ASSESSMENT OF BURN DEBRIS - 2015 WILDFIRES
LAKE AND CALAVERAS COUNTIES, CALIFORNIA

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This document has been modified from its original format as noted in the table of contents. **Appendix D - Statistical Analysis Output Files, has not been included in this modified document version.** You can request a copy of the original document through our Public Records Act request form.

Geosyntec consultants

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I certify that this document and all attachments presented in this report are accurate and complete. This report was prepared by the staff of Geosyntec Consultants under my supervision to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who are directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

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EXECUTIVE SUMMARY

Introduction

This report summarizes the results of the assessment of burned residential areas associated with the September and October 2015 Butte and Valley Wildfires located primarily in Calaveras and Lake Counties, California (Figure 1). Geosyntec Consultants (Geosyntec) performed this assessment on behalf of the California Environmental Protection Agency (CalEPA), Department of Toxic Substances Control (DTSC) in accordance with the 21 October 2015 Sampling and Analysis Plan (SAP) (Geosyntec, 2015; Appendix A). The SAP was distributed to the United States Environmental Protection Agency (USEPA), and DTSC for review and comment. This report was prepared by Mr. Christopher Lieder, PG, and has been reviewed by Mr. Veryl Wittig, PG, CHG, in accordance with the peer review policy of the firm.

Background

The Valley and Butte wildfires resulted in adverse impacts to people and properties, burned thousands of acres, damaged and destroyed thousands of homes and other structures, and have the potential to damage natural resources and watersheds. According to the California Department of Forestry and Fire Protection (Cal Fire), the Butte Fire burned approximately 70,000 acres and destroyed more than 800 residences and outbuildings, and the Valley Fire burned approximately 76,000 acres and destroyed more than 1,800 residences and outbuildings.

As outlined in Executive Order B-35-15, Governor Brown declared states of emergency due to the destruction caused by wildfires in Calaveras County (declared on 11 September 2015) and Lake County (declared on 13 September 2015). On 22 September 2015, President Obama declared a major disaster for these counties, thereby making federal disaster aid funding available for both fires. Federal Environmental Management Agency (FEMA) assistance was subsequently granted in the form of a "Fire Management Assistance Grant," which covers a variety of eligible costs, but does not cover removal of burned debris and ash known to contain potentially hazardous materials and which may pose a threat to human health and water quality in and around the affected areas.

Previous assessments performed by Geosyntec following the 2003 and 2007 Southern California Wildfires, and guidance documents prepared by the California Environmental Protection Agency (CalEPA) and CalRecycle indicate that large volumes of hazardous materials are commonly present in burned residential areas [Geosyntec, 2007; CalEPA, 2011; CalRecycle, 2015].

Experiences from fires of a similar nature indicate that many hazardous materials may be found in burned residential areas. Some of these materials include metals from batteries, treated wood, and melted plumbing; pesticides and herbicides from lawn and garden products; polycyclic aromatic hydrocarbons (PAHs), including dioxins and furans from burned tires and plastic; asbestos from building materials; and polychlorinated biphenyls (PCBs) from appliances and automotive parts.

The destruction left in the wake of these fires has the potential to result in widespread public exposure to toxic materials. Residents may be exposed to contaminants in burn debris and ash via dermal contact, ingestion, and inhalation exposure. The pending winter rains create the potential for surface water and groundwater contamination from the offsite migration of hazardous materials contained within the burn debris and ash. In addition, particulate matter in wind-entrained ash may also pose an inhalation risk.

FEMA Disaster Assistance Policy 9523.13, "Debris Removal from Private Property," provides FEMA authority to fund debris removal from private property if debris removal is in the "public interest." FEMA defines "public interest" as being necessary to: eliminate immediate threats to life, public health, and safety; eliminate immediate threats of significant damage to improved property; or ensure economic recovery of the affected community to the benefit of the community-at-1arge. In these situations, debris removal from private property may be considered to be in the public interest and thus may be eligible for reimbursement under the Public Assistance Program (44 CFR 206.224).

Geosyntec understands that the State, Lake and Calaveras Counties, and other local jurisdictions affected by the fires, are interested in demonstrating that expedited removal of residual burn debris and ash resulting from the wildfires is in the "public interest" due to immediate threats to human health, public safety, and the environment posed by hazardous constituents in the residual burn debris and ash on improved properties.

Scope of Work

Sampling data collected during this assessment were used to evaluate the presence of constituents which may pose hazards to human health, public safety, and the environment posed by hazardous constituents in the residual burn debris and ash on residential areas. To achieve the stated objectives, Geosyntec prepared and distributed a draft and final SAP to the interested regulatory agencies; collected burn debris and ash samples from 35 sites in Lake County and 35 sites in Calaveras County for laboratory analyses; and prepared this report.

Conclusions

The objective of this investigation was to perform a representative characterization of the residual burn debris and ash in residential areas to assess the presence of hazardous constituents at concentrations exceeding statutorily-established human health-based screening levels such as USEPA Regional Screening Levels (RSLs), and alternate DTSC screening levels. Laboratory analytical data documents the presence of constituents in the burn debris and ash at concentrations exceeding established residential RSLs and DTSC screening levels.

The results of this assessment demonstrate that burn debris and ash in residential areas affected by the Butte and Valley wildfires poses an immediate threat to public health and safety, and that expedited removal of burn debris from these areas is warranted and in the "public interest" based on the following:

The 95% Upper Confidence Level (UCL) concentration values for arsenic, cadmium, copper, lead, nickel, and zinc exceed human health screening levels in both areas characterized in Lake and Calaveras Counties. The 95% UCLs of these compounds described above also exceed the USEPA soil screening levels for the protection of groundwater.

The results of this burn debris assessment indicated similar COCs were detected as those detected during the assessment following the 2007 Southern California wildfires. The screening criteria (RSLs) utilized during this assessment were developed for soil and may underestimate the hazard associated with ash and burn debris which is more likely to become airborne or absorbed through the skin.

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1. INTRODUCTION

This report summarizes the results of the assessment of burned residential areas associated with the September and October 2015 Butte and Valley Wildfires located primarily in Calaveras and Lake Counties, California (Figure 1). Geosyntec Consultants (Geosyntec) performed this assessment on behalf of the California Environmental Protection Agency (CalEPA), Department of Toxic Substances Control (DTSC) in accordance with the 21 October 2015 Sampling and Analysis Plan (SAP) (Geosyntec, 2015; Appendix A). The SAP was distributed to the United States Environmental Protection Agency (USEPA), and DTSC for review and comment. This report was prepared by Mr. Christopher Lieder, PG, and has been reviewed by Mr. Veryl Wittig, PG, CHG, in accordance with the peer review policy of the firm.

1.1 Background

The Valley and Butte wildfires resulted in adverse impacts to people and properties, burned thousands of acres, damaged and destroyed thousands of homes and other structures, and have the potential to damage natural resources and watersheds. According to the California Department of Forestry and Fire Protection (Cal Fire), the Butte Fire burned approximately 70,000 acres and destroyed more than 800 residences and outbuildings, and the Valley Fire burned approximately 76,000 acres and destroyed more than 1,800 residences and outbuildings.

As outlined in Executive Order B-35-15, Governor Brown declared states of emergency due to the destruction caused by wildfires in Calaveras County (declared on 11 September 2015) and Lake County (declared on 13 September 2015). On 22 September 2015, President Obama declared a major disaster for these counties, thereby making federal disaster aid funding available for both fires. Federal Environmental Management Agency (FEMA) assistance was subsequently granted in the form of a "Fire Management Assistance Grant," which covers a variety of eligible costs, but does not cover removal of burned debris and ash known to contain potentially hazardous materials and which may pose a threat to human health and water quality in and around the affected areas.

Previous assessments performed by Geosyntec following the 2003 and 2007 Southern California Wildfires, and guidance documents prepared by the California Environmental Protection Agency (CalEPA) and CalRecycle indicate that large volumes of hazardous materials are commonly present in burned residential areas [Geosyntec, 2007; CalEPA, 2011; CalRecycle, 2015]. Common constituents of concern (COCs) in burn debris and ash in residential areas include:

- **Metals** from batteries, treated wood, plumbing, building materials and automobiles;

- **Pesticides and Herbicides** from lawn, garden and home products;
- **Polynuclear aromatic hydrocarbons (PAHs)** from tires, plastics, and substances containing hydrocarbons;
- **Asbestos** from building materials, insulation, flooring and roofing materials;
- **Polychlorinated biphenyls (PCBs)** from appliances, transformers, and automotive parts; and
- **Dioxins and furans** created by burning organic materials.

Laboratory analysis of residential burn debris and ash following the 2007 Wildfires demonstrated the presence of elevated concentrations of metals, including arsenic, cadmium, copper, lead and zinc, and certain PAHs. Concentrations of these constituents were present at levels exceeding statutorily-established, health-based criteria.

The destruction left in the wake of the Butte and Valley Wildfires has the potential to result in widespread public exposure to hazardous materials. Residents may be exposed to contaminants in burn debris and ash via dermal contact, ingestion, and inhalation. The pending winter rains create the potential for surface water and groundwater contamination from the offsite migration of hazardous materials contained within the burn debris and ash. In addition, particulate matter in wind-entrained ash may also pose an inhalation risk.

FEMA Disaster Assistance Policy 9523.13, “Debris Removal From Private Property,” dated 18 July 2007, Sections 403(a)(3)(A) and 407 of the Stafford Act, and 42 U.S.C. 5170b and 5173, provides FEMA authority to fund debris removal from private property provided that the State or local government arranges an unconditional authorization for removal of the debris, and agrees to indemnify the Federal government against any claim arising from the removal. The regulations implementing Sections 403 and 407 of the Stafford Act at 44 CFR 206.224 require that debris removal be in the "public interest" in order to be eligible for reimbursement. FEMA defines "public interest" as being necessary to: eliminate immediate threats to life, public health, and safety; eliminate immediate threats of significant damage to improved property; or ensure economic recovery of the affected community to the benefit of the community-at-1arge. In these situations, debris removal from private property may be considered to be in the public interest and thus may be eligible for reimbursement under the Public Assistance Program (44 CFR 206.224).

Based on the previous post-fire characterization data collected by Geosyntec, the CalEPA and its boards, departments, and offices determined that the burn debris and ash resulting from the 2007 Southern California Wildfires posed an immediate threat to public health and safety. It was demonstrated that expedited removal of residual burn debris and ash resulting from the 2007 Wildfires was in the “public interest” due to immediate threats to

human health, public safety, and the environment posed by hazardous constituents in the residual burn debris and ash on improved properties. As a result, the State and affected communities received FEMA grant funds to offset the cost of debris removal associated with the 2007 Wildfires.

The State, Counties of Calaveras and Lake, and other local jurisdictions desire to demonstrate that expedited removal of residual burned debris and ash resulting from the wildfires is in the "public interest" due to immediate threats to human health (primarily adult and children residents within and near the affected communities), public safety, and the environment (primarily water quality and air quality) posed by hazardous constituents in the residual burned debris and ash on improved properties.

1.2 Scope of Work

The objective of the sampling and analyses described herein was to perform a representative characterization of the hazards associated with burn debris and ash within two "typical" residential areas (one in Calaveras County and one in Lake County) affected by the 2015 California Wildfires. The concentrations of COCs in the burn debris and ash were compared to statutorily-established human health-based screening levels and other established criteria to determine if COCs were present at concentrations exceeding the screening levels. The CalEPA intends to use the data collected as described herein to support the determination of an immediate threat to public health and safety made by CalEPA and its boards, departments, and offices according to FEMA disaster Assistance Policy 9523.13. By using a statistically-based random sampling approach within "typical" burned residential areas, the conclusions based on the sample analyses may be generalized to other residential areas affected by the fires. Therefore, sampling within each fire area and in each affected local jurisdiction was determined to not be necessary.

Sampling data collected during this assessment were used to evaluate the possible presence of constituents which may pose hazards to human health, public safety, and the environment posed by hazardous constituents in the residual burn debris and ash on improved properties. To achieve the stated objectives, Geosyntec completed the following scope of work:

- Participated in regulatory conference calls to develop guidelines for the assessment of burned residential areas;
- Prepared and distributed a SAP for concurrence from the USEPA and DTSC;
- Prepared a project-specific Health and Safety Plan (HASP);
- Collected burn debris samples (debris samples) from 70 different sites for laboratory analyses;
- Analyzed debris samples for Title 22 Metals and PAHs;
- Evaluated field and laboratory data;

- Performed a statistical analysis of the sample results; and
- Prepared this report.

2. SITE DESCRIPTION AND BACKGROUND

This section provides a general description of the burned areas, regulatory guidance, COCs, sampling locations, and statistical methods used to identify properties for sampling.

2.1 Description of Burned Areas

Based on information provided to Geosyntec and obtained from the Cal Fire website, the 2015 Butte and Valley Wildfires burned more than 146,000 acres, and destroyed an estimated 2,776 structures, including 1,782 residential structures, 66 commercial structures, 928 outbuildings (detached garages, barns, sheds and other structures), and an unknown amount of vehicles and equipment. A summary of pertinent characteristics for each of the two subject Wildfire-affected areas are summarized in the following table:

Fire Name	Counties Affected	Acres Burned	Residential Structures Destroyed	Outbuildings Destroyed
Butte	Calaveras and Amador	70,868	475	343
Valley	Lake, Napa, and Sonoma	76,067	1,307	585

Source: Cal Fire online database

2.2 Regulatory Guidance

Various protocols for sampling burned debris on residential properties are available. The report was prepared in reference to the following regulatory guidance documents for general guidance in evaluating constituents of concern, evaluating sampling protocol, and evaluating the threats posed by burn debris and ash to human health and the environment:

- Information regarding wildfire burn debris composition and estimated volumes of burned debris associated with burned residences were obtained from CalRecycle's *Debris Removal Operations Plan with Project Specifications for the Trinity County Fire Complex* [CalRecycle, 2015].

- Data quality objectives and screening levels were based on screening levels presented in the USEPA's *Region IX Regional Screening Levels* and DTSC's *Human and Ecological Risk Office Note 3, DTSC-Modified Screening Levels* [USEPA, 2015 and DTSC, 2015].

- Analytical testing requirements, safety considerations, and regulatory framework were reviewed from CalEPA's *Guidance for Conducting Emergency Debris,*

Waste and Hazardous Material Removal Actions Pursuant to a State of Local Emergency Proclamation [CalEPA, 2011].

- Procedures to evaluate risk to public health were reviewed from California Integrated Waste Management Board (CIWMB) *LEA Advisory #56 Process for Evaluating and Remediating Burn Dump Sites* [CIWMB, 1998], and DTSC's *Protocol for Burn Dump Site Investigation and Characterization*, [DTSC, 2003].

- Composite and debris sampling protocol, and statistical methods were reviewed from the USEPA's Resource Conservation and Recovery Act (RCRA) *Waste Sampling Technical Guidance* [USEPA, 2002].

- Stockpile and container sampling guidance and statistical methodology were reviewed from USEPA's *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846* [USEPA, 1986].

2.3 Constituents of Concern

Based on sampling and laboratory analyses following the 2003 and 2007 Southern California Wildfires, metals (primarily arsenic, lead, zinc, copper, antimony), and PAHs (primarily benzo(a)anthracene, benzo(a)pyrene, and dibenz(a,h)anthracene) were the COCs most frequently detected at concentrations exceeding health-based screening levels and were established as the primary COCs. The CalEPA and USEPA previously concurred that metals and PAHs were the primary COCs for the characterization of hazards associated with burned debris. Subsequently, those were the laboratory analyses performed following the 2007 fires. Continuing with that precedent, metals and PAHs analysis were performed as described in the SAP and were used as the index parameters to identify hazardous constituents which may pose hazards to human health, public safety, and the environment.

Other constituents of potential concern (COPCs) in residential burned debris include pesticides and herbicides from lawn, garden and home products; asbestos from building materials, insulation, flooring and roofing materials; PCBs from appliances, transformers, and automotive parts; polybrominated biphenyls (PBBs) used as flame retardants in textiles, carpets, and plastics; and dioxins and furans created by burning organic materials. However, it has been determined that concentrations of these COPCs are unlikely to be present in burn debris and ash at elevated concentrations without also containing elevated concentrations of the primary COCs. Therefore, analysis of these COPCs were not performed during this investigation.

2.4 Sampling Areas

The sampling and analysis of burn debris and ash for the Butte and Valley Wildfires were managed independently. That is, a randomly selected subset of the total amount of residential parcels of land identified by Cal Fire with burned structures within the footprint of the Butte Fire were selected for sampling and analysis. Likewise, the same approach was performed independently for the footprint of the Valley Fire.

Sampling was performed on or near the footprint of the former structures (where the burn debris and ash is typically located) on the residential properties randomly selected within the two wildfire affected areas. In the case where burn debris and ash had been consolidated at the site within a stockpile or roll-off bin in preparation for offsite transport and disposal, samples were collected following stockpile or containerized material sampling protocol summarized in the SAP (Geosyntec, 2015).

2.4.1 Calaveras County

2.4.1.1 Physiographic and Geologic Setting

The general site area is located within foothills of the western slope of the Sierra Nevada Mountains of the Sierra Nevada geomorphic province (Figure 2). Calaveras County is located approximately 80 miles southeast of the City of Sacramento. The Sierra Nevada foothills are comprised primarily of Paleozoic and Mesozoic metamorphic rocks overlain by nearly flat beds of tertiary sedimentary and volcanic rocks (Calaveras County, 2012). The sampling area is generally located within the San Joaquin River hydrologic region (DWR, 2013).

The presence of a relatively thin layer or “veneer” of residual soil overlying fractured rock throughout much of the areas burned presents a greater potential for the introduction of contaminants, which may be present at the sites, into the groundwater.

2.4.1.2 Site Features and Conditions

The sites sampled are primarily located in rural, unincorporated areas of Calaveras County. Many of the residences were located on steep slopes or other high-lying areas, and were typically surrounded by relatively thick vegetation consisting of native and non-native species. Sites sampled generally consisted of the remnants of a former home and a garage or shed. In many cases, a burned vehicle(s)/equipment, or debris pile(s) were present at the sampling site. Although a site-specific evaluation of soil conditions was not within the scope of this assessment, most of the burned areas were found to be underlain by residual soil, and weathered or fractured bedrock.

2.4.2 Lake County

2.4.2.1 Physiographic and Geologic Setting

The general sampling area is situated within the Coastal Ranges geomorphic province, approximately 100 miles northeast of Sacramento, California (Figure 3). The basement rock is composed primarily of the Jurassic-Cretaceous Franciscan complex which consists of metamorphic and sedimentary rocks. The basement rock is overlain by lake and terrace deposits of the Plio-Pleistocene Cache Formation. The sampling area is generally within the Sacramento River Hydrologic region (DWR, 2004).

The presence of a relatively thin layer or "veneer" of residual soil overlying fractured rock throughout much of the areas burned presents a greater potential for the introduction of contaminants, which may be present at the sites, into the groundwater.

2.4.2.2 Site Features and Conditions

The sites sampled were located in rural, remote areas of Lake County. Many of the residences were located on steep slopes or other high-lying areas, and were typically surrounded by relatively thick vegetation consisting of native and non-native species. Sites sampled generally consisted of the remnants of a former home and attached garage. In some cases there was also a burned vehicle, burned appliances, or debris pile(s) at the sampling site. Although a site specific evaluation of soil conditions was not within the scope of this assessment, most of the burned areas were found to be underlain by residual soil, and weathered and fractured bedrock.

2.5 Statistical Methods for Identifying Properties Selected for Sampling

A statistically-based sampling scheme was developed to establish the concentration distribution of metals and chemicals within the burn debris. An underlying goal of this sampling scheme was to collect sufficient samples to reduce the probability of obtaining a false negative result (not identifying an elevated concentration when one truly exists).

The statistical distribution of COCs from similar burn debris samples collected from residential properties affected by the 2007 Southern California wildfires were used to estimate the expected variance of constituent concentrations and recommended number of samples required to evaluate the 2015 burn debris areas, as outlined in the SAP (Geosyntec, 2015). The combined Butte and Valley 2015 data set contains a total of 83 distinct samples. This sample size conservatively exceeds the minimum number of samples recommended by the SAP (70 samples) for statistical significance. Based on the data collected from the 2015 study, estimates of the mean and 95% UCL concentrations for each COC were derived and the data met the quality objectives specified in the SAP.

2.6 Sampling Locations

Sampling locations were selected using a representative statistically-based sampling program developed to objectively characterize the hazards associated with burned debris and ash. The data was collected in a manner such that conclusions based on the sample analyses for the randomly selected sample set may be generalized to all residential areas affected by the respective wildfire-affected areas. Therefore, sampling for each property was not necessary.

A subset of parcels that contain a destroyed structure have been randomly selected from the total number of parcels with destroyed structures within each of the two affected areas and designated as locations to have samples collected from the destroyed structure. The "Sampling Design Tool" in ArcGIS Version 10.1 was utilized to make the random point selection within each burn area polygon. The tool randomly selected 35 primary parcels with destroyed residences from the Butte Fire area in Calaveras County, and 35 primary parcels with destroyed residences in the Valley Fire area of Lake County as a sample size large enough to generally characterize the study areas. A list of 30 alternate parcels within each of the two areas were also randomly selected by the GIS system in advance of the field sampling. If one or more of the primary parcels randomly selected for sampling had already been cleared or was otherwise inaccessible due to limited access, safety concerns, or other limitations, an alternate sampling parcel was selected from the list of 30 alternate parcels within each of the two areas. Alternate parcels were selected when the primary parcel was not able to be sampled due to safety concerns, inaccessibility, or had already been cleared. The lists of randomly-selected parcels with fire-destroyed homes in the Butte and Valley Fire-affected areas are presented in Tables 1 and 2, respectively. Data generated from such parcels provides a characterization of the COCs in a typical burned neighborhood within the specific Wildfire area, and is not meant to be used for the purpose of characterizing hazardous material present at a specific parcel.

3. SITE ASSESSMENT FIELD ACTIVITIES

The following sections describe the sampling methodology, analytical parameters, and sample handling procedures to be followed. A project specific health and safety plan was prepared and implemented to address potential hazards which may have been encountered at the sampling sites and administrative or engineering controls for maintaining worker health and safety.

3.1 Sampling Methodology

Upon arrival to a property to be sampled, the field team identified the number of burned structures to be characterized within the randomly selected parcel, and estimated the volume of ash and burn debris associated with each structure based on the dimensions of the former structure foundations. If the estimated cumulative volume of ash and debris for the outbuildings on the parcel was determined to exceed 50% of the estimated volume of ash and debris for the primary structure (including the attached garage, if present), then a second composite sample was collected for the parcel to independently represent the collective outbuildings. Additional outbuilding samples were collected during this investigation, and the samples were uniquely identified according to the naming procedure outlined in section 3.3.1.

Based on volume estimates calculated from the 2007 Angora Fire in the Lake Tahoe area which affected similar woodland communities, it was expected that the average burn ash and debris volume resulting from burned residential structures and associated outbuildings would be approximately 125 cubic yards (CY) [CalRecycle, 2015]. The amount of individual aliquot samples comprising each composite sample was based on the following criteria:

ESTIMATED BURN ASH/DEBRIS[1] VOLUME (CY)	ALIQUOT QUANTITY[2]
Less than 10 (e.g., Shed or Small Garage)	2
10 to 20 (e.g., Garage or Small Barn)	3
20 to 100 (e.g., House up to 1, 500 sq ft)	4
100 + (e.g., House > 1,500 sq ft)	1 for each 25 CY

Note: Weight to volume estimate based on CalRecycle burn debris/ash conversion of 1,000 pounds/cubic yard

[1]: Burn ash and debris does not include rock, concrete, brick, stucco, metal, or glass.

[2] Number of discrete points comprising the composite sample was developed based on characterizing a known volume of material in a stockpile or container in accordance with USEPA guidance [USEPA, 1986].

One composite sample consisting of 8-ounce aliquots of ash or burn debris based on the estimated volume of the destroyed structure as described in the above table was collected from the footprint of former structures at locations determined by a random number generator. At a minimum, one ash or burn debris aliquot was collected from the location of the former garage vicinity for residential structures with attached garages. Outbuildings (e.g. detached garage, shed, barn, etc.), if present within the randomly selected parcels, were also sampled. A maximum of two composite samples were collected for each parcel (not including field duplicate samples).

The footprint of each former structure within the randomly selected parcel was divided into two to six approximately equal "cells" using the criteria listed in the preceding table. Using the random number generator output on each field sampling form, "x" and "y" sample location coordinates for each cell were determined. To provide adequate sample volume to perform the necessary laboratory analyses, composite samples consisted of a minimum of 16 ounces of burn debris and ash. Approximately 8-ounces of ash or burn debris[3] at each random sampling location were collected using a new single-use 8-ounce sampling scoop and placed into a new single-use stainless-steel mixing bowl for homogenization. Homogenization consisted of manually mixing the aliquots until the composite sample was thoroughly mixed based on a visual assessment. Following homogenization of the composite sample which contained a minimum of 16 ounces, the resulting material was placed in one 8-ounce glass jar which provided an adequate sample volume to perform the proposed laboratory analyses. In addition to sketching the property layout and sample locations on the field sampling form, the sampling team took photographs depicting an overview of each site and of the random sample locations at each site (Appendix B), and recorded the photograph numbers on the field sampling log.

If the burn debris had been removed from the foundation of the structure and was stockpiled on the randomly-selected property, or placed within a roll-off bin on the randomly-selected property, a composite sample of the stockpile or bin was collected[4]. For stockpiles and bins, the minimum number of samples comprising the composite sample is summarized as follows:

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[3] : Materials sampled at each random sampling location consisted of approximately 8-ounces of ash and fine-gravel-sized (0.75-inch) or smaller burn debris fragments. If ash or burn debris is not present at the random sampling location, an alternate random sampling point for the cell was selected from a list of random sample coordinates.

[4] Since the process of stockpiling or placing the ash and burned debris within a bin involved mixing materials from throughout the site and will essentially create a "composite" mass of ash and debris, samples were collected from the upper six inches of material at the approximate center point of each half, third, or quarter of the stockpile or bin.

- Stockpiles/bins less than 10 cubic yards: 2 aliquots were collected for compositing, one from each half of the stockpile/bin;
- Stockpiles/bins 10-20 cubic yards: 3 aliquots were collected for compositing, one from each third of the stockpile/bin;
- Stockpiles from 20-100 cubic yards: 4 aliquots were collected for compositing, one from each quarter of the stockpile/bin.

Duplicate Samples

To evaluate the variability of the chemical composition of the sample set, blind field duplicate samples were collected at a frequency of approximately 10%. For every 10th composite sample collected by each field crew, a separate duplicate sample was collected following the same process. The duplicate sample was collected at the same site as the primary sample, however the aliquots were collected from unique locations derived from the random number generator. The duplicate sample was comprised of independently collected, composited, and homogenized aliquots; not split from the previously mixed sample.

3.2 Field Documentation

The following information about each sampling site was documented on field forms:

- Field crew names;
- Date of sampling;
- Site address (if known) and Assessors Parcel Number (if known);
- GPS coordinates of structure sampled;
- Sketch depicting footprint of structure sampled, garage location (if known), and approximate sample locations;
- Approximate ash and burn debris volumes at the site;
- Sample and photo identification numbers;
- Chain of custody number; and
- General observations.

3.3 Sample Handling

The following sections detail methods that were used for sample identification, containerization, preservation, transportation, and maintaining proper chain of custody. Samples were handled in accordance with standard EPA sampling protocol.

3.3.1 Sample Labeling and Identification

Each sample was designated with a unique identification number. The sample identification number identified the Wildfire ("B" for Butte; "V" for Valley), site number (1 onward), sample type ("A" for primary; "B" for outbuilding sample, if collected; "C" for duplicate, if collected), and date. For example, B-03A-10252015 identifies that this sample was collected from the Butte Fire area at Site No. 03 representing the primary residential structure on October 25th, 2015.

3.3.2 Sample Containers and Transportation

Following homogenization, burn debris samples were placed in 8-ounce wide-mouth glass jars, sealed with Teflon-lined plastic lids. Sample jars were labeled, sealed in plastic bags, stored on ice, and transported to the laboratory in a cooler. The individual who collected the samples prepared them for shipment, completed the chain-of-custody form, and signed the form when transferring the samples to Fedex for transportation to the lab.

3.3.3 Chain-of-Custody Procedures

A chain-of-custody form was used to record possession of the samples from the time of collection to arrival at the laboratory. The samples were released to the laboratory by signature on the chain-of-custody form. The laboratory control officer verified that all samples listed on the chain-of-custody form were present; verified sample integrity; and that proper sample preservation procedures were utilized.

3.4 Analytical Parameters

Laboratory analyses were performed by Advanced Technology Laboratories in Signal Hill, California, a California Department of Public Health certified laboratory. Each composite sample (83 samples total) was analyzed for Title 22 metals (TTLC) by EPA Method 6010B/7471A and PAHs by EPA Method 8270 SIM. With the exception of arsenic, the laboratory MDLs are less than the statutorily-established health based criteria described herein. The MDL for arsenic is less than the background-based criteria utilized.

Each field team collected one blind duplicate sample for every 10 primary samples for the analyses listed above. This was used to evaluate variability within a given property, not the sampling and analytical precision. In addition, quality control (QC) to be performed by the analytical laboratory to assess laboratory precision and accuracy included method blanks, laboratory control spikes/laboratory control spike duplicates, and matrix spike/matrix spike duplicates.

Precision was assessed qualitatively based on relative percent difference (RPD) and defined by:

$$\% \text{ RPD} = \frac{|S_1 - S_2|}{Sav} \times 100$$

where: S_1 = first sample result
S_2 = second sample result
Sav = average of sample and duplicate $(S_1+S_2)/2$

Accuracy was assessed qualitatively based on percent recovery (% R) and defined by:

$$\% \text{ R} = \frac{A-B}{C} \times 100$$

where: A = analytical result for spiked sample
B = background level determined by a separate analysis of the unspiked sample
C = amount of spike added

Method Blanks: A method blank is a laboratory-generated sample that assesses the degree to which laboratory operations and procedures cause false-positive analytical results for the samples. The method blank results associated with the samples are included with the laboratory report.

Laboratory Control Spike and Laboratory Control Spike Duplicate (LCS/LCSD): LCS/LCSDs are laboratory control samples that are spiked with known analyte concentrations and analyzed at one per batch of 20. LCS/LCSD results are assessed for percent recovery and RPD and compared to established method-specific control limits. The LCS/LCSD results associated with the samples are included in the laboratory report.

Matrix Spike and Matrix Spike Duplicate MS/MSD: MS/MSDs are field samples spiked with known analyte concentrations and analyzed at one per batch of 20. MS/MSD results are assessed for percent recovery and RPD and compared to established method-specific control limits. The MS/MSD results associated with the samples are included in the laboratory report.

Copies of the Laboratory Analytical Certificates and the Data Validation Memorandum is provided in Appendix C.

3.5 Validation of Laboratory Analytical Results

Geosyntec performed Level 1 data validation prior to tabulating and interpreting the data. Data packages were reviewed for basic analytical quality assurance/quality control (QA/QC) adherence based on quality control (QC) guidance in the USEPA Contract Laboratory Program National Functional Guidelines [USEPA, 2014], as well as pertinent methods referenced in the data packages, and professional judgment. The data validation process is documented in the Data Validation Memorandum provided in Appendix C. Evaluation included review for chain of custody discrepancies; adherence to sample

holding times; checking for elevated reporting limits, evaluation of matrix spike/matrix spike duplicates (MS/MSD) and laboratory control samples/laboratory control sample duplicates (LCS/LCSD); and assessment of method blanks.

Following validation of the data presented in the analytical data packages, the determination was made that the data, as qualified, are considered usable and acceptable for meeting project objectives.

4. SUMMARY OF RESULTS

The following sections summarize the results and findings for the two sampling areas based on the laboratory data. Laboratory analytical results for the Butte and the Valley sites are summarized in Tables 3 and 4, respectively. Laboratory analytical certificates are presented in Appendix C.

4.1 Nature of Materials Sampled

In general, burn debris samples consisted of dry to moist, white fine ash to black coarse ash, with small fragments of metal, glass, and other debris, such as drywall. Debris larger than approximately pea-size was avoided. Samples collected from former house pads and garages were generally underlain by concrete slabs. Samples collected from sheds or debris piles were frequently underlain by soil. During sampling, attempts were made to collect burn debris rather than near-surface soils.

4.2 Established Screening Criteria

In the proceeding sections, data collected during this assessment were compared to the following established criteria:

- DTSC Human Health Risk Assessment Note 3, Modified Screening Levels for residential and commercial properties (DTSC-SLs);
- United States Environmental Protection Agency (USEPA) November 2015 Region IX Regional Screening Levels for residential and commercial properties (RSLs);
- California background metals concentrations (UC Riverside, Kearney, 1996); and
- USEPA Region IX November 2015 Soil Screening Levels for protection of groundwater (SSL).

4.2.1 Human Health Screening Criteria

RSLs are human health risk-based "cleanup" goals developed by the USEPA and are commonly used in the investigation of contaminated sites. RSLs are chemical concentrations that equal or exceed fixed levels of risk of either one-in-a-million (10^{-6}) cancer risk or a noncarcinogenic hazard quotient of 1.0. RSLs are "guideline" generic values that are not legally enforceable, and do not take site-specific conditions into account. However, RSLs are useful as preliminary screening tools to evaluate the potential for human health risks related to constituents identified at a site. For the purposes of this study, residential RSLs developed by USEPA Region IX, were used to evaluate potential hazards to humans (USEPA, 2015).

In 2008, the USEPA released the RSLs to replace the Preliminary Remediation Goals (PRGs). The DTSC Human and Ecological Risk Office (HERO) reviewed the differences in methodology and RSL concentrations to develop methodology to incorporate the RSLs into HERO human health risk assessment consultation and review. Incorporation of more recent toxicity values than those used in the RSLs required HERO to develop screening values that take into account more recent toxicity values than utilized in the RSLs. For the majority of the approximate 800 chemicals listed, HERO recommends the values listed in the RSLs, however, some values differ from values calculated using CalEPA toxicity criteria leading to lower and more conservative screening levels, as summarized in DTSC Note 3 (DTSC-SLs). To evaluate burn debris, the DTSC-SLs were used when a screening level is defined, and the EPA RSLs were used for comparison in the absence of a DTSC-SL.

4.2.2 Other Screening Criteria

Soil screening levels (SSLs) for the protection of groundwater are similar to RSLs in that they are also generic values derived by the USEPA, and are commonly used to preliminarily assess potential threats to groundwater for constituents identified in site soil based on some general assumptions. The SSLs evaluate a human health risk for potential soil impacts to groundwater, and SSLs are typically evaluated against a maximum containment level (MCL) or risk-based exceedance. To evaluate burn debris, the more conservative SSL was used for a comparison.

Summaries comparing the 95% upper confidence levels (UCL), arithmetic mean, and geometric mean of the constituent of concern, and the cumulative of both data sets are presented in Tables 5. The Statistical output files are included in Appendix D. When evaluating the data if a constituent was not detected, half of the laboratory detection limit was used to calculate the arithmetic mean and geometric mean, per standard guidelines (USEPA, 1992).

4.3 Laboratory Analytical Results

4.3.1 Metals

Six metals were identified as constituents of concern (arsenic, cadmium, copper, lead, nickel, and zinc) after the review of data from both sites. The mean, geometric mean, or 95% UCL concentrations of these metals exceed one or more of the screening criteria discussed in section 4.2. Below is a summary of the metals results and their associated statistical evaluation.

Arsenic is considered a “priority pollutant” by the USEPA (USEPA, 2007). The mean, geometric mean, 95% UCL, and cumulative results of both locations exceed the screening criteria described below:

Arsenic (mg/kg)	
Screening Criteria	**Value**
Upper Background	11
DTSC Note 3 (Residential)	0.11
DTSC Note 3 (Commercial)	0.42
Protection of Groundwater SSL	0.0015

Arsenic (mg/kg)			
Statistics	**Calaveras County (Butte Wildfire)**	**Lake County (Valley Wildfire)**	**Cumulative (Calaveras and Valley Counties)**
Mean	43.49	87.28	60.64
Geometric Mean	16.95	15.08	16.03
95% UCL	71.58	343	154.9

In California, arsenic is naturally occurring at concentrations that exceed established risk based screening levels for both residential and commercial scenarios. For the purpose of this assessment, arsenic was compared to background concentrations for soils in California (Kearney, 1996). The upper range for background is 11 mg/kg, and the statistics of the individual location data sets and the combined data sets significantly exceed that value. Therefore, arsenic concentrations observed in the burn debris are above established background concentrations and pose a potential risk to human health and the environment.

Cadmium is considered a "priority pollutant" by the USEPA (USEPA, 2007). The mean, geometric mean, 95% UCL, and cumulative results for both locations exceed the risk based screening criteria described below with the exception of the Lake County geometric mean which is slightly below the risk based screening levels, but still exceeds the SSL for groundwater protection. Therefore, cadmium concentrations observed in the burn debris pose a potential risk to human health and the environment.

Cadmium (mg/kg)	
Screening Criteria	**Value**
Upper Background	1.7
DTSC Note 3 (Residential)	4.5
DTSC Note 3 (Commercial)	5.7
Protection of Groundwater SSL	0.38

Cadmium (mg/kg)			
Statistics	**Calaveras County (Butte Wildfire)**	**Lake County (Valley Wildfire)**	**Cumulative (Calaveras and Valley Counties)**
Mean	22.7	17.01	11.34
Geometric Mean	11.65	3.67	6.68
95% UCL	27.04	35.1	20.18

Copper is considered a "priority pollutant" by the USEPA (USEPA, 2007). The mean, 95% UCL and cumulative results for both locations exceed the upper background concentration, residential screening level, and the SSL for groundwater protection. The geometric mean for both locations and the cumulative of the locations does not exceed the risk based screening levels, but does however exceed the upper background concentration and the SSL for groundwater protection. Therefore, copper concentrations observed in the burn debris pose a potential risk to human health and the environment.

Copper (mg/kg)	
Screening Criteria	**Value**
Upper Background	96.4
RSL (Residential)	3,100
RSL (Commercial)	47,000
Protection of Groundwater SSL	28

Copper (mg/kg)			
Statistics	**Calaveras County (Butte Wildfire)**	**Lake County (Valley Wildfire)**	**Cumulative (Calaveras and Valley Counties)**
Mean	9,861	4,972	7,505
Geometric Mean	1,193	1,002	1,096
95% UCL	38,565	13,954	22,949

Lead is considered a "priority pollutant" by the USEPA (USEPA, 2007). The mean, geometric mean, 95% UCL, and cumulative results for both locations exceed the upper background concentration, residential and commercial screening levels, and the SSL for groundwater protection, with the exception of the geometric mean concentrations which did not exceed the commercial risk based screening level. Lead concentrations in the burn debris exceed one or more of the screening criteria, and therefore pose a potential risk to human health and the environment.

Lead (mg/kg)	
Screening Criteria	**Value**
Upper Background	97.1
DTSC Note 3 (Residential)	80
DTSC Note 3 (Commercial)	320
SSL	14

Lead (mg/kg)			
Statistics	**Calaveras County (Butte Wildfire)**	**Lake County (Valley Wildfire)**	**Cumulative (Calaveras and Valley Counties)**
Mean	2,449	434.8	1,478
Geometric Mean	212.2	100.5	148
95% UCL	11,729	1,449	6,328

Nickel is considered a "priority pollutant" by the USEPA (USEPA, 2007). The mean, geometric mean, 95% UCL, and cumulative results for both locations exceed the residential and commercial screening levels, and SSL for protection to groundwater. Therefore, nickel poses a potential risk to human health and the environment.

Nickel (mg/kg)	
Screening Criteria	**Value**
Upper Background	509
DTSC Note 3 (Residential)	0.42
DTSC Note 3 (Commercial)	1.3
Protection of Groundwater SSL	26

Nickel (mg/kg)			
Statistics	**Calaveras County (Butte Wildfire)**	**Lake County (Valley Wildfire)**	**Cumulative (Calaveras and Valley Counties)**
Mean	40.44	61.64	49.84
Geometric Mean	26.93	40.95	32.96
95% UCL	48.98	109.4	60.83

Zinc is considered a "priority pollutant" by the USEPA (USEPA, 2007). The mean, geometric mean, 95% UCL, and cumulative results of both locations exceed the upper background and SSL for protection to groundwater. In addition, the 95% UCL for the Lake County data set exceeded the risk based residential screening level. Because zinc exceeds these thresholds, there is a potential risk to human health and the environment.

Zinc (mg/kg)	
Screening Criteria	**Value**
Upper Background	236
RSL (Residential)	23,000
RSL (Commercial)	350,000
Protection of Groundwater SSL	370

Zinc (mg/kg)			
Statistics	**Calaveras County (Butte Wildfire)**	**Lake County (Valley Wildfire)**	**Cumulative (Calaveras and Valley Counties)**
Mean	4,476	9,194	6,749
Geometric Mean	2,447	1,706	2,057
95% UCL	6,009	27,682	8,071

4.3.2 Polycyclic Aromatic Hydrocarbons (PAHs)

PAHs are a group of compounds formed during the incomplete combustion of coal, oil, gas, wood, garbage, or other organic substances such as tobacco or charbroiled meat. PAHs are found throughout the environment in air, water and soil, and would likely be found in other areas (commercial or undeveloped) burned by fire.

The data from the burn debris collected from both of the locations had limited detections of PAH compounds. Benzo(a)pyrene was detected in four samples at concentrations which exceed screening levels, but due to the large number of non-detects a mean, geometric mean, and 95% UCL were not calculated. Based on the evaluation performed, only naphthalene was determined to be a constituent of concern. Due to a limited number of detections, the benzo(a)pyrene equivalency was not performed based on professional discretion when evaluating the data set as the calculation would not yield a meaningful result. Below is a summary of naphthalene results and its associated statistical evaluation.

Naphthalene - The mean, geometric mean, 95% UCL, and cumulative results for both locations exceed the SSL for protection to groundwater. Based on the exceedance of the SSL threshold, naphthalene in burn debris poses a potential risk to human health and the environment.

Naphthalene (µg/kg)	
Screening Criteria	**Value**
RSL (Residential)	3,800
RSL (Commercial)	17,000
Protection of Groundwater SSL	0.54

Naphthalene (µg/kg)			
Statistics	**Calaveras County (Butte Wildfire)**	**Lake County (Valley Wildfire)**	**Cumulative (Calaveras and Valley Counties)**
Mean	122.9	99.63	111.7
Geometric Mean	77.4	57.54	67.05
95% UCL	194.2	130.2	129.9

5. CONCLUSIONS

The objective of this investigation was to perform a representative characterization of burn debris and ash in areas to assess the presence of hazardous COCs at concentrations exceeding statutorily-established human health-based screening levels such as residential and commercial DTSC Note 3 screening levels and/or RSLs. The laboratory analytical data documenting the presence of COCs in the burn debris and ash at concentrations exceeding established residential DTSC Note 3 or RSLs were used to substantiate the determination of an immediate threat to public health and safety made by CalEPA and its boards, departments, and offices, according to FEMA Disaster Assistance Policy 9523.13 "Debris Removal from Private Property." FEMA Disaster Assistance Policy 9523.13 provides FEMA authority to fund debris removal from private property provided that debris removal is in the "public interest." FEMA defines "public interest" as being necessary to: eliminate immediate threats to life, public health, and safety; eliminate immediate threats of significant damage to improved property; or ensure economic recovery of the affected community to the benefit of the community-at-1arge. In these situations, debris removal from private property may be considered to be in the public interest and thus may be eligible for reimbursement under the Public Assistance Program (44 CFR 206.224).

The results of this assessment demonstrate that burn debris and ash in residential areas affected by the Butte and Valley Wildfires contain contaminants whose concentrations exceed health-based and groundwater protection criteria. These data, therefore, support the determination by CalEPA and its boards, departments, and offices, of an immediate threat to public health and safety based on the following:

- Arithmetic mean concentrations of arsenic, cadmium, copper, and lead exceed residential and commercial screening levels and/or RSLs in both areas characterized in Calaveras and Lake Counties and the cumulative of the areas with the exception of the copper which only exceeds the residential criteria.
- Geometric mean concentrations of arsenic, cadmium and lead exceed the residential and commercial DTSC Note 3 and/or RSLs in both areas characterized in Calaveras and Lake Counties and the cumulative of the areas with the exception of lead which only exceeds the residential criteria.
- 95% UCL concentrations of arsenic, cadmium, copper, and lead exceed the residential and commercial DTSC Note 3 and/or RSLs in both areas characterized in Calaveras and Lake Counties and the cumulative of the areas with the exception of the copper which only exceeds the residential criteria.
- Arithmetic and Geometric mean and UCL95 concentrations of arsenic, cadmium, copper, lead, nickel, and zinc exceeded USEPA Region IX soil screening levels for groundwater. As demonstrated by a November 2007 USGS study, when mixed with rainwater to form surface water runoff, the elevated concentrations of

several metals and caustic alkaline materials in the ash may adversely affect ecosystems and the quality of surface and groundwater drinking water supplies.

- Geosyntec understands that visible and retrievable household hazardous wastes were removed or not included in the sampling, and did not influence the results of characterizing typical residential contamination following a wildfire. However, concentrations in the residual ash and burned debris constituents still exceeded the established screening criteria following the removal of these wastes.
- The screening criteria (residential and commercial DTSC Note 3 and/or RSLs) utilized during this assessment were developed for soil and may underestimate the hazard associated with ash and burn debris which is more likely to become airborne or absorbed through the skin.

6. LIMITATIONS

This assessment of burned residential areas associated with the Butte and Valley Wildfires has been performed in accordance with current practices and the standard of care exercised by scientists and engineers performing similar tasks in this area. The conclusions contained in this report are based solely on the analysis of the conditions observed by Geosyntec personnel and as reported by regulatory agencies and other named sources. We cannot make any assurances concerning the completeness of the data presented to us.

No warranty, expressed or implied, is made regarding the professional opinions expressed in this report. If actual conditions are found to differ from those described in this report, or if new information regarding the site is obtained, Geosyntec should be notified and additional recommendations, if required, will be provided. Geosyntec is not liable for any use of the information contained in this report by persons other than the California Department of Toxic Substances Control, or use of information in this report for any purposes other than referenced in this report without the expressed, written consent of Geosyntec.

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TABLES

Table 1
Parcels Sampled For Burn Debris And Ash Sampling
Butte Wildfire[1]

Butte Fire Site No.	Assessor's Parcel Number	Address
B-1	14004041	13071 HWY 26, GLENCOE, CA
B-3	16024045	6898 SESAME ST, MOKELUMNE HILL, CA
B-4	16025014	7055 DOSTER RD, MOKELUMNE HILL, CA
B-5	16025025	8076 DOSTER RD, MOKELUMNE HILL, CA
B-6	16027040	700 MUSIC GULCH, MOKELUMNE HILL, CA
B-7	16027061	486 RICH GULCH RD, MOKELUMNE HILL, CA
B-8	16032018	446 DIRT RD, MOKELUMNE HILL, CA
B-10	20014006	5986 OLD EMIGRANT TR WEST, MOUNTAIN RANCH, CA
B-11	20015010	5839 OLD EMIGRANT TR WEST, MOUNTAIN RANCH, CA
B-12	20015011	5776 HANGMANS TREE, MOUNTAIN RANCH, CA
B-14	21003044	8686 E MURRAY CREEK RD, MOUNTAIN RANCH, CA
B-15	21004019	7534 PINE RIDGE LN, MOUNTAIN RANCH, CA
B-16	21004040	6345 CEDAR SPRINGS RD, MOUNTAIN RANCH, CA
B-17	21004107	7100 STRUCKMAN RD, MOUNTAIN RANCH, CA
B-18	21005043	183 3M LN, MOUNTAIN RANCH, CA
B-19	21006004	7872 SHEEP RANCH RD, MOUNTAIN RANCH, CA
B-20	21007005	5909 CALAVERAS CR, MOUNTAIN RANCH, CA
B-22	21010047	6195 TROUT LN, MOUNTAIN RANCH, CA
B-23	36001027	8104 W MURRAY CREEK RD, MOUNTAIN RANCH, CA
B-24	36008119	8954 MOUNTAIN RANCH RD, MOUNTAIN RANCH, CA
B-27	38003005	5918 MOUNTAIN RANCH RD, MOUNTAIN RANCH, CA
B-28	38003107	5767 MOUNTAIN RANCH RD, MOUNTAIN RANCH, CA
B-29	38005050	7090 FRECCERO RD, MOUNTAIN RANCH, CA
B-30	38013023	7402 OLD MINERS WY, SAN ANDREAS, CA
B-33	38020009	6968 MICHEL RD, MOUNTAIN RANCH, CA
B-35	40016067	6100 W MURRAY CREEK RD, MOUNTAIN RANCH, CA
B-38	16025107	315 INDIAN RIDGE RD, MOKELUMNE HILL, CA
B-45	21004015	6315 CEDAR SPRINGS RD, MOUNTAIN RANCH, CA
B-46	21004066	7314 PINE RIDGE LN, MOUNTAIN RANCH, CA
B-49	21005044	350 3M LN, MOUNTAIN RANCH, CA
B-51	21010047	6195 TROUT LN, MOUNTAIN RANCH, CA
B-56	36001025	5881 MOUNTAIN RANCH RD, MOUNTAIN RANCH, CA
B-58	36008056	8736 RODESINO RD, MOUNTAIN RANCH, CA
B-59	36008056	8485 MOUNTAIN RANCH RD, MOUNTAIN RANCH, CA
B-65	38003031	400 DEMOSS LN, MOUNTAIN RANCH, CA

Notes:

1 - Sites randomly selected from a list of fire-destroyed residential parcels identified by Cal Fire

Table 2
Parcels Sampled For Burn Debris And Ash Sampling
Valley Wildfire[1]

Valley Fire Site No.	Assessor's Parcel Number	Address
V-2	1105403	16535 CASALE DR, MIDDLETOWN, CA 95461
V-3	1202448	12335 SEIGLER CANYON RD, LOWER LAKE, CA 95457
V-4	1304112	19392 STATE HIGHWAY 175, MIDDLETOWN, CA 95461
V-5	1305501	16525 STARVIEW LOOP RD, COBB, CA 95426
V-6	1305507	12001 GIFFORD SPRINGS RD, COBB, CA 95426
V-7	1305520	16679 STARVIEW LOOP RD, COBB, CA 95426
V-8	1408406	20822 STATE HIGHWAY 175, MIDDLETOWN, CA 95461
V-9	1410424	20797 NAPA AVE, MIDDLETOWN, CA 95461
V-11	1413226	21760 S STATE HIGHWAY 29, MIDDLETOWN, CA 95461
V-12	1413231	21590 S STATE HIGHWAY 29, MIDDLETOWN, CA 95461
V-15	5032302	17515 PINE VIEW DR, WHISPERING PINES, CA 95461
V-16	5044110	11159 ANDERSON SPRINGS RD, MIDDLETOWN, CA 95461
V-17	5046101	11265 ROSE ANDERSON RD, MIDDLETOWN, CA 95461
V-19	5092108	11095 OAK ST, COBB, CA 95426
V-20	5104304	15335 HUMBOLDT DR, COBB, CA 95426
V-22	5106105	15300 TRINITY RD, COBB, CA 95426
V-23	5110122	11345 PINE SUMMIT DR, COBB, CA 95426
V-24	5110309	11229 MAPES PASS, COBB, CA 95426
V-25	5110509	11470 PINE SUMMIT DR, COBB, CA 95426
V-26	5111111	15224 HOBERG DR, COBB, CA 95426
V-28	5117202	9371 HOBERG DR, COBB, CA 95426
V-29	5119111	9071 BLEUSS CT, COBB, CA 95426
V-33	14415204	21801 YANKEE VALLEY RD, HIDDEN VALLEY LAKE, CA 95467
V-40	1304117	19374 STATE HIGHWAY 175, MIDDLETOWN, CA 95461
V-43	1408513	20738 SANTA ROSA AVE, MIDDLETOWN, CA 95461
V-46	2437808	21170 JEFFERSON ST, MIDDLETOWN, CA 95461
V-50	5045109	11410 ROSE ANDERSON RD, MIDDLETOWN, CA 95461
V-54	5104106	15364 SUMMIT BLVD, COBB, CA 95426
V-56	5106209	15285 TRINITY RD, COBB, CA 95426
V-57	5110208	11231 TANYA TER, COBB, CA 95426
V-58	5121102	9352 HOBERG DR, COBB, CA 95426
V-61	5213102	11980 LOCH LOMOND RD, LOCH LOMOND, CA 95461
V-62	14135108	19387 MOON RIDGE RD, HIDDEN VALLEY LAKE, CA 95467
V-63	14222107	17118 GREENRIDGE RD, HIDDEN VALLEY LAKE, CA 95467
V-64	14248107	20298 INDIAN ROCK RD, HIDDEN VALLEY LAKE, CA 95467

Notes:

1 - Sites randomly selected from a list of fire-destroyed residential parcels identified by Cal Fire

Table 3
Analytical Detections Summary
Butte Wildfire

Geosyntec

Analyte	Units	B-10A-10282015	B-10B-10282015	B-11A-10282015	B-12A-10282015	B-14A-10292015	B-14B-10292015	B-15A-10282015	B-16A-10282015	B-17A-10282015
Metals										
Antimony	mg/kg	ND<40	ND<40	ND<40	ND<40	ND<40	ND<40	1100	ND<40	ND<40
Arsenic	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	100	ND<20	ND<20
Barium	mg/kg	120	200	180	360	160	230	2400	4800	240
Beryllium	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Cadmium	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	27	ND<20	ND<20
Chromium	mg/kg	ND<20	23	ND<20	20	ND<20	ND<20	98	91	33
Cobalt	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Copper	mg/kg	360	140	5700	1100	430	380	6900	5200	590
Lead	mg/kg	ND<20	ND<20	49	99	29	130	4800	78	81
Molybdenum	mg/kg	21	ND<20	28	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Nickel	mg/kg	37	22	22	150	ND<20	ND<20	26	48	91
Selenium	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Silver	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Thallium	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Vanadium	mg/kg	26	48	31	51	ND<20	ND<20	22	32	32
Zinc	mg/kg	920	750	1300	3600	1000	7100	10000	11000	3900
Mercury	mg/kg	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10
PAHs										
2-Methylnaphthalene	µg/kg	ND<15	30	ND<15	ND<15	ND<15	96	ND<15	ND<15	120
Acenaphthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	35
Acenaphthylene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	29	ND<15	ND<15	ND<15
Anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	27
Benzo(a)anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(a)pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	15 UJ	ND<15	ND<15	ND<15	ND<15
Benzo(b)fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	18	ND<15	ND<15
Benzo(g,h,i)perylene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	16	ND<15	ND<15
Benzo(k)fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Chrysene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	21
Dibenz(a,h)anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	110
Fluorene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	23
Indeno(1,2,3-cd)pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Naphthalene	µg/kg	48	110	75	29	21	370	36	19	220
Phenanthrene	µg/kg	ND<15	18	ND<15	ND<15	ND<15	57	ND<15	ND<15	250
Pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	62

Table 3
Analytical Detections Summary
Butte Wildfire

Geosyntec

Analyte	Units	B-18A-10292015	B-19B-10292015	B-19C-10292015	B-1A-10272015	B-20A-10282015	B-20C-10282015	B-22A-10292015	B-23A-10272015	B-24A-10292015
Metals										
Antimony	mg/kg	ND<40	ND<40	ND<40	67	ND<40	ND<40	ND<40	ND<40	ND<40
Arsenic	mg/kg	27	ND<20	ND<20	25	ND<20	ND<20	23	ND<20	ND<20
Barium	mg/kg	150	210	300	380	60	31	1500	50	160
Beryllium	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Cadmium	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Chromium	mg/kg	40	28	34	42	ND<20	ND<20	34	ND<20	42
Cobalt	mg/kg	ND<20	ND<20	ND<20	210	ND<20	ND<20	ND<20	ND<20	24
Copper	mg/kg	1100	860	140	4300	1800	330	3900	140	2300
Lead	mg/kg	270	190	210	7000	1800	30	250	ND<20	160 J-
Molybdenum	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Nickel	mg/kg	39	24	23	93	ND<20	ND<20	ND<20	ND<20	130 J+
Selenium	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Silver	mg/kg	ND<20	ND<20	ND<20	76	ND<20	ND<20	ND<20	ND<20	ND<20
Thallium	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Vanadium	mg/kg	24	26	28	39	ND<20	ND<20	ND<20	39	ND<20
Zinc	mg/kg	840	4600	6500	7900	860	2100	930	470	2100
Mercury	mg/kg	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10
PAHs										
2-Methylnaphthalene	µg/kg	ND<15	ND<15	16	30	ND<15	ND<15	33	62	24
Acenaphthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Acenaphthylene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(a)anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(a)pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	15 UJ
Benzo(b)fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(g,h,i)perylene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(k)fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Chrysene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Dibenz(a,h)anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	15 UJ
Fluoranthene	µg/kg	ND<15	ND<15	15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Fluorene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Indeno(1,2,3-cd)pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Naphthalene	µg/kg	ND<15	18	100	150	ND<15	51	160	330	89
Phenanthrene	µg/kg	19	ND<15	43	51	25	ND<15	20	41	21
Pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15

Table 3
Analytical Detections Summary
Butte Wildfire

Geosyntec

Analyte	Units	B-27A-10262015	B-28B-10262015	B-29A-10262015	B-30A-10262015	B-33A-10272015	B-35A-10272015	B-38A-10272015	B-3B-10272015	B-45A-10282015
Metals										
Antimony	mg/kg	ND<40	ND<40	ND<40	ND<40	43	210	50	42	ND<40
Arsenic	mg/kg	20	22	ND<20	ND<20	ND<20	720	20	50	ND<20
Barium	mg/kg	690	190	82	1400	230	710	1100	1200	210
Beryllium	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Cadmium	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Chromium	mg/kg	32	ND<20	34	64	ND<20	210	52	43	ND<20
Cobalt	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Copper	mg/kg	910	910	230	160	910	660	860	2600	260
Lead	mg/kg	430	32	ND<20	480	290	140	400	330	920
Molybdenum	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Nickel	mg/kg	23	ND<20	57	47	27	ND<20	28	ND<20	ND<20
Selenium	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Silver	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Thallium	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Vanadium	mg/kg	40	34	42	39	53	23	33	ND<20	ND<20
Zinc	mg/kg	2800	670	250	1500	4000	4700	7900	1100	6700
Mercury	mg/kg	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10
PAHs										
2-Methylnaphthalene	µg/kg	ND<15	42	ND<15	18	ND<15	110	33	81	31
Acenaphthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Acenaphthylene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	25
Benzo(a)anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	150
Benzo(a)pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	15 UJ	ND<15	ND<15	ND<15	80
Benzo(b)fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	140
Benzo(g,h,i)perylene	µg/kg	ND<15	ND<15	ND<15	ND<15	15 UJ	ND<15	ND<15	ND<15	65
Benzo(k)fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	15 UJ	ND<15	ND<15	ND<15	28
Chrysene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	270
Dibenz(a,h)anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	15 UJ	ND<15	ND<15	ND<15	21
Fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	130
Fluorene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Indeno(1,2,3-cd)pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	15 UJ	ND<15	ND<15	ND<15	36
Naphthalene	µg/kg	92	140	40	55	ND<15	400	110	280	71
Phenanthrene	µg/kg	ND<15	ND<15	30	ND<15	ND<15	ND<15	ND<15	ND<15	180
Pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	190

Table 3
Analytical Detections Summary
Butte Wildfire

Geosyntec

Analyte	Units	B-46A-10282015	B-49A-10292015	B-4A-10272015	B-4C-10272015	B-51A-10292015	B-56A-10292015	B-58A-10292015	B-59A-10292015	B-59B-10292015
Metals										
Antimony	mg/kg	ND<40	ND<40	ND<40	ND<40	76	ND<40	180	ND<100	ND<100
Arsenic	mg/kg	ND<20	31	ND<20	ND<20	ND<20	ND<20	23	78	92
Barium	mg/kg	150	260	670	4300	690	300	190	530	220
Beryllium	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<50	ND<50
Cadmium	mg/kg	ND<20	38	ND<20	ND<20	ND<20	ND<20	ND<20	ND<50	ND<50
Chromium	mg/kg	ND<20	38	52	95	29	ND<20	ND<20	87	ND<50
Cobalt	mg/kg	ND<20	ND<20	ND<20	22	ND<20	ND<20	ND<20	ND<50	ND<50
Copper	mg/kg	1300	280	1700	2500	670	2300	3200	280000	59000
Lead	mg/kg	ND<20	290	99	490	1800	200	63000	9400	150
Molybdenum	mg/kg	26	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<50	ND<50
Nickel	mg/kg	22	25	68	42	20	ND<20	ND<20	130	ND<50
Selenium	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<50	ND<50
Silver	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	77	ND<50
Thallium	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<50	ND<50
Vanadium	mg/kg	56	47	49	50	30	34	ND<20	ND<50	72
Zinc	mg/kg	340	1200	19000	1200	1500	430	3300	16000	5700
Mercury	mg/kg	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10
PAHs										
2-Methylnaphthalene	µg/kg	ND<15	18	39	81	21	17	36	22	120
Acenaphthene	µg/kg	ND<15	ND<15	ND<15	16	ND<15	ND<15	ND<15	ND<15	ND<15
Acenaphthylene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(a)anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(a)pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	15 UJ	15 UJ	15 UJ
Benzo(b)fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(g,h,i)perylene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(k)fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Chrysene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Dibenz(a,h)anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Fluorene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Indeno(1,2,3-cd)pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Naphthalene	µg/kg	19	110	110	250	71	58	180	92	220
Phenanthrene	µg/kg	ND<15	25	19	45	ND<15	17	24	ND<15	ND<15
Pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15

Table 3
Analytical Detections Summary
Butte Wildfire

Geosyntec

Analyte	Units	B-5A-10272015	B-5B-10272015	B-65A-10262015	B-6B-10282015	B-6C-10282015	B-7B-10272015	B-8A-10272015
Metals								
Antimony	mg/kg	ND<40	100	59 J+	ND<40	ND<40	140	ND<40
Arsenic	mg/kg	23	52	ND<20	24	ND<20	ND<20	ND<20
Barium	mg/kg	980	190	320 J-	2500	220 J+	780	150
Beryllium	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Cadmium	mg/kg	110	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Chromium	mg/kg	55	70	43	30	31	97	22
Cobalt	mg/kg	ND<20	22	ND<20	ND<20	ND<20	22	ND<20
Copper	mg/kg	1000	19000	640	170	220	8000	860
Lead	mg/kg	180	310	1200	55	88	9700	27
Molybdenum	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	29	ND<20
Nickel	mg/kg	48	29	43	23	25	79	31
Selenium	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Silver	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Thallium	mg/kg	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20
Vanadium	mg/kg	59	33	33	51	55	36	84
Zinc	mg/kg	2700	7800	3100	6600	790	26000	1300
Mercury	mg/kg	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10
PAHs								
2-Methylnaphthalene	µg/kg	42	25	53	ND<15	43	100	17
Acenaphthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	20	ND<15
Acenaphthylene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	18	ND<15
Anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	22	ND<15
Benzo(a)anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(a)pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(b)fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(g,h,i)perylene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(k)fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Chrysene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Dibenz(a,h)anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	75	ND<15
Fluorene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	19	ND<15
Indeno(1,2,3-cd)pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Naphthalene	µg/kg	210	70	250	19	140	370	58
Phenanthrene	µg/kg	15	ND<15	36	ND<15	ND<15	190	ND<15
Pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	42	ND<15

Notes:
ND<: Analyte not detected above laboratory reporting limits
mg/kg milligrams per kilogram
µg/kg: micrograms per kilogram
U: The analyte was analyzed for, but was not detected ("non-detect") at or above the MRL/MDL
J: The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+: The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference.
J-: The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.

