ASSESSMENT OF BURN DEBRIS - 2007 WILDFIRES
SAN BERNARDINO AND SAN DIEGO COUNTIES, CALIFORNIA

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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 Slide Fire in San Bernardino County and Witch Creek Fire in San Diego County, California during October 2007 (Figures 1 and 2). Geosyntec Consultants (Geosyntec) performed this assessment on behalf of the California Environmental Protection Agency (CalEPA), Department of Toxic Substances Control (DTSC) in general accordance with the 27 November 2007 Sampling and Analysis Plan (SAP) (Geosyntec, 2007; Appendix A). The SAP was distributed to the United States Environmental Protection Agency (USEPA), DTSC, California Office of Environmental Health Hazard Assessment (OEHHA), California Office of Emergency Services (OES), San Bernardino and San Diego Counties, and the City of San Diego for review and comment.

Background

On 21 October 2007, the Governor of California proclaimed a "State of Emergency" as a result of the 2007 Southern California Wildfires which occurred throughout seven counties (Governor of the State of California, 2007). These fires burned more than 350,000 acres, destroyed more than 2,200 residential and commercial structures, and destroyed more than 2,000 vehicles in San Bernardino and San Diego Counties, alone.

Experiences from fires of a similar nature indicate that many hazardous substances may be found in burned residential areas. Some of these substances 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. Laboratory analysis of residential ash and burn debris following the 2003 San Diego County Wildfires indicated the presence of elevated concentrations of metals, including antimony, arsenic, copper, lead and zinc and certain PAHs. Concentrations of these constituents were present at levels exceeding statutorily-established health based criteria (Geosyntec, 2004).

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. 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.

Federal Environmental Management Agency (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).

The CalEPA and its boards, departments, and offices, have made the determination that the burn debris and ash resulting from the 2007 Southern California Wildfires poses an immediate threat to public health and safety. Geosyntec understands that State, Counties of San Bernardino and San Diego, City of San Diego, 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 San Bernardino County and 35 sites in San Diego 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 residential California Human Health Screening Levels (CHHSLs) and Preliminary Remediation Goals (PRGs). The laboratory analytical data

document the presence of constituents in the burn debris and ash at concentrations exceeding established residential CHHSLs or PRGs.

The results of this assessment demonstrate that burn debris and ash in residential areas affected by the 2007 Southern California 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:

- Arithmetic mean concentrations of arsenic, cadmium, copper, and lead exceed residential CHHSLs or PRGs in both areas characterized in San Bernardino and San Diego Counties.
- The geometric mean concentration of arsenic exceeds the residential CHHSL and PRG in both areas characterized in San Bernardino and San Diego Counties. The geometric mean concentration of lead also exceeds the residential CHHSL and PRG in the area characterized in San Bernardino County.
- Arithmetic and geometric mean concentrations of PAHs were below CHHSLs and PRGs, but greater than 27 percent of the samples collected in the areas characterized in San Bernardino and San Diego Counties contained one or more PAH constituents at concentrations exceeding CHHSLs or PRGs.
- Geometric mean concentrations of antimony, arsenic, barium, chromium, nickel, and zinc exceeded USEPA Region IX soil screening levels for surface water, shallow groundwater, and areas underlain by fractured rock aquifers in both areas characterized in San Bernardino and San Diego Counties. As demonstrated by the 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 drinking water supplies.
- The results of this burn debris assessment indicated similar COCs were detected as those detected during the assessment following the 2003 San Diego County wildfires. However, the concentrations of COCs detected following the 2007 wildfires were generally lower than concentrations detected following the 2003 wildfires as a result of the statistically-based random sampling approach and purposefully avoiding samples from areas with suspected high levels of contamination (e.g., under a burned car) during the 2007 assessment. Therefore, it is possible that higher concentrations of

COCs are present in burn debris in the areas sampled than detected during this assessment.

- Geosyntec understands that visible and retrievable household hazardous wastes were removed prior to sampling, and did not influence the results of characterizing typical residential contamination following a wildfire. However, constituents still exceeded the established screening criteria following the removal of these wastes.
- The screening criteria (residential CHHSLs and PRGs) 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 Slide Fire in San Bernardino County and Witch Creek Fire in San Diego County, California during October 2007 (Figures 1 and 2). Geosyntec Consultants' (Geosyntec) services were performed for the California Environmental Protection Agency (CalEPA), Department of Toxic Substances Control (DTSC) in general accordance with the 27 November 2007 Sampling and Analysis Plan (SAP) (Geosyntec, 2007; Appendix A). The SAP was distributed to the United States Environmental Protection Agency (USEPA), DTSC, California Office of Environmental Health Hazard Assessment (OEHHA), California Office of Emergency Services (OES), San Bernardino and San Diego Counties, and the City of San Diego for review and comment.

Data collected during this assessment will be provided to the interested agencies referenced above. This report was prepared by Ms. Jennifer Schwartz and Ms. Shana McCarthy and has been reviewed by Mr. Veryl Wittig, PG, CHG and Mr. Sam Williams, PG, CHG, all of Geosyntec, in accordance with the peer review policy of the firm.

1.1 Background

On 21 October 2007, the Governor of California proclaimed a "State of Emergency" (Executive Order EO S-13-07) as a result of the 2007 Southern California Wildfires which occurred throughout seven counties (Governor of the State of California, 2007). These fires burned more than 350,000 acres, destroyed more than 2,200 residential and commercial structures, and destroyed more than 2,000 vehicles in San Diego and San Bernardino Counties, alone.

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. 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.

Experiences from fires of a similar nature indicate that many hazardous substances may be found in burned residential areas. Some of these substances include metal residue 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 plastics; asbestos from building materials; and polychlorinated biphenyls (PCBs) from appliances and automotive parts. Laboratory analysis of burned residential ash and debris following the 2003 San Diego County Wildfires indicated the presence of elevated concentrations of certain PAHs as well as heavy metals, including antimony, arsenic, copper, lead and zinc (Geosyntec, 2004). Concentrations of these constituents were present at levels exceeding statutorily-established health based criteria. A reasonable expectation was that similar types of hazardous substances would be detected following analysis of ash and debris from the 2007 Southern California Wildfires. If so, such data would warrant removal of these materials from affected communities in an expedited manner to protect public health and safety.

An assessment of ash and burned soils from the 2007 Southern California Wildfires was performed by the USGS in November 2007. Although limited in the number of samples collected and analyzed, the USGS identified the presence of elevated concentrations of several metals and caustic alkaline materials. The USGS indicated that rain-water runoff from burned areas may adversely affect ecosystems and the quality of surface drinking water supplies, and that aquatic habitat may be affected by spikes in alkalinity as rainwater mixes with ash to form surface runoff (USGS, 2007).

Federal Environmental Management Agency (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, 42 U.S.C. 5170b and 5173, respectively, 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).

Geosyntec understands that State, County, and local agencies including the DTSC, Counties of San Diego and San Bernardino, and City of San Diego 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 (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 burn 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 San Bernardino County and one in San Diego County) affected by the 2007 Southern California Wildfires. The concentrations of constituents of concern (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 interested regulatory agencies;
- 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 the COCs, namely 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 County of San Diego County Firestorm Recovery 2007 and Cal Fire websites, the 2007 Southern California Wildfires in San Diego and San Bernardino Counties burned more than 350,000 acres, destroyed more than 2,200 residential and commercial structures, destroyed more than 1,100 outbuildings (detached garages, barns, sheds and other structures), and destroyed more than 2,000 vehicles as summarized in the following table:

County	Fire	Acres Burned	Residential, Commercial, and Industrial Structures Destroyed	Outbuildings Destroyed	Vehicles, Trailers, Boats, Tractors Destroyed
San Diego	Witch Creek	198,000	1,119	652	1,139
	Harris	90,000	283	172	293
	Poomacha	49,000	133	84	346
	Rice Canyon	10,000	240	249	232
	Coronado Hills	250	0	2	0
San Bernardino	Slide	13,000	272	3	Unknown
	Grass Valley	1,200	174	2	Unknown

2.2 Regulatory Guidance

Established protocol for sampling burn debris on residential properties are not known to currently exist. Therefore, regulatory guidance including the CIWMB Local Enforcement Agency (LEA) Advisory #56 (CIWMB, 1998) and the "Protocol for Burn Dump Site Investigation and Characterization," prepared by the DTSC (DTSC, 2003), were used for general guidance in evaluating constituents of concern, evaluating sampling protocol, and evaluating the hazards posed by burn debris and ash to human health and the environment. Information regarding burn debris composition and estimated volumes of burn debris associated with burned residences were obtained from a document prepared to address removal of burn debris following the June 2007 Angora

Fire in South Lake Tahoe, California (CIWMB, 2007). Debris sampling protocol were reviewed from the USEPA Resource Conservation and Recovery Act (RCRA) Waste Sampling Guidance (USEPA, 2002a). Composite sampling protocol were reviewed from the USEPA Guidance on Choosing a Sampling Design for Environmental Data Collection (USEPA, 2002b), and the San Diego County DEH Site Assessment and Mitigation (SAM) Manual (DEH, 2004).

2.3 Constituents of Concern

Based on sampling and laboratory analyses following the 2003 San Diego County Wildfires, metals (primarily arsenic, lead, zinc, copper, and 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 (Geosyntec, 2004). Therefore, Geosyntec was directed by CalEPA to use metals and PAHs as indicator parameters for the laboratory analyses to be performed on samples collected.

Other constituents of potential concern (COPCs) in residential burn 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. These COPCs were not analyzed as part of this assessment.

2.4 Sampling Areas

Representatives from San Bernardino and San Diego Counties designated the “typical” residential areas targeted for sampling in their respective county. The San Bernardino County sampling area was located within the “Running Springs” community, approximately 6 miles from Lake Arrowhead in the San Bernardino Mountains. Within this general area, approximately 161 homes were destroyed by the Slide Fire. The San Diego County sampling area was located within the “Westwood” community in Rancho Bernardo, an area of single family homes within the City of San Diego. Within this general area, approximately 134 homes were destroyed by the Witch Creek Fire (City of San Diego, 2007). Sampling was performed on or near the footprint of the former structures (where the burn debris and ash was typically located) on the residential properties randomly selected within the two areas. In the one case where burn debris and ash were consolidated at the site within a stockpile, in preparation for offsite transport and disposal, samples were collected following stockpile sampling protocol summarized in the SAP.

2.4.1 San Bernardino County

2.4.1.1 Physiographic and Geologic Setting

The general site area is located within the Lake Arrowhead basin of the Transverse Ranges Province. The Lake Arrowhead basin is situated within the San Bernardino Mountains of San Bernardino County, approximately 20 miles northeast of the City of San Bernardino and approximately 90 miles east of Los Angeles.

The Lake Arrowhead basin, like much of the San Bernardino Mountains, is comprised primarily of Cretaceous age granitic bedrock and lesser amounts of Pre-Cambrian granitic and metamorphic crystalline rock (Bortungno, 1986). The general area is bounded to the north by south-dipping faults of the north-frontal fault system and to the south and west by the San Andreas Fault system (USGS, 2006).

The general sampling area is located within the Upper Mojave River Valley Groundwater Basin of the South Lahontan Hydrologic Region. The groundwater in the Upper Mojave Basin is predominantly unconfined, and has been designated as beneficial for municipal and agricultural supply purposes (California Department of Water Resources, 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.

2.4.1.2 Site Features and Conditions

The sites sampled are primarily located in rural, unincorporated areas of San Bernardino 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 San Diego County

2.4.2.1 Physiographic and Geologic Setting

The general sampling area is situated within the western foothills of the Peninsular Ranges Province in the Rancho Bernardo area of San Diego County, approximately 20 miles north-northeast of downtown San Diego. Within this area, the topography

generally consists of canyons and rolling hills at an approximate elevation of 470 feet above MSL. The area is bounded by the Peninsular Range to the east and the coastal plain and Pacific Ocean to the West. The western foothills of the Peninsular Ranges are typically composed of crystalline (igneous and metamorphic) rock of Cretaceous to late Jurassic age (Kennedy, 1975) and is characterized by northwest-trending faults associated with the boundary between the North American and Pacific plates. The project area lies between the active Rose Canyon and Elsinore fault zones at respective distances of approximately 12 miles west and 22 miles east.

The general sampling area is located within the Del Dios Hydrologic Subarea of the Hodges Hydrogeologic Area (905.2) of the San Dieguito Hydrologic Unit. The groundwater in the Hodges Hydrologic Area is generally unconfined, and has been designated as beneficial for municipal, agricultural, and industrial supply purposes (RWQCB, 2006).

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 fractured rock aquifer(s) which underlie many of these areas. In contrast, a significant thickness of sediments which may be present on a mesa or in an alluvial valley would likely provide greater protection by acting as a "filter" to an underlying fractured rock or sedimentary aquifer.

2.4.2.2 Site Features and Conditions

The sites sampled are located in a suburban, residential area. Many of the residences were located in generally flat areas; some homes were on terraced slopes. 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

Variability in the concentrations of constituents in burn debris samples collected from residential properties affected by the 2003 wildfires were used to estimate the variance of constituent concentrations for the proposed samples. The coefficient of variation (CV) was used to estimate variability relative to the mean. The results for a few key COCs from the 2003 fires (including metals and PAHs) along with the median CV for

all constituents are summarized in the following table. Constituents with large numbers of non-detects were not included in the median CV calculation.

Parameter	Lead	Fluoranthene	Fluorene	Naphthalene	Median All Constituents
Mean	5,595 mg/kg	393 µg/kg	148 µg/kg	699 µg/kg	-
Standard Deviation	16,636 mg/kg	1,087 µg/kg	288 µg/kg	906 µg/kg	-
CV	2.97	2.74	1.95	1.30	1.65

To estimate the number of samples (*n*) required to develop a statistically valid dataset for this assessment, the following formula was used (Ott and Longnecker, 2001):

$$n = \left(\frac{t_{1-\alpha/2} * CV}{p} \right)^2$$

where:

n = number of samples to obtain

$t_{1-\alpha/2}$ = confidence level factor (1.96 for a 95 percent confidence level)

CV = coefficient of variation (STD/Mean) based on 2003 sampling data

p = acceptable margin-of-error

The tolerable error in the estimate is given as the margin-of-error relative to the estimated CV of the sample data. The tolerable error (p) is set at 0.6 (60 percent relative error)[1]. A confidence level of 95 percent was used for the purposes of the sample size derivation. This provides a reasonable certainty (95 percent or greater) that the sample mean interval contains the true mean (µ). Therefore, using the formula listed above, a median CV of 1.65, based on the observed values from the 2003 dataset, was calculated. Based on an acceptable margin of error of 0.6, the sample size required to estimate the mean concentration was approximately 29 samples as follows:

[1] Tolerable error is based on professional judgment for estimating environmental parameters of this type. This tolerable error level provides a sample size that corresponds to greater than 10% of the population of affected properties sampled. It also provides enough samples for subsequent distributional tests (goodness-of-fit tests) to have reasonable power.

$$\left(\frac{1.96*1.65}{0.6}\right)^2 = 29.05$$

The sampling variability from the 2003 burn debris sampling data was assumed to be representative of the variability expected in the sampling described herein. However, to account for potentially greater variability, it was determined that 35 properties within each sample area would provide a statistically-valid data set to calculate the mean concentrations for the COCs.

2.6 Sampling Locations

Sampling locations were selected using a representative statistically-based sampling program developed to objectively characterize the hazards associated with burn debris and ash within two "typical" residential areas (one in San Bernardino County and one in San Diego County).

A subset of parcels that contain a destroyed structure were randomly identified from the total number of parcels with destroyed structures within each of the two sampling areas. From this subset, random parcels were selected and designated as locations to have samples collected from the destroyed structure(s). The Random Selection Within Subsets tool in Hawth's Analysis Tools for ArcGIS Version 3.27 (Beyer, 2004) was utilized to randomly select a list of 35 primary and 40 alternate parcels with destroyed residences from each of the two sampling areas. The lists of randomly selected alternate parcels were developed to address field contingencies including parcels which had already been cleared or are otherwise inaccessible due to limited access, safety concerns, or other limitations. The list of randomly-selected parcels with fire-destroyed homes in the Running Springs area of San Bernardino County is presented in Table 1. The list of randomly-selected parcels with fire-destroyed homes in the Westwood-Rancho Bernardo area of San Diego County is presented in Table 2.

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

Based on volume estimates derived during the 2007 Angora Fires (CIWMB, 2007), it was expected that burned parcels would contain 10 to 150 cubic yards of burn ash and debris resulting from burned residential structures and associated outbuildings. Geosyntec understands that visible and retrievable household hazardous wastes were removed prior to sampling, and did not influence the results of characterizing typical residential contamination following a wildfire.

Upon arrival at a site 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(s). The footprint of each former structure within the randomly selected parcel was divided into two to six approximately equal "cells" using the following criteria:

Estimated Burn Ash/Debris[2] Volume (CY)	Discrete Sample Quantity[3]
Less than 10	2
10 to 20	3
20 to 100	4
100 +	1 for each 25 CY

A random number generator was used to produce field forms to determine "x" and "y" sample location coordinates for each cell. One composite sample was collected from the footprint of each former structure. Approximately 4-ounces of ash or burn debris at

[2] Burn ash and debris volume estimates excluded rock, concrete, brick, stucco, metal, and glass.
[3] 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 San Diego County guidance.

each random sampling location was collected from the upper 6 to 12 inches of burn debris and ash using a new single-use stainless-steel spoon and placed into a new single-use stainless-steel mixing bowl for homogenization. Homogenization consisted of manually mixing the discrete samples until the composite sample appeared thoroughly mixed. Following homogenization of the composite sample, the resulting material was placed in an 8-ounce glass jar for laboratory analysis. The sampling team took photographs of each site sampled and of the random discrete sample locations at each site. The photograph numbers were recorded on the field sampling log and are presented in Appendix B. At a minimum, one discrete sample 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 sampled separately.

At site SD-46, the burn debris had been removed from the foundation of the structure and was stockpiled. A composite sample of the stockpile was collected. For stockpiles, the number of samples comprising the composite sample is summarized as follows:

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

For quality assurance/quality control (QA/QC), each field team collected one blind duplicate sample per day (eight duplicate samples total) to evaluate sampling and analytical precision.

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 labeling, identification, containerizing, 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 and was labeled with the job number, sampler, date, and time of collection. The sample identification number identified the County (San Bernardino or San Diego), site number (1 through 75) and date, (i.e., SD-08-11262007 identifies that this sample was collected from San Diego County Site No. 08 on 26 November 2007).

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 under chain-of-custody procedures to the laboratory in a cooler.

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 all samples listed on the chain-of-custody form were present; verified sample integrity; and verified that proper sample preservation procedures were utilized.

3.4 Analytical Parameters

Laboratory analyses were performed by Calscience Environmental Laboratory in Garden Grove, California, a California Department of Public Health certified laboratory. Each composite sample (74 samples total) was analyzed for Title 22 metals (TTLC) by EPA Method 6010B/7471A and PAHs by EPA Method 8310. Laboratory analytical certificates are included in Appendix C.

QC performed by the analytical laboratory, to assess laboratory precision and accuracy, included method blanks, laboratory control spikes, and matrix spikes.

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 analytical results (Appendix C).

Laboratory Control Spike: A Laboratory Control Spike (LCS) is a sample that is spiked with known analyte concentrations, and analyzed at approximately 10 percent of the sample load in order to establish method-specific control limits. The LCS results associated with the samples are included on the Laboratory Control Sample Report (Appendix C).

Matrix Spike Results: A matrix spike is a sample that is spiked with known analyte concentrations and analyzed at approximately 10 percent of the sample load in order to establish method-specific control limits. The matrix spike results associated with the samples are included on the Spike/Spike Duplicate Report (Appendix C).

Accuracy: Accuracy is measured by percent recovery as defined by:

$$\% \text{ recovery} = \frac{(\text{measured concentration}) \times 100}{(\text{actual concentration})}$$

3.5 Validation of Laboratory Analytical Results

Level II data packages produced by Calscience were validated by Ms. Shana McCarthy of Geosyntec. Poor recovery of PAHs in the matrix spike and matrix spike duplicate QA/QC samples was identified in each of the laboratory analytical reports. With the exception of "J" flags for PAH detections in samples SB-25A-112807, SB-28-112807, SB-28C-1128-7, SB-31-112807, SB-40-112807, SD-22-11272007, and SD-41-11272007 for PAHs, no other qualifiers were applied to the data. A copy of the data validation report is included in Appendix C.

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 San Bernardino and the San Diego 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:

- CalEPA California Human Health Screening Levels for residential properties (residential CHHSLs);
- United States Environmental Protection Agency (USEPA) Region IX Preliminary Remediation Goals for residential properties (residential PRGs);
- California hazardous waste classification criteria (total threshold limit concentrations (TTLC[4]) and soluble threshold limit concentrations (STLC[5]));
- Federal hazardous waste classification criteria (toxicity characteristic leaching procedure (TCLP[6]));

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[4] The TTLC refers to a test method and associated regulatory thresholds used for characterizing wastes in California for disposal purposes. Waste samples are dissolved in a nitric acid solution that is strong enough to partially dissolve bits of metal which may be present in the fire debris ash samples. The total concentrations of target metals are then determined. EPA Method 6010B/7471A, used to analyzed samples during this study, is appropriate for analyzing samples and comparing the results to TTLC values.

[5] The STLC refers to a different test method (the Waste Extraction Test or "WET" test) and different regulatory thresholds. The WET test combines a unit of solid waste with ten units of a weaker acid

- California background metals concentrations (UC Riverside, 1996); and
- USEPA Region IX Soil Screening Levels (SSLs), Dilution Attenuation Factors 1 and 20 (DAF1 – to evaluate migrations and potential threats to shallow groundwater or surface water; and DAF20 – to evaluate migration and potential threats to deeper groundwater).

A brief discussion about each constituent detected and comparisons to established hazardous waste classification criteria; residential PRGs and CHHSLs, for human health risk; and DAF1 and DAF20, for potential migration to groundwater or surface water, are provided below.

4.2.1 Human Health Screening Criteria

The CHHSLs are CalEPA developed risk-based concentrations that the CalEPA considers to be below thresholds of concern for risks to human health. The thresholds of concern used to develop the CHHSLs are an excess lifetime cancer risk of one-in-a-million (10^{-6}) and a hazard quotient of 1.0 for noncancer health effects (CalEPA, 2005). The CHHSLs were developed using standard exposure assumptions and chemical toxicity values published by the USEPA and CalEPA. The CHHSLs can be used to screen sites for potential human health concerns where releases of hazardous chemicals to soils have occurred. Under most circumstances, the presence of a chemical in soil at concentrations below the corresponding CHHSLs can be assumed to not pose a significant health risk to people who may live (residential CHHSLs) or work (commercial/industrial CHHSLs) at the site.

PRGs are human health risk-based "cleanup" goals developed by the USEPA and are commonly used in the investigation of contaminated sites. PRGs 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. PRGs are "guideline" generic values that are not legally enforceable, and do not take site-specific conditions into account. However, PRGs 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 PRGs developed by USEPA Region IX, were used to evaluate potential hazards to humans (USEPA, 2004).

(citric acid) than is used for TTLC purposes. The WET test is intended to simulate how a disposed material might be affected by leachate in a landfill.

[6] The TCLP and its associated regulatory thresholds are, essentially, a federal law version of the STLC. A different test method (with a 20 to 1 initial dilution ratio) is used, and associated regulatory thresholds are less stringent. For the extraction, the TCLP test uses a weaker acid (acetic acid) than is used for STLC purposes.

4.2.2 Waste Characterization Screening Criteria

The TTLC, STLC, and TCLP are commonly used in the characterization of wastes for disposal purposes. The purpose of this study was not to characterize ash as hazardous waste. However, comparing the concentration of constituents in burn debris and ash to waste characterization screening criteria provides an important benchmark. Knowing the total concentration (TTLC) value of a waste material for a specific compound, a simple computation can be performed to determine the maximum theoretical leachable concentration of that compound. The maximum theoretical leachable concentration can be computed by dividing the total concentration (TTLC) by 20 for the TCLP, or by 10 for the STLC (based on the liquid to solid ratio used in the respective extraction procedures). The maximum extractable concentration is conservative in that it assumes the extraction is 100 percent efficient. If this calculated maximum extractable concentration is below the TCLP and STLC threshold concentrations, these extraction methods need not be performed because it would not be possible to exceed the TCLP/STLC threshold concentration.

No STLC or TCLP testing was performed during this assessment, but TTLC metals concentrations obtained using EPA Method 6010B/7471A were compared to 10 times the STLC standard, or 20 times the TCLP standard. The TTLC, 10 times the STLC and 20 times the TCLP were used during this assessment to evaluate the presence in the samples of constituents identified as hazardous substances under Federal or State law, at concentrations that could be subject to regulation.

4.2.3 Other Screening Criteria

Soil screening dilution-attenuation factors (DAFs) for the protection of groundwater are similar to PRGs 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. Using a default DAF of 1 assumes that little or no dilution of contaminant concentrations occurs between the source and groundwater (e.g., a site where groundwater was shallow or underlain by a fractured rock aquifer). A DAF of 1 was also used for the purposes of assessing potential threats to surface water, where little or no attenuation of surface contaminants would occur before entering a surface water body. A DAF of 20 is also presented for comparison to account for sites where significant contaminant reduction would likely occur in the subsurface before reaching groundwater (e.g., a site where groundwater was deep, in a porous media aquifer) (USEPA, 2004).

Summaries of the number of samples exceeding the established regulatory threshold criteria listed above and the maximum and minimum detected concentrations, arithmetic mean, and geometric mean for each data set are presented in Tables 5 and 6.

When a constituent was not detected, half of the laboratory detection limit was used to calculate the mean and geometric mean, per standard guidelines (USEPA, 1992).

4.3 Laboratory Analytical Results

4.3.1 San Bernardino County

4.3.1.1 Metals

Each sample (39 primary samples and 4 field duplicate samples from 35 sites) collected during this assessment was analyzed for California Title 22 Metals by EPA Method 6010B/7471A. Each of the Title 22 metals listed in Table 3, except thallium, were detected in at least one sample, and the "total metals" results are discussed below. The statistics and established criteria exceedances are summarized in Table 5.

Beryllium, cobalt, molybdenum, thallium, and vanadium were not detected at concentrations exceeding the previously referenced regulatory threshold criteria in samples collected from the 35 sites evaluated during this assessment.

Antimony was detected in 32 of the 39 samples analyzed at concentrations ranging from 0.994 to 189 mg/kg. A summary of the detected antimony concentrations is presented in the following table:

Antimony		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	0.5 mg/kg	32 of 39
CHHSL	30 mg/kg	8 of 39
PRG	31 mg/kg	7 of 39
TTLC	500 mg/kg	0 of 39
10X the STLC	150 mg/L	1 of 39
DAF1	0.30 mg/kg	32 of 39
DAF20	50 mg/kg	5 of 39
Arithmetic Mean Concentration	24.8 mg/kg	-
Geometric Mean Concentration	6.17 mg/kg	-

Approximately 21 percent of samples analyzed contained antimony at concentrations exceeding the residential CHHSL and 18 percent exceed the residential PRG. None of the samples analyzed contained antimony at concentrations exceeding the TTLC and one sample exceeded 10 times the STLC. Approximately 82 percent of the samples contained antimony at concentrations exceeding the SSL DAF1, and 13 percent of the samples contained antimony at concentrations exceeding the SSL DAF20.

Arsenic is considered a "priority pollutant" by the USEPA (USEPA, 2007). Arsenic was detected in each of the 39 samples analyzed at concentrations ranging from 0.807 to 73.5 mg/kg. A summary of the detected arsenic concentrations is presented in the following table:

Arsenic		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	2.75 mg/kg	30 of 39
CHHSL	0.070 mg/kg	39 of 39
PRG	0.062 mg/kg	39 of 39
TTLC	500 mg/kg	0 of 39
10X the STLC	50 mg/L	3 of 39
20X the TCLP	100 mg/L	0 of 39
DAF1	1.0 mg/kg	38 of 39
DAF20	29 mg/kg	6 of 39
Arithmetic Mean Concentration	14.9 mg/kg	-
Geometric Mean Concentration	8.25 mg/kg	-

Each of the 39 samples analyzed contained arsenic at concentrations exceeding the residential CHHSL and residential PRG. None of the samples analyzed contained arsenic at concentrations exceeding the TTLC or 20 times the TCLP. Approximately 8 percent of the samples exceeded 10 times the STLC. Approximately 97 percent of the samples contained arsenic at concentrations exceeding the SSL DAF1, and 15 percent of the samples contained arsenic at concentrations exceeding the SSL DAF20.

Barium was detected in each of the 39 samples analyzed at concentrations ranging from 24.7 to 1,570 mg/kg. A summary of the detected barium concentrations is presented in the following table:

Barium		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	468 mg/kg	9 of 39
CHHSL	5,200 mg/kg	0 of 39
PRG	5,400 mg/kg	0 of 39
TTLC	10,000 mg/kg	0 of 39
10X the STLC	1,000 mg/L	3 of 39
20X the TCLP	2,000 mg/L	0 of 39
DAF1	82 mg/kg	38 of 39
DAF20	1,600 mg/kg	0 of 39
Arithmetic Mean Concentration	382 mg/kg	-
Geometric Mean Concentration	285 mg/kg	-

None of the samples analyzed contained barium at concentrations exceeding the residential CHHSL or PRG. None of the samples analyzed contained barium at concentrations exceeding the TTLC or 20 times the TCLP. Approximately 8 percent of the samples exceeded 10 times the STLC. Approximately 97 percent of the samples contained barium at concentrations exceeding the SSL DAF1, and none of the samples contained barium at concentrations exceeding the SSL DAF20.

Cadmium is considered a "priority pollutant" by the USEPA (USEPA, 2007). Cadmium was detected in 24 of the 39 samples analyzed at concentrations ranging from 0.598 to 683 mg/kg. A summary of the detected cadmium concentrations is presented in the following table:

Cadmium		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	0.26 mg/kg	24 of 39
CHHSL	1.7 mg/kg	16 of 39
PRG	37 mg/kg	4 of 39
TTLC	100 mg/kg	1 of 39
10X the STLC	10 mg/L	7 of 39
20X the TCLP	20 mg/L	6 of 39
DAF1	0.40 mg/kg	24 of 39
DAF20	80 mg/kg	1 of 39
Arithmetic Mean Concentration	25.2 mg/kg	-
Geometric Mean Concentration	0.346 mg/kg	-

Approximately 41 percent of samples analyzed contained cadmium at concentrations exceeding the residential CHHSL and 10 percent exceed the residential PRG. One of the samples analyzed contained cadmium at concentrations exceeding the TTLC, approximately 18 percent of the samples exceeded 10 times the STLC, and approximately 15 percent of the samples exceeded 20 times the TCLP. Approximately 62 percent of the samples contained cadmium at concentrations exceeding the SSL DAF1, and one sample contained cadmium at concentrations exceeding the SSL DAF20.

Chromium is considered a "priority pollutant" by the USEPA (USEPA, 2007). Chromium (total chromium; hexavalent chromium is discussed following this section) was detected in each of the 39 samples analyzed at concentrations ranging from 1.22 to 141 mg/kg. A summary of the detected chromium concentrations is presented in the following table:

Chromium		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	76.25 mg/kg	4 of 39
PRG	210 mg/kg	0 of 39
TTLC	2,500 mg/kg	0 of 39
10X the STLC	50 mg/L	6 of 39
20X the TCLP	100 mg/L	3 of 39
DAF1	2.0 mg/kg	39 of 39
DAF20	38 mg/kg	9 of 39
Arithmetic Mean Concentration	29.8 mg/kg	-
Geometric Mean Concentration	19.6 mg/kg	-

None of samples analyzed contained chromium at concentrations exceeding the residential PRG. None of the samples analyzed contained chromium at concentrations exceeding the TTLC, approximately 15 percent of the samples exceeded 10 times the STLC, and approximately 8 percent of the samples exceeded 20 times the TCLP. Each of the samples contained chromium at concentrations exceeding the SSL DAF1, and approximately 23 percent of the samples contained chromium at concentrations exceeding the SSL DAF20.

Hexavalent chromium was initially not part of the scope of this project. However, there is no CHHSL for total chromium; therefore a statistical analysis using the student t-test, as described in the SAM manual, was performed using total chromium results (DEH, 2004). It was determined that seven samples from each area would be sufficient to determine the average concentration of hexavalent chromium in the burn debris. Seven samples with total chromium concentrations exceeding 17 mg/kg (the residential CHHSL for hexavalent chromium) were randomly selected from the San Bernardino County existing samples and were additionally analyzed for hexavalent chromium on 12 December 2007. Hexavalent chromium was not detected (less than 0.22 mg/kg) in the 7 samples analyzed.

Copper is considered a "priority pollutant" by the USEPA (USEPA, 2007). Copper was detected in each of the 39 samples analyzed at concentrations ranging from 129 to 20,800 mg/kg. A summary of the detected copper concentrations is presented in the following table:

Copper		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	24 mg/kg	39 of 39
CHHSL	3,000 mg/kg	14 of 39
PRG	3,100 mg/kg	13 of 39

Copper		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
TTLC	2,500 mg/kg	18 of 39
10X the STLC	250 mg/L	36 of 39
Arithmetic Mean Concentration	4,210 mg/kg	-
Geometric Mean Concentration	1,830 mg/kg	-

Approximately 36 percent of samples analyzed contained copper at concentrations exceeding the residential CHHSL and 33 percent exceed the residential PRG. Approximately 46 percent of the samples analyzed contained copper at concentrations exceeding the TTLC, and approximately 92 percent of the samples exceeded 10 times the STLC.

Lead is considered a "priority pollutant" by the USEPA (USEPA, 2007). Lead was detected in each of the 39 samples analyzed at concentrations ranging from 13.6 to 49,100 mg/kg. A summary of the detected lead concentrations is presented in the following table:

Lead		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	44.6 mg/kg	35 of 39
CHHSL	150 mg/kg	20 of 39
PRG	150 mg/kg	20 of 39
TTLC	1,000 mg/kg	5 of 39
10X the STLC	50 mg/L	35 of 39
20X the TCLP	100 mg/L	26 of 39
Arithmetic Mean Concentration	1,640 mg/kg	-
Geometric Mean Concentration	211 mg/kg	-

Approximately 51 percent of samples analyzed contained lead at concentrations exceeding the residential CHHSL and residential PRG. Approximately 13 percent of the samples analyzed contained lead at concentrations exceeding the TTLC, 90 percent of the samples exceeded 10 times the STLC, and 67 percent of the samples exceeded 20 times the TCLP.

Mercury was detected in 3 of the 39 samples analyzed at concentrations ranging from 0.0867 to 4.5 mg/kg. A summary of the detected mercury concentrations is presented in the following table:

Mercury		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	0.2 mg/kg	2 of 39
CHHSL	18 mg/kg	0 of 39
PRG	23 mg/kg	0 of 39
TTLC	20 mg/kg	0 of 39
10X the STLC	20 mg/L	1 of 39
20X the TCLP	40 mg/L	1 of 39
Arithmetic Mean Concentration	0.123 mg/kg	-
Geometric Mean Concentration	0.00107 mg/kg	-

None of the samples analyzed contained mercury at concentrations exceeding the residential CHHSL or PRG. None of the samples analyzed contained mercury at concentrations exceeding the TTLC, and one sample exceeded 10 times the STLC and 20 times the TCLP.

Nickel is considered a "priority pollutant" by the USEPA (USEPA, 2007). Nickel was detected in each of the 39 samples analyzed at concentrations ranging from 6.03 to 118 mg/kg. A summary of the detected nickel concentrations is presented in the following table:

Nickel		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	35.75 mg/kg	7 of 39
CHHSL	1,600 mg/kg	0 of 39
PRG	1,600 mg/kg	0 of 39
TTLC	2,000 mg/kg	0 of 39
10X the STLC	200 mg/L	0 of 39
DAF1	7.0 mg/kg	37 of 39
DAF20	130 mg/kg	0 of 39
Arithmetic Mean Concentration	26.6 mg/kg	-
Geometric Mean Concentration	21.3 mg/kg	-

None of the samples analyzed contained nickel at concentrations exceeding the residential CHHSL or PRG. None of the samples analyzed contained nickel at concentrations exceeding the TTLC or 10 times the STLC. Approximately 95 percent of the samples contained nickel at concentrations exceeding the SSL DAF1, and none of the samples contained nickel at concentrations exceeding the SSL DAF20.

Selenium was detected in 5 of the 39 samples analyzed at concentrations ranging from 0.959 to 5.1 mg/kg. A summary of the detected selenium concentrations is presented in the following table:

Selenium		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	0.028 mg/kg	39 of 39
CHHSL	380 mg/kg	0 of 39
PRG	390 mg/kg	0 of 39
TTLC	100 mg/kg	0 of 39
10X the STLC	10 mg/L	0 of 39
20X the TCLP	20 mg/L	0 of 39
DAF1	0.30 mg/kg	5 of 39
DAF20	5.0 mg/kg	1 of 39
Arithmetic Mean Concentration	0.340 mg/kg	-
Geometric Mean Concentration	0.128 mg/kg	-

None of the samples analyzed contained selenium at concentrations exceeding the residential CHHSL, residential PRG, the TTLC, 10 times the STLC, or 20 times the TCLP. Approximately 13 percent of the samples contained selenium at concentrations exceeding the SSL DAF1, and one sample contained selenium at concentrations exceeding the SSL DAF20.

Silver was detected in 20 of the 39 samples analyzed at concentrations ranging from 0.432 to 51.1 mg/kg. A summary of the detected silver concentrations is presented in the following table:

Silver		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	0.41 mg/kg	20 of 39
CHHSL	380 mg/kg	0 of 39
PRG	390 mg/kg	0 of 39
TTLC	500 mg/kg	0 of 39
10X the STLC	50 mg/L	1 of 39
20X the TCLP	100 mg/L	0 of 39
DAF1	2.0 mg/kg	11 of 39
DAF20	34 mg/kg	1 of 39
Arithmetic Mean Concentration	2.79 mg/kg	-
Geometric Mean Concentration	0.172 mg/kg	-

None of the samples analyzed contained silver at concentrations exceeding the residential CHHSL or PRG. None of the samples analyzed contained silver at

concentrations exceeding the TTLC or 20 times the TCLP. One sample exceeded 10 times the STLC. Approximately 28 percent of the samples contained silver at concentrations exceeding the SSL DAF1, and one sample contained silver at concentrations exceeding the SSL DAF20.

Zinc is considered a "priority pollutant" by the USEPA (USEPA, 2007). Zinc was detected in each of the 39 samples analyzed at concentrations ranging from 202 to 159,000 mg/kg. A summary of the detected zinc concentrations is presented in the following table:

Zinc		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	145 mg/kg	39 of 39
CHHSL	23,000 mg/kg	3 of 39
PRG	23,000 mg/kg	3 of 39
TTLC	5,000 mg/kg	9 of 39
10X the STLC	2,500 mg/L	16 of 39
DAF1	620 mg/kg	32 of 39
DAF20	12,000 mg/kg	4 of 39
Arithmetic Mean Concentration	8,250 mg/kg	-
Geometric Mean Concentration	2,280 mg/kg	-

Approximately 8 percent of samples analyzed contained zinc at concentrations exceeding the residential CHHSL and PRG. Approximately 23 percent of the samples analyzed contained zinc at concentrations exceeding the TTLC, and 41 percent of the samples exceeded 10 times the STLC. Approximately 82 percent of the samples contained zinc at concentrations exceeding the SSL DAF1, and 10 percent of the samples contained zinc at concentrations exceeding the SSL DAF20.

4.3.1.2 Polycyclic Aromatic Hydrocarbons (PAHs)

Each of the 39 samples collected during this assessment were analyzed for PAHs by EPA Method 8310. 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.

With the exception of benzo(a)pyrene, benzo(g,h,i)perylene, and dibenz(a,h)anthracene, each of the PAHs listed in Table 3 were detected in at least one sample. The following discussion will focus on the following PAHs detected at concentrations exceeding PRGs, CHHSLs, or SSLs: benzo(a)anthracene, benzo(k)fluoranthene, naphthalene, and

total benzo(a)pyrene equivalency. According to the Department of Human Health Services, and the International Agency for Research on Cancer, the PAHs detected (except for naphthalene) are possible to probable human carcinogens. A summary of the samples exceeding the above criteria is presented in Table 5.

Benzo(a)anthracene was detected in 8 of the 39 samples analyzed at concentrations ranging from 12 to 750 µg/kg. A summary of the detected benzo(a)anthracene concentrations is presented in the following table:

Benzo(a)anthracene		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
PRG	620 µg/kg	1 of 39
DAF1	80 µg/kg	4 of 39
DAF20	2,000 µg/kg	0 of 39
Arithmetic Mean Concentration	37 µg/kg	-
Geometric Mean Concentration	6.1 µg/kg	-

One sample analyzed contained benzo(a)anthracene at concentrations exceeding the residential PRG. Approximately 10 percent of the samples contained benzo(a)anthracene at concentrations exceeding the SSL DAF1 and no samples contained benzo(a)anthracene at concentrations exceeding the DAF20.

Benzo(k)fluoranthene was detected in 1 of the 39 samples analyzed at a concentration of 560 µg/kg. A summary of the detected benzo(k)fluoranthene exceedances are presented in the following table:

Benzo(k)fluoranthene		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
PRG	380 µg/kg	1 of 39
DAF1	2,000 µg/kg	0 of 39
DAF20	49,000 µg/kg	0 of 39
Arithmetic Mean Concentration	20 µg/kg	-
Geometric Mean Concentration	4.0 µg/kg	-

One of the samples analyzed contained benzo(k)fluoranthene at concentrations exceeding the residential PRG. None of the samples contained benzo(k)fluoranthene at concentrations exceeding the SSL DAF1 or DAF20.

Naphthalene was detected in each of the 39 samples analyzed at concentrations ranging from 79 to 19,000 µg/kg. A summary of the detected naphthalene concentrations are presented in the following table:

Naphthalene		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
PRG	1,700 µg/kg	5 of 39
DAF1	4,000 µg/kg	3 of 39
DAF20	84,000 µg/kg	0 of 39
Arithmetic Mean Concentration	1,400 µg/kg	-
Geometric Mean Concentration	590 µg/kg	-

Approximately 13 percent of samples analyzed contained naphthalene at concentrations exceeding the residential PRG. Approximately 8 percent of the samples contained naphthalene at concentrations exceeding the SSL DAF1, and none of the samples contained naphthalene at concentrations exceeding the SSL DAF20.

In accordance with OEHHA guidance, carcinogenic PAH constituents are evaluated as benzo(a)pyrene equivalents. This evaluation process consists of multiplying individual PAH-specific concentrations with their corresponding potency equivalency factors (PEFs) (OEHHA, 2003). The sum of these products is the benzo(a)pyrene-equivalent concentration which are compared to the benzo(a)pyrene equivalent trigger levels (i.e. PRG and CHHSL criteria).

Benzo(a)pyrene equivalency was calculated for each of the 39 samples analyzed. Concentrations below the laboratory method detection limit used half of the detection limit (USEPA, 1992). The calculated concentrations ranged from 2.3 to 120 µg/kg. A summary of the calculated benzo(a)pyrene equivalency concentrations are presented in the following table:

Benzo(a)pyrene Equivalency		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
CHHSL	38 µg/kg	2 of 39
PRG	62 µg/kg	2 of 39
DAF1	400 µg/kg	0 of 39
DAF20	8,000 µg/kg	0 of 39
Arithmetic Mean Concentration	13 µg/kg	-
Geometric Mean Concentration	5.9 µg/kg	-

Approximately 5 percent of the samples analyzed contained benzo(a)pyrene equivalence at concentrations exceeding the residential CHHSL and PRG. None of the samples contained benzo(a)pyrene equivalence at concentrations exceeding the SSL DAF1 or DAF20.

4.3.2 San Diego County

4.3.2.1 Metals

Each sample (35 primary samples and 4 field duplicate samples from 35 sites) collected during this assessment was analyzed for California Title 22 Metals by EPA Method 6010B/7471A. Each of the Title 22 metals listed in Table 4, except selenium and thallium, were detected in at least one sample, and the "total metals" results are discussed below. The statistics and established criteria exceedances are summarized in Table 6.

Beryllium, cobalt, mercury, molybdenum, selenium, and thallium were not detected at concentrations exceeding the previously referenced regulatory threshold criteria in samples collected at the 35 sites evaluated during this assessment.

Antimony was detected in 26 of the 35 samples analyzed at concentrations ranging from 0.898 to 101 mg/kg. A summary of the detected antimony concentrations is presented in the following table:

Antimony		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	0.5 mg/kg	26 of 35
CHHSL	30 mg/kg	8 of 35
PRG	31 mg/kg	8 of 35
TTLC	500 mg/kg	0 of 35
10X the STLC	150 mg/L	0 of 35
DAF1	0.30 mg/kg	26 of 35
DAF20	50 mg/kg	6 of 35
Arithmetic Mean Concentration	20.1 mg/kg	-
Geometric Mean Concentration	3.73 mg/kg	-

Approximately 23 percent of samples analyzed contained antimony at concentrations exceeding the residential CHHSL and PRG. None of the samples analyzed contained antimony at concentrations exceeding the TTLC or 10 times the STLC. Approximately 74 percent of the samples contained antimony at concentrations exceeding the SSL DAF1, and 17 percent of the samples contained antimony at concentrations exceeding the SSL DAF20.

Arsenic is considered a "priority pollutant" by the USEPA (USEPA, 2007). Arsenic was detected in each of the 35 samples analyzed at concentrations ranging from 1.26 to 34.3 mg/kg. A summary of the detected arsenic concentrations is presented in the following table:

Arsenic		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	2.75 mg/kg	29 of 35
CHHSL	0.070 mg/kg	35 of 35
PRG	0.062 mg/kg	35 of 35
TTLC	500 mg/kg	0 of 35
10X the STLC	50 mg/L	0 of 35
20X the TCLP	100 mg/L	0 of 35
DAF1	1.0 mg/kg	35 of 35
DAF20	29 mg/kg	1 of 39
Arithmetic Mean Concentration	7.60 mg/kg	-
Geometric Mean Concentration	5.95 mg/kg	-

Each of the 35 samples analyzed contained arsenic at concentrations exceeding the residential CHHSL, PRG, and SSL DAF1. None of the samples analyzed contained arsenic at concentrations exceeding the TTLC, 10 times the STLC, or 20 times the TCLP. One sample contained arsenic at concentrations exceeding the SSL DAF20.

Barium was detected in each of the 35 samples analyzed at concentrations ranging from 65.7 to 456 mg/kg. A summary of the detected barium concentrations is presented in the following table:

Barium		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	468 mg/kg	0 of 35
CHHSL	5,200 mg/kg	0 of 35
PRG	5,400 mg/kg	0 of 35
TTLC	10,000 mg/kg	0 of 35
10X the STLC	1,000 mg/L	0 of 35
20X the TCLP	2,000 mg/L	0 of 35
DAF1	82 mg/kg	34 of 35
DAF20	1,600 mg/kg	0 of 35
Arithmetic Mean Concentration	193 mg/kg	-
Geometric Mean Concentration	176 mg/kg	-

None of the samples analyzed contained barium at concentrations exceeding the residential CHHSL or PRG, the TTLC, 10 times the STLC, or 20 times the TCLP. Approximately 97 percent of the samples contained barium at concentrations exceeding the SSL DAF1, and none of the samples contained barium at concentrations exceeding the SSL DAF20.

Cadmium is considered a "priority pollutant" by the USEPA (USEPA, 2007). Cadmium was detected in 23 of the 35 samples analyzed at concentrations ranging from 0.736 to 31 mg/kg. A summary of the detected cadmium concentrations is presented in the following table:

Cadmium		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	0.26 mg/kg	23 of 35
CHHSL	1.7 mg/kg	16 of 35
PRG	37 mg/kg	0 of 35
TTLC	100 mg/kg	0 of 35
10X the STLC	10 mg/L	2 of 35
20X the TCLP	20 mg/L	1 of 35
DAF1	0.40 mg/kg	23 of 35
DAF20	80 mg/kg	0 of 35
Arithmetic Mean Concentration	2.92 mg/kg	-
Geometric Mean Concentration	0.315 mg/kg	-

Approximately 46 percent of samples analyzed contained cadmium at concentrations exceeding the residential CHHSL and no samples contained arsenic at concentrations exceeding the residential PRG. None of the samples analyzed contained cadmium at concentrations exceeding the TTLC, approximately 6 percent of the samples exceeded 10 times the STLC, and one sample exceeded 20 times the TCLP. Approximately 66 percent of the samples contained cadmium at concentrations exceeding the SSL DAF1, and none of the samples contained cadmium at concentrations exceeding the SSL DAF20.

Chromium is considered a "priority pollutant" by the USEPA (USEPA, 2007). Chromium (total chromium; hexavalent chromium is discussed following this section) was detected in each of the 35 samples analyzed at concentrations ranging from 6.45 to 345 mg/kg. A summary of the detected chromium concentrations is presented in the following table:

Chromium		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	76.25 mg/kg	2 of 35
PRG	210 mg/kg	1 of 35
TTLC	2,500 mg/kg	0 of 35
10X the STLC	50 mg/L	2 of 35
20X the TCLP	100 mg/L	2 of 35
DAF1	2.0 mg/kg	35 of 35
DAF20	38 mg/kg	2 of 35

Chromium		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Arithmetic Mean Concentration	30.4 mg/kg	-
Geometric Mean Concentration	17.1 mg/kg	-

One sample analyzed contained chromium at a concentration exceeding the residential PRG. None of the samples analyzed contained chromium at concentrations exceeding the TTLC, approximately 6 percent of the samples exceeded 10 times the STLC and 20 times the TCLP. Each of the samples contained chromium at concentrations exceeding the SSL DAF1, and approximately 6 percent of the samples contained chromium at concentrations exceeding the SSL DAF20.

Hexavalent chromium was initially not part of the scope of this project. However, there is no CHHSL for total chromium; therefore a statistical analysis using the student t-test, as described in the SAM manual, was performed on total chromium (DEH, 2004). It was determined that seven samples from each area would be sufficient to determine the average concentration of hexavalent chromium in the burn debris. Seven samples with total chromium concentrations exceeding 17 mg/kg (the residential CHHSL for hexavalent chromium) were randomly selected from the existing San Diego sample set and were additionally analyzed for hexavalent chromium on 12 December 2007. Hexavalent chromium was detected in one of the 7 samples analyzed at a concentration of 0.880 mg/kg. None of the established criteria were exceeded by this concentration.

Copper is considered a "priority pollutant" by the USEPA (USEPA, 2007). Copper was detected in each of the 35 samples analyzed at concentrations ranging from 69.7 to 46,000 mg/kg. A summary of the detected copper concentrations is presented in the following table:

Copper		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	24 mg/kg	35 of 35
CHHSL	3,000 mg/kg	7 of 35
PRG	3,100 mg/kg	7 of 35
TTLC	2,500 mg/kg	7 of 35
10X the STLC	250 mg/L	31 of 35
Arithmetic Mean Concentration	4,730 mg/kg	-
Geometric Mean Concentration	1,270 mg/kg	-

Approximately 20 percent of samples analyzed contained copper at concentrations exceeding the residential CHHSL, the PRG, and the TTLC. Approximately 89 percent of the samples exceeded 10 times the STLC.

Lead is considered a "priority pollutant" by the USEPA (USEPA, 2007). Lead was detected in each of the 35 samples analyzed at concentrations ranging from 20.3 to 3,350 mg/kg. A summary of the detected lead concentrations is presented in the following table:

Lead		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	44.6 mg/kg	25 of 35
CHHSL	150 mg/kg	13 of 35
PRG	150 mg/kg	13 of 35
TTLC	1,000 mg/kg	5 of 35
10X the STLC	50 mg/L	23 of 35
20X the TCLP	100 mg/L	16 of 35
Arithmetic Mean Concentration	445 mg/kg	-
Geometric Mean Concentration	130 mg/kg	-

Approximately 37 percent of samples analyzed contained lead at concentrations exceeding the residential CHHSL and PRG. Approximately 14 percent of the samples analyzed contained lead at concentrations exceeding the TTLC, approximately 66 percent of the samples exceeded 10 times the STLC, and 46 percent of the samples exceeded 20 times the TCLP.

Nickel is considered a "priority pollutant" by the USEPA (USEPA, 2007). Nickel was detected in each of the 35 samples analyzed at concentrations ranging from 5.96 to 320 mg/kg. A summary of the detected nickel concentrations is presented in the following table:

Nickel		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	35.75 mg/kg	7 of 35
CHHSL	1,600 mg/kg	0 of 35
PRG	1,600 mg/kg	0 of 35
TTLC	2,000 mg/kg	0 of 35
10X the STLC	200 mg/L	1 of 35
DAF1	7.0 mg/kg	34 of 35
DAF20	130 mg/kg	1 of 35
Arithmetic Mean Concentration	34.6 mg/kg	-
Geometric Mean Concentration	23.3 mg/kg	-

None of the samples analyzed contained nickel at concentrations exceeding the residential CHHSL, PRG, or TTLC. One of the samples exceeded 10 times the STLC. Approximately 97 percent of the samples contained nickel at concentrations exceeding

the SSL DAF1, and none of the samples contained nickel at concentrations exceeding the SSL DAF20.

Silver was detected in 19 of the 35 samples analyzed at concentrations ranging from 0.267 to 62.4 mg/kg. A summary of the detected silver concentrations is presented in the following table:

Silver		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	0.41 mg/kg	18 of 35
CHHSL	380 mg/kg	0 of 35
PRG	390 mg/kg	0 of 35
TTLC	500 mg/kg	0 of 35
10X the STLC	50 mg/L	1 of 35
20X the TCLP	100 mg/L	0 of 35
DAF1	2.0 mg/kg	14 of 35
DAF20	34 mg/kg	3 of 35
Arithmetic Mean Concentration	6.33 mg/kg	-
Geometric Mean Concentration	0.285 mg/kg	-

None of the samples analyzed contained silver at concentrations exceeding the residential CHHSL, PRG, TTLC, or 20 times the TCLP. One sample exceeded 10 times the STLC. Approximately 40 percent of the samples contained silver at concentrations exceeding the SSL DAF1, and approximately 9 percent of the samples contained silver at concentrations exceeding the SSL DAF20.

Vanadium was detected in each of the 35 samples analyzed at concentrations ranging from 6.84 to 115 mg/kg. A summary of the detected vanadium concentrations is presented in the following table:

Vanadium		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	101 mg/kg	1 of 35
CHHSL	530 mg/kg	0 of 35
PRG	78 mg/kg	1 of 35
TTLC	2,400 mg/kg	0 of 35
10X the STLC	240 mg/L	0 of 35
DAF1	300 mg/kg	0 of 35
DAF20	6,000 mg/kg	0 of 35
Arithmetic Mean Concentration	28.8 mg/kg	-
Geometric Mean Concentration	22.7 mg/kg	-

One of samples analyzed contained vanadium at concentrations exceeding the residential PRG. None of the samples analyzed contained vanadium at concentrations exceeding the residential CHHSL, TTLC, 10 times the STLC, and the SSL DAF1 and DAF20.

Zinc is considered a "priority pollutant" by the USEPA (USEPA, 2007). Zinc was detected in each of the 35 samples analyzed at concentrations ranging from 303 to 54,300 mg/kg. A summary of the detected zinc concentrations is presented in the following table:

Zinc		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Background	145 mg/kg	35 of 35
CHHSL	23,000 mg/kg	1 of 35
PRG	23,000 mg/kg	1 of 35
TTLC	5,000 mg/kg	6 of 35
10X the STLC	2,500 mg/L	9 of 35
DAF1	620 mg/kg	27 of 35
DAF20	12,000 mg/kg	1 of 35
Arithmetic Mean Concentration	3,640 mg/kg	-
Geometric Mean Concentration	1,570 mg/kg	-

One sample analyzed contained zinc at concentrations exceeding the residential CHHSL and PRG. Approximately 17 percent of the samples analyzed contained zinc at concentrations exceeding the TTLC, and 26 percent of the samples exceeded 10 times the STLC. Approximately 77 percent of the samples contained zinc at concentrations exceeding the SSL DAF1, and one sample contained zinc at concentrations exceeding the SSL DAF20.

4.3.2.2 Polycyclic Aromatic Hydrocarbons (PAHs)

Each of the 35 samples collected during this assessment were analyzed for PAHs by EPA Method 8310. Each of the PAHs listed in Table 6 were detected in at least one sample. The following discussion will focus on the following five PAHs detected at concentrations exceeding PRGs, CHHSLs, or SSLs: benzo(a)anthracene, benzo(a)pyrene, dibenz(a,h)anthracene, naphthalene, and total benzo(a)pyrene equivalency. A summary of the samples exceeding the above criteria is presented in Table 6.

Benzo(a)anthracene was detected in 30 of the 35 samples analyzed at concentrations ranging from 14 to 3,200 µg/kg. A summary of the detected benzo(a)anthracene concentrations is presented in the following table:

Benzo(a)anthracene		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
PRG	620 µg/kg	2 of 35
DAF1	80 µg/kg	19 of 35
DAF20	2,000 µg/kg	1 of 35
Arithmetic Mean Concentration	200 µg/kg	-
Geometric Mean Concentration	49 µg/kg	-

Approximately 6 percent of the samples analyzed contained benzo(a)anthracene at concentrations exceeding the residential PRG. Approximately 54 percent of the samples contained benzo(a)anthracene at concentrations exceeding the SSL DAF1 and one sample exceeded the DAF20.

Benzo(a)pyrene was detected in 12 of the 35 samples analyzed at concentrations ranging from 10 to 92 µg/kg. A summary of the detected benzo(a)pyrene concentrations are presented in the following table:

Benzo(a)pyrene		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
CHHSL	62 µg/kg	4 of 35
PRG	38 µg/kg	3 of 35
DAF1	400 µg/kg	0 of 35
DAF20	8,000 µg/kg	0 of 35
Arithmetic Mean Concentration	16 µg/kg	-
Geometric Mean Concentration	5.2 µg/kg	-

Approximately 11 percent of samples analyzed contained benzo(a)pyrene at concentrations exceeding the residential CHHSL and 9 percent exceeded the residential PRG. None of the samples contained benzo(a)pyrene at concentrations exceeding the SSL DAF1 or DAF20.

Dibenz(a,h)anthracene was detected in 10 of the 35 samples analyzed at concentrations ranging from 12 to 330 µg/kg. A summary of the detected dibenz(a,h)anthracene concentrations are presented in the following table:

Dibenz(a,h)anthracene		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
PRG	62 µg/kg	6 of 35
DAF1	80 µg/kg	0 of 35
DAF20	2,000 µg/kg	0 of 35
Arithmetic Mean Concentration	37 µg/kg	-

Dibenz(a,h)anthracene		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
Geometric Mean Concentration	6.7 µg/kg	-

Approximately 17 percent of samples analyzed contained dibenz(a,h)anthracene at concentrations exceeding the residential PRG. None of the samples analyzed contained dibenz(a,h)anthracene at concentrations exceeding the SSL DAF1 or DAF20.

Naphthalene was detected in each of the 35 samples analyzed at concentrations ranging from 140 to 3,000 µg/kg. A summary of the detected naphthalene concentrations are presented in the following table:

Naphthalene		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
PRG	1,700 µg/kg	3 of 35
DAF1	4,000 µg/kg	3 of 35
DAF20	84,000 µg/kg	0 of 35
Arithmetic Mean Concentration	710 µg/kg	-
Geometric Mean Concentration	510 µg/kg	-

Approximately 9 percent of samples analyzed contained naphthalene at concentrations exceeding the residential PRG and the SSL DAF1. None of the samples contained naphthalene at concentrations exceeding the SSL DAF20.

In accordance with OEHHA guidance, carcinogenic PAH constituents are evaluated as benzo(a)pyrene equivalents. This evaluation process consists of multiplying individual PAH-specific concentrations with their corresponding potency equivalency factors (PEFs) (OEHHA, 2003). The sum of these products is the benzo(a)pyrene-equivalent concentration which are compared to the benzo(a)pyrene equivalent trigger levels (i.e. PRG and CHHSL criteria).

Benzo(a)pyrene equivalency was calculated for each of the 35 samples analyzed. Concentrations below the laboratory method detection limit used half of the detection limit (USEPA, 1992). The calculated concentrations ranged from 2.4 to 360 µg/kg. A summary of the calculated benzo(a)pyrene equivalency concentrations are presented in the following table:

Benzo(a)pyrene Equivalency		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
CHHSL	38 µg/kg	8 of 35

Benzo(a)pyrene Equivalency		
Criteria	**Value**	**Number of Samples Exceeding Criteria**
PRG	62 µg/kg	7 of 35
DAF1	400 µg/kg	0 of 35
DAF20	8,000 µg/kg	0 of 35
Arithmetic Mean Concentration	38 µg/kg	-
Geometric Mean Concentration	15 µg/kg	-

Approximately 23 percent of the samples analyzed contained benzo(a)pyrene equivalence at concentrations exceeding the residential CHHSL and 20 percent exceed the residential PRG. None of the samples contained benzo(a)pyrene equivalence at concentrations exceeding the SSL DAF1 or DAF20.

4.4 Statistical Evaluation

The statistical analysis of the data was performed and is summarized in Appendix D. Statistical analyses were performed to confirm that the dataset is robust and sufficient for statistical purposes. It was statistically determined that the mean of each compound, except cadmium, lead, mercury, zinc, benzo(a)anthracene, benzo(k)fluoranthene, and pyrene, is known within the range of a 95 percent level of confidence.

Based on the average coefficient of variation of the sample data, the number of sampled required to estimate the true mean within 60 percent relative error at the 95 percent confidence level is 56 samples. Since the combined dataset contains 74 observations, this is within the required number, therefore suggesting a sufficient number of sampled were collected for statistical purposes.

The statistical analysis demonstrates that the burn debris sampled contain some metals and PAHs in excess of the referenced screening criteria. Based on the statistical analysis provided in Appendix D, it is likely that non-sampled residential properties with burn debris and ash will contain concentrations of metals and PAHs similar to those analyzed during this assessment.

5. SUMMARY OF HAZARDS ASSOCIATED WITH BURN DEBRIS

Based on a representative and statistically-based characterization of residual burn debris and ash in two "typical" residential areas affected by the 2007 Southern California Wildfires, the primary purposes of the characterization were to: evaluate the presence of constituents of concern in burn debris and ash in the residential areas selected for sampling; and to compare the laboratory analytical data generated from this characterization to California statutorily-established health-based criteria, and other criteria referenced herein, to assess the hazards associated with the burn debris and ash. Based on this evaluation, the following hazards have been identified.

5.1 San Bernardino County

Hazards associated with the burn debris and ash in the San Bernardino County sampling area are summarized as follows:

- Arithmetic mean concentrations of arsenic (14.9 mg/kg), cadmium (25.2 mg/kg), copper (4,210 mg/kg), and lead (1,640 mg/kg) exceed the residential CHHSLs or PRGs.
- Geometric mean concentrations of arsenic (8.25 mg/kg) and lead (211 mg/kg) exceed the residential CHHSLs or PRGs.
- Arithmetic and geometric mean concentrations of PAHs were below CHHSLs and PRGs, but approximately 20 percent of the samples collected contained one or more of the following constituents at concentrations exceeding CHHSLs or PRGs: benzo(a)anthracene, benzo(k)flouranthene, naphthalene, and benzo(a)pyrene-equivalents.
- Arithmetic mean concentrations of copper (4,210 mg/kg), lead (1,640 mg/kg), and zinc (8,250 mg/kg) exceed the TTLC, 10 times the STLC, and 20 times the TCLP (except copper).
- Arithmetic mean concentrations of cadmium (25.2 mg/kg) exceed 10 times the STLC and 20 times the TCLP.
- Geometric mean concentrations of antimony, arsenic, cadmium, copper, lead, molybdenum, selenium, and zinc exceeded California geometric mean background concentrations.
- Geometric mean concentrations of antimony, arsenic, barium, chromium, nickel, and zinc exceeded USEPA Region IX soil screening levels for potential impacts to surface water, shallow groundwater, and areas underlain by fractured rock aquifers.

- In addition to confirming the presence of elevated concentrations of several metals and caustic alkaline materials, the November 2007 assessment performed by the USGS indicated that rain-water runoff from burned areas may adversely affect ecosystems and the quality of surface drinking water supplies, and that aquatic habitat may be affected by spikes in alkalinity as rainwater mixes with ash to form surface runoff.

5.2 San Diego County

Hazards associated with the burn debris and ash in the San Diego County sampling area are summarized as follows:

- Arithmetic mean concentrations of arsenic (7.57 mg/kg), cadmium (2.92 mg/kg), copper (4,730 mg/kg) and lead (445 mg/kg) exceed the residential CHHSLs or PRGs.
- The geometric mean concentration of arsenic (5.47 mg/kg) exceeded the residential CHHSL and PRG.
- Arithmetic and geometric mean concentrations of PAHs were below CHHSLs and PRGs, but greater than 34 percent of the samples collected contained one or more of the following constituents at concentrations exceeding CHHSLs or PRGs: benzo(a)pyrene, benzo(a)anthracene, dibenz(a,h)anthracene, naphthalene, and benzo(a)pyrene-equivalents.
- The arithmetic mean concentration of copper (4,730 mg/kg) exceeded the TTLC and 10 times the STLC.
- Arithmetic mean concentrations of lead (445 mg/kg) and zinc (3,640 mg/kg) exceeded 10 times the STLC and 20 times the TCLP (lead only).
- Geometric mean concentrations of antimony, arsenic, cadmium, copper, lead, molybdenum, selenium, and zinc exceeded California geometric mean background concentrations.
- Geometric mean concentrations of antimony, arsenic, barium, chromium, nickel, and zinc exceeded USEPA Region IX soil screening levels for potential impacts to surface water, shallow groundwater, and areas underlain by fractured rock aquifers.
- In addition to confirming the presence of elevated concentrations of several metals and caustic alkaline materials, the November 2007 assessment performed by the USGS indicated that rain-water runoff from burned areas may adversely affect ecosystems and the quality of surface drinking water

supplies, and that aquatic habitat may be affected by spikes in alkalinity as rainwater mixes with ash to form surface runoff.

6. CONCLUSIONS

The objective of this investigation was to perform a representative characterization of burn debris and ash in residential areas to assess the presence of hazardous COCs at concentrations exceeding statutorily-established human health-based screening levels such as residential CHHSLs and PRGs. The laboratory analytical data documenting the presence of COCs in the burn debris and ash at concentrations exceeding established residential CHHSLs or PRGs will be 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 2007 Southern California Wildfires contain contaminants whose concentrations exceed health-based 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 CHHSLs or PRGs in both areas characterized in San Bernardino and San Diego Counties.
- The geometric mean concentration of arsenic exceeds the residential CHHSL and PRG in both areas characterized in San Bernardino and San Diego Counties. The geometric mean concentration of lead exceeds the residential CHHSL and PRG in the area characterized in San Bernardino County.
- Arithmetic and geometric mean concentrations of PAHs were below CHHSLs and PRGs, but greater than 27 percent of the samples collected in San Bernardino and San Diego Counties contained one or more PAH constituents at concentrations exceeding CHHSLs or PRGs.

