pH__2) ☐ 500PB

☐ 1AGB ☐ 1AGB_{na2} ☐ 1AGB_s (pH__2) ☒ 1AGB_s (O&G) ☐ 1PB ☐ 1PB_{na} (pH__12) ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☒ Sleeve (P) ☐ EnCores® (____) ☐ TerraCores® (____) ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (____): ☐ _____ ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO₃, **na** = NaOH, **na₂** = Na₂S₂O₃, **p** = H₃PO₄, Labeled/Checked by: 826

s = H₂SO₄, **u** = ultra-pure, **x** = Na₂SO₃+NaHSO₄.H₂O, **znna** = Zn (CH₃CO₂)₂ + NaOH

Reviewed by: 679



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Supplemental Report 1

Additional requested analyses are reported as a stand-alone report.



WORK ORDER NUMBER: 18-02-0713

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Avocet Environmental, Inc.

Client Project Name: UPR ROW / 1552.001

Attention: Phil Miller
1 Technology Drive
Suite C515
Irvine, CA 92618-5302

Approved for release on 02/28/2018 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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 Work Order Number: 18-02-0713

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Work Order Narrative

Work Order: 18-02-0713

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 02/09/18. They were assigned to Work Order 18-02-0713.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.



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Sample Summary

Client: Avocet Environmental, Inc.	Work Order: 18-02-0713
1 Technology Drive, Suite C515	Project Name: UPR ROW / 1552.001
Irvine, CA 92618-5302	PO Number:
	Date/Time Received: 02/09/18 16:46
	Number of Containers: 84
Attn: Phil Miller	

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
B-9-3	18-02-0713-2	02/09/18 07:46	1	Solid
B-10-3	18-02-0713-14	02/09/18 08:16	1	Solid
B-18-3	18-02-0713-26	02/09/18 09:11	1	Solid
B-14-1	18-02-0713-28	02/09/18 09:25	1	Solid
B-14-3	18-02-0713-29	02/09/18 09:26	1	Solid
B-2A-3	18-02-0713-32	02/09/18 09:46	1	Solid
B-16-3	18-02-0713-35	02/09/18 10:01	1	Solid
B-3A-3	18-02-0713-44	02/09/18 10:36	1	Solid
B-21-3	18-02-0713-47	02/09/18 10:51	1	Solid
B-22-1	18-02-0713-49	02/09/18 11:05	1	Solid
B-22-3	18-02-0713-50	02/09/18 11:06	1	Solid
B-4A-3	18-02-0713-56	02/09/18 12:46	1	Solid
B-26-3	18-02-0713-65	02/09/18 13:16	1	Solid
B-28-1	18-02-0713-70	02/09/18 13:35	1	Solid
B-28-3	18-02-0713-71	02/09/18 13:36	1	Solid
B-29-1	18-02-0713-73	02/09/18 13:40	1	Solid
B-29-3	18-02-0713-74	02/09/18 13:41	1	Solid
B-5A-3	18-02-0713-77	02/09/18 13:46	1	Solid
B-31-3	18-02-0713-83	02/09/18 14:11	1	Solid


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Calscience

Detections Summary

Client: Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Work Order: 18-02-0713
Project Name: UPR ROW / 1552.001
Received: 02/09/18

Attn: Phil Miller

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Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
B-9-3 (18-02-0713-2)						
Arsenic	2.41		1.00	mg/kg	EPA 6020	EPA 3050B
B-10-3 (18-02-0713-14)						
Arsenic	18.6		1.00	mg/kg	EPA 6020	EPA 3050B
B-18-3 (18-02-0713-26)						
Arsenic	2.68		1.00	mg/kg	EPA 6020	EPA 3050B
B-14-1 (18-02-0713-28)						
Arsenic	62.9		1.00	mg/kg	EPA 6020	EPA 3050B
Arsenic	1.90		0.100	mg/L	EPA 6020	T22.11.5. All
B-14-3 (18-02-0713-29)						
Arsenic	2.52		1.00	mg/kg	EPA 6020	EPA 3050B
B-2A-3 (18-02-0713-32)						
Arsenic	2.94		1.00	mg/kg	EPA 6020	EPA 3050B
B-16-3 (18-02-0713-35)						
Arsenic	1.77		1.00	mg/kg	EPA 6020	EPA 3050B
B-3A-3 (18-02-0713-44)						
Arsenic	3.22		1.00	mg/kg	EPA 6020	EPA 3050B
B-21-3 (18-02-0713-47)						
Arsenic	2.60		1.00	mg/kg	EPA 6020	EPA 3050B
B-22-1 (18-02-0713-49)						
Arsenic	52.3		1.00	mg/kg	EPA 6020	EPA 3050B
Arsenic	0.103		0.100	mg/L	EPA 6020	EPA 1311
Arsenic	1.73		0.100	mg/L	EPA 6020	T22.11.5. All
B-22-3 (18-02-0713-50)						
Arsenic	2.44		1.00	mg/kg	EPA 6020	EPA 3050B
B-4A-3 (18-02-0713-56)						
Arsenic	2.32		1.00	mg/kg	EPA 6020	EPA 3050B
B-26-3 (18-02-0713-65)						
Arsenic	2.94		1.00	mg/kg	EPA 6020	EPA 3050B
B-28-1 (18-02-0713-70)						
Arsenic	50.6		1.00	mg/kg	EPA 6020	EPA 3050B
Arsenic	0.117		0.100	mg/L	EPA 6020	EPA 1311
Arsenic	2.14		0.100	mg/L	EPA 6020	T22.11.5. All
B-28-3 (18-02-0713-71)						
Arsenic	3.05		1.00	mg/kg	EPA 6020	EPA 3050B
B-29-1 (18-02-0713-73)						
Arsenic	73.5		1.00	mg/kg	EPA 6020	EPA 3050B
Arsenic	1.88		0.100	mg/L	EPA 6020	T22.11.5. All

* MDL is shown



Calscience

Detections Summary

Client: Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Work Order: 18-02-0713
Project Name: UPR ROW / 1552.001
Received: 02/09/18

Attn: Phil Miller

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Client SampleID

<u>Analyte</u>	<u>Result</u>	<u>Qualifiers</u>	<u>RL</u>	<u>Units</u>	<u>Method</u>	<u>Extraction</u>
B-29-3 (18-02-0713-74)						
Arsenic	2.79		1.00	mg/kg	EPA 6020	EPA 3050B
B-5A-3 (18-02-0713-77)						
Arsenic	3.54		1.00	mg/kg	EPA 6020	EPA 3050B
B-31-3 (18-02-0713-83)						
Arsenic	2.95		1.00	mg/kg	EPA 6020	EPA 3050B

Subcontracted analyses, if any, are not included in this summary.

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* MDL is shown



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Analytical Report

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 1311
Method: EPA 6020
Units: mg/L

Project: UPR ROW / 1552.001

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-14-1	18-02-0713-28-A	02/09/18 09:25	Solid	ICP/MS 03	02/20/18	02/21/18 18:51	180221LA4
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		ND		0.100		10.0	
B-22-1	18-02-0713-49-A	02/09/18 11:05	Solid	ICP/MS 03	02/20/18	02/21/18 18:53	180221LA4
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		0.103		0.100		10.0	
B-28-1	18-02-0713-70-A	02/09/18 13:35	Solid	ICP/MS 03	02/20/18	02/21/18 18:56	180221LA4
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		0.117		0.100		10.0	
B-29-1	18-02-0713-73-A	02/09/18 13:40	Solid	ICP/MS 03	02/20/18	02/21/18 19:34	180221LA4
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		ND		0.100		10.0	
Method Blank	099-14-023-198	N/A	Aqueous	ICP/MS 03	02/20/18	02/21/18 18:35	180221LA4
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		ND		0.100		10.0	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Avocet Environmental, Inc.
 1 Technology Drive, Suite C515
 Irvine, CA 92618-5302

Date Received: 02/09/18
 Work Order: 18-02-0713
 Preparation: T22.11.5. All
 Method: EPA 6020
 Units: mg/L

Project: UPR ROW / 1552.001

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-14-1	18-02-0713-28-A	02/09/18 09:25	Solid	ICP/MS 03	02/20/18	02/22/18 15:13	180222LA1
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		1.90		0.100		10.0	
B-22-1	18-02-0713-49-A	02/09/18 11:05	Solid	ICP/MS 03	02/20/18	02/22/18 15:15	180222LA1
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		1.73		0.100		10.0	
B-28-1	18-02-0713-70-A	02/09/18 13:35	Solid	ICP/MS 03	02/20/18	02/22/18 15:18	180222LA1
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		2.14		0.100		10.0	
B-29-1	18-02-0713-73-A	02/09/18 13:40	Solid	ICP/MS 03	02/20/18	02/22/18 15:20	180222LA1
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		1.88		0.100		10.0	
Method Blank	099-14-037-263	N/A	Aqueous	ICP/MS 03	02/20/18	02/22/18 15:03	180222LA1
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		ND		0.100		10.0	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: UPR ROW / 1552.001

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-9-3	18-02-0713-2-A	02/09/18 07:46	Solid	ICP/MS 03	02/23/18	02/26/18 22:23	180223L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		2.41	1.00		1.00		
B-10-3	18-02-0713-14-A	02/09/18 08:16	Solid	ICP/MS 03	02/23/18	02/26/18 22:25	180223L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		18.6	1.00		1.00		
B-18-3	18-02-0713-26-A	02/09/18 09:11	Solid	ICP/MS 03	02/23/18	02/26/18 22:28	180223L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		2.68	1.00		1.00		
B-14-1	18-02-0713-28-A	02/09/18 09:25	Solid	ICP/MS 03	02/14/18	02/15/18 23:41	180214L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		62.9	1.00		1.00		
B-14-3	18-02-0713-29-A	02/09/18 09:26	Solid	ICP/MS 03	02/23/18	02/26/18 22:30	180223L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		2.52	1.00		1.00		
B-2A-3	18-02-0713-32-A	02/09/18 09:46	Solid	ICP/MS 03	02/23/18	02/26/18 22:33	180223L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		2.94	1.00		1.00		
B-16-3	18-02-0713-35-A	02/09/18 10:01	Solid	ICP/MS 03	02/23/18	02/26/18 22:35	180223L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		1.77	1.00		1.00		
B-3A-3	18-02-0713-44-A	02/09/18 10:36	Solid	ICP/MS 03	02/23/18	02/26/18 22:45	180223L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		3.22	1.00		1.00		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: UPR ROW / 1552.001

Page 2 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-21-3	18-02-0713-47-A	02/09/18 10:51	Solid	ICP/MS 03	02/23/18	02/26/18 22:48	180223L02
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		2.60		1.00		1.00	
B-22-1	18-02-0713-49-A	02/09/18 11:05	Solid	ICP/MS 03	02/14/18	02/16/18 00:34	180214L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		52.3		1.00		1.00	
B-22-3	18-02-0713-50-A	02/09/18 11:06	Solid	ICP/MS 03	02/23/18	02/26/18 22:50	180223L02
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		2.44		1.00		1.00	
B-4A-3	18-02-0713-56-A	02/09/18 12:46	Solid	ICP/MS 03	02/23/18	02/26/18 22:53	180223L02
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		2.32		1.00		1.00	
B-26-3	18-02-0713-65-A	02/09/18 13:16	Solid	ICP/MS 03	02/23/18	02/26/18 22:56	180223L02
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		2.94		1.00		1.00	
B-28-1	18-02-0713-70-A	02/09/18 13:35	Solid	ICP/MS 03	02/14/18	02/16/18 00:59	180213L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		50.6		1.00		1.00	
B-28-3	18-02-0713-71-A	02/09/18 13:36	Solid	ICP/MS 03	02/23/18	02/26/18 22:58	180223L02
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		3.05		1.00		1.00	
B-29-1	18-02-0713-73-A	02/09/18 13:40	Solid	ICP/MS 03	02/14/18	02/16/18 01:01	180213L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		73.5		1.00		1.00	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Avocet Environmental, Inc.
 1 Technology Drive, Suite C515
 Irvine, CA 92618-5302

Date Received: 02/09/18
 Work Order: 18-02-0713
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: UPR ROW / 1552.001

Page 3 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-29-3	18-02-0713-74-A	02/09/18 13:41	Solid	ICP/MS 03	02/23/18	02/26/18 23:01	180223L02
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		2.79		1.00	1.00		
B-5A-3	18-02-0713-77-A	02/09/18 13:46	Solid	ICP/MS 03	02/23/18	02/26/18 23:03	180223L02
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		3.54		1.00	1.00		
B-31-3	18-02-0713-83-A	02/09/18 14:11	Solid	ICP/MS 03	02/23/18	02/26/18 23:06	180223L02
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		2.95		1.00	1.00		
Method Blank	099-15-621-1627	N/A	Solid	ICP/MS 03	02/13/18	02/13/18 17:39	180213L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		ND		1.00	1.00		
Method Blank	099-15-621-1629	N/A	Solid	ICP/MS 03	02/14/18	02/15/18 22:55	180214L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		ND		1.00	1.00		
Method Blank	099-15-621-1632	N/A	Solid	ICP/MS 03	02/23/18	02/26/18 22:00	180223L02
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		ND		1.00	1.00		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Quality Control - Spike/Spike Duplicate

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 1311
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 1 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
B-14-1	Sample	Solid	ICP/MS 03	02/20/18	02/21/18 18:51	180221SA4
B-14-1	Matrix Spike	Solid	ICP/MS 03	02/20/18	02/21/18 18:40	180221SA4
B-14-1	Matrix Spike Duplicate	Solid	ICP/MS 03	02/20/18	02/21/18 18:43	180221SA4

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	ND	5.000	5.028	101	5.100	102	73-127	1	0-11	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: T22.11.5. All
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 2 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
B-14-1	Sample	Solid	ICP/MS 03	02/20/18	02/22/18 15:13	180222SA1
B-14-1	Matrix Spike	Solid	ICP/MS 03	02/20/18	02/22/18 15:08	180222SA1
B-14-1	Matrix Spike Duplicate	Solid	ICP/MS 03	02/20/18	02/22/18 15:10	180222SA1

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	1.902	5.000	7.246	107	7.199	106	73-127	1	0-11	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 3 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
18-02-0650-1	Sample	Solid	ICP/MS 03	02/13/18	02/13/18 17:54	180213S01
18-02-0650-1	Matrix Spike	Solid	ICP/MS 03	02/13/18	02/13/18 17:44	180213S01
18-02-0650-1	Matrix Spike Duplicate	Solid	ICP/MS 03	02/13/18	02/13/18 17:47	180213S01

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	1.626	25.00	29.42	111	29.81	113	72-132	1	0-13	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 4 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
B-9-1	Sample	Solid	ICP/MS 03	02/14/18	02/15/18 23:18	180214S01				
B-9-1	Matrix Spike	Solid	ICP/MS 03	02/14/18	02/15/18 23:00	180214S01				
B-9-1	Matrix Spike Duplicate	Solid	ICP/MS 03	02/14/18	02/15/18 23:03	180214S01				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	40.19	25.00	59.43	77	59.53	77	72-132	0	0-13	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 5 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
B-9-3	Sample	Solid	ICP/MS 03	02/23/18	02/26/18 22:23	180223S02				
B-9-3	Matrix Spike	Solid	ICP/MS 03	02/23/18	02/26/18 22:13	180223S02				
B-9-3	Matrix Spike Duplicate	Solid	ICP/MS 03	02/23/18	02/26/18 22:15	180223S02				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	2.405	25.00	28.00	102	28.34	104	72-132	1	0-13	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 1311
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 1 of 4

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number	
B-14-1	Sample	Solid	ICP/MS 03	02/20/18 00:00	02/21/18 18:51	180221SA4	
B-14-1	PDS	Solid	ICP/MS 03	02/20/18 00:00	02/21/18 18:46	180221SA4	
<u>Parameter</u>		<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic		ND	5.000	5.594	112	75-125	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 2 of 4

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
18-02-0650-1	Sample	Solid	ICP/MS 03	02/13/18 00:00	02/13/18 17:54	180213S01
18-02-0650-1	PDS	Solid	ICP/MS 03	02/13/18 00:00	02/13/18 17:49	180213S01
Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	%Rec. CL	Qualifiers
Arsenic	1.626	25.00	27.86	105	75-125	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 3 of 4

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
B-9-1	Sample	Solid	ICP/MS 03	02/14/18 00:00	02/15/18 23:18	180214S01
B-9-1	PDS	Solid	ICP/MS 03	02/14/18 00:00	02/15/18 23:05	180214S01

<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	40.19	25.00	65.36	101	75-125	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 4 of 4

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number	
B-9-3	Sample	Solid	ICP/MS 03	02/23/18 00:00	02/26/18 22:23	180223S02	
B-9-3	PDS	Solid	ICP/MS 03	02/23/18 00:00	02/26/18 22:18	180223S02	
<u>Parameter</u>		<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic		2.405	25.00	27.28	99	75-125	

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RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 1311
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 1 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-14-023-198	LCS	Aqueous	ICP/MS 03	02/20/18	02/21/18 18:38	180221LA4

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	5.000	5.091	102	80-120	

Quality Control - LCS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: T22.11.5. All
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 2 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-14-037-263	LCS	Aqueous	ICP/MS 03	02/20/18	02/22/18 15:05	180222LA1
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic		5.000	5.625	113	80-120	

Quality Control - LCS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 3 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-15-621-1627	LCS	Solid	ICP/MS 03	02/13/18	02/13/18 17:42	180213L01

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	25.00	25.29	101	80-120	

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Quality Control - LCS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 4 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-15-621-1629	LCS	Solid	ICP/MS 03	02/14/18	02/15/18 22:57	180214L01
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic		25.00	24.91	100	80-120	

Quality Control - LCS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 5 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-15-621-1632	LCS	Solid	ICP/MS 03	02/23/18	02/26/18 22:02	180223L02

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	25.00	25.17	101	80-120	

Sample Analysis Summary Report

Work Order: 18-02-0713

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 6020	EPA 3050B	598	ICP/MS 03	1
EPA 6020	EPA 1311	598	ICP/MS 03	1
EPA 6020	T22.11.5. All	598	ICP/MS 03	1


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Glossary of Terms and Qualifiers

Work Order: 18-02-0713

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.



1 Technology Drive, Suite C515
Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

Sheet 1 of 7

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name UPR ROW

Site Location Grand Terrace, CA

Project No. 1552.001

Project Manager Phil Miller

Sampled By SRR

Turnaround Time Standard

18-02-0713

Analyses

Arsenic (EPA 6020)
Hold for Additional Analysis

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-9-1	2/9/18	0745	Soil	1	1
B-9-3	2/9/18	0746		1	2
B-9-5	2/9/18	0750		1	3
B-1A-1		0755		1	4
B-1A-3		0756		1	5
B-1A-5		0800		1	6
B-11-1		0805		1	7
B-11-3		0806		1	8
B-11-5		0810		1	9
B-10-1		0815		1	10
B-17-1		1010		1	11
B-17-3		1011		1	12
B-17-5		1015		1	13

Updated 2/20/18
by Scott Ruud

Revised COC received from
Scott Ruud (Avocet) at
02/20/2018 at 11:04am.
- Virendra (ECI)

Relinquished by	Company	Received by	Company
Printed Name: Scott Ruud	Avocet Environmental, Inc.	Printed Name: PREET SORIANO	
Signature: [Signature]		Signature: [Signature]	
Date: 2/19/18		Date: 2/19/18	
Time: 1646		Time: 1646	
Printed Name:		Printed Name:	
Signature:		Signature:	
Date:		Date:	
Time:		Time:	
Date:		Date:	
Time:		Time:	

Sample Receipt		Billing Information	
Total Containers	TAT	Philip Miller, P.E.	
Temperature °C	Lab No.	AVOCET ENVIRONMENTAL, INC.	
Temperature °F		1 Technology Drive, Suite C515	
COC Seal (Y/N/NA)	Intact (Y/N)	Irvine, CA 92618-5302	

Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977
Ext. 102



1 Technology Drive, Suite C515
Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

Sheet 2 of 7

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name: UPR ROW
Site Location: Grand Terrace, CA
Project No.: 1552.001
Project Manager: Phil Miller
Sampled By: SRR
Turnaround Time: Standard

Sample Identification	Sample Date	Sample Time	Matrix	No. of Containers	Lab I.D. Number
B-10-3	2/9/18	0816	Soil	1	14
B-10-5		0820			15
B-12-1		0835			16
B-12-3		0836			17
B-12-5		0840			18
B-13-1		0845			19
B-13-2		0846			20
B-13-5		0850			21
B-15-1		0900			22
B-15-3		0905			23
B-15-5		0906			24

Arsenic (EPA 6020) ☒ Hold for Additional Analysis ☒

Revised COC received from
Scott Ruud (Avocet) at
02/20/2018 at 11:04am.
- Virendra (ECI)

0713

Relinquished by: Scott Ruud Date: 2/9/18
Signature: [Signature] Time: 1644
Printed Name: _____ Date: _____
Signature: _____ Time: _____
Printed Name: _____ Date: _____
Signature: _____ Time: _____

Received by: PREY SORIANO Date: 2/9/18
Signature: [Signature] Time: 1646
Printed Name: _____ Date: _____
Signature: _____ Time: _____
Printed Name: _____ Date: _____
Signature: _____ Time: _____

Company: Avocet Environmental, Inc.

Company:

Sample Receipt
Total Containers: TAT
Temperature: °C of _____
COC Seal (Y/N/A): Intact (Y/N)

Billing Information
Philip Miller, P.E.
AVOCET ENVIRONMENTAL, INC.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Special Instructions

Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext.102

Project Information:		Event Name:		Analyses		
Site Name	UPR ROW	Site Location	Grand Terrace, CA	Project No.	1552.001	
Project Manager	Phil Miller	Sampled By	SRR	Turnaround Time	Standard	
Sample Identification		Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-18-1	2/1/18	0910	Soil	1	25	
B-18-3		0911			26	
B-18-5		0915			27	
B-14-1		0925			28	
B-14-3		0926			29	
B-14-5		0930			30	
B-2A-1		0945			31	
B-2A-3		0946			32	
B-2A-5		0950			33	
B-16-1		1000			34	
B-16-3		1001			35	
B-16-5		1005			36	

Revised COC received from Scott Ruud (Avocet) at 02/20/2018 at 11:04am.
- Virendra (ECI)

0713

Soil. As by 6020 (wet) EC
Soil. As by 6020 (CLP) EC

Hold for Additional Analysis

Arsenic (EPA 6020) X

Received by: PREET SORLAND Date: 2/9/18 Company: EC
Signature: [Signature] Time: 1646
Printed Name: [Signature]
Signature: [Signature] Date: [Signature]
Printed Name: [Signature] Time: [Signature]
Signature: [Signature] Date: [Signature]
Printed Name: [Signature] Time: [Signature]

Relinquished by: Scott Ruud Date: 2/9/18
Printed Name: [Signature] Time: 1646
Signature: [Signature]
Printed Name: [Signature] Date: [Signature]
Signature: [Signature] Time: [Signature]
Printed Name: [Signature] Date: [Signature]
Signature: [Signature] Time: [Signature]

Company: Avocet Environmental, Inc.

Special Instructions

Sample Receipt

Total Containers: TAT
Temperature: °C
Intact (Y/N): °F

Philip Miller, P.E.
AVOCET ENVIRONMENTAL, INC.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Bill To: [Signature]
COC Seal (Y/N/NA)

Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102



1 Technology Drive, Suite C515
Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

Sheet 4 of 7

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name UPR ROW

Site Location Grand Terrace, CA

Project No. 1552.001

Project Manager Phil Miller

Sampled By SRR

Turnaround Time Standard

Analyses

Arsenic (EPA 6020) X
Hold for Additional Analysis X

(0713)

Revised COC received from
Scott Ruud (Avocet) at
02/20/2018 at 11:04am.
- Virendra (ECI)

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cnfrs.	Lab I.D. Number
B-19-1	2/19/18	1015	Soil	1	37
B-19-3		1016			38
B-19-5		1020			39
B-20-1		1025			40
B-20-3		1026			41
B-20-5		1030			42
B-21-1		1035			43
B-21-3		1036			44
B-21-5		1040			45
B-21-1		1050			46
B-21-3		1051			47
B-21-5		1055			48

Received by

Printed Name: PREGY SOPHAXO
Signature: [Signature]
Printed Name: [Blank]
Signature: [Blank]
Printed Name: [Blank]
Signature: [Blank]

Company

Date: 2/19/18
Time: 1646
Date: [Blank]
Time: [Blank]
Date: [Blank]
Time: [Blank]

Company

Avocet Environmental, Inc.

Relinquished by

Printed Name: Scott Ruud
Signature: [Signature]
Printed Name: [Blank]
Signature: [Blank]
Printed Name: [Blank]
Signature: [Blank]

Date: 2/19/18
Time: 1646
Date: [Blank]
Time: [Blank]
Date: [Blank]
Time: [Blank]

Sample Receipt

Total Containers TAT
Temperature °C Lab No.
°F Intact (Y/N)
COC Seal (Y/N/A)

Billing Information

Philip Miller, P.E.
AVOCET ENVIRONMENTAL, INC.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Special Instructions

Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977
Ext. 102

CHAIN OF CUSTODY RECORD

[illegible]



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FAX (949) 296-0978

Sheet 6 of 7

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name UPR ROW

Site Location Grand Terrace, CA

Project No. 1552.001

Project Manager Phil Miller

Sampled By SRR

Turnaround Time Standard

Analyses

Sol. Hs by EPH6020 (wet)
Sol. Hs by EPH6020 (repl)

Hold for Additional Analysis

Arsenic (EPA 6020)

0713

Revised COC received from
Scott Ruud (Avocet) at
02/20/2018 at 11:04am.
- Virendra (ECI)

Sample Identification	Sample Date 2/19/18	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-25-1	2/19/18	1305	Soil	1	61
B-25-3	2/19/18	1306			62
B-25-5	2/19/18	1310			63
B-26-1	2/19/18	1315			64
B-26-3		1316			65
B-26-5		1320			66
B-27-1		1325			67
B-27-3		1326			68
B-27-5		1330			69
B-28-1		1335			70
B-28-3		1336			71
B-28-5		1337			72

Received by

Printed Name: PPEL SOPIANO

Date: 2/19/18

Signature: [Signature]

Time: 1646

Printed Name:

Signature:

Date:

Time:

Company

Avocet Environmental, Inc.