Table 4
Analytical Detections Summary
Valley Wildfire

Geosyntec

Analyte	Units	V-02A-10272015	V-03A-10272015	V-04A-10272015	V-04C-10272015	V-05A-10282015	V-06A-10282015	V-07A-10282015	V-08A-10262015	V-08B-10262015
Metals										
Antimony	mg/kg	ND<20	ND<10	ND<10	35	45	ND<20	230	8.7	ND<10
Arsenic	mg/kg	ND<10	16	6.4	ND<5.0	ND<10	13	23	20	27
Barium	mg/kg	180	930	700	460	610	390	680	720	230
Beryllium	mg/kg	ND<10	ND<5.0	ND<5.0	ND<5.0	ND<10	ND<10	ND<20	ND<1.0	ND<5.0
Cadmium	mg/kg	ND<10	390	9.6	7.6	ND<10	ND<10	100	ND<1.0	ND<5.0
Chromium	mg/kg	16	44	47	38	55	140	190	26	54
Cobalt	mg/kg	ND<10	6.3	11	13	14	10	48	5.0	11
Copper	mg/kg	69000	230	200	3300	4300	1600	29000	370	140
Lead	mg/kg	100	43	360	1000	22	820	1100	33	51
Molybdenum	mg/kg	ND<10	ND<5.0	ND<5.0	ND<5.0	ND<10	ND<10	ND<20	7.9	ND<5.0
Nickel	mg/kg	26	49	110	17	140	60	210	29	79
Selenium	mg/kg	ND<10	91	ND<5.0	ND<5.0	ND<10	ND<10	ND<20	2.8	ND<5.0
Silver	mg/kg	21	ND<5.0	ND<5.0	ND<5.0	ND<10	ND<10	47	ND<1.0	ND<5.0
Thallium	mg/kg	ND<10	ND<5.0	ND<5.0	ND<5.0	ND<10	ND<10	ND<20	ND<1.0	ND<5.0
Vanadium	mg/kg	31	21	31	40	40	80	ND<20	28	49
Zinc	mg/kg	2800	1200	35000	4000	100000	1300	7100	590	2500
Mercury	mg/kg	ND<0.10	ND<0.10	0.15	ND<0.10	ND<0.10	0.18	ND<0.10	ND<0.10	0.18
PAHs										
2-Methylnaphthalene	µg/kg	ND<15	19	30	25	63	ND<15	17	16	220
Acenaphthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Acenaphthylene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	19
Anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(a)anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(a)pyrene	µg/kg	ND<15	120	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(b)fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(g,h,i)perylene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(k)fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Chrysene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Dibenz(a,h)anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	15 UJ	15 UJ	15 UJ	ND<15	ND<15
Fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	17	ND<15	ND<15
Fluorene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Indeno(1,2,3-cd)pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Naphthalene	µg/kg	36	83	110	130	110	37	77	60	560
Phenanthrene	µg/kg	16	20	ND<15	63	44	ND<15	25	22	18
Pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15

Table 4
Analytical Detections Summary
Valley Wildfire

Geosyntec

Analyte	Units	V-09A-10262015	V-11A-10262015	V-12A-10262015	V-15A-10272015	V-16A-10282015	V-16C-10282015	V-17A-10282015	V-19A-10282015	V-19C-10282015
Metals										
Antimony	mg/kg	2.4	ND<20	10	ND<20	3.3	ND<2.0	9.3	ND<40	ND<40
Arsenic	mg/kg	2.6	12	1300	180	5.2	5.1	7.0	ND<20	ND<20
Barium	mg/kg	58	1100	570	560	200	35	180	85	190
Beryllium	mg/kg	ND<1.0	ND<10	ND<5.0	ND<10	1.7	ND<1.0	ND<1.0	ND<20	ND<20
Cadmium	mg/kg	ND<1.0	ND<10	ND<5.0	ND<10	ND<1.0	ND<1.0	68	ND<20	ND<20
Chromium	mg/kg	8.0	80	440	30	83	21	52	ND<20	21
Cobalt	mg/kg	4.0	22	16	ND<10	13	2.4	9.7	ND<20	ND<20
Copper	mg/kg	460	78	790	630	370	24	400	1100	750
Lead	mg/kg	36	610	67	69	1600	16	82	170	47
Molybdenum	mg/kg	ND<1.0	ND<10	ND<5.0	22	21	ND<1.0	17	ND<20	ND<20
Nickel	mg/kg	21	190	130	23	17	22	41	63	ND<20
Selenium	mg/kg	2.6	ND<10	5.9	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<20	ND<20
Silver	mg/kg	ND<1.0	ND<10	ND<5.0	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<20	ND<20
Thallium	mg/kg	ND<1.0	ND<10	ND<5.0	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<20	ND<20
Vanadium	mg/kg	54	37	34	57	26	30	39	48	37
Zinc	mg/kg	610	13000	1400	420	11000	150	370	1300	1500
Mercury	mg/kg	ND<0.10	0.63	ND<0.10	ND<0.10	ND<0.10	ND<0.10	0.70	ND<0.10	ND<0.10
PAHs										
2-Methylnaphthalene	µg/kg	15 J	53	28	16	ND<15	ND<15	21	22	ND<15
Acenaphthene	µg/kg	15 UJ	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Acenaphthylene	µg/kg	15 UJ	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Anthracene	µg/kg	15 UJ	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(a)anthracene	µg/kg	15 UJ	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(a)pyrene	µg/kg	15 UJ	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(b)fluoranthene	µg/kg	15 UJ	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(g,h,i)perylene	µg/kg	15 UJ	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(k)fluoranthene	µg/kg	15 UJ	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	15 UJ
Chrysene	µg/kg	15 UJ	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Dibenz(a,h)anthracene	µg/kg	15 UJ	ND<15	ND<15	15 UJ	15 UJ	15 UJ	15 UJ	15 UJ	15 UJ
Fluoranthene	µg/kg	15 UJ	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Fluorene	µg/kg	15 UJ	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Indeno(1,2,3-cd)pyrene	µg/kg	15 UJ	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	15 UJ
Naphthalene	µg/kg	31 J	360	100	35	ND<15	ND<15	95	68	160 J
Phenanthrene	µg/kg	22 J	71	ND<15	ND<15	ND<15	ND<15	ND<15	25	23
Pyrene	µg/kg	15 UJ	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15

Table 4
Analytical Detections Summary
Valley Wildfire

Geosyntec

Analyte	Units	V-20A-10272015	V-22A-10272015	V-23A-10282015	V-24A-10282015	V-25A-10282015	V-26A-10272015	V-28A-10272015	V-29A-10272015	V-33A-10292015
Metals										
Antimony	mg/kg	25	ND<20	ND<2.0	4.3	ND<2.0	ND<20	44	65	ND<10
Arsenic	mg/kg	ND<10	ND<10	8.7	33	20 J+	68	8.8	13	15
Barium	mg/kg	190	120	69	88	52	78	490	380	240
Beryllium	mg/kg	ND<10	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<5.0	ND<10	ND<5.0
Cadmium	mg/kg	ND<10	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<10	12	ND<10	ND<5.0
Chromium	mg/kg	81	70	11	10	18	27	40	190	25
Cobalt	mg/kg	260	ND<10	8.7	3.4	2.0	ND<10	57	ND<10	6.2
Copper	mg/kg	720	45	620	2100	270 J-	9500	4200	3000	1300
Lead	mg/kg	220	ND<10	15	220	8.4	6000	350	1400	150
Molybdenum	mg/kg	ND<10	ND<10	2.4	14	ND<1.0	ND<10	5.7	ND<10	ND<5.0
Nickel	mg/kg	130	22	33	8.1	14	370	28	83	22
Selenium	mg/kg	ND<10	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<5.0	ND<10	ND<5.0
Silver	mg/kg	ND<10	ND<10	ND<1.0	ND<1.0	ND<1.0	1600	6.3	210	ND<5.0
Thallium	mg/kg	ND<10	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<5.0	ND<10	ND<5.0
Vanadium	mg/kg	49	66	39	22	23	40	28	19	31
Zinc	mg/kg	3200	150	720	1600	310	1400	10000	5400	850
Mercury	mg/kg	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10
PAHs										
2-Methylnaphthalene	µg/kg	ND<15	29	52	ND<15	ND<15	ND<15	ND<15	26	35
Acenaphthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Acenaphthylene	µg/kg	ND<15	ND<15	34	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(a)anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(a)pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(b)fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(g,h,i)perylene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(k)fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Chrysene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Dibenz(a,h)anthracene	µg/kg	ND<15	ND<15	15 UJ	15 UJ	15 UJ	ND<15	ND<15	15 UJ	15 UJ
Fluoranthene	µg/kg	15	35	25	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Fluorene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Indeno(1,2,3-cd)pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Naphthalene	µg/kg	35	72	150	ND<15	ND<15	28	ND<15	77	92
Phenanthrene	µg/kg	31	61	39	18	ND<15	ND<15	ND<15	48	18
Pyrene	µg/kg	15	20	28	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15

Table 4
Analytical Detections Summary
Valley Wildfire

Geosyntec

Analyte	Units	V-40A-10272015	V-43A-10262015	V-46A-10262015	V-50A-10282015	V-54A-10272015	V-56A-10272015	V-57A-10282015	V-58A-10272015	V-61A-10272015
Metals										
Antimony	mg/kg	ND<10	5.7	ND<20	ND<10	ND<20	ND<40	8.3	ND<10	25
Arsenic	mg/kg	15	8.3	ND<10	ND<5.0	12	29	40	6.0	49
Barium	mg/kg	1000	44	160	270	140	240	400	60	190
Beryllium	mg/kg	ND<5.0	ND<1.0	ND<10	ND<5.0	ND<10	ND<20	ND<1.0	ND<5.0	ND<5.0
Cadmium	mg/kg	ND<5.0	ND<1.0	ND<10	ND<5.0	ND<10	ND<20	ND<1.0	ND<5.0	48
Chromium	mg/kg	28	15	14	34	43	38	33	24	26
Cobalt	mg/kg	7.8	4.4	ND<10	ND<5.0	ND<10	ND<20	5.4	ND<5.0	ND<5.0
Copper	mg/kg	79 J+	870	6700	520	2700	42000	840	410	960
Lead	mg/kg	34	18	43	2100	88	52	69	36	220
Molybdenum	mg/kg	ND<5.0	11	ND<10	ND<5.0	ND<10	ND<20	ND<1.0	ND<5.0	ND<5.0
Nickel	mg/kg	44	16	27	48	23	75	31	45	31
Selenium	mg/kg	ND<5.0	3.5	ND<10	ND<5.0	ND<10	ND<20	ND<1.0	ND<5.0	ND<5.0
Silver	mg/kg	ND<5.0	ND<1.0	ND<10	ND<5.0	ND<10	97	ND<1.0	ND<5.0	ND<5.0
Thallium	mg/kg	ND<5.0	ND<1.0	ND<10	ND<5.0	ND<10	ND<20	ND<1.0	ND<5.0	ND<5.0
Vanadium	mg/kg	45	24	53	55	52	33	51	47	47
Zinc	mg/kg	1700	450	700	500	300	140000	2100	580	470
Mercury	mg/kg	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10
PAHs										
2-Methylnaphthalene	µg/kg	32	ND<15	ND<15	28	23	18	ND<15	ND<15	28
Acenaphthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Acenaphthylene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(a)anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	18
Benzo(a)pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	40
Benzo(b)fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	17
Benzo(g,h,i)perylene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Benzo(k)fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Chrysene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	36
Dibenz(a,h)anthracene	µg/kg	ND<15	ND<15	ND<15	15 UJ	ND<15	ND<15	15 UJ	ND<15	ND<15
Fluoranthene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	27
Fluorene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Indeno(1,2,3-cd)pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15
Naphthalene	µg/kg	170	37	34	85	89	70	26	ND<15	190
Phenanthrene	µg/kg	18	ND<15	ND<15	ND<15	17	ND<15	ND<15	ND<15	41
Pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	ND<15	21

Table 4
Analytical Detections Summary
Valley Wildfire

Geosyntec

Analyte	Units	V-62A-10292015	V-63A-10292015	V-63C-10292015	V-64A-10292015
Metals					
Antimony	mg/kg	11	ND<10	11	ND<20
Arsenic	mg/kg	910	5.9	3.0	580
Barium	mg/kg	340	410	140	150
Beryllium	mg/kg	ND<5.0	ND<5.0	ND<1.0	ND<10
Cadmium	mg/kg	ND<5.0	ND<5.0	ND<1.0	ND<10
Chromium	mg/kg	470	76	14	12
Cobalt	mg/kg	11	17	2.9	ND<10
Copper	mg/kg	5100	1800	810	1600
Lead	mg/kg	33	36	11	56
Molybdenum	mg/kg	ND<5.0	ND<5.0	ND<1.0	ND<10
Nickel	mg/kg	46	81	27	20
Selenium	mg/kg	ND<5.0	ND<5.0	ND<1.0	ND<10
Silver	mg/kg	ND<5.0	ND<5.0	ND<1.0	ND<10
Thallium	mg/kg	ND<5.0	ND<5.0	ND<1.0	ND<10
Vanadium	mg/kg	45	84	59	31
Zinc	mg/kg	3200	990	280	8600
Mercury	mg/kg	ND<0.10	ND<0.10	ND<0.10	ND<0.10
PAHs					
2-Methylnaphthalene	µg/kg	73	27	ND<15	67
Acenaphthene	µg/kg	20	ND<15	ND<15	ND<15
Acenaphthylene	µg/kg	ND<15	ND<15	ND<15	ND<15
Anthracene	µg/kg	ND<15	ND<15	ND<15	ND<15
Benzo(a)anthracene	µg/kg	ND<15	ND<15	29	ND<15
Benzo(a)pyrene	µg/kg	ND<15	ND<15	57	ND<15
Benzo(b)fluoranthene	µg/kg	ND<15	ND<15	99	ND<15
Benzo(g,h,i)perylene	µg/kg	ND<15	ND<15	170	ND<15
Benzo(k)fluoranthene	µg/kg	ND<15	ND<15	99	ND<15
Chrysene	µg/kg	ND<15	19	57	ND<15
Dibenz(a,h)anthracene	µg/kg	15 UJ	15 UJ	78 J	15 UJ
Fluoranthene	µg/kg	ND<15	17	ND<15	ND<15
Fluorene	µg/kg	ND<15	ND<15	ND<15	ND<15
Indeno(1,2,3-cd)pyrene	µg/kg	ND<15	ND<15	73	ND<15
Naphthalene	µg/kg	210	80	28	370
Phenanthrene	µg/kg	ND<15	32	ND<15	ND<15
Pyrene	µg/kg	ND<15	ND<15	ND<15	ND<15

Notes:
ND<: Analyte not detected above laboratory reporting limits
mg/kg milligrams per kilogram
µg/kg: micrograms per kilogram
U: The analyte was analyzed for, but was not detected ("non-detect") at or above the MRL/MDL
J: The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+: The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference.
J-: The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.

Table 5
Regulatory Screening Levels and Statistics Comparison Summary
Butte and Valley Wildfires

Geosyntec

	Analyte	Arsenic	Cadmium	Copper	Lead	Nickel	Zinc	Naphthalene
	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/kg
Screening Levels	RSL Residential [1]	0.11	4.5	3,100	80	0.42	23,000	3,800
	RSL Commercial [1]	0.42	5.7	47,000	320	1.3	350,000	17,000
	Protection of Groundwater SSL [1]	0.0015	0.38	28	14	26	370	0.54
	Regional Background [2]	0.6 - 11.0 (3.5)	0.05 - 1.70 (0.36)	9.1 - 96.4 (28.7)	12.4 - 97.1 (23.9)	9 - 509 (57)	88 - 236 (149)	-
Butte	**Butte Mean**	**43.49 [a]**	**22.7 [a]**	**9,861**	**2449 [a]**	**40.44 [a]**	**4,476**	**122.9 [a]**
	Butte Geometric Mean	**16.95**	**11.65**	**1,193**	**212.2**	**26.93**	**2,447**	**77.40**
	Butte 95% UCL	**71.58**	**27.04**	**38,565**	**11,729**	**48.98**	**6,009**	**194.2**
Valley	**Valley Mean**	**87.28 [a]**	**17.01 [a]**	**4,972**	**434.8 [a]**	**61.64 [a]**	**9,194**	**99.63 [a]**
	Valley Geometric Mean	**15.08**	**3.67**	**1,002**	**100.5**	**40.95**	**1,706**	**57.45**
	Valley 95% UCL	**343**	**35.1**	**13,954**	**1,449**	**109.4**	**27,682**	**130.2**
Cum-ulative	**Cumulative Mean**	**60.64 [a]**	**11.34 [a]**	**7,505**	**1478 [a]**	**49.84 [a]**	**6,749**	**111.7 [a]**
	Cumulative Geometric Mean	**16.03**	**6.68**	**1,096**	**148.0**	**32.96**	**2,057**	**67.05**
	Cumulative 95% UCL	**154.9**	**20.18**	**22,949**	**6,328**	**60.83**	**8,071**	**129.9**

Notes:
1 Screening levels from 2015 EPA RSLs except where established in May 2015 DTSC HHRA Note 3. The most conservative (risk based vs. MCL based) values were used for the soil to groundwater pathway.
2 Taken from Kearney Foundation of Soil Science Division of Agriculture and Natural Resources, University of California Background Concentrations of Trace and Major Elements in California Soil – Special Report (1996). Notation: min - max (average).

a:	Mean derived from Kaplan-Meier stastics using a censored data set
mg/kg	milligrams per kilogram
µg/kg:	micrograms per kilogram
-	Not established

Results in **Bold** exceed one or more screening levels

FIGURES

APPENDIX A

Sampling and Analysis Plan

SAMPLING AND ANALYSIS PLAN

BURNED DEBRIS CHARACTERIZATION
2015 BUTTE AND VALLEY WILDFIRES
CALAVERAS AND LAKE COUNTIES, CALIFORNIA

Photo Credit: Kent Porter / Press Democrat, 2015

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21 October 2015

SAMPLING AND ANALYSIS PLAN
BURNED DEBRIS CHARACTERIZATION
2015 BUTTE AND VALLEY WILDFIRES
CALAVERAS AND LAKE COUNTIES, CALIFORNIA

I certify that this document and all attachments presented in this report are accurate and complete. This report was prepared by the staff of Geosyntec Consultants under my supervision to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who are directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

PROFESSIONAL GEOLOGIST
VERYL L. WITTIG
No. 7115
STATE OF CALIFORNIA

Original signed by Veryl Wittig

10/21/2015

Veryl Wittig
California Professional Geologist No. 7115

Date

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1. INTRODUCTION

As requested by the California Department of Toxic Substances Control (DTSC), Geosyntec Consultants (Geosyntec) prepared this sampling and analysis plan (SAP) to characterize residential areas burned during the September and October 2015 Butte and Valley Wildfires located primarily in Calaveras and Lake Counties, California. This SAP was prepared by Mr. Douglas Baumwirt, PG, and has been reviewed by Mr. Veryl Wittig, PG, CHG, in accordance with the peer review policy of the firm. This SAP was also reviewed by staff from the United States Environmental Protection Agency (USEPA), DTSC, California Office of Environmental Health Hazard Assessment (OEHHA), California Office of Emergency Services (OES), and Calaveras and Lake Counties. Comments on the draft SAP received from the DTSC and USEPA, and Geosyntec's corresponding responses are provided in Appendix A.

1.1 Background

The Valley and Butte wildfires resulted in adverse impacts to people and properties, burned thousands of acres, damaged and destroyed thousands of homes and other structures, and have the potential to damage natural resources and watersheds. According to the California Department of Forestry and Fire Protection (Cal Fire), the Butte Fire burned approximately 70,000 acres and destroyed 818 residences and outbuildings, and the Valley Fire burned approximately 76,000 acres and destroyed 1,892 residences and outbuildings.

As outlined in Executive Order B-35-15, Governor Brown declared states of emergency due to the destruction caused by wildfires in Calaveras County (declared on 11 September 2015) and Lake County (declared on 13 September 2015). On 22 September 2015, President Obama declared a major disaster for these counties, thereby making federal disaster aid funding available for both fires. Federal Environmental Management Agency (FEMA) assistance was subsequently granted in the form of a "Fire Management Assistance Grant," which covers a variety of eligible costs, but does not cover removal of burned debris and ash known to contain potentially hazardous materials and which may pose a threat to human health and water quality in and around the affected areas.

Previous assessments performed by Geosyntec following the 2003 and 2007 Southern California Wildfires, and guidance documents prepared by the California Environmental Protection Agency (CalEPA) and CalRecycle indicate that large volumes of hazardous substances are commonly present in burned residential areas [Geosyntec, 2007; CalEPA, 2011; CalRecycle, 2015]. Common constituents of concern (COCs) in burn debris and ash in residential areas include:

- **Metals** from batteries, treated wood, plumbing, building materials and automobiles;

- **Pesticides and Herbicides** from lawn, garden and home products;
- **Polynuclear aromatic hydrocarbons (PAHs)** from tires, plastics, and substances containing hydrocarbons;
- **Asbestos** from building materials, insulation, flooring and roofing materials;
- **Polychlorinated biphenyls (PCBs)** from appliances, transformers, and automotive parts; and
- **Dioxins and furans** created by burning organic materials.

Laboratory analysis of residential burn debris and ash following the 2007 Wildfires demonstrated the presence of elevated concentrations of metals, including arsenic, cadmium, copper, lead and zinc, and certain PAHs. Concentrations of these constituents were present at levels exceeding statutorily-established, health-based criteria.

The destruction left in the wake of the Butte and Valley Wildfires has the potential to result in widespread public exposure to hazardous materials. Residents may be exposed to contaminants in burn debris and ash via dermal contact, ingestion, and inhalation. With the pending winter rains comes the potential for surface water and groundwater contamination from the offsite migration of hazardous substances contained within the burn debris and ash. In addition, particulate matter in wind-entrained ash may also pose an inhalation risk.

FEMA Disaster Assistance Policy 9523.13, “Debris Removal From Private Property,” dated 18 July 2007, Sections 403(a)(3)(A) and 407 of the Stafford Act, and 42 U.S.C. 5170b and 5173, provides FEMA authority to fund debris removal from private property provided that the State or local government arranges an unconditional authorization for removal of the debris, and agrees to indemnify the Federal government against any claim arising from the removal. The regulations implementing Sections 403 and 407 of the Stafford Act at 44 CFR 206.224 require that debris removal be in the "public interest" in order to be eligible for reimbursement. FEMA defines "public interest" as being necessary to: eliminate immediate threats to life, public health, and safety; eliminate immediate threats of significant damage to improved property; or ensure economic recovery of the affected community to the benefit of the community-at-1arge. In these situations, debris removal from private property may be considered to be in the public interest and thus may be eligible for reimbursement under the Public Assistance Program (44 CFR 206.224).

Based on the previous post-fire characterization data collected by Geosyntec, the CalEPA and its boards, departments, and offices determined that the burn debris and ash resulting from the 2007 Southern California Wildfires posed an immediate threat to public health and safety. It was demonstrated that expedited removal of residual burn debris and ash resulting from the 2007 Wildfires was in the “public interest” due to immediate threats to

human health, public safety, and the environment posed by hazardous constituents in the residual burn debris and ash on improved properties. As a result, the State and affected communities received FEMA grant funds to offset the cost of debris removal associated with the 2007 Wildfires.

Geosyntec understands that State, County and local agencies, and Counties of Calaveras and Lake are interested in demonstrating that expedited removal of residual burned debris and ash resulting from the wildfires is in the "public interest" due to immediate threats to human health (primarily adult and children residents within and near the affected communities), public safety, and the environment (primarily water quality and air quality) posed by hazardous constituents in the residual burned debris and ash on improved properties.

1.2 Objectives

The objective of this SAP is to facilitate the performance of a representative characterization of the residual burned debris and ash in residential areas to assess the presence of hazardous COCs. The concentrations of COCs in the burned debris and ash will be compared to statutorily-established human health-based screening levels, including the more stringent concentration for each COC as presented in USEPA Region IX Regional Screening Levels for residential properties (residential RSLs) and the DTSC's Human and Ecological Risk Office Note 3, DTSC-Modified Screening Levels [USEPA, 2015 and DTSC, 2015][1]. If COCs in the burned debris and ash are present at concentrations exceeding established residential screening levels, then such data will be used in support of the determination of an immediate threat to public health and safety made by CalEPA and its boards, departments, and offices, according to FEMA Disaster Assistance Policy 9523.13.

This SAP includes a representative statistically-based sampling program developed to objectively characterize the hazards associated with burned debris and ash within the two areas affected by the 2015 Butte and Valley Wildfires. By using a statistically-based random sampling approach for a randomly selected subset of burned residential properties, the conclusions based on the sample analyses may be generalized to all residential areas affected by each respective wildfire. Therefore, sampling at each of the thousands of properties will not be necessary.

[1] Excludes arsenic. Arsenic commonly occurs naturally at concentrations in excess of human health-based screening levels; therefore, arsenic will be compared to a background-based screening level.

2. DESCRIPTION OF BURNED AREAS AND SAMPLING RATIONALE

This section provides a general description of the burned areas, proposed sampling locations, and regulatory framework for sampling protocol.

2.1 Description of Burned Areas

Based on information provided to Geosyntec and obtained from the Cal Fire website, the 2015 Butte and Valley Wildfires burned more than 146,000 acres, and destroyed an estimated 2,776 structures, including 1,782 residential structures, 66 commercial structures, 928 outbuildings (detached garages, barns, sheds and other structures), and an unknown amount of vehicles and equipment. A summary of pertinent characteristics for each of the two subject Wildfire-affected areas are summarized in the following table:

Fire Name	Counties Affected	Acres Burned	Residential, Structures Destroyed	Outbuildings Destroyed
Butte	Calaveras and Amador	70,868	475	343
Valley	Lake, Napa, and Sonoma	76,067	1,307	585

2.2 Constituents of Concern

Based on sampling and laboratory analyses following the 2003 and 2007 Southern California Wildfires, metals (primarily arsenic, lead, zinc, copper, antimony), and PAHs (primarily benzo(a)anthracene, benzo(a)pyrene, and dibenz(a,h)anthracene) were the COCs most frequently detected at concentrations exceeding health-based screening levels and were established as the primary COCs. The CalEPA and USEPA previously concurred that metals and PAHs were the primary COCs for the characterization of hazards associated with burned debris. Subsequently, those were the laboratory analyses performed following the 2007 fires. Continuing with that precedent, metals and PAHs analysis will be performed as described in the SAP and will be used as the index parameters for hazardous substance classification.

Other constituents of potential concern (COPCs) in residential burned debris include pesticides and herbicides from lawn, garden and home products; asbestos from building materials, insulation, flooring and roofing materials; PCBs from appliances, transformers, and automotive parts; polybrominated biphenyls (PBBs) used as flame retardants in textiles, carpets, and plastics; and dioxins and furans created by burning organic materials. However, it has been determined that concentrations of these COPCs are unlikely to be present in burn debris and ash at elevated concentrations without also containing elevated concentrations of the primary COCs. Therefore, analysis of these COPCs is not warranted at this time.

2.3 Sampling Areas

The sampling and analysis of burn debris and ash for the Butte and Valley Wildfires will be managed independently. That is, a randomly selected subset of the total amount of residential parcels of land identified by Cal Fire with burned structures within the footprint of the Butte Fire will be selected for sampling and analysis. Likewise, the same approach will be performed independently for the footprint of the Valley Fire.

Sampling will be performed on or near the footprint of the former structures (where the burn debris and ash is typically located) on the residential properties randomly selected within the two wildfire affected areas. In the case where burn debris and ash has been consolidated at the site within a stockpile or roll-off bin in preparation for offsite transport and disposal, samples will be collected following stockpile or containerized material sampling protocol summarized in Section 3.1.

2.4 Sample Size

The San Diego and San Bernardino sample area 2007 data sets were statistically analyzed to determine that a sufficient number of samples were collected to provide a valid evaluation of the burn debris of locations. Based on the average coefficient of variation of the sample data, the number of samples required to estimate the true mean within 60 percent relative error at the 95 percent confidence level was 56 samples [Geosyntec, 2007]. Since the combined dataset contained 74 observations in 2007, this was well above the minimum required number. Therefore, a sufficient number of samples were collected for statistical purposes in 2007.

Based on the median variability observed in the 2007 Wildfire dataset, the sample size required to estimate the mean concentration was calculated at 56 samples or approximately 28 samples from each fire location. Further, based on the variability of lead[2] concentrations observed in the 2007 Wildfire dataset, which was the COC with the highest independent variability, the required sample size was calculated at approximately 31 samples from each fire location. The sampling variability from the 2007 ash sampling data is assumed to be reasonably representative of the variability expected in the 2015 sampling. In comparison, the 2007 wildfires burned 361,450 acres and destroyed 2,221 structures and 1,164 outbuildings versus the 2015 wildfire which burned 199,935 acres and destroyed 1,702 structures and 928 outbuildings. However, as a conservative measure to account for variability in data and to decrease the potential for not collecting an adequate number of samples to achieve the project objectives, a minimum sample size of 35 locations within each of the areas affected by the Valley and Butte Fires was selected as a conservative number of burn debris and ash samples to estimate the mean

[2] Calculation of the Coefficient of Variation for lead in the 2007 Wildfire dataset excluded one non-representative outlier data point.

concentration for the COCs for the 2015 post fire assessment. Further, to supplement the minimum sample size, additional samples will be collected from some properties that contain significant volumes of ash from burned outbuildings, and one independent duplicate sample will be collected for every 10 primary samples collected.

2.5 Sampling Locations

Sampling locations will be selected using a representative statistically-based sampling program developed to objectively characterize the hazards associated with burned debris and ash. Data quality objectives (DQOs) are presented in Appendix B. The data will be collected in a manner such that conclusions based on the sample analyses for the randomly selected sample set may be generalized to all residential areas affected by the respective wildfire-affected areas. Therefore, sampling for each property will not be necessary.

A subset of parcels that contain a destroyed structure have been randomly selected from the total number of parcels with destroyed structures within each of the two affected areas and designated as locations to have samples collected from the destroyed structure. The "Sampling Design Tool" in ArcGIS Version 10.1 was utilized to make the random point selection within each burn area polygon. The tool randomly selected 35 primary parcels with destroyed residences from the Butte Fire area in Calaveras County, and 35 primary parcels with destroyed residences in the Valley Fire area of Lake County as a sample size large enough to generally characterize the study areas. A list of 30 alternate parcels within each of the two areas has also been randomly selected by the GIS system in advance of the field sampling. If one or more of the primary parcels randomly selected for sampling has already been cleared or are otherwise inaccessible due to limited access, safety concerns, or other limitations, an alternate sampling parcel will be selected from the list of 30 alternate parcels within each of the two areas. The lists of randomly-selected parcels with fire-destroyed homes in the Butte and Valley Fire-affected areas are presented in Tables 1 and 2, respectively. Further, if more than the 30 alternative properties are inaccessible or have already been cleared of ash and debris, Geosyntec's GIS-specialist will be on-call to produce additional randomly-selected parcels for the field teams. Data generated from such parcels will provide a characterization of the COCs in a typical burned neighborhood within the specific Wildfire area, and will not be used for the purpose of characterizing hazardous material present at a specific parcel.

2.4 Regulatory Guidance

Various protocols for sampling burned debris on residential properties are available. The preparation of this SAP includes reference to the following regulatory guidance documents for general guidance in evaluating constituents of concern, evaluating sampling protocol, and evaluating the threats posed by burn debris and ash to human health and the environment:

- Information regarding wildfire burn debris composition and estimated volumes of burned debris associated with burned residences were obtained from CalRecycle's *Debris Removal Operations Plan with Project Specifications for the Trinity County Fire Complex* [CalRecycle, 2015].

- Data quality objectives and screening levels were based on screening levels presented in the USEPA's *Region IX Regional Screening Levels* and DTSC's *Human and Ecological Risk Office Note 3, DTSC-Modified Screening Levels* [USEPA, 2015 and DTSC, 2015].

- Analytical testing requirements, safety considerations, and regulatory framework were reviewed from CalEPA's *Guidance for Conducting Emergency Debris, Waste and Hazardous Material Removal Actions Pursuant to a State of Local Emergency Proclamation* [CalEPA, 2011].

- Procedures to evaluate risk to public health were reviewed from California Integrated Waste Management Board (CIWMB) *LEA Advisory #56 Process for Evaluating and Remediating Burn Dump Sites* [CIWMB, 1998], and DTSC's *Protocol for Burn Dump Site Investigation and Characterization*, [DTSC, 2003].

- Composite and debris sampling protocol, and statistical methods were reviewed from the USEPA's Resource Conservation and Recovery Act (RCRA) *Waste Sampling Technical Guidance* [USEPA, 2002].

- Stockpile and container sampling guidance and statistical methodology were reviewed from USEPA's *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846* [USEPA, 1986].

3. FIELD SAMPLING

The following sections describe the sampling methodology, analytical parameters, and sample handling procedures to be followed. A project specific health and safety plan has been prepared and will be implemented to address potential hazards which may be encountered at the sampling sites and administrative or engineering controls for maintaining worker health and safety.

3.1 Sampling Methodology

Upon arrival to a property to be sampled, the field team will identify the number of burned structures to be characterized within the randomly selected parcel, and estimate the volume of ash and burn debris associated with each structure based on the dimensions of the former structure foundations. If the estimated cumulative volume of ash and debris for the outbuildings on the parcel is determined to exceed 50% of the estimated volume of ash and debris for the primary structure (including the attached garage, if present), then a second composite sample will be collected for the parcel to independently represent the collective outbuildings.

Based on volume estimates calculated from the 2007 Angora Fire in the Lake Tahoe area which affected similar woodland communities, it is expected that the average burn ash and debris volume resulting from burned residential structures and associated outbuildings is approximately 125 cubic yards (CY) [CalRecycle, 2015]. The amount of individual aliquot samples comprising each composite sample will be based on the following criteria:

ESTIMATED BURN ASH/DEBRIS[3] VOLUME (CY)	ALIQUOT QUANTITY[4]
Less than 10 (e.g., Shed or Small Garage)	2
10 to 20 (e.g., Garage or Small Barn)	3
20 to 100 (e.g., House up to 1, 500 sq ft)	4
100 + (e.g., House > 1,500 sq ft)	1 for each 25 CY

Note: Weight to volume estimate based on CalRecycle burn debris/ash conversion of 1,000 pounds/cubic yard

One composite sample consisting of 8-ounce aliquots of ash or burn debris based on the estimated volume of the destroyed structure as described in the above table will be collected from the footprint of former structures at locations determined by a random number generator. At a minimum, one ash or burn debris aliquot will be collected from

[3]: Burn ash and debris does not include rock, concrete, brick, stucco, metal, or glass.

[4] Number of discrete points comprising the composite sample was developed based on characterizing a known volume of material in a stockpile or container in accordance with USEPA guidance [USEPA, 1986].

the location of the former garage vicinity for residential structures with attached garages. Outbuildings (e.g. detached garage, shed, barn, etc.), if present within the randomly selected parcels, will also be sampled. A maximum of two composite samples will be collected for each parcel (not including field duplicate samples). An example field sampling form is attached (Appendix C).

The footprint of each former structure within the randomly selected parcel will be divided into two to six approximately equal "cells" using the criteria listed in the preceding table. Using the random number generator output on each field sampling form, "x" and "y" sample location coordinates for each cell will be determined. To provide adequate sample volume to perform the necessary laboratory analyses, composite samples will consist of a minimum of 16 ounces of burn debris and ash. Approximately 8-ounces of ash or burn debris[5] at each random sampling location will be collected using a new single-use 8-ounce sampling scoop and placed into a new single-use stainless-steel mixing bowl for homogenization. Homogenization will consist of manually mixing the aliquots until the composite sample appears thoroughly mixed based on a visual assessment. Following homogenization of the composite sample which will contain a minimum of 16 ounces, the resulting material will be placed in one 8-ounce glass jar which will provide an adequate sample volume to perform the proposed laboratory analyses. In addition to sketching the property layout and sample locations on the field sampling form, the sampling team will take photographs depicting an overview of each site and of the random sample locations at each site, and record the photograph numbers on the field sampling log.

If the burn debris has been removed from the foundation of the structure and is stockpiled on the randomly-selected property, or placed within a roll-off bin on the randomly-selected property, a composite sample of the stockpile or bin will be collected[6]. For stockpiles and bins, the minimum number of samples comprising the composite sample is summarized as follows:

- Stockpiles/bins less than 10 cubic yards: 2 aliquots will be collected for compositing, one from each half of the stockpile/bin;
- Stockpiles/bins 10-20 cubic yards: 3 aliquots will be collected for compositing, one from each third of the stockpile/bin;

[5] : Materials to be sampled at each random sampling location will consist of approximately 8-ounces of ash and fine-gravel-sized (0.75-inch) or smaller burn debris fragments. If ash or burn debris is not present at the random sampling location, an alternate random sampling point for the cell will be selected from a list of random sample coordinates.

[6] Since the process of stockpiling or placing the ash and burned debris within a bin will involve mixing materials from throughout the site and will essentially create a "composite" mass of ash and debris, samples will be collected from the upper six inches of material at the approximate center point of each half, third, or quarter of the stockpile or bin.

- Stockpiles from 20-100 cubic yards: 4 aliquots will be collected for compositing, one from each quarter of the stockpile/bin.

Duplicate Samples

To evaluate the variability of the chemical composition of the sample set, blind field duplicate samples will be collected at a frequency of approximately 10%. For every 10th composite sample collected by each field crew, a separate duplicate sample will be collected following the same process. The duplicate sample will be comprised of independently collected, composited, and homogenized aliquots; not split from the previously mixed sample.

3.1.1 Analytical Parameters

Laboratory analyses will be performed by Advanced Technology Laboratory in Signal Hill, California, a California Department of Public Health certified laboratory. Each composite sample (estimated 80 samples total) will be analyzed for Title 22 metals (TTLC) by EPA Method 6010B/7471A and PAHs by EPA Method 8270 SIM. Laboratory method detection limits (MDLs) and reporting limits for the two analytical methods listed above are included in Appendix D. With the exception of arsenic, the laboratory MDLs are less than the statutorily-established health based criteria described herein. The MDL for arsenic is less than the background-based criteria to be utilized.

Each field team will collect one blind duplicate sample for every 10 primary samples for the analyses listed above. This will be used to evaluate variability within a given property, not the sampling and analytical precision. In addition, quality control (QC) to be performed by the analytical laboratory to assess laboratory precision and accuracy will include method blanks, laboratory control spikes/laboratory control spike duplicates, and matrix spike/matrix spike duplicates.

Precision will be assessed qualitatively based on relative percent difference (RPD) and defined by:

$$\% \text{ RPD} = \frac{|S_1 - S_2|}{Sav} \times 100$$

where: S_1 = first sample result

S_2 = second sample result

Sav = average of sample and duplicate $(S_1+S_2)/2$

Accuracy will be assessed qualitatively based on percent recovery (% R) and defined by:

$$\% R = \frac{A-B}{C} x100$$

where: A = analytical result for spiked sample
B = background level determined by a separate analysis of the unspiked sample
C = amount of spike added

Method Blanks: A method blank is a laboratory-generated sample that assesses the degree to which laboratory operations and procedures cause false-positive analytical results for the samples. The method blank results associated with the samples will be included with the laboratory report.

Laboratory Control Spike and Laboratory Control Spike Duplicate (LCS/LCSD): LCS/LCSDs are laboratory control samples that are spiked with known analyte concentrations and analyzed at one per batch of 20. LCS/LCSD results are assessed for percent recovery and RPD and compared to established method-specific control limits. The LCS/LCSD results associated with the samples will be included in the laboratory report.

Matrix Spike and Matrix Spike Duplicate MS/MSD: MS/MSDs are field samples spiked with known analyte concentrations and analyzed at one per batch of 20. MS/MSD results are assessed for percent recovery and RPD and compared to established method-specific control limits. The MS/MSD results associated with the samples will be included in the laboratory

Discussion regarding data validation is provided in the Data Quality Objectives presented in Appendix B, and a copy of the Data Validation Checklist is provided in Appendix E.

3.2 Sample Handling

The following sections detail methods that are to be used for sample labeling, identification, containerizing, preservation, transportation, and maintaining proper chain of custody. Samples will be handled in accordance with standard EPA sampling protocol.

3.2.1 Sample Labeling and Identification

Each sample will be designated with a unique identification number. The sample identification number will identify the Wildfire (“B” for Butte; “V” for Valley), site number (1 through 35), sample type (“A” for primary; “B” for outbuilding sample, if

collected; "C" for duplicate, if collected), and date. For example, B-03A-10252015 identifies that this sample was collected from the Butte Fire area at Site No. 03 representing the primary residential structure on October 25th, 2015.

3.2.2 Sample Containers and Transportation

Following homogenization, burn debris samples will be placed in 8-ounce wide-mouth glass jars, sealed with Teflon-lined plastic lids. Sample jars will be labeled, sealed in plastic bags, stored on ice, and transported to the laboratory in a cooler. The individual who collects the samples will prepare them for shipment, complete the chain-of-custody form, and sign the form when transferring the samples to the laboratory courier.

3.2.3 Chain-of-Custody Procedures

A chain-of-custody form will be used to record possession of the samples from the time of collection to arrival at the laboratory. The samples will be released to the laboratory by signature on the chain-of-custody form. The laboratory control officer will verify all samples listed on the chain-of-custody form are present; verify sample integrity; and that proper sample preservation procedures are utilized.

3.3 Field Documentation

The following information about each sampling site will be documented on field forms (example attached):

- Field crew names;
- Date of sampling;
- Site address (if known);
- Site Assessors Parcel number;
- GPS coordinates of structure sampled;
- Sketch depicting footprint of structure sampled, garage location (if known), and approximate sample locations;
- Approximate ash and burn debris volumes at the site;
- Sample identification numbers (A, B, or C);
- Photo identification numbers;
- Chain of custody number; and
- General observations.

4. PROJECT MANAGEMENT

4.1 Site Management and Project Schedule

4.1.1 Project Management

Mr. Douglas Baumwirt will serve as the project manager and will be responsible for daily operations and successful project execution. Mr. Veryl Wittig will serve as the project director and will be responsible for QA/QC for the project deliverables.

4.1.2 Training

All onsite workers will be required to have current 40-hour HAZWOPER certification prior to the commencement of work. Safety meetings will be held at the commencement of the project and each day before work begins to discuss safe work practices during field activities.

4.1.3 Project Schedule

Geosyntec is prepared to commence site sampling as early as 26 October 2015. Once initiated, the site sampling for both Wildfire areas will be completed by two crews within five calendar days. Laboratory analyses will be performed on a normal turn-around basis (5 business days), unless expedited analyses are requested by DTSC. A draft report will be submitted to DTSC within eight business days of receipt of final laboratory data. The following tentative schedule has been prepared based on a start date of 26 October 2015, and will be adjusted accordingly based on a later start date for the field sampling.

ACTIVITY	TARGET COMPLETION DATE
Commence Sampling	26 October 2015
Complete Field Sampling	30 October 2015
Receive Final Laboratory Data	9 November 2015
Provide Draft Report to DTSC for Review	23 November 2015
Receive DTSC Comments on Draft Report	2 December 2015
Finalize and Distribute Report	9 December 2015

5. References

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United States Environmental Protection Agency (USEPA), 2015. *Region IX Regional Screening Levels, Summary Table for Residential Soil Parameters*. June 2015.

TABLES

TABLE 1
RANDOMLY-SELECTED PARCELS FOR BURN DEBRIS AND ASH SAMPLING
BUTTE FIRE[1]

Geosyntec consultants

Butte Fire Site No.	Assessor's Parcel Number	Address
B-1	14004041	13071 HWY 26, GLENCOE, CA
B-2	16018096	500 PEREGRINE RD, MOKELUMNE HILL, CA
B-3	16024045	6898 SESAME ST, MOKELUMNE HILL, CA
B-4	16025014	7055 DOSTER RD, MOKELUMNE HILL, CA
B-5	16025025	8076 DOSTER RD, MOKELUMNE HILL, CA
B-6	16027040	700 MUSIC GULCH, MOKELUMNE HILL, CA
B-7	16027061	486 RICH GULCH RD, MOKELUMNE HILL, CA
B-8	16032018	446 DIRT RD, MOKELUMNE HILL, CA
B-9	16033003	7957 DOSTER RD, MOKELUMNE HILL, CA
B-10	20014006	5986 OLD EMIGRANT TR WEST, MOUNTAIN RANCH, CA
B-11	20015010	5839 OLD EMIGRANT TR WEST, MOUNTAIN RANCH, CA
B-12	20015011	5776 HANGMANS TREE, MOUNTAIN RANCH, CA
B-13	20017008	5441 OLD EMIGRANT TR WEST, MOUNTAIN RANCH, CA
B-14	21003044	8686 E MURRAY CREEK RD, MOUNTAIN RANCH, CA
B-15	21004019	7534 PINE RIDGE LN, MOUNTAIN RANCH, CA
B-16	21004040	6345 CEDAR SPRINGS RD, MOUNTAIN RANCH, CA
B-17	21004107	7100 STRUCKMAN RD, MOUNTAIN RANCH, CA
B-18	21005043	183 3M LN, MOUNTAIN RANCH, CA
B-19	21006004	7872 SHEEP RANCH RD, MOUNTAIN RANCH, CA
B-20	21007005	5909 CALAVERAS CR, MOUNTAIN RANCH, CA
B-21	21010034	7562 EAGLE VIEW DR, MOUNTAIN RANCH, CA
B-22	21010047	6195 TROUT LN, MOUNTAIN RANCH, CA
B-23	36001027	8104 W MURRAY CREEK RD, MOUNTAIN RANCH, CA
B-24	36008119	8954 MOUNTAIN RANCH RD, MOUNTAIN RANCH, CA
B-25	36033002	9375 SUN RD, MOUNTAIN RANCH, CA
B-26	38001050	5619 DEL SOL LN, SAN ANDREAS, CA
B-27	38003005	5918 MOUNTAIN RANCH RD, MOUNTAIN RANCH, CA
B-28	38003107	5767 MOUNTAIN RANCH RD, MOUNTAIN RANCH, CA
B-29	38005050	7090 FRECCERO RD, MOUNTAIN RANCH, CA
B-30	38013023	7402 OLD MINERS WY, SAN ANDREAS, CA
B-31	38015043	5195 ROCKY RD, SAN ANDREAS, CA
B-32	38015076	5099 DEL SOL LN, SAN ANDREAS, CA
B-33	38020009	6968 MICHEL RD, MOUNTAIN RANCH, CA
B-34	38021015	8068 MOUNTAIN MEADOWS DR, MOUNTAIN RANCH, CA
B-35	40016067	6100 W MURRAY CREEK RD, MOUNTAIN RANCH, CA
Alternative Randomly-Selected Parcels with Burned Residences[2]		
B-36	14002024	541 DIAMOND LN, GLENCOE, CA
B-37	16018079	481 JOJOBA LN, MOKELUMNE HILL, CA
B-38	16025107	315 INDIAN RIDGE RD, MOKELUMNE HILL, CA
B-39	16026032	12239 JESUS MARIA RD, MOKELUMNE HILL, CA
B-40	20014014	6321 OLD EMIGRANT TR WEST, MOUNTAIN RANCH, CA
B-41	20026001	5878 OLD EMIGRANT TR EAST, MOUNTAIN RANCH, CA
B-42	20027104	19974 JESUS MARIA RD, MOUNTAIN RANCH, CA
B-43	21003010	8734 E MURRAY CREEK RD, MOUNTAIN RANCH, CA
B-44	21003037	9455 EL DORADO TR, MOUNTAIN RANCH, CA
B-45	21004015	6315 CEDAR SPRINGS RD, MOUNTAIN RANCH, CA
B-46	21004066	7314 PINE RIDGE LN, MOUNTAIN RANCH, CA
B-47	21004112	7133 STRUCKMAN RD, MOUNTAIN RANCH, CA
B-48	21005019	8850 AVENUE A, MOUNTAIN RANCH, CA
B-49	21005044	350 3M LN, MOUNTAIN RANCH, CA
B-50	21008012	EAGLE VIEW DR, MOUNTAIN RANCH, CA
B-51	21010046	6095 TROUT LN, MOUNTAIN RANCH, CA
B-52	21011014	150 ROYAL RIDGE DR, MOUNTAIN RANCH, CA
B-53	21011020	110 ROYAL RIDGE DR, MOUNTAIN RANCH, CA
B-54	21012002	8498 LAKESIDE DR, MOUNTAIN RANCH, CA
B-55	21025006	9893 WENDELL RD, MOUNTAIN RANCH, CA
B-56	36001025	5881 MOUNTAIN RANCH RD, MOUNTAIN RANCH, CA
B-57	36001031	5808 LUCKY JIM MINE RD, MOUNTAIN RANCH, CA
B-58	36008056	8736 RODESINO RD, MOUNTAIN RANCH, CA
B-59	36008137	8485 MOUNTAIN RANCH RD, MOUNTAIN RANCH, CA
B-60	38001066	5227 DEL SOL LN, SAN ANDREAS, CA
B-61	38001068	5622 DEL SOL LN, SAN ANDREAS, CA
B-62	38001067	355 GOBBLERS GULCH RD, SAN ANDREAS, CA
B-63	38001076	11500 MURRAY DALE LN, SAN ANDREAS, CA
B-64	38001102	6396 OLD GULCH RD, SAN ANDREAS, CA
B-65	38003031	400 DEMOSS LN, MOUNTAIN RANCH, CA

Notes:

1 - Sites randomly selected from a list of fire-destroyed residential parcels identified by Cal Fire

2 - If a primary randomly-selected site has already been cleared or is inaccessible for sampling, randomly selected alternative sites will be

TABLE 2
RANDOMLY-SELECTED PARCELS FOR BURN DEBRIS AND ASH SAMPLING
VALLEY FIRE[1]

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Valley Fire Site No.	Assessor's Parcel Number	Address	Anticipated Number of Structures Destroyed
V-1	1104039	14825 BOTTLE ROCK RD COBB CA 95426	1
V-2	1105403	16535 CASALE DR MIDDLETOWN CA 95461	2
V-3	1202448	12335 SEIGLER CANYON RD LOWER LAKE CA 95457	1
V-4	1304112	19392 STATE HIGHWAY 175 MIDDLETOWN CA 95461	2
V-5	1305501	16525 STARVIEW LOOP RD COBB CA 95426	2
V-6	1305507	12001 GIFFORD SPRINGS RD COBB CA 95426	3
V-7	1305520	16679 STARVIEW LOOP RD COBB CA 95426	1
V-8	1408406	20822 STATE HIGHWAY 175 MIDDLETOWN CA 95461	2
V-9	1410424	20797 NAPA AVE MIDDLETOWN CA 95461	3
V-10	1413118	21633 PINE ST MIDDLETOWN CA 95461	1
V-11	1413226	21760 S STATE HIGHWAY 29 MIDDLETOWN CA 95461	3
V-12	1413231	21590 S STATE HIGHWAY 29 MIDDLETOWN CA 95461	1
V-13	2440414	15648 STEWART ST MIDDLETOWN CA 95461	1
V-14	2444119	21165 STATE HIGHWAY 175 MIDDLETOWN CA 95461	1
V-15	5032302	17515 PINE VIEW DR WHISPERING PINES CA 95461	1
V-16	5044110	11159 ANDERSON SPRINGS RD MIDDLETOWN CA 95461	1
V-17	5046101	11265 ROSE ANDERSON RD MIDDLETOWN CA 95461	1
V-18	5057105	10951 HOT SPRINGS RD MIDDLETOWN CA 95461	3
V-19	5092108	11095 OAK ST COBB CA 95426	2
V-20	5104304	15335 HUMBOLDT DR COBB CA 95426	1
V-21	5105105	15407 SUMMIT BLVD COBB CA 95426	2
V-22	5106105	15300 TRINITY RD COBB CA 95426	2
V-23	5110122	11345 PINE SUMMIT DR COBB CA 95426	1
V-24	5110309	11229 MAPES PASS COBB CA 95426	1
V-25	5110509	11470 PINE SUMMIT DR COBB CA 95426	1
V-26	5111111	15224 HOBERG DR COBB CA 95426	1
V-27	5113108	15580 SUGAR PINE DR COBB CA 95426	1
V-28	5117202	9371 HOBERG DR COBB CA 95426	1
V-29	5119111	9071 BLEUSS CT COBB CA 95426	1
V-30	5226205	12140 SHENANDOAH RD LOCH LOMOND CA 95461	3
V-31	14245203	19805 HONEY HILL DR HIDDEN VALLEY LAKE CA 95467	1
V-32	14415101	21990 YANKEE VALLEY RD HIDDEN VALLEY LAKE CA 95467	1
V-33	14415204	21801 YANKEE VALLEY RD HIDDEN VALLEY LAKE CA 95467	2
V-34	14417103	21576 YANKEE VALLEY RD HIDDEN VALLEY LAKE CA 95467	1
V-35	25120307	9257 BLEUSS WAY COBB CA 95426	1
Alternative Randomly-Selected Parcels with Burned Residences[2]			
V-36	1105404	13550 CASALE DR LOCH LOMOND CA 95461	3
V-37	1202418	12025 SEIGLER CANYON RD LOWER LAKE CA 95457	1
V-38	1303301	8065 HIGH VALLEY RD COBB CA 95426	1
V-39	1304016	11522 ROSE ANDERSON RD MIDDLETOWN CA 95461	1
V-40	1304117	19374 STATE HIGHWAY 175 MIDDLETOWN CA 95461	1
V-41	1408204	20683 SANTA BARBARA AVE MIDDLETOWN CA 95461	3
V-42	1408307	20724 SANTA BARBARA AVE MIDDLETOWN CA 95461	3
V-43	1408513	20738 SANTA ROSA AVE MIDDLETOWN CA 95461	2
V-44	1413133	21653 S STATE HIGHWAY 29 MIDDLETOWN CA 95461	4
V-45	1431006	21000 BUTTS CANYON RD MIDDLETOWN CA 95461	1
V-46	2437808	21170 JEFFERSON ST MIDDLETOWN CA 95461	2
V-47	5040103	11620 ROSE ANDERSON RD MIDDLETOWN CA 95461	1
V-48	5040114	11640 ROSE ANDERSON RD MIDDLETOWN CA 95461	1
V-49	5043119	11111 VAN DORN RESERVOIR RD MIDDLETOWN CA 95461	1
V-50	5045109	11410 ROSE ANDERSON RD MIDDLETOWN CA 95461	1
V-51	5049108	11861 ANDERSON SPRINGS RD MIDDLETOWN CA 95461	1
V-52	5078401	14786 GROUSE RD COBB CA 95426	1
V-53	5092102	17102 HILL CT COBB CA 95426	3
V-54	5104106	15364 SUMMIT BLVD COBB CA 95426	1
V-55	5104109	15334 SUMMIT BLVD COBB CA 95426	1
V-56	5106209	15285 TRINITY RD COBB CA 95426	1
V-57	5110208	11231 TANYA TER COBB CA 95426	2
V-58	5121102	9352 HOBERG DR COBB CA 95426	1
V-59	5208304	14670 LEMA LN COBB CA 95426	1
V-60	5209314	14380 NELSON CT COBB CA 95426	1
V-61	5213102	11980 LOCH LOMOND RD LOCH LOMOND CA 95461	1
V-62	14135108	19387 MOON RIDGE RD HIDDEN VALLEY LAKE CA 95467	1
V-63	14222107	17118 GREENRIDGE RD HIDDEN VALLEY LAKE CA 95467	1
V-64	14248107	20298 INDIAN ROCK RD HIDDEN VALLEY LAKE CA 95467	1
V-65	14401106	19400 DALLAS CT HIDDEN VALLEY LAKE CA 95467	2

Notes:
1 - Sites randomly selected from a list of fire-destroyed residential parcels identified by Cal Fire
2 - If a primary randomly-selected site has already been cleared or is inaccessible for sampling,

Geosyntec consultants

APPENDIX A
RESPONSE TO COMMENTS ON DRAFT SAP

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Geosyntec Responses to USEPA Comments

On

DRAFT Sampling and Analysis Plan (SAP): Burned Debris Characterization
2015 Butte and Valley Wildfires
(Comments Received 13 and 20 October 2015)

Geosyntec submitted the above-referenced draft SAP to the DTSC on 13 October 2015 which was subsequently provided to the USEPA for review and comment. Geosyntec was provided comments from Dr. David Taylor of the USEPA on 16 October 2015. On 19 October 2015, a conference call was conducted to discuss the comments which included representatives from Geosyntec, DTSC, and USEPA, including Dr. Taylor. The comments received are pasted below with Geosyntec's responses in blue font.