- Geometric mean concentrations of antimony, arsenic, barium, chromium, nickel, and zinc exceeded USEPA Region IX soil screening levels for surface water, shallow groundwater, and areas underlain by fractured rock aquifers in both areas characterized in San Bernardino and San Diego Counties. As demonstrated by the 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 drinking water supplies.
- The results of this burn debris assessment indicated similar COCs were detected as those detected during the assessment following the 2003 San Diego County wildfires. However, the concentrations of COCs detected following the 2007 wildfires were generally lower than concentrations detected following the 2003 wildfires as a result of the statistically-based random sampling approach and purposefully avoiding samples from areas with suspected high levels of contamination (i.e., under a burned car) during the 2007 assessment. Therefore, it is possible that higher concentrations of COCs are present in burn debris in the areas sampled than detected during this assessment.
- Geosyntec understands that visible and retrievable household hazardous wastes were removed prior to sampling, and did not influence the results of characterizing typical residential contamination following a wildfire. However, constituents still exceeded the established screening criteria following the removal of these wastes.
- The screening criteria (residential CHHSLs and PRGs) 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.

The data, therefore, indicate an exceedance of health-based criteria, and support the conclusion by CalEPA that expedited removal of burn debris and ash from these areas is warranted and in the public interest.

7. LIMITATIONS

This assessment of burned residential areas associated with the Slide and Witch Creek fires 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
Laboratory Analytical Matrix
Burn Debris Sampling
San Bernardino County, California

Geosyntec consultants

Site ID	Sample ID	Date Collected	Analyses Performed		
			Title 22 Metals EPA 6010B/7471A	Hexavalent Chromium EPA 7196A	PAHs EPA 8310
SB-01[4]	-	-	-	-	-
SB-02[1]	-	-	-	-	-
SB-03[2]	-	-	-	-	-
SB-04	SB-04-112707	11/27/2007	X	-	X
SB-05	SB-05-112907	11/29/2007	X	X	X
SB-06[1]	-	-	-	-	-
SB-07	SB-07-112907	11/29/2007	X	X	X
SB-08	SB-08-112707	11/27/2007	X	-	X
SB-09[5]	-	-	-	-	-
SB-10[1]	-	-	-	-	-
SB-11	SB-11-112807	11/28/2007	X	-	X
SB-12[3]	-	-	-	-	-
SB-13	SB-13A-112707 SB-13B-112707 SB-13C-112707	11/27/2007	X	-	X
SB-14	SB-14-112707	11/27/2007	X	-	X
SB-15[2]	-	-	-	-	-
SB-16[2]	-	-	-	-	-
SB-17	SB-17-112807	11/28/2007	X	-	X
SB-18	SB-18-112707	11/27/2007	X	-	X
SB-19	SB-19-112807	11/28/2007	X	-	X
SB-20	SB-20-112807	11/28/2007	X	X	X
SB-21	SB-21-112907	11/29/2007	X	X	X
SB-22[2]	-	-	-	-	-
SB-23[6]	-	-	-	-	-
SB-24	SB-24-112907	11/29/2007	X	X	X
SB-25	SB-25A-112807 SB-25B-112807	11/28/2007	X	-	X
SB-26	SB-26-112707	11/27/2007	X	-	X
SB-27[1]	-	-	-	-	-
SB-28	SB-28-112807 SB-28C-112807	11/28/2007	X	-	X
SB-29	SB-29-112807	11/28/2007	X	-	X
SB-30	SB-30A-112707 SB-30B-112707	11/27/2007	X	-	X
SB-31	SB-31-112807	11/28/2007	X	-	X
SB-32	SB-32-112707	11/27/2007	X	-	X
SB-33[5]	-	-	-	-	-
SB-34[2]	-	-	-	-	-
SB-35	SB-35-112907	11/29/2007	X	-	X
SB-36	SB-36-112907	11/29/2007	X	X	X
SB-37[1]	-	-	-	-	-
SB-38	SB-38-113007	11/30/2007	X	-	X
SB-39	SB-39-112807	11/28/2007	X	-	X
SB-40	SB-40-112807	11/28/2007	X	-	X

TABLE 1
Laboratory Analytical Matrix
Burn Debris Sampling
San Bernardino County, California

Site ID	Sample ID	Date Collected	Analyses Performed		
			Title 22 Metals EPA 6010B/7471A	Hexavalent Chromium EPA 7196A	PAHs EPA 8310
SB-41	SB-41-112807	11/28/2007	X	-	X
SB-42	SB-42A-112807 SB-42B-112807	11/28/2007	X	-	X
SB-43	SB-43-112907	11/29/2007	X	X	X
SB-44	SB-44-113007	11/30/2007	X	-	X
SB-45	SB-45-112907	11/29/2007	X	-	X
SB-46	SB-46-112907	11/29/2007	X	-	X
SB-47	SB-47-112907	11/29/2007	X	-	X
SB-48	SB-48-112907	11/29/2007	X	-	X
SB-49[2]	-	-	-	-	-
SB-50	SB-50-113007	11/30/2007	X	-	X
SB-51	SB-51-113007	11/30/2007	X	-	X

Notes:
[1] Site found to be cleared upon arrival for sampling
[2] Site deemed unsafe
[3] Site was inaccessible
[4] House not burned
[5] Address does not exist
[6] More than eight fire destroyed structures within a single parcel
EPA - Environmental Protection Agency
PAHs - Polycyclic aromatic hydrocarbons

TABLE 2
Laboratory Analytical Matrix
Burn Debris Sampling
San Diego County, California

Geosyntec consultants

Site ID	Sample ID	Date Collected	Analyses Performed		
			Title 22 Metals EPA 6010B/7471A	Hexavalent Chromium EPA 7196A	PAHs EPA 8310
SD-01[1]	-	-	-	-	-
SD-02	SD-02-11282007	11/28/2007	X	X	X
SD-03[2]	-	-	-	-	-
SD-04[1]	-	-	-	-	-
SD-05[1]	-	-	-	-	-
SD-06[2]	-	-	-	-	-
SD-07[1]	-	-	-	-	-
SD-08	SD-08-11262007	11/26/2007	X	-	X
SD-09	SD-09-11262007	11/26/2007	X	-	X
SD-10[1]	-	-	-	-	-
SD-11	SD-11-11282007	11/28/2007	X	-	X
SD-12	SD-12-11272007	11/27/2007	X	X	X
SD-13	SD-13-11272007	11/27/2007	X	-	X
SD-14[1]	-	-	-	-	-
SD-15[4]	-	-	-	-	-
SD-16	SD-16-11272007	11/27/2007	X	-	X
SD-17[1]	-	-	-	-	-
SD-18	SD-18-11272007	11/27/2007	X	-	X
SD-19	SD-19-11272007	11/27/2007	X	-	X
SD-20	SD-20-11282007	11/28/2007	X	X	X
SD-21	SD-21-11272007	11/27/2007	X	-	X
SD-22	SD-22-11272007	11/27/2007	X	-	X
SD-23[1]	-	-	-	-	-
SD-24	SD-24-11272007	11/27/2007	X	-	X
SD-25	SD-25-11272007	11/27/2007	X	-	X
SD-26	SD-26-11282007	11/28/2007	X	-	X
SD-27[1]	-	-	-	-	-
SD-28[1]	-	-	-	-	-
SD-29[1]	-	-	-	-	-
SD-30[1]	-	-	-	-	-
SD-31	SD-31-11262007	11/26/2007	X	-	X
SD-32[2]	-	-	-	-	-
SD-33[2]	-	-	-	-	-
SD-34	SD-34-11262007	11/26/2007	X	X	X
SD-35[2]	-	-	-	-	-
SD-36	SD-36-11272007	11/27/2007	X	-	X
SD-37[3]	-	-	-	-	-
SD-38	SD-38-11272007	11/27/2007	X	-	X
SD-39[1]	-	-	-	-	-
SD-40	SD-40-11262007	11/26/2007	X	-	X
SD-41	SD-41-11272007	11/27/2007	X	-	X
SD-42[1]	-	-	-	-	-
SD-43[3]	-	-	-	-	-
SD-44	SD-44-11282007	11/28/2007	X	X	X
SD-45[1]	-	-	-	-	-

TABLE 2
Laboratory Analytical Matrix
Burn Debris Sampling
San Diego County, California

Geosyntec consultants

Site ID	Sample ID	Date Collected	Analyses Performed		
			Title 22 Metals EPA 6010B/7471A	Hexavalent Chromium EPA 7196A	PAHs EPA 8310
SD-46	SD-46-11272007	11/27/2007	X	-	X
SD-47	SD-47-11282007	11/28/2007	X	-	X
SD-48[1]	-	-	-	-	-
SD-49[1]	-	-	-	-	-
SD-50	SD-50-11282007	11/28/2007	X	-	X
SD-51	SD-51-11282007	11/28/2007	X	X	X
SD-52[1]	-	-	-	-	-
SD-53	SD-53-11282007	11/28/2007	X	-	X
SD-54	SD-54-11272007	11/27/2007	X	-	X
SD-55	SD-55-11282007	11/28/2007	X	-	X
SD-56	SD-56-11282007	11/28/2007	X	X	X
SD-57[2]	-	-	-	-	-
SD-58	SD-58-11282007	11/28/2007	X	-	X
SD-59[1]	-	-	-	-	-
SD-60[1]	-	-	-	-	-
SD-61[1]	-	-	-	-	-
SD-62	SD-62-11282007	11/28/2007	X	-	X
SD-63	SD-63-11292007	11/29/2007	X	-	X
SD-64[1]	-	-	-	-	-
SD-65[1]	-	-	-	-	-
SD-66[4]	-	-	-	-	-
SD-67	SD-67-11292007	11/29/2007	X	-	X
SD-68[1]	-	-	-	-	-
SD-69[1]	-	-	-	-	-
SD-70[1]	-	-	-	-	-
SD-71[1]	-	-	-	-	-
SD-72	SD-72-11292007	11/29/2007	X	-	X

Notes:
[1] Site found to be cleared upon arrival for sampling
[2] Site deemed unsafe
[3] Site fenced off-no access
[4] House not burned
EPA - Environmental Protection Agency
PAHs - Polycyclic aromatic hydrocarbons

TABLE 3
Summary of Analytical Results
Burn Debris Sampling
San Bernardino County, California

Geosyntec consultants

Parameter	Units	[1]California Background	Health Risk: [2]CHHSL	Health Risk: [3]PRG	Waste Characterization: [4]TTLC Limits	Waste Characterization: [4]STLC Limits (mg/L)	Waste Characterization: [5]TCLP Limits (mg/L)	Soil Screening Level: [6]DAF1	Soil Screening Level: [7]DAF20	Sample ID and Date Sampled: SB-04-112707 11/27/07	SB-05-112907 11/29/07	SB-07-112907 11/29/07	SB-08-112707 11/27/07	SB-11-112807 11/28/07	SB-13A-112707 11/27/07	SB-13B-112707 11/27/07	SB-13C-112707 11/27/07	SB-14-112707 11/27/07
Title 22 Metals by EPA Method 6010B/7471A																		
Antimony	mg/kg	0.5	30	31	500	15	-	0.30	50	6.56	11.3	0.994	ND<0.191	ND<0.191	ND<0.191	13.5	ND<0.191	137
Arsenic	mg/kg	2.75	0.070	[7]0.062	500	5.0	5.0	1.0	29	66.6	17.2	13.6	1.28	2.69	1.87	7.21	2.26	12.0
Barium	mg/kg	468	5,200	5,400	10,000	100	100	82	1,600	514	303	222	1,510	196	222	798	224	192
Beryllium	mg/kg	1.14	150	150	75	0.75	-	3.0	63	ND<0.00368	1.49	0.293	0.356	0.256	ND<0.00368	ND<0.00368	ND<0.00368	0.388
Cadmium	mg/kg	0.26	1.7	37	100	1.0	1.0	0.40	80	2.16	ND<0.00988	21.9	ND<0.00988	ND<0.00988	1.29	76.1	1.24	0.598
Chromium (total)	mg/kg	76.25	NE	210	2,500	5.0	5.0	2.0	38	14.8	84.6	21.1	6.59	16.3	24.0	126	21.9	23.5
Chromium (hexavalent)	mg/kg	-	17	31	500	5.0	-	2.0	38	-	ND<0.22	ND<0.22	-	-	-	-	-	-
Cobalt	mg/kg	12.6	660	900	8,000	80	-	-	-	7.24	10.5	13.4	3.72	4.30	6.66	7.92	7.32	7.28
Copper	mg/kg	24	3,000	3,100	2,500	25	-	-	-	1,940	6990	780	15,000	383	557	497	143	175
Lead	mg/kg	44.6	150	[8]150	1,000	5.0	5.0	-	-	2,270	239	250	57.5	32.5	68.2	310	366	49,100
Mercury	mg/kg	0.2	18	23	20	0.2	0.2	-	-	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130
Molybdenum	mg/kg	0.9	380	390	3,500	350	-	-	-	4.93	1.25	3.82	1.27	1.11	1.54	4.37	1.33	0.896
Nickel	mg/kg	35.75	1,600	1,600	2,000	20	-	7.0	130	16.5	35.1	44.3	11.8	24.5	29.0	7.97	29.7	22.6
Selenium	mg/kg	0.028	380	390	100	1.0	1.0	0.30	5.0	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175
Silver	mg/kg	0.41	380	390	500	5.0	5.0	2.0	34	ND<0.0209	2.86	1.67	0.939	ND<0.0209	ND<0.0209	ND<0.0209	ND<0.0209	8.85
Thallium	mg/kg	13.8	5.0	5.2	700	7.0	-	-	-	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987
Vanadium	mg/kg	101	530	78	2,400	24	-	300	6,000	24.4	39.5	22.4	28.7	25.4	49.1	7.86	43.4	13.1
Zinc	mg/kg	145	23,000	23,000	5,000	250	-	620	12,000	3,530	5680	1,870	365	1,060	1,570	20,500	1,480	2,540
Polycyclic Aromatic Hydrocarbons by EPA Method 8310																		
Acenaphthene	µg/kg	-	-	3,700,000	-	-	-	29,000	570,000	990	560	180	1,900	1,000	540	450	450	590
Acenaphthylene	µg/kg	-	-	-	-	-	-	-	-	1,200	320	ND<6.8	320	370	170	2,300	140	140
Anthracene	µg/kg	-	-	22,000,000	-	-	-	590,000	12,000,000	31	34	ND<3.5	ND<7.0	ND<35	10	130	ND<3.5	ND<3.5
Benzo(a)anthracene	µg/kg	-	-	620	-	-	-	80	2,000	60	ND<6.4	ND<3.2	ND<6.4	ND<32	ND<3.2	120	ND<3.2	ND<3.2
Benzo(a)pyrene	µg/kg	-	38	62	-	-	-	400	8,000	ND<6.2	ND<6.2	ND<3.1	ND<6.2	ND<31	ND<3.1	ND<15	ND<3.1	ND<3.1
Benzo(b)fluoranthene	µg/kg	-	-	620	-	-	-	200	5,000	ND<6.5	ND<6.5	ND<3.2	ND<6.5	ND<32	ND<3.2	ND<16	ND<3.2	ND<3.2
Benzo(g,h,i)perylene	µg/kg	-	-	-	-	-	-	-	-	ND<7.9	ND<7.9	ND<4.0	ND<7.9	ND<40	ND<4.0	ND<20	ND<4.0	ND<4.0
Benzo(k)fluoranthene	µg/kg	-	-	[8]380	-	-	-	2,000	49,000	ND<6.4	ND<6.4	ND<3.2	ND<6.4	ND<32	ND<3.2	ND<16	ND<3.2	ND<3.2
Chrysene	µg/kg	-	-	[8]3,800	-	-	-	8,000	160,000	29	ND<6.4	ND<3.2	ND<6.4	ND<32	ND<3.2	190	ND<3.2	ND<3.2
Dibenz(a,h)anthracene	µg/kg	-	-	62	-	-	-	80	2,000	ND<7.5	ND<7.5	ND<3.7	ND<7.5	ND<37	ND<3.7	ND<19	ND<3.7	ND<3.7
Fluoranthene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,300,000	150	ND<6.8	ND<3.4	ND<6.8	ND<34	ND<3.4	580	ND<3.4	ND<3.4
Fluorene	µg/kg	-	-	2,700,000	-	-	-	28,000	560,000	31	27	ND<3.2	ND<6.4	ND<32	ND<3.2	170	ND<3.2	ND<3.2
Indeno(1,2,3-c,d)pyrene	µg/kg	-	-	-	-	-	-	700	14,000	ND<7.1	ND<7.1	ND<3.5	ND<7.1	ND<35	ND<3.5	ND<18	ND<3.5	ND<3.5
Naphthalene	µg/kg	-	-	[7]1,700	-	-	-	4,000	84,000	1,100	1200	490	340	600	240	3,100	190	270
Phenanthrene	µg/kg	-	-	-	-	-	-	-	-	140	250	20	ND<6.7	ND<33	ND<3.3	680	ND<3.3	10
Pyrene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,200,000	ND<5.8	34	ND<2.9	ND<5.8	ND<29	ND<2.9	380	ND<2.9	ND<2.9
Total B(a)P Equivalency[9]	µg/kg	-	38	62	-	-	-	400	8,000	10	ND<4.5	ND<2.2	ND<4.5	ND<22	ND<2.2	24	ND<2.2	ND<2.2

Notes:

mg/kg - Milligrams per kilogram
mg/L - Milligrams per liter
µg/kg - Microgram per kilogram
- Not established
ND<x - Not detected at concentrations greater than or equal to MDL (x)

CHHSL - California Human Health Screening Level for soil in residential land use
DAF- Dilution-Attenuation Factor
MDL - Method Detection Limit
PRG - Residential Preliminary Remediation Goal

STLC - Soluble Threshold Limit Concentration
TCLP - Toxicity Characteristic Leaching Potential
TTLC - Total Threshold Limit Concentration

[1] Geometric mean concentrations were used which are more conservative than average concentrations. Reference: UC Riverside and Cal-EPA DTSC, 1996. *Background Concentrations of Trace and Major Elements in California Soils, Kearney Foundation Special Report*, March 1996.

[2] Reference: California Environmental Protection Agency (Cal/EPA). *Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties* . January 2005.

[3] Reference: USEPA Region IX, 2004. *EPA Region IX PRGs Table* , October 2004.

[4] Reference: California Code of Regulations (CCR), 2006. Title 22, Chapter 11, Article 3, Section 66261.24. *Characteristics of Toxicity* , 30 November 2007.

[5] Reference: Code of Federal Regulations (CFR), 2006. 40 CFR, Chapter 1, Section 261.24, *Toxicity Characteristics* , 14 July, 2006.

[6] Dilution-attenuation factor of 1 is used to compare to surface water and areas with shallow groundwater or underlain by fractured media. Reference: USEPA, Region IX, 2004. *Region IX PRGs Table 2004 Update* , 1 October 2004.

[7] Dilution-attenuation factor of 20 is used to compare to areas where groundwater is deep. Reference: USEPA, Region IX, 2004. *Region IX PRGs Table 2004 Update* , 1 October 2004.

[8] State of California modified residential PRG (Cal-modified PRG)

[9] Benzo(a)pyrene equivalancy based on potency equivalency factors (PEFs) Reference: Office of Environmental Health Hazard Assessment. *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* , August 2003.

TABLE 3
Summary of Analytical Results
Burn Debris Sampling
San Bernardino County, California

Geosyntec consultants

Parameter	Units	[1]California Background	Health Risk: [2]CHHSL	Health Risk: [3]PRG	Waste Characterization: [4]TTLC Limits	Waste Characterization: [4]STLC Limits (mg/L)	Waste Characterization: [5]TCLP Limits (mg/L)	Soil Screening Level: [6]DAF1	Soil Screening Level: [7]DAF20	Sample ID and Date Sampled: SB-17-112807 11/28/07	SB-18-112707 11/27/07	SB-19-112807 11/28/07	SB-20-112807 11/28/07	SB-21-112907 11/29/07	SB-24-112907 11/29/07	SB-25A-112807 11/28/07	SB-25B-112807 11/28/07	SB-26-112707 11/27/07
Title 22 Metals by EPA Method 6010B/7471A																		
Antimony	mg/kg	0.5	30	31	500	15	-	0.30	50	30.6	16.7	2.07	ND<0.191	14.9	189	24.6	67.5	3.04
Arsenic	mg/kg	2.75	0.070	[7]0.062	500	5.0	5.0	1.0	29	52.0	2.20	0.807	2.73	11.8	73.5	9.27	6.00	1.13
Barium	mg/kg	468	5,200	5,400	10,000	100	100	82	1,600	231	184	145	1570	238	138	155	740	137
Beryllium	mg/kg	1.14	150	150	75	0.75	-	3.0	63	0.409	0.323	0.307	0.634	0.596	ND<0.00368	ND<0.00368	0.493	0.488
Cadmium	mg/kg	0.26	1.7	37	100	1.0	1.0	0.40	80	2.36	0.849	52.1	ND<0.00988	683	22.9	0.674	ND<0.00988	ND<0.00988
Chromium (total)	mg/kg	76.25	NE	210	2,500	5.0	5.0	2.0	38	42.2	11.6	11.1	19.2	18.8	62.2	8.82	5.95	3.70
Chromium (hexavalent)	mg/kg	-	17	31	500	5.0	-	2.0	38	-	-	-	ND<0.22	ND<0.22	ND<0.22	-	-	-
Cobalt	mg/kg	12.6	660	900	8,000	80	-	-	-	11.4	8.54	5.96	10.6	7.41	13.5	6.54	15.9	6.16
Copper	mg/kg	24	3,000	3,100	2,500	25	-	-	-	3,030	2,930	9,800	14,700	6,460	2,960	4,600	13,800	1,380
Lead	mg/kg	44.6	150	[8]150	1,000	5.0	5.0	-	-	333	464	79.3	80.3	106	184	135	145	20.0
Mercury	mg/kg	0.2	18	23	20	0.2	0.2	-	-	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130
Molybdenum	mg/kg	0.9	380	390	3,500	350	-	-	-	2.05	0.993	1.55	0.712	1.58	1.67	1.32	1.56	ND<0.0206
Nickel	mg/kg	35.75	1,600	1,600	2,000	20	-	7.0	130	13.1	22.5	20.5	13.5	27.4	6.03	13.3	27.2	9.67
Selenium	mg/kg	0.028	380	390	100	1.0	1.0	0.30	5.0	ND<0.175	ND<0.175	ND<0.175	ND<0.175	1.10	ND<0.175	ND<0.175	ND<0.175	ND<0.175
Silver	mg/kg	0.41	380	390	500	5.0	5.0	2.0	34	1.74	ND<0.0209	2.40	0.432	1.57	ND<0.0209	0.723	4.86	ND<0.0209
Thallium	mg/kg	13.8	5.0	5.2	700	7.0	-	-	-	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987
Vanadium	mg/kg	101	530	78	2,400	24	-	300	6,000	15.7	23.0	27.9	33.5	26.1	7.22	32.8	63.0	13.3
Zinc	mg/kg	145	23,000	23,000	5,000	250	-	620	12,000	3,270	869	159,000	2,220	1,870	1,690	466	8,420	202
Polycyclic Aromatic Hydrocarbons by EPA Method 8310																		
Acenaphthene	µg/kg	-	-	3,700,000	-	-	-	29,000	570,000	530	31	250	720	160	310	180	270	2,300
Acenaphthylene	µg/kg	-	-	-	-	-	-	-	-	ND<6.8	200	350	2,100	ND<6.8	ND<6.8	ND<6.8	ND<6.8	1,700
Anthracene	µg/kg	-	-	22,000,000	-	-	-	590,000	12,000,000	10	ND<3.5	17	ND<35	ND<3.5	11	17	10	ND<18
Benzo(a)anthracene	µg/kg	-	-	620	-	-	-	80	2,000	ND<3.2	ND<3.2	ND<3.2	ND<32	ND<3.2	ND<3.2	ND<3.2	ND<3.2	ND<16
Benzo(a)pyrene	µg/kg	-	38	62	-	-	-	400	8,000	ND<3.1	ND<3.1	ND<3.1	ND<31	ND<3.1	ND<3.1	ND<3.1	ND<3.1	ND<15
Benzo(b)fluoranthene	µg/kg	-	-	620	-	-	-	200	5,000	ND<3.2	ND<3.2	ND<3.2	ND<32	ND<3.2	ND<3.2	ND<3.2	ND<3.2	ND<16
Benzo(g,h,i)perylene	µg/kg	-	-	-	-	-	-	-	-	ND<4.0	ND<4.0	ND<4.0	ND<40	ND<4.0	ND<4.0	ND<4.0	ND<4.0	ND<20
Benzo(k)fluoranthene	µg/kg	-	-	[8]380	-	-	-	2,000	49,000	ND<3.2	ND<3.2	ND<3.2	ND<32	ND<3.2	ND<3.2	ND<3.2	ND<3.2	ND<16
Chrysene	µg/kg	-	-	[8]3,800	-	-	-	8,000	160,000	ND<3.2	ND<3.2	ND<3.2	ND<32	ND<3.2	ND<3.2	ND<3.2	ND<3.2	ND<16
Dibenz(a,h)anthracene	µg/kg	-	-	62	-	-	-	80	2,000	ND<3.7	ND<3.7	ND<3.7	ND<37	ND<3.7	ND<3.7	ND<3.7	ND<3.7	ND<19
Fluoranthene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,300,000	ND<3.4	76	ND<3.4	200	ND<3.4	ND<3.4	250	ND<3.4	80
Fluorene	µg/kg	-	-	2,700,000	-	-	-	28,000	560,000	34	12	12	ND<32	ND<3.2	ND<3.2	210	24	ND<16
Indeno(1,2,3-c,d)pyrene	µg/kg	-	-	-	-	-	-	700	14,000	ND<3.5	ND<3.5	ND<3.5	ND<35	ND<3.5	ND<3.5	13	ND<3.5	ND<18
Naphthalene	µg/kg	-	-	[7]1,700	-	-	-	4,000	84,000	610	350	860	820	250	610	200	350	830
Phenanthrene	µg/kg	-	-	-	-	-	-	-	-	61	54	52	ND<33	10	39	120	69	64
Pyrene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,200,000	ND<2.9	28	10	ND<29	ND<2.9	ND<2.9	ND<2.9	ND<2.9	ND<14
Total B(a)P Equivalency[9]	µg/kg	-	38	62	-	-	-	400	8,000	ND<2.2	ND<2.2	ND<2.2	ND<22	ND<2.2	ND<2.2	3.3	ND<2.2	ND<11

Notes:

mg/kg - Milligrams per kilogram
mg/L - Milligrams per liter
µg/kg - Microgram per kilogram
- Not established
ND<x - Not detected at concentrations greater than or equal to MDL (x)

CHHSL - California Human Health Screening Level for soil in residential land use
DAF- Dilution-Attenuation Factor
MDL - Method Detection Limit
PRG - Residential Preliminary Remediation Goal

STLC - Soluble Threshold Limit Concentration
TCLP - Toxicity Characteristic Leaching Potential
TTLC - Total Threshold Limit Concentration

[1] Geometric mean concentrations were used which are more conservative than average concentrations. Reference: UC Riverside and Cal-EPA DTSC, 1996. *Background Concentrations of Trace and Major Elements in California Soils, Kearney Foundation Special Report*, March 1996.

[2] Reference: California Environmental Protection Agency (Cal/EPA). *Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties* . January 2005.

[3] Reference: USEPA Region IX, 2004. *EPA Region IX PRGs Table* , October 2004.

[4] Reference: California Code of Regulations (CCR), 2006. Title 22, Chapter 11, Article 3, Section 66261.24. *Characteristics of Toxicity* , 30 November 2007.

[5] Reference: Code of Federal Regulations (CFR), 2006. 40 CFR, Chapter 1, Section 261.24, *Toxicity Characteristics* , 14 July, 2006.

[6] Dilution-attenuation factor of 1 is used to compare to surface water and areas with shallow groundwater or underlain by fractured media. Reference: USEPA, Region IX, 2004. *Region IX PRGs Table 2004 Update* , 1 October 2004.

[7] Dilution-attenuation factor of 20 is used to compare to areas where groundwater is deep. Reference: USEPA, Region IX, 2004. *Region IX PRGs Table 2004 Update* , 1 October 2004.

[8] State of California modified residential PRG (Cal-modified PRG)

[9] Benzo(a)pyrene equivalancy based on potency equivalency factors (PEFs) Reference: Office of Environmental Health Hazard Assessment. *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* , August 2003.

TABLE 3
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Burn Debris Sampling
San Bernardino County, California

Geosyntec consultants

Parameter	Units	[1]California Background	Health Risk: [2]CHHSL	Health Risk: [3]PRG	Waste Characterization: [4]TTLC Limits	Waste Characterization: [4]STLC Limits (mg/L)	Waste Characterization: [5]TCLP Limits (mg/L)	Soil Screening Level: [6]DAF1	Soil Screening Level: [7]DAF20	Sample ID and Date Sampled: SB-28-112807 11/28/07	SB-28C-112807 11/28/07	SB-29-112807 11/28/07	SB-30A-112707 11/27/07	SB-30B-112707 11/27/07	SB-31-112807 11/28/07	SB-32-112707 11/27/07	SB-35-112907 11/29/07	SB-35C-112907 11/29/07
Title 22 Metals by EPA Method 6010B/7471A																		
Antimony	mg/kg	0.5	30	31	500	15	-	0.30	50	14.5	10.9	ND<0.191	4.75	ND<0.191	12.7	1.63	5.15	21.6
Arsenic	mg/kg	2.75	0.070	[7]0.062	500	5.0	5.0	1.0	29	5.31	5.95	21.9	29.1	3.88	6.87	1.75	10.5	13.4
Barium	mg/kg	468	5,200	5,400	10,000	100	100	82	1,600	297	254	431	129	256	553	177	252	249
Beryllium	mg/kg	1.14	150	150	75	0.75	-	3.0	63	ND<0.00368	ND<0.00368	0.336	ND<0.00368	0.411	0.590	ND<0.00368	ND<0.00368	ND<0.00368
Cadmium	mg/kg	0.26	1.7	37	100	1.0	1.0	0.40	80	ND<0.00988	ND<0.00988	0.831	ND<0.00988	1.23	7.08	ND<0.00988	3.48	5.13
Chromium (total)	mg/kg	76.25	NE	210	2,500	5.0	5.0	2.0	38	9.78	7.48	20.9	13.0	14.2	141	11.8	11.3	12.2
Chromium (hexavalent)	mg/kg	-	17	31	500	5.0	-	2.0	38	-	-	-	-	-	-	-	-	-
Cobalt	mg/kg	12.6	660	900	8,000	80	-	-	-	4.41	4.58	9.82	3.24	5.86	87.4	6.66	3.77	4.95
Copper	mg/kg	24	3,000	3,100	2,500	25	-	-	-	225	268	7,180	956	158	1,180	12,000	4,110	995
Lead	mg/kg	44.6	150	[8]150	1,000	5.0	5.0	-	-	23.0	23.2	68.7	97.5	639	467	128	73.3	96.4
Mercury	mg/kg	0.2	18	23	20	0.2	0.2	-	-	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	0.0867	4.50	ND<0.00130	ND<0.00130	ND<0.00130
Molybdenum	mg/kg	0.9	380	390	3,500	350	-	-	-	20.8	21.0	6.41	1.10	0.886	8.11	2.09	2.38	3.54
Nickel	mg/kg	35.75	1,600	1,600	2,000	20	-	7.0	130	18.3	20.5	14.0	43.0	20.3	81.2	21.2	12.7	9.50
Selenium	mg/kg	0.028	380	390	100	1.0	1.0	0.30	5.0	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175	0.959	ND<0.175	ND<0.175	ND<0.175
Silver	mg/kg	0.41	380	390	500	5.0	5.0	2.0	34	ND<0.0209	ND<0.0209	ND<0.0209	ND<0.0209	ND<0.0209	6.58	ND<0.0209	ND<0.0209	0.605
Thallium	mg/kg	13.8	5.0	5.2	700	7.0	-	-	-	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987
Vanadium	mg/kg	101	530	78	2,400	24	-	300	6,000	48.7	54.8	22.6	16.2	40.4	34.7	25.6	20.6	17.8
Zinc	mg/kg	145	23,000	23,000	5,000	250	-	620	12,000	485	408	7,390	3,170	1,070	6,240	2,480	951	1,120
Polycyclic Aromatic Hydrocarbons by EPA Method 8310																		
Acenaphthene	µg/kg	-	-	3,700,000	-	-	-	29,000	570,000	620	580	2,600	ND<5.0	770	6800	37	190	150
Acenaphthylene	µg/kg	-	-	-	-	-	-	-	-	2,800	2,500	1,200	280	140	3000	170	ND<6.8	ND<6.8
Anthracene	µg/kg	-	-	22,000,000	-	-	-	590,000	12,000,000	110	120	ND<35	ND<3.5	ND<7.0	ND<35	19	ND<3.5	ND<3.5
Benzo(a)anthracene	µg/kg	-	-	620	-	-	-	80	2,000	ND<32	ND<32	ND<32	19	ND<6.4	150	12	ND<3.2	ND<3.2
Benzo(a)pyrene	µg/kg	-	38	62	-	-	-	400	8,000	ND<31	ND<31	ND<31	ND<3.1	ND<6.2	ND<31	ND<3.1	ND<3.1	ND<3.1
Benzo(b)fluoranthene	µg/kg	-	-	620	-	-	-	200	5,000	ND<32	ND<32	ND<32	ND<3.2	ND<6.5	ND<32	ND<3.2	ND<3.2	ND<3.2
Benzo(g,h,i)perylene	µg/kg	-	-	-	-	-	-	-	-	ND<40	ND<40	ND<40	ND<4.0	ND<7.9	ND<40	ND<4.0	ND<4.0	ND<4.0
Benzo(k)fluoranthene	µg/kg	-	-	[8]380	-	-	-	2,000	49,000	ND<32	ND<32	ND<32	ND<3.2	ND<6.4	ND<32	ND<3.2	ND<3.2	ND<3.2
Chrysene	µg/kg	-	-	[8]3,800	-	-	-	8,000	160,000	ND<32	ND<32	ND<32	ND<3.2	ND<6.4	ND<32	ND<3.2	ND<3.2	ND<3.2
Dibenz(a,h)anthracene	µg/kg	-	-	62	-	-	-	80	2,000	ND<37	ND<37	ND<37	ND<3.7	ND<7.5	ND<37	ND<3.7	ND<3.7	ND<3.7
Fluoranthene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,300,000	ND<34	ND<34	ND<34	ND<3.4	ND<6.8	380	73	ND<3.4	ND<3.4
Fluorene	µg/kg	-	-	2,700,000	-	-	-	28,000	560,000	200	200	ND<32	ND<3.2	ND<6.4	380	10	ND<3.2	ND<3.2
Indeno(1,2,3-c,d)pyrene	µg/kg	-	-	-	-	-	-	700	14,000	ND<35	ND<35	ND<35	ND<3.5	ND<7.1	ND<35	ND<3.5	ND<3.5	ND<3.5
Naphthalene	µg/kg	-	-	[7]1,700	-	-	-	4,000	84,000	4,600	4,600	440	160	210	4600	270	ND<3.9	610
Phenanthrene	µg/kg	-	-	-	-	-	-	-	-	290	320	ND<33	ND<3.3	ND<6.7	290	140	16	23
Pyrene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,200,000	ND<29	ND<29	150	ND<2.9	1,100	180	47	ND<2.9	ND<2.9
Total B(a)P Equivalency[9]	µg/kg	-	38	62	-	-	-	400	8,000	ND<22	ND<22	ND<22	4.0	ND<4.5	36	ND<3.3	ND<2.2	ND<2.2

Notes:

mg/kg - Milligrams per kilogram
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CHHSL - California Human Health Screening Level for soil in residential land use
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San Bernardino County, California

Geosyntec consultants

Parameter	Units	[1]California Background	Health Risk: [2]CHHSL	Health Risk: [3]PRG	Waste Characterization: [4]TTLC Limits	Waste Characterization: [4]STLC Limits (mg/L)	Waste Characterization: [5]TCLP Limits (mg/L)	Soil Screening Level: [6]DAF1	Soil Screening Level: [7]DAF20	Sample ID and Date Sampled: SB-36-112907 11/29/07	SB-38-113007 11/30/07	SB-39-112807 11/28/07	SB-40-112807 11/28/07	SB-41-112807 11/28/07	SB-42A-112807 11/28/07	SB-42B-112807 11/28/07	SB-43-112907 11/29/07	SB-44-113007 11/30/07
Title 22 Metals by EPA Method 6010B/7471A																		
Antimony	mg/kg	0.5	30	31	500	15	-	0.30	50	25.9	106	ND<0.191	32.9	7.11	26.4	6.93	34.9	2.75
Arsenic	mg/kg	2.75	0.070	[7]0.062	500	5.0	5.0	1.0	29	17.1	8.89	2.57	16.6	40.0	21.7	4.47	40.0	3.73
Barium	mg/kg	468	5,200	5,400	10,000	100	100	82	1,600	208	831	344	262	265	271	315	575	31.9
Beryllium	mg/kg	1.14	150	150	75	0.75	-	3.0	63	0.263	1.18	0.315	0.318	0.836	ND<0.00368	0.278	ND<0.00368	0.929
Cadmium	mg/kg	0.26	1.7	37	100	1.0	1.0	0.40	80	2.20	2.15	1.29	1.63	1.84	69.3	17.4	2.08	ND<0.00988
Chromium (total)	mg/kg	76.25	NE	210	2,500	5.0	5.0	2.0	38	35.6	29.6	41.1	40.7	51.8	30.5	15.4	101	2.43
Chromium (hexavalent)	mg/kg	-	17	31	500	5.0	-	2.0	38	ND<0.22	-	-	-	-	-	-	ND<0.22	-
Cobalt	mg/kg	12.6	660	900	8,000	80	-	-	-	7.97	30.8	5.73	8.93	31.3	24.2	5.89	8.43	1.74
Copper	mg/kg	24	3,000	3,100	2,500	25	-	-	-	2,280	750	792	1,020	2,980	9,970	902	20,800	129
Lead	mg/kg	44.6	150	[8]150	1,000	5.0	5.0	-	-	680	1370	58.5	62.7	112	393	206	2,580	28.4
Mercury	mg/kg	0.2	18	23	20	0.2	0.2	-	-	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130
Molybdenum	mg/kg	0.9	380	390	3,500	350	-	-	-	7.77	1.35	4.17	1.82	3.98	6.85	1.82	43.7	1.84
Nickel	mg/kg	35.75	1,600	1,600	2,000	20	-	7.0	130	41.2	27.7	29.6	57.2	35.7	118	17.0	20.5	9.08
Selenium	mg/kg	0.028	380	390	100	1.0	1.0	0.30	5.0	1.39	ND<0.175	ND<0.175	1.74	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175
Silver	mg/kg	0.41	380	390	500	5.0	5.0	2.0	34	ND<0.0209	5.28	ND<0.0209	ND<0.0209	4.99	5.70	51.1	0.571	ND<0.0209
Thallium	mg/kg	13.8	5.0	5.2	700	7.0	-	-	-	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987
Vanadium	mg/kg	101	530	78	2,400	24	-	300	6,000	66.4	25.7	42.4	59.4	23.0	15.6	15.1	25.2	19.2
Zinc	mg/kg	145	23,000	23,000	5,000	250	-	620	12,000	1,730	26100	1,150	591	2,610	2,840	555	4,300	32700
Polycyclic Aromatic Hydrocarbons by EPA Method 8310																		
Acenaphthene	µg/kg	-	-	3,700,000	-	-	-	29,000	570,000	400	72	1,200	670	970	760	180	1500	280
Acenaphthylene	µg/kg	-	-	-	-	-	-	-	-	310	60	1,200	ND<34	ND<14	ND<68	ND<6.8	ND<14	540
Anthracene	µg/kg	-	-	22,000,000	-	-	-	590,000	12,000,000	22	ND<3.5	ND<35	ND<18	ND<7.0	ND<35	ND<3.5	ND<7.0	54
Benzo(a)anthracene	µg/kg	-	-	620	-	-	-	80	2,000	26	ND<3.2	ND<32	ND<16	ND<6.4	ND<32	ND<3.2	ND<6.4	ND<6.4
Benzo(a)pyrene	µg/kg	-	38	62	-	-	-	400	8,000	ND<3.1	ND<3.1	ND<31	ND<15	ND<6.2	ND<31	ND<3.1	ND<6.2	ND<6.2
Benzo(b)fluoranthene	µg/kg	-	-	620	-	-	-	200	5,000	ND<3.2	ND<3.2	ND<32	ND<16	ND<6.5	ND<32	ND<3.2	ND<6.5	ND<6.5
Benzo(g,h,i)perylene	µg/kg	-	-	-	-	-	-	-	-	ND<4.0	ND<4.0	ND<40	ND<20	ND<7.9	ND<40	ND<4.0	ND<7.9	ND<7.9
Benzo(k)fluoranthene	µg/kg	-	-	[8]380	-	-	-	2,000	49,000	ND<3.2	ND<3.2	ND<32	ND<16	ND<6.4	ND<32	ND<3.2	ND<6.4	ND<6.4
Chrysene	µg/kg	-	-	[8]3,800	-	-	-	8,000	160,000	16	ND<3.2	ND<32	ND<16	ND<6.4	ND<32	ND<3.2	ND<6.4	ND<6.4
Dibenz(a,h)anthracene	µg/kg	-	-	62	-	-	-	80	2,000	ND<3.7	ND<3.7	ND<37	ND<19	ND<7.5	ND<37	ND<3.7	ND<7.5	ND<7.5
Fluoranthene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,300,000	140	15	ND<34	ND<17	67	ND<34	ND<3.4	ND<6.8	ND<6.8
Fluorene	µg/kg	-	-	2,700,000	-	-	-	28,000	560,000	81	23	ND<32	ND<16	30	ND<32	ND<3.2	ND<6.4	120
Indeno(1,2,3-c,d)pyrene	µg/kg	-	-	-	-	-	-	700	14,000	ND<3.5	ND<3.5	ND<35	ND<18	ND<7.1	ND<35	ND<3.5	ND<7.1	ND<7.1
Naphthalene	µg/kg	-	-	[7]1,700	-	-	-	4,000	84,000	780	110	1,700	2100	770	1700	130	530	1300
Phenanthrene	µg/kg	-	-	-	-	-	-	-	-	120	38	ND<33	120	45	130	25	22	460
Pyrene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,200,000	38	16	ND<29	ND<14	ND<5.8	ND<29	ND<2.9	ND<5.8	33
Total B(a)P Equivalency[9]	µg/kg	-	38	62	-	-	-	400	8,000	4.8	ND<2.2	ND<22	ND<11	ND<4.5	ND<22	ND<2.2	ND<4.5	ND<4.5

Notes:

mg/kg - Milligrams per kilogram
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[4] Reference: California Code of Regulations (CCR), 2006. Title 22, Chapter 11, Article 3, Section 66261.24. *Characteristics of Toxicity* , 30 November 2007.

[5] Reference: Code of Federal Regulations (CFR), 2006. 40 CFR, Chapter 1, Section 261.24, *Toxicity Characteristics* , 14 July, 2006.

[6] Dilution-attenuation factor of 1 is used to compare to surface water and areas with shallow groundwater or underlain by fractured media. Reference: USEPA, Region IX, 2004. *Region IX PRGs Table 2004 Update* , 1 October 2004.

[7] Dilution-attenuation factor of 20 is used to compare to areas where groundwater is deep. Reference: USEPA, Region IX, 2004. *Region IX PRGs Table 2004 Update* , 1 October 2004.

[8] State of California modified residential PRG (Cal-modified PRG)

[9] Benzo(a)pyrene equivalancy based on potency equivalency factors (PEFs) Reference: Office of Environmental Health Hazard Assessment. *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* , August 2003.

TABLE 3
Summary of Analytical Results
Burn Debris Sampling
San Bernardino County, California

Geosyntec consultants

Parameter	Units	[1]California Background	Health Risk: [2]CHHSL	Health Risk: [3]PRG	Waste Characterization: [4]TTLC Limits	Waste Characterization: [4]STLC Limits (mg/L)	Waste Characterization: [5]TCLP Limits (mg/L)	Soil Screening Level: [6]DAF1	Soil Screening Level: [7]DAF20	Sample ID and Date Sampled: SB-44C-113007 11/30/07	SB-45-112907 11/29/07	SB-46-112907 11/29/07	SB-47-112907 11/29/07	SB-48-112907 11/29/07	SB-50-113007 11/30/07	SB-51-113007 11/30/07
Title 22 Metals by EPA Method 6010B/7471A																
Antimony	mg/kg	0.5	30	31	500	15	-	0.30	50	17.5	13.6	2.60	29.9	17.9	20.4	52.4
Arsenic	mg/kg	2.75	0.070	[7]0.062	500	5.0	5.0	1.0	29	2.80	18.2	13.4	12.1	6.98	4.76	4.49
Barium	mg/kg	468	5,200	5,400	10,000	100	100	82	1,600	24.7	130	328	360	1010	118	270
Beryllium	mg/kg	1.14	150	150	75	0.75	-	3.0	63	0.885	0.935	1.02	1.03	1.17	0.893	0.992
Cadmium	mg/kg	0.26	1.7	37	100	1.0	1.0	0.40	80	ND<0.00988	ND<0.00988	ND<0.00988	7.76	ND<0.00988	ND<0.00988	ND<0.00988
Chromium (total)	mg/kg	76.25	NE	210	2,500	5.0	5.0	2.0	38	1.22	10.9	8.02	22.4	19.8	7.31	24.0
Chromium (hexavalent)	mg/kg	-	17	31	500	5.0	-	2.0	38	-	-	-	-	-	-	-
Cobalt	mg/kg	12.6	660	900	8,000	80	-	-	-	0.796	9.41	10.8	5.39	6.68	2.83	17.6
Copper	mg/kg	24	3,000	3,100	2,500	25	-	-	-	177	435	267	7530	2630	324	1640
Lead	mg/kg	44.6	150	[8]150	1,000	5.0	5.0	-	-	477	13.6	102	531	1450	97.8	171
Mercury	mg/kg	0.2	18	23	20	0.2	0.2	-	-	ND<0.00130	ND<0.00130	0.204	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130
Molybdenum	mg/kg	0.9	380	390	3,500	350	-	-	-	1.86	29.3	1.09	4.49	4.81	0.806	0.978
Nickel	mg/kg	35.75	1,600	1,600	2,000	20	-	7.0	130	20.0	18.9	6.87	11.7	23.2	7.42	43.9
Selenium	mg/kg	0.028	380	390	100	1.0	1.0	0.30	5.0	ND<0.175	ND<0.175	5.10	ND<0.175	ND<0.175	ND<0.175	ND<0.175
Silver	mg/kg	0.41	380	390	500	5.0	5.0	2.0	34	ND<0.0209	ND<0.0209	ND<0.0209	3.12	ND<0.0209	0.953	3.62
Thallium	mg/kg	13.8	5.0	5.2	700	7.0	-	-	-	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987
Vanadium	mg/kg	101	530	78	2,400	24	-	300	6,000	14.6	16.3	16.4	18.2	44.1	10.1	28.2
Zinc	mg/kg	145	23,000	23,000	5,000	250	-	620	12,000	298	969	1120	6160	1840	492	1440
Polycyclic Aromatic Hydrocarbons by EPA Method 8310																
Acenaphthene	µg/kg	-	-	3,700,000	-	-	-	29,000	570,000	250	770	930	170	1700	ND<10	38
Acenaphthylene	µg/kg	-	-	-	-	-	-	-	-	540	640	3500	490	1300	ND<14	ND<6.8
Anthracene	µg/kg	-	-	22,000,000	-	-	-	590,000	12,000,000	43	ND<3.5	ND<70	ND<3.5	130	ND<7.0	16
Benzo(a)anthracene	µg/kg	-	-	620	-	-	-	80	2,000	ND<6.4	ND<3.2	750	ND<3.2	160	ND<6.4	ND<3.2
Benzo(a)pyrene	µg/kg	-	38	62	-	-	-	400	8,000	ND<6.2	ND<3.1	ND<62	ND<3.1	ND<6.2	ND<6.2	ND<3.1
Benzo(b)fluoranthene	µg/kg	-	-	620	-	-	-	200	5,000	ND<6.5	ND<3.2	ND<65	ND<3.2	29	ND<6.5	ND<3.2
Benzo(g,h,i)perylene	µg/kg	-	-	-	-	-	-	-	-	ND<7.9	ND<4.0	ND<79	ND<4.0	ND<7.9	ND<7.9	ND<4.0
Benzo(k)fluoranthene	µg/kg	-	-	[8]380	-	-	-	2,000	49,000	ND<6.4	ND<3.2	ND<64	ND<3.2	560	ND<6.4	ND<3.2
Chrysene	µg/kg	-	-	[8]3,800	-	-	-	8,000	160,000	ND<6.4	10	ND<64	15	180	ND<6.4	11
Dibenz(a,h)anthracene	µg/kg	-	-	62	-	-	-	80	2,000	ND<7.5	ND<3.7	ND<75	ND<3.7	ND<7.5	ND<7.5	ND<3.7
Fluoranthene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,300,000	ND<6.8	ND<3.4	1900	ND<3.4	1400	ND<6.8	12
Fluorene	µg/kg	-	-	2,700,000	-	-	-	28,000	560,000	100	ND<3.2	ND<64	ND<3.2	ND<6.4	ND<6.4	18
Indeno(1,2,3-c,d)pyrene	µg/kg	-	-	-	-	-	-	700	14,000	ND<7.1	ND<3.5	ND<71	ND<3.5	ND<7.1	ND<7.1	ND<3.5
Naphthalene	µg/kg	-	-	[7]1,700	-	-	-	4,000	84,000	1200	410	19000	790	530	95	79
Phenanthrene	µg/kg	-	-	-	-	-	-	-	-	380	ND<3.3	570	ND<3.3	220	ND<6.7	97
Pyrene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,200,000	28	ND<2.9	1200	35	82	21	36
Total B(a)P Equivalency[9]	µg/kg	-	38	62	-	-	-	400	8,000	ND<4.5	2.3	120	2.4	80	ND<4.5	2.3

Notes:

mg/kg - Milligrams per kilogram
mg/L - Milligrams per liter
µg/kg - Microgram per kilogram
- Not established
ND<x - Not detected at concentrations greater than or equal to MDL (x)

CHHSL - California Human Health Screening Level for soil in residential land use
DAF- Dilution-Attenuation Factor
MDL - Method Detection Limit
PRG - Residential Preliminary Remediation Goal

STLC - Soluble Threshold Limit Concentration
TCLP - Toxicity Characteristic Leaching Potential
TTLC - Total Threshold Limit Concentration

[1] Geometric mean concentrations were used which are more conservative than average concentrations. Reference: UC Riverside and Cal-EPA DTSC, 1996. *Background Concentrations of Trace and Major Elements in California Soils, Kearney Foundation Special Report*, March 1996.

[2] Reference: California Environmental Protection Agency (Cal/EPA). *Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties* . January 2005.

[3] Reference: USEPA Region IX, 2004. *EPA Region IX PRGs Table* , October 2004.

[4] Reference: California Code of Regulations (CCR), 2006. Title 22, Chapter 11, Article 3, Section 66261.24. *Characteristics of Toxicity* , 30 November 2007.

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[6] Dilution-attenuation factor of 1 is used to compare to surface water and areas with shallow groundwater or underlain by fractured media. Reference: USEPA, Region IX, 2004. *Region IX PRGs Table 2004 Update* , 1 October 2004.

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TABLE 4
Summary of Analytical Results
Burn Debris Sampling
San Diego County, California

Geosyntec consultants

Parameter	Units	[1]California Background	Health Risk: [2]CHHSL	Health Risk: [3]PRG	Waste Characterization: [4]TTLC Limits	Waste Characterization: [4]STLC Limits (mg/L)	Waste Characterization: [5]TCLP Limits (mg/L)	Soil Screening Level: [6]DAF1	Soil Screening Level: [7]DAF20	Sample ID and Date Sampled: SD-02-11282007 11/28/07	SD-08-11262007 11/26/07	SD-09-11262007 11/26/07	SD-11-11282007 11/28/07	SD-12-11272007 11/27/07	SD-13-11272007 11/27/07	SD-16-11272007 11/27/07	SD-18-11272007 11/27/07
Title 22 Metals by EPA Method 6010B/7471A																	
Antimony	mg/kg	0.5	30	31	500	15	-	0.30	50	73.1	ND<0.191	45.9	14.0	ND<0.191	1.10	50.5	ND<0.191
Arsenic	mg/kg	2.75	0.070	[8]0.062	500	5.0	5.0	1.0	29	12.6	9.28	8.25	10.5	3.55	20.5	12.1	2.12
Barium	mg/kg	468	5,200	5,400	10,000	100	100	82	1,600	420	456	207	179	127	157	132	94.2
Beryllium	mg/kg	1.14	150	150	75	0.75	-	3.0	63	1.17	ND<0.00368	ND<0.00368	1.05	ND<0.00368	0.428	0.453	ND<0.00368
Cadmium	mg/kg	0.26	1.7	37	100	1.0	1.0	0.40	80	6.22	3.40	1.46	ND<0.00988	ND<0.00988	ND<0.00988	ND<0.00988	0.747
Chromium (total)	mg/kg	76.25	NE	210	2,500	5.0	5.0	2.0	38	345	19.5	10.2	24.4	17.9	29.2	8.88	10.4
Chromium (hexavalent)	mg/kg	-	17	31	500	5.0	-	2.0	38	ND<0.22	-	-	-	ND<0.22	-	-	-
Cobalt	mg/kg	12.6	660	900	8,000	80	-	-	-	47.9	264	4.59	4.61	4.92	5.37	44.6	4.04
Copper	mg/kg	24	3,000	3,100	2,500	25	-	-	-	2,430	698	2,100	8,080	46,000	542	1,490	3,740
Lead	mg/kg	44.6	150	[8]150	1,000	5.0	5.0	-	-	1,680	103	92.5	111	92.3	25.1	2510	68.5
Mercury	mg/kg	0.2	18	23	20	0.2	0.2	-	-	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130
Molybdenum	mg/kg	0.9	380	390	3,500	350	-	-	-	3.63	1.69	0.913	1.17	0.495	1.79	2.12	6.13
Nickel	mg/kg	35.75	1,600	1,600	2,000	20	-	7.0	130	23.1	48.8	76.5	27.8	12.2	27.6	31.6	14.2
Selenium	mg/kg	0.028	380	390	100	1.0	1.0	0.30	5.0	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175
Silver	mg/kg	0.41	380	390	500	5.0	5.0	2.0	34	42.2	ND<0.0209	2.67	1.01	2.59	ND<0.0209	35.8	62.4
Thallium	mg/kg	13.8	5.0	5.2	700	7.0	-	-	-	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987
Vanadium	mg/kg	101	530	78	2,400	24	-	300	6,000	40.9	20.7	18.8	29.1	22.8	66.6	40.0	12.6
Zinc	mg/kg	145	23,000	23,000	5,000	250	-	620	12,000	3,080	2,190	1,570	1,310	685	407	6,030	1,790
Polycyclic Aromatic Hydrocarbons by EPA Method 8310																	
Acenaphthene	µg/kg	-	-	3,700,000	-	-	-	29,000	570,000	ND<5.0	25	1,800	ND<5.0	66	ND<5.0	ND<5.0	400
Acenaphthylene	µg/kg	-	-	-	-	-	-	-	-	100	240	790	830	540	230	1,000	480
Anthracene	µg/kg	-	-	22,000,000	-	-	-	590,000	12,000,000	ND<3.5	ND<3.5	240	31	23	ND<3.5	110	20
Benzo(a)anthracene	µg/kg	-	-	620	-	-	-	80	2,000	ND<3.2	61	170	60	21	ND<3.2	200	86
Benzo(a)pyrene	µg/kg	-	38	62	-	-	-	400	8,000	ND<3.1	ND<3.1	34	14	ND<3.1	ND<3.1	77	ND<3.1
Benzo(b)fluoranthene	µg/kg	-	-	620	-	-	-	200	5,000	29	ND<3.2	ND<6.5	ND<3.2	ND<3.2	ND<3.2	ND<3.2	ND<3.2
Benzo(g,h,i)perylene	µg/kg	-	-	-	-	-	-	-	-	19	ND<4.0	ND<7.9	10	ND<4.0	ND<4.0	130	ND<4.0
Benzo(k)fluoranthene	µg/kg	-	-	[8]380	-	-	-	2,000	49,000	ND<3.2	ND<3.2	22	ND<3.2	ND<3.2	ND<3.2	39	ND<3.2
Chrysene	µg/kg	-	-	[8]3,800	-	-	-	8,000	160,000	ND<3.2	39	26	72	ND<3.2	ND<3.2	580	11
Dibenz(a,h)anthracene	µg/kg	-	-	62	-	-	-	80	2,000	ND<3.7	ND<3.7	90	ND<3.7	ND<3.7	ND<3.7	330	ND<3.7
Fluoranthene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,300,000	ND<3.4	650	73	26	ND<3.4	ND<3.4	290	ND<3.4
Fluorene	µg/kg	-	-	2,700,000	-	-	-	28,000	560,000	10	12	480	80	89	18	140	37
Indeno(1,2,3-c,d)pyrene	µg/kg	-	-	-	-	-	-	700	14,000	ND<3.5	ND<3.5	22	14	ND<3.5	ND<3.5	74	ND<3.5
Naphthalene	µg/kg	-	-	[8]1,700	-	-	-	4,000	84,000	140	370	770	950	830	490	630	330
Phenanthrene	µg/kg	-	-	-	-	-	-	-	-	ND<3.3	100	1,100	360	140	70	440	130
Pyrene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,200,000	29	110	510	600	72	49	650	150
Total B(a)P Equivalency[9]	µg/kg	-	38	62	-	-	-	400	8,000	5.0	8.5	56	22	4.2	ND<2.2	110	11

Notes:

mg/kg - Milligrams per kilogram
mg/L - Milligrams per liter
µg/kg - Microgram per kilogram
- Not established
ND<x - Not detected at concentrations greater than or equal to MDL (x)

CHHSL - California Human Health Screening Level for soil in residential land use
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[1] Geometric mean concentrations were used which are more conservative than average concentrations. Reference: UC Riverside and Cal-EPA DTSC, 1996. *Background Concentrations of Trace and Major Elements in California Soils, Kearney Foundation Special Report*, March 1996.

[2] Reference: California Environmental Protection Agency (Cal/EPA) *Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties* . January 2005.

[3] Reference: USEPA Region IX, 2004. *EPA Region IX PRGs Table* , October 2004.

[4] Reference: California Code of Regulations (CCR), 2006. Title 22, Chapter 11, Article 3, Section 66261.24. *Characteristics of Toxicity* , 30 November 2007.

[5] Reference: Code of Federal Regulations (CFR), 2006. 40 CFR, Chapter 1, Section 261.24, *Toxicity Characteristics* , 14 July, 2006.

[6] Dilution-attenuation factor of 1 is used to compare to surface water and areas with shallow groundwater or underlain by fractured media. Reference: USEPA, Region IX, 2004. *Region IX PRGs Table 2004 Update* , 1 October 2004.

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Title 22 Metals by EPA Method 6010B/7471A																	
Antimony	mg/kg	0.5	30	31	500	15	-	0.30	50	0.898	4.78	5.43	35.0	97.1	2.05	14.2	5.87
Arsenic	mg/kg	2.75	0.070	[8]0.062	500	5.0	5.0	1.0	29	3.17	2.52	2.53	11.3	8.04	1.93	1.26	2.23
Barium	mg/kg	468	5,200	5,400	10,000	100	100	82	1,600	78.9	181	236	283	208	65.7	161	316
Beryllium	mg/kg	1.14	150	150	75	0.75	-	3.0	63	ND<0.00368	0.361	0.391	1.08	ND<0.00368	ND<0.00368	0.340	0.288
Cadmium	mg/kg	0.26	1.7	37	100	1.0	1.0	0.40	80	1.24	ND<0.00988	ND<0.00988	1.93	2.80	ND<0.00988	ND<0.00988	ND<0.00988
Chromium (total)	mg/kg	76.25	NE	210	2,500	5.0	5.0	2.0	38	10.2	6.45	8.02	28.7	10.5	10.9	8.70	19.4
Chromium (hexavalent)	mg/kg	-	17	31	500	5.0	-	2.0	38	-	-	-	ND<0.22	-	-	-	-
Cobalt	mg/kg	12.6	660	900	8,000	80	-	-	-	4.51	2.45	2.27	6.05	6.58	7.24	5.39	3.43
Copper	mg/kg	24	3,000	3,100	2,500	25	-	-	-	2,460	69.7	73.1	2,310	614	452	886	1,230
Lead	mg/kg	44.6	150	[8]150	1,000	5.0	5.0	-	-	80.8	21.7	23.3	448	53.8	33.4	20.3	32.3
Mercury	mg/kg	0.2	18	23	20	0.2	0.2	-	-	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130
Molybdenum	mg/kg	0.9	380	390	3,500	350	-	-	-	9.62	1.10	1.36	2.65	5.22	1.12	0.709	1.12
Nickel	mg/kg	35.75	1,600	1,600	2,000	20	-	7.0	130	16.6	29.7	41.8	69.2	14.0	33.5	13.0	13.1
Selenium	mg/kg	0.028	380	390	100	1.0	1.0	0.30	5.0	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175
Silver	mg/kg	0.41	380	390	500	5.0	5.0	2.0	34	60.1	ND<0.0209	ND<0.0209	12.4	ND<0.0209	ND<0.0209	ND<0.0209	0.267
Thallium	mg/kg	13.8	5.0	5.2	700	7.0	-	-	-	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987
Vanadium	mg/kg	101	530	78	2,400	24	-	300	6,000	11.5	81.4	115	31.6	33.9	67.3	28.9	22.5
Zinc	mg/kg	145	23,000	23,000	5,000	250	-	620	12,000	54,300	384	1,060	2,180	1,060	1,330	303	404
Polycyclic Aromatic Hydrocarbons by EPA Method 8310																	
Acenaphthene	µg/kg	-	-	3,700,000	-	-	-	29,000	570,000	490	33	36	ND<5.0	280	ND<100	300	380
Acenaphthylene	µg/kg	-	-	-	-	-	-	-	-	500	290	230	210	1,400	3,200	760	610
Anthracene	µg/kg	-	-	22,000,000	-	-	-	590,000	12,000,000	22	11	11	ND<3.5	68	ND<70	52	14
Benzo(a)anthracene	µg/kg	-	-	620	-	-	-	80	2,000	120	27	24	130	92	3,200	130	170
Benzo(a)pyrene	µg/kg	-	38	62	-	-	-	400	8,000	ND<3.1	ND<3.1	ND<3.1	ND<3.1	ND<15	ND<62	13	ND<3.1
Benzo(b)fluoranthene	µg/kg	-	-	620	-	-	-	200	5,000	ND<3.2	ND<3.2	ND<3.2	ND<3.2	ND<16	ND<65	ND<3.2	ND<3.2
Benzo(g,h,i)perylene	µg/kg	-	-	-	-	-	-	-	-	ND<4.0	ND<4.0	ND<4.0	ND<4.0	ND<20	ND<79	ND<4.0	ND<4.0
Benzo(k)fluoranthene	µg/kg	-	-	[8]380	-	-	-	2,000	49,000	ND<3.2	64	28	ND<3.2	ND<16	ND<64	ND<3.2	ND<3.2
Chrysene	µg/kg	-	-	[8]3,800	-	-	-	8,000	160,000	12	ND<3.2	ND<3.2	28	ND<16	210	56	ND<3.2
Dibenz(a,h)anthracene	µg/kg	-	-	62	-	-	-	80	2,000	ND<3.7	190	130	ND<3.7	ND<19	ND<75	ND<3.7	ND<3.7
Fluoranthene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,300,000	ND<3.4	ND<3.4	ND<3.4	310	ND<17	ND<68	860	53
Fluorene	µg/kg	-	-	2,700,000	-	-	-	28,000	560,000	40	34	30	17	410	530	180	33
Indeno(1,2,3-c,d)pyrene	µg/kg	-	-	-	-	-	-	700	14,000	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<18	ND<71	12	ND<3.5
Naphthalene	µg/kg	-	-	[8]1,700	-	-	-	4,000	84,000	340	260	220	240	2,200	840	740	200
Phenanthrene	µg/kg	-	-	-	-	-	-	-	-	150	72	74	110	300	1,000	290	130
Pyrene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,200,000	160	79	81	430	59	10,000	300	420
Total B(a)P Equivalency[9]	µg/kg	-	38	62	-	-	-	400	8,000	14	11	7.1	15	19	360	28	19

Notes:

mg/kg - Milligrams per kilogram
mg/L - Milligrams per liter
µg/kg - Microgram per kilogram
- Not established
ND<x - Not detected at concentrations greater than or equal to MDL (x)

CHHSL - California Human Health Screening Level for soil in residential land use
DAF- Dilution-Attenuation Factor
MDL - Method Detection Limit
PRG - Residential Preliminary Remediation Goal

STLC - Soluble Threshold Limit Concentration
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[1] Geometric mean concentrations were used which are more conservative than average concentrations. Reference: UC Riverside and Cal-EPA DTSC, 1996. *Background Concentrations of Trace and Major Elements in California Soils, Kearney Foundation Special Report*, March 1996.

[2] Reference: California Environmental Protection Agency (Cal/EPA) *Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties* . January 2005.

[3] Reference: USEPA Region IX, 2004. *EPA Region IX PRGs Table* , October 2004.

[4] Reference: California Code of Regulations (CCR), 2006. Title 22, Chapter 11, Article 3, Section 66261.24. *Characteristics of Toxicity* , 30 November 2007.

[5] Reference: Code of Federal Regulations (CFR), 2006. 40 CFR, Chapter 1, Section 261.24, *Toxicity Characteristics* , 14 July, 2006.

[6] Dilution-attenuation factor of 1 is used to compare to surface water and areas with shallow groundwater or underlain by fractured media. Reference: USEPA, Region IX, 2004. *Region IX PRGs Table 2004 Update* , 1 October 2004.

[7] Dilution-attenuation factor of 20 is used to compare to areas where groundwater is deep. Reference: USEPA, Region IX, 2004. *Region IX PRGs Table 2004 Update* , 1 October 2004.

[8] State of California modified residential PRG (Cal-modified PRG)

[9] Benzo(a)pyrene equivalancy based on potency equivalency factors (PEFs) Reference: Office of Environmental Health Hazard Assessment. *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* , August 2003.