Relinquished by

Printed Name: Scott Ruud

Date: 2/19/18

Signature: [Signature]

Time: 1646

Printed Name:

Signature:

Date:

Time:

Company

Avocet Environmental, Inc.

Sample Receipt

Total Containers TAT

Temperature °C

°F

COC Seal (Y/N/A)

Bill To:

Philip Miller, P.E.
AVOCET ENVIRONMENTAL, INC.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Billing Information

Special Instructions

Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977
Ext. 102

Project Information:		Event Name:	
Site Name	UPR ROW	Site Name	UPR ROW
Site Location	Grand Terrace, CA	Site Location	Grand Terrace, CA
Project No.	1552.001	Project No.	1552.001
Project Manager	Phil Miller	Project Manager	Phil Miller
Sampled By	SRR	Sampled By	SRR
Turnaround Time	Standard	Turnaround Time	Standard

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-29-1	10-21/11/18	1340	Soil	1	73
B-29-3	11-21/11/18	1341	Soil	1	74
B-29-5	11-21/11/18	1342			75
B-5A-1	21/11/18	1345			76
B-5A-3	21/11/18	1346			77
B-5A-5		1347			78
B-30-1		1355	79		
B-30-3	21/11/18	1356	Soil	1	80
B-30-5		1357			81
B-31-1		1410			82
B-31-3	21/11/18	1411	Soil	1	83
B-31-5		1412			84

Relinquished by		Company	
Printed Name:	Scott Ruud	Printed Name:	Avocet Environmental, Inc.
Signature:	<i>[Signature]</i>	Signature:	<i>[Signature]</i>
Printed Name:		Printed Name:	
Signature:		Signature:	
Printed Name:		Printed Name:	
Signature:		Signature:	

Received by		Company	
Printed Name:	Pracy Soriano	Printed Name:	Avocet Environmental, Inc.
Signature:	<i>[Signature]</i>	Signature:	<i>[Signature]</i>
Printed Name:		Printed Name:	
Signature:		Signature:	
Printed Name:		Printed Name:	
Signature:		Signature:	

Sample Receipt		Billing Information	
Total Containers	TAT	Philip Miller, P.E.	Philip Miller, P.E.
Temperature °C	Lab No.	AVOCET ENVIRONMENTAL, INC.	AVOCET ENVIRONMENTAL, INC.
Temperature °F		1 Technology Drive, Suite C515	1 Technology Drive, Suite C515
COC Seal (Y/N/NA)	Intact (Y/N)	Irvine, CA 92618-5302	Irvine, CA 92618-5302

Revised COC received from
 Scott Ruud (Avocet) at
 02/20/2018 at 11:04am.
 - Virendra (ECI)

Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977
 Ext. 102



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Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

Sheet 1 of 7

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name: UPR ROW
Site Location: Grand Terrace, CA
Project No.: 1552.001
Project Manager: Phil Miller
Sampled By: SRR
Turnaround Time: Standard

Analyses

18-02-0713

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-9-1	2/9/18	0745	Soil	1	1
B-9-3	2/9/18	0746		1	2
B-9-5	2/9/18	0750		1	3
B-14-1		0755		1	4
B-14-3		0756		1	5
B-14-5		0800		1	6
B-11-1		0805		1	7
B-11-3		0806		1	8
B-11-5		0810		1	9
B-10-1		0815		1	10
B-17-1		1010		1	11
B-17-3		1011		1	12
B-17-5		1015		1	13

Arsenic (EPA 6020) X
Hold for Additional Analysis X

Relinquished by	Company	Received by	Company
Printed Name: Scott Rund	Avocet Environmental, Inc.	Printed Name: PREY SORIANO	12C
Signature: [Signature]	Date: 2/9/18	Signature: [Signature]	Date: 2/9/18
Printed Name: [Signature]	Time: 1046	Printed Name: [Signature]	Time: 1046
Signature: [Signature]	Date: [Signature]	Signature: [Signature]	Date: [Signature]
Signature: [Signature]	Time: [Signature]	Signature: [Signature]	Time: [Signature]
Signature: [Signature]	Date: [Signature]	Signature: [Signature]	Date: [Signature]
Signature: [Signature]	Time: [Signature]	Signature: [Signature]	Time: [Signature]

Sample Receipt		Billing Information	
Total Containers	TAT	Philip Miller, P.E.	Special Instructions
Temperature °C	Lab No.	AVOCET ENVIRONMENTAL, INC.	Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977
Temperature °F	Intact (Y/N)	1 Technology Drive, Suite C515	Ext. 102
COC Seal (Y/N/A)		Irvine, CA 92618-5302	

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Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

AVOCET
ENVIRONMENTAL, INC.

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name: UPR ROW

Site Location: Grand Terrace, CA

Project No.: 1552.001

Project Manager: Phil Miller

Sampled By: SRR

Turnaround Time: Standard

Analyses

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number	Arsenic (EPA 6020)	Hold for Additional Analysis
B-18-1	2/1/18	0910	Soil	1	25	X	
B-18-3		0911			26	X	
B-18-5		0915			27	X	
B-14-1		0925			28	X	
B-14-3		0926			29	X	
B-14-5		0930			30	X	
B-24-1		0945			31	X	
B-24-3		0946			32	X	
B-24-5		0950			33	X	
B-16-1		1000			34	X	
B-16-3		1001			35	X	
B-16-5		1005			36	X	

0713

Relinquished by		Company		Received by		Company	
Printed Name: Scott Reed	Date: 2/1/18	Avocet Environmental, Inc.		Printed Name: PRETTY SOPHIA	Date: 2/1/18	EC	
Signature: [Signature]	Time: 1646			Signature: [Signature]	Time: 1646		
Printed Name:	Date:			Printed Name:	Date:		
Signature:	Time:			Signature:	Time:		
Printed Name:	Date:			Printed Name:	Date:		
Signature:	Time:			Signature:	Time:		

Sample Receipt		Billing Information		Special Instructions	
Total Containers	TAT	Philip Miller, P.E.		Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977	
Temperature °C	Lab No.	AVOCET ENVIRONMENTAL, INC.		Ext. 102	
Temperature °F		1 Technology Drive, Suite C515			
COC Seal (Y/N/A)	Intact (Y/N)	Irvine, CA 92618-5302			



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Sheet 4 of 7

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name: **UPR ROW**
Site Location: **Grand Terrace, CA**
Project No.: **1552.001**
Project Manager: **Phil Miller**
Sampled By: **SRR**
Turnaround Time: **Standard**

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-19-1	2/19/18	1015	Soil	1	37
B-19-3		1016			38
B-19-5		1020			39
B-20-1		1025			40
B-20-3		1026			41
B-20-5		1030			42
B-21-1		1035			43
B-21-3		1036			44
B-21-5		1040			45
B-21-1		1050			46
B-21-3		1051			47
B-21-5		1055			48

Arsenic (EPA 6020) X
Hold for Additional Analysis X X X X X X X X X X X X

(0713)

Relinquished by Printed Name: Scott Rand Signature: <i>[Signature]</i> Date: 2/19/18 Time: 1646	Received by Printed Name: PRICY SOPRANO Signature: <i>[Signature]</i> Date: 2/19/18 Time: 1646	Company Avocet Environmental, Inc.	Company EC
Printed Name: _____ Signature: _____ Date: _____ Time: _____	Printed Name: _____ Signature: _____ Date: _____ Time: _____		
Printed Name: _____ Signature: _____ Date: _____ Time: _____	Printed Name: _____ Signature: _____ Date: _____ Time: _____		

Sample Receipt		Billing Information	
Total Containers: TAT	Philip Miller, P.E.	Philip Miller, P.E.	
Temperature: °C	AVOCET ENVIRONMENTAL, INC.	AVOCET ENVIRONMENTAL, INC.	
Temperature: °F	Bill To: 1 Technology Drive, Suite C515	1 Technology Drive, Suite C515	
COC Seal (Y/N/A)	Intact (Y/N)	Irvine, CA 92618-5302	

Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name UPR ROW

Site Location Grand Terrace, CA

Project No. 1552.001

Project Manager Phil Miller

Sampled By SRR

Turnaround Time Standard

Sample Identification	Sample Date 2/14/18	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-22-1	2/19/18	1105	Soil	1	49
B-22-3		1106			50
B-22-5		1110			51
B-23-1		1235			52
B-23-3		1236			53
B-23-5		1240			54
B-4A-1		1245			55
B-4A-3		1246			56
B-4A-5		1250			57
B-24-1		1255			58
B-24-3		1256			59
B-24-5		1300			60

Hold for Additional Analysis
Arsenic (EPA 6020)

0713

Relinquished by		Company	
Printed Name: Scott Runk	Date: 2/19/18	Printed Name: PREY SOP-1410	Date: 2/19/18
Signature: [Signature]	Time: 1646	Signature: [Signature]	Time: 1646
Printed Name:	Date:	Printed Name:	Date:
Signature:	Time:	Signature:	Time:
Printed Name:	Date:	Printed Name:	Date:
Signature:	Time:	Signature:	Time:

Sample Receipt		Billing Information	
Total Containers	TAT	Philip Miller, P.E.	
Temperature °C	Lab No.	AVOCET ENVIRONMENTAL, INC.	
Temperature °F		1 Technology Drive, Suite C515	
COC Seal (Y/N/A)	Intact (Y/N)	Irvine, CA 92618-5302	
		Bill To:	
		Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102	



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Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

Sheet 6 of 7

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name: UPR ROW
Site Location: Grand Terrace, CA
Project No.: 1552.001
Project Manager: Phil Miller
Sampled By: SRR
Turnaround Time: Standard

Sample Identification	Sample Date 2/9/18	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-25-1	2/9/18	1305	Soil	1	61
B-25-3	2/9/18	1306			62
B-25-5	2/9/18	1310			63
B-26-1	2/9/18	1315			64
B-26-3		1316			65
B-26-5		1320			66
B-27-1		1325			67
B-27-3		1326			68
B-27-5		1330			69
B-28-1		1335			70
B-28-3		1336			71
B-28-5		1337			72

Arsenic (EPA 6020)
Hold for Additional Analysis

0713

Relinquished by

Printed Name: Scott Rand

Signature: [Signature]

Printed Name: [Blank]

Signature: [Blank]

Printed Name: [Blank]

Signature: [Blank]

Company

Avocet Environmental, Inc.

Date: 2/9/18

Time: 1646

Date: [Blank]

Time: [Blank]

Received by

Printed Name: PREC SOPIANO

Signature: [Signature]

Printed Name: [Blank]

Signature: [Blank]

Printed Name: [Blank]

Signature: [Blank]

Company

Avocet Environmental, Inc.

Date: 2/9/18

Time: 1646

Date: [Blank]

Time: [Blank]

Sample Receipt

TAT

Lab No.

Intact (Y/N)

Billing Information

Philip Miller, P.E.

AVOCET ENVIRONMENTAL, INC.

1 Technology Drive, Suite C515

Irvine, CA 92618-5302

Special Instructions

Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102



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Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

Sheet 7 of 7

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name UPR ROW

Site Location Grand Terrace, CA

Project No. 1552.001

Project Manager Phil Miller

Sampled By SRR

Turnaround Time Standard

Analyses

Hold for Additional Analysis

Arsenic (EPA 6020)

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

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X

Relinquished by

Printed Name: Scott Rand

Signature: [Signature]

Date: 2/19/18

Time: 1640

Date:

Time:

Date:

Time:

Date:

Time:

Company

Avocet Environmental, Inc.

Received by

Printed Name: [Signature]

Signature: [Signature]

Date: 2/19/18

Time: 1640

Date:

Time:

Date:

Time:

Company

[Signature]

[Signature]

Date:

Time:

Date:

Time:

Sample Receipt

TAT

Lab No.

Intact (Y/N)

Billing Information

Philip Miller, P.E.

AVOCET ENVIRONMENTAL, INC.

1 Technology Drive, Suite C515

Irvine, CA 92618-5302

Special Instructions

Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 2CLIENT: Avocet Env'l., Inc.DATE: 02/09/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 4.6 °C (w/ CF): 4.8 °C; ☒ Blank ☐ Sample☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling☐ Sample(s) received at ambient temperature; placed on ice for transport by courierAmbient Temperature: ☐ Air ☐ FilterChecked by: 836

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A Checked by: 836Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A Checked by: 836

SAMPLE CONDITION:

Chain-of-Custody (COC) document(s) received with samples ☒ Yes ☐ No ☐ N/ACOC document(s) received complete ☒ Yes ☐ No ☐ N/A☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished timeSampler's name indicated on COC ☒ Yes ☐ No ☐ N/ASample container label(s) consistent with COC ☒ Yes ☐ No ☐ N/ASample container(s) intact and in good condition ☒ Yes ☐ No ☐ N/AProper containers for analyses requested ☒ Yes ☐ No ☐ N/ASufficient volume/mass for analyses requested ☒ Yes ☐ No ☐ N/ASamples received within holding time ☒ Yes ☐ No ☐ N/A

Aqueous samples for certain analyses received within 15-minute holding time

☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen ☐ Yes ☐ No ☒ N/AProper preservation chemical(s) noted on COC and/or sample container ☐ Yes ☐ No ☒ N/A

Unpreserved aqueous sample(s) received for certain analyses

☐ Volatile Organics ☐ Total Metals ☐ Dissolved MetalsAcid/base preserved samples - pH within acceptable range ☐ Yes ☐ No ☒ N/AContainer(s) for certain analysis free of headspace ☐ Yes ☐ No ☒ N/A☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)Tedlar™ bag(s) free of condensation ☐ Yes ☐ No ☒ N/A

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA_h ☐ VOA_{na2} ☐ 100PJ ☐ 100PJ_{na2} ☐ 125AGB ☐ 125AGB_h ☐ 125AGB_p ☐ 125PB ☐ 125PB_{znna} (pH__9)☐ 250AGB ☐ 250CGB ☐ 250CGB_s (pH__2) ☐ 250PB ☐ 250PB_n (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJ_s (pH__2) ☐ 500PB☐ 1AGB ☐ 1AGB_{na2} ☒ 1AGB_s (pH__2) ☐ 1AGB_s (O&G) ☐ 1PB ☐ 1PB_{na} (pH__12) ☐ _____ ☐ _____ ☐ _____Solid: ☐ 4ozCGJ ☒ 8ozCGJ ☐ 16ozCGJ ☒ Sleeve (P) ☐ EnCores® (____) ☐ TerraCores® (____) ☐ _____ ☐ _____ ☐ _____Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ Other Matrix (____): ☐ _____ ☐ _____ ☐ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 836s = H₂SO₄, u = ultra-pure, x = Na₂SO₃+NaHSO₄.H₂O, znna = Zn (CH₃CO₂)₂ + NaOHReviewed by: 619

SAMPLE RECEIPT CHECKLIST

COOLER 2 OF 2

CLIENT: Avocet Env'l, Inc.

DATE: 02/09/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 4.4 °C (w/ CF): 4.6 °C; ☒ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter

Checked by: 8/16

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A

Checked by: 8/16

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A

Checked by: 8/16

SAMPLE CONDITION:

	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time			
Sampler's name indicated on COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and in good condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sufficient volume/mass for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aqueous samples for certain analyses received within 15-minute holding time			
<input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation chemical(s) noted on COC and/or sample container	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Unpreserved aqueous sample(s) received for certain analyses			
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Container(s) for certain analysis free of headspace.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA_h ☐ VOA_{na2} ☐ 100PJ ☐ 100PJ_{na2} ☐ 125AGB ☐ 125AGB_h ☐ 125AGB_p ☐ 125PB ☐ 125PB_{znna} (pH__9)

☐ 250AGB ☐ 250CGB ☐ 250CGB_s (pH__2) ☐ 250PB ☐ 250PB_n (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJ_s (pH__2) ☐ 500PB

☐ 1AGB ☐ 1AGB_{na2} ☐ 1AGB_s (pH__2) ☒ 1AGB_s (O&G) ☐ 1PB ☐ 1PB_{na} (pH__12) ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☒ Sleeve (P) ☐ EnCores® (____) ☐ TerraCores® (____) ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (____): ☐ _____ ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO₃, **na** = NaOH, **na₂** = Na₂S₂O₃, **p** = H₃PO₄, Labeled/Checked by: 8/16

s = H₂SO₄, **u** = ultra-pure, **x** = Na₂SO₃+NaHSO₄.H₂O, **znna** = Zn (CH₃CO₂)₂ + NaOH

Reviewed by: 6/19



Calscience

Supplemental Report 2

Additional requested analyses are reported as a stand-alone report.



WORK ORDER NUMBER: 18-02-0713

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Avocet Environmental, Inc.

Client Project Name: UPR ROW / 1552.001

Attention: Phil Miller
1 Technology Drive
Suite C515
Irvine, CA 92618-5302

Approved for release on 03/09/2018 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience (Calscience) certifies that the test results provided in this report meet all NELAC Institute requirements for parameters for which accreditation is required or available. Any exceptions to NELAC Institute requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: UPR ROW / 1552.001
 Work Order Number: 18-02-0713

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Work Order Narrative

Work Order: 18-02-0713

Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 02/09/18. They were assigned to Work Order 18-02-0713.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

DoD Projects:

The test results contained in this report are accredited under the laboratory's ISO/IEC 17025:2005 and DoD-ELAP accreditation issued by the ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation ADE-1864.



Calscience

Sample Summary

Client:	Avocet Environmental, Inc.	Work Order:	18-02-0713
	1 Technology Drive, Suite C515	Project Name:	UPR ROW / 1552.001
	Irvine, CA 92618-5302	PO Number:	
		Date/Time Received:	02/09/18 16:46
		Number of Containers:	84

Attn: Phil Miller

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
B-10-5	18-02-0713-15	02/09/18 08:20	1	Solid


Return to Contents



Calscience

Detections Summary

Client: Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Work Order: 18-02-0713
Project Name: UPR ROW / 1552.001
Received: 02/09/18

Attn: Phil Miller

Page 1 of 1

Client SampleID

<u>Analyte</u>	<u>Result</u>	<u>Qualifiers</u>	<u>RL</u>	<u>Units</u>	<u>Method</u>	<u>Extraction</u>
B-10-5 (18-02-0713-15) Arsenic	4.07		1.00	mg/kg	EPA 6020	EPA 3050B

Subcontracted analyses, if any, are not included in this summary.

Return to Contents

* MDL is shown

Analytical Report

Avocet Environmental, Inc.
 1 Technology Drive, Suite C515
 Irvine, CA 92618-5302

Date Received: 02/09/18
 Work Order: 18-02-0713
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: UPR ROW / 1552.001

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-10-5	18-02-0713-15-A	02/09/18 08:20	Solid	ICP/MS 03	03/07/18	03/08/18 15:42	180307L01

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	4.07	1.00	1.00	

Method Blank	099-15-621-1635	N/A	Solid	ICP/MS 03	03/07/18	03/08/18 15:12	180307L01
---------------------	------------------------	------------	--------------	------------------	-----------------	---------------------------	------------------

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	ND	1.00	1.00	



Calscience

Quality Control - Spike/Spike Duplicate

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
18-03-0064-1	Sample	Solid	ICP/MS 03	03/07/18	03/08/18 15:27	180307S01				
18-03-0064-1	Matrix Spike	Solid	ICP/MS 03	03/07/18	03/08/18 15:17	180307S01				
18-03-0064-1	Matrix Spike Duplicate	Solid	ICP/MS 03	03/07/18	03/08/18 15:20	180307S01				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	16.86	25.00	44.30	110	43.94	108	72-132	1	0-13	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
18-03-0064-1	Sample	Solid	ICP/MS 03	03/07/18 00:00	03/08/18 15:27	180307S01
18-03-0064-1	PDS	Solid	ICP/MS 03	03/07/18 00:00	03/08/18 15:22	180307S01

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	%Rec. CL	Qualifiers
Arsenic	16.86	25.00	41.19	97	75-125	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/09/18
Work Order: 18-02-0713
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-15-621-1635	LCS	Solid	ICP/MS 03	03/07/18	03/08/18 15:15	180307L01

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	25.00	25.26	101	80-120	

Return to Contents



Calscience

Sample Analysis Summary Report

Work Order: 18-02-0713

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 6020	EPA 3050B	598	ICP/MS 03	1


Return to Contents

Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 18-02-0713

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.



1 Technology Drive, Suite C515
Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

Sheet 1 of 7

CHAIN OF CUSTODY RECORD

Project Information:		Event Name:	
Site Name	UPR ROW		
Site Location	Grand Terrace, CA		
Project No.	1552.001		
Project Manager	Phil Miller		
Sampled By	SRR		
Turnaround Time	Standard		

18-02-0713

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-9-1	2/9/18	0745	Soil	1	1
B-9-3	2/9/18	0746		1	2
B-9-5	2/9/18	0750		1	3
B-1A-1		0755		1	4
B-1A-3		0756		1	5
B-1A-5		0800		1	6
B-11-1		0805		1	7
B-11-3		0806		1	8
B-11-5		0810		1	9
B-10-1		0815		1	10
B-17-1		1010		1	11
B-17-3		1011		1	12
B-17-5		1015		1	13

Updated 2/20/18
by Scott Ruud

Revised COC received from
Scott Ruud (Avocet) at
02/20/2018 at 11:04am.
- Virendra (ECI)

Relinquished by	Company	Received by	Company
Printed Name: Scott Ruud	Avocet Environmental, Inc.	Printed Name: PREET SORIANO	
Signature: [Signature]		Signature: [Signature]	
Date: 2/19/18		Date: 2/19/18	
Time: 1646		Time: 1646	
Printed Name:		Printed Name:	
Signature:		Signature:	
Date:		Date:	
Time:		Time:	
Date:		Date:	
Time:		Time:	

Sample Receipt		Billing Information	
Total Containers	TAT	Philip Miller, P.E.	
Temperature °C	Lab No.	AVOCET ENVIRONMENTAL, INC.	
Temperature °F		1 Technology Drive, Suite C515	
COC Seal (Y/N/NA)	Intact (Y/N)	Irvine, CA 92618-5302	
		Bill To:	
		Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102	



1 Technology Drive, Suite C515
Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

Sheet 2 of 7

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name UPR ROW

Site Location Grand Terrace, CA

Project No. 1552.001

Project Manager Phil Miller

Sampled By SRR

Turnaround Time Standard

Analyses

Arsenic (EPA 6020) ☒ Hold for Additional Analysis ☒

0713

Revised COC received from
Scott Ruud (Avocet) at
02/20/2018 at 11:04am.
- Virendra (ECI)

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-10-3	2/9/18	0816	Soil	1	14
B-10-5		0820			15
B-12-1		0835			16
B-12-3		0836			17
B-12-5		0840			18
B-13-1		0845			19
B-13-2		0846			20
B-13-5		0850			21
B-15-1		0900			22
B-15-3		0905			23
B-15-5		0906			24

Received by

Company

Printed Name: PERRY SORIANO
Signature: [Signature]
Date: 2/9/18
Time: 1046
Printed Name: [Blank]
Signature: [Blank]
Date: [Blank]
Time: [Blank]
Printed Name: [Blank]
Signature: [Blank]
Date: [Blank]
Time: [Blank]

Company

Avocet Environmental, Inc.

Relinquished by

Printed Name: Scott Ruud
Signature: [Signature]
Date: 2/14/18
Time: 1644
Printed Name: [Blank]
Signature: [Blank]
Date: [Blank]
Time: [Blank]
Printed Name: [Blank]
Signature: [Blank]
Date: [Blank]
Time: [Blank]

Sample Receipt

Billing Information

Special Instructions

Total Containers TAT
Temperature °C of Lab No.
COC Seal (Y/N/A) Intact (Y/N)

Philip Miller, P.E.
AVOCET ENVIRONMENTAL, INC.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977
Ext. 102

1 Technology Drive, Suite C515
Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978



CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name: UPR ROW
Site Location: Grand Terrace, CA
Project No.: 1552.001
Project Manager: Phil Miller
Sampled By: SRR
Turnaround Time: Standard

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-18-1	2/1/18	0910	Soil	1	25
B-18-3		0911			26
B-18-5		0915			27
B-14-1		0925			28
B-14-3		0926			29
B-14-5		0930			30
B-2A-1		0945			31
B-2A-3		0946			32
B-2A-5		0950			33
B-16-1		1000			34
B-16-3		1001			35
B-16-5		1005			36

Hold for Additional Analysis
Arsenic (EPA 6020) X
Sol. As by 6020 (wet) X
Sol. As by 6020 (TCLP) X

Revised COC received from
Scott Ruud (Avocet) at
02/20/2018 at 11:04am.
- Virendra (ECI)

Relinquished by	Company	Received by	Company
Printed Name: Scott Ruud	Avocet Environmental, Inc.	Printed Name: PREET SORIANO	EC
Signature: [Signature]		Signature: [Signature]	
Date: 2/1/18		Date: 2/9/18	
Time: 1646		Time: 1646	
Printed Name:		Printed Name:	
Signature:		Signature:	
Date:		Date:	
Time:		Time:	
Printed Name:		Printed Name:	
Signature:		Signature:	
Date:		Date:	
Time:		Time:	

Sample Receipt	Billing Information	Special Instructions
Total Containers: TAT	Philip Miller, P.E. AVOCET ENVIRONMENTAL, INC. 1 Technology Drive, Suite C515 Irvine, CA 92618-5302	Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102
Temperature: °C °F	Bill To:	
COC Seal (Y/N/A)	Intact (Y/N)	



1 Technology Drive, Suite C515
Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

Sheet 4 of 7

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name UPR ROW

Site Location Grand Terrace, CA

Project No. 1552.001

Project Manager Phil Miller

Sampled By SRR

Turnaround Time Standard

Analyses

Arsenic (EPA 6020) X
Hold for Additional Analysis X

(0713)

Revised COC received from
Scott Ruud (Avocet) at
02/20/2018 at 11:04am.
- Virendra (ECI)

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cnfrs.	Lab I.D. Number
B-19-1	2/19/18	1015	Soil	1	37
B-19-3		1016			38
B-19-5		1020			39
B-20-1		1025			40
B-20-3		1026			41
B-20-5		1030			42
B-21-1		1035			43
B-21-3		1036			44
B-21-5		1040			45
B-21-1		1050			46
B-21-3		1051			47
B-21-5		1055			48

Received by

Printed Name: PREGY SOPHAXO
Signature: [Signature]
Printed Name: [Blank]
Signature: [Blank]
Printed Name: [Blank]
Signature: [Blank]

Company

Date: 2/19/18
Time: 1646
Date: [Blank]
Time: [Blank]
Date: [Blank]
Time: [Blank]

Company

Avocet Environmental, Inc.