1. Under "Sample Size" Geosyntec indicates that the sample size is based on the average Coefficient of Variation of all constituents. To this is added a fudge factor. The number of samples is 29 so they propose 35. However, if one were to use lead, the COC with the largest CV, the number of samples would be about 94. I'm wondering whether a more conservative CV should be used instead of the median. I don't think this would have changed the conclusions of the report, but it is a consideration.

   The CV for lead was presented using the complete dataset which included an unrepresentative outlier data point. The calculated CV for lead for that same dataset excluding the one outlier (49,100 mg/kg) results in a CV of 1.7, which is similar to the median CV of 1.65. Further, the revised CV for lead recommends a sample size of 30.8 samples; therefore, the sample size proposed in the SAP of 35 samples remains conservative. Clarification will be included in the revised SAP.

2. In the discussion under "Sampling Methodology," I have several questions. The SAP indicates that samples are collected from the footprint of the former structure, but there is also an indication that samples will be taken from the area of the former garage. It also states samples will be taken from outbuildings like barns, sheds, etc. separately. The description should be clearer. For example, if two samples were to be taken because it is estimated that there is less than 10 cubic yards of material, would this mean one from the garage (i.e., the garage would always be sampled) or does this means that there will be two samples from the structure plus one from the garage? Also, how do possible outbuildings fit into the number of overall samples for a parcel? I think that the plan should be clearer how the priorities for the samples within a parcel are set, and how the number of samples at a parcel is determined under different scenarios. How does this relate to the random number generation of the site locations?

Upon arrival at a property to be sampled, the volume of debris and number of former structures will be estimated. At a minimum, one composite sample will be collected to represent the primary residential structure and the attached garage. In the event that additional out-buildings comprise an estimated total volume less than 50% of the estimated volume of burn debris for the primary residential structure and attached garage, then aliquots from those structures will be composited into the one composite sample to be collected for the property. Alternatively, in the event that the out-buildings comprise a total estimated volume greater than 50% of the estimated volume of the primary residential structure and attached garage, then a separate composite sample will be collected to represent the collective out-buildings independently. All sample locations will be determined using a random number generator system (example presented in SAP Appendix B). Clarification will be included in the revised SAP.

3. Later in the same section the collection of the actual samples is discussed. A stainless steel spoon is to be used to collect the samples which are then homogenized in a bowl. I would argue that possibly the number of samples be bumped up slightly for the smaller debris fields. The under 10 cubic feet locations will only result in two random locations of 4 oz each. This effectively means that all the sample from the two locations would be used to make the final 8 oz sample. At a minimum, I would collect 5 oz at those two locations.

   To address the need for increased sample volume, 8-ounce aliquots will be collected for homogenization of the composite sample. Clarification will be included in the revised SAP.

4. In Section 3.1.3, "Analytical Parameters," there is no mention of field duplicates. I think that having some field duplicates in this situation would be desirable, since representativeness is so important. This applies not only to the overall sampling design, but to the individual composite samples as well. The QA Office's general recommendation is that 1 in ten field samples should be a duplicate. These could be collected within the same general areas as the original sample, maybe separated by several feet (or more, I do not have a sense of how big these parcels might be). If a site will have from 2 to 6 samples being used to make up a composite (depending on the ash volume estimate), it should not be a problem to composite more material from a slightly adjacent area to make another sample. This would cast some light on the homogeneity of the ash within a given parcel. A second consideration is that a field duplicate be drawn from the same mixing bowl as a check on the effectiveness of the manual mixing at a given parcel. These would not necessarily have to be done at the 1:10 frequency, but should be done occasionally as a check on the samplers' technique.

Collection of duplicate samples will be performed at the frequency of approximately 10% of the total primary samples. Duplicates will be "blind" and will be collected from separate randomly selected locations at the property following the sample protocol as the primary samples. The duplicate samples will not be "split samples" collected from the homogenized mixing bowl to evaluate laboratory reproducibility. Rather, the duplicate samples will be used to evaluate the consistency of analytical results for the subject property. Clarification will be included in the revised SAP.

5. The report itself did not have any discussion of the quality control (QC) results from the laboratory. Thus, it is not clear whether all the QC checks in the SAP were carried out and whether any of the results should be considered suspect. I think such a discussion should be added to future reports, at least in qualitative terms. Additionally, you should list LCSDs are a separate QA check in the Analytical Parameters section.

   Following receipt of analytical data certificates from the laboratory, Geosyntec will perform Level 1 data validation in accordance with the attached Data Validation Checklist (Appendix E) prior to tabulating and interpreting the data. Data packages will be reviewed for chain of custody discrepancies; adherence to sample holding times; evaluation of laboratory control samples/laboratory control sample duplicates; and assessment of method blanks. The data will be reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines, by the pertinent methods referenced by the data package, and professional judgment. Lastly, additional discussion regarding Laboratory Control Spike Duplicates (LCSD) and Matrix Spike Duplicates was added to Section 3.1.1 and the Data Quality Objectives in Appendix B. Clarification will be included in the revised SAP.

APPENDIX B
DATA QUALITY OBJECTIVES

APPENDIX B – DATA QUALITY OBJECTIVES

This section summarizes the data quality objective (DQO) process. The Burn Debris Sampling and Analysis Plan DQOs were developed based on our understanding of applicable requirements of the FEMA disaster relief reimbursement program. DQOs define and direct the burn debris sampling to comply with these requirements.

Step 1: Problem Statement

The objective of the sampling and analysis plan is to determine if concentrations of the constituents of concern (COCs) in burn debris in the affected areas represent an immediate threat to public health and safety according to FEMA Disaster Assistance Policy 9523.13. CalEPA and its boards, departments, and offices, have already made the determination that the debris and ash from the 2007 Southern California wildfires pose an immediate threat to public health and safety.

Planning Team Members may include the following:

- California Department of Toxic Substances Control – Emergency Response Division (Adam Palmer)
- OEHHA staff
- USEPA staff
- Lake County Department of Environmental Health Staff
- Calaveras County Department of Environmental Health Staff
- Geosyntec Consultants (Sam Williams, Veryl Wittig, Doug Baumwirt)

Geosyntec has the available resources to implement the SAP in a timely manner. Pending receipt of approval of the SAP from USEPA and DTSC, Geosyntec is prepared to initiate the field sampling on 19 October and be completed by 23 October 2015. A draft report of sample results and findings will be submitted to interested parties by 16 November 2015.

Step 2: Decision Statement

Based on an evaluation of the laboratory analytical data generated from the sampling to be performed as part of this assessment it will be determined whether or not concentrations of COCs in the burn debris pose an immediate threat to public health and safety according to FEMA Disaster Assistance Policy 9523.13. Based on experience with prior wildfires and the sampling data previously collected following the 2003 and 2007 southern California Wildfires, CalEPA and its boards, departments, and offices, believe that the debris and ash from the 2015 Butte and Valley Wildfires poses an immediate threat to public health and safety. If it is found through the analysis described herein that concentrations of COCs are in exceedance of statutorily-established health-

based criteria, then those data will be used to support the determination already made by CalEPA. In addition, if such exceedances are found, it is the understanding of Geosyntec and its Planning Team Members that the cost for removal of the burn debris and ash from private property will be submitted to FEMA for reimbursement.

Step 3: Identify the Inputs to the Decision

To evaluate the decision statement, COC concentrations in burn debris will be compared to Federal and California statutorily-established health-based criteria. These criteria include the most conservative concentration for each COC as presented in the current EPA Regional IX Regional Screening Levels (RSLs) for residential soil and the DTSC Human and Ecological Risk Office Note 3, Cal-Modified Screening Levels. However, CalEPA reserves the right to consider other accepted health based criteria in their decision making process including those listed below. The following is a list of identified inputs to the decision statement.

- EPA SW-846 Practical Quantification Levels (PQLs) or laboratory specific PQLs;
- EPA-approved analytical methods for Title 22 Metals and polycyclic aromatic hydrocarbons (PAHs);
- Burn debris sampling results from the SAP;
- Statistical analysis applied to data, as appropriate;
- Federal and California statutorily-established health-based criteria for each constituent of concern using the most conservative value from the following:
    - EPA Region IX PRGs for residential receptors,
    - EPA Region IX protection to groundwater values,
    - California Department of Public Health Maximum Contaminant Levels (MCLs) for drinking water,
    - OEHHA Public Health Goals (PHGs) for drinking water,
    - San Francisco RWQCB ESLs for protection of surface water, and
    - California hazardous waste criteria.

It should be noted that there are no specific health-based criteria for burn ash and for the purposes of the risk evaluation, the criteria promulgated for soil is assumed to be relevant to the burn ash. However, this approach may under-estimate the human health hazards associated with the ash because of the physical properties of the ash. The ash in the burn debris is less dense than soil; therefore, potential receptors would be more susceptible to inhalation of particulates and dermal adsorption of the COCs in the burn debris.

Step 4: Define the Boundaries of the Study

The domain of this investigation includes the areas burned by the September and October 2015 Butte and Valley Wildfires, primarily located within the Counties of Calaveras and Lake. Burn debris samples will be collected from a representative subset of residential properties for each of the two Wildfire affected areas.

For each selected area, a statistical- and GIS-based method should be employed to determine the location and number of analyses so that random, non-biased samples can be collected. This approach will allow for determining the average COC concentration in the burn debris for burned residential properties throughout the entire respective wildfire-affected area.

Step 5: Develop Decision Rules

The following is a list of decision rules to be applied to the Burn Debris Sampling and Analysis Plan and interpretation of the resulting data.

1. If the property selected for sampling has not been cleared of burn debris, the area of the structure will be divided into cells based on the size of the structure. Discrete samples will be randomly collected within each cell (Section 3.1) and homogenized to comprise on composite sample for the structure.
2. If the selected property has been cleared of all burn debris, an alternate randomly-selected property that has not been cleared will be sampled.
3. If the burn debris has been removed from the foundation of the structure and is stockpiled on the selected property, a composite sample of the stockpile will be collected (Section 3.1) and homogenized to comprise one composite sample for the structure.
4. If concrete, metal, glass, roofing tiles, ceramic, and stucco are present, it will not be sampled.
5. If concentrations of one or more COCs in the burn debris samples exceeds one or more Federal or California statutorily-established heath-based criteria, the burn debris will be considered to represent an immediate threat to public health and safety.

Step 6: Specific Limits on Decision Errors

The lowest concentrations of COCs that can be detected in the burn debris are a function of the laboratory detection limits. The upper concentrations of concern are the California statutorily-approved health-based criteria. COC concentrations are important components in determining decisions errors. In order to understand the decision errors, the null hypothesis and alternate hypothesis are presented and defined below.

- Null Hypothesis = COC concentrations in burn debris exceed the risk-based soil quality goal.
- Alternate Hypothesis = COC concentrations in burn debris do not exceed the risk-based soil quality goal.

The two types of decision errors include the following:

1. False positive decision error: Determining that COC concentrations in burn debris do not exceed risk-based goals when in truth they actually exceed risk-based goals, thus, falsely rejecting the null hypothesis. Potential consequences of this decision error will be that human receptors will potentially be exposed to COCs in burn debris.

2. False negative decision error: Determining that the COC concentrations in burn debris exceed risk-based goals, when in truth they do not exceed risk-based goals, thus, falsely accepting the null hypothesis. Potential consequences of this decision error include implementing unnecessary corrective actions. In addition, unnecessary corrective actions would increase project costs with no significant increased benefit to human health and the environment.

The likely source of error would most likely be due to sampling or analysis procedures, which can bias the results to produce either a false-positive or a false-negative decision. Nonetheless, potential measurement errors can be controlled to improve the likelihood of a correct decision. The probability of procedural errors will be controlled by consistent application of standard sampling and analysis procedures. In addition, data quality management will control potential errors.

The specific acceptable error limit (confidence interval) for the analysis specified in Decision Rule 5 will be 95%, based on the data population. Because actions prescribed by the remainder of the decision rules will be based on site conditions, the need to develop specific acceptable error limits is unwarranted. The analysis of data from all properties sampled in each county should converge on a representative average concentration of each COC and minimize the possibility of implementing an action because of a decision error.

Step 7: Optimize the Design of the Data Collection Program

Burn debris sampling will be performed in accordance with this SAP which follows standard EPA environmental sampling protocol. The statistical- and GIS-based method of determining which properties will be selected for sampling and how samples will be

collected within each county and at each property will allow for the collection of random, non-biased samples.

This approach will consist of the following steps:

1. The number of structures destroyed within the selected area in each county will be identified.
2. Based on this number, the number of samples required to statistically characterize this population with a 95% confidence interval will be determined using a simple statistical algorithm.
3. Using GIS, polygons will be placed on the maps of the selected areas containing the burned structures and the burned properties will be identified.
4. Using these constraints and the number of samples required for a 95% confidence interval, the GIS software will be used to randomly select the specific properties that will be sampled within each county.
5. When the sampling crew arrives at the property selected for sampling, they will assess the nature and volume of the burn debris. If the burn debris has been cleared, an alternate randomly-selected property that has not been cleared will be sampled.
6. The structure selected for sampling will be divided into cells based on the estimate volume of ash and debris associated with the former structure and random locations within each cell will selected for sampling using a random number generator. Discrete samples from each cell will be combined in to one composite sample for each fire-destroyed structure on the property. These methods are described in detail in Section 3.1 of the Sampling and Analysis Plan.
7. The resulting data will be tabulated and the arithmetic mean and geometric mean concentration for each COC will be calculated. The individual composite sample concentrations, arithmetic mean concentrations, and geometric mean concentrations will be compared to California statutorily-establish health-based criteria and other accepted health based criteria as indicated in "Step 3 - Identify the Inputs to the Decision." If the concentration of one or more COCs is found to exceed these accepted health-based criteria, then these data will be used in support of the determination that wildfire ash and debris from the 2015 Butte and/or Valley Wildfires pose a threat to public health and safety, as already determined by CalEPA and its boards, departments, and offices, in conjunction with guidelines established in the FEMA Disaster Assistance Policy 9523.13.

DATA VALIDATION

Following receipt of analytical data certificates from the laboratory, Geosyntec will perform Level 1 data validation prior to tabulating and interpreting the data. Data packages will be reviewed for basic analytical quality assurance/quality control (QA/QC) adherence based on quality control (QC) guidance in the USEPA Contract Laboratory Program National Functional Guidelines [USEPA, 2014], as well as pertinent methods referenced in the data packages, and professional judgment. The data validation process will follow and be documented in the Data Validation Checklist provided in Appendix E. Evaluation will include review for chain of custody discrepancies; adherence to sample holding times; check for elevated reporting limits, evaluation of matrix spike/matrix spike duplicates (MS/MSD) and laboratory control samples/laboratory control sample duplicates (LCS/LCSD); and assessment of method blanks.

Following validation of the data presented in the analytical data packages, a determination will be made whether the data, as qualified, are considered usable and acceptable for meeting project objectives.

APPENDIX C
EXAMPLE FIELD SAMPLING FORM

Geosyntec consultants

Post Fire Burn Areas
Sampling Form

Sampling Personnel: _____ Date/Time: _____
Structure Identification: _____ Approximate Footprint Dimensions: _____
Structure GPS Coordinates: _____ Composite Sample ID: _____
Approximate Debris Volume: _____ Chain of Custody No. _____

Cell ID	Point Sample ID	Random "x"	"x" Distance	Random "y"	"y" Distance	Photo ID	Brief Sample Description
		0.21		0.44			
		0.55		0.09			
		0.66		0.23			
		0.74		0.98			
		0.66		0.65			
		0.22		0.18			
		0.39		0.97			
		0.31		0.55			

Site Sketch (Include at least coordinate origins, cell divisions, garage location, and point sample locations)

Other Observations: _____

APPENDIX D
LABORATORY METHOD DETECTION LIMITS AND REPORTING LIMITS

Advanced Technology Laboratories
Analytical Method Information

Analyte	MDL	Reporting Limit	Surrogate %R	Duplicate RPD	Matrix Spike %R	Matrix Spike RPD	Blank Spike / LCS %R	Blank Spike / LCS RPD
6010_CAM in Soil (EPA 6010B)								
Preservation: Cool 4°C								
Container: Glass Jar - 4 oz			**Amount Required:** 100 g			**Hold Time:** 180 days		
Antimony	0.21	2.0 mg/kg		20	28 - 106	20	80 - 120	20
Arsenic	0.55	1.0 mg/kg		20	57 - 109	20	80 - 120	20
Barium	0.036	1.0 mg/kg		20	18 - 159	20	80 - 120	20
Beryllium	0.045	1.0 mg/kg		20	61 - 107	20	80 - 120	20
Cadmium	0.062	1.0 mg/kg		20	53 - 104	20	80 - 120	20
Chromium	0.19	1.0 mg/kg		20	53 - 121	20	80 - 120	20
Cobalt	0.11	1.0 mg/kg		20	55 - 109	20	80 - 120	20
Copper	0.12	2.0 mg/kg		20	58 - 124	20	80 - 120	20
Lead	0.16	1.0 mg/kg		20	35 - 129	20	80 - 120	20
Molybdenum	0.036	1.0 mg/kg		20	57 - 108	20	80 - 120	20
Nickel	0.10	1.0 mg/kg		20	44 - 122	20	80 - 120	20
Selenium	0.32	1.0 mg/kg		20	54 - 104	20	80 - 120	20
Silver	0.12	1.0 mg/kg		20	60 - 112	20	80 - 120	20
Thallium	0.36	1.0 mg/kg		20	50 - 103	20	80 - 120	20
Vanadium	0.20	1.0 mg/kg		20	54 - 123	20	80 - 120	20
Zinc	0.49	1.0 mg/kg		20	29 - 132	20	80 - 120	20
7471 in Soil (EPA 7471A)								
Preservation: Cool 4°C								
Container: Glass Jar - 4 oz			**Amount Required:** 100 g			**Hold Time:** 28 days		
Mercury	0.0094	0.10 mg/kg		20	70 - 130	20	80 - 120	20
8270_SIM in Soil (EPA 8270C SIM)								
Preservation: Cool 4°C								
Container: Glass Jar - 4 oz			**Amount Required:** 100 g			**Hold Time:** 14 days		
1,4-Dioxane	3.2	5.0 ug/kg		20	36 - 210	20	68 - 190	20
2-Methylnaphthalene	1.2	5.0 ug/kg		20	50 - 135	20	39 - 134	20
Acenaphthene	0.43	5.0 ug/kg		20	53 - 129	20	42 - 119	20
Acenaphthylene	0.77	5.0 ug/kg		20	56 - 122	20	41 - 118	20
Anthracene	0.56	5.0 ug/kg		20	51 - 127	20	53 - 113	20
Benzo(a)anthracene	0.63	5.0 ug/kg		20	32 - 177	20	58 - 130	20
Benzo(a)pyrene	0.63	5.0 ug/kg		20	27 - 166	20	51 - 125	20
Benzo(b)fluoranthene	0.63	5.0 ug/kg		20	26 - 171	20	56 - 122	20
Benzo(g,h,i)perylene	0.50	5.0 ug/kg		20	22 - 169	20	47 - 129	20
Benzo(k)fluoranthene	0.45	5.0 ug/kg		20	41 - 140	20	39 - 133	20
Chrysene	0.61	5.0 ug/kg		20	12 - 174	20	54 - 128	20
Dibenz(a,h)anthracene	0.38	5.0 ug/kg		20	52 - 142	20	57 - 121	20
Fluoranthene	0.54	5.0 ug/kg		20	40 - 165	20	61 - 119	20
Fluorene	0.52	5.0 ug/kg		20	60 - 125	20	48 - 117	20
Indeno(1,2,3-cd)pyrene	0.47	5.0 ug/kg		20	46 - 161	20	57 - 129	20
Naphthalene	0.62	5.0 ug/kg		20	41 - 128	20	36 - 126	20
Phenanthrene	0.45	5.0 ug/kg		20	26 - 161	20	51 - 119	20
Pyrene	0.54	5.0 ug/kg		20	49 - 154	20	61 - 122	20

APPENDIX E
DATA VALIDATION CHECKLIST

Geosyntec consultants

Data Validation Checklist

Reviewed by: _____ Review Date: _____
Project/Task No: _____

ATTACHED TO THIS FORM:	YES	NO
1) DATA REPORT COVER SHEETS		
2) LABORATORY NARRATIVE:		

Site: _____ Sample Date: _____
Laboratory Report # _____ Report Date: _____

Answer all questions "Yes" or "No". Any answer in a box requires comment

Review Item	YES	NO	COMMENTS
Chain-of-custody correctly completed:			
All data requested received:			
All analyses within holding times:			
Compounds detected below reporting limit:			
Surrogates within control for each sample:			
Reporting Limits Elevated by greater than 1X:			
Reporting limits above established screening levels:			
Matrix Spike/Matrix Spike Duplicate (MS/MSD) within recovery control limits:			
Relative percent difference (RPD) within control limits based on MS/MSD results:			
Laboratory Control Sample (LCS) within control limits:			
Continuing Calibration Verification (CCV) within control limits:			
Constituents detected above reporting limits in field equipment, travel or method blank samples:			
Any laboratory qualifiers applied to data:			
Laboratory corrective actions implemented:			
Are data acceptable quality:			
EDD received:			
EDD checked against hard copy:			
EDD ready for upload:			
Further Validation required:			

Comments: _____

APPENDIX B

Photograph Log

Butte Sampling Sites

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 BUTTE WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-1**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

2015 BUTTE WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-3**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

Aliquot 7 discrete sample location.

Aliquot 8 discrete sample location.

2015 BUTTE WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-4**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

Aliquot 7 discrete sample location.

Aliquot 8 discrete sample location.

2015 BUTTE WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-5**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 BUTTE WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-6**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

2015 BUTTE WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-7**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

2015 BUTTE WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-8**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

Aliquot 7 discrete sample location.

Aliquot 8 discrete sample location.

Aliquot 9 discrete sample location.

Aliquot 10 discrete sample location.

2015 BUTTE WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-10**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

2015 BUTTE WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-11**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

2015 BUTTE WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-12**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

Aliquot 7 discrete sample location.

Aliquot 8 discrete sample location.

Aliquot 9 discrete sample location.

2015 BUTTE WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-14**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

2015 BUTTE WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-15**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

2015 BUTTE WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-16**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

Aliquot 7 discrete sample location.

Aliquot 8 discrete sample location.

2015 BUTTE WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-17**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

2015 BUTTE WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-18**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

Aliquot 7 discrete sample location.

Aliquot 8 discrete sample location.

2015 BUTTE WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-19**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

Aliquot 7 discrete sample location.

Aliquot 8 discrete sample location.

2015 BUTTE WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-20**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

2015 BUTTE WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	B-22

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 BUTTE WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-23**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

Aliquot 7 discrete sample location.

Aliquot 8 discrete sample location.

2015 BUTTE WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-24**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 BUTTE WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-27**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

2015 BUTTE WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-28**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

2015 BUTTE WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-29**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 BUTTE WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-30**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 BUTTE WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-33**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

2015 BUTTE WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-35**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 BUTTE WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-38**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

2015 BUTTE WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-45**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

2015 BUTTE WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-46**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 BUTTE WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-49**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

Aliquot 7 discrete sample location.

Aliquot 8 discrete sample location.

Aliquot 9 discrete sample location.

Aliquot 10 discrete sample location.

2015 BUTTE WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-51**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

2015 BUTTE WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-56**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

Aliquot 7 discrete sample location.

Aliquot 8 discrete sample location.

2015 BUTTE WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-58**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

Aliquot 7 discrete sample location.

Aliquot 8 discrete sample location.

Aliquot 9 discrete sample location.

Aliquot 10 discrete sample location.

Aliquot 11 discrete sample location.

2015 BUTTE WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-59**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

2015 BUTTE WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**B-65**

Valley Sampling Sites

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-2**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-3**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

Aliquot 7 discrete sample location.

Aliquot 8 discrete sample location.

2015 Valley WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-4**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-5**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-6**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-7**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

2015 VALLEY WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-8**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

Aliquot 7 discrete sample location.

2015 VALLEY WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-9**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-11**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-12**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-15**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-16**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-17**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-19**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-20**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-22**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-23**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-24**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-25**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

2015 VALLEY WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-26**

Photograph of site.

Aliquot 1 discrete sample location.

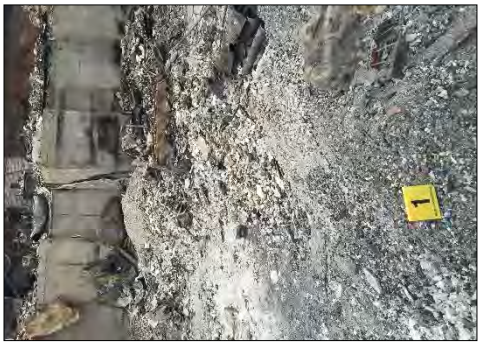
Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-28**

Photograph of site.



Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-29**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

Aliquot 7 discrete sample location.

2015 VALLEY WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-33**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

2015 VALLEY WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-40**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-43**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-46**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-50**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-54**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-56**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-57**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-58**

Photograph of site.

Aliquot 1 discrete sample location.

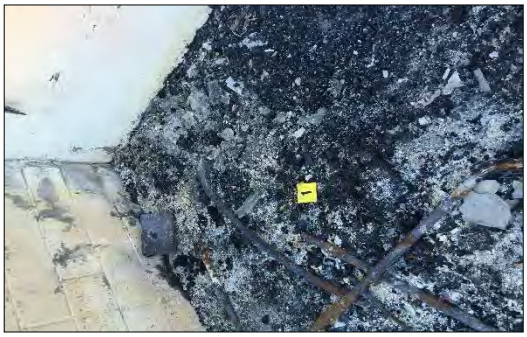
Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-61**

Photograph of site.



Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-62**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

2015 VALLEY WILDFIRE
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-63**

Photograph of site.

Aliquot 1 discrete sample location.

Aliquot 2 discrete sample location.

Aliquot 3 discrete sample location.

Aliquot 4 discrete sample location.

Aliquot 5 discrete sample location.

Aliquot 6 discrete sample location.

2015 VALLEY WILDFIRE BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 10/28/2015	CALAVERAS COUNTY SITE
	PROJECT NO. SC0791	**V-64**

APPENDIX C

Laboratory Analytical Certificates
and Data Validation

Geosyntec consultants

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Memorandum

Date: 13 November 2015

To: Christopher Leider

From: Sherry Watts

Subject: Stage I Data Validation Summary
Work Order: 1503745

Site: 2015 Butte Fire

INTRODUCTION

This memorandum summarizes the findings of the Stage 1 data validation for the above listed work order for samples and associated quality control samples collected between 26 and 29 October 2015 from the Butte Fire site located in Calaveras County, California (Site). Samples collected from the site were submitted to Advanced Technology Laboratories of Signal Hill, California for laboratory analysis. The samples were submitted for the following analytical tests:

- Title 22 Metals by EPA Method 6010B (Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES)
- Mercury by EPA Method 7471A Atomic Absorption (AA)
- Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270C Selective Ion Monitoring (SIM)

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions as reported in the laboratory analytical report. Data packages were reviewed for chain of custody (COC) discrepancies; adherence to sample holding times; evaluation of matrix spike/matrix spike duplicates (MS/MSD), laboratory control samples/laboratory control sample duplicates (LCS/LCSD), laboratory duplicate samples; and assessment of method blanks.

The data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, August 2014 (USEPA-540-R-014-002) and the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Inorganic Methods Data Review, August 2014

(USEPA-540-R-013-001, as well as by the pertinent methods referenced by the data package and professional judgment.

Error corrections were observed on the chain of custody (COC) forms using the proper procedure of a single strike through, correction, and initials of the person making the corrections. However, the date of the corrections was missing. This COC issue did not result in qualification of the data.

Overall, based on this Stage 1 validation covering the quality control (QC) parameters, the data as qualified are usable for meeting project objectives. Qualified data should be used within the limitations of the qualification. Additional QC issues, other than those discussed in the following sections, were noted; however, these QC issues had no impact on the reported results.

1. WORK ORDER 1503745

Title 22 Metals

All samples were run at dilution (20x dilution factor or higher) due to high concentrations of several metals in the samples. As a result of dilution the laboratory reporting limits (RL) are elevated for the samples.

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). Three sample set specific MS/MSD pairs, using samples B-65A-10262015, B-6C-10282015, and B-24A-10292015, were reported with the data set. The results for the sample set specific MS/MSD pairs were within the laboratory specified acceptance criteria for recovery and RPD except for antimony and barium in the sample set specific MS/MSD pair, using sample B-65A-10262015; copper in the sample set specific MS/MSD pair, using sample B-6C-10282015; and lead and nickel in the sample set specific MS/MSD pair using sample B-24A-10292015, which were recovered outside the laboratory specified recovery and RPD criteria. The results were qualified as follows:

Sample ID	Compound	Laboratory Concentration (mg/kg)	Validation Qualifier*	Validation Concentration (mg/kg)	Reason Code*
B-65A-10282015	Antimony	59	J+	59 J+	4
	Barium	320	J-	320 J-	4
B-6C-10282015	Copper	220	J+	220 J+	4
B-24A-10292015	Lead	160	J-	160 J-	4
	Nickel	130	J+	130 J+	4

* Validation Qualifier and Reason Code are defined in Attachment A

The recoveries for copper, lead, and zinc in one or more of the sample set specific MS/MSDs pairs were not useable due to the disproportionate concentration in the sample compared to the spike concentration. The LCS/LCSD was acceptable. No qualifications were applied as a result of the data validation process.

One laboratory duplicate was analyzed, using sample B-24A-10292015. The RPDs for antimony, chromium, cobalt, copper, lead, molybdenum, and nickel were outside the laboratory specified criteria. No qualifications were applied to the data; however the discrepancy should be noted.

Mercury

There were no reported QC issues associated with this analysis that impacted the reported results.

SVOCs

Surrogate recoveries for 4-terphenyl-d14 were outside the laboratory acceptance criteria for thirteen (13) samples. The remaining surrogate recoveries were within laboratory acceptance criteria. No qualifiers were applied to the data; however the discrepancy should be noted.

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). Three sample set specific MS/MSD pairs, using samples B-33A-10272015, B-20C-10282015, and B-24A-10292015, were reported with the data set. The results for the sample set specific MS/MSD pairs were within the laboratory specified acceptance criteria for recovery and/or RPD except for benzo(a)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, methylnaphthalene and naphthalene in the sample set specific MS/MSD pair, using sample B-33A-10272015; methylnaphthalene and naphthalene in the sample set specific MS/MSD pair, using sample B-20C-10282015; and dibenz(a,h) anthracene and naphthalene in the sample set specific MS/MSD pair, using sample B-24A-10292015, which were recovered outside the laboratory specified recovery and/or RPD criteria. In cases where only the RPD was outside the laboratory specified criteria in the sample specific MS/MSD pair (methylnaphthalene and naphthalene), no qualifiers were applied to the data; however, the discrepancy should be noted. The results for the other SVOCs were qualified as follows:

Sample ID	Compound	Laboratory Concentration (µg/kg)	Validation Qualifier	Validation Concentration (µg/kg)	Reason Code
B-33A-10272015	Benzo(a)pyrene	ND <15	UJ	15 UJ	4
	Benzo(g,h,i)perylene	ND <15	UJ	15 UJ	4
	Benzo(k)fluoranthene	ND <15	UJ	15 UJ	4
	Dibenz(a,h)anthracene	ND <15	UJ	15 UJ	4
	Indeno(1,2,3-cd)pyrene	ND <15	UJ	15 UJ	4
B-24A-10292015	Dibenz(a,h)anthracene	ND <15	UJ	15 UJ	4

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). Three LCSs were reported with the data set. The results for the LCSs were within the laboratory specified acceptance criteria for

recovery except for benzo(a)pyrene in the LCS for batch B5K0105, which was recovered below the laboratory specified recovery criteria. The results were qualified as follows:

Sample ID	**Compound**	**Laboratory Concentration (µg/kg)**	**Validation Qualifier**	**Validation Concentration (µg/kg)**	**Reason Code**
B-24A-10292015	Benzo(a)pyrene	ND <15	UJ	15 UJ	5
B-58A-10292015		ND <15	UJ	15 UJ	5
B-14A-10292015		ND <15	UJ	15 UJ	5
B-59B-10292015		ND <15	UJ	15 UJ	5
B-59A-10292015		ND <15	UJ	15 UJ	5

****

ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference.

J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits and RPD outside limits (LCS/LCSD)
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Geosyntec consultants

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Memorandum

Date: 17 November 2015

To: Christopher Leider

From: Sherry Watts

Subject: Stage I Data Validation Summary
Work Order: 1503733

Site: 2015 Valley Fire

INTRODUCTION

This memorandum summarizes the findings of the Stage 1 data validation for the above listed work order for samples and associated quality control samples collected between 26 and 29 October 2015 from the Valley Fire site located in Lake County, California (Site). Samples collected from the site were submitted to Advanced Technology Laboratories of Signal Hill, California for laboratory analysis. The samples were submitted for the following analytical tests:

- Title 22 Metals by EPA Method 6010B (Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES)
- Mercury by EPA Method 7471A Atomic Absorption (AA)
- Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270C Selective Ion Monitoring (SIM)

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions as reported in the laboratory analytical report. Data packages were reviewed for chain of custody (COC) discrepancies; adherence to sample holding times; evaluation of matrix spike/matrix spike duplicates (MS/MSD), laboratory control samples/laboratory control sample duplicates (LCS/LCSD; and assessment of method blanks.

The data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, August 2014 (USEPA-540-R-014-002) and the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Inorganic Methods Data Review, August 2014 (USEPA-540-R-013-001, as well as by the pertinent methods referenced by the data package and professional judgment.

Overall, based on this Stage 1 validation covering the quality control (QC) parameters, the data as qualified are usable for meeting project objectives. Qualified data should be used within the limitations of the qualification. Additional QC issues, other than those discussed in the following sections, were noted; however, these QC issues had no impact on the reported results.

1. WORK ORDER 1503722

Title 22 Metals

Several samples were run at dilution (5x dilution factor or higher) due to high concentrations of several metals in the sample. As a result of dilution the laboratory reporting limits (RL) are elevated for the samples.

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). Three MS/MSD pairs were reported with the data set, one batch MS/MSD pair and two sample set specific MS/MSD pairs, using samples V-40A-10272015 and V-25A-10282015. The results for the batch MS/MSD pair had no impact on the data. The results for the sample set specific MS/MSD pairs were within the laboratory specified acceptance criteria for recovery and RPD except for copper in the sample set specific MS/MSD pair, using sample V-40A-10272015; and arsenic, copper, and zinc in the sample set specific MS/MSD pair, using sample V-25A-10282015, which were recovered outside the laboratory specified recovery and/or RPD criteria. In the case where only the RPD was outside the laboratory specified criteria in the sample set specific MS/MSD pair (zinc), no qualifiers were applied to the data; however, the discrepancy should be noted. The other results were qualified as follows:

Sample ID	Compound	Laboratory Concentration (mg/kg)	Validation Qualifier*	Validation Concentration (mg/kg)	Reason Code*
V-40A-10272015	Copper	79	J+	79 J+	4
V-25A-10282015	Arsenic	20	J+	20 J+	4
	Copper	270	J-	270 J-	4

* Validation Qualifier and Reason Code are defined in Attachment A

The recovery for zinc in one of the sample set specific MS/MSD pairs was not useable due to the disproportionate concentration in the sample compared to the spike concentration. The LCS/LCSD was acceptable. No qualifications were applied as a result of the data validation process.

Mercury

There were no reported QC issues associated with this analysis that impacted the reported results.

SVOCs

Surrogate recoveries for 4-terphenyl-d1, 1,2-dichlorobenzene-d4, and 2-fluorobiphenyl were outside the laboratory acceptance criteria for six (6) samples. The remaining surrogate recoveries were within laboratory acceptance criteria. No qualifiers were applied to the data; however the discrepancy should be noted.

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). Three MS/MSD pairs were reported with the data. One batch MS/MSD pair and two sample set specific MS/MSD pairs, using samples V-09A-10262015 and V-19C-10282015. The results for the batch MS/MSD pair had no impact on the data. The results for the sample set specific MS/MSD pairs were within the laboratory specified acceptance criteria for recovery and/or RPD except for all SVOCs in the sample set specific MS/MSD pair, using sample V-09A-10262015; and methylnaphthalene and naphthalene in the sample set specific MS/MSD pair, using sample V-19C-10282015; and benzo(k)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, naphthalene, and phenanthrene in the sample set specific MS/MSD pair using sample V-19C-10282015, which were recovered outside the laboratory specified recovery and/or RPD criteria. In the case where only the RPD was outside the laboratory specified criteria in the sample set specific MS/MSD pair (phenanthrene), no qualifiers were applied to the data; however, the discrepancy should be noted. The results for the other SVOCs were qualified as follows:

Sample ID	Compound	Laboratory Concentration (µg/kg)	Validation Qualifier	Validation Concentration (µg/kg)	Reason Code
V-09A-10262015	2-Methylnaphthalene	15	J	15 J	4
	Naphthalene	31	J	31 J	4
	Phenanthrene	22	J	22 J	4
	Other SVOCs	ND <15	UJ	15 UJ	4
V-19C-10282015	Benzo(k)fluoranthene	ND <15	UJ	15 UJ	4
	Dibenz(a,h)anthracene	ND <15	UJ	15 UJ	4
	Indeno(1,2,3-cd)pyrene	ND <15	UJ	15 UJ	4
	Naphthalene	160	J	160 J	4

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). Three LCSs were reported with the data set. The results for the LCSs were within the laboratory specified acceptance criteria for recovery except for dibenz(a,h)anthracene in the LCS for batch B5K0036, which was recovered below the laboratory specified recovery criteria. The results were qualified as follows:

Sample ID	Compound	Laboratory Concentration (µg/kg)	Validation Qualifier	Validation Concentration (µg/kg)	Reason Code
V-15A-10272015	Dibenz(a,h)anthracene	ND <15	UJ	15 UJ	5
V-29A-10272015		ND <15	UJ	15 UJ	5
V-05A-10282015		ND <15	UJ	15 UJ	5
V-06A-10282015		ND <15	UJ	15 UJ	5
V-07A-10282015		ND <15	UJ	15 UJ	5
V-19A-10282015		ND <15	UJ	15 UJ	5
V-19C-10282015		ND <15	UJ	15 UJ	5
V-25A-10282015		ND <15	UJ	15 UJ	5
V-24A-10282015		ND <15	UJ	15 UJ	5
V-23A-10282015		ND <15	UJ	15 UJ	5
V-57A-10282015		ND <15	UJ	15 UJ	5
V-16A-10282015		ND <15	UJ	15 UJ	5
V-16C-10282015		ND <15	UJ	15 UJ	5
V-17A-10282015		ND <15	UJ	15 UJ	5
V-50A-10282015		ND <15	UJ	15 UJ	5
V-33A-10292015		ND <15	UJ	15 UJ	5
V-64A-10292015		ND <15	UJ	15 UJ	5
V-62A-10292015		ND <15	UJ	15 UJ	5
V-63A-10292015		ND <15	UJ	15 UJ	5
V-63C-10292015		78	J	78 J	5

****

ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference.

J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits and RPD outside limits (LCS/LCSD)
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

November 10, 2015

D. Baumwirt
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ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003
TCEQ No. : T104704502

Re: ATL Work Order Number : 1503745
Client Reference : 2015 Butte & Valley Wildfire, SC0791

Enclosed are the results for sample(s) received on October 31, 2015 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B-65A-10262015	1503745-01	Solid	10/26/15 16:25	10/31/15 8:24
B-28B-10262015	1503745-02	Solid	10/26/15 17:10	10/31/15 8:24
B-27A-10262015	1503745-03	Solid	10/26/15 17:40	10/31/15 8:24
B-29A-10262015	1503745-04	Solid	10/26/15 14:20	10/31/15 8:24
B-30A-10262015	1503745-05	Solid	10/26/15 15:30	10/31/15 8:24
B-5B-10272015	1503745-06	Solid	10/27/15 11:15	10/31/15 8:24
B-1A-10272015	1503745-07	Solid	10/27/15 17:30	10/31/15 8:24
B-5A-10272015	1503745-08	Solid	10/27/15 11:15	10/31/15 8:24
B-8A-10272015	1503745-09	Solid	10/27/15 16:35	10/31/15 8:24
B-7B-10272015	1503745-10	Solid	10/27/15 18:30	10/31/15 8:24
B-4C-10272015	1503745-11	Solid	10/27/15 12:40	10/31/15 8:24
B-4A-10272015	1503745-12	Solid	10/27/15 12:40	10/31/15 8:24
B-3B-10272015	1503745-13	Solid	10/27/15 15:00	10/31/15 8:24
B-23A-10272015	1503745-14	Solid	10/27/15 9:35	10/31/15 8:24
B-33A-10272015	1503745-15	Solid	10/27/15 8:45	10/31/15 8:24
B-35A-10272015	1503745-16	Solid	10/27/15 10:20	10/31/15 8:24
B-38A-10272015	1503745-17	Solid	10/27/15 13:50	10/31/15 8:24
B-17A-10282015	1503745-18	Solid	10/28/15 17:00	10/31/15 8:24
B-6C-10282015	1503745-19	Solid	10/28/15 9:45	10/31/15 8:24
B-6B-10282015	1503745-20	Solid	10/28/15 9:45	10/31/15 8:24
B-10B-10282015	1503745-21	Solid	10/28/15 13:03	10/31/15 8:24
B-16A-10282015	1503745-22	Solid	10/28/15 15:20	10/31/15 8:24
B-12A-10282015	1503745-23	Solid	10/28/15 11:00	10/31/15 8:24
B-15A-10282015	1503745-24	Solid	10/28/15 16:00	10/31/15 8:24
B-11A-10282015	1503745-25	Solid	10/28/15 11:45	10/31/15 8:24
B-20C-10282015	1503745-26	Solid	10/28/15 14:00	10/31/15 8:24
B-10A-10282015	1503745-27	Solid	10/28/15 13:03	10/31/15 8:24
B-46A-10282015	1503745-28	Solid	10/28/15 16:30	10/31/15 8:24
B-20A-10282015	1503745-29	Solid	10/28/15 14:00	10/31/15 8:24
B-45A-10282015	1503745-30	Solid	10/28/15 14:50	10/31/15 8:24
B-19C-10292015	1503745-31	Solid	10/29/15 10:45	10/31/15 8:24
B-14B-10292015	1503745-32	Solid	10/29/15 13:00	10/31/15 8:24
B-19B-10292015	1503745-33	Solid	10/29/15 10:45	10/31/15 8:24
B-18A-10292015	1503745-34	Solid	10/29/15 11:45	10/31/15 8:24
B-22A-10292015	1503745-35	Solid	10/29/15 9:00	10/31/15 8:24
B-56A-10292015	1503745-36	Solid	10/29/15 8:00	10/31/15 8:24
B-49A-10292015	1503745-37	Solid	10/29/15 12:30	10/31/15 8:24

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

B-51A-10292015	1503745-38	Solid	10/29/15 9:50	10/31/15 8:24
B-24A-10292015	1503745-39	Solid	10/29/15 14:00	10/31/15 8:24
B-58A-10292015	1503745-40	Solid	10/29/15 14:50	10/31/15 8:24
B-14A-10292015	1503745-41	Solid	10/29/15 13:00	10/31/15 8:24
B-59B-10292015	1503745-42	Solid	10/29/15 15:50	10/31/15 8:24
B-59A-10292015	1503745-43	Solid	10/29/15 15:50	10/31/15 8:24

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-65A-10262015

Lab ID: 1503745-01

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**59**	40	20	B5K0083	11/04/2015	11/05/15 10:01	D6
Arsenic	ND	20	20	B5K0083	11/04/2015	11/05/15 10:01	D6
Barium	**320**	20	20	B5K0083	11/04/2015	11/05/15 10:01	D6
Beryllium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:01	D6
Cadmium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:01	D6
Chromium	**43**	20	20	B5K0083	11/04/2015	11/05/15 10:01	D6
Cobalt	ND	20	20	B5K0083	11/04/2015	11/05/15 10:01	D6
Copper	**640**	40	20	B5K0083	11/04/2015	11/05/15 10:01	D6
Lead	**1200**	20	20	B5K0083	11/04/2015	11/05/15 10:01	D6
Molybdenum	ND	20	20	B5K0083	11/04/2015	11/05/15 10:01	D6
Nickel	**43**	20	20	B5K0083	11/04/2015	11/05/15 10:01	D6
Selenium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:01	D6
Silver	ND	20	20	B5K0083	11/04/2015	11/05/15 10:01	D6
Thallium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:01	D6
Vanadium	**33**	20	20	B5K0083	11/04/2015	11/05/15 10:01	D6
Zinc	**3100**	20	20	B5K0083	11/04/2015	11/05/15 10:01	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0092	11/04/2015	11/05/15 09:12	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**53**	15	1	B5K0063	11/03/2015	11/05/15 13:43	
Acenaphthene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:43	
Acenaphthylene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:43	
Anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:43	
Benzo(a)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:43	
Benzo(a)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:43	
Benzo(b)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:43	
Benzo(g,h,i)perylene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:43	
Benzo(k)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:43	
Chrysene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:43	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-65A-10262015

Lab ID: 1503745-01

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:43	
Fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:43	
Fluorene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:43	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:43	
Naphthalene	**250**	15	1	B5K0063	11/03/2015	11/05/15 13:43	
Phenanthrene	**36**	15	1	B5K0063	11/03/2015	11/05/15 13:43	
Pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:43	
Surrogate: 1,2-Dichlorobenzene-d4	*85.8 %*	*39 - 99*		B5K0063	11/03/2015	*11/05/15 13:43*	
Surrogate: 2-Fluorobiphenyl	*89.9 %*	*47 - 111*		B5K0063	11/03/2015	*11/05/15 13:43*	
Surrogate: Nitrobenzene-d5	*54.1 %*	*20 - 144*		B5K0063	11/03/2015	*11/05/15 13:43*	
Surrogate: 4-Terphenyl-d14	*70.5 %*	*44 - 150*		B5K0063	11/03/2015	*11/05/15 13:43*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-28B-10262015

Lab ID: 1503745-02

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0083	11/04/2015	11/05/15 10:12	D6
Arsenic	**22**	20	20	B5K0083	11/04/2015	11/05/15 10:12	D6
Barium	**190**	20	20	B5K0083	11/04/2015	11/05/15 10:12	D6
Beryllium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:12	D6
Cadmium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:12	D6
Chromium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:12	D6
Cobalt	ND	20	20	B5K0083	11/04/2015	11/05/15 10:12	D6
Copper	**910**	40	20	B5K0083	11/04/2015	11/05/15 10:12	D6
Lead	**32**	20	20	B5K0083	11/04/2015	11/05/15 10:12	D6
Molybdenum	ND	20	20	B5K0083	11/04/2015	11/05/15 10:12	D6
Nickel	ND	20	20	B5K0083	11/04/2015	11/05/15 10:12	D6
Selenium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:12	D6
Silver	ND	20	20	B5K0083	11/04/2015	11/05/15 10:12	D6
Thallium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:12	D6
Vanadium	**34**	20	20	B5K0083	11/04/2015	11/05/15 10:12	D6
Zinc	**670**	20	20	B5K0083	11/04/2015	11/05/15 10:12	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0092	11/04/2015	11/05/15 09:20	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**42**	15	1	B5K0063	11/03/2015	11/05/15 14:10	
Acenaphthene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:10	
Acenaphthylene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:10	
Anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:10	
Benzo(a)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:10	
Benzo(a)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:10	
Benzo(b)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:10	
Benzo(g,h,i)perylene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:10	
Benzo(k)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:10	
Chrysene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:10	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-28B-10262015

Lab ID: 1503745-02

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:10	
Fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:10	
Fluorene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:10	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:10	
Naphthalene	**140**	15	1	B5K0063	11/03/2015	11/05/15 14:10	
Phenanthrene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:10	
Pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:10	
Surrogate: 1,2-Dichlorobenzene-d4	*80.1 %*	*39 - 99*		B5K0063	11/03/2015	*11/05/15 14:10*	
Surrogate: 2-Fluorobiphenyl	*75.6 %*	*47 - 111*		B5K0063	11/03/2015	*11/05/15 14:10*	
Surrogate: Nitrobenzene-d5	*51.6 %*	*20 - 144*		B5K0063	11/03/2015	*11/05/15 14:10*	
Surrogate: 4-Terphenyl-d14	*14.0 %*	*44 - 150*		B5K0063	11/03/2015	*11/05/15 14:10*	S10

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10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-27A-10262015

Lab ID: 1503745-03

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0083	11/04/2015	11/05/15 10:14	D6
Arsenic	**20**	20	20	B5K0083	11/04/2015	11/05/15 10:14	D6
Barium	**690**	20	20	B5K0083	11/04/2015	11/05/15 10:14	D6
Beryllium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:14	D6
Cadmium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:14	D6
Chromium	**32**	20	20	B5K0083	11/04/2015	11/05/15 10:14	D6
Cobalt	ND	20	20	B5K0083	11/04/2015	11/05/15 10:14	D6
Copper	**910**	40	20	B5K0083	11/04/2015	11/05/15 10:14	D6
Lead	**430**	20	20	B5K0083	11/04/2015	11/05/15 10:14	D6
Molybdenum	ND	20	20	B5K0083	11/04/2015	11/05/15 10:14	D6
Nickel	**23**	20	20	B5K0083	11/04/2015	11/05/15 10:14	D6
Selenium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:14	D6
Silver	ND	20	20	B5K0083	11/04/2015	11/05/15 10:14	D6
Thallium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:14	D6
Vanadium	**40**	20	20	B5K0083	11/04/2015	11/05/15 10:14	D6
Zinc	**2800**	20	20	B5K0083	11/04/2015	11/05/15 10:14	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0092	11/04/2015	11/05/15 09:22	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:37	
Acenaphthene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:37	
Acenaphthylene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:37	
Anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:37	
Benzo(a)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:37	
Benzo(a)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:37	
Benzo(b)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:37	
Benzo(g,h,i)perylene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:37	
Benzo(k)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:37	
Chrysene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:37	

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San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-27A-10262015

Lab ID: 1503745-03

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:37	
Fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:37	
Fluorene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:37	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:37	
Naphthalene	**92**	15	1	B5K0063	11/03/2015	11/05/15 14:37	
Phenanthrene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:37	
Pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 14:37	
Surrogate: 1,2-Dichlorobenzene-d4	*85.0 %*	*39 - 99*		B5K0063	11/03/2015	*11/05/15 14:37*	
Surrogate: 2-Fluorobiphenyl	*91.0 %*	*47 - 111*		B5K0063	11/03/2015	*11/05/15 14:37*	
Surrogate: Nitrobenzene-d5	*53.1 %*	*20 - 144*		B5K0063	11/03/2015	*11/05/15 14:37*	
Surrogate: 4-Terphenyl-d14	*75.9 %*	*44 - 150*		B5K0063	11/03/2015	*11/05/15 14:37*	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-29A-10262015

Lab ID: 1503745-04

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0083	11/04/2015	11/05/15 10:16	D6
Arsenic	ND	20	20	B5K0083	11/04/2015	11/05/15 10:16	D6
Barium	**82**	20	20	B5K0083	11/04/2015	11/05/15 10:16	D6
Beryllium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:16	D6
Cadmium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:16	D6
Chromium	**34**	20	20	B5K0083	11/04/2015	11/05/15 10:16	D6
Cobalt	ND	20	20	B5K0083	11/04/2015	11/05/15 10:16	D6
Copper	**230**	40	20	B5K0083	11/04/2015	11/05/15 10:16	D6
Lead	ND	20	20	B5K0083	11/04/2015	11/05/15 10:16	D6
Molybdenum	ND	20	20	B5K0083	11/04/2015	11/05/15 10:16	D6
Nickel	**57**	20	20	B5K0083	11/04/2015	11/05/15 10:16	D6
Selenium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:16	D6
Silver	ND	20	20	B5K0083	11/04/2015	11/05/15 10:16	D6
Thallium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:16	D6
Vanadium	**42**	20	20	B5K0083	11/04/2015	11/05/15 10:16	D6
Zinc	**250**	20	20	B5K0083	11/04/2015	11/05/15 10:16	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0092	11/04/2015	11/05/15 09:28	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:05	
Acenaphthene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:05	
Acenaphthylene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:05	
Anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:05	
Benzo(a)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:05	
Benzo(a)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:05	
Benzo(b)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:05	
Benzo(g,h,i)perylene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:05	
Benzo(k)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:05	
Chrysene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:05	

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San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-29A-10262015

Lab ID: 1503745-04

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:05	
Fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:05	
Fluorene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:05	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:05	
Naphthalene	**40**	15	1	B5K0063	11/03/2015	11/05/15 15:05	
Phenanthrene	**30**	15	1	B5K0063	11/03/2015	11/05/15 15:05	
Pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:05	
Surrogate: 1,2-Dichlorobenzene-d4	*86.0 %*	*39 - 99*		B5K0063	11/03/2015	*11/05/15 15:05*	
Surrogate: 2-Fluorobiphenyl	*93.7 %*	*47 - 111*		B5K0063	11/03/2015	*11/05/15 15:05*	
Surrogate: Nitrobenzene-d5	*55.1 %*	*20 - 144*		B5K0063	11/03/2015	*11/05/15 15:05*	
Surrogate: 4-Terphenyl-d14	*88.9 %*	*44 - 150*		B5K0063	11/03/2015	*11/05/15 15:05*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-30A-10262015
Lab ID: 1503745-05

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0083	11/04/2015	11/05/15 10:22	D6
Arsenic	ND	20	20	B5K0083	11/04/2015	11/05/15 10:22	D6
Barium	**1400**	20	20	B5K0083	11/04/2015	11/05/15 10:22	D6
Beryllium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:22	D6
Cadmium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:22	D6
Chromium	**64**	20	20	B5K0083	11/04/2015	11/05/15 10:22	D6
Cobalt	ND	20	20	B5K0083	11/04/2015	11/05/15 10:22	D6
Copper	**160**	40	20	B5K0083	11/04/2015	11/05/15 10:22	D6
Lead	**480**	20	20	B5K0083	11/04/2015	11/05/15 10:22	D6
Molybdenum	ND	20	20	B5K0083	11/04/2015	11/05/15 10:22	D6
Nickel	**47**	20	20	B5K0083	11/04/2015	11/05/15 10:22	D6
Selenium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:22	D6
Silver	ND	20	20	B5K0083	11/04/2015	11/05/15 10:22	D6
Thallium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:22	D6
Vanadium	**39**	20	20	B5K0083	11/04/2015	11/05/15 10:22	D6
Zinc	**1500**	20	20	B5K0083	11/04/2015	11/05/15 10:22	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0092	11/04/2015	11/05/15 09:30	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**18**	15	1	B5K0063	11/03/2015	11/05/15 15:51	
Acenaphthene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:51	
Acenaphthylene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:51	
Anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:51	
Benzo(a)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:51	
Benzo(a)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:51	
Benzo(b)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:51	
Benzo(g,h,i)perylene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:51	
Benzo(k)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:51	
Chrysene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:51	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-30A-10262015

Lab ID: 1503745-05

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:51	
Fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:51	
Fluorene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:51	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:51	
Naphthalene	**55**	15	1	B5K0063	11/03/2015	11/05/15 15:51	
Phenanthrene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:51	
Pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 15:51	
Surrogate: 1,2-Dichlorobenzene-d4	*84.3 %*	*39 - 99*		B5K0063	11/03/2015	*11/05/15 15:51*	
Surrogate: 2-Fluorobiphenyl	*80.7 %*	*47 - 111*		B5K0063	11/03/2015	*11/05/15 15:51*	
Surrogate: Nitrobenzene-d5	*53.1 %*	*20 - 144*		B5K0063	11/03/2015	*11/05/15 15:51*	
Surrogate: 4-Terphenyl-d14	*12.4 %*	*44 - 150*		B5K0063	11/03/2015	*11/05/15 15:51*	S10

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-5B-10272015

Lab ID: 1503745-06

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**100**	40	20	B5K0083	11/04/2015	11/05/15 10:25	D6
Arsenic	**52**	20	20	B5K0083	11/04/2015	11/05/15 10:25	D6
Barium	**190**	20	20	B5K0083	11/04/2015	11/05/15 10:25	D6
Beryllium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:25	D6
Cadmium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:25	D6
Chromium	**70**	20	20	B5K0083	11/04/2015	11/05/15 10:25	D6
Cobalt	**22**	20	20	B5K0083	11/04/2015	11/05/15 10:25	D6
Copper	**19000**	40	20	B5K0083	11/04/2015	11/05/15 10:25	D6
Lead	**310**	20	20	B5K0083	11/04/2015	11/05/15 10:25	D6
Molybdenum	ND	20	20	B5K0083	11/04/2015	11/05/15 10:25	D6
Nickel	**29**	20	20	B5K0083	11/04/2015	11/05/15 10:25	D6
Selenium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:25	D6
Silver	ND	20	20	B5K0083	11/04/2015	11/05/15 10:25	D6
Thallium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:25	D6
Vanadium	**33**	20	20	B5K0083	11/04/2015	11/05/15 10:25	D6
Zinc	**7800**	20	20	B5K0083	11/04/2015	11/05/15 10:25	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0092	11/04/2015	11/05/15 09:32	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**25**	15	1	B5K0063	11/03/2015	11/05/15 16:18	
Acenaphthene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:18	
Acenaphthylene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:18	
Anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:18	
Benzo(a)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:18	
Benzo(a)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:18	
Benzo(b)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:18	
Benzo(g,h,i)perylene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:18	
Benzo(k)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:18	
Chrysene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:18	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-5B-10272015

Lab ID: 1503745-06

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:18	
Fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:18	
Fluorene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:18	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:18	
Naphthalene	**70**	15	1	B5K0063	11/03/2015	11/05/15 16:18	
Phenanthrene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:18	
Pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:18	
Surrogate: 1,2-Dichlorobenzene-d4	*68.4 %*	*39 - 99*		B5K0063	11/03/2015	*11/05/15 16:18*	
Surrogate: 2-Fluorobiphenyl	*63.1 %*	*47 - 111*		B5K0063	11/03/2015	*11/05/15 16:18*	
Surrogate: Nitrobenzene-d5	*41.5 %*	*20 - 144*		B5K0063	11/03/2015	*11/05/15 16:18*	
Surrogate: 4-Terphenyl-d14	*7.22 %*	*44 - 150*		B5K0063	11/03/2015	*11/05/15 16:18*	S10