TABLE 4
Summary of Analytical Results
Burn Debris Sampling
San Diego County, California

Geosyntec consultants

Parameter	Units	[1]California Background	Health Risk: [2]CHHSL	Health Risk: [3]PRG	Waste Characterization: [4]TTLC Limits	Waste Characterization: [4]STLC Limits (mg/L)	Waste Characterization: [5]TCLP Limits (mg/L)	Soil Screening Level: [6]DAF1	Soil Screening Level: [7]DAF20	Sample ID and Date Sampled: SD-26-11282007 11/28/07	SD-31-11262007 11/26/07	SD-34-11262007 11/26/07	SD-36-11272007 11/27/07	SD-38-11272007 11/27/07	SD-40-11262007 11/26/07	SD-41-11272007 11/27/07	SD-44-11282007 11/28/07
Title 22 Metals by EPA Method 6010B/7471A																	
Antimony	mg/kg	0.5	30	31	500	15	-	0.30	50	ND<0.191	ND<0.191	ND<0.191	22.6	52.8	ND<0.191	ND<0.191	ND<0.191
Arsenic	mg/kg	2.75	0.070	[8]0.062	500	5.0	5.0	1.0	29	5.96	34.3	4.62	4.06	1.78	12.2	5.22	9.00
Barium	mg/kg	468	5,200	5,400	10,000	100	100	82	1,600	159	167	113	164	213	166	121	262
Beryllium	mg/kg	1.14	150	150	75	0.75	-	3.0	63	1.00	ND<0.00368	ND<0.00368	ND<0.00368	ND<0.00368	ND<0.00368	0.605	1.14
Cadmium	mg/kg	0.26	1.7	37	100	1.0	1.0	0.40	80	31.4	1.40	1.30	ND<0.00988	4.15	1.34	ND<0.00988	2.67
Chromium (total)	mg/kg	76.25	NE	210	2,500	5.0	5.0	2.0	38	13.5	15.7	27.0	9.64	21.2	15.9	15.6	26.7
Chromium (hexavalent)	mg/kg	-	17	31	500	5.0	-	2.0	38	-	-	ND<0.22	-	-	-	-	ND<0.22
Cobalt	mg/kg	12.6	660	900	8,000	80	-	-	-	4.17	7.25	4.70	8.18	3.35	6.84	4.52	5.82
Copper	mg/kg	24	3,000	3,100	2,500	25	-	-	-	1,860	879	448	45,700	417	539	172	627
Lead	mg/kg	44.6	150	[8]150	1,000	5.0	5.0	-	-	3,350	36.5	69.4	36.3	193	87.7	24.4	1,370
Mercury	mg/kg	0.2	18	23	20	0.2	0.2	-	-	0.187	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130
Molybdenum	mg/kg	0.9	380	390	3,500	350	-	-	-	2.67	6.09	1.02	1.70	15.6	ND<0.0206	2.86	5.64
Nickel	mg/kg	35.75	1,600	1,600	2,000	20	-	7.0	130	28.5	25.6	26.9	21.9	8.08	8.19	39.3	28.2
Selenium	mg/kg	0.028	380	390	100	1.0	1.0	0.30	5.0	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175
Silver	mg/kg	0.41	380	390	500	5.0	5.0	2.0	34	1.70	4.71	ND<0.0209	2.43	ND<0.0209	ND<0.0209	ND<0.0209	9.09
Thallium	mg/kg	13.8	5.0	5.2	700	7.0	-	-	-	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987
Vanadium	mg/kg	101	530	78	2,400	24	-	300	6,000	17.5	68.3	31.0	16.8	10.1	22.3	67.7	21.2
Zinc	mg/kg	145	23,000	23,000	5,000	250	-	620	12,000	2,190	3,160	547	892	767	534	304	1,640
Polycyclic Aromatic Hydrocarbons by EPA Method 8310																	
Acenaphthene	µg/kg	-	-	3,700,000	-	-	-	29,000	570,000	380	ND<5.0	ND<5.0	38	110	83	ND<10	ND<5.0
Acenaphthylene	µg/kg	-	-	-	-	-	-	-	-	610	130	210	230	600	150	1,200	240
Anthracene	µg/kg	-	-	22,000,000	-	-	-	590,000	12,000,000	38	ND<3.5	ND<3.5	ND<3.5	26	ND<3.5	230	12
Benzo(a)anthracene	µg/kg	-	-	620	-	-	-	80	2,000	34	14	ND<3.2	63	15	ND<3.2	160	72
Benzo(a)pyrene	µg/kg	-	38	62	-	-	-	400	8,000	ND<3.1	29	ND<3.1	ND<3.1	ND<3.1	ND<3.1	92	10
Benzo(b)fluoranthene	µg/kg	-	-	620	-	-	-	200	5,000	ND<3.2	ND<3.2	ND<3.2	ND<3.2	ND<3.2	ND<3.2	ND<6.5	ND<3.2
Benzo(g,h,i)perylene	µg/kg	-	-	-	-	-	-	-	-	12	47	ND<4.0	ND<4.0	ND<4.0	ND<4.0	91	ND<4.0
Benzo(k)fluoranthene	µg/kg	-	-	[8]380	-	-	-	2,000	49,000	ND<3.2	ND<3.2	ND<3.2	ND<3.2	ND<3.2	ND<3.2	24	ND<3.2
Chrysene	µg/kg	-	-	[8]3,800	-	-	-	8,000	160,000	ND<3.2	ND<3.2	ND<3.2	13	16	ND<3.2	140	ND<3.2
Dibenz(a,h)anthracene	µg/kg	-	-	62	-	-	-	80	2,000	12	250	ND<3.7	ND<3.7	ND<3.7	ND<3.7	160	ND<3.7
Fluoranthene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,300,000	220	11	ND<3.4	ND<3.4	240	ND<3.4	180	24
Fluorene	µg/kg	-	-	2,700,000	-	-	-	28,000	560,000	71	140	12	19	74	18	810	20
Indeno(1,2,3-c,d)pyrene	µg/kg	-	-	-	-	-	-	700	14,000	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5	57	ND<3.5
Naphthalene	µg/kg	-	-	[8]1,700	-	-	-	4,000	84,000	530	210	200	430	680	460	1,100	230
Phenanthrene	µg/kg	-	-	-	-	-	-	-	-	210	60	47	79	190	18	640	91
Pyrene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,200,000	ND<2.9	93	62	240	88	14	360	210
Total B(a)P Equivalency[9]	µg/kg	-	38	62	-	-	-	400	8,000	5.5	31	ND<2.2	8.5	3.7	ND<2.2	120	18

Notes:

mg/kg - Milligrams per kilogram
mg/L - Milligrams per liter
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- Not established
ND<x - Not detected at concentrations greater than or equal to MDL (x)

CHHSL - California Human Health Screening Level for soil in residential land use
DAF- Dilution-Attenuation Factor
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Burn Debris Sampling
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Parameter	Units	[1]California Background	Health Risk: [2]CHHSL	Health Risk: [3]PRG	Waste Characterization: [4]TTLC Limits	Waste Characterization: [4]STLC Limits (mg/L)	Waste Characterization: [5]TCLP Limits (mg/L)	Soil Screening Level: [6]DAF1	Soil Screening Level: [7]DAF20	SD-46-11272007 11/27/07	SD-47-11282007 11/28/07	SD-50-11282007 11/28/07	SD-50C-11282007 11/28/07	SD-51-11282007 11/28/07	SD-53-11282007 11/28/07	SD-54-11272007 11/27/07	SD-55-11282007 11/28/07
Title 22 Metals by EPA Method 6010B/7471A																	
Antimony	mg/kg	0.5	30	31	500	15	-	0.30	50	10.8	7.11	6.61	11.3	2.24	18.2	101	9.20
Arsenic	mg/kg	2.75	0.070	[8]0.062	500	5.0	5.0	1.0	29	10.0	8.17	6.67	6.64	5.96	6.59	2.81	4.13
Barium	mg/kg	468	5,200	5,400	10,000	100	100	82	1,600	142	326	146	130	163	213	238	94.3
Beryllium	mg/kg	1.14	150	150	75	0.75	-	3.0	63	ND<0.00368	0.922	0.966	0.920	1.03	0.995	ND<0.00368	0.899
Cadmium	mg/kg	0.26	1.7	37	100	1.0	1.0	0.40	80	2.31	3.63	ND<0.00988	ND<0.00988	2.81	4.73	1.79	0.736
Chromium (total)	mg/kg	76.25	NE	210	2,500	5.0	5.0	2.0	38	12.2	15.9	8.64	7.52	21.4	195	10.4	8.84
Chromium (hexavalent)	mg/kg	-	17	31	500	5.0	-	2.0	38	-	-	-	-	0.88	-	-	-
Cobalt	mg/kg	12.6	660	900	8,000	80	-	-	-	6.00	2.00	44.3	46.9	5.07	18.5	9.31	6.09
Copper	mg/kg	24	3,000	3,100	2,500	25	-	-	-	22,300	124	4,340	2,530	851	6,870	1,150	457
Lead	mg/kg	44.6	150	[8]150	1,000	5.0	5.0	-	-	225	379	60.2	288	39.7	463	143	56.1
Mercury	mg/kg	0.2	18	23	20	0.2	0.2	-	-	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130
Molybdenum	mg/kg	0.9	380	390	3,500	350	-	-	-	1.59	1.90	3.69	4.65	1.55	3.76	0.520	2.00
Nickel	mg/kg	35.75	1,600	1,600	2,000	20	-	7.0	130	34.6	5.96	9.46	9.85	9.68	27.9	10.3	8.13
Selenium	mg/kg	0.028	380	390	100	1.0	1.0	0.30	5.0	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175
Silver	mg/kg	0.41	380	390	500	5.0	5.0	2.0	34	4.74	0.793	ND<0.0209	ND<0.0209	ND<0.0209	21.1	4.17	ND<0.0209
Thallium	mg/kg	13.8	5.0	5.2	700	7.0	-	-	-	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987
Vanadium	mg/kg	101	530	78	2,400	24	-	300	6,000	15.9	8.63	12.8	13.2	24.4	16.6	6.84	9.38
Zinc	mg/kg	145	23,000	23,000	5,000	250	-	620	12,000	1,360	4,490	9,020	5,110	572	6,080	5,080	772
Polycyclic Aromatic Hydrocarbons by EPA Method 8310																	
Acenaphthene	µg/kg	-	-	3,700,000	-	-	-	29,000	570,000	260	200	180	ND<5.0	ND<5.0	520	41	ND<10
Acenaphthylene	µg/kg	-	-	-	-	-	-	-	-	250	610	670	450	590	1,200	330	1,500
Anthracene	µg/kg	-	-	22,000,000	-	-	-	590,000	12,000,000	ND<3.5	ND<3.5	81	54	21	51	18	180
Benzo(a)anthracene	µg/kg	-	-	620	-	-	-	80	2,000	87	16	66	37	45	810	27	260
Benzo(a)pyrene	µg/kg	-	38	62	-	-	-	400	8,000	ND<3.1	ND<3.1	27	21	ND<3.1	ND<6.2	ND<3.1	61
Benzo(b)fluoranthene	µg/kg	-	-	620	-	-	-	200	5,000	ND<3.2	ND<3.2	ND<3.2	28	ND<3.2	ND<6.5	ND<3.2	ND<6.5
Benzo(g,h,i)perylene	µg/kg	-	-	-	-	-	-	-	-	ND<4.0	ND<4.0	16	ND<4.0	ND<4.0	26	20	30
Benzo(k)fluoranthene	µg/kg	-	-	[8]380	-	-	-	2,000	49,000	ND<3.2	ND<3.2	ND<3.2	ND<3.2	ND<3.2	ND<6.4	ND<3.2	40
Chrysene	µg/kg	-	-	[8]3,800	-	-	-	8,000	160,000	ND<3.2	ND<3.2	140	100	ND<3.2	130	ND<3.2	67
Dibenz(a,h)anthracene	µg/kg	-	-	62	-	-	-	80	2,000	ND<3.7	ND<3.7	67	70	ND<3.7	ND<7.5	ND<3.7	52
Fluoranthene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,300,000	260	27	77	52	ND<3.4	100	ND<3.4	310
Fluorene	µg/kg	-	-	2,700,000	-	-	-	28,000	560,000	26	27	130	92	71	94	44	400
Indeno(1,2,3-c,d)pyrene	µg/kg	-	-	-	-	-	-	700	14,000	ND<3.5	ND<3.5	17	ND<3.5	ND<3.5	23	ND<3.5	52
Naphthalene	µg/kg	-	-	[8]1,700	-	-	-	4,000	84,000	260	610	790	440	450	830	440	1,500
Phenanthrene	µg/kg	-	-	-	-	-	-	-	-	60	19	410	250	160	490	140	840
Pyrene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,200,000	340	44	100	17	310	790	110	360
Total B(a)P Equivalency[9]	µg/kg	-	38	62	-	-	-	400	8,000	11	3.7	37	29	6.6	88	4.8	97

Notes:

mg/kg - Milligrams per kilogram
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ND<x - Not detected at concentrations greater than or equal to MDL (x)

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Title 22 Metals by EPA Method 6010B/7471A																
Antimony	mg/kg	0.5	30	31	500	15	-	0.30	50	6.18	21.6	ND<0.191	80.3	5.51	8.80	2.65
Arsenic	mg/kg	2.75	0.070	[8]0.062	500	5.0	5.0	1.0	29	9.44	2.53	6.62	6.69	4.50	7.36	7.82
Barium	mg/kg	468	5,200	5,400	10,000	100	100	82	1,600	253	88.1	195	195	218	83.2	73.6
Beryllium	mg/kg	1.14	150	150	75	0.75	-	3.0	63	0.975	0.867	0.996	ND<0.00368	ND<0.00368	ND<0.00368	ND<0.00368
Cadmium	mg/kg	0.26	1.7	37	100	1.0	1.0	0.40	80	0.951	3.03	14.6	1.93	6.32	ND<0.00988	ND<0.00988
Chromium (total)	mg/kg	76.25	NE	210	2,500	5.0	5.0	2.0	38	18.7	8.50	20.9	10.4	27.1	8.17	7.21
Chromium (hexavalent)	mg/kg	-	17	31	500	5.0	-	2.0	38	ND<0.22	-	-	-	-	-	-
Cobalt	mg/kg	12.6	660	900	8,000	80	-	-	-	6.88	3.03	21.1	16.7	108	10.9	13.2
Copper	mg/kg	24	3,000	3,100	2,500	25	-	-	-	313	222	1,980	2,390	937	340	2,320
Lead	mg/kg	44.6	150	[8]150	1,000	5.0	5.0	-	-	49.4	36.2	154	2790	432	47.4	23.8
Mercury	mg/kg	0.2	18	23	20	0.2	0.2	-	-	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130	ND<0.00130
Molybdenum	mg/kg	0.9	380	390	3,500	350	-	-	-	1.89	0.717	1.47	1.14	2.07	14.1	16.3
Nickel	mg/kg	35.75	1,600	1,600	2,000	20	-	7.0	130	23.3	32.1	320	49.5	17.9	18.3	24.7
Selenium	mg/kg	0.028	380	390	100	1.0	1.0	0.30	5.0	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175	ND<0.175
Silver	mg/kg	0.41	380	390	500	5.0	5.0	2.0	34	ND<0.0209	0.781	5.99	6.51	ND<0.0209	ND<0.0209	ND<0.0209
Thallium	mg/kg	13.8	5.0	5.2	700	7.0	-	-	-	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987	ND<0.0987
Vanadium	mg/kg	101	530	78	2,400	24	-	300	6,000	13.1	15.7	20.1	9.76	12.0	34.9	35.1
Zinc	mg/kg	145	23,000	23,000	5,000	250	-	620	12,000	2,340	489	2,290	5,740	2,430	421	776
Polycyclic Aromatic Hydrocarbons by EPA Method 8310																
Acenaphthene	µg/kg	-	-	3,700,000	-	-	-	29,000	570,000	840	20	ND<5.0	160	560	ND<5.0	ND<5.0
Acenaphthylene	µg/kg	-	-	-	-	-	-	-	-	2,100	160	440	140	3,800	68	72
Anthracene	µg/kg	-	-	22,000,000	-	-	-	590,000	12,000,000	120	ND<3.5	20	20	280	ND<3.5	ND<3.5
Benzo(a)anthracene	µg/kg	-	-	620	-	-	-	80	2,000	160	37	120	32	530	ND<3.2	ND<3.2
Benzo(a)pyrene	µg/kg	-	38	62	-	-	-	400	8,000	72	ND<3.1	17	11	ND<31	ND<3.1	ND<3.1
Benzo(b)fluoranthene	µg/kg	-	-	620	-	-	-	200	5,000	ND<16	ND<3.2	ND<3.2	ND<3.2	ND<32	ND<3.2	ND<3.2
Benzo(g,h,i)perylene	µg/kg	-	-	-	-	-	-	-	-	ND<20	ND<4.0	ND<4.0	ND<4.0	ND<40	ND<4.0	ND<4.0
Benzo(k)fluoranthene	µg/kg	-	-	[8]380	-	-	-	2,000	49,000	ND<16	ND<3.2	ND<3.2	ND<3.2	ND<32	ND<3.2	ND<3.2
Chrysene	µg/kg	-	-	[8]3,800	-	-	-	8,000	160,000	100	20	16	28	ND<32	ND<3.2	17
Dibenz(a,h)anthracene	µg/kg	-	-	62	-	-	-	80	2,000	ND<19	ND<3.7	14	ND<3.7	ND<37	ND<3.7	12
Fluoranthene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,300,000	120	80	25	680	2,400	280	440
Fluorene	µg/kg	-	-	2,700,000	-	-	-	28,000	560,000	210	32	44	18	520	ND<3.2	ND<3.2
Indeno(1,2,3-c,d)pyrene	µg/kg	-	-	-	-	-	-	700	14,000	ND<18	ND<3.5	11	ND<3.5	ND<35	ND<3.5	ND<3.5
Naphthalene	µg/kg	-	-	[8]1,700	-	-	-	4,000	84,000	3,000	280	510	180	3,000	140	190
Phenanthrene	µg/kg	-	-	-	-	-	-	-	-	1,000	36	130	130	2,600	43	38
Pyrene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,200,000	370	140	610	140	4,800	28	24
Total B(a)P Equivalency[9]	µg/kg	-	38	62	-	-	-	400	8,000	92	5.9	31	15	74	ND<2.2	2.4

Notes:

mg/kg - Milligrams per kilogram
mg/L - Milligrams per liter
µg/kg - Microgram per kilogram
- Not established
ND<x - Not detected at concentrations greater than or equal to MDL (x)

CHHSL - California Human Health Screening Level for soil in residential land use
DAF- Dilution-Attenuation Factor
MDL - Method Detection Limit
PRG - Residential Preliminary Remediation Goal

STLC - Soluble Threshold Limit Concentration
TCLP - Toxicity Characteristic Leaching Potential
TTLC - Total Threshold Limit Concentration

[1] Geometric mean concentrations were used which are more conservative than average concentrations. Reference: UC Riverside and Cal-EPA DTSC, 1996. *Background Concentrations of Trace and Major Elements in California Soils, Kearney Foundation Special Report*, March 1996.

[2] Reference: California Environmental Protection Agency (Cal/EPA). *Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties*. January 2005.

[3] Reference: USEPA Region IX, 2004. *EPA Region IX PRGs Table*, October 2004.

[4] Reference: California Code of Regulations (CCR), 2006. Title 22, Chapter 11, Article 3, Section 66261.24. *Characteristics of Toxicity*, 30 November 2007.

[5] Reference: Code of Federal Regulations (CFR), 2006. 40 CFR, Chapter 1, Section 261.24, *Toxicity Characteristics*, 14 July, 2006.

[6] Dilution-attenuation factor of 1 is used to compare to surface water and areas with shallow groundwater or underlain by fractured media. Reference: USEPA, Region IX, 2004. *Region IX PRGs Table 2004 Update*, 1 October 2004.

[7] Dilution-attenuation factor of 20 is used to compare to areas where groundwater is deep. Reference: USEPA, Region IX, 2004. *Region IX PRGs Table 2004 Update*, 1 October 2004.

[8] State of California modified residential PRG (Cal-modified PRG)

[9] Benzo(a)pyrene equivalancy based on potency equivalency factors (PEFs) Reference: Office of Environmental Health Hazard Assessment. *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, August 2003.

Geosyntec consultants

TABLE 5
Summary of Samples Exceeding Established Regulatory Criteria
Burn Debris Sampling
San Bernardino County, California

			Health Risk		Waste Characterization			Soil Screening Level		Frequency of Exceedences								Summary of Statistics			
Parameter	Units	[1]California Background	[2]CHHSL	[3]PRG	[4]TTLC Limits	[4]STLC Limits (mg/L)	[5]TCLP Limits (mg/L)	[6]DAF1	[7]DAF20	California Background	CHHSL	PRG	TTLC	10XSTLC	20XTCLP	DAF1	DAF20	Minimim Detected	Maximim Detected	Arithmetic Mean	Geometric Mean
Title 22 Metals by EPA Method 6010B/7471A																					
Antimony	mg/kg	0.5	30	31	500	15	-	0.30	50	32	8	7	0	1	-	32	5	0.994	189	24.8	6.17
Arsenic	mg/kg	2.75	0.070	[8]0.062	500	5.0	5.0	1.0	29	30	39	39	0	3	0	38	6	0.807	73.5	14.9	8.25
Barium	mg/kg	468	5,200	5,400	10,000	100	100	82	1,600	9	0	0	0	3	0	38	0	24.7	1570	382	285
Beryllium	mg/kg	1.14	150	150	75	0.75	-	3.0	63	3	0	0	0	0	-	0	0	0.256	1.49	0.450	0.109
Cadmium	mg/kg	0.26	1.7	37	100	1.0	1.0	0.40	80	24	16	4	1	7	6	24	1	0.598	683	25.2	0.346
Chromium (total)	mg/kg	76.25	-	210	2,500	5.0	5.0	2.0	38	4	-	0	0	6	3	39	9	1.22	141	29.8	19.6
Chromium (hexavalent)	mg/kg	-	17	31	500	5.0	-	2.0	38	-	0	0	0	0	-	0	0	0	0	0.11	0.11
Cobalt	mg/kg	12.6	660	900	8,000	80	-	-	-	8	0	0	0	0	-	-	-	0.796	87	11.5	8.38
Copper	mg/kg	24	3,000	3,100	2,500	25	-	-	-	39	14	13	18	36	-	-	-	129	20,800	4,210	1,830
Lead	mg/kg	44.6	150	[8]150	1,000	5.0	5.0	-	-	35	20	20	5	35	26	-	-	13.6	49,100	1,640	211
Mercury	mg/kg	0.2	18	23	20	0.2	0.2	-	-	2	0	0	0	1	1	-	-	0.0867	4.5	0.123	0.00107
Molybdenum	mg/kg	0.9	380	390	3,500	350	-	-	-	34	0	0	0	0	-	-	-	0.712	43.7	4.83	2.22
Nickel	mg/kg	35.75	1,600	1,600	2,000	20	-	7.0	130	7	0	0	0	0	-	37	0	6.03	118	26.6	21.3
Selenium	mg/kg	0.028	380	390	100	1.0	1.0	0.30	5.0	39	0	0	0	0	0	5	1	0.959	5.10	0.340	0.128
Silver	mg/kg	0.41	380	390	500	5.0	5.0	2.0	34	20	0	0	0	1	0	11	1	0.432	51.1	2.79	0.172
Thallium	mg/kg	13.8	5.0	5.2	700	7.0	-	-	-	0	0	0	0	0	-	-	-	0.0	0.0	0.0494	0.0494
Vanadium	mg/kg	101	530	78	2,400	24	-	300	6,000	0	0	0	0	0	-	0	0	7.22	66.4	28.0	24.5
Zinc	mg/kg	145	23,000	23,000	5,000	250	-	620	12,000	39	3	3	9	16	-	32	4	202	159,000	8,250	2,280
Polycyclic Aromatic Hydrocarbons by EPA Method 8310																					
Acenaphthene	µg/kg	-	-	3,700,000	-	-	-	29,000	570,000	-	-	0	-	-	-	0	0	31	6,800	810	360
Acenaphthylene	µg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60	3,500	640	110
Anthracene	µg/kg	-	-	22,000,000	-	-	-	590,000	12,000,000	-	-	0	-	-	-	0	0	10	130	21	9.1
Benzo(a)anthracene	µg/kg	-	-	620	-	-	-	80	2,000	-	-	1	-	-	-	4	0	12	750	37	6.1
Benzo(a)pyrene	µg/kg	-	38	62	-	-	-	400	8,000	-	0	0	-	-	-	0	0	0	0	5.6	3.4
Benzo(b)fluoranthene	µg/kg	-	-	620	-	-	-	200	5,000	-	-	0	-	-	-	0	0	29	29	6.5	3.7
Benzo(g,h,i)perylene	µg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	7.3	4.3
Benzo(k)fluoranthene	µg/kg	-	-	[8]380	-	-	-	2,000	49,000	-	-	1	-	-	-	0	0	560	560	20	4.0
Chrysene	µg/kg	-	-	[8]3,800	-	-	-	8,000	160,000	-	-	0	-	-	-	0	0	10	190	17	5.5
Dibenz(a,h)anthracene	µg/kg	-	-	62	-	-	-	80	2,000	-	-	0	-	-	-	0	0	0	0	6.8	4.0
Fluoranthene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,300,000	-	-	0	-	-	-	0	0	12	1,900	140	13
Fluorene	µg/kg	-	-	2,700,000	-	-	-	28,000	560,000	-	-	0	-	-	-	0	0	10	380	40	11
Indeno(1,2,3-c,d)pyrene	µg/kg	-	-	-	-	-	-	700	14,000	-	-	-	-	-	-	0	0	13	13	6.7	4.0
Naphthalene	µg/kg	-	-	[8]1,700	-	-	-	4,000	84,000	-	-	5	-	-	-	3	0	79	19,000	1,400	590
Phenanthrene	µg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	680	110	37
Pyrene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,200,000	-	-	0	-	-	-	0	0	10	1,200	90	11
Total B(a)P Equivalency[9]	µg/kg	-	38	62	-	-	-	400	8,000	-	2	2	-	-	-	0	0	2.3	116	13	5.9

Notes:

mg/kg - Milligrams per kilogram
mg/L - Milligrams per liter
µg/kg - Microgram per kilogram
- Not established
ND<x - Not detected at concentrations greater than or equal to MDL (x)

CHHSL - California Human Health Screening Level for soil in residential land use
DAF- Dilution-Attenuation Factor
MDL - Method Detection Limit
PRG - Residential Preliminary Remediation Goal

STLC - Soluble Threshold Limit Concentration
TCLP - Toxicity Characteristic Leaching Potential
TTLC - Total Threshold Limit Concentration

[1] Geometric mean concentrations were used which are more conservative than average concentrations. Reference: UC Riverside and Cal-EPA DTSC, 1996. *Background Concentrations of Trace and Major Elements in California Soils, Kearney Foundation Special Report*, March 1996.

[2] Reference: California Environmental Protection Agency (Cal/EPA). *Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties*. January 2005.

[3] Reference: USEPA Region IX, 2004. *EPA Region IX PRGs Table*, October 2004.

[4] Reference: California Code of Regulations (CCR), 2006. Title 22, Chapter 11, Article 3, Section 66261.24. *Characteristics of Toxicity*, 30 November 2007.

[5] Reference: Code of Federal Regulations (CFR), 2006. 40 CFR, Chapter 1, Section 261.24. *Toxicity Characteristics*, 14 July, 2006.

[6] Dilution-attenuation factor of 1 is used to compare to surface water and areas with shallow groundwater or underlain by fractured media. Reference: USEPA, Region IX, 2004. *Region IX PRGs Table 2004 Update*, 1 October 2004.

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[8] State of California modified residential PRG (Cal-modified PRG)

[9] Benzo(a)pyrene equivalancy based on potency equivalency factors (PEFs) Reference: Office of Environmental Health Hazard Assessment. *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, August 2003.

Geosyntec consultants

TABLE 6
Summary of Samples Exceeding Established Regulatory Criteria
Burn Debris Sampling
San Diego County, California

			Health Risk		Waste Characterization			Soil Screening Level		Frequency of Exceedences								Summary of Statistics			
Parameter	Units	[1]California Background	[2]CHHSL	[3]PRG	[4]TTLC Limits	[4]STLC Limits (mg/L)	[5]TCLP Limits (mg/L)	[6]DAF1	[7]DAF20	California Background	CHHSL	PRG	TTLC	10XSTLC	20XTCLP	DAF 1	DAF20	Minimim Detected	Maximim Detected	Arithmetic Mean	Geometric Mean
Title 22 Metals by EPA Method 6010B/7471A																					
Antimony	mg/kg	0.5	30	31	500	15	-	0.30	50	26	8	8	0	0	-	26	6	0.898	101	20.1	3.73
Arsenic	mg/kg	2.75	0.070	[8]0.062	500	5.0	5.0	1.0	29	29	35	35	0	0	0	35	1	1.26	34.3	7.60	5.95
Barium	mg/kg	468	5,200	5,400	10,000	100	100	82	1,600	0	0	0	0	0	0	34	0	65.7	456	193	176
Beryllium	mg/kg	1.14	150	150	75	0.75	-	3.0	63	1	0	0	0	0	-	0	0	0.288	1.17	0.446	0.0482
Cadmium	mg/kg	0.26	1.7	37	100	1.0	1.0	0.40	80	23	16	0	0	2	1	23	0	0.736	31	2.92	0.315
Chromium (total)	mg/kg	76.25	-	210	2,500	5.0	5.0	2.0	38	2	-	1	0	2	2	35	2	6.45	345	30.4	17.1
Chromium (hexavalent)	mg/kg	-	17	31	500	5.0	-	2.0	38	-	0	0	0	0	-	0	0	0.880	0.880	0.220	0.148
Cobalt	mg/kg	12.6	660	900	8,000	80	-	-	-	9	0	0	0	0	-	-	-	2.00	264	20.6	8.55
Copper	mg/kg	24	3,000	3,100	2,500	25	-	-	-	35	7	7	7	31	-	-	-	69.7	46,000	4,730	1,270
Lead	mg/kg	44.6	150	[8]150	1,000	5.0	5.0	-	-	25	13	13	5	23	16	-	-	20.3	3,350	445	130
Mercury	mg/kg	0.2	18	23	20	0.2	0.2	-	-	0	0	0	0	0	0	-	-	0.187	0.2	0.00597	0.000764
Molybdenum	mg/kg	0.9	380	390	3,500	350	-	-	-	30	0	0	0	0	-	-	-	0.495	16.3	3.11	1.80
Nickel	mg/kg	35.75	1,600	1,600	2,000	20	-	7.0	130	7	0	0	0	1	-	34	1	5.96	320	34.6	23.3
Selenium	mg/kg	0.028	380	390	100	1.0	1.0	0.30	5.0	35	0	0	0	0	0	0	0	0.0	0.0	0.088	0.088
Silver	mg/kg	0.41	380	390	500	5.0	5.0	2.0	34	18	0	0	0	1	0	14	3	0.267	62.4	6.33	0.285
Thallium	mg/kg	13.8	5.0	5.2	700	7.0	-	-	-	0	0	0	0	0	-	-	-	0.0	0.0	0.0494	0.0494
Vanadium	mg/kg	101	530	78	2,400	24	-	300	6,000	1	0	1	0	0	-	0	0	6.84	115	28.8	22.7
Zinc	mg/kg	145	23,000	23,000	5,000	250	-	620	12,000	35	1	1	6	9	-	27	1	303	54,300	3,640	1,570
Polycyclic Aromatic Hydrocarbons by EPA Method 8310																					
Acenaphthene	µg/kg	-	-	3,700,000	-	-	-	29,000	570,000	-	-	0	-	-	-	0	0	20	1,800	200	36
Acenaphthylene	µg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68	3,800	740	470
Anthracene	µg/kg	-	-	22,000,000	-	-	-	590,000	12,000,000	-	-	0	-	-	-	0	0	11	280	49	15
Benzo(a)anthracene	µg/kg	-	-	620	-	-	-	80	2,000	-	-	2	-	-	-	19	1	14	3,200	200	49
Benzo(a)pyrene	µg/kg	-	38	62	-	-	-	400	8,000	-	4	3	-	-	-	0	0	10	92	16	5.2
Benzo(b)fluoranthene	µg/kg	-	-	620	-	-	-	200	5,000	-	-	0	-	-	-	0	0	28	29	5.0	2.6
Benzo(g,h,i)perylene	µg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	130	15	5.5
Benzo(k)fluoranthene	µg/kg	-	-	[8]380	-	-	-	2,000	49,000	-	-	0	-	-	-	0	0	22	64	8.5	3.2
Chrysene	µg/kg	-	-	[8]3,800	-	-	-	8,000	160,000	-	-	0	-	-	-	0	0	11	580	50	11
Dibenz(a,h)anthracene	µg/kg	-	-	62	-	-	-	80	2,000	-	-	6	-	-	-	0	0	12	330	37	6.7
Fluoranthene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,300,000	-	-	0	-	-	-	0	0	11	2,400	210	36
Fluorene	µg/kg	-	-	2,700,000	-	-	-	28,000	560,000	-	-	0	-	-	-	0	0	10	810	140	59
Indeno(1,2,3-c,d)pyrene	µg/kg	-	-	-	-	-	-	700	14,000	-	-	-	-	-	-	0	0	11	74	11	4.4
Naphthalene	µg/kg	-	-	[8]1,700	-	-	-	4,000	84,000	-	-	3	-	-	-	3	0	140	3,000	710	510
Phenanthrene	µg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	2,600	330	150
Pyrene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,200,000	-	-	0	-	-	-	0	0	14	10,000	650	170
Total B(a)P Equivalency[9]	µg/kg	-	38	62	-	-	-	400	8,000	-	8	7	-	-	-	0	0	2.4	360	38	15

Notes:

mg/kg - Milligrams per kilogram
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ND<x - Not detected at concentrations greater than or equal to MDL (x)

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TTLC - Total Threshold Limit Concentration

[1] Geometric mean concentrations were used which are more conservative than average concentrations. Reference: UC Riverside and Cal-EPA DTSC, 1996. *Background Concentrations of Trace and Major Elements in California Soils, Kearney Foundation Special Report*, March 1996.

[2] Reference: California Environmental Protection Agency (Cal/EPA). *Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties*. January 2005.

[3] Reference: USEPA Region IX, 2004. *EPA Region IX PRGs Table*, October 2004.

[4] Reference: California Code of Regulations (CCR), 2006. Title 22, Chapter 11, Article 3, Section 66261.24. *Characteristics of Toxicity*, 30 November 2007.

[5] Reference: Code of Federal Regulations (CFR), 2006. 40 CFR, Chapter 1, Section 261.24. *Toxicity Characteristics*, 14 July, 2006.

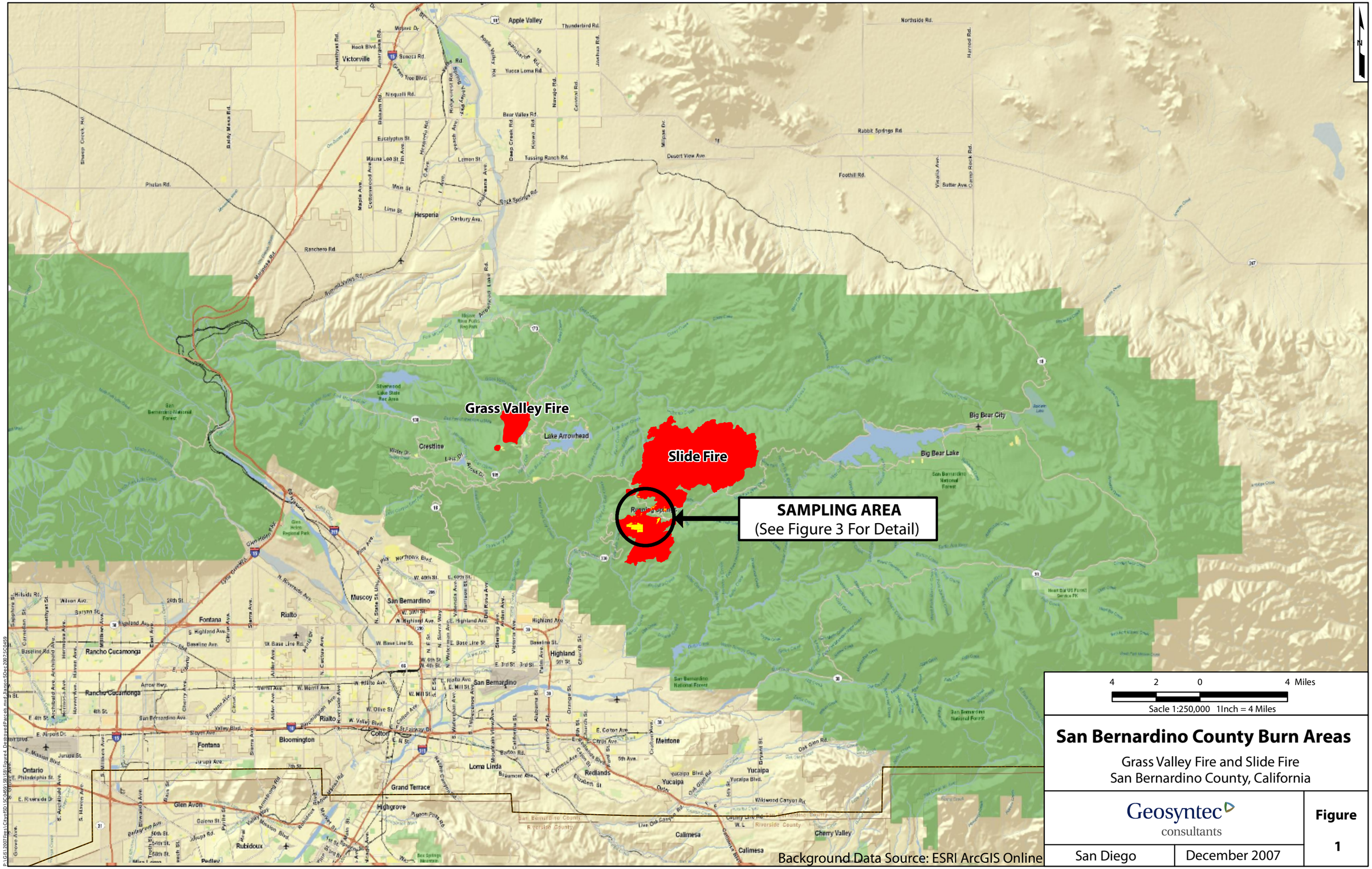
[6] Dilution-attenuation factor of 1 is used to compare to surface water and areas with shallow groundwater or underlain by fractured media. Reference: USEPA, Region IX, 2004. *Region IX PRGs Table 2004 Update*, 1 October 2004.

[7] Dilution-attenuation factor of 20 is used to compare to areas where groundwater is deep. Reference: USEPA, Region IX, 2004. *Region IX PRGs Table 2004 Update*, 1 October 2004.

[8] State of California modified residential PRG (Cal-modified PRG)

[9] Benzo(a)pyrene equivalancy based on potency equivalency factors (PEFs) Reference: Office of Environmental Health Hazard Assessment. *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, August 2003.

FIGURES



San Bernardino County Burn Areas

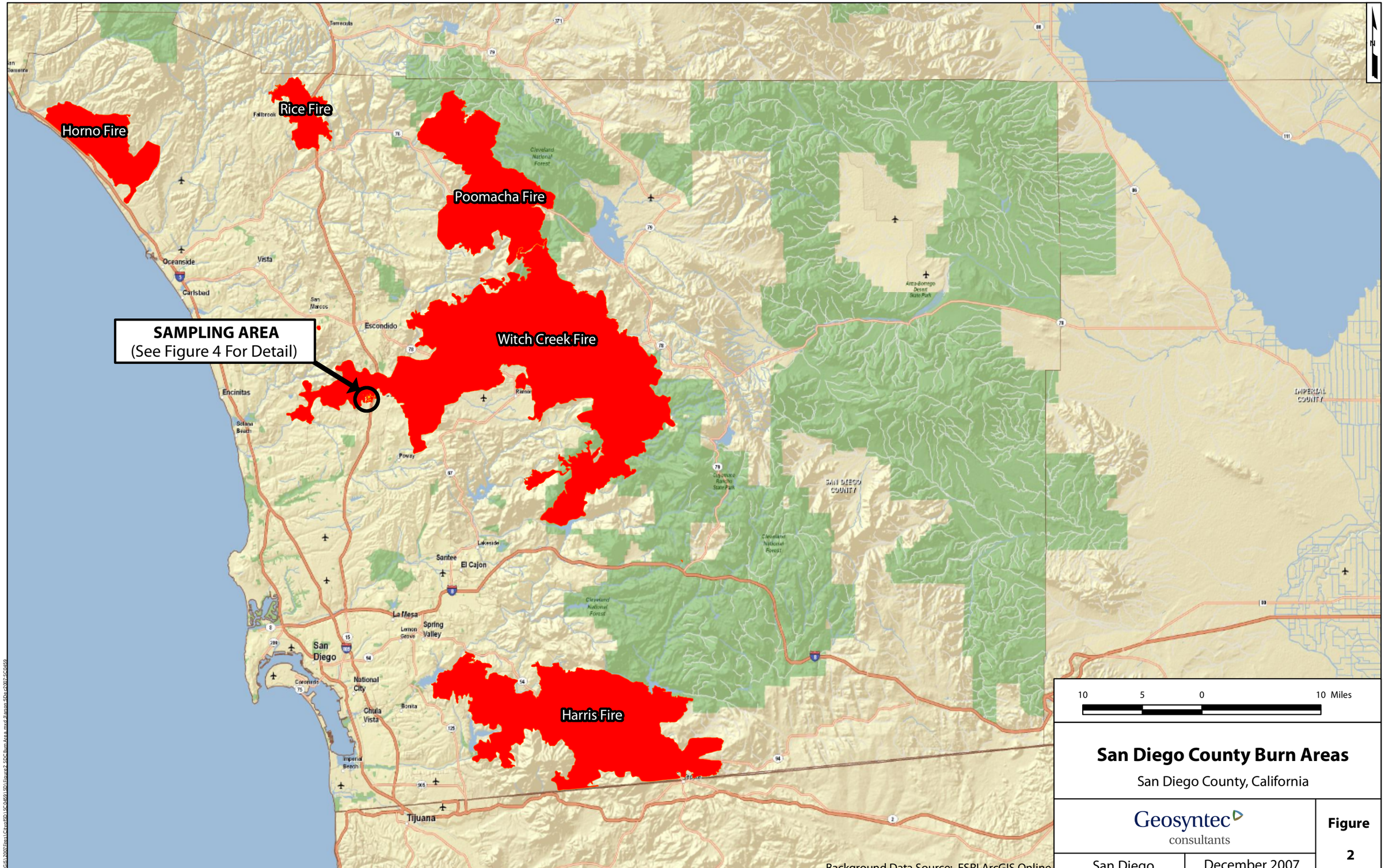
Grass Valley Fire and Slide Fire
San Bernardino County, California

Geosyntec consultants

San Diego | December 2007

Figure 1

P:\GIS\2007fires\Chrot\SD\SC0459\SB\SB\Figure4_DestroyedParcels.mxd Jlarson 5Dec 2007 SC0459



San Diego County Burn Areas

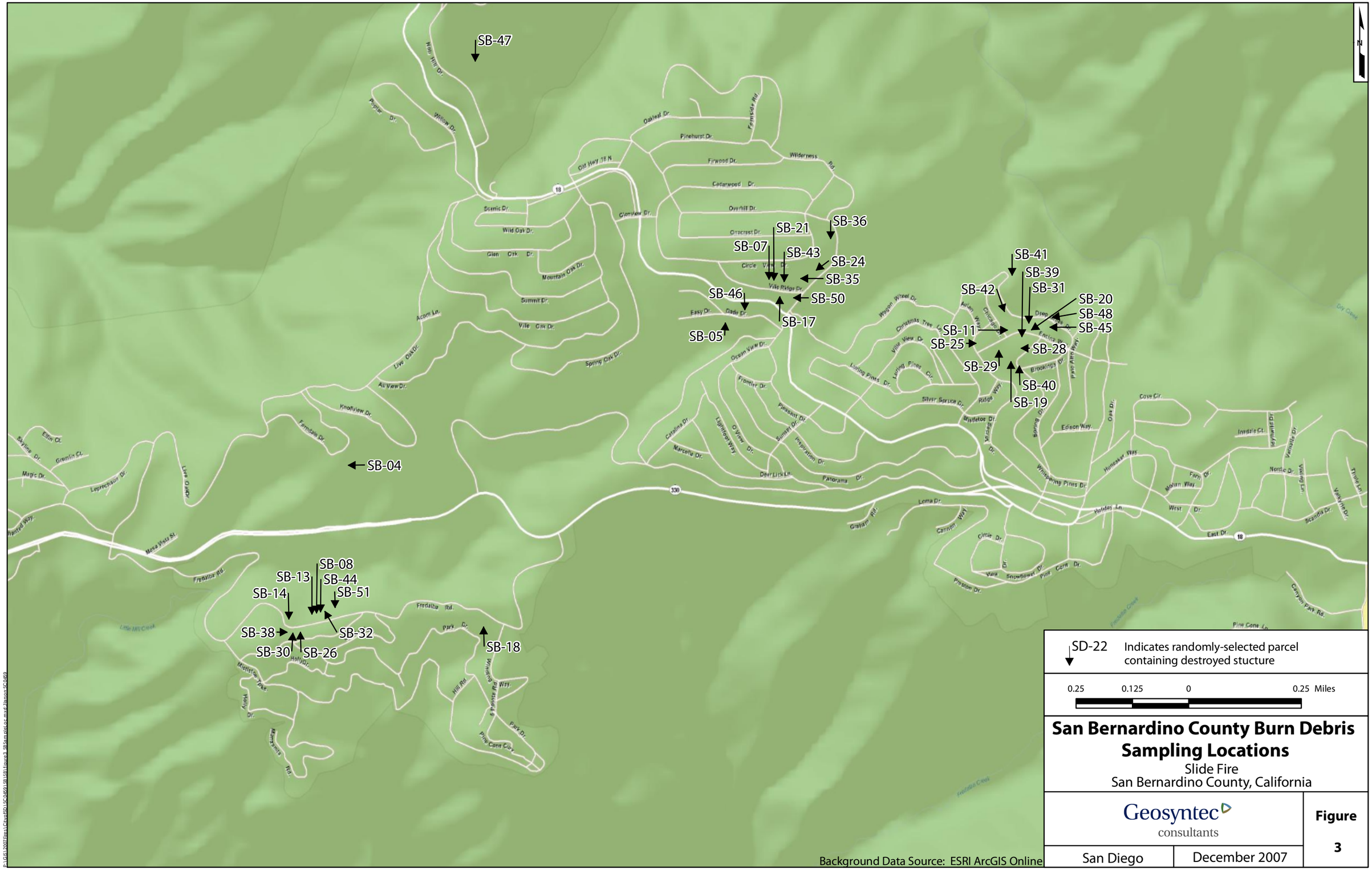
San Diego County, California

Geosyntec consultants

San Diego | December 2007

Figure 2

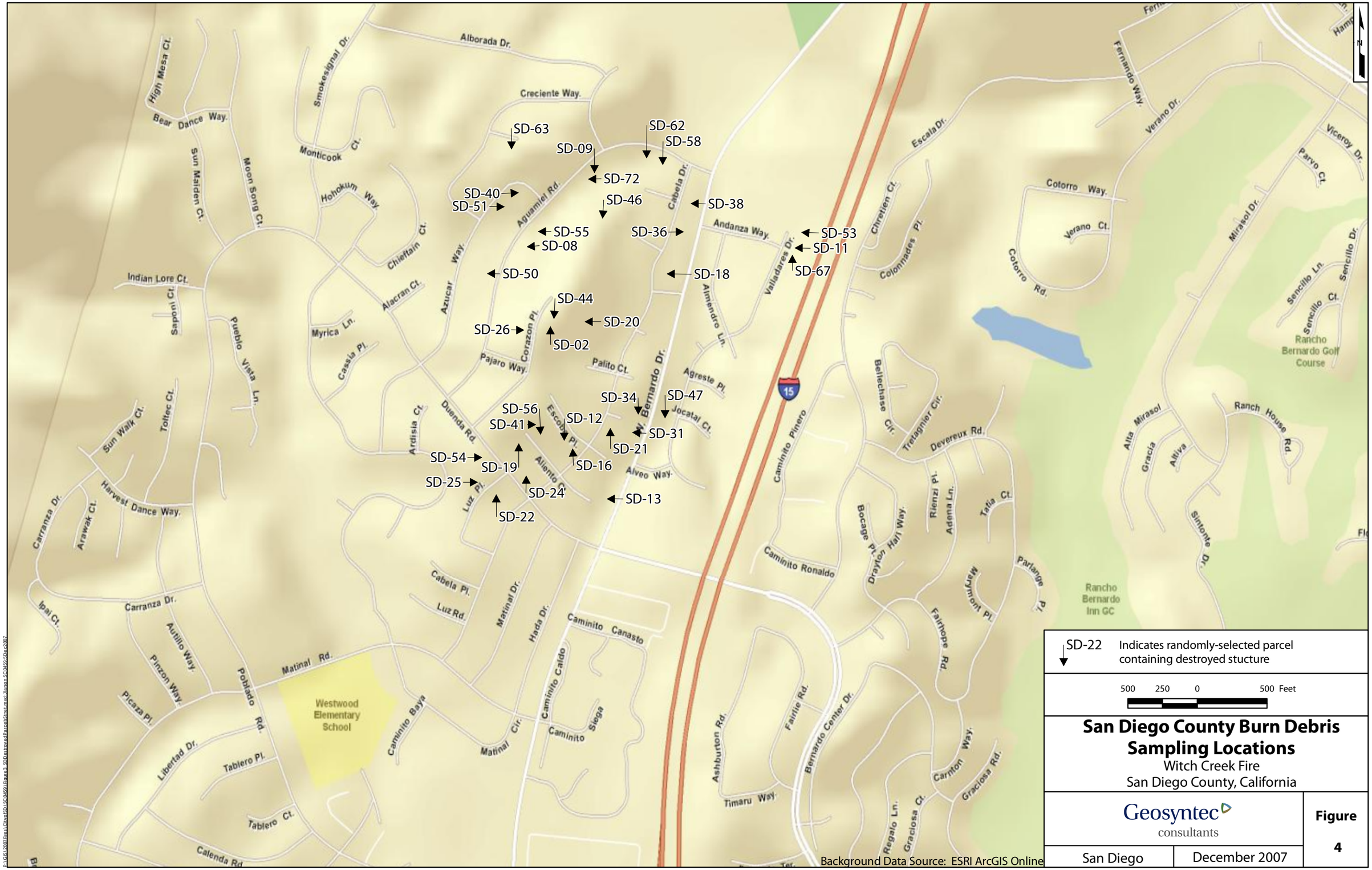
P:\GIS\2007Fires\Cities\SD\SC0459\SD\Figure2_SDCBurnArea.mxd Jenson 5Dec2007 SC0459



San Bernardino County Burn Debris Sampling Locations

Slide Fire

San Bernardino County, California



SD-22 Indicates randomly-selected parcel containing destroyed stucture

500 250 0 500 Feet

San Diego County Burn Debris Sampling Locations

Witch Creek Fire

San Diego County, California

Geosyntec consultants

San Diego | December 2007

Figure 4

Background Data Source: ESRI ArcGIS Online

P:\GIS\2007Fires\CityofSD\SC0459\Figure3_SDDestroyedParcelsStreet.mxd Jlarson SC0459 Dec2007

APPENDIX A

Sampling and Analysis Plan

SAMPLING AND ANALYSIS PLAN
2007 WILDFIRES - BURNED DEBRIS ASSESSMENT
SAN DIEGO AND SAN BERNARDINO COUNTIES, CALIFORNIA

PREPARED FOR:

California Environmental Protection Agency
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, California 95826

PREPARED BY:

Geosyntec Consultants
10875 Rancho Bernardo Road,
Suite 200
San Diego, California 92127

27 November 2007

SAMPLING AND ANALYSIS PLAN
2007 WILDFIRES - BURNED DEBRIS ASSESSMENT
SAN DIEGO AND SAN BERNARDINO 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.

_____ 27 November 2007

Veryl Wittig — Date

California Professional Geologist No. 7115

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Table 1: Randomly Selected Parcels for Burn Debris and Ash Sampling – San Diego County Sites
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Attachment 1: Data Quality Objectives
Attachment 2: Example Field Sampling Form
Attachment 3: Laboratory Method Detection Limits and Reporting Limits

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 October and November 2007 Wildfires in San Diego and San Bernardino Counties, California (2007 Southern California Wildfires). This SAP was prepared by Messrs. Veryl Wittig, PG, CHG, and Douglas Baumwirt, GIT, and has been reviewed by Mr. Sam Williams, 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) and California Office of Environmental Health Hazard Assessment (OEHHA), California Office of Emergency Services (OES), and San Bernardino and san Diego Counties.

1.1 Background

On 21 October 2007, the Governor of California proclaimed a "State of Emergency" as a result of the 2007 Southern California Wildfires which occurred throughout seven counties (EO S-13-07). These fires burned more than 350,000 acres, destroyed more than 2,200 residential and commercial structures, and destroyed more than 2,000 vehicles in San Diego and San Bernardino Counties, alone.

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. With the pending winter rains comes the potential for surface water and groundwater contamination from the off-site 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.

Experiences from fires of a similar nature indicate that many hazardous substances may be found burned residential areas. Some of these substances include metal residue 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 plastics; asbestos from building materials; and polychlorinated biphenyls (PCBs) from appliances and automotive parts. Laboratory analysis of burned residential ash and debris following the 2003 San Diego County wildfires indicated the presence of elevated concentrations of certain PAHs as well as heavy metals, including antimony, arsenic, copper, lead and zinc. Concentrations of these constituents were present at levels exceeding statutorily-established health based criteria. A reasonable expectation is that the same types of hazardous substances will be detected following analysis of ash and debris from the 2007 Southern California Fires. If so, such data would warrant removal of these materials from affected communities in an expedited manner to protect public health and safety.

Federal Environmental Management Agency (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, 42 U.S.C. 5170b and 5173, respectively, 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).

Geosyntec understands that State, County and local agencies including the DTSC, and Counties of San Diego and San Bernardino 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 perform a representative characterization of the residual burned debris and ash in residential areas to assess the presence of hazardous constituents of concern (COCs). The concentrations of COCs in the burned ash and debris will be compared to statutorily-established human health-based screening levels such as the California Environmental Protection Agency (CalEPA) California Human Health Screening Levels for residential properties (residential CHHSLs), and United States Environmental Protection Agency (USEPA) Region IX Preliminary Remediation Goals for residential properties (residential PRGs). If COCs in the burned debris and ash are present at concentrations exceeding established residential CHHSLs or PRGs, 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.

The SAP will include a representative statistically-based sampling program developed to objectively characterize the hazards associated with burned debris and ash within two "typical" residential areas (one in San Diego County and one in San Bernardino County) affected by the 2007 Southern California Wildfires. By using a statistically-based

random sampling approach within "typical" burned residential areas, the conclusions based on the sample analyses may be generalized to all residential areas affected by the fires. Therefore, sampling within each fire area and in each affected local jurisdiction will not be necessary.

2. DESCRIPTION OF BURNED AREAS AND SAMPLING LOCATIONS

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 County of San Diego County Firestorm Recovery 2007 and Cal Fire websites, the 2007 Southern California Wildfires in San Diego and San Bernardino Counties burned more than 350,000 acres, destroyed more than 2,200 residential and commercial structures, destroyed more than 1,100 outbuildings (detached garages, barns, sheds and other structures), and destroyed more than 2,000 vehicles as summarized in the following table:

County	Fire	Acres Burned	Residential, Commercial, and Industrial Structures Destroyed	Outbuildings Destroyed	Vehicles, Trailers, Boats, Tractors, Destroyed
San Diego	Witch Creek	198,000	1,119	652	1,139
	Harris	90,000	283	172	293
	Poomacha	49,000	133	84	346
	Rice Canyon	10,000	240	249	232
	Coronado Hills	250	0	2	0
San Bernardino	Slide	13,000	272	3	Unknown
	Grass Valley	1,200	174	2	Unknown

2.2 Constituents of Concern

Based on sampling and laboratory analyses following the 2003 San Diego County Wildfires, metals (primarily arsenic, lead, zinc, copper, antimony), and polycyclic aromatic hydrocarbons (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. Therefore, Geosyntec was directed by CalEPA to use metals and PAHs for the laboratory analyses to be performed as described in this SAP.

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; polychlorinated biphenyls (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. These COPCs may be analyzed at a later date.

2.3 Sampling Areas

Representatives from each of San Diego and San Bernardino Counties designated the "typical" residential areas targeted for sampling in their respective county. The San Diego County sampling area will comprise the "Westwood" community in Rancho Bernardo, an area of single family homes within the City of San Diego where approximately 134 homes were destroyed in the fires (City of San Diego, 2007). The San Bernardino County sampling area will comprise the "Running Springs" area within the County of San Bernardino where approximately 161 homes were destroyed in the fires. 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 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

There are three considerations in determining the appropriate sample size for estimating the mean (μ) using a confidence interval approach. First, the tolerable error establishes the desired width of the interval. The second consideration is the desired level of confidence in the results. The third consideration is the variability expected in the sampling data. Highly variable data increases the requirements for samples at a given confidence and interval width. If the confidence interval of μ is too wide, then the estimate of μ will be imprecise and not very informative. Similarly, a low level of confidence (say 50%) in an estimate will yield a confidence interval that very likely will be in error – that is, fail to contain μ. However, to obtain a confidence interval having a narrow width and a high level of confidence may require a large number of samples and hence may be technically and economically infeasible.

Variability in the concentrations of constituents in ash samples collected from residential properties affected by the 2003 wildfires were used to estimate the variance of constituent concentrations for the proposed samples. The coefficient of variation (CV) was used to estimate variability relative to the mean. The results for a few key COCs from the 2003 fires (including metals and PAHs) along with the median CV for all constituents are summarized in the following table. Constituents with large numbers of non-detects were not included in the median CV calculation.

Parameter	Lead	Fluoranthene	Fluorene	Naphthalene	Median All Constituents
Mean	5595 mg/kg	**393 MG/KG**	148 mg/kg	699 mg/kg	-
STD	16636 mg/kg	**1087 MG/KG**	288 mg/kg	906 mg/kg	-
CV	2.97	**2.74**	1.95	1.30	1.65

To estimate the number of samples (*n*) required to develop a statistically valid dataset for this assessment, the following formula was used:

$$n = \left(\frac{t_{1-\alpha/2} * CV}{p} \right)^2$$

where:

n = number of samples to obtain
$t_{1-\alpha/2}$ = confidence level factor (1.96 for a 95 percent confidence level)
CV = coefficient of variation (STD/Mean) based on 2003 sampling data
p = acceptable margin-of-error

The tolerable error in the estimate is given as the margin-of-error relative to the estimated CV of the sample data. The tolerable error (p) is set at 0.6 (60% relative error)[1]. A confidence level of 95% was used for the purposes of the sample size derivation. This provides a reasonable certainty (95% or greater) that the sample mean interval contains the true mean (μ). Therefore, using the formula listed above, a median coefficient of variation (CV) of 1.65 based on the observed values from the 2003 dataset, and an acceptable margin of error of 0.6, the sample size required to estimate the mean concentration is estimated at 29 samples as follows:

$$\left(\frac{1.96 * 1.65}{0.6} \right)^2 = 29.05$$

The sampling variability from the 2003 ash sampling data is probably representative of the variability expected in the proposed sampling. However, individual constituents may have greater variability. Therefore, an estimated sample size of 35 was selected as a conservative number of burn debris and ash samples required to calculate the mean concentration for the COCs.

[1]Tolerable error is based on professional judgment for estimating environmental parameters of this type. This tolerable error level provides a sample size that corresponds to greater than 10% of the population of affected properties sampled. It also provides enough samples for subsequent distributional tests (goodness-of-fit tests) to have reasonable power.

The confidence limits to be used to assess the data will be generated from the sampling data to be collected during this assessment. Confidence bounds on the central tendency estimates will be constructed using the results of the distributional tests with the sampled data.

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 within two "typical" residential areas (one in San Diego County and one in San Bernardino County). Data quality objectives (DQOs) are presented in Attachment 1. The data will be collected in a manner such that conclusions based on the sample analyses may be generalized to all residential areas affected by the fires in each County. Therefore, sampling within each fire area and in each affected local jurisdiction will not be necessary.

A subset of parcels that contain a destroyed structure will be randomly identified from the total number of parcels with destroyed structures within each of the two sampling areas. From this subset, random parcels will be selected and designated as locations to have samples collected from the destroyed structure. The Random Selection Within Subsets tool in Hawth's Analysis Tools for ArcGIS Version 3.27 (Beyer, 2004) will be implemented to make the random selections. The tool will randomly select 35 parcels with destroyed residences from the Westwood-Rancho Bernardo area of San Diego County, and 35 parcels with destroyed residences in the Running Springs area of San Bernardino County as a sample size large enough to generally characterize the study areas. A list of 20 alternate parcels within each of the two areas will be randomly selected by the GIS system in advance of the field sampling. If one or more of the 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 20 alternate parcels within each of the two areas. The list of randomly-selected parcels with fire-destroyed homes in the Westwood-Rancho Bernardo area of San Diego County is presented in Table 1. The list of randomly-selected parcels with fire-destroyed homes in the Running Springs area of San Bernardino County is presented in Table 2. Data generated from such parcels will provide a characterization of the COCs in a typical burned neighborhood, and will not be used for the purpose of characterizing hazardous material present at a specific parcel.

2.6 Regulatory Guidance

Established protocol for sampling burned debris on residential properties are not known to currently exist. Therefore, regulatory guidance including the California Integrated Waste Management Board (CIWMB) LEA Advisory #56 [CIWMB, 1998], and the

"Protocol for Burn Dump Site Investigation and Characterization," prepared by the DTSC [DTSC, 2003], were used 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 burn debris composition and estimated volumes of burned debris associated with burned residences were obtained from a document prepared to address removal of burned debris following the June 2007 Angora Fire in South Lake Tahoe, California [CIWMB, 2007]. Debris sampling protocol were reviewed from the USEPA Resource Conservation and Recovery Act (RCRA) Waste Sampling Guidance [USEPA, 2002]. Composite sampling protocol were reviewed from the USEPA Guidance on Choosing a Sampling Design for Environmental Data Collection [USEPA, 2002], and the San Diego County DEH Site Assessment and Mitigation (SAM) Manual [DEH, 2004].

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

Based on volume estimates derived during the 2007 Angora Fires [CIWMB, 2007], it is expected that burned sites will consist of burn ash and debris volumes resulting from burned residential structures and associated outbuildings will range from approximately 10 to 150 cubic yards (CY). Geosyntec understands that visible and retrievable household hazardous wastes were removed prior to sampling the remaining debris and ash. One composite sample will be collected from the footprint of each former structure based on the following criteria:

ESTIMATED BURN ASH/DEBRIS[2] VOLUME (CY)	COMPOSITE SAMPLE QUANTITY[3]
Less than 10	2
10 to 20	3
20 to 100	4
100 +	1 for each 25 CY

One composite sample consisting of two to six discrete ash or burn debris samples 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 sample will be 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, will be sampled separately. An example field sampling form is attached (Attachment 2).

Upon arrival to a site 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

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

[3] : 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 San Diego County guidance.

the former structure(s). 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 a random number generator, "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 8 ounces of burn debris and ash. Approximately 4-ounces of ash or burn debris[4] at each random sampling location will be collected from the upper 6 to 12 inches of burn debris and ash using a new single-use stainless-steel spoon and placed into a new single-use stainless-steel mixing bowl for homogenization. Homogenization will consist of manually mixing the discrete samples until the composite sample appears thoroughly mixed based on a visual assessment. Following homogenization of the composite sample, the resulting material will be placed in an 8-ounce glass jar which will provide an adequate sample volume to perform the requested laboratory analyses. The sampling team will take photographs of each site sampled, 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[5]. 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 samples will be collected for compositing, one from each half of the stockpile/bin;
- Stockpiles/bins 10-20 cubic yards: 3 samples will be collected for compositing, one from each third of the stockpile/bin;
- Stockpiles from 20-100 cubic yards: 4 samples will be collected for compositing, one from each quarter of the stockpile/bin.

3.1.1 Analytical Parameters

Laboratory analyses will be performed by Calscience Environmental Laboratory in Garden Grove, California, a California Department of Public Health certified laboratory.

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[4] : Materials to be sampled at each random sampling location will consist of approximately one 4-ounce jar 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.

[5] 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.

Each composite sample (estimated 70 samples total) will be analyzed for Title 22 metals (TTLC) by EPA Method 6010B and PAHs by EPA Method 8310. Laboratory method detection limits (MDLs) and reporting limits for the two analytical methods listed above are included in Attachment 3. With the exception of arsenic, the laboratory MDLs are less than the statutorily-established health based criteria described herein. If laboratory analyses by EPA Method 6010B indicates arsenic concentrations are less than the MDL, then those samples will be additionally analyzed for arsenic by EPA Method 7010 (MDL 0.062 mg/kg for arsenic) to achieve the DQOs described herein.

For quality assurance/quality control (QA/QC), each field team will collect one blind duplicate sample per day (six to eight duplicate samples total) for the analyses listed above to evaluate sampling and analytical precision. In addition, QC to be performed by the analytical laboratory to assess laboratory precision and accuracy will include method blanks, laboratory control spikes, and matrix spikes.

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 analytical results.

Laboratory Control Spike: A Laboratory Control Spike (LCS) is a sample that is spiked with known analyte concentrations, and analyzed at approximately 10 percent of the sample load in order to establish method-specific control limits. The LCS results associated with the samples will be attached on the LCS and LCS Duplicate Analysis Report.

Matrix Spike Results: A matrix spike is a sample that is spiked with known analyte concentrations and analyzed at approximately 10 percent of the sample load in order to establish method-specific control limits. The matrix spike results associated with the samples will be attached on the Matrix Spike and Matrix Spike Duplicate Analysis Report.

Accuracy: Accuracy will be measured by percent recovery as defined by:

$$\% \text{ recovery} = \frac{(\text{measured concentration}) \times 100}{(\text{actual concentration})}$$

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 and include the job number, sampler, date, and time of collection. The sample identification number will identify the County (San Bernardino or San Diego), site number (1 through 35) and date, (i.e., SD-03-11262007 identifies that this sample was collected from San Diego County Site No. 03 on 26 November 2007).

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) 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.

4. PROJECT MANAGEMENT

4.1 Site Management and Project Schedule

4.1.1 Project Management

Mr. Veryl Wittig will serve as the project manager and will be responsible for daily operations and successful project execution. Mr. Sam Williams 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 November 2007. Once initiated, the site sampling 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 seven business days of receipt of final laboratory data. The following tentative schedule has been prepared based on a start date of 26 November 2007.

ACTIVITY	TARGET COMPLETION DATE
Commence Sampling	26 November 2007
Complete Field Sampling	30 November 2007
Receive Final Laboratory Data	7 December 2007
Provide Draft Report to DTSC for Review	18 December 2007
Receive DTSC Comments on Draft Report	28 December 2007
Finalize and Distribute Report	7 January 2008

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United States Environmental Protection Agency, 2002. "*RCRA Waste Sampling Draft Technical Guidance - Planning, Implementation, and Assessment*," August 2002.