Relinquished by

Printed Name: Scott Ruud
Signature: [Signature]
Printed Name: [Blank]
Signature: [Blank]
Printed Name: [Blank]
Signature: [Blank]

Date: 2/19/18
Time: 1646
Date: [Blank]
Time: [Blank]
Date: [Blank]
Time: [Blank]

Sample Receipt

Total Containers TAT
Temperature °C Lab No.
°F Intact (Y/N)
COC Seal (Y/N/A)

Billing Information

Philip Miller, P.E.
AVOCET ENVIRONMENTAL, INC.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Special Instructions

Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977
Ext. 102

CHAIN OF CUSTODY RECORD

Project Information:		Event Name:					
Site Name UPR ROW		Grand Terrace, CA					
Site Location Grand Terrace, CA		1552.001					
Project No. 1552.001		Phil Miller					
Project Manager Phil Miller		SRR					
Sampled By SRR		Standard					
Turnaround Time							
Sample Identification		Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number	
B-22-1		2/19/18	1105	Soil	1	49	
B-22-3			1106			50	
B-22-5			1110			51	
B-23-1			1235			52	
B-23-3			1236			53	
B-23-5			1240			54	
B-4A-1			1245			55	
B-4A-3			1246			56	
B-4A-5		1250	1255			57	
B-24-1			1255			58	
B-24-3			1256			59	
B-24-5			1300			60	
Analyses		Arsenic (EPA 6020) <input checked="" type="checkbox"/> Hold for Additional Analysis <input checked="" type="checkbox"/> Sol. As by EPA 6020 (wet) <input checked="" type="checkbox"/> Sol. As by EPA 6020 (TLP) <input checked="" type="checkbox"/>					
Relinquished by		Company		Received by		Company	
Printed Name: Scott Ruud		Avocet Environmental, Inc.		Printed Name: Pety Sopiano		Avocet Environmental, Inc.	
Signature: [Signature]		Date: 2/19/18		Signature: [Signature]		Date: 2/19/18	
Printed Name: [Signature]		Time: 1646		Signature: [Signature]		Time: 1646	
Printed Name: [Signature]		Date: [Signature]		Signature: [Signature]		Date: [Signature]	
Printed Name: [Signature]		Time: [Signature]		Signature: [Signature]		Time: [Signature]	
Printed Name: [Signature]		Date: [Signature]		Signature: [Signature]		Date: [Signature]	
Printed Name: [Signature]		Time: [Signature]		Signature: [Signature]		Time: [Signature]	
Special Instructions		Revised COC received from Scott Ruud (Avocet) at 02/20/2018 at 11:04am. - Virendra (ECI)					
Total Containers		TAT					
Temperature °C		Lab No.					
Temperature °F		Intact (Y/N)					
COC Seal (Y/N/NA)		Philip Miller, P.E. AVOCET ENVIRONMENTAL, INC. 1 Technology Drive, Suite C515 Irvine, CA 92618-5302					
Bill To:		Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102					



1 Technology Drive, Suite C515
Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

Sheet 6 of 7

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name UPR ROW

Site Location Grand Terrace, CA

Project No. 1552.001

Project Manager Phil Miller

Sampled By SRR

Turnaround Time Standard

Analyses

Hold for Additional Analysis
Arsenic (EPA 6020) X
Sol. Hs by EPH6020 (wet) X
Sol. Hs by EPH6020 (wet) X

0713

Revised COC received from
Scott Ruud (Avocet) at
02/20/2018 at 11:04am.
- Virendra (ECI)

Sample Identification	Sample Date 2/19/18	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-25-1	2/19/18	1305	Soil	1	61
B-25-3	2/19/18	1306			62
B-25-5	2/19/18	1310			63
B-26-1	2/19/18	1315			64
B-26-3		1316			65
B-26-5		1320			66
B-27-1		1325			67
B-27-3		1326			68
B-27-5		1330			69
B-28-1		1335			70
B-28-3		1336			71
B-28-5		1337			72

Received by

Printed Name: PPEL SOPIANO
Signature: PPEL
Date: 2/19/18
Time: 1646
Date:
Time:
Date:
Time:

Company

Avocet Environmental, Inc.

Relinquished by

Printed Name: Scott Ruud
Signature: Scott
Date: 2/19/18
Time: 1646
Date:
Time:
Date:
Time:

Company

Avocet Environmental, Inc.

Sample Receipt

Total Containers TAT
Temperature °C
°F
COC Seal (Y/N/A) Intact (Y/N)

Billing Information

Philip Miller, P.E.
AVOCET ENVIRONMENTAL, INC.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Special Instructions

Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977
Ext. 102



1 Technology Drive, Suite C515
Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

Sheet 7 of 7

CHAIN OF CUSTODY RECORD

Project Information:		Event Name:			
UPR ROW					
Site Name					
Site Location					
Project No.					
Project Manager					
Sampled By					
Turnaround Time					
Standard					
Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-29-1	1A 2/19/18	1340	Soil	1	73
B-29-3	1A 2/19/18	1341			74
B-29-5	1A 2/19/18	1342			75
B-5A-1	2/19/18	1345			76
B-5A-3		1346			77
B-5A-5		1347			78
B-30-1		1355			79
B-30-3		1356			80
B-30-5		1357			81
B-31-1		1410			82
B-31-3		1411			83
B-31-5		1412			84

Revised COC received from Scott Ruud (Avocet) at 02/20/2018 at 11:04am. - Virendra (ECI)

Analyses	
Arsenic (EPA 6020)	X
Hold for Additional Analysis	X
Soil As by EPA 6020 (wet)	X
Soil As by EPA 6020 (TELP)	X

(0713)

Relinquished by		Received by		Company	
Printed Name: Scott Ruud	Date: 2/19/18	Printed Name: P. R. S. S. S. S.	Date: 2/19/18	Company	
Signature: [Signature]	Time: 1646	Signature: [Signature]	Time: 1646		
Printed Name:	Date:	Printed Name:	Date:		
Signature:	Time:	Signature:	Time:		
Printed Name:	Date:	Printed Name:	Date:		
Signature:	Time:	Signature:	Time:		

Sample Receipt		Billing Information	
Total Containers	TAT	Philip Miller, P.E.	
Temperature °C	Lab No.	AVOCET ENVIRONMENTAL, INC.	
Temperature °F		1 Technology Drive, Suite C515	
COC Seal (Y/N/A)	Intact (Y/N)	Irvine, CA 92618-5302	

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Sheet 1 of 7

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name: UPR ROW
Site Location: Grand Terrace, CA
Project No.: 1552.001
Project Manager: Phil Miller
Sampled By: SRR
Turnaround Time: Standard

Analyses

18-02-0713

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-9-1	2/9/18	0745	Soil	1	1
B-9-3	2/9/18	0746		1	2
B-9-5	2/9/18	0750		1	3
B-14-1		0755		1	4
B-14-3		0756		1	5
B-14-5		0800		1	6
B-11-1		0805		1	7
B-11-3		0806		1	8
B-11-5		0810		1	9
B-10-1		0815		1	10
B-17-1		1010		1	11
B-17-3		1011		1	12
B-17-5		1015		1	13

Arsenic (EPA 6020) X
Hold for Additional Analysis X

Relinquished by	Company	Received by	Company
Printed Name: Scott Rund	Avocet Environmental, Inc.	Printed Name: PREY SORIANO	12C
Signature: [Signature]	Date: 2/9/18	Signature: [Signature]	Date: 2/9/18
Printed Name: [Signature]	Time: 1046	Printed Name: [Signature]	Time: 1046
Signature: [Signature]	Date: [Signature]	Signature: [Signature]	Date: [Signature]
Signature: [Signature]	Time: [Signature]	Signature: [Signature]	Time: [Signature]
Signature: [Signature]	Date: [Signature]	Signature: [Signature]	Date: [Signature]
Signature: [Signature]	Time: [Signature]	Signature: [Signature]	Time: [Signature]

Sample Receipt		Billing Information	
Total Containers	TAT	Philip Miller, P.E.	
Temperature °C	Lab No.	AVOCET ENVIRONMENTAL, INC.	
Temperature °F		1 Technology Drive, Suite C515	
COC Seal (Y/N/A)	Intact (Y/N)	Irvine, CA 92618-5302	
Special Instructions		Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102	

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AVOCET
ENVIRONMENTAL, INC.

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name: UPR ROW

Site Location: Grand Terrace, CA

Project No.: 1552.001

Project Manager: Phil Miller

Sampled By: SRR

Turnaround Time: Standard

Analyses

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number	Arsenic (EPA 6020)	Hold for Additional Analysis
B-18-1	2/1/18	0910	Soil	1	25	X	
B-18-3		0911			26	X	
B-18-5		0915			27	X	
B-14-1		0925			28	X	
B-14-3		0926			29	X	
B-14-5		0930			30	X	
B-24-1		0945			31	X	
B-24-3		0946			32	X	
B-24-5		0950			33	X	
B-16-1		1000			34	X	
B-16-3		1001			35	X	
B-16-5		1005			36	X	

0713

Relinquished by		Company		Received by		Company	
Printed Name: Scott Reed	Date: 2/1/18	Avocet Environmental, Inc.		Printed Name: PRETTY SOPHIA	Date: 2/1/18	EC	
Signature: [Signature]	Time: 1646			Signature: [Signature]	Time: 1646		
Printed Name:	Date:			Printed Name:	Date:		
Signature:	Time:			Signature:	Time:		
Printed Name:	Date:			Printed Name:	Date:		
Signature:	Time:			Signature:	Time:		

Sample Receipt		Billing Information		Special Instructions	
Total Containers	TAT	Philip Miller, P.E.		Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977	
Temperature °C	Lab No.	AVOCET ENVIRONMENTAL, INC.		Ext. 102	
Temperature °F		1 Technology Drive, Suite C515			
COC Seal (Y/N/A)	Intact (Y/N)	Irvine, CA 92618-5302			



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Sheet 4 of 7

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name: UPR ROW

Site Location: Grand Terrace, CA

Project No.: 1552.001

Project Manager: Phil Miller

Sampled By: SRR

Turnaround Time: Standard

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-19-1	2/19/18	1015	Soil	1	37
B-19-3		1016			38
B-19-5		1020			39
B-20-1		1025			40
B-20-3		1026			41
B-20-5		1030			42
B-21-1		1035			43
B-21-3		1036			44
B-21-5		1040			45
B-21-1		1050			46
B-21-3		1051			47
B-21-5		1055			48

Arsenic (EPA 6020) X
Hold for Additional Analysis X X X X X X X X X X X X

(0713)

Relinquished by Printed Name: Scott Rand Signature: [Signature] Date: 2/19/18 Time: 1646	Received by Printed Name: Peggy Soprano Signature: [Signature] Date: 2/19/18 Time: 1646	Company Avocet Environmental, Inc.	Company EC
Printed Name: Signature: Date: Time:	Printed Name: Signature: Date: Time:		
Printed Name: Signature: Date: Time:	Printed Name: Signature: Date: Time:		

Sample Receipt		Billing Information	
Total Containers: TAT	Philip Miller, P.E.	Philip Miller, P.E.	
Temperature: °C	Avocet Environmental, Inc.	Avocet Environmental, Inc.	
Temperature: °F	Lab No.	1 Technology Drive, Suite C515	
COC Seal (Y/N/A)	Intact (Y/N)	Irvine, CA 92618-5302	
Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102			

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name UPR ROW

Site Location Grand Terrace, CA

Project No. 1552.001

Project Manager Phil Miller

Sampled By SRR

Turnaround Time Standard

Sample Identification	Sample Date 2/14/18	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-22-1	2/19/18	1105	Soil	1	49
B-22-3		1106			50
B-22-5		1110			51
B-23-1		1235			52
B-23-3		1236			53
B-23-5		1240			54
B-4A-1		1245			55
B-4A-3		1246			56
B-4A-5		1250			57
B-24-1		1255			58
B-24-3		1256			59
B-24-5		1300			60

Hold for Additional Analysis
Arsenic (EPA 6020)

0713

Relinquished by		Company	
Printed Name: Scott Runk	Date: 2/19/18	Printed Name: PEGGY SORIANO	Date: 2/19/18
Signature: [Signature]	Time: 1646	Signature: [Signature]	Time: 1646
Printed Name:	Date:	Printed Name:	Date:
Signature:	Time:	Signature:	Time:
Printed Name:	Date:	Printed Name:	Date:
Signature:	Time:	Signature:	Time:

Sample Receipt		Billing Information	
Total Containers	TAT	Philip Miller, P.E.	
Temperature °C	Lab No.	AVOCET ENVIRONMENTAL, INC.	
Temperature °F		1 Technology Drive, Suite C515	
COC Seal (Y/N/A)	Intact (Y/N)	Irvine, CA 92618-5302	

Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102



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FAX (949) 296-0978

Sheet 6 of 7

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name: UPR ROW
Site Location: Grand Terrace, CA
Project No.: 1552.001
Project Manager: Phil Miller
Sampled By: SRR
Turnaround Time: Standard

Sample Identification		Sample Date	Sample Time	Matrix	No. of Ctnrs.	Lab I.D. Number
B-25-1	2/19/18	2/19/18	1305	Soil	1	61
B-25-3	2/19/18	2/19/18	1306			62
B-25-5	2/19/18	2/19/18	1310			63
B-26-1		2/19/18	1315			64
B-26-3			1316			65
B-26-5			1320			66
B-27-1			1325			67
B-27-3			1326			68
B-27-5			1330			69
B-28-1			1335			70
B-28-3			1336			71
B-28-5			1337			72

Arsenic (EPA 6020) X
Hold for Additional Analysis X

0713

Relinquished by	Company	Received by	Company
Printed Name: Scott Rand	Avocet Environmental, Inc.	Printed Name: PREG SOPIANO	
Signature: [Signature]	Date: 2/19/18	Signature: [Signature]	Date: 2/19/18
Printed Name:	Time: 1646	Printed Name:	Time: 1646
Signature:	Date:	Signature:	Date:
Signature:	Time:	Signature:	Time:
Signature:	Date:	Signature:	Date:
Signature:	Time:	Signature:	Time:

Sample Receipt		Billing Information	
Total Containers	TAT	Philip Miller, P.E.	
Temperature °C	Lab No.	AVOCET ENVIRONMENTAL, INC.	
Temperature °F		1 Technology Drive, Suite C515	
COC Seal (Y/N/A)	Intact (Y/N)	Irvine, CA 92618-5302	

Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 2CLIENT: Avocet Env'l, Inc.DATE: 02/09/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 4.6 °C (w/ CF): 4.8 °C; ☒ Blank ☐ Sample☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling☐ Sample(s) received at ambient temperature; placed on ice for transport by courierAmbient Temperature: ☐ Air ☐ FilterChecked by: 836

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A Checked by: 836Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A Checked by: 836

SAMPLE CONDITION:

	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time			
Sampler's name indicated on COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and in good condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sufficient volume/mass for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aqueous samples for certain analyses received within 15-minute holding time			
<input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation chemical(s) noted on COC and/or sample container	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Unpreserved aqueous sample(s) received for certain analyses			
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Container(s) for certain analysis free of headspace	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500)			
<input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA_h ☐ VOA_{na2} ☐ 100PJ ☐ 100PJ_{na2} ☐ 125AGB ☐ 125AGB_h ☐ 125AGB_p ☐ 125PB ☐ 125PB_{znna} (pH__9)
☐ 250AGB ☐ 250CGB ☐ 250CGB_s (pH__2) ☐ 250PB ☐ 250PB_n (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJ_s (pH__2) ☐ 500PB
☐ 1AGB ☐ 1AGB_{na2} ☐ 1AGB_s (pH__2) ☐ 1AGB_s (O&G) ☐ 1PB ☐ 1PB_{na} (pH__12) ☐ _____ ☐ _____ ☐ _____
Solid: ☐ 4ozCGJ ☒ 8ozCGJ ☐ 16ozCGJ ☒ Sleeve (P) ☐ EnCores® (____) ☐ TerraCores® (____) ☐ _____ ☐ _____ ☐ _____
Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ Other Matrix (____): ☐ _____ ☐ _____ ☐ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 836s = H₂SO₄, u = ultra-pure, x = Na₂SO₃+NaHSO₄.H₂O, znna = Zn (CH₃CO₂)₂ + NaOHReviewed by: 619

SAMPLE RECEIPT CHECKLIST

COOLER 2 OF 2

CLIENT: Avocet Env'l, Inc.

DATE: 02/09/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 4.4 °C (w/ CF): 4.6 °C; ☒ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter

Checked by: 8/16

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A

Checked by: 8/16

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A

Checked by: 8/16

SAMPLE CONDITION:

	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time			
Sampler's name indicated on COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and in good condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sufficient volume/mass for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aqueous samples for certain analyses received within 15-minute holding time			
<input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation chemical(s) noted on COC and/or sample container	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Unpreserved aqueous sample(s) received for certain analyses			
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Container(s) for certain analysis free of headspace.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA_h ☐ VOA_{na2} ☐ 100PJ ☐ 100PJ_{na2} ☐ 125AGB ☐ 125AGB_h ☐ 125AGB_p ☐ 125PB ☐ 125PB_{znna} (pH__9)

☐ 250AGB ☐ 250CGB ☐ 250CGB_s (pH__2) ☐ 250PB ☐ 250PB_n (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJ_s (pH__2) ☐ 500PB

☐ 1AGB ☐ 1AGB_{na2} ☐ 1AGB_s (pH__2) ☒ 1AGB_s (O&G) ☐ 1PB ☐ 1PB_{na} (pH__12) ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☒ Sleeve (P) ☐ EnCores® (____) ☐ TerraCores® (____) ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ Other Matrix (____): ☐ _____ ☐ _____ ☐ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 8/16

s = H₂SO₄, u = ultra-pure, x = Na₂SO₃+NaHSO₄.H₂O, znna = Zn (CH₃CO₂)₂ + NaOH

Reviewed by: 6/19



WORK ORDER NUMBER: 18-02-0808

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Avocet Environmental, Inc.

Client Project Name: UPR ROW / 1552.001

Attention: Phil Miller
1 Technology Drive
Suite C515
Irvine, CA 92618-5302

A handwritten signature in black ink, enclosed in an oval. The signature appears to read "Virendra Patel".

Approved for release on 02/19/2018 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

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 Work Order Number: 18-02-0808

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Work Order Narrative

Work Order: 18-02-0808

Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 02/12/18. They were assigned to Work Order 18-02-0808.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.



Calscience

Sample Summary

Client: Avocet Environmental, Inc.	Work Order: 18-02-0808
1 Technology Drive, Suite C515	Project Name: UPR ROW / 1552.001
Irvine, CA 92618-5302	PO Number:
	Date/Time Received: 02/12/18 14:25
	Number of Containers: 51
Attn: Phil Miller	

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
B-32-1	18-02-0808-1	02/12/18 07:30	1	Solid
B-32-3	18-02-0808-2	02/12/18 07:31	1	Solid
B-32-5	18-02-0808-3	02/12/18 07:32	1	Solid
B-33-1	18-02-0808-4	02/12/18 07:40	1	Solid
B-33-3	18-02-0808-5	02/12/18 07:41	1	Solid
B-33-5	18-02-0808-6	02/12/18 07:42	1	Solid
B-6A-1	18-02-0808-7	02/12/18 07:50	1	Solid
B-6A-3	18-02-0808-8	02/12/18 07:51	1	Solid
B-6A-5	18-02-0808-9	02/12/18 07:52	1	Solid
B-34-1	18-02-0808-10	02/12/18 08:05	1	Solid
B-34-3	18-02-0808-11	02/12/18 08:06	1	Solid
B-34-5	18-02-0808-12	02/12/18 08:07	1	Solid
B-35-1	18-02-0808-13	02/12/18 08:10	1	Solid
B-35-3	18-02-0808-14	02/12/18 08:11	1	Solid
B-35-5	18-02-0808-15	02/12/18 08:12	1	Solid
B-36-1	18-02-0808-16	02/12/18 08:25	1	Solid
B-36-3	18-02-0808-17	02/12/18 08:26	1	Solid
B-36-5	18-02-0808-18	02/12/18 08:27	1	Solid
B-38-1	18-02-0808-19	02/12/18 08:40	1	Solid
B-38-3	18-02-0808-20	02/12/18 08:41	1	Solid
B-38-5	18-02-0808-21	02/12/18 08:42	1	Solid
B-37-1	18-02-0808-22	02/12/18 08:50	1	Solid
B-37-3	18-02-0808-23	02/12/18 08:51	1	Solid
B-37-5	18-02-0808-24	02/12/18 08:52	1	Solid
B-39-1	18-02-0808-25	02/12/18 09:00	1	Solid
B-39-3	18-02-0808-26	02/12/18 09:01	1	Solid
B-39-5	18-02-0808-27	02/12/18 09:02	1	Solid
B-40-1	18-02-0808-28	02/12/18 09:10	1	Solid
B-40-3	18-02-0808-29	02/12/18 09:11	1	Solid
B-40-5	18-02-0808-30	02/12/18 09:12	1	Solid
B-41-1	18-02-0808-31	02/12/18 09:20	1	Solid
B-41-3	18-02-0808-32	02/12/18 09:21	1	Solid
B-41-5	18-02-0808-33	02/12/18 09:22	1	Solid
B-42-1	18-02-0808-34	02/12/18 09:30	1	Solid
B-42-3	18-02-0808-35	02/12/18 09:31	1	Solid
B-42-5	18-02-0808-36	02/12/18 09:32	1	Solid
B-8A-1	18-02-0808-37	02/12/18 09:40	1	Solid
B-8A-3	18-02-0808-38	02/12/18 09:41	1	Solid
B-8A-5	18-02-0808-39	02/12/18 09:42	1	Solid
B-43-1	18-02-0808-40	02/12/18 09:50	1	Solid
B-43-3	18-02-0808-41	02/12/18 09:51	1	Solid
B-43-5	18-02-0808-42	02/12/18 09:55	1	Solid


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Calscience

Sample Summary

Client:	Avocet Environmental, Inc.	Work Order:	18-02-0808
	1 Technology Drive, Suite C515	Project Name:	UPR ROW / 1552.001
	Irvine, CA 92618-5302	PO Number:	
		Date/Time Received:	02/12/18 14:25
		Number of Containers:	51

Attn: Phil Miller

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
B-44-1	18-02-0808-43	02/12/18 10:05	1	Solid
B-44-3	18-02-0808-44	02/12/18 10:06	1	Solid
B-44-5	18-02-0808-45	02/12/18 10:07	1	Solid
B-45-1	18-02-0808-46	02/12/18 10:15	1	Solid
B-45-3	18-02-0808-47	02/12/18 10:16	1	Solid
B-45-5	18-02-0808-48	02/12/18 10:17	1	Solid
B-7A-1	18-02-0808-49	02/12/18 08:35	1	Solid
B-7A-3	18-02-0808-50	02/12/18 08:36	1	Solid
B-7A-5	18-02-0808-51	02/12/18 08:37	1	Solid


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Calscience

Detections Summary

Client: Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Work Order: 18-02-0808
Project Name: UPR ROW / 1552.001
Received: 02/12/18

Attn: Phil Miller

Page 1 of 1

Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
B-32-1 (18-02-0808-1)						
Arsenic	20.4		1.00	mg/kg	EPA 6020	EPA 3050B
B-33-1 (18-02-0808-4)						
Arsenic	22.1		1.00	mg/kg	EPA 6020	EPA 3050B
B-6A-1 (18-02-0808-7)						
Arsenic	42.4		1.00	mg/kg	EPA 6020	EPA 3050B
B-34-1 (18-02-0808-10)						
Arsenic	76.9		1.00	mg/kg	EPA 6020	EPA 3050B
B-35-1 (18-02-0808-13)						
Arsenic	9.78		1.00	mg/kg	EPA 6020	EPA 3050B
B-36-1 (18-02-0808-16)						
Arsenic	8.75		1.00	mg/kg	EPA 6020	EPA 3050B
B-38-1 (18-02-0808-19)						
Arsenic	31.6		1.00	mg/kg	EPA 6020	EPA 3050B
B-37-1 (18-02-0808-22)						
Arsenic	3.14		1.00	mg/kg	EPA 6020	EPA 3050B
B-39-1 (18-02-0808-25)						
Arsenic	28.7		1.00	mg/kg	EPA 6020	EPA 3050B
B-40-1 (18-02-0808-28)						
Arsenic	110		1.00	mg/kg	EPA 6020	EPA 3050B
B-41-1 (18-02-0808-31)						
Arsenic	43.6		1.00	mg/kg	EPA 6020	EPA 3050B
B-42-1 (18-02-0808-34)						
Arsenic	4.34		1.00	mg/kg	EPA 6020	EPA 3050B
B-8A-1 (18-02-0808-37)						
Arsenic	24.1		1.00	mg/kg	EPA 6020	EPA 3050B
B-43-1 (18-02-0808-40)						
Arsenic	4.24		1.00	mg/kg	EPA 6020	EPA 3050B
B-44-1 (18-02-0808-43)						
Arsenic	11.9		1.00	mg/kg	EPA 6020	EPA 3050B
B-45-1 (18-02-0808-46)						
Arsenic	10.6		1.00	mg/kg	EPA 6020	EPA 3050B
B-7A-1 (18-02-0808-49)						
Arsenic	33.7		1.00	mg/kg	EPA 6020	EPA 3050B

Subcontracted analyses, if any, are not included in this summary.