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-1A-10272015
Lab ID: 1503745-07

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**67**	40	20	B5K0083	11/04/2015	11/05/15 10:27	D6
Arsenic	**25**	20	20	B5K0083	11/04/2015	11/05/15 10:27	D6
Barium	**380**	20	20	B5K0083	11/04/2015	11/05/15 10:27	D6
Beryllium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:27	D6
Cadmium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:27	D6
Chromium	**42**	20	20	B5K0083	11/04/2015	11/05/15 10:27	D6
Cobalt	**210**	20	20	B5K0083	11/04/2015	11/05/15 10:27	D6
Copper	**4300**	40	20	B5K0083	11/04/2015	11/05/15 10:27	D6
Lead	**7000**	20	20	B5K0083	11/04/2015	11/05/15 10:27	D6
Molybdenum	ND	20	20	B5K0083	11/04/2015	11/05/15 10:27	D6
Nickel	**93**	20	20	B5K0083	11/04/2015	11/05/15 10:27	D6
Selenium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:27	D6
Silver	**76**	20	20	B5K0083	11/04/2015	11/05/15 10:27	D6
Thallium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:27	D6
Vanadium	**39**	20	20	B5K0083	11/04/2015	11/05/15 10:27	D6
Zinc	**7900**	20	20	B5K0083	11/04/2015	11/05/15 10:27	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0092	11/04/2015	11/05/15 09:34	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**30**	15	1	B5K0063	11/03/2015	11/05/15 16:46	
Acenaphthene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:46	
Acenaphthylene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:46	
Anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:46	
Benzo(a)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:46	
Benzo(a)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:46	
Benzo(b)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:46	
Benzo(g,h,i)perylene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:46	
Benzo(k)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:46	
Chrysene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:46	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-1A-10272015

Lab ID: 1503745-07

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:46	
Fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:46	
Fluorene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:46	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:46	
Naphthalene	**150**	15	1	B5K0063	11/03/2015	11/05/15 16:46	
Phenanthrene	**51**	15	1	B5K0063	11/03/2015	11/05/15 16:46	
Pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 16:46	
Surrogate: 1,2-Dichlorobenzene-d4	*74.2 %*	*39 - 99*		B5K0063	11/03/2015	*11/05/15 16:46*	
Surrogate: 2-Fluorobiphenyl	*77.7 %*	*47 - 111*		B5K0063	11/03/2015	*11/05/15 16:46*	
Surrogate: Nitrobenzene-d5	*51.6 %*	*20 - 144*		B5K0063	11/03/2015	*11/05/15 16:46*	
Surrogate: 4-Terphenyl-d14	*45.9 %*	*44 - 150*		B5K0063	11/03/2015	*11/05/15 16:46*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-5A-10272015

Lab ID: 1503745-08

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0083	11/04/2015	11/05/15 10:29	D6
Arsenic	**23**	20	20	B5K0083	11/04/2015	11/05/15 10:29	D6
Barium	**980**	20	20	B5K0083	11/04/2015	11/05/15 10:29	D6
Beryllium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:29	D6
Cadmium	**110**	20	20	B5K0083	11/04/2015	11/05/15 10:29	D6
Chromium	**55**	20	20	B5K0083	11/04/2015	11/05/15 10:29	D6
Cobalt	ND	20	20	B5K0083	11/04/2015	11/05/15 10:29	D6
Copper	**1000**	40	20	B5K0083	11/04/2015	11/05/15 10:29	D6
Lead	**180**	20	20	B5K0083	11/04/2015	11/05/15 10:29	D6
Molybdenum	ND	20	20	B5K0083	11/04/2015	11/05/15 10:29	D6
Nickel	**48**	20	20	B5K0083	11/04/2015	11/05/15 10:29	D6
Selenium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:29	D6
Silver	ND	20	20	B5K0083	11/04/2015	11/05/15 10:29	D6
Thallium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:29	D6
Vanadium	**59**	20	20	B5K0083	11/04/2015	11/05/15 10:29	D6
Zinc	**2700**	20	20	B5K0083	11/04/2015	11/05/15 10:29	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0092	11/04/2015	11/05/15 09:36	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**42**	15	1	B5K0063	11/03/2015	11/05/15 17:12	
Acenaphthene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:12	
Acenaphthylene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:12	
Anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:12	
Benzo(a)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:12	
Benzo(a)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:12	
Benzo(b)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:12	
Benzo(g,h,i)perylene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:12	
Benzo(k)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:12	
Chrysene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:12	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-5A-10272015

Lab ID: 1503745-08

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:12	
Fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:12	
Fluorene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:12	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:12	
Naphthalene	**210**	15	1	B5K0063	11/03/2015	11/05/15 17:12	
Phenanthrene	**15**	15	1	B5K0063	11/03/2015	11/05/15 17:12	
Pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:12	
Surrogate: 1,2-Dichlorobenzene-d4	*75.6 %*	*39 - 99*		B5K0063	11/03/2015	*11/05/15 17:12*	
Surrogate: 2-Fluorobiphenyl	*73.3 %*	*47 - 111*		B5K0063	11/03/2015	*11/05/15 17:12*	
Surrogate: Nitrobenzene-d5	*56.0 %*	*20 - 144*		B5K0063	11/03/2015	*11/05/15 17:12*	
Surrogate: 4-Terphenyl-d14	*25.2 %*	*44 - 150*		B5K0063	11/03/2015	*11/05/15 17:12*	S10

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-8A-10272015

Lab ID: 1503745-09

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: RR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0083	11/04/2015	11/05/15 10:32	D6
Arsenic	ND	20	20	B5K0083	11/04/2015	11/05/15 10:32	D6
Barium	**150**	20	20	B5K0083	11/04/2015	11/05/15 10:32	D6
Beryllium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:32	D6
Cadmium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:32	D6
Chromium	**22**	20	20	B5K0083	11/04/2015	11/05/15 10:32	D6
Cobalt	ND	20	20	B5K0083	11/04/2015	11/05/15 10:32	D6
Copper	**860**	40	20	B5K0083	11/04/2015	11/05/15 10:32	D6
Lead	**27**	20	20	B5K0083	11/04/2015	11/05/15 10:32	D6
Molybdenum	ND	20	20	B5K0083	11/04/2015	11/05/15 10:32	D6
Nickel	**31**	20	20	B5K0083	11/04/2015	11/05/15 10:32	D6
Selenium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:32	D6
Silver	ND	20	20	B5K0083	11/04/2015	11/05/15 10:32	D6
Thallium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:32	D6
Vanadium	**84**	20	20	B5K0083	11/04/2015	11/05/15 10:32	D6
Zinc	**1300**	20	20	B5K0083	11/04/2015	11/05/15 10:32	D6

Mercury by AA (Cold Vapor) EPA 7471A — **Analyst: SB**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0092	11/04/2015	11/05/15 09:38	

Semivolatile Organic Compounds by EPA 8270/SIM — **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**17**	15	1	B5K0063	11/03/2015	11/05/15 17:40	
Acenaphthene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:40	
Acenaphthylene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:40	
Anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:40	
Benzo(a)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:40	
Benzo(a)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:40	
Benzo(b)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:40	
Benzo(g,h,i)perylene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:40	
Benzo(k)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:40	
Chrysene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:40	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-8A-10272015

Lab ID: 1503745-09

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:40	
Fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:40	
Fluorene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:40	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:40	
Naphthalene	**58**	15	1	B5K0063	11/03/2015	11/05/15 17:40	
Phenanthrene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:40	
Pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 17:40	
Surrogate: 1,2-Dichlorobenzene-d4	*73.4 %*	*39 - 99*		B5K0063	11/03/2015	*11/05/15 17:40*	
Surrogate: 2-Fluorobiphenyl	*52.8 %*	*47 - 111*		B5K0063	11/03/2015	*11/05/15 17:40*	
Surrogate: Nitrobenzene-d5	*47.6 %*	*20 - 144*		B5K0063	11/03/2015	*11/05/15 17:40*	
Surrogate: 4-Terphenyl-d14	*1.76 %*	*44 - 150*		B5K0063	11/03/2015	*11/05/15 17:40*	S10

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-7B-10272015

Lab ID: 1503745-10

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: RR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**140**	40	20	B5K0083	11/04/2015	11/05/15 10:34	D6
Arsenic	ND	20	20	B5K0083	11/04/2015	11/05/15 10:34	D6
Barium	**780**	20	20	B5K0083	11/04/2015	11/05/15 10:34	D6
Beryllium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:34	D6
Cadmium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:34	D6
Chromium	**97**	20	20	B5K0083	11/04/2015	11/05/15 10:34	D6
Cobalt	**22**	20	20	B5K0083	11/04/2015	11/05/15 10:34	D6
Copper	**8000**	40	20	B5K0083	11/04/2015	11/05/15 10:34	D6
Lead	**9700**	20	20	B5K0083	11/04/2015	11/05/15 10:34	D6
Molybdenum	**29**	20	20	B5K0083	11/04/2015	11/05/15 10:34	D6
Nickel	**79**	20	20	B5K0083	11/04/2015	11/05/15 10:34	D6
Selenium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:34	D6
Silver	ND	20	20	B5K0083	11/04/2015	11/05/15 10:34	D6
Thallium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:34	D6
Vanadium	**36**	20	20	B5K0083	11/04/2015	11/05/15 10:34	D6
Zinc	**26000**	50	50	B5K0083	11/04/2015	11/05/15 11:16	D6

Mercury by AA (Cold Vapor) EPA 7471A — **Analyst: SB**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0092	11/04/2015	11/05/15 09:40	

Semivolatile Organic Compounds by EPA 8270/SIM — **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**100**	15	1	B5K0063	11/03/2015	11/05/15 18:07	
Acenaphthene	**20**	15	1	B5K0063	11/03/2015	11/05/15 18:07	
Acenaphthylene	**18**	15	1	B5K0063	11/03/2015	11/05/15 18:07	
Anthracene	**22**	15	1	B5K0063	11/03/2015	11/05/15 18:07	
Benzo(a)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:07	
Benzo(a)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:07	
Benzo(b)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:07	
Benzo(g,h,i)perylene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:07	
Benzo(k)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:07	
Chrysene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:07	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-7B-10272015

Lab ID: 1503745-10

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:07	
Fluoranthene	**75**	15	1	B5K0063	11/03/2015	11/05/15 18:07	
Fluorene	**19**	15	1	B5K0063	11/03/2015	11/05/15 18:07	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:07	
Naphthalene	**370**	15	1	B5K0063	11/03/2015	11/05/15 18:07	
Phenanthrene	**190**	15	1	B5K0063	11/03/2015	11/05/15 18:07	
Pyrene	**42**	15	1	B5K0063	11/03/2015	11/05/15 18:07	
Surrogate: 1,2-Dichlorobenzene-d4	*81.4 %*	*39 - 99*		B5K0063	11/03/2015	*11/05/15 18:07*	
Surrogate: 2-Fluorobiphenyl	*87.1 %*	*47 - 111*		B5K0063	11/03/2015	*11/05/15 18:07*	
Surrogate: Nitrobenzene-d5	*50.9 %*	*20 - 144*		B5K0063	11/03/2015	*11/05/15 18:07*	
Surrogate: 4-Terphenyl-d14	*56.4 %*	*44 - 150*		B5K0063	11/03/2015	*11/05/15 18:07*	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-4C-10272015
Lab ID: 1503745-11

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0083	11/04/2015	11/05/15 10:36	D6
Arsenic	ND	20	20	B5K0083	11/04/2015	11/05/15 10:36	D6
Barium	**4300**	20	20	B5K0083	11/04/2015	11/05/15 10:36	D6
Beryllium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:36	D6
Cadmium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:36	D6
Chromium	**95**	20	20	B5K0083	11/04/2015	11/05/15 10:36	D6
Cobalt	**22**	20	20	B5K0083	11/04/2015	11/05/15 10:36	D6
Copper	**2500**	40	20	B5K0083	11/04/2015	11/05/15 10:36	D6
Lead	**490**	20	20	B5K0083	11/04/2015	11/05/15 10:36	D6
Molybdenum	ND	20	20	B5K0083	11/04/2015	11/05/15 10:36	D6
Nickel	**42**	20	20	B5K0083	11/04/2015	11/05/15 10:36	D6
Selenium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:36	D6
Silver	ND	20	20	B5K0083	11/04/2015	11/05/15 10:36	D6
Thallium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:36	D6
Vanadium	**50**	20	20	B5K0083	11/04/2015	11/05/15 10:36	D6
Zinc	**1200**	20	20	B5K0083	11/04/2015	11/05/15 10:36	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0092	11/04/2015	11/05/15 09:42	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**81**	15	1	B5K0063	11/03/2015	11/05/15 18:34	
Acenaphthene	**16**	15	1	B5K0063	11/03/2015	11/05/15 18:34	
Acenaphthylene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:34	
Anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:34	
Benzo(a)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:34	
Benzo(a)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:34	
Benzo(b)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:34	
Benzo(g,h,i)perylene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:34	
Benzo(k)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:34	
Chrysene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:34	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-4C-10272015

Lab ID: 1503745-11

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:34	
Fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:34	
Fluorene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:34	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:34	
Naphthalene	**250**	15	1	B5K0063	11/03/2015	11/05/15 18:34	
Phenanthrene	**45**	15	1	B5K0063	11/03/2015	11/05/15 18:34	
Pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 18:34	
Surrogate: 1,2-Dichlorobenzene-d4	*78.2 %*	*39 - 99*		B5K0063	11/03/2015	*11/05/15 18:34*	
Surrogate: 2-Fluorobiphenyl	*81.0 %*	*47 - 111*		B5K0063	11/03/2015	*11/05/15 18:34*	
Surrogate: Nitrobenzene-d5	*49.6 %*	*20 - 144*		B5K0063	11/03/2015	*11/05/15 18:34*	
Surrogate: 4-Terphenyl-d14	*29.6 %*	*44 - 150*		B5K0063	11/03/2015	*11/05/15 18:34*	S10

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-4A-10272015

Lab ID: 1503745-12

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: RR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0083	11/04/2015	11/05/15 10:38	D6
Arsenic	ND	20	20	B5K0083	11/04/2015	11/05/15 10:38	D6
Barium	**670**	20	20	B5K0083	11/04/2015	11/05/15 10:38	D6
Beryllium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:38	D6
Cadmium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:38	D6
Chromium	**52**	20	20	B5K0083	11/04/2015	11/05/15 10:38	D6
Cobalt	ND	20	20	B5K0083	11/04/2015	11/05/15 10:38	D6
Copper	**1700**	40	20	B5K0083	11/04/2015	11/05/15 10:38	D6
Lead	**99**	20	20	B5K0083	11/04/2015	11/05/15 10:38	D6
Molybdenum	ND	20	20	B5K0083	11/04/2015	11/05/15 10:38	D6
Nickel	**68**	20	20	B5K0083	11/04/2015	11/05/15 10:38	D6
Selenium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:38	D6
Silver	ND	20	20	B5K0083	11/04/2015	11/05/15 10:38	D6
Thallium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:38	D6
Vanadium	**49**	20	20	B5K0083	11/04/2015	11/05/15 10:38	D6
Zinc	**19000**	20	20	B5K0083	11/04/2015	11/05/15 10:38	D6

Mercury by AA (Cold Vapor) EPA 7471A — **Analyst: SB**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0092	11/04/2015	11/05/15 09:44	

Semivolatile Organic Compounds by EPA 8270/SIM — **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**39**	15	1	B5K0063	11/03/2015	11/05/15 19:01	
Acenaphthene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:01	
Acenaphthylene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:01	
Anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:01	
Benzo(a)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:01	
Benzo(a)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:01	
Benzo(b)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:01	
Benzo(g,h,i)perylene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:01	
Benzo(k)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:01	
Chrysene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:01	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-4A-10272015

Lab ID: 1503745-12

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:01	
Fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:01	
Fluorene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:01	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:01	
Naphthalene	**110**	15	1	B5K0063	11/03/2015	11/05/15 19:01	
Phenanthrene	**19**	15	1	B5K0063	11/03/2015	11/05/15 19:01	
Pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:01	
Surrogate: 1,2-Dichlorobenzene-d4	*74.9 %*	*39 - 99*		B5K0063	11/03/2015	*11/05/15 19:01*	
Surrogate: 2-Fluorobiphenyl	*71.4 %*	*47 - 111*		B5K0063	11/03/2015	*11/05/15 19:01*	
Surrogate: Nitrobenzene-d5	*43.7 %*	*20 - 144*		B5K0063	11/03/2015	*11/05/15 19:01*	
Surrogate: 4-Terphenyl-d14	*20.1 %*	*44 - 150*		B5K0063	11/03/2015	*11/05/15 19:01*	S10

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-3B-10272015

Lab ID: 1503745-13

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: RR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**42**	40	20	B5K0083	11/04/2015	11/05/15 10:41	D6
Arsenic	**50**	20	20	B5K0083	11/04/2015	11/05/15 10:41	D6
Barium	**1200**	20	20	B5K0083	11/04/2015	11/05/15 10:41	D6
Beryllium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:41	D6
Cadmium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:41	D6
Chromium	**43**	20	20	B5K0083	11/04/2015	11/05/15 10:41	D6
Cobalt	ND	20	20	B5K0083	11/04/2015	11/05/15 10:41	D6
Copper	**2600**	40	20	B5K0083	11/04/2015	11/05/15 10:41	D6
Lead	**330**	20	20	B5K0083	11/04/2015	11/05/15 10:41	D6
Molybdenum	ND	20	20	B5K0083	11/04/2015	11/05/15 10:41	D6
Nickel	ND	20	20	B5K0083	11/04/2015	11/05/15 10:41	D6
Selenium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:41	D6
Silver	ND	20	20	B5K0083	11/04/2015	11/05/15 10:41	D6
Thallium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:41	D6
Vanadium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:41	D6
Zinc	**1100**	20	20	B5K0083	11/04/2015	11/05/15 10:41	D6

Mercury by AA (Cold Vapor) EPA 7471A — **Analyst: SB**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0092	11/04/2015	11/05/15 09:46	

Semivolatile Organic Compounds by EPA 8270/SIM — **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**81**	15	1	B5K0063	11/03/2015	11/05/15 19:28	
Acenaphthene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:28	
Acenaphthylene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:28	
Anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:28	
Benzo(a)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:28	
Benzo(a)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:28	
Benzo(b)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:28	
Benzo(g,h,i)perylene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:28	
Benzo(k)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:28	
Chrysene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:28	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-3B-10272015

Lab ID: 1503745-13

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:28	
Fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:28	
Fluorene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:28	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:28	
Naphthalene	**280**	15	1	B5K0063	11/03/2015	11/05/15 19:28	
Phenanthrene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:28	
Pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:28	
Surrogate: 1,2-Dichlorobenzene-d4	*74.3 %*	*39 - 99*		B5K0063	11/03/2015	*11/05/15 19:28*	
Surrogate: 2-Fluorobiphenyl	*70.6 %*	*47 - 111*		B5K0063	11/03/2015	*11/05/15 19:28*	
Surrogate: Nitrobenzene-d5	*41.2 %*	*20 - 144*		B5K0063	11/03/2015	*11/05/15 19:28*	
Surrogate: 4-Terphenyl-d14	*35.9 %*	*44 - 150*		B5K0063	11/03/2015	*11/05/15 19:28*	S10

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-23A-10272015

Lab ID: 1503745-14

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0083	11/04/2015	11/05/15 10:43	D6
Arsenic	ND	20	20	B5K0083	11/04/2015	11/05/15 10:43	D6
Barium	**50**	20	20	B5K0083	11/04/2015	11/05/15 10:43	D6
Beryllium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:43	D6
Cadmium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:43	D6
Chromium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:43	D6
Cobalt	ND	20	20	B5K0083	11/04/2015	11/05/15 10:43	D6
Copper	**140**	40	20	B5K0083	11/04/2015	11/05/15 10:43	D6
Lead	ND	20	20	B5K0083	11/04/2015	11/05/15 10:43	D6
Molybdenum	ND	20	20	B5K0083	11/04/2015	11/05/15 10:43	D6
Nickel	ND	20	20	B5K0083	11/04/2015	11/05/15 10:43	D6
Selenium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:43	D6
Silver	ND	20	20	B5K0083	11/04/2015	11/05/15 10:43	D6
Thallium	ND	20	20	B5K0083	11/04/2015	11/05/15 10:43	D6
Vanadium	**39**	20	20	B5K0083	11/04/2015	11/05/15 10:43	D6
Zinc	**470**	20	20	B5K0083	11/04/2015	11/05/15 10:43	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0092	11/04/2015	11/05/15 09:52	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**62**	15	1	B5K0063	11/03/2015	11/05/15 19:55	
Acenaphthene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:55	
Acenaphthylene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:55	
Anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:55	
Benzo(a)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:55	
Benzo(a)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:55	
Benzo(b)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:55	
Benzo(g,h,i)perylene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:55	
Benzo(k)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:55	
Chrysene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:55	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-23A-10272015

Lab ID: 1503745-14

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:55	
Fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:55	
Fluorene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:55	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:55	
Naphthalene	**330**	15	1	B5K0063	11/03/2015	11/05/15 19:55	
Phenanthrene	**41**	15	1	B5K0063	11/03/2015	11/05/15 19:55	
Pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 19:55	
Surrogate: 1,2-Dichlorobenzene-d4	*73.6 %*	*39 - 99*		B5K0063	11/03/2015	*11/05/15 19:55*	
Surrogate: 2-Fluorobiphenyl	*71.9 %*	*47 - 111*		B5K0063	11/03/2015	*11/05/15 19:55*	
Surrogate: Nitrobenzene-d5	*41.4 %*	*20 - 144*		B5K0063	11/03/2015	*11/05/15 19:55*	
Surrogate: 4-Terphenyl-d14	*58.6 %*	*44 - 150*		B5K0063	11/03/2015	*11/05/15 19:55*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-33A-10272015

Lab ID: 1503745-15

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**43**	40	20	B5K0083	11/04/2015	11/05/15 11:07	D6
Arsenic	ND	20	20	B5K0083	11/04/2015	11/05/15 11:07	D6
Barium	**230**	20	20	B5K0083	11/04/2015	11/05/15 11:07	D6
Beryllium	ND	20	20	B5K0083	11/04/2015	11/05/15 11:07	D6
Cadmium	ND	20	20	B5K0083	11/04/2015	11/05/15 11:07	D6
Chromium	ND	20	20	B5K0083	11/04/2015	11/05/15 11:07	D6
Cobalt	ND	20	20	B5K0083	11/04/2015	11/05/15 11:07	D6
Copper	**910**	40	20	B5K0083	11/04/2015	11/05/15 11:07	D6
Lead	**290**	20	20	B5K0083	11/04/2015	11/05/15 11:07	D6
Molybdenum	ND	20	20	B5K0083	11/04/2015	11/05/15 11:07	D6
Nickel	**27**	20	20	B5K0083	11/04/2015	11/05/15 11:07	D6
Selenium	ND	20	20	B5K0083	11/04/2015	11/05/15 11:07	D6
Silver	ND	20	20	B5K0083	11/04/2015	11/05/15 11:07	D6
Thallium	ND	20	20	B5K0083	11/04/2015	11/05/15 11:07	D6
Vanadium	**53**	20	20	B5K0083	11/04/2015	11/05/15 11:07	D6
Zinc	**4000**	20	20	B5K0083	11/04/2015	11/05/15 11:07	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0092	11/04/2015	11/05/15 09:54	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:21	D7
Acenaphthene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:21	D7
Acenaphthylene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:21	D7
Anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:21	D7
Benzo(a)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:21	D7
Benzo(a)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:21	D7
Benzo(b)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:21	D7
Benzo(g,h,i)perylene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:21	D7
Benzo(k)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:21	D7
Chrysene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:21	D7

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-33A-10272015

Lab ID: 1503745-15

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:21	D7
Fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:21	D7
Fluorene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:21	D7
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:21	D7
Naphthalene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:21	D7
Phenanthrene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:21	D7
Pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:21	D7
Surrogate: 1,2-Dichlorobenzene-d4	*73.3 %*	*39 - 99*		B5K0063	11/03/2015	*11/05/15 12:21*	
Surrogate: 2-Fluorobiphenyl	*80.2 %*	*47 - 111*		B5K0063	11/03/2015	*11/05/15 12:21*	
Surrogate: Nitrobenzene-d5	*44.0 %*	*20 - 144*		B5K0063	11/03/2015	*11/05/15 12:21*	
Surrogate: 4-Terphenyl-d14	*59.9 %*	*44 - 150*		B5K0063	11/03/2015	*11/05/15 12:21*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-35A-10272015

Lab ID: 1503745-16

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**210**	40	20	B5K0083	11/04/2015	11/05/15 11:09	D6
Arsenic	**720**	20	20	B5K0083	11/04/2015	11/05/15 11:09	D6
Barium	**710**	20	20	B5K0083	11/04/2015	11/05/15 11:09	D6
Beryllium	ND	20	20	B5K0083	11/04/2015	11/05/15 11:09	D6
Cadmium	ND	20	20	B5K0083	11/04/2015	11/05/15 11:09	D6
Chromium	**210**	20	20	B5K0083	11/04/2015	11/05/15 11:09	D6
Cobalt	ND	20	20	B5K0083	11/04/2015	11/05/15 11:09	D6
Copper	**660**	40	20	B5K0083	11/04/2015	11/05/15 11:09	D6
Lead	**140**	20	20	B5K0083	11/04/2015	11/05/15 11:09	D6
Molybdenum	ND	20	20	B5K0083	11/04/2015	11/05/15 11:09	D6
Nickel	ND	20	20	B5K0083	11/04/2015	11/05/15 11:09	D6
Selenium	ND	20	20	B5K0083	11/04/2015	11/05/15 11:09	D6
Silver	ND	20	20	B5K0083	11/04/2015	11/05/15 11:09	D6
Thallium	ND	20	20	B5K0083	11/04/2015	11/05/15 11:09	D6
Vanadium	**23**	20	20	B5K0083	11/04/2015	11/05/15 11:09	D6
Zinc	**4700**	20	20	B5K0083	11/04/2015	11/05/15 11:09	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0092	11/04/2015	11/05/15 09:56	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**110**	15	1	B5K0063	11/03/2015	11/05/15 20:21	
Acenaphthene	ND	15	1	B5K0063	11/03/2015	11/05/15 20:21	
Acenaphthylene	ND	15	1	B5K0063	11/03/2015	11/05/15 20:21	
Anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 20:21	
Benzo(a)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 20:21	
Benzo(a)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 20:21	
Benzo(b)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 20:21	
Benzo(g,h,i)perylene	ND	15	1	B5K0063	11/03/2015	11/05/15 20:21	
Benzo(k)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 20:21	
Chrysene	ND	15	1	B5K0063	11/03/2015	11/05/15 20:21	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-35A-10272015

Lab ID: 1503745-16

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 20:21	
Fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 20:21	
Fluorene	ND	15	1	B5K0063	11/03/2015	11/05/15 20:21	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 20:21	
Naphthalene	**400**	15	1	B5K0063	11/03/2015	11/05/15 20:21	
Phenanthrene	ND	15	1	B5K0063	11/03/2015	11/05/15 20:21	
Pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 20:21	
Surrogate: 1,2-Dichlorobenzene-d4	*62.4 %*	*39 - 99*		B5K0063	11/03/2015	*11/05/15 20:21*	
Surrogate: 2-Fluorobiphenyl	*50.2 %*	*47 - 111*		B5K0063	11/03/2015	*11/05/15 20:21*	
Surrogate: Nitrobenzene-d5	*35.7 %*	*20 - 144*		B5K0063	11/03/2015	*11/05/15 20:21*	
Surrogate: 4-Terphenyl-d14	*5.49 %*	*44 - 150*		B5K0063	11/03/2015	*11/05/15 20:21*	S10

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-38A-10272015
Lab ID: 1503745-17

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**50**	40	20	B5K0083	11/04/2015	11/05/15 11:12	D6
Arsenic	**20**	20	20	B5K0083	11/04/2015	11/05/15 11:12	D6
Barium	**1100**	20	20	B5K0083	11/04/2015	11/05/15 11:12	D6
Beryllium	ND	20	20	B5K0083	11/04/2015	11/05/15 11:12	D6
Cadmium	ND	20	20	B5K0083	11/04/2015	11/05/15 11:12	D6
Chromium	**52**	20	20	B5K0083	11/04/2015	11/05/15 11:12	D6
Cobalt	ND	20	20	B5K0083	11/04/2015	11/05/15 11:12	D6
Copper	**860**	40	20	B5K0083	11/04/2015	11/05/15 11:12	D6
Lead	**400**	20	20	B5K0083	11/04/2015	11/05/15 11:12	D6
Molybdenum	ND	20	20	B5K0083	11/04/2015	11/05/15 11:12	D6
Nickel	**28**	20	20	B5K0083	11/04/2015	11/05/15 11:12	D6
Selenium	ND	20	20	B5K0083	11/04/2015	11/05/15 11:12	D6
Silver	ND	20	20	B5K0083	11/04/2015	11/05/15 11:12	D6
Thallium	ND	20	20	B5K0083	11/04/2015	11/05/15 11:12	D6
Vanadium	**33**	20	20	B5K0083	11/04/2015	11/05/15 11:12	D6
Zinc	**7900**	20	20	B5K0083	11/04/2015	11/05/15 11:12	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0092	11/04/2015	11/05/15 09:58	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**33**	15	1	B5K0063	11/03/2015	11/06/15 09:21	
Acenaphthene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:21	
Acenaphthylene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:21	
Anthracene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:21	
Benzo(a)anthracene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:21	
Benzo(a)pyrene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:21	
Benzo(b)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:21	
Benzo(g,h,i)perylene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:21	
Benzo(k)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:21	
Chrysene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:21	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-38A-10272015

Lab ID: 1503745-17

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:21	
Fluoranthene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:21	
Fluorene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:21	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:21	
Naphthalene	**110**	15	1	B5K0063	11/03/2015	11/06/15 09:21	
Phenanthrene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:21	
Pyrene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:21	
Surrogate: 1,2-Dichlorobenzene-d4	*72.1 %*	*39 - 99*		B5K0063	11/03/2015	*11/06/15 09:21*	
Surrogate: 2-Fluorobiphenyl	*69.3 %*	*47 - 111*		B5K0063	11/03/2015	*11/06/15 09:21*	
Surrogate: Nitrobenzene-d5	*65.8 %*	*20 - 144*		B5K0063	11/03/2015	*11/06/15 09:21*	
Surrogate: 4-Terphenyl-d14	*36.9 %*	*44 - 150*		B5K0063	11/03/2015	*11/06/15 09:21*	S10

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-17A-10282015
Lab ID: 1503745-18

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0083	11/04/2015	11/05/15 11:14	D6
Arsenic	ND	20	20	B5K0083	11/04/2015	11/05/15 11:14	D6
Barium	**240**	20	20	B5K0083	11/04/2015	11/05/15 11:14	D6
Beryllium	ND	20	20	B5K0083	11/04/2015	11/05/15 11:14	D6
Cadmium	ND	20	20	B5K0083	11/04/2015	11/05/15 11:14	D6
Chromium	**33**	20	20	B5K0083	11/04/2015	11/05/15 11:14	D6
Cobalt	ND	20	20	B5K0083	11/04/2015	11/05/15 11:14	D6
Copper	**590**	40	20	B5K0083	11/04/2015	11/05/15 11:14	D6
Lead	**81**	20	20	B5K0083	11/04/2015	11/05/15 11:14	D6
Molybdenum	ND	20	20	B5K0083	11/04/2015	11/05/15 11:14	D6
Nickel	**91**	20	20	B5K0083	11/04/2015	11/05/15 11:14	D6
Selenium	ND	20	20	B5K0083	11/04/2015	11/05/15 11:14	D6
Silver	ND	20	20	B5K0083	11/04/2015	11/05/15 11:14	D6
Thallium	ND	20	20	B5K0083	11/04/2015	11/05/15 11:14	D6
Vanadium	**32**	20	20	B5K0083	11/04/2015	11/05/15 11:14	D6
Zinc	**3900**	20	20	B5K0083	11/04/2015	11/05/15 11:14	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0092	11/04/2015	11/05/15 10:00	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**120**	15	1	B5K0063	11/03/2015	11/06/15 09:49	
Acenaphthene	**35**	15	1	B5K0063	11/03/2015	11/06/15 09:49	
Acenaphthylene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:49	
Anthracene	**27**	15	1	B5K0063	11/03/2015	11/06/15 09:49	
Benzo(a)anthracene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:49	
Benzo(a)pyrene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:49	
Benzo(b)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:49	
Benzo(g,h,i)perylene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:49	
Benzo(k)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:49	
Chrysene	**21**	15	1	B5K0063	11/03/2015	11/06/15 09:49	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-17A-10282015

Lab ID: 1503745-18

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:49	
Fluoranthene	**110**	15	1	B5K0063	11/03/2015	11/06/15 09:49	
Fluorene	**23**	15	1	B5K0063	11/03/2015	11/06/15 09:49	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0063	11/03/2015	11/06/15 09:49	
Naphthalene	**220**	15	1	B5K0063	11/03/2015	11/06/15 09:49	
Phenanthrene	**250**	15	1	B5K0063	11/03/2015	11/06/15 09:49	
Pyrene	**62**	15	1	B5K0063	11/03/2015	11/06/15 09:49	
Surrogate: 1,2-Dichlorobenzene-d4	*57.7 %*	*39 - 99*		B5K0063	11/03/2015	*11/06/15 09:49*	
Surrogate: 2-Fluorobiphenyl	*62.1 %*	*47 - 111*		B5K0063	11/03/2015	*11/06/15 09:49*	
Surrogate: Nitrobenzene-d5	*52.2 %*	*20 - 144*		B5K0063	11/03/2015	*11/06/15 09:49*	
Surrogate: 4-Terphenyl-d14	*68.6 %*	*44 - 150*		B5K0063	11/03/2015	*11/06/15 09:49*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-6C-10282015
Lab ID: 1503745-19

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0084	11/04/2015	11/05/15 10:31	D6
Arsenic	ND	20	20	B5K0084	11/04/2015	11/05/15 10:31	D6
Barium	**220**	20	20	B5K0084	11/04/2015	11/05/15 10:31	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:30	D6
Cadmium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:31	D6
Chromium	**31**	20	20	B5K0084	11/04/2015	11/05/15 10:31	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 10:31	D6
Copper	**220**	40	20	B5K0084	11/04/2015	11/05/15 10:31	D6
Lead	**88**	20	20	B5K0084	11/04/2015	11/05/15 10:31	D6
Molybdenum	ND	20	20	B5K0084	11/04/2015	11/05/15 10:31	D6
Nickel	**25**	20	20	B5K0084	11/04/2015	11/05/15 10:31	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:31	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 10:31	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:31	D6
Vanadium	**55**	20	20	B5K0084	11/04/2015	11/05/15 10:31	D6
Zinc	**790**	20	20	B5K0084	11/04/2015	11/05/15 10:31	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:06	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**43**	15	1	B5K0069	11/03/2015	11/09/15 16:20	
Acenaphthene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:20	
Acenaphthylene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:20	
Anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:20	
Benzo(a)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:20	
Benzo(a)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:20	
Benzo(b)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:20	
Benzo(g,h,i)perylene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:20	
Benzo(k)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:20	
Chrysene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:20	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-6C-10282015

Lab ID: 1503745-19

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:20	
Fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:20	
Fluorene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:20	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:20	
Naphthalene	**140**	15	1	B5K0069	11/03/2015	11/09/15 16:20	
Phenanthrene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:20	
Pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:20	
Surrogate: 1,2-Dichlorobenzene-d4	*76.0 %*	*39 - 99*		B5K0069	11/03/2015	*11/09/15 16:20*	
Surrogate: 2-Fluorobiphenyl	*86.7 %*	*47 - 111*		B5K0069	11/03/2015	*11/09/15 16:20*	
Surrogate: Nitrobenzene-d5	*64.3 %*	*20 - 144*		B5K0069	11/03/2015	*11/09/15 16:20*	
Surrogate: 4-Terphenyl-d14	*69.2 %*	*44 - 150*		B5K0069	11/03/2015	*11/09/15 16:20*	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-6B-10282015

Lab ID: 1503745-20

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: RR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0084	11/04/2015	11/05/15 10:35	D6
Arsenic	**24**	20	20	B5K0084	11/04/2015	11/05/15 10:35	D6
Barium	**2500**	20	20	B5K0084	11/04/2015	11/05/15 10:34	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:34	D6
Cadmium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:35	D6
Chromium	**30**	20	20	B5K0084	11/04/2015	11/05/15 10:35	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 10:35	D6
Copper	**170**	40	20	B5K0084	11/04/2015	11/05/15 10:34	D6
Lead	**55**	20	20	B5K0084	11/04/2015	11/05/15 10:35	D6
Molybdenum	ND	20	20	B5K0084	11/04/2015	11/05/15 10:35	D6
Nickel	**23**	20	20	B5K0084	11/04/2015	11/05/15 10:35	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:35	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 10:34	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:35	D6
Vanadium	**51**	20	20	B5K0084	11/04/2015	11/05/15 10:34	D6
Zinc	**6600**	20	20	B5K0084	11/04/2015	11/05/15 10:34	D6

Mercury by AA (Cold Vapor) EPA 7471A — **Analyst: SB**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:20	

Semivolatile Organic Compounds by EPA 8270/SIM — **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:47	
Acenaphthene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:47	
Acenaphthylene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:47	
Anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:47	
Benzo(a)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:47	
Benzo(a)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:47	
Benzo(b)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:47	
Benzo(g,h,i)perylene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:47	
Benzo(k)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:47	
Chrysene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:47	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-6B-10282015

Lab ID: 1503745-20

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:47	
Fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:47	
Fluorene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:47	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:47	
Naphthalene	**19**	15	1	B5K0069	11/03/2015	11/09/15 16:47	
Phenanthrene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:47	
Pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 16:47	
Surrogate: 1,2-Dichlorobenzene-d4	*82.5 %*	*39 - 99*		B5K0069	11/03/2015	*11/09/15 16:47*	
Surrogate: 2-Fluorobiphenyl	*90.4 %*	*47 - 111*		B5K0069	11/03/2015	*11/09/15 16:47*	
Surrogate: Nitrobenzene-d5	*71.2 %*	*20 - 144*		B5K0069	11/03/2015	*11/09/15 16:47*	
Surrogate: 4-Terphenyl-d14	*79.6 %*	*44 - 150*		B5K0069	11/03/2015	*11/09/15 16:47*	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-10B-10282015
Lab ID: 1503745-21

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0084	11/04/2015	11/05/15 10:38	D6
Arsenic	ND	20	20	B5K0084	11/04/2015	11/05/15 10:38	D6
Barium	**200**	20	20	B5K0084	11/04/2015	11/05/15 10:38	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:37	D6
Cadmium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:38	D6
Chromium	**23**	20	20	B5K0084	11/04/2015	11/05/15 10:38	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 10:38	D6
Copper	**140**	40	20	B5K0084	11/04/2015	11/05/15 10:38	D6
Lead	ND	20	20	B5K0084	11/04/2015	11/05/15 10:38	D6
Molybdenum	ND	20	20	B5K0084	11/04/2015	11/05/15 10:38	D6
Nickel	**22**	20	20	B5K0084	11/04/2015	11/05/15 10:38	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:38	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 10:38	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:38	D6
Vanadium	**48**	20	20	B5K0084	11/04/2015	11/05/15 10:38	D6
Zinc	**750**	20	20	B5K0084	11/04/2015	11/05/15 10:38	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:22	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**30**	15	1	B5K0069	11/03/2015	11/09/15 17:14	
Acenaphthene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:14	
Acenaphthylene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:14	
Anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:14	
Benzo(a)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:14	
Benzo(a)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:14	
Benzo(b)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:14	
Benzo(g,h,i)perylene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:14	
Benzo(k)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:14	
Chrysene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:14	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-10B-10282015

Lab ID: 1503745-21

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:14	
Fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:14	
Fluorene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:14	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:14	
Naphthalene	**110**	15	1	B5K0069	11/03/2015	11/09/15 17:14	
Phenanthrene	**18**	15	1	B5K0069	11/03/2015	11/09/15 17:14	
Pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:14	
Surrogate: 1,2-Dichlorobenzene-d4	*73.7 %*	*39 - 99*		B5K0069	11/03/2015	*11/09/15 17:14*	
Surrogate: 2-Fluorobiphenyl	*82.0 %*	*47 - 111*		B5K0069	11/03/2015	*11/09/15 17:14*	
Surrogate: Nitrobenzene-d5	*61.3 %*	*20 - 144*		B5K0069	11/03/2015	*11/09/15 17:14*	
Surrogate: 4-Terphenyl-d14	*62.3 %*	*44 - 150*		B5K0069	11/03/2015	*11/09/15 17:14*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-16A-10282015
Lab ID: 1503745-22

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0084	11/04/2015	11/05/15 10:42	D6
Arsenic	ND	20	20	B5K0084	11/04/2015	11/05/15 10:42	D6
Barium	**4800**	20	20	B5K0084	11/04/2015	11/05/15 10:42	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:41	D6
Cadmium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:42	D6
Chromium	**91**	20	20	B5K0084	11/04/2015	11/05/15 10:42	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 10:42	D6
Copper	**5200**	40	20	B5K0084	11/04/2015	11/05/15 10:42	D6
Lead	**78**	20	20	B5K0084	11/04/2015	11/05/15 10:42	D6
Molybdenum	ND	20	20	B5K0084	11/04/2015	11/05/15 10:42	D6
Nickel	**48**	20	20	B5K0084	11/04/2015	11/05/15 10:42	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:42	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 10:42	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:42	D6
Vanadium	**32**	20	20	B5K0084	11/04/2015	11/05/15 10:42	D6
Zinc	**11000**	20	20	B5K0084	11/04/2015	11/05/15 10:42	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:24	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:41	
Acenaphthene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:41	
Acenaphthylene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:41	
Anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:41	
Benzo(a)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:41	
Benzo(a)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:41	
Benzo(b)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:41	
Benzo(g,h,i)perylene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:41	
Benzo(k)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:41	
Chrysene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:41	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-16A-10282015

Lab ID: 1503745-22

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:41	
Fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:41	
Fluorene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:41	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:41	
Naphthalene	**19**	15	1	B5K0069	11/03/2015	11/09/15 17:41	
Phenanthrene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:41	
Pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 17:41	
Surrogate: 1,2-Dichlorobenzene-d4	*68.0 %*	*39 - 99*		B5K0069	11/03/2015	*11/09/15 17:41*	
Surrogate: 2-Fluorobiphenyl	*77.2 %*	*47 - 111*		B5K0069	11/03/2015	*11/09/15 17:41*	
Surrogate: Nitrobenzene-d5	*60.1 %*	*20 - 144*		B5K0069	11/03/2015	*11/09/15 17:41*	
Surrogate: 4-Terphenyl-d14	*46.6 %*	*44 - 150*		B5K0069	11/03/2015	*11/09/15 17:41*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-12A-10282015

Lab ID: 1503745-23

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0084	11/04/2015	11/05/15 10:46	D6
Arsenic	ND	20	20	B5K0084	11/04/2015	11/05/15 10:46	D6
Barium	**360**	20	20	B5K0084	11/04/2015	11/05/15 10:45	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:45	D6
Cadmium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:46	D6
Chromium	**20**	20	20	B5K0084	11/04/2015	11/05/15 10:46	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 10:46	D6
Copper	**1100**	40	20	B5K0084	11/04/2015	11/05/15 10:45	D6
Lead	**99**	20	20	B5K0084	11/04/2015	11/05/15 10:46	D6
Molybdenum	ND	20	20	B5K0084	11/04/2015	11/05/15 10:46	D6
Nickel	**150**	20	20	B5K0084	11/04/2015	11/05/15 10:46	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:46	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 10:45	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:46	D6
Vanadium	**51**	20	20	B5K0084	11/04/2015	11/05/15 10:45	D6
Zinc	**3600**	20	20	B5K0084	11/04/2015	11/05/15 10:45	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:26	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:08	
Acenaphthene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:08	
Acenaphthylene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:08	
Anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:08	
Benzo(a)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:08	
Benzo(a)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:08	
Benzo(b)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:08	
Benzo(g,h,i)perylene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:08	
Benzo(k)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:08	
Chrysene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:08	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-12A-10282015

Lab ID: 1503745-23

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:08	
Fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:08	
Fluorene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:08	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:08	
Naphthalene	**29**	15	1	B5K0069	11/03/2015	11/09/15 18:08	
Phenanthrene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:08	
Pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:08	
Surrogate: 1,2-Dichlorobenzene-d4	*78.8 %*	*39 - 99*		B5K0069	11/03/2015	*11/09/15 18:08*	
Surrogate: 2-Fluorobiphenyl	*91.6 %*	*47 - 111*		B5K0069	11/03/2015	*11/09/15 18:08*	
Surrogate: Nitrobenzene-d5	*66.4 %*	*20 - 144*		B5K0069	11/03/2015	*11/09/15 18:08*	
Surrogate: 4-Terphenyl-d14	*89.3 %*	*44 - 150*		B5K0069	11/03/2015	*11/09/15 18:08*	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-15A-10282015

Lab ID: 1503745-24

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**1100**	40	20	B5K0084	11/04/2015	11/05/15 10:49	D6
Arsenic	**100**	20	20	B5K0084	11/04/2015	11/05/15 10:49	D6
Barium	**2400**	20	20	B5K0084	11/04/2015	11/05/15 10:49	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:48	D6
Cadmium	**27**	20	20	B5K0084	11/04/2015	11/05/15 10:49	D6
Chromium	**98**	20	20	B5K0084	11/04/2015	11/05/15 10:49	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 10:49	D6
Copper	**6900**	40	20	B5K0084	11/04/2015	11/05/15 10:49	D6
Lead	**4800**	20	20	B5K0084	11/04/2015	11/05/15 10:49	D6
Molybdenum	ND	20	20	B5K0084	11/04/2015	11/05/15 10:49	D6
Nickel	**26**	20	20	B5K0084	11/04/2015	11/05/15 10:49	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:49	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 10:49	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:49	D6
Vanadium	**22**	20	20	B5K0084	11/04/2015	11/05/15 10:49	D6
Zinc	**10000**	20	20	B5K0084	11/04/2015	11/05/15 10:49	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:28	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:35	
Acenaphthene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:35	
Acenaphthylene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:35	
Anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:35	
Benzo(a)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:35	
Benzo(a)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:35	
Benzo(b)fluoranthene	**18**	15	1	B5K0069	11/03/2015	11/09/15 18:35	
Benzo(g,h,i)perylene	**16**	15	1	B5K0069	11/03/2015	11/09/15 18:35	
Benzo(k)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:35	
Chrysene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:35	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-15A-10282015

Lab ID: 1503745-24

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:35	
Fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:35	
Fluorene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:35	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:35	
Naphthalene	**36**	15	1	B5K0069	11/03/2015	11/09/15 18:35	
Phenanthrene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:35	
Pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 18:35	
Surrogate: 1,2-Dichlorobenzene-d4	*84.8 %*	*39 - 99*		B5K0069	11/03/2015	*11/09/15 18:35*	
Surrogate: 2-Fluorobiphenyl	*99.3 %*	*47 - 111*		B5K0069	11/03/2015	*11/09/15 18:35*	
Surrogate: Nitrobenzene-d5	*72.9 %*	*20 - 144*		B5K0069	11/03/2015	*11/09/15 18:35*	
Surrogate: 4-Terphenyl-d14	*87.8 %*	*44 - 150*		B5K0069	11/03/2015	*11/09/15 18:35*	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-11A-10282015

Lab ID: 1503745-25

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0084	11/04/2015	11/05/15 10:53	D6
Arsenic	ND	20	20	B5K0084	11/04/2015	11/05/15 10:53	D6
Barium	**180**	20	20	B5K0084	11/04/2015	11/05/15 10:53	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:52	D6
Cadmium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:53	D6
Chromium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:53	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 10:53	D6
Copper	**5700**	40	20	B5K0084	11/04/2015	11/05/15 10:53	D6
Lead	**49**	20	20	B5K0084	11/04/2015	11/05/15 10:53	D6
Molybdenum	**28**	20	20	B5K0084	11/04/2015	11/05/15 10:53	D6
Nickel	**22**	20	20	B5K0084	11/04/2015	11/05/15 10:53	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:53	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 10:53	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:53	D6
Vanadium	**31**	20	20	B5K0084	11/04/2015	11/05/15 10:53	D6
Zinc	**1300**	20	20	B5K0084	11/04/2015	11/05/15 10:53	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:29	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:02	
Acenaphthene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:02	
Acenaphthylene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:02	
Anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:02	
Benzo(a)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:02	
Benzo(a)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:02	
Benzo(b)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:02	
Benzo(g,h,i)perylene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:02	
Benzo(k)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:02	
Chrysene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:02	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-11A-10282015

Lab ID: 1503745-25

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:02	
Fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:02	
Fluorene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:02	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:02	
Naphthalene	**75**	15	1	B5K0069	11/03/2015	11/09/15 19:02	
Phenanthrene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:02	
Pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:02	
Surrogate: 1,2-Dichlorobenzene-d4	*76.2 %*	*39 - 99*		B5K0069	11/03/2015	*11/09/15 19:02*	
Surrogate: 2-Fluorobiphenyl	*92.4 %*	*47 - 111*		B5K0069	11/03/2015	*11/09/15 19:02*	
Surrogate: Nitrobenzene-d5	*67.3 %*	*20 - 144*		B5K0069	11/03/2015	*11/09/15 19:02*	
Surrogate: 4-Terphenyl-d14	*58.6 %*	*44 - 150*		B5K0069	11/03/2015	*11/09/15 19:02*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-20C-10282015

Lab ID: 1503745-26

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0084	11/04/2015	11/05/15 10:57	D6
Arsenic	ND	20	20	B5K0084	11/04/2015	11/05/15 10:57	D6
Barium	**31**	20	20	B5K0084	11/04/2015	11/05/15 10:57	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:56	D6
Cadmium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:57	D6
Chromium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:57	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 10:57	D6
Copper	**330**	40	20	B5K0084	11/04/2015	11/05/15 10:57	D6
Lead	**30**	20	20	B5K0084	11/04/2015	11/05/15 10:57	D6
Molybdenum	ND	20	20	B5K0084	11/04/2015	11/05/15 10:57	D6
Nickel	ND	20	20	B5K0084	11/04/2015	11/05/15 10:57	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:57	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 10:57	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:57	D6
Vanadium	ND	20	20	B5K0084	11/04/2015	11/05/15 10:57	D6
Zinc	**2100**	20	20	B5K0084	11/04/2015	11/05/15 10:57	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:31	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0069	11/09/2015	11/09/15 14:58	
Acenaphthene	ND	15	1	B5K0069	11/09/2015	11/09/15 14:58	
Acenaphthylene	ND	15	1	B5K0069	11/09/2015	11/09/15 14:58	
Anthracene	ND	15	1	B5K0069	11/09/2015	11/09/15 14:58	
Benzo(a)anthracene	ND	15	1	B5K0069	11/09/2015	11/09/15 14:58	
Benzo(a)pyrene	ND	15	1	B5K0069	11/09/2015	11/09/15 14:58	
Benzo(b)fluoranthene	ND	15	1	B5K0069	11/09/2015	11/09/15 14:58	
Benzo(g,h,i)perylene	ND	15	1	B5K0069	11/09/2015	11/09/15 14:58	
Benzo(k)fluoranthene	ND	15	1	B5K0069	11/09/2015	11/09/15 14:58	
Chrysene	ND	15	1	B5K0069	11/09/2015	11/09/15 14:58	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-20C-10282015

Lab ID: 1503745-26

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0069	11/09/2015	11/09/15 14:58	
Fluoranthene	ND	15	1	B5K0069	11/09/2015	11/09/15 14:58	
Fluorene	ND	15	1	B5K0069	11/09/2015	11/09/15 14:58	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0069	11/09/2015	11/09/15 14:58	
Naphthalene	**51**	15	1	B5K0069	11/09/2015	11/09/15 14:58	
Phenanthrene	ND	15	1	B5K0069	11/09/2015	11/09/15 14:58	
Pyrene	ND	15	1	B5K0069	11/09/2015	11/09/15 14:58	
Surrogate: 1,2-Dichlorobenzene-d4	*74.8 %*	*39 - 99*		B5K0069	11/09/2015	*11/09/15 14:58*	
Surrogate: 2-Fluorobiphenyl	*89.7 %*	*47 - 111*		B5K0069	11/09/2015	*11/09/15 14:58*	
Surrogate: Nitrobenzene-d5	*60.5 %*	*20 - 144*		B5K0069	11/09/2015	*11/09/15 14:58*	
Surrogate: 4-Terphenyl-d14	*87.0 %*	*44 - 150*		B5K0069	11/09/2015	*11/09/15 14:58*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-10A-10282015

Lab ID: 1503745-27

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0084	11/04/2015	11/05/15 11:14	D6
Arsenic	ND	20	20	B5K0084	11/04/2015	11/05/15 11:14	D6
Barium	**120**	20	20	B5K0084	11/04/2015	11/05/15 11:14	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:13	D6
Cadmium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:14	D6
Chromium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:14	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 11:14	D6
Copper	**360**	40	20	B5K0084	11/04/2015	11/05/15 11:14	D6
Lead	ND	20	20	B5K0084	11/04/2015	11/05/15 11:14	D6
Molybdenum	**21**	20	20	B5K0084	11/04/2015	11/05/15 11:14	D6
Nickel	**37**	20	20	B5K0084	11/04/2015	11/05/15 11:14	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:14	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 11:14	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:14	D6
Vanadium	**26**	20	20	B5K0084	11/04/2015	11/05/15 11:14	D6
Zinc	**920**	20	20	B5K0084	11/04/2015	11/05/15 11:14	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:33	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:29	
Acenaphthene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:29	
Acenaphthylene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:29	
Anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:29	
Benzo(a)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:29	
Benzo(a)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:29	
Benzo(b)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:29	
Benzo(g,h,i)perylene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:29	
Benzo(k)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:29	
Chrysene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:29	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-10A-10282015

Lab ID: 1503745-27

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:29	
Fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:29	
Fluorene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:29	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:29	
Naphthalene	**48**	15	1	B5K0069	11/03/2015	11/09/15 19:29	
Phenanthrene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:29	
Pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 19:29	
Surrogate: 1,2-Dichlorobenzene-d4	*81.6 %*	*39 - 99*		B5K0069	11/03/2015	*11/09/15 19:29*	
Surrogate: 2-Fluorobiphenyl	*88.6 %*	*47 - 111*		B5K0069	11/03/2015	*11/09/15 19:29*	
Surrogate: Nitrobenzene-d5	*67.7 %*	*20 - 144*		B5K0069	11/03/2015	*11/09/15 19:29*	
Surrogate: 4-Terphenyl-d14	*33.6 %*	*44 - 150*		B5K0069	11/03/2015	*11/09/15 19:29*	S10

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-46A-10282015
Lab ID: 1503745-28

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0084	11/04/2015	11/05/15 11:18	D6
Arsenic	ND	20	20	B5K0084	11/04/2015	11/05/15 11:18	D6
Barium	**150**	20	20	B5K0084	11/04/2015	11/05/15 11:17	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:17	D6
Cadmium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:18	D6
Chromium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:18	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 11:18	D6
Copper	**1300**	40	20	B5K0084	11/04/2015	11/05/15 11:17	D6
Lead	ND	20	20	B5K0084	11/04/2015	11/05/15 11:18	D6
Molybdenum	**26**	20	20	B5K0084	11/04/2015	11/05/15 11:18	D6
Nickel	**22**	20	20	B5K0084	11/04/2015	11/05/15 11:18	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:18	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 11:17	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:18	D6
Vanadium	**56**	20	20	B5K0084	11/04/2015	11/05/15 11:17	D6
Zinc	**340**	20	20	B5K0084	11/04/2015	11/05/15 11:17	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:35	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:55	
Acenaphthene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:55	
Acenaphthylene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:55	
Anthracene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:55	
Benzo(a)anthracene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:55	
Benzo(a)pyrene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:55	
Benzo(b)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:55	
Benzo(g,h,i)perylene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:55	
Benzo(k)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:55	
Chrysene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:55	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-46A-10282015

Lab ID: 1503745-28

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:55	
Fluoranthene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:55	
Fluorene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:55	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:55	
Naphthalene	**19**	15	1	B5K0069	11/03/2015	11/10/15 08:55	
Phenanthrene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:55	
Pyrene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:55	
Surrogate: 1,2-Dichlorobenzene-d4	*89.2 %*	*39 - 99*		B5K0069	11/03/2015	*11/10/15 08:55*	
Surrogate: 2-Fluorobiphenyl	*107 %*	*47 - 111*		B5K0069	11/03/2015	*11/10/15 08:55*	
Surrogate: Nitrobenzene-d5	*78.2 %*	*20 - 144*		B5K0069	11/03/2015	*11/10/15 08:55*	
Surrogate: 4-Terphenyl-d14	*92.2 %*	*44 - 150*		B5K0069	11/03/2015	*11/10/15 08:55*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-20A-10282015

Lab ID: 1503745-29

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0084	11/04/2015	11/05/15 11:21	D6
Arsenic	ND	20	20	B5K0084	11/04/2015	11/05/15 11:21	D6
Barium	**60**	20	20	B5K0084	11/04/2015	11/05/15 11:21	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:21	D6
Cadmium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:21	D6
Chromium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:21	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 11:21	D6
Copper	**1800**	40	20	B5K0084	11/04/2015	11/05/15 11:21	D6
Lead	**1800**	20	20	B5K0084	11/04/2015	11/05/15 11:21	D6
Molybdenum	ND	20	20	B5K0084	11/04/2015	11/05/15 11:21	D6
Nickel	ND	20	20	B5K0084	11/04/2015	11/05/15 11:21	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:21	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 11:21	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:21	D6
Vanadium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:21	D6
Zinc	**860**	20	20	B5K0084	11/04/2015	11/05/15 11:21	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:41	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0069	11/03/2015	11/10/15 09:22	
Acenaphthene	ND	15	1	B5K0069	11/03/2015	11/10/15 09:22	
Acenaphthylene	ND	15	1	B5K0069	11/03/2015	11/10/15 09:22	
Anthracene	ND	15	1	B5K0069	11/03/2015	11/10/15 09:22	
Benzo(a)anthracene	ND	15	1	B5K0069	11/03/2015	11/10/15 09:22	
Benzo(a)pyrene	ND	15	1	B5K0069	11/03/2015	11/10/15 09:22	
Benzo(b)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/10/15 09:22	
Benzo(g,h,i)perylene	ND	15	1	B5K0069	11/03/2015	11/10/15 09:22	
Benzo(k)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/10/15 09:22	
Chrysene	ND	15	1	B5K0069	11/03/2015	11/10/15 09:22	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-20A-10282015

Lab ID: 1503745-29

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0069	11/03/2015	11/10/15 09:22	
Fluoranthene	ND	15	1	B5K0069	11/03/2015	11/10/15 09:22	
Fluorene	ND	15	1	B5K0069	11/03/2015	11/10/15 09:22	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0069	11/03/2015	11/10/15 09:22	
Naphthalene	ND	15	1	B5K0069	11/03/2015	11/10/15 09:22	
Phenanthrene	**25**	15	1	B5K0069	11/03/2015	11/10/15 09:22	
Pyrene	ND	15	1	B5K0069	11/03/2015	11/10/15 09:22	
Surrogate: 1,2-Dichlorobenzene-d4	*82.5 %*	*39 - 99*		B5K0069	11/03/2015	*11/10/15 09:22*	
Surrogate: 2-Fluorobiphenyl	*101 %*	*47 - 111*		B5K0069	11/03/2015	*11/10/15 09:22*	
Surrogate: Nitrobenzene-d5	*74.8 %*	*20 - 144*		B5K0069	11/03/2015	*11/10/15 09:22*	
Surrogate: 4-Terphenyl-d14	*88.6 %*	*44 - 150*		B5K0069	11/03/2015	*11/10/15 09:22*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-45A-10282015