TABLE 1
RANDOMLY SELECTED PARCELS FOR BURN DEBRIS AND ASH SAMPLING
SAN DIEGO COUNTY SITES[1]

San Diego County Site No.	Assessor's Parcel Number	Address			Estimated Living Space Area of Destroyed Structure (ft^2)	Garage Size (2 or 3 car)
SD-01	6781413400	11529	PALITO	CT	2235	2
SD-02	6780900300	17857	CORAZON	PL	2142	2
SD-03	6781711600	18147	VALLADARES	DR	1560	2
SD-04	6781621700	17952	AGUAMIEL	RD	2679	2
SD-05	2737130400	17616	MATINAL	DR	2275	2
SD-06	2737130500	17608	MATINAL	DR	1819	2
SD-07	6781413700	11524	DANZA	CR	2091	2
SD-08	6781610200	17825	AGUAMIEL	RD	2298	2
SD-09	6781622900	17913	AGUAMIEL	RD	2142	2
SD-10	6783421000	17783	WEAVING	LN	1823	2
SD-11	6781711400	18167	VALLADARES	DR	1560	2
SD-12	6781420600	11479	ESCOBA	PL	2031	2
SD-13	6781424200	11552	ALIENTO	CT	2728	2
SD-14	6781623500	17865	AGUAMIEL	RD	2142	2
SD-15	6781425200	11540	DUENDA	RD	2031	2
SD-16	6781420700	11489	ESCOBA	PL	1419	2
SD-17	2737120100	11469	DUENDA	RD	1401	2
SD-18	6781511600	17943	CABELA	DR	2142	2
SD-19	6781421600	11457	ALIENTO	CT	1734	2
SD-20	6781520600	17927	CORAZON	PL	2949	2
SD-21	6781423000	11517	DANZA	CR	2219	2
SD-22	2737121400	11352	LUZ	PL	1854	2
SD-23	6781421700	11463	ALIENTO	CT	1419	2
SD-24	6781422200	11478	DUENDA	RD	2031	2
SD-25	2737110400	11363	LUZ	PL	1819	2
SD-26	6780903400	17838	CORAZON	PL	1792	2
SD-27	6781623600	17857	AGUAMIEL	RD	2298	2
SD-28	6781912100	17816	AZUCAR	WY	1808	2
SD-29	6781710800	11676	ANDANZA	WY	1745	2
SD-30	6781510400	18028	AGUAMIEL	RD	2376	2
SD-31	6781422800	11537	DANZA	CR	2031	2
SD-32	6782110100	17716	CRECIENTE	WY	2583	2
SD-33	6782606800	11420	LUZ	RD	2169	2
SD-34	6781413800	11534	DANZA	CR	2275	2
SD-35	6783511400	18187	SUN MAIDEN	CT	2857	3
Alternate Randomly-Selected Parcels with Burned Residences[2]						
SD-36	6781511100	17987	CABELA	DR	2679	2
SD-37	6783712700	18185	CHIEFTAIN	CT	3054	2
SD-38	6781510800	18013	CABELA	DR	1792	2
SD-39	6783411600	17893	PUEBLO VISTA	LN	2281	2
SD-40	6781910900	17885	AZUCAR	WY	1808	2
SD-41	6781421200	11454	ALIENTO	CT	1734	2
SD-42	6780902000	11419	DUENDA	RD	2222	2
SD-43	6781303400	11686	JOCATAL	CT	2103	2
SD-44	6780900200	17877	CORAZON	PL	2679	2
SD-45	6781912200	17824	AZUCAR	WY	2353	2
SD-46	6781520200	11454	GRILLO	CT	4842	3
SD-47	6781300800	17788	VALLADARES	DR	1560	2
SD-48	6781621800	17960	AGUAMIEL	RD	2017	2
SD-49	6781513000	11460	ALCALDE	CT	2823	2
SD-50	6781613100	17794	AGUAMIEL	RD	2136	2
SD-51	6781911100	17857	AZUCAR	WY	1921	2
SD-52	6781413200	11536	PALITO	CT	2031	2
SD-53	6781711200	18187	VALLADARES	DR	1560	2
SD-54	6780901800	11439	DUENDA	RD	1812	2
SD-55	6781623800	17841	AGUAMIEL	RD	2142	2

Notes:

1: Sites randomly selected from a list of 134 parcels with fire-destroyed residences identified by the City of San Diego

2: If a primary randomly selected site has already been cleared, or is inaccessible for sampling, randomly selected alternate sites will be substituted.

TABLE 2
RANDOMLY SELECTED PARCELS FOR BURN DEBRIS AND ASH SAMPLING
SAN BERNARDINO COUNTY SITES[1]

San Bernardino County Site No.	Assessor's Parcel Number	Address		Estimated Acreage
SB-01	029612131	55 PANORAMA	RD	0.09
SB-02	029509131	2404 WHISPERING PINES	DR	0.12
SB-03	029509219	31960 BROOKINGS	DR	0.13
SB-04	029626106	30651 FERNDALE	DR	0.48
SB-05	032837308	31393 EASY	ST	0.27
SB-06	032835114	31517 CIRCLE VIEW		0.22
SB-07	032835131	31474 VALLEY RIDGE	DR	0.19
SB-08	029601269	15 FREDALBA	RD	0.23
SB-09	029508318	2359 DEEP CREEK		0.15
SB-10	029508261	2356 DEEP CREEK	DR	0.13
SB-11	029508262	2379 CHICAGO	DR	0.54
SB-12	032837317	31432 RIM OF THE WORLD	DR	0.25
SB-13	029601266	14 FREDALBA	RD	0.23
SB-14	029601257	11 FREDALBA	RD	0.56
SB-15	029509221	31944 BROOKINGS	DR	0.11
SB-16	029631331	30444 LIVE OAK	DR	0.27
SB-17	032835211	31497 VALLEY RIDGE	DR	0.17
SB-18	029606109	0		6.15
SB-19	029509201	2429 WHISPERING PINES	DR	0.11
SB-20	029508232	31938 ENCINA	WY	0.10
SB-21	032835130	31482 VALLEY RIDGE	DR	0.21
SB-22	029630306	31034 OLD CITY CREEK	RD	0.46
SB-23	029607142	0		11.70
SB-24	032835121	2268 WILDERNESS	RD	0.16
SB-25	029507201	2391 SECRET	WY	0.12
SB-26	029601254	5 FREDALBA	RD	0.23
SB-27	029507208	2384 CHICAGO	DR	0.10
SB-28	029509133	2412 WHISPERING PINES	DR	0.14
SB-29	029509119	31879 ENCINA	WY	0.11
SB-30	029601240	30605 FREDALBA	RD	0.18
SB-31	029508214	2350 DEEP CREEK	DR	0.11
SB-32	029601279	17 FREDALBA	RD	0.23
SB-33	029606109	0		6.15
SB-34	029630304	31058 OLD CITY CREEK	RD	0.42
SB-35	032835140	2288 WILDERNESS	RD	0.44
Alternate Randomly-Selected Parcels with Burned Residences[2]				
SB-36	032834420	2206 WILDERNESS	RD	0.17
SB-37	032834401	31533 CIRCLE VIEW	DR	0.19
SB-38	029601241	7 FREDALBA	RD	0.12
SB-39	029509150	31923 ENCINA	WY	0.16
SB-40	029509224	31920 BROOKINGS	DR	0.07
SB-41	029508326	2333 DEEP CREEK	DR	0.15
SB-42	029508264	2336 DEEP CREEK	DR	0.25
SB-43	032835128	31500 VALLEY RIDGE	DR	0.22
SB-44	029601272	16 FREDALBA	RD	0.23
SB-45	029508218	2362 DEEP CREEK	DR	0.14
SB-46	032837106	31430 EASY	ST	0.19
SB-47	032809183	1891 NOB HILL	DR	2.35
SB-48	029508310	2365 DEEP CREEK	DR	0.11
SB-49	029630101	30910 OLD CITY CREEK	RD	0.45
SB-50	032835213	2310 WILDERNESS	RD	0.18
SB-51	029601288	18 FREDALBA	RD	1.01
SB-52	029509128	31951 ENCINA	WY	0.11
SB-53	029601238	4 FREDALBA	RD	0.00
SB-54	029601241	7 FREDALBA	RD	0.12
SB-55	029501101	2399 RIM OF THE WORLD	DR	0.13

Notes:

1: Sites randomly selected from a list of 161 parcels with fire-destroyed residences identified by the County of San Bernardino

2: If a primary randomly selected site has already been cleared, or is inaccessible for sampling, randomly selected alternate sites will be substituted.

ATTACHMENT 1
DATA QUALITY OBJECTIVES

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 objectives of the sampling and analysis plan are to (1) characterize the hazardous components present in typical residential neighborhoods that have been destroyed by fire; and, (2) determine if concentrations of the constituents of concern (COCs) in residential and urban burn debris exceed health-based goals established in statute in California. These determinations will be made by the California Environmental Protection Agency (CalEPA) and its boards, departments, and offices in consultation with Geosyntec and the Planning Team Members (see below). The data will be used to support CalEPA and affected jurisdictions in their Public Interest Determinations, as required in the FEMA Disaster Assistance Policy 9523.13.

Planning Team Members include the following:

- Adam Palmer – California Department of Toxic Substances Control – Emergency Response Division
- Shelley DuTeaux – OEHHA
- Hedy Salter – USEPA
- Gary Erbeck – San Diego County Department of Environmental Health
- Curtis Brundage – San Bernardino County
- Veryl Wittig – Geosyntec Consultants
- Sam Williams – Geosyntec Consultants

Geosyntec has the available resources to implement the SAP in a timely manner. Sampling is scheduled to commence on 26 November and be completed by 30 November 2007. A draft report of sample results and findings will be submitted to interested parties by 18 December 2007.

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 and ash exceed statutorily-established health-based criteria. In accordance with FEMA Disaster Assistance Policy 9523.13, CalEPA

and its boards, departments, and offices, have made the determination that the debris and ash resulting from the 2007 Southern California wildfires pose 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 (see Step 3), then those data will be used to support the determination already made by CalEPA.

STEP 3: Identify the Inputs to the Decision

To evaluate the decision statement, COC concentrations in burn debris will be compared to California statutorily-established health-based criteria. These criteria include the California Human Health Screening Levels (CHHSLs) and the EPA Regional IX Preliminary Remedial Goals (PRGs) for residential soil. However, OEHHA scientists in conjunction with CalEPA reserve 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;
- California statutorily-established health-based criteria for each constituent of concern using the most conservative value from the following:
  - CHHSLs,
  - 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. Therefore, for purposes of the risk evaluation, criteria promulgated for soil are assumed to be relevant to the burn ash. The CHHSLs are concentrations of 54 hazardous chemical that CalEPA considers to be below thresholds of concern for risks to human health. CHHSL values have been developed for soil ingestion, dermal contact, and inhalation of vapors or dust in outdoor air. Under most circumstances, the presence of chemicals at concentrations below the corresponding CHHSLs can be assumed to not pose a

significant health risk to people who may work or live at the affected site. However, the presence of a chemical at concentrations in excess of the CHHLS may indicate a potential for adverse risk.[6] CHHSLs do not exist for every COC that may be found through this analysis. Therefore, other statutorily-established health-based standards may be used to evaluate the data. It is important to note that many health-based criteria are promulgated for soil. This approach may underestimate the risk associated with exposure to burn debris and ash. Exposure to the hazardous components in ash may be through hand-to-mouth contact and other sources of ingestion, such as food crop and drinking water contamination, as well as dermal irritation and uptake. In addition, because of its physical characteristics, such as density and particle size, ash presents an inhalation hazard, thereby increasing the number of potentially susceptible receptors that may be exposed.

STEP 4: Define the Boundaries of the Study

The domain of this investigation includes the areas burned by the October 2007 wildfires within the Counties of San Bernardino and San Diego. Burn debris samples will be collected from a typical suburban residential neighborhood with high density housing in one of the most devastated areas of one of the fires from each county. These areas will be selected by a designated and qualified representative from each county.

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 a typical residential neighborhood.

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

[6] CalEPA, 2005. Use of California Human Health Screening Levels in Evaluation of Contaminated Properties, California Environmental Protection Agency (CalEPA), January 2005.

sample of the stockpile will be collected (Section 3.1) and homogenized to comprise on 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 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 Sampling and Analysis Plan 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 fire ash and debris from the 2007 Southern California 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.

ATTACHMENT 2
EXAMPLE FIELD SAMPLING FORM

Geosyntec consultants

Post Fire Burn Areas
Sampling Form

Sampling Personnel: _____ Date/Time: _____
Property Address: _____ Property APN: _____
Property GPS Coordinates: _____ Approximate Footprint Dimensions: _____
Approximate Debris Volume: _____ Composite Sample ID: _____
Juristiction: _____ Chain of Custody No. _____
Structure No: ____ of ____

Cell ID	Point Sample ID	Random "x"	"x" Distance	Random "y"	"y" Distance	Photo ID	Brief Sample Description
		0.47		0.48			
		0.97		0.42			
		0.61		0.04			
		0.53		0.96			
		0.34		0.49			
		0.84		0.27			

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

Other Observations: _____

ATTACHMENT 3
LABORATORY METHOD DETECTION LIMITS AND REPORTING LIMITS

COMPOUND LISTING / MDL / CALC REPORTING LIMIT FOR TESTCODE

6010B S TTLC (1474)

METHOD: EPA 6010B

MATRIX: S

COMPOUND NAME	MDL	RL	UNITS
Aluminum	0.2157256	2.50000	mg/kg
Antimony	0.1906209	0.75000	mg/kg
Arsenic	0.1303323	0.75000	mg/kg
Barium	0.1639326	0.50000	mg/kg
Beryllium	0.0036826	0.25000	mg/kg
Bismuth	0.1900000	5.00000	mg/kg
Boron	0.1286296	1.00000	mg/kg
Cadmium	0.0098783	0.50000	mg/kg
Calcium	0.7656523	5.00000	mg/kg
Chromium	0.0291265	0.25000	mg/kg
Cobalt	0.0085891	0.25000	mg/kg
Copper	0.0468778	0.50000	mg/kg
Iron	0.2913465	5.00000	mg/kg
Lead	0.0527146	0.50000	mg/kg
Lithium	0.2157256	2.50000	mg/kg
Magnesium	0.2069185	5.00000	mg/kg
Manganese	0.0611364	0.25000	mg/kg
Molybdenum	0.0205976	0.25000	mg/kg
Nickel	0.0346490	0.25000	mg/kg
Phosphorus, Total	0.2929081	5.00000	mg/kg
Potassium	1.9817720	25.00000	mg/kg
Selenium	0.1751919	0.75000	mg/kg
Silicon	0.2948994	5.00000	mg/kg
Silver	0.0209340	0.25000	mg/kg
Sodium	2.2423820	25.00000	mg/kg
Strontium	0.0109862	1.50000	mg/kg
Sulfur, Total	1.2557000	5.00000	mg/kg
Thallium	0.0987097	0.75000	mg/kg
Tin	0.4504804	2.50000	mg/kg
Titanium	0.1125009	1.50000	mg/kg
Vanadium	0.0093357	0.25000	mg/kg
Zinc	0.1770479	1.00000	mg/kg

MATRIX - W = Water/Aqueous. S = Soil/Solid. A = Air. T = Tissue.

COMPOUND LISTING / MDL / CALC REPORTING LIMIT FOR TESTCODE

PAH-S-SIM (4740)

METHOD: EPA 8270C SIM PAHs **MATRIX:** S

COMPOUND NAME	MDL	RL	UNITS
1-Methylnaphthalene	0.0043	0.0200	mg/kg
2-Methylnaphthalene	0.0024	0.0200	mg/kg
Acenaphthene	0.0050	0.0200	mg/kg
Acenaphthylene	0.0024	0.0200	mg/kg
Anthracene	0.0062	0.0200	mg/kg
Benzo (a) Anthracene	0.0026	0.0200	mg/kg
Benzo (a) Pyrene	0.0020	0.0200	mg/kg
Benzo (b) Fluoranthene	0.0014	0.0200	mg/kg
Benzo (g,h,i) Perylene	0.0033	0.0200	mg/kg
Benzo (k) Fluoranthene	0.0045	0.0200	mg/kg
Chrysene	0.0047	0.0200	mg/kg
Dibenz (a,h) Anthracene	0.0027	0.0200	mg/kg
Fluoranthene	0.0019	0.0200	mg/kg
Fluorene	0.0031	0.0200	mg/kg
Indeno (1,2,3-c,d) Pyrene	0.0035	0.0200	mg/kg
Naphthalene	0.0037	0.0200	mg/kg
Phenanthrene	0.0038	0.0200	mg/kg
Pyrene	0.0033	0.0200	mg/kg
Total PAHs	0.0062	0.0200	mg/kg

MATRIX - W = Water/Aqueous. S = Soil/Solid. A = Air. T = Tissue.

APPENDIX B

Photograph Log

San Bernardino Sampling Sites

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/27/2007	SAN BERNARDINO COUNTY SITE
	PROJECT NO. SC0459	**SB-04**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/29/2007 PROJECT NO. SC0459	SAN BERNARDINO COUNTY SITE **SB-05**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/29/2007 PROJECT NO. SC0459	SAN BERNARDINO COUNTY SITE **SB-07**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/27/2007	SAN BERNARDINO COUNTY SITE
	PROJECT NO. SC0459	**SB-08**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

Cell 5 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007 PROJECT NO. SC0459	SAN BERNARDINO COUNTY SITE **SB-11**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/27/2007	SAN BERNARDINO COUNTY SITE **SB-13A**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/27/2007	SAN BERNARDINO COUNTY SITE **SB-13B**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/27/2007	SAN BERNARDINO COUNTY SITE **SB-14**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007	SAN BERNARDINO COUNTY SITE **SB-17**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/27/2007	SAN BERNARDINO COUNTY SITE
	PROJECT NO. SC0459	**SB-18**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/28/2007	SAN BERNARDINO COUNTY SITE **SB-19**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007	SAN BERNARDINO COUNTY SITE **SB-20**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/29/2007	SAN BERNARDINO COUNTY SITE **SB-21**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/29/2007	SAN BERNARDINO COUNTY SITE **SB-24**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007	SAN BERNARDINO COUNTY SITE **SB-25A**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007	SAN BERNARDINO COUNTY SITE **SB-25B**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/27/2007	SAN BERNARDINO COUNTY SITE
	PROJECT NO. SC0459	**SB-26**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007 PROJECT NO. SC0459	SAN BERNARDINO COUNTY SITE **SB-28**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007	SAN BERNARDINO COUNTY SITE **SB-29**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/27/2007	SAN BERNARDINO COUNTY SITE **SB-30A**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/27/2007 PROJECT NO. SC0459	SAN BERNARDINO COUNTY SITE **SB-30B**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007	SAN BERNARDINO COUNTY SITE **SB-31**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/27/2007	SAN BERNARDINO COUNTY SITE
	PROJECT NO. SC0459	**SB-32**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

Cell 5 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/29/2007	SAN BERNARDINO COUNTY SITE
	PROJECT NO. SC0459	**SB-35**

Photograph of site not taken.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/29/2007 PROJECT NO. SC0459	SAN BERNARDINO COUNTY SITE **SB-36**

Photograph of site.

Unable to take discrete sample location pictures due to weather.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/30/2007	SAN BERNARDINO COUNTY SITE **SB-38**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007	SAN BERNARDINO COUNTY SITE **SB-39**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007	SAN BERNARDINO COUNTY SITE **SB-40**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/28/2007	SAN BERNARDINO COUNTY SITE **SB-41**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

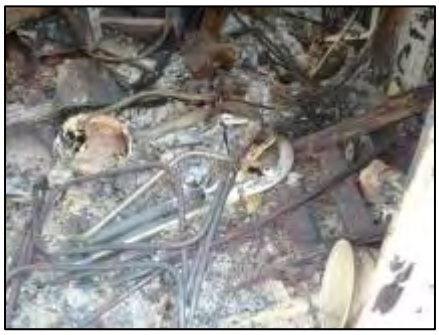
Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007	SAN BERNARDINO COUNTY SITE **SB-42A**
	PROJECT NO. SC0459	

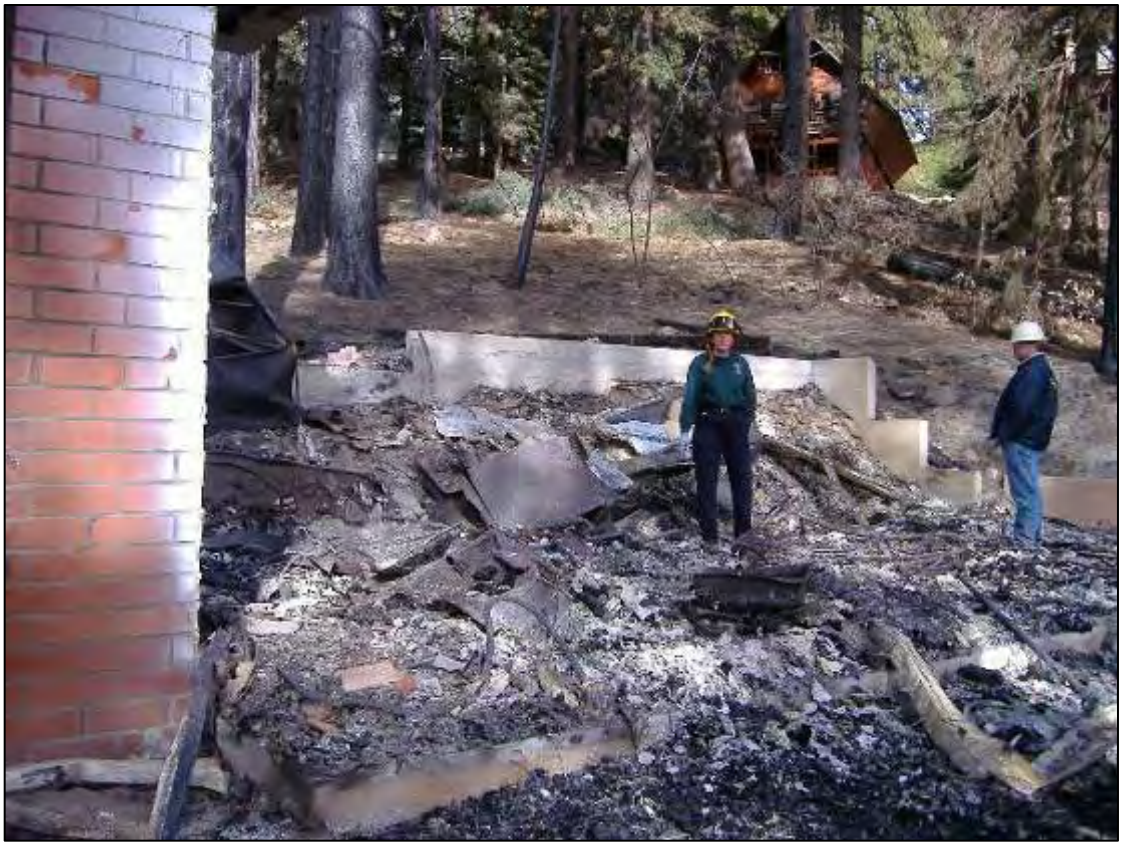
Photograph of site.

Cell 1 discrete sample location.



Cell 2 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007	SAN BERNARDINO COUNTY SITE **SB-42B**
	PROJECT NO. SC0459	



Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/29/2007 PROJECT NO. SC0459	SAN BERNARDINO COUNTY SITE **SB-43**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Unable to take remaining discrete sample location pictures due to weather.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/30/2007	SAN BERNARDINO COUNTY SITE **SB-44**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/29/2007	SAN BERNARDINO COUNTY SITE **SB-45**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/29/2007	SAN BERNARDINO COUNTY SITE
	PROJECT NO. SC0459	**SB-46**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/29/2007	SAN BERNARDINO COUNTY SITE **SB-47**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/29/2007 PROJECT NO. SC0459	SAN BERNARDINO COUNTY SITE **SB-48**

Unable to take pictures of site and discrete sample locations due to weather.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/30/2007	SAN BERNARDINO COUNTY SITE **SB-50**
	PROJECT NO. SC0459	

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/30/2007 PROJECT NO. SC0459	SAN BERNARDINO COUNTY SITE **SB-51**

San Diego Sampling Sites

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-02**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/26/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-08**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/26/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-09**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-11**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/27/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-12**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/27/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-13**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

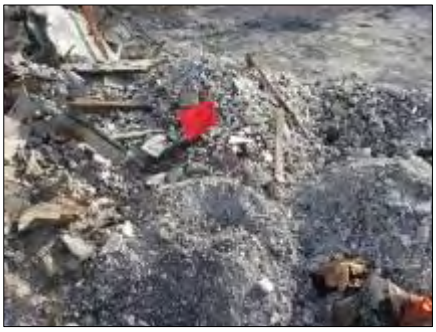
Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/27/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-16**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.



Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/27/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-18**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/27/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-19**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-20**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

Cell 5 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/27/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-21**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/27/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-22**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/27/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-24**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/27/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-25**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-26**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/26/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-31**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/26/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-34**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/27/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-36**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

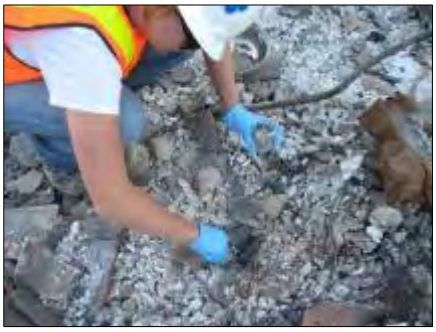
2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/27/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-38**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.



Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/26/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-40**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/27/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-41**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/28/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-44**

Photograph of stockpile.

Discrete sample location 1.

Discrete sample location 2.

Discrete sample location 3.

Discrete sample location 4.

Discrete sample location 5.

Discrete sample location 6.

Discrete sample location 7.

Discrete sample location 8.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/27/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-46**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-47**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-50**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-51**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-53**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/27/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-54**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/28/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-55**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/28/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-56**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

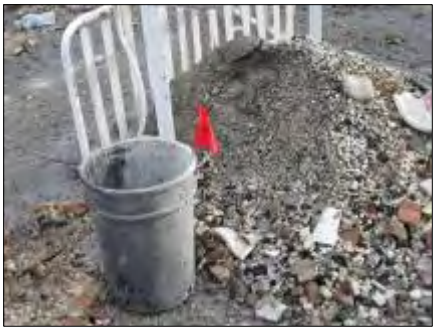
Cell 4 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/28/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-58**

Photograph of site.

Cell 1 discrete sample location.



Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/28/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-62**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/29/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-63**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES
BURNED DEBRIS ASSESSMENT
PHOTOGRAPH LOG

Geosyntec consultants	DATE: 11/29/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-67**

Photograph of site.

Cell 1 discrete sample location.

Cell 2 discrete sample location.

Cell 3 discrete sample location.

Cell 4 discrete sample location.

2007 WILDFIRES BURNED DEBRIS ASSESSMENT PHOTOGRAPH LOG		
Geosyntec consultants	DATE: 11/29/2007	SAN DIEGO COUNTY SITE
	PROJECT NO. SC0459	**SD-72**

APPENDIX C

Laboratory Analytical Certificates and Data Validation

APPENDIX C

Data Validation
Burn Debris Sampling
December 14, 2007

Level II data packages produced by Calscience Environmental Laboratories, Inc. were received in December 2007 at the Geosyntec Consultants San Diego, California office for data validation.

Calscience Work Order No.: 07-11-1933

Samples were analyzed for:

EPA 6010B Metals
EPA 8310 PAHs
EPA 7196A Hexavalent Chromium

According to the chain-of-custody all samples were analyzed for the requested analyses and all technical holding times were met.

Recovery outside of control limits was reported for PAHs, selenium, and zinc and matrix interference of barium in the MS/MSD quality control samples. The data was not qualified due to the associated LCS/LCSD being within control limits.

All method quality control samples were within acceptable criteria. No data were qualified and all data are considered usable.

Calscience Work Order No.: 07-11-2008

Samples were analyzed for:

EPA 6010B Metals
EPA 8310 PAHs
EPA 7196A Hexavalent Chromium

According to the chain-of-custody all samples were analyzed for the requested analyses and all technical holding times were met.

Recovery and/or relative percent difference (RPD) outside of control limits was reported for PAHs, antimony, cadmium, lead, and thallium in the MS/MSD quality control samples. Barium, copper, and zinc was outside of control limits in the MS/MSD quality control samples due to matrix interference. The data was not qualified due to the associated LCS/LCSD being within control limits.

Due to surrogate recovery exceeding the upper control limit, detections of PAHs in samples SB-28-112807 and SB-28C-112807 are J qualified as estimated.

All method quality control samples were within acceptable criteria. No other qualifiers are applied to the data.

Calscience Work Order No.: 07-11-2009

Samples were analyzed for:

EPA 6010B Metals
EPA 8310 PAHs

According to the chain-of-custody all samples were analyzed for the requested analyses and all technical holding times were met.

Recovery and/or relative percent difference (RPD) outside of control limits was reported for PAHs, antimony, cadmium, lead, thallium, and mercury in the MS/MSD quality control samples. Barium, copper, and zinc were outside of control limits in the MS/MSD quality control samples due to matrix interference. The data was not qualified due to the associated LCS/LCSD being within control limits.

All method quality control samples were within acceptable criteria. No data were qualified and all data are considered usable.

Calscience Work Order No.: 07-11-2022

Samples were analyzed for:

EPA 6010B Metals
EPA 7010 Arsenic
EPA 8310 PAHs
EPA 7196A Hexavalent Chromium

According to the chain-of-custody all samples were analyzed for the requested analyses and all technical holding times were met.

Recovery and/or relative percent difference (RPD) outside of control limits was reported for PAHs, arsenic, copper, nickel, thallium, and mercury in the MS/MSD quality control samples. Barium, vanadium, and zinc were outside of control limits in the MS/MSD quality control samples due to matrix interference. The data was not qualified due to the associated LCS/LCSD being within control limits.

Due to surrogate recovery exceeding the upper control limit, detections of PAHs in samples SD-41-11272007 and SD-22-11272007 are J qualified as estimated.

All method quality control samples were within acceptable criteria. No other qualifiers are applied to the data.

Calscience Work Order No.: 07-11-2096

Samples were analyzed for:

EPA 6010B Metals
EPA 8310 PAHs
EPA 7196A Hexavalent Chromium

According to the chain-of-custody all samples were analyzed for the requested analyses and all technical holding times were met.

Recovery and/or relative percent difference (RPD) outside of control limits was reported for PAHs, antimony, arsenic, chromium, silver, and thallium in the MS/MSD quality control samples. Barium, copper, lead, and zinc were outside of control limits in the MS/MSD quality control samples due to matrix interference. The data was not qualified due to the associated LCS/LCSD being within control limits.

Due to surrogate recovery exceeding the upper control limit, detections of PAHs in samples SB-31-112807, SB-25A-112807, and SB-40-112807 are J qualified as estimated.

All method quality control samples were within acceptable criteria. No other qualifiers are applied to the data.

Calscience Work Order No.: 07-11-2129

Samples were analyzed for:

EPA 6010B Metals
EPA 8310 PAHs
EPA 7196A Hexavalent Chromium

According to the chain-of-custody all samples were analyzed for the requested analyses and all technical holding times were met.

Recovery and/or relative percent difference (RPD) outside of control limits was reported for PAHs, arsenic, silver, thallium, and mercury in the MS/MSD quality control samples. Barium, copper, lead, and zinc were outside of control limits in the MS/MSD quality control samples due to matrix interference. The data was not qualified due to the associated LCS/LCSD being within control limits.

All method quality control samples were within acceptable criteria. No data were qualified and all data are considered usable.

Calscience Work Order No.: 07-11-2130

Samples were analyzed for:

EPA 6010B Metals
EPA 8310 PAHs

According to the chain-of-custody all samples were analyzed for the requested analyses and all technical holding times were met.

Recovery and/or relative percent difference (RPD) outside of control limits was reported for PAHs, antimony, arsenic, chromium, silver, and thallium in the MS/MSD quality control samples. Barium, copper, lead, and zinc were outside of control limits in the MS/MSD quality control samples due to matrix interference. The data was not qualified due to the associated LCS/LCSD being within control limits.

All method quality control samples were within acceptable criteria. No data were qualified and all data are considered usable.

Calscience Work Order No.: 07-12-0014

Samples were analyzed for:

EPA 6010B Metals
EPA 8310 PAHs
EPA 7196A Hexavalent Chromium

According to the chain-of-custody all samples were analyzed for the requested analyses and all technical holding times were met.

Recovery and/or relative percent difference (RPD) outside of control limits was reported for PAHs and antimony in the MS/MSD quality control samples. The data was not qualified due to the associated LCS/LCSD being within control limits.

All method quality control samples were within acceptable criteria. No data were qualified and all data are considered usable.

Submitted by:

Shana McCarthy
Geosyntec Consultants

Calscience Environmental Laboratories, Inc.

Supplemental Report 1

December 13, 2007

Additional requested analyses have been added to the original report.

Veryl Wittig
GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Subject: **Calscience Work Order No.: 07-11-1933**
Client Reference: Burn Debris Sample / SC0459

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/27/2007 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Stephen Nowak
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/27/07
Work Order No:	07-11-1933
Preparation:	EPA 3050B / EPA 7471A Total
Method:	EPA 6010B / EPA 7471A
Units:	mg/kg

Project: Burn Debris Sample / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-34-11262007	**07-11-1933-1-A**	**11/26/07**	**Solid**	**ICP 5300**	**11/28/07**	**11/29/07**	**071128L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/28/2007 2:45:27 PM with batch 071128L02

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Mercury	0.0314	0.0835	0.00130	1	J,B
Arsenic	4.62	0.750	0.130	1	B	Molybdenum	1.02	0.250	0.0206	1	
Barium	113	0.500	0.164	1		Nickel	26.9	0.250	0.0346	1	
Beryllium	0.139	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	1.30	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	27.0	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	4.70	0.250	0.00859	1		Vanadium	31.0	0.250	0.00934	1	B
Copper	448	0.500	0.0469	1		Zinc	547	1.00	0.177	1	
Lead	69.4	0.500	0.0527	1							

SD-31-11262007	**07-11-1933-2-A**	**11/26/07**	**Solid**	**ICP 5300**	**11/28/07**	**11/29/07**	**071128L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/28/2007 2:47:41 PM with batch 071128L02

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Mercury	0.0192	0.0835	0.00130	1	J,B
Arsenic	34.3	0.750	0.130	1	B	Molybdenum	6.09	0.250	0.0206	1	
Barium	167	0.500	0.164	1		Nickel	25.6	0.250	0.0346	1	
Beryllium	0.166	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	1.40	0.500	0.00988	1		Silver	4.71	0.250	0.0209	1	
Chromium	15.7	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	7.25	0.250	0.00859	1		Vanadium	68.3	0.250	0.00934	1	B
Copper	879	0.500	0.0469	1		Zinc	3160	10.0	1.77	10	
Lead	36.5	0.500	0.0527	1							

SD-09-11262007	**07-11-1933-3-A**	**11/26/07**	**Solid**	**ICP 5300**	**11/28/07**	**11/29/07**	**071128L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/28/2007 2:49:55 PM with batch 071128L02

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	45.9	0.750	0.191	1		Mercury	0.0245	0.0835	0.00130	1	J,B
Arsenic	8.25	0.750	0.130	1	B	Molybdenum	0.913	0.250	0.0206	1	
Barium	207	0.500	0.164	1		Nickel	76.5	0.250	0.0346	1	
Beryllium	0.143	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	1.46	0.500	0.00988	1		Silver	2.67	0.250	0.0209	1	
Chromium	10.2	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	4.59	0.250	0.00859	1		Vanadium	18.8	0.250	0.00934	1	B
Copper	2100	5.00	0.469	10		Zinc	1570	10.0	1.77	10	
Lead	92.5	0.500	0.0527	1							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/27/07
Work Order No:	07-11-1933
Preparation:	EPA 3050B / EPA 7471A Total
Method:	EPA 6010B / EPA 7471A
Units:	mg/kg

Project: Burn Debris Sample / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-08-11262007	**07-11-1933-4-A**	**11/26/07**	**Solid**	**ICP 5300**	**11/28/07**	**11/29/07**	**071128L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/28/2007 2:52:10 PM with batch 071128L02

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Mercury	0.0297	0.0835	0.00130	1	J,B
Arsenic	9.28	0.750	0.130	1	B	Molybdenum	1.69	0.250	0.0206	1	
Barium	456	0.500	0.164	1		Nickel	48.8	0.250	0.0346	1	
Beryllium	0.233	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	3.40	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	19.5	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	264	0.250	0.00859	1		Vanadium	20.7	0.250	0.00934	1	B
Copper	698	0.500	0.0469	1		Zinc	2190	10.0	1.77	10	
Lead	103	0.500	0.0527	1							

SD-40-11262007	**07-11-1933-5-A**	**11/26/07**	**Solid**	**ICP 5300**	**11/28/07**	**11/29/07**	**071128L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/28/2007 2:54:25 PM with batch 071128L02

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Mercury	0.0125	0.0835	0.00130	1	J,B
Arsenic	12.2	0.750	0.130	1	B	Molybdenum	ND	0.250	0.0206	1	
Barium	166	0.500	0.164	1		Nickel	8.19	0.250	0.0346	1	
Beryllium	0.160	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	1.34	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	15.9	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	6.84	0.250	0.00859	1		Vanadium	22.3	0.250	0.00934	1	B
Copper	539	0.500	0.0469	1		Zinc	534	1.00	0.177	1	
Lead	87.7	0.500	0.0527	1							

Method Blank	**099-04-007-5,144**	**N/A**	**Solid**	**Mercury**	**11/28/07**	**11/28/07**	**071128L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual
Mercury	0.00731	0.0835	0.00130	1	J

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/27/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-1933
San Diego, CA 92127-2116		Preparation:	EPA 3050B / EPA 7471A Total
		Method:	EPA 6010B / EPA 7471A
		Units:	mg/kg
Project: Burn Debris Sample / SC0459			Page 3 of 3

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
Method Blank	**097-01-002-10,127**	**N/A**	**Solid**	**ICP 5300**	**11/28/07**	**11/28/07**	**071128L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Lead	ND	0.500	0.0527	1	
Arsenic	0.199	0.750	0.130	1	J	Molybdenum	ND	0.250	0.0206	1	
Barium	ND	0.500	0.164	1		Nickel	ND	0.250	0.0346	1	
Beryllium	ND	0.250	0.00368	1		Selenium	0.309	0.750	0.175	1	J
Cadmium	ND	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	ND	0.250	0.0291	1		Thallium	0.159	0.750	0.0987	1	J
Cobalt	ND	0.250	0.00859	1		Vanadium	0.0104	0.250	0.00934	1	J
Copper	ND	0.500	0.0469	1		Zinc	ND	1.00	0.177	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/27/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-1933
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Sample / SC0459			Page 1 of 2

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-34-11262007	**07-11-1933-1-A**	**11/26/07**	**Solid**	**HPLC 5**	**11/27/07**	**11/28/07**	**071127L01**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	200	15	3.9	1		Benzo (a) Anthracene	7.4	10	3.2	1	J
Acenaphthylene	210	30	6.8	1		Chrysene	4.0	10	3.2	1	J
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	12	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	47	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	6.8	10	3.5	1	J	Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	62	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	53	40-160	

SD-31-11262007	**07-11-1933-2-A**	**11/26/07**	**Solid**	**HPLC 5**	**11/27/07**	**11/28/07**	**071127L01**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	210	15	3.9	1		Benzo (a) Anthracene	14	10	3.2	1	
Acenaphthylene	130	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	140	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	60	10	3.3	1		Benzo (a) Pyrene	29	10	3.1	1	
Anthracene	5.9	10	3.5	1	J	Dibenz (a,h) Anthracene	250	10	3.7	1	
Fluoranthene	11	10	3.4	1		Benzo (g,h,i) Perylene	47	10	4.0	1	
Pyrene	93	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	52	40-160	

SD-09-11262007	**07-11-1933-3-A**	**11/26/07**	**Solid**	**HPLC 5**	**11/27/07**	**11/29/07**	**071127L01**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	770	30	7.8	2		Benzo (a) Anthracene	170	20	6.4	2	
Acenaphthylene	790	60	14	2		Chrysene	26	20	6.4	2	
Acenaphthene	1800	30	10	2		Benzo (b) Fluoranthene	ND	20	6.5	2	
Fluorene	480	20	6.4	2		Benzo (k) Fluoranthene	22	20	6.4	2	
Phenanthrene	1100	20	6.7	2		Benzo (a) Pyrene	34	20	6.2	2	
Anthracene	240	20	7.0	2		Dibenz (a,h) Anthracene	90	20	7.5	2	
Fluoranthene	73	20	6.8	2		Benzo (g,h,i) Perylene	19	20	7.9	2	J
Pyrene	510	20	5.8	2		Indeno (1,2,3-c,d) Pyrene	22	20	7.1	2	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	141	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/27/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-1933
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Sample / SC0459			Page 2 of 2

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-08-11262007	**07-11-1933-4-A**	**11/26/07**	**Solid**	**HPLC 5**	**11/27/07**	**11/28/07**	**071127L01**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	370	15	3.9	1		Benzo (a) Anthracene	61	10	3.2	1	
Acenaphthylene	240	30	6.8	1		Chrysene	39	10	3.2	1	
Acenaphthene	25	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	12	10	3.2	1		Benzo (k) Fluoranthene	4.2	10	3.2	1	J
Phenanthrene	100	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	7.8	10	3.5	1	J	Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	650	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	110	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	43	40-160	

SD-40-11262007	**07-11-1933-5-A**	**11/26/07**	**Solid**	**HPLC 5**	**11/27/07**	**11/28/07**	**071127L01**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	460	15	3.9	1		Benzo (a) Anthracene	9.7	10	3.2	1	J
Acenaphthylene	150	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	83	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	18	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	18	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	ND	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	14	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	45	40-160	

Method Blank	**099-07-002-972**	**N/A**	**Solid**	**HPLC 5**	**11/27/07**	**11/27/07**	**071127L01**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	ND	15	3.9	1		Benzo (a) Anthracene	ND	10	3.2	1	
Acenaphthylene	ND	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	ND	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	ND	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	ND	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	ND	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	90	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/27/07
Work Order No: 07-11-1933

Project: Burn Debris Sample / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix
SD-34-11262007	**07-11-1933-1**	**11/26/07**	**Solid**

Comment(s): (24) Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent (24)	ND	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

Method Blank	**N/A**	**Solid**

Comment(s): (24) Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent (24)	ND	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/27/07
Work Order No:	07-11-1933
Preparation:	EPA 3050B
Method:	EPA 6010B

Project Burn Debris Sample / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
07-11-1892-32	**Solid**	**ICP 5300**	**11/28/07**	**11/28/07**	**071128S06**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	63	61	50-115	3	0-20	
Arsenic	89	88	75-125	0	0-20	
Barium	4X	4X	75-125	4X	0-20	Q
Beryllium	92	93	75-125	1	0-20	
Cadmium	94	94	75-125	0	0-20	
Chromium	87	86	75-125	1	0-20	
Cobalt	93	92	75-125	1	0-20	
Copper	94	96	75-125	1	0-20	
Lead	90	90	75-125	0	0-20	
Molybdenum	91	90	75-125	1	0-20	
Nickel	93	91	75-125	2	0-20	
Selenium	77	74	75-125	5	0-20	3
Silver	88	89	75-125	1	0-20	
Thallium	81	82	75-125	2	0-20	
Vanadium	94	91	75-125	1	0-20	
Zinc	42	39	75-125	1	0-20	3

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/27/07
Work Order No:	07-11-1933
Preparation:	EPA 7471A Total
Method:	EPA 7471A

Project Burn Debris Sample / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
07-11-1878-3	**Solid**	**Mercury**	**11/28/07**	**11/28/07**	**071128S02**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	115	115	84-138	1	0-7	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/27/07
Work Order No:	07-11-1933
Preparation:	EPA 3545
Method:	EPA 8310

Project Burn Debris Sample / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SD-31-11262007	**Solid**	**HPLC 5**	**11/27/07**	**11/28/07**	**071127S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	40	38	40-160	1	0-20	3
Acenaphthylene	36	35	40-160	1	0-20	3
Acenaphthene	179	150	40-160	17	0-20	3
Fluorene	0	0	40-160	2	0-20	3
Phenanthrene	7	6	40-160	1	0-20	3
Anthracene	19	19	40-160	1	0-20	3
Fluoranthene	0	0	40-160	1	0-20	3
Pyrene	0	0	40-160	1	0-20	3
Benzo (a) Anthracene	0	0	40-160	3	0-20	3
Chrysene	2	2	40-160	0	0-20	3
Benzo (b) Fluoranthene	8	7	40-160	12	0-20	3
Benzo (k) Fluoranthene	5	5	40-160	1	0-20	3
Benzo (a) Pyrene	0	0	40-160	4	0-20	3
Dibenz (a,h) Anthracene	0	0	40-160	0	0-20	3
Benzo (g,h,i) Perylene	0	0	40-160	1	0-20	3
Indeno (1,2,3-c,d) Pyrene	14	13	40-160	11	0-20	3

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: N/A
Work Order No: 07-11-1933

Project: Burn Debris Sample / SC0459

Matrix: Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	MS% REC	MSD % REC	%REC CL	RPD	RPD CL	Qualifiers
Chromium, Hexavalent	EPA 7196A	07-11-2096-13	12/12/07	12/12/07	86	85	70-130	1	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

GeoSyntec Consultants		Date Received:	N/A
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-1933
San Diego, CA 92127-2116		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: Burn Debris Sample / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
097-01-002-10,127	**Solid**	**ICP 5300**	**11/28/07**	**071128-I-06**	**071128L06**

Parameter	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Antimony	25.0	24.7	99	80-120	
Arsenic	25.0	25.0	100	80-120	
Barium	25.0	26.3	105	80-120	
Beryllium	25.0	24.6	98	80-120	
Cadmium	25.0	25.6	102	80-120	
Chromium	25.0	25.7	103	80-120	
Cobalt	25.0	25.9	104	80-120	
Copper	25.0	23.7	95	80-120	
Lead	25.0	26.4	106	80-120	
Molybdenum	25.0	26.1	105	80-120	
Nickel	25.0	27.1	108	80-120	
Selenium	25.0	24.2	97	80-120	
Silver	12.5	12.1	97	80-120	
Thallium	25.0	25.4	102	80-120	
Vanadium	25.0	25.0	100	80-120	
Zinc	25.0	27.1	108	80-120	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants		Date Received:	N/A
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-1933
San Diego, CA 92127-2116		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: Burn Debris Sample / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-04-007-5,144	**Solid**	**Mercury**	**11/28/07**	**11/28/07**	**071128L02**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	110	109	87-117	1	0-3	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	N/A
Work Order No:	07-11-1933
Preparation:	EPA 3545
Method:	EPA 8310

Project: Burn Debris Sample / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-002-972	**Solid**	**HPLC 5**	**11/27/07**	**11/27/07**	**071127L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	104	97	40-160	7	0-20	
Acenaphthylene	92	92	40-160	0	0-20	
Acenaphthene	95	96	40-160	0	0-20	
Fluorene	96	96	40-160	0	0-20	
Phenanthrene	92	92	40-160	0	0-20	
Anthracene	95	95	40-160	1	0-20	
Fluoranthene	91	90	40-160	1	0-20	
Pyrene	96	96	40-160	1	0-20	
Benzo (a) Anthracene	97	96	40-160	2	0-20	
Chrysene	102	100	40-160	1	0-20	
Benzo (b) Fluoranthene	49	48	40-160	2	0-20	
Benzo (k) Fluoranthene	97	95	40-160	2	0-20	
Benzo (a) Pyrene	94	93	40-160	2	0-20	
Dibenz (a,h) Anthracene	98	97	40-160	2	0-20	
Benzo (g,h,i) Perylene	98	96	40-160	1	0-20	
Indeno (1,2,3-c,d) Pyrene	90	88	40-160	2	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: N/A
Work Order No: 07-11-1933

Project: Burn Debris Sample / SC0459

Matrix : Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Chromium, Hexavalent	EPA 7196A	099-05-001-2,605	12/12/07	12/12/07	20.0	18.0	90	80-120	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 07-11-1933

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Stephen Nowak

From: VWittig@Geosyntec.com
Sent: Tuesday, December 11, 2007 1:35 PM
To: Stephen Nowak
Cc: SMcCarthy@Geosyntec.com; JSchwartz@Geosyntec.com
Subject: Hexavalent Chromium Analyses
Importance: High

Hi Steve,
Here is the list of 14 samples we need to have additionally analyzed for hexavalent chromium by EPA Method 7196A:

SD-56-11282007
SD-02-11282007
SD-12-11272007
SD-20-11282007
SD-34-11262007
SD-44-11282007
SD-51-11282007
SB-05-11292007
SB-07-11292007
SB-20-11282007
SB-21-11292007
SB-24-11292007
SB-36-11292007
SB-43-11292007

We discussed a 24 hour TAT, but a 48 hour TAT will work with our schedule. Therefore, can you provide results by Thursday afternoon?

Veryl Wittig, PG 7115, CHG 723
Hydrogeologist
Geosyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127
P: 858.674.6559 x 203
F: 858.674.6586
M: 619.884.6552
vwittig@geosyntec.com
This electronic mail message contains information that (a) is or may be LEGALLY PRIVILEGED, CONFIDENTIAL, PROPRIETARY IN NATURE, OR OTHERWISE PROTECTED BY LAW FROM DISCLOSURE, and (b) is intended only for the use of the Addressee(s) named herein. If you are not the intended recipient, an addressee, or the person responsible for delivering this to an addressee, you are hereby notified that reading, using, copying, or distributing any part of this message is strictly prohibited. If you have received this electronic mail message in error, please contact us immediately and take the steps necessary to delete the message completely from your computer system.

Document Number: 2207

(1933)

Analysis Request and Chain of Custody Record

Project Name: Burn Debris Sample	Project Number: SC0459
Samplers Names: E.O.	Project Contact: Veryl Wittig
Laboratory Name: CalScience	Lab Contact: Steve Nowak
Lab Address: 7440 Lincoln Way, Garden Grove CA 92841-1427	Lab Phone: (714) 895-5494
	Carrier/Waybill No.: Pick Up

Page 1 of 1

White copy: to accompany samples

Yellow copy: field copy

Required Analyses: VOCs by ____; Metals 6010B; SVOCs by 8270; PAH 8310

Bottle Type and Volume/Preservative: GLASS 8oz; GLASS 8oz

Sample Name	Date	Time	Sample Type	VOCs by ____	Metals 6010B	SVOCs by 8270	PAH 8310							Comments	Lab Use Only: Condition of Bottles
SD-34-112602007	11/26/07	1350	Soil		1		1								
SD-31-112602007	11/26/07	1430	Soil		1		1								
SD-09-112602007	11/26/07	1525	Soil		1		1								
SD-08-112602007	11/26/07	1550	Soil		1		1								
SD-40-112602007	11/26/07	1630	Soil		1		1								

Special Instructions:

Turn-around Time: ☐ Normal ☐ Rush: _____

1. Relinquished by (Signature/Affiliation) Rebecca Lynn Geosyntec	Date 11-27-7 Time 1140	1. Received by (Signature/Affiliation) CEL	Date 11-27-07 Time 1140
2. Relinquished by (Signature/Affiliation)	Date 11-27-7 Time 1555	2. Received by (Signature/Affiliation) CEL	Date 11-27-7 Time 1555
3. Relinquished by (Signature/Affiliation)	Date Time	3. Received by (Signature/Affiliation)	Date Time

Geosyntec consultants 10875 Rancho Bernardo Road, Suite 200, San Diego, CA 92127 (858) 674-6559 Fax: (858) 674-6586

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 07 - 1 1 - 1 9 3 3

Cooler 1 of 1

SAMPLE RECEIPT FORM

CLIENT: Geosyntec **DATE:** 11-27-07

TEMPERATURE – SAMPLES RECEIVED BY:

CALSCIENCE COURIER:

_____ Chilled, cooler with temperature blank provided.
_____ Chilled, cooler without temperature blank.
✓ Chilled and placed in cooler with wet ice.
_____ Ambient and placed in cooler with wet ice.
_____ Ambient temperature.

3.8 °C Temperature blank.

LABORATORY (Other than Calscience Courier):

_____ °C Temperature blank.
_____ °C IR thermometer.
_____ Ambient temperature.

Initial: [signature]

CUSTODY SEAL INTACT:

Sample(s): ✓ Cooler: _____ No (Not Intact) : _____ Not Present: N/A

Initial: [signature]

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	✓		
Sampler's name indicated on COC	✓		
Sample container label(s) consistent with custody papers	✓		
Sample container(s) intact and good condition	✓		
Correct containers and volume for analyses requested	✓		
Proper preservation noted on sample label(s)			✓
VOA vial(s) free of headspace.			✓
Tedlar bag(s) free of condensation			✓

Initial: [signature]

COMMENTS:

Calscience Environmental Laboratories, Inc.

Supplemental Report 1

December 14, 2007

Additional requested analyses have been added to the original report.

Veryl Wittig
GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Subject: **Calscience Work Order No.: 07-11-2008**
Client Reference: Burn Debris Assessment / SC0459

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/28/2007 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Stephen Nowak
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2008
Preparation:	EPA 3050B / EPA 7471A Total
Method:	EPA 6010B / EPA 7471A
Units:	mg/kg

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-19-112807	**07-11-2008-1-A**	**11/28/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 7:46:47 PM with batch 071129L08

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	2.07	0.750	0.191	1		Mercury	0.00887	0.0835	0.00130	1	J
Arsenic	0.807	0.750	0.130	1		Molybdenum	1.55	0.250	0.0206	1	B
Barium	145	0.500	0.164	1		Nickel	20.5	0.250	0.0346	1	
Beryllium	0.307	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	52.1	0.500	0.00988	1		Silver	2.40	0.250	0.0209	1	
Chromium	11.1	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	5.96	0.250	0.00859	1	B	Vanadium	27.9	0.250	0.00934	1	
Copper	9800	50.0	4.69	100		Zinc	159000	100	17.7	100	
Lead	79.3	0.500	0.0527	1	B						

SB-28-112807	**07-11-2008-2-A**	**11/28/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 7:53:29 PM with batch 071129L08

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	14.5	0.750	0.191	1		Mercury	ND	0.0835	0.00130	1	
Arsenic	5.31	0.750	0.130	1		Molybdenum	20.8	0.250	0.0206	1	B
Barium	297	0.500	0.164	1		Nickel	18.3	0.250	0.0346	1	
Beryllium	0.183	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	9.78	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	4.41	0.250	0.00859	1	B	Vanadium	48.7	0.250	0.00934	1	
Copper	225	0.500	0.0469	1		Zinc	485	1.00	0.177	1	
Lead	23.0	0.500	0.0527	1	B						

SB-28C-112807	**07-11-2008-3-A**	**11/28/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 7:55:45 PM with batch 071129L08

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	10.9	0.750	0.191	1		Mercury	ND	0.0835	0.00130	1	
Arsenic	5.95	0.750	0.130	1		Molybdenum	21.0	0.250	0.0206	1	B
Barium	254	0.500	0.164	1		Nickel	20.5	0.250	0.0346	1	
Beryllium	0.207	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	7.48	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	4.58	0.250	0.00859	1	B	Vanadium	54.8	0.250	0.00934	1	
Copper	268	0.500	0.0469	1		Zinc	408	1.00	0.177	1	
Lead	23.2	0.500	0.0527	1	B						

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/28/07
Work Order No: 07-11-2008
Preparation: EPA 3050B / EPA 7471A Total
Method: EPA 6010B / EPA 7471A
Units: mg/kg

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-11-112807	**07-11-2008-4-A**	**11/28/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 7:57:57 PM with batch 071129L08

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Mercury	0.00706	0.0835	0.00130	1	J
Arsenic	2.69	0.750	0.130	1		Molybdenum	1.11	0.250	0.0206	1	B
Barium	196	0.500	0.164	1		Nickel	24.5	0.250	0.0346	1	
Beryllium	0.256	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	0.0595	0.500	0.00988	1	J	Silver	ND	0.250	0.0209	1	
Chromium	16.3	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	4.30	0.250	0.00859	1	B	Vanadium	25.4	0.250	0.00934	1	
Copper	383	0.500	0.0469	1		Zinc	1060	1.00	0.177	1	
Lead	32.5	0.500	0.0527	1	B						

SB-29-112807	**07-11-2008-5-A**	**11/28/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 8:00:06 PM with batch 071129L08

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Mercury	0.00192	0.0835	0.00130	1	J
Arsenic	21.9	0.750	0.130	1		Molybdenum	6.41	0.250	0.0206	1	B
Barium	431	0.500	0.164	1		Nickel	14.0	0.250	0.0346	1	
Beryllium	0.336	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	0.831	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	20.9	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	9.82	0.250	0.00859	1	B	Vanadium	22.6	0.250	0.00934	1	
Copper	7180	50.0	4.69	100		Zinc	7390	100	17.7	100	
Lead	68.7	0.500	0.0527	1	B						

SB-20-112807	**07-11-2008-6-A**	**11/28/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 8:02:15 PM with batch 071129L08

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Mercury	0.00658	0.0835	0.00130	1	J
Arsenic	2.73	0.750	0.130	1		Molybdenum	0.712	0.250	0.0206	1	B
Barium	1570	50.0	16.4	100		Nickel	13.5	0.250	0.0346	1	
Beryllium	0.634	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	0.220	0.500	0.00988	1	J	Silver	0.432	0.250	0.0209	1	
Chromium	19.2	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	10.6	0.250	0.00859	1	B	Vanadium	33.5	0.250	0.00934	1	
Copper	14700	50.0	4.69	100		Zinc	2220	100	17.7	100	
Lead	80.3	0.500	0.0527	1	B						

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2008
Preparation:	EPA 3050B / EPA 7471A Total
Method:	EPA 6010B / EPA 7471A
Units:	mg/kg
	Page 3 of 3

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-39-112807	**07-11-2008-7-A**	**11/28/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 8:04:24 PM with batch 071129L08

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Mercury	0.0212	0.0835	0.00130	1	J
Arsenic	2.57	0.750	0.130	1		Molybdenum	4.17	0.250	0.0206	1	B
Barium	344	0.500	0.164	1		Nickel	29.6	0.250	0.0346	1	
Beryllium	0.315	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	1.29	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	41.1	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	5.73	0.250	0.00859	1	B	Vanadium	42.4	0.250	0.00934	1	
Copper	792	0.500	0.0469	1		Zinc	1150	1.00	0.177	1	
Lead	58.5	0.500	0.0527	1	B						

Method Blank	**099-04-007-5,151**	**N/A**	**Solid**	**Mercury**	**11/29/07**	**11/29/07**	**071129L08**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual
Mercury	ND	0.0835	0.00130	1	

Method Blank	**097-01-002-10,138**	**N/A**	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Lead	0.0934	0.500	0.0527	1	J
Arsenic	ND	0.750	0.130	1		Molybdenum	0.0245	0.250	0.0206	1	J
Barium	ND	0.500	0.164	1		Nickel	ND	0.250	0.0346	1	
Beryllium	ND	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	ND	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	0.0218	0.250	0.00859	1	J	Vanadium	ND	0.250	0.00934	1	
Copper	ND	0.500	0.0469	1		Zinc	ND	1.00	0.177	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2008
Preparation:	EPA 3545
Method:	EPA 8310
Units:	ug/kg

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-19-112807	**07-11-2008-1-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/28/07**	**11/29/07**	**071128L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	860	15	3.9	1		Benzo (a) Anthracene	7.7	10	3.2	1	J
Acenaphthylene	350	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	250	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	12	10	3.2	1	B	Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	52	10	3.3	1	B	Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	17	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	4.4	10	3.4	1	J	Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	10	10	2.9	1	B	Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	80	40-160	

SB-28-112807	**07-11-2008-2-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/28/07**	**11/30/07**	**071128L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	4600	150	39	10		Benzo (a) Anthracene	93	100	32	10	J
Acenaphthylene	2800	300	68	10		Chrysene	ND	100	32	10	
Acenaphthene	620	150	50	10		Benzo (b) Fluoranthene	ND	100	32	10	
Fluorene	200	100	32	10	B	Benzo (k) Fluoranthene	ND	100	32	10	
Phenanthrene	290	100	33	10	B	Benzo (a) Pyrene	ND	100	31	10	
Anthracene	110	100	35	10		Dibenz (a,h) Anthracene	ND	100	37	10	
Fluoranthene	52	100	34	10	J	Benzo (g,h,i) Perylene	ND	100	40	10	
Pyrene	ND	100	29	10		Indeno (1,2,3-c,d) Pyrene	ND	100	35	10	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	235	40-160	2

SB-28C-112807	**07-11-2008-3-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/28/07**	**11/30/07**	**071128L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	4600	150	39	10		Benzo (a) Anthracene	92	100	32	10	J
Acenaphthylene	2500	300	68	10		Chrysene	ND	100	32	10	
Acenaphthene	580	150	50	10		Benzo (b) Fluoranthene	ND	100	32	10	
Fluorene	200	100	32	10	B	Benzo (k) Fluoranthene	ND	100	32	10	
Phenanthrene	320	100	33	10	B	Benzo (a) Pyrene	ND	100	31	10	
Anthracene	120	100	35	10		Dibenz (a,h) Anthracene	ND	100	37	10	
Fluoranthene	62	100	34	10	J	Benzo (g,h,i) Perylene	ND	100	40	10	
Pyrene	29	100	29	10	J,B	Indeno (1,2,3-c,d) Pyrene	ND	100	35	10	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	244	40-160	2

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2008
Preparation:	EPA 3545
Method:	EPA 8310
Units:	ug/kg

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-11-112807	**07-11-2008-4-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/28/07**	**11/30/07**	**071128L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	600	150	39	10		Benzo (a) Anthracene	ND	100	32	10	
Acenaphthylene	370	300	68	10		Chrysene	ND	100	32	10	
Acenaphthene	1000	150	50	10		Benzo (b) Fluoranthene	ND	100	32	10	
Fluorene	ND	100	32	10		Benzo (k) Fluoranthene	ND	100	32	10	
Phenanthrene	ND	100	33	10		Benzo (a) Pyrene	ND	100	31	10	
Anthracene	ND	100	35	10		Dibenz (a,h) Anthracene	ND	100	37	10	
Fluoranthene	86	100	34	10	J	Benzo (g,h,i) Perylene	ND	100	40	10	
Pyrene	ND	100	29	10		Indeno (1,2,3-c,d) Pyrene	ND	100	35	10	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	58	40-160	

SB-29-112807	**07-11-2008-5-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/28/07**	**11/30/07**	**071128L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	440	150	39	10		Benzo (a) Anthracene	88	100	32	10	J
Acenaphthylene	1200	300	68	10		Chrysene	ND	100	32	10	
Acenaphthene	2600	150	50	10		Benzo (b) Fluoranthene	ND	100	32	10	
Fluorene	ND	100	32	10		Benzo (k) Fluoranthene	ND	100	32	10	
Phenanthrene	ND	100	33	10		Benzo (a) Pyrene	ND	100	31	10	
Anthracene	ND	100	35	10		Dibenz (a,h) Anthracene	ND	100	37	10	
Fluoranthene	ND	100	34	10		Benzo (g,h,i) Perylene	ND	100	40	10	
Pyrene	150	100	29	10	B	Indeno (1,2,3-c,d) Pyrene	ND	100	35	10	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	42	40-160	

SB-20-112807	**07-11-2008-6-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/28/07**	**11/30/07**	**071128L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	820	150	39	10		Benzo (a) Anthracene	73	100	32	10	J
Acenaphthylene	2100	300	68	10		Chrysene	ND	100	32	10	
Acenaphthene	720	150	50	10		Benzo (b) Fluoranthene	ND	100	32	10	
Fluorene	44	100	32	10	J,B	Benzo (k) Fluoranthene	ND	100	32	10	
Phenanthrene	95	100	33	10	J,B	Benzo (a) Pyrene	ND	100	31	10	
Anthracene	42	100	35	10	J	Dibenz (a,h) Anthracene	ND	100	37	10	
Fluoranthene	200	100	34	10		Benzo (g,h,i) Perylene	ND	100	40	10	
Pyrene	ND	100	29	10		Indeno (1,2,3-c,d) Pyrene	ND	100	35	10	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	68	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/28/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2008
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Assessment / SC0459			Page 3 of 3

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-39-112807	**07-11-2008-7-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/28/07**	**11/30/07**	**071128L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	1700	150	39	10		Benzo (a) Anthracene	ND	100	32	10	
Acenaphthylene	1200	300	68	10		Chrysene	ND	100	32	10	
Acenaphthene	1200	150	50	10		Benzo (b) Fluoranthene	ND	100	32	10	
Fluorene	ND	100	32	10		Benzo (k) Fluoranthene	ND	100	32	10	
Phenanthrene	86	100	33	10	J,B	Benzo (a) Pyrene	ND	100	31	10	
Anthracene	ND	100	35	10		Dibenz (a,h) Anthracene	ND	100	37	10	
Fluoranthene	ND	100	34	10		Benzo (g,h,i) Perylene	ND	100	40	10	
Pyrene	ND	100	29	10		Indeno (1,2,3-c,d) Pyrene	ND	100	35	10	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	65	40-160	

Method Blank	**099-07-002-973**	**N/A**	**Solid**	**HPLC 5**	**11/28/07**	**11/29/07**	**071128L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	ND	15	3.9	1		Benzo (a) Anthracene	ND	10	3.2	1	
Acenaphthylene	ND	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	5.2	10	3.2	1	J	Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	5.8	10	3.3	1	J	Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	ND	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	5.2	10	2.9	1	J	Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	92	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/28/07
Work Order No: 07-11-2008

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix
SB-20-112807	**07-11-2008-6**	**11/28/07**	**Solid**

Comment(s): (24) Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent (24)	ND	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

Method Blank	**N/A**	**Solid**

Comment(s): (24) Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent (24)	ND	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/28/07
Work Order No: 07-11-2008
Preparation: EPA 3050B
Method: EPA 6010B

Project Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SB-19-112807	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129S10**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	37	31	50-115	15	0-20	3
Arsenic	100	104	75-125	4	0-20	
Barium	4X	4X	75-125	4X	0-20	Q
Beryllium	97	98	75-125	1	0-20	
Cadmium	107	156	75-125	14	0-20	3
Chromium	99	96	75-125	2	0-20	
Cobalt	92	91	75-125	1	0-20	
Copper	4X	4X	75-125	4X	0-20	Q
Lead	139	398	75-125	44	0-20	3,4
Molybdenum	87	85	75-125	2	0-20	
Nickel	93	92	75-125	1	0-20	
Selenium	98	96	75-125	2	0-20	
Silver	88	88	75-125	0	0-20	
Thallium	16	11	75-125	35	0-20	3,4
Vanadium	112	121	75-125	4	0-20	
Zinc	4X	4X	75-125	4X	0-20	Q

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2008
Preparation:	EPA 7471A Total
Method:	EPA 7471A

Project Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SB-19-112807	**Solid**	**Mercury**	**11/29/07**	**11/29/07**	**071129S08**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	69	69	84-138	1	0-7	3

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received	11/28/07
Work Order No:	07-11-2008
Preparation:	EPA 7471A Total
Method:	EPA 7471A

Project: Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
SB-19-112807	**Solid**	**Mercury**	**11/29/07**	**11/30/07**	**071129S08**

Parameter	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	109	108	75-125	1	0-7	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/28/07
Work Order No: 07-11-2008
Preparation: EPA 3545
Method: EPA 8310

Project Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
07-11-2009-1	**Solid**	**HPLC 5**	**11/28/07**	**11/30/07**	**071128S12**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	35	35	40-160	0	0-20	3
Acenaphthylene	37	36	40-160	0	0-20	3
Acenaphthene	108	109	40-160	1	0-20	
Fluorene	74	74	40-160	0	0-20	
Phenanthrene	35	35	40-160	0	0-20	3
Anthracene	23	23	40-160	0	0-20	3
Fluoranthene	72	72	40-160	0	0-20	
Pyrene	9	8	40-160	2	0-20	3
Benzo (a) Anthracene	10	10	40-160	3	0-20	3
Chrysene	3	3	40-160	10	0-20	3
Benzo (b) Fluoranthene	2	1	40-160	59	0-20	3,4
Benzo (k) Fluoranthene	1	1	40-160	6	0-20	3
Benzo (a) Pyrene	2	2	40-160	3	0-20	3
Dibenz (a,h) Anthracene	3	4	40-160	9	0-20	3
Benzo (g,h,i) Perylene	1	0	40-160	175	0-20	3,4
Indeno (1,2,3-c,d) Pyrene	5	5	40-160	2	0-20	3

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: N/A
Work Order No: 07-11-2008

Project: Burn Debris Assessment / SC0459

Matrix: Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	MS% REC	MSD % REC	%REC CL	RPD	RPD CL	Qualifiers
Chromium, Hexavalent	EPA 7196A	07-11-2096-13	12/12/07	12/12/07	86	85	70-130	1	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants		Date Received:	N/A
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2008
San Diego, CA 92127-2116		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-01-002-10,138	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L10**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	95	100	80-120	5	0-20	
Arsenic	101	97	80-120	4	0-20	
Barium	103	101	80-120	2	0-20	
Beryllium	95	96	80-120	1	0-20	
Cadmium	102	101	80-120	1	0-20	
Chromium	102	101	80-120	1	0-20	
Cobalt	105	105	80-120	0	0-20	
Copper	103	95	80-120	8	0-20	
Lead	102	103	80-120	0	0-20	
Molybdenum	103	101	80-120	2	0-20	
Nickel	109	107	80-120	1	0-20	
Selenium	97	95	80-120	2	0-20	
Silver	95	96	80-120	0	0-20	
Thallium	102	100	80-120	2	0-20	
Vanadium	97	97	80-120	0	0-20	
Zinc	114	104	80-120	9	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants		Date Received:	N/A
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2008
San Diego, CA 92127-2116		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-04-007-5,151	**Solid**	**Mercury**	**11/29/07**	**11/29/07**	**071129L08**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	105	105	87-117	0	0-3	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	N/A
Work Order No:	07-11-2008
Preparation:	EPA 3545
Method:	EPA 8310

Project: Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-002-973	**Solid**	**HPLC 5**	**11/28/07**	**11/29/07**	**071128L12**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	95	99	40-160	4	0-20	
Acenaphthylene	92	93	40-160	1	0-20	
Acenaphthene	96	97	40-160	2	0-20	
Fluorene	96	97	40-160	1	0-20	
Phenanthrene	92	93	40-160	1	0-20	
Anthracene	95	97	40-160	2	0-20	
Fluoranthene	91	92	40-160	1	0-20	
Pyrene	96	97	40-160	1	0-20	
Benzo (a) Anthracene	96	97	40-160	1	0-20	
Chrysene	102	102	40-160	0	0-20	
Benzo (b) Fluoranthene	49	49	40-160	1	0-20	
Benzo (k) Fluoranthene	96	97	40-160	0	0-20	
Benzo (a) Pyrene	94	95	40-160	1	0-20	
Dibenz (a,h) Anthracene	98	98	40-160	0	0-20	
Benzo (g,h,i) Perylene	97	98	40-160	1	0-20	
Indeno (1,2,3-c,d) Pyrene	89	90	40-160	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: N/A
Work Order No: 07-11-2008

Project: Burn Debris Assessment / SC0459

Matrix : Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Chromium, Hexavalent	EPA 7196A	099-05-001-2,605	12/12/07	12/12/07	20.0	18.0	90	80-120	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 07-11-2008

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Stephen Nowak

From: VWittig@Geosyntec.com
Sent: Tuesday, December 11, 2007 1:35 PM
To: Stephen Nowak
Cc: SMcCarthy@Geosyntec.com; JSchwartz@Geosyntec.com
Subject: Hexavalent Chromium Analyses
Importance: High

Hi Steve,
Here is the list of 14 samples we need to have additionally analyzed for hexavalent chromium by EPA Method 7196A:

SD-56-11282007
SD-02-11282007
SD-12-11272007
SD-20-11282007
SD-34-11262007
SD-44-11282007
SD-51-11282007
SB-05-11292007
SB-07-11292007
SB-20-11282007
SB-21-11292007
SB-24-11292007
SB-36-11292007
SB-43-11292007

We discussed a 24 hour TAT, but a 48 hour TAT will work with our schedule. Therefore, can you provide results by Thursday afternoon?