* MDL is shown



Calscience

Analytical Report

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: UPR ROW / 1552.001

Page 1 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-32-1	18-02-0808-1-A	02/12/18 07:30	Solid	ICP/MS 03	02/14/18	02/16/18 01:34	180214L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		20.4	1.00		1.00		
B-33-1	18-02-0808-4-A	02/12/18 07:40	Solid	ICP/MS 03	02/14/18	02/16/18 01:37	180214L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		22.1	1.00		1.00		
B-6A-1	18-02-0808-7-A	02/12/18 07:50	Solid	ICP/MS 03	02/14/18	02/16/18 01:39	180214L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		42.4	1.00		1.00		
B-34-1	18-02-0808-10-A	02/12/18 08:05	Solid	ICP/MS 03	02/14/18	02/16/18 01:42	180214L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		76.9	1.00		1.00		
B-35-1	18-02-0808-13-A	02/12/18 08:10	Solid	ICP/MS 03	02/14/18	02/16/18 01:44	180214L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		9.78	1.00		1.00		
B-36-1	18-02-0808-16-A	02/12/18 08:25	Solid	ICP/MS 03	02/14/18	02/16/18 01:47	180214L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		8.75	1.00		1.00		
B-38-1	18-02-0808-19-A	02/12/18 08:40	Solid	ICP/MS 03	02/14/18	02/16/18 01:57	180214L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		31.6	1.00		1.00		
B-37-1	18-02-0808-22-A	02/12/18 08:50	Solid	ICP/MS 03	02/14/18	02/16/18 01:59	180214L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		3.14	1.00		1.00		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: UPR ROW / 1552.001

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-39-1	18-02-0808-25-A	02/12/18 09:00	Solid	ICP/MS 03	02/14/18	02/16/18 02:02	180214L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		28.7	1.00		1.00		
B-40-1	18-02-0808-28-A	02/12/18 09:10	Solid	ICP/MS 03	02/14/18	02/16/18 02:04	180214L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		110	1.00		1.00		
B-41-1	18-02-0808-31-A	02/12/18 09:20	Solid	ICP/MS 03	02/14/18	02/16/18 02:07	180214L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		43.6	1.00		1.00		
B-42-1	18-02-0808-34-A	02/12/18 09:30	Solid	ICP/MS 03	02/14/18	02/16/18 02:09	180214L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		4.34	1.00		1.00		
B-8A-1	18-02-0808-37-A	02/12/18 09:40	Solid	ICP/MS 03	02/14/18	02/16/18 02:12	180214L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		24.1	1.00		1.00		
B-43-1	18-02-0808-40-A	02/12/18 09:50	Solid	ICP/MS 03	02/14/18	02/16/18 02:14	180214L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		4.24	1.00		1.00		
B-44-1	18-02-0808-43-A	02/12/18 10:05	Solid	ICP/MS 03	02/14/18	02/16/18 02:17	180214L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		11.9	1.00		1.00		
B-45-1	18-02-0808-46-A	02/12/18 10:15	Solid	ICP/MS 03	02/14/18	02/16/18 02:19	180214L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		10.6	1.00		1.00		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Avocet Environmental, Inc.
 1 Technology Drive, Suite C515
 Irvine, CA 92618-5302

Date Received: 02/12/18
 Work Order: 18-02-0808
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: UPR ROW / 1552.001

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-7A-1	18-02-0808-49-A	02/12/18 08:35	Solid	ICP/MS 03	02/14/18	02/16/18 11:59	180214L02

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	33.7	1.00	1.00	

Method Blank	099-15-621-1630	N/A	Solid	ICP/MS 03	02/14/18	02/16/18 01:11	180214L02
---------------------	------------------------	------------	--------------	------------------	-----------------	---------------------------	------------------

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	ND	1.00	1.00	



Calscience

Quality Control - Spike/Spike Duplicate

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

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Quality Control Sample ID	Type		Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number			
B-32-1	Sample		Solid	ICP/MS 03	02/14/18	02/16/18 01:34	180214S02			
B-32-1	Matrix Spike		Solid	ICP/MS 03	02/14/18	02/16/18 01:24	180214S02			
B-32-1	Matrix Spike Duplicate		Solid	ICP/MS 03	02/14/18	02/16/18 01:27	180214S02			
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	20.35	25.00	53.97	134	57.19	147	72-132	6	0-13	3

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RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number	
B-32-1	Sample	Solid	ICP/MS 03	02/14/18 00:00	02/16/18 01:34	180214S02	
B-32-1	PDS	Solid	ICP/MS 03	02/14/18 00:00	02/16/18 01:29	180214S02	
<u>Parameter</u>		<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic		20.35	25.00	44.08	95	75-125	

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RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-15-621-1630	LCS	Solid	ICP/MS 03	02/14/18	02/16/18 01:14	180214L02

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	25.00	25.50	102	80-120	

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Calscience

Sample Analysis Summary Report

Work Order: 18-02-0808

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<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 6020	EPA 3050B	598	ICP/MS 03	1


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Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 18-02-0808

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDS or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.



1 Technology Drive, Suite C515
Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

Sheet 1 of 45

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name: UPR ROW

Site Location: Grand Terrace, CA

Project No.: 1552.001

Project Manager: Phil Miller

Sampled By: SRR

Turnaround Time: Standard

Analyses

18-02-0808

Arsenic (EPA 6020) Hold for Additional Analysis

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-32-1	2/12/18	0730	Soil	1	1
B-32-3		0731			2
B-32-5		0732			3
B-33-1		0740			4
B-33-3		0741			5
B-33-5		0742			6
B-6A-1		0750			7
B-6A-3		0751			8
B-6A-5		0752			9
B-34-1		0805			10
B-34-3		0806			11
B-34-5		0807			12

Relinquished by	Company	Received by	Company
Printed Name: Scott Rund	Avocet Environmental, Inc.	Printed Name: [Signature]	
Signature: [Signature]		Signature: [Signature]	
Date: 2/12/18		Date: 2/12/18	
Time: 1425		Time: 1425	
Date:		Date:	
Time:		Time:	
Date:		Date:	
Time:		Time:	

Sample Receipt		Billing Information	
Total Containers	TAT	Philip Miller, P.E.	Avocet Environmental, Inc.
Temperature °C	Lab No.	Bill To:	1 Technology Drive, Suite C515
Temperature °F			Irvine, CA 92618-5302
COC Seal (Y/N/A)	Intact (Y/N)		

Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext.102

CHAIN OF CUSTODY RECORD

Project Information:		Event Name:	
Site Name	UPR ROW		
Site Location	Grand Terrace, CA		
Project No.	1552.001		
Project Manager	Phil Miller		
Sampled By	SRR		
Turnaround Time	Standard		

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-35-1	2/12/18	0810	Soil	1	13
B-35-3		0811			14
B-35-5		0812			15
B-36-1		0825			16
B-36-3		0826			17
B-36-5		0827			18
B-38-1		0840			19
B-38-3		0841			20
B-38-5		0842			21
B-37-1		0850			22
B-37-3		0851			23
B-37-5		0852			24

Relinquished by		Company	
Printed Name: Scott Rund	Date: 2/12/18	Avocet Environmental, Inc.	
Signature: <i>[Signature]</i>	Time: 1425		
Printed Name:	Date:	Received by	
Signature:	Time:	Printed Name: Margaret R.	
		Signature: <i>[Signature]</i>	
		Date: 2/12/18	
		Time: 1425	
		Date:	
		Time:	
		Date:	
		Time:	

Sample Receipt		Billing Information	
Total Containers	TAT	Philip Miller, P.E.	
Temperature °C	Lab No.	AVOCET ENVIRONMENTAL, INC.	
Temperature °F		1 Technology Drive, Suite C515	
COC Seal (Y/N/A)	Intact (Y/N)	Irvine, CA 92618-5302	
		Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext.102	

CHAIN OF CUSTODY RECORD

[illegible]

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: AVOCET

DATE: 02/12/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 5.6 °C (w/ CF): 5.8 °C; ☐ Blank ☒ Sample☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling☐ Sample(s) received at ambient temperature; placed on ice for transport by courierAmbient Temperature: ☐ Air ☐ FilterChecked by: 1017

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/AChecked by: 1017Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/AChecked by: 619

SAMPLE CONDITION:

Chain-of-Custody (COC) document(s) received with samples ☒ Yes ☐ No ☐ N/ACOC document(s) received complete ☒ Yes ☐ No ☐ N/A☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished timeSampler's name indicated on COC ☒ Yes ☐ No ☐ N/ASample container label(s) consistent with COC ☒ Yes ☐ No ☐ N/ASample container(s) intact and in good condition ☒ Yes ☐ No ☐ N/AProper containers for analyses requested ☒ Yes ☐ No ☐ N/ASufficient volume/mass for analyses requested ☒ Yes ☐ No ☐ N/ASamples received within holding time ☒ Yes ☐ No ☐ N/A

Aqueous samples for certain analyses received within 15-minute holding time

☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen ☐ Yes ☐ No ☒ N/AProper preservation chemical(s) noted on COC and/or sample container ☐ Yes ☐ No ☒ N/A

Unpreserved aqueous sample(s) received for certain analyses

☐ Volatile Organics ☐ Total Metals ☐ Dissolved MetalsAcid/base preserved samples - pH within acceptable range ☐ Yes ☐ No ☒ N/AContainer(s) for certain analysis free of headspace ☐ Yes ☐ No ☒ N/A☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)Tedlar™ bag(s) free of condensation ☐ Yes ☐ No ☒ N/A

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA_h ☐ VOA_{na2} ☐ 100PJ ☐ 100PJ_{na2} ☐ 125AGB ☐ 125AGB_h ☐ 125AGB_p ☐ 125PB ☐ 125PB_{znna} (pH__9)☐ 250AGB ☐ 250CGB ☐ 250CGB_s (pH__2) ☐ 250PB ☐ 250PB_n (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJ_s (pH__2) ☐ 500PB☐ 1AGB ☐ 1AGB_{na2} ☐ 1AGB_s (pH__2) ☐ 1AGB_s (O&G) ☐ 1PB ☐ 1PB_{na} (pH__12) ☐ _____ ☐ _____ ☐ _____Solid: ☐ 4ozCGJ ☒ 8ozCGJ ☐ 16ozCGJ ☒ Sleeve (P) ☐ EnCores® (____) ☐ TerraCores® (____) ☐ _____ ☐ _____ ☐ _____Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ Other Matrix (____): ☐ _____ ☐ _____ ☐ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 619s = H₂SO₄, u = ultra-pure, x = Na₂SO₃+NaHSO₄.H₂O, znna = Zn (CH₃CO₂)₂ + NaOHReviewed by: 1017

*(-19), (-20), (-21), (-27) @ 2/14/18



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Supplemental Report 1

Additional requested analyses are reported as a stand-alone report.



WORK ORDER NUMBER: 18-02-0808

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Avocet Environmental, Inc.

Client Project Name: UPR ROW / 1552.001

Attention: Phil Miller
1 Technology Drive
Suite C515
Irvine, CA 92618-5302

Approved for release on 02/28/2018 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

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 Work Order Number: 18-02-0808

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Work Order Narrative

Work Order: 18-02-0808

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 02/12/18. They were assigned to Work Order 18-02-0808.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.



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Sample Summary

Client: Avocet Environmental, Inc.	Work Order: 18-02-0808
1 Technology Drive, Suite C515	Project Name: UPR ROW / 1552.001
Irvine, CA 92618-5302	PO Number:
	Date/Time Received: 02/12/18 14:25
	Number of Containers: 51
Attn: Phil Miller	

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
B-32-3	18-02-0808-2	02/12/18 07:31	1	Solid
B-33-3	18-02-0808-5	02/12/18 07:41	1	Solid
B-6A-3	18-02-0808-8	02/12/18 07:51	1	Solid
B-34-1	18-02-0808-10	02/12/18 08:05	1	Solid
B-34-3	18-02-0808-11	02/12/18 08:06	1	Solid
B-38-3	18-02-0808-20	02/12/18 08:41	1	Solid
B-39-3	18-02-0808-26	02/12/18 09:01	1	Solid
B-40-1	18-02-0808-28	02/12/18 09:10	1	Solid
B-40-3	18-02-0808-29	02/12/18 09:11	1	Solid
B-41-3	18-02-0808-32	02/12/18 09:21	1	Solid
B-8A-3	18-02-0808-38	02/12/18 09:41	1	Solid
B-7A-3	18-02-0808-50	02/12/18 08:36	1	Solid

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Calscience

Detections Summary

Client: Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Work Order: 18-02-0808
Project Name: UPR ROW / 1552.001
Received: 02/12/18

Attn: Phil Miller

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Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
B-32-3 (18-02-0808-2)						
Arsenic	2.52		1.00	mg/kg	EPA 6020	EPA 3050B
B-33-3 (18-02-0808-5)						
Arsenic	2.78		1.00	mg/kg	EPA 6020	EPA 3050B
B-6A-3 (18-02-0808-8)						
Arsenic	2.63		1.00	mg/kg	EPA 6020	EPA 3050B
B-34-1 (18-02-0808-10)						
Arsenic	76.9		1.00	mg/kg	EPA 6020	EPA 3050B
Arsenic	0.260		0.100	mg/L	EPA 6020	EPA 1311
Arsenic	2.98		0.100	mg/L	EPA 6020	T22.11.5. All
B-34-3 (18-02-0808-11)						
Arsenic	1.98		1.00	mg/kg	EPA 6020	EPA 3050B
B-38-3 (18-02-0808-20)						
Arsenic	5.95		1.00	mg/kg	EPA 6020	EPA 3050B
B-39-3 (18-02-0808-26)						
Arsenic	5.21		1.00	mg/kg	EPA 6020	EPA 3050B
B-40-1 (18-02-0808-28)						
Arsenic	110		1.00	mg/kg	EPA 6020	EPA 3050B
Arsenic	0.242		0.100	mg/L	EPA 6020	T22.11.5. All
B-40-3 (18-02-0808-29)						
Arsenic	1.18		1.00	mg/kg	EPA 6020	EPA 3050B
B-41-3 (18-02-0808-32)						
Arsenic	3.56		1.00	mg/kg	EPA 6020	EPA 3050B
B-8A-3 (18-02-0808-38)						
Arsenic	12.2		1.00	mg/kg	EPA 6020	EPA 3050B
B-7A-3 (18-02-0808-50)						
Arsenic	2.81		1.00	mg/kg	EPA 6020	EPA 3050B

Subcontracted analyses, if any, are not included in this summary.

* MDL is shown



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Analytical Report

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: EPA 1311
Method: EPA 6020
Units: mg/L

Project: UPR ROW / 1552.001

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-34-1	18-02-0808-10-A	02/12/18 08:05	Solid	ICP/MS 03	02/20/18	02/21/18 19:36	180221LA4
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		0.260		0.100		10.0	
B-40-1	18-02-0808-28-A	02/12/18 09:10	Solid	ICP/MS 03	02/20/18	02/21/18 19:39	180221LA4
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		ND		0.100		10.0	
Method Blank	099-14-023-198	N/A	Aqueous	ICP/MS 03	02/20/18	02/21/18 18:35	180221LA4
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		ND		0.100		10.0	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: T22.11.5. All
Method: EPA 6020
Units: mg/L

Project: UPR ROW / 1552.001

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-34-1	18-02-0808-10-A	02/12/18 08:05	Solid	ICP/MS 03	02/20/18	02/22/18 15:23	180222LA1
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		2.98		0.100	10.0		
B-40-1	18-02-0808-28-A	02/12/18 09:10	Solid	ICP/MS 03	02/20/18	02/22/18 15:33	180222LA1
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		0.242		0.100	10.0		
Method Blank	099-14-037-263	N/A	Aqueous	ICP/MS 03	02/20/18	02/22/18 15:03	180222LA1
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		ND		0.100	10.0		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: UPR ROW / 1552.001

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-32-3	18-02-0808-2-A	02/12/18 07:31	Solid	ICP/MS 03	02/23/18	02/26/18 20:59	180223L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		2.52	1.00		1.00		
B-33-3	18-02-0808-5-A	02/12/18 07:41	Solid	ICP/MS 03	02/23/18	02/26/18 21:02	180223L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		2.78	1.00		1.00		
B-6A-3	18-02-0808-8-A	02/12/18 07:51	Solid	ICP/MS 03	02/23/18	02/26/18 21:40	180223L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		2.63	1.00		1.00		
B-34-1	18-02-0808-10-A	02/12/18 08:05	Solid	ICP/MS 03	02/14/18	02/16/18 01:42	180214L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		76.9	1.00		1.00		
B-34-3	18-02-0808-11-A	02/12/18 08:06	Solid	ICP/MS 03	02/23/18	02/26/18 21:42	180223L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		1.98	1.00		1.00		
B-38-3	18-02-0808-20-A	02/12/18 08:41	Solid	ICP/MS 03	02/23/18	02/26/18 21:45	180223L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		5.95	1.00		1.00		
B-39-3	18-02-0808-26-A	02/12/18 09:01	Solid	ICP/MS 03	02/23/18	02/26/18 21:47	180223L01
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		5.21	1.00		1.00		
B-40-1	18-02-0808-28-A	02/12/18 09:10	Solid	ICP/MS 03	02/14/18	02/16/18 02:04	180214L02
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		110	1.00		1.00		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Avocet Environmental, Inc.
 1 Technology Drive, Suite C515
 Irvine, CA 92618-5302

Date Received: 02/12/18
 Work Order: 18-02-0808
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: UPR ROW / 1552.001

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-40-3	18-02-0808-29-A	02/12/18 09:11	Solid	ICP/MS 03	02/23/18	02/26/18 21:50	180223L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		1.18		1.00	1.00		
B-41-3	18-02-0808-32-A	02/12/18 09:21	Solid	ICP/MS 03	02/23/18	02/26/18 21:52	180223L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		3.56		1.00	1.00		
B-8A-3	18-02-0808-38-A	02/12/18 09:41	Solid	ICP/MS 03	02/23/18	02/26/18 21:55	180223L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		12.2		1.00	1.00		
B-7A-3	18-02-0808-50-A	02/12/18 08:36	Solid	ICP/MS 03	02/23/18	02/26/18 21:57	180223L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		2.81		1.00	1.00		
Method Blank	099-15-621-1630	N/A	Solid	ICP/MS 03	02/14/18	02/16/18 01:11	180214L02
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		ND		1.00	1.00		
Method Blank	099-15-621-1633	N/A	Solid	ICP/MS 03	02/23/18	02/26/18 20:44	180223L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>	<u>DF</u>		<u>Qualifiers</u>
Arsenic		ND		1.00	1.00		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Quality Control - Spike/Spike Duplicate

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: EPA 1311
Method: EPA 6020

Project: UPR ROW / 1552.001

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
18-02-0713-28	Sample	Solid	ICP/MS 03	02/20/18	02/21/18 18:51	180221SA4
18-02-0713-28	Matrix Spike	Solid	ICP/MS 03	02/20/18	02/21/18 18:40	180221SA4
18-02-0713-28	Matrix Spike Duplicate	Solid	ICP/MS 03	02/20/18	02/21/18 18:43	180221SA4

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	ND	5.000	5.028	101	5.100	102	73-127	1	0-11	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: T22.11.5. All
Method: EPA 6020

Project: UPR ROW / 1552.001

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
18-02-0713-28	Sample	Solid	ICP/MS 03	02/20/18	02/22/18 15:13	180222SA1
18-02-0713-28	Matrix Spike	Solid	ICP/MS 03	02/20/18	02/22/18 15:08	180222SA1
18-02-0713-28	Matrix Spike Duplicate	Solid	ICP/MS 03	02/20/18	02/22/18 15:10	180222SA1

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	1.902	5.000	7.246	107	7.199	106	73-127	1	0-11	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
B-32-1	Sample	Solid	ICP/MS 03	02/14/18	02/16/18 01:34	180214S02
B-32-1	Matrix Spike	Solid	ICP/MS 03	02/14/18	02/16/18 01:24	180214S02
B-32-1	Matrix Spike Duplicate	Solid	ICP/MS 03	02/14/18	02/16/18 01:27	180214S02

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	20.35	25.00	53.97	134	57.19	147	72-132	6	0-13	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 4 of 4

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
B-32-3	Sample	Solid	ICP/MS 03	02/23/18	02/26/18 20:59	180223S01				
B-32-3	Matrix Spike	Solid	ICP/MS 03	02/23/18	02/26/18 20:49	180223S01				
B-32-3	Matrix Spike Duplicate	Solid	ICP/MS 03	02/23/18	02/26/18 20:51	180223S01				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	2.516	25.00	27.11	98	26.45	96	72-132	2	0-13	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: EPA 1311
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 1 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
18-02-0713-28	Sample	Solid	ICP/MS 03	02/20/18 00:00	02/21/18 18:51	180221SA4
18-02-0713-28	PDS	Solid	ICP/MS 03	02/20/18 00:00	02/21/18 18:46	180221SA4
Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	%Rec. CL	Qualifiers
Arsenic	ND	5.000	5.594	112	75-125	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 2 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number	
B-32-1	Sample	Solid	ICP/MS 03	02/14/18 00:00	02/16/18 01:34	180214S02	
B-32-1	PDS	Solid	ICP/MS 03	02/14/18 00:00	02/16/18 01:29	180214S02	
<u>Parameter</u>		<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic		20.35	25.00	44.08	95	75-125	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 3 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number	
B-32-3	Sample	Solid	ICP/MS 03	02/23/18 00:00	02/26/18 20:59	180223S01	
B-32-3	PDS	Solid	ICP/MS 03	02/23/18 00:00	02/26/18 20:54	180223S01	
<u>Parameter</u>		<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic		2.516	25.00	26.17	95	75-125	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: EPA 1311
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 1 of 4

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-14-023-198	LCS	Aqueous	ICP/MS 03	02/20/18	02/21/18 18:38	180221LA4

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	5.000	5.091	102	80-120	

Quality Control - LCS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: T22.11.5. All
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 2 of 4

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-14-037-263	LCS	Aqueous	ICP/MS 03	02/20/18	02/22/18 15:05	180222LA1

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	5.000	5.625	113	80-120	

Quality Control - LCS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 3 of 4

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-15-621-1630	LCS	Solid	ICP/MS 03	02/14/18	02/16/18 01:14	180214L02
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic		25.00	25.50	102	80-120	

Quality Control - LCS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 4 of 4

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-15-621-1633	LCS	Solid	ICP/MS 03	02/23/18	02/26/18 20:46	180223L01

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	25.00	24.73	99	80-120	

Sample Analysis Summary Report

Work Order: 18-02-0808

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 6020	EPA 3050B	598	ICP/MS 03	1
EPA 6020	EPA 1311	598	ICP/MS 03	1
EPA 6020	T22.11.5. All	598	ICP/MS 03	1


Return to Contents

Glossary of Terms and Qualifiers

Work Order: 18-02-0808

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

CHAIN OF CUSTODY RECORD

Project Information:										Event Name:									
Site Name					UPR ROW					Site Location					Grand Terrace, CA				
Project No.					1552.001					Project Manager					Phil Miller				
Sampled By					SRR					Turnaround Time					Standard				
Sample Identification										Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number					
B-32-1										2/12/18	0730	Soil	1	1					
B-32-3										0732	0731	Soil	1	2					
B-32-5											0732			3					
B-33-1											0740			4					
B-33-3											0741			5					
B-33-5										0742	0740	Soil	1	6					
B-6A-1										0750	7								
B-6A-3										0751	8								
B-6A-5										0752	9								
B-34-1										0805	0805	Soil	1	10					
B-34-3										0806	11								
B-34-5										0807	12								

Relinquished by										Company									
Printed Name:					Scott Rund					Date: 2/12/18					Received by				
Signature:					<i>[Signature]</i>					Time: 1425					Printed Name:				
															Signature:				
Printed Name:										Date:					Printed Name:				
Signature:										Time:					Signature:				
Printed Name:										Date:					Printed Name:				
Signature:										Time:					Signature:				
S. Ms by EPA 6020 (wet) S. Ms by EPA 6020 (dry) Hold for Additional Analysis Arsenic (EPA 6020)										Updated 2/20/18 by Scott Rund SRR Revised COC received from Scott Rund (Avocet) at 02/20/2018 at 11:04am. - Virendra (ECI)									

Sample Receipt										Billing Information									
Total Containers					TAT					Philip Miller, P.E.					AVOCET ENVIRONMENTAL, INC.				
Temperature °C					°F					Lab No.					1 Technology Drive, Suite C515				
COC Seal (Y/N/NA)					Intact (Y/N)					Bill To:					Irvine, CA 92618-5302				
Relinquished by: <i>[Signature]</i> Printed Name: Scott Rund Signature: <i>[Signature]</i> Date: 2/12/18 Time: 1425										Company: Avocet Environmental, Inc. Received by: <i>[Signature]</i> Printed Name: <i>[Signature]</i> Signature: <i>[Signature]</i> Date: 2/12/18 Time: 1425									

Special Instructions									
Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102									



1 Technology Drive, Suite C515
Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

Sheet 2 of 45

CHAIN OF CUSTODY RECORD

Project Information:		Event Name:			
Site Name	UPR ROW				
Site Location	Grand Terrace, CA				
Project No.	1552.001				
Project Manager	Phil Miller				
Sampled By	SRR				
Turnaround Time	Standard				
Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-35-1	2/12/18	0810	Soil	1	13
B-35-3		0811			14
B-35-5		0812			15
B-36-1		0825			16
B-36-3		0826			17
B-36-5		0827			18
B-38-1		0840			19
B-38-3		0841			20
B-38-5		0842			21
B-37-1		0850			22
B-37-3		0851			23
B-37-5		0852			24

Revised COC received from Scott Ruud (Avocet) at 02/20/2018 at 11:04am. - Virendra (ECI)

Analyses	Received by	Company
Arsenic (EPA 6020)	Printed Name: <u>Manuel R. Ruud</u> Signature: <u>[Signature]</u>	Date: <u>2/12/18</u> Time: <u>1435</u>
Hold for Additional Analysis	Printed Name: _____ Signature: _____	Date: _____ Time: _____

(0808)

Sample Receipt		Billing Information	
Total Containers	TAT	Philip Miller, P.E.	
Temperature °C	Lab No.	AVOCET ENVIRONMENTAL, INC.	
Temperature °F		1 Technology Drive, Suite C515	
COC Seal (Y/N/A)	Intact (Y/N)	Irvine, CA 92618-5302	

Relinquished by	Company	Received by	Company
Printed Name: <u>Scott Ruud</u> Signature: <u>[Signature]</u>	Avocet Environmental, Inc.	Printed Name: _____ Signature: _____	_____
Printed Name: _____ Signature: _____		Printed Name: _____ Signature: _____	
Printed Name: _____ Signature: _____		Printed Name: _____ Signature: _____	

Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102



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Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