Lab ID: 1503745-30

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0084	11/04/2015	11/05/15 11:25	D6
Arsenic	ND	20	20	B5K0084	11/04/2015	11/05/15 11:25	D6
Barium	**210**	20	20	B5K0084	11/04/2015	11/05/15 11:25	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:24	D6
Cadmium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:25	D6
Chromium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:25	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 11:25	D6
Copper	**260**	40	20	B5K0084	11/04/2015	11/05/15 11:25	D6
Lead	**920**	20	20	B5K0084	11/04/2015	11/05/15 11:25	D6
Molybdenum	ND	20	20	B5K0084	11/04/2015	11/05/15 11:25	D6
Nickel	ND	20	20	B5K0084	11/04/2015	11/05/15 11:25	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:25	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 11:25	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:25	D6
Vanadium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:25	D6
Zinc	**6700**	20	20	B5K0084	11/04/2015	11/05/15 11:25	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:43	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**31**	15	1	B5K0069	11/03/2015	11/10/15 09:48	
Acenaphthene	ND	15	1	B5K0069	11/03/2015	11/10/15 09:48	
Acenaphthylene	ND	15	1	B5K0069	11/03/2015	11/10/15 09:48	
Anthracene	**25**	15	1	B5K0069	11/03/2015	11/10/15 09:48	
Benzo(a)anthracene	**150**	15	1	B5K0069	11/03/2015	11/10/15 09:48	
Benzo(a)pyrene	**80**	15	1	B5K0069	11/03/2015	11/10/15 09:48	
Benzo(b)fluoranthene	**140**	15	1	B5K0069	11/03/2015	11/10/15 09:48	
Benzo(g,h,i)perylene	**65**	15	1	B5K0069	11/03/2015	11/10/15 09:48	
Benzo(k)fluoranthene	**28**	15	1	B5K0069	11/03/2015	11/10/15 09:48	
Chrysene	**270**	15	1	B5K0069	11/03/2015	11/10/15 09:48	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-45A-10282015

Lab ID: 1503745-30

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	**21**	15	1	B5K0069	11/03/2015	11/10/15 09:48	
Fluoranthene	**130**	15	1	B5K0069	11/03/2015	11/10/15 09:48	
Fluorene	ND	15	1	B5K0069	11/03/2015	11/10/15 09:48	
Indeno(1,2,3-cd)pyrene	**36**	15	1	B5K0069	11/03/2015	11/10/15 09:48	
Naphthalene	**71**	15	1	B5K0069	11/03/2015	11/10/15 09:48	
Phenanthrene	**180**	15	1	B5K0069	11/03/2015	11/10/15 09:48	
Pyrene	**190**	15	1	B5K0069	11/03/2015	11/10/15 09:48	
Surrogate: 1,2-Dichlorobenzene-d4	*79.5 %*	*39 - 99*		B5K0069	11/03/2015	*11/10/15 09:48*	
Surrogate: 2-Fluorobiphenyl	*96.8 %*	*47 - 111*		B5K0069	11/03/2015	*11/10/15 09:48*	
Surrogate: Nitrobenzene-d5	*71.0 %*	*20 - 144*		B5K0069	11/03/2015	*11/10/15 09:48*	
Surrogate: 4-Terphenyl-d14	*84.8 %*	*44 - 150*		B5K0069	11/03/2015	*11/10/15 09:48*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-19C-10292015

Lab ID: 1503745-31

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0084	11/04/2015	11/05/15 11:29	D6
Arsenic	ND	20	20	B5K0084	11/04/2015	11/05/15 11:29	D6
Barium	**300**	20	20	B5K0084	11/04/2015	11/05/15 11:28	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:28	D6
Cadmium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:29	D6
Chromium	**34**	20	20	B5K0084	11/04/2015	11/05/15 11:29	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 11:29	D6
Copper	**140**	40	20	B5K0084	11/04/2015	11/05/15 11:28	D6
Lead	**210**	20	20	B5K0084	11/04/2015	11/05/15 11:29	D6
Molybdenum	ND	20	20	B5K0084	11/04/2015	11/05/15 11:29	D6
Nickel	**23**	20	20	B5K0084	11/04/2015	11/05/15 11:29	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:29	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 11:28	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:29	D6
Vanadium	**28**	20	20	B5K0084	11/04/2015	11/05/15 11:28	D6
Zinc	**6500**	20	20	B5K0084	11/04/2015	11/05/15 11:28	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:45	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**16**	15	1	B5K0069	11/03/2015	11/09/15 21:16	
Acenaphthene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:16	
Acenaphthylene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:16	
Anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:16	
Benzo(a)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:16	
Benzo(a)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:16	
Benzo(b)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:16	
Benzo(g,h,i)perylene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:16	
Benzo(k)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:16	
Chrysene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:16	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-19C-10292015

Lab ID: 1503745-31

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:16	
Fluoranthene	**15**	15	1	B5K0069	11/03/2015	11/09/15 21:16	
Fluorene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:16	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:16	
Naphthalene	**100**	15	1	B5K0069	11/03/2015	11/09/15 21:16	
Phenanthrene	**43**	15	1	B5K0069	11/03/2015	11/09/15 21:16	
Pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:16	
Surrogate: 1,2-Dichlorobenzene-d4	*70.4 %*	*39 - 99*		B5K0069	11/03/2015	*11/09/15 21:16*	
Surrogate: 2-Fluorobiphenyl	*82.5 %*	*47 - 111*		B5K0069	11/03/2015	*11/09/15 21:16*	
Surrogate: Nitrobenzene-d5	*58.6 %*	*20 - 144*		B5K0069	11/03/2015	*11/09/15 21:16*	
Surrogate: 4-Terphenyl-d14	*74.1 %*	*44 - 150*		B5K0069	11/03/2015	*11/09/15 21:16*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-14B-10292015

Lab ID: 1503745-32

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0084	11/04/2015	11/05/15 11:33	D6
Arsenic	ND	20	20	B5K0084	11/04/2015	11/05/15 11:33	D6
Barium	**230**	20	20	B5K0084	11/04/2015	11/05/15 11:32	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:32	D6
Cadmium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:33	D6
Chromium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:33	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 11:33	D6
Copper	**380**	40	20	B5K0084	11/04/2015	11/05/15 11:32	D6
Lead	**130**	20	20	B5K0084	11/04/2015	11/05/15 11:33	D6
Molybdenum	ND	20	20	B5K0084	11/04/2015	11/05/15 11:33	D6
Nickel	ND	20	20	B5K0084	11/04/2015	11/05/15 11:33	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:33	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 11:32	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:33	D6
Vanadium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:33	D6
Zinc	**7100**	20	20	B5K0084	11/04/2015	11/05/15 11:32	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:47	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**96**	15	1	B5K0069	11/03/2015	11/10/15 08:28	
Acenaphthene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:28	
Acenaphthylene	**29**	15	1	B5K0069	11/03/2015	11/10/15 08:28	
Anthracene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:28	
Benzo(a)anthracene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:28	
Benzo(a)pyrene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:28	
Benzo(b)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:28	
Benzo(g,h,i)perylene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:28	
Benzo(k)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:28	
Chrysene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:28	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-14B-10292015

Lab ID: 1503745-32

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:28	
Fluoranthene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:28	
Fluorene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:28	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:28	
Naphthalene	**370**	15	1	B5K0069	11/03/2015	11/10/15 08:28	
Phenanthrene	**57**	15	1	B5K0069	11/03/2015	11/10/15 08:28	
Pyrene	ND	15	1	B5K0069	11/03/2015	11/10/15 08:28	
Surrogate: 1,2-Dichlorobenzene-d4	*60.0 %*	*39 - 99*		B5K0069	11/03/2015	*11/10/15 08:28*	
Surrogate: 2-Fluorobiphenyl	*84.3 %*	*47 - 111*		B5K0069	11/03/2015	*11/10/15 08:28*	
Surrogate: Nitrobenzene-d5	*58.3 %*	*20 - 144*		B5K0069	11/03/2015	*11/10/15 08:28*	
Surrogate: 4-Terphenyl-d14	*64.1 %*	*44 - 150*		B5K0069	11/03/2015	*11/10/15 08:28*	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-19B-10292015

Lab ID: 1503745-33

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0084	11/04/2015	11/05/15 11:36	D6
Arsenic	ND	20	20	B5K0084	11/04/2015	11/05/15 11:36	D6
Barium	**210**	20	20	B5K0084	11/04/2015	11/05/15 11:36	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:35	D6
Cadmium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:36	D6
Chromium	**28**	20	20	B5K0084	11/04/2015	11/05/15 11:36	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 11:36	D6
Copper	**860**	40	20	B5K0084	11/04/2015	11/05/15 11:36	D6
Lead	**190**	20	20	B5K0084	11/04/2015	11/05/15 11:36	D6
Molybdenum	ND	20	20	B5K0084	11/04/2015	11/05/15 11:36	D6
Nickel	**24**	20	20	B5K0084	11/04/2015	11/05/15 11:36	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:36	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 11:36	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:36	D6
Vanadium	**26**	20	20	B5K0084	11/04/2015	11/05/15 11:36	D6
Zinc	**4600**	20	20	B5K0084	11/04/2015	11/05/15 11:36	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:49	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:44	
Acenaphthene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:44	
Acenaphthylene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:44	
Anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:44	
Benzo(a)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:44	
Benzo(a)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:44	
Benzo(b)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:44	
Benzo(g,h,i)perylene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:44	
Benzo(k)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:44	
Chrysene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:44	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-19B-10292015

Lab ID: 1503745-33

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:44	
Fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:44	
Fluorene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:44	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:44	
Naphthalene	**18**	15	1	B5K0069	11/03/2015	11/09/15 21:44	
Phenanthrene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:44	
Pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 21:44	
Surrogate: 1,2-Dichlorobenzene-d4	*83.9 %*	*39 - 99*		B5K0069	11/03/2015	*11/09/15 21:44*	
Surrogate: 2-Fluorobiphenyl	*99.4 %*	*47 - 111*		B5K0069	11/03/2015	*11/09/15 21:44*	
Surrogate: Nitrobenzene-d5	*73.3 %*	*20 - 144*		B5K0069	11/03/2015	*11/09/15 21:44*	
Surrogate: 4-Terphenyl-d14	*96.7 %*	*44 - 150*		B5K0069	11/03/2015	*11/09/15 21:44*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-18A-10292015

Lab ID: 1503745-34

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0084	11/04/2015	11/05/15 11:40	D6
Arsenic	**27**	20	20	B5K0084	11/04/2015	11/05/15 11:40	D6
Barium	**150**	20	20	B5K0084	11/04/2015	11/05/15 11:40	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:39	D6
Cadmium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:40	D6
Chromium	**40**	20	20	B5K0084	11/04/2015	11/05/15 11:40	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 11:40	D6
Copper	**1100**	40	20	B5K0084	11/04/2015	11/05/15 11:40	D6
Lead	**270**	20	20	B5K0084	11/04/2015	11/05/15 11:40	D6
Molybdenum	ND	20	20	B5K0084	11/04/2015	11/05/15 11:40	D6
Nickel	**39**	20	20	B5K0084	11/04/2015	11/05/15 11:40	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:40	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 11:40	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:40	D6
Vanadium	**24**	20	20	B5K0084	11/04/2015	11/05/15 11:40	D6
Zinc	**840**	20	20	B5K0084	11/04/2015	11/05/15 11:40	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:51	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:11	
Acenaphthene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:11	
Acenaphthylene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:11	
Anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:11	
Benzo(a)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:11	
Benzo(a)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:11	
Benzo(b)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:11	
Benzo(g,h,i)perylene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:11	
Benzo(k)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:11	
Chrysene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:11	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-18A-10292015

Lab ID: 1503745-34

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:11	
Fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:11	
Fluorene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:11	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:11	
Naphthalene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:11	
Phenanthrene	**19**	15	1	B5K0069	11/03/2015	11/09/15 22:11	
Pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:11	
Surrogate: 1,2-Dichlorobenzene-d4	*69.3 %*	*39 - 99*		B5K0069	11/03/2015	*11/09/15 22:11*	
Surrogate: 2-Fluorobiphenyl	*84.4 %*	*47 - 111*		B5K0069	11/03/2015	*11/09/15 22:11*	
Surrogate: Nitrobenzene-d5	*59.5 %*	*20 - 144*		B5K0069	11/03/2015	*11/09/15 22:11*	
Surrogate: 4-Terphenyl-d14	*94.3 %*	*44 - 150*		B5K0069	11/03/2015	*11/09/15 22:11*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-22A-10292015
Lab ID: 1503745-35

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0084	11/04/2015	11/05/15 11:51	D6
Arsenic	**23**	20	20	B5K0084	11/04/2015	11/05/15 11:51	D6
Barium	**1500**	20	20	B5K0084	11/04/2015	11/05/15 11:50	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:50	D6
Cadmium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:51	D6
Chromium	**34**	20	20	B5K0084	11/04/2015	11/05/15 11:51	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 11:51	D6
Copper	**3900**	40	20	B5K0084	11/04/2015	11/05/15 11:50	D6
Lead	**250**	20	20	B5K0084	11/04/2015	11/05/15 11:51	D6
Molybdenum	ND	20	20	B5K0084	11/04/2015	11/05/15 11:51	D6
Nickel	ND	20	20	B5K0084	11/04/2015	11/05/15 11:51	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:51	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 11:50	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:51	D6
Vanadium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:50	D6
Zinc	**930**	20	20	B5K0084	11/04/2015	11/05/15 11:50	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:53	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**33**	15	1	B5K0069	11/03/2015	11/09/15 22:38	
Acenaphthene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:38	
Acenaphthylene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:38	
Anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:38	
Benzo(a)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:38	
Benzo(a)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:38	
Benzo(b)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:38	
Benzo(g,h,i)perylene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:38	
Benzo(k)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:38	
Chrysene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:38	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-22A-10292015

Lab ID: 1503745-35

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:38	
Fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:38	
Fluorene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:38	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:38	
Naphthalene	**160**	15	1	B5K0069	11/03/2015	11/09/15 22:38	
Phenanthrene	**20**	15	1	B5K0069	11/03/2015	11/09/15 22:38	
Pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 22:38	
Surrogate: 1,2-Dichlorobenzene-d4	*73.3 %*	*39 - 99*		B5K0069	11/03/2015	*11/09/15 22:38*	
Surrogate: 2-Fluorobiphenyl	*89.5 %*	*47 - 111*		B5K0069	11/03/2015	*11/09/15 22:38*	
Surrogate: Nitrobenzene-d5	*71.4 %*	*20 - 144*		B5K0069	11/03/2015	*11/09/15 22:38*	
Surrogate: 4-Terphenyl-d14	*70.5 %*	*44 - 150*		B5K0069	11/03/2015	*11/09/15 22:38*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-56A-10292015

Lab ID: 1503745-36

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0084	11/04/2015	11/05/15 11:54	D6
Arsenic	ND	20	20	B5K0084	11/04/2015	11/05/15 11:54	D6
Barium	**300**	20	20	B5K0084	11/04/2015	11/05/15 11:54	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:53	D6
Cadmium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:54	D6
Chromium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:54	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 11:54	D6
Copper	**2300**	40	20	B5K0084	11/04/2015	11/05/15 11:54	D6
Lead	**200**	20	20	B5K0084	11/04/2015	11/05/15 11:54	D6
Molybdenum	ND	20	20	B5K0084	11/04/2015	11/05/15 11:54	D6
Nickel	ND	20	20	B5K0084	11/04/2015	11/05/15 11:54	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:54	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 11:54	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:54	D6
Vanadium	**34**	20	20	B5K0084	11/04/2015	11/05/15 11:54	D6
Zinc	**430**	20	20	B5K0084	11/04/2015	11/05/15 11:54	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:55	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**17**	15	1	B5K0069	11/03/2015	11/09/15 23:04	
Acenaphthene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:04	
Acenaphthylene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:04	
Anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:04	
Benzo(a)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:04	
Benzo(a)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:04	
Benzo(b)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:04	
Benzo(g,h,i)perylene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:04	
Benzo(k)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:04	
Chrysene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:04	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-56A-10292015

Lab ID: 1503745-36

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:04	
Fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:04	
Fluorene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:04	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:04	
Naphthalene	**58**	15	1	B5K0069	11/03/2015	11/09/15 23:04	
Phenanthrene	**17**	15	1	B5K0069	11/03/2015	11/09/15 23:04	
Pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:04	
Surrogate: 1,2-Dichlorobenzene-d4	*82.0 %*	*39 - 99*		B5K0069	11/03/2015	*11/09/15 23:04*	
Surrogate: 2-Fluorobiphenyl	*99.3 %*	*47 - 111*		B5K0069	11/03/2015	*11/09/15 23:04*	
Surrogate: Nitrobenzene-d5	*73.8 %*	*20 - 144*		B5K0069	11/03/2015	*11/09/15 23:04*	
Surrogate: 4-Terphenyl-d14	*72.1 %*	*44 - 150*		B5K0069	11/03/2015	*11/09/15 23:04*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-49A-10292015
Lab ID: 1503745-37

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0084	11/04/2015	11/05/15 11:58	D6
Arsenic	**31**	20	20	B5K0084	11/04/2015	11/05/15 11:58	D6
Barium	**260**	20	20	B5K0084	11/04/2015	11/05/15 11:58	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:57	D6
Cadmium	**38**	20	20	B5K0084	11/04/2015	11/05/15 11:58	D6
Chromium	**38**	20	20	B5K0084	11/04/2015	11/05/15 11:58	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 11:58	D6
Copper	**280**	40	20	B5K0084	11/04/2015	11/05/15 11:58	D6
Lead	**290**	20	20	B5K0084	11/04/2015	11/05/15 11:58	D6
Molybdenum	ND	20	20	B5K0084	11/04/2015	11/05/15 11:58	D6
Nickel	**25**	20	20	B5K0084	11/04/2015	11/05/15 11:58	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:58	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 11:58	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 11:58	D6
Vanadium	**47**	20	20	B5K0084	11/04/2015	11/05/15 11:58	D6
Zinc	**1200**	20	20	B5K0084	11/04/2015	11/05/15 11:58	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:57	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**18**	15	1	B5K0069	11/03/2015	11/09/15 23:31	
Acenaphthene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:31	
Acenaphthylene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:31	
Anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:31	
Benzo(a)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:31	
Benzo(a)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:31	
Benzo(b)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:31	
Benzo(g,h,i)perylene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:31	
Benzo(k)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:31	
Chrysene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:31	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-49A-10292015

Lab ID: 1503745-37

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:31	
Fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:31	
Fluorene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:31	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:31	
Naphthalene	**110**	15	1	B5K0069	11/03/2015	11/09/15 23:31	
Phenanthrene	**25**	15	1	B5K0069	11/03/2015	11/09/15 23:31	
Pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:31	
Surrogate: 1,2-Dichlorobenzene-d4	*83.5 %*	*39 - 99*		B5K0069	11/03/2015	*11/09/15 23:31*	
Surrogate: 2-Fluorobiphenyl	*97.6 %*	*47 - 111*		B5K0069	11/03/2015	*11/09/15 23:31*	
Surrogate: Nitrobenzene-d5	*74.4 %*	*20 - 144*		B5K0069	11/03/2015	*11/09/15 23:31*	
Surrogate: 4-Terphenyl-d14	*88.7 %*	*44 - 150*		B5K0069	11/03/2015	*11/09/15 23:31*	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-51A-10292015
Lab ID: 1503745-38

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**76**	40	20	B5K0084	11/04/2015	11/05/15 12:02	D6
Arsenic	ND	20	20	B5K0084	11/04/2015	11/05/15 12:02	D6
Barium	**690**	20	20	B5K0084	11/04/2015	11/05/15 12:01	D6
Beryllium	ND	20	20	B5K0084	11/04/2015	11/05/15 12:01	D6
Cadmium	ND	20	20	B5K0084	11/04/2015	11/05/15 12:02	D6
Chromium	**29**	20	20	B5K0084	11/04/2015	11/05/15 12:02	D6
Cobalt	ND	20	20	B5K0084	11/04/2015	11/05/15 12:02	D6
Copper	**670**	40	20	B5K0084	11/04/2015	11/05/15 12:01	D6
Lead	**1800**	20	20	B5K0084	11/04/2015	11/05/15 12:01	D6
Molybdenum	ND	20	20	B5K0084	11/04/2015	11/05/15 12:02	D6
Nickel	**20**	20	20	B5K0084	11/04/2015	11/05/15 12:02	D6
Selenium	ND	20	20	B5K0084	11/04/2015	11/05/15 12:02	D6
Silver	ND	20	20	B5K0084	11/04/2015	11/05/15 12:01	D6
Thallium	ND	20	20	B5K0084	11/04/2015	11/05/15 12:02	D6
Vanadium	**30**	20	20	B5K0084	11/04/2015	11/05/15 12:01	D6
Zinc	**1500**	20	20	B5K0084	11/04/2015	11/05/15 12:01	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0093	11/04/2015	11/05/15 10:59	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**21**	15	1	B5K0069	11/03/2015	11/09/15 23:58	
Acenaphthene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:58	
Acenaphthylene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:58	
Anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:58	
Benzo(a)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:58	
Benzo(a)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:58	
Benzo(b)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:58	
Benzo(g,h,i)perylene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:58	
Benzo(k)fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:58	
Chrysene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:58	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-51A-10292015

Lab ID: 1503745-38

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:58	
Fluoranthene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:58	
Fluorene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:58	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:58	
Naphthalene	**71**	15	1	B5K0069	11/03/2015	11/09/15 23:58	
Phenanthrene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:58	
Pyrene	ND	15	1	B5K0069	11/03/2015	11/09/15 23:58	
Surrogate: 1,2-Dichlorobenzene-d4	*87.7 %*	*39 - 99*		B5K0069	11/03/2015	*11/09/15 23:58*	
Surrogate: 2-Fluorobiphenyl	*104 %*	*47 - 111*		B5K0069	11/03/2015	*11/09/15 23:58*	
Surrogate: Nitrobenzene-d5	*82.5 %*	*20 - 144*		B5K0069	11/03/2015	*11/09/15 23:58*	
Surrogate: 4-Terphenyl-d14	*95.7 %*	*44 - 150*		B5K0069	11/03/2015	*11/09/15 23:58*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-24A-10292015
Lab ID: 1503745-39

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0085	11/04/2015	11/05/15 11:51	D6
Arsenic	ND	20	20	B5K0085	11/04/2015	11/05/15 11:51	D6
Barium	**160**	20	20	B5K0085	11/04/2015	11/05/15 11:51	D6
Beryllium	ND	20	20	B5K0085	11/04/2015	11/05/15 11:51	D6
Cadmium	ND	20	20	B5K0085	11/04/2015	11/05/15 11:51	D6
Chromium	**42**	20	20	B5K0085	11/04/2015	11/05/15 11:51	D6
Cobalt	**24**	20	20	B5K0085	11/04/2015	11/05/15 11:51	D6
Copper	**2300**	40	20	B5K0085	11/04/2015	11/05/15 11:51	D6
Lead	**160**	20	20	B5K0085	11/04/2015	11/05/15 11:51	D6
Molybdenum	ND	20	20	B5K0085	11/04/2015	11/05/15 11:51	D6
Nickel	**130**	20	20	B5K0085	11/04/2015	11/05/15 11:51	D6
Selenium	ND	20	20	B5K0085	11/04/2015	11/05/15 11:51	D6
Silver	ND	20	20	B5K0085	11/04/2015	11/05/15 11:51	D6
Thallium	ND	20	20	B5K0085	11/04/2015	11/05/15 11:51	D6
Vanadium	ND	20	20	B5K0085	11/04/2015	11/05/15 11:51	D6
Zinc	**2100**	20	20	B5K0085	11/04/2015	11/05/15 11:51	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0094	11/04/2015	11/05/15 11:09	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**24**	15	1	B5K0105	11/04/2015	11/06/15 11:09	
Acenaphthene	ND	15	1	B5K0105	11/04/2015	11/06/15 11:09	
Acenaphthylene	ND	15	1	B5K0105	11/04/2015	11/06/15 11:09	
Anthracene	ND	15	1	B5K0105	11/04/2015	11/06/15 11:09	
Benzo(a)anthracene	ND	15	1	B5K0105	11/04/2015	11/06/15 11:09	
Benzo(a)pyrene	ND	15	1	B5K0105	11/04/2015	11/06/15 11:09	
Benzo(b)fluoranthene	ND	15	1	B5K0105	11/04/2015	11/06/15 11:09	
Benzo(g,h,i)perylene	ND	15	1	B5K0105	11/04/2015	11/06/15 11:09	
Benzo(k)fluoranthene	ND	15	1	B5K0105	11/04/2015	11/06/15 11:09	
Chrysene	ND	15	1	B5K0105	11/04/2015	11/06/15 11:09	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-24A-10292015

Lab ID: 1503745-39

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0105	11/04/2015	11/06/15 11:09	
Fluoranthene	ND	15	1	B5K0105	11/04/2015	11/06/15 11:09	
Fluorene	ND	15	1	B5K0105	11/04/2015	11/06/15 11:09	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0105	11/04/2015	11/06/15 11:09	
Naphthalene	**89**	15	1	B5K0105	11/04/2015	11/06/15 11:09	
Phenanthrene	**21**	15	1	B5K0105	11/04/2015	11/06/15 11:09	
Pyrene	ND	15	1	B5K0105	11/04/2015	11/06/15 11:09	
Surrogate: 1,2-Dichlorobenzene-d4	*76.4 %*	*39 - 99*		B5K0105	11/04/2015	*11/06/15 11:09*	
Surrogate: 2-Fluorobiphenyl	*84.1 %*	*47 - 111*		B5K0105	11/04/2015	*11/06/15 11:09*	
Surrogate: Nitrobenzene-d5	*69.7 %*	*20 - 144*		B5K0105	11/04/2015	*11/06/15 11:09*	
Surrogate: 4-Terphenyl-d14	*91.5 %*	*44 - 150*		B5K0105	11/04/2015	*11/06/15 11:09*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-58A-10292015
Lab ID: 1503745-40

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**180**	40	20	B5K0085	11/04/2015	11/05/15 11:53	D6
Arsenic	**23**	20	20	B5K0085	11/04/2015	11/05/15 11:53	D6
Barium	**190**	20	20	B5K0085	11/04/2015	11/05/15 11:53	D6
Beryllium	ND	20	20	B5K0085	11/04/2015	11/05/15 11:53	D6
Cadmium	ND	20	20	B5K0085	11/04/2015	11/05/15 11:53	D6
Chromium	ND	20	20	B5K0085	11/04/2015	11/05/15 11:53	D6
Cobalt	ND	20	20	B5K0085	11/04/2015	11/05/15 11:53	D6
Copper	**3200**	40	20	B5K0085	11/04/2015	11/05/15 11:53	D6
Lead	**63000**	100	100	B5K0085	11/04/2015	11/05/15 12:57	D6
Molybdenum	ND	20	20	B5K0085	11/04/2015	11/05/15 11:53	D6
Nickel	ND	20	20	B5K0085	11/04/2015	11/05/15 11:53	D6
Selenium	ND	20	20	B5K0085	11/04/2015	11/05/15 11:53	D6
Silver	ND	20	20	B5K0085	11/04/2015	11/05/15 11:53	D6
Thallium	ND	20	20	B5K0085	11/04/2015	11/05/15 11:53	D6
Vanadium	ND	20	20	B5K0085	11/04/2015	11/05/15 11:53	D6
Zinc	**3300**	20	20	B5K0085	11/04/2015	11/05/15 11:53	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0094	11/04/2015	11/05/15 11:19	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**36**	15	1	B5K0105	11/04/2015	11/06/15 12:31	
Acenaphthene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:31	
Acenaphthylene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:31	
Anthracene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:31	
Benzo(a)anthracene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:31	
Benzo(a)pyrene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:31	
Benzo(b)fluoranthene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:31	
Benzo(g,h,i)perylene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:31	
Benzo(k)fluoranthene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:31	
Chrysene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:31	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-58A-10292015

Lab ID: 1503745-40

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:31	
Fluoranthene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:31	
Fluorene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:31	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:31	
Naphthalene	**180**	15	1	B5K0105	11/04/2015	11/06/15 12:31	
Phenanthrene	**24**	15	1	B5K0105	11/04/2015	11/06/15 12:31	
Pyrene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:31	
Surrogate: 1,2-Dichlorobenzene-d4	*87.1 %*	*39 - 99*		B5K0105	11/04/2015	*11/06/15 12:31*	
Surrogate: 2-Fluorobiphenyl	*94.6 %*	*47 - 111*		B5K0105	11/04/2015	*11/06/15 12:31*	
Surrogate: Nitrobenzene-d5	*79.6 %*	*20 - 144*		B5K0105	11/04/2015	*11/06/15 12:31*	
Surrogate: 4-Terphenyl-d14	*64.1 %*	*44 - 150*		B5K0105	11/04/2015	*11/06/15 12:31*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-14A-10292015

Lab ID: 1503745-41

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0085	11/04/2015	11/05/15 11:55	D6
Arsenic	ND	20	20	B5K0085	11/04/2015	11/05/15 11:55	D6
Barium	**160**	20	20	B5K0085	11/04/2015	11/05/15 11:55	D6
Beryllium	ND	20	20	B5K0085	11/04/2015	11/05/15 11:55	D6
Cadmium	ND	20	20	B5K0085	11/04/2015	11/05/15 11:55	D6
Chromium	ND	20	20	B5K0085	11/04/2015	11/05/15 11:55	D6
Cobalt	ND	20	20	B5K0085	11/04/2015	11/05/15 11:55	D6
Copper	**430**	40	20	B5K0085	11/04/2015	11/05/15 11:55	D6
Lead	**29**	20	20	B5K0085	11/04/2015	11/05/15 11:55	D6
Molybdenum	ND	20	20	B5K0085	11/04/2015	11/05/15 11:55	D6
Nickel	ND	20	20	B5K0085	11/04/2015	11/05/15 11:55	D6
Selenium	ND	20	20	B5K0085	11/04/2015	11/05/15 11:55	D6
Silver	ND	20	20	B5K0085	11/04/2015	11/05/15 11:55	D6
Thallium	ND	20	20	B5K0085	11/04/2015	11/05/15 11:55	D6
Vanadium	ND	20	20	B5K0085	11/04/2015	11/05/15 11:55	D6
Zinc	**1000**	20	20	B5K0085	11/04/2015	11/05/15 11:55	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0094	11/04/2015	11/05/15 11:21	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:59	
Acenaphthene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:59	
Acenaphthylene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:59	
Anthracene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:59	
Benzo(a)anthracene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:59	
Benzo(a)pyrene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:59	
Benzo(b)fluoranthene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:59	
Benzo(g,h,i)perylene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:59	
Benzo(k)fluoranthene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:59	
Chrysene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:59	

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Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-14A-10292015

Lab ID: 1503745-41

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:59	
Fluoranthene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:59	
Fluorene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:59	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:59	
Naphthalene	**21**	15	1	B5K0105	11/04/2015	11/06/15 12:59	
Phenanthrene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:59	
Pyrene	ND	15	1	B5K0105	11/04/2015	11/06/15 12:59	
Surrogate: 1,2-Dichlorobenzene-d4	*64.0 %*	*39 - 99*		B5K0105	11/04/2015	*11/06/15 12:59*	
Surrogate: 2-Fluorobiphenyl	*73.7 %*	*47 - 111*		B5K0105	11/04/2015	*11/06/15 12:59*	
Surrogate: Nitrobenzene-d5	*62.3 %*	*20 - 144*		B5K0105	11/04/2015	*11/06/15 12:59*	
Surrogate: 4-Terphenyl-d14	*58.8 %*	*44 - 150*		B5K0105	11/04/2015	*11/06/15 12:59*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-59B-10292015
Lab ID: 1503745-42

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	100	50	B5K0085	11/04/2015	11/05/15 11:58	D6
Arsenic	**92**	50	50	B5K0085	11/04/2015	11/05/15 11:58	D6
Barium	**220**	50	50	B5K0085	11/04/2015	11/05/15 11:58	D6
Beryllium	ND	50	50	B5K0085	11/04/2015	11/05/15 11:58	D6
Cadmium	ND	50	50	B5K0085	11/04/2015	11/05/15 11:58	D6
Chromium	ND	50	50	B5K0085	11/04/2015	11/05/15 11:58	D6
Cobalt	ND	50	50	B5K0085	11/04/2015	11/05/15 11:58	D6
Copper	**59000**	200	100	B5K0085	11/04/2015	11/05/15 12:59	D6
Lead	**150**	50	50	B5K0085	11/04/2015	11/05/15 11:58	D6
Molybdenum	ND	50	50	B5K0085	11/04/2015	11/05/15 11:58	D6
Nickel	ND	50	50	B5K0085	11/04/2015	11/05/15 11:58	D6
Selenium	ND	50	50	B5K0085	11/04/2015	11/05/15 11:58	D6
Silver	ND	50	50	B5K0085	11/04/2015	11/05/15 11:58	D6
Thallium	ND	50	50	B5K0085	11/04/2015	11/05/15 11:58	D6
Vanadium	**72**	50	50	B5K0085	11/04/2015	11/05/15 11:58	D6
Zinc	**5700**	50	50	B5K0085	11/04/2015	11/05/15 11:58	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0094	11/04/2015	11/05/15 11:23	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**120**	15	1	B5K0105	11/04/2015	11/06/15 13:26	
Acenaphthene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:26	
Acenaphthylene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:26	
Anthracene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:26	
Benzo(a)anthracene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:26	
Benzo(a)pyrene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:26	
Benzo(b)fluoranthene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:26	
Benzo(g,h,i)perylene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:26	
Benzo(k)fluoranthene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:26	
Chrysene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:26	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-59B-10292015

Lab ID: 1503745-42

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:26	
Fluoranthene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:26	
Fluorene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:26	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:26	
Naphthalene	**220**	15	1	B5K0105	11/04/2015	11/06/15 13:26	
Phenanthrene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:26	
Pyrene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:26	
Surrogate: 1,2-Dichlorobenzene-d4	*62.0 %*	*39 - 99*		B5K0105	11/04/2015	*11/06/15 13:26*	
Surrogate: 2-Fluorobiphenyl	*64.0 %*	*47 - 111*		B5K0105	11/04/2015	*11/06/15 13:26*	
Surrogate: Nitrobenzene-d5	*51.0 %*	*20 - 144*		B5K0105	11/04/2015	*11/06/15 13:26*	
Surrogate: 4-Terphenyl-d14	*11.6 %*	*44 - 150*		B5K0105	11/04/2015	*11/06/15 13:26*	S10

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-59A-10292015

Lab ID: 1503745-43

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	100	50	B5K0085	11/04/2015	11/05/15 12:00	D6
Arsenic	**78**	50	50	B5K0085	11/04/2015	11/05/15 12:00	D6
Barium	**530**	50	50	B5K0085	11/04/2015	11/05/15 12:00	D6
Beryllium	ND	50	50	B5K0085	11/04/2015	11/05/15 12:00	D6
Cadmium	ND	50	50	B5K0085	11/04/2015	11/05/15 12:00	D6
Chromium	**87**	50	50	B5K0085	11/04/2015	11/05/15 12:00	D6
Cobalt	ND	50	50	B5K0085	11/04/2015	11/05/15 12:00	D6
Copper	**280000**	1000	500	B5K0085	11/04/2015	11/05/15 13:19	D6
Lead	**9400**	50	50	B5K0085	11/04/2015	11/05/15 12:00	D6
Molybdenum	ND	50	50	B5K0085	11/04/2015	11/05/15 12:00	D6
Nickel	**130**	50	50	B5K0085	11/04/2015	11/05/15 12:00	D6
Selenium	ND	50	50	B5K0085	11/04/2015	11/05/15 12:00	D6
Silver	**77**	50	50	B5K0085	11/04/2015	11/05/15 12:00	D6
Thallium	ND	50	50	B5K0085	11/04/2015	11/05/15 12:00	D6
Vanadium	ND	50	50	B5K0085	11/04/2015	11/05/15 12:00	D6
Zinc	**16000**	50	50	B5K0085	11/04/2015	11/05/15 12:00	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0094	11/04/2015	11/05/15 11:29	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**22**	15	1	B5K0105	11/04/2015	11/06/15 13:54	
Acenaphthene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:54	
Acenaphthylene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:54	
Anthracene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:54	
Benzo(a)anthracene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:54	
Benzo(a)pyrene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:54	
Benzo(b)fluoranthene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:54	
Benzo(g,h,i)perylene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:54	
Benzo(k)fluoranthene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:54	
Chrysene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:54	

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Client Sample ID B-59A-10292015

Lab ID: 1503745-43

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:54	
Fluoranthene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:54	
Fluorene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:54	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:54	
Naphthalene	**92**	15	1	B5K0105	11/04/2015	11/06/15 13:54	
Phenanthrene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:54	
Pyrene	ND	15	1	B5K0105	11/04/2015	11/06/15 13:54	
Surrogate: 1,2-Dichlorobenzene-d4	*76.4 %*	*39 - 99*		B5K0105	11/04/2015	*11/06/15 13:54*	
Surrogate: 2-Fluorobiphenyl	*83.4 %*	*47 - 111*		B5K0105	11/04/2015	*11/06/15 13:54*	
Surrogate: Nitrobenzene-d5	*72.7 %*	*20 - 144*		B5K0105	11/04/2015	*11/06/15 13:54*	
Surrogate: 4-Terphenyl-d14	*36.1 %*	*44 - 150*		B5K0105	11/04/2015	*11/06/15 13:54*	S10

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

QUALITY CONTROL SECTION

Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0083 - EPA 3050B_S									
Blank (B5K0083-BLK1)				Prepared: 11/4/2015 Analyzed: 11/5/2015					
Antimony	ND	2.0			NR				
Arsenic	ND	1.0			NR				
Barium	ND	1.0			NR				
Beryllium	ND	1.0			NR				
Cadmium	ND	1.0			NR				
Chromium	ND	1.0			NR				
Cobalt	ND	1.0			NR				
Copper	ND	2.0			NR				
Lead	ND	1.0			NR				
Molybdenum	ND	1.0			NR				
Nickel	ND	1.0			NR				
Selenium	ND	1.0			NR				
Silver	ND	1.0			NR				
Thallium	ND	1.0			NR				
Vanadium	ND	1.0			NR				
Zinc	ND	1.0			NR				
LCS (B5K0083-BS1)				Prepared: 11/4/2015 Analyzed: 11/5/2015					
Antimony	49.0659	2.0	50.0000		98.1	80 - 120			
Arsenic	46.9880	1.0	50.0000		94.0	80 - 120			
Barium	51.1359	1.0	50.0000		102	80 - 120			
Beryllium	48.9615	1.0	50.0000		97.9	80 - 120			
Cadmium	48.7190	1.0	50.0000		97.4	80 - 120			
Chromium	51.8362	1.0	50.0000		104	80 - 120			
Cobalt	49.9050	1.0	50.0000		99.8	80 - 120			
Copper	49.5388	2.0	50.0000		99.1	80 - 120			
Lead	48.6244	1.0	50.0000		97.2	80 - 120			
Molybdenum	50.2624	1.0	50.0000		101	80 - 120			
Nickel	48.9544	1.0	50.0000		97.9	80 - 120			
Selenium	44.4317	1.0	50.0000		88.9	80 - 120			
Silver	47.9035	1.0	50.0000		95.8	80 - 120			
Thallium	50.5930	1.0	50.0000		101	80 - 120			
Vanadium	50.1414	1.0	50.0000		100	80 - 120			
Zinc	46.1771	1.0	50.0000		92.4	80 - 120			
Matrix Spike (B5K0083-MS1)		**Source: 1503745-01**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Antimony	105.906	40	124.378	58.7934	37.9	28 - 106			D6
Arsenic	128.432	20	124.378	19.2500	87.8	57 - 109			D6
Barium	415.750	20	124.378	318.695	78.0	18 - 159			D6
Beryllium	116.388	20	124.378	ND	93.6	61 - 107			D6

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Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0083 - EPA 3050B_S (continued)									
Matrix Spike (B5K0083-MS1) - Continued		**Source: 1503745-01**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Cadmium	122.822	20	124.378	6.12751	93.8	53 - 104			D6
Chromium	151.824	20	124.378	43.1979	87.3	53 - 121			D6
Cobalt	125.242	20	124.378	4.52232	97.1	55 - 109			D6
Copper	544.510	40	124.378	637.121	-74.5	58 - 124			D6, M1
Lead	601.870	20	124.378	1248.16	-520	35 - 129			D6, M1
Molybdenum	116.034	20	124.378	3.68247	90.3	57 - 108			D6
Nickel	162.738	20	124.378	43.1103	96.2	44 - 122			D6
Selenium	114.419	20	124.378	9.65262	84.2	54 - 104			D6
Silver	121.917	20	124.378	2.95122	95.6	60 - 112			D6
Thallium	122.993	20	124.378	13.2234	88.3	50 - 103			D6
Vanadium	163.830	20	124.378	32.6744	105	54 - 123			D6
Zinc	11273.9	20	124.378	3077.08	6590	29 - 132			D6, M1
Matrix Spike Dup (B5K0083-MSD1)		**Source: 1503745-01**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Antimony	417.809	40	125.000	58.7934	287	28 - 106	119	20	D6, M1, R
Arsenic	140.612	20	125.000	19.2500	97.1	57 - 109	9.05	20	D6
Barium	301.983	20	125.000	318.695	-13.4	18 - 159	31.7	20	D6, M1, R
Beryllium	119.267	20	125.000	ND	95.4	61 - 107	2.44	20	D6
Cadmium	129.677	20	125.000	6.12751	98.8	53 - 104	5.43	20	D6
Chromium	139.864	20	125.000	43.1979	77.3	53 - 121	8.20	20	D6
Cobalt	126.251	20	125.000	4.52232	97.4	55 - 109	0.802	20	D6
Copper	968.739	40	125.000	637.121	265	58 - 124	56.1	20	D6, M1, R
Lead	3901.77	20	125.000	1248.16	2120	35 - 129	147	20	D6, M1, R
Molybdenum	119.828	20	125.000	3.68247	92.9	57 - 108	3.22	20	D6
Nickel	163.849	20	125.000	43.1103	96.6	44 - 122	0.681	20	D6
Selenium	117.808	20	125.000	9.65262	86.5	54 - 104	2.92	20	D6
Silver	128.521	20	125.000	2.95122	100	60 - 112	5.27	20	D6
Thallium	131.783	20	125.000	13.2234	94.8	50 - 103	6.90	20	D6
Vanadium	149.034	20	125.000	32.6744	93.1	54 - 123	9.46	20	D6
Zinc	10241.6	20	125.000	3077.08	5730	29 - 132	9.60	20	D6, M1

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Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0084 - EPA 3050B_S									
Blank (B5K0084-BLK1)				Prepared: 11/4/2015 Analyzed: 11/5/2015					
Antimony	ND	2.0			NR				
Arsenic	ND	1.0			NR				
Barium	ND	1.0			NR				
Beryllium	ND	1.0			NR				
Cadmium	ND	1.0			NR				
Chromium	ND	1.0			NR				
Cobalt	ND	1.0			NR				
Copper	ND	2.0			NR				
Lead	ND	1.0			NR				
Molybdenum	ND	1.0			NR				
Nickel	ND	1.0			NR				
Selenium	ND	1.0			NR				
Silver	ND	1.0			NR				
Thallium	ND	1.0			NR				
Vanadium	ND	1.0			NR				
Zinc	ND	1.0			NR				
LCS (B5K0084-BS1)				Prepared: 11/4/2015 Analyzed: 11/5/2015					
Antimony	46.8758	2.0	50.0000		93.8	80 - 120			
Arsenic	46.4662	1.0	50.0000		92.9	80 - 120			
Barium	49.9129	1.0	50.0000		99.8	80 - 120			
Beryllium	50.6504	1.0	50.0000		101	80 - 120			
Cadmium	47.1662	1.0	50.0000		94.3	80 - 120			
Chromium	46.3910	1.0	50.0000		92.8	80 - 120			
Cobalt	49.0702	1.0	50.0000		98.1	80 - 120			
Copper	49.1491	2.0	50.0000		98.3	80 - 120			
Lead	47.3353	1.0	50.0000		94.7	80 - 120			
Molybdenum	48.6828	1.0	50.0000		97.4	80 - 120			
Nickel	47.9841	1.0	50.0000		96.0	80 - 120			
Selenium	44.2269	1.0	50.0000		88.5	80 - 120			
Silver	48.6951	1.0	50.0000		97.4	80 - 120			
Thallium	46.1801	1.0	50.0000		92.4	80 - 120			
Vanadium	48.7393	1.0	50.0000		97.5	80 - 120			
Zinc	44.9204	1.0	50.0000		89.8	80 - 120			
Matrix Spike (B5K0084-MS1)		**Source: 1503745-19**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Antimony	92.6443	40	125.000	4.29949	70.7	28 - 106			D6
Arsenic	118.808	20	125.000	ND	95.0	57 - 109			D6
Barium	335.841	20	125.000	216.978	95.1	18 - 159			D6
Beryllium	123.498	20	125.000	0.987354	98.0	61 - 107			D6
Cadmium	117.911	20	125.000	1.36953	93.2	53 - 104			D6
Chromium	132.560	20	125.000	31.0883	81.2	53 - 121			D6

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Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0084 - EPA 3050B_S (continued)									
Matrix Spike (B5K0084-MS1) - Continued		**Source: 1503745-19**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Cobalt	136.404	20	125.000	13.2427	98.5	55 - 109			D6
Copper	204.175	40	125.000	221.215	-13.6	58 - 124			D6, M1
Lead	173.199	20	125.000	88.4459	67.8	35 - 129			D6
Molybdenum	113.063	20	125.000	ND	90.5	57 - 108			D6
Nickel	139.256	20	125.000	25.2563	91.2	44 - 122			D6
Selenium	111.972	20	125.000	ND	89.6	54 - 104			D6
Silver	122.585	20	125.000	ND	98.1	60 - 112			D6
Thallium	112.870	20	125.000	ND	90.3	50 - 103			D6
Vanadium	168.010	20	125.000	55.0982	90.3	54 - 123			D6
Zinc	989.962	20	125.000	792.707	158	29 - 132			D6, M1
Matrix Spike Dup (B5K0084-MSD1)		**Source: 1503745-19**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Antimony	87.7045	40	125.000	4.29949	66.7	28 - 106	5.48	20	D6
Arsenic	115.036	20	125.000	ND	92.0	57 - 109	3.23	20	D6
Barium	366.629	20	125.000	216.978	120	18 - 159	8.77	20	D6
Beryllium	123.052	20	125.000	0.987354	97.7	61 - 107	0.362	20	D6
Cadmium	114.395	20	125.000	1.36953	90.4	53 - 104	3.03	20	D6
Chromium	131.758	20	125.000	31.0883	80.5	53 - 121	0.607	20	D6
Cobalt	135.842	20	125.000	13.2427	98.1	55 - 109	0.413	20	D6
Copper	195.461	40	125.000	221.215	-20.6	58 - 124	4.36	20	D6, M1
Lead	157.562	20	125.000	88.4459	55.3	35 - 129	9.45	20	D6
Molybdenum	109.558	20	125.000	ND	87.6	57 - 108	3.15	20	D6
Nickel	139.851	20	125.000	25.2563	91.7	44 - 122	0.427	20	D6
Selenium	107.056	20	125.000	ND	85.6	54 - 104	4.49	20	D6
Silver	118.281	20	125.000	ND	94.6	60 - 112	3.57	20	D6
Thallium	108.807	20	125.000	ND	87.0	50 - 103	3.67	20	D6
Vanadium	174.314	20	125.000	55.0982	95.4	54 - 123	3.68	20	D6
Zinc	3743.17	20	125.000	792.707	2360	29 - 132	116	20	D6, M1, R

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Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0085 - EPA 3050B_S									
Blank (B5K0085-BLK1)				Prepared: 11/4/2015 Analyzed: 11/5/2015					
Antimony	ND	2.0			NR				
Arsenic	ND	1.0			NR				
Barium	ND	1.0			NR				
Beryllium	ND	1.0			NR				
Cadmium	ND	1.0			NR				
Chromium	ND	1.0			NR				
Cobalt	ND	1.0			NR				
Copper	ND	2.0			NR				
Lead	ND	1.0			NR				
Molybdenum	ND	1.0			NR				
Nickel	ND	1.0			NR				
Selenium	ND	1.0			NR				
Silver	ND	1.0			NR				
Thallium	ND	1.0			NR				
Vanadium	ND	1.0			NR				
Zinc	ND	1.0			NR				
LCS (B5K0085-BS1)				Prepared: 11/4/2015 Analyzed: 11/5/2015					
Antimony	48.6947	2.0	50.0000		97.4	80 - 120			
Arsenic	46.9959	1.0	50.0000		94.0	80 - 120			
Barium	50.7712	1.0	50.0000		102	80 - 120			
Beryllium	49.0655	1.0	50.0000		98.1	80 - 120			
Cadmium	49.1464	1.0	50.0000		98.3	80 - 120			
Chromium	51.4698	1.0	50.0000		103	80 - 120			
Cobalt	49.4226	1.0	50.0000		98.8	80 - 120			
Copper	49.1828	2.0	50.0000		98.4	80 - 120			
Lead	48.6836	1.0	50.0000		97.4	80 - 120			
Molybdenum	49.7122	1.0	50.0000		99.4	80 - 120			
Nickel	48.7486	1.0	50.0000		97.5	80 - 120			
Selenium	44.6772	1.0	50.0000		89.4	80 - 120			
Silver	47.9202	1.0	50.0000		95.8	80 - 120			
Thallium	50.4613	1.0	50.0000		101	80 - 120			
Vanadium	49.7865	1.0	50.0000		99.6	80 - 120			
Zinc	46.7325	1.0	50.0000		93.5	80 - 120			
Duplicate (B5K0085-DUP1)		**Source: 1503745-39**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Antimony	25.6521	40		34.7978	NR		30.3	20	D6, R
Arsenic	14.3536	20		16.3796	NR		13.2	20	D6
Barium	149.608	20		161.644	NR		7.73	20	D6
Beryllium	ND	20		4.00964	NR			20	D6
Cadmium	ND	20		9.67106	NR			20	D6
Chromium	30.2484	20		42.0778	NR		32.7	20	D6, R

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Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0085 - EPA 3050B_S (continued)									
Duplicate (B5K0085-DUP1) - Continued		**Source: 1503745-39**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Cobalt	10.6377	20		23.8469	NR		76.6	20	D6, R
Copper	8850.57	40		2306.77	NR		117	20	D6, R
Lead	311.765	20		163.770	NR		62.2	20	D6, R
Molybdenum	4.52548	20		14.4260	NR		104	20	D6, R
Nickel	13.5043	20		128.769	NR		162	20	D6, R
Selenium	ND	20		14.5400	NR			20	D6
Silver	ND	20		3.15622	NR			20	D6
Thallium	ND	20		15.1626	NR			20	D6
Vanadium	17.3551	20		15.5404	NR		11.0	20	D6
Zinc	1848.41	20		2060.74	NR		10.9	20	D6
Matrix Spike (B5K0085-MS1)		**Source: 1503745-39**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Antimony	116.268	40	125.000	34.7978	65.2	28 - 106			D6
Arsenic	125.074	20	125.000	16.3796	87.0	57 - 109			D6
Barium	258.862	20	125.000	161.644	77.8	18 - 159			D6
Beryllium	113.038	20	125.000	4.00964	87.2	61 - 107			D6
Cadmium	115.158	20	125.000	9.67106	84.4	53 - 104			D6
Chromium	146.304	20	125.000	42.0778	83.4	53 - 121			D6
Cobalt	134.112	20	125.000	23.8469	88.2	55 - 109			D6
Copper	1200.76	40	125.000	2306.77	-885	58 - 124			D6, M1
Lead	765.761	20	125.000	163.770	482	35 - 129			D6, M1
Molybdenum	114.474	20	125.000	14.4260	80.0	57 - 108			D6
Nickel	140.794	20	125.000	128.769	9.62	44 - 122			D6, M1
Selenium	114.263	20	125.000	14.5400	79.8	54 - 104			D6
Silver	114.687	20	125.000	3.15622	89.2	60 - 112			D6
Thallium	121.651	20	125.000	15.1626	85.2	50 - 103			D6
Vanadium	127.172	20	125.000	15.5404	89.3	54 - 123			D6
Zinc	3113.35	20	125.000	2060.74	842	29 - 132			D6, M1
Matrix Spike Dup (B5K0085-MSD1)		**Source: 1503745-39**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Antimony	116.193	40	125.000	34.7978	65.1	28 - 106	0.0647	20	D6
Arsenic	125.458	20	125.000	16.3796	87.3	57 - 109	0.307	20	D6
Barium	227.933	20	125.000	161.644	53.0	18 - 159	12.7	20	D6
Beryllium	110.755	20	125.000	4.00964	85.4	61 - 107	2.04	20	D6
Cadmium	112.244	20	125.000	9.67106	82.1	53 - 104	2.56	20	D6
Chromium	137.451	20	125.000	42.0778	76.3	53 - 121	6.24	20	D6
Cobalt	128.513	20	125.000	23.8469	83.7	55 - 109	4.26	20	D6
Copper	3317.93	40	125.000	2306.77	809	58 - 124	93.7	20	D6, M1, R
Lead	378.148	20	125.000	163.770	172	35 - 129	67.8	20	D6, M1, R
Molybdenum	111.921	20	125.000	14.4260	78.0	57 - 108	2.26	20	D6
Nickel	126.658	20	125.000	128.769	-1.69	44 - 122	10.6	20	D6, M1
Selenium	121.356	20	125.000	14.5400	85.5	54 - 104	6.02	20	D6

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Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0085 - EPA 3050B_S (continued)									
Matrix Spike Dup (B5K0085-MSD1) - Continued		**Source: 1503745-39**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Silver	110.625	20	125.000	3.15622	86.0	60 - 112	3.61	20	D6
Thallium	122.444	20	125.000	15.1626	85.8	50 - 103	0.650	20	D6
Vanadium	122.738	20	125.000	15.5404	85.8	54 - 123	3.55	20	D6
Zinc	1862.73	20	125.000	2060.74	-158	29 - 132	50.3	20	D6, M1, R

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Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0092 - EPA 7471_S									
Blank (B5K0092-BLK1)				Prepared: 11/4/2015 Analyzed: 11/5/2015					
Mercury	ND	0.10			NR				
LCS (B5K0092-BS1)				Prepared: 11/4/2015 Analyzed: 11/5/2015					
Mercury	0.800012	0.10	0.833333		96.0	80 - 120			
Matrix Spike (B5K0092-MS1)		**Source: 1503745-01**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Mercury	0.907951	0.10	0.833333	ND	109	70 - 130			
Matrix Spike Dup (B5K0092-MSD1)		**Source: 1503745-01**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Mercury	0.898590	0.10	0.833333	ND	108	70 - 130	1.04	20	
Post Spike (B5K0092-PS1)		**Source: 1503745-01**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Mercury	0.006018		5.00000E-3	0.000102	118	85 - 115			M1

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Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0093 - EPA 7471_S									
Blank (B5K0093-BLK1)				Prepared: 11/4/2015 Analyzed: 11/5/2015					
Mercury	ND	0.10			NR				
LCS (B5K0093-BS1)				Prepared: 11/4/2015 Analyzed: 11/5/2015					
Mercury	0.860308	0.10	0.833333		103	80 - 120			
Matrix Spike (B5K0093-MS1)		**Source: 1503745-19**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Mercury	0.948352	0.10	0.833333	0.015612	112	70 - 130			
Matrix Spike Dup (B5K0093-MSD1)		**Source: 1503745-19**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Mercury	0.938860	0.10	0.833333	0.015612	111	70 - 130	1.01	20	
Post Spike (B5K0093-PS1)		**Source: 1503745-19**		Prepared: 11/4/2015 Analyzed: 11/5/2015					M1
Mercury	0.007340		5.00000E-3	0.000187	143	85 - 115			

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Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0094 - EPA 7471_S									
Blank (B5K0094-BLK1)				Prepared: 11/4/2015 Analyzed: 11/5/2015					
Mercury	ND	0.10			NR				
LCS (B5K0094-BS1)				Prepared: 11/4/2015 Analyzed: 11/5/2015					
Mercury	0.839562	0.10	0.833333		101	80 - 120			
Duplicate (B5K0094-DUP1)		**Source: 1503745-39**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Mercury	ND	0.10		ND	NR			20	
Matrix Spike (B5K0094-MS1)		**Source: 1503745-39**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Mercury	0.595081	0.10	0.833333	ND	71.4	70 - 130			
Matrix Spike Dup (B5K0094-MSD1)		**Source: 1503745-39**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Mercury	0.719761	0.10	0.833333	ND	86.4	70 - 130	19.0	20	
Post Spike (B5K0094-PS1)		**Source: 1503745-39**		Prepared: 11/4/2015 Analyzed: 11/5/2015					
Mercury	6.5508E-3		5.00000E-3	0.000056	130	85 - 115			M1

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Semivolatile Organic Compounds by EPA 8270/SIM - Quality Control

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0063 - MSSEMI_S									
Blank (B5K0063-BLK1)				Prepared: 11/3/2015 Analyzed: 11/5/2015					
2-Methylnaphthalene	ND	5.0			NR				
Acenaphthene	ND	5.0			NR				
Acenaphthylene	ND	5.0			NR				
Anthracene	ND	5.0			NR				
Benzo(a)anthracene	ND	5.0			NR				
Benzo(a)pyrene	ND	5.0			NR				
Benzo(b)fluoranthene	ND	5.0			NR				
Benzo(g,h,i)perylene	ND	5.0			NR				
Benzo(k)fluoranthene	ND	5.0			NR				
Chrysene	ND	5.0			NR				
Dibenz(a,h)anthracene	ND	5.0			NR				
Fluoranthene	ND	5.0			NR				
Fluorene	ND	5.0			NR				
Indeno(1,2,3-cd)pyrene	ND	5.0			NR				
Naphthalene	ND	5.0			NR				
Phenanthrene	ND	5.0			NR				
Pyrene	ND	5.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	*28.06*		*33.3333*		*84.2*	*39 - 99*			
Surrogate: 2-Fluorobiphenyl	*30.17*		*33.3333*		*90.5*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*17.47*		*33.3333*		*52.4*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*27.24*		*33.3333*		*81.7*	*44 - 150*			
LCS (B5K0063-BS1)				Prepared: 11/3/2015 Analyzed: 11/5/2015					
2-Methylnaphthalene	33.9240	5.0	33.3333		102	39 - 134			
Acenaphthene	25.8857	5.0	33.3333		77.7	42 - 119			
Acenaphthylene	24.1633	5.0	33.3333		72.5	41 - 118			
Anthracene	23.5073	5.0	33.3333		70.5	53 - 113			
Benzo(a)anthracene	22.2317	5.0	33.3333		66.7	58 - 130			
Benzo(a)pyrene	17.8243	5.0	33.3333		53.5	51 - 125			
Benzo(b)fluoranthene	22.9393	5.0	33.3333		68.8	56 - 122			
Benzo(g,h,i)perylene	20.7643	5.0	33.3333		62.3	47 - 129			
Benzo(k)fluoranthene	23.0900	5.0	33.3333		69.3	39 - 133			
Chrysene	24.6483	5.0	33.3333		73.9	54 - 128			
Dibenz(a,h)anthracene	21.0783	5.0	33.3333		63.2	57 - 121			
Fluoranthene	26.1653	5.0	33.3333		78.5	61 - 119			
Fluorene	23.6590	5.0	33.3333		71.0	48 - 117			
Indeno(1,2,3-cd)pyrene	22.3173	5.0	33.3333		67.0	57 - 129			
Naphthalene	27.3193	5.0	33.3333		82.0	36 - 126			
Phenanthrene	28.4163	5.0	33.3333		85.2	51 - 119			
Pyrene	24.4460	5.0	33.3333		73.3	61 - 122			
Surrogate: 1,2-Dichlorobenzene-d4	*28.14*		*33.3333*		*84.4*	*39 - 99*			