Veryl Wittig, PG 7115, CHG 723
Hydrogeologist
Geosyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127
P: 858.674.6559 x 203
F: 858.674.6586
M: 619.884.6552
vwittig@geosyntec.com
This electronic mail message contains information that (a) is or may be LEGALLY PRIVILEGED, CONFIDENTIAL, PROPRIETARY IN NATURE, OR OTHERWISE PROTECTED BY LAW FROM DISCLOSURE, and (b) is intended only for the use of the Addressee(s) named herein. If you are not the intended recipient, an addressee, or the person responsible for delivering this to an addressee, you are hereby notified that reading, using, copying, or distributing any part of this message is strictly prohibited. If you have received this electronic mail message in error, please contact us immediately and take the steps necessary to delete the message completely from your computer system.

Document Number: 2212 (2008)

Analysis Request and Chain of Custody Record

Page 1 of 7

Project Name: Burned Debris Assessment	Project Number: SE0459
Samplers Names: Ortenberg & Warnecke	Project Contact: Veryl Wittig
Laboratory Name: CalScience	Lab Contact: Steve Nowak
Lab Address: Garden Grove	Lab Phone: 714-
	Carrier/Waybill No.

White copy: to accompany samples

Yellow copy: field copy

Sample Name	Date	Time	Sample Type	VOCs by ___	Metals 6010B	SVOCs by 8270	THe 22 Metals (TTLC)	PAHs/8310						Comments	Lab Use Only: Condition of Bottles
Bottle Type and Volume/Preservative					8oz		8oz	8oz							
SB- 19 - 112807	11.28.07	07:25	Soil		X		X	X							
SB- 28 - 112807	↓	08:00	↓		X		X	X							
SB- 28C - 112807		08:05			X		X	X							
SB- 11 - 112807		08:30			X		X	X							
SB- 29 - 112807		09:35			X		X	X							
SB- 20 - 112807		10:00			X		X	X							
SB- 39 - 112807		10:32			X		X	X							
~~SB - 112807~~															
SB															
				Sue 11.28.07											

Special Instructions: If Arsenic concentration < MDL, then analyze by 7010. Soil is ash

Turn-around Time: 5 day standard

☒ Normal ☐ Rush: _____

1. Relinquished by (Signiture/Affiliation): E. Warnecke Geosyntec	Date 11.28.07 Time 12:27	1. Received by (Signiture/Affiliation): Aby Mayer CEL	Date 11/28/07 Time 12:30
2. Relinquished by (Signiture/Affiliation): Aby Mayer CEL	Date 11/28/07 Time 15:00	2. Received by (Signiture/Affiliation): [illegible]	Date 11/28/07 Time 1500
3. Relinquished by (Signiture/Affiliation):	Date Time	3. Received by (Signiture/Affiliation):	Date Time

Geosyntec consultants 10875 Rancho Bernardo Road, Suite 200, San Diego, CA 92127 (858) 674-6559 Fax: (858) 674-6586

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 07 - 11 - 2008

Cooler 1 of 1

SAMPLE RECEIPT FORM

CLIENT: GEOSYNTECH **DATE:** 11/28/07

TEMPERATURE – SAMPLES RECEIVED BY:

CALSCIENCE COURIER:

- ____ Chilled, cooler with temperature blank provided.
- ✓ Chilled, cooler without temperature blank.
- ____ Chilled and placed in cooler with wet ice.
- ____ Ambient and placed in cooler with wet ice.
- ____ Ambient temperature.

LABORATORY (Other than Calscience Courier):

- ____ °C Temperature blank.
- ____ °C IR thermometer.
- ____ Ambient temperature.

2.5 °C Temperature blank. Initial: AM

CUSTODY SEAL INTACT:

Sample(s): ____ Cooler: ____ No (Not Intact) : ____ Not Present: ✓

Initial: AM

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	✓		
Sampler's name indicated on COC	✓		
Sample container label(s) consistent with custody papers	✓		
Sample container(s) intact and good condition	✓		
Correct containers and volume for analyses requested	✓		
Proper preservation noted on sample label(s)			✓
VOA vial(s) free of headspace.			✓
Tedlar bag(s) free of condensation			✓

Initial: AM

COMMENTS:

Calscience Environmental Laboratories, Inc.

Supplemental Report 1

December 13, 2007

Veryl Wittig
GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Subject: **Calscience Work Order No.: 07-11-2009**
Client Reference: Burn Debris Assessment / SC0459

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/28/2007 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Stephen Nowak
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2009
Preparation:	EPA 3050B / EPA 7471A Total
Method:	EPA 6010B / EPA 7471A
Units:	mg/kg

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-18-112707	**07-11-2009-1-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 8:06:36 PM with batch 071129L08

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	16.7	0.750	0.191	1		Mercury	ND	0.0835	0.00130	1	
Arsenic	2.20	0.750	0.130	1		Molybdenum	0.993	0.250	0.0206	1	B
Barium	184	0.500	0.164	1		Nickel	22.5	0.250	0.0346	1	
Beryllium	0.323	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	0.849	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	11.6	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	8.54	0.250	0.00859	1	B	Vanadium	23.0	0.250	0.00934	1	
Copper	2930	5.00	0.469	10		Zinc	869	1.00	0.177	1	
Lead	464	0.500	0.0527	1	B						

SB-32-112707	**07-11-2009-2-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 8:13:17 PM with batch 071129L08

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	1.63	0.750	0.191	1		Mercury	ND	0.0835	0.00130	1	
Arsenic	1.75	0.750	0.130	1		Molybdenum	2.09	0.250	0.0206	1	B
Barium	177	0.500	0.164	1		Nickel	21.2	0.250	0.0346	1	
Beryllium	0.245	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	0.343	0.500	0.00988	1	J	Silver	ND	0.250	0.0209	1	
Chromium	11.8	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	6.66	0.250	0.00859	1	B	Vanadium	25.6	0.250	0.00934	1	
Copper	12000	50.0	4.69	100		Zinc	2480	100	17.7	100	
Lead	128	0.500	0.0527	1	B						

SB-08-112707	**07-11-2009-3-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 8:15:29 PM with batch 071129L08

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Mercury	ND	0.0835	0.00130	1	
Arsenic	1.28	0.750	0.130	1		Molybdenum	1.27	0.250	0.0206	1	B
Barium	1510	50.0	16.4	100		Nickel	11.8	0.250	0.0346	1	
Beryllium	0.356	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	0.939	0.250	0.0209	1	
Chromium	6.59	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	3.72	0.250	0.00859	1	B	Vanadium	28.7	0.250	0.00934	1	
Copper	15000	50.0	4.69	100		Zinc	365	1.00	0.177	1	
Lead	57.5	0.500	0.0527	1	B						

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2009
Preparation:	EPA 3050B / EPA 7471A Total
Method:	EPA 6010B / EPA 7471A
Units:	mg/kg

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-13A-112707	**07-11-2009-4-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 8:17:42 PM with batch 071129L08

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Mercury	ND	0.0835	0.00130	1	
Arsenic	1.87	0.750	0.130	1		Molybdenum	1.54	0.250	0.0206	1	B
Barium	222	0.500	0.164	1		Nickel	29.0	0.250	0.0346	1	
Beryllium	0.250	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	1.29	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	24.0	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	6.66	0.250	0.00859	1	B	Vanadium	49.1	0.250	0.00934	1	
Copper	557	0.500	0.0469	1		Zinc	1570	1.00	0.177	1	
Lead	68.2	0.500	0.0527	1	B						

SB-13B-112707	**07-11-2009-5-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 8:19:55 PM with batch 071129L08

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	13.5	0.750	0.191	1		Mercury	0.00703	0.0835	0.00130	1	J
Arsenic	7.21	0.750	0.130	1		Molybdenum	4.37	0.250	0.0206	1	B
Barium	798	50.0	16.4	100		Nickel	7.97	0.250	0.0346	1	
Beryllium	0.132	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	76.1	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	126	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	7.92	0.250	0.00859	1	B	Vanadium	7.86	0.250	0.00934	1	
Copper	497	0.500	0.0469	1		Zinc	20500	100	17.7	100	
Lead	310	0.500	0.0527	1	B						

SB-13C-112707	**07-11-2009-6-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 8:22:07 PM with batch 071129L08

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Mercury	ND	0.0835	0.00130	1	
Arsenic	2.26	0.750	0.130	1		Molybdenum	1.33	0.250	0.0206	1	B
Barium	224	0.500	0.164	1		Nickel	29.7	0.250	0.0346	1	
Beryllium	0.224	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	1.24	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	21.9	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	7.32	0.250	0.00859	1	B	Vanadium	43.4	0.250	0.00934	1	
Copper	143	0.500	0.0469	1		Zinc	1480	1.00	0.177	1	
Lead	366	0.500	0.0527	1	B						

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/28/07
Work Order No: 07-11-2009
Preparation: EPA 3050B / EPA 7471A Total
Method: EPA 6010B / EPA 7471A
Units: mg/kg

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-30A-112707	**07-11-2009-7-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 8:24:21 PM with batch 071129L08

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	4.75	0.750	0.191	1		Mercury	0.0292	0.0835	0.00130	1	J
Arsenic	29.1	0.750	0.130	1		Molybdenum	1.10	0.250	0.0206	1	B
Barium	129	0.500	0.164	1		Nickel	43.0	0.250	0.0346	1	
Beryllium	0.112	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	13.0	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	3.24	0.250	0.00859	1	B	Vanadium	16.2	0.250	0.00934	1	
Copper	956	0.500	0.0469	1		Zinc	3170	10.0	1.77	10	
Lead	97.5	0.500	0.0527	1	B						

SB-30B-112707	**07-11-2009-8-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 8:26:35 PM with batch 071129L08

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Mercury	0.0867	0.0835	0.00130	1	
Arsenic	3.88	0.750	0.130	1		Molybdenum	0.886	0.250	0.0206	1	B
Barium	256	0.500	0.164	1		Nickel	20.3	0.250	0.0346	1	
Beryllium	0.411	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	1.23	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	14.2	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	5.86	0.250	0.00859	1	B	Vanadium	40.4	0.250	0.00934	1	
Copper	158	0.500	0.0469	1		Zinc	1070	1.00	0.177	1	
Lead	639	0.500	0.0527	1	B						

SB-14-112707	**07-11-2009-9-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 8:28:50 PM with batch 071129L08

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	137	0.750	0.191	1		Mercury	0.00782	0.0835	0.00130	1	J
Arsenic	12.0	0.750	0.130	1		Molybdenum	0.896	0.250	0.0206	1	B
Barium	192	0.500	0.164	1		Nickel	22.6	0.250	0.0346	1	
Beryllium	0.388	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	0.598	0.500	0.00988	1		Silver	8.85	0.250	0.0209	1	
Chromium	23.5	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	7.28	0.250	0.00859	1	B	Vanadium	13.1	0.250	0.00934	1	
Copper	175	0.500	0.0469	1		Zinc	2540	100	17.7	100	
Lead	49100	50.0	5.27	100	B						

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2009
Preparation:	EPA 3050B / EPA 7471A Total
Method:	EPA 6010B / EPA 7471A
Units:	mg/kg

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-26-112707	**07-11-2009-10-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 8:31:05 PM with batch 071129L08

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	3.04	0.750	0.191	1		Mercury	ND	0.0835	0.00130	1	
Arsenic	1.13	0.750	0.130	1		Molybdenum	ND	0.250	0.0206	1	
Barium	137	0.500	0.164	1		Nickel	9.67	0.250	0.0346	1	
Beryllium	0.488	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	3.70	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	6.16	0.250	0.00859	1	B	Vanadium	13.3	0.250	0.00934	1	
Copper	1380	0.500	0.0469	1		Zinc	202	1.00	0.177	1	
Lead	20.0	0.500	0.0527	1	B						

SB-04-112707	**07-11-2009-11-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 8:33:21 PM with batch 071129L08

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	6.56	0.750	0.191	1		Mercury	ND	0.0835	0.00130	1	
Arsenic	66.6	0.750	0.130	1		Molybdenum	4.93	0.250	0.0206	1	B
Barium	514	0.500	0.164	1		Nickel	16.5	0.250	0.0346	1	
Beryllium	0.212	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	2.16	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	14.8	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	7.24	0.250	0.00859	1	B	Vanadium	24.4	0.250	0.00934	1	
Copper	1940	5.00	0.469	10		Zinc	3530	10.0	1.77	10	
Lead	2270	5.00	0.527	10	B						

Method Blank	**099-04-007-5,151**	**N/A**	**Solid**	**Mercury**	**11/29/07**	**11/29/07**	**071129L08**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual
Mercury	ND	0.0835	0.00130	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/28/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2009
San Diego, CA 92127-2116		Preparation:	EPA 3050B / EPA 7471A Total
		Method:	EPA 6010B / EPA 7471A
		Units:	mg/kg
Project: Burn Debris Assessment / SC0459			Page 5 of 5

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
Method Blank	**097-01-002-10,138**	**N/A**	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Lead	0.0934	0.500	0.0527	1	J
Arsenic	ND	0.750	0.130	1		Molybdenum	0.0245	0.250	0.0206	1	J
Barium	ND	0.500	0.164	1		Nickel	ND	0.250	0.0346	1	
Beryllium	ND	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	ND	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	0.0218	0.250	0.00859	1	J	Vanadium	ND	0.250	0.00934	1	
Copper	ND	0.500	0.0469	1		Zinc	ND	1.00	0.177	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2009
Preparation:	EPA 3545
Method:	EPA 8310
Units:	ug/kg

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-18-112707	**07-11-2009-1-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/28/07**	**11/29/07**	**071128L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	350	15	3.9	1		Benzo (a) Anthracene	4.1	10	3.2	1	J
Acenaphthylene	200	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	31	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	12	10	3.2	1	B	Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	54	10	3.3	1	B	Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	7.8	10	3.5	1	J	Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	76	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	28	10	2.9	1	B	Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	88	40-160	

SB-32-112707	**07-11-2009-2-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/28/07**	**11/29/07**	**071128L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	270	15	3.9	1		Benzo (a) Anthracene	12	10	3.2	1	
Acenaphthylene	170	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	37	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	10	10	3.2	1	B	Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	140	10	3.3	1	B	Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	19	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	73	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	47	10	2.9	1	B	Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	85	40-160	

SB-08-112707	**07-11-2009-3-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/28/07**	**11/30/07**	**071128L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	340	30	7.8	2		Benzo (a) Anthracene	12	20	6.4	2	J
Acenaphthylene	320	60	14	2		Chrysene	ND	20	6.4	2	
Acenaphthene	1900	30	10	2		Benzo (b) Fluoranthene	ND	20	6.5	2	
Fluorene	ND	20	6.4	2		Benzo (k) Fluoranthene	ND	20	6.4	2	
Phenanthrene	9.9	20	6.7	2	J,B	Benzo (a) Pyrene	ND	20	6.2	2	
Anthracene	12	20	7.0	2	J	Dibenz (a,h) Anthracene	ND	20	7.5	2	
Fluoranthene	17	20	6.8	2	J	Benzo (g,h,i) Perylene	ND	20	7.9	2	
Pyrene	13	20	5.8	2	J,B	Indeno (1,2,3-c,d) Pyrene	ND	20	7.1	2	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	60	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/28/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2009
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Assessment / SC0459			Page 2 of 4

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-13A-112707	**07-11-2009-4-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/28/07**	**11/29/07**	**071128L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	240	15	3.9	1		Benzo (a) Anthracene	6.9	10	3.2	1	J
Acenaphthylene	170	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	540	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	ND	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	7.5	10	3.3	1	J,B	Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	10	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	4.8	10	3.4	1	J	Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	3.7	10	2.9	1	J,B	Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	68	40-160	

SB-13B-112707	**07-11-2009-5-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/28/07**	**11/30/07**	**071128L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	3100	75	20	5		Benzo (a) Anthracene	120	50	16	5	
Acenaphthylene	2300	150	34	5		Chrysene	190	50	16	5	
Acenaphthene	450	75	25	5		Benzo (b) Fluoranthene	ND	50	16	5	
Fluorene	170	50	16	5	B	Benzo (k) Fluoranthene	ND	50	16	5	
Phenanthrene	680	50	17	5	B	Benzo (a) Pyrene	ND	50	15	5	
Anthracene	130	50	18	5		Dibenz (a,h) Anthracene	ND	50	19	5	
Fluoranthene	580	50	17	5		Benzo (g,h,i) Perylene	ND	50	20	5	
Pyrene	380	50	14	5	B	Indeno (1,2,3-c,d) Pyrene	ND	50	18	5	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	72	40-160	

SB-13C-112707	**07-11-2009-6-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/28/07**	**11/29/07**	**071128L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	190	15	3.9	1		Benzo (a) Anthracene	4.8	10	3.2	1	J
Acenaphthylene	140	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	450	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	ND	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	5.0	10	3.3	1	J,B	Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	8.8	10	3.5	1	J	Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	4.0	10	3.4	1	J	Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	ND	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	75	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/28/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2009
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Assessment / SC0459			Page 3 of 4

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-30A-112707	**07-11-2009-7-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/28/07**	**11/30/07**	**071128L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	160	15	3.9	1		Benzo (a) Anthracene	19	10	3.2	1	
Acenaphthylene	280	30	6.8	1		Chrysene	9.5	10	3.2	1	J
Acenaphthene	6.4	15	5.0	1	J	Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	ND	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	5.2	10	3.3	1	J,B	Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	7.6	10	3.5	1	J	Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	4.2	10	2.9	1	J,B	Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	66	40-160	

SB-30B-112707	**07-11-2009-8-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/28/07**	**11/30/07**	**071128L12**		

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	210	30	7.8	2		Benzo (a) Anthracene	7.9	20	6.4	2	J
Acenaphthylene	140	60	14	2		Chrysene	ND	20	6.4	2	
Acenaphthene	770	30	10	2		Benzo (b) Fluoranthene	ND	20	6.5	2	
Fluorene	ND	20	6.4	2		Benzo (k) Fluoranthene	8.2	20	6.4	2	J
Phenanthrene	9.7	20	6.7	2	J,B	Benzo (a) Pyrene	ND	20	6.2	2	
Anthracene	12	20	7.0	2	J	Dibenz (a,h) Anthracene	ND	20	7.5	2	
Fluoranthene	ND	20	6.8	2		Benzo (g,h,i) Perylene	ND	20	7.9	2	
Pyrene	1100	20	5.8	2	B	Indeno (1,2,3-c,d) Pyrene	ND	20	7.1	2	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	46	40-160	

SB-14-112707	**07-11-2009-9-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/28/07**	**11/30/07**	**071128L12**		

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	270	15	3.9	1		Benzo (a) Anthracene	5.4	10	3.2	1	J
Acenaphthylene	140	30	6.8	1		Chrysene	5.4	10	3.2	1	J
Acenaphthene	590	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	6.7	10	3.2	1	J,B	Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	10	10	3.3	1	B	Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	8.2	10	3.5	1	J	Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	3.5	10	2.9	1	J,B	Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	73	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/28/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2009
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Assessment / SC0459			Page 4 of 4

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-26-112707	**07-11-2009-10-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/28/07**	**11/30/07**	**071128L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	830	75	20	5		Benzo (a) Anthracene	ND	50	16	5	
Acenaphthylene	1700	150	34	5		Chrysene	ND	50	16	5	
Acenaphthene	2300	75	25	5		Benzo (b) Fluoranthene	ND	50	16	5	
Fluorene	ND	50	16	5		Benzo (k) Fluoranthene	ND	50	16	5	
Phenanthrene	64	50	17	5	B	Benzo (a) Pyrene	ND	50	15	5	
Anthracene	24	50	18	5	J	Dibenz (a,h) Anthracene	ND	50	19	5	
Fluoranthene	80	50	17	5		Benzo (g,h,i) Perylene	ND	50	20	5	
Pyrene	ND	50	14	5		Indeno (1,2,3-c,d) Pyrene	ND	50	18	5	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	47	40-160	

SB-04-112707	**07-11-2009-11-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/28/07**	**11/30/07**	**071128L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	1100	30	7.8	2		Benzo (a) Anthracene	60	20	6.4	2	
Acenaphthylene	1200	60	14	2		Chrysene	29	20	6.4	2	
Acenaphthene	990	30	10	2		Benzo (b) Fluoranthene	ND	20	6.5	2	
Fluorene	31	20	6.4	2	B	Benzo (k) Fluoranthene	ND	20	6.4	2	
Phenanthrene	140	20	6.7	2	B	Benzo (a) Pyrene	ND	20	6.2	2	
Anthracene	31	20	7.0	2		Dibenz (a,h) Anthracene	ND	20	7.5	2	
Fluoranthene	150	20	6.8	2		Benzo (g,h,i) Perylene	ND	20	7.9	2	
Pyrene	12	20	5.8	2	J,B	Indeno (1,2,3-c,d) Pyrene	ND	20	7.1	2	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	115	40-160	

Method Blank	**099-07-002-973**	**N/A**	**Solid**	**HPLC 5**	**11/28/07**	**11/29/07**	**071128L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	ND	15	3.9	1		Benzo (a) Anthracene	ND	10	3.2	1	
Acenaphthylene	ND	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	5.2	10	3.2	1	J	Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	5.8	10	3.3	1	J	Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	ND	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	5.2	10	2.9	1	J	Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	92	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2009
Preparation:	EPA 3050B
Method:	EPA 6010B

Project Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
07-11-2008-1	**Solid**	**ICP 5300**	**11/29/07**	**11/30/07**	**071129S10**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	37	31	50-115	15	0-20	3
Arsenic	100	104	75-125	4	0-20	
Barium	4X	4X	75-125	4X	0-20	Q
Beryllium	97	98	75-125	1	0-20	
Cadmium	107	156	75-125	14	0-20	3
Chromium	99	96	75-125	2	0-20	
Cobalt	92	91	75-125	1	0-20	
Copper	4X	4X	75-125	4X	0-20	Q
Lead	139	398	75-125	44	0-20	3,4
Molybdenum	87	85	75-125	2	0-20	
Nickel	93	92	75-125	1	0-20	
Selenium	98	96	75-125	2	0-20	
Silver	88	88	75-125	0	0-20	
Thallium	16	11	75-125	35	0-20	3,4
Vanadium	112	121	75-125	4	0-20	
Zinc	4X	4X	75-125	4X	0-20	Q

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2009
Preparation:	EPA 7471A Total
Method:	EPA 7471A

Project Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
07-11-2008-1	**Solid**	**Mercury**	**11/29/07**	**11/29/07**	**071129S08**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	69	69	84-138	1	0-7	3

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received	11/28/07
Work Order No:	07-11-2009
Preparation:	EPA 7471A Total
Method:	EPA 7471A

Project: Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
07-11-2008-1	**Solid**	**Mercury**	**11/29/07**	**11/30/07**	**071129S08**

Parameter	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	109	108	75-125	1	0-7	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2009
Preparation:	EPA 3545
Method:	EPA 8310

Project Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SB-18-112707	**Solid**	**HPLC 5**	**11/28/07**	**11/30/07**	**071128S12**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	35	35	40-160	0	0-20	3
Acenaphthylene	37	36	40-160	0	0-20	3
Acenaphthene	108	109	40-160	1	0-20	
Fluorene	74	74	40-160	0	0-20	
Phenanthrene	35	35	40-160	0	0-20	3
Anthracene	23	23	40-160	0	0-20	3
Fluoranthene	72	72	40-160	0	0-20	
Pyrene	9	8	40-160	2	0-20	3
Benzo (a) Anthracene	10	10	40-160	3	0-20	3
Chrysene	3	3	40-160	10	0-20	3
Benzo (b) Fluoranthene	2	1	40-160	59	0-20	3,4
Benzo (k) Fluoranthene	1	1	40-160	6	0-20	3
Benzo (a) Pyrene	2	2	40-160	3	0-20	3
Dibenz (a,h) Anthracene	3	4	40-160	9	0-20	3
Benzo (g,h,i) Perylene	1	0	40-160	175	0-20	3,4
Indeno (1,2,3-c,d) Pyrene	5	5	40-160	2	0-20	3

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants		Date Received:	N/A
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2009
San Diego, CA 92127-2116		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-01-002-10,138	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L10**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	95	100	80-120	5	0-20	
Arsenic	101	97	80-120	4	0-20	
Barium	103	101	80-120	2	0-20	
Beryllium	95	96	80-120	1	0-20	
Cadmium	102	101	80-120	1	0-20	
Chromium	102	101	80-120	1	0-20	
Cobalt	105	105	80-120	0	0-20	
Copper	103	95	80-120	8	0-20	
Lead	102	103	80-120	0	0-20	
Molybdenum	103	101	80-120	2	0-20	
Nickel	109	107	80-120	1	0-20	
Selenium	97	95	80-120	2	0-20	
Silver	95	96	80-120	0	0-20	
Thallium	102	100	80-120	2	0-20	
Vanadium	97	97	80-120	0	0-20	
Zinc	114	104	80-120	9	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants		Date Received:	N/A
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2009
San Diego, CA 92127-2116		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-04-007-5,151	**Solid**	**Mercury**	**11/29/07**	**11/29/07**	**071129L08**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	105	105	87-117	0	0-3	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	N/A
Work Order No:	07-11-2009
Preparation:	EPA 3545
Method:	EPA 8310

Project: Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-002-973	**Solid**	**HPLC 5**	**11/28/07**	**11/29/07**	**071128L12**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	95	99	40-160	4	0-20	
Acenaphthylene	92	93	40-160	1	0-20	
Acenaphthene	96	97	40-160	2	0-20	
Fluorene	96	97	40-160	1	0-20	
Phenanthrene	92	93	40-160	1	0-20	
Anthracene	95	97	40-160	2	0-20	
Fluoranthene	91	92	40-160	1	0-20	
Pyrene	96	97	40-160	1	0-20	
Benzo (a) Anthracene	96	97	40-160	1	0-20	
Chrysene	102	102	40-160	0	0-20	
Benzo (b) Fluoranthene	49	49	40-160	1	0-20	
Benzo (k) Fluoranthene	96	97	40-160	0	0-20	
Benzo (a) Pyrene	94	95	40-160	1	0-20	
Dibenz (a,h) Anthracene	98	98	40-160	0	0-20	
Benzo (g,h,i) Perylene	97	98	40-160	1	0-20	
Indeno (1,2,3-c,d) Pyrene	89	90	40-160	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 07-11-2009

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Document Number: 2211

Analysis Request and Chain of Custody Record

2009

Page 1 of 1

Project Name: BURNED DEBRIS ASSESSMENT	Project Number: SC0459
Samplers Names: E. GARENBERG ; E. WARNECKE	Project Contact: Veryl Wittig
Laboratory Name: CAL SCIENCE	Lab Contact: Steve Nowak
Lab Address: Garden Grove	Lab Phone: 714-895-5494
	Carrier/Waybill No.

White copy: to accompany samples

Yellow copy: field copy

	Sample Name	Date	Time	Sample Type	VOCs by ___	Metals 6010B	SVOCs by 8270	8310 (PAHs)	Title 22 (TTLC)						Comments	Lab Use Only: Condition of Bottles
	Bottle Type and Volume/Preservative					8oz	8oz	8oz	8oz							
	Number of Containers															
1	SB-18 -112707	11.27.07	08:00	Soil		X		X	X							
2	SB-32 -112707		09:30			X		X	X							
	~~SB-32C -112707~~					~~X~~		~~X~~	~~X~~							
3	SB-08 -112707		10:00			X		X	X							
4	SB-13A -112707		10:45			X		X	X							
5	SB-13B -112707		11:20			X		X	X							
6	SB-13C -112707		10:50			X		X	X							
7	SB-30A -112707		13:00			X		X	X							
8	SB-30B -112707		13:30			X		X	X							
9	SB-14 -112707		13:45			X		X	X							
10	SB-26 -112707		14:30			X		X	X							
11	SB-04 -112707		16:00			X		X	X							

Special Instructions: if Arsenic concentrations by 6010B are <MDL, then analyze by 7010. Soil is ash

Turn-around Time: 5 day standard

☒ Normal ☐ Rush: _____

1. Relinquished by (Signiture/Affiliation): Elyse Warnecke Geosyntec	Date 11.28.07 Time 12:27	1. Received by (Signiture/Affiliation): Alex Marquez CCL	Date 11/28/07 Time 12:30
2. Relinquished by (Signiture/Affiliation): Alex Marquez CCL	Date 11/28/07 Time 15:00	2. Received by (Signiture/Affiliation): [illegible]	Date 11/28/07 Time 1500
3. Relinquished by (Signiture/Affiliation)	Date Time	3. Received by (Signiture/Affiliation)	Date Time

Geosyntec consultants 10875 Rancho Bernardo Road, Suite 200, San Diego, CA 92127 (858) 674-6559 Fax: (858) 674-6586

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 07 - 1 1 - 2 0 0 9

Cooler 1 of 1

SAMPLE RECEIPT FORM

CLIENT: GEOSYNTECH DATE: 11/28/07

TEMPERATURE – SAMPLES RECEIVED BY:

CALSCIENCE COURIER:

- ____ Chilled, cooler with temperature blank provided.
- ✓ Chilled, cooler without temperature blank.
- ____ Chilled and placed in cooler with wet ice.
- ____ Ambient and placed in cooler with wet ice.
- ____ Ambient temperature.

LABORATORY (Other than Calscience Courier):

- ____ °C Temperature blank.
- ____ °C IR thermometer.
- ____ Ambient temperature.

2.7 °C Temperature blank. Initial: AM

CUSTODY SEAL INTACT:

Sample(s): ____ Cooler: ____ No (Not Intact) : ____ Not Present: ✓

Initial: AM

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	✓		
Sampler's name indicated on COC	✓		
Sample container label(s) consistent with custody papers	~~✗~~ A1	✓	
Sample container(s) intact and good condition	✓		
Correct containers and volume for analyses requested	✓		
Proper preservation noted on sample label(s)			✓
VOA vial(s) free of headspace.			✓
Tedlar bag(s) free of condensation			✓

Initial: AM

COMMENTS:

sample #6 (SB-13C-112707) @10:50 labeled as (SB-32C-112707) @10:50

Calscience Environmental Laboratories, Inc.

Supplemental Report 1

December 13, 2007

Additional requested analyses have been added to the original report.

Veryl Wittig
GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Subject: **Calscience Work Order No.: 07-11-2022**
Client Reference: Burn Debris Sample / SC0459

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/28/2007 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Stephen Nowak
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2022
Preparation:	EPA 3050B / EPA 7471A Total
Method:	EPA 6010B / EPA 7471A
Units:	mg/kg

Project: Burn Debris Sample / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-21-11272007	**07-11-2022-1-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 3:23:43 PM with batch 071129L05

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	97.1	0.750	0.191	1		Mercury	ND	0.0835	0.00130	1	
Arsenic	8.04	0.750	0.130	1	B	Molybdenum	5.22	0.250	0.0206	1	
Barium	208	0.500	0.164	1		Nickel	14.0	0.250	0.0346	1	B
Beryllium	0.224	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	2.80	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	10.5	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	6.58	0.250	0.00859	1		Vanadium	33.9	0.250	0.00934	1	
Copper	614	0.500	0.0469	1		Zinc	1060	1.00	0.177	1	
Lead	53.8	0.500	0.0527	1							

SD-12-11272007	**07-11-2022-2-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 3:25:59 PM with batch 071129L05

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Mercury	0.00374	0.0835	0.00130	1	J
Arsenic	3.55	0.750	0.130	1	B	Molybdenum	0.495	0.250	0.0206	1	
Barium	127	0.500	0.164	1		Nickel	12.2	0.250	0.0346	1	B
Beryllium	0.220	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	2.59	0.250	0.0209	1	
Chromium	17.9	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	4.92	0.250	0.00859	1		Vanadium	22.8	0.250	0.00934	1	
Copper	46000	100	9.38	200		Zinc	685	1.00	0.177	1	
Lead	92.3	0.500	0.0527	1							

SD-16-11272007	**07-11-2022-3-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 3:32:43 PM with batch 071129L05

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	50.5	0.750	0.191	1		Mercury	ND	0.0835	0.00130	1	
Arsenic	12.1	0.750	0.130	1	B	Molybdenum	2.12	0.250	0.0206	1	
Barium	132	0.500	0.164	1		Nickel	31.6	0.250	0.0346	1	B
Beryllium	0.453	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	0.0443	0.500	0.00988	1	J	Silver	35.8	0.250	0.0209	1	
Chromium	8.88	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	44.6	0.250	0.00859	1		Vanadium	40.0	0.250	0.00934	1	
Copper	1490	50.0	4.69	100		Zinc	6030	100	17.7	100	
Lead	2510	50.0	5.27	100							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2022
Preparation:	EPA 3050B / EPA 7471A Total
Method:	EPA 6010B / EPA 7471A
Units:	mg/kg
	Page 2 of 6

Project: Burn Debris Sample / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-13-11272007	**07-11-2022-4-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 3:34:58 PM with batch 071129L05

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	1.10	0.750	0.191	1		Mercury	ND	0.0835	0.00130	1	
Arsenic	20.5	0.750	0.130	1	B	Molybdenum	1.79	0.250	0.0206	1	
Barium	157	0.500	0.164	1		Nickel	27.6	0.250	0.0346	1	B
Beryllium	0.428	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	0.308	0.500	0.00988	1	J	Silver	ND	0.250	0.0209	1	
Chromium	29.2	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	5.37	0.250	0.00859	1		Vanadium	66.6	0.250	0.00934	1	
Copper	542	0.500	0.0469	1		Zinc	407	1.00	0.177	1	
Lead	25.1	0.500	0.0527	1							

SD-41-11272007	**07-11-2022-5-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 3:37:15 PM with batch 071129L05

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Mercury	0.00563	0.0835	0.00130	1	J
Arsenic	5.22	0.750	0.130	1	B	Molybdenum	2.86	0.250	0.0206	1	
Barium	121	0.500	0.164	1		Nickel	39.3	0.250	0.0346	1	B
Beryllium	0.605	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	15.6	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	4.52	0.250	0.00859	1		Vanadium	67.7	0.250	0.00934	1	
Copper	172	0.500	0.0469	1		Zinc	304	1.00	0.177	1	
Lead	24.4	0.500	0.0527	1							

SD-19-C-11272007	**07-11-2022-6-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 3:17:02 PM with batch 071129L05

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	5.43	0.750	0.191	1		Mercury	ND	0.0835	0.00130	1	
Arsenic	2.53	0.750	0.130	1	B	Molybdenum	1.36	0.250	0.0206	1	
Barium	236	0.500	0.164	1		Nickel	41.8	0.250	0.0346	1	B
Beryllium	0.391	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	8.02	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	2.27	0.250	0.00859	1		Vanadium	115	0.250	0.00934	1	
Copper	73.1	0.500	0.0469	1		Zinc	1060	1.00	0.177	1	
Lead	23.3	0.500	0.0527	1							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2022
Preparation:	EPA 3050B / EPA 7471A Total
Method:	EPA 6010B / EPA 7471A
Units:	mg/kg
	Page 3 of 6

Project: Burn Debris Sample / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-19-11272007	**07-11-2022-7-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 3:39:27 PM with batch 071129L05

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	4.78	0.750	0.191	1		Mercury	ND	0.0835	0.00130	1	
Arsenic	2.52	0.750	0.130	1	B	Molybdenum	1.10	0.250	0.0206	1	
Barium	181	0.500	0.164	1		Nickel	29.7	0.250	0.0346	1	B
Beryllium	0.361	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	0.0441	0.500	0.00988	1	J	Silver	ND	0.250	0.0209	1	
Chromium	6.45	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	2.45	0.250	0.00859	1		Vanadium	81.4	0.250	0.00934	1	
Copper	69.7	0.500	0.0469	1		Zinc	384	1.00	0.177	1	
Lead	21.7	0.500	0.0527	1							

SD-38-11272007	**07-11-2022-8-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 3:41:37 PM with batch 071129L05

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	52.8	0.750	0.191	1		Mercury	ND	0.0835	0.00130	1	
Arsenic	1.78	0.750	0.130	1	B	Molybdenum	15.6	0.250	0.0206	1	
Barium	213	0.500	0.164	1		Nickel	8.08	0.250	0.0346	1	B
Beryllium	0.0450	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	4.15	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	21.2	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	3.35	0.250	0.00859	1		Vanadium	10.1	0.250	0.00934	1	
Copper	417	0.500	0.0469	1		Zinc	767	1.00	0.177	1	
Lead	193	0.500	0.0527	1							

SD-36-11272007	**07-11-2022-9-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 3:43:48 PM with batch 071129L05

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	22.6	0.750	0.191	1		Mercury	ND	0.0835	0.00130	1	
Arsenic	4.06	0.750	0.130	1	B	Molybdenum	1.70	0.250	0.0206	1	
Barium	164	0.500	0.164	1		Nickel	21.9	0.250	0.0346	1	B
Beryllium	0.0807	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	2.43	0.250	0.0209	1	
Chromium	9.64	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	8.18	0.250	0.00859	1		Vanadium	16.8	0.250	0.00934	1	
Copper	45700	100	9.38	200		Zinc	892	1.00	0.177	1	
Lead	36.3	0.500	0.0527	1							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2022
Preparation:	EPA 3050B / EPA 7471A Total
Method:	EPA 6010B / EPA 7471A
Units:	mg/kg

Project: Burn Debris Sample / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-18-11272007	**07-11-2022-10-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 3:45:59 PM with batch 071129L05

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	0.310	0.750	0.191	1	J	Mercury	0.0133	0.0835	0.00130	1	J
Arsenic	2.12	0.750	0.130	1	B	Molybdenum	6.13	0.250	0.0206	1	
Barium	94.2	0.500	0.164	1		Nickel	14.2	0.250	0.0346	1	B
Beryllium	0.0286	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	0.747	0.500	0.00988	1		Silver	62.4	0.250	0.0209	1	
Chromium	10.4	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	4.04	0.250	0.00859	1		Vanadium	12.6	0.250	0.00934	1	
Copper	3740	5.00	0.469	10		Zinc	1790	10.0	1.77	10	
Lead	68.5	0.500	0.0527	1							

SD-18-C-11272007	**07-11-2022-11-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 3:48:10 PM with batch 071129L05

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	0.898	0.750	0.191	1		Mercury	0.0131	0.0835	0.00130	1	J
Arsenic	3.17	0.750	0.130	1	B	Molybdenum	9.62	0.250	0.0206	1	
Barium	78.9	0.500	0.164	1		Nickel	16.6	0.250	0.0346	1	B
Beryllium	0.0221	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	1.24	0.500	0.00988	1		Silver	60.1	0.250	0.0209	1	
Chromium	10.2	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	4.51	0.250	0.00859	1		Vanadium	11.5	0.250	0.00934	1	
Copper	2460	50.0	4.69	100		Zinc	54300	100	17.7	100	
Lead	80.8	0.500	0.0527	1							

SD-24-11272007	**07-11-2022-12-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 3:50:22 PM with batch 071129L05

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	14.2	0.750	0.191	1		Mercury	ND	0.0835	0.00130	1	
Arsenic	ND	0.750	0.130	1		Molybdenum	0.709	0.250	0.0206	1	
Barium	161	0.500	0.164	1		Nickel	13.0	0.250	0.0346	1	B
Beryllium	0.340	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	8.70	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	5.39	0.250	0.00859	1		Vanadium	28.9	0.250	0.00934	1	
Copper	886	0.500	0.0469	1		Zinc	303	1.00	0.177	1	
Lead	20.3	0.500	0.0527	1							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2022
Preparation:	EPA 3050B / EPA 7471A Total
Method:	EPA 6010B / EPA 7471A
Units:	mg/kg
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Project: Burn Debris Sample / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-22-11272007	**07-11-2022-13-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 3:52:35 PM with batch 071129L05

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	2.05	0.750	0.191	1		Mercury	0.00868	0.0835	0.00130	1	J
Arsenic	1.93	0.750	0.130	1	B	Molybdenum	1.12	0.250	0.0206	1	
Barium	65.7	0.500	0.164	1		Nickel	33.5	0.250	0.0346	1	B
Beryllium	0.234	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	0.411	0.500	0.00988	1	J	Silver	ND	0.250	0.0209	1	
Chromium	10.9	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	7.24	0.250	0.00859	1		Vanadium	67.3	0.250	0.00934	1	
Copper	452	0.500	0.0469	1		Zinc	1330	1.00	0.177	1	
Lead	33.4	0.500	0.0527	1							

SD-25-11272007	**07-11-2022-14-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 3:59:17 PM with batch 071129L05

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	5.87	0.750	0.191	1		Mercury	ND	0.0835	0.00130	1	
Arsenic	2.23	0.750	0.130	1	B	Molybdenum	1.12	0.250	0.0206	1	
Barium	316	0.500	0.164	1		Nickel	13.1	0.250	0.0346	1	B
Beryllium	0.288	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	0.450	0.500	0.00988	1	J	Silver	0.267	0.250	0.0209	1	
Chromium	19.4	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	3.43	0.250	0.00859	1		Vanadium	22.5	0.250	0.00934	1	
Copper	1230	0.500	0.0469	1		Zinc	404	1.00	0.177	1	
Lead	32.3	0.500	0.0527	1							

SD-54-11272007	**07-11-2022-15-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 4:01:31 PM with batch 071129L05

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	101	0.750	0.191	1		Mercury	0.0267	0.0835	0.00130	1	J
Arsenic	2.81	0.750	0.130	1	B	Molybdenum	0.520	0.250	0.0206	1	
Barium	238	0.500	0.164	1		Nickel	10.3	0.250	0.0346	1	B
Beryllium	0.00490	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	1.79	0.500	0.00988	1		Silver	4.17	0.250	0.0209	1	
Chromium	10.4	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	9.31	0.250	0.00859	1		Vanadium	6.84	0.250	0.00934	1	
Copper	1150	0.500	0.0469	1		Zinc	5080	10.0	1.77	10	
Lead	143	0.500	0.0527	1							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2022
Preparation:	EPA 3050B / EPA 7471A Total
Method:	EPA 6010B / EPA 7471A
Units:	mg/kg
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Project: Burn Debris Sample / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-46-11272007	**07-11-2022-16-A**	**11/27/07**	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/29/2007 4:03:45 PM with batch 071129L05

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	10.8	0.750	0.191	1		Mercury	0.00623	0.0835	0.00130	1	J
Arsenic	10.0	0.750	0.130	1	B	Molybdenum	1.59	0.250	0.0206	1	
Barium	142	0.500	0.164	1		Nickel	34.6	0.250	0.0346	1	B
Beryllium	0.193	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	2.31	0.500	0.00988	1		Silver	4.74	0.250	0.0209	1	
Chromium	12.2	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	6.00	0.250	0.00859	1		Vanadium	15.9	0.250	0.00934	1	
Copper	22300	50.0	4.69	100		Zinc	1360	1.00	0.177	1	
Lead	225	0.500	0.0527	1							

Method Blank	**099-04-007-5,150**	**N/A**	**Solid**	**Mercury**	**11/29/07**	**11/29/07**	**071129L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual
Mercury	ND	0.0835	0.00130	1	

Method Blank	**097-01-002-10,129**	**N/A**	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Lead	ND	0.500	0.0527	1	
Arsenic	0.240	0.750	0.130	1	J	Molybdenum	ND	0.250	0.0206	1	
Barium	ND	0.500	0.164	1		Nickel	0.0777	0.250	0.0346	1	J
Beryllium	ND	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	ND	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	ND	0.250	0.00859	1		Vanadium	ND	0.250	0.00934	1	
Copper	ND	0.500	0.0469	1		Zinc	ND	1.00	0.177	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/28/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2022
San Diego, CA 92127-2116		Preparation:	EPA 3050B
		Method:	EPA 7010

Project: Burn Debris Sample / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-24-11272007	**07-11-2022-12-A**	**11/27/07**	**Solid**	**GFAA**	**12/12/07**	**12/12/07**	**071212L01**

Parameter	Result	RL	MDL	DF	Qual	Units
Arsenic	1.26	0.250	0.0616	1		mg/kg

Method Blank	**099-07-021-260**	**N/A**	**Solid**	**GFAA**	**12/12/07**	**12/12/07**	**071212L01**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units
Arsenic	ND	0.250	0.0616	1		mg/kg

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/28/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2022
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Sample / SC0459			Page 1 of 6

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-21-11272007	**07-11-2022-1-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/29/07**	**12/04/07**	**071129L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	2200	75	20	5		Benzo (a) Anthracene	92	50	16	5	
Acenaphthylene	1400	150	34	5		Chrysene	ND	50	16	5	
Acenaphthene	280	75	25	5		Benzo (b) Fluoranthene	ND	50	16	5	
Fluorene	410	50	16	5		Benzo (k) Fluoranthene	ND	50	16	5	
Phenanthrene	300	50	17	5		Benzo (a) Pyrene	ND	50	15	5	
Anthracene	68	50	18	5		Dibenz (a,h) Anthracene	ND	50	19	5	
Fluoranthene	42	50	17	5	J	Benzo (g,h,i) Perylene	ND	50	20	5	
Pyrene	59	50	14	5		Indeno (1,2,3-c,d) Pyrene	ND	50	18	5	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	41	40-160	

SD-12-11272007	**07-11-2022-2-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/29/07**	**12/03/07**	**071129L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	830	15	3.9	1		Benzo (a) Anthracene	21	10	3.2	1	
Acenaphthylene	540	30	6.8	1		Chrysene	4.8	10	3.2	1	J
Acenaphthene	66	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	89	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	140	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	23	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	7.8	10	3.4	1	J	Benzo (g,h,i) Perylene	7.6	10	4.0	1	J
Pyrene	72	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	50	40-160	

SD-16-11272007	**07-11-2022-3-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/29/07**	**12/03/07**	**071129L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	630	15	3.9	1		Benzo (a) Anthracene	200	10	3.2	1	
Acenaphthylene	1000	30	6.8	1		Chrysene	580	10	3.2	1	
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	140	10	3.2	1		Benzo (k) Fluoranthene	39	10	3.2	1	
Phenanthrene	440	10	3.3	1		Benzo (a) Pyrene	77	10	3.1	1	
Anthracene	110	10	3.5	1		Dibenz (a,h) Anthracene	330	10	3.7	1	
Fluoranthene	290	10	3.4	1		Benzo (g,h,i) Perylene	130	10	4.0	1	
Pyrene	650	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	74	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	83	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/28/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2022
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Sample / SC0459			Page 2 of 6

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-13-11272007	**07-11-2022-4-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/29/07**	**12/03/07**	**071129L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	490	15	3.9	1		Benzo (a) Anthracene	9.2	10	3.2	1	J
Acenaphthylene	230	30	6.8	1		Chrysene	3.4	10	3.2	1	J
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	18	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	70	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	9.8	10	3.5	1	J	Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	9.2	10	3.4	1	J	Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	49	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	58	40-160	

SD-41-11272007	**07-11-2022-5-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/29/07**	**12/04/07**	**071129L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	1100	30	7.8	2		Benzo (a) Anthracene	160	20	6.4	2	
Acenaphthylene	1200	60	14	2		Chrysene	140	20	6.4	2	
Acenaphthene	ND	30	10	2		Benzo (b) Fluoranthene	ND	20	6.5	2	
Fluorene	810	20	6.4	2		Benzo (k) Fluoranthene	24	20	6.4	2	
Phenanthrene	640	20	6.7	2		Benzo (a) Pyrene	92	20	6.2	2	
Anthracene	230	20	7.0	2		Dibenz (a,h) Anthracene	160	20	7.5	2	
Fluoranthene	180	20	6.8	2		Benzo (g,h,i) Perylene	91	20	7.9	2	
Pyrene	360	20	5.8	2		Indeno (1,2,3-c,d) Pyrene	57	20	7.1	2	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	305	40-160	2

SD-19-C-11272007	**07-11-2022-6-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/29/07**	**12/03/07**	**071129L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	220	15	3.9	1		Benzo (a) Anthracene	24	10	3.2	1	
Acenaphthylene	230	30	6.8	1		Chrysene	6.6	10	3.2	1	J
Acenaphthene	36	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	30	10	3.2	1		Benzo (k) Fluoranthene	28	10	3.2	1	
Phenanthrene	74	10	3.3	1		Benzo (a) Pyrene	5.9	10	3.1	1	J
Anthracene	11	10	3.5	1		Dibenz (a,h) Anthracene	130	10	3.7	1	
Fluoranthene	5.7	10	3.4	1	J	Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	81	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	76	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/28/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2022
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Sample / SC0459			Page 3 of 6

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-19-11272007	**07-11-2022-7-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/29/07**	**12/03/07**	**071129L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	260	15	3.9	1		Benzo (a) Anthracene	27	10	3.2	1	
Acenaphthylene	290	30	6.8	1		Chrysene	6.1	10	3.2	1	J
Acenaphthene	33	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	34	10	3.2	1		Benzo (k) Fluoranthene	64	10	3.2	1	
Phenanthrene	72	10	3.3	1		Benzo (a) Pyrene	7.5	10	3.1	1	J
Anthracene	11	10	3.5	1		Dibenz (a,h) Anthracene	190	10	3.7	1	
Fluoranthene	5.3	10	3.4	1	J	Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	79	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	66	40-160	

SD-38-11272007	**07-11-2022-8-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/29/07**	**12/03/07**	**071129L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	680	15	3.9	1		Benzo (a) Anthracene	15	10	3.2	1	
Acenaphthylene	600	30	6.8	1		Chrysene	16	10	3.2	1	
Acenaphthene	110	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	74	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	190	10	3.3	1		Benzo (a) Pyrene	3.4	10	3.1	1	J
Anthracene	26	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	240	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	88	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	45	40-160	

SD-36-11272007	**07-11-2022-9-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/29/07**	**12/03/07**	**071129L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	430	15	3.9	1		Benzo (a) Anthracene	63	10	3.2	1	
Acenaphthylene	230	30	6.8	1		Chrysene	13	10	3.2	1	
Acenaphthene	38	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	19	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	79	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	5.9	10	3.5	1	J	Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	240	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	62	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/28/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2022
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Sample / SC0459			Page 4 of 6

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-18-11272007	**07-11-2022-10-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/29/07**	**12/03/07**	**071129L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	330	15	3.9	1		Benzo (a) Anthracene	86	10	3.2	1	
Acenaphthylene	480	30	6.8	1		Chrysene	11	10	3.2	1	
Acenaphthene	400	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	37	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	130	10	3.3	1		Benzo (a) Pyrene	4.2	10	3.1	1	J
Anthracene	20	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	5.4	10	3.4	1	J	Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	150	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	51	40-160	

SD-18-C-11272007	**07-11-2022-11-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/29/07**	**12/03/07**	**071129L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	340	15	3.9	1		Benzo (a) Anthracene	120	10	3.2	1	
Acenaphthylene	500	30	6.8	1		Chrysene	12	10	3.2	1	
Acenaphthene	490	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	40	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	150	10	3.3	1		Benzo (a) Pyrene	4.2	10	3.1	1	J
Anthracene	22	10	3.5	1		Dibenz (a,h) Anthracene	3.8	10	3.7	1	J
Fluoranthene	4.8	10	3.4	1	J	Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	160	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	42	40-160	

SD-24-11272007	**07-11-2022-12-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/29/07**	**12/03/07**	**071129L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	740	15	3.9	1		Benzo (a) Anthracene	130	10	3.2	1	
Acenaphthylene	760	30	6.8	1		Chrysene	56	10	3.2	1	
Acenaphthene	300	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	180	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	290	10	3.3	1		Benzo (a) Pyrene	13	10	3.1	1	
Anthracene	52	10	3.5	1		Dibenz (a,h) Anthracene	6.3	10	3.7	1	J
Fluoranthene	860	10	3.4	1		Benzo (g,h,i) Perylene	6.8	10	4.0	1	J
Pyrene	300	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	12	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	51	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/28/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2022
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Sample / SC0459			Page 5 of 6

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-22-11272007	**07-11-2022-13-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/29/07**	**12/04/07**	**071129L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	840	300	78	20		Benzo (a) Anthracene	3200	200	64	20	
Acenaphthylene	3200	600	140	20		Chrysene	210	200	64	20	
Acenaphthene	ND	300	100	20		Benzo (b) Fluoranthene	ND	200	65	20	
Fluorene	530	200	64	20		Benzo (k) Fluoranthene	ND	200	64	20	
Phenanthrene	1000	200	67	20		Benzo (a) Pyrene	ND	200	62	20	
Anthracene	120	200	70	20	J	Dibenz (a,h) Anthracene	ND	200	75	20	
Fluoranthene	ND	200	68	20		Benzo (g,h,i) Perylene	ND	200	79	20	
Pyrene	10000	200	58	20		Indeno (1,2,3-c,d) Pyrene	ND	200	71	20	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	574	40-160	2

SD-25-11272007	**07-11-2022-14-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/29/07**	**12/03/07**	**071129L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	200	15	3.9	1		Benzo (a) Anthracene	170	10	3.2	1	
Acenaphthylene	610	30	6.8	1		Chrysene	5.0	10	3.2	1	J
Acenaphthene	380	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	33	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	130	10	3.3	1		Benzo (a) Pyrene	3.1	10	3.1	1	J
Anthracene	14	10	3.5	1		Dibenz (a,h) Anthracene	5.0	10	3.7	1	J
Fluoranthene	53	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	420	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	59	40-160	

SD-54-11272007	**07-11-2022-15-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/29/07**	**12/04/07**	**071129L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	440	15	3.9	1		Benzo (a) Anthracene	27	10	3.2	1	
Acenaphthylene	330	30	6.8	1		Chrysene	8.6	10	3.2	1	J
Acenaphthene	41	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	44	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	140	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	18	10	3.5	1		Dibenz (a,h) Anthracene	7.9	10	3.7	1	J
Fluoranthene	6.4	10	3.4	1	J	Benzo (g,h,i) Perylene	20	10	4.0	1	
Pyrene	110	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	49	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/28/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2022
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Sample / SC0459			Page 6 of 6

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-46-11272007	**07-11-2022-16-A**	**11/27/07**	**Solid**	**HPLC 5**	**11/29/07**	**12/03/07**	**071129L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	260	15	3.9	1		Benzo (a) Anthracene	87	10	3.2	1	
Acenaphthylene	250	30	6.8	1		Chrysene	6.6	10	3.2	1	J
Acenaphthene	260	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	26	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	60	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	5.4	10	3.5	1	J	Dibenz (a,h) Anthracene	4.2	10	3.7	1	J
Fluoranthene	260	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	340	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	52	40-160	

Method Blank	**099-07-002-974**	**N/A**	**Solid**	**HPLC 5**	**11/29/07**	**12/03/07**	**071129L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	ND	15	3.9	1		Benzo (a) Anthracene	ND	10	3.2	1	
Acenaphthylene	ND	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	ND	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	ND	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	ND	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	ND	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	107	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/28/07
Work Order No: 07-11-2022

Project: Burn Debris Sample / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix
SD-12-11272007	**07-11-2022-2**	**11/27/07**	**Solid**

Comment(s): (24) Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent (24)	ND	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

Method Blank	**N/A**	**Solid**

Comment(s): (24) Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent (24)	ND	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/28/07
Work Order No: 07-11-2022
Preparation: EPA 3050B
Method: EPA 6010B

Project Burn Debris Sample / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SD-19-C-11272007	**Solid**	**ICP 5300**	**11/29/07**	**11/29/07**	**071129S06**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	86	85	50-115	1	0-20	
Arsenic	109	105	75-125	3	0-20	
Barium	4X	4X	75-125	4X	0-20	Q
Beryllium	93	95	75-125	2	0-20	
Cadmium	90	89	75-125	1	0-20	
Chromium	93	90	75-125	2	0-20	
Cobalt	87	85	75-125	1	0-20	
Copper	235	139	75-125	20	0-20	3
Lead	114	78	75-125	19	0-20	
Molybdenum	95	94	75-125	0	0-20	
Nickel	82	69	75-125	5	0-20	3
Selenium	103	102	75-125	1	0-20	
Silver	93	93	75-125	0	0-20	
Thallium	70	69	75-125	1	0-20	3
Vanadium	4X	4X	75-125	4X	0-20	Q
Zinc	4X	4X	75-125	4X	0-20	Q

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2022
Preparation:	EPA 3050B
Method:	EPA 7010

Project Burn Debris Sample / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SD-24-11272007	**Solid**	**GFAA**	**12/12/07**	**12/12/07**	**071212S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	135	302	80-120	62	0-20	3,4

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/28/07
Work Order No: 07-11-2022
Preparation: EPA 7471A Total
Method: EPA 7471A

Project Burn Debris Sample / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SD-19-C-11272007	**Solid**	**Mercury**	**11/29/07**	**11/29/07**	**071129S05**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	86	95	84-138	11	0-7	4

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received	11/28/07
Work Order No:	07-11-2022
Preparation:	EPA 7471A Total
Method:	EPA 7471A

Project: Burn Debris Sample / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
SD-19-C-11272007	**Solid**	**Mercury**	**11/29/07**	**11/29/07**	**071129S05**

Parameter	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	108	106	75-125	1	0-7	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/28/07
Work Order No:	07-11-2022
Preparation:	EPA 3545
Method:	EPA 8310

Project Burn Debris Sample / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SD-46-11272007	**Solid**	**HPLC 5**	**11/29/07**	**12/03/07**	**071129S03**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	9	7	40-160	1	0-20	3
Acenaphthylene	75	79	40-160	1	0-20	
Acenaphthene	49	56	40-160	2	0-20	
Fluorene	51	51	40-160	0	0-20	
Phenanthrene	34	35	40-160	1	0-20	3
Anthracene	26	23	40-160	14	0-20	3
Fluoranthene	0	0	40-160	0	0-20	3
Pyrene	15	18	40-160	1	0-20	3
Benzo (a) Anthracene	0	0	40-160	1	0-20	3
Chrysene	26	26	40-160	0	0-20	3
Benzo (b) Fluoranthene	6	7	40-160	21	0-20	3,4
Benzo (k) Fluoranthene	1	1	40-160	7	0-20	3
Benzo (a) Pyrene	3	1	40-160	114	0-20	3,4
Dibenz (a,h) Anthracene	0	5	40-160	193	0-20	3,4
Benzo (g,h,i) Perylene	1	1	40-160	27	0-20	3,4
Indeno (1,2,3-c,d) Pyrene	18	1	40-160	184	0-20	3,4

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: N/A
Work Order No: 07-11-2022

Project: Burn Debris Sample / SC0459

Matrix: Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	MS% REC	MSD % REC	%REC CL	RPD	RPD CL	Qualifiers
Chromium, Hexavalent	EPA 7196A	07-11-2096-13	12/12/07	12/12/07	86	85	70-130	1	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

GeoSyntec Consultants		Date Received:	N/A
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2022
San Diego, CA 92127-2116		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: Burn Debris Sample / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
097-01-002-10,129	**Solid**	**ICP 5300**	**11/29/07**	**071129-I-06**	**071129L06**

Parameter	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Antimony	25.0	24.1	96	80-120	
Arsenic	25.0	25.2	101	80-120	
Barium	25.0	25.9	104	80-120	
Beryllium	25.0	24.0	96	80-120	
Cadmium	25.0	25.6	103	80-120	
Chromium	25.0	25.7	103	80-120	
Cobalt	25.0	26.3	105	80-120	
Copper	25.0	24.3	97	80-120	
Lead	25.0	25.7	103	80-120	
Molybdenum	25.0	26.1	104	80-120	
Nickel	25.0	27.4	109	80-120	
Selenium	25.0	24.0	96	80-120	
Silver	12.5	12.1	97	80-120	
Thallium	25.0	25.6	102	80-120	
Vanadium	25.0	24.6	98	80-120	
Zinc	25.0	27.2	109	80-120	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants		Date Received:	N/A
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2022
San Diego, CA 92127-2116		Preparation:	EPA 3050B
		Method:	EPA 7010

Project: Burn Debris Sample / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-021-260	**Solid**	**GFAA**	**12/12/07**	**12/12/07**	**071212L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	95	98	80-120	3	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants		Date Received:	N/A
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2022
San Diego, CA 92127-2116		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: Burn Debris Sample / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-04-007-5,150	**Solid**	**Mercury**	**11/29/07**	**11/29/07**	**071129L05**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	109	110	87-117	1	0-3	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	N/A
Work Order No:	07-11-2022
Preparation:	EPA 3545
Method:	EPA 8310

Project: Burn Debris Sample / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-002-974	**Solid**	**HPLC 5**	**11/29/07**	**12/03/07**	**071129L03**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	107	116	40-160	8	0-20	
Acenaphthylene	97	104	40-160	7	0-20	
Acenaphthene	102	108	40-160	6	0-20	
Fluorene	101	108	40-160	6	0-20	
Phenanthrene	97	104	40-160	6	0-20	
Anthracene	100	107	40-160	6	0-20	
Fluoranthene	97	103	40-160	6	0-20	
Pyrene	103	110	40-160	6	0-20	
Benzo (a) Anthracene	104	110	40-160	6	0-20	
Chrysene	110	116	40-160	5	0-20	
Benzo (b) Fluoranthene	52	55	40-160	6	0-20	
Benzo (k) Fluoranthene	103	109	40-160	5	0-20	
Benzo (a) Pyrene	101	107	40-160	6	0-20	
Dibenz (a,h) Anthracene	104	110	40-160	5	0-20	
Benzo (g,h,i) Perylene	104	110	40-160	5	0-20	
Indeno (1,2,3-c,d) Pyrene	96	101	40-160	5	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: N/A
Work Order No: 07-11-2022

Project: Burn Debris Sample / SC0459

Matrix : Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Chromium, Hexavalent	EPA 7196A	099-05-001-2,605	12/12/07	12/12/07	20.0	18.0	90	80-120	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 07-11-2022

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Stephen Nowak

From: VWittig@Geosyntec.com
Sent: Tuesday, December 11, 2007 1:35 PM
To: Stephen Nowak
Cc: SMcCarthy@Geosyntec.com; JSchwartz@Geosyntec.com
Subject: Hexavalent Chromium Analyses
Importance: High

Hi Steve,
Here is the list of 14 samples we need to have additionally analyzed for hexavalent chromium by EPA Method 7196A:

SD-56-11282007
SD-02-11282007
SD-12-11272007
SD-20-11282007
SD-34-11262007
SD-44-11282007
SD-51-11282007
SB-05-11292007
SB-07-11292007
SB-20-11282007
SB-21-11292007
SB-24-11292007
SB-36-11292007
SB-43-11292007

We discussed a 24 hour TAT, but a 48 hour TAT will work with our schedule. Therefore, can you provide results by Thursday afternoon?