Sheet 3 of 45

CHAIN OF CUSTODY RECORD

Project Information:		Event Name:	
Site Name		UPR ROW	
Site Location		Grand Terrace, CA	
Project No.		1552.001	
Project Manager		Phil Miller	
Sampled By		SRR	
Turnaround Time		Standard	

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-39-1	2/12/18	0900	Soil	1	25
B-39-3		0901			26
B-39-5		0902			27
B-40-1		0910			28
B-40-3		0911			29
B-40-5		0912			30
B-41-1		0920			31
B-41-3		0921			32
B-41-5		0922			33
B-42-1		0930			34
B-42-3		0931			35
B-42-5		0932			36

Relinquished by	Company	Received by	Company
Printed Name: Scott Ruud	Avocet Environmental, Inc.	Printed Name: Phil Miller	
Signature: [Signature]		Signature: [Signature]	
Printed Name:		Printed Name:	
Signature:		Signature:	
Printed Name:		Printed Name:	
Signature:		Signature:	
Date: 2/12/18		Date: 2/12/18	
Time: 1425		Time: 1425	
Date:		Date:	
Time:		Time:	
Date:		Date:	
Time:		Time:	

Sample Receipt		Billing Information	
Total Containers	TAT	Philip Miller, P.E.	
Temperature °C	Lab No.	AVOCET ENVIRONMENTAL, INC.	
°F		1 Technology Drive, Suite C515	
COC Seal (Y/N/A)	Intact (Y/N)	Irvine, CA 92618-5302	

Special Instructions	
Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102	

Revised COC received from
Scott Ruud (Avocet) at
02/20/2018 at 11:04am.
- Virendra (ECI)

Hold for Additional Analysis
Arsenic (EPA 6020) X
Sol. Hs by EPA 6020 (WET) X
Sol. Hs by EPA 6020 (TELE) X

0808

CHAIN OF CUSTODY RECORD

Project Information:		Event Name:			
Site Name	UPR ROW	Site Name	UPR ROW		
Site Location	Grand Terrace, CA	Site Location	Grand Terrace, CA		
Project No.	1552.001	Project No.	1552.001		
Project Manager	Phil Miller	Project Manager	Phil Miller		
Sampled By	SRR	Sampled By	SRR		
Turnaround Time	Standard	Turnaround Time	Standard		
Sample Identification	Sample Date	Sample Time	Matrix	No. of Ctnrs.	Lab I.D. Number
B-8A-1	2/12/18	0940	Soil	1	37
B-8A-3		0941			38
B-8A-5		0942			39
B-43-1		0950			40
B-43-3		0951			41
B-43-5		0955			42
B-44-1		1005			43
B-44-3		1006			44
B-44-5		1007			45
B-45-1		1045			46
B-45-3		1016			47
B-45-5		1017			48

Relinquished by		Company	
Printed Name:	Date:	Printed Name:	Date:
Scott Ruud	2/12/18	Philip Miller, P.E.	2/12/18
Signature:	Time: 1425	Signature:	Time: 1425
Printed Name:	Date:	Printed Name:	Date:
Signature:	Time:	Signature:	Time:
Printed Name:	Date:	Printed Name:	Date:
Signature:	Time:	Signature:	Time:

Sample Receipt		Billing Information	
Total Containers	TAT	Philip Miller, P.E.	Avocet Environmental, Inc.
Temperature °C	Lab No.	1 Technology Drive, Suite C515	Irvine, CA 92618-5302
COC Seal (Y/N/A)	Intact (Y/N)		

Special Instructions	
Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102	

[illegible]



1 Technology Drive, Suite C515
Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

Sheet 1 of 45

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name: UPR ROW

Site Location: Grand Terrace, CA

Project No.: 1552.001

Project Manager: Phil Miller

Sampled By: SRR

Turnaround Time: Standard

Analyses

18-02-0808

Arsenic (EPA 6020) ☒ Hold for Additional Analysis ☒

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-32-1	2/12/18	0730	Soil	1	1
B-32-3		0731			2
B-32-5	0732	0732			3
B-33-1		0740			4
B-33-3		0741			5
B-33-5		0742			6
B-6A-1		0750			7
B-6A-3		0751			8
B-6A-5		0752			9
B-34-1		0805			10
B-34-3		0806			11
B-34-5		0807			12

Relinquished by	Company	Received by	Company
Printed Name: Scott Rund	Avocet Environmental, Inc.	Printed Name: [Signature]	
Signature: [Signature]		Signature: [Signature]	
Date: 2/12/18		Date: 2/12/18	
Time: 1425		Time: 1425	
Date:		Date:	
Time:		Time:	
Date:		Date:	
Time:		Time:	

Sample Receipt		Billing Information	
Total Containers	TAT	Philip Miller, P.E.	
Temperature °C	Lab No.	AVOCET ENVIRONMENTAL, INC.	
Temperature °F		1 Technology Drive, Suite C515	
COC Seal (Y/N/A)	Intact (Y/N)	Irvine, CA 92618-5302	
		Bill To:	
		Philip Miller, P.E.	
		AVOCET ENVIRONMENTAL, INC.	
		1 Technology Drive, Suite C515	
		Irvine, CA 92618-5302	

Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext.102

Special Instructions

CHAIN OF CUSTODY RECORD

Project Information:		Event Name:	
Site Name	UPR ROW		
Site Location	Grand Terrace, CA		
Project No.	1552.001		
Project Manager	Phil Miller		
Sampled By	SRR		
Turnaround Time	Standard		

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-35-1	2/12/18	0810	Soil	1	13
B-35-3		0811			14
B-35-5		0812			15
B-36-1		0825			16
B-36-3		0826			17
B-36-5		0827			18
B-38-1		0840			19
B-38-3		0841			20
B-38-5		0842			21
B-37-1		0850			22
B-37-3		0851			23
B-37-5		0852			24

Relinquished by		Company	
Printed Name: Scott Rund	Date: 2/12/18	Avocet Environmental, Inc.	
Signature: <i>[Signature]</i>	Time: 1425		
Printed Name:	Date:		
Signature:	Time:		
Printed Name:	Date:		
Signature:	Time:		

Sample Receipt		Billing Information	
Total Containers	TAT	Philip Miller, P.E.	
Temperature °C	Lab No.	AVOCET ENVIRONMENTAL, INC.	
Temperature °F		1 Technology Drive, Suite C515	
COC Seal (Y/N/A)	Intact (Y/N)	Irvine, CA 92618-5302	

Received by		Company	
Printed Name: <i>[Signature]</i>	Date: 2/12/18		
Signature: <i>[Signature]</i>	Time: 1425		
Printed Name:	Date:		
Signature:	Time:		
Printed Name:	Date:		
Signature:	Time:		

Special Instructions	
Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext.102	

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Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

CHAIN OF CUSTODY RECORD

[illegible]

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name UPR ROW

Site Location Grand Terrace, CA

Project No. 1552.001

Project Manager Phil Miller

Sampled By SRR

Turnaround Time Standard

Analyses

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number	Arsenic (EPA 6020)	Hold for Additional Analysis
B-84-1	2/12/18	0940	Soil	1	37	X	
B-84-3		0941			38	X	
B-84-5		0942			39	X	
B-43-1		0950			40	X	
B-43-3		0951			41	X	
B-43-5		0955			42	X	
B-44-1		1005			43	X	
B-44-3		1006			44	X	
B-44-5		1007			45	X	
B-45-1		1045			46	X	
B-45-3		1016			47	X	
B-45-5		1017			48	X	

0808

Relinquished by: Scott Rund Date: 2/12/18

Signature: [Signature] Time: 1425

Printed Name: [Signature] Date: [Signature]

Signature: [Signature] Time: [Signature]

Printed Name: [Signature] Date: [Signature]

Signature: [Signature] Time: [Signature]

Company

Avocet Environmental, Inc.

Received by

Printed Name: [Signature]

Signature: [Signature]

Printed Name: [Signature]

Signature: [Signature]

Printed Name: [Signature]

Signature: [Signature]

Company

Date: 2/12/18

Time: 1425

Date: [Signature]

Time: [Signature]

Date: [Signature]

Time: [Signature]

Sample Receipt

Total Containers TAT

Temperature °C

°F

COC Seal (Y/N/A)

Lab No.

Intact (Y/N)

Billing Information

Philip Miller, P.E.

AVOCET ENVIRONMENTAL, INC.

1 Technology Drive, Suite C515

Irvine, CA 92618-5302

Special Instructions

Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102

CHAIN OF CUSTODY RECORD

[illegible]

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: AVOCET

DATE: 02/12/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 5.6 °C (w/ CF): 5.8 °C; ☐ Blank ☒ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter

Checked by: 1017

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A

Checked by: 1017

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A

Checked by: 619

SAMPLE CONDITION:

Chain-of-Custody (COC) document(s) received with samples ☒ Yes ☐ No ☐ N/A

COC document(s) received complete ☒ Yes ☐ No ☐ N/A

☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers

☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time

Sampler's name indicated on COC ☒ Yes ☐ No ☐ N/A

Sample container label(s) consistent with COC ☒ Yes ☐ No ☐ N/A

Sample container(s) intact and in good condition ☒ Yes ☐ No ☐ N/A

Proper containers for analyses requested ☒ Yes ☐ No ☐ N/A

Sufficient volume/mass for analyses requested ☒ Yes ☐ No ☐ N/A

Samples received within holding time ☒ Yes ☐ No ☐ N/A

Aqueous samples for certain analyses received within 15-minute holding time

☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen ☐ Yes ☐ No ☒ N/A

Proper preservation chemical(s) noted on COC and/or sample container ☐ Yes ☐ No ☒ N/A

Unpreserved aqueous sample(s) received for certain analyses

☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals

Acid/base preserved samples - pH within acceptable range ☐ Yes ☐ No ☒ N/A

Container(s) for certain analysis free of headspace ☐ Yes ☐ No ☒ N/A

☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)

☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)

Tedlar™ bag(s) free of condensation ☐ Yes ☐ No ☒ N/A

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA_h ☐ VOA_{na2} ☐ 100PJ ☐ 100PJ_{na2} ☐ 125AGB ☐ 125AGB_h ☐ 125AGB_p ☐ 125PB ☐ 125PB_{znna} (pH__9)

☐ 250AGB ☐ 250CGB ☐ 250CGB_s (pH__2) ☐ 250PB ☐ 250PB_n (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJ_s (pH__2) ☐ 500PB

☐ 1AGB ☐ 1AGB_{na2} ☐ 1AGB_s (pH__2) ☐ 1AGB_s (O&G) ☐ 1PB ☐ 1PB_{na} (pH__12) ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☒ 8ozCGJ ☐ 16ozCGJ ☒ Sleeve (P) ☐ EnCores® (____) ☐ TerraCores® (____) ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ Other Matrix (____): ☐ _____ ☐ _____ ☐ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 619

s = H₂SO₄, u = ultra-pure, x = Na₂SO₃+NaHSO₄.H₂O, znna = Zn (CH₃CO₂)₂ + NaOH

Reviewed by: 1017

*(-19), (-20), (-21), (-27) @ 2/14/18



Supplemental Report 2

Additional requested analyses are reported as a stand-alone report.



WORK ORDER NUMBER: 18-02-0808

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Avocet Environmental, Inc.

Client Project Name: UPR ROW / 1552.001

Attention: Phil Miller
1 Technology Drive
Suite C515
Irvine, CA 92618-5302

Approved for release on 03/09/2018 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience (Calscience) certifies that the test results provided in this report meet all NELAC Institute requirements for parameters for which accreditation is required or available. Any exceptions to NELAC Institute requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: UPR ROW / 1552.001
 Work Order Number: 18-02-0808

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Work Order: 18-02-0808

Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 02/12/18. They were assigned to Work Order 18-02-0808.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

DoD Projects:

The test results contained in this report are accredited under the laboratory's ISO/IEC 17025:2005 and DoD-ELAP accreditation issued by the ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation ADE-1864.



Calscience

Sample Summary

Client: Avocet Environmental, Inc.	Work Order: 18-02-0808
1 Technology Drive, Suite C515	Project Name: UPR ROW / 1552.001
Irvine, CA 92618-5302	PO Number:
	Date/Time Received: 02/12/18 14:25
	Number of Containers: 51

Attn: Phil Miller

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
B-8A-5	18-02-0808-39	02/12/18 09:42	1	Solid


Return to Contents



Calscience

Detections Summary

Client: Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Work Order: 18-02-0808
Project Name: UPR ROW / 1552.001
Received: 02/12/18

Attn: Phil Miller

Page 1 of 1

Client SampleID

<u>Analyte</u>	<u>Result</u>	<u>Qualifiers</u>	<u>RL</u>	<u>Units</u>	<u>Method</u>	<u>Extraction</u>
B-8A-5 (18-02-0808-39)						
Arsenic	6.48		1.00	mg/kg	EPA 6020	EPA 3050B

Subcontracted analyses, if any, are not included in this summary.


Return to Contents

* MDL is shown

Analytical Report

Avocet Environmental, Inc.
 1 Technology Drive, Suite C515
 Irvine, CA 92618-5302

Date Received: 02/12/18
 Work Order: 18-02-0808
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: UPR ROW / 1552.001

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-8A-5	18-02-0808-39-A	02/12/18 09:42	Solid	ICP/MS 03	03/07/18	03/08/18 15:40	180307L01

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	6.48	1.00	1.00	

Method Blank	099-15-621-1635	N/A	Solid	ICP/MS 03	03/07/18	03/08/18 15:12	180307L01
---------------------	------------------------	------------	--------------	------------------	-----------------	---------------------------	------------------

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	ND	1.00	1.00	



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Quality Control - Spike/Spike Duplicate

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
18-03-0064-1	Sample	Solid	ICP/MS 03	03/07/18	03/08/18 15:27	180307S01
18-03-0064-1	Matrix Spike	Solid	ICP/MS 03	03/07/18	03/08/18 15:17	180307S01
18-03-0064-1	Matrix Spike Duplicate	Solid	ICP/MS 03	03/07/18	03/08/18 15:20	180307S01

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	16.86	25.00	44.30	110	43.94	108	72-132	1	0-13	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - PDS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
18-03-0064-1	Sample	Solid	ICP/MS 03	03/07/18 00:00	03/08/18 15:27	180307S01
18-03-0064-1	PDS	Solid	ICP/MS 03	03/07/18 00:00	03/08/18 15:22	180307S01
Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	%Rec. CL	Qualifiers
Arsenic	16.86	25.00	41.19	97	75-125	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS

Avocet Environmental, Inc.
1 Technology Drive, Suite C515
Irvine, CA 92618-5302

Date Received: 02/12/18
Work Order: 18-02-0808
Preparation: EPA 3050B
Method: EPA 6020

Project: UPR ROW / 1552.001

Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-15-621-1635	LCS	Solid	ICP/MS 03	03/07/18	03/08/18 15:15	180307L01

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	25.00	25.26	101	80-120	



Calscience

Sample Analysis Summary Report

Work Order: 18-02-0808

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 6020	EPA 3050B	598	ICP/MS 03	1


Return to Contents

Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 18-02-0808

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.



1 Technology Drive, Suite C515
Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

Sheet 4 of 45

CHAIN OF CUSTODY RECORD

Project Information: Event Name:

Site Name: UPR ROW

Site Location: Grand Terrace, CA

Project No.: 1552.001

Project Manager: Phil Miller

Sampled By: SRR

Turnaround Time: Standard

Analyses

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-84-1	2/12/18	0940	Soil	1	37
B-84-3		0941			38
B-84-5		0942			39
B-43-1		0950			40
B-43-3		0951			41
B-43-5		0955			42
B-44-1		1005			43
B-44-3		1006			44
B-44-5		1007			45
B-45-1		1045			46
B-45-3		1016			47
B-45-5		1017			48

Arsenic (EPA 6020)

Hold for Additional Analysis

X

X

X

X

X

X

X

X

X

X

X

X

Sum: 18-02-0608

3/1/18

Revised COC received from
Darren Bradner (Avocet) on
03/01/2018 at 09:12am.
- Virendra (ECI)

Relinquished by

Printed Name: Scott Rund

Signature: [Signature]

Date: 2/12/18

Time: 1425

Date:

Time:

Date:

Time:

Company

Avocet Environmental, Inc.

Received by

Printed Name: [Signature]

Signature: [Signature]

Date: 2/12/18

Time: 1425

Date:

Time:

Date:

Time:

Company

Sample Receipt

TAT

Lab No.

Intact (Y/N)

Billing Information

Philip Miller, P.E.

AVOCET ENVIRONMENTAL, INC.

1 Technology Drive, Suite C515

Irvine, CA 92618-5302

Special Instructions

Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977
Ext. 102

CHAIN OF CUSTODY RECORD

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FAX (949) 296-0978

Sheet 2 of 45

CHAIN OF CUSTODY RECORD

Project Information:		Event Name:	
Site Name		UPR ROW	
Site Location		Grand Terrace, CA	
Project No.		1552.001	
Project Manager		Phil Miller	
Sampled By		SRR	
Turnaround Time		Standard	

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-35-1	2/12/18	0810	Soil	1	13
B-35-3		0811			14
B-35-5		0812			15
B-36-1		0825			16
B-36-3		0826			17
B-36-5		0827			18
B-38-1		0840			19
B-38-3		0841			20
B-38-5		0842			21
B-37-1		0850			22
B-37-3		0851			23
B-37-5		0852			24

Relinquished by	Company	Received by	Company
Printed Name: Scott Ruud	Avocet Environmental, Inc.	Printed Name: Margaret R. Ruud	
Signature: [Signature]		Signature: [Signature]	
Date: 2/12/18		Date: 2/12/18	
Time: 1425		Time: 1425	
Date:		Date:	
Time:		Time:	
Date:		Date:	
Time:		Time:	

Sample Receipt		Billing Information	
Total Containers	TAT	Philip Miller, P.E.	
Temperature °C	Lab No.	AVOCET ENVIRONMENTAL, INC.	
Temperature °F		1 Technology Drive, Suite C515	
COC Seal (Y/N/A)	Intact (Y/N)	Irvine, CA 92618-5302	

Special Instructions	
Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102	

Revised COC received from Scott Ruud (Avocet) at 02/20/2018 at 11:04am. - Virendra (ECI)



1 Technology Drive, Suite C515
Irvine, California 92618-5302
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FAX (949) 296-0978

Sheet 3 of 45

CHAIN OF CUSTODY RECORD

Project Information:		Event Name:			
Site Name	UPR ROW				
Site Location	Grand Terrace, CA				
Project No.	1552.001				
Project Manager	Phil Miller				
Sampled By	SRR				
Turnaround Time	Standard				
Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-39-1	2/12/18	0900	Soil	1	25
B-39-3		0901			26
B-39-5		0902			27
B-40-1		0910			28
B-40-3		0911			29
B-40-5		0912			30
B-41-1		0920			31
B-41-3		0921			32
B-41-5		0922			33
B-42-1		0930			34
B-42-3		0931			35
B-42-5		0932			36

Relinquished by		Company	
Printed Name: Scott Ruud	Date: 2/12/18	Avocet Environmental, Inc.	
Signature: [Signature]	Time: 1425		
Printed Name:	Date:		
Signature:	Time:		
Printed Name:	Date:		
Signature:	Time:		

Received by		Company	
Printed Name: [Signature]	Date: 2/12/18	[Signature]	
Signature: [Signature]	Time: 1425		
Printed Name:	Date:		
Signature:	Time:		
Printed Name:	Date:		
Signature:	Time:		

Sample Receipt		Billing Information	
Total Containers	TAT	Philip Miller, P.E.	
Temperature °C	Lab No.	AVOCET ENVIRONMENTAL, INC.	
COC Seal (Y/N/A)	Intact (Y/N)	1 Technology Drive, Suite C515	
		Irvine, CA 92618-5302	

Special Instructions	
Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102	

Revised COC received from
Scott Ruud (Avocet) at
02/20/2018 at 11:04am.
- Virendra (ECI)



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Irvine, California 92618-5302
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FAX (949) 296-0978

Sheet 4 of 45

CHAIN OF CUSTODY RECORD

Project Information:		Event Name:	
Site Name	UPR ROW		
Site Location	Grand Terrace, CA		
Project No.	1552.001		
Project Manager	Phil Miller		
Sampled By	SRR		
Turnaround Time	Standard		

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-84-1	2/12/18	0940	Soil	1	37
B-84-3		0941			38
B-84-5		0942			39
B-43-1		0950			40
B-43-3		0951			41
B-43-5		0955			42
B-44-1		1005			43
B-44-3		1006			44
B-44-5		1007			45
B-45-1		1045			46
B-45-3		1016			47
B-45-5		1017			48

Revised COC received from
Scott Ruud (Avocet) at
02/20/2018 at 11:04am.
- Virendra (ECI)

Relinquished by		Company	
Printed Name: Scott Ruud	Date: 2/12/18	Avocet Environmental, Inc.	
Signature: [Signature]	Time: 1425		
Printed Name:	Date:	Received by	
Signature:	Time:	Printed Name: [Signature]	
Printed Name:	Date:	Signature: [Signature]	
Signature:	Time:	Printed Name:	
		Signature:	
Sample Receipt		Special Instructions	
Total Containers	TAT	Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977	
Temperature °C	Lab No.	Ext. 102	
COC Seal (Y/N/A)	Intact (Y/N)		

1 Technology Drive, Suite C515
Irvine, California 92618-5302
TEL (949) 296-0977
FAX (949) 296-0978

Sheet

1 of 4

CHAIN OF CUSTODY RECORD

Project Information: Event Name:										18-02-0808									
UPR ROW																			
Grand Terrace, CA																			
1552.001																			
Phil Miller																			
SRR																			
Standard																			
Sampled By																			
Turnaround Time																			
Sample Identification																			
Sample Date																			
Sample Time																			
Matrix																			
No. of Cntrs.																			
Lab I.D. Number																			
B-32-1										1									
B-32-3										2									
B-32-5										3									
B-33-1										4									
B-33-3										5									
B-33-5										6									
B-6A-1										7									
B-6A-3										8									
B-6A-5										9									
B-34-1										10									
B-34-3										11									
B-34-5										12									
Arsenic (EPA 6020)																			
Hold for Additional Analysis																			
Received by										Company									
Printed Name: Scott Rund										Date: 2/12/18									
Signature: [Signature]										Time: 1425									
Printed Name: [Signature]										Date: [Signature]									
Signature: [Signature]										Time: [Signature]									
Printed Name: [Signature]										Date: [Signature]									
Signature: [Signature]										Time: [Signature]									
Sample Receipt										Special Instructions									
Total Containers										Billing Information									
TAT										Philip Miller, P.E.									
Lab No.										AVOCET ENVIRONMENTAL, INC.									
Intact (Y/N)										1 Technology Drive, Suite C515									
COC Seal (Y/N/NA)										Irvine, CA 92618-5302									
Temperature °C										Bill To:									
Temperature °F										Please bill to Avocet. If any questions, please call Phil Miller @ (949) 296 0977									
COC Seal (Y/N/NA)										Ext. 102									

CHAIN OF CUSTODY RECORD

Project Information:		Event Name:	
Site Name	UPR ROW		
Site Location	Grand Terrace, CA		
Project No.	1552.001		
Project Manager	Phil Miller		
Sampled By	SRR		
Turnaround Time	Standard		

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntrs.	Lab I.D. Number
B-35-1	2/12/18	0810	Soil	1	13
B-35-3		0811			14
B-35-5		0812			15
B-36-1		0825			16
B-36-3		0826			17
B-36-5		0827			18
B-38-1		0840			19
B-38-3		0841			20
B-38-5		0842			21
B-37-1		0850			22
B-37-3		0851			23
B-37-5		0852			24

Relinquished by		Company	
Printed Name: Scott Rund	Date: 2/12/18	Avocet Environmental, Inc.	
Signature: <i>[Signature]</i>	Time: 1425		
Printed Name:	Date:		
Signature:	Time:		
Printed Name:	Date:		
Signature:	Time:		

Sample Receipt		Billing Information	
Total Containers	TAT	Philip Miller, P.E.	
Temperature °C	Lab No.	AVOCET ENVIRONMENTAL, INC.	
Temperature °F		1 Technology Drive, Suite C515	
COC Seal (Y/N/A)	Intact (Y/N)	Irvine, CA 92618-5302	

CHAIN OF CUSTODY RECORD

Project Information:	Event Name:
Site Name	UPR ROW
Site Location	Grand Terrace, CA
Project No.	1552.001
Project Manager	Phil Miller
Sampled By	SRR
Turnaround Time	Standard

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntnrs.	Lab I.D. Number
B-39-1	2/12/18	0900	Soil	1	25
B-39-3		0901			26
B-39-5		0902			27
B-40-1		0910			28
B-40-3		0911			29
B-40-5		0912			30
B-41-1		0920			31
B-41-3		1240			32
B-41-5		2260			33
B-42-1		0430			34
B-42-3		0931			35
B-42-5		0932			36

Relinquished by	Company	
Printed Name: <u>Scott Rund</u>	Date: <u>2/12/18</u>	Avocet Environmental, Inc.
Signature: <u>[Signature]</u>	Time: <u>1425</u>	
Printed Name: _____	Date: _____	
Signature: _____	Time: _____	
Printed Name: _____	Date: _____	
Signature: _____	Time: _____	

Sample Receipt		Billing Information
Total Containers	TAT	Philip Miller, P.E. AVOCET ENVIRONMENTAL, INC. 1 Technology Drive, Suite C515 Irvine, CA 92618-5302
Temperature °C	Lab No.	
°F	Intact (Y/N)	
COC Seal (Y/N/NA)		

Received by		Company
Printed Name:	Murphy R.	
Signature:	<i>Murphy R.</i>	
Printed Name:		
Signature:		
Printed Name:		
Signature:		

	Special Instructions
	Please bill to Avocat. If any questions, please call Phil Miller @ (949) 296 0977 Ext. 102

CHAIN OF CUSTODY RECORD

[illegible]

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: Avocet

DATE: 02/12/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 5.6 °C (w/ CF): 5.8 °C; ☐ Blank ☒ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter

Checked by: 1017

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A

Checked by: 1017

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A

Checked by: 619

SAMPLE CONDITION:

Chain-of-Custody (COC) document(s) received with samples ☒ Yes ☐ No ☐ N/A

COC document(s) received complete ☒ Yes ☐ No ☐ N/A

☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers

☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time

Sampler's name indicated on COC ☒ Yes ☐ No ☐ N/A

Sample container label(s) consistent with COC ☒ Yes ☐ No ☐ N/A

Sample container(s) intact and in good condition ☒ Yes ☐ No ☐ N/A

Proper containers for analyses requested ☒ Yes ☐ No ☐ N/A

Sufficient volume/mass for analyses requested ☒ Yes ☐ No ☐ N/A

Samples received within holding time ☒ Yes ☐ No ☐ N/A

Aqueous samples for certain analyses received within 15-minute holding time

☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen ☐ Yes ☐ No ☒ N/A

Proper preservation chemical(s) noted on COC and/or sample container ☐ Yes ☐ No ☒ N/A

Unpreserved aqueous sample(s) received for certain analyses

☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals

Acid/base preserved samples - pH within acceptable range ☐ Yes ☐ No ☒ N/A

Container(s) for certain analysis free of headspace ☐ Yes ☐ No ☒ N/A

☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)

☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)

Tedlar™ bag(s) free of condensation ☐ Yes ☐ No ☒ N/A

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA_h ☐ VOA_{na2} ☐ 100PJ ☐ 100PJ_{na2} ☐ 125AGB ☐ 125AGB_h ☐ 125AGB_p ☐ 125PB ☐ 125PB_{znna} (pH__9)

☐ 250AGB ☐ 250CGB ☐ 250CGB_s (pH__2) ☐ 250PB ☐ 250PB_n (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJ_s (pH__2) ☐ 500PB

☐ 1AGB ☐ 1AGB_{na2} ☐ 1AGB_s (pH__2) ☐ 1AGB_s (O&G) ☐ 1PB ☐ 1PB_{na} (pH__12) ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☒ 8ozCGJ ☐ 16ozCGJ ☒ Sleeve (P) ☐ EnCores® (____) ☐ TerraCores® (____) ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ Other Matrix (____): ☐ _____ ☐ _____ ☐ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 619

s = H₂SO₄, u = ultra-pure, x = Na₂SO₃+NaHSO₄.H₂O, znna = Zn (CH₃CO₂)₂ + NaOH Reviewed by: 1017

*(-19), (-20), (-21), (-27) @ 2/14/18

Appendix G

SCAQMD Rule 403

(Adopted May 7, 1976) (Amended November 6, 1992)
(Amended July 9, 1993) (Amended February 14, 1997)
(Amended December 11, 1998)(Amended April 2, 2004)
(Amended June 3, 2005)

RULE 403. FUGITIVE DUST

(a) Purpose

The purpose of this Rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.