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Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0063 - MSSEMI_S (continued)									
LCS (B5K0063-BS1) - Continued				Prepared: 11/3/2015 Analyzed: 11/5/2015					
Surrogate: 2-Fluorobiphenyl	*29.55*		*33.3333*		*88.7*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*19.20*		*33.3333*		*57.6*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*26.12*		*33.3333*		*78.4*	*44 - 150*			
Matrix Spike (B5K0063-MS1)		**Source: 1503745-15**		Prepared: 11/3/2015 Analyzed: 11/5/2015					
2-Methylnaphthalene	107.354	15	100.000	ND	107	50 - 135			
Acenaphthene	77.4150	15	100.000	ND	77.4	53 - 129			
Acenaphthylene	70.0610	15	100.000	ND	70.1	56 - 122			
Anthracene	62.0840	15	100.000	ND	62.1	51 - 127			
Benzo(a)anthracene	39.8360	15	100.000	ND	39.8	32 - 177			
Benzo(a)pyrene	23.5220	15	100.000	ND	23.5	27 - 166			M2
Benzo(b)fluoranthene	34.6620	15	100.000	ND	34.7	26 - 171			
Benzo(g,h,i)perylene	20.2260	15	100.000	ND	20.2	22 - 169			M2
Benzo(k)fluoranthene	33.1640	15	100.000	ND	33.2	41 - 140			M2
Chrysene	44.6340	15	100.000	ND	44.6	12 - 174			
Dibenz(a,h)anthracene	19.2710	15	100.000	ND	19.3	52 - 142			M2
Fluoranthene	69.2220	15	100.000	ND	69.2	40 - 165			
Fluorene	69.4750	15	100.000	ND	69.5	60 - 125			
Indeno(1,2,3-cd)pyrene	20.0310	15	100.000	ND	20.0	46 - 161			M2
Naphthalene	94.5890	15	100.000	7.62400	87.0	41 - 128			
Phenanthrene	79.7850	15	100.000	3.35500	76.4	26 - 161			
Pyrene	61.3010	15	100.000	ND	61.3	49 - 154			
Surrogate: 1,2-Dichlorobenzene-d4	*84.59*		*100.000*		*84.6*	*39 - 99*			
Surrogate: 2-Fluorobiphenyl	*88.49*		*100.000*		*88.5*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*55.74*		*100.000*		*55.7*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*76.07*		*100.000*		*76.1*	*44 - 150*			
Matrix Spike Dup (B5K0063-MSD1)		**Source: 1503745-15**		Prepared: 11/3/2015 Analyzed: 11/5/2015					
2-Methylnaphthalene	85.2040	15	100.000	ND	85.2	50 - 135	23.0	20	R
Acenaphthene	65.3750	15	100.000	ND	65.4	53 - 129	16.9	20	
Acenaphthylene	59.3920	15	100.000	ND	59.4	56 - 122	16.5	20	
Anthracene	59.6590	15	100.000	ND	59.7	51 - 127	3.98	20	
Benzo(a)anthracene	43.2970	15	100.000	ND	43.3	32 - 177	8.33	20	
Benzo(a)pyrene	27.4820	15	100.000	ND	27.5	27 - 166	15.5	20	
Benzo(b)fluoranthene	39.2040	15	100.000	ND	39.2	26 - 171	12.3	20	
Benzo(g,h,i)perylene	26.1550	15	100.000	ND	26.2	22 - 169	25.6	20	R
Benzo(k)fluoranthene	38.3560	15	100.000	ND	38.4	41 - 140	14.5	20	M2
Chrysene	48.7760	15	100.000	ND	48.8	12 - 174	8.87	20	
Dibenz(a,h)anthracene	24.6760	15	100.000	ND	24.7	52 - 142	24.6	20	M2, R
Fluoranthene	67.5170	15	100.000	ND	67.5	40 - 165	2.49	20	
Fluorene	60.7070	15	100.000	ND	60.7	60 - 125	13.5	20	
Indeno(1,2,3-cd)pyrene	25.9160	15	100.000	ND	25.9	46 - 161	25.6	20	M2, R

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Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0063 - MSSEMI_S (continued)									
Matrix Spike Dup (B5K0063-MSD1) - Continued		**Source: 1503745-15**		Prepared: 11/3/2015 Analyzed: 11/5/2015					
Naphthalene	74.6420	15	100.000	7.62400	67.0	41 - 128	23.6	20	R
Phenanthrene	75.4540	15	100.000	3.35500	72.1	26 - 161	5.58	20	
Pyrene	60.6660	15	100.000	ND	60.7	49 - 154	1.04	20	
Surrogate: 1,2-Dichlorobenzene-d4	*66.29*		*100.000*		*66.3*	*39 - 99*			
Surrogate: 2-Fluorobiphenyl	*73.41*		*100.000*		*73.4*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*45.39*		*100.000*		*45.4*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*71.69*		*100.000*		*71.7*	*44 - 150*			

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Semivolatile Organic Compounds by EPA 8270/SIM - Quality Control

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0069 - MSSEMI_S									
Blank (B5K0069-BLK1)				Prepared: 11/9/2015 Analyzed: 11/9/2015					
2-Methylnaphthalene	ND	5.0			NR				
Acenaphthene	ND	5.0			NR				
Acenaphthylene	ND	5.0			NR				
Anthracene	ND	5.0			NR				
Benzo(a)anthracene	ND	5.0			NR				
Benzo(a)pyrene	ND	5.0			NR				
Benzo(b)fluoranthene	ND	5.0			NR				
Benzo(g,h,i)perylene	ND	5.0			NR				
Benzo(k)fluoranthene	ND	5.0			NR				
Chrysene	ND	5.0			NR				
Dibenz(a,h)anthracene	ND	5.0			NR				
Fluoranthene	ND	5.0			NR				
Fluorene	ND	5.0			NR				
Indeno(1,2,3-cd)pyrene	ND	5.0			NR				
Naphthalene	ND	5.0			NR				
Phenanthrene	ND	5.0			NR				
Pyrene	ND	5.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	*24.77*		*33.3333*		*74.3*	*39 - 99*			
Surrogate: 2-Fluorobiphenyl	*27.75*		*33.3333*		*83.3*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*17.71*		*33.3333*		*53.1*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*27.78*		*33.3333*		*83.3*	*44 - 150*			
LCS (B5K0069-BS1)				Prepared: 11/9/2015 Analyzed: 11/9/2015					
2-Methylnaphthalene	33.3450	5.0	33.3333		100	39 - 134			
Acenaphthene	28.2170	5.0	33.3333		84.7	42 - 119			
Acenaphthylene	25.0510	5.0	33.3333		75.2	41 - 118			
Anthracene	24.2797	5.0	33.3333		72.8	53 - 113			
Benzo(a)anthracene	24.4087	5.0	33.3333		73.2	58 - 130			
Benzo(a)pyrene	20.8977	5.0	33.3333		62.7	51 - 125			
Benzo(b)fluoranthene	29.6603	5.0	33.3333		89.0	56 - 122			
Benzo(g,h,i)perylene	25.4677	5.0	33.3333		76.4	47 - 129			
Benzo(k)fluoranthene	28.4913	5.0	33.3333		85.5	39 - 133			
Chrysene	28.2143	5.0	33.3333		84.6	54 - 128			
Dibenz(a,h)anthracene	25.3013	5.0	33.3333		75.9	57 - 121			
Fluoranthene	28.2440	5.0	33.3333		84.7	61 - 119			
Fluorene	26.4213	5.0	33.3333		79.3	48 - 117			
Indeno(1,2,3-cd)pyrene	27.2117	5.0	33.3333		81.6	57 - 129			
Naphthalene	25.1123	5.0	33.3333		75.3	36 - 126			
Phenanthrene	31.6223	5.0	33.3333		94.9	51 - 119			
Pyrene	26.5693	5.0	33.3333		79.7	61 - 122			
Surrogate: 1,2-Dichlorobenzene-d4	*29.91*		*33.3333*		*89.7*	*39 - 99*			

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Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0069 - MSSEMI_S (continued)									
LCS (B5K0069-BS1) - Continued				Prepared: 11/9/2015 Analyzed: 11/9/2015					
Surrogate: 2-Fluorobiphenyl	*33.52*		*33.3333*		*101*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*22.71*		*33.3333*		*68.1*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*31.22*		*33.3333*		*93.7*	*44 - 150*			
Matrix Spike (B5K0069-MS1)		**Source: 1503745-26**		Prepared: 11/9/2015 Analyzed: 11/9/2015					
2-Methylnaphthalene	85.2020	15	100.000	8.48200	76.7	50 - 135			
Acenaphthene	68.7370	15	100.000	ND	68.7	53 - 129			
Acenaphthylene	62.6280	15	100.000	ND	62.6	56 - 122			
Anthracene	67.8560	15	100.000	ND	67.9	51 - 127			
Benzo(a)anthracene	64.7230	15	100.000	ND	64.7	32 - 177			
Benzo(a)pyrene	51.0820	15	100.000	ND	51.1	27 - 166			
Benzo(b)fluoranthene	68.5780	15	100.000	ND	68.6	26 - 171			
Benzo(g,h,i)perylene	65.1230	15	100.000	ND	65.1	22 - 169			
Benzo(k)fluoranthene	70.1580	15	100.000	ND	70.2	41 - 140			
Chrysene	71.4440	15	100.000	ND	71.4	12 - 174			
Dibenz(a,h)anthracene	64.2850	15	100.000	ND	64.3	52 - 142			
Fluoranthene	76.1380	15	100.000	ND	76.1	40 - 165			
Fluorene	65.2980	15	100.000	ND	65.3	60 - 125			
Indeno(1,2,3-cd)pyrene	69.0960	15	100.000	ND	69.1	46 - 161			
Naphthalene	98.9040	15	100.000	50.5880	48.3	41 - 128			
Phenanthrene	86.0370	15	100.000	7.27100	78.8	26 - 161			
Pyrene	66.6500	15	100.000	ND	66.6	49 - 154			
Surrogate: 1,2-Dichlorobenzene-d4	*70.35*		*100.000*		*70.3*	*39 - 99*			
Surrogate: 2-Fluorobiphenyl	*82.24*		*100.000*		*82.2*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*55.56*		*100.000*		*55.6*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*84.58*		*100.000*		*84.6*	*44 - 150*			
Matrix Spike Dup (B5K0069-MSD1)		**Source: 1503745-26**		Prepared: 11/3/2015 Analyzed: 11/9/2015					
2-Methylnaphthalene	106.189	15	100.000	8.48200	97.7	50 - 135	21.9	20	R
Acenaphthene	78.5690	15	100.000	ND	78.6	53 - 129	13.3	20	
Acenaphthylene	74.7800	15	100.000	ND	74.8	56 - 122	17.7	20	
Anthracene	72.4150	15	100.000	ND	72.4	51 - 127	6.50	20	
Benzo(a)anthracene	69.9010	15	100.000	ND	69.9	32 - 177	7.69	20	
Benzo(a)pyrene	56.4660	15	100.000	ND	56.5	27 - 166	10.0	20	
Benzo(b)fluoranthene	76.9220	15	100.000	ND	76.9	26 - 171	11.5	20	
Benzo(g,h,i)perylene	70.4760	15	100.000	ND	70.5	22 - 169	7.90	20	
Benzo(k)fluoranthene	78.3170	15	100.000	ND	78.3	41 - 140	11.0	20	
Chrysene	78.0520	15	100.000	ND	78.1	12 - 174	8.84	20	
Dibenz(a,h)anthracene	70.1740	15	100.000	ND	70.2	52 - 142	8.76	20	
Fluoranthene	84.3150	15	100.000	ND	84.3	40 - 165	10.2	20	
Fluorene	75.0800	15	100.000	ND	75.1	60 - 125	13.9	20	
Indeno(1,2,3-cd)pyrene	75.5780	15	100.000	ND	75.6	46 - 161	8.96	20	

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Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0069 - MSSEMI_S (continued)									
Matrix Spike Dup (B5K0069-MSD1) - Continued		**Source: 1503745-26**		Prepared: 11/3/2015 Analyzed: 11/9/2015					
Naphthalene	135.575	15	100.000	50.5880	85.0	41 - 128	31.3	20	R
Phenanthrene	101.038	15	100.000	7.27100	93.8	26 - 161	16.0	20	
Pyrene	75.7540	15	100.000	ND	75.8	49 - 154	12.8	20	
Surrogate: 1,2-Dichlorobenzene-d4	*80.65*		*100.000*		*80.6*	*39 - 99*			
Surrogate: 2-Fluorobiphenyl	*93.68*		*100.000*		*93.7*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*65.22*		*100.000*		*65.2*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*88.24*		*100.000*		*88.2*	*44 - 150*			

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Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0105 - MSSEMI_S									
Blank (B5K0105-BLK1)				Prepared: 11/4/2015 Analyzed: 11/6/2015					
2-Methylnaphthalene	ND	15			NR				
Acenaphthene	ND	15			NR				
Acenaphthylene	ND	15			NR				
Anthracene	ND	15			NR				
Benzo(a)anthracene	ND	15			NR				
Benzo(a)pyrene	ND	15			NR				
Benzo(b)fluoranthene	ND	15			NR				
Benzo(g,h,i)perylene	ND	15			NR				
Benzo(k)fluoranthene	ND	15			NR				
Chrysene	ND	15			NR				
Dibenz(a,h)anthracene	ND	15			NR				
Fluoranthene	ND	15			NR				
Fluorene	ND	15			NR				
Indeno(1,2,3-cd)pyrene	ND	15			NR				
Naphthalene	ND	15			NR				
Phenanthrene	ND	15			NR				
Pyrene	ND	15			NR				
Surrogate: 1,2-Dichlorobenzene-d4	*77.47*		*100.000*		*77.5*	*39 - 99*			
Surrogate: 2-Fluorobiphenyl	*83.11*		*100.000*		*83.1*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*71.22*		*100.000*		*71.2*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*88.92*		*100.000*		*88.9*	*44 - 150*			
LCS (B5K0105-BS1)				Prepared: 11/4/2015 Analyzed: 11/6/2015					
2-Methylnaphthalene	92.8750	15	100.000		92.9	39 - 134			
Acenaphthene	68.5910	15	100.000		68.6	42 - 119			
Acenaphthylene	64.4390	15	100.000		64.4	41 - 118			
Anthracene	65.5120	15	100.000		65.5	53 - 113			
Benzo(a)anthracene	61.7850	15	100.000		61.8	58 - 130			
Benzo(a)pyrene	47.7850	15	100.000		47.8	51 - 125			L4
Benzo(b)fluoranthene	62.1280	15	100.000		62.1	56 - 122			
Benzo(g,h,i)perylene	57.1580	15	100.000		57.2	47 - 129			
Benzo(k)fluoranthene	60.8350	15	100.000		60.8	39 - 133			
Chrysene	68.2950	15	100.000		68.3	54 - 128			
Dibenz(a,h)anthracene	57.0610	15	100.000		57.1	57 - 121			
Fluoranthene	71.3550	15	100.000		71.4	61 - 119			
Fluorene	62.6290	15	100.000		62.6	48 - 117			
Indeno(1,2,3-cd)pyrene	61.5060	15	100.000		61.5	57 - 129			
Naphthalene	75.2850	15	100.000		75.3	36 - 126			
Phenanthrene	79.3200	15	100.000		79.3	51 - 119			
Pyrene	66.7710	15	100.000		66.8	61 - 122			
Surrogate: 1,2-Dichlorobenzene-d4	*73.97*		*100.000*		*74.0*	*39 - 99*			

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San Diego , CA 92127	Reported :	11/10/2015

Semivolatile Organic Compounds by EPA 8270/SIM - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0105 - MSSEMI_S (continued)									
LCS (B5K0105-BS1) - Continued				Prepared: 11/4/2015 Analyzed: 11/6/2015					
Surrogate: 2-Fluorobiphenyl	*77.48*		*100.000*		*77.5*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*62.93*		*100.000*		*62.9*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*78.40*		*100.000*		*78.4*	*44 - 150*			
Matrix Spike (B5K0105-MS1)		**Source: 1503745-39**		Prepared: 11/4/2015 Analyzed: 11/6/2015					
2-Methylnaphthalene	125.782	15	100.000	23.5400	102	50 - 135			
Acenaphthene	73.6470	15	100.000	1.40400	72.2	53 - 129			
Acenaphthylene	73.3820	15	100.000	3.52100	69.9	56 - 122			
Anthracene	80.2810	15	100.000	2.41900	77.9	51 - 127			
Benzo(a)anthracene	64.6900	15	100.000	ND	64.7	32 - 177			
Benzo(a)pyrene	50.8120	15	100.000	ND	50.8	27 - 166			
Benzo(b)fluoranthene	58.2810	15	100.000	ND	58.3	26 - 171			
Benzo(g,h,i)perylene	52.3980	15	100.000	ND	52.4	22 - 169			
Benzo(k)fluoranthene	61.3480	15	100.000	ND	61.3	41 - 140			
Chrysene	69.3150	15	100.000	2.19500	67.1	12 - 174			
Dibenz(a,h)anthracene	52.0310	15	100.000	ND	52.0	52 - 142			
Fluoranthene	81.1720	15	100.000	6.35400	74.8	40 - 165			
Fluorene	70.3220	15	100.000	2.94600	67.4	60 - 125			
Indeno(1,2,3-cd)pyrene	55.6230	15	100.000	ND	55.6	46 - 161			
Naphthalene	185.111	15	100.000	89.2590	95.9	41 - 128			
Phenanthrene	105.380	15	100.000	21.4180	84.0	26 - 161			
Pyrene	72.3360	15	100.000	4.14200	68.2	49 - 154			
Surrogate: 1,2-Dichlorobenzene-d4	*74.63*		*100.000*		*74.6*	*39 - 99*			
Surrogate: 2-Fluorobiphenyl	*82.45*		*100.000*		*82.5*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*70.68*		*100.000*		*70.7*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*86.86*		*100.000*		*86.9*	*44 - 150*			
Matrix Spike Dup (B5K0105-MSD1)		**Source: 1503745-39**		Prepared: 11/4/2015 Analyzed: 11/6/2015					
2-Methylnaphthalene	119.183	15	100.000	23.5400	95.6	50 - 135	5.39	20	
Acenaphthene	71.9390	15	100.000	1.40400	70.5	53 - 129	2.35	20	
Acenaphthylene	71.5550	15	100.000	3.52100	68.0	56 - 122	2.52	20	
Anthracene	72.8610	15	100.000	2.41900	70.4	51 - 127	9.69	20	
Benzo(a)anthracene	60.0080	15	100.000	ND	60.0	32 - 177	7.51	20	
Benzo(a)pyrene	48.5960	15	100.000	ND	48.6	27 - 166	4.46	20	
Benzo(b)fluoranthene	58.0830	15	100.000	ND	58.1	26 - 171	0.340	20	
Benzo(g,h,i)perylene	49.5860	15	100.000	ND	49.6	22 - 169	5.51	20	
Benzo(k)fluoranthene	58.5340	15	100.000	ND	58.5	41 - 140	4.69	20	
Chrysene	65.9990	15	100.000	2.19500	63.8	12 - 174	4.90	20	
Dibenz(a,h)anthracene	49.1980	15	100.000	ND	49.2	52 - 142	5.60	20	M1
Fluoranthene	75.6300	15	100.000	6.35400	69.3	40 - 165	7.07	20	
Fluorene	66.8890	15	100.000	2.94600	63.9	60 - 125	5.00	20	
Indeno(1,2,3-cd)pyrene	52.3560	15	100.000	ND	52.4	46 - 161	6.05	20	

Certificate of Analysis

Geosyntec Consultants	Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200	Report To :	D. Baumwirt
San Diego , CA 92127	Reported :	11/10/2015

Semivolatile Organic Compounds by EPA 8270/SIM - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0105 - MSSEMI_S (continued)									
Matrix Spike Dup (B5K0105-MSD1) - Continued		**Source: 1503745-39**		Prepared: 11/4/2015 Analyzed: 11/6/2015					
Naphthalene	146.332	15	100.000	89.2590	57.1	41 - 128	23.4	20	R
Phenanthrene	97.0470	15	100.000	21.4180	75.6	26 - 161	8.23	20	
Pyrene	66.1400	15	100.000	4.14200	62.0	49 - 154	8.95	20	
Surrogate: 1,2-Dichlorobenzene-d4	*76.86*		*100.000*		*76.9*	*39 - 99*			
Surrogate: 2-Fluorobiphenyl	*82.99*		*100.000*		*83.0*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*71.97*		*100.000*		*72.0*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*89.38*		*100.000*		*89.4*	*44 - 150*			

Certificate of Analysis

Geosyntec Consultants		Project Number :	2015 Butte & Valley Wildfire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	D. Baumwirt
San Diego , CA 92127		Reported :	11/10/2015

Notes and Definitions

S10	Surrogate recovery was outside of laboratory acceptance limit due to possible matrix interference.
R	RPD value outside acceptance criteria. Calculation is based on raw values.
M2	Matrix spike recovery outside of acceptance limit due to possible matrix interference. The analytical batch was validated by the laboratory control sample.
M1	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
L4	Laboratory Control Sample outside of control limit but within Marginal Exceedance (ME) limit.
D7	A lesser amount of sample was analyzed due to matrix.
D6	Sample required dilution due to high concentration of target analyte.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Notes:
(1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
(2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
(3) Results are wet unless otherwise specified.

November 05, 2015

Veryl Wittig
Geosyntec Consultants
10875 Rancho Bernardo Road, Ste 200
San Diego, CA 92127
Tel: (858) 674-6559
Fax:(858) 674-6586

ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003
TCEQ No. : T104704502

Re: ATL Work Order Number : 1503733
Client Reference : Butte and Valley Fire, SC0791

Enclosed are the results for sample(s) received on October 30, 2015 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
V-08B-10262015	1503733-01	Burn Debris	10/26/15 14:00	10/30/15 10:30
V-08A-10262015	1503733-02	Burn Debris	10/26/15 14:10	10/30/15 10:30
V-12A-10262015	1503733-03	Burn Debris	10/26/15 15:15	10/30/15 10:30
V-11A-10262015	1503733-04	Burn Debris	10/26/15 16:00	10/30/15 10:30
V-46A-10262015	1503733-05	Burn Debris	10/26/15 16:50	10/30/15 10:30
V-43A-10262015	1503733-06	Burn Debris	10/26/15 17:20	10/30/15 10:30
V-09A-10262015	1503733-07	Burn Debris	10/26/15 18:00	10/30/15 10:30
V-40A-10272015	1503733-08	Burn Debris	10/27/15 8:00	10/30/15 10:30
V-04A-10272015	1503733-09	Burn Debris	10/27/15 8:10	10/30/15 10:30
V-04C-10272015	1503733-10	Burn Debris	10/27/15 8:15	10/30/15 10:30
V-03A-10272015	1503733-11	Burn Debris	10/27/15 9:34	10/30/15 10:30
V-61A-10272015	1503733-12	Burn Debris	10/27/15 10:00	10/30/15 10:30
V-02A-10272015	1503733-13	Burn Debris	10/27/15 10:50	10/30/15 10:30
V-28A-10272015	1503733-14	Burn Debris	10/27/15 11:45	10/30/15 10:30
V-58A-10272015	1503733-15	Burn Debris	10/27/15 12:50	10/30/15 10:30
V-26A-10272015	1503733-16	Burn Debris	10/27/15 13:45	10/30/15 10:30
V-22A-10272015	1503733-17	Burn Debris	10/27/15 14:20	10/30/15 10:30
V-20A-10272015	1503733-18	Burn Debris	10/27/15 14:55	10/30/15 10:30
V-54A-10272015	1503733-19	Burn Debris	10/27/15 15:30	10/30/15 10:30
V-56A-10272015	1503733-20	Burn Debris	10/27/15 16:10	10/30/15 10:30
V-15A-10272015	1503733-21	Burn Debris	10/27/15 17:05	10/30/15 10:30
V-29A-10272015	1503733-22	Burn Debris	10/27/15 12:20	10/30/15 10:30
V-05A-10282015	1503733-23	Burn Debris	10/28/15 8:15	10/30/15 10:30
V-06A-10282015	1503733-24	Burn Debris	10/28/15 8:55	10/30/15 10:30
V-07A-10282015	1503733-25	Burn Debris	10/28/15 9:30	10/30/15 10:30
V-19A-10282015	1503733-26	Burn Debris	10/28/15 9:59	10/30/15 10:30
V-19C-10282015	1503733-27	Burn Debris	10/28/15 10:00	10/30/15 10:30
V-25A-10282015	1503733-28	Burn Debris	10/28/15 10:35	10/30/15 10:30
V-24A-10282015	1503733-29	Burn Debris	10/28/15 11:00	10/30/15 10:30
V-23A-10282015	1503733-30	Burn Debris	10/28/15 11:20	10/30/15 10:30
V-57A-10282015	1503733-31	Burn Debris	10/28/15 11:45	10/30/15 10:30
V-16A-10282015	1503733-32	Burn Debris	10/28/15 14:00	10/30/15 10:30
V-16C-10282015	1503733-33	Burn Debris	10/28/15 14:10	10/30/15 10:30
V-17A-10282015	1503733-34	Burn Debris	10/28/15 14:35	10/30/15 10:30
V-50A-10282015	1503733-35	Burn Debris	10/28/15 15:00	10/30/15 10:30
V-33A-10292015	1503733-36	Burn Debris	10/29/15 8:55	10/30/15 10:30
V-64A-10292015	1503733-37	Burn Debris	10/29/15 9:45	10/30/15 10:30

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

V-62A-10292015	1503733-38	Burn Debris	10/29/15 10:45	10/30/15 10:30
V-63A-10292015	1503733-39	Burn Debris	10/29/15 11:35	10/30/15 10:30
V-63C-10292015	1503733-40	Burn Debris	10/29/15 11:45	10/30/15 10:30

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-08B-10262015

Lab ID: 1503733-01

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	10	5	B5K0052	11/03/2015	11/04/15 11:43	D6
Arsenic	**27**	5.0	5	B5K0052	11/03/2015	11/04/15 11:43	D6
Barium	**230**	5.0	5	B5K0052	11/03/2015	11/04/15 11:43	D6
Beryllium	ND	5.0	5	B5K0052	11/03/2015	11/04/15 11:43	D6
Cadmium	ND	5.0	5	B5K0052	11/03/2015	11/04/15 11:43	D6
Chromium	**54**	5.0	5	B5K0052	11/03/2015	11/04/15 11:43	D6
Cobalt	**11**	5.0	5	B5K0052	11/03/2015	11/04/15 11:43	D6
Copper	**140**	10	5	B5K0052	11/03/2015	11/04/15 11:43	D6
Lead	**51**	5.0	5	B5K0052	11/03/2015	11/04/15 11:43	D6
Molybdenum	ND	5.0	5	B5K0052	11/03/2015	11/04/15 11:43	D6
Nickel	**79**	5.0	5	B5K0052	11/03/2015	11/04/15 11:43	D6
Selenium	ND	5.0	5	B5K0052	11/03/2015	11/04/15 11:43	D6
Silver	ND	5.0	5	B5K0052	11/03/2015	11/04/15 11:43	D6
Thallium	ND	5.0	5	B5K0052	11/03/2015	11/04/15 11:43	D6
Vanadium	**49**	5.0	5	B5K0052	11/03/2015	11/04/15 11:43	D6
Zinc	**2500**	5.0	5	B5K0052	11/03/2015	11/04/15 11:43	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.18**	0.10	1	B5K0055	11/03/2015	11/04/15 10:22	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**220**	15	1	B5K0028	11/02/2015	11/03/15 10:44	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/03/15 10:44	
Acenaphthylene	**19**	15	1	B5K0028	11/02/2015	11/03/15 10:44	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 10:44	
Benzo(a)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 10:44	
Benzo(a)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 10:44	
Benzo(b)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 10:44	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/03/15 10:44	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 10:44	
Chrysene	ND	15	1	B5K0028	11/02/2015	11/03/15 10:44	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-08B-10262015

Lab ID: 1503733-01

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 10:44	
Fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 10:44	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/03/15 10:44	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 10:44	
Naphthalene	**560**	15	1	B5K0028	11/02/2015	11/03/15 10:44	
Phenanthrene	**18**	15	1	B5K0028	11/02/2015	11/03/15 10:44	
Pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 10:44	
Surrogate: 1,2-Dichlorobenzene-d4	*63.4 %*	*39 - 99*		B5K0028	11/02/2015	*11/03/15 10:44*	
Surrogate: 2-Fluorobiphenyl	*54.5 %*	*47 - 111*		B5K0028	11/02/2015	*11/03/15 10:44*	
Surrogate: Nitrobenzene-d5	*72.2 %*	*20 - 144*		B5K0028	11/02/2015	*11/03/15 10:44*	
Surrogate: 4-Terphenyl-d14	*9.07 %*	*44 - 150*		B5K0028	11/02/2015	*11/03/15 10:44*	S2

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-08A-10262015

Lab ID: 1503733-02

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**8.7**	2.0	1	B5K0052	11/03/2015	11/04/15 11:46	
Arsenic	**20**	1.0	1	B5K0052	11/03/2015	11/04/15 11:46	
Barium	**720**	1.0	1	B5K0052	11/03/2015	11/04/15 11:46	
Beryllium	ND	1.0	1	B5K0052	11/03/2015	11/04/15 11:46	
Cadmium	ND	1.0	1	B5K0052	11/03/2015	11/04/15 11:46	
Chromium	**26**	1.0	1	B5K0052	11/03/2015	11/04/15 11:46	
Cobalt	**5.0**	1.0	1	B5K0052	11/03/2015	11/04/15 11:46	
Copper	**370**	2.0	1	B5K0052	11/03/2015	11/04/15 11:46	
Lead	**33**	1.0	1	B5K0052	11/03/2015	11/04/15 11:46	
Molybdenum	**7.9**	1.0	1	B5K0052	11/03/2015	11/04/15 11:46	
Nickel	**29**	1.0	1	B5K0052	11/03/2015	11/04/15 11:46	
Selenium	**2.8**	1.0	1	B5K0052	11/03/2015	11/04/15 11:46	
Silver	ND	1.0	1	B5K0052	11/03/2015	11/04/15 11:46	
Thallium	ND	1.0	1	B5K0052	11/03/2015	11/04/15 11:46	
Vanadium	**28**	1.0	1	B5K0052	11/03/2015	11/04/15 11:46	
Zinc	**590**	1.0	1	B5K0052	11/03/2015	11/04/15 11:46	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0055	11/03/2015	11/04/15 10:28	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**16**	15	1	B5K0028	11/02/2015	11/03/15 11:11	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:11	
Acenaphthylene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:11	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:11	
Benzo(a)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:11	
Benzo(a)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:11	
Benzo(b)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:11	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:11	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:11	
Chrysene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:11	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-08A-10262015

Lab ID: 1503733-02

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:11	
Fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:11	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:11	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:11	
Naphthalene	**60**	15	1	B5K0028	11/02/2015	11/03/15 11:11	
Phenanthrene	**22**	15	1	B5K0028	11/02/2015	11/03/15 11:11	
Pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:11	
Surrogate: 1,2-Dichlorobenzene-d4	*70.9 %*	*39 - 99*		B5K0028	11/02/2015	*11/03/15 11:11*	
Surrogate: 2-Fluorobiphenyl	*85.4 %*	*47 - 111*		B5K0028	11/02/2015	*11/03/15 11:11*	
Surrogate: Nitrobenzene-d5	*77.7 %*	*20 - 144*		B5K0028	11/02/2015	*11/03/15 11:11*	
Surrogate: 4-Terphenyl-d14	*87.2 %*	*44 - 150*		B5K0028	11/02/2015	*11/03/15 11:11*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-12A-10262015

Lab ID: 1503733-03

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**10**	10	5	B5K0052	11/03/2015	11/04/15 11:48	D6
Arsenic	**1300**	5.0	5	B5K0052	11/03/2015	11/04/15 11:48	D6
Barium	**570**	5.0	5	B5K0052	11/03/2015	11/04/15 11:48	D6
Beryllium	ND	5.0	5	B5K0052	11/03/2015	11/04/15 11:48	D6
Cadmium	ND	5.0	5	B5K0052	11/03/2015	11/04/15 11:48	D6
Chromium	**440**	5.0	5	B5K0052	11/03/2015	11/04/15 11:48	D6
Cobalt	**16**	5.0	5	B5K0052	11/03/2015	11/04/15 11:48	D6
Copper	**790**	10	5	B5K0052	11/03/2015	11/04/15 11:48	D6
Lead	**67**	5.0	5	B5K0052	11/03/2015	11/04/15 11:48	D6
Molybdenum	ND	5.0	5	B5K0052	11/03/2015	11/04/15 11:48	D6
Nickel	**130**	5.0	5	B5K0052	11/03/2015	11/04/15 11:48	D6
Selenium	**5.9**	5.0	5	B5K0052	11/03/2015	11/04/15 11:48	D6
Silver	ND	5.0	5	B5K0052	11/03/2015	11/04/15 11:48	D6
Thallium	ND	5.0	5	B5K0052	11/03/2015	11/04/15 11:48	D6
Vanadium	**34**	5.0	5	B5K0052	11/03/2015	11/04/15 11:48	D6
Zinc	**1400**	5.0	5	B5K0052	11/03/2015	11/04/15 11:48	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0055	11/03/2015	11/04/15 10:30	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**28**	15	1	B5K0028	11/02/2015	11/03/15 11:38	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:38	
Acenaphthylene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:38	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:38	
Benzo(a)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:38	
Benzo(a)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:38	
Benzo(b)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:38	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:38	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:38	
Chrysene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:38	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-12A-10262015

Lab ID: 1503733-03

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:38	
Fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:38	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:38	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:38	
Naphthalene	**100**	15	1	B5K0028	11/02/2015	11/03/15 11:38	
Phenanthrene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:38	
Pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 11:38	
Surrogate: 1,2-Dichlorobenzene-d4	*62.8 %*	*39 - 99*		B5K0028	11/02/2015	*11/03/15 11:38*	
Surrogate: 2-Fluorobiphenyl	*62.3 %*	*47 - 111*		B5K0028	11/02/2015	*11/03/15 11:38*	
Surrogate: Nitrobenzene-d5	*65.9 %*	*20 - 144*		B5K0028	11/02/2015	*11/03/15 11:38*	
Surrogate: 4-Terphenyl-d14	*17.3 %*	*44 - 150*		B5K0028	11/02/2015	*11/03/15 11:38*	S2

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-11A-10262015

Lab ID: 1503733-04

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	20	10	B5K0052	11/03/2015	11/04/15 11:27	D6
Arsenic	**12**	10	10	B5K0052	11/03/2015	11/04/15 11:27	D6
Barium	**1100**	10	10	B5K0052	11/03/2015	11/04/15 11:27	D6
Beryllium	ND	10	10	B5K0052	11/03/2015	11/04/15 11:27	D6
Cadmium	ND	10	10	B5K0052	11/03/2015	11/04/15 11:27	D6
Chromium	**80**	10	10	B5K0052	11/03/2015	11/04/15 11:27	D6
Cobalt	**22**	10	10	B5K0052	11/03/2015	11/04/15 11:27	D6
Copper	**78**	20	10	B5K0052	11/03/2015	11/04/15 11:27	D6
Lead	**610**	10	10	B5K0052	11/03/2015	11/04/15 11:27	D6
Molybdenum	ND	10	10	B5K0052	11/03/2015	11/04/15 11:27	D6
Nickel	**190**	10	10	B5K0052	11/03/2015	11/04/15 11:27	D6
Selenium	ND	10	10	B5K0052	11/03/2015	11/04/15 11:27	D6
Silver	ND	10	10	B5K0052	11/03/2015	11/04/15 11:27	D6
Thallium	ND	10	10	B5K0052	11/03/2015	11/04/15 11:27	D6
Vanadium	**37**	10	10	B5K0052	11/03/2015	11/04/15 11:27	D6
Zinc	**13000**	20	20	B5K0052	11/03/2015	11/04/15 12:10	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.63**	0.10	1	B5K0055	11/03/2015	11/04/15 10:32	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**53**	15	1	B5K0028	11/02/2015	11/03/15 12:06	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:06	
Acenaphthylene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:06	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:06	
Benzo(a)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:06	
Benzo(a)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:06	
Benzo(b)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:06	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:06	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:06	
Chrysene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:06	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-11A-10262015

Lab ID: 1503733-04

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:06	
Fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:06	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:06	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:06	
Naphthalene	**360**	15	1	B5K0028	11/02/2015	11/03/15 12:06	
Phenanthrene	**71**	15	1	B5K0028	11/02/2015	11/03/15 12:06	
Pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:06	
Surrogate: 1,2-Dichlorobenzene-d4	*82.3 %*	*39 - 99*		B5K0028	11/02/2015	*11/03/15 12:06*	
Surrogate: 2-Fluorobiphenyl	*73.9 %*	*47 - 111*		B5K0028	11/02/2015	*11/03/15 12:06*	
Surrogate: Nitrobenzene-d5	*95.9 %*	*20 - 144*		B5K0028	11/02/2015	*11/03/15 12:06*	
Surrogate: 4-Terphenyl-d14	*73.1 %*	*44 - 150*		B5K0028	11/02/2015	*11/03/15 12:06*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-46A-10262015

Lab ID: 1503733-05

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	20	10	B5K0052	11/03/2015	11/04/15 11:30	D6
Arsenic	ND	10	10	B5K0052	11/03/2015	11/04/15 11:30	D6
Barium	**160**	10	10	B5K0052	11/03/2015	11/04/15 11:30	D6
Beryllium	ND	10	10	B5K0052	11/03/2015	11/04/15 11:30	D6
Cadmium	ND	10	10	B5K0052	11/03/2015	11/04/15 11:30	D6
Chromium	**14**	10	10	B5K0052	11/03/2015	11/04/15 11:30	D6
Cobalt	ND	10	10	B5K0052	11/03/2015	11/04/15 11:30	D6
Copper	**6700**	20	10	B5K0052	11/03/2015	11/04/15 11:30	D6
Lead	**43**	10	10	B5K0052	11/03/2015	11/04/15 11:30	D6
Molybdenum	ND	10	10	B5K0052	11/03/2015	11/04/15 11:30	D6
Nickel	**27**	10	10	B5K0052	11/03/2015	11/04/15 11:30	D6
Selenium	ND	10	10	B5K0052	11/03/2015	11/04/15 11:30	D6
Silver	ND	10	10	B5K0052	11/03/2015	11/04/15 11:30	D6
Thallium	ND	10	10	B5K0052	11/03/2015	11/04/15 11:30	D6
Vanadium	**53**	10	10	B5K0052	11/03/2015	11/04/15 11:30	D6
Zinc	**700**	10	10	B5K0052	11/03/2015	11/04/15 11:30	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0055	11/03/2015	11/04/15 10:34	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:33	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:33	
Acenaphthylene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:33	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:33	
Benzo(a)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:33	
Benzo(a)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:33	
Benzo(b)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:33	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:33	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:33	
Chrysene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:33	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-46A-10262015

Lab ID: 1503733-05

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:33	
Fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:33	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:33	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:33	
Naphthalene	**34**	15	1	B5K0028	11/02/2015	11/03/15 12:33	
Phenanthrene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:33	
Pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 12:33	
Surrogate: 1,2-Dichlorobenzene-d4	*75.8 %*	*39 - 99*		B5K0028	11/02/2015	*11/03/15 12:33*	
Surrogate: 2-Fluorobiphenyl	*64.4 %*	*47 - 111*		B5K0028	11/02/2015	*11/03/15 12:33*	
Surrogate: Nitrobenzene-d5	*86.0 %*	*20 - 144*		B5K0028	11/02/2015	*11/03/15 12:33*	
Surrogate: 4-Terphenyl-d14	*66.1 %*	*44 - 150*		B5K0028	11/02/2015	*11/03/15 12:33*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-43A-10262015

Lab ID: 1503733-06

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**5.7**	2.0	1	B5K0052	11/03/2015	11/04/15 12:12	
Arsenic	**8.3**	1.0	1	B5K0052	11/03/2015	11/04/15 12:12	
Barium	**44**	1.0	1	B5K0052	11/03/2015	11/04/15 12:12	
Beryllium	ND	1.0	1	B5K0052	11/03/2015	11/04/15 12:12	
Cadmium	ND	1.0	1	B5K0052	11/03/2015	11/04/15 12:12	
Chromium	**15**	1.0	1	B5K0052	11/03/2015	11/04/15 12:12	
Cobalt	**4.4**	1.0	1	B5K0052	11/03/2015	11/04/15 12:12	
Copper	**870**	2.0	1	B5K0052	11/03/2015	11/04/15 12:12	
Lead	**18**	1.0	1	B5K0052	11/03/2015	11/04/15 12:12	
Molybdenum	**11**	1.0	1	B5K0052	11/03/2015	11/04/15 12:12	
Nickel	**16**	1.0	1	B5K0052	11/03/2015	11/04/15 12:12	
Selenium	**3.5**	1.0	1	B5K0052	11/03/2015	11/04/15 12:12	
Silver	ND	1.0	1	B5K0052	11/03/2015	11/04/15 12:12	
Thallium	ND	1.0	1	B5K0052	11/03/2015	11/04/15 12:12	
Vanadium	**24**	1.0	1	B5K0052	11/03/2015	11/04/15 12:12	
Zinc	**450**	1.0	1	B5K0052	11/03/2015	11/04/15 12:12	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0055	11/03/2015	11/04/15 10:36	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:00	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:00	
Acenaphthylene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:00	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:00	
Benzo(a)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:00	
Benzo(a)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:00	
Benzo(b)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:00	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:00	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:00	
Chrysene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:00	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-43A-10262015

Lab ID: 1503733-06

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:00	
Fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:00	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:00	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:00	
Naphthalene	**37**	15	1	B5K0028	11/02/2015	11/03/15 13:00	
Phenanthrene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:00	
Pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:00	
Surrogate: 1,2-Dichlorobenzene-d4	*68.4 %*	*39 - 99*		B5K0028	11/02/2015	*11/03/15 13:00*	
Surrogate: 2-Fluorobiphenyl	*93.4 %*	*47 - 111*		B5K0028	11/02/2015	*11/03/15 13:00*	
Surrogate: Nitrobenzene-d5	*76.8 %*	*20 - 144*		B5K0028	11/02/2015	*11/03/15 13:00*	
Surrogate: 4-Terphenyl-d14	*66.6 %*	*44 - 150*		B5K0028	11/02/2015	*11/03/15 13:00*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-09A-10262015

Lab ID: 1503733-07

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**2.4**	2.0	1	B5K0052	11/03/2015	11/04/15 12:14	
Arsenic	**2.6**	1.0	1	B5K0052	11/03/2015	11/04/15 12:14	
Barium	**58**	1.0	1	B5K0052	11/03/2015	11/04/15 12:14	
Beryllium	ND	1.0	1	B5K0052	11/03/2015	11/04/15 12:14	
Cadmium	ND	1.0	1	B5K0052	11/03/2015	11/04/15 12:14	
Chromium	**8.0**	1.0	1	B5K0052	11/03/2015	11/04/15 12:14	
Cobalt	**4.0**	1.0	1	B5K0052	11/03/2015	11/04/15 12:14	
Copper	**460**	2.0	1	B5K0052	11/03/2015	11/04/15 12:14	
Lead	**36**	1.0	1	B5K0052	11/03/2015	11/04/15 12:14	
Molybdenum	ND	1.0	1	B5K0052	11/03/2015	11/04/15 12:14	
Nickel	**21**	1.0	1	B5K0052	11/03/2015	11/04/15 12:14	
Selenium	**2.6**	1.0	1	B5K0052	11/03/2015	11/04/15 12:14	
Silver	ND	1.0	1	B5K0052	11/03/2015	11/04/15 12:14	
Thallium	ND	1.0	1	B5K0052	11/03/2015	11/04/15 12:14	
Vanadium	**54**	1.0	1	B5K0052	11/03/2015	11/04/15 12:14	
Zinc	**610**	1.0	1	B5K0052	11/03/2015	11/04/15 12:14	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0055	11/03/2015	11/04/15 10:38	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**15**	15	1	B5K0028	11/02/2015	11/03/15 13:28	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:28	
Acenaphthylene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:28	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:28	
Benzo(a)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:28	
Benzo(a)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:28	
Benzo(b)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:28	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:28	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:28	
Chrysene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:28	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-09A-10262015

Lab ID: 1503733-07

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:28	
Fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:28	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:28	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:28	
Naphthalene	**31**	15	1	B5K0028	11/02/2015	11/03/15 13:28	
Phenanthrene	**22**	15	1	B5K0028	11/02/2015	11/03/15 13:28	
Pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:28	
Surrogate: 1,2-Dichlorobenzene-d4	*72.1 %*	*39 - 99*		B5K0028	11/02/2015	*11/03/15 13:28*	
Surrogate: 2-Fluorobiphenyl	*82.1 %*	*47 - 111*		B5K0028	11/02/2015	*11/03/15 13:28*	
Surrogate: Nitrobenzene-d5	*80.1 %*	*20 - 144*		B5K0028	11/02/2015	*11/03/15 13:28*	
Surrogate: 4-Terphenyl-d14	*74.6 %*	*44 - 150*		B5K0028	11/02/2015	*11/03/15 13:28*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-40A-10272015

Lab ID: 1503733-08

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	10	5	B5K0053	11/03/2015	11/04/15 12:28	D6
Arsenic	**15**	5.0	5	B5K0053	11/03/2015	11/04/15 12:28	D6
Barium	**1000**	5.0	5	B5K0053	11/03/2015	11/04/15 12:27	D6
Beryllium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:27	D6
Cadmium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:28	D6
Chromium	**28**	5.0	5	B5K0053	11/03/2015	11/04/15 12:27	D6
Cobalt	**7.8**	5.0	5	B5K0053	11/03/2015	11/04/15 12:28	D6
Copper	**79**	10	5	B5K0053	11/03/2015	11/04/15 12:27	D6
Lead	**34**	5.0	5	B5K0053	11/03/2015	11/04/15 12:28	D6
Molybdenum	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:28	D6
Nickel	**44**	5.0	5	B5K0053	11/03/2015	11/04/15 12:28	D6
Selenium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:28	D6
Silver	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:27	D6
Thallium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:28	D6
Vanadium	**45**	5.0	5	B5K0053	11/03/2015	11/04/15 12:27	D6
Zinc	**1700**	5.0	5	B5K0053	11/03/2015	11/04/15 12:27	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0056	11/03/2015	11/04/15 10:44	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**32**	15	1	B5K0028	11/02/2015	11/03/15 13:55	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:55	
Acenaphthylene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:55	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:55	
Benzo(a)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:55	
Benzo(a)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:55	
Benzo(b)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:55	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:55	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:55	
Chrysene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:55	

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Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-40A-10272015

Lab ID: 1503733-08

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:55	
Fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:55	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:55	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:55	
Naphthalene	**170**	15	1	B5K0028	11/02/2015	11/03/15 13:55	
Phenanthrene	**18**	15	1	B5K0028	11/02/2015	11/03/15 13:55	
Pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 13:55	
Surrogate: 1,2-Dichlorobenzene-d4	*63.9 %*	*39 - 99*		B5K0028	11/02/2015	*11/03/15 13:55*	
Surrogate: 2-Fluorobiphenyl	*64.6 %*	*47 - 111*		B5K0028	11/02/2015	*11/03/15 13:55*	
Surrogate: Nitrobenzene-d5	*69.7 %*	*20 - 144*		B5K0028	11/02/2015	*11/03/15 13:55*	
Surrogate: 4-Terphenyl-d14	*43.2 %*	*44 - 150*		B5K0028	11/02/2015	*11/03/15 13:55*	S2

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-04A-10272015

Lab ID: 1503733-09

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	10	5	B5K0053	11/03/2015	11/04/15 12:31	D6
Arsenic	**6.4**	5.0	5	B5K0053	11/03/2015	11/04/15 12:31	D6
Barium	**700**	5.0	5	B5K0053	11/03/2015	11/04/15 12:31	D6
Beryllium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:30	D6
Cadmium	**9.6**	5.0	5	B5K0053	11/03/2015	11/04/15 12:31	D6
Chromium	**47**	5.0	5	B5K0053	11/03/2015	11/04/15 12:31	D6
Cobalt	**11**	5.0	5	B5K0053	11/03/2015	11/04/15 12:31	D6
Copper	**200**	10	5	B5K0053	11/03/2015	11/04/15 12:31	D6
Lead	**360**	5.0	5	B5K0053	11/03/2015	11/04/15 12:31	D6
Molybdenum	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:31	D6
Nickel	**110**	5.0	5	B5K0053	11/03/2015	11/04/15 12:31	D6
Selenium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:31	D6
Silver	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:31	D6
Thallium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:31	D6
Vanadium	**31**	5.0	5	B5K0053	11/03/2015	11/04/15 12:31	D6
Zinc	**35000**	50	50	B5K0053	11/03/2015	11/04/15 15:35	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.15**	0.10	1	B5K0056	11/03/2015	11/04/15 10:55	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**30**	15	1	B5K0028	11/02/2015	11/03/15 14:22	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:22	
Acenaphthylene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:22	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:22	
Benzo(a)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:22	
Benzo(a)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:22	
Benzo(b)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:22	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:22	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:22	
Chrysene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:22	

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Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-04A-10272015

Lab ID: 1503733-09

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:22	
Fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:22	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:22	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:22	
Naphthalene	**110**	15	1	B5K0028	11/02/2015	11/03/15 14:22	
Phenanthrene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:22	
Pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:22	
Surrogate: 1,2-Dichlorobenzene-d4	*70.3 %*	*39 - 99*		B5K0028	11/02/2015	*11/03/15 14:22*	
Surrogate: 2-Fluorobiphenyl	*75.8 %*	*47 - 111*		B5K0028	11/02/2015	*11/03/15 14:22*	
Surrogate: Nitrobenzene-d5	*82.0 %*	*20 - 144*		B5K0028	11/02/2015	*11/03/15 14:22*	
Surrogate: 4-Terphenyl-d14	*50.5 %*	*44 - 150*		B5K0028	11/02/2015	*11/03/15 14:22*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-04C-10272015

Lab ID: 1503733-10

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**35**	10	5	B5K0053	11/03/2015	11/04/15 12:36	D6
Arsenic	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:36	D6
Barium	**460**	5.0	5	B5K0053	11/03/2015	11/04/15 12:35	D6
Beryllium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:35	D6
Cadmium	**7.6**	5.0	5	B5K0053	11/03/2015	11/04/15 12:36	D6
Chromium	**38**	5.0	5	B5K0053	11/03/2015	11/04/15 12:36	D6
Cobalt	**13**	5.0	5	B5K0053	11/03/2015	11/04/15 12:36	D6
Copper	**3300**	10	5	B5K0053	11/03/2015	11/04/15 12:35	D6
Lead	**1000**	5.0	5	B5K0053	11/03/2015	11/04/15 12:36	D6
Molybdenum	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:36	D6
Nickel	**17**	5.0	5	B5K0053	11/03/2015	11/04/15 12:36	D6
Selenium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:36	D6
Silver	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:35	D6
Thallium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:36	D6
Vanadium	**40**	5.0	5	B5K0053	11/03/2015	11/04/15 12:35	D6
Zinc	**4000**	5.0	5	B5K0053	11/03/2015	11/04/15 12:35	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0056	11/03/2015	11/04/15 10:57	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**25**	15	1	B5K0028	11/02/2015	11/03/15 14:50	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:50	
Acenaphthylene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:50	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:50	
Benzo(a)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:50	
Benzo(a)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:50	
Benzo(b)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:50	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:50	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:50	
Chrysene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:50	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-04C-10272015

Lab ID: 1503733-10

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:50	
Fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:50	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:50	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:50	
Naphthalene	**130**	15	1	B5K0028	11/02/2015	11/03/15 14:50	
Phenanthrene	**63**	15	1	B5K0028	11/02/2015	11/03/15 14:50	
Pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 14:50	
Surrogate: 1,2-Dichlorobenzene-d4	*62.9 %*	*39 - 99*		B5K0028	11/02/2015	*11/03/15 14:50*	
Surrogate: 2-Fluorobiphenyl	*80.0 %*	*47 - 111*		B5K0028	11/02/2015	*11/03/15 14:50*	
Surrogate: Nitrobenzene-d5	*70.6 %*	*20 - 144*		B5K0028	11/02/2015	*11/03/15 14:50*	
Surrogate: 4-Terphenyl-d14	*59.1 %*	*44 - 150*		B5K0028	11/02/2015	*11/03/15 14:50*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-03A-10272015

Lab ID: 1503733-11

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	10	5	B5K0053	11/03/2015	11/04/15 12:40	D6
Arsenic	**16**	5.0	5	B5K0053	11/03/2015	11/04/15 12:40	D6
Barium	**930**	5.0	5	B5K0053	11/03/2015	11/04/15 12:40	D6
Beryllium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:39	D6
Cadmium	**390**	5.0	5	B5K0053	11/03/2015	11/04/15 12:40	D6
Chromium	**44**	5.0	5	B5K0053	11/03/2015	11/04/15 12:40	D6
Cobalt	**6.3**	5.0	5	B5K0053	11/03/2015	11/04/15 12:40	D6
Copper	**230**	10	5	B5K0053	11/03/2015	11/04/15 12:40	D6
Lead	**43**	5.0	5	B5K0053	11/03/2015	11/04/15 12:40	D6
Molybdenum	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:40	D6
Nickel	**49**	5.0	5	B5K0053	11/03/2015	11/04/15 12:40	D6
Selenium	**91**	5.0	5	B5K0053	11/03/2015	11/04/15 12:40	D6
Silver	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:40	D6
Thallium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:40	D6
Vanadium	**21**	5.0	5	B5K0053	11/03/2015	11/04/15 12:40	D6
Zinc	**1200**	5.0	5	B5K0053	11/03/2015	11/04/15 12:40	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0056	11/03/2015	11/04/15 10:59	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**19**	15	1	B5K0028	11/02/2015	11/03/15 15:17	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:17	
Acenaphthylene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:17	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:17	
Benzo(a)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:17	
Benzo(a)pyrene	**120**	15	1	B5K0028	11/02/2015	11/03/15 15:17	
Benzo(b)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:17	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:17	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:17	
Chrysene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:17	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-03A-10272015

Lab ID: 1503733-11

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:17	
Fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:17	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:17	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:17	
Naphthalene	**83**	15	1	B5K0028	11/02/2015	11/03/15 15:17	
Phenanthrene	**20**	15	1	B5K0028	11/02/2015	11/03/15 15:17	
Pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:17	
Surrogate: 1,2-Dichlorobenzene-d4	*66.3 %*	*39 - 99*		B5K0028	11/02/2015	*11/03/15 15:17*	
Surrogate: 2-Fluorobiphenyl	*74.0 %*	*47 - 111*		B5K0028	11/02/2015	*11/03/15 15:17*	
Surrogate: Nitrobenzene-d5	*74.9 %*	*20 - 144*		B5K0028	11/02/2015	*11/03/15 15:17*	
Surrogate: 4-Terphenyl-d14	*63.5 %*	*44 - 150*		B5K0028	11/02/2015	*11/03/15 15:17*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-61A-10272015

Lab ID: 1503733-12

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**25**	10	5	B5K0053	11/03/2015	11/04/15 12:44	D6
Arsenic	**49**	5.0	5	B5K0053	11/03/2015	11/04/15 12:44	D6
Barium	**190**	5.0	5	B5K0053	11/03/2015	11/04/15 12:44	D6
Beryllium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:44	D6
Cadmium	**48**	5.0	5	B5K0053	11/03/2015	11/04/15 12:44	D6
Chromium	**26**	5.0	5	B5K0053	11/03/2015	11/04/15 12:44	D6
Cobalt	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:44	D6
Copper	**960**	10	5	B5K0053	11/03/2015	11/04/15 12:44	D6
Lead	**220**	5.0	5	B5K0053	11/03/2015	11/04/15 12:44	D6
Molybdenum	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:44	D6
Nickel	**31**	5.0	5	B5K0053	11/03/2015	11/04/15 12:44	D6
Selenium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:44	D6
Silver	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:44	D6
Thallium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:44	D6
Vanadium	**47**	5.0	5	B5K0053	11/03/2015	11/04/15 12:44	D6
Zinc	**470**	5.0	5	B5K0053	11/03/2015	11/04/15 12:44	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0056	11/03/2015	11/04/15 11:01	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**28**	15	1	B5K0028	11/02/2015	11/03/15 15:44	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:44	
Acenaphthylene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:44	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:44	
Benzo(a)anthracene	**18**	15	1	B5K0028	11/02/2015	11/03/15 15:44	
Benzo(a)pyrene	**40**	15	1	B5K0028	11/02/2015	11/03/15 15:44	
Benzo(b)fluoranthene	**17**	15	1	B5K0028	11/02/2015	11/03/15 15:44	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:44	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:44	
Chrysene	**36**	15	1	B5K0028	11/02/2015	11/03/15 15:44	

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Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-61A-10272015

Lab ID: 1503733-12

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:44	
Fluoranthene	**27**	15	1	B5K0028	11/02/2015	11/03/15 15:44	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:44	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 15:44	
Naphthalene	**190**	15	1	B5K0028	11/02/2015	11/03/15 15:44	
Phenanthrene	**41**	15	1	B5K0028	11/02/2015	11/03/15 15:44	
Pyrene	**21**	15	1	B5K0028	11/02/2015	11/03/15 15:44	
Surrogate: 1,2-Dichlorobenzene-d4	*71.0 %*	*39 - 99*		B5K0028	11/02/2015	*11/03/15 15:44*	
Surrogate: 2-Fluorobiphenyl	*90.9 %*	*47 - 111*		B5K0028	11/02/2015	*11/03/15 15:44*	
Surrogate: Nitrobenzene-d5	*81.8 %*	*20 - 144*		B5K0028	11/02/2015	*11/03/15 15:44*	
Surrogate: 4-Terphenyl-d14	*68.5 %*	*44 - 150*		B5K0028	11/02/2015	*11/03/15 15:44*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-02A-10272015

Lab ID: 1503733-13

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	20	10	B5K0053	11/03/2015	11/04/15 12:50	D6
Arsenic	ND	10	10	B5K0053	11/03/2015	11/04/15 12:50	D6
Barium	**180**	10	10	B5K0053	11/03/2015	11/04/15 12:49	D6
Beryllium	ND	10	10	B5K0053	11/03/2015	11/04/15 12:48	D6
Cadmium	ND	10	10	B5K0053	11/03/2015	11/04/15 12:50	D6
Chromium	**16**	10	10	B5K0053	11/03/2015	11/04/15 12:50	D6
Cobalt	ND	10	10	B5K0053	11/03/2015	11/04/15 12:50	D6
Copper	**69000**	200	100	B5K0053	11/03/2015	11/04/15 15:37	D6
Lead	**100**	10	10	B5K0053	11/03/2015	11/04/15 12:50	D6
Molybdenum	ND	10	10	B5K0053	11/03/2015	11/04/15 12:50	D6
Nickel	**26**	10	10	B5K0053	11/03/2015	11/04/15 12:50	D6
Selenium	ND	10	10	B5K0053	11/03/2015	11/04/15 12:50	D6
Silver	**21**	10	10	B5K0053	11/03/2015	11/04/15 12:49	D6
Thallium	ND	10	10	B5K0053	11/03/2015	11/04/15 12:50	D6
Vanadium	**31**	10	10	B5K0053	11/03/2015	11/04/15 12:49	D6
Zinc	**2800**	10	10	B5K0053	11/03/2015	11/04/15 12:49	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0056	11/03/2015	11/04/15 11:03	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:12	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:12	
Acenaphthylene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:12	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:12	
Benzo(a)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:12	
Benzo(a)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:12	
Benzo(b)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:12	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:12	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:12	
Chrysene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:12	