Veryl Wittig, PG 7115, CHG 723
Hydrogeologist
Geosyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127
P: 858.674.6559 x 203
F: 858.674.6586
M: 619.884.6552
vwittig@geosyntec.com
This electronic mail message contains information that (a) is or may be LEGALLY PRIVILEGED, CONFIDENTIAL, PROPRIETARY IN NATURE, OR OTHERWISE PROTECTED BY LAW FROM DISCLOSURE, and (b) is intended only for the use of the Addressee(s) named herein. If you are not the intended recipient, an addressee, or the person responsible for delivering this to an addressee, you are hereby notified that reading, using, copying, or distributing any part of this message is strictly prohibited. If you have received this electronic mail message in error, please contact us immediately and take the steps necessary to delete the message completely from your computer system.

Document Number: 2208

Analysis Request and Chain of Custody Record

(2022)

Page 1 of 2

Project Name: Dam Debris Sample	Project Number: SC0459
Samplers Names: R. Flynn	Project Contact: Veryl Wittig
Laboratory Name: CalScience	Lab Contact: Steve Nowak
Lab Address: 7440 Lincoln Way, Garden Grove, CA 92841	Lab Phone: (714) 895-5494
	Carrier/Waybill No.: Pick up

Required Analyses: VOCs by ____; Metals 6010B; SVOCs by 8270; PAH 8310

White copy: to accompany samples

Yellow copy: field copy

Bottle Type and Volume/Preservative: Glass 8oz CN; Glass 8oz N

	Sample Name	Date	Time	Sample Type	Number of Containers										Comments	Lab Use Only: Condition of Bottles
1	SD-21-11272007	11/27/07	0748	Soil												
2	SD-12-11272007	11/27/07	0820	Soil												
3	SD-16-11272007		0855													
4	SD-13-11272007		0955													
5	SD-41-11272007		1030													
	~~SD-19-11272007~~ (RF)															
6	SD-19-C-11272007	11/27/07	1105	Soil												
7	SD-19-11272007	11/27/07	1105													
8	SD-38-11272007	11/27/07	1255													
9	SD-36-11272007	11/27/07	1320													
10	SD-18-11272007		1355													
11	SD-18-C-11272007		1355													

Special Instructions:

Turn-around Time: ☐ Normal ☐ Rush: _____

1. Relinquished by (Signiture/Affiliation) Rebecca Flynn Geosyntec	Date 11-28-7 Time 1200	1. Received by (Signiture/Affiliation) CEL	Date 11-28-07 Time 1200
2. Relinquished by (Signiture/Affiliation)	Date 11-28-7 Time 1605	2. Received by (Signiture/Affiliation)	Date 11-28-7 Time 1605
3. Relinquished by (Signiture/Affiliation)	Date Time	3. Received by (Signiture/Affiliation)	Date Time

Geosyntec consultants 10875 Rancho Bernardo Road, Suite 200, San Diego, CA 92127 (858) 674-6559 Fax: (858) 674-6586

Document Number: 2209

(2022)

Analysis Request and Chain of Custody Record

Page 2 of 2

Project Name: Burn Debris Sample	Project Number: SC0459
Samplers Names: Rebecca Flynn	Project Contact: Veryl Wittig
Laboratory Name: CalScience	Lab Contact: Steve Nowak
Lab Address: 7440 Lincoln Way, Garden Grove, CA 92841-1427	Lab Phone: (714) 895-5494
	Carrier/Waybill No.: Pick up

White copy: to accompany samples

Yellow copy: field copy

	Sample Name	Date	Time	Sample Type	VOCs by ___	Metals 6010B	SVOCs by 8270	PAHs 8310							Comments	Lab Use Only: Condition of Bottles
	Bottle Type and Volume/Preservative					8oz glass		8oz glass								
	Number of Containers															
12	SD-24-11272007	11/27/07	1425	Soil		1		1								
13	SD-22-11272007	1	1445	1		1		1								
14	SD-25-11272007	1	1515	1		1		1								
15	SD-54-11272007	1	1545	1		1		1								
16	SD-46-11272007		1620			1		1								

Special Instructions:

Turn-around Time: ☐ Normal ☐ Rush: _____

1. Relinquished by (Signiture/Affiliation) Rebecca Flynn Geosyntec	Date 11-28-7 Time 1200	1. Received by (Signiture/Affiliation) CEL	Date 11-28-7 Time 1200
2. Relinquished by (Signiture/Affiliation)	Date 11-28-7 Time 1605	2. Received by (Signiture/Affiliation)	Date 11-28-7 Time 1605
3. Relinquished by (Signiture/Affiliation)	Date Time	3. Received by (Signiture/Affiliation)	Date Time

Geosyntec consultants 10875 Rancho Bernardo Road, Suite 200, San Diego, CA 92127 (858) 674-6559 Fax: (858) 674-6586

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 07 - 11 - 2022

Cooler 1 of 1

SAMPLE RECEIPT FORM

CLIENT: GeoSyntec DATE: 11-28-7

TEMPERATURE – SAMPLES RECEIVED BY:

CALSCIENCE COURIER:

_____ Chilled, cooler with temperature blank provided.
_____ Chilled, cooler without temperature blank.
✓ Chilled and placed in cooler with wet ice.
_____ Ambient and placed in cooler with wet ice.
_____ Ambient temperature.

3.7 °C Temperature blank.

LABORATORY (Other than Calscience Courier):

_____ °C Temperature blank.
_____ °C IR thermometer.
_____ Ambient temperature.

Initial: [signature]

CUSTODY SEAL INTACT:

Sample(s): ✓ Cooler: _____ No (Not Intact) : _____ Not Present: [signature]

Initial: [signature]

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	✓		
Sampler's name indicated on COC	✓		
Sample container label(s) consistent with custody papers	✓		
Sample container(s) intact and good condition	✓		
Correct containers and volume for analyses requested	✓		
Proper preservation noted on sample label(s)			✓
VOA vial(s) free of headspace.			✓
Tedlar bag(s) free of condensation			✓

Initial: [signature]

COMMENTS:

Calscience Environmental Laboratories, Inc.

Supplemental Report 1

December 13, 2007

Additional requested analyses have been added to the original report.

Veryl Wittig
GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Subject: **Calscience Work Order No.: 07-11-2096**
Client Reference: Burn Debris Assessment / SC0459

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/29/2007 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Stephen Nowak
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/29/07
Work Order No:	07-11-2096
Preparation:	EPA 3050B / EPA 7471A Total
Method:	EPA 6010B / EPA 7471A
Units:	mg/kg

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-31-112807	**07-11-2096-1-A**	**11/28/07**	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/30/2007 8:44:31 PM with batch 071130L06

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	12.7	0.750	0.191	1		Mercury	4.50	0.834	0.0130	9.98	B
Arsenic	6.87	0.750	0.130	1		Molybdenum	8.11	0.250	0.0206	1	
Barium	553	0.500	0.164	1		Nickel	81.2	0.250	0.0346	1	
Beryllium	0.590	0.250	0.00368	1		Selenium	0.959	0.750	0.175	1	
Cadmium	7.08	0.500	0.00988	1		Silver	6.58	0.250	0.0209	1	
Chromium	141	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	87.4	0.250	0.00859	1		Vanadium	34.7	0.250	0.00934	1	
Copper	1180	50.0	4.69	100	B	Zinc	6240	100	17.7	100	B
Lead	467	0.500	0.0527	1	B						

SB-42A-112807	**07-11-2096-2-A**	**11/28/07**	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/30/2007 4:50:12 PM with batch 071130L06

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	26.4	0.750	0.191	1		Mercury	0.0357	0.0835	0.00130	1	J,B
Arsenic	21.7	0.750	0.130	1		Molybdenum	6.85	0.250	0.0206	1	
Barium	271	0.500	0.164	1		Nickel	118	0.250	0.0346	1	
Beryllium	0.186	0.250	0.00368	1	J	Selenium	0.275	0.750	0.175	1	J
Cadmium	69.3	0.500	0.00988	1		Silver	5.70	0.250	0.0209	1	
Chromium	30.5	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	24.2	0.250	0.00859	1		Vanadium	15.6	0.250	0.00934	1	
Copper	9970	50.0	4.69	100	B	Zinc	2840	100	17.7	100	B
Lead	393	0.500	0.0527	1	B						

SB-42B-112807	**07-11-2096-3-A**	**11/28/07**	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/30/2007 4:52:23 PM with batch 071130L06

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	6.93	0.750	0.191	1		Mercury	0.0232	0.0835	0.00130	1	J,B
Arsenic	4.47	0.750	0.130	1		Molybdenum	1.82	0.250	0.0206	1	
Barium	315	0.500	0.164	1		Nickel	17.0	0.250	0.0346	1	
Beryllium	0.278	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	17.4	0.500	0.00988	1		Silver	51.1	0.250	0.0209	1	
Chromium	15.4	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	5.89	0.250	0.00859	1		Vanadium	15.1	0.250	0.00934	1	
Copper	902	0.500	0.0469	1	B	Zinc	555	1.00	0.177	1	B
Lead	206	0.500	0.0527	1	B						

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/29/07
Work Order No:	07-11-2096
Preparation:	EPA 3050B / EPA 7471A Total
Method:	EPA 6010B / EPA 7471A
Units:	mg/kg

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-41-112807	**07-11-2096-4-A**	**11/28/07**	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/30/2007 4:54:35 PM with batch 071130L06

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	7.11	0.750	0.191	1		Mercury	0.0132	0.0835	0.00130	1	J,B
Arsenic	40.0	0.750	0.130	1		Molybdenum	3.98	0.250	0.0206	1	
Barium	265	0.500	0.164	1		Nickel	35.7	0.250	0.0346	1	
Beryllium	0.836	0.250	0.00368	1		Selenium	0.701	0.750	0.175	1	J
Cadmium	1.84	0.500	0.00988	1		Silver	4.99	0.250	0.0209	1	
Chromium	51.8	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	31.3	0.250	0.00859	1		Vanadium	23.0	0.250	0.00934	1	
Copper	2980	50.0	4.69	100	B	Zinc	2610	100	17.7	100	B
Lead	112	0.500	0.0527	1	B						

SB-25A-112807	**07-11-2096-5-A**	**11/28/07**	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/30/2007 4:56:48 PM with batch 071130L06

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	24.6	0.750	0.191	1		Mercury	0.0194	0.0835	0.00130	1	J,B
Arsenic	9.27	0.750	0.130	1		Molybdenum	1.32	0.250	0.0206	1	
Barium	155	0.500	0.164	1		Nickel	13.3	0.250	0.0346	1	
Beryllium	0.173	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	0.674	0.500	0.00988	1		Silver	0.723	0.250	0.0209	1	
Chromium	8.82	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	6.54	0.250	0.00859	1		Vanadium	32.8	0.250	0.00934	1	
Copper	4600	50.0	4.69	100	B	Zinc	466	1.00	0.177	1	B
Lead	135	0.500	0.0527	1	B						

SB-25B-112807	**07-11-2096-6-A**	**11/28/07**	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/30/2007 4:59:00 PM with batch 071130L06

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	67.5	0.750	0.191	1		Mercury	0.0247	0.0835	0.00130	1	J,B
Arsenic	6.00	0.750	0.130	1		Molybdenum	1.56	0.250	0.0206	1	
Barium	740	0.500	0.164	1		Nickel	27.2	0.250	0.0346	1	
Beryllium	0.493	0.250	0.00368	1		Selenium	0.367	0.750	0.175	1	J
Cadmium	0.460	0.500	0.00988	1	J	Silver	4.86	0.250	0.0209	1	
Chromium	5.95	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	15.9	0.250	0.00859	1		Vanadium	63.0	0.250	0.00934	1	
Copper	13800	50.0	4.69	100	B	Zinc	8420	100	17.7	100	B
Lead	145	0.500	0.0527	1	B						

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/29/07
Work Order No:	07-11-2096
Preparation:	EPA 3050B / EPA 7471A Total
Method:	EPA 6010B / EPA 7471A
Units:	mg/kg
	Page 3 of 6

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-40-112807	**07-11-2096-7-A**	**11/28/07**	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/30/2007 5:01:13 PM with batch 071130L06

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	32.9	0.750	0.191	1		Mercury	0.0377	0.0835	0.00130	1	J,B
Arsenic	16.6	0.750	0.130	1		Molybdenum	1.82	0.250	0.0206	1	
Barium	262	0.500	0.164	1		Nickel	57.2	0.250	0.0346	1	
Beryllium	0.318	0.250	0.00368	1		Selenium	1.74	0.750	0.175	1	
Cadmium	1.63	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	40.7	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	8.93	0.250	0.00859	1		Vanadium	59.4	0.250	0.00934	1	
Copper	1020	0.500	0.0469	1	B	Zinc	591	1.00	0.177	1	B
Lead	62.7	0.500	0.0527	1	B						

SB-17-112807	**07-11-2096-8-A**	**11/28/07**	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/30/2007 5:07:57 PM with batch 071130L06

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	30.6	0.750	0.191	1		Mercury	0.0207	0.0835	0.00130	1	J,B
Arsenic	52.0	0.750	0.130	1		Molybdenum	2.05	0.250	0.0206	1	
Barium	231	0.500	0.164	1		Nickel	13.1	0.250	0.0346	1	
Beryllium	0.409	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	2.36	0.500	0.00988	1		Silver	1.74	0.250	0.0209	1	
Chromium	42.2	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	11.4	0.250	0.00859	1		Vanadium	15.7	0.250	0.00934	1	
Copper	3030	50.0	4.69	100	B	Zinc	3270	100	17.7	100	B
Lead	333	0.500	0.0527	1	B						

SB-35-112907	**07-11-2096-9-A**	**11/29/07**	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/30/2007 5:14:42 PM with batch 071130L06

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	5.15	0.750	0.191	1		Mercury	0.0419	0.0835	0.00130	1	J,B
Arsenic	10.5	0.750	0.130	1		Molybdenum	2.38	0.250	0.0206	1	
Barium	252	0.500	0.164	1		Nickel	12.7	0.250	0.0346	1	
Beryllium	0.160	0.250	0.00368	1	J	Selenium	0.226	0.750	0.175	1	J
Cadmium	3.48	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	11.3	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	3.77	0.250	0.00859	1		Vanadium	20.6	0.250	0.00934	1	
Copper	4110	50.0	4.69	100	B	Zinc	951	1.00	0.177	1	B
Lead	73.3	0.500	0.0527	1	B						

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/29/07
Work Order No: 07-11-2096
Preparation: EPA 3050B / EPA 7471A Total
Method: EPA 6010B / EPA 7471A
Units: mg/kg

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-35C-112907	**07-11-2096-10-A**	**11/29/07**	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/30/2007 5:16:59 PM with batch 071130L06

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	21.6	0.750	0.191	1		Mercury	0.0598	0.0835	0.00130	1	J,B
Arsenic	13.4	0.750	0.130	1		Molybdenum	3.54	0.250	0.0206	1	
Barium	249	0.500	0.164	1		Nickel	9.50	0.250	0.0346	1	
Beryllium	0.160	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	5.13	0.500	0.00988	1		Silver	0.605	0.250	0.0209	1	
Chromium	12.2	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	4.95	0.250	0.00859	1		Vanadium	17.8	0.250	0.00934	1	
Copper	995	0.500	0.0469	1	B	Zinc	1120	1.00	0.177	1	B
Lead	96.4	0.500	0.0527	1	B						

SB-24-112907	**07-11-2096-11-A**	**11/29/07**	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/30/2007 5:19:15 PM with batch 071130L06

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	189	0.750	0.191	1		Mercury	0.0282	0.0835	0.00130	1	J,B
Arsenic	73.5	0.750	0.130	1		Molybdenum	1.67	0.250	0.0206	1	
Barium	138	0.500	0.164	1		Nickel	6.03	0.250	0.0346	1	
Beryllium	0.0331	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	22.9	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	62.2	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	13.5	0.250	0.00859	1		Vanadium	7.22	0.250	0.00934	1	
Copper	2960	50.0	4.69	100	B	Zinc	1690	100	17.7	100	B
Lead	184	0.500	0.0527	1	B						

SB-43-112907	**07-11-2096-12-A**	**11/29/07**	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/30/2007 5:21:28 PM with batch 071130L06

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	34.9	0.750	0.191	1		Mercury	0.0128	0.0835	0.00130	1	J,B
Arsenic	40.0	0.750	0.130	1		Molybdenum	43.7	0.250	0.0206	1	
Barium	575	0.500	0.164	1		Nickel	20.5	0.250	0.0346	1	
Beryllium	0.238	0.250	0.00368	1	J	Selenium	0.385	0.750	0.175	1	J
Cadmium	2.08	0.500	0.00988	1		Silver	0.571	0.250	0.0209	1	
Chromium	101	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	8.43	0.250	0.00859	1		Vanadium	25.2	0.250	0.00934	1	
Copper	20800	50.0	4.69	100	B	Zinc	4300	100	17.7	100	B
Lead	2580	50.0	5.27	100	B						

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/29/07
Work Order No: 07-11-2096
Preparation: EPA 3050B / EPA 7471A Total
Method: EPA 6010B / EPA 7471A
Units: mg/kg

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-07-112907	**07-11-2096-13-A**	**11/29/07**	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/30/2007 5:23:38 PM with batch 071130L06

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	0.994	0.750	0.191	1		Mercury	0.0192	0.0835	0.00130	1	J,B
Arsenic	13.6	0.750	0.130	1		Molybdenum	3.82	0.250	0.0206	1	
Barium	222	0.500	0.164	1		Nickel	44.3	0.250	0.0346	1	
Beryllium	0.293	0.250	0.00368	1		Selenium	0.422	0.750	0.175	1	J
Cadmium	21.9	0.500	0.00988	1		Silver	1.67	0.250	0.0209	1	
Chromium	21.1	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	13.4	0.250	0.00859	1		Vanadium	22.4	0.250	0.00934	1	
Copper	780	5.00	0.469	10	B	Zinc	1870	100	17.7	100	B
Lead	250	0.500	0.0527	1	B						

SB-21-112907	**07-11-2096-14-A**	**11/29/07**	**Solid**	**ICP 5300**	**11/30/07**	**12/03/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/30/2007 5:25:48 PM with batch 071130L06

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	14.9	0.750	0.191	1		Mercury	0.0175	0.0835	0.00130	1	J,B
Arsenic	11.8	0.750	0.130	1		Molybdenum	1.58	0.250	0.0206	1	
Barium	238	0.500	0.164	1		Nickel	27.4	0.250	0.0346	1	
Beryllium	0.596	0.250	0.00368	1		Selenium	1.10	0.750	0.175	1	
Cadmium	683	0.500	0.00988	1		Silver	1.57	0.250	0.0209	1	
Chromium	18.8	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	7.41	0.250	0.00859	1		Vanadium	26.1	0.250	0.00934	1	
Copper	6460	50.0	4.69	100	B	Zinc	1870	100	17.7	100	B
Lead	106	0.500	0.0527	1	B						

SB-36-112907	**07-11-2096-15-A**	**11/29/07**	**Solid**	**ICP 5300**	**11/30/07**	**12/03/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/30/2007 5:27:59 PM with batch 071130L06

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	25.9	0.750	0.191	1		Mercury	0.0139	0.0835	0.00130	1	J,B
Arsenic	17.1	0.750	0.130	1		Molybdenum	7.77	0.250	0.0206	1	
Barium	208	0.500	0.164	1		Nickel	41.2	0.250	0.0346	1	
Beryllium	0.263	0.250	0.00368	1		Selenium	1.39	0.750	0.175	1	
Cadmium	2.20	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	35.6	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	7.97	0.250	0.00859	1		Vanadium	66.4	0.250	0.00934	1	
Copper	2280	50.0	4.69	100	B	Zinc	1730	100	17.7	100	B
Lead	680	0.500	0.0527	1	B						

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/29/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2096
San Diego, CA 92127-2116		Preparation:	EPA 3050B / EPA 7471A Total
		Method:	EPA 6010B / EPA 7471A
		Units:	mg/kg
Project: Burn Debris Assessment / SC0459			Page 6 of 6

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
Method Blank	**099-04-007-5,156**	**N/A**	**Solid**	**Mercury**	**11/30/07**	**11/30/07**	**071130L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual
Mercury	0.00840	0.0835	0.00130	1	J

Method Blank	**097-01-002-10,149**	**N/A**	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Lead	0.179	0.500	0.0527	1	J
Arsenic	ND	0.750	0.130	1		Molybdenum	ND	0.250	0.0206	1	
Barium	ND	0.500	0.164	1		Nickel	ND	0.250	0.0346	1	
Beryllium	ND	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	ND	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	ND	0.250	0.00859	1		Vanadium	ND	0.250	0.00934	1	
Copper	0.0496	0.500	0.0469	1	J	Zinc	0.210	1.00	0.177	1	J

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/29/07
Work Order No:	07-11-2096
Preparation:	EPA 3545
Method:	EPA 8310
Units:	ug/kg

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-31-112807	**07-11-2096-1-A**	**11/28/07**	**Solid**	**HPLC 6**	**11/29/07**	**12/04/07**	**071129L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	4600	150	39	10		Benzo (a) Anthracene	150	100	32	10	
Acenaphthylene	3000	300	68	10		Chrysene	64	100	32	10	J
Acenaphthene	6800	150	50	10		Benzo (b) Fluoranthene	ND	100	32	10	
Fluorene	380	100	32	10		Benzo (k) Fluoranthene	ND	100	32	10	
Phenanthrene	290	100	33	10		Benzo (a) Pyrene	ND	100	31	10	
Anthracene	56	100	35	10	J	Dibenz (a,h) Anthracene	ND	100	37	10	
Fluoranthene	380	100	34	10		Benzo (g,h,i) Perylene	ND	100	40	10	
Pyrene	180	100	29	10		Indeno (1,2,3-c,d) Pyrene	ND	100	35	10	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	368	40-160	2

SB-42A-112807	**07-11-2096-2-A**	**11/28/07**	**Solid**	**HPLC 6**	**11/29/07**	**12/04/07**	**071129L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	1700	150	39	10		Benzo (a) Anthracene	ND	100	32	10	
Acenaphthylene	ND	300	68	10		Chrysene	ND	100	32	10	
Acenaphthene	760	150	50	10		Benzo (b) Fluoranthene	ND	100	32	10	
Fluorene	ND	100	32	10		Benzo (k) Fluoranthene	ND	100	32	10	
Phenanthrene	130	100	33	10		Benzo (a) Pyrene	ND	100	31	10	
Anthracene	ND	100	35	10		Dibenz (a,h) Anthracene	ND	100	37	10	
Fluoranthene	ND	100	34	10		Benzo (g,h,i) Perylene	ND	100	40	10	
Pyrene	ND	100	29	10		Indeno (1,2,3-c,d) Pyrene	ND	100	35	10	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	152	40-160	

SB-42B-112807	**07-11-2096-3-A**	**11/28/07**	**Solid**	**HPLC 6**	**11/29/07**	**12/03/07**	**071129L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	130	15	3.9	1		Benzo (a) Anthracene	ND	10	3.2	1	
Acenaphthylene	ND	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	180	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	ND	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	25	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	7.6	10	3.5	1	J	Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	ND	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	137	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/29/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2096
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Assessment / SC0459			Page 2 of 6

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-41-112807	**07-11-2096-4-A**	**11/28/07**	**Solid**	**HPLC 6**	**11/29/07**	**12/04/07**	**071129L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	770	30	7.8	2		Benzo (a) Anthracene	ND	20	6.4	2	
Acenaphthylene	ND	60	14	2		Chrysene	ND	20	6.4	2	
Acenaphthene	970	30	10	2		Benzo (b) Fluoranthene	ND	20	6.5	2	
Fluorene	30	20	6.4	2		Benzo (k) Fluoranthene	ND	20	6.4	2	
Phenanthrene	45	20	6.7	2		Benzo (a) Pyrene	ND	20	6.2	2	
Anthracene	ND	20	7.0	2		Dibenz (a,h) Anthracene	ND	20	7.5	2	
Fluoranthene	67	20	6.8	2		Benzo (g,h,i) Perylene	ND	20	7.9	2	
Pyrene	ND	20	5.8	2		Indeno (1,2,3-c,d) Pyrene	ND	20	7.1	2	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	118	40-160	

SB-25A-112807	**07-11-2096-5-A**	**11/28/07**	**Solid**	**HPLC 6**	**11/29/07**	**12/03/07**	**071129L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	200	15	3.9	1		Benzo (a) Anthracene	ND	10	3.2	1	
Acenaphthylene	ND	30	6.8	1		Chrysene	5.4	10	3.2	1	J
Acenaphthene	180	15	5.0	1		Benzo (b) Fluoranthene	8.2	10	3.2	1	J
Fluorene	210	10	3.2	1		Benzo (k) Fluoranthene	3.4	10	3.2	1	J
Phenanthrene	120	10	3.3	1		Benzo (a) Pyrene	6.2	10	3.1	1	J
Anthracene	17	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	250	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	ND	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	13	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	284	40-160	2

SB-25B-112807	**07-11-2096-6-A**	**11/28/07**	**Solid**	**HPLC 6**	**11/29/07**	**12/03/07**	**071129L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	350	15	3.9	1		Benzo (a) Anthracene	ND	10	3.2	1	
Acenaphthylene	ND	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	270	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	24	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	69	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	10	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	ND	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	76	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/29/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2096
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Assessment / SC0459			Page 3 of 6

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-40-112807	**07-11-2096-7-A**	**11/28/07**	**Solid**	**HPLC 6**	**11/29/07**	**12/04/07**	**071129L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	2100	75	20	5		Benzo (a) Anthracene	ND	50	16	5	
Acenaphthylene	ND	150	34	5		Chrysene	ND	50	16	5	
Acenaphthene	670	75	25	5		Benzo (b) Fluoranthene	ND	50	16	5	
Fluorene	ND	50	16	5		Benzo (k) Fluoranthene	ND	50	16	5	
Phenanthrene	120	50	17	5		Benzo (a) Pyrene	ND	50	15	5	
Anthracene	ND	50	18	5		Dibenz (a,h) Anthracene	ND	50	19	5	
Fluoranthene	ND	50	17	5		Benzo (g,h,i) Perylene	ND	50	20	5	
Pyrene	ND	50	14	5		Indeno (1,2,3-c,d) Pyrene	ND	50	18	5	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	174	40-160	2

SB-17-112807	**07-11-2096-8-A**	**11/28/07**	**Solid**	**HPLC 6**	**11/29/07**	**12/03/07**	**071129L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	610	15	3.9	1		Benzo (a) Anthracene	ND	10	3.2	1	
Acenaphthylene	ND	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	530	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	34	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	61	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	10	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	ND	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	88	40-160	

SB-35-112907	**07-11-2096-9-A**	**11/29/07**	**Solid**	**HPLC 6**	**11/29/07**	**12/03/07**	**071129L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	ND	15	3.9	1		Benzo (a) Anthracene	ND	10	3.2	1	
Acenaphthylene	ND	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	190	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	ND	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	16	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	ND	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	ND	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	153	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/29/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2096
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Assessment / SC0459			Page 4 of 6

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-35C-112907	**07-11-2096-10-A**	**11/29/07**	**Solid**	**HPLC 6**	**11/29/07**	**12/03/07**	**071129L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	610	15	3.9	1		Benzo (a) Anthracene	ND	10	3.2	1	
Acenaphthylene	ND	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	150	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	ND	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	23	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	ND	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	ND	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	66	40-160	

SB-24-112907	**07-11-2096-11-A**	**11/29/07**	**Solid**	**HPLC 6**	**11/29/07**	**12/03/07**	**071129L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	610	15	3.9	1		Benzo (a) Anthracene	ND	10	3.2	1	
Acenaphthylene	ND	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	310	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	ND	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	39	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	11	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	ND	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	129	40-160	

SB-43-112907	**07-11-2096-12-A**	**11/29/07**	**Solid**	**HPLC 6**	**11/29/07**	**12/04/07**	**071129L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	530	30	7.8	2		Benzo (a) Anthracene	ND	20	6.4	2	
Acenaphthylene	ND	60	14	2		Chrysene	ND	20	6.4	2	
Acenaphthene	1500	30	10	2		Benzo (b) Fluoranthene	ND	20	6.5	2	
Fluorene	14	20	6.4	2	J	Benzo (k) Fluoranthene	ND	20	6.4	2	
Phenanthrene	22	20	6.7	2		Benzo (a) Pyrene	ND	20	6.2	2	
Anthracene	ND	20	7.0	2		Dibenz (a,h) Anthracene	ND	20	7.5	2	
Fluoranthene	ND	20	6.8	2		Benzo (g,h,i) Perylene	ND	20	7.9	2	
Pyrene	ND	20	5.8	2		Indeno (1,2,3-c,d) Pyrene	ND	20	7.1	2	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	78	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/29/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2096
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Assessment / SC0459			Page 5 of 6

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-07-112907	**07-11-2096-13-A**	**11/29/07**	**Solid**	**HPLC 6**	**11/29/07**	**12/04/07**	**071129L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	490	15	3.9	1		Benzo (a) Anthracene	ND	10	3.2	1	
Acenaphthylene	ND	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	180	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	ND	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	20	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	ND	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	ND	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	72	40-160	

SB-21-112907	**07-11-2096-14-A**	**11/29/07**	**Solid**	**HPLC 6**	**11/29/07**	**12/04/07**	**071129L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	250	15	3.9	1		Benzo (a) Anthracene	ND	10	3.2	1	
Acenaphthylene	ND	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	160	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	ND	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	10	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	ND	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	ND	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	67	40-160	

SB-36-112907	**07-11-2096-15-A**	**11/29/07**	**Solid**	**HPLC 6**	**11/29/07**	**12/03/07**	**071129L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	780	15	3.9	1		Benzo (a) Anthracene	26	10	3.2	1	
Acenaphthylene	310	30	6.8	1		Chrysene	16	10	3.2	1	
Acenaphthene	400	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	81	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	120	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	22	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	140	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	38	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	85	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/29/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2096
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Assessment / SC0459			Page 6 of 6

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
Method Blank	**099-07-002-975**	**N/A**	**Solid**	**HPLC 6**	**11/29/07**	**12/03/07**	**071129L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	ND	15	3.9	1		Benzo (a) Anthracene	ND	10	3.2	1	
Acenaphthylene	ND	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	ND	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	ND	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	ND	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	ND	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	123	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/29/07
Work Order No: 07-11-2096

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix
SB-24-112907	**07-11-2096-11**	**11/29/07**	**Solid**

Comment(s): (24) Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent (24)	ND	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

SB-43-112907	**07-11-2096-12**	**11/29/07**	**Solid**

Comment(s): (24) Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent (24)	ND	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

SB-07-112907	**07-11-2096-13**	**11/29/07**	**Solid**

Comment(s): (24) Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent (24)	ND	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

SB-21-112907	**07-11-2096-14**	**11/29/07**	**Solid**

Comment(s): (24) Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent (24)	ND	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

SB-36-112907	**07-11-2096-15**	**11/29/07**	**Solid**

Comment(s): (24) Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent (24)	ND	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

Method Blank	**N/A**	**Solid**

Comment(s): (24) Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent (24)	ND	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/29/07
Work Order No: 07-11-2096
Preparation: EPA 3050B
Method: EPA 6010B

Project Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SB-17-112807	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130S04**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	48	67	50-115	11	0-20	3
Arsenic	89	151	75-125	19	0-20	3
Barium	4X	4X	75-125	4X	0-20	Q
Beryllium	96	96	75-125	0	0-20	
Cadmium	91	90	75-125	1	0-20	
Chromium	54	142	75-125	33	0-20	3,4
Cobalt	77	84	75-125	6	0-20	
Copper	4X	4X	75-125	4X	0-20	Q
Lead	4X	4X	75-125	4X	0-20	Q
Molybdenum	88	90	75-125	2	0-20	
Nickel	81	104	75-125	16	0-20	
Selenium	95	94	75-125	1	0-20	
Silver	96	123	75-125	22	0-20	4
Thallium	11	22	75-125	68	0-20	3,4
Vanadium	95	99	75-125	3	0-20	
Zinc	4X	4X	75-125	4X	0-20	Q

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/29/07
Work Order No:	07-11-2096
Preparation:	EPA 7471A Total
Method:	EPA 7471A

Project Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SB-17-112807	**Solid**	**Mercury**	**11/30/07**	**11/30/07**	**071130S06**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	89	89	84-138	0	0-7	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/29/07
Work Order No:	07-11-2096
Preparation:	EPA 3545
Method:	EPA 8310

Project Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SB-36-112907	**Solid**	**HPLC 6**	**11/29/07**	**12/03/07**	**071129S13**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	0	0	40-160	0	0-20	3
Acenaphthylene	0	0	40-160	1	0-20	3
Acenaphthene	0	0	40-160	1	0-20	3
Fluorene	0	0	40-160	0	0-20	3
Phenanthrene	0	0	40-160	0	0-20	3
Anthracene	0	0	40-160	0	0-20	3
Fluoranthene	0	0	40-160	1	0-20	3
Pyrene	0	0	40-160	2	0-20	3
Benzo (a) Anthracene	0	0	40-160	1	0-20	3
Chrysene	0	0	40-160	0	0-20	3
Benzo (b) Fluoranthene	2	2	40-160	2	0-20	3
Benzo (k) Fluoranthene	0	0	40-160	0	0-20	3
Benzo (a) Pyrene	2	2	40-160	7	0-20	3
Dibenz (a,h) Anthracene	0	0	40-160	0	0-20	3
Benzo (g,h,i) Perylene	0	0	40-160	0	0-20	3
Indeno (1,2,3-c,d) Pyrene	0	0	40-160	0	0-20	3

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: N/A
Work Order No: 07-11-2096

Project: Burn Debris Assessment / SC0459

Matrix: Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	MS% REC	MSD % REC	%REC CL	RPD	RPD CL	Qualifiers
Chromium, Hexavalent	EPA 7196A	SB-07-112907	12/12/07	12/12/07	86	85	70-130	1	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants		Date Received:	N/A
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2096
San Diego, CA 92127-2116		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-01-002-10,149	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	98	103	80-120	6	0-20	
Arsenic	95	103	80-120	8	0-20	
Barium	100	110	80-120	10	0-20	
Beryllium	93	103	80-120	10	0-20	
Cadmium	99	108	80-120	9	0-20	
Chromium	100	109	80-120	9	0-20	
Cobalt	100	109	80-120	9	0-20	
Copper	94	101	80-120	7	0-20	
Lead	99	107	80-120	8	0-20	
Molybdenum	99	108	80-120	8	0-20	
Nickel	104	112	80-120	7	0-20	
Selenium	92	101	80-120	9	0-20	
Silver	95	110	80-120	14	0-20	
Thallium	96	104	80-120	8	0-20	
Vanadium	96	105	80-120	9	0-20	
Zinc	102	114	80-120	12	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants		Date Received:	N/A
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2096
San Diego, CA 92127-2116		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-04-007-5,156	**Solid**	**Mercury**	**11/30/07**	**11/30/07**	**071130L06**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	99	97	87-117	3	0-3	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants		Date Received:	N/A
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2096
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310

Project: Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-002-975	**Solid**	**HPLC 6**	**11/29/07**	**12/03/07**	**071129L13**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	104	112	40-160	7	0-20	
Acenaphthylene	99	106	40-160	6	0-20	
Acenaphthene	96	101	40-160	5	0-20	
Fluorene	102	108	40-160	6	0-20	
Phenanthrene	94	100	40-160	6	0-20	
Anthracene	93	99	40-160	6	0-20	
Fluoranthene	99	105	40-160	6	0-20	
Pyrene	97	103	40-160	6	0-20	
Benzo (a) Anthracene	98	104	40-160	6	0-20	
Chrysene	109	115	40-160	5	0-20	
Benzo (b) Fluoranthene	53	56	40-160	6	0-20	
Benzo (k) Fluoranthene	100	106	40-160	6	0-20	
Benzo (a) Pyrene	102	109	40-160	6	0-20	
Dibenz (a,h) Anthracene	96	105	40-160	9	0-20	
Benzo (g,h,i) Perylene	100	106	40-160	6	0-20	
Indeno (1,2,3-c,d) Pyrene	92	98	40-160	6	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: N/A
Work Order No: 07-11-2096

Project: Burn Debris Assessment / SC0459

Matrix : Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Chromium, Hexavalent	EPA 7196A	099-05-001-2,605	12/12/07	12/12/07	20.0	18.0	90	80-120	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 07-11-2096

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Stephen Nowak

From: VWittig@Geosyntec.com
Sent: Tuesday, December 11, 2007 1:35 PM
To: Stephen Nowak
Cc: SMcCarthy@Geosyntec.com; JSchwartz@Geosyntec.com
Subject: Hexavalent Chromium Analyses
Importance: High

Hi Steve,
Here is the list of 14 samples we need to have additionally analyzed for hexavalent chromium by EPA Method 7196A:

SD-56-11282007
SD-02-11282007
SD-12-11272007
SD-20-11282007
SD-34-11262007
SD-44-11282007
SD-51-11282007
SB-05-11292007
SB-07-11292007
SB-20-11282007
SB-21-11292007
SB-24-11292007
SB-36-11292007
SB-43-11292007

We discussed a 24 hour TAT, but a 48 hour TAT will work with our schedule. Therefore, can you provide results by Thursday afternoon?

Veryl Wittig, PG 7115, CHG 723
Hydrogeologist
Geosyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127
P: 858.674.6559 x 203
F: 858.674.6586
M: 619.884.6552
vwittig@geosyntec.com
This electronic mail message contains information that (a) is or may be LEGALLY PRIVILEGED, CONFIDENTIAL, PROPRIETARY IN NATURE, OR OTHERWISE PROTECTED BY LAW FROM DISCLOSURE, and (b) is intended only for the use of the Addressee(s) named herein. If you are not the intended recipient, an addressee, or the person responsible for delivering this to an addressee, you are hereby notified that reading, using, copying, or distributing any part of this message is strictly prohibited. If you have received this electronic mail message in error, please contact us immediately and take the steps necessary to delete the message completely from your computer system.

Document Number: 2213

(2096)

Analysis Request and Chain of Custody Record

Project Name: Burned Debris Assess.	Project Number: SC0459
Samplers Names: E. Ortenberg	Project Contact: Veryl Wittig
Laboratory Name: Calscience	Lab Contact: Steve Nowak
Lab Address: Garden Grove	Lab Phone: 714-
	Carrier/Waybill No.

Page 1 of 2

White copy: to accompany samples

Yellow copy: field copy

Sample Name	Date	Time	Sample Type	VOCs by ___	Metals 6010B	SVOCs by 8270	T22 (TTLC)	8310 (PAHs)						Comments	Lab Use Only: Condition of Bottles
				Bottle Type and Volume/Preservative	8oz or 2-4oz		8oz or 2-4oz	8oz or 2-4oz							
				Number of Containers											
1 SB-31-112807	11.28.07	13:02	Soil		X		X	X							
2 SB-42A-112807		13:45			X		X	X							
3 SB-42B-112807		14:00			X		X	X							
4 SB-41-112807		14:25			X		X	X							
5 SB-25A-112807		14:45			X		X	X							
6 SB-25B-112807		15:05			X		X	X							
7 SB-40-112807		15:30			X		X	X							
8 SB-17-112807		15:55			X		X	X							
9 SB-35-112907	11.29.07	08:00			X		1	1							
10 SB-35C-112907		08:00	EW		~~2-4oz~~		~~2-4oz~~	~~2-4oz~~							
11 SB-24-112907		08:45			X		1	1							
12 SB-43-112907		09:15			1		1	1							

Special Instructions: If Arsenic Concentrations by 6010B are < MDL then analyze by 7010. (Soil is ash)

Turn-around Time: 5 day standard

☒ Normal ☐ Rush: _____

1. Relinquished by (Signiture/Affiliation): Elyse Warnke	Date 11.29.07 Time 1240	1. Received by (Signiture/Affiliation): Wbatu CE	Date 11-29-07 Time 1240
2. Relinquished by (Signiture/Affiliation): Wbatu	Date 11-29-07 Time 1409	2. Received by (Signiture/Affiliation):	Date Time
3. Relinquished by (Signiture/Affiliation):	Date Time	3. Received by (Signiture/Affiliation):	Date Time

Geosyntec consultants 10875 Rancho Bernardo Road, Suite 200, San Diego, CA 92127 (858) 674-6559 Fax: (858) 674-6586

Document Number: 2214

2096

Analysis Request and Chain of Custody Record

Page 2 of 2

Project Name: Burned Debris Assess.	Project Number: SC0459
Samplers Names: Eli Ortenberg	Project Contact: Veryl Wittig
Laboratory Name: CalScience	Lab Contact: Steve Novak
Lab Address: Garden Grove	Lab Phone: 714
	Carrier/Waybill No.

White copy: to accompany samples

Yellow copy: field copy

Sample Name	Date	Time	Sample Type	VOCs by ___	Metals 6010B	SVOCs by 8270	T22/TTLC	8310 (PAH)						Comments	Lab Use Only: Condition of Bottles
				Bottle Type and Volume/Preservative	8oz or 2-4oz		8oz or 2-4oz	8oz or 2-4oz							
				Number of Containers											
13 SB-EW07-112907	11.29.07	09:40	Soil		2		2	2							
14 SB-21-112907	↓	09:55	↓		2		2	2							
15 SB-36-112907		10:42			2		2	2							
					EW										
				11.29.07											

Special Instructions: If Arsenic concentrations by 6010B are < MDL, then analyze by 7010. (soil is ash)

Turn-around Time: ~~5 day standard~~ ☒ Normal ☐ Rush: _____

1. Relinquished by (Signature/Affiliation): Elyse Warnecke	Date 11.29.07 Time 1240	1. Received by (Signature/Affiliation): [illegible] CET	Date 11-29-07 Time 1240
2. Relinquished by (Signature/Affiliation): [illegible]	Date 11-29-07 Time 1409	2. Received by (Signature/Affiliation):	Date Time
3. Relinquished by (Signature/Affiliation):	Date Time	3. Received by (Signature/Affiliation):	Date Time

Geosyntec consultants 10875 Rancho Bernardo Road, Suite 200, San Diego, CA 92127 (858) 674-6559 Fax: (858) 674-6586

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 0 7 - 1 1 - 2 0 9 6

Cooler 1 **of** 1

SAMPLE RECEIPT FORM

CLIENT: GEOSYNTEC **DATE:** 11-29-07

TEMPERATURE – SAMPLES RECEIVED BY:

CALSCIENCE COURIER:

- ____ Chilled, cooler with temperature blank provided.
- ____ Chilled, cooler without temperature blank.
- ✓ Chilled and placed in cooler with wet ice.
- ____ Ambient and placed in cooler with wet ice.
- ____ Ambient temperature.

3.0 °C Temperature blank.

LABORATORY (Other than Calscience Courier):

- ____ °C Temperature blank.
- ____ °C IR thermometer.
- ____ Ambient temperature.

Initial: WB

CUSTODY SEAL INTACT:

Sample(s): ✓ Cooler: ____ No (Not Intact) : ____ Not Present: ~~WB~~

Initial: WB

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	✓		
Sampler's name indicated on COC	✓		
Sample container label(s) consistent with custody papers	✓		
Sample container(s) intact and good condition	✓		
Correct containers and volume for analyses requested	✓		
Proper preservation noted on sample label(s)			✓
VOA vial(s) free of headspace.			✓
Tedlar bag(s) free of condensation			✓

Initial: WB

COMMENTS:

Calscience Environmental Laboratories, Inc.

Supplemental Report 1

December 13, 2007

Additional requested analyses have been added to the original report.

Veryl Wittig
GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Subject: **Calscience Work Order No.: 07-11-2129**
Client Reference: Burn Ash Sampling / SC0459

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/29/2007 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Stephen Nowak
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/29/07
Work Order No: 07-11-2129
Preparation: EPA 3050B / EPA 7471A Total
Method: EPA 6010B / EPA 7471A
Units: mg/kg

Project: Burn Ash Sampling / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-26-11282007	**07-11-2129-1-A**	**11/28/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L08**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 2:15:12 PM with batch 071203L03

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Mercury	0.187	0.0835	0.00130	1	
Arsenic	5.96	0.750	0.130	1		Molybdenum	2.67	0.250	0.0206	1	
Barium	159	0.500	0.164	1		Nickel	28.5	0.250	0.0346	1	B
Beryllium	1.00	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	31.4	0.500	0.00988	1		Silver	1.70	0.250	0.0209	1	
Chromium	13.5	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	4.17	0.250	0.00859	1		Vanadium	17.5	0.250	0.00934	1	B
Copper	1860	10.0	0.938	20		Zinc	2190	20.0	3.54	20	
Lead	3350	10.0	1.05	20							

SD-02-11282007	**07-11-2129-2-A**	**11/28/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L08**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 2:17:30 PM with batch 071203L03

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	73.1	0.750	0.191	1	B	Mercury	ND	0.0835	0.00130	1	
Arsenic	12.6	0.750	0.130	1		Molybdenum	3.63	0.250	0.0206	1	
Barium	420	0.500	0.164	1		Nickel	23.1	0.250	0.0346	1	B
Beryllium	1.17	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	6.22	0.500	0.00988	1		Silver	42.2	0.250	0.0209	1	
Chromium	345	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	47.9	0.250	0.00859	1		Vanadium	40.9	0.250	0.00934	1	B
Copper	2430	10.0	0.938	20		Zinc	3080	20.0	3.54	20	
Lead	1680	10.0	1.05	20							

SD-44-11282007	**07-11-2129-3-A**	**11/28/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L08**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 2:19:43 PM with batch 071203L03

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Mercury	0.0326	0.0835	0.00130	1	J
Arsenic	9.00	0.750	0.130	1		Molybdenum	5.64	0.250	0.0206	1	
Barium	262	0.500	0.164	1		Nickel	28.2	0.250	0.0346	1	B
Beryllium	1.14	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	2.67	0.500	0.00988	1		Silver	9.09	0.250	0.0209	1	
Chromium	26.7	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	5.82	0.250	0.00859	1		Vanadium	21.2	0.250	0.00934	1	B
Copper	627	0.500	0.0469	1		Zinc	1640	20.0	3.54	20	
Lead	1370	10.0	1.05	20							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/29/07
Work Order No: 07-11-2129
Preparation: EPA 3050B / EPA 7471A Total
Method: EPA 6010B / EPA 7471A
Units: mg/kg

Project: Burn Ash Sampling / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-20-11282007	**07-11-2129-4-A**	**11/28/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L08**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 2:03:52 PM with batch 071203L03

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	35.0	0.750	0.191	1	B	Mercury	0.0109	0.0835	0.00130	1	J
Arsenic	11.3	0.750	0.130	1		Molybdenum	2.65	0.250	0.0206	1	
Barium	283	0.500	0.164	1		Nickel	69.2	0.250	0.0346	1	B
Beryllium	1.08	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	1.93	0.500	0.00988	1		Silver	12.4	0.250	0.0209	1	
Chromium	28.7	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	6.05	0.250	0.00859	1		Vanadium	31.6	0.250	0.00934	1	B
Copper	2310	10.0	0.938	20		Zinc	2180	20.0	3.54	20	
Lead	448	0.500	0.0527	1							

SD-11-11282007	**07-11-2129-5-A**	**11/28/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L08**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 2:21:54 PM with batch 071203L03

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	14.0	0.750	0.191	1	B	Mercury	0.0716	0.0835	0.00130	1	J
Arsenic	10.5	0.750	0.130	1		Molybdenum	1.17	0.250	0.0206	1	
Barium	179	0.500	0.164	1		Nickel	27.8	0.250	0.0346	1	B
Beryllium	1.05	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	0.227	0.500	0.00988	1	J	Silver	1.01	0.250	0.0209	1	
Chromium	24.4	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	4.61	0.250	0.00859	1		Vanadium	29.1	0.250	0.00934	1	B
Copper	8080	10.0	0.938	20		Zinc	1310	20.0	3.54	20	
Lead	111	0.500	0.0527	1							

SD-53-11282007	**07-11-2129-6-A**	**11/28/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L08**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 2:24:04 PM with batch 071203L03

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	18.2	0.750	0.191	1	B	Mercury	0.0170	0.0835	0.00130	1	J
Arsenic	6.59	0.750	0.130	1		Molybdenum	3.76	0.250	0.0206	1	
Barium	213	0.500	0.164	1		Nickel	27.9	0.250	0.0346	1	B
Beryllium	0.995	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	4.73	0.500	0.00988	1		Silver	21.1	0.250	0.0209	1	
Chromium	195	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	18.5	0.250	0.00859	1		Vanadium	16.6	0.250	0.00934	1	B
Copper	6870	10.0	0.938	20		Zinc	6080	20.0	3.54	20	
Lead	463	0.500	0.0527	1							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/29/07
Work Order No: 07-11-2129
Preparation: EPA 3050B / EPA 7471A Total
Method: EPA 6010B / EPA 7471A
Units: mg/kg

Project: Burn Ash Sampling / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-47-11282007	**07-11-2129-7-A**	**11/28/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L08**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 2:26:15 PM with batch 071203L03

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	7.11	0.750	0.191	1	B	Mercury	0.00752	0.0835	0.00130	1	J
Arsenic	8.17	0.750	0.130	1		Molybdenum	1.90	0.250	0.0206	1	
Barium	326	0.500	0.164	1		Nickel	5.96	0.250	0.0346	1	B
Beryllium	0.922	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	3.63	0.500	0.00988	1		Silver	0.793	0.250	0.0209	1	
Chromium	15.9	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	2.00	0.250	0.00859	1		Vanadium	8.63	0.250	0.00934	1	B
Copper	124	0.500	0.0469	1		Zinc	4490	20.0	3.54	20	
Lead	379	0.500	0.0527	1							

SD-50-11282007	**07-11-2129-8-A**	**11/28/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L08**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 2:28:27 PM with batch 071203L03

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	6.61	0.750	0.191	1	B	Mercury	0.0428	0.0835	0.00130	1	J
Arsenic	6.67	0.750	0.130	1		Molybdenum	3.69	0.250	0.0206	1	
Barium	146	0.500	0.164	1		Nickel	9.46	0.250	0.0346	1	B
Beryllium	0.966	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	0.0478	0.500	0.00988	1	J	Silver	ND	0.250	0.0209	1	
Chromium	8.64	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	44.3	0.250	0.00859	1		Vanadium	12.8	0.250	0.00934	1	B
Copper	4340	10.0	0.938	20		Zinc	9020	20.0	3.54	20	
Lead	60.2	0.500	0.0527	1							

SD-50C-11282007	**07-11-2129-9-A**	**11/28/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L08**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 2:30:39 PM with batch 071203L03

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	11.3	0.750	0.191	1	B	Mercury	0.0471	0.0835	0.00130	1	J
Arsenic	6.64	0.750	0.130	1		Molybdenum	4.65	0.250	0.0206	1	
Barium	130	0.500	0.164	1		Nickel	9.85	0.250	0.0346	1	B
Beryllium	0.920	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	7.52	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	46.9	0.250	0.00859	1		Vanadium	13.2	0.250	0.00934	1	B
Copper	2530	10.0	0.938	20		Zinc	5110	20.0	3.54	20	
Lead	288	0.500	0.0527	1							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/29/07
Work Order No: 07-11-2129
Preparation: EPA 3050B / EPA 7471A Total
Method: EPA 6010B / EPA 7471A
Units: mg/kg

Project: Burn Ash Sampling / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-55-11282007	**07-11-2129-10-A**	**11/28/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L08**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 2:32:52 PM with batch 071203L03

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	9.20	0.750	0.191	1	B	Mercury	0.0291	0.0835	0.00130	1	J
Arsenic	4.13	0.750	0.130	1		Molybdenum	2.00	0.250	0.0206	1	
Barium	94.3	0.500	0.164	1		Nickel	8.13	0.250	0.0346	1	B
Beryllium	0.899	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	0.736	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	8.84	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	6.09	0.250	0.00859	1		Vanadium	9.38	0.250	0.00934	1	B
Copper	457	0.500	0.0469	1		Zinc	772	1.00	0.177	1	
Lead	56.1	0.500	0.0527	1							

SD-51-11282007	**07-11-2129-11-A**	**11/28/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L08**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 2:35:06 PM with batch 071203L03

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	2.24	0.750	0.191	1	B	Mercury	0.00274	0.0835	0.00130	1	J
Arsenic	5.96	0.750	0.130	1		Molybdenum	1.55	0.250	0.0206	1	
Barium	163	0.500	0.164	1		Nickel	9.68	0.250	0.0346	1	B
Beryllium	1.03	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	2.81	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	21.4	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	5.07	0.250	0.00859	1		Vanadium	24.4	0.250	0.00934	1	B
Copper	851	0.500	0.0469	1		Zinc	572	1.00	0.177	1	
Lead	39.7	0.500	0.0527	1							

SD-62-11282007	**07-11-2129-12-A**	**11/28/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L08**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 2:44:35 PM with batch 071203L03

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Mercury	0.0494	0.0835	0.00130	1	J
Arsenic	6.62	0.750	0.130	1		Molybdenum	1.47	0.250	0.0206	1	
Barium	195	0.500	0.164	1		Nickel	320	0.250	0.0346	1	B
Beryllium	0.996	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	14.6	0.500	0.00988	1		Silver	5.99	0.250	0.0209	1	
Chromium	20.9	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	21.1	0.250	0.00859	1		Vanadium	20.1	0.250	0.00934	1	B
Copper	1980	10.0	0.938	20		Zinc	2290	20.0	3.54	20	
Lead	154	0.500	0.0527	1							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/29/07
Work Order No:	07-11-2129
Preparation:	EPA 3050B / EPA 7471A Total
Method:	EPA 6010B / EPA 7471A
Units:	mg/kg

Project: Burn Ash Sampling / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-58-11282007	**07-11-2129-13-A**	**11/28/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L08**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 2:46:49 PM with batch 071203L03

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	21.6	0.750	0.191	1	B	Mercury	0.00735	0.0835	0.00130	1	J
Arsenic	2.53	0.750	0.130	1		Molybdenum	0.717	0.250	0.0206	1	
Barium	88.1	0.500	0.164	1		Nickel	32.1	0.250	0.0346	1	B
Beryllium	0.867	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	3.03	0.500	0.00988	1		Silver	0.781	0.250	0.0209	1	
Chromium	8.50	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	3.03	0.250	0.00859	1		Vanadium	15.7	0.250	0.00934	1	B
Copper	222	0.500	0.0469	1		Zinc	489	1.00	0.177	1	
Lead	36.2	0.500	0.0527	1							

SD-56-11282007	**07-11-2129-14-A**	**11/28/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L08**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 2:49:03 PM with batch 071203L03

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	6.18	0.750	0.191	1	B	Mercury	0.0361	0.0835	0.00130	1	J
Arsenic	9.44	0.750	0.130	1		Molybdenum	1.89	0.250	0.0206	1	
Barium	253	0.500	0.164	1		Nickel	23.3	0.250	0.0346	1	B
Beryllium	0.975	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	0.951	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	18.7	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	6.88	0.250	0.00859	1		Vanadium	13.1	0.250	0.00934	1	B
Copper	313	0.500	0.0469	1		Zinc	2340	20.0	3.54	20	
Lead	49.4	0.500	0.0527	1							

Method Blank	**099-04-007-5,160**	**N/A**	**Solid**	**Mercury**	**12/03/07**	**12/03/07**	**071203L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual
Mercury	ND	0.0835	0.00130	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/29/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2129
San Diego, CA 92127-2116		Preparation:	EPA 3050B / EPA 7471A Total
		Method:	EPA 6010B / EPA 7471A
		Units:	mg/kg
Project: Burn Ash Sampling / SC0459			Page 6 of 6

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
Method Blank	**097-01-002-10,156**	**N/A**	**Solid**	**ICP 5300**	**12/03/07**	**12/05/07**	**071203L08**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	0.453	0.750	0.191	1	J	Lead	ND	0.500	0.0527	1	
Arsenic	ND	0.750	0.130	1		Molybdenum	ND	0.250	0.0206	1	
Barium	ND	0.500	0.164	1		Nickel	0.0462	0.250	0.0346	1	J
Beryllium	ND	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	ND	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	ND	0.250	0.00859	1		Vanadium	0.0280	0.250	0.00934	1	J
Copper	ND	0.500	0.0469	1		Zinc	ND	1.00	0.177	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/29/07
Work Order No:	07-11-2129
Preparation:	EPA 3545
Method:	EPA 8310
Units:	ug/kg

Project: Burn Ash Sampling / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-26-11282007	**07-11-2129-1-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	530	15	3.9	1		Benzo (a) Anthracene	34	10	3.2	1	
Acenaphthylene	610	30	6.8	1		Chrysene	3.4	10	3.2	1	J
Acenaphthene	380	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	71	10	3.2	1		Benzo (k) Fluoranthene	5.8	10	3.2	1	J
Phenanthrene	210	10	3.3	1		Benzo (a) Pyrene	8.1	10	3.1	1	J
Anthracene	38	10	3.5	1		Dibenz (a,h) Anthracene	12	10	3.7	1	
Fluoranthene	220	10	3.4	1		Benzo (g,h,i) Perylene	12	10	4.0	1	
Pyrene	9.4	10	2.9	1	J	Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	46	40-160	

SD-02-11282007	**07-11-2129-2-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	140	15	3.9	1		Benzo (a) Anthracene	3.8	10	3.2	1	J
Acenaphthylene	100	30	6.8	1		Chrysene	5.0	10	3.2	1	J
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	29	10	3.2	1	
Fluorene	10	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	9.8	10	3.3	1	J	Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	ND	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	19	10	4.0	1	
Pyrene	29	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	71	40-160	

SD-44-11282007	**07-11-2129-3-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	230	15	3.9	1		Benzo (a) Anthracene	72	10	3.2	1	
Acenaphthylene	240	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	20	10	3.2	1		Benzo (k) Fluoranthene	7.2	10	3.2	1	J
Phenanthrene	91	10	3.3	1		Benzo (a) Pyrene	10	10	3.1	1	
Anthracene	12	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	24	10	3.4	1		Benzo (g,h,i) Perylene	6.8	10	4.0	1	J
Pyrene	210	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	7.3	10	3.5	1	J

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	52	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/29/07
Work Order No:	07-11-2129
Preparation:	EPA 3545
Method:	EPA 8310
Units:	ug/kg

Project: Burn Ash Sampling / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-20-11282007	**07-11-2129-4-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	240	15	3.9	1		Benzo (a) Anthracene	130	10	3.2	1	
Acenaphthylene	210	30	6.8	1		Chrysene	28	10	3.2	1	
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	17	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	110	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	8.4	10	3.5	1	J	Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	310	10	3.4	1		Benzo (g,h,i) Perylene	4.6	10	4.0	1	J
Pyrene	430	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	4.4	10	3.5	1	J

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	49	40-160	

SD-11-11282007	**07-11-2129-5-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	950	15	3.9	1		Benzo (a) Anthracene	60	10	3.2	1	
Acenaphthylene	830	30	6.8	1		Chrysene	72	10	3.2	1	
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	80	10	3.2	1		Benzo (k) Fluoranthene	4.5	10	3.2	1	J
Phenanthrene	360	10	3.3	1		Benzo (a) Pyrene	14	10	3.1	1	
Anthracene	31	10	3.5	1		Dibenz (a,h) Anthracene	5.0	10	3.7	1	J
Fluoranthene	26	10	3.4	1		Benzo (g,h,i) Perylene	10	10	4.0	1	
Pyrene	600	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	14	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	49	40-160	

SD-53-11282007	**07-11-2129-6-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	830	30	7.8	2		Benzo (a) Anthracene	810	20	6.4	2	
Acenaphthylene	1200	60	14	2		Chrysene	130	20	6.4	2	
Acenaphthene	520	30	10	2		Benzo (b) Fluoranthene	ND	20	6.5	2	
Fluorene	94	20	6.4	2		Benzo (k) Fluoranthene	ND	20	6.4	2	
Phenanthrene	490	20	6.7	2		Benzo (a) Pyrene	15	20	6.2	2	J
Anthracene	51	20	7.0	2		Dibenz (a,h) Anthracene	ND	20	7.5	2	
Fluoranthene	100	20	6.8	2		Benzo (g,h,i) Perylene	26	20	7.9	2	
Pyrene	790	20	5.8	2		Indeno (1,2,3-c,d) Pyrene	23	20	7.1	2	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	45	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/29/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2129
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Ash Sampling / SC0459			Page 3 of 5

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-47-11282007	**07-11-2129-7-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	610	15	3.9	1		Benzo (a) Anthracene	16	10	3.2	1	
Acenaphthylene	610	30	6.8	1		Chrysene	7.0	10	3.2	1	J
Acenaphthene	200	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	27	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	19	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	3.6	10	3.5	1	J	Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	27	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	44	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	4.6	10	3.5	1	J

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	46	40-160	

SD-50-11282007	**07-11-2129-8-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	790	15	3.9	1		Benzo (a) Anthracene	66	10	3.2	1	
Acenaphthylene	670	30	6.8	1		Chrysene	140	10	3.2	1	
Acenaphthene	180	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	130	10	3.2	1		Benzo (k) Fluoranthene	8.1	10	3.2	1	J
Phenanthrene	410	10	3.3	1		Benzo (a) Pyrene	27	10	3.1	1	
Anthracene	81	10	3.5	1		Dibenz (a,h) Anthracene	67	10	3.7	1	
Fluoranthene	77	10	3.4	1		Benzo (g,h,i) Perylene	16	10	4.0	1	
Pyrene	100	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	17	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	102	40-160	

SD-50C-11282007	**07-11-2129-9-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	440	15	3.9	1		Benzo (a) Anthracene	37	10	3.2	1	
Acenaphthylene	450	30	6.8	1		Chrysene	100	10	3.2	1	
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	28	10	3.2	1	
Fluorene	92	10	3.2	1		Benzo (k) Fluoranthene	6.2	10	3.2	1	J
Phenanthrene	250	10	3.3	1		Benzo (a) Pyrene	21	10	3.1	1	
Anthracene	54	10	3.5	1		Dibenz (a,h) Anthracene	70	10	3.7	1	
Fluoranthene	52	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	17	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	6.6	10	3.5	1	J

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	83	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/29/07
Work Order No:	07-11-2129
Preparation:	EPA 3545
Method:	EPA 8310
Units:	ug/kg
	Page 4 of 5

Project: Burn Ash Sampling / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-55-11282007	**07-11-2129-10-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	1500	30	7.8	2		Benzo (a) Anthracene	260	20	6.4	2	
Acenaphthylene	1500	60	14	2		Chrysene	67	20	6.4	2	
Acenaphthene	ND	30	10	2		Benzo (b) Fluoranthene	ND	20	6.5	2	
Fluorene	400	20	6.4	2		Benzo (k) Fluoranthene	40	20	6.4	2	
Phenanthrene	840	20	6.7	2		Benzo (a) Pyrene	61	20	6.2	2	
Anthracene	180	20	7.0	2		Dibenz (a,h) Anthracene	52	20	7.5	2	
Fluoranthene	310	20	6.8	2		Benzo (g,h,i) Perylene	30	20	7.9	2	
Pyrene	360	20	5.8	2		Indeno (1,2,3-c,d) Pyrene	52	20	7.1	2	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	54	40-160	

SD-51-11282007	**07-11-2129-11-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	450	15	3.9	1		Benzo (a) Anthracene	45	10	3.2	1	
Acenaphthylene	590	30	6.8	1		Chrysene	5.0	10	3.2	1	J
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	71	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	160	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	21	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	9.0	10	3.4	1	J	Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	310	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	54	40-160	

SD-62-11282007	**07-11-2129-12-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	510	15	3.9	1		Benzo (a) Anthracene	120	10	3.2	1	
Acenaphthylene	440	30	6.8	1		Chrysene	16	10	3.2	1	
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	44	10	3.2	1		Benzo (k) Fluoranthene	6.6	10	3.2	1	J
Phenanthrene	130	10	3.3	1		Benzo (a) Pyrene	17	10	3.1	1	
Anthracene	20	10	3.5	1		Dibenz (a,h) Anthracene	14	10	3.7	1	
Fluoranthene	25	10	3.4	1		Benzo (g,h,i) Perylene	8.1	10	4.0	1	J
Pyrene	610	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	11	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	57	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/29/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2129
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Ash Sampling / SC0459			Page 5 of 5

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-58-11282007	**07-11-2129-13-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	280	15	3.9	1		Benzo (a) Anthracene	37	10	3.2	1	
Acenaphthylene	160	30	6.8	1		Chrysene	20	10	3.2	1	
Acenaphthene	20	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	32	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	36	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	4.3	10	3.5	1	J	Dibenz (a,h) Anthracene	3.9	10	3.7	1	J
Fluoranthene	80	10	3.4	1		Benzo (g,h,i) Perylene	4.8	10	4.0	1	J
Pyrene	140	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	6.9	10	3.5	1	J

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	73	40-160	

SD-56-11282007	**07-11-2129-14-A**	**11/28/07**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	3000	75	20	5		Benzo (a) Anthracene	160	50	16	5	
Acenaphthylene	2100	150	34	5		Chrysene	100	50	16	5	
Acenaphthene	840	75	25	5		Benzo (b) Fluoranthene	ND	50	16	5	
Fluorene	210	50	16	5		Benzo (k) Fluoranthene	ND	50	16	5	
Phenanthrene	1000	50	17	5		Benzo (a) Pyrene	72	50	15	5	
Anthracene	120	50	18	5		Dibenz (a,h) Anthracene	40	50	19	5	J
Fluoranthene	120	50	17	5		Benzo (g,h,i) Perylene	ND	50	20	5	
Pyrene	370	50	14	5		Indeno (1,2,3-c,d) Pyrene	ND	50	18	5	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	72	40-160	

Method Blank	**099-07-002-976**	**N/A**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	ND	15	3.9	1		Benzo (a) Anthracene	ND	10	3.2	1	
Acenaphthylene	ND	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	ND	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	ND	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	ND	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	ND	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	84	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/29/07
Work Order No: 07-11-2129

Project: Burn Ash Sampling / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix
SD-02-11282007	**07-11-2129-2**	**11/28/07**	**Solid**

Comment(s): (24) Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent (24)	ND	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

SD-44-11282007	**07-11-2129-3**	**11/28/07**	**Solid**

Comment(s): (24) Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent (24)	ND	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

SD-20-11282007	**07-11-2129-4**	**11/28/07**	**Solid**

Comment(s): (24) Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent (24)	ND	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

SD-51-11282007	**07-11-2129-11**	**11/28/07**	**Solid**

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent	0.88	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

SD-56-11282007	**07-11-2129-14**	**11/28/07**	**Solid**

Comment(s): (24) Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent (24)	ND	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

Method Blank		**N/A**	**Solid**

Comment(s): (24) Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent (24)	ND	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/29/07
Work Order No:	07-11-2129
Preparation:	EPA 3050B
Method:	EPA 6010B

Project Burn Ash Sampling / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SD-20-11282007	**Solid**	**ICP 5300**	**12/03/07**	**12/06/07**	**071203S08**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	87	92	50-115	2	0-20	
Arsenic	123	127	75-125	3	0-20	3
Barium	4X	4X	75-125	4X	0-20	Q
Beryllium	100	102	75-125	2	0-20	
Cadmium	100	103	75-125	3	0-20	
Chromium	108	111	75-125	1	0-20	
Cobalt	97	101	75-125	4	0-20	
Copper	4X	4X	75-125	4X	0-20	Q
Lead	4X	4X	75-125	4X	0-20	Q
Molybdenum	94	100	75-125	5	0-20	
Nickel	105	114	75-125	2	0-20	
Selenium	85	76	75-125	11	0-20	
Silver	125	127	75-125	1	0-20	3
Thallium	56	63	75-125	11	0-20	3
Vanadium	116	119	75-125	1	0-20	
Zinc	4X	4X	75-125	4X	0-20	Q

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/29/07
Work Order No:	07-11-2129
Preparation:	EPA 7471A Total
Method:	EPA 7471A

Project Burn Ash Sampling / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SD-20-11282007	**Solid**	**Mercury**	**12/03/07**	**12/03/07**	**071203S03**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	7	7	84-138	2	0-7	3

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received	11/29/07
Work Order No:	07-11-2129
Preparation:	EPA 7471A Total
Method:	EPA 7471A

Project: Burn Ash Sampling / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
SD-20-11282007	**Solid**	**Mercury**	**12/03/07**	**12/03/07**	**071203S03**

Parameter	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	101	102	75-125	1	0-7	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/29/07
Work Order No:	07-11-2129
Preparation:	EPA 3545
Method:	EPA 8310

Project Burn Ash Sampling / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SD-20-11282007	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130S05**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	486	275	40-160	34	0-20	3,4
Acenaphthylene	385	296	40-160	16	0-20	3
Acenaphthene	68	67	40-160	1	0-20	
Fluorene	64	45	40-160	27	0-20	4
Phenanthrene	131	238	40-160	36	0-20	4,3
Anthracene	73	58	40-160	22	0-20	4
Fluoranthene	562	482	40-160	10	0-20	3
Pyrene	1208	1061	40-160	13	0-20	3
Benzo (a) Anthracene	223	205	40-160	5	0-20	3
Chrysene	73	66	40-160	7	0-20	
Benzo (b) Fluoranthene	1918	4347	40-160	78	0-20	3,4
Benzo (k) Fluoranthene	18	14	40-160	20	0-20	3
Benzo (a) Pyrene	29	28	40-160	2	0-20	3
Dibenz (a,h) Anthracene	6	1	40-160	121	0-20	3,4
Benzo (g,h,i) Perylene	21	21	40-160	2	0-20	3
Indeno (1,2,3-c,d) Pyrene	17	17	40-160	3	0-20	3

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: N/A
Work Order No: 07-11-2129

Project: Burn Ash Sampling / SC0459

Matrix: Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	MS% REC	MSD % REC	%REC CL	RPD	RPD CL	Qualifiers
Chromium, Hexavalent	EPA 7196A	07-11-2096-13	12/12/07	12/12/07	86	85	70-130	1	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants		Date Received:	N/A
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2129
San Diego, CA 92127-2116		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: Burn Ash Sampling / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-01-002-10,156	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L08**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	100	100	80-120	0	0-20	
Arsenic	103	97	80-120	6	0-20	
Barium	94	103	80-120	9	0-20	
Beryllium	101	96	80-120	5	0-20	
Cadmium	105	103	80-120	2	0-20	
Chromium	103	103	80-120	0	0-20	
Cobalt	104	105	80-120	0	0-20	
Copper	97	97	80-120	0	0-20	
Lead	104	101	80-120	3	0-20	
Molybdenum	103	101	80-120	1	0-20	
Nickel	108	106	80-120	2	0-20	
Selenium	98	91	80-120	8	0-20	
Silver	103	97	80-120	6	0-20	
Thallium	98	99	80-120	1	0-20	
Vanadium	99	99	80-120	0	0-20	
Zinc	111	103	80-120	8	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants		Date Received:	N/A
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2129
San Diego, CA 92127-2116		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: Burn Ash Sampling / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-04-007-5,160	**Solid**	**Mercury**	**12/03/07**	**12/03/07**	**071203L03**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	100	98	87-117	1	0-3	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants		Date Received:	N/A
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2129
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310

Project: Burn Ash Sampling / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-002-976	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	85	84	40-160	2	0-20	
Acenaphthylene	80	80	40-160	0	0-20	
Acenaphthene	83	83	40-160	0	0-20	
Fluorene	83	83	40-160	0	0-20	
Phenanthrene	81	79	40-160	2	0-20	
Anthracene	87	84	40-160	3	0-20	
Fluoranthene	90	86	40-160	5	0-20	
Pyrene	96	92	40-160	5	0-20	
Benzo (a) Anthracene	102	102	40-160	0	0-20	
Chrysene	108	107	40-160	0	0-20	
Benzo (b) Fluoranthene	51	51	40-160	0	0-20	
Benzo (k) Fluoranthene	102	102	40-160	0	0-20	
Benzo (a) Pyrene	100	100	40-160	0	0-20	
Dibenz (a,h) Anthracene	103	103	40-160	0	0-20	
Benzo (g,h,i) Perylene	104	103	40-160	1	0-20	
Indeno (1,2,3-c,d) Pyrene	95	95	40-160	0	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: N/A
Work Order No: 07-11-2129

Project: Burn Ash Sampling / SC0459

Matrix : Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Chromium, Hexavalent	EPA 7196A	099-05-001-2,605	12/12/07	12/12/07	20.0	18.0	90	80-120	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 07-11-2129

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Stephen Nowak

From: VWittig@Geosyntec.com
Sent: Tuesday, December 11, 2007 1:35 PM
To: Stephen Nowak
Cc: SMcCarthy@Geosyntec.com; JSchwartz@Geosyntec.com
Subject: Hexavalent Chromium Analyses
Importance: High

Hi Steve,
Here is the list of 14 samples we need to have additionally analyzed for hexavalent chromium by EPA Method 7196A:

SD-56-11282007
SD-02-11282007
SD-12-11272007
SD-20-11282007
SD-34-11262007
SD-44-11282007
SD-51-11282007
SB-05-11292007
SB-07-11292007
SB-20-11282007
SB-21-11292007
SB-24-11292007
SB-36-11292007
SB-43-11292007

We discussed a 24 hour TAT, but a 48 hour TAT will work with our schedule. Therefore, can you provide results by Thursday afternoon?