(b) Applicability

The provisions of this Rule shall apply to any activity or man-made condition capable of generating fugitive dust.

(c) Definitions

- (1) ACTIVE OPERATIONS means any source capable of generating fugitive dust, including, but not limited to, earth-moving activities, construction/demolition activities, disturbed surface area, or heavy- and light-duty vehicular movement.
- (2) AGGREGATE-RELATED PLANTS are defined as facilities that produce and / or mix sand and gravel and crushed stone.
- (3) AGRICULTURAL HANDBOOK means the region-specific guidance document that has been approved by the Governing Board or hereafter approved by the Executive Officer and the U.S. EPA. For the South Coast Air Basin, the Board-approved region-specific guidance document is the Rule 403 Agricultural Handbook dated December 1998. For the Coachella Valley, the Board-approved region-specific guidance document is the Rule 403 Coachella Valley Agricultural Handbook dated April 2, 2004.
- (4) ANEMOMETERS are devices used to measure wind speed and direction in accordance with the performance standards, and maintenance and calibration criteria as contained in the most recent Rule 403 Implementation Handbook.
- (5) BEST AVAILABLE CONTROL MEASURES means fugitive dust control actions that are set forth in Table 1 of this Rule.

- (6) BULK MATERIAL is sand, gravel, soil, aggregate material less than two inches in length or diameter, and other organic or inorganic particulate matter.
- (7) CEMENT MANUFACTURING FACILITY is any facility that has a cement kiln at the facility.
- (8) CHEMICAL STABILIZERS are any non-toxic chemical dust suppressant which must not be used if prohibited for use by the Regional Water Quality Control Boards, the California Air Resources Board, the U.S. Environmental Protection Agency (U.S. EPA), or any applicable law, rule or regulation. The chemical stabilizers shall meet any specifications, criteria, or tests required by any federal, state, or local water agency. Unless otherwise indicated, the use of a non-toxic chemical stabilizer shall be of sufficient concentration and application frequency to maintain a stabilized surface.
- (9) COMMERCIAL POULTRY RANCH means any building, structure, enclosure, or premises where more than 100 fowl are kept or maintained for the primary purpose of producing eggs or meat for sale or other distribution.
- (10) CONFINED ANIMAL FACILITY means a source or group of sources of air pollution at an agricultural source for the raising of 3,360 or more fowl or 50 or more animals, including but not limited to, any structure, building, installation, farm, corral, coop, feed storage area, milking parlor, or system for the collection, storage, or distribution of solid and liquid manure; if domesticated animals, including horses, sheep, goats, swine, beef cattle, rabbits, chickens, turkeys, or ducks are corralled, penned, or otherwise caused to remain in restricted areas for commercial agricultural purposes and feeding is by means other than grazing.
- (11) CONSTRUCTION/DEMOLITION ACTIVITIES means any on-site mechanical activities conducted in preparation of, or related to, the building, alteration, rehabilitation, demolition or improvement of property, including, but not limited to the following activities: grading, excavation, loading, crushing, cutting, planing, shaping or ground breaking.
- (12) CONTRACTOR means any person who has a contractual arrangement to conduct an active operation for another person.
- (13) DAIRY FARM is an operation on a property, or set of properties that are contiguous or separated only by a public right-of-way, that raises cows or

produces milk from cows for the purpose of making a profit or for a livelihood. Heifer and calf farms are dairy farms.

- (14) **DISTURBED SURFACE AREA** means a portion of the earth's surface which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for emission of fugitive dust. This definition excludes those areas which have:
 - (A) been restored to a natural state, such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby natural conditions;
 - (B) been paved or otherwise covered by a permanent structure; or
 - (C) sustained a vegetative ground cover of at least 70 percent of the native cover for a particular area for at least 30 days.
- (15) **DUST SUPPRESSANTS** are water, hygroscopic materials, or non-toxic chemical stabilizers used as a treatment material to reduce fugitive dust emissions.
- (16) **EARTH-MOVING ACTIVITIES** means the use of any equipment for any activity where soil is being moved or uncovered, and shall include, but not be limited to the following: grading, earth cutting and filling operations, loading or unloading of dirt or bulk materials, adding to or removing from open storage piles of bulk materials, landfill operations, weed abatement through disking, and soil mulching.
- (17) **DUST CONTROL SUPERVISOR** means a person with the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Rule 403 requirements at an active operation.
- (18) **FUGITIVE DUST** means any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of any person.
- (19) **HIGH WIND CONDITIONS** means that instantaneous wind speeds exceed 25 miles per hour.
- (20) **INACTIVE DISTURBED SURFACE AREA** means any disturbed surface area upon which active operations have not occurred or are not expected to occur for a period of 20 consecutive days.
- (21) **LARGE OPERATIONS** means any active operations on property which contains 50 or more acres of disturbed surface area; or any earth-moving operation with a daily earth-moving or throughput volume of 3,850 cubic

meters (5,000 cubic yards) or more three times during the most recent 365-day period.

- (22) OPEN STORAGE PILE is any accumulation of bulk material, which is not fully enclosed, covered or chemically stabilized, and which attains a height of three feet or more and a total surface area of 150 or more square feet.
- (23) PARTICULATE MATTER means any material, except uncombined water, which exists in a finely divided form as a liquid or solid at standard conditions.
- (24) PAVED ROAD means a public or private improved street, highway, alley, public way, or easement that is covered by typical roadway materials, but excluding access roadways that connect a facility with a public paved roadway and are not open to through traffic. Public paved roads are those open to public access and that are owned by any federal, state, county, municipal or any other governmental or quasi-governmental agencies. Private paved roads are any paved roads not defined as public.
- (25) PM₁₀ means particulate matter with an aerodynamic diameter smaller than or equal to 10 microns as measured by the applicable State and Federal reference test methods.
- (26) PROPERTY LINE means the boundaries of an area in which either a person causing the emission or a person allowing the emission has the legal use or possession of the property. Where such property is divided into one or more sub-tenancies, the property line(s) shall refer to the boundaries dividing the areas of all sub-tenancies.
- (27) RULE 403 IMPLEMENTATION HANDBOOK means a guidance document that has been approved by the Governing Board on April 2, 2004 or hereafter approved by the Executive Officer and the U.S. EPA.
- (28) SERVICE ROADS are paved or unpaved roads that are used by one or more public agencies for inspection or maintenance of infrastructure and which are not typically used for construction-related activity.
- (29) SIMULTANEOUS SAMPLING means the operation of two PM₁₀ samplers in such a manner that one sampler is started within five minutes of the other, and each sampler is operated for a consecutive period which must be not less than 290 minutes and not more than 310 minutes.
- (30) SOUTH COAST AIR BASIN means the non-desert portions of Los Angeles, Riverside, and San Bernardino counties and all of Orange

County as defined in California Code of Regulations, Title 17, Section 60104. The area is bounded on the west by the Pacific Ocean, on the north and east by the San Gabriel, San Bernardino, and San Jacinto Mountains, and on the south by the San Diego county line.

- (31) **STABILIZED SURFACE** means any previously disturbed surface area or open storage pile which, through the application of dust suppressants, shows visual or other evidence of surface crusting and is resistant to wind-driven fugitive dust and is demonstrated to be stabilized. Stabilization can be demonstrated by one or more of the applicable test methods contained in the Rule 403 Implementation Handbook.
 - (32) **TRACK-OUT** means any bulk material that adheres to and agglomerates on the exterior surface of motor vehicles, haul trucks, and equipment (including tires) that have been released onto a paved road and can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions.
 - (33) **TYPICAL ROADWAY MATERIALS** means concrete, asphaltic concrete, recycled asphalt, asphalt, or any other material of equivalent performance as determined by the Executive Officer, and the U.S. EPA.
 - (34) **UNPAVED ROADS** means any unsealed or unpaved roads, equipment paths, or travel ways that are not covered by typical roadway materials. Public unpaved roads are any unpaved roadway owned by federal, state, county, municipal or other governmental or quasi-governmental agencies. Private unpaved roads are all other unpaved roadways not defined as public.
 - (35) **VISIBLE ROADWAY DUST** means any sand, soil, dirt, or other solid particulate matter which is visible upon paved road surfaces and which can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions.
 - (36) **WIND-DRIVEN FUGITIVE DUST** means visible emissions from any disturbed surface area which is generated by wind action alone.
 - (37) **WIND GUST** is the maximum instantaneous wind speed as measured by an anemometer.
- (d) **Requirements**
- (1) No person shall cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area such that:

- (A) the dust remains visible in the atmosphere beyond the property line of the emission source; or
 - (B) the dust emission exceeds 20 percent opacity (as determined by the appropriate test method included in the Rule 403 Implementation Handbook), if the dust emission is the result of movement of a motorized vehicle.
- (2) No person shall conduct active operations without utilizing the applicable best available control measures included in Table 1 of this Rule to minimize fugitive dust emissions from each fugitive dust source type within the active operation.
- (3) No person shall cause or allow PM₁₀ levels to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples collected on high-volume particulate matter samplers or other U.S. EPA-approved equivalent method for PM₁₀ monitoring. If sampling is conducted, samplers shall be:
 - (A) Operated, maintained, and calibrated in accordance with 40 Code of Federal Regulations (CFR), Part 50, Appendix J, or appropriate U.S. EPA-published documents for U.S. EPA-approved equivalent method(s) for PM₁₀.
 - (B) Reasonably placed upwind and downwind of key activity areas and as close to the property line as feasible, such that other sources of fugitive dust between the sampler and the property line are minimized.
- (4) No person shall allow track-out to extend 25 feet or more in cumulative length from the point of origin from an active operation. Notwithstanding the preceding, all track-out from an active operation shall be removed at the conclusion of each workday or evening shift.
- (5) No person shall conduct an active operation with a disturbed surface area of five or more acres, or with a daily import or export of 100 cubic yards or more of bulk material without utilizing at least one of the measures listed in subparagraphs (d)(5)(A) through (d)(5)(E) at each vehicle egress from the site to a paved public road.
 - (A) Install a pad consisting of washed gravel (minimum-size: one inch) maintained in a clean condition to a depth of at least six inches and extending at least 30 feet wide and at least 50 feet long.

- (B) Pave the surface extending at least 100 feet and at least 20 feet wide.
 - (C) Utilize a wheel shaker/wheel spreading device consisting of raised dividers (rails, pipe, or grates) at least 24 feet long and 10 feet wide to remove bulk material from tires and vehicle undercarriages before vehicles exit the site.
 - (D) Install and utilize a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the site.
 - (E) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the actions specified in subparagraphs (d)(5)(A) through (d)(5)(D).
- (6) Beginning January 1, 2006, any person who operates or authorizes the operation of a confined animal facility subject to this Rule shall implement the applicable conservation management practices specified in Table 4 of this Rule.
- (e) Additional Requirements for Large Operations
- (1) Any person who conducts or authorizes the conducting of a large operation subject to this Rule shall implement the applicable actions specified in Table 2 of this Rule at all times and shall implement the applicable actions specified in Table 3 of this Rule when the applicable performance standards can not be met through use of Table 2 actions; and shall:
 - (A) submit a fully executed Large Operation Notification (Form 403 N) to the Executive Officer within 7 days of qualifying as a large operation;
 - (B) include, as part of the notification, the name(s), address(es), and phone number(s) of the person(s) responsible for the submittal, and a description of the operation(s), including a map depicting the location of the site;
 - (C) maintain daily records to document the specific dust control actions taken, maintain such records for a period of not less than three years; and make such records available to the Executive Officer upon request;

- (D) install and maintain project signage with project contact signage that meets the minimum standards of the Rule 403 Implementation Handbook, prior to initiating any earthmoving activities;
 - (E) identify a dust control supervisor that:
 - (i) is employed by or contracted with the property owner or developer;
 - (ii) is on the site or available on-site within 30 minutes during working hours;
 - (iii) has the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Rule requirements;
 - (iv) has completed the AQMD Fugitive Dust Control Class and has been issued a valid Certificate of Completion for the class; and
 - (F) notify the Executive Officer in writing within 30 days after the site no longer qualifies as a large operation as defined by paragraph (c)(18).
- (2) Any Large Operation Notification submitted to the Executive Officer or AQMD-approved dust control plan shall be valid for a period of one year from the date of written acceptance by the Executive Officer. Any Large Operation Notification accepted pursuant to paragraph (e)(1), excluding those submitted by aggregate-related plants and cement manufacturing facilities must be resubmitted annually by the person who conducts or authorizes the conducting of a large operation, at least 30 days prior to the expiration date, or the submittal shall no longer be valid as of the expiration date. If all fugitive dust sources and corresponding control measures or special circumstances remain identical to those identified in the previously accepted submittal or in an AQMD-approved dust control plan, the resubmittal may be a simple statement of no-change (Form 403NC).
- (f) **Compliance Schedule**
The newly amended provisions of this Rule shall become effective upon adoption. Pursuant to subdivision (e), any existing site that qualifies as a large operation will have 60 days from the date of Rule adoption to comply with the notification and recordkeeping requirements for large operations. Any Large Operation

Notification or AQMD-approved dust control plan which has been accepted prior to the date of adoption of these amendments shall remain in effect and the Large Operation Notification or AQMD-approved dust control plan annual resubmittal date shall be one year from adoption of this Rule amendment.

(g) Exemptions

(1) The provisions of this Rule shall not apply to:

- (A) Dairy farms.
- (B) Confined animal facilities provided that the combined disturbed surface area within one continuous property line is one acre or less.
- (C) Agricultural vegetative crop operations provided that the combined disturbed surface area within one continuous property line and not separated by a paved public road is 10 acres or less.
- (D) Agricultural vegetative crop operations within the South Coast Air Basin, whose combined disturbed surface area includes more than 10 acres provided that the person responsible for such operations:
 - (i) voluntarily implements the conservation management practices contained in the Rule 403 Agricultural Handbook;
 - (ii) completes and maintains the self-monitoring form documenting sufficient conservation management practices, as described in the Rule 403 Agricultural Handbook; and
 - (iii) makes the completed self-monitoring form available to the Executive Officer upon request.
- (E) Agricultural vegetative crop operations outside the South Coast Air Basin whose combined disturbed surface area includes more than 10 acres provided that the person responsible for such operations:
 - (i) voluntarily implements the conservation management practices contained in the Rule 403 Coachella Valley Agricultural Handbook; and
 - (ii) completes and maintains the self-monitoring form documenting sufficient conservation management practices, as described in the Rule 403 Coachella Valley Agricultural Handbook; and
 - (iii) makes the completed self-monitoring form available to the Executive Officer upon request.

- (F) Active operations conducted during emergency life-threatening situations, or in conjunction with any officially declared disaster or state of emergency.
 - (G) Active operations conducted by essential service utilities to provide electricity, natural gas, telephone, water and sewer during periods of service outages and emergency disruptions.
 - (H) Any contractor subsequent to the time the contract ends, provided that such contractor implemented the required control measures during the contractual period.
 - (I) Any grading contractor, for a phase of active operations, subsequent to the contractual completion of that phase of earth-moving activities, provided that the required control measures have been implemented during the entire phase of earth-moving activities, through and including five days after the final grading inspection.
 - (J) Weed abatement operations ordered by a county agricultural commissioner or any state, county, or municipal fire department, provided that:
 - (i) mowing, cutting or other similar process is used which maintains weed stubble at least three inches above the soil; and
 - (ii) any discing or similar operation which cuts into and disturbs the soil, where watering is used prior to initiation of these activities, and a determination is made by the agency issuing the weed abatement order that, due to fire hazard conditions, rocks, or other physical obstructions, it is not practical to meet the conditions specified in clause (g)(1)(H)(i). The provisions this clause shall not exempt the owner of any property from stabilizing, in accordance with paragraph (d)(2), disturbed surface areas which have been created as a result of the weed abatement actions.
 - (K) sandblasting operations.
- (2) The provisions of paragraphs (d)(1) and (d)(3) shall not apply:
- (A) When wind gusts exceed 25 miles per hour, provided that:

- (i) The required Table 3 contingency measures in this Rule are implemented for each applicable fugitive dust source type, and;
 - (ii) records are maintained in accordance with subparagraph (e)(1)(C).
 - (B) To unpaved roads, provided such roads:
 - (i) are used solely for the maintenance of wind-generating equipment; or
 - (ii) are unpaved public alleys as defined in Rule 1186; or
 - (iii) are service roads that meet all of the following criteria:
 - (a) are less than 50 feet in width at all points along the road;
 - (b) are within 25 feet of the property line; and
 - (c) have a traffic volume less than 20 vehicle-trips per day.
 - (C) To any active operation, open storage pile, or disturbed surface area for which necessary fugitive dust preventive or mitigative actions are in conflict with the federal Endangered Species Act, as determined in writing by the State or federal agency responsible for making such determinations.
- (3) The provisions of (d)(2) shall not apply to any aggregate-related plant or cement manufacturing facility that implements the applicable actions specified in Table 2 of this Rule at all times and shall implement the applicable actions specified in Table 3 of this Rule when the applicable performance standards of paragraphs (d)(1) and (d)(3) can not be met through use of Table 2 actions.
 - (4) The provisions of paragraphs (d)(1), (d)(2), and (d)(3) shall not apply to:
 - (A) Blasting operations which have been permitted by the California Division of Industrial Safety; and
 - (B) Motion picture, television, and video production activities when dust emissions are required for visual effects. In order to obtain this exemption, the Executive Officer must receive notification in writing at least 72 hours in advance of any such activity and no nuisance results from such activity.
 - (5) The provisions of paragraph (d)(3) shall not apply if the dust control actions, as specified in Table 2, are implemented on a routine basis for

each applicable fugitive dust source type. To qualify for this exemption, a person must maintain records in accordance with subparagraph (e)(1)(C).

- (6) The provisions of paragraph (d)(4) shall not apply to earth coverings of public paved roadways where such coverings are approved by a local government agency for the protection of the roadway, and where such coverings are used as roadway crossings for haul vehicles provided that such roadway is closed to through traffic and visible roadway dust is removed within one day following the cessation of activities.
- (7) The provisions of subdivision (e) shall not apply to:
 - (A) officially-designated public parks and recreational areas, including national parks, national monuments, national forests, state parks, state recreational areas, and county regional parks.
 - (B) any large operation which is required to submit a dust control plan to any city or county government which has adopted a District-approved dust control ordinance.
 - (C) any large operation subject to Rule 1158, which has an approved dust control plan pursuant to Rule 1158, provided that all sources of fugitive dust are included in the Rule 1158 plan.
- (8) The provisions of subparagraph (e)(1)(A) through (e)(1)(C) shall not apply to any large operation with an AQMD-approved fugitive dust control plan provided that there is no change to the sources and controls as identified in the AQMD-approved fugitive dust control plan.

(h) Fees

Any person conducting active operations for which the Executive Officer conducts upwind/downwind monitoring for PM₁₀ pursuant to paragraph (d)(3) shall be assessed applicable Ambient Air Analysis Fees pursuant to Rule 304.1. Applicable fees shall be waived for any facility which is exempted from paragraph (d)(3) or meets the requirements of paragraph (d)(3).

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Backfilling	01-1 Stabilize backfill material when not actively handling; and 01-2 Stabilize backfill material during handling; and 01-3 Stabilize soil at completion of activity.	✓ Mix backfill soil with water prior to moving ✓ Dedicate water truck or high capacity hose to backfilling equipment ✓ Empty loader bucket slowly so that no dust plumes are generated ✓ Minimize drop height from loader bucket
Clearing and grubbing	02-1 Maintain stability of soil through pre-watering of site prior to clearing and grubbing; and 02-2 Stabilize soil during clearing and grubbing activities; and 02-3 Stabilize soil immediately after clearing and grubbing activities.	✓ Maintain live perennial vegetation where possible ✓ Apply water in sufficient quantity to prevent generation of dust plumes
Clearing forms	03-1 Use water spray to clear forms; or 03-2 Use sweeping and water spray to clear forms; or 03-3 Use vacuum system to clear forms.	✓ Use of high pressure air to clear forms may cause exceedance of Rule requirements
Crushing	04-1 Stabilize surface soils prior to operation of support equipment; and 04-2 Stabilize material after crushing.	✓ Follow permit conditions for crushing equipment ✓ Pre-water material prior to loading into crusher ✓ Monitor crusher emissions opacity ✓ Apply water to crushed material to prevent dust plumes

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Cut and fill	05-1 Pre-water soils prior to cut and fill activities; and 05-2 Stabilize soil during and after cut and fill activities.	✓ For large sites, pre-water with sprinklers or water trucks and allow time for penetration ✓ Use water trucks/pulls to water soils to depth of cut prior to subsequent cuts
Demolition – mechanical/manual	06-1 Stabilize wind erodible surfaces to reduce dust; and 06-2 Stabilize surface soil where support equipment and vehicles will operate; and 06-3 Stabilize loose soil and demolition debris; and 06-4 Comply with AQMD Rule 1403.	✓ Apply water in sufficient quantities to prevent the generation of visible dust plumes
Disturbed soil	07-1 Stabilize disturbed soil throughout the construction site; and 07-2 Stabilize disturbed soil between structures	✓ Limit vehicular traffic and disturbances on soils where possible ✓ If interior block walls are planned, install as early as possible ✓ Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes
Earth-moving activities	08-1 Pre-apply water to depth of proposed cuts; and 08-2 Re-apply water as necessary to maintain soils in a damp condition and to ensure that visible emissions do not exceed 100 feet in any direction; and 08-3 Stabilize soils once earth-moving activities are complete.	✓ Grade each project phase separately, timed to coincide with construction phase ✓ Upwind fencing can prevent material movement on site ✓ Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Importing/exporting of bulk materials	09-1 Stabilize material while loading to reduce fugitive dust emissions; and 09-2 Maintain at least six inches of freeboard on haul vehicles; and 09-3 Stabilize material while transporting to reduce fugitive dust emissions; and 09-4 Stabilize material while unloading to reduce fugitive dust emissions; and 09-5 Comply with Vehicle Code Section 23114.	✓ Use tarps or other suitable enclosures on haul trucks ✓ Check belly-dump truck seals regularly and remove any trapped rocks to prevent spillage ✓ Comply with track-out prevention/mitigation requirements ✓ Provide water while loading and unloading to reduce visible dust plumes
Landscaping	10-1 Stabilize soils, materials, slopes	✓ Apply water to materials to stabilize ✓ Maintain materials in a crusted condition ✓ Maintain effective cover over materials ✓ Stabilize sloping surfaces using soil binders until vegetation or ground cover can effectively stabilize the slopes ✓ Hydroseed prior to rain season
Road shoulder maintenance	11-1 Apply water to unpaved shoulders prior to clearing; and 11-2 Apply chemical dust suppressants and/or washed gravel to maintain a stabilized surface after completing road shoulder maintenance.	✓ Installation of curbing and/or paving of road shoulders can reduce recurring maintenance costs ✓ Use of chemical dust suppressants can inhibit vegetation growth and reduce future road shoulder maintenance costs

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Screening	12-1 Pre-water material prior to screening; and 12-2 Limit fugitive dust emissions to opacity and plume length standards; and 12-3 Stabilize material immediately after screening.	✓ Dedicate water truck or high capacity hose to screening operation ✓ Drop material through the screen slowly and minimize drop height ✓ Install wind barrier with a porosity of no more than 50% upwind of screen to the height of the drop point
Staging areas	13-1 Stabilize staging areas during use; and 13-2 Stabilize staging area soils at project completion.	✓ Limit size of staging area ✓ Limit vehicle speeds to 15 miles per hour ✓ Limit number and size of staging area entrances/exits
Stockpiles/ Bulk Material Handling	14-1 Stabilize stockpiled materials. 14-2 Stockpiles within 100 yards of off-site occupied buildings must not be greater than eight feet in height; or must have a road bladed to the top to allow water truck access or must have an operational water irrigation system that is capable of complete stockpile coverage.	✓ Add or remove material from the downwind portion of the storage pile ✓ Maintain storage piles to avoid steep sides or faces

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Traffic areas for construction activities	15-1 Stabilize all off-road traffic and parking areas; and 15-2 Stabilize all haul routes; and 15-3 Direct construction traffic over established haul routes.	<ul style="list-style-type: none"> ✓ Apply gravel/paving to all haul routes as soon as possible to all future roadway areas ✓ Barriers can be used to ensure vehicles are only used on established parking areas/haul routes
Trenching	16-1 Stabilize surface soils where trencher or excavator and support equipment will operate; and 16-2 Stabilize soils at the completion of trenching activities.	<ul style="list-style-type: none"> ✓ Pre-watering of soils prior to trenching is an effective preventive measure. For deep trenching activities, pre-trench to 18 inches soak soils via the pre-trench and resuming trenching ✓ Washing mud and soils from equipment at the conclusion of trenching activities can prevent crusting and drying of soil on equipment
Truck loading	17-1 Pre-water material prior to loading; and 17-2 Ensure that freeboard exceeds six inches (CVC 23114)	<ul style="list-style-type: none"> ✓ Empty loader bucket such that no visible dust plumes are created ✓ Ensure that the loader bucket is close to the truck to minimize drop height while loading
Turf Overseeding	18-1 Apply sufficient water immediately prior to conducting turf vacuuming activities to meet opacity and plume length standards; and 18-2 Cover haul vehicles prior to exiting the site.	<ul style="list-style-type: none"> ✓ Haul waste material immediately off-site

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Unpaved roads/parking lots	19-1 Stabilize soils to meet the applicable performance standards; and 19-2 Limit vehicular travel to established unpaved roads (haul routes) and unpaved parking lots.	✓ Restricting vehicular access to established unpaved travel paths and parking lots can reduce stabilization requirements
Vacant land	20-1 In instances where vacant lots are 0.10 acre or larger and have a cumulative area of 500 square feet or more that are driven over and/or used by motor vehicles and/or off-road vehicles, prevent motor vehicle and/or off-road vehicle trespassing, parking and/or access by installing barriers, curbs, fences, gates, posts, signs, shrubs, trees or other effective control measures.	