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Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-02A-10272015

Lab ID: 1503733-13

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:12	
Fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:12	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:12	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:12	
Naphthalene	**36**	15	1	B5K0028	11/02/2015	11/03/15 16:12	
Phenanthrene	**16**	15	1	B5K0028	11/02/2015	11/03/15 16:12	
Pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:12	
Surrogate: 1,2-Dichlorobenzene-d4	*65.5 %*	*39 - 99*		B5K0028	11/02/2015	*11/03/15 16:12*	
Surrogate: 2-Fluorobiphenyl	*79.5 %*	*47 - 111*		B5K0028	11/02/2015	*11/03/15 16:12*	
Surrogate: Nitrobenzene-d5	*75.9 %*	*20 - 144*		B5K0028	11/02/2015	*11/03/15 16:12*	
Surrogate: 4-Terphenyl-d14	*75.4 %*	*44 - 150*		B5K0028	11/02/2015	*11/03/15 16:12*	

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Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-28A-10272015

Lab ID: 1503733-14

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**44**	10	5	B5K0053	11/03/2015	11/04/15 12:54	D6
Arsenic	**8.8**	5.0	5	B5K0053	11/03/2015	11/04/15 12:54	D6
Barium	**490**	5.0	5	B5K0053	11/03/2015	11/04/15 12:54	D6
Beryllium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:53	D6
Cadmium	**12**	5.0	5	B5K0053	11/03/2015	11/04/15 12:54	D6
Chromium	**40**	5.0	5	B5K0053	11/03/2015	11/04/15 12:54	D6
Cobalt	**57**	5.0	5	B5K0053	11/03/2015	11/04/15 12:54	D6
Copper	**4200**	10	5	B5K0053	11/03/2015	11/04/15 12:54	D6
Lead	**350**	5.0	5	B5K0053	11/03/2015	11/04/15 12:54	D6
Molybdenum	**5.7**	5.0	5	B5K0053	11/03/2015	11/04/15 12:54	D6
Nickel	**28**	5.0	5	B5K0053	11/03/2015	11/04/15 12:54	D6
Selenium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:54	D6
Silver	**6.3**	5.0	5	B5K0053	11/03/2015	11/04/15 12:54	D6
Thallium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:54	D6
Vanadium	**28**	5.0	5	B5K0053	11/03/2015	11/04/15 12:54	D6
Zinc	**10000**	20	20	B5K0053	11/03/2015	11/04/15 15:39	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0056	11/03/2015	11/04/15 11:05	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:39	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:39	
Acenaphthylene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:39	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:39	
Benzo(a)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:39	
Benzo(a)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:39	
Benzo(b)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:39	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:39	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:39	
Chrysene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:39	

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10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-28A-10272015

Lab ID: 1503733-14

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:39	
Fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:39	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:39	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:39	
Naphthalene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:39	
Phenanthrene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:39	
Pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 16:39	
Surrogate: 1,2-Dichlorobenzene-d4	*34.6 %*	*39 - 99*		B5K0028	11/02/2015	*11/03/15 16:39*	S2
Surrogate: 2-Fluorobiphenyl	*39.9 %*	*47 - 111*		B5K0028	11/02/2015	*11/03/15 16:39*	S2
Surrogate: Nitrobenzene-d5	*53.1 %*	*20 - 144*		B5K0028	11/02/2015	*11/03/15 16:39*	
Surrogate: 4-Terphenyl-d14	*50.1 %*	*44 - 150*		B5K0028	11/02/2015	*11/03/15 16:39*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-58A-10272015

Lab ID: 1503733-15

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	10	5	B5K0053	11/03/2015	11/04/15 12:59	D6
Arsenic	**6.0**	5.0	5	B5K0053	11/03/2015	11/04/15 12:59	D6
Barium	**60**	5.0	5	B5K0053	11/03/2015	11/04/15 12:59	D6
Beryllium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:58	D6
Cadmium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:59	D6
Chromium	**24**	5.0	5	B5K0053	11/03/2015	11/04/15 12:59	D6
Cobalt	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:59	D6
Copper	**410**	10	5	B5K0053	11/03/2015	11/04/15 12:58	D6
Lead	**36**	5.0	5	B5K0053	11/03/2015	11/04/15 12:59	D6
Molybdenum	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:59	D6
Nickel	**45**	5.0	5	B5K0053	11/03/2015	11/04/15 12:59	D6
Selenium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:59	D6
Silver	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:58	D6
Thallium	ND	5.0	5	B5K0053	11/03/2015	11/04/15 12:59	D6
Vanadium	**47**	5.0	5	B5K0053	11/03/2015	11/04/15 12:58	D6
Zinc	**580**	5.0	5	B5K0053	11/03/2015	11/04/15 12:58	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0056	11/03/2015	11/04/15 11:07	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:07	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:07	
Acenaphthylene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:07	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:07	
Benzo(a)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:07	
Benzo(a)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:07	
Benzo(b)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:07	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:07	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:07	
Chrysene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:07	

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Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-58A-10272015

Lab ID: 1503733-15

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:07	
Fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:07	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:07	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:07	
Naphthalene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:07	
Phenanthrene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:07	
Pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:07	
Surrogate: 1,2-Dichlorobenzene-d4	*80.6 %*	*39 - 99*		B5K0028	11/02/2015	*11/03/15 17:07*	
Surrogate: 2-Fluorobiphenyl	*89.5 %*	*47 - 111*		B5K0028	11/02/2015	*11/03/15 17:07*	
Surrogate: Nitrobenzene-d5	*90.5 %*	*20 - 144*		B5K0028	11/02/2015	*11/03/15 17:07*	
Surrogate: 4-Terphenyl-d14	*86.6 %*	*44 - 150*		B5K0028	11/02/2015	*11/03/15 17:07*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-26A-10272015

Lab ID: 1503733-16

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	20	10	B5K0053	11/03/2015	11/04/15 13:42	D6
Arsenic	**68**	10	10	B5K0053	11/03/2015	11/04/15 13:42	D6
Barium	**78**	10	10	B5K0053	11/03/2015	11/04/15 13:42	D6
Beryllium	ND	10	10	B5K0053	11/03/2015	11/04/15 13:41	D6
Cadmium	ND	10	10	B5K0053	11/03/2015	11/04/15 13:42	D6
Chromium	**27**	10	10	B5K0053	11/03/2015	11/04/15 13:42	D6
Cobalt	ND	10	10	B5K0053	11/03/2015	11/04/15 13:42	D6
Copper	**9500**	20	10	B5K0053	11/03/2015	11/04/15 13:42	D6
Lead	**6000**	10	10	B5K0053	11/03/2015	11/04/15 13:42	D6
Molybdenum	ND	10	10	B5K0053	11/03/2015	11/04/15 13:42	D6
Nickel	**370**	10	10	B5K0053	11/03/2015	11/04/15 13:42	D6
Selenium	ND	10	10	B5K0053	11/03/2015	11/04/15 13:42	D6
Silver	**1600**	10	10	B5K0053	11/03/2015	11/04/15 13:42	D6
Thallium	ND	10	10	B5K0053	11/03/2015	11/04/15 13:42	D6
Vanadium	**40**	10	10	B5K0053	11/03/2015	11/04/15 13:42	D6
Zinc	**1400**	10	10	B5K0053	11/03/2015	11/04/15 13:42	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0056	11/03/2015	11/04/15 11:09	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:34	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:34	
Acenaphthylene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:34	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:34	
Benzo(a)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:34	
Benzo(a)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:34	
Benzo(b)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:34	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:34	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:34	
Chrysene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:34	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-26A-10272015

Lab ID: 1503733-16

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:34	
Fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:34	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:34	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:34	
Naphthalene	**28**	15	1	B5K0028	11/02/2015	11/03/15 17:34	
Phenanthrene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:34	
Pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 17:34	
Surrogate: 1,2-Dichlorobenzene-d4	*64.3 %*	*39 - 99*		B5K0028	11/02/2015	*11/03/15 17:34*	
Surrogate: 2-Fluorobiphenyl	*73.1 %*	*47 - 111*		B5K0028	11/02/2015	*11/03/15 17:34*	
Surrogate: Nitrobenzene-d5	*71.4 %*	*20 - 144*		B5K0028	11/02/2015	*11/03/15 17:34*	
Surrogate: 4-Terphenyl-d14	*21.2 %*	*44 - 150*		B5K0028	11/02/2015	*11/03/15 17:34*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-22A-10272015

Lab ID: 1503733-17

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	20	10	B5K0053	11/03/2015	11/04/15 13:47	D6
Arsenic	ND	10	10	B5K0053	11/03/2015	11/04/15 13:47	D6
Barium	**120**	10	10	B5K0053	11/03/2015	11/04/15 13:46	D6
Beryllium	ND	10	10	B5K0053	11/03/2015	11/04/15 13:46	D6
Cadmium	ND	10	10	B5K0053	11/03/2015	11/04/15 13:47	D6
Chromium	**70**	10	10	B5K0053	11/03/2015	11/04/15 13:46	D6
Cobalt	ND	10	10	B5K0053	11/03/2015	11/04/15 13:47	D6
Copper	**45**	20	10	B5K0053	11/03/2015	11/04/15 13:46	D6
Lead	ND	10	10	B5K0053	11/03/2015	11/04/15 13:47	D6
Molybdenum	ND	10	10	B5K0053	11/03/2015	11/04/15 13:47	D6
Nickel	**22**	10	10	B5K0053	11/03/2015	11/04/15 13:47	D6
Selenium	ND	10	10	B5K0053	11/03/2015	11/04/15 13:47	D6
Silver	ND	10	10	B5K0053	11/03/2015	11/04/15 13:46	D6
Thallium	ND	10	10	B5K0053	11/03/2015	11/04/15 13:47	D6
Vanadium	**66**	10	10	B5K0053	11/03/2015	11/04/15 13:46	D6
Zinc	**150**	10	10	B5K0053	11/03/2015	11/04/15 13:47	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0056	11/03/2015	11/04/15 11:15	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**29**	15	1	B5K0028	11/02/2015	11/03/15 18:01	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:01	
Acenaphthylene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:01	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:01	
Benzo(a)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:01	
Benzo(a)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:01	
Benzo(b)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:01	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:01	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:01	
Chrysene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:01	

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Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-22A-10272015

Lab ID: 1503733-17

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:01	
Fluoranthene	**35**	15	1	B5K0028	11/02/2015	11/03/15 18:01	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:01	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:01	
Naphthalene	**72**	15	1	B5K0028	11/02/2015	11/03/15 18:01	
Phenanthrene	**61**	15	1	B5K0028	11/02/2015	11/03/15 18:01	
Pyrene	**20**	15	1	B5K0028	11/02/2015	11/03/15 18:01	
Surrogate: 1,2-Dichlorobenzene-d4	*77.8 %*	*39 - 99*		B5K0028	11/02/2015	*11/03/15 18:01*	
Surrogate: 2-Fluorobiphenyl	*101 %*	*47 - 111*		B5K0028	11/02/2015	*11/03/15 18:01*	
Surrogate: Nitrobenzene-d5	*90.9 %*	*20 - 144*		B5K0028	11/02/2015	*11/03/15 18:01*	
Surrogate: 4-Terphenyl-d14	*92.9 %*	*44 - 150*		B5K0028	11/02/2015	*11/03/15 18:01*	

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Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-20A-10272015

Lab ID: 1503733-18

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**25**	20	10	B5K0053	11/03/2015	11/04/15 13:50	D6
Arsenic	ND	10	10	B5K0053	11/03/2015	11/04/15 13:50	D6
Barium	**190**	10	10	B5K0053	11/03/2015	11/04/15 13:50	D6
Beryllium	ND	10	10	B5K0053	11/03/2015	11/04/15 13:49	D6
Cadmium	ND	10	10	B5K0053	11/03/2015	11/04/15 13:50	D6
Chromium	**81**	10	10	B5K0053	11/03/2015	11/04/15 13:50	D6
Cobalt	**260**	10	10	B5K0053	11/03/2015	11/04/15 13:50	D6
Copper	**720**	20	10	B5K0053	11/03/2015	11/04/15 13:50	D6
Lead	**220**	10	10	B5K0053	11/03/2015	11/04/15 13:50	D6
Molybdenum	ND	10	10	B5K0053	11/03/2015	11/04/15 13:50	D6
Nickel	**130**	10	10	B5K0053	11/03/2015	11/04/15 13:50	D6
Selenium	ND	10	10	B5K0053	11/03/2015	11/04/15 13:50	D6
Silver	ND	10	10	B5K0053	11/03/2015	11/04/15 13:50	D6
Thallium	ND	10	10	B5K0053	11/03/2015	11/04/15 13:50	D6
Vanadium	**49**	10	10	B5K0053	11/03/2015	11/04/15 13:50	D6
Zinc	**3200**	10	10	B5K0053	11/03/2015	11/04/15 13:50	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0056	11/03/2015	11/04/15 11:17	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:28	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:28	
Acenaphthylene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:28	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:28	
Benzo(a)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:28	
Benzo(a)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:28	
Benzo(b)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:28	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:28	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:28	
Chrysene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:28	

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Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-20A-10272015

Lab ID: 1503733-18

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:28	
Fluoranthene	**15**	15	1	B5K0028	11/02/2015	11/03/15 18:28	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:28	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 18:28	
Naphthalene	**35**	15	1	B5K0028	11/02/2015	11/03/15 18:28	
Phenanthrene	**31**	15	1	B5K0028	11/02/2015	11/03/15 18:28	
Pyrene	**15**	15	1	B5K0028	11/02/2015	11/03/15 18:28	
Surrogate: 1,2-Dichlorobenzene-d4	*75.1 %*	*39 - 99*		B5K0028	11/02/2015	*11/03/15 18:28*	
Surrogate: 2-Fluorobiphenyl	*87.2 %*	*47 - 111*		B5K0028	11/02/2015	*11/03/15 18:28*	
Surrogate: Nitrobenzene-d5	*89.5 %*	*20 - 144*		B5K0028	11/02/2015	*11/03/15 18:28*	
Surrogate: 4-Terphenyl-d14	*88.5 %*	*44 - 150*		B5K0028	11/02/2015	*11/03/15 18:28*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-54A-10272015
Lab ID: 1503733-19

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	20	10	B5K0053	11/03/2015	11/04/15 13:53	D6
Arsenic	**12**	10	10	B5K0053	11/03/2015	11/04/15 13:53	D6
Barium	**140**	10	10	B5K0053	11/03/2015	11/04/15 13:53	D6
Beryllium	ND	10	10	B5K0053	11/03/2015	11/04/15 13:52	D6
Cadmium	ND	10	10	B5K0053	11/03/2015	11/04/15 13:53	D6
Chromium	**43**	10	10	B5K0053	11/03/2015	11/04/15 13:53	D6
Cobalt	ND	10	10	B5K0053	11/03/2015	11/04/15 13:53	D6
Copper	**2700**	20	10	B5K0053	11/03/2015	11/04/15 13:53	D6
Lead	**88**	10	10	B5K0053	11/03/2015	11/04/15 13:53	D6
Molybdenum	ND	10	10	B5K0053	11/03/2015	11/04/15 13:53	D6
Nickel	**23**	10	10	B5K0053	11/03/2015	11/04/15 13:53	D6
Selenium	ND	10	10	B5K0053	11/03/2015	11/04/15 13:53	D6
Silver	ND	10	10	B5K0053	11/03/2015	11/04/15 13:53	D6
Thallium	ND	10	10	B5K0053	11/03/2015	11/04/15 13:53	D6
Vanadium	**52**	10	10	B5K0053	11/03/2015	11/04/15 13:53	D6
Zinc	**300**	10	10	B5K0053	11/03/2015	11/04/15 13:53	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0056	11/03/2015	11/04/15 11:19	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**23**	15	1	B5K0028	11/02/2015	11/05/15 10:59	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/05/15 10:59	
Acenaphthylene	ND	15	1	B5K0028	11/02/2015	11/05/15 10:59	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/05/15 10:59	
Benzo(a)anthracene	ND	15	1	B5K0028	11/02/2015	11/05/15 10:59	
Benzo(a)pyrene	ND	15	1	B5K0028	11/02/2015	11/05/15 10:59	
Benzo(b)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/05/15 10:59	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/05/15 10:59	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/05/15 10:59	
Chrysene	ND	15	1	B5K0028	11/02/2015	11/05/15 10:59	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-54A-10272015

Lab ID: 1503733-19

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/05/15 10:59	
Fluoranthene	ND	15	1	B5K0028	11/02/2015	11/05/15 10:59	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/05/15 10:59	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/05/15 10:59	
Naphthalene	**89**	15	1	B5K0028	11/02/2015	11/05/15 10:59	
Phenanthrene	**17**	15	1	B5K0028	11/02/2015	11/05/15 10:59	
Pyrene	ND	15	1	B5K0028	11/02/2015	11/05/15 10:59	
Surrogate: 1,2-Dichlorobenzene-d4	*80.0 %*	*39 - 99*		B5K0028	11/02/2015	*11/05/15 10:59*	
Surrogate: 2-Fluorobiphenyl	*84.6 %*	*47 - 111*		B5K0028	11/02/2015	*11/05/15 10:59*	
Surrogate: Nitrobenzene-d5	*56.1 %*	*20 - 144*		B5K0028	11/02/2015	*11/05/15 10:59*	
Surrogate: 4-Terphenyl-d14	*59.0 %*	*44 - 150*		B5K0028	11/02/2015	*11/05/15 10:59*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-56A-10272015

Lab ID: 1503733-20

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0053	11/03/2015	11/04/15 13:57	D6
Arsenic	**29**	20	20	B5K0053	11/03/2015	11/04/15 13:57	D6
Barium	**240**	20	20	B5K0053	11/03/2015	11/04/15 13:57	D6
Beryllium	ND	20	20	B5K0053	11/03/2015	11/04/15 13:56	D6
Cadmium	ND	20	20	B5K0053	11/03/2015	11/04/15 13:57	D6
Chromium	**38**	20	20	B5K0053	11/03/2015	11/04/15 13:57	D6
Cobalt	ND	20	20	B5K0053	11/03/2015	11/04/15 13:57	D6
Copper	**42000**	400	200	B5K0053	11/03/2015	11/04/15 15:42	D6
Lead	**52**	20	20	B5K0053	11/03/2015	11/04/15 13:57	D6
Molybdenum	ND	20	20	B5K0053	11/03/2015	11/04/15 13:57	D6
Nickel	**75**	20	20	B5K0053	11/03/2015	11/04/15 13:57	D6
Selenium	ND	20	20	B5K0053	11/03/2015	11/04/15 13:57	D6
Silver	**97**	20	20	B5K0053	11/03/2015	11/04/15 13:57	D6
Thallium	ND	20	20	B5K0053	11/03/2015	11/04/15 13:57	D6
Vanadium	**33**	20	20	B5K0053	11/03/2015	11/04/15 13:57	D6
Zinc	**140000**	200	200	B5K0053	11/03/2015	11/04/15 15:42	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0056	11/03/2015	11/04/15 11:21	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**18**	15	1	B5K0028	11/02/2015	11/03/15 19:24	
Acenaphthene	ND	15	1	B5K0028	11/02/2015	11/03/15 19:24	
Acenaphthylene	ND	15	1	B5K0028	11/02/2015	11/03/15 19:24	
Anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 19:24	
Benzo(a)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 19:24	
Benzo(a)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 19:24	
Benzo(b)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 19:24	
Benzo(g,h,i)perylene	ND	15	1	B5K0028	11/02/2015	11/03/15 19:24	
Benzo(k)fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 19:24	
Chrysene	ND	15	1	B5K0028	11/02/2015	11/03/15 19:24	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-56A-10272015

Lab ID: 1503733-20

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0028	11/02/2015	11/03/15 19:24	
Fluoranthene	ND	15	1	B5K0028	11/02/2015	11/03/15 19:24	
Fluorene	ND	15	1	B5K0028	11/02/2015	11/03/15 19:24	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 19:24	
Naphthalene	**70**	15	1	B5K0028	11/02/2015	11/03/15 19:24	
Phenanthrene	ND	15	1	B5K0028	11/02/2015	11/03/15 19:24	
Pyrene	ND	15	1	B5K0028	11/02/2015	11/03/15 19:24	
Surrogate: 1,2-Dichlorobenzene-d4	*75.3 %*	*39 - 99*		B5K0028	11/02/2015	*11/03/15 19:24*	
Surrogate: 2-Fluorobiphenyl	*79.0 %*	*47 - 111*		B5K0028	11/02/2015	*11/03/15 19:24*	
Surrogate: Nitrobenzene-d5	*86.5 %*	*20 - 144*		B5K0028	11/02/2015	*11/03/15 19:24*	
Surrogate: 4-Terphenyl-d14	*26.0 %*	*44 - 150*		B5K0028	11/02/2015	*11/03/15 19:24*	

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Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-15A-10272015

Lab ID: 1503733-21

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	20	10	B5K0053	11/03/2015	11/04/15 14:02	D6
Arsenic	**180**	10	10	B5K0053	11/03/2015	11/04/15 14:02	D6
Barium	**560**	10	10	B5K0053	11/03/2015	11/04/15 14:01	D6
Beryllium	ND	10	10	B5K0053	11/03/2015	11/04/15 14:01	D6
Cadmium	ND	10	10	B5K0053	11/03/2015	11/04/15 14:02	D6
Chromium	**30**	10	10	B5K0053	11/03/2015	11/04/15 14:01	D6
Cobalt	ND	10	10	B5K0053	11/03/2015	11/04/15 14:02	D6
Copper	**630**	20	10	B5K0053	11/03/2015	11/04/15 14:01	D6
Lead	**69**	10	10	B5K0053	11/03/2015	11/04/15 14:02	D6
Molybdenum	**22**	10	10	B5K0053	11/03/2015	11/04/15 14:02	D6
Nickel	**23**	10	10	B5K0053	11/03/2015	11/04/15 14:02	D6
Selenium	ND	10	10	B5K0053	11/03/2015	11/04/15 14:02	D6
Silver	ND	10	10	B5K0053	11/03/2015	11/04/15 14:01	D6
Thallium	ND	10	10	B5K0053	11/03/2015	11/04/15 14:02	D6
Vanadium	**57**	10	10	B5K0053	11/03/2015	11/04/15 14:01	D6
Zinc	**420**	10	10	B5K0053	11/03/2015	11/04/15 14:01	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0056	11/03/2015	11/04/15 11:23	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**16**	15	1	B5K0036	11/02/2015	11/03/15 10:42	
Acenaphthene	ND	15	1	B5K0036	11/02/2015	11/03/15 10:42	
Acenaphthylene	ND	15	1	B5K0036	11/02/2015	11/03/15 10:42	
Anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 10:42	
Benzo(a)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 10:42	
Benzo(a)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 10:42	
Benzo(b)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 10:42	
Benzo(g,h,i)perylene	ND	15	1	B5K0036	11/02/2015	11/03/15 10:42	
Benzo(k)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 10:42	
Chrysene	ND	15	1	B5K0036	11/02/2015	11/03/15 10:42	

Certificate of Analysis

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10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-15A-10272015

Lab ID: 1503733-21

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 10:42	
Fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 10:42	
Fluorene	ND	15	1	B5K0036	11/02/2015	11/03/15 10:42	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 10:42	
Naphthalene	**35**	15	1	B5K0036	11/02/2015	11/03/15 10:42	
Phenanthrene	ND	15	1	B5K0036	11/02/2015	11/03/15 10:42	
Pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 10:42	
Surrogate: 1,2-Dichlorobenzene-d4	*70.3 %*	*39 - 99*		B5K0036	11/02/2015	*11/03/15 10:42*	
Surrogate: 2-Fluorobiphenyl	*73.6 %*	*47 - 111*		B5K0036	11/02/2015	*11/03/15 10:42*	
Surrogate: Nitrobenzene-d5	*74.3 %*	*20 - 144*		B5K0036	11/02/2015	*11/03/15 10:42*	
Surrogate: 4-Terphenyl-d14	*46.2 %*	*44 - 150*		B5K0036	11/02/2015	*11/03/15 10:42*	

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10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-29A-10272015

Lab ID: 1503733-22

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**65**	20	10	B5K0053	11/03/2015	11/04/15 14:06	D6
Arsenic	**13**	10	10	B5K0053	11/03/2015	11/04/15 14:06	D6
Barium	**380**	10	10	B5K0053	11/03/2015	11/04/15 14:05	D6
Beryllium	ND	10	10	B5K0053	11/03/2015	11/04/15 14:05	D6
Cadmium	ND	10	10	B5K0053	11/03/2015	11/04/15 14:06	D6
Chromium	**190**	10	10	B5K0053	11/03/2015	11/04/15 14:05	D6
Cobalt	ND	10	10	B5K0053	11/03/2015	11/04/15 14:06	D6
Copper	**3000**	20	10	B5K0053	11/03/2015	11/04/15 14:05	D6
Lead	**1400**	10	10	B5K0053	11/03/2015	11/04/15 14:05	D6
Molybdenum	ND	10	10	B5K0053	11/03/2015	11/04/15 14:06	D6
Nickel	**83**	10	10	B5K0053	11/03/2015	11/04/15 14:06	D6
Selenium	ND	10	10	B5K0053	11/03/2015	11/04/15 14:06	D6
Silver	**210**	10	10	B5K0053	11/03/2015	11/04/15 14:05	D6
Thallium	ND	10	10	B5K0053	11/03/2015	11/04/15 14:06	D6
Vanadium	**19**	10	10	B5K0053	11/03/2015	11/04/15 14:05	D6
Zinc	**5400**	10	10	B5K0053	11/03/2015	11/04/15 14:05	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0056	11/03/2015	11/04/15 11:25	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**26**	15	1	B5K0036	11/02/2015	11/03/15 11:09	
Acenaphthene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:09	
Acenaphthylene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:09	
Anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:09	
Benzo(a)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:09	
Benzo(a)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:09	
Benzo(b)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:09	
Benzo(g,h,i)perylene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:09	
Benzo(k)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:09	
Chrysene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:09	

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Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-29A-10272015

Lab ID: 1503733-22

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:09	
Fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:09	
Fluorene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:09	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:09	
Naphthalene	**77**	15	1	B5K0036	11/02/2015	11/03/15 11:09	
Phenanthrene	**48**	15	1	B5K0036	11/02/2015	11/03/15 11:09	
Pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:09	
Surrogate: 1,2-Dichlorobenzene-d4	*74.6 %*	*39 - 99*		B5K0036	11/02/2015	*11/03/15 11:09*	
Surrogate: 2-Fluorobiphenyl	*80.8 %*	*47 - 111*		B5K0036	11/02/2015	*11/03/15 11:09*	
Surrogate: Nitrobenzene-d5	*79.0 %*	*20 - 144*		B5K0036	11/02/2015	*11/03/15 11:09*	
Surrogate: 4-Terphenyl-d14	*59.8 %*	*44 - 150*		B5K0036	11/02/2015	*11/03/15 11:09*	

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Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-05A-10282015

Lab ID: 1503733-23

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**45**	20	10	B5K0053	11/03/2015	11/04/15 14:09	D6
Arsenic	ND	10	10	B5K0053	11/03/2015	11/04/15 14:09	D6
Barium	**610**	10	10	B5K0053	11/03/2015	11/04/15 14:09	D6
Beryllium	ND	10	10	B5K0053	11/03/2015	11/04/15 14:08	D6
Cadmium	ND	10	10	B5K0053	11/03/2015	11/04/15 14:09	D6
Chromium	**55**	10	10	B5K0053	11/03/2015	11/04/15 14:09	D6
Cobalt	**14**	10	10	B5K0053	11/03/2015	11/04/15 14:09	D6
Copper	**4300**	20	10	B5K0053	11/03/2015	11/04/15 14:09	D6
Lead	**22**	10	10	B5K0053	11/03/2015	11/04/15 14:09	D6
Molybdenum	ND	10	10	B5K0053	11/03/2015	11/04/15 14:09	D6
Nickel	**140**	10	10	B5K0053	11/03/2015	11/04/15 14:09	D6
Selenium	ND	10	10	B5K0053	11/03/2015	11/04/15 14:09	D6
Silver	ND	10	10	B5K0053	11/03/2015	11/04/15 14:09	D6
Thallium	ND	10	10	B5K0053	11/03/2015	11/04/15 14:09	D6
Vanadium	**40**	10	10	B5K0053	11/03/2015	11/04/15 14:09	D6
Zinc	**100000**	100	100	B5K0053	11/03/2015	11/04/15 15:44	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0056	11/03/2015	11/04/15 11:27	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**63**	15	1	B5K0036	11/02/2015	11/03/15 11:37	
Acenaphthene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:37	
Acenaphthylene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:37	
Anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:37	
Benzo(a)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:37	
Benzo(a)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:37	
Benzo(b)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:37	
Benzo(g,h,i)perylene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:37	
Benzo(k)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:37	
Chrysene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:37	

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San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-05A-10282015

Lab ID: 1503733-23

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:37	
Fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:37	
Fluorene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:37	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:37	
Naphthalene	**110**	15	1	B5K0036	11/02/2015	11/03/15 11:37	
Phenanthrene	**44**	15	1	B5K0036	11/02/2015	11/03/15 11:37	
Pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 11:37	
Surrogate: 1,2-Dichlorobenzene-d4	*72.4 %*	*39 - 99*		B5K0036	11/02/2015	*11/03/15 11:37*	
Surrogate: 2-Fluorobiphenyl	*78.3 %*	*47 - 111*		B5K0036	11/02/2015	*11/03/15 11:37*	
Surrogate: Nitrobenzene-d5	*77.5 %*	*20 - 144*		B5K0036	11/02/2015	*11/03/15 11:37*	
Surrogate: 4-Terphenyl-d14	*63.0 %*	*44 - 150*		B5K0036	11/02/2015	*11/03/15 11:37*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-06A-10282015

Lab ID: 1503733-24

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	20	10	B5K0053	11/03/2015	11/04/15 15:25	D6
Arsenic	**13**	10	10	B5K0053	11/03/2015	11/04/15 15:25	D6
Barium	**390**	10	10	B5K0053	11/03/2015	11/04/15 15:25	D6
Beryllium	ND	10	10	B5K0053	11/03/2015	11/04/15 15:25	D6
Cadmium	ND	10	10	B5K0053	11/03/2015	11/04/15 15:25	D6
Chromium	**140**	10	10	B5K0053	11/03/2015	11/04/15 15:25	D6
Cobalt	**10**	10	10	B5K0053	11/03/2015	11/04/15 15:25	D6
Copper	**1600**	20	10	B5K0053	11/03/2015	11/04/15 15:25	D6
Lead	**820**	10	10	B5K0053	11/03/2015	11/04/15 15:25	D6
Molybdenum	ND	10	10	B5K0053	11/03/2015	11/04/15 15:25	D6
Nickel	**60**	10	10	B5K0053	11/03/2015	11/04/15 15:25	D6
Selenium	ND	10	10	B5K0053	11/03/2015	11/04/15 15:25	D6
Silver	ND	10	10	B5K0053	11/03/2015	11/04/15 15:25	D6
Thallium	ND	10	10	B5K0053	11/03/2015	11/04/15 15:25	D6
Vanadium	**80**	10	10	B5K0053	11/03/2015	11/04/15 15:25	D6
Zinc	**1300**	10	10	B5K0053	11/03/2015	11/04/15 15:25	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.18**	0.10	1	B5K0056	11/03/2015	11/04/15 11:29	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:04	
Acenaphthene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:04	
Acenaphthylene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:04	
Anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:04	
Benzo(a)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:04	
Benzo(a)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:04	
Benzo(b)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:04	
Benzo(g,h,i)perylene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:04	
Benzo(k)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:04	
Chrysene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:04	

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Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-06A-10282015

Lab ID: 1503733-24

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:04	
Fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:04	
Fluorene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:04	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:04	
Naphthalene	**37**	15	1	B5K0036	11/02/2015	11/03/15 12:04	
Phenanthrene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:04	
Pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:04	
Surrogate: 1,2-Dichlorobenzene-d4	*81.5 %*	*39 - 99*		B5K0036	11/02/2015	*11/03/15 12:04*	
Surrogate: 2-Fluorobiphenyl	*91.1 %*	*47 - 111*		B5K0036	11/02/2015	*11/03/15 12:04*	
Surrogate: Nitrobenzene-d5	*90.0 %*	*20 - 144*		B5K0036	11/02/2015	*11/03/15 12:04*	
Surrogate: 4-Terphenyl-d14	*88.1 %*	*44 - 150*		B5K0036	11/02/2015	*11/03/15 12:04*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-07A-10282015

Lab ID: 1503733-25

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**230**	40	20	B5K0053	11/03/2015	11/04/15 15:28	D6
Arsenic	**23**	20	20	B5K0053	11/03/2015	11/04/15 15:28	D6
Barium	**680**	20	20	B5K0053	11/03/2015	11/04/15 15:28	D6
Beryllium	ND	20	20	B5K0053	11/03/2015	11/04/15 15:28	D6
Cadmium	**100**	20	20	B5K0053	11/03/2015	11/04/15 15:28	D6
Chromium	**190**	20	20	B5K0053	11/03/2015	11/04/15 15:28	D6
Cobalt	**48**	20	20	B5K0053	11/03/2015	11/04/15 15:28	D6
Copper	**29000**	100	50	B5K0053	11/03/2015	11/04/15 15:46	D6
Lead	**1100**	20	20	B5K0053	11/03/2015	11/04/15 15:28	D6
Molybdenum	ND	20	20	B5K0053	11/03/2015	11/04/15 15:28	D6
Nickel	**210**	20	20	B5K0053	11/03/2015	11/04/15 15:28	D6
Selenium	ND	20	20	B5K0053	11/03/2015	11/04/15 15:28	D6
Silver	**47**	20	20	B5K0053	11/03/2015	11/04/15 15:28	D6
Thallium	ND	20	20	B5K0053	11/03/2015	11/04/15 15:28	D6
Vanadium	ND	20	20	B5K0053	11/03/2015	11/04/15 15:28	D6
Zinc	**7100**	20	20	B5K0053	11/03/2015	11/04/15 15:28	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0056	11/03/2015	11/04/15 11:31	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**17**	15	1	B5K0036	11/02/2015	11/03/15 12:31	
Acenaphthene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:31	
Acenaphthylene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:31	
Anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:31	
Benzo(a)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:31	
Benzo(a)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:31	
Benzo(b)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:31	
Benzo(g,h,i)perylene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:31	
Benzo(k)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:31	
Chrysene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:31	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-07A-10282015

Lab ID: 1503733-25

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:31	
Fluoranthene	**17**	15	1	B5K0036	11/02/2015	11/03/15 12:31	
Fluorene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:31	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:31	
Naphthalene	**77**	15	1	B5K0036	11/02/2015	11/03/15 12:31	
Phenanthrene	**25**	15	1	B5K0036	11/02/2015	11/03/15 12:31	
Pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:31	
Surrogate: 1,2-Dichlorobenzene-d4	*78.5 %*	*39 - 99*		B5K0036	11/02/2015	*11/03/15 12:31*	
Surrogate: 2-Fluorobiphenyl	*83.0 %*	*47 - 111*		B5K0036	11/02/2015	*11/03/15 12:31*	
Surrogate: Nitrobenzene-d5	*81.5 %*	*20 - 144*		B5K0036	11/02/2015	*11/03/15 12:31*	
Surrogate: 4-Terphenyl-d14	*77.1 %*	*44 - 150*		B5K0036	11/02/2015	*11/03/15 12:31*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-19A-10282015

Lab ID: 1503733-26

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0053	11/03/2015	11/04/15 15:30	D6
Arsenic	ND	20	20	B5K0053	11/03/2015	11/04/15 15:30	D6
Barium	**85**	20	20	B5K0053	11/03/2015	11/04/15 15:30	D6
Beryllium	ND	20	20	B5K0053	11/03/2015	11/04/15 15:30	D6
Cadmium	ND	20	20	B5K0053	11/03/2015	11/04/15 15:30	D6
Chromium	ND	20	20	B5K0053	11/03/2015	11/04/15 15:30	D6
Cobalt	ND	20	20	B5K0053	11/03/2015	11/04/15 15:30	D6
Copper	**1100**	40	20	B5K0053	11/03/2015	11/04/15 15:30	D6
Lead	**170**	20	20	B5K0053	11/03/2015	11/04/15 15:30	D6
Molybdenum	ND	20	20	B5K0053	11/03/2015	11/04/15 15:30	D6
Nickel	**63**	20	20	B5K0053	11/03/2015	11/04/15 15:30	D6
Selenium	ND	20	20	B5K0053	11/03/2015	11/04/15 15:30	D6
Silver	ND	20	20	B5K0053	11/03/2015	11/04/15 15:30	D6
Thallium	ND	20	20	B5K0053	11/03/2015	11/04/15 15:30	D6
Vanadium	**48**	20	20	B5K0053	11/03/2015	11/04/15 15:30	D6
Zinc	**1300**	20	20	B5K0053	11/03/2015	11/04/15 15:30	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0056	11/03/2015	11/04/15 11:33	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**22**	15	1	B5K0036	11/02/2015	11/03/15 12:58	
Acenaphthene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:58	
Acenaphthylene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:58	
Anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:58	
Benzo(a)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:58	
Benzo(a)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:58	
Benzo(b)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:58	
Benzo(g,h,i)perylene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:58	
Benzo(k)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:58	
Chrysene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:58	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-19A-10282015

Lab ID: 1503733-26

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:58	
Fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:58	
Fluorene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:58	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:58	
Naphthalene	**68**	15	1	B5K0036	11/02/2015	11/03/15 12:58	
Phenanthrene	**25**	15	1	B5K0036	11/02/2015	11/03/15 12:58	
Pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 12:58	
Surrogate: 1,2-Dichlorobenzene-d4	*61.1 %*	*39 - 99*		B5K0036	11/02/2015	*11/03/15 12:58*	
Surrogate: 2-Fluorobiphenyl	*75.2 %*	*47 - 111*		B5K0036	11/02/2015	*11/03/15 12:58*	
Surrogate: Nitrobenzene-d5	*69.9 %*	*20 - 144*		B5K0036	11/02/2015	*11/03/15 12:58*	
Surrogate: 4-Terphenyl-d14	*73.5 %*	*44 - 150*		B5K0036	11/02/2015	*11/03/15 12:58*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-19C-10282015

Lab ID: 1503733-27

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	40	20	B5K0053	11/03/2015	11/04/15 15:33	D6
Arsenic	ND	20	20	B5K0053	11/03/2015	11/04/15 15:33	D6
Barium	**190**	20	20	B5K0053	11/03/2015	11/04/15 15:33	D6
Beryllium	ND	20	20	B5K0053	11/03/2015	11/04/15 15:33	D6
Cadmium	ND	20	20	B5K0053	11/03/2015	11/04/15 15:33	D6
Chromium	**21**	20	20	B5K0053	11/03/2015	11/04/15 15:33	D6
Cobalt	ND	20	20	B5K0053	11/03/2015	11/04/15 15:33	D6
Copper	**750**	40	20	B5K0053	11/03/2015	11/04/15 15:33	D6
Lead	**47**	20	20	B5K0053	11/03/2015	11/04/15 15:33	D6
Molybdenum	ND	20	20	B5K0053	11/03/2015	11/04/15 15:33	D6
Nickel	ND	20	20	B5K0053	11/03/2015	11/04/15 15:33	D6
Selenium	ND	20	20	B5K0053	11/03/2015	11/04/15 15:33	D6
Silver	ND	20	20	B5K0053	11/03/2015	11/04/15 15:33	D6
Thallium	ND	20	20	B5K0053	11/03/2015	11/04/15 15:33	D6
Vanadium	**37**	20	20	B5K0053	11/03/2015	11/04/15 15:33	D6
Zinc	**1500**	20	20	B5K0053	11/03/2015	11/04/15 15:33	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0056	11/03/2015	11/04/15 11:39	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:26	
Acenaphthene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:26	
Acenaphthylene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:26	
Anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:26	
Benzo(a)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:26	
Benzo(a)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:26	
Benzo(b)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:26	
Benzo(g,h,i)perylene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:26	
Benzo(k)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:26	
Chrysene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:26	

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Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-19C-10282015

Lab ID: 1503733-27

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:26	
Fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:26	
Fluorene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:26	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:26	
Naphthalene	**160**	15	1	B5K0036	11/02/2015	11/03/15 13:26	
Phenanthrene	**23**	15	1	B5K0036	11/02/2015	11/03/15 13:26	
Pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:26	
Surrogate: 1,2-Dichlorobenzene-d4	*85.1 %*	*39 - 99*		B5K0036	11/02/2015	*11/03/15 13:26*	
Surrogate: 2-Fluorobiphenyl	*89.3 %*	*47 - 111*		B5K0036	11/02/2015	*11/03/15 13:26*	
Surrogate: Nitrobenzene-d5	*95.1 %*	*20 - 144*		B5K0036	11/02/2015	*11/03/15 13:26*	
Surrogate: 4-Terphenyl-d14	*81.4 %*	*44 - 150*		B5K0036	11/02/2015	*11/03/15 13:26*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-25A-10282015

Lab ID: 1503733-28

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5K0054	11/03/2015	11/04/15 10:21	
Arsenic	**20**	1.0	1	B5K0054	11/03/2015	11/04/15 10:21	
Barium	**52**	1.0	1	B5K0054	11/03/2015	11/04/15 10:20	
Beryllium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:20	
Cadmium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:21	
Chromium	**18**	1.0	1	B5K0054	11/03/2015	11/04/15 10:20	
Cobalt	**2.0**	1.0	1	B5K0054	11/03/2015	11/04/15 10:21	
Copper	**270**	2.0	1	B5K0054	11/03/2015	11/04/15 10:20	
Lead	**8.4**	1.0	1	B5K0054	11/03/2015	11/04/15 10:21	
Molybdenum	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:21	
Nickel	**14**	1.0	1	B5K0054	11/03/2015	11/04/15 10:21	
Selenium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:21	
Silver	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:20	
Thallium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:21	
Vanadium	**23**	1.0	1	B5K0054	11/03/2015	11/04/15 10:20	
Zinc	**310**	1.0	1	B5K0054	11/03/2015	11/04/15 10:20	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0058	11/03/2015	11/04/15 09:01	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:53	
Acenaphthene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:53	
Acenaphthylene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:53	
Anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:53	
Benzo(a)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:53	
Benzo(a)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:53	
Benzo(b)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:53	
Benzo(g,h,i)perylene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:53	
Benzo(k)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:53	
Chrysene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:53	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-25A-10282015

Lab ID: 1503733-28

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:53	
Fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:53	
Fluorene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:53	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:53	
Naphthalene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:53	
Phenanthrene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:53	
Pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 13:53	
Surrogate: 1,2-Dichlorobenzene-d4	*85.6 %*	*39 - 99*		B5K0036	11/02/2015	*11/03/15 13:53*	
Surrogate: 2-Fluorobiphenyl	*92.8 %*	*47 - 111*		B5K0036	11/02/2015	*11/03/15 13:53*	
Surrogate: Nitrobenzene-d5	*95.8 %*	*20 - 144*		B5K0036	11/02/2015	*11/03/15 13:53*	
Surrogate: 4-Terphenyl-d14	*90.6 %*	*44 - 150*		B5K0036	11/02/2015	*11/03/15 13:53*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-24A-10282015

Lab ID: 1503733-29

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**4.3**	2.0	1	B5K0054	11/03/2015	11/04/15 10:35	
Arsenic	**33**	1.0	1	B5K0054	11/03/2015	11/04/15 10:35	
Barium	**88**	1.0	1	B5K0054	11/03/2015	11/04/15 10:34	
Beryllium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:34	
Cadmium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:35	
Chromium	**10**	1.0	1	B5K0054	11/03/2015	11/04/15 10:34	
Cobalt	**3.4**	1.0	1	B5K0054	11/03/2015	11/04/15 10:35	
Copper	**2100**	10	5	B5K0054	11/03/2015	11/04/15 11:41	D6
Lead	**220**	1.0	1	B5K0054	11/03/2015	11/04/15 10:35	
Molybdenum	**14**	1.0	1	B5K0054	11/03/2015	11/04/15 10:35	
Nickel	**8.1**	1.0	1	B5K0054	11/03/2015	11/04/15 10:35	
Selenium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:35	
Silver	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:34	
Thallium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:35	
Vanadium	**22**	1.0	1	B5K0054	11/03/2015	11/04/15 10:34	
Zinc	**1600**	5.0	5	B5K0054	11/03/2015	11/04/15 11:41	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0058	11/03/2015	11/04/15 09:09	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:21	
Acenaphthene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:21	
Acenaphthylene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:21	
Anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:21	
Benzo(a)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:21	
Benzo(a)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:21	
Benzo(b)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:21	
Benzo(g,h,i)perylene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:21	
Benzo(k)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:21	
Chrysene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:21	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-24A-10282015

Lab ID: 1503733-29

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:21	
Fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:21	
Fluorene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:21	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:21	
Naphthalene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:21	
Phenanthrene	**18**	15	1	B5K0036	11/02/2015	11/03/15 14:21	
Pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:21	
Surrogate: 1,2-Dichlorobenzene-d4	*75.6 %*	*39 - 99*		B5K0036	11/02/2015	*11/03/15 14:21*	
Surrogate: 2-Fluorobiphenyl	*82.2 %*	*47 - 111*		B5K0036	11/02/2015	*11/03/15 14:21*	
Surrogate: Nitrobenzene-d5	*83.9 %*	*20 - 144*		B5K0036	11/02/2015	*11/03/15 14:21*	
Surrogate: 4-Terphenyl-d14	*82.9 %*	*44 - 150*		B5K0036	11/02/2015	*11/03/15 14:21*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-23A-10282015

Lab ID: 1503733-30

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5K0054	11/03/2015	11/04/15 10:46	
Arsenic	**8.7**	1.0	1	B5K0054	11/03/2015	11/04/15 10:46	
Barium	**69**	1.0	1	B5K0054	11/03/2015	11/04/15 10:46	
Beryllium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:45	
Cadmium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:46	
Chromium	**11**	1.0	1	B5K0054	11/03/2015	11/04/15 10:46	
Cobalt	**8.7**	1.0	1	B5K0054	11/03/2015	11/04/15 10:46	
Copper	**620**	2.0	1	B5K0054	11/03/2015	11/04/15 10:46	
Lead	**15**	1.0	1	B5K0054	11/03/2015	11/04/15 10:46	
Molybdenum	**2.4**	1.0	1	B5K0054	11/03/2015	11/04/15 10:46	
Nickel	**33**	1.0	1	B5K0054	11/03/2015	11/04/15 10:46	
Selenium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:46	
Silver	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:46	
Thallium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:46	
Vanadium	**39**	1.0	1	B5K0054	11/03/2015	11/04/15 10:46	
Zinc	**720**	1.0	1	B5K0054	11/03/2015	11/04/15 10:46	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0058	11/03/2015	11/04/15 09:15	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**52**	15	1	B5K0036	11/02/2015	11/03/15 14:48	
Acenaphthene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:48	
Acenaphthylene	**34**	15	1	B5K0036	11/02/2015	11/03/15 14:48	
Anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:48	
Benzo(a)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:48	
Benzo(a)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:48	
Benzo(b)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:48	
Benzo(g,h,i)perylene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:48	
Benzo(k)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:48	
Chrysene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:48	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-23A-10282015

Lab ID: 1503733-30

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:48	
Fluoranthene	**25**	15	1	B5K0036	11/02/2015	11/03/15 14:48	
Fluorene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:48	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 14:48	
Naphthalene	**150**	15	1	B5K0036	11/02/2015	11/03/15 14:48	
Phenanthrene	**39**	15	1	B5K0036	11/02/2015	11/03/15 14:48	
Pyrene	**28**	15	1	B5K0036	11/02/2015	11/03/15 14:48	
Surrogate: 1,2-Dichlorobenzene-d4	*85.0 %*	*39 - 99*		B5K0036	11/02/2015	*11/03/15 14:48*	
Surrogate: 2-Fluorobiphenyl	*87.4 %*	*47 - 111*		B5K0036	11/02/2015	*11/03/15 14:48*	
Surrogate: Nitrobenzene-d5	*92.4 %*	*20 - 144*		B5K0036	11/02/2015	*11/03/15 14:48*	
Surrogate: 4-Terphenyl-d14	*65.6 %*	*44 - 150*		B5K0036	11/02/2015	*11/03/15 14:48*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-57A-10282015

Lab ID: 1503733-31

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**8.3**	2.0	1	B5K0054	11/03/2015	11/04/15 10:51	
Arsenic	**40**	1.0	1	B5K0054	11/03/2015	11/04/15 10:51	
Barium	**400**	1.0	1	B5K0054	11/03/2015	11/04/15 10:51	
Beryllium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:50	
Cadmium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:51	
Chromium	**33**	1.0	1	B5K0054	11/03/2015	11/04/15 10:51	
Cobalt	**5.4**	1.0	1	B5K0054	11/03/2015	11/04/15 10:51	
Copper	**840**	2.0	1	B5K0054	11/03/2015	11/04/15 10:51	
Lead	**69**	1.0	1	B5K0054	11/03/2015	11/04/15 10:51	
Molybdenum	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:51	
Nickel	**31**	1.0	1	B5K0054	11/03/2015	11/04/15 10:51	
Selenium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:51	
Silver	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:51	
Thallium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:51	
Vanadium	**51**	1.0	1	B5K0054	11/03/2015	11/04/15 10:51	
Zinc	**2100**	5.0	5	B5K0054	11/03/2015	11/04/15 11:45	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0058	11/03/2015	11/04/15 09:17	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:16	
Acenaphthene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:16	
Acenaphthylene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:16	
Anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:16	
Benzo(a)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:16	
Benzo(a)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:16	
Benzo(b)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:16	
Benzo(g,h,i)perylene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:16	
Benzo(k)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:16	
Chrysene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:16	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-57A-10282015

Lab ID: 1503733-31

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:16	
Fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:16	
Fluorene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:16	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:16	
Naphthalene	**26**	15	1	B5K0036	11/02/2015	11/03/15 15:16	
Phenanthrene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:16	
Pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:16	
Surrogate: 1,2-Dichlorobenzene-d4	*81.5 %*	*39 - 99*		B5K0036	11/02/2015	*11/03/15 15:16*	
Surrogate: 2-Fluorobiphenyl	*88.0 %*	*47 - 111*		B5K0036	11/02/2015	*11/03/15 15:16*	
Surrogate: Nitrobenzene-d5	*88.2 %*	*20 - 144*		B5K0036	11/02/2015	*11/03/15 15:16*	
Surrogate: 4-Terphenyl-d14	*82.2 %*	*44 - 150*		B5K0036	11/02/2015	*11/03/15 15:16*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-16A-10282015

Lab ID: 1503733-32

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**3.3**	2.0	1	B5K0054	11/03/2015	11/04/15 10:56	
Arsenic	**5.2**	1.0	1	B5K0054	11/03/2015	11/04/15 10:56	
Barium	**200**	1.0	1	B5K0054	11/03/2015	11/04/15 10:55	
Beryllium	**1.7**	1.0	1	B5K0054	11/03/2015	11/04/15 10:54	
Cadmium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:56	
Chromium	**83**	1.0	1	B5K0054	11/03/2015	11/04/15 10:55	
Cobalt	**13**	1.0	1	B5K0054	11/03/2015	11/04/15 10:56	
Copper	**370**	2.0	1	B5K0054	11/03/2015	11/04/15 10:55	
Lead	**1600**	10	10	B5K0054	11/03/2015	11/04/15 11:49	D6
Molybdenum	**21**	1.0	1	B5K0054	11/03/2015	11/04/15 10:56	
Nickel	**17**	1.0	1	B5K0054	11/03/2015	11/04/15 10:56	
Selenium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:56	
Silver	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:55	
Thallium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:56	
Vanadium	**26**	1.0	1	B5K0054	11/03/2015	11/04/15 10:55	
Zinc	**11000**	10	10	B5K0054	11/03/2015	11/04/15 11:49	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0058	11/03/2015	11/04/15 09:19	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:43	
Acenaphthene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:43	
Acenaphthylene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:43	
Anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:43	
Benzo(a)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:43	
Benzo(a)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:43	
Benzo(b)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:43	
Benzo(g,h,i)perylene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:43	
Benzo(k)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:43	
Chrysene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:43	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-16A-10282015

Lab ID: 1503733-32

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:43	
Fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:43	
Fluorene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:43	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:43	
Naphthalene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:43	
Phenanthrene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:43	
Pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 15:43	
Surrogate: 1,2-Dichlorobenzene-d4	*88.0 %*	*39 - 99*		B5K0036	11/02/2015	*11/03/15 15:43*	
Surrogate: 2-Fluorobiphenyl	*95.3 %*	*47 - 111*		B5K0036	11/02/2015	*11/03/15 15:43*	
Surrogate: Nitrobenzene-d5	*96.1 %*	*20 - 144*		B5K0036	11/02/2015	*11/03/15 15:43*	
Surrogate: 4-Terphenyl-d14	*93.4 %*	*44 - 150*		B5K0036	11/02/2015	*11/03/15 15:43*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-16C-10282015

Lab ID: 1503733-33

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5K0054	11/03/2015	11/04/15 11:00	
Arsenic	**5.1**	1.0	1	B5K0054	11/03/2015	11/04/15 11:00	
Barium	**35**	1.0	1	B5K0054	11/03/2015	11/04/15 11:00	
Beryllium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 10:59	
Cadmium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 11:00	
Chromium	**21**	1.0	1	B5K0054	11/03/2015	11/04/15 11:00	
Cobalt	**2.4**	1.0	1	B5K0054	11/03/2015	11/04/15 11:00	
Copper	**24**	2.0	1	B5K0054	11/03/2015	11/04/15 11:00	
Lead	**16**	1.0	1	B5K0054	11/03/2015	11/04/15 11:00	
Molybdenum	ND	1.0	1	B5K0054	11/03/2015	11/04/15 11:00	
Nickel	**22**	1.0	1	B5K0054	11/03/2015	11/04/15 11:00	
Selenium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 11:00	
Silver	ND	1.0	1	B5K0054	11/03/2015	11/04/15 11:00	
Thallium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 11:00	
Vanadium	**30**	1.0	1	B5K0054	11/03/2015	11/04/15 11:00	
Zinc	**150**	1.0	1	B5K0054	11/03/2015	11/04/15 11:00	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0058	11/03/2015	11/04/15 09:21	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:11	
Acenaphthene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:11	
Acenaphthylene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:11	
Anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:11	
Benzo(a)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:11	
Benzo(a)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:11	
Benzo(b)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:11	
Benzo(g,h,i)perylene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:11	
Benzo(k)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:11	
Chrysene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:11	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-16C-10282015

Lab ID: 1503733-33

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:11	
Fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:11	
Fluorene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:11	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:11	
Naphthalene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:11	
Phenanthrene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:11	
Pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:11	
Surrogate: 1,2-Dichlorobenzene-d4	*75.1 %*	*39 - 99*		B5K0036	11/02/2015	*11/03/15 16:11*	
Surrogate: 2-Fluorobiphenyl	*83.0 %*	*47 - 111*		B5K0036	11/02/2015	*11/03/15 16:11*	
Surrogate: Nitrobenzene-d5	*80.4 %*	*20 - 144*		B5K0036	11/02/2015	*11/03/15 16:11*	
Surrogate: 4-Terphenyl-d14	*90.6 %*	*44 - 150*		B5K0036	11/02/2015	*11/03/15 16:11*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-17A-10282015
Lab ID: 1503733-34

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**9.3**	2.0	1	B5K0054	11/03/2015	11/04/15 11:53	
Arsenic	**7.0**	1.0	1	B5K0054	11/03/2015	11/04/15 11:53	
Barium	**180**	1.0	1	B5K0054	11/03/2015	11/04/15 11:52	
Beryllium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 11:52	
Cadmium	**68**	1.0	1	B5K0054	11/03/2015	11/04/15 11:52	
Chromium	**52**	1.0	1	B5K0054	11/03/2015	11/04/15 11:52	
Cobalt	**9.7**	1.0	1	B5K0054	11/03/2015	11/04/15 11:53	
Copper	**400**	2.0	1	B5K0054	11/03/2015	11/04/15 11:52	
Lead	**82**	1.0	1	B5K0054	11/03/2015	11/04/15 11:53	
Molybdenum	**17**	1.0	1	B5K0054	11/03/2015	11/04/15 11:53	
Nickel	**41**	1.0	1	B5K0054	11/03/2015	11/04/15 11:52	
Selenium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 11:53	
Silver	ND	1.0	1	B5K0054	11/03/2015	11/04/15 11:52	
Thallium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 11:53	
Vanadium	**39**	1.0	1	B5K0054	11/03/2015	11/04/15 11:52	
Zinc	**370**	1.0	1	B5K0054	11/03/2015	11/04/15 11:52	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.70**	0.10	1	B5K0058	11/03/2015	11/04/15 09:23	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**21**	15	1	B5K0036	11/02/2015	11/03/15 16:38	
Acenaphthene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:38	
Acenaphthylene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:38	
Anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:38	
Benzo(a)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:38	
Benzo(a)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:38	
Benzo(b)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:38	
Benzo(g,h,i)perylene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:38	
Benzo(k)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:38	
Chrysene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:38	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-17A-10282015

Lab ID: 1503733-34

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:38	
Fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:38	
Fluorene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:38	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:38	
Naphthalene	**95**	15	1	B5K0036	11/02/2015	11/03/15 16:38	
Phenanthrene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:38	
Pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 16:38	
Surrogate: 1,2-Dichlorobenzene-d4	*79.2 %*	*39 - 99*		B5K0036	11/02/2015	*11/03/15 16:38*	
Surrogate: 2-Fluorobiphenyl	*82.8 %*	*47 - 111*		B5K0036	11/02/2015	*11/03/15 16:38*	
Surrogate: Nitrobenzene-d5	*86.7 %*	*20 - 144*		B5K0036	11/02/2015	*11/03/15 16:38*	
Surrogate: 4-Terphenyl-d14	*77.8 %*	*44 - 150*		B5K0036	11/02/2015	*11/03/15 16:38*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-50A-10282015

Lab ID: 1503733-35

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	10	5	B5K0054	11/03/2015	11/04/15 11:11	D6
Arsenic	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:11	D6
Barium	**270**	5.0	5	B5K0054	11/03/2015	11/04/15 11:11	D6
Beryllium	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:10	D6
Cadmium	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:11	D6
Chromium	**34**	5.0	5	B5K0054	11/03/2015	11/04/15 11:11	D6
Cobalt	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:11	D6
Copper	**520**	10	5	B5K0054	11/03/2015	11/04/15 11:11	D6
Lead	**2100**	5.0	5	B5K0054	11/03/2015	11/04/15 11:11	D6
Molybdenum	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:11	D6
Nickel	**48**	5.0	5	B5K0054	11/03/2015	11/04/15 11:11	D6
Selenium	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:11	D6
Silver	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:11	D6
Thallium	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:11	D6
Vanadium	**55**	5.0	5	B5K0054	11/03/2015	11/04/15 11:11	D6
Zinc	**500**	5.0	5	B5K0054	11/03/2015	11/04/15 11:11	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0058	11/03/2015	11/04/15 09:25	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**28**	15	1	B5K0036	11/02/2015	11/03/15 17:06	
Acenaphthene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:06	
Acenaphthylene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:06	
Anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:06	
Benzo(a)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:06	
Benzo(a)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:06	
Benzo(b)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:06	
Benzo(g,h,i)perylene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:06	
Benzo(k)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:06	
Chrysene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:06	