Veryl Wittig, PG 7115, CHG 723
Hydrogeologist
Geosyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127
P: 858.674.6559 x 203
F: 858.674.6586
M: 619.884.6552
vwittig@geosyntec.com
This electronic mail message contains information that (a) is or may be LEGALLY PRIVILEGED, CONFIDENTIAL, PROPRIETARY IN NATURE, OR OTHERWISE PROTECTED BY LAW FROM DISCLOSURE, and (b) is intended only for the use of the Addressee(s) named herein. If you are not the intended recipient, an addressee, or the person responsible for delivering this to an addressee, you are hereby notified that reading, using, copying, or distributing any part of this message is strictly prohibited. If you have received this electronic mail message in error, please contact us immediately and take the steps necessary to delete the message completely from your computer system.

Document Number: 2210

Analysis Request and Chain of Custody Record

(2129)

Page 1 of 2

Project Name: Burn Ash Sampling	Project Number: SC0459
Samplers Names: Jennifer Schwartz	Project Contact: Veryl Wittig
Laboratory Name: Calscience	Lab Contact: Steve Nowak
Lab Address: 7440 Lincoln Way, Garden Grove, CA	Lab Phone: (714) 895-5494
	Carrier/Waybill No.: Pick UP

White copy: to accompany samples

Yellow copy: field copy

Required Analyses: VOCs by ____; Metals 6010B; SVOCs by 8270; PAHs 8310

Bottle Type and Volume/Preservative: 8 oz Glass; 8 oz Glass

	Sample Name	Date	Time	Sample Type	VOCs by ____	Metals 6010B (8 oz Glass)	SVOCs by 8270	PAHs 8310 (8 oz Glass)							Comments	Lab Use Only: Condition of Bottles
1	SD-26-11282007	11/28/07	8:00	Soil		X		X								
2	SD-02-11282007		8:25													
3	SD-44-11282007		8:50													
4	SD-20-11282007		9:20													
5	SD-11-11282007		10:10													
6	SD-53-11282007		10:30													
7	SD-47-11282007		11:00													
8	SD-50-11282007		12:50													
9	SD-50C-11282007		12:50													
10	SD-55-11282007		13:20													
11	SD-51-11282007		13:40													
12	SD-62-11282007		14:10													

Special Instructions:

Turn-around Time: ☐ Normal ☐ Rush: _____

1. Relinquished by (Signature/Affiliation): Jennifer Schwartz (Geosyntec)	Date 11-29-7 Time 1210	1. Received by (Signature/Affiliation): CEL	Date 11-29-7 Time 1210
2. Relinquished by (Signature/Affiliation):	Date 11-29-7 Time 1710	2. Received by (Signature/Affiliation):	Date 11-29-7 Time 1710
3. Relinquished by (Signature/Affiliation):	Date Time	3. Received by (Signature/Affiliation):	Date Time

Geosyntec consultants
10875 Rancho Bernardo Road, Suite 200, San Diego, CA 92127 (858) 674-6559 Fax: (858) 674-6586

Document Number: 2231

Analysis Request and Chain of Custody Record

(2129)

Page 2 of 2

Project Name: BURN DEBRIS SAMPLE	Project Number: SC0459
Samplers Names: Jennifer Schwartz	Project Contact: VERYL WITTIG
Laboratory Name: CALSCIENCE	Lab Contact: STEVE NOWAK
Lab Address: 7440 LINCOLN WAY, GARDEN GROVE, CA	Lab Phone: (714) 895-5494
	Carrier/Waybill No.: PICK UP

White copy: to accompany samples

Yellow copy: field copy

Required Analyses

Sample Name	Date	Time	Sample Type	VOCs by ___	Metals 6010B	SVOCs by 8270	8310 (PAHs)							Comments	Lab Use Only: Condition of Bottles
				Bottle Type and Volume/Preservative	8oz Glass		8oz Glass								
				Number of Containers											
13 SD-58-11282007	11/28/07	1435	Soil		X		X								
14 SD-56-11282007	11/28/07	1510	Soil		X		X								

Special Instructions:

Turn-around Time: ☐ Normal ☐ Rush: _____

1. Relinquished by (Signature/Affiliation): Jennifer Schwartz (Geosyntec)	Date 11/28/07 11-29-7 Time 1550 1210	1. Received by (Signature/Affiliation): CEL	Date 11-29-7 Time 1210
2. Relinquished by (Signature/Affiliation):	Date 11-29-7 Time 1710	2. Received by (Signature/Affiliation):	Date 11-29-7 Time 1710
3. Relinquished by (Signature/Affiliation):	Date Time	3. Received by (Signature/Affiliation):	Date Time

Geosyntec consultants 10875 Rancho Bernardo Road, Suite 200, San Diego, CA 92127 (858) 674-6559 Fax: (858) 674-6586

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 07 - 1 1 - 2 1 2 9

Cooler 1 of 1

SAMPLE RECEIPT FORM

CLIENT: Geosyntec DATE: 11-29-7

TEMPERATURE – SAMPLES RECEIVED BY:

CALSCIENCE COURIER:

_____ Chilled, cooler with temperature blank provided.
_____ Chilled, cooler without temperature blank.
✓ Chilled and placed in cooler with wet ice.
_____ Ambient and placed in cooler with wet ice.
_____ Ambient temperature.

3.6 °C Temperature blank.

LABORATORY (Other than Calscience Courier):

_____ °C Temperature blank.
_____ °C IR thermometer.
_____ Ambient temperature.

Initial: [illegible]

CUSTODY SEAL INTACT:

Sample(s): ✓ Cooler: _____ No (Not Intact) : _____ Not Present: [illegible]

Initial: [illegible]

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	✓		
Sampler's name indicated on COC	✓		
Sample container label(s) consistent with custody papers	✓		
Sample container(s) intact and good condition	✓		
Correct containers and volume for analyses requested	✓		
Proper preservation noted on sample label(s)			✓
VOA vial(s) free of headspace.			✓
Tedlar bag(s) free of condensation			✓

Initial: [illegible]

COMMENTS:

Calscience Environmental Laboratories, Inc.

Supplemental Report 1

December 13, 2007

Veryl Wittig
GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Subject: **Calscience Work Order No.: 07-11-2130**
Client Reference: Burn Debris Sampling / SC0459

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/29/2007 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Stephen Nowak
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/29/07
Work Order No: 07-11-2130
Preparation: EPA 3050B / EPA 7471A Total
Method: EPA 6010B / EPA 7471A
Units: mg/kg

Project: Burn Debris Sampling / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-63-11292007	**07-11-2130-1-A**	**11/29/07**	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/30/2007 5:45:43 PM with batch 071130L04

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	80.3	0.750	0.191	1		Mercury	0.0276	0.0835	0.00130	1	J,B
Arsenic	6.69	0.750	0.130	1		Molybdenum	1.14	0.250	0.0206	1	
Barium	195	0.500	0.164	1		Nickel	49.5	0.250	0.0346	1	
Beryllium	0.0656	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	1.93	0.500	0.00988	1		Silver	6.51	0.250	0.0209	1	
Chromium	10.4	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	16.7	0.250	0.00859	1		Vanadium	9.76	0.250	0.00934	1	
Copper	2390	5.00	0.469	10	B	Zinc	5740	10.0	1.77	10	B
Lead	2790	5.00	0.527	10	B						

SD-67-11292007	**07-11-2130-2-A**	**11/29/07**	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/30/2007 5:47:57 PM with batch 071130L04

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	5.51	0.750	0.191	1		Mercury	0.0369	0.0835	0.00130	1	J,B
Arsenic	4.50	0.750	0.130	1		Molybdenum	2.07	0.250	0.0206	1	
Barium	218	0.500	0.164	1		Nickel	17.9	0.250	0.0346	1	
Beryllium	0.143	0.250	0.00368	1	J	Selenium	0.184	0.750	0.175	1	J
Cadmium	6.32	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	27.1	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	108	0.250	0.00859	1		Vanadium	12.0	0.250	0.00934	1	
Copper	937	0.500	0.0469	1	B	Zinc	2430	10.0	1.77	10	B
Lead	432	0.500	0.0527	1	B						

SD-72-11292007	**07-11-2130-3-A**	**11/29/07**	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/30/2007 5:50:12 PM with batch 071130L04

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	8.80	0.750	0.191	1		Mercury	0.0147	0.0835	0.00130	1	J,B
Arsenic	7.36	0.750	0.130	1		Molybdenum	14.1	0.250	0.0206	1	
Barium	83.2	0.500	0.164	1		Nickel	18.3	0.250	0.0346	1	
Beryllium	0.142	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	0.380	0.500	0.00988	1	J	Silver	ND	0.250	0.0209	1	
Chromium	8.17	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	10.9	0.250	0.00859	1		Vanadium	34.9	0.250	0.00934	1	
Copper	340	0.500	0.0469	1	B	Zinc	421	1.00	0.177	1	B
Lead	47.4	0.500	0.0527	1	B						

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/29/07
Work Order No: 07-11-2130
Preparation: EPA 3050B / EPA 7471A Total
Method: EPA 6010B / EPA 7471A
Units: mg/kg

Project: Burn Debris Sampling / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-72-C-11292007	**07-11-2130-4-A**	**11/29/07**	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 11/30/2007 5:52:26 PM with batch 071130L04

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	2.65	0.750	0.191	1		Mercury	0.0156	0.0835	0.00130	1	J,B
Arsenic	7.82	0.750	0.130	1		Molybdenum	16.3	0.250	0.0206	1	
Barium	73.6	0.500	0.164	1		Nickel	24.7	0.250	0.0346	1	
Beryllium	0.153	0.250	0.00368	1	J	Selenium	ND	0.750	0.175	1	
Cadmium	0.0210	0.500	0.00988	1	J	Silver	ND	0.250	0.0209	1	
Chromium	7.21	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	13.2	0.250	0.00859	1		Vanadium	35.1	0.250	0.00934	1	
Copper	2320	5.00	0.469	10	B	Zinc	776	1.00	0.177	1	B
Lead	23.8	0.500	0.0527	1	B						

Method Blank	**099-04-007-5,155**	**N/A**	**Solid**	**Mercury**	**11/30/07**	**11/30/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual
Mercury	0.00743	0.0835	0.00130	1	J

Method Blank	**097-01-002-10,149**	**N/A**	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Lead	0.179	0.500	0.0527	1	J
Arsenic	ND	0.750	0.130	1		Molybdenum	ND	0.250	0.0206	1	
Barium	ND	0.500	0.164	1		Nickel	ND	0.250	0.0346	1	
Beryllium	ND	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	ND	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	ND	0.250	0.00859	1		Vanadium	ND	0.250	0.00934	1	
Copper	0.0496	0.500	0.0469	1	J	Zinc	0.210	1.00	0.177	1	J

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/29/07
Work Order No:	07-11-2130
Preparation:	EPA 3545
Method:	EPA 8310
Units:	ug/kg

Project: Burn Debris Sampling / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-63-11292007	**07-11-2130-1-A**	**11/29/07**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	180	15	3.9	1		Benzo (a) Anthracene	32	10	3.2	1	
Acenaphthylene	140	30	6.8	1		Chrysene	28	10	3.2	1	
Acenaphthene	160	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	18	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	130	10	3.3	1		Benzo (a) Pyrene	11	10	3.1	1	
Anthracene	20	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	680	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	140	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	8.2	10	3.5	1	J

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	49	40-160	

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-67-11292007	**07-11-2130-2-A**	**11/29/07**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	3000	150	39	10		Benzo (a) Anthracene	530	100	32	10	
Acenaphthylene	3800	300	68	10		Chrysene	88	100	32	10	J
Acenaphthene	560	150	50	10		Benzo (b) Fluoranthene	ND	100	32	10	
Fluorene	520	100	32	10		Benzo (k) Fluoranthene	ND	100	32	10	
Phenanthrene	2600	100	33	10		Benzo (a) Pyrene	ND	100	31	10	
Anthracene	280	100	35	10		Dibenz (a,h) Anthracene	ND	100	37	10	
Fluoranthene	2400	100	34	10		Benzo (g,h,i) Perylene	ND	100	40	10	
Pyrene	4800	100	29	10		Indeno (1,2,3-c,d) Pyrene	ND	100	35	10	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	75	40-160	

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-72-11292007	**07-11-2130-3-A**	**11/29/07**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	140	15	3.9	1		Benzo (a) Anthracene	7.0	10	3.2	1	J
Acenaphthylene	68	30	6.8	1		Chrysene	3.8	10	3.2	1	J
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	6.8	10	3.2	1	J	Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	43	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	ND	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	280	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	28	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	41	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	11/29/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2130
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Sampling / SC0459			Page 2 of 2

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SD-72-C-11292007	**07-11-2130-4-A**	**11/29/07**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	190	15	3.9	1		Benzo (a) Anthracene	9.0	10	3.2	1	J
Acenaphthylene	72	30	6.8	1		Chrysene	17	10	3.2	1	
Acenaphthene	9.7	15	5.0	1	J	Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	5.6	10	3.2	1	J	Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	38	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	4.0	10	3.5	1	J	Dibenz (a,h) Anthracene	12	10	3.7	1	
Fluoranthene	440	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	24	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	4.0	10	3.5	1	J

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	47	40-160	

Method Blank	**099-07-002-976**	**N/A**	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	ND	15	3.9	1		Benzo (a) Anthracene	ND	10	3.2	1	
Acenaphthylene	ND	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	ND	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	ND	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	ND	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	ND	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	84	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/29/07
Work Order No:	07-11-2130
Preparation:	EPA 3050B
Method:	EPA 6010B

Project Burn Debris Sampling / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
07-11-2096-8	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130S04**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	48	67	50-115	11	0-20	3
Arsenic	89	151	75-125	19	0-20	3
Barium	4X	4X	75-125	4X	0-20	Q
Beryllium	96	96	75-125	0	0-20	
Cadmium	91	90	75-125	1	0-20	
Chromium	54	142	75-125	33	0-20	3,4
Cobalt	77	84	75-125	6	0-20	
Copper	4X	4X	75-125	4X	0-20	Q
Lead	4X	4X	75-125	4X	0-20	Q
Molybdenum	88	90	75-125	2	0-20	
Nickel	81	104	75-125	16	0-20	
Selenium	95	94	75-125	1	0-20	
Silver	96	123	75-125	22	0-20	4
Thallium	11	22	75-125	68	0-20	3,4
Vanadium	95	99	75-125	3	0-20	
Zinc	4X	4X	75-125	4X	0-20	Q

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 11/29/07
Work Order No: 07-11-2130
Preparation: EPA 7471A Total
Method: EPA 7471A

Project Burn Debris Sampling / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
07-11-2140-21	**Solid**	**Mercury**	**11/30/07**	**11/30/07**	**071130S04**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	112	112	84-138	0	0-7	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	11/29/07
Work Order No:	07-11-2130
Preparation:	EPA 3545
Method:	EPA 8310

Project Burn Debris Sampling / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
07-11-2129-4	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130S05**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	486	275	40-160	34	0-20	3,4
Acenaphthylene	385	296	40-160	16	0-20	3
Acenaphthene	68	67	40-160	1	0-20	
Fluorene	64	45	40-160	27	0-20	4
Phenanthrene	131	238	40-160	36	0-20	4,3
Anthracene	73	58	40-160	22	0-20	4
Fluoranthene	562	482	40-160	10	0-20	3
Pyrene	1208	1061	40-160	13	0-20	3
Benzo (a) Anthracene	223	205	40-160	5	0-20	3
Chrysene	73	66	40-160	7	0-20	
Benzo (b) Fluoranthene	1918	4347	40-160	78	0-20	3,4
Benzo (k) Fluoranthene	18	14	40-160	20	0-20	3
Benzo (a) Pyrene	29	28	40-160	2	0-20	3
Dibenz (a,h) Anthracene	6	1	40-160	121	0-20	3,4
Benzo (g,h,i) Perylene	21	21	40-160	2	0-20	3
Indeno (1,2,3-c,d) Pyrene	17	17	40-160	3	0-20	3

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants		Date Received:	N/A
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2130
San Diego, CA 92127-2116		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: Burn Debris Sampling / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-01-002-10,149	**Solid**	**ICP 5300**	**11/30/07**	**12/04/07**	**071130L04**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	98	103	80-120	6	0-20	
Arsenic	95	103	80-120	8	0-20	
Barium	100	110	80-120	10	0-20	
Beryllium	93	103	80-120	10	0-20	
Cadmium	99	108	80-120	9	0-20	
Chromium	100	109	80-120	9	0-20	
Cobalt	100	109	80-120	9	0-20	
Copper	94	101	80-120	7	0-20	
Lead	99	107	80-120	8	0-20	
Molybdenum	99	108	80-120	8	0-20	
Nickel	104	112	80-120	7	0-20	
Selenium	92	101	80-120	9	0-20	
Silver	95	110	80-120	14	0-20	
Thallium	96	104	80-120	8	0-20	
Vanadium	96	105	80-120	9	0-20	
Zinc	102	114	80-120	12	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

GeoSyntec Consultants		Date Received:	N/A
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-11-2130
San Diego, CA 92127-2116		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: Burn Debris Sampling / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
099-04-007-5,155	**Solid**	**Mercury**	**11/30/07**	**071130-I-04_6.icp**	**071130L04**

Parameter	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Mercury	0.835	0.785	94	87-117	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	N/A
Work Order No:	07-11-2130
Preparation:	EPA 3545
Method:	EPA 8310

Project: Burn Debris Sampling / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-002-976	**Solid**	**HPLC 5**	**11/30/07**	**12/04/07**	**071130L05**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	85	84	40-160	2	0-20	
Acenaphthylene	80	80	40-160	0	0-20	
Acenaphthene	83	83	40-160	0	0-20	
Fluorene	83	83	40-160	0	0-20	
Phenanthrene	81	79	40-160	2	0-20	
Anthracene	87	84	40-160	3	0-20	
Fluoranthene	90	86	40-160	5	0-20	
Pyrene	96	92	40-160	5	0-20	
Benzo (a) Anthracene	102	102	40-160	0	0-20	
Chrysene	108	107	40-160	0	0-20	
Benzo (b) Fluoranthene	51	51	40-160	0	0-20	
Benzo (k) Fluoranthene	102	102	40-160	0	0-20	
Benzo (a) Pyrene	100	100	40-160	0	0-20	
Dibenz (a,h) Anthracene	103	103	40-160	0	0-20	
Benzo (g,h,i) Perylene	104	103	40-160	1	0-20	
Indeno (1,2,3-c,d) Pyrene	95	95	40-160	0	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 07-11-2130

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Document Number: 2232

2130

Analysis Request and Chain of Custody Record

Page 1 of 1

Project Name: BURN DEBRIS SAMPLING	Project Number: SC0459
Samplers Names: ANN MATHEW	Project Contact: VERYL WITTIG
Laboratory Name: CALSCIENCE	Lab Contact: STEVE NOWAK
Lab Address: 7440 Lincoln Way Garden Grove, CA-92841	Lab Phone: 714-895-5494
	Carrier/Waybill No.: Pick Up

White copy: to accompany samples

Yellow copy: field copy

Required Analyses

Bottle Type and Volume/Preservative

	Sample Name	Date	Time	Sample Type	VOCs by ___	Metals 6010B	SVOCs by 8270	PAHs 8310							Comments	Lab Use Only: Condition of Bottles
						8 oz 9/cap		8 oz 9/cap								
1	SD-63-11292007	11/29/07	0800	Soil		X		X								
2	SD-67-11292007	↓	0845	↓		↓		↓								
3	SD-72-11292007	↓	0945	↓		↓		↓								
4	SD-72-C-11292007	↓	0945	↓		↓		↓								

Special Instructions:

Turn-around Time: ☐ Normal ☐ Rush: _____

1. Relinquished by (Signature/Affiliation) ANN MATHEW, GEOSYNTEC	Date 11-29-7 Time 1210	1. Received by (Signature/Affiliation) CEL	Date 11-29-7 Time 1210
2. Relinquished by (Signature/Affiliation)	Date 11-29-7 Time 1710	2. Received by (Signature/Affiliation)	Date 11-29-7 Time 1710
3. Relinquished by (Signature/Affiliation)	Date Time	3. Received by (Signature/Affiliation)	Date Time

Geosyntec consultants 10875 Rancho Bernardo Road, Suite 200, San Diego, CA 92127 (858) 674-6559 Fax: (858) 674-6586

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 07 - 11 - 2130

Cooler 1 of 1

SAMPLE RECEIPT FORM

CLIENT: Geosynthec **DATE:** 11-29-7

TEMPERATURE – SAMPLES RECEIVED BY:

CALSCIENCE COURIER:

- ____ Chilled, cooler with temperature blank provided.
- ____ Chilled, cooler without temperature blank.
- ✓ Chilled and placed in cooler with wet ice.
- ____ Ambient and placed in cooler with wet ice.
- ____ Ambient temperature.

3.6 °C Temperature blank.

LABORATORY (Other than Calscience Courier):

- ____ °C Temperature blank.
- ____ °C IR thermometer.
- ____ Ambient temperature.

Initial: [signature]

CUSTODY SEAL INTACT:

Sample(s): ✓ Cooler: ____ No (Not Intact) : ____ Not Present: [signature]

Initial: [signature]

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	✓		
Sampler's name indicated on COC	✓		
Sample container label(s) consistent with custody papers	✓		
Sample container(s) intact and good condition	✓		
Correct containers and volume for analyses requested	✓		
Proper preservation noted on sample label(s)			✓
VOA vial(s) free of headspace.			✓
Tedlar bag(s) free of condensation			✓

Initial: [signature]

COMMENTS:

Calscience Environmental Laboratories, Inc.

Supplemental Report 1

December 13, 2007

Additional requested analyses have been added to the original report.

Veryl Wittig
GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Subject: **Calscience Work Order No.: 07-12-0014**
Client Reference: Burn Debris Assessment / SC0459

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 12/1/2007 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Stephen Nowak
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 12/01/07
Work Order No: 07-12-0014
Preparation: EPA 3050B / EPA 7471A Total
Method: EPA 6010B / EPA 7471A
Units: mg/kg

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-45-112907	**07-12-0014-1-A**	**11/29/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 8:10:48 PM with batch 071203L10

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	13.6	0.750	0.191	1		Mercury	0.00187	0.0835	0.00130	1	J
Arsenic	18.2	0.750	0.130	1		Molybdenum	29.3	0.250	0.0206	1	
Barium	130	0.500	0.164	1		Nickel	18.9	0.250	0.0346	1	
Beryllium	0.935	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	0.227	0.500	0.00988	1	J	Silver	ND	0.250	0.0209	1	
Chromium	10.9	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	9.41	0.250	0.00859	1		Vanadium	16.3	0.250	0.00934	1	
Copper	435	0.500	0.0469	1		Zinc	969	1.00	0.177	1	B
Lead	13.6	0.500	0.0527	1							

SB-48-112907	**07-12-0014-2-A**	**11/29/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 8:13:02 PM with batch 071203L10

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	17.9	0.750	0.191	1		Mercury	0.00929	0.0835	0.00130	1	J
Arsenic	6.98	0.750	0.130	1		Molybdenum	4.81	0.250	0.0206	1	
Barium	1010	0.500	0.164	1		Nickel	23.2	0.250	0.0346	1	
Beryllium	1.17	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	0.163	0.250	0.0209	1	J
Chromium	19.8	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	6.68	0.250	0.00859	1		Vanadium	44.1	0.250	0.00934	1	
Copper	2630	10.0	0.938	20		Zinc	1840	20.0	3.54	20	B
Lead	1450	10.0	1.05	20							

SB-46-112907	**07-12-0014-3-A**	**11/29/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 8:15:13 PM with batch 071203L10

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	2.60	0.750	0.191	1		Mercury	0.204	0.0835	0.00130	1	
Arsenic	13.4	0.750	0.130	1		Molybdenum	1.09	0.250	0.0206	1	
Barium	328	0.500	0.164	1		Nickel	6.87	0.250	0.0346	1	
Beryllium	1.02	0.250	0.00368	1		Selenium	5.10	0.750	0.175	1	
Cadmium	0.470	0.500	0.00988	1	J	Silver	ND	0.250	0.0209	1	
Chromium	8.02	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	10.8	0.250	0.00859	1		Vanadium	16.4	0.250	0.00934	1	
Copper	267	0.500	0.0469	1		Zinc	1120	1.00	0.177	1	B
Lead	102	0.500	0.0527	1							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	12/01/07
Work Order No:	07-12-0014
Preparation:	EPA 3050B / EPA 7471A Total
Method:	EPA 6010B / EPA 7471A
Units:	mg/kg

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-05-112907	**07-12-0014-4-A**	**11/29/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 8:03:57 PM with batch 071203L10

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	11.3	0.750	0.191	1		Mercury	0.0256	0.0835	0.00130	1	J
Arsenic	17.2	0.750	0.130	1		Molybdenum	1.25	0.250	0.0206	1	
Barium	303	0.500	0.164	1		Nickel	35.1	0.250	0.0346	1	
Beryllium	1.49	0.250	0.00368	1		Selenium	0.555	0.750	0.175	1	J
Cadmium	0.0781	0.500	0.00988	1	J	Silver	2.86	0.250	0.0209	1	
Chromium	84.6	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	10.5	0.250	0.00859	1		Vanadium	39.5	0.250	0.00934	1	
Copper	6990	10.0	0.938	20		Zinc	5680	20.0	3.54	20	B
Lead	239	0.500	0.0527	1							

SB-47-112907	**07-12-0014-5-A**	**11/29/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 8:17:25 PM with batch 071203L10

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	29.9	0.750	0.191	1		Mercury	0.00212	0.0835	0.00130	1	J
Arsenic	12.1	0.750	0.130	1		Molybdenum	4.49	0.250	0.0206	1	
Barium	360	0.500	0.164	1		Nickel	11.7	0.250	0.0346	1	
Beryllium	1.03	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	7.76	0.500	0.00988	1		Silver	3.12	0.250	0.0209	1	
Chromium	22.4	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	5.39	0.250	0.00859	1		Vanadium	18.2	0.250	0.00934	1	
Copper	7530	10.0	0.938	20		Zinc	6160	20.0	3.54	20	B
Lead	531	0.500	0.0527	1							

SB-51-113007	**07-12-0014-6-A**	**11/30/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 8:24:06 PM with batch 071203L10

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	52.4	0.750	0.191	1		Mercury	0.00316	0.0835	0.00130	1	J
Arsenic	4.49	0.750	0.130	1		Molybdenum	0.978	0.250	0.0206	1	
Barium	270	0.500	0.164	1		Nickel	43.9	0.250	0.0346	1	
Beryllium	0.992	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	0.339	0.500	0.00988	1	J	Silver	3.62	0.250	0.0209	1	
Chromium	24.0	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	17.6	0.250	0.00859	1		Vanadium	28.2	0.250	0.00934	1	
Copper	1640	10.0	0.938	20		Zinc	1440	20.0	3.54	20	B
Lead	171	0.500	0.0527	1							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 12/01/07
Work Order No: 07-12-0014
Preparation: EPA 3050B / EPA 7471A Total
Method: EPA 6010B / EPA 7471A
Units: mg/kg

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-44-113007	**07-12-0014-7-A**	**11/30/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 8:26:18 PM with batch 071203L10

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	2.75	0.750	0.191	1		Mercury	0.0411	0.0835	0.00130	1	J
Arsenic	3.73	0.750	0.130	1		Molybdenum	1.84	0.250	0.0206	1	
Barium	31.9	0.500	0.164	1		Nickel	9.08	0.250	0.0346	1	
Beryllium	0.929	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	0.0410	0.500	0.00988	1	J	Silver	ND	0.250	0.0209	1	
Chromium	2.43	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	1.74	0.250	0.00859	1		Vanadium	19.2	0.250	0.00934	1	
Copper	129	0.500	0.0469	1		Zinc	32700	20.0	3.54	20	B
Lead	28.4	0.500	0.0527	1							

SB-44C-113007	**07-12-0014-8-A**	**11/30/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 8:28:31 PM with batch 071203L10

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	17.5	0.750	0.191	1		Mercury	0.0411	0.0835	0.00130	1	J
Arsenic	2.80	0.750	0.130	1		Molybdenum	1.86	0.250	0.0206	1	
Barium	24.7	0.500	0.164	1		Nickel	20.0	0.250	0.0346	1	
Beryllium	0.885	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	1.22	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	0.796	0.250	0.00859	1		Vanadium	14.6	0.250	0.00934	1	
Copper	177	0.500	0.0469	1		Zinc	298	20.0	3.54	20	B
Lead	477	0.500	0.0527	1							

SB-38-113007	**07-12-0014-9-A**	**11/30/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 8:30:44 PM with batch 071203L10

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	106	0.750	0.191	1		Mercury	0.00281	0.0835	0.00130	1	J
Arsenic	8.89	0.750	0.130	1		Molybdenum	1.35	0.250	0.0206	1	
Barium	831	0.500	0.164	1		Nickel	27.7	0.250	0.0346	1	
Beryllium	1.18	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	2.15	0.500	0.00988	1		Silver	5.28	0.250	0.0209	1	
Chromium	29.6	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	30.8	0.250	0.00859	1		Vanadium	25.7	0.250	0.00934	1	
Copper	750	0.500	0.0469	1		Zinc	26100	20.0	3.54	20	B
Lead	1370	0.500	0.0527	1							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 12/01/07
Work Order No: 07-12-0014
Preparation: EPA 3050B / EPA 7471A Total
Method: EPA 6010B / EPA 7471A
Units: mg/kg

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-50-113007	**07-12-0014-10-A**	**11/30/07**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Mercury was analyzed on 12/3/2007 8:32:58 PM with batch 071203L10

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	20.4	0.750	0.191	1		Mercury	0.00214	0.0835	0.00130	1	J
Arsenic	4.76	0.750	0.130	1		Molybdenum	0.806	0.250	0.0206	1	
Barium	118	0.500	0.164	1		Nickel	7.42	0.250	0.0346	1	
Beryllium	0.893	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	0.0152	0.500	0.00988	1	J	Silver	0.953	0.250	0.0209	1	
Chromium	7.31	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	2.83	0.250	0.00859	1		Vanadium	10.1	0.250	0.00934	1	
Copper	324	0.500	0.0469	1		Zinc	492	20.0	3.54	20	B
Lead	97.8	0.500	0.0527	1							

Method Blank	**099-04-007-5,159**	**N/A**	**Solid**	**Mercury**	**12/03/07**	**12/03/07**	**071203L10**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual
Mercury	ND	0.0835	0.00130	1	

Method Blank	**097-01-002-10,157**	**N/A**	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203L13**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Antimony	ND	0.750	0.191	1		Lead	ND	0.500	0.0527	1	
Arsenic	ND	0.750	0.130	1		Molybdenum	ND	0.250	0.0206	1	
Barium	ND	0.500	0.164	1		Nickel	ND	0.250	0.0346	1	
Beryllium	ND	0.250	0.00368	1		Selenium	ND	0.750	0.175	1	
Cadmium	ND	0.500	0.00988	1		Silver	ND	0.250	0.0209	1	
Chromium	ND	0.250	0.0291	1		Thallium	ND	0.750	0.0987	1	
Cobalt	ND	0.250	0.00859	1		Vanadium	ND	0.250	0.00934	1	
Copper	ND	0.500	0.0469	1		Zinc	0.413	1.00	0.177	1	J

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	12/01/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-12-0014
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Assessment / SC0459			Page 1 of 4

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-45-112907	**07-12-0014-1-A**	**11/29/07**	**Solid**	**HPLC 5**	**12/03/07**	**12/05/07**	**071203L14**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	410	15	3.9	1		Benzo (a) Anthracene	6.2	10	3.2	1	J
Acenaphthylene	640	30	6.8	1		Chrysene	10	10	3.2	1	
Acenaphthene	770	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	ND	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	8.0	10	3.3	1	J	Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	7.0	10	3.5	1	J	Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	3.9	10	2.9	1	J	Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	77	40-160	

SB-48-112907	**07-12-0014-2-A**	**11/29/07**	**Solid**	**HPLC 5**	**12/03/07**	**12/05/07**	**071203L14**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	530	30	7.8	2		Benzo (a) Anthracene	160	20	6.4	2	
Acenaphthylene	1300	60	14	2		Chrysene	180	20	6.4	2	
Acenaphthene	1700	30	10	2		Benzo (b) Fluoranthene	29	20	6.5	2	
Fluorene	ND	20	6.4	2		Benzo (k) Fluoranthene	560	20	6.4	2	
Phenanthrene	220	20	6.7	2		Benzo (a) Pyrene	8.2	20	6.2	2	J
Anthracene	130	20	7.0	2		Dibenz (a,h) Anthracene	12	20	7.5	2	J
Fluoranthene	1400	20	6.8	2		Benzo (g,h,i) Perylene	16	20	7.9	2	J
Pyrene	82	20	5.8	2		Indeno (1,2,3-c,d) Pyrene	ND	20	7.1	2	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	58	40-160	

SB-46-112907	**07-12-0014-3-A**	**11/29/07**	**Solid**	**HPLC 5**	**12/03/07**	**12/05/07**	**071203L14**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	19000	300	78	20		Benzo (a) Anthracene	750	200	64	20	
Acenaphthylene	3500	600	140	20		Chrysene	ND	200	64	20	
Acenaphthene	930	300	100	20		Benzo (b) Fluoranthene	ND	200	65	20	
Fluorene	ND	200	64	20		Benzo (k) Fluoranthene	ND	200	64	20	
Phenanthrene	570	200	67	20		Benzo (a) Pyrene	ND	200	62	20	
Anthracene	ND	200	70	20		Dibenz (a,h) Anthracene	ND	200	75	20	
Fluoranthene	1900	200	68	20		Benzo (g,h,i) Perylene	ND	200	79	20	
Pyrene	1200	200	58	20		Indeno (1,2,3-c,d) Pyrene	ND	200	71	20	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	85	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	12/01/07
Work Order No:	07-12-0014
Preparation:	EPA 3545
Method:	EPA 8310
Units:	ug/kg
	Page 2 of 4

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-05-112907	**07-12-0014-4-A**	**11/29/07**	**Solid**	**HPLC 5**	**12/03/07**	**12/05/07**	**071203L14**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	1200	30	7.8	2		Benzo (a) Anthracene	12	20	6.4	2	J
Acenaphthylene	320	60	14	2		Chrysene	ND	20	6.4	2	
Acenaphthene	560	30	10	2		Benzo (b) Fluoranthene	ND	20	6.5	2	
Fluorene	27	20	6.4	2		Benzo (k) Fluoranthene	ND	20	6.4	2	
Phenanthrene	250	20	6.7	2		Benzo (a) Pyrene	ND	20	6.2	2	
Anthracene	34	20	7.0	2		Dibenz (a,h) Anthracene	ND	20	7.5	2	
Fluoranthene	14	20	6.8	2	J	Benzo (g,h,i) Perylene	ND	20	7.9	2	
Pyrene	34	20	5.8	2		Indeno (1,2,3-c,d) Pyrene	ND	20	7.1	2	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	84	40-160	

SB-47-112907	**07-12-0014-5-A**	**11/29/07**	**Solid**	**HPLC 5**	**12/03/07**	**12/05/07**	**071203L14**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	790	15	3.9	1		Benzo (a) Anthracene	6.8	10	3.2	1	J
Acenaphthylene	490	30	6.8	1		Chrysene	15	10	3.2	1	
Acenaphthene	170	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	ND	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	5.9	10	3.3	1	J	Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	4.0	10	3.5	1	J	Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	35	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	52	40-160	

SB-51-113007	**07-12-0014-6-A**	**11/30/07**	**Solid**	**HPLC 5**	**12/03/07**	**12/05/07**	**071203L14**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	79	15	3.9	1		Benzo (a) Anthracene	ND	10	3.2	1	
Acenaphthylene	22	30	6.8	1	J	Chrysene	11	10	3.2	1	
Acenaphthene	38	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	18	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	97	10	3.3	1		Benzo (a) Pyrene	6.0	10	3.1	1	J
Anthracene	16	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	12	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	36	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	63	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	12/01/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-12-0014
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Assessment / SC0459			Page 3 of 4

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-44-113007	**07-12-0014-7-A**	**11/30/07**	**Solid**	**HPLC 5**	**12/03/07**	**12/05/07**	**071203L14**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	1300	30	7.8	2		Benzo (a) Anthracene	9.7	20	6.4	2	J
Acenaphthylene	540	60	14	2		Chrysene	ND	20	6.4	2	
Acenaphthene	280	30	10	2		Benzo (b) Fluoranthene	ND	20	6.5	2	
Fluorene	120	20	6.4	2		Benzo (k) Fluoranthene	ND	20	6.4	2	
Phenanthrene	460	20	6.7	2		Benzo (a) Pyrene	ND	20	6.2	2	
Anthracene	54	20	7.0	2		Dibenz (a,h) Anthracene	ND	20	7.5	2	
Fluoranthene	11	20	6.8	2	J	Benzo (g,h,i) Perylene	ND	20	7.9	2	
Pyrene	33	20	5.8	2		Indeno (1,2,3-c,d) Pyrene	ND	20	7.1	2	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	104	40-160	

SB-44C-113007	**07-12-0014-8-A**	**11/30/07**	**Solid**	**HPLC 5**	**12/03/07**	**12/05/07**	**071203L14**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	1200	30	7.8	2		Benzo (a) Anthracene	8.6	20	6.4	2	J
Acenaphthylene	540	60	14	2		Chrysene	ND	20	6.4	2	
Acenaphthene	250	30	10	2		Benzo (b) Fluoranthene	ND	20	6.5	2	
Fluorene	100	20	6.4	2		Benzo (k) Fluoranthene	ND	20	6.4	2	
Phenanthrene	380	20	6.7	2		Benzo (a) Pyrene	ND	20	6.2	2	
Anthracene	43	20	7.0	2		Dibenz (a,h) Anthracene	ND	20	7.5	2	
Fluoranthene	15	20	6.8	2	J	Benzo (g,h,i) Perylene	ND	20	7.9	2	
Pyrene	28	20	5.8	2		Indeno (1,2,3-c,d) Pyrene	ND	20	7.1	2	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	100	40-160	

SB-38-113007	**07-12-0014-9-A**	**11/30/07**	**Solid**	**HPLC 5**	**12/03/07**	**12/05/07**	**071203L14**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	110	15	3.9	1		Benzo (a) Anthracene	6.4	10	3.2	1	J
Acenaphthylene	60	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	72	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	23	10	3.2	1		Benzo (k) Fluoranthene	5.6	10	3.2	1	J
Phenanthrene	38	10	3.3	1		Benzo (a) Pyrene	3.2	10	3.1	1	J
Anthracene	8.4	10	3.5	1	J	Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	15	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	16	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	69	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants		Date Received:	12/01/07
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-12-0014
San Diego, CA 92127-2116		Preparation:	EPA 3545
		Method:	EPA 8310
		Units:	ug/kg
Project: Burn Debris Assessment / SC0459			Page 4 of 4

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-50-113007	**07-12-0014-10-A**	**11/30/07**	**Solid**	**HPLC 5**	**12/03/07**	**12/05/07**	**071203L14**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	95	30	7.8	2		Benzo (a) Anthracene	ND	20	6.4	2	
Acenaphthylene	57	60	14	2	J	Chrysene	8.3	20	6.4	2	J
Acenaphthene	27	30	10	2	J	Benzo (b) Fluoranthene	ND	20	6.5	2	
Fluorene	8.5	20	6.4	2	J	Benzo (k) Fluoranthene	ND	20	6.4	2	
Phenanthrene	18	20	6.7	2	J	Benzo (a) Pyrene	ND	20	6.2	2	
Anthracene	ND	20	7.0	2		Dibenz (a,h) Anthracene	ND	20	7.5	2	
Fluoranthene	ND	20	6.8	2		Benzo (g,h,i) Perylene	ND	20	7.9	2	
Pyrene	21	20	5.8	2		Indeno (1,2,3-c,d) Pyrene	ND	20	7.1	2	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	59	40-160	

Method Blank	**099-07-002-977**	**N/A**	**Solid**	**HPLC 5**	**12/03/07**	**12/05/07**	**071203L14**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Naphthalene	ND	15	3.9	1		Benzo (a) Anthracene	ND	10	3.2	1	
Acenaphthylene	ND	30	6.8	1		Chrysene	ND	10	3.2	1	
Acenaphthene	ND	15	5.0	1		Benzo (b) Fluoranthene	ND	10	3.2	1	
Fluorene	ND	10	3.2	1		Benzo (k) Fluoranthene	ND	10	3.2	1	
Phenanthrene	ND	10	3.3	1		Benzo (a) Pyrene	ND	10	3.1	1	
Anthracene	ND	10	3.5	1		Dibenz (a,h) Anthracene	ND	10	3.7	1	
Fluoranthene	ND	10	3.4	1		Benzo (g,h,i) Perylene	ND	10	4.0	1	
Pyrene	ND	10	2.9	1		Indeno (1,2,3-c,d) Pyrene	ND	10	3.5	1	

Surrogates:	REC (%)	Control Limits	Qual
Decafluorobiphenyl	86	40-160	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 12/01/07
Work Order No: 07-12-0014

Project: Burn Debris Assessment / SC0459

Client Sample Number	Lab Sample Number	Date Collected	Matrix
SB-05-112907	**07-12-0014-4**	**11/29/07**	**Solid**

Comment(s): (24) Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent (24)	ND	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

Method Blank	**N/A**	**Solid**

Comment(s): (24) Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chromium, Hexavalent (24)	ND	0.80	0.22	1		mg/kg	12/12/07	12/12/07	EPA 7196A

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 12/01/07
Work Order No: 07-12-0014
Preparation: EPA 3050B
Method: EPA 6010B

Project Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
07-11-2200-3	**Solid**	**ICP 5300**	**12/03/07**	**12/04/07**	**071203S13**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	38	37	50-115	2	0-20	3
Arsenic	105	106	75-125	1	0-20	
Barium	98	113	75-125	4	0-20	
Beryllium	107	105	75-125	2	0-20	
Cadmium	107	105	75-125	2	0-20	
Chromium	107	105	75-125	1	0-20	
Cobalt	105	102	75-125	2	0-20	
Copper	108	106	75-125	2	0-20	
Lead	105	106	75-125	1	0-20	
Molybdenum	97	98	75-125	1	0-20	
Nickel	107	108	75-125	0	0-20	
Selenium	93	95	75-125	2	0-20	
Silver	100	99	75-125	2	0-20	
Thallium	99	98	75-125	1	0-20	
Vanadium	105	101	75-125	2	0-20	
Zinc	113	113	75-125	0	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	12/01/07
Work Order No:	07-12-0014
Preparation:	EPA 7471A Total
Method:	EPA 7471A

Project Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SB-05-112907	**Solid**	**Mercury**	**12/03/07**	**12/03/07**	**071203S10**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	99	100	84-138	1	0-7	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 12/01/07
Work Order No: 07-12-0014
Preparation: EPA 3545
Method: EPA 8310

Project Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SB-47-112907	**Solid**	**HPLC 5**	**12/03/07**	**12/05/07**	**071203S14**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	0	0	40-160	0	0-20	3
Acenaphthylene	0	0	40-160	0	0-20	3
Acenaphthene	0	0	40-160	4	0-20	3
Fluorene	6	5	40-160	27	0-20	3,4
Phenanthrene	16	2	40-160	147	0-20	3,4
Anthracene	5	4	40-160	30	0-20	3,4
Fluoranthene	1	1	40-160	15	0-20	3
Pyrene	0	0	40-160	1	0-20	3
Benzo (a) Anthracene	6	6	40-160	2	0-20	3
Chrysene	0	0	40-160	142	0-20	3,4
Benzo (b) Fluoranthene	0	0	40-160	0	0-20	3
Benzo (k) Fluoranthene	2	2	40-160	0	0-20	3
Benzo (a) Pyrene	0	0	40-160	0	0-20	3
Dibenz (a,h) Anthracene	0	0	40-160	0	0-20	3
Benzo (g,h,i) Perylene	0	0	40-160	0	0-20	3
Indeno (1,2,3-c,d) Pyrene	0	0	40-160	200	0-20	3,4

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: N/A
Work Order No: 07-12-0014

Project: Burn Debris Assessment / SC0459

Matrix: Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	MS% REC	MSD % REC	%REC CL	RPD	RPD CL	Qualifiers
Chromium, Hexavalent	EPA 7196A	07-11-2096-13	12/12/07	12/12/07	86	85	70-130	1	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

GeoSyntec Consultants		Date Received:	N/A
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-12-0014
San Diego, CA 92127-2116		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
097-01-002-10,157	**Solid**	**ICP 5300**	**12/05/07**	**071204-I-06**	**071203L13**

Parameter	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Antimony	25.0	25.5	102	80-120	
Arsenic	25.0	25.2	101	80-120	
Barium	25.0	26.8	107	80-120	
Beryllium	25.0	24.9	100	80-120	
Cadmium	25.0	26.1	104	80-120	
Chromium	25.0	26.3	105	80-120	
Cobalt	25.0	26.6	107	80-120	
Copper	25.0	24.2	97	80-120	
Lead	25.0	26.4	105	80-120	
Molybdenum	25.0	26.6	106	80-120	
Nickel	25.0	27.5	110	80-120	
Selenium	25.0	24.0	96	80-120	
Silver	12.5	12.3	99	80-120	
Thallium	25.0	25.7	103	80-120	
Vanadium	25.0	25.4	102	80-120	
Zinc	25.0	26.8	107	80-120	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants		Date Received:	N/A
10875 Rancho Bernardo Road, Suite 200		Work Order No:	07-12-0014
San Diego, CA 92127-2116		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-04-007-5,159	**Solid**	**Mercury**	**12/03/07**	**12/03/07**	**071203L10**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	98	98	87-117	0	0-3	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received:	N/A
Work Order No:	07-12-0014
Preparation:	EPA 3545
Method:	EPA 8310

Project: Burn Debris Assessment / SC0459

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-002-977	**Solid**	**HPLC 5**	**12/03/07**	**12/05/07**	**071203L14**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	85	86	40-160	1	0-20	
Acenaphthylene	80	82	40-160	3	0-20	
Acenaphthene	82	85	40-160	3	0-20	
Fluorene	83	85	40-160	3	0-20	
Phenanthrene	80	81	40-160	1	0-20	
Anthracene	86	86	40-160	0	0-20	
Fluoranthene	90	88	40-160	2	0-20	
Pyrene	95	94	40-160	2	0-20	
Benzo (a) Anthracene	101	104	40-160	3	0-20	
Chrysene	107	110	40-160	3	0-20	
Benzo (b) Fluoranthene	51	53	40-160	3	0-20	
Benzo (k) Fluoranthene	102	105	40-160	3	0-20	
Benzo (a) Pyrene	99	103	40-160	3	0-20	
Dibenz (a,h) Anthracene	102	106	40-160	3	0-20	
Benzo (g,h,i) Perylene	103	105	40-160	2	0-20	
Indeno (1,2,3-c,d) Pyrene	94	97	40-160	3	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

GeoSyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: N/A
Work Order No: 07-12-0014

Project: Burn Debris Assessment / SC0459

Matrix : Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Chromium, Hexavalent	EPA 7196A	099-05-001-2,605	12/12/07	12/12/07	20.0	18.0	90	80-120	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 07-12-0014

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Stephen Nowak

From: VWittig@Geosyntec.com
Sent: Tuesday, December 11, 2007 1:35 PM
To: Stephen Nowak
Cc: SMcCarthy@Geosyntec.com; JSchwartz@Geosyntec.com
Subject: Hexavalent Chromium Analyses
Importance: High

Hi Steve,
Here is the list of 14 samples we need to have additionally analyzed for hexavalent chromium by EPA Method 7196A:

SD-56-11282007
SD-02-11282007
SD-12-11272007
SD-20-11282007
SD-34-11262007
SD-44-11282007
SD-51-11282007
SB-05-11292007
SB-07-11292007
SB-20-11282007
SB-21-11292007
SB-24-11292007
SB-36-11292007
SB-43-11292007

We discussed a 24 hour TAT, but a 48 hour TAT will work with our schedule. Therefore, can you provide results by Thursday afternoon?

Veryl Wittig, PG 7115, CHG 723
Hydrogeologist
Geosyntec Consultants
10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127
P: 858.674.6559 x 203
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vwittig@geosyntec.com
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Document Number: 2215 0014

Analysis Request and Chain of Custody Record

Page 1 of 1

Project Name: Burned Debris Assess.	Project Number: SC0459
Samplers Names: Ortenberg & Warnecke	Project Contact: Veryl Wittig
Laboratory Name: Calscience	Lab Contact: Steve Nowak
Lab Address: Garden Grove	Lab Phone: 714-895-5494
	Carrier/Waybill No.

White copy: to accompany samples

Yellow copy: field copy

Required Analyses

Sample Name	Date	Time	Sample Type	VOCs by ___	Metals 6010B	SVOCs by 8270	T22 (TLC)	8310 (PAH)						Comments	Lab Use Only: Condition of Bottles
Bottle Type and Volume/Preservative					8oz		8oz	8oz							
1 SB-45-112907	11.29.07	13:00	Soil		1		1	1							
2 SB-48-112907	↓	13:20			1		1	1							
3 SB-46-112907		13:40			1		1	1							
4 SB-05-112907		14:00			1		1	1							
5 SB-47-112907		14:50			1		1	1							
6 SB-51-113007	11.30.07	11:00			1		1	1							
7 SB-44-113007		11:35 EW	EW		1		1	1							
8 SB-44C-113007		11:40			1		1	1							
9 SB-38-113007		12:00			1		1	1							
10 SB-50-113007		13:00			1		1	1							
				EW			11.30.07								

Special Instructions: If arsenic concentrations by 6010B are < MDL then analyze by 7010 (soil = ash)

Turn-around Time: 5 day standard

☒ Normal ☐ Rush: _____

1. Relinquished by (Signiture/Affiliation): Elyse Warnecke	Date 11.30.07 Time	1. Received by (Signiture/Affiliation): Fed Ex	Date 11.30.07 Time 16:00
2. Relinquished by (Signiture/Affiliation): FedEx	Date Time	2. Received by (Signiture/Affiliation): [illegible]	Date 12/1/07 Time 930
3. Relinquished by (Signiture/Affiliation)	Date Time	3. Received by (Signiture/Affiliation)	Date Time

Geosyntec consultants 10875 Rancho Bernardo Road, Suite 200, San Diego, CA 92127 (858) 674-6559 Fax: (858) 674-6586

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 0 7 - 1 2 - 0 0 1 4

Cooler 1 of 1

SAMPLE RECEIPT FORM

CLIENT: Geosyntec DATE: 12/1/07

TEMPERATURE – SAMPLES RECEIVED BY:

CALSCIENCE COURIER:

_____ Chilled, cooler with temperature blank provided.
_____ Chilled, cooler without temperature blank.
_____ Chilled and placed in cooler with wet ice.
_____ Ambient and placed in cooler with wet ice.
_____ Ambient temperature.

_____ °C Temperature blank.

LABORATORY (Other than Calscience Courier):

_____ °C Temperature blank.
3.8 °C IR thermometer.
_____ Ambient temperature.

Initial: HT

CUSTODY SEAL INTACT:

Sample(s): ✓ Cooler: _____ No (Not Intact) : _____ Not Present: _____

Initial: HT

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	✓		
Sampler's name indicated on COC	✓		
Sample container label(s) consistent with custody papers	✓		
Sample container(s) intact and good condition	✓		
Correct containers and volume for analyses requested	✓		
Proper preservation noted on sample label(s)			✓
VOA vial(s) free of headspace.			✓
Tedlar bag(s) free of condensation			✓

Initial: HT

COMMENTS:

APPENDIX D

Statistical Analysis Report

APPENDIX D

Statistical Analysis Summary of Burn Debris Sampling

This report summarizes the statistical analysis of the data obtained from the burn debris sampling performed in the San Diego and San Bernardino County sample areas in November 2007.

Multivariate analysis of variance (MANOVA) was performed on the San Diego and San Bernardino sample area data sets (SAS Institute Inc., 1999). Based on this analysis, there was no statistical difference between the data sets for the two neighborhoods. Therefore, samples for both neighborhoods were merged and treated as one dataset prior to performing further statistical analyses. In addition, each non-detect laboratory value was reassigned as half of the method detection limit; duplicates were evaluated such that the highest reported concentration from the duplicates was used in the analysis; and secondary samples from the same property (ash collected from secondary structures) were treated as unique samples in the analysis.

Summary statistics are provided for the combined dataset in Table D-1. Mean, median, standard deviation, the 10 and 90 percentiles of the data, and the normal approximation 95 percent confidence limits are presented in the table for reference. Confidence limits less than the error tolerance limit (60 percent relative error) suggests that the mean is known to lie within that range at the stated level of confidence (i.e. if the 95 percent upper confidence limit is lower than the relative error limit then a sufficient number of samples were collected). With the exception of cadmium, lead, mercury, zinc, benzo(a)anthracene, benzo(k)fluoranthene, and pyrene, the 95 percent upper confidence limit was below the relative error limit. The data were close to the threshold for each of these constituents except for one elevated detection of lead, which skewed the results. Based on the potential health hazards associated with lead, the single elevated concentration was not removed from the data set as an outlier. Overall, the confidence limits tend to capture the mean within the predefined error limits.

Based on the average coefficient of variation of the sample data (2.3), the number of samples required to estimate the true mean within 60 percent relative error at the 95 percent confidence level is 56 samples (Geosyntec, 2007). Since the combined dataset contains 74 observations this is well within the required number. Therefore, this suggests a sufficient number of samples were collected for statistical purposes.

Maximum concentrations were compared to the CHHSL and PRG screening values (OEHHA, 2003 and USEPA, 2004). Antimony, arsenic, cadmium, chromium, copper, lead, vanadium, zinc, benzo(a)anthracene, benzo(a)pyrene, benzo(k)fluoranthene, dibenz(a,h)anthracene, and naphthalene were found in at least a single sample at a concentration greater than the associated screening level. In general, detections of PAHs were not above screening levels and only several metals substantially exceeded the soil

screening value. Of those constituents exceeding the CHHSLs or PRGs, lead, arsenic, copper, zinc, benzo(a)anthracene, and naphthalene contained maximum concentrations greater than three fold the lowest screening value.

Data were evaluated for goodness-of-fit using Lilliefor's test under normal, lognormal, and gamma distribution assumptions (USEPA, 2007). In general, the data were mostly non-parametric with a few constituents exhibiting a lognormal distribution. Plots of the constituents identified as potential hazards are included in Figures D-1 through D-13.

The statistical analysis demonstrates that the burn debris samples contain low levels of some metals in excess of the screening criteria. Based on the statistical analysis discussed herein, it is likely that the non-sampled properties will contain concentrations of metals and PAHs similar to those analyzed during this assessment.

REFERENCES

Geosyntec Consultants, 2007. *Sampling and Analysis Plan, 2007 Wildfires - Burn debris Assessment, San Diego and San Bernardino Counties, California*. 27 November 2007.

Office of Environmental Health Hazard Assessment (OEHHA), 2003. *Air Toxics Hot Spots Program Risk Assessment Guidelines – The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. August 2003.

SAS Institute Inc., 1999. *SAS Procedures Guide, Version 8*, Cary, NC: SAS Institute Inc.

Singh, R. and A.K. Singh, 2007. *ProUCL Version 4.0 Technical Guide*. J.M. Nocerino, editor. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-07/041 (NTIS PB2007-107919), 4/30/2007

United States Environmental Protection Agency (USEPA), 2004. *Region IX PRGs Table 2002 Update*, 1 October 2004.

Geosyntec consultants

TABLE D-1
Summary of Statistical Analysis
Burn Debris Sampling
San Bernardino and San Diego Counties, California

Parameter	Units	[1]California Background	Health Risk: [4]CHHSL	Health Risk: [5]PRG	Waste Characterization: [2]TTLC Limits	Waste Characterization: [2]STLC Limits (mg/L)	Waste Characterization: [3]TCLP Limits (mg/L)	Soil Screening Level: [6]DAF1	Soil Screening Level: [7]DAF20	Sample ID and Date Collected: SB-04-112707 11/27/07	SB-05-112907 11/29/07	SB-07-112907 11/29/07	SB-08-112707 11/27/07	SB-11-112807 11/28/07	SB-13B-112707 11/27/2007	SB-13C-112707 11/27/07	SB-14-112707 11/27/07	SB-17-112807 11/28/07	SB-18-112707 11/27/07	SB-19-112807 11/28/07	SB-20-112807 11/28/07	SB-21-112907 11/29/07
Title 22 Metals by EPA Method 6010B/7471A																						
Antimony	mg/kg	0.5	30	31	500	15	-	0.30	50	6.56	11.3	0.994	0.0955	0.0955	13.5	0.0955	137	30.6	16.7	2.07	0.0955	14.9
Arsenic	mg/kg	2.75	0.070	[7]0.062	500	5.0	5.0	1.0	29	66.6	17.2	13.6	1.28	2.69	7.21	2.26	12	52	2.2	0.807	2.73	11.8
Barium	mg/kg	468	5,200	5,400	10,000	100	100	82	1,600	514	303	222	1510	196	798	224	192	231	184	145	1570	238
Beryllium	mg/kg	1.14	150	150	75	0.75	-	3.0	63	0.00184	1.49	0.293	0.356	0.256	0.00184	0.00184	0.388	0.409	0.323	0.307	0.634	0.596
Cadmium	mg/kg	0.26	1.7	37	100	1.0	1.0	0.40	80	2.16	0.00494	21.9	0.00494	0.00494	76.1	1.29	0.598	2.36	0.849	52.1	0.00494	683
Chromium (total)	mg/kg	76	-	210	2,500	5.0	5.0	2.0	38	14.8	84.6	21.1	6.59	16.3	126	24	23.5	42.2	11.6	11.1	19.2	18.8
Chromium (hexavalent)	mg/kg	-	17	31	500	5.0	-	2.0	38	-	0.11	0.11	-	-	-	-	-	-	-	-	0.11	0.11
Cobalt	mg/kg	12.6	660	900	8,000	80	-	-	-	7.24	10.5	13.4	3.72	4.3	7.92	7.32	7.28	11.4	8.54	5.96	10.6	7.41
Copper	mg/kg	24	3,000	3,100	2,500	25	-	-	-	1940	6990	780	15000	383	497	557	175	3030	2930	9800	14700	6460
Lead	mg/kg	44.6	150	[8]150	1,000	5.0	5.0	-	-	2270	239	250	57.5	32.5	310	366	49100	333	464	79.3	80.3	106
Mercury	mg/kg	0.2	18	23	20	0.2	0.2	-	-	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065
Molybdenum	mg/kg	0.9	380	390	3,500	350	-	-	-	4.93	1.25	3.82	1.27	1.11	4.37	1.54	0.896	2.05	0.993	1.55	0.712	1.58
Nickel	mg/kg	35.75	1,600	1,600	2,000	20	-	7.0	130	16.5	35.1	44.3	11.8	24.5	7.97	29.7	22.6	13.1	22.5	20.5	13.5	27.4
Selenium	mg/kg	0.028	380	390	100	1.0	1.0	0.30	5.0	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	1.1
Silver	mg/kg	0.41	380	390	500	5.0	5.0	2.0	34	0.01045	2.86	1.67	0.939	0.01045	0.01045	0.01045	8.85	1.74	0.01045	2.4	0.432	1.57
Thallium	mg/kg	13.8	5.0	5.2	700	7.0	-	-	-	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935
Vanadium	mg/kg	101	530	78	2,400	24	-	300	6,000	24.4	39.5	22.4	28.7	25.4	7.86	49.1	13.1	15.7	23	27.9	33.5	26.1
Zinc	mg/kg	145	23,000	23,000	5,000	250	-	620	12,000	3530	5680	1870	365	1060	20500	1570	2540	3270	869	159000	2220	1870
PAHs by EPA Method 8310																						
Acenaphthene	µg/kg	-	-	3,700,000	-	-	-	29,000	570,000	990	560	180	1900	1000	450	540	590	530	31	250	720	160
Acenaphthylene	µg/kg	-	-	-	-	-	-	-	-	1200	320	3.4	320	370	2300	170	140	3.4	200	350	2100	3.4
Anthracene	µg/kg	-	-	22,000,000	-	-	-	590,000	12,000,000	31	34	1.75	3.5	17.5	130	10	1.75	10	1.75	17	17.5	1.75
Benzo(a)anthracene	µg/kg	-	-	620	-	-	-	80	2,000	60	3.2	1.6	3.2	16	120	1.6	1.6	1.6	1.6	1.6	16	1.6
Benzo(a)pyrene	µg/kg	-	38	62	-	-	-	400	8,000	3.1	3.1	1.55	3.1	15.5	7.5	1.55	1.55	1.55	1.55	1.55	15.5	1.55
Benzo(b)fluoranthene	µg/kg	-	-	620	-	-	-	200	5,000	3.25	3.25	1.6	3.25	16	8.0	1.6	1.6	1.6	1.6	1.6	16	1.6
Benzo(g,h,i)perylene	µg/kg	-	-	-	-	-	-	-	-	3.95	3.95	2	3.95	20	10	2.0	2.0	2.0	2.0	2.0	20	2.0
Benzo(k)fluoranthene	µg/kg	-	-	[8]380	-	-	-	2,000	49,000	3.2	3.2	1.6	3.2	16	8.0	1.6	1.6	1.6	1.6	1.6	16	1.6
Chrysene	µg/kg	-	-	[8]3,800	-	-	-	8,000	160,000	29	3.2	1.6	3.2	16	190	1.6	1.6	1.6	1.6	1.6	16	1.6
Dibenz(a,h)anthracene	µg/kg	-	-	62	-	-	-	80	2,000	3.75	3.75	1.85	3.75	18.5	9.5	1.85	1.85	1.85	1.85	1.85	18.5	1.85
Fluoranthene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,300,000	150	3.4	1.7	3.4	17	580	1.7	1.7	1.7	76	1.7	200	1.7
Fluorene	µg/kg	-	-	2,700,000	-	-	-	28,000	560,000	31	27	1.6	3.2	16	170	1.6	1.6	34	12	12	16	1.6
Indeno(1,2,3-c,d)pyrene	µg/kg	-	-	-	-	-	-	700	14,000	3.55	3.55	1.75	3.55	17.5	9.0	1.75	1.75	1.75	1.75	1.75	17.5	1.75
Naphthalene	µg/kg	-	-	[7]1,700	-	-	-	4,000	84,000	1100	1200	490	340	600	3100	240	270	610	350	860	820	250
Phenanthrene	µg/kg	-	-	-	-	-	-	-	-	140	250	20	3.35	16.5	680	1.65	10	61	54	52	16.5	10
Pyrene	µg/kg	-	-	2,300,000	-	-	-	210,000	4,200,000	2.9	34	1.45	2.9	14.5	380	1.45	1.45	1.45	28	10	14.5	1.45
Total B(a)P Equivalency[9]	µg/kg	-	38	62	-	-	-	400	8,000	10	4.5	2.2	4.5	22	24	2.2	2.2	2.2	2.2	2.2	22	2.2

Notes:

mg/kg - Milligrams per kilogram
mg/L - Milligrams per liter
µg/kg - Microgram per kilogram
- Not established
ND<x - Not detected at concentrations greater than or equal to MDL (x)

CHHSL - California Human Health Screening Level for soil in residential land use
DAF- Dilution-Attenuation Factor
MDL - Method Detection Limit
PRG - Residential Preliminary Remediation Goal

STLC - Soluble Threshold Limit Concentration
TCLP - Toxicity Characteristic Leaching Potential
TTLC - Total Threshold Limit Concentration

[1] Geometric mean concentrations were used which are more conservative than average concentrations. Reference: UC Riverside and Cal-EPA DTSC, 1996. *Background Concentrations of Trace and Major Elements in California Soils, Kearney Foundation Special Report*, March 1996.