Table 2
DUST CONTROL MEASURES FOR LARGE OPERATIONS

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS
Earth-moving (except construction cutting and filling areas, and mining operations)	<p>(1a) Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; OR</p> <p>(1a-1) For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.</p>
Earth-moving: Construction fill areas:	<p>(1b) Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the Executive Officer and the California Air Resources Board and the U.S. EPA, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations.</p>

Table 2 (Continued)

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS
Earth-moving: Construction cut areas and mining operations:	(1c) Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
Disturbed surface areas (except completed grading areas)	(2a/b) Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust must have an application of water at least twice per day to at least 80 percent of the unstabilized area.
Disturbed surface areas: Completed grading areas	(2c) Apply chemical stabilizers within five working days of grading completion; OR (2d) Take actions (3a) or (3c) specified for inactive disturbed surface areas.
Inactive disturbed surface areas	(3a) Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR (3b) Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR (3c) Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR (3d) Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.

Table 2 (Continued)

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS
Unpaved Roads	<p>(4a) Water all roads used for any vehicular traffic at least once per every two hours of active operations [3 times per normal 8 hour work day]; OR</p> <p>(4b) Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR</p> <p>(4c) Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.</p>
Open storage piles	<p>(5a) Apply chemical stabilizers; OR</p> <p>(5b) Apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR</p> <p>(5c) Install temporary coverings; OR</p> <p>(5d) Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile. This option may only be used at aggregate-related plants or at cement manufacturing facilities.</p>
All Categories	<p>(6a) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 2 may be used.</p>

TABLE 3
CONTINGENCY CONTROL MEASURES FOR LARGE OPERATIONS

FUGITIVE DUST SOURCE CATEGORY	CONTROL MEASURES
Earth-moving	(1A) Cease all active operations; OR (2A) Apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed surface areas	(0B) On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR (1B) Apply chemical stabilizers prior to wind event; OR (2B) Apply water to all unstabilized disturbed areas 3 times per day. If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR (3B) Take the actions specified in Table 2, Item (3c); OR (4B) Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, these actions apply to all disturbed surface areas.
Unpaved roads	(1C) Apply chemical stabilizers prior to wind event; OR (2C) Apply water twice per hour during active operation; OR (3C) Stop all vehicular traffic.
Open storage piles	(1D) Apply water twice per hour; OR (2D) Install temporary coverings.
Paved road track-out	(1E) Cover all haul vehicles; OR (2E) Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
All Categories	(1F) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 3 may be used.

Table 4
(Conservation Management Practices for Confined Animal Facilities)

SOURCE CATEGORY	CONSERVATION MANAGEMENT PRACTICES
Manure Handling (Only applicable to Commercial Poultry Ranches)	(1a) Cover manure prior to removing material off-site; AND (1b) Spread the manure before 11:00 AM and when wind conditions are less than 25 miles per hour; AND (1c) Utilize coning and drying manure management by removing manure at laying hen houses at least twice per year and maintain a base of no less than 6 inches of dry manure after clean out; or in lieu of complying with conservation management practice (1c), comply with conservation management practice (1d). (1d) Utilize frequent manure removal by removing the manure from laying hen houses at least every seven days and immediately thin bed dry the material.
Feedstock Handling	(2a) Utilize a sock or boot on the feed truck auger when filling feed storage bins.
Disturbed Surfaces	(3a) Maintain at least 70 percent vegetative cover on vacant portions of the facility; OR (3b) Utilize conservation tillage practices to manage the amount, orientation and distribution of crop and other plant residues on the soil surface year-round, while growing crops (if applicable) in narrow slots or tilled strips; OR (3c) Apply dust suppressants in sufficient concentrations and frequencies to maintain a stabilized surface.
Unpaved Roads	(4a) Restrict access to private unpaved roads either through signage or physical access restrictions and control vehicular speeds to no more than 15 miles per hour through worker notifications, signage, or any other necessary means; OR (4b) Cover frequently traveled unpaved roads with low silt content material (i.e., asphalt, concrete, recycled road base, or gravel to a minimum depth of four inches); OR (4c) Treat unpaved roads with water, mulch, chemical dust suppressants or other cover to maintain a stabilized surface.
Equipment Parking Areas	(5a) Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR (5b) Apply material with low silt content (i.e., asphalt, concrete, recycled road base, or gravel to a depth of four inches).

Appendix H

SCAQMD Rule 1466

RULE 1466. CONTROL OF PARTICULATE EMISSIONS FROM SOILS WITH TOXIC AIR CONTAMINANTS

(a) Purpose

The purpose of this rule is to minimize the amount of off-site fugitive dust emissions containing toxic air contaminants by reducing particulate emissions in the ambient air as a result of earth-moving activities, including, dredging, excavating, grading, earth-cutting and filling, loading, unloading, handling, mechanized land clearing, treating, stockpiling, transferring, and removing of soil that contains applicable toxic air contaminants, from sites that meet the applicability requirements of subdivision (b).

(b) Applicability

(1) This rule shall apply to any owner or operator conducting earth-moving activities of soil with applicable toxic air contaminant(s) as defined in paragraph (c)(16) that have been identified as contaminant(s) of concern at a site that has been designated and notified by:

- (A) The U.S. Environmental Protection Agency (U.S. EPA) as a Superfund National Priorities List site;
- (B) The California Department of Toxic Substances Control (DTSC) as a Brownfield or Cleanup Program site;
- (C) The State Water Resources Control Board (State Water Board) or Regional Water Quality Control Board (Regional Water Board) as a Site Cleanup Program site;
- (D) A county, local, or state regulatory agency as a Hazardous Material Release site, as defined in California Health and Safety Code Section 25260; or
- (E) The Executive Officer pursuant to subdivision (i).

(2) This rule shall not apply to:

- (A) Earth-moving activities of soil with applicable toxic air contaminant(s) of less than 50 cubic yards; or
- (B) Removal of soil for sampling purposes.

(c) Definitions

(1) ADEQUATELY WET means the condition of being sufficiently mixed or penetrated with water to prevent the release of particulates or visible emissions. The process by which an adequately wet condition is achieved is by using a dispenser

or water hose with a nozzle that permits the use of a fine, low-pressure spray or mist.

- (c) (2) ADJACENT ATHLETIC AREA means any outdoor athletic field or park where youth organized sports occur that is in physical contact or separated solely by a public roadway or other public right-of-way to a SCHOOL.
- (3) ADJOINING means in physical contact with or separated solely by a public roadway or other public right-of-way.
- (4) CHEMICAL STABILIZERS means any non-toxic chemicals that are used to bind soil together to control FUGITIVE DUST emissions.
- (5) DISTURBED SURFACE AREA means a portion of the earth's surface which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for FUGITIVE DUST. This definition excludes those areas which have:
 - (A) Been restored to a natural state, such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby natural conditions;
 - (B) Been paved or otherwise covered by a permanent structure; or
 - (C) Sustained a vegetative ground cover of at least 70 percent of the native cover for a particular area for at least 30 days.
- (6) DUST SUPPRESSANTS means water or hygroscopic materials, other than CHEMICAL STABILIZERS, that are used as a treatment material to reduce FUGITIVE DUST emissions.
- (7) EARTH-MOVING ACTIVITIES means, for the purpose of this rule, any activity on a site that meets the applicability requirements of subdivision (b) where SOIL WITH APPLICABLE TOXIC AIR CONTAMINANT(S) is being moved or uncovered, including: dredging, excavating, grading, earth-cutting and filling operations, loading, unloading, handling, mechanized land clearing, treating, transferring, removing, and adding to or removing from STOCKPILES, and vehicular movement of equipment associated with these activities. EARTH-MOVING ACTIVITIES do not include vehicular movement from: delivery vehicles, passenger vehicles transporting personnel to and from the site, vehicles used for administrative purposes, vehicles transporting personnel for the purposes of soil sampling and conducting ambient PM₁₀ monitoring requirements, watering trucks, and equipment used exclusively on a portion(s) of the site where there is no SOIL WITH APPLICABLE TOXIC AIR CONTAMINANT(S).

- (c) (8) FUGITIVE DUST means, for the purpose of this rule, any solid particulate matter that is in contact with ambient air and has the potential to become airborne, other than solid particulate matter that is emitted from an exhaust stack.
- (9) JOINT USE AGREEMENT PROPERTY means a shared public facility in which a formal agreement exists between a SCHOOL and another government entity setting forth the terms and conditions for shared use.
- (10) OWNER OR OPERATOR means any firm, business establishment, association, partnership, corporation or individual, whether acting as principal, agent, employee, contractor, or other capacity.
- (11) PAVED ROAD means a public or private improved street, highway, alley, public way, or easement that is covered by typical roadway materials, but excludes access roadways that connect a facility with a public paved roadway and are not open to through traffic. Public paved roads are those open to public access and that are owned by any federal, state, county, municipal, or any other governmental or quasi-governmental agencies. Private paved roads are any PAVED ROADS not defined as public.
- (12) PROPERTY LINE means the boundary of an area where a person has the legal use or possession of the property. Where such property is divided into one or more sub-tenancies, the property line(s) shall refer to the boundaries dividing the areas of all sub-tenancies.
- (13) SCHOOL means any public or private education center, including juvenile detention facilities with classrooms, used for the education of more than 12 children at the education center in kindergarten through grade 12. A SCHOOL also includes an Early Learning and Developmental Program by the U.S. Department of Education or any state or local early learning and development programs such as preschools, Early Head Starts, Head Start, First Five, and Child Development Centers. A SCHOOL does not include any private education center in which education is primarily conducted in private homes. A SCHOOL includes any building or structure, playground, athletic field, or other area of school property.
- (14) SLAG means, for the purpose of this rule, the by-product material that is separated from metals during smelting or refining of ore.
- (15) SOIL means dirt, sand, gravel, clay, SLAG, and aggregate material less than two inches in length or diameter, and other organic or inorganic particulate matter.
- (16) SOIL WITH APPLICABLE TOXIC AIR CONTAMINANT(S) means, for the purpose of this rule, SOIL that has been identified by the U.S. EPA, the DTSC, the

State Water Board, the Regional Water Board, or a county, local, or state regulatory agency, to contain one or more of the applicable toxic air contaminants listed in Table I that exceed action levels as specified by the designating agency, or soil that has been identified by the Executive Officer to contain one or more of the toxic air contaminants listed in Rule 1401 – New Source Review of Toxic Air Contaminants (Table I) or Hazardous Air Pollutants Identified as Toxic Air Contaminants as listed in California Code of Regulations Section 93001, excluding volatile organic compounds regulated under Rule 1166 – Volatile Organic Compound Emissions from Decontamination of Soil.

- (c)
 - (17) **STABILIZED SURFACE** means any previously **DISTURBED SURFACE AREA** or **STOCKPILE**, which through the application of **CHEMICAL STABILIZERS** or **DUST SUPPRESSANTS**, shows visual or other evidence of surface crusting and is resistant to **WIND-DRIVEN FUGITIVE DUST**, and is demonstrated to be stabilized. Stabilization can be demonstrated by one or more of the applicable test methods contained in the most current version of the South Coast AQMD *Rule 403 Fugitive Dust Implementation Handbook* or in Volumes I and II of South Coast AQMD's *Dust Control in the Coachella Valley*.
 - (18) **STOCKPILE** means any accumulation of **SOIL**, which is not fully enclosed and which attains a height of three feet or more and a total surface area of 150 square feet or more.
 - (19) **TRACK-OUT** means, for the purpose of this rule, any **SOIL** that adheres to and agglomerates on the exterior surface of motor vehicles, haul trucks, and equipment (including tires) that has been released onto a **PAVED ROAD** and that can be removed by a vacuum sweeper under normal operating conditions.
 - (20) **WIND-DRIVEN FUGITIVE DUST** means visible emissions from any **DISTURBED SURFACE AREA**, which is generated by wind action alone.
- (d) **Monitoring Requirements**
 - (1) When on-site earth-moving activities occur, the owner or operator shall conduct continuous direct-reading near real-time ambient monitoring of **PM₁₀** concentrations pursuant to paragraph (d)(3).
 - (2) If the **PM₁₀** concentration exceeds 25 micrograms per cubic meter, as measured pursuant to paragraph (d)(3) and as determined pursuant to paragraph (d)(9), the owner or operator shall cease on-site earth-moving activities, apply dust suppressant to fugitive dust sources, or implement other dust control measures as

necessary until the PM₁₀ concentration is equal to or less than 25 micrograms per cubic meter averaged over 30 minutes.

- (d) (3) The owner or operator conducting on-site earth-moving activities shall install PM₁₀ monitors and conduct ambient PM₁₀ monitoring:
 - (A) In accordance with a U.S. EPA-approved equivalent method for PM₁₀ monitoring or using a Rule 1466 Approved PM₁₀ Monitor;
 - (B) Using a minimum of two monitors, placing each monitor as close to the property line as feasible, where:
 - (i) One or more monitors is in the seasonal prevailing wind direction upwind of the area(s) of on-site earth-moving activity, indicative of background PM₁₀ levels, and not generally influenced by fugitive dust sources from the site; and
 - (ii) One or more monitors is in the seasonal prevailing wind direction downwind of the area(s) of on-site earth-moving activity;
 - (C) Using PM₁₀ monitors that are identical in: make and model, settings, and configuration; and
 - (D) Using ambient PM₁₀ monitors that are operated, maintained, and calibrated in accordance with appropriate U.S. EPA-published documents for U.S. EPA-approved equivalent methods for PM₁₀ and manufacturer's instructions.
- (4) On and before December 31, 2021, the owner or operator shall collect ambient PM₁₀ data with a data acquisition system (DAS) that is capable of logging direct-reading near real-time data providing the date, time, and PM₁₀ concentration in micrograms per cubic meter every 10 minutes or less.
- (5) On and after January 1, 2022, the owner or operator shall collect ambient PM₁₀ data with a DAS that is capable of logging direct-reading near real-time data providing the date and time, calibrated to Pacific Standard Time (PST), and PM₁₀ concentration in micrograms per cubic meter every 1 minute or less.
- (6) On and after January 1, 2022, the owner or operator shall operate PM₁₀ monitors with the heated sampler inlet on.
- (7) On and after January 1, 2022, prior to conducting any on-site earth-moving activities, and weekly thereafter, the owner operator shall conduct intra-instrument precision tests with the PM₁₀ monitors in accordance with *Appendix 2 – Procedures to Demonstrate Intra-Instrument Precision*, or make available documentation and supporting data certifying that such intra-instrument precision tests were run by an

equipment rental company or other third party, that demonstrate an intra-instrument precision of:

- (d) (7) (A) No more than 25 percent as calculated pursuant to Step 7a in *Appendix 2* when ambient PM₁₀ concentrations are equal to or greater than 15 micrograms per cubic meter; or
- (B) No more than 5 micrograms per cubic meter as calculated pursuant to Step 7b in *Appendix 2* when ambient PM₁₀ concentrations are less than 15 micrograms per cubic meter.
- (8) On and after January 1, 2022, each day prior to conducting on-site earth-moving activities, the owner or operator shall conduct a passing zero check on each PM₁₀ monitor in accordance with:
 - (A) Steps 4 and 5 of *Appendix 2* that demonstrates an average PM₁₀ concentration of 0 ± 3 micrograms per cubic meter; or
 - (B) Manufacturer's instructions if a monitor is operated using an auto-zero check procedure that directs filtered particle-free air into the measurement chamber.
- (9) The owner or operator shall calculate the PM₁₀ concentration as a 120-minute rolling average, where:
 - (A) The initial average starts at the commencement of on-site earth-moving activities and ends 120 minutes after the commencement of on-site earth-moving activities;
 - (B) On and before December 31, 2021, the averages subsequent to the initial average specified in subparagraph (d)(9)(A) are to be calculated every 10 minutes and cover the previous 120-minute period;
 - (C) On and after January 1, 2022, the averages subsequent to the initial average specified in subparagraph (d)(9)(A) are to be calculated every 1 minute and cover the previous 120-minute period;
 - (D) The PM₁₀ concentration is calculated by subtracting the results of the upwind monitor(s) from the downwind monitor(s) for the same averaging period;
 - (i) If the wind direction is in the seasonal prevailing wind direction, then the monitor(s) described pursuant to clause (d)(3)(B)(i) shall be designated as the upwind monitor(s) and the monitor(s) described pursuant to clause (d)(3)(B)(ii) shall be designated as the downwind monitor(s); and

- (d) (9) (D) (ii) If there is greater than a ± 90 degree change in wind direction from the seasonal prevailing wind direction, then the monitor(s) described pursuant to clause (d)(3)(B)(i) shall be designated as the downwind monitor(s) and the monitor(s) described pursuant to clause (d)(3)(B)(ii) shall be designated as the upwind monitor(s);
 - (E) If there is more than one upwind monitor, the upwind result is the average concentration of all upwind monitors for the same rolling averaging period;
 - (F) If there is more than one downwind monitor, the downwind result is the maximum concentration of any of the downwind monitors for the same rolling averaging period;
 - (G) On and before December 31, 2021, when on-site earth-moving activities resume after ceasing pursuant to paragraph (d)(2), the average shall start when on-site earth-moving activities resume and shall end 120 minutes after on-site earth-moving activities resume, and the subsequent averages are to be calculated every 10 minutes and shall cover the previous 120-minute period; and
 - (H) On and after January 1, 2022, when on-site earth-moving activities resume after ceasing pursuant to paragraph (d)(2), the average shall start when on-site earth-moving activities resume and shall end 120 minutes after on-site earth-moving activities resume, and the subsequent averages are to be calculated every one minute and shall cover the previous 120-minute period.
- (10) An owner or operator that elects to move the monitors accordingly when there is a change in wind direction in place of meeting the requirements specified in clauses (d)(3)(B)(i), (d)(3)(B)(ii), (d)(9)(D)(i), and (d)(9)(D)(ii), shall:
- (A) Place a minimum of one upwind monitor in the upwind direction of the area(s) of on-site earth-moving activity, indicative of background PM₁₀ levels, and not generally influenced by fugitive dust sources from the site;
 - (B) Place a minimum of one downwind monitor in the downwind direction of the area(s) of on-site earth-moving activity; and
 - (C) Move the monitor(s) in subparagraph (d)(10)(A) to the new upwind location and the monitor(s) in subparagraph (d)(10)(B) to the new downwind location when there is a change in wind direction.
- (11) In the event that a DAS fails to log ambient PM₁₀ data pursuant to paragraph (d)(5) or that the data management system integrated with the PM₁₀ monitor(s) and

DAS(s) fails to calculate PM₁₀ concentrations pursuant to subparagraph (d)(9)(C) due to a technical issue beyond the reasonable control of an owner or operator, including, but not limited to, internet connection disruptions and computer malfunctions, the owner or operator shall:

- (d) (11) (A) Restore the DAS or data management system to working condition as soon as practicable and no later than the start of the next working day; and
- (B) Manually record the PM₁₀ concentration from the monitor(s) associated with the non-operational DAS once every 10 minutes or less and calculate the PM₁₀ concentration pursuant to the averages specified in subparagraph (d)(9)(B) until the DAS is restored or calculate the PM₁₀ concentration pursuant to the averages specified in subparagraph (d)(9)(B) until the data management system is restored.
- (12) When conducting ambient PM₁₀ monitoring as required in paragraph (d)(1), the owner or operator shall monitor wind direction and speed using a minimum of one stationary anemometer or wind sensor that:
 - (A) Is sited over open, level terrain within the project site with minimal obstructions to the wind flow at a minimum height of eight feet above grade;
 - (B) Meets the performance criteria of:
 - (i) Wind direction accuracy of ± 7 degrees and resolution of 1 degree; and
 - (ii) Wind speed accuracy of 2 miles per hour (mph) or ± 5 percent of the observed wind speed, whichever is greater, and resolution of 1 mph;
 - (C) Has a National Institute of Standards and Technology (NIST) Traceability certification;
 - (D) Is equipped with a data logger that records wind direction and speed data once every 1 minute or less and archives the recorded wind direction and speed data, including the date and time, calibrated to PST; and
 - (E) Is operated, calibrated, and maintained in accordance with manufacturer's specifications, but no less frequent than once every 6 months of cumulative operation.
- (13) The Executive Officer may approve a PM₁₀ monitor to be added as a Rule 1466 Approved PM₁₀ Monitor if the PM₁₀ monitor meets the specifications listed in *Appendix 1 – Rule 1466 Approved PM₁₀ Monitors*. The request for a PM₁₀ monitor to be added as a Rule 1466 Approved PM₁₀ Monitor shall:
 - (A) Be submitted to Rule1466ApprovedMonitors@aqmd.gov;

- (d) (13) (B) Include a description of the PM₁₀ monitor, any accessories, and all monitor specifications; and
- (C) Include documentation demonstrating compliance with each specification listed in *Appendix 1*.
- (e) Requirements to Minimize Fugitive Dust Emissions
 - (1) On and before December 31, 2021, an owner or operator shall not conduct on-site earth-moving activities unless the area is surrounded with fencing that is a minimum of 6 feet tall and at least as tall as the height of the tallest stockpile, with a windscreen that has a porosity of 50 ± 5 percent. A section of the perimeter surrounding an on-site earth-moving activity area may be excluded from this requirement if that section:
 - (A) Has a solid physical barrier, such as a solid wall or other solid feature that minimizes air flow, that is a minimum of 6 feet tall but at least 6 inches taller than the height of the tallest stockpile; or
 - (B) Does not have on-site earth-moving activity occurring within 300 feet from the perimeter of that section.
 - (2) On and after January 1, 2022, an owner or operator shall not conduct on-site earth-moving activities unless the area is surrounded with fencing that is a minimum of 6 feet tall but at least 6 inches taller than the height of the tallest stockpile, with a windscreen that has a porosity of 50 ± 5 percent or a mesh windscreen that has a shade value or opacity of 85 ± 5 percent. A section of the perimeter surrounding an on-site earth-moving activity area may be excluded from this requirement if that section meets the conditions as specified in subparagraph (e)(1)(A) or (e)(1)(B).
 - (3) An owner or operator conducting on-site earth-moving activities shall:
 - (A) Adequately wet to the depth of earth-moving activity and allow time for penetration; and
 - (B) Adequately wet at frequencies to prevent the generation of visible dust plumes.
 - (4) An owner or operator that is moving vehicles on, within, or off a site shall:
 - (A) Post signs at all entrances of the site to designate the speed limit as 15 mph;
 - (B) Stabilize the surface of all vehicular traffic and parking areas by applying gravel, paving, chemical stabilizers pursuant to paragraph (e)(13), or dust suppressant;
 - (C) Not allow any track-out outside of the property line that is 25 feet or more in cumulative length. Remove any track-out at a minimum frequency of

- once each day using a vacuum equipped with a filter(s) rated by the manufacturer to achieve a 99.97 percent control efficiency for 0.3 micron particles;
- (e) (4) (D) Clean the soil from the exterior of trucks, trailers, and tires prior to the truck leaving the site, without the use of forced air; and
 - (E) Utilize at least one of the following measures at each vehicle egress from the site to a public road:
 - (i) Install a pad consisting of washed gravel (minimum-size: 1 inch), maintained in a clean condition, to a depth of at least 6 inches and extending at least 30 feet wide and at least 50 feet long;
 - (ii) Pave the surface extending at least 100 feet from the property line and at least 30 feet wide;
 - (iii) Utilize a wheel shaker/wheel spreading device consisting of raised dividers (rails, pipes, or grates) at least 24 feet long and 30 feet wide; or
 - (iv) Install and utilize a wheel washing system to remove soil from tires and vehicle undercarriages.
 - (5) An owner or operator conducting on-site earth-moving activities shall ensure that stockpiles with any soil with applicable toxic air contaminant(s) be:
 - (A) Segregated from non-contaminated stockpiles;
 - (B) Labelled with “South Coast AQMD Rule 1466 – Control of Particulate Emissions from Soils with Toxic Air Contaminant(s) Applicable Soil”;
 - (C) Maintained to avoid steep sides or faces that exceed the angle of repose;
 - (D) No more than 400 cubic yards of soil;
 - (E) Maintained to minimize fugitive dust emissions containing toxic air contaminants by applying chemical stabilizers pursuant to paragraph (e)(13), applying dust suppressant, or completely covering pursuant to paragraph (e)(14); and
 - (F) Either chemically stabilized pursuant to paragraph (e)(13) and/or completely covered pursuant to paragraph (e)(14) at all times when earth-moving activities and ambient PM₁₀ monitoring are not occurring.
 - (6) An owner or operator conducting truck and trailer loading activities of soil containing applicable toxic air contaminant(s) shall:
 - (A) Apply dust suppressant to material prior to loading;
 - (B) Empty the loader bucket slowly so that no visible dust plumes are generated;

- (e) (6) (C) Minimize the drop height from the loader bucket;
- (D) Maintain at least 6 inches of space between the soil and the top of the truck bed and trailer while transporting within a site; and
- (E) Completely cover the truck bed and trailer prior to leaving the site.
- (7) An owner or operator conducting truck and trailer unloading activities of soil containing applicable toxic air contaminant(s) shall:
 - (A) Apply dust suppressant to material prior to unloading; and
 - (B) Empty the trailer slowly so that no visible dust plumes are generated.
- (8) The owner or operator shall immediately remove any spilled soil.
- (9) The owner or operator shall cease on-site earth-moving activities if the wind speed is greater than 15 mph averaged over a 15-minute period or the instantaneous wind speed exceeds 25 mph.
- (10) During on-site earth-moving activities, the owner or operator shall have an on-site dust control supervisor that:
 - (A) Is employed by or contracted with the owner or operator;
 - (B) Is located on the site during working hours;
 - (C) Is in a position to expeditiously employ sufficient dust control measures to ensure compliance with all rule requirements;
 - (D) Has completed the South Coast AQMD Fugitive Dust Control Class and has been issued a valid Certificate of Completion for the class; and
 - (E) Has the following credentials, if asbestos is an applicable toxic air contaminant:
 - (i) Successfully completed the Asbestos Abatement Contractor/Supervisor course pursuant to the Asbestos Hazard Emergency Response Act (AHERA), and obtained and maintained accreditation as an AHERA Asbestos Abatement Contractor/Supervisor; and
 - (ii) Trained on the provisions of 40 CFR Part 61.145, 61.146, 61.147 and 61.152 (Asbestos NESHAP provisions) and Part 763, and has the means to comply with these provisions.
- (11) An owner or operator shall apply a chemical stabilizer pursuant to paragraph (e)(13) and/or use a cover pursuant to paragraph (e)(14) on potential sources of fugitive dust when earth-moving activities are not occurring in the specific location(s) containing the potential source(s) of fugitive dust.