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Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-50A-10282015

Lab ID: 1503733-35

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:06	
Fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:06	
Fluorene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:06	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:06	
Naphthalene	**85**	15	1	B5K0036	11/02/2015	11/03/15 17:06	
Phenanthrene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:06	
Pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:06	
Surrogate: 1,2-Dichlorobenzene-d4	*84.0 %*	*39 - 99*		B5K0036	11/02/2015	*11/03/15 17:06*	
Surrogate: 2-Fluorobiphenyl	*85.7 %*	*47 - 111*		B5K0036	11/02/2015	*11/03/15 17:06*	
Surrogate: Nitrobenzene-d5	*87.8 %*	*20 - 144*		B5K0036	11/02/2015	*11/03/15 17:06*	
Surrogate: 4-Terphenyl-d14	*22.0 %*	*44 - 150*		B5K0036	11/02/2015	*11/03/15 17:06*	S2

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-33A-10292015

Lab ID: 1503733-36

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	10	5	B5K0054	11/03/2015	11/04/15 11:14	D6
Arsenic	**15**	5.0	5	B5K0054	11/03/2015	11/04/15 11:14	D6
Barium	**240**	5.0	5	B5K0054	11/03/2015	11/04/15 11:14	D6
Beryllium	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:13	D6
Cadmium	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:14	D6
Chromium	**25**	5.0	5	B5K0054	11/03/2015	11/04/15 11:14	D6
Cobalt	**6.2**	5.0	5	B5K0054	11/03/2015	11/04/15 11:14	D6
Copper	**1300**	10	5	B5K0054	11/03/2015	11/04/15 11:14	D6
Lead	**150**	5.0	5	B5K0054	11/03/2015	11/04/15 11:14	D6
Molybdenum	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:14	D6
Nickel	**22**	5.0	5	B5K0054	11/03/2015	11/04/15 11:14	D6
Selenium	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:14	D6
Silver	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:14	D6
Thallium	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:14	D6
Vanadium	**31**	5.0	5	B5K0054	11/03/2015	11/04/15 11:14	D6
Zinc	**850**	5.0	5	B5K0054	11/03/2015	11/04/15 11:14	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0058	11/03/2015	11/04/15 09:27	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**35**	15	1	B5K0036	11/02/2015	11/03/15 17:34	
Acenaphthene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:34	
Acenaphthylene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:34	
Anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:34	
Benzo(a)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:34	
Benzo(a)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:34	
Benzo(b)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:34	
Benzo(g,h,i)perylene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:34	
Benzo(k)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:34	
Chrysene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:34	

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Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-33A-10292015

Lab ID: 1503733-36

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:34	
Fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:34	
Fluorene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:34	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:34	
Naphthalene	**92**	15	1	B5K0036	11/02/2015	11/03/15 17:34	
Phenanthrene	**18**	15	1	B5K0036	11/02/2015	11/03/15 17:34	
Pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 17:34	
Surrogate: 1,2-Dichlorobenzene-d4	*73.8 %*	*39 - 99*		B5K0036	11/02/2015	*11/03/15 17:34*	
Surrogate: 2-Fluorobiphenyl	*78.5 %*	*47 - 111*		B5K0036	11/02/2015	*11/03/15 17:34*	
Surrogate: Nitrobenzene-d5	*79.5 %*	*20 - 144*		B5K0036	11/02/2015	*11/03/15 17:34*	
Surrogate: 4-Terphenyl-d14	*52.9 %*	*44 - 150*		B5K0036	11/02/2015	*11/03/15 17:34*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-64A-10292015

Lab ID: 1503733-37

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	20	10	B5K0054	11/03/2015	11/04/15 11:19	D6
Arsenic	**580**	10	10	B5K0054	11/03/2015	11/04/15 11:19	D6
Barium	**150**	10	10	B5K0054	11/03/2015	11/04/15 11:19	D6
Beryllium	ND	10	10	B5K0054	11/03/2015	11/04/15 11:18	D6
Cadmium	ND	10	10	B5K0054	11/03/2015	11/04/15 11:19	D6
Chromium	**12**	10	10	B5K0054	11/03/2015	11/04/15 11:19	D6
Cobalt	ND	10	10	B5K0054	11/03/2015	11/04/15 11:19	D6
Copper	**1600**	20	10	B5K0054	11/03/2015	11/04/15 11:19	D6
Lead	**56**	10	10	B5K0054	11/03/2015	11/04/15 11:19	D6
Molybdenum	ND	10	10	B5K0054	11/03/2015	11/04/15 11:19	D6
Nickel	**20**	10	10	B5K0054	11/03/2015	11/04/15 11:19	D6
Selenium	ND	10	10	B5K0054	11/03/2015	11/04/15 11:19	D6
Silver	ND	10	10	B5K0054	11/03/2015	11/04/15 11:19	D6
Thallium	ND	10	10	B5K0054	11/03/2015	11/04/15 11:19	D6
Vanadium	**31**	10	10	B5K0054	11/03/2015	11/04/15 11:19	D6
Zinc	**8600**	10	10	B5K0054	11/03/2015	11/04/15 11:19	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0058	11/03/2015	11/04/15 09:29	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**67**	15	1	B5K0036	11/02/2015	11/03/15 18:01	
Acenaphthene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:01	
Acenaphthylene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:01	
Anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:01	
Benzo(a)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:01	
Benzo(a)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:01	
Benzo(b)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:01	
Benzo(g,h,i)perylene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:01	
Benzo(k)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:01	
Chrysene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:01	

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Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-64A-10292015

Lab ID: 1503733-37

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:01	
Fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:01	
Fluorene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:01	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:01	
Naphthalene	**370**	15	1	B5K0036	11/02/2015	11/03/15 18:01	
Phenanthrene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:01	
Pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:01	
Surrogate: 1,2-Dichlorobenzene-d4	*69.9 %*	*39 - 99*		B5K0036	11/02/2015	*11/03/15 18:01*	
Surrogate: 2-Fluorobiphenyl	*66.7 %*	*47 - 111*		B5K0036	11/02/2015	*11/03/15 18:01*	
Surrogate: Nitrobenzene-d5	*78.5 %*	*20 - 144*		B5K0036	11/02/2015	*11/03/15 18:01*	
Surrogate: 4-Terphenyl-d14	*13.8 %*	*44 - 150*		B5K0036	11/02/2015	*11/03/15 18:01*	S2

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-62A-10292015

Lab ID: 1503733-38

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**11**	10	5	B5K0054	11/03/2015	11/04/15 11:23	D6
Arsenic	**910**	5.0	5	B5K0054	11/03/2015	11/04/15 11:23	D6
Barium	**340**	5.0	5	B5K0054	11/03/2015	11/04/15 11:22	D6
Beryllium	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:21	D6
Cadmium	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:23	D6
Chromium	**470**	5.0	5	B5K0054	11/03/2015	11/04/15 11:22	D6
Cobalt	**11**	5.0	5	B5K0054	11/03/2015	11/04/15 11:23	D6
Copper	**5100**	10	5	B5K0054	11/03/2015	11/04/15 11:22	D6
Lead	**33**	5.0	5	B5K0054	11/03/2015	11/04/15 11:23	D6
Molybdenum	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:23	D6
Nickel	**46**	5.0	5	B5K0054	11/03/2015	11/04/15 11:23	D6
Selenium	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:23	D6
Silver	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:22	D6
Thallium	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:23	D6
Vanadium	**45**	5.0	5	B5K0054	11/03/2015	11/04/15 11:22	D6
Zinc	**3200**	5.0	5	B5K0054	11/03/2015	11/04/15 11:22	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0058	11/03/2015	11/04/15 09:31	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**73**	15	1	B5K0036	11/02/2015	11/03/15 18:28	
Acenaphthene	**20**	15	1	B5K0036	11/02/2015	11/03/15 18:28	
Acenaphthylene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:28	
Anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:28	
Benzo(a)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:28	
Benzo(a)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:28	
Benzo(b)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:28	
Benzo(g,h,i)perylene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:28	
Benzo(k)fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:28	
Chrysene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:28	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-62A-10292015

Lab ID: 1503733-38

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:28	
Fluoranthene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:28	
Fluorene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:28	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:28	
Naphthalene	**210**	15	1	B5K0036	11/02/2015	11/03/15 18:28	
Phenanthrene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:28	
Pyrene	ND	15	1	B5K0036	11/02/2015	11/03/15 18:28	
Surrogate: 1,2-Dichlorobenzene-d4	*73.0 %*	*39 - 99*		B5K0036	11/02/2015	*11/03/15 18:28*	
Surrogate: 2-Fluorobiphenyl	*63.0 %*	*47 - 111*		B5K0036	11/02/2015	*11/03/15 18:28*	
Surrogate: Nitrobenzene-d5	*73.7 %*	*20 - 144*		B5K0036	11/02/2015	*11/03/15 18:28*	
Surrogate: 4-Terphenyl-d14	*7.07 %*	*44 - 150*		B5K0036	11/02/2015	*11/03/15 18:28*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-63A-10292015

Lab ID: 1503733-39

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	10	5	B5K0054	11/03/2015	11/04/15 11:27	D6
Arsenic	**5.9**	5.0	5	B5K0054	11/03/2015	11/04/15 11:27	D6
Barium	**410**	5.0	5	B5K0054	11/03/2015	11/04/15 11:27	D6
Beryllium	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:26	D6
Cadmium	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:27	D6
Chromium	**76**	5.0	5	B5K0054	11/03/2015	11/04/15 11:27	D6
Cobalt	**17**	5.0	5	B5K0054	11/03/2015	11/04/15 11:27	D6
Copper	**1800**	10	5	B5K0054	11/03/2015	11/04/15 11:27	D6
Lead	**36**	5.0	5	B5K0054	11/03/2015	11/04/15 11:27	D6
Molybdenum	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:27	D6
Nickel	**81**	5.0	5	B5K0054	11/03/2015	11/04/15 11:27	D6
Selenium	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:27	D6
Silver	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:27	D6
Thallium	ND	5.0	5	B5K0054	11/03/2015	11/04/15 11:27	D6
Vanadium	**84**	5.0	5	B5K0054	11/03/2015	11/04/15 11:27	D6
Zinc	**990**	5.0	5	B5K0054	11/03/2015	11/04/15 11:27	D6

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0058	11/03/2015	11/04/15 09:33	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	**27**	15	1	B5K0063	11/03/2015	11/05/15 12:48	
Acenaphthene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:48	
Acenaphthylene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:48	
Anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:48	
Benzo(a)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:48	
Benzo(a)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:48	
Benzo(b)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:48	
Benzo(g,h,i)perylene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:48	
Benzo(k)fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:48	
Chrysene	**19**	15	1	B5K0063	11/03/2015	11/05/15 12:48	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-63A-10292015

Lab ID: 1503733-39

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:48	
Fluoranthene	**17**	15	1	B5K0063	11/03/2015	11/05/15 12:48	
Fluorene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:48	
Indeno(1,2,3-cd)pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:48	
Naphthalene	**80**	15	1	B5K0063	11/03/2015	11/05/15 12:48	
Phenanthrene	**32**	15	1	B5K0063	11/03/2015	11/05/15 12:48	
Pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 12:48	
Surrogate: 1,2-Dichlorobenzene-d4	*81.8 %*	*39 - 99*		B5K0063	11/03/2015	*11/05/15 12:48*	
Surrogate: 2-Fluorobiphenyl	*87.8 %*	*47 - 111*		B5K0063	11/03/2015	*11/05/15 12:48*	
Surrogate: Nitrobenzene-d5	*51.5 %*	*20 - 144*		B5K0063	11/03/2015	*11/05/15 12:48*	
Surrogate: 4-Terphenyl-d14	*77.1 %*	*44 - 150*		B5K0063	11/03/2015	*11/05/15 12:48*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-63C-10292015
Lab ID: 1503733-40

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**11**	2.0	1	B5K0054	11/03/2015	11/04/15 12:01	
Arsenic	**3.0**	1.0	1	B5K0054	11/03/2015	11/04/15 12:01	
Barium	**140**	1.0	1	B5K0054	11/03/2015	11/04/15 12:00	
Beryllium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 12:00	
Cadmium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 12:01	
Chromium	**14**	1.0	1	B5K0054	11/03/2015	11/04/15 12:00	
Cobalt	**2.9**	1.0	1	B5K0054	11/03/2015	11/04/15 12:01	
Copper	**810**	2.0	1	B5K0054	11/03/2015	11/04/15 12:00	
Lead	**11**	1.0	1	B5K0054	11/03/2015	11/04/15 12:01	
Molybdenum	ND	1.0	1	B5K0054	11/03/2015	11/04/15 12:01	
Nickel	**27**	1.0	1	B5K0054	11/03/2015	11/04/15 12:01	
Selenium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 12:01	
Silver	ND	1.0	1	B5K0054	11/03/2015	11/04/15 12:00	
Thallium	ND	1.0	1	B5K0054	11/03/2015	11/04/15 12:01	
Vanadium	**59**	1.0	1	B5K0054	11/03/2015	11/04/15 12:00	
Zinc	**280**	1.0	1	B5K0054	11/03/2015	11/04/15 12:00	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5K0058	11/03/2015	11/04/15 09:39	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:15	
Acenaphthene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:15	
Acenaphthylene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:15	
Anthracene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:15	
Benzo(a)anthracene	**29**	15	1	B5K0063	11/03/2015	11/05/15 13:15	
Benzo(a)pyrene	**57**	15	1	B5K0063	11/03/2015	11/05/15 13:15	
Benzo(b)fluoranthene	**99**	15	1	B5K0063	11/03/2015	11/05/15 13:15	
Benzo(g,h,i)perylene	**170**	15	1	B5K0063	11/03/2015	11/05/15 13:15	
Benzo(k)fluoranthene	**99**	15	1	B5K0063	11/03/2015	11/05/15 13:15	
Chrysene	**57**	15	1	B5K0063	11/03/2015	11/05/15 13:15	

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Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Client Sample ID V-63C-10292015

Lab ID: 1503733-40

Semivolatile Organic Compounds by EPA 8270/SIM **Analyst: MFR**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Dibenz(a,h)anthracene	**78**	15	1	B5K0063	11/03/2015	11/05/15 13:15	
Fluoranthene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:15	
Fluorene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:15	
Indeno(1,2,3-cd)pyrene	**73**	15	1	B5K0063	11/03/2015	11/05/15 13:15	
Naphthalene	**28**	15	1	B5K0063	11/03/2015	11/05/15 13:15	
Phenanthrene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:15	
Pyrene	ND	15	1	B5K0063	11/03/2015	11/05/15 13:15	
Surrogate: 1,2-Dichlorobenzene-d4	*85.6 %*	*39 - 99*		B5K0063	11/03/2015	*11/05/15 13:15*	
Surrogate: 2-Fluorobiphenyl	*95.8 %*	*47 - 111*		B5K0063	11/03/2015	*11/05/15 13:15*	
Surrogate: Nitrobenzene-d5	*52.3 %*	*20 - 144*		B5K0063	11/03/2015	*11/05/15 13:15*	
Surrogate: 4-Terphenyl-d14	*81.6 %*	*44 - 150*		B5K0063	11/03/2015	*11/05/15 13:15*	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

QUALITY CONTROL SECTION

Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0052 - EPA 3050B_S									
Blank (B5K0052-BLK1)					Prepared: 11/3/2015 Analyzed: 11/4/2015				
Antimony	ND	2.0			NR				
Arsenic	ND	1.0			NR				
Barium	ND	1.0			NR				
Beryllium	ND	1.0			NR				
Cadmium	ND	1.0			NR				
Chromium	ND	1.0			NR				
Cobalt	ND	1.0			NR				
Copper	ND	2.0			NR				
Lead	ND	1.0			NR				
Molybdenum	ND	1.0			NR				
Nickel	ND	1.0			NR				
Selenium	ND	1.0			NR				
Silver	ND	1.0			NR				
Thallium	ND	1.0			NR				
Vanadium	ND	1.0			NR				
Zinc	ND	1.0			NR				
LCS (B5K0052-BS1)					Prepared: 11/3/2015 Analyzed: 11/4/2015				
Antimony	48.4280	2.0	50.0000		96.9	80 - 120			
Arsenic	46.5596	1.0	50.0000		93.1	80 - 120			
Barium	50.6490	1.0	50.0000		101	80 - 120			
Beryllium	47.9524	1.0	50.0000		95.9	80 - 120			
Cadmium	48.2329	1.0	50.0000		96.5	80 - 120			
Chromium	50.9384	1.0	50.0000		102	80 - 120			
Cobalt	49.0270	1.0	50.0000		98.1	80 - 120			
Copper	48.4809	2.0	50.0000		97.0	80 - 120			
Lead	48.1681	1.0	50.0000		96.3	80 - 120			
Molybdenum	49.5391	1.0	50.0000		99.1	80 - 120			
Nickel	48.1495	1.0	50.0000		96.3	80 - 120			
Selenium	44.2294	1.0	50.0000		88.5	80 - 120			
Silver	49.3429	1.0	50.0000		98.7	80 - 120			
Thallium	49.6844	1.0	50.0000		99.4	80 - 120			
Vanadium	49.1347	1.0	50.0000		98.3	80 - 120			
Zinc	51.3014	1.0	50.0000		103	80 - 120			
Matrix Spike (B5K0052-MS1)		**Source: 1503716-09**			Prepared: 11/3/2015 Analyzed: 11/4/2015				
Antimony	98.5828	2.0	125.000	0.859013	78.2	28 - 106			
Arsenic	112.234	1.0	125.000	2.08859	88.1	57 - 109			
Barium	150.099	1.0	125.000	45.2340	83.9	18 - 159			
Beryllium	112.308	1.0	125.000	0.377467	89.5	61 - 107			

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0052 - EPA 3050B_S (continued)									
Matrix Spike (B5K0052-MS1) - Continued		**Source: 1503716-09**		Prepared: 11/3/2015 Analyzed: 11/4/2015					
Cadmium	105.149	1.0	125.000	ND	84.1	53 - 104			
Chromium	207.452	1.0	125.000	105.795	81.3	53 - 121			
Cobalt	113.217	1.0	125.000	4.95417	86.6	55 - 109			
Copper	136.921	2.0	125.000	18.0394	95.1	58 - 124			
Lead	110.873	1.0	125.000	3.30797	86.1	35 - 129			
Molybdenum	120.681	1.0	125.000	8.45354	89.8	57 - 108			
Nickel	115.348	1.0	125.000	7.96403	85.9	44 - 122			
Selenium	107.259	1.0	125.000	0.509803	85.4	54 - 104			
Silver	111.107	1.0	125.000	ND	88.9	60 - 112			
Thallium	108.816	1.0	125.000	ND	87.1	50 - 103			
Vanadium	134.490	1.0	125.000	24.3424	88.1	54 - 123			
Zinc	131.083	1.0	125.000	29.2925	81.4	29 - 132			
Matrix Spike Dup (B5K0052-MSD1)		**Source: 1503716-09**		Prepared: 11/3/2015 Analyzed: 11/4/2015					
Antimony	100.129	2.0	125.000	0.859013	79.4	28 - 106	1.56	20	
Arsenic	115.262	1.0	125.000	2.08859	90.5	57 - 109	2.66	20	
Barium	154.592	1.0	125.000	45.2340	87.5	18 - 159	2.95	20	
Beryllium	113.519	1.0	125.000	0.377467	90.5	61 - 107	1.07	20	
Cadmium	106.172	1.0	125.000	ND	84.9	53 - 104	0.968	20	
Chromium	214.955	1.0	125.000	105.795	87.3	53 - 121	3.55	20	
Cobalt	114.382	1.0	125.000	4.95417	87.5	55 - 109	1.02	20	
Copper	140.067	2.0	125.000	18.0394	97.6	58 - 124	2.27	20	
Lead	111.278	1.0	125.000	3.30797	86.4	35 - 129	0.365	20	
Molybdenum	119.839	1.0	125.000	8.45354	89.1	57 - 108	0.700	20	
Nickel	116.597	1.0	125.000	7.96403	86.9	44 - 122	1.08	20	
Selenium	106.543	1.0	125.000	0.509803	84.8	54 - 104	0.670	20	
Silver	112.538	1.0	125.000	ND	90.0	60 - 112	1.28	20	
Thallium	108.107	1.0	125.000	ND	86.5	50 - 103	0.654	20	
Vanadium	136.994	1.0	125.000	24.3424	90.1	54 - 123	1.84	20	
Zinc	135.536	1.0	125.000	29.2925	85.0	29 - 132	3.34	20	

Certificate of Analysis

Geosyntec Consultants		Project Number :	Butte and Valley Fire, SC0791
10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0053 - EPA 3050B_S									
Blank (B5K0053-BLK1)				Prepared: 11/3/2015 Analyzed: 11/4/2015					
Antimony	ND	2.0			NR				
Arsenic	ND	1.0			NR				
Barium	ND	1.0			NR				
Beryllium	ND	1.0			NR				
Cadmium	ND	1.0			NR				
Chromium	ND	1.0			NR				
Cobalt	ND	1.0			NR				
Copper	ND	2.0			NR				
Lead	ND	1.0			NR				
Molybdenum	ND	1.0			NR				
Nickel	ND	1.0			NR				
Selenium	ND	1.0			NR				
Silver	ND	1.0			NR				
Thallium	ND	1.0			NR				
Vanadium	ND	1.0			NR				
Zinc	ND	1.0			NR				
LCS (B5K0053-BS1)				Prepared: 11/3/2015 Analyzed: 11/4/2015					
Antimony	49.5559	2.0	50.0000		99.1	80 - 120			
Arsenic	48.2498	1.0	50.0000		96.5	80 - 120			
Barium	49.4459	1.0	50.0000		98.9	80 - 120			
Beryllium	49.6920	1.0	50.0000		99.4	80 - 120			
Cadmium	48.1938	1.0	50.0000		96.4	80 - 120			
Chromium	46.0634	1.0	50.0000		92.1	80 - 120			
Cobalt	48.6298	1.0	50.0000		97.3	80 - 120			
Copper	49.0529	2.0	50.0000		98.1	80 - 120			
Lead	47.9813	1.0	50.0000		96.0	80 - 120			
Molybdenum	51.5927	1.0	50.0000		103	80 - 120			
Nickel	47.5288	1.0	50.0000		95.1	80 - 120			
Selenium	45.6299	1.0	50.0000		91.3	80 - 120			
Silver	49.9529	1.0	50.0000		99.9	80 - 120			
Thallium	49.0085	1.0	50.0000		98.0	80 - 120			
Vanadium	48.2580	1.0	50.0000		96.5	80 - 120			
Zinc	46.8093	1.0	50.0000		93.6	80 - 120			
Matrix Spike (B5K0053-MS1)		**Source: 1503733-08**		Prepared: 11/3/2015 Analyzed: 11/4/2015					
Antimony	86.8046	10	125.000	2.09428	67.8	28 - 106			D6
Arsenic	127.761	5.0	125.000	14.9217	90.3	57 - 109			D6
Barium	1130.06	5.0	125.000	1026.03	83.2	18 - 159			D6
Beryllium	111.982	5.0	125.000	0.984464	88.8	61 - 107			D6
Cadmium	108.701	5.0	125.000	1.00610	86.2	53 - 104			D6
Chromium	124.759	5.0	125.000	28.3386	77.1	53 - 121			D6

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Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0053 - EPA 3050B_S (continued)									
Matrix Spike (B5K0053-MS1) - Continued		**Source: 1503733-08**		Prepared: 11/3/2015 Analyzed: 11/4/2015					
Cobalt	112.459	5.0	125.000	7.82716	83.7	55 - 109			D6
Copper	269.469	10	125.000	78.6104	153	58 - 124			D6, M1
Lead	137.428	5.0	125.000	34.0352	82.7	35 - 129			D6
Molybdenum	113.353	5.0	125.000	ND	90.7	57 - 108			D6
Nickel	146.871	5.0	125.000	44.2608	82.1	44 - 122			D6
Selenium	104.250	5.0	125.000	ND	83.4	54 - 104			D6
Silver	114.215	5.0	125.000	ND	91.4	60 - 112			D6
Thallium	105.111	5.0	125.000	ND	84.1	50 - 103			D6
Vanadium	154.051	5.0	125.000	45.2137	87.1	54 - 123			D6
Zinc	1685.27	5.0	125.000	1700.01	-11.8	29 - 132			D6, M1
Matrix Spike Dup (B5K0053-MSD1)		**Source: 1503733-08**		Prepared: 11/3/2015 Analyzed: 11/4/2015					
Antimony	79.5618	10	125.000	2.09428	62.0	28 - 106	8.71	20	D6
Arsenic	125.238	5.0	125.000	14.9217	88.3	57 - 109	2.00	20	D6
Barium	1156.17	5.0	125.000	1026.03	104	18 - 159	2.28	20	D6
Beryllium	107.302	5.0	125.000	0.984464	85.1	61 - 107	4.27	20	D6
Cadmium	105.262	5.0	125.000	1.00610	83.4	53 - 104	3.21	20	D6
Chromium	127.223	5.0	125.000	28.3386	79.1	53 - 121	1.96	20	D6
Cobalt	113.354	5.0	125.000	7.82716	84.4	55 - 109	0.792	20	D6
Copper	220.997	10	125.000	78.6104	114	58 - 124	19.8	20	D6
Lead	139.518	5.0	125.000	34.0352	84.4	35 - 129	1.51	20	D6
Molybdenum	108.926	5.0	125.000	ND	87.1	57 - 108	3.98	20	D6
Nickel	148.344	5.0	125.000	44.2608	83.3	44 - 122	0.998	20	D6
Selenium	101.134	5.0	125.000	ND	80.9	54 - 104	3.03	20	D6
Silver	110.547	5.0	125.000	ND	88.4	60 - 112	3.26	20	D6
Thallium	98.5810	5.0	125.000	ND	78.9	50 - 103	6.41	20	D6
Vanadium	149.110	5.0	125.000	45.2137	83.1	54 - 123	3.26	20	D6
Zinc	1716.24	5.0	125.000	1700.01	13.0	29 - 132	1.82	20	D6, M1

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Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0054 - EPA 3050B_S									
Blank (B5K0054-BLK1)				Prepared: 11/3/2015 Analyzed: 11/4/2015					
Antimony	ND	2.0			NR				
Arsenic	ND	1.0			NR				
Barium	ND	1.0			NR				
Beryllium	ND	1.0			NR				
Cadmium	ND	1.0			NR				
Chromium	ND	1.0			NR				
Cobalt	ND	1.0			NR				
Copper	ND	2.0			NR				
Lead	ND	1.0			NR				
Molybdenum	ND	1.0			NR				
Nickel	ND	1.0			NR				
Selenium	ND	1.0			NR				
Silver	ND	1.0			NR				
Thallium	ND	1.0			NR				
Vanadium	ND	1.0			NR				
Zinc	ND	1.0			NR				
LCS (B5K0054-BS1)				Prepared: 11/3/2015 Analyzed: 11/4/2015					
Antimony	49.3453	2.0	50.0000		98.7	80 - 120			
Arsenic	48.7002	1.0	50.0000		97.4	80 - 120			
Barium	50.5150	1.0	50.0000		101	80 - 120			
Beryllium	50.7235	1.0	50.0000		101	80 - 120			
Cadmium	48.7582	1.0	50.0000		97.5	80 - 120			
Chromium	47.0898	1.0	50.0000		94.2	80 - 120			
Cobalt	49.6838	1.0	50.0000		99.4	80 - 120			
Copper	49.5794	2.0	50.0000		99.2	80 - 120			
Lead	48.7073	1.0	50.0000		97.4	80 - 120			
Molybdenum	50.8592	1.0	50.0000		102	80 - 120			
Nickel	48.6752	1.0	50.0000		97.4	80 - 120			
Selenium	45.7566	1.0	50.0000		91.5	80 - 120			
Silver	51.4560	1.0	50.0000		103	80 - 120			
Thallium	48.7254	1.0	50.0000		97.5	80 - 120			
Vanadium	49.2280	1.0	50.0000		98.5	80 - 120			
Zinc	46.5658	1.0	50.0000		93.1	80 - 120			
Matrix Spike (B5K0054-MS1)		**Source: 1503733-28**		Prepared: 11/3/2015 Analyzed: 11/4/2015					
Antimony	114.058	2.0	125.000	1.73525	89.9	28 - 106			
Arsenic	153.466	1.0	125.000	19.7896	107	57 - 109			
Barium	156.454	1.0	125.000	52.2696	83.3	18 - 159			
Beryllium	118.475	1.0	125.000	0.269768	94.6	61 - 107			
Cadmium	106.900	1.0	125.000	0.597564	85.0	53 - 104			
Chromium	115.944	1.0	125.000	18.3174	78.1	53 - 121			

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Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0054 - EPA 3050B_S (continued)									
Matrix Spike (B5K0054-MS1) - Continued		**Source: 1503733-28**		Prepared: 11/3/2015 Analyzed: 11/4/2015					
Cobalt	107.284	1.0	125.000	1.95657	84.3	55 - 109			
Copper	240.607	2.0	125.000	268.470	-22.3	58 - 124			M1
Lead	113.000	1.0	125.000	8.36768	83.7	35 - 129			
Molybdenum	123.267	1.0	125.000	ND	98.6	57 - 108			
Nickel	115.633	1.0	125.000	14.3952	81.0	44 - 122			
Selenium	129.323	1.0	125.000	ND	103	54 - 104			
Silver	129.874	1.0	125.000	0.290287	104	60 - 112			
Thallium	106.395	1.0	125.000	ND	85.1	50 - 103			
Vanadium	135.644	1.0	125.000	23.4691	89.7	54 - 123			
Zinc	391.460	1.0	125.000	305.229	69.0	29 - 132			
Matrix Spike Dup (B5K0054-MSD1)		**Source: 1503733-28**		Prepared: 11/3/2015 Analyzed: 11/4/2015					
Antimony	117.841	2.0	125.000	1.73525	92.9	28 - 106	3.26	20	
Arsenic	171.769	1.0	125.000	19.7896	122	57 - 109	11.3	20	M1
Barium	153.217	1.0	125.000	52.2696	80.8	18 - 159	2.09	20	
Beryllium	116.884	1.0	125.000	0.269768	93.3	61 - 107	1.35	20	
Cadmium	107.933	1.0	125.000	0.597564	85.9	53 - 104	0.961	20	
Chromium	118.939	1.0	125.000	18.3174	80.5	53 - 121	2.55	20	
Cobalt	107.771	1.0	125.000	1.95657	84.7	55 - 109	0.453	20	
Copper	341.324	2.0	125.000	268.470	58.3	58 - 124	34.6	20	R
Lead	112.164	1.0	125.000	8.36768	83.0	35 - 129	0.743	20	
Molybdenum	124.641	1.0	125.000	ND	99.7	57 - 108	1.11	20	
Nickel	115.773	1.0	125.000	14.3952	81.1	44 - 122	0.121	20	
Selenium	129.430	1.0	125.000	ND	104	54 - 104	0.0831	20	
Silver	129.853	1.0	125.000	0.290287	104	60 - 112	0.0163	20	
Thallium	107.342	1.0	125.000	ND	85.9	50 - 103	0.887	20	
Vanadium	136.083	1.0	125.000	23.4691	90.1	54 - 123	0.324	20	
Zinc	317.813	1.0	125.000	305.229	10.1	29 - 132	20.8	20	R

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Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0055 - EPA 7471_S									
Blank (B5K0055-BLK1)				Prepared: 11/3/2015 Analyzed: 11/4/2015					
Mercury	ND	0.10			NR				
LCS (B5K0055-BS1)				Prepared: 11/3/2015 Analyzed: 11/4/2015					
Mercury	0.771171	0.10	0.833333		92.5	80 - 120			
Matrix Spike (B5K0055-MS1)		**Source: 1503716-09**		Prepared: 11/3/2015 Analyzed: 11/4/2015					
Mercury	0.976980	0.10	0.833333	0.178078	95.9	70 - 130			
Matrix Spike Dup (B5K0055-MSD1)		**Source: 1503716-09**		Prepared: 11/3/2015 Analyzed: 11/4/2015					
Mercury	0.945413	0.10	0.833333	0.178078	92.1	70 - 130	3.28	20	
Post Spike (B5K0055-PS1)		**Source: 1503716-09**		Prepared: 11/3/2015 Analyzed: 11/4/2015					
Mercury	0.007262		5.00000E-3	0.002137	103	85 - 115			

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Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0056 - EPA 7471_S									
Blank (B5K0056-BLK1)				Prepared: 11/3/2015 Analyzed: 11/4/2015					
Mercury	ND	0.10			NR				
LCS (B5K0056-BS1)				Prepared: 11/3/2015 Analyzed: 11/4/2015					
Mercury	0.787743	0.10	0.833333		94.5	80 - 120			
Matrix Spike (B5K0056-MS1)		**Source: 1503733-08**		Prepared: 11/3/2015 Analyzed: 11/4/2015					
Mercury	0.920866	0.10	0.833333	0.064263	103	70 - 130			
Matrix Spike Dup (B5K0056-MSD1)		**Source: 1503733-08**		Prepared: 11/3/2015 Analyzed: 11/4/2015					
Mercury	0.837734	0.10	0.833333	0.064263	92.8	70 - 130	9.45	20	
Post Spike (B5K0056-PS1)		**Source: 1503733-08**		Prepared: 11/3/2015 Analyzed: 11/4/2015					
Mercury	0.006185		5.00000E-3	0.000771	108	85 - 115			

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Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0058 - EPA 7471_S									
Blank (B5K0058-BLK1)				Prepared: 11/3/2015 Analyzed: 11/4/2015					
Mercury	ND	0.10			NR				
LCS (B5K0058-BS1)				Prepared: 11/3/2015 Analyzed: 11/4/2015					
Mercury	0.764641	0.10	0.833333		91.8	80 - 120			
Matrix Spike (B5K0058-MS1)		**Source: 1503733-28**		Prepared: 11/3/2015 Analyzed: 11/4/2015					
Mercury	0.790086	0.10	0.833333	ND	94.8	70 - 130			
Matrix Spike Dup (B5K0058-MSD1)		**Source: 1503733-28**		Prepared: 11/3/2015 Analyzed: 11/4/2015					
Mercury	0.675112	0.10	0.833333	ND	81.0	70 - 130	15.7	20	
Post Spike (B5K0058-PS1)		**Source: 1503733-28**		Prepared: 11/3/2015 Analyzed: 11/4/2015					
Mercury	0.005177		5.00000E-3	0.000007	103	85 - 115			

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Semivolatile Organic Compounds by EPA 8270/SIM - Quality Control

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0028 - MSSEMI_S									
Blank (B5K0028-BLK1)				Prepared: 11/2/2015 Analyzed: 11/3/2015					
2-Methylnaphthalene	ND	15			NR				
Acenaphthene	ND	15			NR				
Acenaphthylene	ND	15			NR				
Anthracene	ND	15			NR				
Benzo(a)anthracene	ND	15			NR				
Benzo(a)pyrene	ND	15			NR				
Benzo(b)fluoranthene	ND	15			NR				
Benzo(g,h,i)perylene	ND	15			NR				
Benzo(k)fluoranthene	ND	15			NR				
Chrysene	ND	15			NR				
Dibenz(a,h)anthracene	ND	15			NR				
Fluoranthene	ND	15			NR				
Fluorene	ND	15			NR				
Indeno(1,2,3-cd)pyrene	ND	15			NR				
Naphthalene	ND	15			NR				
Phenanthrene	ND	15			NR				
Pyrene	ND	15			NR				
Surrogate: 1,2-Dichlorobenzene-d4	*93.57*		*100.000*		*93.6*	*39 - 99*			
Surrogate: 2-Fluorobiphenyl	*99.26*		*100.000*		*99.3*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*78.22*		*100.000*		*78.2*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*120.7*		*100.000*		*121*	*44 - 150*			
LCS (B5K0028-BS1)				Prepared: 11/2/2015 Analyzed: 11/3/2015					
2-Methylnaphthalene	91.2170	15	100.000		91.2	39 - 134			
Acenaphthene	70.9630	15	100.000		71.0	42 - 119			
Acenaphthylene	72.4530	15	100.000		72.5	41 - 118			
Anthracene	69.2550	15	100.000		69.3	53 - 113			
Benzo(a)anthracene	68.7420	15	100.000		68.7	58 - 130			
Benzo(a)pyrene	56.0450	15	100.000		56.0	51 - 125			
Benzo(b)fluoranthene	65.3840	15	100.000		65.4	56 - 122			
Benzo(g,h,i)perylene	60.8730	15	100.000		60.9	47 - 129			
Benzo(k)fluoranthene	66.5340	15	100.000		66.5	39 - 133			
Chrysene	73.1320	15	100.000		73.1	54 - 128			
Dibenz(a,h)anthracene	63.6590	15	100.000		63.7	57 - 121			
Fluoranthene	83.8840	15	100.000		83.9	61 - 119			
Fluorene	73.5620	15	100.000		73.6	48 - 117			
Indeno(1,2,3-cd)pyrene	68.0280	15	100.000		68.0	57 - 129			
Naphthalene	73.7510	15	100.000		73.8	36 - 126			
Phenanthrene	75.2320	15	100.000		75.2	51 - 119			
Pyrene	79.3910	15	100.000		79.4	61 - 122			
Surrogate: 1,2-Dichlorobenzene-d4	*88.33*		*100.000*		*88.3*	*39 - 99*			

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Semivolatile Organic Compounds by EPA 8270/SIM - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0028 - MSSEMI_S (continued)									
LCS (B5K0028-BS1) - Continued				Prepared: 11/2/2015 Analyzed: 11/3/2015					
Surrogate: 2-Fluorobiphenyl	*90.72*		*100.000*		*90.7*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*90.68*		*100.000*		*90.7*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*86.69*		*100.000*		*86.7*	*44 - 150*			
Matrix Spike (B5K0028-MS1)		**Source: 1503733-07**		Prepared: 11/2/2015 Analyzed: 11/3/2015					
2-Methylnaphthalene	60.8310	15	100.000	15.3510	45.5	50 - 135			M2
Acenaphthene	44.6280	15	100.000	ND	44.6	53 - 129			M2
Acenaphthylene	42.1850	15	100.000	ND	42.2	56 - 122			M2
Anthracene	51.0530	15	100.000	2.54300	48.5	51 - 127			M2
Benzo(a)anthracene	40.1080	15	100.000	ND	40.1	32 - 177			
Benzo(a)pyrene	24.2380	15	100.000	ND	24.2	27 - 166			M2
Benzo(b)fluoranthene	32.9320	15	100.000	ND	32.9	26 - 171			
Benzo(g,h,i)perylene	19.4570	15	100.000	ND	19.5	22 - 169			M2
Benzo(k)fluoranthene	29.7960	15	100.000	ND	29.8	41 - 140			M2
Chrysene	42.2650	15	100.000	ND	42.3	12 - 174			
Dibenz(a,h)anthracene	19.8120	15	100.000	ND	19.8	52 - 142			M2
Fluoranthene	61.2780	15	100.000	9.51000	51.8	40 - 165			
Fluorene	46.8650	15	100.000	2.45700	44.4	60 - 125			M2
Indeno(1,2,3-cd)pyrene	20.9040	15	100.000	ND	20.9	46 - 161			M2
Naphthalene	60.9030	15	100.000	31.1080	29.8	41 - 128			M2
Phenanthrene	60.3790	15	100.000	22.2270	38.2	26 - 161			
Pyrene	55.6720	15	100.000	14.3470	41.3	49 - 154			M2
Surrogate: 1,2-Dichlorobenzene-d4	*52.09*		*100.000*		*52.1*	*39 - 99*			
Surrogate: 2-Fluorobiphenyl	*59.27*		*100.000*		*59.3*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*61.32*		*100.000*		*61.3*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*75.14*		*100.000*		*75.1*	*44 - 150*			
Matrix Spike Dup (B5K0028-MSD1)		**Source: 1503733-07**		Prepared: 11/2/2015 Analyzed: 11/3/2015					
2-Methylnaphthalene	91.2590	15	100.000	15.3510	75.9	50 - 135	40.0	20	R
Acenaphthene	67.8650	15	100.000	ND	67.9	53 - 129	41.3	20	R
Acenaphthylene	61.7080	15	100.000	ND	61.7	56 - 122	37.6	20	R
Anthracene	67.5570	15	100.000	2.54300	65.0	51 - 127	27.8	20	R
Benzo(a)anthracene	56.1840	15	100.000	ND	56.2	32 - 177	33.4	20	R
Benzo(a)pyrene	38.7900	15	100.000	ND	38.8	27 - 166	46.2	20	R
Benzo(b)fluoranthene	41.2810	15	100.000	ND	41.3	26 - 171	22.5	20	R
Benzo(g,h,i)perylene	34.2800	15	100.000	ND	34.3	22 - 169	55.2	20	R
Benzo(k)fluoranthene	39.9210	15	100.000	ND	39.9	41 - 140	29.0	20	M2, R
Chrysene	55.6340	15	100.000	ND	55.6	12 - 174	27.3	20	R
Dibenz(a,h)anthracene	35.4810	15	100.000	ND	35.5	52 - 142	56.7	20	M2, R
Fluoranthene	77.6440	15	100.000	9.51000	68.1	40 - 165	23.6	20	R
Fluorene	69.6030	15	100.000	2.45700	67.1	60 - 125	39.0	20	R
Indeno(1,2,3-cd)pyrene	36.9470	15	100.000	ND	36.9	46 - 161	55.5	20	M2, R

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10875 Rancho Bernardo Road, Ste 200		Report To :	Veryl Wittig
San Diego , CA 92127		Reported :	11/05/2015

Semivolatile Organic Compounds by EPA 8270/SIM - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0028 - MSSEMI_S (continued)									
Matrix Spike Dup (B5K0028-MSD1) - Continued		**Source: 1503733-07**		Prepared: 11/2/2015 Analyzed: 11/3/2015					
Naphthalene	82.9210	15	100.000	31.1080	51.8	41 - 128	30.6	20	R
Phenanthrene	79.1290	15	100.000	22.2270	56.9	26 - 161	26.9	20	R
Pyrene	72.9130	15	100.000	14.3470	58.6	49 - 154	26.8	20	R
Surrogate: 1,2-Dichlorobenzene-d4	*81.31*		*100.000*		*81.3*	*39 - 99*			
Surrogate: 2-Fluorobiphenyl	*71.61*		*100.000*		*71.6*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*87.28*		*100.000*		*87.3*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*103.5*		*100.000*		*103*	*44 - 150*			

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Semivolatile Organic Compounds by EPA 8270/SIM - Quality Control

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0036 - MSSEMI_S									
Blank (B5K0036-BLK1)				Prepared: 11/2/2015 Analyzed: 11/3/2015					
2-Methylnaphthalene	ND	5.0			NR				
Acenaphthene	ND	5.0			NR				
Acenaphthylene	ND	5.0			NR				
Anthracene	ND	5.0			NR				
Benzo(a)anthracene	ND	5.0			NR				
Benzo(a)pyrene	ND	5.0			NR				
Benzo(b)fluoranthene	ND	5.0			NR				
Benzo(g,h,i)perylene	ND	5.0			NR				
Benzo(k)fluoranthene	ND	5.0			NR				
Chrysene	ND	5.0			NR				
Dibenz(a,h)anthracene	ND	5.0			NR				
Fluoranthene	ND	5.0			NR				
Fluorene	ND	5.0			NR				
Indeno(1,2,3-cd)pyrene	ND	5.0			NR				
Naphthalene	ND	5.0			NR				
Phenanthrene	ND	5.0			NR				
Pyrene	ND	5.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	*29.84*		*33.3333*		*89.5*	*39 - 99*			
Surrogate: 2-Fluorobiphenyl	*31.92*		*33.3333*		*95.8*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*29.72*		*33.3333*		*89.1*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*30.98*		*33.3333*		*92.9*	*44 - 150*			
LCS (B5K0036-BS1)				Prepared: 11/2/2015 Analyzed: 11/3/2015					
2-Methylnaphthalene	31.1423	5.0	33.3333		93.4	39 - 134			
Acenaphthene	23.2650	5.0	33.3333		69.8	42 - 119			
Acenaphthylene	22.3967	5.0	33.3333		67.2	41 - 118			
Anthracene	22.7447	5.0	33.3333		68.2	53 - 113			
Benzo(a)anthracene	23.5220	5.0	33.3333		70.6	58 - 130			
Benzo(a)pyrene	18.3427	5.0	33.3333		55.0	51 - 125			
Benzo(b)fluoranthene	19.9520	5.0	33.3333		59.9	56 - 122			
Benzo(g,h,i)perylene	18.9947	5.0	33.3333		57.0	47 - 129			
Benzo(k)fluoranthene	20.7430	5.0	33.3333		62.2	39 - 133			
Chrysene	24.3343	5.0	33.3333		73.0	54 - 128			
Dibenz(a,h)anthracene	18.5970	5.0	33.3333		55.8	57 - 121			L4
Fluoranthene	25.7200	5.0	33.3333		77.2	61 - 119			
Fluorene	24.5097	5.0	33.3333		73.5	48 - 117			
Indeno(1,2,3-cd)pyrene	20.5310	5.0	33.3333		61.6	57 - 129			
Naphthalene	23.0213	5.0	33.3333		69.1	36 - 126			
Phenanthrene	25.4257	5.0	33.3333		76.3	51 - 119			
Pyrene	26.0963	5.0	33.3333		78.3	61 - 122			
Surrogate: 1,2-Dichlorobenzene-d4	*27.12*		*33.3333*		*81.4*	*39 - 99*			

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Semivolatile Organic Compounds by EPA 8270/SIM - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0036 - MSSEMI_S (continued)									
LCS (B5K0036-BS1) - Continued				Prepared: 11/2/2015 Analyzed: 11/3/2015					
Surrogate: 2-Fluorobiphenyl	*30.10*		*33.3333*		*90.3*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*26.98*		*33.3333*		*80.9*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*30.34*		*33.3333*		*91.0*	*44 - 150*			
Matrix Spike (B5K0036-MS1)		**Source: 1503733-27**		Prepared: 11/2/2015 Analyzed: 11/3/2015					
2-Methylnaphthalene	96.7230	15	100.000	13.1650	83.6	50 - 135			
Acenaphthene	67.6230	15	100.000	ND	67.6	53 - 129			
Acenaphthylene	63.8270	15	100.000	ND	63.8	56 - 122			
Anthracene	65.0110	15	100.000	2.08200	62.9	51 - 127			
Benzo(a)anthracene	53.5660	15	100.000	ND	53.6	32 - 177			
Benzo(a)pyrene	38.2770	15	100.000	ND	38.3	27 - 166			
Benzo(b)fluoranthene	42.0850	15	100.000	ND	42.1	26 - 171			
Benzo(g,h,i)perylene	30.6960	15	100.000	ND	30.7	22 - 169			
Benzo(k)fluoranthene	39.1070	15	100.000	ND	39.1	41 - 140			M2
Chrysene	54.1940	15	100.000	1.97400	52.2	12 - 174			
Dibenz(a,h)anthracene	29.1620	15	100.000	ND	29.2	52 - 142			M2
Fluoranthene	71.9450	15	100.000	4.21400	67.7	40 - 165			
Fluorene	69.7380	15	100.000	ND	69.7	60 - 125			
Indeno(1,2,3-cd)pyrene	31.7110	15	100.000	ND	31.7	46 - 161			M2
Naphthalene	87.8850	15	100.000	157.583	-69.7	41 - 128			M2
Phenanthrene	72.3230	15	100.000	22.6860	49.6	26 - 161			
Pyrene	69.7960	15	100.000	2.38400	67.4	49 - 154			
Surrogate: 1,2-Dichlorobenzene-d4	*82.20*		*100.000*		*82.2*	*39 - 99*			
Surrogate: 2-Fluorobiphenyl	*86.12*		*100.000*		*86.1*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*82.57*		*100.000*		*82.6*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*76.09*		*100.000*		*76.1*	*44 - 150*			
Matrix Spike Dup (B5K0036-MSD1)		**Source: 1503733-27**		Prepared: 11/2/2015 Analyzed: 11/3/2015					
2-Methylnaphthalene	103.788	15	100.000	13.1650	90.6	50 - 135	7.05	20	
Acenaphthene	71.3490	15	100.000	ND	71.3	53 - 129	5.36	20	
Acenaphthylene	66.6760	15	100.000	ND	66.7	56 - 122	4.37	20	
Anthracene	69.9810	15	100.000	2.08200	67.9	51 - 127	7.36	20	
Benzo(a)anthracene	62.0200	15	100.000	ND	62.0	32 - 177	14.6	20	
Benzo(a)pyrene	43.0680	15	100.000	ND	43.1	27 - 166	11.8	20	
Benzo(b)fluoranthene	47.1840	15	100.000	ND	47.2	26 - 171	11.4	20	
Benzo(g,h,i)perylene	36.0280	15	100.000	ND	36.0	22 - 169	16.0	20	
Benzo(k)fluoranthene	45.6990	15	100.000	ND	45.7	41 - 140	15.5	20	
Chrysene	60.1470	15	100.000	1.97400	58.2	12 - 174	10.4	20	
Dibenz(a,h)anthracene	34.7370	15	100.000	ND	34.7	52 - 142	17.4	20	M2
Fluoranthene	78.7320	15	100.000	4.21400	74.5	40 - 165	9.01	20	
Fluorene	71.3650	15	100.000	ND	71.4	60 - 125	2.31	20	
Indeno(1,2,3-cd)pyrene	37.6470	15	100.000	ND	37.6	46 - 161	17.1	20	M2

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Semivolatile Organic Compounds by EPA 8270/SIM - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0036 - MSSEMI_S (continued)									
Matrix Spike Dup (B5K0036-MSD1) - Continued		**Source: 1503733-27**		Prepared: 11/2/2015 Analyzed: 11/3/2015					
Naphthalene	168.906	15	100.000	157.583	11.3	41 - 128	63.1	20	M2, R
Phenanthrene	90.9040	15	100.000	22.6860	68.2	26 - 161	22.8	20	R
Pyrene	76.1760	15	100.000	2.38400	73.8	49 - 154	8.74	20	
Surrogate: 1,2-Dichlorobenzene-d4	*82.38*		*100.000*		*82.4*	*39 - 99*			
Surrogate: 2-Fluorobiphenyl	*86.57*		*100.000*		*86.6*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*85.78*		*100.000*		*85.8*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*85.81*		*100.000*		*85.8*	*44 - 150*			

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Semivolatile Organic Compounds by EPA 8270/SIM - Quality Control

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0063 - MSSEMI_S									
Blank (B5K0063-BLK1)				Prepared: 11/3/2015 Analyzed: 11/5/2015					
2-Methylnaphthalene	ND	5.0			NR				
Acenaphthene	ND	5.0			NR				
Acenaphthylene	ND	5.0			NR				
Anthracene	ND	5.0			NR				
Benzo(a)anthracene	ND	5.0			NR				
Benzo(a)pyrene	ND	5.0			NR				
Benzo(b)fluoranthene	ND	5.0			NR				
Benzo(g,h,i)perylene	ND	5.0			NR				
Benzo(k)fluoranthene	ND	5.0			NR				
Chrysene	ND	5.0			NR				
Dibenz(a,h)anthracene	ND	5.0			NR				
Fluoranthene	ND	5.0			NR				
Fluorene	ND	5.0			NR				
Indeno(1,2,3-cd)pyrene	ND	5.0			NR				
Naphthalene	ND	5.0			NR				
Phenanthrene	ND	5.0			NR				
Pyrene	ND	5.0			NR				
Surrogate: 1,2-Dichlorobenzene-d4	*28.06*		*33.3333*		*84.2*	*39 - 99*			
Surrogate: 2-Fluorobiphenyl	*30.17*		*33.3333*		*90.5*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*17.47*		*33.3333*		*52.4*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*27.24*		*33.3333*		*81.7*	*44 - 150*			
LCS (B5K0063-BS1)				Prepared: 11/3/2015 Analyzed: 11/5/2015					
2-Methylnaphthalene	33.9240	5.0	33.3333		102	39 - 134			
Acenaphthene	25.8857	5.0	33.3333		77.7	42 - 119			
Acenaphthylene	24.1633	5.0	33.3333		72.5	41 - 118			
Anthracene	23.5073	5.0	33.3333		70.5	53 - 113			
Benzo(a)anthracene	22.2317	5.0	33.3333		66.7	58 - 130			
Benzo(a)pyrene	17.8243	5.0	33.3333		53.5	51 - 125			
Benzo(b)fluoranthene	22.9393	5.0	33.3333		68.8	56 - 122			
Benzo(g,h,i)perylene	20.7643	5.0	33.3333		62.3	47 - 129			
Benzo(k)fluoranthene	23.0900	5.0	33.3333		69.3	39 - 133			
Chrysene	24.6483	5.0	33.3333		73.9	54 - 128			
Dibenz(a,h)anthracene	21.0783	5.0	33.3333		63.2	57 - 121			
Fluoranthene	26.1653	5.0	33.3333		78.5	61 - 119			
Fluorene	23.6590	5.0	33.3333		71.0	48 - 117			
Indeno(1,2,3-cd)pyrene	22.3173	5.0	33.3333		67.0	57 - 129			
Naphthalene	27.3193	5.0	33.3333		82.0	36 - 126			
Phenanthrene	28.4163	5.0	33.3333		85.2	51 - 119			
Pyrene	24.4460	5.0	33.3333		73.3	61 - 122			
Surrogate: 1,2-Dichlorobenzene-d4	*28.14*		*33.3333*		*84.4*	*39 - 99*			

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Semivolatile Organic Compounds by EPA 8270/SIM - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0063 - MSSEMI_S (continued)									
LCS (B5K0063-BS1) - Continued				Prepared: 11/3/2015 Analyzed: 11/5/2015					
Surrogate: 2-Fluorobiphenyl	*29.55*		*33.3333*		*88.7*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*19.20*		*33.3333*		*57.6*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*26.12*		*33.3333*		*78.4*	*44 - 150*			
Matrix Spike (B5K0063-MS1)		**Source: 1503745-15**		Prepared: 11/3/2015 Analyzed: 11/5/2015					
2-Methylnaphthalene	107.354	15	100.000	ND	107	50 - 135			
Acenaphthene	77.4150	15	100.000	ND	77.4	53 - 129			
Acenaphthylene	70.0610	15	100.000	ND	70.1	56 - 122			
Anthracene	62.0840	15	100.000	ND	62.1	51 - 127			
Benzo(a)anthracene	39.8360	15	100.000	ND	39.8	32 - 177			
Benzo(a)pyrene	23.5220	15	100.000	ND	23.5	27 - 166			M2
Benzo(b)fluoranthene	34.6620	15	100.000	ND	34.7	26 - 171			
Benzo(g,h,i)perylene	20.2260	15	100.000	ND	20.2	22 - 169			M2
Benzo(k)fluoranthene	33.1640	15	100.000	ND	33.2	41 - 140			M2
Chrysene	44.6340	15	100.000	ND	44.6	12 - 174			
Dibenz(a,h)anthracene	19.2710	15	100.000	ND	19.3	52 - 142			M2
Fluoranthene	69.2220	15	100.000	ND	69.2	40 - 165			
Fluorene	69.4750	15	100.000	ND	69.5	60 - 125			
Indeno(1,2,3-cd)pyrene	20.0310	15	100.000	ND	20.0	46 - 161			M2
Naphthalene	94.5890	15	100.000	7.62400	87.0	41 - 128			
Phenanthrene	79.7850	15	100.000	3.35500	76.4	26 - 161			
Pyrene	61.3010	15	100.000	ND	61.3	49 - 154			
Surrogate: 1,2-Dichlorobenzene-d4	*84.59*		*100.000*		*84.6*	*39 - 99*			
Surrogate: 2-Fluorobiphenyl	*88.49*		*100.000*		*88.5*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*55.74*		*100.000*		*55.7*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*76.07*		*100.000*		*76.1*	*44 - 150*			
Matrix Spike Dup (B5K0063-MSD1)		**Source: 1503745-15**		Prepared: 11/3/2015 Analyzed: 11/5/2015					
2-Methylnaphthalene	85.2040	15	100.000	ND	85.2	50 - 135	23.0	20	R
Acenaphthene	65.3750	15	100.000	ND	65.4	53 - 129	16.9	20	
Acenaphthylene	59.3920	15	100.000	ND	59.4	56 - 122	16.5	20	
Anthracene	59.6590	15	100.000	ND	59.7	51 - 127	3.98	20	
Benzo(a)anthracene	43.2970	15	100.000	ND	43.3	32 - 177	8.33	20	
Benzo(a)pyrene	27.4820	15	100.000	ND	27.5	27 - 166	15.5	20	
Benzo(b)fluoranthene	39.2040	15	100.000	ND	39.2	26 - 171	12.3	20	
Benzo(g,h,i)perylene	26.1550	15	100.000	ND	26.2	22 - 169	25.6	20	R
Benzo(k)fluoranthene	38.3560	15	100.000	ND	38.4	41 - 140	14.5	20	M2
Chrysene	48.7760	15	100.000	ND	48.8	12 - 174	8.87	20	
Dibenz(a,h)anthracene	24.6760	15	100.000	ND	24.7	52 - 142	24.6	20	M2, R
Fluoranthene	67.5170	15	100.000	ND	67.5	40 - 165	2.49	20	
Fluorene	60.7070	15	100.000	ND	60.7	60 - 125	13.5	20	
Indeno(1,2,3-cd)pyrene	25.9160	15	100.000	ND	25.9	46 - 161	25.6	20	M2, R

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Semivolatile Organic Compounds by EPA 8270/SIM - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5K0063 - MSSEMI_S (continued)									
Matrix Spike Dup (B5K0063-MSD1) - Continued		**Source: 1503745-15**		Prepared: 11/3/2015 Analyzed: 11/5/2015					
Naphthalene	74.6420	15	100.000	7.62400	67.0	41 - 128	23.6	20	R
Phenanthrene	75.4540	15	100.000	3.35500	72.1	26 - 161	5.58	20	
Pyrene	60.6660	15	100.000	ND	60.7	49 - 154	1.04	20	
Surrogate: 1,2-Dichlorobenzene-d4	*66.29*		*100.000*		*66.3*	*39 - 99*			
Surrogate: 2-Fluorobiphenyl	*73.41*		*100.000*		*73.4*	*47 - 111*			
Surrogate: Nitrobenzene-d5	*45.39*		*100.000*		*45.4*	*20 - 144*			
Surrogate: 4-Terphenyl-d14	*71.69*		*100.000*		*71.7*	*44 - 150*			

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Notes and Definitions

S2	Surrogate recovery was below laboratory acceptance limit. Reextraction and/or reanalysisconfirms low recovery caused by matrix effects.
R	RPD value outside acceptance criteria. Calculation is based on raw values.
M2	Matrix spike recovery outside of acceptance limit due to possible matrix interference. The analytical batch was validated by the laboratory control sample.
M1	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
L4	Laboratory Control Sample outside of control limit but within Marginal Exceedance (ME) limit.
D6	Sample required dilution due to high concentration of target analyte.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Notes:
(1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
(2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
(3) Results are wet unless otherwise specified.

APPENDIX D

Statistical Analysis Output Files