[2] Reference: California Code of Regulations (CCR), 2006. Title 22, Chapter 11, Article 3, Section 66261.24. *Characteristics of Toxicity*, 30 November 2007.

[3] Reference: Code of Federal Regulations (CFR), 2006. 40 CFR, Chapter 1, Section 261.24. *Toxicity Characteristics*, 14 July, 2006.

[4] Reference: California Environmental Protection Agency (Cal/EPA). *Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties*. January 2005.

[5] Reference: USEPA Region IX, 2004. *EPA Region IX PRGs Table*, October 2004.

[4] Waters designated for use as domestic or municipal supply shall not contain concentrations above the maximum contaminant levels (MCLs) set forth in California Code of Regulations, Title 22, Table 64431-A of Section 64431 (inorganic chemicals) and Table 64444-A of Section 64444 (organic chemicals). Reference: Santa Ana Regional Water Quality Control Board, 1995. *Water Quality Control Plan for the Santa Ana River Basin (9)*.

[6] Dilution-attenuation factor of 1 is used to compare to areas with shallow groundwater or fractured media. Reference: USEPA, Region IX, 2004. *Region IX PRGs Table 2004 Update*, 1 October 2004.

[7] Dilution-attenuation factor of 20 is used to compare to areas where groundwater is deep. Reference: USEPA, Region IX, 2004. *Region IX PRGs Table 2004 Update*, 1 October 2004.

[7] Inland surface waters freshwater aquatic life protection, continuous dissolved concentration, 4-day average. Reference: Regional Water Quality Control Board, Central Valley, 2003. *Compilation of Water Quality Goals*, August 2003.

[8] State of California modified residential PRG (Cal-modified PRG)

[9] Benzo(a)pyrene equivalancy based on potency equivalency factors (PEFs) Reference: Office of Environmental Health Hazard Assessment. *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, August 2003.

TABLE D-1
Summary of Statistical Analysis
Burn Debris Sampling
San Bernardino and San Diego Counties, California

Geosyntec consultants

		Sample ID and Date Collected																				
		SB-24-112907	SB-25A-112807	SB-25B-112807	SB-26-112707	SB-28C-112807	SB-29-112807	SB-30A-112707	SB-30B-112707	SB-31-112807	SB-32-112707	SB-35C-112907	SB-36-112907	SB-38-113007	SB-39-112807	SB-40-112807	SB-41-112807	SB-42A-112807	SB-42B-112807	SB-43-112907	SB-44C-113007	SB-45-112907
Parameter	**Units**	11/29/07	11/28/07	11/28/07	11/27/07	11/28/07	11/28/07	11/27/07	11/27/07	11/28/07	11/27/07	11/29/07	11/29/07	11/30/07	11/28/07	11/28/07	11/28/07	11/28/07	11/28/07	11/29/07	11/30/07	11/29/07
Title 22 Metals by EPA Method 6010B/7471A																						
Antimony	mg/kg	189	24.6	67.5	3.04	14.5	0.0955	4.75	0.0955	12.7	1.63	21.6	25.9	106	0.0955	32.9	7.11	26.4	6.93	34.9	17.5	13.6
Arsenic	mg/kg	73.5	9.27	6	1.13	5.95	21.9	29.1	3.88	6.87	1.75	13.4	17.1	8.89	2.57	16.6	40	21.7	4.47	40	3.73	18.2
Barium	mg/kg	138	155	740	137	297	431	129	256	553	177	252	208	831	344	262	265	271	315	575	31.9	130
Beryllium	mg/kg	0.00184	0.00184	0.493	0.488	0.00184	0.336	0.00184	0.411	0.59	0.00184	0.00184	0.263	1.18	0.315	0.318	0.836	0.00184	0.278	0.00184	0.929	0.935
Cadmium	mg/kg	22.9	0.674	0.00494	0.00494	0.00494	0.831	0.00494	1.23	7.08	0.00494	5.13	2.2	2.15	1.29	1.63	1.84	69.3	17.4	2.08	0.00494	0.00494
Chromium (total)	mg/kg	62.2	8.82	5.95	3.7	9.78	20.9	13	14.2	141	11.8	12.2	35.6	29.6	41.1	40.7	51.8	30.5	15.4	101	2.43	10.9
Chromium (hexavalent)	mg/kg	0.11	-	-	-	-	-	-	-	-	-	-	-	0.11	-	-	-	-	-	0.11	-	-
Cobalt	mg/kg	13.5	6.54	15.9	6.16	4.58	9.82	3.24	5.86	87.4	6.66	4.95	7.97	30.8	5.73	8.93	31.3	24.2	5.89	8.43	1.74	9.41
Copper	mg/kg	2960	4600	13800	1380	268	7180	956	158	1180	12000	4110	2280	750	792	1020	2980	9970	902	20800	177	435
Lead	mg/kg	184	135	145	20	23.2	68.7	97.5	639	467	128	96.4	680	1370	58.5	62.7	112	393	206	2580	477	13.6
Mercury	mg/kg	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.0867	4.5	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065
Molybdenum	mg/kg	1.67	1.32	1.56	0.0103	21	6.41	1.1	0.886	8.11	2.09	3.54	7.77	1.35	4.17	1.82	3.98	6.85	1.82	43.7	1.86	29.3
Nickel	mg/kg	6.03	13.3	27.2	9.67	20.5	14	43	20.3	81.2	21.2	12.7	41.2	27.7	29.6	57.2	35.7	118	17	20.5	20	18.9
Selenium	mg/kg	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.959	0.0875	0.0875	1.39	0.0875	0.0875	1.74	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875
Silver	mg/kg	0.01045	0.723	4.86	0.01045	0.01045	0.01045	0.01045	0.01045	6.58	0.01045	0.605	0.01045	5.28	0.01045	0.01045	4.99	5.7	51.1	0.571	0.01045	0.01045
Thallium	mg/kg	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935
Vanadium	mg/kg	7.22	32.8	63	13.3	54.8	22.6	16.2	40.4	34.7	25.6	20.6	66.4	25.7	42.4	59.4	23	15.6	15.1	25.2	19.2	16.3
Zinc	mg/kg	1690	466	8420	202	485	7390	3170	1070	6240	2480	1120	1730	26100	1150	591	2610	2840	555	4300	32700	969
PAHs by EPA Method 8310																						
Acenaphthene	µg/kg	310	180	270	2300	620	2600	2.5	770	6800	37	190	400	72	1200	670	970	760	180	1500	280	770
Acenaphthylene	µg/kg	3.4	3.4	3.4	1700	2800	1200	280	140	3000	170	3.4	310	60	1200	17	7.0	34	3.4	7.0	540	640
Anthracene	µg/kg	11	17	10	9.0	120	17.5	1.75	3.5	17.5	19	1.75	22	1.75	17.5	9.0	3.5	17.5	1.75	3.5	54	1.75
Benzo(a)anthracene	µg/kg	1.6	1.6	1.6	8.0	16	16	19	3.2	150	12	1.6	26	1.6	16	8.0	3.2	16	1.6	3.2	3.2	1.6
Benzo(a)pyrene	µg/kg	1.55	1.55	1.55	7.5	15.5	15.5	1.55	3.1	15.5	1.55	1.55	1.55	1.55	15.5	7.5	3.1	15.5	1.55	3.1	3.1	1.55
Benzo(b)fluoranthene	µg/kg	1.6	1.6	1.6	8.0	16	16	1.6	3.25	16	1.6	1.6	1.6	1.6	16	8.0	3.25	16	1.6	3.25	3.25	1.6
Benzo(g,h,i)perylene	µg/kg	2.0	2.0	2.0	10	20	20	2.0	3.95	20	2.0	2.0	2.0	2.0	20	10	3.95	20	2.0	3.95	3.95	2.0
Benzo(k)fluoranthene	µg/kg	1.6	1.6	1.6	8.0	16	16	1.6	3.2	16	1.6	1.6	1.6	1.6	16	8.0	3.2	16	1.6	3.2	3.2	1.6
Chrysene	µg/kg	1.6	1.6	1.6	8.0	16	16	1.6	3.2	16	1.6	1.6	16	1.6	16	8.0	3.2	16	1.6	3.2	3.2	10
Dibenz(a,h)anthracene	µg/kg	1.85	1.85	1.85	9.5	18.5	18.5	1.85	3.75	18.5	1.85	1.85	1.85	1.85	18.5	9.5	3.75	18.5	1.85	3.75	3.75	1.85
Fluoranthene	µg/kg	1.7	250	1.7	80	17	17	1.7	3.4	380	73	1.7	140	15	17	8.5	67	17	1.7	3.4	3.4	1.7
Fluorene	µg/kg	1.6	210	24	8.0	200	16	1.6	3.2	380	10	1.6	81	23	16	8.0	30	16	1.6	3.2	120	1.6
Indeno(1,2,3-c,d)pyrene	µg/kg	1.75	13	1.75	9.0	17.5	17.5	1.75	3.55	17.5	1.75	1.75	1.75	1.75	17.5	9.0	3.55	17.5	1.75	3.55	3.55	1.75
Naphthalene	µg/kg	610	200	350	830	4600	440	160	210	4600	270	610	780	110	1700	2100	770	1700	130	530	1300	410
Phenanthrene	µg/kg	39	120	69	64	320	16.5	1.65	3.35	290	140	23	120	38	16.5	120	45	130	25	22	460	1.65
Pyrene	µg/kg	1.45	1.45	1.45	7.0	14.5	150	1.45	1100	180	47	1.45	38	16	14.5	7	2.9	14.5	1.45	2.9	33	1.45
Total B(a)P Equivalency[9]	µg/kg	2.2	3.3	2.2	11	22	22	4.0	4.5	36	3.3	2.2	4.8	2.2	22	11	4.5	22	2.2	4.5	4.5	2.3

Notes:

mg/kg - Milligrams per kilogram

mg/L - Milligrams per liter

µg/kg - Microgram per kilogram

- Not established

ND<x - Not detected at concentrations greater than or equal to MDL (x)

TABLE D-1
Summary of Statistical Analysis
Burn Debris Sampling
San Bernardino and San Diego Counties, California

		Sample ID and Date Collected																			
		SB-46-112907	SB-47-112907	SB-48-112907	SB-50-113007	SB-51-113007	SD-02-11282007	SD-08-11262007	SD-09-11262007	SD-11-11282007	SD-12-11272007	SD-13-11272007	SD-16-11272007	SD-18-C-11272007	SD-19-C-11272007	SD-20-11282007	SD-21-11272007	SD-22-11272007	SD-24-11272007	SD-25-11272007	SD-26-11282007
Parameter	**Units**	11/29/07	11/29/07	11/29/07	11/30/07	11/30/07	11/28/07	11/26/2007	11/26/2007	11/28/07	11/27/07	11/27/07	11/27/07	11/27/07	11/27/07	11/28/07	11/27/07	11/27/07	11/27/07	11/27/07	11/28/07
Title 22 Metals by EPA Method 6010B/7471A																					
Antimony	mg/kg	2.6	29.9	17.9	20.4	52.4	73.1	0.0955	45.9	14	0.0955	1.1	50.5	0.898	5.43	35	97.1	2.05	14.2	5.87	0.0955
Arsenic	mg/kg	13.4	12.1	6.98	4.76	4.49	12.6	9.28	8.25	10.5	3.55	20.5	12.1	3.17	2.53	11.3	8.04	1.93	1.26	2.23	5.96
Barium	mg/kg	328	360	1010	118	270	420	456	207	179	127	157	132	94.2	236	283	208	65.7	161	316	159
Beryllium	mg/kg	1.02	1.03	1.17	0.893	0.992	1.17	0.00184	0.00184	1.05	0.00184	0.428	0.453	0.00184	0.391	1.08	0.00184	0.00184	0.34	0.288	1
Cadmium	mg/kg	0.00494	7.76	0.00494	0.00494	0.00494	6.22	3.4	1.46	0.00494	0.00494	0.00494	0.00494	1.24	0.00494	1.93	2.8	0.00494	0.00494	0.00494	31.4
Chromium (total)	mg/kg	8.02	22.4	19.8	7.31	24	345	19.5	10.2	24.4	17.9	29.2	8.88	10.4	8.02	28.7	10.5	10.9	8.7	19.4	13.5
Chromium (hexavalent)	mg/kg	-	-	-	-	-	0.11	-	-	-	0.11	-	-	-	-	0.11	-	-	-	-	-
Cobalt	mg/kg	10.8	5.39	6.68	2.83	17.6	47.9	264	4.59	4.61	4.92	5.37	44.6	4.51	2.45	6.05	6.58	7.24	5.39	3.43	4.17
Copper	mg/kg	267	7530	2630	324	1640	2430	698	2100	8080	46000	542	1490	3740	73.1	2310	614	452	886	1230	1860
Lead	mg/kg	102	531	1450	97.8	171	1680	103	92.5	111	92.3	25.1	2510	80.8	23.3	448	53.8	33.4	20.3	32.3	3350
Mercury	mg/kg	0.204	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.187
Molybdenum	mg/kg	1.09	4.49	4.81	0.806	0.978	3.63	1.69	0.913	1.17	0.495	1.79	2.12	9.62	1.36	2.65	5.22	1.12	0.709	1.12	2.67
Nickel	mg/kg	6.87	11.7	23.2	7.42	43.9	23.1	48.8	76.5	27.8	12.2	27.6	31.6	16.6	41.8	69.2	14	33.5	13	13.1	28.5
Selenium	mg/kg	5.1	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875
Silver	mg/kg	0.01045	3.12	0.01045	0.953	3.62	42.2	0.01045	2.67	1.01	2.59	0.01045	35.8	62.4	0.01045	12.4	0.01045	0.01045	0.01045	0.267	1.7
Thallium	mg/kg	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935
Vanadium	mg/kg	16.4	18.2	44.1	10.1	28.2	40.9	20.7	18.8	29.1	22.8	66.6	40	12.6	115	31.6	33.9	67.3	28.9	22.5	17.5
Zinc	mg/kg	1120	6160	1840	492	1440	3080	2190	1570	1310	685	407	6030	54300	1060	2180	1060	1330	303	404	2190
PAHs by EPA Method 8310																					
Acenaphthene	µg/kg	930	170	1700	5.0	38	2.5	25	1800	2.5	66	2.5	2.5	490	36	2.5	280	50	300	380	380
Acenaphthylene	µg/kg	3500	490	1300	7.0	3.4	100	240	790	830	540	230	1000	500	290	210	1400	3200	760	610	610
Anthracene	µg/kg	35	1.75	130	3.5	16	1.75	1.75	240	31	23	1.75	110	22	11	1.75	68	35	52	14	38
Benzo(a)anthracene	µg/kg	750	1.6	160	3.2	1.6	1.6	61	170	60	21	1.6	200	120	27	130	92	3200	130	170	34
Benzo(a)pyrene	µg/kg	31	1.55	3.1	3.1	1.55	1.55	1.55	34	14	1.55	1.55	77	1.55	1.55	1.55	7.5	31	13	1.55	1.55
Benzo(b)fluoranthene	µg/kg	32.5	1.6	29	3.25	1.6	29	1.6	3.25	1.6	1.6	1.6	1.6	1.6	1.6	1.6	8	32.5	1.6	1.6	1.6
Benzo(g,h,i)perylene	µg/kg	39.5	2.0	3.95	3.95	2.0	19	2.0	3.95	10	2.0	2.0	130	2.0	2.0	2.0	10	39.5	2.0	2.0	12
Benzo(k)fluoranthene	µg/kg	32	1.6	560	3.2	1.6	1.6	1.6	22	1.6	1.6	1.6	39	1.6	64	1.6	8.0	32	1.6	1.6	1.6
Chrysene	µg/kg	32	15	180	3.2	11	1.6	39	26	72	1.6	1.6	580	12	1.6	28	8.0	210	56	1.6	1.6
Dibenz(a,h)anthracene	µg/kg	37.5	1.85	3.75	3.75	1.85	1.85	1.85	90	1.85	1.85	1.85	330	1.85	190	1.85	9.5	37.5	1.85	1.85	12
Fluoranthene	µg/kg	1900	1.7	1400	3.4	12	1.7	650	73	26	1.7	1.7	290	1.7	1.7	310	8.5	34	860	53	220
Fluorene	µg/kg	32	1.6	3.2	3.2	18	10	12	480	80	89	18	140	40	34	17	410	530	180	33	71
Indeno(1,2,3-c,d)pyrene	µg/kg	35.5	1.75	3.55	3.55	1.75	1.75	1.75	22	14	1.75	1.75	74	1.75	1.75	1.75	9.0	35.5	12	1.75	1.75
Naphthalene	µg/kg	19000	790	530	95	79	140	370	770	950	830	490	630	340	260	240	2200	840	740	200	530
Phenanthrene	µg/kg	570	1.65	220	3.35	97	1.65	100	1100	360	140	70	440	150	74	110	300	1000	290	130	210
Pyrene	µg/kg	1200	35	82	21	36	29	110	510	600	72	49	650	160	81	430	59	10000	300	420	1.45
Total B(a)P Equivalency[9]	µg/kg	116	2.4	80	4.5	2.3	5.0	8.5	56	22	4.2	2.2	114	14	7.1	15	19	363	28	19	5.5

Notes:

mg/kg - Milligrams per kilogram

mg/L - Milligrams per liter

µg/kg - Microgram per kilogram

- Not established

ND<x - Not detected at concentrations greater than or equal to MDL (x)

TABLE D-1
Summary of Statistical Analysis
Burn Debris Sampling
San Bernardino and San Diego Counties, California

Geosyntec consultants

		Sample ID and Date Collected																			
		SD-31-11262007	SD-34-11262007	SD-36-11272007	SD-38-11272007	SD-40-11262007	SD-41-11272007	SD-44-11282007	SD-46-11272007	SD-47-11282007	SD-50C-11282007	SD-51-11282007	SD-53-11282007	SD-54-11272007	SD-55-11282007	SD-56-11282007	SD-58-11282007	SD-62-11282007	SD-63-11292007	SD-67-11292007	SD-72-C-11292007
Parameter	**Units**	11/26/2007	11/26/2007	11/27/07	11/27/07	11/26/2007	11/27/07	11/28/07	11/27/07	11/28/07	11/28/07	11/28/07	11/28/07	11/27/07	11/28/07	11/28/07	11/28/07	11/28/07	11/29/07	11/29/07	11/29/07
Title 22 Metals by EPA Method 6010B/7471A																					
Antimony	mg/kg	0.0955	0.0955	22.6	52.8	0.0955	0.0955	0.0955	10.8	7.11	11.3	2.24	18.2	101	9.2	6.18	21.6	0.0955	80.3	5.51	8.8
Arsenic	mg/kg	34.3	4.62	4.06	1.78	12.2	5.22	9	10	8.17	6.67	5.96	6.59	2.81	4.13	9.44	2.53	6.62	6.69	4.5	7.82
Barium	mg/kg	167	113	164	213	166	121	262	142	326	146	163	213	238	94.3	253	88.1	195	195	218	83.2
Beryllium	mg/kg	0.00184	0.00184	0.00184	0.00184	0.00184	0.605	1.14	0.00184	0.922	0.966	1.03	0.995	0.00184	0.899	0.975	0.867	0.996	0.00184	0.00184	0.00184
Cadmium	mg/kg	1.4	1.3	0.00494	4.15	1.34	0.00494	2.67	2.31	3.63	0.00494	2.81	4.73	1.79	0.736	0.951	3.03	14.6	1.93	6.32	0.00494
Chromium (total)	mg/kg	15.7	27	9.64	21.2	15.9	15.6	26.7	12.2	15.9	8.64	21.4	195	10.4	8.84	18.7	8.5	20.9	10.4	27.1	8.17
Chromium (hexavalent)	mg/kg	-	0.11	-	-	-	-	0.11	-	-	-	0.88	-	-	-	0.11	-	-	-	-	-
Cobalt	mg/kg	7.25	4.7	8.18	3.35	6.84	4.52	5.82	6	2	46.9	5.07	18.5	9.31	6.09	6.88	3.03	21.1	16.7	108	13.2
Copper	mg/kg	879	448	45700	417	539	172	627	22300	124	4340	851	6870	1150	457	313	222	1980	2390	937	2320
Lead	mg/kg	36.5	69.4	36.3	193	87.7	24.4	1370	225	379	288	39.7	463	143	56.1	49.4	36.2	154	2790	432	47.4
Mercury	mg/kg	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065
Molybdenum	mg/kg	6.09	1.02	1.7	15.6	0.0103	2.86	5.64	1.59	1.9	4.65	1.55	3.76	0.52	2	1.89	0.717	1.47	1.14	2.07	16.3
Nickel	mg/kg	25.6	26.9	21.9	8.08	8.19	39.3	28.2	34.6	5.96	9.85	9.68	27.9	10.3	8.13	23.3	32.1	320	49.5	17.9	24.7
Selenium	mg/kg	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875
Silver	mg/kg	4.71	0.01045	2.43	0.01045	0.01045	0.01045	9.09	4.74	0.793	0.01045	0.01045	21.1	4.17	0.01045	0.01045	0.781	5.99	6.51	0.01045	0.01045
Thallium	mg/kg	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935	0.04935
Vanadium	mg/kg	68.3	31	16.8	10.1	22.3	67.7	21.2	15.9	8.63	13.2	24.4	16.6	6.84	9.38	13.1	15.7	20.1	9.76	12	35.1
Zinc	mg/kg	3160	547	892	767	534	304	1640	1360	4490	9020	572	6080	5080	772	2340	489	2290	5740	2430	776
PAHs by EPA Method 8310											0										
Acenaphthene	µg/kg	2.5	2.5	38	110	83	5.0	2.5	260	200	180	2.5	520	41	5.0	840	20	2.5	160	560	2.5
Acenaphthylene	µg/kg	130	210	230	600	150	1200	240	250	610	670	590	1200	330	1500	2100	160	440	140	3800	72
Anthracene	µg/kg	1.75	1.75	1.75	26	1.75	230	12	1.75	1.75	81	21	51	18	180	120	1.75	20	20	280	1.75
Benzo(a)anthracene	µg/kg	14	1.6	63	15	1.6	160	72	87	16	66	45	810	27	260	160	37	120	32	530	1.6
Benzo(a)pyrene	µg/kg	29	1.55	1.55	1.55	1.55	92	10	1.55	1.55	27	1.55	3.1	1.55	61	72	1.55	17	11	15.5	1.55
Benzo(b)fluoranthene	µg/kg	1.6	1.6	1.6	1.6	1.6	3.25	1.6	1.6	1.6	28	1.6	3.25	1.6	3.25	8.0	1.6	1.6	1.6	16	1.6
Benzo(g,h,i)perylene	µg/kg	47	2.0	2.0	2.0	2.0	91	2.0	2.0	2.0	16	2.0	26	20	30	10	2.0	2.0	2.0	20	2.0
Benzo(k)fluoranthene	µg/kg	1.6	1.6	1.6	1.6	1.6	24	1.6	1.6	1.6	1.6	1.6	3.2	1.6	40	8.0	1.6	1.6	1.6	16	1.6
Chrysene	µg/kg	1.6	1.6	13	16	1.6	140	1.6	1.6	1.6	140	1.6	130	1.6	67	100	20	16	28	16	17
Dibenz(a,h)anthracene	µg/kg	250	1.85	1.85	1.85	1.85	160	1.85	1.85	1.85	70	1.85	3.75	1.85	52	9.5	1.85	14	1.85	18.5	12
Fluoranthene	µg/kg	11	1.7	1.7	240	1.7	180	24	260	27	77	1.7	100	1.7	310	120	80	25	680	2400	440
Fluorene	µg/kg	140	12	19	74	18	810	20	26	27	130	71	94	44	400	210	32	44	18	520	1.6
Indeno(1,2,3-c,d)pyrene	µg/kg	1.75	1.75	1.75	1.75	1.75	57	1.75	1.75	1.75	17	1.75	23	1.75	52	9.0	1.75	11	1.75	17.5	1.75
Naphthalene	µg/kg	210	200	430	680	460	1100	230	260	610	790	450	830	440	1500	3000	280	510	180	3000	190
Phenanthrene	µg/kg	60	47	79	190	18	640	91	60	19	410	160	490	140	840	1000	36	130	130	2600	43
Pyrene	µg/kg	93	62	240	88	14	360	210	340	44	100	310	790	110	360	370	140	610	140	4800	28
Total B(a)P Equivalency[9]	µg/kg	31	2.2	8.5	3.7	2.2	118	18	11	3.7	29	6.6	88	4.8	97	92	5.9	31	15	74	2.4

Notes:

mg/kg - Milligrams per kilogram

mg/L - Milligrams per liter

µg/kg - Microgram per kilogram

- Not established

ND<x - Not detected at concentrations greater than or equal to MDL (x)

TABLE D-1
Summary of Statistical Analysis
Burn Debris Sampling
San Bernardino and San Diego Counties, California

Parameter	Units	Statistics Summary											
		Minimum	Maximum	Arithmetic Mean	Geometric Mean	Median	Standard Deviation	n	Percentiles 10%	Percentiles 90%	95% Confidence Low CL	95% Confidence Upper CL	Relative Error 1.6
Title 22 Metals by EPA Method 6010B/7471A													
Antimony	mg/kg	0.0955	189	22.6	4.86	11.1	34.5	74	0.096	63.1	14.9	30.3	36.1
Arsenic	mg/kg	0.807	73.5	11.4	7.07	6.93	13.8	74	2.21	21.8	8.37	14.5	18.3
Barium	mg/kg	31.9	1570	293	227	213	275	74	119	541	232	354	469
Beryllium	mg/kg	0.00184	1.49	0.448	0.0740	0.338	0.435	74	0.00184	1.03	0.35	0.55	0.72
Cadmium	mg/kg	0.00494	683	14.7	0.331	1.30	80.0	74	0.00494	16.6	-3.16	32.5	23.5
Chromium (total)	mg/kg	2.43	345	30.1	18.4	16.1	48.8	74	8.27	48.9	19.2	41.0	48.2
Chromium (hexavalent)	mg/kg	0.11	0.88	0.165	0.128	0.110	0.206	14	0.110	0.110	0.06	0.27	0.26
Cobalt	mg/kg	1.74	264	15.8	8.46	6.86	34.0	74	3.52	28.8	8.20	23.3	25.2
Copper	mg/kg	73.1	46000	4458	1541	1305	8379	74	267	11391	2589	6327	7132
Lead	mg/kg	13.6	49100	1075	168	120	5704	74	32.36	1426	-197	2348	1720
Mercury	mg/kg	0.00065	4.5	0.0679	0.000913	0.000650	0.523	74	0.000650	0.000650	-0.0489	0.185	0.109
Molybdenum	mg/kg	0.0103	43.7	4.02	2.01	1.81	6.66	74	0.830	7.49	2.53	5.50	6.43
Nickel	mg/kg	5.96	320	30.4	22.2	22.9	39.1	74	8.63	47.5	21.6	39.1	48.6
Selenium	mg/kg	0.0875	5.1	0.221	0.107	0.09	0.641	74	0.0875	0.0875	0.0776	0.36	0.353
Silver	mg/kg	0.0105	62.4	4.46	0.219	0.50	11.2	74	0.0105	8.17	1.96	6.97	7.14
Thallium	mg/kg	0.0494	0.0494	0.0494	0.0494	0.05	0	74	0.0494	0.0494	0.0494	0.0494	0.0790
Vanadium	mg/kg	6.84	115	28.4	23.6	22.9	19.1	74	10.7	58.0	24.1	32.6	45.4
Zinc	mg/kg	202	159000	6068	1914	1710	19698	74	486	7045	1674	10462	9709
PAHs by EPA Method 8310													
Acenaphthene	µg/kg	2.5	6800	520	120	225	928	74	2.5	1140	313	727	832
Acenaphthylene	µg/kg	3.4	3800	687	213	320	885	74	3.4	1980	489	884	1099
Anthracene	µg/kg	1.75	280	34	11	17	58	74	1.8	117	22	47	55
Benzo(a)anthracene	µg/kg	1.6	3200	113	16	16	391	74	1.6	167	26	201	181
Benzo(a)pyrene	µg/kg	1.55	92	10	4.1	1.6	18	74	1.6	28	6.3	14	16
Benzo(b)fluoranthene	µg/kg	1.6	32.5	5.8	3.1	1.6	8.0	74	1.6	16	4.0	7.58	9.26
Benzo(g,h,i)perylene	µg/kg	2.0	130	11	4.9	2.0	20	74	2.0	20	6.5	15	17
Benzo(k)fluoranthene	µg/kg	1.6	560	15	3.6	1.6	65	74	1.6	20	0.044	29	23
Chrysene	µg/kg	1.6	580	33	7.7	8.0	79	74	1.6	92	15	50	52
Dibenz(a,h)anthracene	µg/kg	1.85	330	21	5.1	1.9	55	74	1.9	38	8.8	33	34
Fluoranthene	µg/kg	1.7	2400	175	21	17	406	74	1.7	422	85	266	281
Fluorene	µg/kg	1.6	810	86	24	24	152	74	1.6	210	53	120	138
Indeno(1,2,3-c,d)pyrene	µg/kg	1.75	74	8.8	4.2	1.75	13	74	1.8	18	5.8	12	14
Naphthalene	µg/kg	79	19000	1054	553	530	2303	74	193	1980	541	1568	1687
Phenanthrene	µg/kg	1.65	2600	215	71	94	375	74	5.3	546	132	299	344
Pyrene	µg/kg	1.45	10000	354	40	46	1282	74	1.5	573	68	640	566
Total B(a)P Equivalency[9]	µg/kg	2.2	363	25	9.3	6.3	50	74	2.2	78	14	36	40

Notes:

mg/kg - Milligrams per kilogram

mg/L - Milligrams per liter

µg/kg - Microgram per kilogram

- Not established

ND<x - Not detected at concentrations greater than or equal to MDL (x)

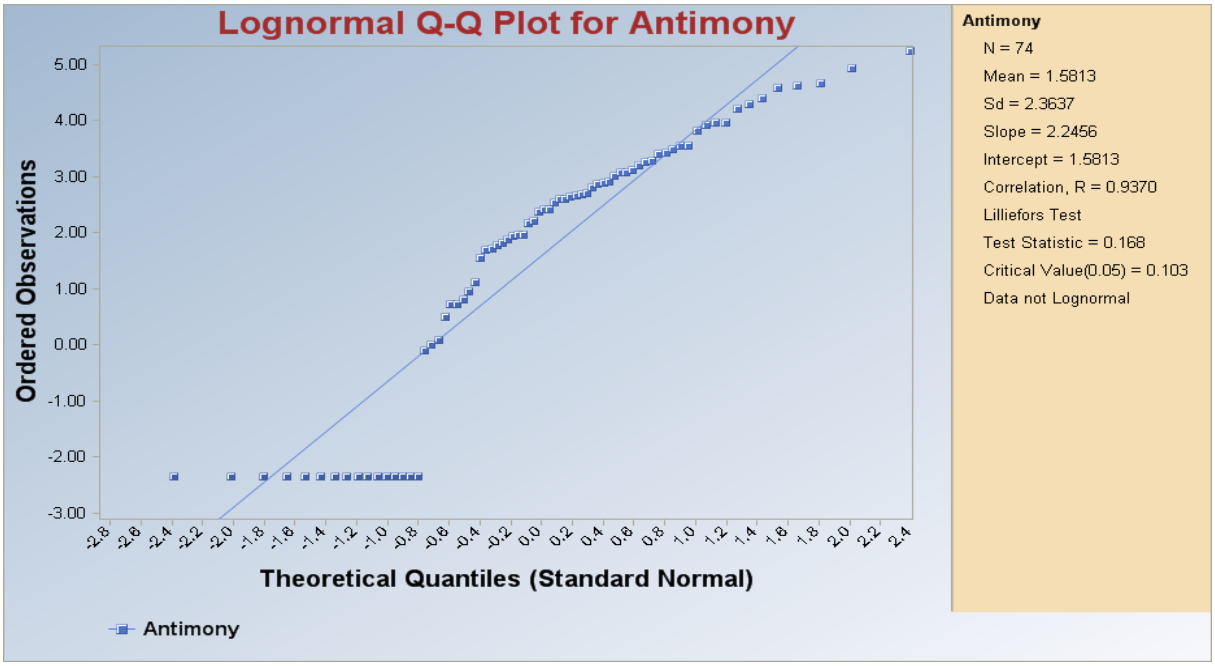

Figure D-1: Lognormal Plot for Antimony

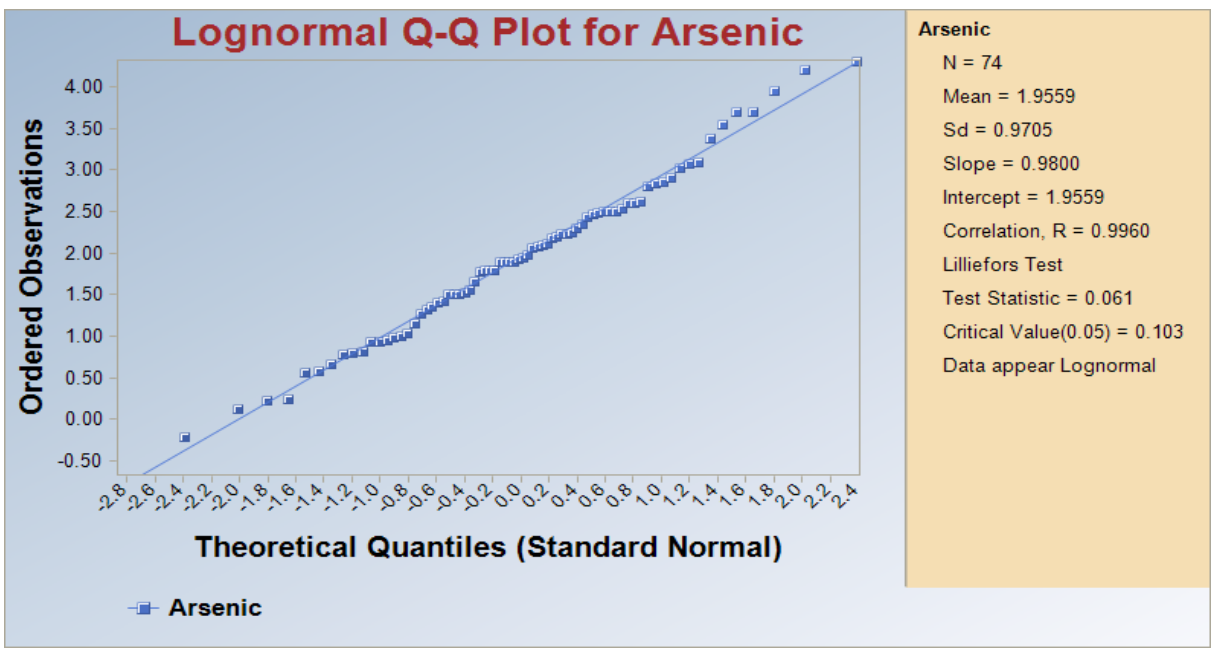

Figure D-2: Lognormal Plot for Arsenic

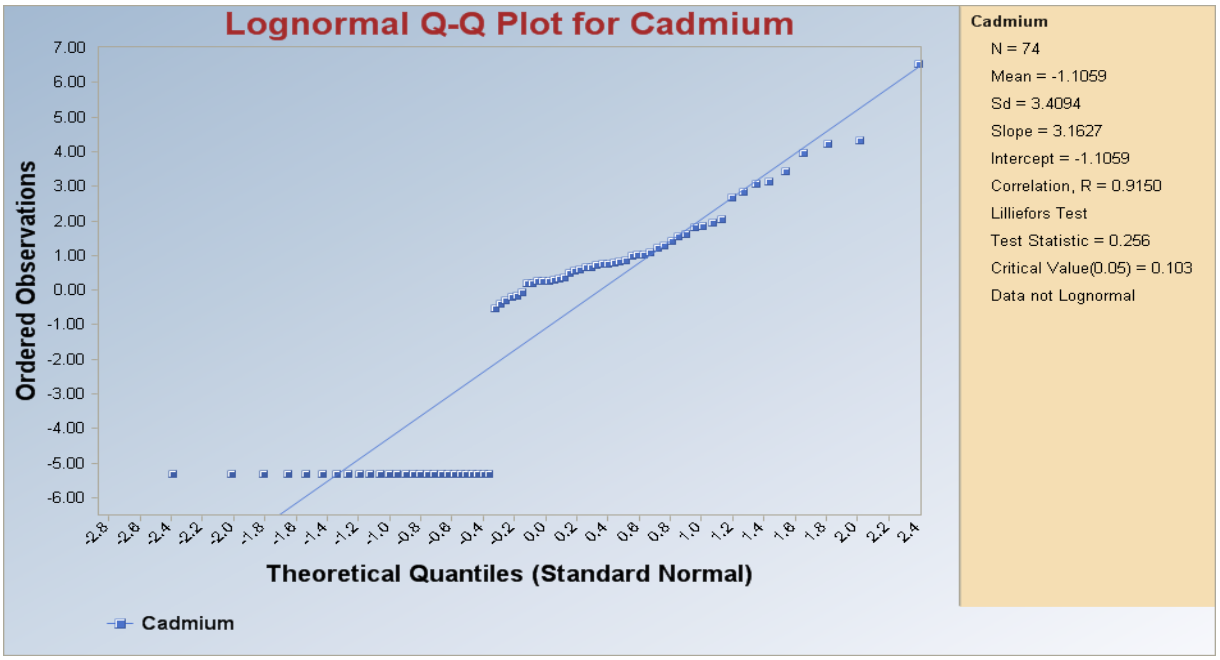

Figure D-3: Lognormal Plot for Cadmium

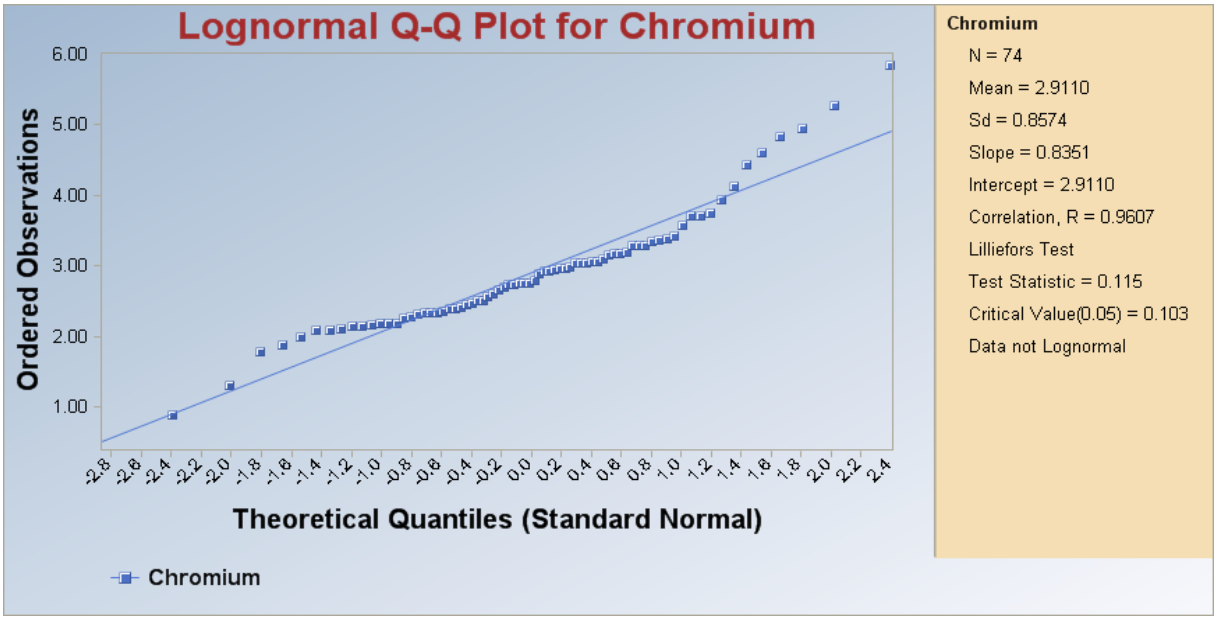

Figure D-4: Lognormal Plot for Chromium

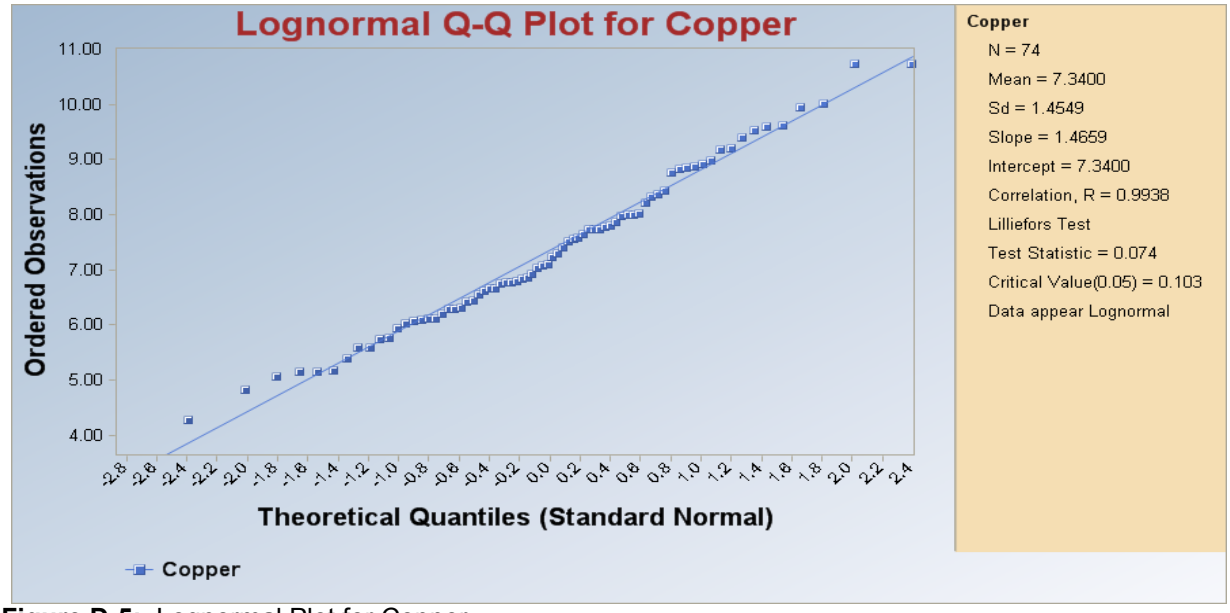

Figure D-5: Lognormal Plot for Copper

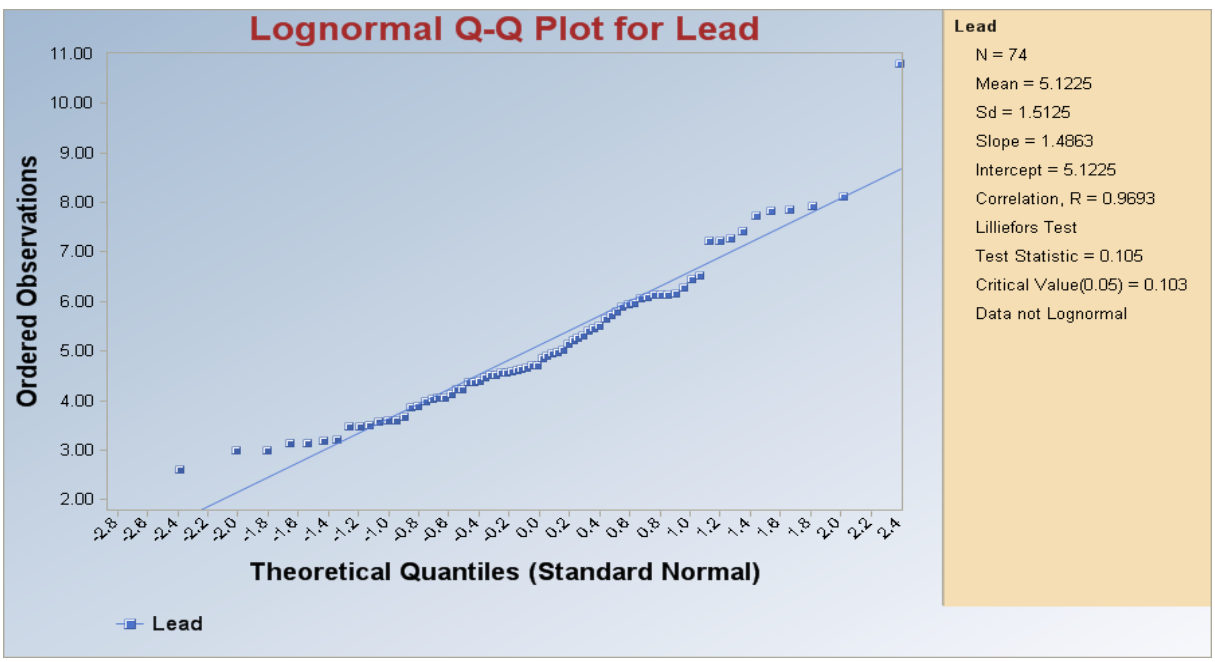

Figure D-6: Lognormal Plot for Lead

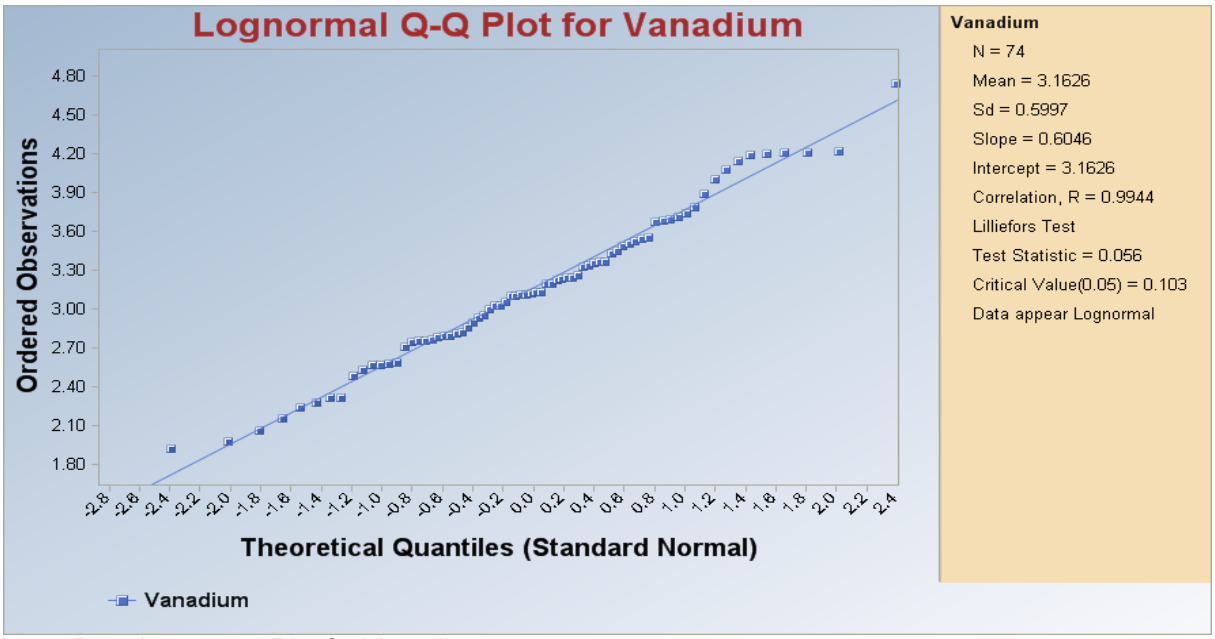

Figure D-7: Lognormal Plot for Vanadium

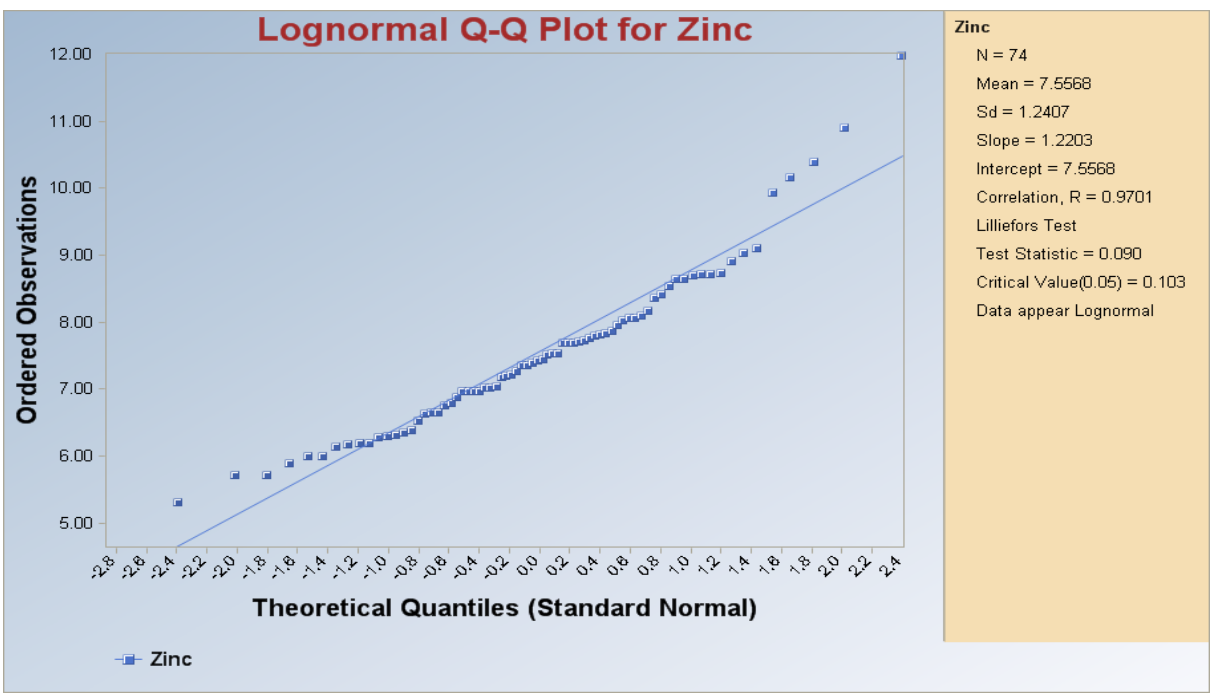

Figure D-8: Lognormal Plot for Zinc

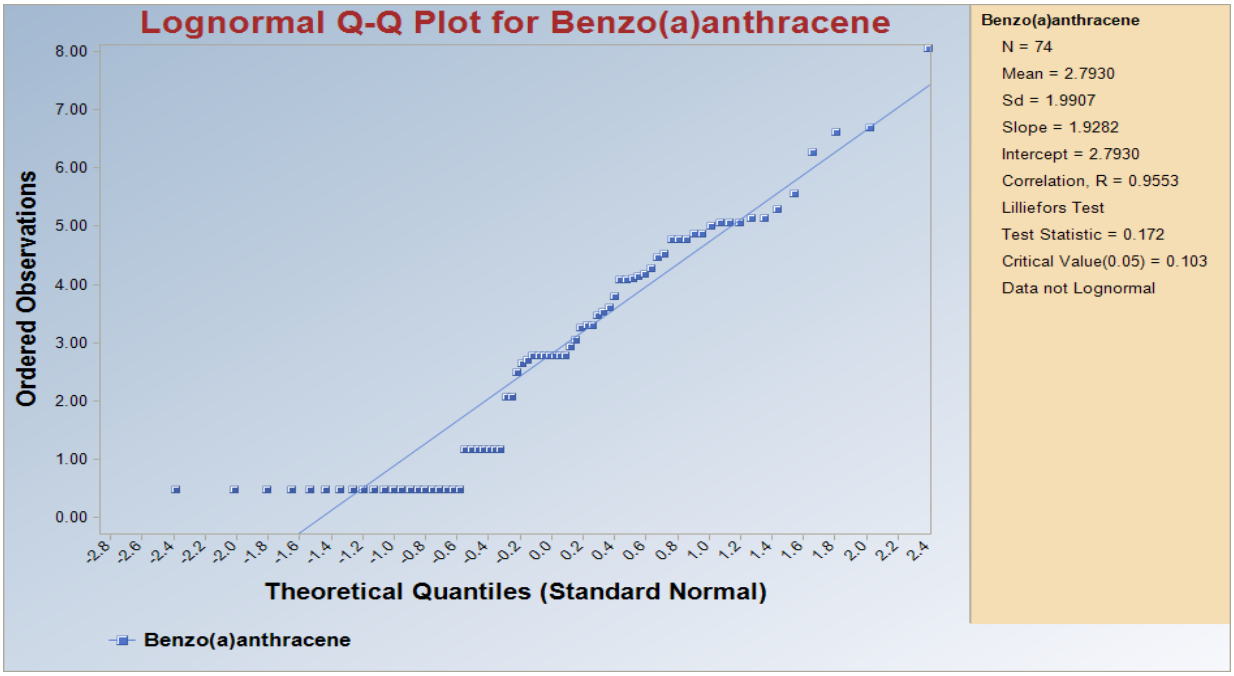

Figure D-9: Lognormal Plot for Benzo(a)anthracene

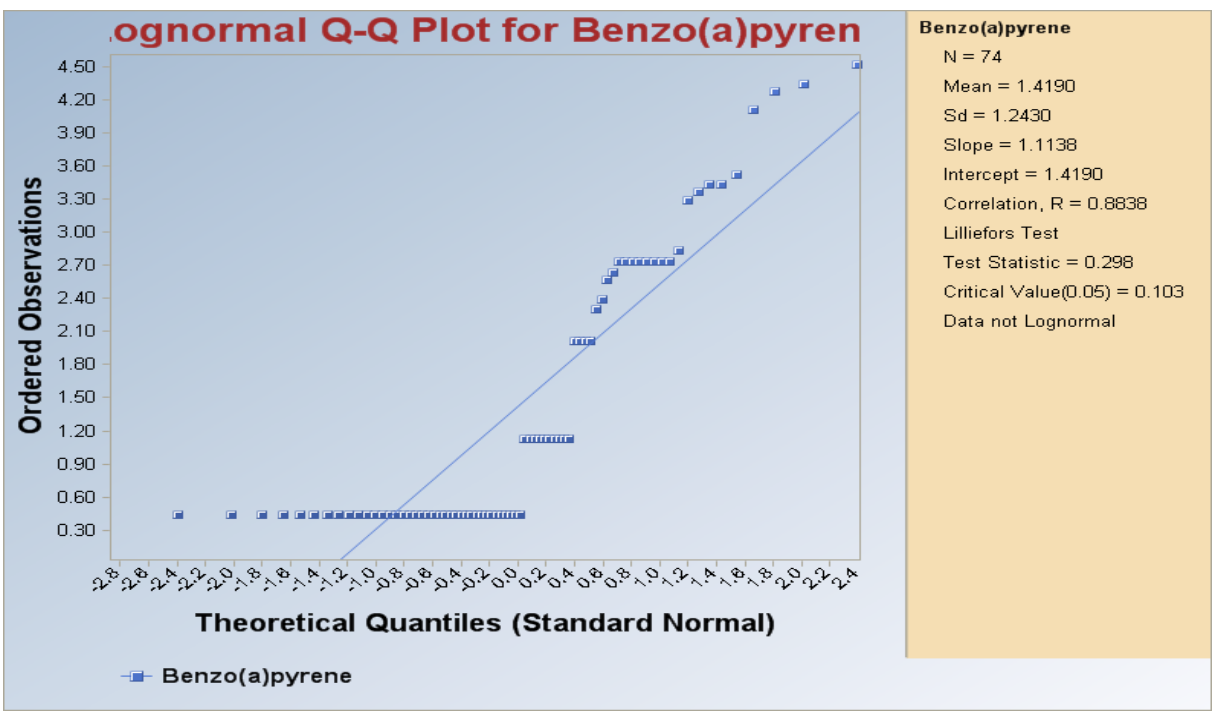

Figure D-10: Lognormal Plot for Benzo(a)pyrene

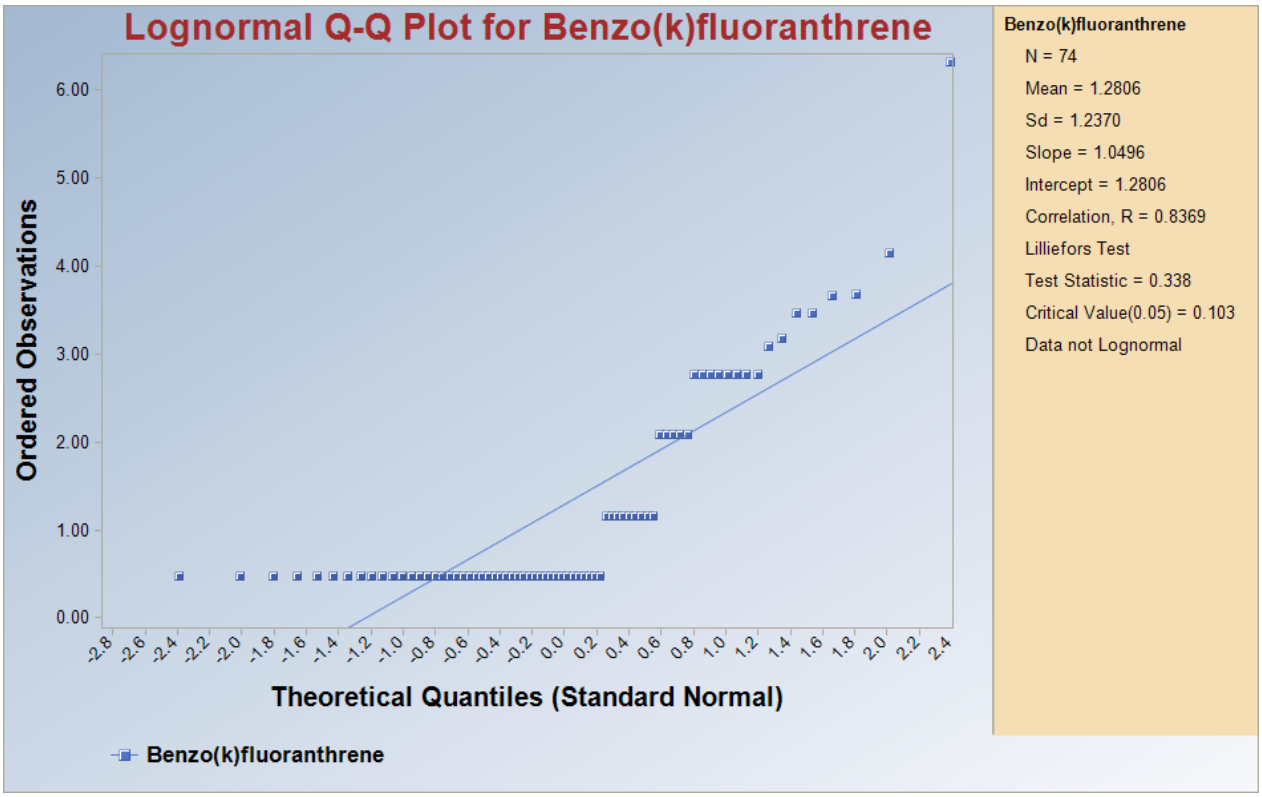

Figure D-11: Lognormal Plot for Benzo(k)fluoranthene

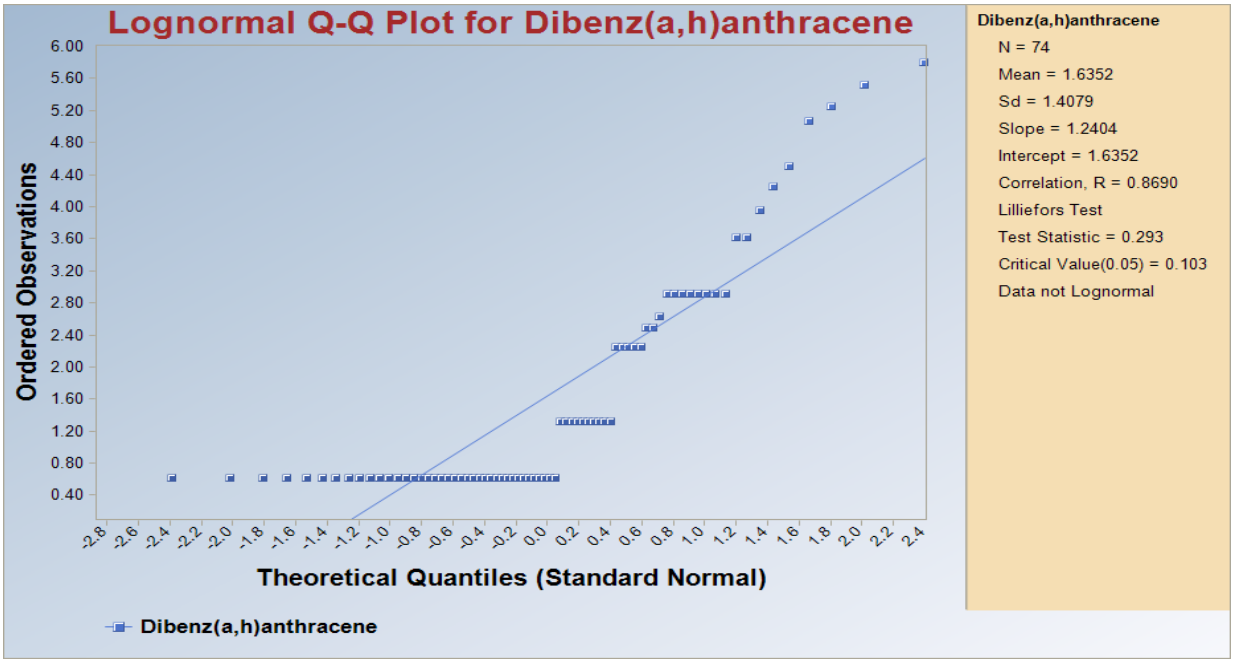

Figure D-12: Lognormal Plot for Dibenz(a,h)anthracene

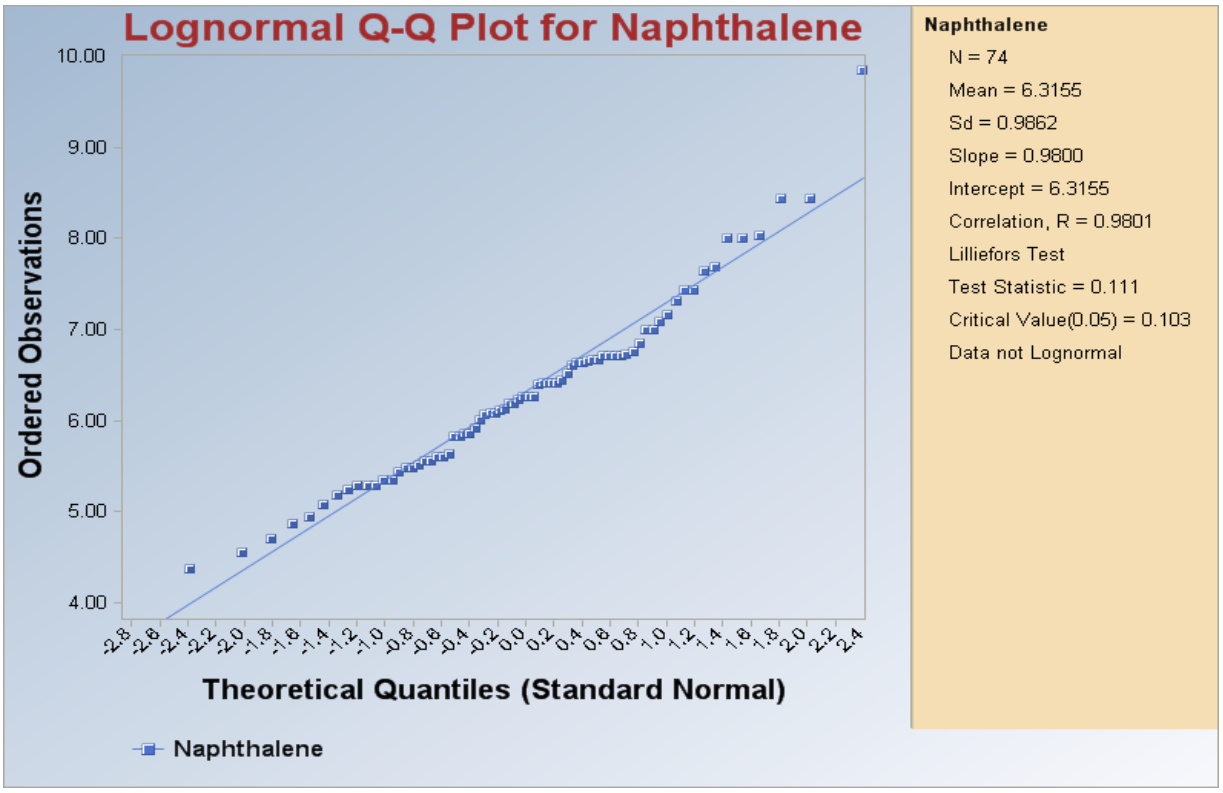

Figure D-13: Lognormal Plot for Naphthalene