- (e) (12) An owner or operator shall inspect daily, including days when no on-site earth-moving activities are occurring, labeled stockpiles pursuant to subparagraph (e)(5)(B) and stabilized or covered stockpiles pursuant to (e)(5)(F).
 - (A) For a stabilized stockpile, such inspections shall include a demonstration of stabilization by one or more of the applicable test methods contained in the most current version of the South Coast AQMD *Rule 403 Fugitive Dust Implementation Handbook* or Volumes I and II of South Coast AQMD's *Dust Control in the Coachella Valley*.
 - (B) For a covered stockpile, such inspections shall include a visual inspection of all seams and plastic cover surfaces to ensure that no portion of the soil is exposed to the atmosphere.
- (13) When utilizing a chemical stabilizer, an owner or operator shall:
 - (A) Ensure the chemical stabilizer meets any specifications, criteria, or tests required by any federal, state, or local agency or any applicable law, rule, or regulation; and
 - (B) Unless otherwise indicated, use a sufficient concentration of the chemical stabilizer and an application frequency sufficient to maintain a stabilized surface and no less than what is specified by the manufacturer for the period of inactivity.
- (14) When using a cover for stockpiles, an owner or operator shall ensure the cover:
 - (A) Is at least 10 mil thick plastic sheeting that overlaps a minimum of 24 inches; and
 - (B) Is anchored and secured so that no portion of the soil is exposed to the atmosphere.
- (15) An owner or operator that is conducting earth-moving activities of soil with applicable toxic air contaminant(s) at a school, joint use agreement property, adjacent athletic area, or at a site that is adjoining a school, joint use agreement property, or adjacent athletic area shall:
 - (A) Only conduct earth-moving activities at a school or at a site that is adjoining a school outside of the hours between 7:30 a.m. and 4:30 p.m. on days when the school is in session;
 - (B) Not conduct earth-moving activities at a school, joint use agreement property, adjacent athletic area, or at a site that is adjoining a school, joint use agreement property, or adjacent athletic area if there is a school sponsored activity or youth organized sports taking place at that site;

- (e) (15) (C) Handle excavated soils with applicable toxic air contaminant(s) by:
 - (i) Immediately placing soil in a leak-tight container whereby any contained solids or liquids are prevented from escaping or spilling out;
 - (ii) Directly loading soil in truck beds, trailers, and bins for transport, applying chemical stabilizer pursuant to paragraph (e)(13) or dust suppressant, and completely covering prior to transporting; or
 - (iii) Stockpiling pursuant to paragraph (e)(5), in a fenced area that is not accessible to the general public, and locked when not in use; and
 - (D) Within five days of its excavation, remove all soil with applicable toxic air contaminant(s) from the site.
- (f) Notification Requirements
- (1) The owner or operator shall electronically submit an initial notification to the Executive Officer, using a format approved by the Executive Officer, of the intent to conduct any on-site earth-moving activities.
 - (A) Initial notifications shall be submitted:
 - (i) At least 72 hours but no more than 30 days prior to conducting any earth-moving activities on any site meeting the applicability requirements of subdivision (b); or
 - (ii) As soon as the information becomes available but no later than 48 hours after the information becomes available that on-site earth-moving activities of soil with applicable toxic air contaminant(s) exceed 50 cubic yards.
 - (B) Initial notifications shall include the following requirements:
 - (i) Name, address, telephone number, and e-mail address of the owner or operator;
 - (ii) Name, telephone number, and e-mail address of the on-site dust control supervisor;
 - (iii) Project name and, if applicable, the project identification number from the designating agency;
 - (iv) Project location (address and/or coordinates);
 - (v) Identify whether the site is a school, joint use agreement property, adjacent athletic area, or is adjoining a school, joint use agreement property, or adjacent athletic area;

- (f) (1) (B) (vi) A map indicating the specific location(s) of each on-site earth-moving activity and the concentrations of the applicable toxic air contaminant(s) and location of PM₁₀ monitors;
- (vii) A description of the on-site earth-moving activities, estimated volume of soil with applicable toxic air contaminant(s), and a schedule that includes the anticipated start and completion dates of on-site earth-moving activities;
- (viii) Current and/or previous type of operation(s) and use(s) at the site;
- (ix) Applicable exemption(s); and
- (x) Whether the notice being provided is a revised notification.

(2) Notification Updates

Initial notifications pursuant to paragraph (f)(1) shall be updated when any of the following conditions arise:

(A) Earlier Start Date

A change in the start date of on-site earth-moving activities to an earlier date shall be reported to the South Coast AQMD no later than 72 hours before any on-site earth-moving activities begin.

(B) Later Start Date

A delay in the start date of on-site earth-moving activities shall be reported to the South Coast AQMD as soon as the information becomes available, but no later than the original start date.

(C) Change in Exemption Status

Any change(s) in exemption status pursuant to subdivision (k) shall be reported to the South Coast AQMD as soon as the information becomes available, but no later than 48 hours after the information becomes available.

(D) Completion Date

The completion date of on-site earth-moving activities shall be reported to the South Coast AQMD no later than 48 hours after on-site earth-moving activities are completed.

- (3) Within 72 hours of an exceedance of the PM₁₀ emission limit specified in paragraph (d)(2), the owner or operator shall electronically submit a notification to the Executive Officer, using a format approved by the Executive Officer, of the exceedance and shall include the following information:

- (f) (3) (A) Name, address, telephone number, and e-mail address of the owner or operator;
- (B) Name, telephone number, and e-mail address of the on-site dust control supervisor;
- (C) Project name and, if applicable, the project identification number from the designating agency;
- (D) Project location (address and/or coordinates);
- (E) PM₁₀ monitoring results and wind direction and speed results pursuant to subdivision (d), including location of monitors, result, date and time of exceedance(s), 12 hours before first exceedance, and 12 hours after last exceedance;
- (F) On-site earth-moving activities occurring at the date and time of exceedance(s); and
- (G) Dust control measure(s) taken to mitigate fugitive dust.

(g) **Signage Requirements**

When conducting on-site earth-moving activities, the owner or operator shall install and maintain project signage.

- (1) Unless otherwise approved in writing by the Executive Officer, signage shall:
 - (A) Be installed at all entrances and at intervals of 1,000 feet or less along the property line or perimeter of the site, with a minimum of one sign along each side;
 - (B) Be located between 6 and 8 feet above grade from the bottom of the sign;
 - (C) Display lettering at least 4 inches tall with text contrasting with the sign background; and
 - (D) Display the following information:
 - (i) Local or toll-free phone number for the site contact or pre-recorded notification center that is accessible 24 hours a day; and
 - (ii) Warning statement:

“THIS SITE CONTAINS SOILS THAT CONTAIN THE
FOLLOWING CHEMICALS: [LIST APPLICABLE TOXIC AIR
CONTAMINANT(S)]
TO REPORT ANY DUST LEAVING THE SITE PLEASE CALL
[FACILITY CONTACT AND PHONE NUMBER] OR THE
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
AT 1-800-CUT-SMOG”.

- (g) (2) If signage pursuant to paragraph (g)(1) exceeds 48 inches by 96 inches, the owner or operator or designating agency shall include the warning statement referenced in clause (g)(1)(D)(ii), displaying lettering at least 4 inches tall with text contrasting with the sign background, but may use 2.5 inch tall lettering to list applicable toxic air contaminant(s). All other signage requirements set forth in paragraph (g)(1) shall remain the same. If signage continues to exceed 48 inches by 96 inches with these parameters, the owner or operator or designating agency may use alternative signage as set forth in paragraph (g)(3).
- (3) The owner or operator or designating agency may use alternative signage approved by the Executive Officer pursuant to subdivision (j). Notwithstanding subdivision (j), the request shall include a visual representation of the alternative sign, including proposed lettering height, and locations and, at a minimum, the alternative signage shall:
- (A) Display text contrasting with the sign background; and
 - (B) Display the following warning statement:
“THIS SITE CONTAINS SOILS THAT CONTAIN THE FOLLOWING
CHEMICALS: [LIST APPLICABLE TOXIC AIR CONTAMINANT(S)]
TO REPORT ANY DUST LEAVING THE SITE PLEASE CALL
THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT AT
1-800-CUT-SMOG”.
- (4) The owner or operator may be excluded from installing and maintaining project signage pursuant to subparagraph (g)(1)(A) at any entrance(s) or interval(s) along the property line or perimeter of the site that is not visible and not accessible to the public unless the site is a school, joint use agreement property, or adjacent athletic area or the site is adjoining a school, joint use agreement property, or adjacent athletic area.
- (h) **Recordkeeping Requirements**
- The owner or operator shall maintain records for a period of not less than 3 years and shall make such records available to the Executive Officer upon request. At a minimum, records shall be maintained daily and shall include:
- (1) Inspections of all stabilized or covered stockpiles containing soils with applicable toxic air contaminant(s) and all re-stabilization, cover repair, and label maintenance activities, including dates and times the specific activities were conducted;
 - (2) Results of wind and PM₁₀ monitoring, including: ambient PM₁₀ data; rolling average PM₁₀ concentrations and calculations; wind direction and speed

corresponding to the rolling average PM₁₀ concentrations; movement of monitoring instruments corresponding to wind direction changes; instrument make and model; settings; proof of valid calibration in accordance with manufacturer's recommended schedule; configuration; calibration, correction, and correlation factors; maintenance; operator training; daily instrument performance check records and manual zero or auto-check results; weekly zero calibration records and intra-instrument precision test data and calculation results; and all instrument logs for all monitoring instruments;

- (h) (3) All instrument maintenance activities, including: zero calibration, cleaning, filter replacement, and performance checks, including dates and times of the specific procedures;
 - (4) Documentation of all DAS and data management system failures, including date and time of the failure, date and time of the correction, the technical issue(s) causing the failure, and activities performed to restore the failed DAS or data management system to working condition;
 - (5) On-site earth-moving activities conducted and the corresponding volume of soil with applicable toxic air contaminant(s);
 - (6) Names and business addresses of the transporting and receiving facilities, and a copy of the shipping manifest;
 - (7) Complaints called in, including the name of complainant and contact information, date and time, on-site earth-moving activities occurring at the date and time, complaint, and action taken to mitigate the source of the complaint; and
 - (8) A copy of all submitted notifications for the project.
- (i) Executive Officer Designated Sites
 - (1) The Executive Officer may designate a site if the Executive Officer has evidence that the site contains soil with applicable toxic air contaminant(s) as defined in paragraph (c)(16), after consultation with U.S. EPA, DTSC, the State Water Resources Control Board, the Regional Water Quality Control Board, and/or local, county, or state regulatory agencies, and consideration of the following:
 - (A) Site history, including current and/or previous type(s) of operation(s) and use(s) at the site and regulatory history;
 - (B) Concentration(s) of applicable toxic air contaminant(s) in the soil;
 - (C) Background concentration(s) of applicable toxic air contaminant(s);
 - (D) Volume of soil with applicable toxic air contaminant(s);

- (i)
 - (1)
 - (E) Distance to a residence, park, school, joint use agreement property, adjacent athletic area, or a site adjoining a school, joint use agreement property, or adjacent athletic area;
 - (F) Meteorological data;
 - (G) Health risk information or other data provided by the owner or operator, if available; and
 - (H) Ambient monitoring data and other applicable data, if available.
 - (2) Prior to making a determination, the Executive Officer will notify the owner or operator in writing that the site may be subject to this rule.
 - (A) In the event the owner or operator exercises this opportunity to demonstrate that this rule does not apply, the owner or operator shall submit information to the Executive Officer within 14 days of the notification substantiating why the site should be excluded from this rule.
 - (B) Upon final determination, the Executive Officer will notify the owner or operator in writing if the site is subject to this rule.
 - (3) During the determination period, the owner or operator shall comply with the provisions of this rule or cease all on-site earth-moving activities until a determination is made.
 - (j) Alternative Provisions
 - (1) If requesting an alternative provision pursuant to paragraph (g)(3), the owner or operator or designating agency shall submit the request in writing at least 30 days prior to conducting any earth-moving activities and include all information to the Executive Officer to substantiate its position.
 - (2) The Executive Officer may request additional information from the owner or operator or designating agency.
 - (3) The owner or operator or designating agency shall submit all requested information within 14 days of the request for additional information.
 - (4) The Executive Officer will review the request for an alternative provision and will approve or reject the data and notify the owner or operator or designating agency in writing. Approved alternative provisions may not be used retroactively.
 - (5) Alternative provisions that were approved and notified in writing by the Executive Officer before June 4, 2021 shall be deemed compliant with the requirements of the applicable provisions of the rule, shall remain in effect only for the period of time and for the specific project for which they were granted, and shall not be renewed or extended.

(k) Exemptions

- (1) The owner or operator may be exempt from one or more provisions of this rule provided there is written confirmation that the designating agency under subparagraphs (b)(1)(A) through (b)(1)(D) has consulted with the Executive Officer and has determined that the provision(s) are not needed based on information specified in subparagraphs (i)(1)(A) through (i)(1)(H).
- (2) On-site earth-moving activities performed within an enclosed system vented to South Coast AQMD permitted air pollution control equipment shall be exempt from all requirements except: subparagraphs (e)(4)(C) through (e)(4)(E), subparagraphs (e)(6)(D) and (e)(6)(E), and subdivisions (f), (g), and (h).
- (3) Linear trenching for natural gas, power, sewer, and water projects on roadways with soil with applicable toxic air contaminant(s), directly loaded into a truck bed, trailer, or bin for transport, shall be exempt from all requirements except: paragraphs (e)(3) through (e)(9), paragraphs (e)(13) and (e)(15), and subdivisions (f), (h), and (i).
- (4) On-site earth-moving activities consisting only of excavation activities of soil with applicable toxic air contaminant(s) of less than 500 cubic yards, directly loaded into a truck bed, trailer, or bin for transport, shall be exempt from all requirements except: paragraphs (e)(3) through (e)(9), paragraphs (e)(13) and (e)(15), and subdivisions (f), (h), and (i).
- (5) On-site earth-moving activities conducted during emergency life-threatening situations, or in conjunction with any officially declared disaster or state of emergency as declared by an authorized health officer, agricultural commissioner, fire protection officer, or other authorized agency officer shall be exempt from all requirements. The Executive Officer shall be notified electronically no later than 48 hours following such on-site earth-moving activities. Written notification shall include written emergency declaration from the authorized officer.
- (6) On-site earth-moving activities conducted by essential service utilities to provide electricity, natural gas, telephone, water, or sewer during periods of service outages and emergency disruptions shall be exempt from all requirements. The Executive Officer shall be notified electronically no later than 48 hours following such on-site earth-moving activities.

Table I – Applicable Toxic Air Contaminants

CAS Number	Substance
7440-38-2	arsenic and arsenic compounds (inorganic) including, but not limited to: arsenic compounds (inorganic) arsine
7784-42-1	
1332-21-4	Asbestos
7440-43-9	cadmium and cadmium compounds
57-74-9	chlordanes
1746-01-6 40321-76-4 39227-28-6 57653-85-7 19408-74-3 35822-46-9 3268-87-9 41903-57-5 36088-22-9 34465-46-8 37871-00-4	dibenzo-p-dioxins (chlorinated) tetrachlorodibenzo-p-dioxin, 2,3,7,8- pentachlorodibenzo-p-dioxin, 1,2,3,7,8- hexachlorodibenzo-p-dioxin, 1,2,3,4,7,8- hexachlorodibenzo-p-dioxin, 1,2,3,6,7,8- hexachlorodibenzo-p-dioxin, 1,2,3,7,8,9- heptachlorodibenzo-p-dioxin, 1,2,3,4,6,7,8- octachlorodibenzo-p-dioxin, 1,2,3,4,6,7,8,9- total tetrachlorodibenzo-p-dioxin total pentachlorodibenzo-p-dioxin total hexachlorodibenzo-p-dioxin total heptachlorodibenzo-p-dioxin
72-54-8	dichlorodiphenyldichloroethane
72-55-9	dichlorodiphenyldichloroethylene
50-29-3	dichlorodiphenyltrichloroethane

Table I – Applicable Toxic Air Contaminants (cont.)

CAS Number	Substance
18540-29-9	chromium (hexavalent) and chromium compounds
	including, but not limited to:
10294-40-3	barium chromate
13765-19-0	calcium chromate
7758-97-6	lead chromate
10588-01-9	sodium dichromate
7789-06-2	strontium chromate
13530-65-9	zinc chromate
7439-92-1	lead and lead compounds (inorganic, including elemental lead)
	including, but not limited to:
	lead compounds (inorganic)
301-04-2	lead acetate
7758-97-6	lead chromate
7446-27-7	lead phosphate
1335-32-6	lead subacetate
7439-97-6	mercury and mercury compounds (inorganic)
	including, but not limited to:
7487-94-7	mercuric chloride
593-74-8	methyl mercury

Table I – Applicable Toxic Air Contaminants (cont.)

CAS Number	Substance
7440-02-0	nickel and nickel compounds
	including, but not limited to:
373-02-4	nickel acetate
3333-67-3	nickel carbonate
13463-39-3	nickel carbonyl
12054-48-7	nickel hydroxide
1313-99-1	nickel oxide
12035-72-2	nickel subsulfide
1271-28-9	nickelocene
	refinery dust from the pyrometallurgical process
1336-36-3	polychlorinated biphenyls (PCBs)
32598-13-3	3,3',4,4'-tetrachlorobiphenyl (PCB 77)
70362-50-4	3,4,4',5-tetrachlorobiphenyl (PCB 81)
32598-14-4	2,3,3',4,4'-pentachlorobiphenyl (PCB 105)
74472-37-0	2,3,4,4',5-pentachlorobiphenyl (PCB 114)
31508-00-6	2,3',4,4',5-pentachlorobiphenyl (PCB 118)
65510-44-3	2,3',4,4',5'-pentachlorobiphenyl (PCB 123)
57465-28-8	3,3',4,4',5-pentachlorobiphenyl (PCB 126)
38380-08-4	2,3,3',4,4',5-hexachlorobiphenyl (PCB 156)
69782-90-7	2,3,3',4,4',5'-hexachlorobiphenyl (PCB 157)
52663-72-6	2,3',4,4',5,5'-hexachlorobiphenyl (PCB 167)
32774-16-6	3,3',4,4',5,5'-hexachlorobiphenyl (PCB 169)
39635-31-9	2,3,3'4,4',5,5'-heptachlorobiphenyl (PCB 189)

Table I – Applicable Toxic Air Contaminants (cont.)

CAS Number	Substance
	polycyclic aromatic hydrocarbons (PAHs)
56-55-3	benzo[a]anthracene
50-32-8	benzo[a]pyrene
205-99-2	benzo[b]fluoranthene
207-08-9	benzo[k]fluoranthene
218-01-9	chrysene
53-70-3	dibenz[a,h]anthracene
193-39-5	indeno[1,2,3-c,d]pyrene

Appendix 1 – Rule 1466 Approved PM₁₀ Monitors

The Executive Officer may approve PM₁₀ monitors that meet the following physical and performance requirements.

1. Physical Requirements

- 1.1. PM₁₀ monitors shall be continuous direct-reading near-real time monitors and shall monitor particulate matter less than 10 microns.
- 1.2. PM₁₀ monitors shall be equipped with:
 - 1.2.a. Omni-directional heated sampler inlet;
 - 1.2.b. Sample pump with active flow control mechanism;
 - 1.2.c. Enclosure;
 - 1.2.d. Data logger capable of logging each data point with average concentration, time, date, and data point number; and
 - 1.2.e. Conductive tubing that minimizes particle loss for any external tubing used to carry sampled air prior to measurement.

2. Performance Requirements

- 2.1 PM₁₀ monitors shall have the following minimum performance standards:
 - 2.1.a. Range: 0 - 10,000 µg/m³;
 - 2.1.b. Accuracy, determined through factory testing against a U.S. EPA Federal Reference Method or Federal Equivalent Method, for a minimum of 30 measurements each averaged over 24 hours, to show:
 - 2.1.b.i. ± 5% of reading ± precision; or
 - 2.1.b.ii. Coefficient of determination (R²) of ≥ 0.95 through simple linear regression;
 - 2.1.c. Resolution: 1.0 µg/m³;
 - 2.1.d. Flow control accuracy of ± 5% of factory setpoint; and
 - 2.1.e. Measurement Cycle: User selectable (30 minute and 2 hour).
- 2.2 Monitors that have a valid *Monitoring Certification Scheme* certification meeting the latest version of the *Monitoring Certification Scheme (MCERTS): Performance Standard for Indicative Ambient Particulate Monitors* may be exempt from meeting the performance requirements listed above, but shall meet all stated physical requirements.

3. Quality Assurance/Quality Control Requirements

In order to ensure the validity of the PM₁₀ measurements performed, there shall be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the owner or operator to adequately supplement QA/QC Plans to include the following critical features: instrument calibration, instrument maintenance, operator training, and daily instrument performance checks.

Appendix 2 – Procedures to Demonstrate Intra-Instrument Precision

An owner or operator shall perform the following procedures to demonstrate the intra-instrument precision of all PM₁₀ monitors as required in paragraph (d)(7).

1. Ensure monitors are identical in make and model, settings, and configuration.
2. Ensure monitor inlets are at the same height and located within 4 meters of each other but no less than 1 meter apart for the duration of the test.
3. Power on the monitors and turn on the heated sampler inlet. Allow the monitors to warm-up per manufacturer's recommendations or when readings have stabilized.
4. For each monitor, conduct a zero calibration in accordance with manufacturer's instructions, then conduct a manual zero check by removing any sampling inlet and installing a filter, rated by the manufacturer to achieve a 99.97 percent control efficiency for 0.3 micron particles, on the inlet of the monitor for a minimum of 10 minutes. If the monitors are operated using an auto-zero check procedure that directs filtered particle-free air into the measurement chamber, conduct the zero check in accordance with manufacturer's instructions.
5. Log the PM₁₀ concentration reading every minute, and calculate and record the average of the readings of the manual zero check. The average of the manual zero check readings shall be 0 ± 3 micrograms per cubic meter before proceeding to Step 6. If conducting an auto-zero check, the monitor shall pass the zero check in accordance with manufacturer's instructions before proceeding to Step 6. If any monitors fail either the manual zero check or the auto-zero check, the owner or operator shall conduct a zero calibration in accordance with manufacturer's instructions and/or correct any issue(s) causing the failure, followed by conducting a passing zero check on the PM₁₀ monitor(s) in accordance with Steps 4 and 5.
6. Remove the filter and install the monitor inlet as required. After waiting 10 minutes, operate the monitors simultaneously and log the PM₁₀ concentration reading every minute for a minimum of 60 minutes.

7. Calculate the intra-instrument precision using either of the following equations:
- a. Intra-instrument precision in relative standard deviation or correlation of variation (%) when ambient PM₁₀ concentrations are greater than or equal to 15 micrograms per cubic meter:

$$P = \frac{S_t}{C_t} \times 100\%$$

where,

P = Intra-instrument precision in percent (%);

S_t = Standard deviation of the averaged PM₁₀ concentration readings from all tested monitors over the time t of testing duration, to be calculated as:

$$S_t = \sqrt{\frac{\sum (x_i - \bar{x})^2}{(n - 1)}}$$

where,

x_i = Mean of the PM₁₀ concentration readings for a tested monitor over time t of testing duration,

\bar{x} = Mean of the averaged PM₁₀ concentration readings from all tested monitors over the time t of testing duration, and

n = Number of tested monitors; and

C_t = Mean of the averaged PM₁₀ concentration readings from all tested monitors over the time t of testing duration; or

- b. Intra-instrument precision in absolute value (micrograms per cubic meter) when ambient PM₁₀ concentrations are less than 15 micrograms per cubic meter:

$$P = S_t$$

where,

P = Intra-instrument precision in micrograms per cubic meter, and

S_t = Standard deviation of the averaged PM₁₀ concentration readings from all tested monitors over the time t of testing duration.

8. Record the results of the calculations.